Steve M. Kenner, Global Director
Automotive Safety Office
Sustainability, Environment & Safety Engineering

Fairlane Plaza South, Suite 400
330 Town Center Drive
Dearborn, MI 48126-2738

July 10, 2013

Mr. Frank S. Borris, Director
Office of Defects Investigation
National Highway Traffic Safety Administration
1200 New Jersey Avenue SE, Room W45-302
Washington, DC 20590

Dear Mr. Borris:

Subject: PE13-014:NVS-213dlr

The Ford Motor Company (Ford) response to the agency's May 28, 2013 letter concerning reports of alleged failure of the steering gear box resulting in loss of steering control in 2008 model year Ford F250/F350 Super Duty pickup trucks is attached.

Ford does not believe that there is a defect in the design or manufacture of the steering gear used in the subject vehicles. Rather, Ford believes that vehicle modifications, abuse, or damage resulting from accidents are the most likely causes for allegations of failed steering gears. This assessment is based on the following:

- A very low rate of reports alleging a loss of steering due to the steering gear (0.09 R/1000 when adjusted for time in service)
- Our analysis of report verbatims indicating vehicle modifications and/or misuse
- Significant component and vehicle durability testing which demonstrates that extraordinary inputs are necessary to fail a steering gear, and
- Analysis of failed parts from the field indicating that failures were due to one-time severe over loading conditions

Based on the testing and analysis described, there is no evidence demonstrating a defect in the design or construction of the subject steering gear. Ford believes that consideration of all of these findings supports a conclusion that there is no unreasonable risk to motor vehicle safety associated with this subject in these vehicles.

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

Sincerely,

for Steven M. Kenner

Attachment

ATTACHMENT
July 10, 2013

FORD MOTOR COMPANY (FORD) RESPONSE TO PE13-014

Ford's response to this Preliminary Evaluation 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 Preliminary Evaluation.

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.

Ford notes that some of the information being produced pursuant to this inquiry may contain personal information such as customer names, addresses, telephone numbers, and complete Vehicle Identification Numbers (VINs). Ford is producing such personal information in an unredacted form to facilitate the agency's investigation with the understanding that the agency will not make such personal information available to the public under FOIA Exemption 6, 5 U.S.C. 552(b)(6).

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 May 28, 2013, the date of your inquiry. Ford has searched within the following offices for responsive documents: Sustainability, Environment and Safety Engineering, Ford Customer Service Division, Purchasing, Quality, Global Core Engineering, Office of the General Counsel, Vehicle Operations, and North American Product Development.

Request 1

> State, by model and model year, the number of subject and peer 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;

e. Subject component part number and design version installed as original equipment;
f. Engine;
g. Cab Type (i.e. Regular, Super, etc.);
h. Rear Axle (Ratio and SRW/DRW);
i. Drive train (i.e. 4x2, 4x4);
j. Date of manufacture;
k. Date warranty coverage commenced.; and
l. 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 2007, or a compatible format, entitled "PE13-014 PRODUCTION DATA." See Enclosure, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

Answer

Ford records indicate that the approximate total number of 2005 through 2009 model year Ford F250 and F350 super duty trucks sold in the United States, (the 50 states and the District of Columbia) protectorates, and territories (American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and Virgin Islands) is 1,108,501.

The number of subject and peer vehicles sold in the United States by model and model year is shown below:

Model	2005 MY	2006 MY	2007 MY	2008 MY	2009 MY
F250	153,151	184,454	59,306	199,014	50,200
F350	111,025	138,526	44,925	137,653	30,247

The requested data for each subject and peer vehicle is provided in Appendix A. Refer to the parts change log for information pertaining to the part number and design version of the subject component as originally equipped.

Request 2

State the number (compiled in a Microsoft Excel table) of each of the following, received by Ford, or of which Ford are otherwise aware, which relate to, or may relate to, the alleged defect in the subject and peer vehicles:

a. Consumer complaints, including those from fleet operators;
b. Field reports, including dealer field reports;
c. Reports involving a crash, injury, or fatality;
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 "f," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same

incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f," provide a summary description of the alleged problem and causal and contributing factors and 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.

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), and claim and lawsuit information maintained by Ford's Office of the General Counsel (OGC).

Descriptions of the FCSD owner and field report systems and the criteria used to search each of these are provided in Appendix B.

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

Category	Allegation
A1	Loss of steering due to failure, or replacement, of steering gear box
A2	Steering loose/free play due to failure, or replacement, of steering gear box
B1	Loss of steering with an unknown cause or ambiguous if due to steering gear box
B2	Steering loose/free play with an unknown cause or ambiguous if due to steering gear box
B3	Steering gear box replaced/failed – unknown symptom

We are providing electronic copies of reports categorized as "B" 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.

The agency defined the alleged defect as "steering gear box failure resulting in (1) loss of steering; or (2) complaints of looseness or play in steering." Ford interprets the phrase "loss of steering" in the alleged defect to mean a complete loss of steering control and not generalized allegations of binding, difficulty steering, or perceived steering system "lock-up" consistent with a loss of power steering assist or other condition where the steering wheel is still able to transmit movement to the wheels. Similarly, Ford interprets the phrase "looseness or play in steering" in the alleged defect to include allegations of "drift" or "wander" and not allegations of steering wheel oscillation. These interpretations appear to be consistent with the nature of the reports provided to Ford by the agency with this information request.

Owner Reports: Records identified in a search of the FMC360 database, as described in Appendix B, were reviewed for relevance and sorted 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 request in a subject or peer vehicle are provided in the FMC360 portion of the database contained in Appendix C – Subject or Appendix C - Peer. The categorization of each report is identified in the "Category" field.

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 B, a description of Legal Contacts and the activity that is responsible for this information. To the extent that responsive (i.e., not ambiguous) owner reports indicate that they are Legal Contacts, Ford has gathered the related files from the Office of General Counsel (OGC). Non-privileged documents for files that were located that are related to the responsive owner reports are provided in Appendix D – Subject or Appendix D - Peer. Ford notes that it was unable to locate 17 files.

