

B.5.11.1 Iron-Air Batteries.

Hazard considerations for iron-air batteries under normal operating conditions are as follows:

- (1) *Fire hazards:* There is the potential for concentrations of hydrogen from iron-air batteries if the area where the batteries are located is not properly ventilated.
- (2) *Chemical hazards:* These batteries have caustic electrolyte that is contained within the system during normal operation. Exposure risks can occur when handling electrolyte as a part of commissioning, decommissioning, and maintenance. Workers handling electrolyte need to use proper PPE.
- (3) *Electrical hazards:* There are electrical hazards associated with routine maintenance of these batteries if they are at hazardous voltage and energy levels.
- (4) *Stranded or stored energy hazards:* Not applicable.
- (5) *Physical hazards:* Not applicable.

Hazard considerations for iron-air batteries under emergency/abnormal conditions are as follows:

- (1) *Fire hazards:* These systems have aqueous electrolytes, so the potential of hydrogen concentration buildup exists if the area where the batteries are located is not properly ventilated.
- (2) *Chemical hazards:* There is the potential for contact with caustic electrolyte during abnormal conditions should electrolytes leak. First responders, in emergency situations, need to be aware of potential caustic electrolyte spills that can occur and use appropriate caution around these batteries.
- (3) *Electrical hazards:* Electrical hazards might be present under abnormal conditions if the system is at hazardous voltage and energy levels.
- (4) *Stranded or stored energy hazards:* Not applicable.
- (5) *Physical hazards:* The potential exists for overheating due to severe electrolyte loss from leaking. Exposure to moving parts such as fans where guards might be missing.