Committee on Energy and Commerce
U.S. House of Representatives

GM's Responses to April 24, 2014 Questions for the Record[1]

Additional Questions for the Record

The Honorable Tim Murphy

1. In April 2009, NHTSA conducted a Special Crash Investigation (SCI) of a fatal accident in Pennsylvania involving a Cobalt. The airbags failed to deploy and the vehicle was found in the accessory position. Unlike previous crashes investigated by SCI, this accident did not involve an off-road incident. [Tab 20]

a. Was GM aware of the April 2009 accident in Pennsylvania that was investigated by NHTSA? If so, when did GM learn of this tragic accident? How did you become aware of this accident?

RESPONSE:

Based on GM's investigation to date, GM did not learn of this accident prior to late February 2014. Subject to ongoing investigation, GM believes that the first time it learned about the accident was in late February 2014 when an engineer viewed the report on the NHTSA website. The SCI does not name the individuals involved in the accident.

b. Did GM inform NHTSA of this accident?

RESPONSE:

Based on GM's investigation to date, GM was not aware of this accident prior to late February 2014. The accident was included in GM's April 25, 2014 Supplemental, Restated, and Consolidated Response to the Special Order issued by the Secretary of Transportation on March 4, 2014.

[1] By agreement with Committee staff, GM submitted responses to these questions on May 30, June 7, June 9, and June 11. This document contains a compilation of the responses originally submitted on those dates, with the exception of the June 7 confidential responses. GM included cover letters with the prior submissions noting that because no single person at GM was involved in all of the events and issues covered by the questions, the answers reflect input from different personnel and sources within GM.

c. **Was GM aware that NHTSA conducted a Special Crash Investigation of this accident? If not, why not? If so, when did you learn of the Special Crash Investigation?**

RESPONSE:

Based on GM's investigation to date, GM was not aware of the NHTSA Special Crash Investigation until late February 2014.

d. **Was this accident included in GM's list of 31 accidents involving death or serious injury that may be associated with this recall condition?**

RESPONSE:

This accident was included in GM's April 25, 2014 Supplemental, Restated, and Consolidated Response to the Special Order issued by the Secretary of Transportation on March 4, 2014.

i. What factors did GM consider to make this determination?

RESPONSE:

In GM's April 25, 2014 Supplemental, Restated, and Consolidated Response to the March 4, 2014 Special Order, GM submitted to NHTSA a list of lawsuits, NISMs, incidents without claims, and customer complaints made to GM identified as involving frontal-impact crashes in which the recall condition may have caused or contributed to the airbags' non-deployment. The numbers of injuries and fatalities reported relate to frontal occupants, and do not include injuries or fatalities of passengers in the back seat. This list includes 54 crashes, one of which is the April 2009 accident in Pennsylvania referenced in the SCI report at issue.

2. **Documents produced to the Committee reveal that in 2011 you were informed about an ongoing NHTSA investigation involving the electric power steering in the Saturn Ion. This was a separate defect investigation but the email demonstrates that some product investigations did reach your level within GM.**

a. In 2011, were there specific criteria for when a product or safety investigation was brought to your attention?

RESPONSE:

In 2011, Mary Barra held the position of Senior Vice President, Global Product Development. Ms. Barra is not aware of specific criteria that were used in 2011 to

determine whether others would bring a product or safety investigation (as opposed to a final recall determination) to her attention in that position.

b. **In the example of electric power steering in the Saturn Ion, why was this brought to your attention in 2011?**

RESPONSE:

Ms. Barra does not know why Mr. Woychowski sent the above-referenced e-mail to her in 2011, but notes that Mr. Woychowski's e-mail states "FYI."

c. **How was this process changed?**

RESPONSE:

It is not clear what process the question is referring to. With respect to GM's product safety process changes more generally, Jeff Boyer discussed these topics in a conference call with Committee staff on May 1. Mr. Boyer described a number of changes as of May 1 and noted that additional changes were in progress. With respect to processes relating to Question 2(a) and (b) above, some of the process changes include the following:

- In addition to briefings in the ordinary course from Mr. Boyer to Ms. Barra on safety issues, Mr. Boyer will immediately advise Ms. Barra of issues related to safety under certain predefined circumstances; Ms. Barra will in turn inform the Board of Directors as appropriate.
- Mark Reuss has been added to the Safety and Field Action Decision Authority (SFADA) and will be a deciding member along with four other executives for all recall decisions.
- Mr. Reuss will review investigations to be discussed and decided upon by SFADA two days in advance with Ms. Barra.
- Mr. Reuss and Ms. Barra can upgrade any recall decision by SFADA to a higher level (*e.g.*, Customer Satisfaction upgraded to Safety Recall).
- A team within Global Safety has been formed to prepare immediate (*i.e.*, within hours) action after any recall decision in terms of communication to NHTSA, dealers, Customer Call Centers, GM upper management, media, etc.
- Mr. Boyer will inform Ms. Barra of recall decisions directly after each SFADA.

