

UNITED STATES DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
1200 New Jersey Avenue, SE
West Building, W41-326
Washington DC 20590

In re:
RQ 17-004

Hyundai Theta II Engine Recalls

Hyundai Motor America, Inc.'s Response to Special Order

Hyundai Motor America, Inc. ("HMA") hereby responds to the Special Order issued with regard to Recall Query No. 17-004 relating to HMA's recalls No. 15V-568 and 17V-226. HMA and Hyundai Motor Company ("HMC")(collectively "Hyundai") have worked hard over the past three years to develop a robust internal process and a constructive dialogue with the Office of Defects Investigation ("ODI"). Hyundai believes the circumstances surrounding these recalls reflect that active dialogue and cooperation with the agency.

ODI first raised with Hyundai "a slight trend of 2011 Hyundai Sonata vehicles with potential engine oil consumption/sludge problems" in June 2015. Hyundai reported back to ODI soon thereafter that the company was aware of the issue and had been considering it a quality issue that did not pose an unreasonable risk to safety. During two meetings with ODI in August 2015, Hyundai explained that, although there had been numerous reports of noise and a smaller number of stalling reports (including high speed stalls), Hyundai had not received any reports of accidents or injuries associated with the problem. Most of the consumer complaints arose because the customers were concerned that the original warranty no longer applied. Hyundai suggested an extended warranty. ODI, however, expressed concern over the potential for further high speed stalls and explained that, at least in its preliminary and pre-investigative view, a safety recall would be a better path to address the field issues.

After conferring with ODI regarding the field experience and technical background supplied by HMC, HMA announced in early September 2015 a safety

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recall with regard to those model years experiencing a higher claim rate (MY 2011-2012) and an extended warranty for the subsequent model years experiencing a lower claim rate and for which design and manufacturing improvements had been made (MY 2013-2014). ODI contributed to this analysis and was well aware of the bases for this approach.

As part of the Consent Order process, HMA continued to provide ODI with a Safety Evaluation List ("SEL") of potential safety issues identified by the company. HMA added the Santa Fe Sport vehicles equipped with Theta II GDI engines to the SEL in October 2015, and those vehicles were discussed as part of the monthly SEL meetings in January-February 2016. The field experience at the time was comparable to that which led to the Sonata extended warranty action in 2015. Subsequently, in early 2017, HMA and ODI discussed the field experience of Theta II GDI engines generally. After further review of the developing field data, HMA decided in March 2017 to conduct a safety recall for the MY 2013-2014 Sonata vehicles that had previously been subject to the extended warranty, as well as MY 2013-2014 Santa Fe Sport vehicles. Again, ODI contributed to the analysis and was well aware of the bases for the decisions.

Hyundai engaged in ongoing and good faith dialogue with ODI staff with regard to the concerns surrounding the Theta II GDI engines, and made safety recall decisions at appropriate times and with appropriate scope based on the available data. In response to the Special Order, and in the spirit of cooperation and dialogue developed over the past few years, HMA sets forth its responses to the Specific Requests below.

Theta II and Theta II GDI Engines

As a preliminary matter, it is important to clarify the engine nomenclature. Hyundai has used the denomination "Theta II" engines in both marketing and technical literature to refer generally to the Theta engine variants with Dual Continuous Variable Valve Timing ("Dual CVVT") applied. The discussions between Hyundai and ODI, and both recalls under review, have focused on Sonata and Santa Fe Sport vehicles equipped with a subset of the Theta II engines, those with Gasoline Direct Injection ("GDI"). The Defect Information Reports for the Subject Recalls refer specifically to the Theta II GDI engines.

The Special Order defines the "Subject Component" as all Theta II engines, and the "Subject Vehicles" as all Hyundai vehicles equipped with a Theta II engine manufactured for sale or lease in the United States, including the District of

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Columbia and current U.S. territories and possessions. Accordingly, in response to those Specific Requests specifying data relating to Theta II engines, Hyundai has provided data regarding all Theta II engines, although only Theta II GDI engines are the subject of the "Subject Recalls." When appropriate, Hyundai has specified Theta II GDI engines in its Specific Responses.

Confidential Business Information

Much of the information required by the Special Order constitutes Confidential Business Information ("CBI") as defined by Exemption 4 of the Freedom of Information Act and is entitled to protection from disclosure under the standard announced in *National Parks & Conservation Ass'n v. Morton*, 498 F.2d 765 (D.C. Cir. 1974). Hyundai is identifying which documents contain CBI on the index to the documents being provided pursuant to the instruction in the Special Order. Hyundai is providing a request for confidentiality in accordance with the agency's regulations.

The information provided pursuant to the Special Order also contains personal identifying information of Hyundai's customers. The agency should protect such information pursuant to Exemption 6 of the Freedom of Information Act before it is disclosed to the public.

Document and Information Sources

Information and documents with regard to activities taking place at HMC or at Hyundai Motor Manufacturing Alabama ("HMMA") are sourced from HMC and/or HMMA. Information about the Ulsan, Asan and Hwasung engine manufacturing plants were collected by HMC from those plants. Information and documents within the possession, custody and control of HMA were sourced from HMA and its databases. Hyundai has indicated which Hyundai entity provided the relevant documents or information with regard to each of the Specific Requests. Raw data to support the responses for current information was collected between August 3, 2017 and August 17, 2017.

Translation

Hyundai has made an extensive good faith effort to collect and to translate the extensive amount of material needed to respond to the Special Order. Hyundai hired a large number of professional translators, both in Korea and the United States, and translations were done at the highest level of translation professionalism. Nonetheless, Hyundai had an extremely short period of time within which to

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respond to the Special Order and to have the translations conducted. Hyundai therefore reserves the right to review and to update any of the translations within its response should Hyundai find it appropriate to do so.

General Objections

The General Objections set forth below are incorporated by reference into Hyundai's Responses to the Specific Requests. These General Objections are deemed continuing as to each subpart of the Request, and are not waived, nor in any way limited, by the specific responses to a subpart, nor should the failure to specifically incorporate the General Objections be construed as a waiver. Moreover, any applicable, good faith objection not raised in this section shall not be interpreted as a waiver.

Hyundai notes that the Special Order provided for an unreasonably short period of time to collect and review all of the potentially responsive documents and information, particularly given the substantial amount of translation that was needed. Hyundai has made a good faith effort to collect the information necessary to respond to the Special Order and reserves the right to supplement this response. Hyundai reserves the right to recapture privileged or otherwise protected or exempted documents that may have been inadvertently produced in response to this Special Order. Any inadvertent production of privileged material is not, and should not be interpreted as, a waiver of any applicable privilege. Hyundai's response is based on information collected and reviewed as of the date of the Special Order.

In responding to this Special Order, reasonable, good faith searches have been made of corporate records where such documents would ordinarily be expected to be found and to which Hyundai would ordinarily refer when looking for such information. Hyundai's Response is based on information obtained from those departments and employees most knowledgeable about the subject matter of this inquiry and most likely to have responsive information in the regular and ordinary course of business. Hyundai objects to the definition of "Hyundai" in the Special Order to the extent that it may impose an obligation to search for information and documents not within its possession, custody or control, or to the extent that it seeks to impose unduly burdensome and unreasonable obligations on Hyundai. Hyundai reserves the right to amend, supplement, or clarify its response to reflect additional information as it is produced and/or discovered.

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The term "defect" as used in the Special Order is also overbroad. In discussions with the agency, Hyundai understands that ODI intended to cast an overly broad "net" in order to capture any potentially relevant data with the knowledge that much of the data collected would not be relevant to the Subject Recalls or to the potential for Theta II GDI engines to lose motive power at high speeds. Per discussion with the agency, NHTSA and ODI agreed that subsection (e) of the definition of "defect" in the Special Order was not applicable to Specific Requests 15, 17, 18, or 19 for purposes of this response. Hyundai understands that the agency reserved the right to seek this information at a later date if NHTSA deems it appropriate to do so.

Hyundai has clarified above the nomenclature surrounding the use of the terms Theta II engines and Theta II GDI engines. Although where necessary, and as indicated, Hyundai has provided field data relating to the broader category of Theta II engine, Hyundai again notes that the Subject Recalls relate only to vehicles equipped with Theta II GDI engines.

Hyundai further notes that the definition of "affiliate" differs from the language defining that term in the agency's regulations at 49 C.F.R. Part 579.4. Specifically, Hyundai objects to the definition in the Special Order to the extent that it is intended to imply obligations beyond those already embedded in the agency's regulations. HMA and Kia Motors America ("KMA") are distinct corporate entities in the United States. HMC and Kia Motor Corporation ("KMC") are also distinct entities. While the two companies share some common services (such as Research & Development and Quality Strategy) and have certain production agreements in place -- HMC and Kia Motor Manufacturing Georgia ("KMMG") have a contract-based production outsourcing arrangement for the Hyundai Santa Fe Sport -- neither company has the ability to make critical product development, financial, or market decisions for the other. Accordingly, HMC and KMC, and HMA and KMA, should not be considered "affiliates" as defined in the Special Order or in NHTSA's regulations.

Specific Responses

Request 1

1. Provide a detailed narrative describing the production of Theta II engines at Hyundai Motor Manufacturing Alabama (HMMA). This response should include a description of the manufacturing processes, quality control, cleaning and maintenance schedules and practices, what products are produced on each production line for all vehicle manufacturers using any variant of a Theta II

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engine, and all dates that Theta II engines were produced at this facility. To the extent that these processes, practices, or operations changed during HMMA's production of Theta II engines, explain the change(s) made, the reason(s) for the change(s), and the date(s) any change was made.

Response to Request 1

In response to Request 1, Hyundai has provided an overview of the production and process controls at the engine plant, as well as historical information and certain inspection and maintenance procedures.

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For purpose of illustrating the types of documentation and controls in place to ensure the overall robustness and quality of the engines, Hyundai has provided in response to Request 1 representative samples of the various control plans, process work station instructions, quality control plans and quality control checklists utilized at HMMA. In response to Request 15, Hyundai has additionally provided a set of Quality Control audit tests conducted at HMMA with regard to durability, performance and cleanliness.