Field Reports: Records identified in a search of the Common Quality Indicator System (CQIS) database, as described in Appendix B, were reviewed for relevance and sorted in accordance with the categories described above. The number and copies of relevant field reports identified in this search in a subject or peer vehicle are provided in the CQIS portion of the database contained in Appendix C. The categorization of each report is identified in the "Category" field.

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. 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. In addition, field reports that are duplicative of owner reports are provided in Appendix C but are not included in the field report count.

VOQ Data: This information request had an attachment that included five Vehicle Owner Questionnaires (VOQs), four of which were duplicative of reports received by Ford that are provided in Appendix C.

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. Copies of reports corresponding to these alleged incidents are provided in the FMC360, CQIS, and Analytical Warranty System (AWS) portions of the database provided in Appendix C.

Claims, Lawsuits, and Arbitrations: For purposes of identifying incidents that may relate to the alleged defect in a subject or peer vehicle, 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 sorted 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.

We are providing the requested detailed information, where available, on the responsive and ambiguous lawsuits and claims in our Log of Lawsuits and Claims, provided in Appendix C in the Legal Claim/Lawsuits tabs. The number of relevant lawsuits and claims identified is also provided in these logs. To the extent available, copies of complaints, first notices, or FMC360 reports relating to matters shown on the log are provided in Appendix E – Subject or Appendix E – Peer. 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 four claim files and, therefore, is unable to determine if the cases are related to the alleged defect.

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

Provide this information in Microsoft Access 2007, or a compatible format, entitled "PE13-014 REQUEST NUMBER TWO DATA," See Enclosure, Data Collection Disc, for a preformatted table which provides further details regarding this submission.

Answer

Ford is providing owner and field reports in the database contained in Appendix C 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 provided in Appendix C in the Legal Claim/Lawsuits tab.

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 database contained in Appendix C in response to Request 2. Copies of complaints, first notices, or FMC360 reports relating to matters shown on the Log of Lawsuits and Claims (provided in Appendix C in the Legal Claim/Lawsuits tab) are provided in Appendix E. 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 and the peer 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. Whether a towing claim was received within 10 days of the repair claim;
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 2007, or a compatible format, entitled "PE13-014 WARRANTY DATA." See Enclosure, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

Answer

Records identified in a search of the AWS database, as described in Appendix B, were reviewed for relevance and sorted in accordance with the categories described in the response to Request 2. The number and copies of relevant warranty claims identified in this search in a subject or peer vehicle are provided in the AWS portion of the database contained in Appendix C. 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 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 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 C but are not included 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.

Additionally, the agency has requested information related to claims for vehicle towing within 10 days of the subject component repair claim. Ford provides roadside assistance as part of the new vehicle limited warranty and certain optional extended service plans. The roadside assistance program is administered by an outside supplier and Ford does not have access to claims made for vehicle towing through this service. Ford imports roadside assistance claims into its FMC360 database. However, the claims do not indicate what type of assistance was required, only that assistance was requested. The customer and technician comments provided with warranty claims provide the best source of information regarding possible incident-related vehicle towing.

Request 6

> Describe in detail the search criteria used by Ford to identify the claims identified in response to Request 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.

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 B.

For 2008 model year Ford F250 and F350 super duty vehicles, the New Vehicle Limited Warranty, Bumper-to-Bumper Coverage begins at the warranty start date and lasts for three years or 36,000 miles, whichever occurs first. Optional Extended Service Plans (ESPs) are available to cover various vehicle systems, time in service, and mileage increments. The details of the various plans are provided in Appendix F. As of the date of the information request, 43,427 new and 12,812 used vehicle ESP policies had been purchased on 2008 model year Ford F250 and F350 super duty vehicles, all of which cover the subject steering gear assembly.

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.

Answer

For purposes of identifying communications to dealers, zone offices, or field offices pertaining, at least in part, the agency's request, 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, ISMs, and the Field Review Committee files and the search criteria used are provided in Appendix B.

OASIS Messages: Ford has not identified any SSMs or TSBs that relate to the agency's request.

Internal Service Messages: Ford has not identified any ISMs that relate to the agency's request.

Field Review Committee: Ford has not identified any field service action communications that relate to the agency's request.

Ford currently has no plans to issue communications related to the subject of NHTSA's investigation.

Request 8

Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the alleged defect 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 is providing not only studies, surveys, and investigations related to the alleged defect, but also notes, correspondence, and other communications that may pertain to this request. Accordingly, Ford is providing the responsive non-confidential Ford documentation in Appendix G.

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.

Ford is submitting additional responsive documentation in Appendix H with a request for confidentiality under separate cover to the agency's Office of the Chief Counsel pursuant to 49 CFR Part 512. Redacted copies of the confidential documents will be provided under separate cover, on separate media, to the agency's Office of Chief Counsel as Appendix H – Redacted. Ford has identified supplier documents that relate to or may relate to the alleged defect in the subject vehicles. As of the date of this response, Ford is still in the process of obtaining a supplier confidentiality certificate for one of those suppliers and will provide these documents once the certificate has been received.

In the interest of ensuring a timely and meaningful submission, Ford is not producing materials or items containing little or no substantive information. Examples of the types of materials not being produced are meeting notices, raw data lists (such as part numbers or VINs) without any analytical content, duplicate copies, non-responsive elements of responsive materials, and draft electronic files for which later versions of the materials are being submitted. Through this method, Ford is seeking to provide the agency with substantive responsive materials in our possession in the timing set forth for our response. We believe our response meets this goal. If the agency would like additional materials, please advise.

Request 9

Describe all modifications or changes made by, or on behalf of, Ford in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles. For each such modification or change, provide the following information:

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

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

Answer

A table of the requested changes is provided in Appendix I. In addition to providing this information on the requested subject vehicles, Ford is also providing information on peer vehicles to supplement our response to Request 1 Subpart e.

Ford currently has no plans for modifications related to the subject components in the subject vehicles.

Request 10

Produce one of each of the following:

a. One exemplar sample of each design version of the subject component;
b. One exemplar sample of the subject component used in the peer vehicles;
c. Two field return samples of the subject component exhibiting the subject failure mode; and
d. Any kits that have been released, or developed, by Ford for use in service repairs to the subject component/assembly with relate, or may relate, to the alleged defect in the subject vehicles.