The Honorable Henry A. Waxman

1. **Did GM engineers investigate the placement of the steering column as a contributing factor to accidental ignition switch position movement? If so, what were their conclusions?**

   RESPONSE:

   GM engineers considered changing the location of the ignition on the steering column from a low-mount to a high-mount module. This option was not seen as a complete fix because it would reduce the casing around the parts, would not be durable, and would not address the torque issues.

2. **Does the placement of the steering column in vehicles affected by this recall increase the likelihood of a driver inadvertently jostling the key out of position through contact with the driver's knee or body?**

   RESPONSE:

   GM does not believe that the placement of the steering column (and consequently the ignition key cylinder) in the recalled vehicles increases the likelihood of a driver inadvertently contacting the ignition key with the driver's knee or body.

   The placement of the steering column during vehicle development is done according to standard design practices used at GM. To position the steering column within the driver's side interior occupant compartment of a new vehicle design, GM first positions the occupant in the vehicle seat, as specified in the Society of Automotive Engineers (SAE) standard J826. Next, GM positions the steering wheel rim relative to the occupant. The positioning of the steering wheel is within an area or "zone" to provide a comfortable driving experience. After the occupant and steering wheel have been positioned, the steering column will be aligned to the steering wheel. In general, the placement of the ignition key cylinder in relation to the center line of the steering column is placed within acceptable reach zones and is influenced by other components on the column such as multi-functional switch levers, column mounted shift mechanisms, and power adjustment switches.

   Positioning the occupant, steering wheel, steering column and eventually the ignition key cylinder in the interior compartment will vary some from vehicle segment to vehicle segment. A Sport Utility Vehicle (high roof) is designed to feel different than a sedan (low roof) vehicle. The design distance between the occupant's knee and ignition key cylinder on the recalled vehicles is well within the range of distances on other GM vehicles (i.e., some GM vehicles have smaller design distances between the knee and ignition key cylinder and some have larger design distances).

3. **Does GM believe that there is any safety problem with the placement of the steering column in vehicles affected by this recall?**

RESPONSE:

GM does not believe that the placement of the steering column (and consequently the ignition key cylinder) in the recalled vehicles poses a safety problem. The distance between the design position of the knee and ignition key cylinder are well within the distances found in other GM vehicles.

4. **What are the risks of the ignition switch implicated in this recall not meeting minimum torque performance specifications?**

RESPONSE:

GM explained in letters to NHTSA in February and March 2014 that the ignition switch torque performance may not meet General Motors' specification. If the torque performance is not to specification, the ignition switch may unintentionally move from the "run" position to the "accessory" or "off" position with a corresponding reduction or loss of power. This risk may be increased if the key ring is carrying added weight or the vehicle goes off road or experiences some other jarring event. The timing of the key movement out of the "run" position, relative to the activation of the sensing algorithm of the crash event, may result in the airbags not deploying, increasing the potential for occupant injury in certain kinds of crashes. When the ignition switch is in the "accessory" or "off" position, the vehicles will lose motive power and will not have power steering assist or power brakes, although the loss of power brakes is not immediate.

The torque performance of the ignition switch is the result of the plunger spring interacting with the detent profiles on the underside of the rotor as the plunger moves through the various detents. Should the detent plunger spring exert insufficient force on the detent profiles, low ignition switch torque could lead to unintended rotation or movement of the ignition switch out of the "run" position, even momentarily, to the "accessory" or "off" positions if the key ring is carrying added weight.