The information responsive to Request 1 was provided by HMC and by HMMA directly and through HMC.

Request 2

2. For any Theta II engines sold, leased, offered for sale or lease, or otherwise made available to consumers in the United States (including as replacement equipment) but produced at a facility other than HMMA, identify the name and location of the facility and provide a detailed narrative description with the same information as requested in Request 1 for HMMA.

Response to Request 2

Theta II engines installed in vehicles available to U.S. consumers have also been produced at the Asan, Hwasung and Ulsan engine plants in Korea.

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To help illustrate the production processes, inspection and maintenance procedures at each plant, Hyundai has provided sample materials from each of the Korean engine plants similar to the HMMA-related materials. These include factory layout overviews, engine quality control checklists, engine component process sheets, work instructions per process and quality inspection checklists. In many cases, the documents provided contain embedded English language documents. In others, the English language documents are provided separately.

The information responsive to Request 2 was provided by HMC and the engine plants through HMC.

Request 3

3. Identify by name, job title, and division or work group the individual(s) responsible for quality control of the Theta II production lines at HMMA and all other facilities where Theta II engines are, or were, produced from the beginning of Theta II production through the present. Also state each such individuals' work phone number, work email address, production facility name and location, and dates of responsibility for quality control. If responsibility was/is divided between shifts or another sub-categorization, so state and provide shift or category responsibility information.

Response to Request 3

Hyundai has provided the available information in response to Request 3.

The information responsive to Request 3 was provided by HMC and the engine plants through HMC.

Request 4

4. State, by model and model year, the number of subject vehicles Hyundai has manufactured for sale or lease in the United States and current U.S. territories

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and possessions. Separately, for each subject vehicle manufactured to date by Hyundai, provide a table that states the following:

- a. Vehicle's Vehicle Identification Number (VIN);
- b. Model;
- c. Model Year;
- d. Date of manufacture;
- e. Date warranty coverage commenced;
- f. Engine type installed as original equipment (*e.g.*, 2.0L, 2.4L, 2.4L Hybrid);
- g. Where the engine was manufactured (*e.g.*, Alabama, South Korea);
- h. Vehicle eligible for recall 15V-568 (yes/no);
- i. Date 15V-568 remedy performed (if performed);
- j. For 15V-568 whether remedy performed (if performed) was engine inspection only or engine replacement, and if engine replacement where the replacement engine was manufactured (*e.g.*, Alabama, South Korea);
- k. Vehicle eligible for recall 17V-226 (yes/no);
- l. Date 17V-226 remedy performed (if performed);
- m. For 17V-226 whether remedy performed (if performed) was engine inspection only or engine replacement, and if engine replacement where the replacement engine was manufactured (*e.g.*, Alabama, South Korea);
- n. Vehicle eligible for subject extended warranty (yes/no);
- o. Date subject extended warranty performed (if performed), and;
- p. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

For items "i" through "o" indicate the manufacturing plant for the replacement subject component. Clearly explain how the plant of origin is identified (*e.g.*, variation in part number).

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Provide the table in Microsoft Access 2010, or a compatible format, with the title "PRODUCTION DATA." A pre-formatted data collection file, which provides further details regarding this submission, will be provided to you.

Response to Request 4

HMMA began building Theta II MPI engines for Hyundai vehicles beginning in CY 2008 for MY 2009. HMMA began producing Theta II GDI engines for Hyundai vehicles beginning in CY 2009 for the 2011 Model Year.

The table below lists the number of Subject Vehicles, by model and model year, that Hyundai has manufactured for sale or lease in the United States as well as current U.S. territories and possessions:

| Model | Model Year | Number of Vehicles Manufactured |
|----------------|------------|---------------------------------|
| Genesis Coupe | 2010 | 9,234 |
| | 2011 | 7,475 |
| | 2012 | 6,342 |
| | 2013 | 15,492 |
| | 2014 | 4,041 |
| Santa Fe Sport | 2013 | 92,040 |
| | 2014 | 80,591 |
| | 2015 | 54,217 |
| | 2016 | 56,629 |
| | 2017 | 126,859 |
| | 2018 | 4,195 |
| Santa Fe | 2010 | 36,857 |
| | 2011 | 36,373 |
| | 2012 | 33,868 |
| Tucson | 2010 | 23,399 |
| | 2011 | 46,104 |
| | 2012 | 50,457 |
| | 2013 | 56,742 |
| | 2014 | 30,713 |
| | 2015 | 30,178 |
| Sonata Hybrid | 2011 | 11,708 |
| | 2012 | 22,231 |
| | 2013 | 25,582 |
| | 2014 | 11,503 |
| | 2015 | 17,203 |
| Sonata | 2009 | 159,829 |
| | 2010 | 77,227 |

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| | |
|------|---------|
| 2011 | 289,961 |
| 2012 | 179,190 |
| 2013 | 287,911 |
| 2014 | 132,507 |
| 2015 | 234,540 |
| 2016 | 163,204 |
| 2017 | 133,453 |

Hyundai has provided a database with the additional information responsive to Request 4. The data field for the production location of the replacement engines is shown as "N/A" because that information is not captured within HMA's databases. HMC has confirmed, however, that the vast majority of the engines used as replacement engines in the Subject Recalls were built as new engines at HMMA. A small minority of engines being used to supply replacements for the 2017 recalls has been sourced from the Korean engine plants.

The information responsive to Request 4 was provided by HMA and HMC.

Request 5

5. State the number of each of the following, received by Hyundai, or of which Hyundai is otherwise aware, which relate to, or may relate to, the 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;
 - d. Reports involving a fire;
 - e. Property damage claims;
 - f. Third-party arbitration proceedings where Hyundai is or was a party to the arbitration; and
 - g. Lawsuits, both pending and closed, in which Hyundai is or was a defendant or codefendant.
 - h. For subparts "a" through "g" 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

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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).

Describe in detail the search methods and search criteria used by Hyundai to identify the items in response to this Request.

Response to Request 5

Hyundai is providing the information responsive to Request 5.

Hyundai is including in its response data as defined by the Special Order term "defect" which relates to any vehicles with a Theta II engine. Accordingly, the data provided extends far beyond the "defect" – catastrophic engine failure resulting in high speed stalls in Hyundai vehicles equipped with Theta II GDI engines – covered by the Subject Recalls.

In responding to Request 5-7, HMA reviewed a substantial number of Customer Assistance files and other claims. After announcing a recall, HMA will typically receive a number of allegations that an incident or accident was associated with the recently announced recall. In preparing this response, HMA has identified a small number of communications received after the 2015 recall in which the customer has claimed a minor incident and where the customer's engine was subsequently replaced. Hyundai is reviewing the details surrounding these claims and will communicate its findings to the agency.

The information responsive to Request 5 was provided by HMA.

Request 6

6. Provide a table that states, separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 5, the following information:
 - a. Hyundai's file number or other identifier used;
 - b. The category of the item, as identified in Request No. 5 (*i.e.*, consumer complaint, field report, etc.);
 - c. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;

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- d. Vehicle's VIN;
- e. Vehicle's model and model year;
- f. Vehicle's mileage at time of incident;
- g. Incident date;
- h. Report or claim date;
- i. Whether a crash is alleged;
- j. Whether a fire is alleged;
- k. Whether property damage is alleged;
- l. Number of alleged injuries, if any;
- m. Number of alleged fatalities, if any;
- n. For Request 5, items "c" through "g," a summary description of the alleged problem and causal and contributing factors, and Hyundai's assessment of the problem, with a summary of the significant underlying facts and evidence;
- o. Caption of associated legal proceeding(s) (if applicable) including case number and party names;
- p. Court where associated legal proceeding(s) was filed (if applicable);
- q. Date on which associated legal proceeding(s) was filed (if applicable);
- r. Resolution of associated legal proceeding(s) (if applicable); and
- s. Date of resolution of associated legal proceeding(s) (if applicable).

Provide this information in Microsoft Access 2010, or a compatible format, with the title "COMPLAINT DATA." A pre-formatted data collection file, which provides further details regarding this submission, will be provided to you.

Response to Request 6

Hyundai is providing the information responsive to Request 6.

Hyundai is including in its response data as defined by the Special Order term "defect" which relates to any vehicles with a Theta II engine. Accordingly, the data

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provided extends far beyond the "defect" – catastrophic engine failure resulting in high speed stalls in Hyundai vehicles equipped with Theta II GDI engines – covered by the Subject Recalls.

The information responsive to Request 6 was provided by HMA.

Request 7

7. Produce copies of all documents related to each item within the scope of Request No. 5. This shall include litigation documents including, but not limited to, depositions and discovery. Organize and provide the documents separately by category (*i.e.*, consumer complaints, field reports, etc.) and describe the method Hyundai used for organizing the documents.

Response to Request 7

Hyundai is providing the information responsive to Request 7.

Hyundai is including in its response data as defined by the Special Order term "defect" which relates to any vehicles with a Theta II engine. Accordingly, the data provided extends far beyond the "defect" – catastrophic engine failure resulting in high speed stalls in Hyundai vehicles equipped with Theta II GDI engines – covered by the Subject Recalls.

The information responsive to Request 7 was provided by HMA.

Request 8

8. State, by model and model year, a total count for each of the following categories of claims, that have been paid by Hyundai to date that relate to, or may relate to, the 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.

Additionally, provide a table that states separately for each such claim the following information:

- a. Hyundai's claim number;
- b. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;

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- c. Vehicle's model and model year;
- d. Vehicle's VIN;
- e. Repair date;
- f. Vehicle mileage at time of repair;
- g. Repairing dealer's or facility's name, telephone number, and city and state or ZIP code;
- h. Labor operation number(s) and description(s);
- i. Problem code(s) and description(s);
- j. Diagnostic trouble code(s);
- k. Replacement part number(s) and description(s);
- l. Concern stated by customer;
- m. Cause as stated on the repair order;
- n. Correction as stated on the repair order; and
- o. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2010, or a compatible format, with the title "WARRANTY DATA." A pre-formatted data collection file, which provides further details regarding this submission, will be provided to you. Also provide copies of any supplemental authorization document(s) required to process each claim identified in response to this question.

