RECALL 200 ATTACHMENT A

CHRONOLOGY OF EVENTS LEADING UP TO DEFECT DECISION

- March 2019 – August 2019

  HMC received three reports of Kona Electric vehicles catching fire while parked in the Korean market. All vehicles involved were reportedly parked with full state-of-charge in the vehicle's Li-ion battery. HMC conducted a search globally and found two similar incidents in Canada, and one incident in Europe. HMC reviewed and investigated these incidents with the Korea Automobile Testing & Research Institute ("KATRI") and Transport Canada ("TC") respectively.

- September 2019 to March 2020

  HMC and KATRI continued to jointly investigate known fire cases through regular discussions on KATRI's opened defect investigation. In March 2020, a service campaign was launched globally to upgrade the BMS software for automated early detection of abnormalities in the Li-ion battery state while the vehicle is parked. This software update was developed jointly with the Tier 2 battery cell supplier, LG Chemical, as a fail-safe "level-up" countermeasure. HMC began collecting and analyzing Li-ion batteries replaced under the campaign to continue their investigation.

- April 2020 – October 2020

  HMC received an additional seven reports globally of fires on parked Kona Electric vehicles. Six of these incidents occurred in Korea while one occurred in Europe. HMC continued joint review and study of these incidents with KATRI. Hyundai continued its investigation by studying the effects of electrical shorting in the Li-ion battery. While unsuccessful in duplicating the actual fire condition, HMC confirmed that the BMS software update associated with the previous service campaign could detect the early onset of an internal short, illuminate a warning light, and limit the vehicle's power until the diagnostic code is cleared.

- October 2020

  HMC informed HMA of their findings on October 7, 2020. HMA convened its NASDA on October 8, 2020 and decided to conduct a safety recall campaign to repair all potentially affected vehicles in the U.S.

  On October 17, 2020, a Kona EV vehicle with the updated software caught fire in Korea at full state of charge. The investigation into the fire was unable to determine a root cause due to the severe damage to the Battery System Assembly (BSA).

- January – February 2021

  Hyundai became aware of a Kona EV vehicle with the updated BMS software that caught fire while at full state of charge. The investigation into the cause of the fire revealed an internal short within the battery cells. Continuing its investigation into the cause of the internal short circuit, HMC determined that a folded Anode tab in the battery cell could result in Lithium plating on the Anode tab to contact and short circuit to the Cathode. HMC notified HMA of their findings.

  Based on the information received, on February 23, 2021, HMA convened its North American Safety Decision Authority and decided to conduct a safety recall campaign to repair all potentially affected vehicles in the Canadian and U.S. markets.

  To date, Hyundai is unaware of any fires/injuries in the U.S. market related to this condition.