In the course of physical and analytical testing that GM has conducted (as produced to NHTSA in response to the Second Special Order), the ignition switch did not turn from the "run" to "accessory" position in any of the tests conducted with only a typical key ring and the production key in the lock cylinder. GM has determined that, if the key ring is carrying additional weight, various combinations of the following outside influences affect the likelihood that low ignition switch torque could lead to unintended rotation or movement of the ignition switch out of the "run" position, even momentarily:

- mass of additional objects hanging from the key ring;
- length of additional objects hanging from the key ring;
- length of the slot in the key (through which the key ring is placed);
- physical position of the ignition cylinder axis in the steering column (plan view, side view, side view, rear view and angle);

- significant vertical (up/down) and longitudinal (fore/aft) road inputs; and
- size of occupant, position of seat and column angle relative to ignition key.

According to GM's tests, including application of the principles of physics, when only the production ignition key is inserted in the lock cylinder, sufficient torque (twisting force) will not be generated to turn the ignition key from the "run" to "accessory" position due to road inputs. This is due to the symmetry of the production key, as there is no unbalanced mass that can react to acceleration from road inputs and create the necessary twisting force on the ignition key. As a result, our analyses show that a production key in the lock cylinder by itself will not exert sufficient torque to turn the ignition switch to the "accessory" position.

Physical testing over a variety of aggressive road surfaces producing significant vertical and longitudinal road inputs confirmed this analysis and that the addition of a typical key ring does not affect the performance, i.e., the ignition switch position did not move out of "run."

5. **If an ignition switch fails to meet specification, does that mean it is unsafe? If not, what factors determine safety for the part? Does GM have a formal documented process or any guidelines for determining whether an ignition switch is safe?**

RESPONSE:

Component parts are subject to both development validation testing and production validation testing by the supplier. The failure to meet any single aspect of a component specification does not necessarily mean that a part or vehicle is unsafe. In general, safety is assessed, tested, and validated at a vehicle system level. GM's Global Vehicle Development Process (GVDP) includes vehicle-level and component-level validation testing and Integration Vehicle Engineering Reviews prior to launch. If there are issues with the part's performance during vehicle level testing, a part can be further evaluated before going into production.

6. **In December 2005, GM decided to issue a Technical Service Bulletin (TSB) letting dealers know about ignition switch problems and provided a key insert to fix them. Why did GM issue a TSB instead of addressing this serious safety concern directly by issuing a recall?**

RESPONSE:

Based on its investigation to date, GM believes that GM engineers concluded in December 2005 that the Service Bulletin and field service campaign were the appropriate response to the reported incidents, given that the car's steering and braking systems remained operational after a loss of engine power, and that the car's engine could be restarted by shifting the car into either neutral or park.

7. **How many people actually received key inserts as a result of the December 2005 TSB?**

RESPONSE:

GM has produced to the Committee a copy of the briefing materials prepared for the EFADC meeting of February 24, 2014. The table on page 2 of that PowerPoint presentation includes the number of key inserts provided by make, model, and model year. Upon further review, only 423 of the key inserts were provided to customers in the United States. The remaining customers provided key inserts were located in Canada or Mexico. GM also previously produced a spreadsheet of warranty data that reflects the number of key inserts provided to customers in North America, including the make, model, and date provided.

8. **At the time GM issued the December 2005 TSB, did any company engineers know that changes to the key wouldn't completely solve the problem of the ignition switch position inadvertently moving from run to accessory?**

RESPONSE:

Based on its investigation to date, GM believes that in December 2005, some GM engineers believed that, while the proposed changes to the key (i.e., changing the key head design from a "slot" to a "hole" design and providing a smaller key ring) would help address the inadvertent shut-off issue, they did not believe that it would completely eliminate the problem. In 2005 presentations and e-mails discussing potential solutions to the issue, engineers characterized the key design change and smaller key ring as a "short term" solution.

9. **When the ignition switch position moves from run to accessory, what's the actual problem? Is it that power is disconnected from the airbags, meaning that they wouldn't deploy in an accident, or is the engine shutting down in and of itself the problem?**

RESPONSE:

Please see response to Question 4, above, as well as GM's April 25, 2014 Supplemental, Restated, and Consolidated Response to the March 4, 2014 Special Order, No. 3.

10. **Has GM looked at possible accidents or fatalities related to the defective ignition switch where airbag nondeployment did not occur? If not, why not?**

RESPONSE:

Although GM is not certain what is meant by the phrase "possible accidents or fatalities," GM has reviewed data concerning a number of accidents, including some accidents in

which airbags deployed. As part of GM's April 25, 2014 Supplemental, Restated, and Consolidated Response to the March 4, 2014 Special Order, GM submitted to NHTSA a list of lawsuits, NISMs, incidents without claims, and customer complaints made to GM identified as involving frontal-impact crashes in which the recall condition may have caused or contributed to the airbags' non-deployment. The numbers of injuries and fatalities reported relate to frontal occupants, and do not include injuries or fatalities of passengers in the back seat.