Response to Request 8

Hyundai is providing the information responsive to Request 8.

Hyundai has included in its response data as defined by the Special Order term "defect" which relates to any vehicles with a Theta II engine. Accordingly, the data provided extends far beyond the "defect" – catastrophic engine failure resulting in high speed stalls in Hyundai vehicles equipped with Theta II GDI engines – covered by the Subject Recalls.

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The table below includes counts for warranty claims and extended warranty claims relating to the subject vehicles, by model and model year, that have been paid by Hyundai to date. The warranty claim counts include counts for claims for (i) good will services, (ii) field, zone, or similar adjustments and reimbursements, and (iii) warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

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The information responsive to Request 8 was provided by HMA.

Request 9

9. Describe in detail the search methods and search criteria used by Hyundai to identify the claims in response to Request No. 8, including the labor operations, problem codes, diagnostic trouble codes, part numbers and any other pertinent parameters used.

Response to Request 9

The information responsive to Request 9 was provided by HMA.

Request 10

10. Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions, diagnostic trouble codes and diagnostic trouble code descriptions applicable to the defect in the subject vehicles. State whether the diagnostic trouble codes are automatically reported to the warranty database electronically or manually entered into the warranty database by a claims administrator.

Response to Request 10

As set forth in Response to Request 9, Hyundai did not utilize labor operation, nature or cause codes in collecting the data responsive to in response to Request 9. A set of the operation, nature and cause codes is provided in response to Request 10 for all codes in Hyundai's warranty system indicating engine-related repairs.

The information responsive to Request 10 was provided by HMA.

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Request 11

11. State, by model and model year, the terms of the new vehicle warranty coverage offered by Hyundai on the subject vehicles (*i.e.*, the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Also state any additional warranty coverage that may have been offered (*e.g.*, extended warranty, warranty to subsequent owners).

Response to Request 11

Hyundai provides a New Vehicle Limited Warranty for 5 years/60,000 miles and a Powertrain Limited Warranty for 10 years/100,000 miles with each new vehicle. The Powertrain Limited Warranty is not transferable and applies only to the original owner. However, the New Vehicle Limited Warranty is transferable, and for subsequent owners, powertrain components are covered under the New Vehicle Limited Warranty for 5 years/60,000 miles. New Hyundai vehicles are also covered by applicable California emissions warranties.

As the agency is aware, in May 2016, HMA initiated an extended warranty with regard to the Model Year 2013-2014 Sonata vehicles with Theta II GDI engines, and on March 31, 2017, HMA converted that extended warranty into a safety recall.

The terms of each applicable warranty are publicly available on HMA's website. Hyundai has provided copies of the warranty booklets for MY 2015 and 2016 Sonata vehicles, which are materially the same as those for the earlier model years.

The information responsive to Request 11 was provided by HMA.

Request 12

12. Produce copies of all documents (*e.g.*, engine diagnostic worksheets, photographs of engines, copies of oil change receipts, descriptions and/or stories provided by dealers or vehicle owners, Hyundai's response to the request, including stating reason for denial if request was denied or approval if request was approved) related to dealer or vehicle owner requests for warranty or goodwill coverage for failed, damaged, broken, or otherwise inoperative engines.

Provide a table that separately, for each such request, states the following:

- a. Hyundai's claim or identification number;
- b. The category of the item;

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- c. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
- d. Vehicle's VIN;
- e. Vehicle's model and model year;
- f. Request date;
- g. Vehicle mileage at time of request;
- h. Associated requesting dealer's or facility's name, telephone number, and city and state or ZIP code;
- i. Date reported;
- j. State whether the request was approved or denied;
- k. Whether the vehicle was in a crash; and
- l. The rationale for the decision to approve or deny the request.

Provide this information in Microsoft Access 2010, or a compatible format, with a title "ENGINE REQUEST DATA." A pre-formatted data collection file, which provides further details regarding this submission, will be provided to you.

Response to Request 12

Hyundai is providing information responsive to Request 12.

Hyundai is including in its response information and data as defined by the Special Order term "defect" which relates to any vehicles with a Theta II engine. Accordingly, the data provided extends far beyond the "defect" – catastrophic engine failure resulting in high speed stalls in Hyundai vehicles equipped with Theta II GDI engines – covered by the Subject Recalls.

The information responsive to Request 12 was provided by HMA.

Request 13

13. Describe in detail the process by which any dealer had, has, or may have had restrictions on full or partial engine replacement or repairs related to the subject defect. Describe any programs, restrictions, or qualifications required by HMMA and/or Hyundai limiting a dealer in replacing subject components, and further state the date on which each such restriction or limitation became effective, the

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date on which each such restriction or limitation ceased to be in effect (if it ceased), and how such effective/cessation dates were communicated to dealers. If restrictions, qualification, or other limitations were communicated to dealers in writing provide a copy of the communication, or other documents, including any variations on the same communication or document (except variation as to recipient).

Response to Request 13

The repair procedure for the Subject Recalls begins with an inspection procedure. If the vehicle does not pass the inspection, the dealers have been instructed to seek a Warranty Prior Approval (PA) in order to receive authority to replace the engine. Dealers are instructed not to inform the customer that they will need a new engine, and not to order the new engine, until the request is approved. The test results are uploaded and reviewed within a day. Once approved, the dealer may proceed with the engine replacement. This procedure is clearly set forth on the Technical Service Bulletins that have been submitted to NHTSA pursuant to 49 CFR Part 579.5.

The PA system is applicable to all engine and transmission related issues and was in existence before the Subject Recalls, however, the process has been modified slightly. Prior to the more recent recall, a claim relating to Model Year 2013 or 2014 Sonatas, for example, would have been sent through the PA system for processing and approval. Since the subject recalls began, a dealer no longer needs to initiate the process, but rather it is automatically initiated when the claim is put into the dealer communication system.

Hyundai has provided the information in the requested format. Hyundai has included in its response data as defined by the Special Order term "defect" which relates to any vehicles with a Theta II engine. Accordingly, the data provided extends far beyond the "defect" – catastrophic engine failure resulting in high speed stalls in Hyundai vehicles equipped with Theta II GDI engines – covered by the Subject Recalls.

The information responsive to Request 13 was provided by HMA.

Request 14

14. Produce copies of all service, warranty, extended warranty, goodwill, and other documents that relate to, or may relate to, the defect in the subject vehicles, that Hyundai has issued to any dealers, regional or zone offices, field offices, fleet

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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 Hyundai is planning to issue within the next 120 days. Describe in detail the search methods and search criteria used by Hyundai to identify the items in response to this Request.

Response to Request 14

Hyundai has previously provided all bulletins or communications required by 49 C.F.R. Part 579.5 within the time period required, and in particular those relating to Theta II GDI engines.

Hyundai has included in this response communications and bulletins relating to the term "defect" as defined in the Special Order and which relate to any vehicles with a Theta II engine. Accordingly, the data provided extends far beyond the "defect" – catastrophic engine failure resulting in high speed stalls in Hyundai vehicles equipped with Theta II GDI engines – covered by the Subject Recalls.

The information responsive to Request 14 was provided by HMA.

Request 15

15. Describe in detail any internal and/or external audits, assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, for this request "actions") that relate to, or may relate to, the defect that have been conducted, are being conducted, are planned, or are being planned by, or for, Hyundai. 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 action and objective of the action;
- e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action;
- f. A brief summary of the findings and/or conclusions resulting from the action;

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- g.** Copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. This includes, but is not limited to, all documentation for design of experiments (including any presentations, reports, or documents related to same), all Fault Tree Analyses and supporting documents conducted for Theta II engine failure, and all design and process Failure Mode and Effects Analysis (FMEA) that refers or relates to Theta II engine failures.

Organize the documents chronologically by action. Provide all reports, presentations, and any and all other documents that relate to an analysis of root cause or root causes of the defect, and state the date (MM/DD/YY or MM/YY if DD is unknown) the report, presentation, or other document was created, where possible. For analyses of individual subject components, full or partial, recovered from the field, provide all photographs, metallurgical analysis, conclusions, and any and all other relevant documents. Identify the subject component by the VIN number of the vehicle from which it was harvested.

Response to Request 15

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The information responsive to Request 15 was provided by HMC and the engine plants through HMC.

Request 16

16. Regarding page 22 of the 24-page PowerPoint presented to NHTSA by Hyundai in August of 2015, provide the raw numbers used to calculate the percentage in section "2011-2012 YF Engine Concern by Detection." If warranty claims were used, such claims can be indicated by adding a separate line to the claim information required in Question 8 above.

Response to Request 16

The data underlying the claims reviewed with ODI in August 2015 is provided in Response to Request 16. The spreadsheets include reference to the individual warranty claims used in that analysis.

The information responsive to Request 16 was provided by HMA.

Request 17

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

- a. A detailed description of the modification or change;

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- b. The reason(s) for the modification or change, including the underlying rationale and purpose of the design change;
- c. The individuals who participated in the decision to make the modification or change;
- d. When the decision to modify or change was made;
- e. The objectives of implementing the modification or change, and any follow-up study, evaluation, inquiry, investigation, analysis, and/or testing that was conducted to determine whether the change or modification accomplished or otherwise met the identified objectives;
- f. The part number(s) (service and engineering) of the original component;
- g. The part number(s) (service and engineering) of the modified component;
- h. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
- i. When the modified component was made available as a service component; and
- j. Whether the modified component can be interchanged with earlier production components.

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

Response to Request 17

Hyundai has provided the information responsive to Request 17 in a spreadsheet addressing each of the sub-questions set forth above. The changes are organized in terms of purchasing changes to be incorporated by suppliers, manufacturing process for each of the plants and engineering changes made by R&D.

Changes anticipated to occur during the next 120 days are reflected in the spreadsheet provided. The last four items on the HMMA spreadsheet and the last

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two items on the Hwasung spreadsheet reflect planned changes that have been approved and are expected to be implemented within that time frame.

