

Commercial Hydrogen Installations

Experience from the field

2005 Fuel Cell Seminar
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Quong & Associates, Inc.

- Turnkey solutions for alternative fueling stations
- Permitting, installation, maintenance, and testing of hydrogen fueling stations
- Online and classroom hydrogen safety training
- Building and station design for hydrogen use



Quong & Associates, Inc.

- Hands-on, practical experience
- Successful permitting of over 30 alternative fueling sites across NA
- Servicing of 6+ hydrogen fueling stations
- Performance & Purity Testing in Conjunction with DOE and CaFCP



How do I get my hydrogen facility permitted and installed?

- Codes and Standards
- Facility Design
- Safety and Emergency Response Plan
- Permitting and Local Officials
- Community
- Safe and Reliable Operation
- Lessons Learned

Codes and Standards

- Codes and Standards are guidelines
 - Just because it meets code, does not mean that it is safe
 - If the local officials require it, you have to do it even if it is not part of a standard
- Zoning and other local ordinances important

Facility Design

- Accidents do occur!
- Groups installing hydrogen facilities have varying levels of experience
- Hydrogen is not the only concern
- General public can be the largest variable
- Facility level HAZOP or FMEA critical

Safety and Emergency Response Plan

- Safety or Operations plan important for normal operation and when changes made
- Emergency response plan important for non-normal operations and for first responders
- Both should be result of HAZOP/FMEA and first responder input

Local Officials

- Bring in local officials early, but know what you plan to do
- Most local officials enthusiastic about hydrogen
- Using existing facilities with proper zoning is easier
- Ability to educate local officials important
- More than just the fire department
- Patience vs. Pressure
- Safety, safety, safety...

The Community

- Hydrogen is a dirty word
- The public does not necessarily make logical or rational decisions
- Notification and education has to be done early and openly to avoid resistance
- PR Benefits vs. Out-of-sight...

Safe and Reliable Operation

- New technologies will have more problems
- Maintenance plan and fast response crucial to reduce downtime
- Different levels of safety training needed for staff and users
- Hydrogen is not the only potential safety issue

Lesson 1: Everybody wants to get involved

Groups involved in permitting LH2 service center

- Fire Dept.
- Police Dept.
- Zoning Dept.
- Building Dept.
- Electrical Dept.
- Health and Safety
- Environmental
- Parks & Recreation
- Historical Society
- Local PTA
- Secret Service
- US Military
- State Police
- OSHA
- EPA

Lesson 2: A Starbucks can be installed in 3 days

- Temporary permit approved for GH2 Storage for test facility
- Neighboring lot abandoned for over 10 years
- Starbucks installed over the weekend



Thank you

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