11. **Does GM monitor its own warranty claims for defects and other problems?**

RESPONSE:

Yes.

The Honorable G.K. Butterfield

Ms. Barra, as you know, the underlying focus of the hearing today is protection of consumers and others against injury from safety defects. The recall system mandated by the Motor Vehicle Safety Act and supplemented by the Transportation Recall Enhancement, Accountability and Documentation (TREAD) Act are in place for that purpose. Recently, the Senate Commerce Committee took bi-partisan action to further protect consumers by approving legislation (S. 921) that would ensure that vehicles subject to a safety recall and that are part of rental car company fleets may not be rented until the required repairs are done. The legislation essentially codifies the current practice of rental car firms into a single, uniform nationwide standard. The major rental car companies--likely GM's biggest single customers--support and have endorsed S. 921 as well as the American Car Rental Association (ACRA) on behalf of the industry as a whole.

1. Does General Motors support S.921?

RESPONSE:

Placing our customers' safety and peace of mind at the center of all that we do is what drives us. We are presently reviewing the provisions of S.921. General Motors believes that the goal of S.921 -- not renting or leasing vehicles that are in need of modification or repair due to a safety recall -- is very important.

2. Given that the major car rental companies are some of GM's largest customers; do you agree that a uniform, nationwide standard pertaining to recalls and cars in rental car fleets is desirable?

RESPONSE:

General Motors believes that the goal of S.921 -- not renting or leasing vehicles that are in need of modification or repair due to a safety recall -- is very important.

3. Will you commit to work with those of us in the Congress to enact legislation to make sure that cars that consumers rent are not under a safety recall?

RESPONSE:

Yes, and we are discussing the provisions of S.921 with its author and cosponsors.

4. Some organizations believe that S.921 may encourage car rental firms to bring "loss of use" suits by the major rental car companies against auto manufacturers. Do you share those concerns?

RESPONSE:

It is likely that car rental firms would request compensation from auto manufacturers for "loss of use." S.921 should provide a mechanism that will enable auto manufacturers to be appropriately shielded from lawsuits brought by car rental companies in this regard. This could be done by pre-emption of individual state laws, or could be accomplished contractually. We are likewise concerned that if car rental companies are, by force of their numbers, allowed to have their vehicles repaired more quickly than retail customers, retail customers will naturally be relegated to the back of the line, and will experience a delay in getting their cars repaired. Retail customers, not rental car companies, represent the vast majority of our customer base.

5. What has been GM's experience with loss of use claims?

RESPONSE:

None to date.

6. Are loss of use issues a matter of negotiation that are addressed in the contracts between you – the manufacturer – and the rental car company?

RESPONSE:

Not at present.

The Honorable Paul D. Tonko

1. What is the part number of the faulty ignition switch that was approved in 2002 despite being below GM specifications? Will the replacement ignition switch that will be installed beginning this month continue to have this part number?

RESPONSE:

The part number for the ignition switch that was approved in 2002 was 12450250. Replacement ignition switches installed as part of the recall will not have this part number.

2. **Can you please explain the modifications that will be made to vehicles when they are brought in under the recall? Will the entire ignition switch be replaced or only certain components? Will all recalled vehicles receive the 2006 switch?**

RESPONSE:

Dealers are to replace the ignition switch on all recalled vehicles. In addition, dealers will replace the ignition cylinder on all vehicles which have not previously had the ignition cylinder replaced with the redesigned part. Dealers will also cut and, if necessary, re-learn two new keys for each vehicle, and provide them on new 13mm (1/2") key rings. Customers whose vehicles were built with or whose ignition cylinder was replaced with the redesigned ignition cylinder will receive a new ignition switch and two new keys on new 13mm (1/2") key rings. Customers are also being instructed to turn their keys into the GM dealer.

The entire ignition switch will be replaced on all recalled vehicles.

Not all recalled vehicles will receive the same switch. The ignition switch for the 2008-2011 model year recalled vehicle population is different because the 2008-2011 model year vehicles have a different vehicle security system. Please also see Response No. 4, below.