The information responsive to Request 17 was provided by HMC.

Request 18

18. Provide all documents that refer or relate to changes in production or production processes of the Theta II engine, including the rationale for such change.

Response to Request 18

Documents relating to the changes referenced in response to Request 17 are provided in response to Request 18. The documents are organized in terms of purchasing changes to be incorporated by suppliers, manufacturing process for each of the plants and engineering changes made by R&D.

The information responsive to Request 18 was provided by HMC.

Request 19

19. Identify and describe any changes contemplated, proposed, considered or begun, but which were not implemented, to address the defect other than those that you may have identified in your response to Request No. 17. For each such instance, identify the individuals who participated in the consideration, evaluation, and decision-making process; the objectives of the change; and any follow-up study or testing that was conducted, by Hyundai or any other entity or individual known to Hyundai, to determine whether the change would have accomplished or otherwise met the identified objective(s).

Response to Request 19

The following changes were considered but ultimately not implemented:

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The information responsive to Request 19 was provided by HMC.

Request 20

20. Provide the following information regarding the subject component by engine type (2.0L, 2.4L and 2.4L hybrid):

- a. A schematic of the engine oil lubrication system; and
- b. A detailed description of the engine oil lubrication system

Response to Request 20

A schematic of the engine oil lubrication system is provided in Response to Request 20.

The information responsive to Request 20 was provided by HMC.

Request 21

21. State the number of each of the following that Hyundai has sold that may be used in the subject 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 sale (including the cut-off date for sales, if applicable):

- a. Subject component engine assembly;
- b. Subject component connecting rod;
- c. Subject component connecting rod bearing;
- d. Subject component crankshaft;

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- e. Subject component long block; and
- f. Subject component short block.

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

Response to Request 21

Hyundai is providing the information responsive to Request 21.

The information responsive to Request 21 was provided by HMC.

Request 22

22. Identify the process for making defect determinations at the time 15V-568 was issued and separately, the process when 17V-226 was issued. If any change(s) were made, or considered but not adopted, to the process between the time 15V-568 and 17V-226 was issued, explain the change(s) and the reason for the change(s). Provide any supporting documents relating to such changes, or changes considered but not adopted.

Response to Request 22

Prior to signing the Consent Order in August 2014, HMA relied on HMC for the authority to conduct a safety recall and to notify NHTSA of that decision. As part of the Consent Order, HMC provided HMA with the final decision-making authority to make safety defect determinations.

HMA implemented a Technical Committee to review potential safety issues, to confer with HMC with regard to those issues, and to make the final determination to conduct safety recalls or to continue monitoring the issues, as appropriate. HMA established a new safety-oriented organization within its Service Department to focus exclusively on potential safety-related issues. HMA hired additional engineering resources with experience from working at other companies to support both the new Service group and the Engineering & Design Analysis Group.

HMA's process for identifying and following up on potential safety-related issues was informed by its engagement with ODI during the monthly Consent Order meetings focused on the Safety Evaluation List (SEL). HMA worked with ODI in

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developing the template for the SEL, and continued to learn from ODI on how to rank, track and bring to conclusion the issues listed.

Issues can be identified through a variety of sources, including Service Engineering (through, for example, Field Reports or warranty data analysis), VOQ and internal complaint analysis or other sources. While HMA can conduct U.S. based field analysis and some testing, it necessarily depends on background and technical information from HMC, HMMA or KMMG with regard to design, engineering, materials, production and other technical issues.

The HMA Technical Committee meets as necessary. The HMA Technical Committee may meet to decide upon a particular safety recall, or may meet to discuss any needed additional information or HMC's position with regard to an issue. The HMA Technical Committee may also meet to discuss upcoming discussions with the agency. The HMA Technical Committee will take into consideration information on field experience in the U.S., as well as any engineering or design data from HMC and HMC's own views with regard to the issue. Following the final analysis of an issue, the HMA Technical Committee has the ultimate authority to make the safety defect determination. No significant changes were made to this process since it was instituted in 2014.

The information responsive to Request 22 was provided by HMA.

Request 23

23. Identify, to the fullest extent possible, the documents attached hereto in Exhibit A. Include in this identification, a statement of whether the document is, in whole or in part and regardless of any partial translations or minor additions, a Hyundai document, and if so:

- a. A complete and accurate translation of the document into English;
- b. Specific identification of what, if any, sentences, words, images, pages, or parts of a page are not part of a Hyundai document;
- b. The name of the individual(s) who created the document;
- c. The division, team, or work group designation of the individual(s) who created the document;
- d. The date the document was created (MM/DD/YY);

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- e. The name and job title of the individual managing the division, team or work group that created the document at the time the document was created; and
- f. Whether the document, or any of the information contained therein, was ever shared with Kia and, if so,
 - i. what information was shared, to the extent known;
 - ii. the date the document or information was shared, to the extent known (MM/DD/YY);
 - iii. the name(s) of the individual(s) from Hyundai who shared the document or information; and
 - iv. the name(s) of the individual(s) from Kia who received the document or information, if known.

Response to Request 23

The document attached as Exhibit A to the Special Order appears to be based on working draft documents from HMC's internal working files. For many pages, the documents appear to have been altered, with certain content added and other content deleted. For ease of reference, Hyundai has compiled a compendium of documents consisting, for each of the pages attached as Exhibit A, a translation, the HMC business record document that most closely resembles the page in Exhibit A, and a document annotating and describing the apparent differences between the Exhibit A page and HMC's business record document. This compendium response has been compiled in good faith within the time permitted by the Special Order, and Hyundai reserves the right to further comment on the apparent alterations contained within Exhibit A to the Special Order as more facts are developed and with the benefit of additional time. Hyundai is currently not aware of when or by whom any of the documents were altered.

Hyundai assumes the documents attached to the Special Order as Exhibit A are documents given to NHTSA by Mr. [REDACTED] in August 2016. The documents appear to be from internal working documents of HMC. The documents do not necessarily represent accurate information and data, as the working files are for use by HMC staff in collecting information. The information and data are collected in these working files even before HMC staff is able to verify them.

The information responsive to Request 23 was provided by HMC.

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Request 24

24. Identify, to the fullest extent possible, the documents attached hereto in Exhibit B. Include in this identification a statement of whether the document is, in whole or in part and regardless of any partial translations or minor additions, a Hyundai document, and if so:

- a. An explanation of whether the change described in each line was actually implemented on any production line(s) at HMMA or any other Theta II engine production line. If so, state on which production line(s) each change was made and the date (MM/DD/YY) the change was made on each line. Where a change was made to some lines but not others, explain why it was not made to all other lines at the same time; and
- b. Hyundai's objectives in implementing the modification or change, and any follow-up study, evaluation, inquiry, investigation, analysis, and/or testing that was conducted to determine whether the change or modification accomplished or otherwise met the identified objectives. If previously answered in response to Request 15.f. above, so state and cross-reference to the specific response given above.

Response to Request 24

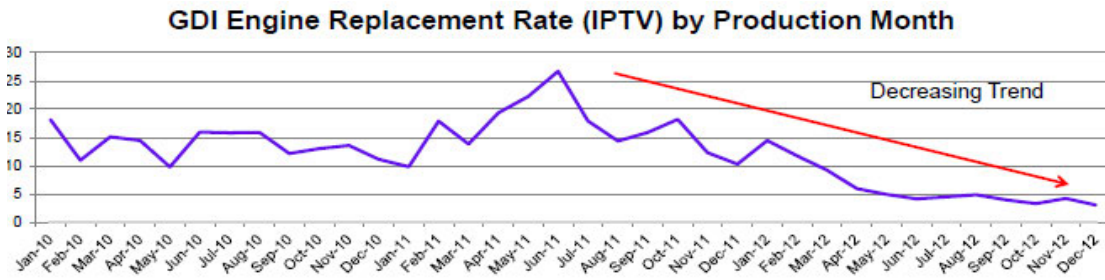
The document attached as Exhibit B to the Special Order appears to be based on a working draft document from HMC's internal database. The document also appears to have been altered, with certain content added and other content deleted. The caption of the document also appears to have been altered, since English would not have been used on a Korean-native document. Hyundai is not aware of when or by whom the document was altered.

Hyundai assumes the documents attached to the Special Order as Exhibits A and B are documents given to NHTSA by Mr. [REDACTED] in August 2016. The documents appear to have been taken from internal working documents accessible to the employees of the Quality Strategy Group at HMC. The information and data are collected in these working files even before HMC staff is able to verify it. The documents do not necessarily represent accurate information and data.

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Subquestion (a):

Each of the changes made with regard to the Theta II engines, including production-related changes, is contained within the spreadsheet provided in response to Request 17 and any documents relating to those changes are provided in response to Request 18.



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Subquestion (b):

The information responsive to Request 24 was provided by HMA, HMC and HMMA directly and through HMC.

Request 25

25. Provide a detailed narrative explanation of the processes, policies, practices, and/or procedures Hyundai Motor America had in place during the full time period that Theta II engines were being designed and produced to ensure that

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Hyundai Motor America had the necessary information from Hyundai Motor America's South Korean parent company, Hyundai Motor Company, from which Hyundai Motor America could adequately and timely make safety defect determinations regarding vehicles and equipment sold, leased or offered for sale or lease, in the United States.

Response to Request 25

Since the initiation of the Consent Order in August 2014, HMA granted HMC with the final decision making authority to decide when safety recalls are necessary for Hyundai vehicles in the U.S. market. In the first instance, any particular issue may be discussed within HMA and, through consultation with HMC, a consensus approach is sought with regard to whether a particular issue poses an unreasonable risk to safety and with regard to the scope of any proposed action. HMA may choose to conduct a safety recall even if HMC does not agree. In doing so, it has been authorized to bind the company to notify customers and remedy the vehicles in accordance with the Vehicle Safety Act.

