DOE-ID NEPA CX DETERMINATION
Idaho National Laboratory

CX Posting No.: DOE-ID-INL-23-013

SECTION A. Project Title: Investigative Teardown of Flood Damaged Stranded Electric Vehicle Batteries

SECTION B. Project Description and Purpose:

Unknown stranded energy in electric vehicles (EV) is a big concern for consumers, first responders, emergency responders, etc. Stranded energy is the energy left in an EV with an unknown state of safety after a crash, saltwater submersion, or any other abnormal event. A potentially damaged battery with an unknown state of safety might go into a thermal runaway without proper monitoring, diagnostics, controls, and handling—thereby leading to potential loss of life and property damage. Therefore, it is imperative to develop standard guidelines, diagnostic methods, and tools to handle stranded energy appropriately and minimize safety risks from immediately after an EV accident/submersion event to final disposal or re-entry to the road.

Storm-surged seawater submersed EVs, and the energy stranded within them have recently been identified as a big concern for 1st and 2nd responders. EV battery packs may catch on fire depending on the extent of saltwater submersions. The exact mechanisms of how saltwater submersed high-voltage batteries catch on fire are largely unknown. Several immersion tests exist and are used in various countries; however, how these tests compare with realworld events is also yet to be discovered. Investigative teardown of actual flood-damaged EV battery packs, e.g., from Florida Ian Hurricane damage EVs, could provide essential insights on better understanding the root cause of battery fire and offer guidelines and pathways to handle the suspected EV/battery packs safely.

The goal of this agreement is to

i) Collect relevant information from saltwater submerged EVs (up to 10 EVs) in Florida that could guide the 1st and 2nd responders on the efficient and safe handling of these EVs.

ii) Support NHTSA conducting an investigative teardown of 10 flood damaged EVs

INL will work with a subcontractor to move and tear down the EVs at the subcontractor's facility. The subcontractor has been finalized, and a formal contract will be placed upon completing the SPP contract with the sponsor (NHTSA). The subcontractor is located in Oklahoma City (https://www.spiersnewtechnologies.com/). A team of INL researchers will travel to the subcontractor facility, guide them throughout the teardown process, and collect relevant data. The subcontractor will perform the hands-on teardown. Data analysis, discussion, and report writing will be performed at IF-685 C100 lab and INL researcher's office spaces. Waste includes conventional Li ion battery and Vehicle body The subcontractor will take care of the waste generated during and after the teardown at their facility. The subcontractor has an in-house battery recycling facility. The vehicle body will be auctioned off at the subcontractor facility or donated to interested fire departments for educational/training purpose.

There will not be any emission to the air at any INL facility as the teardown will be performed at the subcontractor facility. The subcontractor facility is equipped to handle any emission during the teardown.

There will not be any discharge to the sewer.

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

There will not be any emission to the air at any INL facility as the teardown will be performed at the subcontractor facility. The subcontractor facility is equipped to handle any emission during the teardown.

Discharging to Surface-, Storm-, or Ground Water

N/A

Disturbing Cultural or Biological Resources

N/A

Generating and Managing Waste

Waste includes conventional Li ion battery and Vehicle body The subcontractor will take care of the waste generated during and after the teardown at their facility. The subcontractor has an in-house battery recycling facility. The vehicle body will be auctioned off at the subcontractor facility or donated to interested fire departments for educational/training purpose.

Releasing Contaminants

N/A

Using, Reusing, and Conserving Natural Resources

N/A

SECTION D. Determine Recommended Level of Environmental Review, Identify Reference(s), and State Justification: Identify the applicable categorical exclusion from 10 Code of Federal Regulation (CFR) 1021, Appendix B, give the appropriate justification, and the approval date.

For Categorical Exclusions (CXs), the proposed action must not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, or similar requirements of Department of Energy (DOE) or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment or facilities; (3) disturb hazardous substances, pollutants, contaminants, or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources (see 10 CFR 1021). In addition, no extraordinary circumstances related to the proposal exist that would affect the significance of the action. In addition, the action is not "connected" to other action actions (40 CFR 1508.25(a)(1) and is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1608.27(b)(7)).

References:

B3.6 "Small-scale research and development, laboratory operations, and pilot projects"

Justification:

B3.6 Small-scale research and development, laboratory operations, and pilot projects. Siting, construction, modification, operation, and decommissioning of facilities for small-scale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act) ☐ Yes ☒ No

Approved by Jason L. Anderson, DOE-ID NEPA Compliance Officer on: 02/17/2023