3. **Has the 2006 switch been redesigned or reengineered since it was first approved?**

RESPONSE:

Since the changes approved by the General Motors Commodity Validation Sign-Off dated April 26, 2006, the ignition switch (part number 10392423) has been changed pursuant to Engineering Work Order #573556 (GMHEC000247578-93), initiated on October 12, 2005. The Engineering Work Order states: "revise OFF/RUN/CRANK circuit to include 1.3 K ohm resistor; 1% Tolerance; ¼ Watt; revise art work on PCB, i.e. move VIAs, increase trace width." This Engineering Work Order applied to the ignition switch for production in the Chevrolet Cobalt (GMX001), Pontiac Solstice (GMX020), Saturn Sky (GMX023), and Chevrolet HHR (GMT001). In addition, this Engineering Work Order cancelled part number 10392423 and established part number 15886190. This Engineering Work Order was closed on June 12, 2006.

4. **Have quality control or manufacturing processes for this switch been changed in light of the recall?**

   RESPONSE:

   The new ignition switch Delphi began providing to GM during the 2007 model year and then for the model year 2008-2010 Chevrolet Cobalt and Pontiac G5 is the same ignition switch that is being used for the recall. The parts make-up for the ignition switch being used for the recall, including the spring, plunger, housing, grease, and rotor are the same as those used for the redesigned ignition switch Delphi began providing to GM at some point during the 2007 model year.

   The circuit board for the ignition switch being used for the recall is being provided by a different manufacturer because Delphi no longer does business with the supplier that provided the circuit board for the redesigned switch that first was used at some point during the 2007 model year. The design for the circuit board, however, has not changed. While the parts make-up is the same, the part number for the ignition switch has changed.

   GM's end-of-line testing for the ignition switch also has changed. This testing now is more stringent, and GM requires a verification of every ignition switch to six parameters. (See GMHEC000284521-23 (February 21, 2014 e-mail regarding the validation plan for Cobalt ignition switches).)

5. **Has GM established a minimum torque requirement for replacement switches that will be installed in recalled vehicles?**

   RESPONSE:

   Yes. The torque specification for moving the switch position from RUN to ACC is 20 N-cm +/- 5 (minimum torque is 15 N-cm). During manufacturing of the replacement switch, all parts are checked to be within this range.

6. **Generally speaking, at what level within GM's corporate structure is part approval done?**

   RESPONSE:

   Generally speaking, the GM Production Part Approval Process (PPAP) is aligned with the global AIAG (Automotive Industry Action Group) process. Responsibility for detailed PPAP documentation retention lies with the supplier.

   Currently, GM's Design Release Engineer (DRE), Validation Engineer, and Supplier Quality Engineer are responsible for PPAP approval within GM.

7. **Your written testimony stated, "If people do not want to drive a recalled vehicle before it is repaired, dealers can provide them a loaner or rental car – free of charge." My office heard from at least one Upstate New Yorker that this offer wasn't being recognized by at least one dealership. What information was sent to GM dealerships to inform them of this policy?**

   RESPONSE:

   The information sent to dealers includes the following: On March 4, 2014, GM sent its dealers a communication with an attached Q&A regarding the ignition switch recall advising dealers that they were empowered to place customers who were concerned about operating their vehicle into alternate courtesy transportation vehicles. On March 14, 2014, GM sent another communication to its dealers reemphasizing that customers who express concern about driving their vehicle should be provided a rental vehicle, and providing additional processing details. On April 23, 2014, GM sent another communication regarding rental cars for customers referencing the expanded population of recalled vehicles.

8. **How many of the recalled models have been sold outside the United States?**

   RESPONSE:

   Confidential response submitted June 7, 2014.

9. **Do the models sold outside the United States use the same ignition switch?**

   RESPONSE:

   All of the recalled vehicles outside of the United States use the same ignition switch parts as their US counterparts.

10. **Have there been any previous recalls, safety investigations, or complaints of these models in other countries?**

    RESPONSE:

    Confidential response submitted June 7, 2014.

11. Are manufacturers required to notify NHTSA about recalls in other countries?

RESPONSE**:**

With respect to motor vehicles or items of motor vehicle equipment outside the U.S. that are identical or substantially similar to vehicles or items of equipment sold or offered for sale in the U.S., 49 CFR Part 579 (part of the TREAD Act regulations) requires manufacturers to notify NHTSA not later than five working days after the manufacturer determines to conduct a safety recall in a foreign country, or receives written notification that a foreign government has determined that a safety recall must be conducted in its country. The manufacturer is not required to report the foreign recall to NHTSA if the manufacturer is also recalling the same scope of U.S. vehicles for the same or substantially similar reasons; the component or system at issue in the foreign recall does not perform the same function in U.S. vehicles; or the subject of the foreign recall is a label affixed to a vehicle or item of equipment.