HMA has the capacity to analyze field data, review Field Reports from the U.S. market, and conduct a certain amount of returned parts analysis and testing. There are regular interactions between HMA and HMC in each department, including between the Engineering & Design Analysis Department and the Quality Strategy Group at HMC. HMA relies on HMC, HMMA or KMMG to provide relevant background, engineering analysis, design reviews, engineering change orders, field data or campaign in other countries and production information that may be relevant to the issue.

Although HMA may make the final, formal decision to conduct a safety recall, HMC and/or the manufacturing plants may have additional data to better define the appropriate recall population. Occasionally, HMA works with HMC and/or the production plants to define specifically the scope of a recall. This is particularly true if the basis for a scope determination is a manufacturing or engineering change impacting the defect.

When HMA decides to conduct a safety recall, the Engineering & Design Analysis Department drafts a Defect Information Report and shares that report with HMC. HMA will either incorporate or discuss any additions or changes to the draft provided by HMC with the HMC Quality Strategy Group. HMA will utilize any available information to complete the Defect Information Report in order to file it when it is due. To the extent that HMA learns of additional or new information, HMA

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will amend the Defect Information Report based on the information and clarifying data provided by HMC. HMA relies on HMC for design, engineering and production inputs to the DIR.

HMA is also provided with draft Service Bulletins that may impact the U.S. market. HMA may offer suggestions, and may challenge the campaign if HMA considers it more appropriately conducted as a safety recall. Should that occur, HMA will place the item on the SEL, discuss the issue with HMC and present the issue to the HMA Technical Committee.

The information responsive to Request 25 was provided by HMA.

Request 26

26. Provide a detailed narrative explanation of the processes, policies, practices, and/or procedures Hyundai had in place during the full time period that Theta II engines were being designed and produced to ensure that Hyundai had adequate internal information and channels of communication from which to adequately and timely make safety defect determinations regarding vehicles and equipment sold, leased, or offered for sale or lease, in the United States.

Response to Request 26

HMA has a number of internal resources – such as Field Reports, warranty claims, Tech-line reports, customer complaints and internal engineering reviews – as well as external resources such as VOQs, blogs and other internet sites – from which it can identify field incidents potentially giving rise to a safety related issue. Once an issue is identified, typically by the Service Department, it is communicated to the Engineering & Design Analysis Department through regularly held staff meetings. If there is a potential for the worst case analysis to pose a safety consequence, the issue is included on the SEL and tracked as a potential safety concern.

On a monthly basis, when the SEL is submitted to NHTSA, it is also sent to HMC's Quality Strategy Group. The Quality Strategy Group at HMC reaches out to the appropriate groups within HMC to gather any needed information, such as information about design, engineering, or materials. The Quality Strategy Group may transfer information received to HMA, and typically there is an iterative process of questions and answers in follow up to the information provided.

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Important and/or troublesome issues (such as not having sufficient information to evaluate an issue) may be discussed and raised at the HMA Technical Committee, and additional efforts may be made to obtain any needed information to make a final determination. Most decisions by the HMA Technical Committee reflect a consensus between HMC and HMA.

The Information responsive to Request 26 was provided by HMA.

Request 27

27. To the extent not clearly, fully, and completely detailed in Hyundai's responses to other requests herein, provide a detailed narrative explanation of Hyundai Motor America's relationship, separately, with Hyundai Motor America, Hyundai Motor Company, Hyundai Motor Group, Kia Motors America, Kia Motors Corporation, and any other company or corporation that is part of the Hyundai Kia family of brands, as it relates to:

- a. Defect determinations; and
- b. The design, testing, material composition, manufacture, quality control, supply, installation, and analysis of Theta II engines.

Response to Request 27

Prior to signing the Consent Order in August 2014, HMA relied on HMC for the authority to conduct a safety recall in the United States and to notify NHTSA of that decision. In light of the Consent Order, HMA implemented a Technical Committee to review potential safety issues, to confer with HMC with regard to those issues, and to make the final determination to conduct U.S. safety recalls when HMA determines it appropriate to do so. HMA may decide to conduct a safety recall even in circumstances where the decision is made in the spirit of compromise and if HMC and/or HMA believe in good faith that a safety recall is not warranted.

HMC and KMC are distinct corporate entities. They are largely distinct operationally, although they share certain functional organizations, such as R&D, Legal and Quality. "HMG" (Hyundai Motor Group) is not a corporate entity, but instead a conglomerate of businesses centered on the automotive sector.

HMA is a wholly owned subsidiary of HMC and is the distributor of Hyundai vehicles in the United States. HMA has the ability to collect and to analyze field data from the United States. HMA does not have direct access to information relating to design, testing, material composition, manufacture, quality control, installation and

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technical analysis of the engines. HMA may receive certain information relating to manufacturing from HMMA or KMMG, and relies on HMC or the production plants for the remaining information. Although HMA has the final authority to decide to conduct a safety recall, HMA confers with HMC both with regard to the type of information listed above and to consider HMC's position with regard to the appropriate disposition of each issue.

With regard specifically to the Theta II GDI engines, HMA prepared the field data it relied on when analyzing the potential safety risk in the field and discussing that analysis with ODI. HMC and HMMA provided information relating to the background and some of the improvements instituted with regard to the Theta II GDI engines over time.

HMA has no engagement with KMC or KMA with regard to the decision to conduct safety recalls. HMA may receive information about KMA through HMC. HMA may also contact KMA directly, just as it might with any other competitor in the United States market.

The information responsive to Request 27 was provided by HMA.

Request 28

28. In support of Hyundai's responses to Requests 25, 26, and 27, provide any charts, diagrams, plans, or other documents that show work-flow, communication-flow, or organization and/or reporting structure as it relates to safety information collection and sharing within Hyundai Motor America, between Hyundai Motor America and Hyundai Motor Company and Hyundai Motor Group, between Hyundai Motor America and Kia Motors America, and between Hyundai and Kia during the full time period that Theta II engines were being designed and produced.

Response to Request 28

In response to Request 28, Hyundai has provided a work flow diagram and additional background and exemplar documents reflecting the type of information used within HMA to assist in the identification and evaluation of potential safety issues.

The information responsive to Request 28 was provided by HMA.

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Request 29

29. Provide a detailed narrative of the timeline for reporting actual or potential safety-related defects with Theta II engines to NHTSA under paragraph 18 of the consent order reporting obligations in TQ14-002 (resulting from 13V-489).

Response to Request 29

Paragraph 18 of the Consent Order refers to the monthly meetings between ODI and the company with regard to the Safety Evaluation List, TSBs and other considerations, including discussion of "potential safety-related issues concerning vehicles already in the U.S. fleet that are under consideration by the U.S. Technical Committee." In response to Request 33 below, Hyundai has provided those portions of all HMA Technical Committee minutes between June 2015 and March 31, 2017 relating to Theta II engines.

The critical actions leading to the decisions to recall were set forth in the Chronologies submitted with the September 2015 and March 2017 Defect Information Reports. The following is a more detailed chronology of each discussion, meeting and analysis either internal to Hyundai, or between Hyundai and ODI, relating to Theta II or Theta II GDI engines and/or Hyundai's understanding of the appropriate analysis applicable to deciding whether a stalling concern gives rise to an unreasonable risk to safety.

August 2014 – December 2014: HMA entered into a Consent Order with the agency on August 7, 2014, and the regular meetings required under the Consent Order between Hyundai and ODI began. During the initial meetings, which were understood to be the precursor to the formal SEL process, Hyundai discussed its developing process to formalize the investigation and decision-making process to implement the provision vesting authority for recall decision-making in HMA, conducted the requisite Table Top exercise and worked with ODI in the development of the SEL template.

December 2014: The formal SEL process began and HMA started to populate the SEL. The SEL became the primary focus of the monthly Consent Order meetings. In addition, the monthly meetings – or separate phone conferences – were used to discuss particular issues. Throughout the Consent Order period, when the meetings were in person, representatives from both HMA and HMC were in attendance. When by telephone conference, HMA representatives were on the phone.

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The formal SEL process began with a meeting involving the then-ODI Director. It included a general discussion of the agency's solidifying approach to stalling issues. The ODI Director advised Hyundai at that time that the critical questions include whether the driver can reach a safe location on the side of the road after losing motive power, as well as the duration of the warning signals. The ODI Director indicated that the company's experience should be a guide to whether or not a stalling issue may pose an unreasonable risk to safety.

January – May 2015: Hyundai and ODI continued to meet under the SEL process and the process evolved as it continued. NHTSA initially raised concerns with Hyundai with regard to the volume of issues populating the SEL. This concern led to a dialogue educating Hyundai as to NHTSA's expectations and resulting in an increase in the number of items listed on the SEL. In addition to items that Hyundai believed could potentially result in a safety recall (its original understanding), Hyundai began also to include any item that could potentially result in a safety-related consequence, even if there was a quick conclusion that such a consequence would not in fact result. As the process continued, ODI responded positively to the way in which Hyundai was completing and tracking the SEL items. In March 2015, ODI recognized that Hyundai's approach to the volume of issues and substantive information provided in the SEL list appeared to be developing appropriately.

June 18-23, 2015: NHTSA contacts HMA about an apparent "slight trend" in 2011 Sonata vehicles with potential oil consumption/sludge problems. The item was added to the SEL submitted to NHTSA on June 23, 2015.

July 2, 2015: ODI sends HMA a list of the items it wants to discuss at the upcoming SEL meeting, which includes SEL No. 88: MY 2011 Sonata "engine knocking, burning oil, sludge."

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HMA also began "to conduct additional [field] analysis and determine the number of customers involved in any potential safety related situations."

July 8, 2015: HMA and ODI jointly inspect an engine fire that had occurred in a MY 2012 Sonata Hybrid with a Theta II MPI engine.

July 9, 2015: The monthly SEL meeting occurred through a web-ex with ODI and HMA. HMA informed ODI that Hyundai had been aware of and reviewing the issue but had considered it to be primarily a quality-related issue and not a potential safety recall issue due to the progression of symptoms typically arising before any catastrophic engine failure. These include engine noise, misfire, engine vibration, and illumination of the Check Engine or oil pressure light. ODI responded that it had found 18 complaints with regard to the Sonata and encouraged HMA also to consider the inability to restart the vehicles in its ongoing review. HMA agreed to conduct a separate claims review on the Sonata engines.

