

# Development of a Hydrogen and Fuel Cell Vehicle Emergency Response National Template

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# Background



- Lack of education for first responders on hydrogen and fuel cell vehicles
- Members of CaFCP recognized need & developed program for California
- Other programs in other regions followed
- Intention has always been to pass along material/information
- Timing was never appropriate
- Until now....



# CaFCP ER Program



- Developed in 2002
- Overhauled in 2006
- Updated regularly
- Added permitting education in 2008
- Deployed to over 5,600 first responders and permitting officials
- Contributed to the DOE's program curriculum
  - » Assist with the deployment and delivery
  - » Reached over 25,500 (online and operations programs)



# Recognized need for a National Program



- Annual Merit Review, May 2012
- Realized various & similar first responder programs
- Increase in training requests
- Developed the concept for a nationally available ‘template’ /program
- Planted the idea with DOE staff then
  - » Cultured the idea
- Stakeholder in-person meeting at 2013 AMR
  - » Follow up meeting with PNNL (developed the existing DOE ER prop program)
  - » Got the National Program into their Operating Plan (pending approval)
- Here we are!



# Review of existing programs



- Attended/reviewed
- Spoke with individuals
- Online information
- Examples of positive elements in existing programs to include in the ‘template’:
  - » online, self-paced access to information
  - » the ability to broadly disseminate information
  - » smart phone apps allowing for quick access to essential information
  - » quality illustrations/graphics



# Program content



- Based largely on existing programs
- Consistent, vetted content and messaging on:
  - » Hydrogen
  - » Vehicles
  - » Infrastructure
  - » Safety
  - » Deployment
- Provide resources
  - » Slides
  - » Links
  - » Videos



# Basic content outline



## A. Introduction to hydrogen

- » Properties, uses, safety

## B. Fuel Cells

- » How a fuel cell works
- » FC applications (brief overview)
  - Stationary, industrial truck, back up power

## C. Fuel Cell Electric Vehicles

- » How they work, compare to other vehicles, fuel storage, emergency response (scenarios), extrication suggestions

## D. Fueling stations

- » Various elements, safety features, how it works, emergency response



# Example scenarios

- Vehicle submersion
- Single vehicle fire
- Multi-vehicle collision (various kinds of light and heavy duty vehicles)
- Above ground parking garage incident
- Station fire incident







# Overarching message



- Over all goal of the program:
  - » Balance the amount of information given
  - » Participants conclude:
    - Not ‘bombs’ 😊
    - No more dangerous than current vehicles; many similarities
    - Can incorporate a FCV into and follow their SOP/SOG’s

# In addition to class room...



Sacramento Metro FD



Beverly Hills FD



Corona Auto-X



DOE Prop Course, HAMMER

# Status

- Working to put together content
- Present a ‘straw man’ to the stakeholders
- Speaking to potential users/implementers
  - » NFPA (June, 2014)
  - » National Fire Academy
  - » CA Office of Emergency Services
  - » CA Office of the State Fire Marshal





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