12. Are manufacturers required to notify NHTSA if a regulatory or safety agency in another country launches a safety investigation?

RESPONSE**:**

Manufacturers are not required to notify NHTSA that a foreign regulatory or safety agency has launched a safety investigation into the manufacturer's products. As stated in response to Question No. 11 above, with respect to motor vehicles or items of motor vehicle equipment outside the U.S. that are identical or substantially similar to vehicles or items of equipment sold or offered for sale in the U.S., 49 CFR Part 579 (part of the TREAD Act regulations) requires manufacturers to notify NHTSA if the manufacturer receives written notification that a foreign government has determined that a safety recall must be conducted in its country. The manufacturer is not required to report receipt of written notification that a foreign government has determined that a safety recall must be conducted in its country if the manufacturer is also recalling the same scope of U.S. vehicles for the same or substantially similar reasons; the component or system at issue in the foreign recall does not perform the same function in U.S. vehicles; or the subject of the foreign recall is a label affixed to a vehicle or item of equipment. Id. § 579.11(d)(1).

Member Requests for the Record

During the hearing, Members asked you to provide additional information for the record, and you indicated that you would provide that information. For your convenience, descriptions of the requested information are provided below.

The Honorable Fred Upton

1. **Who within GM made the decision to move forward with the redesigned switch without a new part number?**

   RESPONSE:

   Based on our investigation to date, Ray DeGiorgio made that decision.

The Honorable Marsha Blackburn

1. **During the hearing you said that General Motors has changed its core values. Please submit to the Committee what General Motors' core values are.**

RESPONSE:

Our vision is to design, build and sell the world's best vehicles. These vehicles are supported and enabled by:

- The highest levels of safety, quality and customer service in any industry
- Strong brands
- A commitment to profitable growth around the world
- A fortress balance sheet

Our values are shared with a passion by everyone who is part of the General Motors team – including our dealers, partners and suppliers.

Our Customers are Our Compass

Our decision-making starts and ends with our customers. We listen intently to their needs and provide them with:

- A high level of expertise
- Complete transparency
- Unparalleled convenience
- Genuine appreciation for their business

Relationships Matter

We work with and care for all team members across the GM enterprise with complete respect, transparency and appreciation of one another's unique strengths. We partner to solve problems and look out for one another when difficulties arise. We leverage diverse thinking, collaborative teams and partnerships to create new ideas for our customers.

Individual Excellence is Crucial

Each of us strives to perform at our highest level and can be trusted to serve our customers and fellow team members with personal integrity and accountability. Each of us has a thirst for creativity, ingenuity and innovation – and has the tenacity to win.

The Honorable Gregg Harper

1. **What was Lori Queen's position at General Motors in 2005?**

   RESPONSE:

   Vehicle Line Executive – Small Cars

2. **In the email reviewed at the hearing (GMHEC000219123), Ms. Queen stated, "I'm not sure it's ok to wait. I want to discuss at PET ... "**

   What is "PET?"

   RESPONSE:

   PET refers to the Program Execution Team**,** which as a general matter considered platform-wide business decisions and included representatives from marketing and planning, as well as from the CPIT and VAPIR processes.

   After the date of this email, September 28, 2005, did Ms. Queen have any influence over changes made to the switch? If so, what did she do and when did this occur?

   RESPONSE:

   Based on GM's investigation to date, there is no evidence outlining Ms. Queen's involvement in this issue after September 28, 2005. In January 2006, Ms. Queen transitioned to a position relating to GM trucks.

3. During the hearing, you indicated that a specific traffic death was not included in the count of fatalities that may have been associated with this issue. Please provide the Committee with the information regarding the other traffic accidents that resulted in a fatality or serious injury that were looked at but the determination was made that it was not part of this total.

In GM's April 25, 2014 Supplemental, Restated, and Consolidated Response to the March 4, 2014 Special Order, GM submitted to NHTSA a list of lawsuits, NISMs, incidents without claims, and customer complaints made to GM identified as involving frontal-impact crashes in which the recall condition may have caused or contributed to the airbags' non-deployment. The numbers of injuries and fatalities reported relate to frontal occupants, and do not include injuries or fatalities of passengers in the back seat. In identifying the injuries described above, GM did not attempt to distinguish between "serious" and "non-serious" injuries.

