



Pipeline Safety Conference New Orleans, LA



**Pipeline and Hazardous Materials Administration
Office of Pipeline Safety**

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Topic Areas

1. Lessons learned from DIMP Inspections
2. Specific areas of concern to regulators



Forward Looking

- Information PHMSA is interested in learning from DIMP implementation in the future
- Once we are past replacement programs and reducing the occurrence of excavation damage, there are other threats to the integrity and safe operation of distribution pipeline systems that we want be sure are being addressed.
 - Suspect materials and equipment
 - Overpressurization events
 - Cross-bores, etc.



How can implementation meet regulatory expectations?

- Risk reduction should supersede fiscal concerns
- DIMP must address operator's specific operating environment
- Full Operator commitment to succeed.
- Improved Safety and Reliability



Regulatory Expectations

- The DIMP should evolve into an overall Integrity Management Program that integrates with the Operator's other Management Systems
- Replacement Programs – Only an element of DIMP
- Resource Allocation to tasks specific to DIMP
- A good DIMP should drive resource allocation



Distribution System Integrity

- Vintage pipe removal
- Appropriate risk mitigation
- Addressing the unknowns
- Addressing the potential threats
- DIMP should eventually be the primary driver for the Operator's other Distribution Management Systems



Procedures and Processes

- Procedural documentation describing tasks to be performed as required in §192.1007.
- Procedure means a fixed, step-by-step sequence of activities or course of action (with definite start and end points) that must be followed in the same order to correctly perform a task.
- A DIMP must be customized to the specific operator, and generic plans, procedures, and statements are not adequate.
- A DIMP must be continually improved based on feedback mechanisms within the program.



Noteworthy Practices

- Excavation damage risk mitigation measures implemented:
 - Have complete buy-in from all employees
 - Have corporate damage prevention goals
 - Conduct pre-construction meetings
 - Enhance awareness education for top offenders
 - Have permanent markings in the high activity areas
 - Enhance locating by use of better technologies
 - Have QA/QC for locators
 - Improve quality of as-builts

DIMP Team is working on a compendium of implemented risk mitigation factors based on specific threats



Common Struggles

- Software enhancements or program augmentation can be required to “canned” programs and existing systems that were originally designed and implemented for specific purposes.
- Identifying measures to reduce risk requires thorough analysis, and tying performance measures to these actions is required.
- Quantifiable Performance Measure implementation criteria is required.
- Baselines must established for performance measures in existence prior to DIMP Implementation



Data

- Data quality is a common concern;
 - Outdated, incomplete, obvious errors.
 - Outdated data systems difficult to use or sort.
 - Data cleanup and scrubbing is often required.
- Reasonable balance between SME and hard data is important.
- Integration of data to identify existing and potential threats requires an appropriate level of resource allocation.
- When scrubbed data becomes available threat identification may need to be re-run.