Answer

Ford notes that the original design version installed on both the subject and peer vehicles is no longer available. All current steering gear assemblies for these vehicles are available for service only as a remanufactured component. An order for a remanufactured subject steering gear was placed at a local dealership, and will be shipped to the agency as soon as it becomes available.

To respond to the agency's request for field return samples exhibiting the subject failure mode, Ford attempted to procure samples from Ford dealerships. However, due to the apparent infrequency of steering gear replacements occurring at dealerships, we were unable to locate one via this method that exhibited the agency's alleged defect as of the time of this response. Ford has instead obtained a steering gear assembly from the gear remanufacturer that was randomly selected as one that may exhibit a steering gear failure. Ford notes that when the remanufacturer receives a gear to refurbish, it does not receive any information pertaining to the vehicle from which it came (such as VIN) or any other information as to the circumstances surrounding the necessity for a steering gear replacement.

Finally, no kits have been released or developed for use in service repairs to the subject component/assembly that relate, or may relate, to the alleged defect in the subject vehicles.

Request 11

State the number of subject components that Ford has sold that may be used in the subject and peer vehicles by component name, part number (both service and engineering/production), model and model year of the vehicle in which it is used and month/year of the sale (including the cut-off date for sales, if applicable).

For each component part number, provide 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 of which Ford is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

Answer

As the agency is aware, Ford service parts are sold in the U.S. to authorized Ford and Lincoln-Mercury dealers. Ford has no means to determine how many of the parts were actually installed on vehicles, the vehicle model or model year on which a particular part was installed, the reason for any given installation, or the purchaser's intended use of the components sold.

Ford is providing the total number of Ford service replacement steering gear assemblies by part number (both service and engineering) by year and month/year (last three years only) of sale, where available, in Appendix J. Information pertaining to production and service usage for each part number, and supplier point of contact information, is included in Appendix J.

Request 12

Provide a matrix of the following for all configurations (Engine, Rear Axle, Drive Train, etc.) of the subject vehicles:

a. Gross Vehicle Weight Rating;
b. Gross Combined Weight Rating; and
c. Front Axle Weight Rating.

Answer

Tables containing the requested weight rating information are provided in Appendix K.

Request 13

Describe and provide copies of all documents relating to Ford's process for the design and verification of the subject component design in the expected service/use conditions of the subject vehicles, including:

a. Describe the steering system of the subject vehicles and provide diagrams of the complete system from tires to steering wheel and of the steering box;
b. Provide Ford's assessment of the loading and potential failure mechanisms for the subject components from steering forces, road loads and impact forces and identify all contributing factors/variables (e.g. vehicle load, tire factors, vehicle modification, variations in part tolerances, wear, adjustment, and/or slack/play);
c. How Ford defines reasonable/expected use for the subject vehicles;
d. Examples of severe duty Ford believes are not reasonable/expected and which Ford believes may be contributing or causal factors of the alleged defect (including vehicle modification, vehicle loading, road loads, etc);
e. Description of all test conditions, and copies of all requirements relating to, used for verifying design robustness in the subject components; and

f. Ford's assessment of the critical load conditions for the subject components, the design load conditions, the test/verification load conditions and all conditions associated with the duty cycles/usage described in parts 13.b and 13.d.

Answer

The steering system of the subject vehicles is a mechanical system that transmits driver input at the steering wheel to the front wheels through a steering column and series of linkages including a steering gear. The mechanical system is aided by gearing and a hydraulic system that provides power steering assist through the steering gear to significantly reduce steering efforts. Detailed diagrams of the steering system, steering gear, and hydraulic system are provided in Appendix L.

As is typical of Ford's extensive component and system development processes when these components were designed, Ford gathered steering gear road load data using a vehicle Structural Durability procedure intended to reflect severe customer usage. Ford then designed and developed the steering gear to ensure that it can perform at or above the maximum input torque recorded under these road load conditions. Comprehensive component and vehicle testing was then conducted to verify that the design and robustness of the gear meets or exceeds these requirements over the life of the vehicle (150,000 miles). Copies of the vehicle Structural Durability procedures and the engineering specification outlining all of the component testing and requirements are being provided with a request for confidentiality under separate cover, on separate media, to the agency's Office of the Chief Counsel pursuant to 49 CFR, Part 512 in Appendix M.

The results of this component testing demonstrated that the steering gear not only met the requirements necessary to withstand severe customer usage over the life of the vehicle, but in many cases, far exceeded these requirements. In particular, impact testing to failure demonstrated that the average torque required to fail the steering gear was over two times the maximum torque expected during what Ford believes to be severe customer usage. In each case, the failure mode observed to the steering gear was broken sector shaft teeth. Ford notes that these tests-to-failure were performed after the test sample had already been subjected to, and met the requirements of, Ford's impact testing intended to simulate the useful life of the steering gear. These results are also provided in the supplier's Product Verification Plan contained in Appendix M.

In addition to component testing, Ford follows comprehensive vehicle validation procedures, including repeating the Structural Durability test mentioned above and Trailer Tow Durability testing, conducted together on Ford proving ground routes. Many portions of these tests simulate events, drive cycles, and conditions that could be described as "reasonable/expected" use, however, with a severity level surpassing conditions normally anticipated in reasonable or expected usage. These include multiple rough road surfaces such as Power Hop Hill, and the Accelerated Durability Road that includes cobblestones, washboard, and undulating surface. Copies of Ford's Durability Test Procedures are provided in Appendix M. Ford notes that, despite the severity of this testing, the subject steering gear completed this testing without incident.

Ford also conducts Suspension System Vehicle Strength testing intended to verify the vehicle's ability to withstand foreseeable abuse by the customer. These tests are not part of the normal high mileage durability test procedures due to the anticipated infrequency of such events and due to safety concerns for our test drivers due to the severity of the test. This testing includes Square Edge Pothole, Rear Curb Impact, and Front Curb Impact testing.