The type of information GM reviewed generally included police and accident reports, medical reports, event data recorder ("EDR") data, photographs, and certain customer complaints, but the type and extent of information available varied from incident to incident (*e.g.,* there was not a police or accident report for each incident, or EDR data for each incident, etc.)

Please also see GM's April 25, 2014 Supplemental, Restated, and Consolidated Response to the March 4, 2014 Special Order, Nos. 4, 5.

The Honorable Morgan Griffith

1. The 2004/2005 Problem Resolution Tracking System report (N172404) identified the issue of Severity 3. Please explain what Severity 3 means.

RESPONSE:

The definitions have not been constant over the past 10 years. Based on our investigation to date, we believe that in and around the 2004/2005 time period, "Severity 3" could mean "Moderate Issues – fix on next trip to dealership or cause moderate cost or labor impact at the assembly plant."

The Honorable John D. Dingell

1. Is it correct that General Motors' torque requirement for the redesigned switch remained the same as the torque requirement for the original switch?

RESPONSE:

Yes.

2. **Please submit to the Committee an explanation of the factors that General Motors takes into consideration when approving a part for production.**

   RESPONSE:

   The specific factors that are taken into consideration when approving a part for production would vary considerably depending on the specific part and intended use. As a general matter, part approvals are subject to standardized guidelines known as the Production Part Approval Process (PPAP). Standardized PPAP guidelines were developed by multiple manufacturers working under the auspices of the Automotive Industry Action Group. The general purpose of the PPAP is to determine if all customer design record and specification requirements are properly understood by the supplier and that the process has the potential to produce product consistently meeting those requirements during an actual production run at the quoted production rate.

3. **Are there circumstances where General Motors may approve parts for production when such parts do not meet design specifications? If so, please submit materials explaining when and why that might occur.**

   RESPONSE:

   Yes.

   There are circumstances when parts may be approved for production even if they do not meet all aspects of a specification. There are many different aspects to the specification of an automotive part. For a particular part, some parameters may be defined such as mechanical performance, electrical performance, and durability and environmental requirements (how the part performs under various conditions such as temperature, humidity, etc.). A specification may allow for some engineering judgment to be used to determine an acceptable performance level during development.

   Moreover, specifications may be changed to resemble the actual performance of the part (e.g., the part provides the desired feel) and memorialized in the component technical specifications for the part.

   Please also see GM's Response to Question No. 5 from The Honorable Henry A. Waxman.

The Honorable Bruce Braley

1. Representative Blackburn asked you to submit General Motors' current core values.

Please also submit to the committee any prior statements or core values from General Motors over the last 20 years so that we can see what has changed.

RESPONSE:

It would be difficult to identify all prior statements over the past twenty years relating to GM's core values. GM is in the process of looking for examples of such statements to provide to the Committee.

The Honorable Peter Welch

1. How many cars would GM have had to recall had you acted in 2006 when the company made the decision to change the switch?

RESPONSE:

The number would depend on a variety of factors, including when during 2006 such a recall would have occurred. GM estimates that the number of vehicles in the recall population produced as of the end of 2006 was approximately 890,000.

2. What do you estimate will be the cost of the recall now that it is being done 8 years later? How does that amount compare to what you estimate the cost would have been 8 years ago?

RESPONSE:

GM explained the following in GM's 10-Q filing on April 24, 2014:

In the three months ended March 31, 2014 we experienced a significant increase in the number of vehicles subject to recall in North America resulting in incremental charges for the estimated costs of parts and labor to repair these vehicles and courtesy transportation for certain recalls. Currently there are approximately 7 million vehicles subject to recalls announced during this period. This reflects the results of our ongoing comprehensive safety review, additional engineering analysis and our overall commitment to customer satisfaction.

