



U. S. Department of Transportation

Pipeline and Hazardous Materials  
Safety Administration

---

[www.dot.gov](http://www.dot.gov)



U.S. Department  
of Transportation  
Pipeline and  
Hazardous Materials  
Safety Administration



# Liquid Integrity Management

## Office of the CA State Fire Marshal Pipeline Safety Division Seminar

April 3, 2008

Kimbra Davis

Community Assistance/Technical Services (CATS)

Western Region Office of Pipeline Safety



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Regulatory Philosophy 101

- **Goals:**
  - Safe, Clean & Reliable Energy Transportation
- **Objective:**
  - Improve the Performance of this Critical Infrastructure
- **Overall Strategy:**
  - Positively Impact the Performance of Individual Operators and Industry Direction
  - Reliance on Systematic Management for Performance
  - Data Driven, Deliberative Decisions on Risks
  - Commitment to Continuous Improvement, Collaboration, Active Communication, and Transparency
  - Reliance on Partnerships to Leverage Impact



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Integrity Management Rule Objectives

- Accelerate Assessments of Lines in High Consequence Areas (HCAs)
- Promote Rigorous, Systematic Management of Pipeline Integrity
- Strengthen Government's Role in Oversight of Pipeline Integrity Plans and Programs
- Increase Public Assurance in Pipeline Safety



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Required IM Program Elements

1. Identifying Segments that Affect HCAs
2. Developing and Implementing a Baseline Assessment Plan
3. Reviewing Integrity Assessment Results
4. Repair/Remediation of Anomalies
5. Information Analysis (Risk Analysis)
6. Implementing Additional Preventive and Mitigative Actions
7. Continual Process of Assessment and Evaluation
8. IM Program Performance Evaluation



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# PHMSA's IM Inspection Timeline

- Liquid IMP Inspections began in 2002
- First round inspection of all interstate and most intrastate hazardous liquid operators completed by 2006
  - ~165,000 miles of pipe
  - ~72,000 miles that can affect HCAs
- 2nd round inspections began in 2005.
  - 61 operators inspected by PHMSA at the end of 2007
  - Focus is primarily on *implementation* of plans



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# General Observations for 2<sup>nd</sup> Round Inspections

Some Operators have made substantial progress...other Operators are lagging in achieving a fully functional, integrated IMP.



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Example Program Strengths

- Senior management support for IMP readily apparent
- Remediation of line conditions beyond minimum rule specified repair conditions
- Use of a robust GIS as a data repository for data integration of pipe location, characteristics, threat data, anomaly indications, repair data, CIS data, depth of cover, consequences, etc.
- Excavations evaluated for SCC using magnetic particle or other methods

Compiled through  
December 2007



U.S. Department  
of Transportation  
  
Pipeline and  
Hazardous Materials  
Safety Administration



## Example Program Strengths (con't.)

- Assets included in IMP that are non-jurisdictional to US DOT (without losing focus on HCA priorities)
- Metallurgical lab analysis on hydrostatic pressure test failures and repair cut-outs to learn more about threats to integrity
- Automation of manual valves
- Aggressive re-assessment schedules resulting in multiple ILI tool runs to compare data

Compiled through  
December 2007



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Improvement Opportunities

Processes are lacking significant detail or fail to exist:

- Determining integrity assessment method
- Determining re-assessment intervals
- Conducting periodic evaluations (different from just evaluating re-assessment intervals)
- Integrating data with other program elements
- Qualifying personnel for reviewing assessment results

Compiled through  
December 2007



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Improvement Opportunities (con't.)

Key evaluations not adequately performed or documented:

- Preventive and mitigative (P&M) evaluations
- Leak detection capability
- EFRD needs analysis
- Jurisdictional facilities included with respect to risk analysis and P&M measures
- Reasonable consideration of tool capability (uncertainty)

Compiled through  
December 2007



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Expectations

- IMP programs should be mature with processes documented in sufficient specificity to ensure consistent application and repeatability
- Operators must develop and implement technically sound risk-based preventive and mitigative measures on ALL HCA-affecting lines, irrespective of the perceived level of risk. (FAQ 9.13).



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Important Dates

- March 31<sup>st</sup>, 2008 – All baseline assessments completed for owner/operator of 500 or more pipeline miles (Category 1)
- February 17, 2009 – All baseline assessments completed for owner/operator of less than 500 miles of pipeline (Category 2)
- Re-assessment dates vary but many operators are due.



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Notifications

- Notification (and justification) to PHMSA required if reassessment deadline is missed. PHMSA may require lower pressure operation as a result.
- Notifications also continue for use of Other Technology – primarily long range guided wave. Checklist available for use of guided wave:  
<http://primis.phmsa.dot.gov/iim/notifications.htm>
- Some Notifications submitted for delayed repairs when the full 20% pressure reduction is not possible.



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Inspection Plans for Western Region

- In 2008 -
  - 1 team inspection covering multiple regions
  - 2 team inspections covering Central and Western Region
  - 10-12 individual inspections
- Beyond 2008 –
  - Inspection Integration process will be used to evaluate an operator's integrity management program



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Integrated Inspection

- **Universal Truths**

- Congressional requirements reflected in our regulations we must oversee – weighty for both
  - Standard, O&M, OQ, IMP, Emergency Preparedness
  - HQ and Field (Program and Implementation)
- Regulatory oversight is key to credibility for both
- Yet resources haven't grown to match mandate
- No two operators are alike – no one right answer



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Integrated Inspection (cont.)

- Performance is the goal – not compliance
- Prevention is the key strategy
  - Risk-based inspections offer hope for more effective, efficient, and rational inspection
  - Risk-based enforcement adds the emphasis as needed
- What is an Integrated Inspection?
  - Driven by both data and experience
  - Shaped to fit individual operators

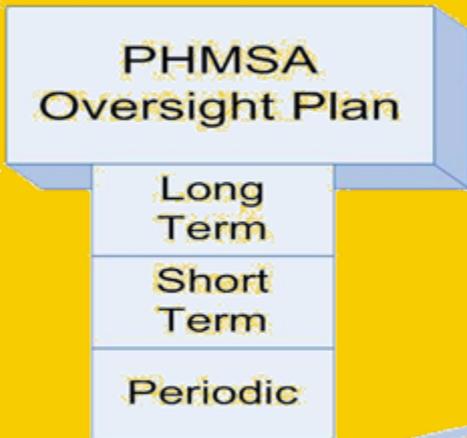


U.S. Department of Transportation  
Pipeline and Hazardous Materials Safety Administration



# New Group in PHMSA – the “PEG”

Enforcement Actions, Accidents, Congressionals, Public Complaints, Region Feedback, Waivers, Critical Pipelines, National Events, CAO's...



Data Analysis and Performance Evaluation





U.S. Department  
of Transportation  
  
Pipeline and  
Hazardous Materials  
Safety Administration



# Modular Approach to Inspections

- Multiple inspection “modules” are created covering different aspects of performance





U.S. Department  
of Transportation  
  
Pipeline and  
Hazardous Materials  
Safety Administration



# Modular Approach to Inspections

- A flexible approach allows inspectors to react to the “facts on the ground”





U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Modular Approach to Inspections

- Inspections can be customized to probe more deeply based on the relative risks of a particular operator





U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



# Integrated Inspection (cont.)

- What's happening with Integrated Inspections?
  - Internal HQ/Field Team well into design and development phase
  - 2008: continued development and pilot testing
  - 2009: training and full deployment



U.S. Department  
of Transportation

Pipeline and  
Hazardous Materials  
Safety Administration



Thank you!!  
Questions??