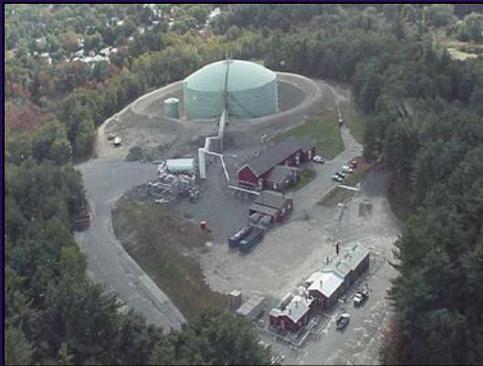


## Safety Management Activities – Programs



Skip Doucette  
June 16, 2016



# Asset Based Risk Assessment

- Annually updated
- Assess each asset – probability of failure, impact and gap
  - Tank, LNG pumps, vaporizers, BO compressors, emergency generators, security systems....
- Drives capital investment

## Program – Replace or Upgrade Aging Assets

- Emergency generators
- Water main replacement
- SS pipe NDE
- Vaporizer Replacement
- Gas in buildings – Meter Room under Control Room
- Tank Modifications and Upgrades

# Activity Based Risk Assessment

- Occupational Hazards – results in:
  - Truck station design consideration
    - Self-checking ground system
  - Hard to reach valves
    - Platforms installed

- Plant-wide QRA's – 12 sites with a defined schedule and assistance from outside consultants

## Result:

- Automated ESD systems
- High expansion foam systems
- LNG tank containment modifications – over-topping scenarios

# Process Hazard Analysis

- Plant Systems
- Drives modifications toward process safety for:
  - Design
  - Construction
  - Projects

More widespread – Non-routine operations (smaller or larger tasks)

Integrated into the MOC Program

# Process Safety Survey

- Annual survey
- Results Roadshows – present results
- Results in capital improvements:
  - Ice shields
  - Valve platforms

Key – Pro-active Approach – Top-down *and* Bottom-up

- Listen to our people
- Listen to our equipment and systems

# Risk Control Standards

- Integral to Process Safety Management
  - Leadership and Organizational Change
  - Asset Design, Modifications & Operational Readiness (MOC)
  - Operating Procedures & Instructions
  - Workforce Competence
  - Human Factors
  - Emergency Arrangements
  - Protective Devices, Instrumentation and Alarms
  - Inspection and Maintenance
  - Permit to Work

# Departmental Changes

Meet the new demands of Process Safety Management

- Additional Supervisors
- Regional Process Safety Engineers
- Lead LNG Engineers

Questions?

Thank you!