August 10, 2015: The monthly SEL meeting with ODI and HMA takes place via web-X. HMA presented its analysis based upon the field indicant data available to it, and indicated that Hyundai proposed an extended warranty with customer notification to address the issue. ODI expressed general approval with the proposal to conduct a field action, with the exception that ODI believed the issue should be

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addressed as a safety recall for MY 2011-2012 vehicles due to the number of high speed stalling incidents.

August 19, 2015: HMA and HMC representatives met with a broader representation from ODI, including in particular the Division Chief with responsibility for deciding whether or not to initiate an investigation should Hyundai not agree to a safety recall. HMC presented more detailed information on the background of the Theta II GDI engine and production improvements made to reduce the potential for machining particle debris (dust) and ultimate engine failures. HMC also provided information with regard to a Design Review, which concluded that the minimum oil clearance of the connecting rod bearing had equal or no larger minimum oil clearance compared to competitors, and that analyses showed Hyundai's wear history and durability compared favorably to competitors. Hyundai noted that the overall claim trend was downward and was expected to remain so. The company again proposed an extended warranty and ODI again reiterated that, due to the high speed stalling incidents, ODI believed a safety recall would be warranted. ODI made clear that, in the absence of a safety recall, it would initiate a further defect investigation.

September 10 - November 12, 2015: HMA provided NHTSA with an update on reports of Santa Fe Sport (AN) vehicles stalling intermittently. HMA added the Santa Fe Sport (AN) to the SEL noting that the company was considering a warranty extension with regard to those vehicles. HMA updated the agency on the issue at the November 12, 2015 SEL meeting.

December 10, 2015: During an SEL meeting, ODI staff asked about a Santa Fe (NC) engine issue. Hyundai clarified that the Santa FE (NC) and the Sonata (YF) have different engines, and that Hyundai would continue to review both issues.

January 13, 2016: During an SEL meeting, ODI staff noted an increase in complaints with regard to the Santa Fe Sport. HMA explained that the model years at

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issue (MYs 2013-2014) were the same as the model year Sonatas that were to be covered through an extended warranty and that, as with the Sonatas, there were many factors that could contribute to an engine failure. As with the Sonatas, Hyundai would continue to monitor the field experience.

February 2016: HMA evaluates the field experience for the MY 2013-2014 Santa Fe Sport vehicles, finding the experience similar to that of the MY 2013-2014 Sonata vehicles.

May 2016: Hyundai issues the extended warranty for the MY 2013-2014 Sonatas once an adequate supply of replacement engines was available.

July 6-7, 2016: ODI staff noted a VOQ regarding a potential electrical wiring issue. Hyundai put the issue on the SEL, and later determined that it was related and tracked as part of the Sonata Theta GDI engine recall.

August 10, 2016: The last formal SEL meeting under the Consent Order is held, but Hyundai agrees voluntarily to continue submitting the SELs on a monthly basis and to meet with ODI whenever requested.

November 3, 2016: HMA conducts a further review of the Santa Fe Sport field experience, finding that the prior data analysis had inadvertently double counted certain figures.

December 6, 2016: ODI staff informs HMA that it is reviewing stalling-related VOQs with regard to Hyundai and Kia vehicles, and seeks information by model, model year and engine type. HMA responded the following day.

February 28, 2017: ODI initiates a conference call with KMA and with HMA jointly. ODI staff informs KMA and HMA that ODI will no longer consider an extended warranty an acceptable field action with regard to the Theta II GDI issues.

March 17, 2017: HMA and KMA have a follow up conference call with ODI staff. HMA has reviewed the field experience with regard to all vehicles with Theta II engines and has concluded that the occurrence rate of high speed stalls associated with the MY 2013-2014 Santa Fe Sport and Sonatas has risen and is now consistent

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with the rates at which the earlier model year Sonatas were recalled. HMA and ODI staff agree that Hyundai will review the data with the HMA Technical Committee to make a decision on how HMA should proceed by the end of the month.

March 31, 2017: HMA submits its Defect Information Report with regard to 17V-226.

The information responsive to Request 29 was provided by HMA.

Request 30(A)

30. Provide copies of any and all communications (documents, or otherwise) between Hyundai and Kia relating to the following:
- a. Any problems, corrections, changes or alterations, malfunctions, or other concerns relating to any production line(s) that produce(d) Theta II engines for Kia;
 - b. Any different procedures for assembly line(s) that produced Theta II engines for Kia versus assembly line(s) that produced Theta II engines for Hyundai;
 - c. Connecting rod bearing failures in Theta II engines produced by HMMA that were installed in Kia vehicles;
 - d. Hyundai's evaluation of a potential safety-related defect and determination that a safety related defect existed in the vehicles identified in Hyundai's September 10, 2015 recall, including but not limited to, Hyundai's decision to limit that recall to Theta II equipped Sonata's built between December 11, 2009 and April 12, 2012;
 - e. The April 15, 2015 class action complaint filed against Hyundai in the Northern District of California containing allegations that the Theta II engines installed in certain Hyundai vehicles were defective;
 - f. Hyundai's warranty extension program for MY 2011-2014 Sonata vehicles manufactured at HMMA;

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- g. Kia's warranty, goodwill program, and other costs stemming from the defect;
- h. The June 2, 2016 class action complaint filed in the Central District of California containing allegations that the Theta II engines installed in certain Kia vehicles were defective;
- i. Kia's offer, made on or about June 10, 2016, to provide an extended warranty to owners of certain Theta II equipped Kia vehicles;
- j. Kia's assessment of the safety consequences, or the lack thereof, of the defect; and
- k. Allegations by any current or former Hyundai or Kia employee of a Theta II engine defect.

Response to Request 30(A)

Hyundai is providing a spreadsheet and the responsive communications either between HMA and KMA, or responsive communications received from HMC regarding KMA or Kia and the Theta II engines.

HMA and KMA representatives may interact from time to time, in the same manner as they may interact with representatives from other competitive OEMs. There is no formal mechanism, nor any regular process, for an information exchange. To the extent there is non-proprietary and non-public information about Kia vehicles or KMA actions that could be relevant to Hyundai vehicles or HMA actions – or vice versa – that information would generally flow through the Quality Strategy Group that services both Hyundai and Kia.

In February 2017, ODI set up a joint conference call with both HMA and with KMA to discuss ongoing field concerns with the Theta II GDI engines. HMA and KMA coordinated with regard to the conference call and, after each company decided to conduct a recall, exchanged information about the terms and scope of the recalls. HMA had no communications with KMC and is not aware of any other communications with KMA with regard to the items listed in sub-questions (a) through (k) above.

Hyundai notes certain assumptions within sub-question (d) that do not align with the circumstances surrounding the September 2015 recall. First, Hyundai had initially approached this issue as a quality concern consistent with its understanding based on its discussion with ODI in December 2014. When ODI indicated that it

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would proceed with a defect investigation in the absence of a safety recall, HMA decided to conduct a safety recall rather than move forward with its initially intended extended warranty. This was decided in a spirit of cooperation and compromise.

Second, Hyundai did not "limit" the scope of the recall. To the contrary, Hyundai reviewed with ODI the failure rates applicable to the MY 2011-2012 Sonatas as compared to the MY 2013-2014 Sonatas. Based on those failure rates, and manufacturing process improvements that were expected to keep the failure rates for the later model years low, proposed to NHTSA a recall for the earlier model years and an extended warranty with regard to the later model years. ODI appeared comfortable with that approach and did not, after Hyundai submitted its DIR in September 2015, move forward with opening a defect investigation. Rather than "limit" the recall, Hyundai appropriately scoped the recall based on the failure rates at that time.

The information responsive to Request 30(A) was provided by HMA and HMC.

Request 30(B)

30. Provide an Excel spreadsheet containing an accounting of all meetings, including, but not limited to, in person meetings, conference calls, and web meetings, held between Kia and Hyundai relating to the defect including the date, time, place, participants invited and subject matter of the meeting.

Response to Request 30(B)

Other than the telephone conference initiated by ODI on February 28, 2017, HMA did not have any meetings as defined above with KMA or KMC with regard to the defect or the recalls.

Hyundai has provided a spreadsheet listing meetings held between HMC and KMC with regard to the defect.

The information responsive to Request 30(B) was provided by HMC.

Request 31

31. Describe in detail Hyundai Motor America's process for employees to report concerns regarding actual or potential safety-related defects or actual or potential noncompliance with Federal Motor Vehicle Safety Standards, along with Hyundai Motor America's process for evaluating such reports. Your answer

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should describe whether Hyundai employees outside the United States are able to report concerns to Hyundai Motor America using this process, or whether some alternative process is available for such employees.

Response to Request 31

HMA has established a program specifically designed to encourage employees to report potential safety-related concerns and to offer them a safe environment within which to do so. The program, which was established in September 2016, is called "I for Safety" (IFS). The IFS program allows employees to register any concerns through an internal company website or through a special hotline.

All reported concerns are documented and investigated. Concerns reported through the IFS program are initially processed by a third-party service provider and evaluated in terms of the severity of the risk reported and the plausibility that a safety concern in fact exists. Any concern appearing to pose an imminent safety threat or unethical conduct would be elevated to the HMA Technical Committee directly. Others are evaluated and investigated by HMA's Engineering & Design Analysis Department. The U.S. Safety Office reviews all concerns reported through the IFS program.

Based on the information available and, if applicable, the information provided by HMA technical and legal staff, the U.S. Safety Office determines whether the concern should be (a) escalated immediately to the Chief Safety Officer, (b) investigated further by opening a product investigation, or (c) closed out. HMA policy expressly prohibits retaliation based on an employees' reporting of a safety concern or cooperation in an investigation. Any complaint of retaliation would be treated as a separate violation of HMA policy and investigated as such.

While the I For Safety program is specific to HMA, HMMA has its own hotline and is planning to launch a safety program similar to I For Safety in the near future.