Copies of these test procedures are provided in Appendix M. Ford notes that the subject steering gear, once again, completed this development testing without damage or failure.

The agency requested Ford comments pertaining to factors that may be contributing or causal factors of the alleged defect. There are many factors that could affect the ability of the steering gear to perform as intended or that may result in extraordinary impacts to the steering gear and possible damage or failure, despite Ford's extensive component and vehicle validation testing for reasonable, severe, and even abusive usage. Some examples include:

- Accidents or severe curb scrubbing - these may result in angular inputs to the steering system that translate into extreme torque inputs to the steering gear.
- System or component modifications (i.e., lift kits, improper or over-sized tires) – any change to the tires or geometry of the steering linkage of the suspension can greatly increase the torque inputs to the steering gear.
- Vehicle misuse – Ford tests for severe usage, however, customers may choose to operate their vehicles either improperly or under extreme off-road conditions.
- Overloading – vehicle loading or overloading beyond its rated capability can increase the stress to the steering system and potentially the steering gear.

While Ford believes that these are some factors that could contribute to gear damage, this list is not intended to be all encompassing. In addition, many of these factors could, and likely do, also occur in combination with one another to further increase the severity of usage and likelihood of damage to not only the subject component but other parts of the vehicle as well. For this reason, the examples above are also listed in the warranty guide for the subject vehicles and would result in voiding the new vehicle limited warranty.

Request 14

Furnish Ford's assessment of the alleged defect in the subject vehicle, including:

a. The causal or contributory factor(s);
b. The failure mechanism(s);
c. The failure mode(s);
d. The risk to motor vehicle safety that it poses; and
e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and
f. The reports included with this inquiry.

Answer

Based on a review of the information and data gathered in the preparation of this response and analysis of reports alleging a loss of steering due to the steering gear box in the subject vehicles, Ford has not identified a defect in the design or construction of the steering gear used in the subject vehicles. We believe that vehicle modifications, abuse, or damage resulting from accidents are the most likely causes for these reports. This assessment is based on both component and vehicle durability testing on the steering gear box, the continued low rate and nature of the alleged reports, and analysis of returned parts from the field.

Background

On November 14, 2000, the agency opened SQ00-018 to investigate steering gear sector shaft fractures causing a complete loss of steering on 1999 model year Ford Super Duty trucks. That investigation was later upgraded to EA01-009 and the population expanded to include model year 2000 as well. This investigation was ultimately closed on August 19, 2003, due to a low rate of reports (0.13 R/1000 after approximately one year in service) and the fact that no defect in manufacturing or materials was identified in the sector shaft. Testing in response to this investigation demonstrated that failures to the sector shaft were the result of extraordinary, possibly multiple, impacts and not the result of fatigue. Furthermore, these impacts were exacerbated by extraneous factors such as vehicle modifications (lift kits, oversized tires, etc...), improper tires or tire pressures, vehicle loading, or vehicle abuse.

In the interest of customer satisfaction, and knowing that some customers who purchase a Ford F250 or F350 Super Duty vehicle either modify and/or operate their vehicle off-road, Ford increased the diameter of the sector shaft from 1.375 inches to 1.625 inches at the start of production for the 2005 model year Ford F250 and F350 Super Duty vehicles. In doing so, component testing (provided in Appendix M) revealed that the torsional load necessary to fail the steering gear also increase by an average of approximately 48% when compared to the prior sector shaft design.

Component testing to failure of the steering gear with the larger diameter sector shaft demonstrated that failure mode would only occur at an average torque levels that were over two times the peak torsional input to the steering gear which occurred during what Ford considers severe usage, and would most likely result in cracked or broken sector shaft gear teeth. Steering gear robustness was also confirmed through a variety of vehicle durability testing that was intended to verify the vehicle and steering gear's ability to withstand severe customer usage and some foreseeable abuse by the customer over the life of the vehicle. The subject steering gear also successfully completed this testing without damage or failure.

Similar Circumstances in Subject Vehicles

In 2006, Ford became aware of steering gear sector shaft teeth fracturing in the field on 2005 model year super duty vehicles through supplier tear downs of returned warranty parts. To further evaluate the cause of these fractures, Ford obtained six field returned steering gears and conducted both tear down and laboratory analysis to determine the root cause of those failures. Tear down analysis showed that ball brinelling was clear and apparent in the piston worm grove which is consistent with a one-time single event over load. Similarly, laboratory scanning electron microscope (SEM) examination on two of these samples verified that in each case the failure mode was typical of a single event overload condition and revealed no evidence of fatigue in any of the fractures. In addition, the sector shafts and pistons from both assemblies satisfy specification requirements for surface and core hardness, total case depth, and chemical composition. The surface and core microstructures of the sector shafts and pistons appeared typical for the materials and heat treatments specified. Based on Ford's investigation and part analysis, the internal investigation was closed. Copies of the internal investigation closure and the laboratory report are being provided with a request for confidentiality under separate cover, on separate media, to the agency's Office of the Chief Counsel pursuant to 49 CFR, Part 512 in Appendix N.

In response to investigation PE13-014 on the subject vehicles, Ford performed a comprehensive search of its databases to identify allegations that relate to the alleged defect. The rate of reports that allege a loss of steering due to failure, or with replacement, of the steering gearbox on the subject vehicles (categorized as A1) is a very low 0.09 R/1000 when adjusted for time in service. Ford also identified "ambiguous" reports that allege a loss of

steering where the cause was unknown or ambiguous (categorized as B1). Even if these ambiguous reports are combined with the responsive reports, the total rate of allegations of a loss of steering on the subject vehicles remains very low at 0.10 R/1000 when adjusted for time in service. As expected, due to the increased sector shaft diameter, both of these rates are well below that of the previous investigation, EA01-009, that the agency closed on a similar alleged defect, component, and population of vehicles without action.