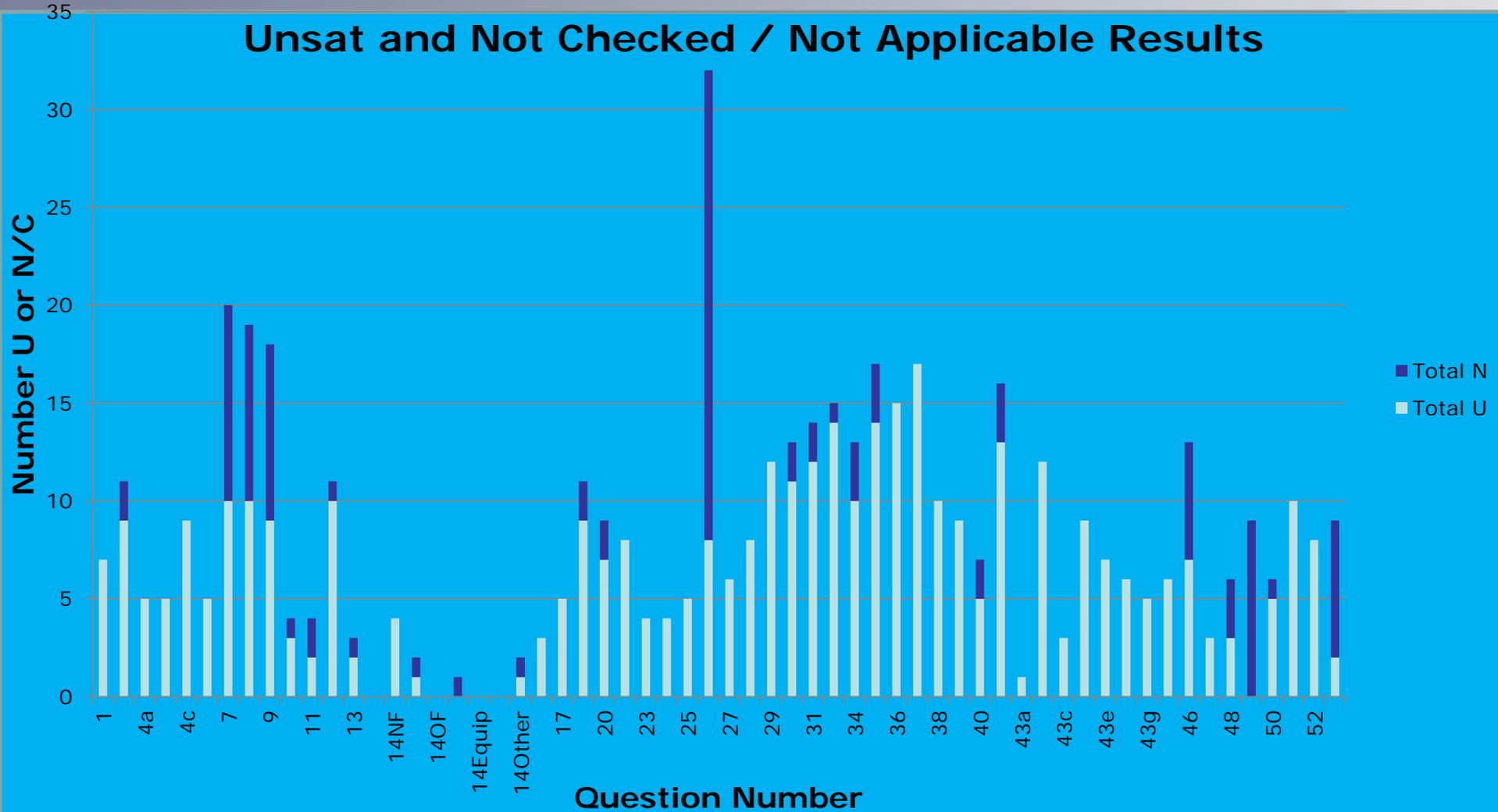
Results from Inspections

- The DIMP Implementation Team is beginning to receive inspection results from Inspectors and evaluate that data.
- Results from 70 DIMP Inspections have been evaluated so far. The data has been reviewed and coupled with our own inspection experiences to generate the topics presented today.
- More detailed analysis will be performed as we receive 2012 inspection results.



Results of Inspections

Unsat and Not Checked / Not Applicable Results





Knowledge of Gas Distribution System

- SME qualifications, decisions and conclusions must be documented.
- How will field information be relayed into the DIMP.
 - May be necessary to modify field data acquisition forms and internal processes to incorporate new information and correct inaccurate information.
- Plan must account for identification and collection of missing and additional information needed to fill gaps.
- Plan must include procedure for recording new pipe data, including location and materials used.
 - Field data collection and acquisition forms may need to be enhanced.



Identify Threats to Integrity

- A DIMP must provide sufficient detail to address specific threats and risks in the Operator's unique operating environment.
- When evaluating risk, consideration must be given to applicable operating and environmental factors (e.g., paved areas, business districts, hard to evacuate) that can affect the Consequence of Failure (COF).
- Plan must include procedures to evaluate and obtain data from external sources that are reasonably available, and which may identify existing and potential threats.
- DIMP procedures must provide for the re-evaluation of threats and the identification of new or potential threats as new or improved information becomes available.



Potential Threats

- Some Operators are struggling with potential threats:
 - Threats the Operator has not previously experienced (from industry or PHMSA information)
 - Threats that endangered facilities but have not resulted in a leak (e.g., exposed pipe, near misses).
 - Non-leak threats (overpressure, exposure, accessibility)
 - Threat from aging infrastructure



Identified Potential Threats

- Examples of potential threats often not being considered include:
 - over pressurization events;
 - regulator malfunction or freeze-up;
 - cross-bores into sewer lines;
 - materials with identified performance issues;
 - lack of access to facilities or causes of threats
 - Gophers, plastic eating bugs;
 - etc.