The information responsive to Request 31 was provided by HMA and HMMA.

Request 32

32. Describe in detail any allegations of a defect made by any current or former Hyundai or Kia employee of a Theta II engine defect of which Hyundai was aware prior to March 31, 2017. Describe in detail the steps Hyundai took to evaluate those allegations, including the date(s) on which Hyundai learned of the allegations, the date(s) on which Hyundai took steps to evaluate the allegations,

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and Hyundai's evaluation of the allegations. Provide a copy of all related documents.

Response to Request 32

Hyundai is aware of the allegations made by Mr. [REDACTED] with regard to the Theta II GDI engine recall initiated in the U.S. in September 2015. Hyundai became aware of Mr. [REDACTED] allegations with regard to the Theta II GDI engine recalls in September 2016 as the result of media coverage in Korea. Prior to the allegations reported by the media, Mr. [REDACTED] had not previously raised any concerns about Theta II GDI engines internally to Hyundai.

The publicity surrounding Mr. [REDACTED] allegations did not provide new information with regard to the Theta II GDI engines. Recall No. 15V-568, covering MY 2011-2012 YFa Sonata vehicles had been initiated in September 2015, and the extended warranty applicable to MY 2013-2014 YFa Sonata vehicles had been implemented in May 2016. HMA had included in the SEL for October 2015 an entry for MY 2013-2014 Santa Fe Sport vehicles and HMA had both had discussions with ODI about those vehicles and was considering an extended warranty to address those vehicles consistent with the action taken on the same MY YFa Sonata vehicles. After ODI re-initiated discussions with HMA in early 2017 about those vehicles, and HMA reviewed the field experience and failure rates associated with those vehicles, HMA made a decision to conduct a recall with regard to the MY 2013-2014 YFa Sonata and Santa Fe Sport vehicles. As of that time, the failure rates were consistent with the rates leading to the recall in 2015 for the MY 2011-2012 YFa Sonata vehicles.

HMC had been aware of other allegations made earlier by Mr. [REDACTED], none of which were related to Theta II engines. Mr. [REDACTED] had been working at Hyundai in China and had been transferred to Korea in 2014. A close acquaintance he had befriended in China had been convicted of stealing trade secrets from the company. Mr. [REDACTED] had first raised concerns internally about the company's handling of certain issues in the Korean market, and made certain demands including a transfer out of the Quality Strategy Group and that the company provide a petition supporting his friend's legal appeal. Mr. [REDACTED] reached out beyond the Quality Strategy Group, to the Human Resources and Audit Departments with these allegations. The company granted Mr. [REDACTED] request for a transfer.

After the Korean media reports in September 2016, Hyundai became aware that Mr. [REDACTED] had visited with NHTSA in August 2016 and that he had made allegations specifically with regard to the Theta II GDI engines. It was Hyundai's initial

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impression that Mr. [REDACTED] complaint was based on the fact that a recall had been initiated in the United States but not in the Korean market.

It is Hyundai's understanding that the allegations surrounding the Theta II GDI engine recall were included in a list of complaints provided by Mr. [REDACTED] to KATRI in October 2016. HMC cooperated with KATRI's ensuing investigation. In January 2017, KATRI reviewed a number of cases -- deciding as to many that further monitoring is warranted and as to some that there was evidence of a defect. The investigation into the Theta II engines proceeded on a separate path, and KATRI made no determination with regard to that issue.

On March 31, 2017, HMA submitted its DIR with regard to Recall No. 17V-226 and on April 6, 2017, HMC submitted a voluntary recall report to MOLIT with regard to Theta II GDI engines in Korea.

In sum, Mr. [REDACTED] never raised an issue with the Theta II engine internally at Hyundai. Recall No. 15V-568 and Recall No. 17V-226 resulted from Hyundai's engagement and interactions with ODI, and in particular with ODI's analysis of the safety risk posed by the volume of the high speed stalling incidents. Mr. [REDACTED] allegations with regard to the Theta II GDI engines arose long after the 2015 recall had been initiated and discussions with ODI about the additional vehicles had begun.

The information responsive to Request 32 was provided by HMC.

Request 33

33. List each date between June 2015 and March 31, 2017 on which Hyundai's Technical Committee discussed an actual or potential safety-related Theta II engine defect. For each date listed, provide a detailed explanation of the discussion and provide a copy of any presentation materials and any meeting notes.

Response to Request 33

In response to Request 33, Hyundai is providing the relevant portions of each HMA Technical Committee meeting at which the Theta II engines were discussed, including both those for which a recall decision was made and those that included discussion of the Theta II engines but that were not decision points.

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The information responsive to Request 33 was provided by HMA.

Request 34

34. Describe in detail the steps that Hyundai took to “continue to monitor engine-related field data during 2016 and into 2017, noting an increase in claims relating to the subsequent model years,” as referenced in the “Chronology” section of Hyundai’s March 31, 2017 DIR for 17V-226.

Response to Request 34

As set forth in response to Request 29, Hyundai was watchful of the field experience with regard to the later model years.

October 22, 2015: Hyundai added the Santa Fe Sport (AN) to the SEL, noting that the company was considering a warranty extension with regard to those vehicles.

January 13, 2016: During an SEL meeting, ODI staff noted an increase in complaints with regard to Santa Fe Sport vehicles. Hyundai explained that the model years at issue (MYs 2013-2014) were the same as the model year Sonatas that were

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to be covered through an extended warranty and that, as with the Sonatas, there were many factors that could contribute to an engine failure. As with the Sonatas, Hyundai would continue to monitor the field experience.

February 2016: HMA evaluates the field experience for the MY 2013-2014 Santa Fe Sport vehicles. Claims analysis at the time showed the overall claim rate for the Santa Fe Sport was 1.11 PPH for MY 2013 and 1.41 PPH for MY 2014 (although this failure rate was later determined to be overstated).

November 3, 2016: HMA conducts a further review of the Santa Fe Sport field experience, finding that the prior data analysis had inadvertently double counted certain figures. Claims analysis in November 2016 indicated an overall claim rate of 1.77 PPH for MY 2013 and 1.87 PPH for MY 2014. About 5% of the total involved some sort of a stall (not necessarily a high speed stall).

November 8, 2016: HMA's Technical Committee reviews the information and recommends to HMC a warranty extension for the Santa Fe Sport with regard to MY 2013-2017. HMA committed to continue to monitor claims. At this time, the reported instances of stalling in the Santa Fe Sports are approximately 50% less than the reports for the MY 2013-2014 Sonatas that are subject to an extended warranty.

December 6, 2016: ODI staff informs HMA that it is reviewing stalling-related VOQs with regard to Hyundai and Kia vehicles, and seeks information by model, model year and engine type. HMA responded the following day.

February 28, 2017: ODI initiates a conference call with KMA and with HMA jointly. ODI staff informs KMA and HMA that ODI will no longer consider an extended warranty an acceptable field action with regard to the Theta II GDI issues.

March 17, 2017: HMA and KMA have a follow up conference call with ODI staff. HMA has reviewed the field experience with regard to all vehicles with Theta II engines and has concluded that the occurrence rate of high speed stalls associated with the MY 2013-2014 Santa Fe Sport and Sonatas has risen and is now consistent with the rates at which the earlier model year Sonatas were recalled. HMA and ODI staff agree that Hyundai will review the data with the HMA Technical Committee to make a decision on how HMA should proceed by the end of the month.

March 24, 2017: HMA's Technical Committee reviews the information and makes a formal defect determination with regard to MY 2013-2014 Sonatas and Santa Fe Sport.

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March 31, 2017: HMA submits its Defect Information Report with regard to 17V-226.

The information responsive to Request 34 was provided by HMA.

Request 35

35. Explain in detail the "further discussions" referred to by the "Chronology" section of Hyundai's March 31, 2017 DIR for 17V-226.

Response to Request 35

As set forth in Response to Request 29, Hyundai engaged in open dialogue with ODI with regard to the vehicles subject to Recall No. 17V-226.

October 22, 2015: Hyundai added the Santa Fe Sport (AN) to the SEL, noting that the company was considering a warranty extension with regard to those vehicles.

January 13, 2016: During an SEL meeting, ODI staff noted an increase in complaints with regard to the Santa Fe Sport. Hyundai explained that the model years at issue (MYs 2013-2014) were the same as the model year Sonatas that were to be covered through an extended warranty and that, as with the Sonatas, there were many factors that could contribute to an engine failure. As with the Sonatas, Hyundai would continue to monitor the field experience.

December 6, 2016: ODI staff informs HMA that it is reviewing stalling-related VOQs with regard to Hyundai and Kia vehicles, and seeks information by model, model year and engine type. HMA responded the following day.

February 28, 2017: ODI initiates a conference call with KMA and with HMA jointly. ODI staff informs KMA and HMA that ODI will no longer consider an extended warranty an acceptable field action with regard to the Theta II GDI issues.

March 17, 2017: HMA and KMA have a follow up conference call with ODI staff. HMA has reviewed the field experience with regard to all vehicles with Theta II engines and has concluded that the occurrence rate of high speed stalls associated with the MY 2013-2014 Santa Fe Sport and Sonatas has risen and is now consistent with the rates at which the earlier model year Sonatas were recalled. HMA and ODI staff agree that Hyundai will review the data with the HMA Technical Committee to make a decision on how HMA should proceed by the end of the month.

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March 24, 2017: HMA's Technical Committee reviews the information and makes a formal defect determination with regard to MY 2013-2014 Sonatas and Santa Fe Sport vehicles.

March 31, 2017: HMA submits its Defect Information Report with regard to 17V-226.

The information responsive to Request 35 was provided by HMA.

Request 36

36. Explain in detail why "Hyundai decided to convert the extended warranty for the remaining 2013 and 2014 Model Year Sonatas to a safety recall, and to add the corresponding population of 'AN' platform Santa Fe Sport vehicles manufactured at HMMA, which have exhibited a similar field experience," as referenced in the "Chronology" section of Hyundai's March 31, 2017 DIR for 17V-226.