Field Return Parts Analysis

In an effort to further evaluate these allegations of loss of steering due to a steering gear box failure, Ford requested 10 original equipment parts from the steering gear box remanufacturer for analysis. The remanufacturer evaluated the input and output shafts of a number of received gears and randomly selected 10 samples that likely contained internal damage or a "failed" steering gear. Teardown analysis was performed and the results are summarized in Table 1 below:

Gear Sample	Failure Mode	Comments
Sample #1	Broken Sector Shaft Gear Teeth and Piston Damage	Damage consistent with a one-time overload condition
Sample #2	Broken Sector Shaft Gear Teeth and Piston Damage	Damage consistent with a one-time overload condition
Sample #3	Broken Sector Shaft Gear Teeth and Piston Damage	Damage consistent with a one-time overload condition
Sample #4	Broken Sector Shaft Gear Teeth and Piston Damage	Damage consistent with a one-time overload condition
Sample #5	Broken Sector Shaft Gear Teeth	Damage consistent with a one-time overload condition
Sample #6	Broken Sector Shaft Gear Teeth and Piston Damage	Damage consistent with a one-time overload condition
Sample #7	Broken Sector Shaft Gear Teeth and Piston Damage	Damage consistent with a one-time overload condition
Sample #8	Broken Sector Shaft Gear Teeth and Piston Damage	Damage consistent with a one-time overload condition
Sample #9	Input shaft damaged	Damage consistent with a one-time overload condition
Sample #10	Broken Sector Shaft Gear Teeth and Piston Damage	Damage consistent with a one-time overload condition

Table 1 – Field Return Part Analysis

As described in response to Request 10, there is no available information regarding VIN, allegation, or circumstances pertaining to these steering gears received from the gear remanufacturer. However, all of the above gears contained evidence of damage or breakage consistent with an overload condition. All of the above samples except sample nine contained broken sector shaft teeth. Visual analysis was consistent with that previously found during Ford's 2006 internal investigation and showed no evidence of fatigue such as arrest marks or fatigue striations, and ball brinelling was present in the piston worm groove indicating extraordinary impact(s) to the steering gear. While sample number nine did not contain broken sector shaft teeth, the input shaft to the steering gear was pushed outward (toward the driver) consistent with a one-time extraordinary overload condition through the steering gear. Pictures of these returned gears can be found in Appendix N.

These results are consistent with the failure mode described in response to Request 13 pertaining to component testing conducted by Ford. Overload testing-to-failure on this gear design ultimately resulted in gear tooth failure, just as seen in the field return samples examined both in 2006 and in Ford's more recent analysis associated with this information request.

Based on these analyses as well as the testing previously discussed, Ford believes that a steering gear failure in these vehicles is most likely associated with the factors previously discussed in response to Request 13. These or any other extraneous factors that result in extraordinary torsional inputs to the steering system, and ultimately the steering gear, could cause significant damage or failure.

Report Analysis

Analysis of verbatim related to reports received by Ford support Ford's previous testing and assessment that failure of the subject component is most likely the result of vehicle modification, abuse, or damage resulting from an accident and not the result of a defect in the design or construction of the steering gear used in the subject vehicles. The majority of these reports occurred under warranty and do not contain information relating to the circumstances of the alleged incident. However, Ford found the most information available in owner reports (FMC360) and field reports (CQIS). Several of these reports contain information that indicated that the vehicle had been abused or modified, potentially contributing in extraordinary inputs to the steering system and damage to, or failure of, the steering gear. Some of these reports are listed below.

CQIS Report 8GHA7250, VIN number 1FTSX215X8E[redacted]
States that "...It appears to have damage common with an impact hit...the customer states the gear box broke in slow turning..."

CQIS Report 9A3AT043, VIN number 1FTWW31R08E[redacted]
"...tech states that there is damage to both of the left side rims and side walls of the tires as well", while the customer claimed that it just happened driving down the road. The tech also stated the customer commented about having a big truck so he could drive over curbs.

FMC360 Report MRS-15468925781165 30315510, VIN number 1FTSW21R78E[redacted]
States "...warranty is being denied because of lift kit on veh= cust hit a wash out like a pot hole and veh would not steer=dlrshp states the steering gear is broken..."

FMC360 Report MRS-05528231301164 30315503, VIN number 1FTSW31R38E[redacted]
States "...lost control of the steering of the veh-dlr says steering gear box went out-size of tires caused the issue...truck has oversized tires (after-mkt)...wheels, and has lifted."

Ford notes that while accidents can clearly result in the extraordinary torsional input necessary to cause a failure of the steering gear box, extremely severe impact to the front suspension without a full vehicle impact can also cause failure of the sector shaft teeth as noted in the customer verbatim above. One example of this would be severe curb scrubbing where the front tire impacts a curb at an angle, increasing the torsional load back through the suspension and steering gear box. Similarly, other potential failures to the steering gear box would be further exacerbated by extraneous factors such as those previously discussed.

Ford notes that while these factors increase the torsional load on the steering gear box and the potential for damage, not all fractures would result in a loss of steering. Depending on the

severity or circumstances surrounding an impact to the front tire, a steering gear tooth could crack or break and the customer would still be able to operate the vehicle. Under these circumstances, Ford believes the customer would experience extreme looseness and potentially noise in steering alerting them that service would be required.

These extraneous factors are beyond what would be reasonable to expect, design, and test for over the life of the vehicle. For this reason, Ford clearly states in the warranty guide that any damage caused by "accidents" or "misuse of the vehicle such as driving over curbs, overloading..." is not covered under the new vehicle limited warranty. In addition, any damage caused by "alterations or modifications of the vehicle, including...chassis or components..." or the installation or use of "any part (Ford or non-Ford) designed for off road use only installed after the vehicle leaves the control of Ford Motor Company, if the installed part fails or causes a Ford part to fail. Examples include, but are not limited to lift kits, oversized tires..." will void the manufacturer's warranty. An excerpt of the warranty guide for the subject vehicles is provided in Appendix O.

