U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

Administrator

1200 New Jersey Avenue, SE
Washington, DC 20590

January 12, 2012

The Honorable Darrell E. Issa
Chairman, Committee on Oversight
and Government Reform
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

I am writing in response to your letter, cosigned by your congressional colleagues, requesting information regarding the National Highway Traffic Safety Administration's (NHTSA) response to battery safety of the Chevrolet Volt.

Each year, NHTSA receives tens of thousands of complaints from consumers about potential motor vehicle safety issues. These complaints are based on real-world incidents and raise a wide variety of issues with implications for safety, including issues involving vehicle fires. Before initiating a defect investigation of a vehicle, NHTSA carefully reviews the body of available data—including consumer complaints, field reports, and warranty claims—to determine whether a safety defect trend may exist. An investigation may be warranted if there is an indication of a safety-related defect trend, with the number of reports taken into account, as well as the potential consequence of a defect.

When NHTSA conducts an investigation, the agency's goal is to understand the severity of the problem and the likelihood of occurrence in the real world, not just under test conditions. The time required to gather data and conduct necessary research varies depending on many factors, including the complexity of the issue. A single incident indicating a potential safety issue, without more, rarely warrants investigation by the agency. Because the Volt incident involved a potential risk in a newly emerging technology, NHTSA proceeded to open this investigation based only upon the results of limited test data and without waiting for data from real-world incidents.

The potential for thermal events, including fire, in lithium-ion batteries is widely known by the public and by NHTSA. It is also well known by the agency and by the public that the Chevrolet Volt has a lithium-ion battery system. However, NHTSA has not made any determination that there is a deficiency in the Volt battery. The agency is not aware of any roadway crashes that have resulted in battery-related fires in Chevrolet Volts or other vehicles powered by lithium-ion batteries.

On June 6, 2011, NHTSA employees first became aware of the specific fire involving the Volt that had been crash tested in May as part of the agency's New Car Assessment Program (NCAP). I was notified, with the rest of the senior NHTSA leadership, on the same date. When NHTSA learned of the fire on June 6, the causation of the fire was unknown.

Following the fire incident in June, which occurred when the Volt was in close proximity to several other vehicles, NHTSA needed to determine through careful, forensic analysis whether the Volt was the actual cause of the fire—and if so what the implications were for safety. On July 5, 2011, the contractor retained by the agency to identify the cause of the fire notified NHTSA of its tentative conclusion that the Volt was the cause. After conducting a tear-down of the Volt's battery, NHTSA learned that the battery had been damaged and the battery coolant system had been ruptured during the May NCAP test. The June fire involving the test vehicle occurred approximately 3 weeks after it was crashed. Based on its contractor's analysis, NHTSA concluded that the crash test damaged the Volt's lithium-ion battery pack and that the damage led to the vehicle fire.

Once the Volt battery was identified as the source of the fire, the agency needed to determine whether the fire resulting from the May crash test was an anomaly. Since then, NHTSA has worked continuously to replicate the May crash test in order to understand the possible safety implications following a severe crash event. Early efforts to replicate the event led to no thermal events. In September, NHTSA conducted an additional side pole impact test of a Chevrolet Volt. NHTSA's September test, and a similar test conducted by General Motors the same month, did not result in any intrusion into the battery pack or any fire. Despite these initial negative results, NHTSA decided to conduct additional tests focused specifically on the battery. NHTSA created new component-level testing procedures, and designed and constructed a new test mechanism, all of which are completely unique, to replicate the intrusion that occurred during the May crash test. It was not until NHTSA—working closely with General Motors, the Department of Energy, and the Department of Defense—conducted this additional rigorous battery testing in mid-November that the agency obtained a result that warranted action.

In mid-November, NHTSA conducted tests on three Volt lithium-ion battery packs that intentionally damaged the battery compartment and ruptured the vehicle's coolant system. Following a test on November 16 that did not result in a fire, a temporary increase in temperature was recorded in a test on November 17. During the test conducted on November 18 using similar protocols, the battery pack was rotated within hours after it was impacted and began to smoke and emit sparks shortly after rotation to 180 degrees. On November 24, the battery pack that was tested on November 17 and that had been continually monitored since the test, caught fire at the testing facility. The next day, NHTSA opened a formal safety defect investigation of post-crash fire risk in Chevrolet Volts.

