Incident Mitigation Management Workshop

Recap and “To do List”
Next Steps after Today
IMM Workshop Team Summary
Key Ideas – 1. Integrating IMM into Policies

• Scope
  ▪ Close-coupled to Emergency Plan but risk-driven
  ▪ “One-pager” is good starting point for scope / requirements
  ▪ Ensure strong organizational commitment (see also 192.935)
  ▪ Integrate emergency plans, IM/risk, valve policy, public awareness, 911 policy, control room management, technical support standards

• Next Steps
  ▪ Suggest developing a “Framework” IMM document (e.g. CRM)
  ▪ Define measurables (qualitative / quantitative): time savings? Risk reduction? # sites with < 1 hour capability etc.? others?

• Longer-term Continuous Improvement
  ▪ Regional approach to Emergency Responders, ICS unity
  ▪ Consider broader consequence factors (secondary factors)
Key Ideas – 2. Incorporate IMM into Risk Model

- Expand existing risk model on the consequence side of the equation based on pipe characteristics and consequence severity by adding factors that could include:
  - Co-location of Consequences – e.g. people tank farm, adjacent pipelines, chemical plant, power water infrastructure
  - Location and response of emergency responders
  - Responder’s response times & capabilities
  - Capabilities of Operator (Local) or Emergency Responders
  - Valve Locations/size additional blow down capabilities
- What’s inside or adjacent to the PIR
  - quantify consequence beyond people and include other secondary facilities (risk on consequences) that escalate the damages
  - Look at coordination between Operator and Emergency Responder to reduce impact
- “Grade” various different types of HCA and Limited Mobility Sites to distinguish High-high to low-low.
- Use consequence factors as a multiplier rather than an additive to increase variance of types and severity.
- Mitigative measures to even out risk
- Mitigation could include working with Limited Mobility facilities to develop a very specific evacuation plan
- Performance Measures
  - Develop processes & measures to mitigate consequences so the consequences don’t overwhelm when planning for a failure
• Our pipeline systems have a wide variety of conditions that must be managed, and a wide range of current capabilities that range from chart recorders and very limited automation to full automation and Gas Control systems that:
  - Have programmed flow equations into SCADA system
  - Have many tools to diagnose problems
  - Can simulate incidents and perform incident training for gas controllers
  - (Chenier and Sempra have good Gas Control modeling and simulation capabilities)
• How to use data better
• Simply adding controls and dozens of data points doesn’t solve any problems
• Program flow equations into SCADA systems and integrate computer programming to evaluate data – and learn and update over time. Methods include:
  - Line pack calculations
  - Model pressure vs actual pressure
  - Reverse flow monitoring
• Will need a tailored approach for each area
Key Ideas – 3. Rupture Detection and Valve Automation (2 of 3)

• Challenges
  - Selecting the right methods for different areas
  - Model worst case pressures and rate-of-drop to determine alarm points
  - 600 mmcf/d power plant start/stop, storage on/off, large pipeline to pipeline interconnects
  - Large lateral system with many branches and valves and regulators
  - LNG gasification – can’t just shut-in; the gas must go somewhere

• Needs
  - Need a white paper on different automation types, where to use each method, pros and cons of each method in different applications
  - Decision trees need to be developed – Decisions are not just “where” to automate, but what type of automation to employ, and what other measures may be needed to ensure appropriate response if you don’t automated
• Intermediate Valves
  ▪ Longer valve sections may be harder to diagnose and may at least need intermediate monitoring points
  ▪ Look at who is impacted when you shut-in a valve – Can additional valves help us to better manage the situation and keep gas flowing where it needs to go, e.g., install a valve at a major lateral to be able to feed from either side

• How Do We Measure Success
  ▪ Development of decision trees
  ▪ Gas control emergency simulation
  ▪ Having a plan in place in advance to diagnose each Class 3/4 and HCA that has been analyzed under a simulated incident
Key Ideas – 4. Emergency Planning

• Emergency responder drills with multiple Operators
  ▪ Define participation rate for success – e.g. 90%

• Develop a common message for responders
  ▪ Creation of a one page handout – similar to an airplane card

• Long term plan for using various types of drills
  ▪ Develop industry guideline on types and frequencies resulting in stakeholder confidence

• Is there a need to define High Risk Area, greater than limited mobility but less than HCA?
  ▪ Guideline on HRA and how to apply IMM
Key Ideas – 5. Special Considerations, Hardening Facilities with Limited Mobility

• 1 Corridor - Identification of consequence sites beyond limited mobility that increase consequences

• 2 Message needs to discuss
  ▪ The pipeline’s location
  ▪ Nuisance issues such as blow-offs, maintenance,
  ▪ Shelter in place inside the structure and duration,
  ▪ Evacuation plans, away from the danger,
  ▪ Other mitigation issues for each location

• 3 Audience for the message – make sure the right folks are present by understanding their management issues
  ▪ Ensure there is understanding at the end of the conversation then follow-up 3 months later
  ▪ Personal involvement maybe needed as well as shared participation & existing organizations (PIPA)

• 4 Micro & Macro Approaches needed
  ▪ Micro – each facility is unique and help them find their unique solutions
  ▪ Macro – common program – using fire marshals, regional/ best practices /social media / blogs
Key Ideas – 6. Control Room Management

- **People** – Define the role and responsibility of the controller (and the control room)
  - Does the controller have independent authority to initiate a shutdown and incident response?
- **Tools** – Identify tools and data required to achieve situational awareness sufficient to identify an incident
  - Unique to different pipeline systems
  - Identify the unique requirements to achieve awareness for each system
- **Process** – In absence of complete awareness, define actions to be taken to achieve awareness
  - Clear a potential issue or initiate response; can’t “do nothing”
- **Key Metrics**
  - Time to achieve decision
  - NRC reporting accuracy and timeliness
  - Risk model integration into the situational awareness process
- **Possible action item** – INGAA pilot to assess a few operator scenarios to identify models for achieving situational awareness (complex and simple systems)
Key Ideas – 7. Public Information, Customer Expectation

