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November 19, 2021

By Electronic Mail

Tanya Topka, Chief
Vehicle Defect Division A
Office of Defects Investigation
U.S. Department of Transportation
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

**Re: LG Electronics U.S.A. Inc. Response to NHTSA Request for Information
Related to PE20-016**

Dear Ms. Topka:

LG Electronics U.S.A., Inc. (LGEUS) is submitting its response to the National Highway Traffic Safety Administration (NHTSA) in response to the Office of Defects Investigation's September 21, 2021 request for information with regard to PE20-016, an inquiry into allegations of vehicle fires caused by battery shorts (NHTSA Request). Pursuant to communications with NHTSA, LGEUS received an extension of the due date for this response from October 29, 2021 to November 19, 2021. Unless otherwise noted, LGEUS is using the defined terms as set forth in the NHTSA Request.

I. INTRODUCTION

As an introductory matter, LGEUS would like to clarify the LG Electronics entities (LGE) that are contractually aligned or otherwise involved with GM in the battery supply activities described below. [

] For ease of reference, the

remainder of this response uses “LGE” to refer to any of the three contracting entities—LGEKR, LGEUS, and LGEVU—unless otherwise specified.¹

LGEUS would also like to clarify the role of the LGE parties in the manufacturing process for the components that are the subject of NHTSA’s inquiry. The battery pack manufacturing process is divided into three stages: cell manufacturing, including bi-cells; cell module assembly; and battery pack production. [

¹ The use of “LGE,” however, does not indicate that each of the LGE entities performed the work, or participated in the subject activity.

² Prior to December 2020, LGES’s battery production unit was part of LG Chemical (LG Chem). LG Chem spun off its battery business division and formed LGES as a separate entity in December 2020. This response uses “LGES” to refer to any of the following entities: LG Energy Solution Ltd. (Korea), LG Energy Solution Michigan, and LG Chem.

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II. RESPONSES TO REQUESTS

Request Nos. 1-12 of your September 21, 2021 letter are repeated below, followed by the corresponding response. LGE prepared its responses to this information request by identifying, in consultation with appropriate LGE business personnel, potentially relevant documents and information in LGE's possession, kept in the ordinary course of business, and conducting a reasonable search for such documents and information for relevant materials. LGE also consulted appropriate personnel from departments knowledgeable about the subject matter of this inquiry. Information for this response was last gathered in November 2021.

Request No. 1

Identify all automobile manufacturing companies (OEM) and battery suppliers to whom LGE provided the subject components. Separately, for each OEM (i.e. customer) and supplier, provide the following additional information in tabular form:

- a. Customer name (i.e. General Motors);*
- b. Customer contact information including the name(s) and title(s) of person(s) familiar with the subject components, address, phone number(s), email address(es) and other pertinent information;*
- c. Customer part number;*
- d. LGE part number;*
- e. LGE manufacturing location (including assembly line if pertinent);*
- f. Address the parts were shipped to;*
- g. Any information LGE possesses regarding the final stage user/OEM of the part number;*
- h. Any information LGE possesses regarding the market (US or foreign) the part was intended for; and*
- i. Total number of parts provided (for the manufacturing location in item e) by year of manufacture.*

Response to Request No. 1

- a. LGE has supplied battery packs to [
]
- b. Customer contact information is provided below:

c. GM part numbers are provided in the table below:

d. LGE part numbers are provided in the table above. The LGE part number consists of the model number plus the suffix number. [

]

e. LGE manufactured subject components at [

]

[

]

g. LGE sold subject components directly to GM. To LGE's knowledge, the components were installed in GM Chevrolet Bolt vehicles.

h. LGE generally understood that GM intended to sell the vehicles equipped with the subject component into the U.S. market.

i. The total number of parts provided to GM, by year and location of manufacture, is provided in Attachment 2, Part Sales.

Request No. 2

Describe in detail all quality control or assurance policies, processes, procedures, and other governing provisions that are currently in use at LGE for components purchased from suppliers that are used to produce the subject components. The response should include, but not be limited to, any policies, processes, procedures that address the issue of manufacturing defect mitigation.