The agency took that step due to its concern that damage to the Volt's batteries as part of three tests that were explicitly designed to replicate real-world crash scenarios resulted in thermal events. NHTSA is now wrapping up its defect investigation of the Volt because the agency's analysis of all available information does not indicate that the conditions necessary for a battery fire after a side impact would be likely to occur in the real world. Moreover, the remedy that General Motors is implementing appears to eliminate the risk of fire from real-world crashes under conditions similar to the tests that caused NHTSA to open the investigation.

After concluding that damage to the Volt battery was the cause of the June fire, NHTSA briefed Secretary LaHood on September 8, 2011. The Department of Transportation shortly thereafter informed the Executive Office of the President regarding the June fire and NHTSA's test plans to determine if the fire indicated that there is a risk of post-crash fires in Chevrolet Volts. No one from the Executive Office of the President requested or in any way suggested that NHTSA delay public release of information related to the Volt fire. NHTSA did not alert EPA or the California Air Resources Board to the June fire involving the Chevrolet Volt because NHTSA does not believe either agency has expertise with lithium-ion battery safety issues. Prior to and since the June fire, however, NHTSA has worked in close coordination with agencies with expertise in electric vehicle battery systems, including the Department of Energy and the Department of Defense.

Although the Committee's letter expresses concern about delay by NHTSA in opening a public investigation of the Volt fire, NHTSA in fact opened this investigation expeditiously and under circumstances in which it normally would not investigate a fire risk in a conventional gasoline engine vehicle. As stated above, a single incident, without more, rarely warrants the opening of a defect investigation by the agency. Because the Volt fire involved a potential risk in a newly emerging technology, NHTSA proceeded to open this investigation based only upon the results of limited test data, and did not wait for data from real-world incidents.

The Committee's letter also expresses concern that NHTSA's investigation of the Chevrolet Volt fire may be related to the agency's recently proposed fuel economy standards. In fact, NHTSA's investigation is completely unrelated to the fuel economy standards rulemaking. As NHTSA has stated in our prior submission to the Committee, we designed our fuel economy proposal so that manufacturers can comply in a safety-neutral way—we do not require any manufacturers to do anything that has a negative effect on safety, and we expect all manufacturers to comply with the fuel economy standards in a way that does not compromise safety.

While we do consider vehicle mass in setting fuel economy standards because it directly impacts vehicle fuel economy, we do not consider specific safety features of individual vehicle models. My comments confirming that the fuel economy standards are expected to be "safety-neutral" related to the issue of whether mass reduction to improve fuel economy would have any impact on safety. NHTSA's consideration of the safety of the Volt's battery system is separate and distinct from the development of the agency's fuel economy proposal.

Moreover, the analysis in our recently issued proposed fuel economy standards makes it clear that compliance with the regulations is not tied to the success of the Chevrolet Volt or any other electric vehicle. In general, NHTSA's statutory authority limits the agency's ability to take into account electric vehicles when setting standards. Specifically, when setting "maximum feasible" fuel economy standards for the light duty fleet, NHTSA is statutorily prohibited from taking into account the fuel economy of electric vehicles. In addition, in proposing standards through Model Year 2019, NHTSA is required to consider Plug-in Hybrid Electric Vehicles (PHEVs) such as the Volt as if they run on gasoline only, effectively assuming a lower fuel economy than the vehicle will actually achieve. Accordingly, in 2021, NHTSA's analysis assumes 0% penetration of PHEVs in the fleet, meaning that manufacturers can comply with the standards without these vehicles.

NHTSA is reviewing documents to respond to the Committee's request for all documents and communications referring or relating to safety concerns for lithium-ion batteries in general and the Chevrolet Volt in particular. Due to the expansive nature of this request, it will take some time for NHTSA to complete its review. NHTSA would like to discuss how the request may be narrowed or whether there is a subset of documents of particular interest to the Committee. The agency will respond to this request when its review is complete.

A similar response has been sent to each of your fellow cosigners.

Sincerely yours,

David L. Strickland