Accident Allegations

Ford has received a small number of minor accident allegations and two injuries associated with the alleged defect on the subject vehicles. One injury was not specified and the other alleges the customer "...hit head but did not require hospitalization..." While these accident allegations allege a loss of steering due to a steering gear box failure, several of these reports contain additional information either from the dealership technician or the customer themselves indicating that the failure of the steering gear box was not the cause of the accident but a result of the accident. This is again consistent with the reports discussed above, as well as Ford's and the agency's investigation into similar complaints associated with EA01-009. Some of these verbatim are listed below:

FMC360 Report MRS-16068126080772 30315510, OGC Contact - Rivera, VIN number 1FTWW31RX8E[redacted]

States "Customer said: - ...steering went out causing cust to have an accident...spoke to s/a Omar – veh has lifted suspension and oversize tires on it, which may have contributed to problem/failure-Omar and body shop mgr looked at bumper and it has indications of red and green that appear to be paint, Omar thought veh had hit a parked car until CRC called..."

FMC360 Report MRS-05120817281103 30329004, VIN number 1FTWW33R58E[redacted]

States "...veh pulled to the right-bumped into barrier wall 3 times-got vehicle stopped and left front tire was flat...dealer said...broken steering box, one flat tire, other tire damaged and damaged front rims...we aren't sure if cust hit something first or box went out first".

CQIS Report 8FQA3040, OGC Contact - Swift, VIN number 1FTSW21R08E[redacted]

Customer states "he lost steering control and went into the ditch". However, in an interview with the customer provided in the Lawsuits and Claims file in Appendix E, the customer claims that he was traveling down a "country road...about as wide as a pickup and with that mud I was just spinning..." when the steering went out. The customer then towed the vehicle to his home where the vehicle rolled down a hill and hit a pole. The customer also indicates that in a prior incident that the vehicle "...had that load of hay on slid off the road..." with the same vehicle.

Reports Alleging Loose Steering

As part of this investigation, Ford also identified reports alleging looseness or play in the steering due to failure, or with replacement, of the steering gearbox on the subject vehicles (categorized as A2) as well as ambiguous reports of loose steering or play in the steering (categorized as B2). While it is possible that loose steering could occur as a result of a one-time overload condition, Ford believes that the vast majority of these reports are unrelated to a potential failure of the steering gear box.

There are a number of reasons as to why a customer experience looseness or play in the steering on the subject vehicles that may result in a technician replacing the steering gearbox which are unrelated to the failure mode discussed above that would result in a loss of steering. These include, but are not limited to:

- Poor/improper mesh load adjustment – Mesh load is the normal load between the sector and piston gearing. This load (and corresponding torque at the input shaft) can be adjusted through vertical displacement of the sector shaft. Too little mesh load can result in looseness in the steering. Poor or improper mesh load adjustment often results in replacement of the steering gear.
- On center dead band due to boost curve – While the steering gear is intended to be "tuned" using the boost curve, the nature of a super duty vehicle does not allow for perfect tuning under all vehicle loads and usage and may result in looseness in steering and eventual replacement of the steering gear.
- Damaged steering damper – Could result in increased "road noise" to the steering wheel.
- Internal component lash – Due to internal tolerances and the focus on robustness of the steering gear, some internal lash can occur in the steering gear and result in replacement of the steering gear.
- Poor internal ball match – Similar to internal lash, internal tolerances and the focus on robustness can also result in poor ball match and replacement of the steering gear.
- Customer perception – The subject vehicles are manufactured with the intent of operating under heavy loads and are not tuned for precision. As such, many customers who are not accustomed to the feel of a heavy duty vehicle may perceive the steering and/or handling as loose or lacking possibly resulting in a steering gear replacement, especially if the vehicle is still under warranty.
- Technician mis-diagnosis – A technician may perceive looseness in the steering linkage as originating from the steering gear.

Similarly, there are many other reasons why a customer may experience looseness or play in the steering that are completely unrelated to the steering gear box. While there are too many to list here, a few would include poor tire inflation, alignment, or looseness in the steering linkage.

Summary

Based on all of the available information received from the field, and based on the testing described, the reports of steering gear "failures" resulting in a loss of steering are believed to be the result of vehicle modifications, abuse, or damage resulting from accidents, and are not related to any design or material defect. Evaluation of field return parts has found no evidence of fatigue failure, but has instead found evidence consistent with severe, single event overloads. The testing described above demonstrates that broken sector shaft teeth

would require an extraordinary torsional input; approximately double the maximum expected under even severe usage. This testing, along with analysis of field return parts and report verbatims, indicate that failure of sector shaft gear teeth was due to one-time overloading conditions likely caused by extraneous factors such as those described above. In addition, despite these extraneous factors, the rate remains a very low 0.09 R/1000 on the subject vehicles when adjusted for time in service, which is consistent with the agency's EA01-009 investigation pertaining to super duty vehicles that was ultimately closed. Based on the testing and analysis described, there is no evidence demonstrating a defect in the design or construction of the subject steering gear.

Ford believes that consideration of all of these findings support a conclusion that there is no unreasonable risk to motor vehicle safety associated with this subject in these vehicles.

###

PE13-014

FORD

7/10/2013

Appendix B

2005 through 2009 Ford F250 and F350 Super Duty Trucks
Steering Gear Box Failure Loss of Steering Capability

OWNER REPORTS

As the agency is aware, within FCSD's North American Customer Service Operations, there is a Customer Relationship Center (CRC) that is responsible for facilitating communication between customers, dealerships and Ford Motor Company. Among other things, the CRC handles telephonic, electronic, and written inquiries, suggestions, informational requests, and concerns ("contacts") from Ford and Lincoln-Mercury vehicle owners about their vehicles or sales and service experience. The contacts are handled by CRC customer service representatives who enter a summary of the customer contact into a database known as CuDL (Customer Data Link). Certain contacts, such as letters from customers, are entered into the CuDL database. Those that were entered into the earlier MORS II system were also microfilmed. More recently, the records in MORS III/CuDL are imaged and stored electronically.