Evaluate and Rank Risks

- System subdivision for evaluating and ranking of risks must be sufficient to appropriately analyze risk(s) present in the Operator's unique operating environment.
- Geographical segmentation may be appropriate when systems are separated by space or a specific, predominate threat exists (e.g., flood, earthquake). However, if different materials are a predominate threat in a region, other segmentation may be needed to accommodate different failure rates.
- Operators must consider non-leak failures in analyzing risk. DIMP should address failures that do not result in a release (e.g., near miss) to identify potential threats.
- Risk ranking must include all risks to pipeline facilities.



Evaluate and Rank Risks (cont.)

- The risk ranking model results must be validated. One operator identified that the “COF” can be diluted by Frequency of Failure (“FOF”) – a larger range for consequences was needed to get reasonable results.
- Plan must provide explanation of the process used to validate the data used in the risk ranking and to review the output of the risk ranking model for “reasonableness”.
- The Plan (or “Model” used) must address risks specific to services as well as mains.
- When changes are made to a risk model, the risk ranking should be re-run and results incorporated into DIMP promptly.



Measures to Address Risks

- The Plan must provide a link between a specific risk (either a threat or consequence) and the measure to reduce that risk.
- The Plan must contain or reference an effective leak management plan unless all leaks are repaired when found. (If an Operator repairs all leaks when found, that must be stated or referenced in the DIMP.)
- Intervals must be established for the re-evaluation of measures implemented to reduce risks to gauge their effectiveness and identify if the measure is appropriate.
- DIMP Models must rank proposed projects/replacements based on risk and not the cost.



Performance Measurement

- Each Measure Implemented to Reduce Risk must have a Performance Measure established to monitor its effectiveness.
- Operators must develop and monitor performance measures from an established baseline.
- A DIMP must include procedures for establishing baselines for Performance Measures (192.1007(e))
- Some Operator's Plans had “triggers” to initiate development of new or additional performance measures depending on program performance and the operating environment
- Operators have used a single performance measure to evaluate the effectiveness of multiple risk control measures.



Periodic Evaluation and Improvement

- A Plan must contain procedures for conducting periodic evaluations of its performance.
- If it is found necessary to make changes to the periodic evaluation procedure, the changes would be handled with revisions to the original procedure.
- Plans are expected to include procedures for notifying appropriate operator personnel of changes and improvements made to the plan.
- The Plan must provide for the incorporation of changes to facilities or to risk factors, such as:
 - Pipe replacement program changes risk ranking by removal of vintage pipeline facilities.
 - Flood control project reduces flood risk.



Report Results

- The DIMP must include (or reference) procedure(s) describing the collection and reporting of DIMP data (192.1009(g)) as part of the Annual Report to PHMSA.
- If a State agency exercises jurisdiction over the Operator's pipeline and requires reporting, the Plan must include (or reference) instructions for sending these reports the state pipeline safety authority as well.

This may seem duplicative of other reporting requirements, but the DIMP reporting rules were adopted before it was arranged for the information to be added to Annual Reports. Copying or referencing other reporting procedures should make this requirement easy to meet.



Records Required to be Maintained

- An operator must maintain records demonstrating compliance with the requirements of this subpart for at least 10 years (Including records not otherwise kept for 10 years).
- The Plan must describe how superseded plans and data will be maintained and kept secure
- Plans must include an adequate revision log that includes: the Plan effective date, revision dates, and a description of each revision
- Some Plans included statements that “all Company records were used in the development of the DIMP.” Only the records actually used to develop and implement the DIMP should be referenced; otherwise all records must be kept for 10 years.



Other Comments

- Pre-DIMP risk reduction measures need to be incorporated into the DIMP plan.
- If risk evaluation concludes new or additional risk reduction measures are not needed to address a particular threat, that is acceptable but needs to be explained in the Plan.
- The DIMP rules may require something that is already being done in another context – copy it over or link to it.
- The Plan should culminate in a ranked/prioritized list of threats, risk reduction measures, and performance measures.
- Treat DIMP as a tool to analyze needs and progress, not as a regulatory exercise.