- Communications & Emergency Response – Need Sr. Management Buy In
- Engage External Stakeholders
  - Establish who talks to each group
  - Get help with messaging (establish dark site/ sharepoint)
  - Control call backs re: incident
- Table Top Drills → Unannounced Mock Drills
  - Collaborative? 1 way not always best or your way?
  - Why / who attend – engage right people
- Field Response with Media is Key – support and train
- NPMS (ER’s and Pub Officials)
  - What can be the draw?
  - How do we measure use? (surveys?)
Key Ideas – 8. Exercise Planning

- Operators & ER pool efforts for training for pipeline emergencies
- Individual operators meet with individual ER about logistics and strategy (not training)
  - Measure – the ER personnel understanding
- Challenge ourselves to develop complex exercises
- Don’t think of the “crisis” as a panic situation, but rather in a planned, thoughtful but quick approach
  - Measure of ER – Visits to operator’s sites and actions taken & operator follow up
  - Measure – effectiveness of exercises
- Incentive – attach accreditation to exercises for ER
- Williams online ER Training (with lottery incentive)
- Need a portal for training (similar to Shell)
- Incident Command Training for Operator’s personnel
# IMM Sample Responsibilities

## Management
- Ensure broad review of consequences
- Provide resources
- Establish policy
- Ensure 1 hour response in populated areas
- Ensure preparation of IMM plans
- Engage stakeholders, especially emergency responders
- Approve decisions, ensure follow up

## Risk Management & Operations
- Evaluate leak/rupture detection and isolation capability
- Set decision criteria on isolation
- Set standards and design philosophy on valves and pipeline system (receipts, deliveries, loops, crossovers)
- Review evacuation procedures
- Coordinate and communicate with emergency responders

## Safety Assurance
- Set implementation priorities
- Review training and drilling
- Verify that policy and plans are established, roles and responsibilities are understood and preapproved decision making process in place
- Evaluate basis of risk analysis
- Confirm good performance/tracking measures

## Senior Safety Officer
- Communication process with emergency responders and local officials
- Emergency response program for training and drilling company personnel
- Identify additional consequence factors
- Ensure adequate process for training & awareness of emergency responders
- Provide for drills with responders
2012 INGAA IMM Action items

• Implement at least four aspects of IMM by December
• Respond to NPRM on IMP next stage – P&M
• Communicate to stakeholders
  ▪ PHMSA, emergency responders (NFPA), PST, API, NAPSR
  ▪ Consider being a volunteer companies to showcase
• Help PHMSA with coalition on ER (Georgia State Model)
• Establish Industry Standard for IMM
  ▪ Pursue options available
• Pick at least one action item from each of the four areas of IMM responsibilities, Slide 2
  ▪ Try something you have not already done.
• Communicate these commitments within your company
• Identify steps, individuals with key roles
• Set target dates
• Take action
• Keep a brief record of your steps and process
  ▪ For later transfer to the INGAA docket filing for the NPRM
• Measure completion
Proposed Sample IMM Tasks for 2012*

**Management (by mid-2013)**
1. Incorporate IMM into policies:
   - IMP Risk Model
   - API 1162 policy
   - Emergency Planning
   - Valve automation philosophy
   - Control Room Management
   - Management Systems

**Risk Management & Operations**
2. Review risk assessment with focus on consequence
3. Complete one hour response study for populated areas. Identify valves that need:
   - Automation
   - Powered operators

**Safety Assurance**
4. Ensure preapproved decision making for Gas Controllers.
   - Promote cultural bias to isolate promptly.
   - Review 911 policy/clarify roles if needed
5. Establish measures:
   - Response time for ruptures
   - Lessons Learned following ruptures

**Senior Safety Officer**
6. Visit sample mobility impaired sites to assess their awareness/preparedness.
7. Perform and document drills with emergency responders; feed back lessons learned into IMP.
Preparing to Present IMM Experience

• Document that IMM programs are the best option to reduce duration and impact of a rupture.

• IMM has made us:
  ▪ Safer and more reliable
  ▪ More responsive physical configuration & operational practices
  ▪ Better prepared to make important decisions
  ▪ Better defined procedures
  ▪ Better engagement of front line staff
  ▪ More systemic investigation of causes of events
  ▪ More consistent feedback of lessons learned

• As you act, keep track of the process improvements!
• Track improvements in:
  - Physical Configuration
    - Valve automation, rupture detection, etc.
  - Operational Practices
    - 911 policy clarified, Lessons Learned process, etc.

• Work with us to create a reporting format!
Individual Operator Metrics

Are these the right ones?

• Valve closure time following an emergency
  ▪ Can we estimate before and after IMM execution?

• List improvements from doing IMM

• Document Lessons Learned from actual events

• Complete of overall design review, evaluating and document capability to detect leaks and rupture based on risk criteria.

• Progress making actual milestones against IMM plan versus targeted timeframes.
Industry level Metrics

Are these the right ones?

• Complete valve count based on INGAA response time commitment, including target and completion dates to automate necessary valves

• Percentage of incidents where one hour response time was achieved

• Percentage of segments in HCAS, Class 3 and 4, where IMM plans have been developed and implemented.

• Percent of segments where valves have been reviewed or modified
Steps to a Consensus Standard

• Clarify Performance Objectives
• Collaborate with Standards Organizations
• API has expressed interest – establish if we have a common view
• Share experience from operators
• Consolidate areas needing detail
• Identify people with an interest in developing