The CRC assigns to each vehicle-related contact report a "symptom code" or category that generally characterizes the nature of the customer contact or vehicle concern, as described by the owner. The CRC does not undertake to confirm the accuracy of the description provided by the owner; they simply record what is reported. Therefore, given the complexity of the modern motor vehicle, it is Ford's experience that a significant percentage of owner contacts do not contain sufficient information to make a technical assessment of the condition of the vehicle or the cause of the event reported. Accordingly, although MORS contact reports may be useful in identifying potential problems and trends, the records are not the empirical equivalent of confirmed incidents and/or dealership's diagnosis. In the interest of responding promptly to this inquiry, Ford has not undertaken to gather the electronic images related to these contacts because of the largely duplicative nature of the information contained in the images, as well as the time and the burden associated with locating and producing those documents. The pertinent information related to those contacts generally would be included in the contact reports obtained from the CuDL system. To the extent that those documents exist, they are characterized in the comments of MORS III contact reports. Upon request, Ford will attempt to locate any specific items that are of interest to the agency.

In September 2012, a new symptom coding system for owner reporting was launched concurrent with the transition to the FMC360 database. This is the same coding system that was launched in July 2011 for the CQIS database that contains field reports. All reports migrated from the MORS III/CuDL database in to the FMC360 database have been re-coded using the new coding system.

In responding to this information request, Ford electronically searched CuDL using the following criteria:

Model Year: 2005 through 2009

Subject Vehicle: F250 and F350 Super Duty trucks manufactured for sale or lease in the United States, District of Columbia, Puerto Rico, Northern Mariana Islands, Guam, American Samoa and the Virgin Islands.

Date Parameters: January 1, 2004 through May 28, 2013 (the date of this inquiry)

Types of Contacts: All, including suspended data, canceled contacts and inquiries

FMC360 Case Classifications:

Level 1	Level 2	Level 3	Level 4
Dealer – Vehicle Concern	Legal		
Vehicle Concern	Legal		
Feedback	Product	Negative	Vehicle Safety/Quality

FMC360 Symptom Code(s):

Symptom Category	Symptom Code	Symptom Description
Stop/Steer/Ride	6620XX	Steering/Steering Wheel, Other, All
Stop/Steer/Ride	6623XX	Steering/Steering Wheel, Feel/Wander/Pull, All
Stop/Steer/Ride	662428	Steering/Steering Wheel, Performance, Excessive Effort
Stop/Steer/Ride	662438	Steering/Steering Wheel, Performance, Inoperative
Stop/Steer/Ride	662439	Steering/Steering Wheel, Performance, Intermittent
Stop/Steer/Ride	662471	Steering/Steering Wheel, Performance, Sticks/Binds
Stop/Steer/Ride	6682XX	Noise, Steering, All

LEGAL CONTACTS

Beginning in early 2008, most consumer complaints and all legal claim processing has been centralized in OGC within the Consumer Litigation team. A transition has occurred such that all legal contacts (including those formerly handled by "Litigation Prevention") are coordinated through this team.

Prior to the transition, there was a Consumer Affairs Department within FCSD that managed customer concerns, which could not be resolved by the Customer Relationship Center (CRC). Among other things, the Consumer Affairs Department had a section, known as "Litigation Prevention," that handled a variety of informal (i.e., non-litigation) claims, such as property damage claims or attorney demand claims.

The Litigation Prevention section had been centralized in the Consumer Affairs Department since 1995, in Dearborn, Michigan. Prior to that time, Litigation Prevention personnel operated on a regional basis. For matters that the Litigation Prevention section handled, there were typically paper files that reflected the handling, investigation and resolution of property damage claims.

The claims, known as "Legal Contacts" are entered into the CuDL database that the CRC uses to enter other customer communications. When a customer contact is designated as a Legal Contact, it is so indicated near the top of the contact report.

FIELD REPORTS

Within FCSD, there is a Vehicle Service & Programs Office that has overall responsibility for vehicle service and technical support activities, including the administration of field actions. That Office is the primary source within Ford of vehicle concern information originating from Ford and Lincoln-Mercury dealerships, field personnel, and other sources. The information is maintained in a database known as the Common Quality Indicator System (CQIS). The CQIS database includes reports compiled from more than 40 Company sources (e.g., Company-owned vehicle surveys, service technicians, field service and quality engineers, and technical hot line reports, etc.) providing what is intended to be a comprehensive concern identification

resource. As with FMC360 contact reports, CQIS reports are assigned a "symptom code" or category that generally reflects the nature of the concern.

In responding to this information request, Ford electronically searched CQIS using the following criteria:

As mentioned above, in July 2011, FCSD launched a new coding system for the CQIS database. All reports maintained in the CQIS database prior to the coding change have been re-coded using the new CQIS coding system.

Model Year: 2005 through 2009

Subject Vehicle: F250 and F350 Super Duty trucks manufactured for sale or lease in the United States, District of Columbia, Puerto Rico, Northern Mariana Islands, Guam, American Samoa and the Virgin Islands.

Date Parameters: January 1, 2004 through May 28, 2013 (the date of this inquiry)

Symptom Code(s):

Symptom Category	Symptom Code	Symptom Description
Stop/Steer/Ride	6620XX	Steering/Steering Wheel, Other, All
Stop/Steer/Ride	6623XX	Steering/Steering Wheel, Feel/Wander/Pull, All
Stop/Steer/Ride	662428	Steering/Steering Wheel, Performance, Excessive Effort
Stop/Steer/Ride	662438	Steering/Steering Wheel, Performance, Inoperative
Stop/Steer/Ride	662439	Steering/Steering Wheel, Performance, Intermittent
Stop/Steer/Ride	662471	Steering/Steering Wheel, Performance, Sticks/Binds
Stop/Steer/Ride	6682XX	Noise, Steering, All

OASIS MESSAGES

FCSD is responsible for communicating a variety of vehicle and service information, such as warranty information for up to the past 360 days, Extended Service Plan part coverage information, and technical repair information, to North American Ford and Lincoln-Mercury dealers. This information is communicated primarily through OASIS, which serves as an electronic link between Ford Motor Company and the dealers. OASIS covers all North American Ford and Lincoln-Mercury cars and light trucks, and medium and heavy-duty Ford trucks, for the ten most current model years. Technical diagnostic and repair information on OASIS is contained in Special Service Messages (SSMs) and Technical Service Bulletin (TSBs) titles and brief summaries. It should be noted that dealers cannot access brief summaries.