Pipeline Safety Initiatives



PHMSA Advisory Bulletins

- **Advisory Bulletins**
 - **ADB-12-05 - Cast Iron Pipe**
 - **ADB-12-03 - Driscopipe® 8000 High Density Polyethylene Pipe (Drisco8000) of the potential for material degradation**
 - **ADB-12-02 - conduct post accident drug and alcohol testing of all potentially involved personnel despite uncertainty about the circumstances of the accident**
 - **ADB -11-01 - Establishing Maximum Allowable Operating Pressure or Maximum Operating Pressure Using Record Evidence**
 - **ADB-10-08 - Emergency Preparedness Communications**



Proposed Regulatory Changes

- **NPRMs**
 - **77 FR 5472 - Feb 3, 2012, PHMSA-2011-0009; Pipeline Safety: Expanding the Use of Excess Flow Valves in Gas Distribution Systems to Applications Other Than Single-Family Residences; Advance notice of proposed rulemaking (ANPRM)**
 - **77 FR 5472 - Feb 3, 2012, PHMSA-2010-0026; Pipeline Safety: Miscellaneous Changes to Pipeline Safety Regulations; Notice of proposed rulemaking (NPRM)**
 - **76 FR 70953 - Nov 16, 2011, Pipeline Safety: Safety of Gas Transmission Pipelines - Advance notice of proposed rulemaking (ANPRM)**



NTSB Findings on San Bruno, CA Incident on September 9, 2010



NTSB Findings on San Bruno, CA Incident on September 9, 2010

- The NTSB identified certain deficiencies and areas for improvement in Pipeline Safety Integrity Management Programs.
- PHMSA is working to address the NTSB recommendations
- A finding discussed in several recommendations is that without effective and meaningful metrics in performance-based pipeline safety programs, neither the Operator nor the Regulator was able to effectively evaluate or assess the Operator's pipeline system and detect the inadequacies of the Operator's pipeline integrity management program.



NTSB Findings

- Relevant to Integrity Management Programs NTSB also made the following comments:
 - The IM Program was based on incomplete and inaccurate pipeline information
 - The IM Program did not consider the design and materials contribution to the risk of a pipeline failure.
 - The structure of the IM Program led to internal assessments of the program that were superficial and resulted in no improvements.



NTSB Recommendations

- Several Recommendations directly included Distribution Operators:
 - Operators should provide system-specific information about their pipeline systems to the emergency response agencies of the communities and jurisdictions in which those pipelines are located. [P-11-8]
 - Operators immediately and directly notify the 911 emergency call center(s) for the communities and jurisdictions in which those pipelines are located when a possible rupture of any pipeline is indicated. [P-11-9]
 - Operators should conduct post accident drug and alcohol testing of all potentially involved personnel despite uncertainty about the circumstances of the accident. [P-11-12 & P-11-13]



NTSB Recommendations

- NTSB has discussed with PHMSA several key topics that impact distribution operators:
 - Pressure excursions
 - Appropriate records
 - QA/QC to ensure validity of records/assumptions
 - Identification of information gaps
 - Knowledge of what information is unknown
 - Documentation of replacements and decisions made
 - Performance metrics that provide meaningful insight
- Operators should be aware that NTSB's concerns include ensuring adequate oversight of the operator and adequate field inspections.



Current Regulatory Topics for Distribution Operators



Distribution Annual Report Revisions

Distribution Annual Report modifications to align leak causes with the Incident Report have initiated and should be completed in time for the 2012 Annual Report submittals.

Other modifications are being discussed and solutions identified for their implementation, and these include:

- Easier data input fields for mileages and services
- Definition of the type of operator
- Definition of the commodity transported.
- Added input fields for Sections on EFV's and Excavation Damage



DIMP Enforcement Guidance

- DIMP Enforcement Guidance has been drafted.
- When completed, this guidance will be made publicly available and posted on PHMSA's website with the other Enforcement Guidance documents currently posted at <http://www.phmsa.dot.gov/foia/e-reading-room>
- This posting will allow Operators to understand Regulators' expectations with regards to the DIMP Regulation



DIMP's Regulatory required "Near Miss Initiative"

- Existing and Potential Threats – 192.1007(C)
- In the evaluation and ranking of risk, an operator must consider each current and potential threat
- Existing threats that have not resulted in a leak must be considered
- Potential threats identified from in Industry and PHMSA published materials must be considered, as appropriate



DIMP Public Meeting

- **NAPSR/PHMSA DIMP Public Meeting on June 27, 2012**
 - Presentations discussed:
 - Expectations of implemented DIMP programs
 - Current versions of DIMP inspection forms
 - Observations from DIMP Inspections conducted
 - MFFR Data Results from 1st year (2011)
 - Methodologies that Industry is employing
 - Discussion of areas of concern and current topics
 - Meeting materials posted at -
<https://primis.phmsa.dot.gov/meetings/MtgHome.mtg?mtg=76>



Thank you for Your Participation

Questions and Answers