Response to Request 36

The decision to convert the extended warranty for MY 2013-2014 Sonata vehicles followed the path that began with the earlier recall in September 2015. At the time of the initial recall, Hyundai had decided to conduct a recall based on ODI's statement that a safety recall was appropriate to help forestall future incidents of high stalling events in the model years that had already experienced a high volume of such events. At that time, Hyundai shared with ODI its field analysis with regard to the various types of failure modes experienced with the MY 2011-2014 Sonata vehicles, and HMC quickly thereafter shared additional information with regard to improvements that had been made (and in particular the Wet Blast process at HMMA) to reduce material processing debris and which it was believed would help in keeping engine failures at a minimum with regard to the later model years.

Because many of the customer complaints about the engines focused on the need to replace the engines outside the original warranty, Hyundai proposed an extended warranty with regard to the MY 2013-2014 Sonata vehicles. ODI was aware of the data and the basis for the field action at the time. ODI and Hyundai again discussed MY 2013-2014 vehicles with Theta II GDI engines in the context of the Santa Fe Sport in early 2016. Hyundai implemented the extended warranty for MY 2013-2014 Sonata vehicles in May 2016 as replacement engines became more available.

In early December 2016, ODI again reached out to Hyundai and Kia about Theta II engines, asking for a list of vehicles including those engines. On a joint Hyundai

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and Kia conference call in February 2017, ODI informed the companies that ODI would no longer consider an extended warranty sufficient to address the field issues with Theta II engines. Hyundai reviewed the claims experience for all vehicles with Theta II engines. Hyundai found that the MY 2013-2014 Sonata and Santa Fe Sport vehicles were at that time experiencing failure rates comparable to those that led to the safety recall for the earlier model years. Based on the comparable failure rates, and ODI's announcement that it would only consider a safety recall as a field action, Hyundai decided upon the 2017 safety recall.

The March 2017 DIR reflects that Hyundai had initiated the original recall "based on the number of engine replacements in those model years." Hyundai noted that it continued to monitor engine related field data through 2016 and into 2017, and that after further discussion with ODI, decided to convert the original extended warranty to a safety recall and to include the same model year Santa Fe Sport vehicles within that safety recall. Hyundai also noted that "as a regular part of its process improvement, Hyundai has routinely implemented revisions to its manufacturing and assembly processes to reduce the potential for bearing damage."

The information responsive to Request 36 was provided by HMA.

Request 37

37. Provide a chronology of all principal events that were the basis for Hyundai's determination that the defect identified in Hyundai's March 31, 2017 DIR for 17V-226 related to motor vehicle safety as to MY 2013-2014 Hyundai Sonata and Hyundai Santa Fe Sport vehicles, including a summary of all warranty claims, field or service reports, and any other information, with their dates of receipt.

Response to Request 37

The decision to conduct a safety recall for MY 2013-2014 Sonata and Santa Fe Sport vehicles in March 2017 followed the path that began with the earlier recall in September 2015. At the time of the initial recall, Hyundai had decided to conduct a recall based on ODI's statement that a safety recall was appropriate to help forestall future incidents of high stalling events in the model years that had already experienced a high volume of such events. At that time, Hyundai shared with ODI its field analysis with regard to the various types of failure modes experienced with the MY 2011-2014 Sonata vehicles, and HMC quickly thereafter shared additional information with regard to improvements that had been made (and in particular the Wet Blast process at HMMA) to reduce material processing debris and which it was

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believed would help in keeping engine failures at a minimum with regard to the later model years.

Because many of the customer complaints about the engines focused on the need to replace the engines outside the original warranty, Hyundai proposed an extended warranty with regard to the MY 2013-2014 Sonata vehicles. ODI was aware of the data and the basis for the field action at the time. ODI and Hyundai again discussed MY 2013-2014 vehicles with Theta II GDI engines in the context of the Santa Fe Sport in early 2016. Claims analysis at the time showed the overall claim rate for the Santa Fe Sport was 1.11 PPH for MY 2013 and 1.41 PPH for MY 2014 (although this claim rate was later determined to be overstated).

Hyundai continued to consider an extended warranty for the Santa Fe Sport vehicles consistent with the extended warranty for the same model year Sonata vehicles. Claims analysis in November 2016 indicated an overall claim rate of 1.77 PPH for MY 2013 and 1.87 PPH for MY 2014. About 5% of the total involved some sort of a stall (not necessarily a high speed stall).

In early December 2016, ODI again reached out to Hyundai and Kia about Theta II engines, asking for a list of vehicles including those engines. On a joint Hyundai and Kia conference call in February 2017, ODI informed the companies that ODI would not consider an extended warranty to address ongoing Theta II engine issues. Hyundai again reviewed the claims analysis for all vehicles with Theta II engines. Hyundai found that the MY 2013-2014 Sonata and Santa Fe Sport vehicles were at that time experiencing claim rates comparable to those that led to the safety recall for the earlier model year Sonata vehicles. Based on the comparable claim rates, and ODI's announcement that it would only consider a safety recall as a field action, Hyundai decided upon the 2017 safety recall.

The March 2017 DIR reflects that Hyundai had initiated the original recall "based on the number of engine replacements in those model years." Hyundai noted that it continued to monitor engine related field data through 2016 and into 2017, and that after further discussion with ODI, decided to convert the original extended warranty to a safety recall and to include the same model year Santa Fe Sport vehicles within that safety recall. Hyundai also noted that "as a regular part of its process improvement, Hyundai has routinely implemented revisions to its manufacturing and assembly processes to reduce the potential for bearing damage."

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Specifics on the field data are provided within the data sets provided in response to this Special Order. The information responsive to Request 37 was provided by HMA.

Request 38

38. Provide a detailed narrative explanation for the basis of Hyundai's statement in its March 31, 2017 DIR for 17V-226 that the estimated percent of the recall population with the defect is 2%.

Response to Request 38

Below is the analysis leading to the statement that the estimated percent of the affected population is 2%. The 2% figure is a rounding up from 1.90% and includes all of the conditions that could occur as a result of the engine issues. Had Hyundai focused only on the high speed stalling events that gave rise to the recalls, the estimate would have been lower.

MARKET CONDITION:

| | MY | fire | stall-hwy (no d) | stall (no d) | stall (d) | no start | noise | other | VOQ | Cases | UIO | PPH |
|-------|------|------|---------------------|-----------------|--------------|-------------|-------|-------|-----|--------|---------|------|
| YF | 2013 | 12 | 91 | 675 | 384 | 1,174 | 2,141 | 657 | 71 | 5,134 | 286,407 | 1.79 |
| | 2014 | 1 | 16 | 159 | 113 | 396 | 1,162 | 357 | 12 | 2,204 | 132,077 | 1.67 |
| AN | 2013 | 7 | 55 | 256 | 196 | 173 | 947 | 453 | 32 | 2,087 | 91,194 | 2.29 |
| | 2014 | 3 | 12 | 116 | 61 | 74 | 1,155 | 367 | 8 | 1,788 | 80,151 | 2.23 |
| Total | | 23 | 174 | 1,206 | 754 | 1,817 | 5,405 | 1,834 | 123 | 11,213 | 589,829 | 1.90 |

The information responsive to Request 38 was provided by HMA.

Request 39

39. Provide a detailed narrative explanation of the Theta II engine defect resulting in the recall of approximately 171,000 vehicles in South Korea as announced by the South Korean Ministry of Land, Infrastructure and Transport on April 7, 2017 including, but not limited to: a timeline of actions, communications, and events leading to the defect and recall decision beginning from the first report or awareness of a problem through the present; an explanation of efforts undertaken to identify and analyze the problem prior to determining a defect; and the root cause of the defect. Provide all supporting documentation.

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Response to Request 39

After the publicity in Korea surrounding the allegations made by Mr. Kim Gwang-ho in the Korean media, KATRI initiated an investigation into the Theta II engines in Korea in October 2016. Mr. Kim never raised an issue with the Theta II engine internally at Hyundai. HMC responded to KATRI's information requests, a number of requests and responses ensued, and KATRI made no determination with regard to the Theta II engines.

HMC conducted a review and analysis of the field experience in Korea as well as an investigation of whether there was the potential for the presence of debris in the engines manufactured in Korea. On April 6, 2017, HMC submitted a voluntary recall with regard to the Theta II GDI engines in Korea. As reported to MOLIT, the recall resulted from HMC's conclusion that there was a possibility of residual metallic engine debris during the crank shaft machining equipment process at the Korean engine plants.

There have been various communications between HMC and KATRI between October 2016 and June 2017. Hyundai has provided a timeline of these communications and translated versions of the documents in response to Request 39.


The information responsive to Request 39 was provided by HMC.

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Affidavit

I, W. Gerald Flannery, in my capacity as Executive Vice President, Chief Legal & Safety Officer of Hyundai Motor America, Inc. ("HMA"), state the following:

1. I am an Officer of HMA, as defined in the Special Order, and provide this affidavit pursuant to Instruction 15 in the Special Order.
2. I directed that a good faith inquiry be conducted that would be reasonably calculated to assure that the answers and production of documents are complete and correct, and that documents within the possession, custody and control of HMA be searched diligently for information and documents responsive to the Special Order and produced to NHTSA.
3. I also directed that a team representing HMA work with HMA's parent company, Hyundai Motor Company ("HMC") to obtain further information and documents responsive to the Special Order. Based on information provided to me, it is my understanding that HMC made a good faith inquiry to obtain information and to collect documents needed to respond to the Special Order requests.
4. Based on information provided to me, HMA and HMC made a good faith effort to have the documents responsive to the Special Order translated into English. Any oversights or shortcomings in translation are inadvertent. Should there be any documents, or portions of documents found that have not been translated, HMA will obtain further translation at NHTSA's request.
5. Based on information provided to me, inquiry has been made of the persons and offices reasonably calculated to have responsive information and documents, and the answers to the Special Order are correct based upon HMA's investigation to date.
6. HMA's investigation is ongoing. HMA reserves the right to supplement or clarify these responses if it deems appropriate to do so.


W. Gerald Flannery
Dated: August 25, 2017