SSMs and TSB titles are coded in OASIS by model year and vehicle line, and may be coded to other specific vehicle attributes (body style, engine code, or vehicle identification number) and one or more OASIS Service Code(s). The dealers with access to OASIS usually search for information on the database by entering a VIN and the applicable Service Codes. SSMs and TSB titles that become inactive or superseded continue to be accessible by Ford employees, but no longer are accessible by the dealers. Dealers also are able to determine the recalls applicable to a particular vehicle by searching a particular VIN in OASIS. Recall information available on OASIS cannot be searched by Service Codes.

In July 2011, FCSD launched a new coding system for OASIS. All active SSMs and TSB titles have been re-coded using the new OASIS coding system. All inactive and superceded SSMs and TSB titles are still maintained under the old coding system.

In responding to this information request, Ford searched Global OASIS using both the new and old OASIS service codes for active, inactive, and superceded TSB titles and SSMs using the following search criteria:

Model Year: 2005 through 2009

Subject Vehicle: F250 and F350 Super Duty trucks manufactured for sale or lease in the United States, District of Columbia, Puerto Rico, Northern Mariana Islands, Guam, American Samoa and the Virgin Islands.

Date Parameters: January 1, 2004 through May 28, 2013 (the date of this inquiry)

OASIS Service Code(s):

Symptom Category	Symptom Code	Symptom Description
Stop/Steer/Ride	6620XX	Steering/Steering Wheel, Other, All
Stop/Steer/Ride	6623XX	Steering/Steering Wheel, Feel/Wander/Pull, All
Stop/Steer/Ride	662428	Steering/Steering Wheel, Performance, Excessive Effort
Stop/Steer/Ride	662438	Steering/Steering Wheel, Performance, Inoperative
Stop/Steer/Ride	662439	Steering/Steering Wheel, Performance, Intermittent
Stop/Steer/Ride	662471	Steering/Steering Wheel, Performance, Sticks/Binds
Stop/Steer/Ride	6682XX	Noise, Steering, All
Steering/Handling	303XXX	Steering/Handling, All

OASIS 2 and Global OASIS are not capable of performing electronic word searches, so the search results are reviewed manually to determine their applicability to the alleged defect in the subject vehicles.

The OASIS database also contains Broadcast Messages. Typically, these messages are directed to all dealerships and either are notifications of new SSMs/TSBs, or announcements with non-technical information (for example, "the Dealer Hotline will be closed today"). Broadcast Messages cannot be searched by OASIS service codes, and can be retrieved only while active (approximately 2 to 4 days). Ford has not undertaken to search for Broadcast Messages because Ford expects that any responsive information obtained with such a search generally would be non-substantive in nature or duplicative of the information obtained with the TSB title and SSM search described above.

INTERNAL SERVICE MESSAGES

FCSD, as part of its technical support activities, maintains fleet and technical telephone "hotlines." During the early stages of Ford's efforts to identify and resolve potential vehicle concerns, hotline personnel may draft Internal Service Messages (ISMs) on CQIS for their internal use. The ISMs are assigned a CQIS "symptom code" or category that generally reflects the nature of the concern. An ISM can form the basis for an oral response over the technical hotline to an inquiry from an individual dealer or fleet technician. The ISMs,

however, are not made available electronically to fleets and dealers. Therefore, although ISMs are not "issued" to dealers like OASIS messages, Ford is construing this request broadly to include ISMs that may be related to the alleged defect in the subject vehicles.

In responding to this information request, Ford searched CQIS for active ISMs using the following search criteria:

Model Year: 2005 through 2009

Subject Vehicle: F250 and F350 Super Duty trucks manufactured for sale or lease in the United States, District of Columbia, Puerto Rico, Northern Mariana Islands, Guam, American Samoa and the Virgin Islands.

Date Parameters: January 1, 2004 through May 28, 2013 (the date of this inquiry)

CQIS Symptom Code(s):

Symptom Category	Symptom Code	Symptom Description
Stop/Steer/Ride	6620XX	Steering/Steering Wheel, Other, All
Stop/Steer/Ride	6623XX	Steering/Steering Wheel, Feel/Wander/Pull, All
Stop/Steer/Ride	662428	Steering/Steering Wheel, Performance, Excessive Effort
Stop/Steer/Ride	662438	Steering/Steering Wheel, Performance, Inoperative
Stop/Steer/Ride	662439	Steering/Steering Wheel, Performance, Intermittent
Stop/Steer/Ride	662471	Steering/Steering Wheel, Performance, Sticks/Binds
Stop/Steer/Ride	6682XX	Noise, Steering, All

The CQIS database in which the ISMs reside is not capable of performing word searches, so the search results were reviewed manually to determine their applicability to the alleged defect in the subject vehicles.

FIELD REVIEW COMMITTEE

Ford's Field Review Committee reviews all potential field service actions, including safety recalls and customer satisfaction programs, and recommends appropriate actions to corporate management. A Vehicle Service & Programs representative serves as Secretary to the Field Review Committee. Following approval of a field service action, the Vehicle Service & Programs Office prepares and launches the action. A representative copy of the communication to Ford's dealers, fleets, and Regional offices announcing the field service action is maintained in the Field Review Committee files.

WARRANTY

Ford's Analytical Warranty System (AWS) contains warranty claims and vehicle information for model years 1991 and forward for North America, and model years 1992 and forward for Europe.

Ford performed a search of AWS for potentially responsive reports using the following search criteria:

Model Year: 2005 through 2009

Subject Vehicle: F250 and F350 Super Duty trucks manufactured for sale or lease in the United States, District of Columbia, Puerto Rico, Northern Mariana Islands, Guam, American Samoa and the Virgin Islands.

Base Part Number(s):
3504 – Steering Gear Assembly

Customer Concern Code(s):

CCC	Description
C50, V89	Other steering/handling and ride troubles
H21, V87	Steering has excessive free play/wander
H22, V87	Steering requires extra or uneven effort
H24, V89	Steering wheel spokes not correctly positioned when front
H50, V87	Steering gear/pump troubles
N57, V39	Steering column/wheel squeak/rattle
N58, V87	Steering noisy