McMicken Site
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- Dedicated Building
- 2 MW System
- Lithium ION Batteries
- SOLAR Generation Connection
- Installed May 2017
White Fog
First Responders
McMicken Site

- 8 HVAC Units
- Smoke Detector
- NOVEC 1230 Clean Agent
- No Sprinkler
- No Explosion Control
  - Deflagration Protection
- No Exhaust
- No BMS Data for Fire
Event Details

- 911 Call
  - Smoke
- Updated enroute
  - APS called
  - Battery Storage
- Upon arrival
  - O and M, APS
  - Lithium Ion inside
  - Needed to do diagnostic
First Responders

- Smoke
  - White
  - HVAC
  - Conduits

- Water
  - Stretched hose line
  - No hydrants
  - 2000 gallon truck
  - Never used water

- Peoria Fire Request
  - Haz Mat
    - 2.5 hours size up
    - Meter readings
    - TIC
Hazards – Flammable/Toxic Gases

Following a battery fire

Flammable/Toxic gases can be released

Sulfur Dioxide
Hydrogen Fluoride
Hydrogen Sulfide
Hydrogen Chloride
Carbon Monoxide
Propylene
Methane
Ethane
Ethylene

Type of gas released depends on the chemistry involved

Failure Modes and Hazards

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First Responders
Operations

• Structure venting
  • Side door
  • White smoke
  • Hugged the ground
  • Consistent rate of smoke

• Responders
  • Patient
  • Full PPE
  • Did not enter structure
  • No flaming observed
First Responder Operations

- Explosion
- Pressure going through door
- 8 firefighters affected by blast wave
  - 2 FF were thrown approximately 75 feet
  - Blunt object (Fence post)
- Debris
  - Projectiles
  - Over fencing
Lessons Learned

• Clean Agents Will Extinguish External Combustion, but Not Internal Run Away

• Gases - Pockets, Stratify, Mixes, Perhaps with Clean Agents

• Novec 1230, Colorless, Odorless, Cold, Heavier than Air
Lessons Learned

NFPA 855

• Sprinkler System (.3gpm to .6gpm)
• BMS
• Mechanical Ventilation (25% LEL, Phoenix 10% LEL)
• Explosion Panels
• Placards
• Owner Emergency Plan
Questions ??