In the three months ended March 31, 2014 we announced a recall to repair ignition switches in vehicles that we are no longer producing that under certain circumstances could result in a loss of electrical power that may prevent front airbags from deploying in

the event of a crash. It was originally estimated that approximately 800,000 vehicles were equipped with ignition switches needing repair. These vehicles include model years 2005–2007 Chevrolet Cobalt, 2007 Pontiac G5 and 2005–2006 Pursuit. In the three months ended December 31, 2013 we recorded approximately $40 million in Automotive cost of sales to cover the repairs as these costs were considered probable and estimable at that time. In the three months ended March 31, 2014 we expanded this recall by approximately 1.8 million additional vehicles for the same issue. These vehicles, consisting of model years 2008–2010 Chevrolet Cobalt, model years 2006–2011 HHR, model years 2008–2010 Pontiac G5, model years 2006–2010 Solstice, model years 2003–2007 Saturn ION and model years 2007–2010 Sky, were not included in the initial recall. In the three months ended March 31, 2014 we recorded approximately $90 million in Automotive cost of sales to repair these vehicles and approximately $270 million in Automotive cost of sales to provide courtesy transportation to owners of affected vehicles. These recalls, relating to ignition switches, are collectively referred to as the "Ignition Switch Recall".

Refer to Note 10 to our condensed consolidated financial statements for litigation associated with the Ignition Switch Recall. A second repair was added to these vehicles as a result of the comprehensive review described below to fix ignition lock cylinders that could allow removal of the ignition key while the engine is running, leading to possible rollaway or crash. In the three months ended March 31, 2014 we recorded approximately $320 million in Automotive cost of sales to repair ignition lock cylinders.

As a result of the Ignition Switch Recall senior leadership initiated a comprehensive review and engineering analysis to identify any additional issues which could potentially result in safety or satisfaction concerns for our customers. As part of our normal process and a result of these reviews we announced the following additional recall campaigns in the three months ended March 31, 2014:

- Approximately 1.9 million vehicles were recalled to replace either the power steering motor, the steering column, the power steering motor control unit or a combination of the steering column and the power steering motor control unit as the electric power steering could fail under certain circumstances — model years 2004–2006, 2008–2009 Chevrolet Malibu, model years 2004–2006 Malibu Maxx, model years 2006–2010 HHR, model years 2005–2010 Cobalt, model years 2008–2009 Saturn Aura, model years 2003–2007 ION, model years 2007–2010 Pontiac G5, model years 2005–2006, 2008–2009 G6 and model years 2005–2006 Pursuit and G4. We recorded approximately $340 million in Automotive cost of sales to repair these vehicles.

- Approximately 1.3 million vehicles were recalled that are prone to non-deployment of the side impact restraints if vehicles are not serviced when the Service Air Bag warning light is illuminated — model years 2008–2013 Buick Enclave and GMC Acadia, model years 2009–2013 Chevrolet Traverse and model years 2008–2010 Saturn Outlook. We recorded approximately $185 million in Automotive cost of sales to repair these vehicles.

• Approximately 1.2 million vehicles were recalled for other matters — certain model years 2009–2014 Chevrolet Express and GMC Savana, model years 2011–2014 Chevrolet Cruze, model year 2014 Chevrolet Silverado 1500 and GMC Sierra 1500 and model year 2015 Chevrolet Suburban, Tahoe, GMC Yukon and Cadillac Escalade. We recorded approximately $70 million in Automotive cost of sales to repair these vehicles.

In total we recorded approximately $1.3 billion for the above-described actions in the three months ended March 31, 2014.

In addition to the information discussed above in the April 24, 2014 filing, on May 20, 2014, GM issued a press release and filed a Form 8-K with the SEC regarding four separate safety recalls of certain models for the correction of various conditions affecting approximately 2.42 million vehicles. GM stated on May 20, 2014 that it expects to record a charge of up to approximately $400 million in the three months ending June 30, 2014 for primarily the cost of these and other safety recalls announced in this quarter, including up to $200 million previously disclosed in connection with the five recalls announced May 15, 2014.

GM believes the amounts listed above are higher than if the ignition switch recall would have occurred eight years ago but GM has not calculated what the difference might be.

The Honorable John Yarmuth

1. How do you make the decision as to which type of ignition, push button or traditional, goes into what car?

RESPONSE:

This is decided at a program level based on competitive market influences and customer preferences.

2. You also mentioned that General Motors is conducting an analysis on which type of key ignition switch is safer. Please share the findings of this analysis with the Committee.

RESPONSE:

GM has concluded that both push-button and traditional ignition switch systems can be safely implemented. GM is migrating our vehicle lines toward push-button technology as products are redesigned based on customer expectations. In addition, GM continues to use advanced engineering techniques to analyze vehicle systems and their design and safety.