Response to Request No. 2

[

] LGE is providing a description of

quality control and assurance policies, processes, and procedures that LGE uses for suppliers for its products generally, including for the production of subject component battery packs during the time period in which LGE was producing battery packs.

[

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Request No. 3

Describe in detail all quality control or assurance policies, processes, procedures, and other governing provisions that are currently in use at LGE for end product subject components. The response should include, but not be limited to, any policies, processes, procedures that address the issue of manufacturing defect mitigation.

Response to Request No. 3

[

] LGE is providing an Excel spreadsheet with an overview of the error proofing process in Attachment 3, Error Proofing Process.

[

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Request No. 4

Describe in detail the quality control (quality monitoring) processes LGE utilizes to ensure the subject components produced meet all internal (LGE imposed), external (customer or other imposed) and regulatory quality and safety requirements. The response should include, but not be limited to, any processes, that address the issue of manufacturing defect mitigation.

Response to Request No. 4

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Request No. 5

Describe in detail the manufacturing processes LGE utilizes to manufacture the subject components including a description of the operations performed at each manufacturing station. Provide an illustration of the of overall layout of the assembly line depicting each station. Describe or otherwise provide detailed information for any processes or specialized equipment LGE utilizes to prevent the alleged defect from occurring in the subject components.

Response to Request No. 5

The manufacturing processes LGE utilized to manufacture the subject components [] are described below, including both an overview of LGE's manufacturing process for the subject components and a description of the specific processes and equipment used to minimize the risk of the alleged defect.

Overall Process

The process for the manufacture of the subject components is depicted in detail in Attachment 4, Manufacturing Processes for Subject Component, []

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Specific Processes and Equipment

Multiple procedures during the LGE manufacturing process minimized the risk of the alleged defect occurring in the subject components.

[

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For additional information on the processes used by LGE to minimize the risk of the alleged defect, please see Attachment 5, Processes and Equipment to Minimize Risk of Alleged Defect.

Request No. 6

Describe in detail the storage and transport procedure for components used in the manufacture of the subject components and the vehicle the subject component(s) is used in. Include the following information in the description:

- a. Component;*
- b. Containers used for storage;*
- c. Storage environment (i.e. climate controlled)*
- d. Transport method and container used; and*
- e. Any other pertinent information.*

Provide this information in tabular form.

Response to Request No. 6

A summary of LGE's storage and transport procedures for components it used in the [] is provided below. []

]

Storage and Transport of Incoming Cells

[]

]

Storage and Transport of Other Components

[

]

Information on the conditions for incoming transport and storage for both the cells and the other battery components is provided in Attachment 6, Component Storage and Transport Information. Column F of Attachment 6 shows the container used for each component for transport and for storage. [

]

Storage and Transport of Assembled Battery Packs

[

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Request No. 7

Describe in detail the testing process and tests used for Production Validation and Design Validation used by LGE for the subject components.

Response to Request No. 7

LGE conducted both Design Validation (DV) and Production Validation (PV) testing [

the test sequence for a component.] Attachment 7, MCE Test Flow, includes an example of
[

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Request No. 8

Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the alleged defect in the subject components that have been conducted, are being conducted, are planned, or are being planned by, or for, LGE. For each such action, provide the following information:

- a. Action title or identifier;*
- b. The actual or planned start date;*
- c. The actual or expected end date;*
- d. Brief summary of the subject and objective of the action;*
- e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and*
- f. A brief summary of the findings and/or conclusions resulting from the action.*

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

Response to Request No. 8

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Request No. 9

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

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

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

Response to Request No. 9

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Request No. 10

List all OEMs that have reported to LGE any issues with the subject components. For each such allegation, furnish:

- a. OEM;*
- b. Date of allegation;*
- c. LGE part number;*
- d. Platform / model / model year of vehicle component installed in; and*

e. LGE's assessment of the cause and effect.

Response to Request No. 10

a. [

]

b. [

]

c. [

]

[

]

e. [

]

Request No. 11

List all the instances LGE is aware of involving fire with the subject components.

e. [

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Request No. 12

Furnish LGE's assessment of the alleged defect in the subject components, including:

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

Response to Request No. 12

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Please contact me with any questions or requests for additional information.

Sincerely,

R. Latane Montague

Partner
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D 202.637.6567

Enclosures