



***DISTRIBUTION INTEGRITY  
MANAGEMENT PLAN  
KNOWLEDGE OF SYSTEM***

or

WHAT RECORDS DO I HAVE AVAILABLE  
TO USE FOR DIMP?

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## **SUBPART P - §192.1007**

A written integrity management plan must contain procedures for developing and implementing the following elements:

(a) *Knowledge*. An operator must demonstrate an understanding of its gas distribution system developed from reasonably available information.

## **SUBPART P - §192.1007**

- \* Knowledge includes:
  - \* Characteristics of design, operations and environmental factors to assess threats and risks
  - \* Information gained from past design, operations, and maintenance
  - \* Identify if additional information is needed, and plan for obtaining information

## KNOWLEDGE

- \* Develop understanding of system from reasonably available information
  - \* Does not require search through every archived (i.e. – offsite or stored) records
  - \* Does not require additional investigations (i.e. – excavation) to discover information

## KNOWLEDGE

- \* Have considerable knowledge of system through
  - \* Routine Operations and Maintenance activities
  - \* Knowledge and experience of operations, maintenance or engineering personnel or contractor personnel
  - \* Paper or electronic records
- \* Location of records – main office, field office, field notes, and operations logs

## **KNOWLEDGE**

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Must assemble reasonably available information to the extent necessary to support development and implementation of IM program

***WHERE DO I START?***

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## **KNOWLEDGE**

- \* Sources Of Information
  - \* Records required by various subparts of both §191 and §192.
  - \* Life of facility documents
  - \* Transient records of inspections and tests
- \* Review §191 and § 192 requirements for information sources

## **INFORMATION SOURCES (§191.11)**

- \* Annual Report (PHMSA Form F7100.1-1)
  - \* Past report data can be downloaded from:  
[http://phmsa.dot.gov/pipeline/library/gas pipeline statistics](http://phmsa.dot.gov/pipeline/library/gas_pipeline_statistics)
  - \* System description by material, diameter, and decade of installation
  - \* Bare, coated, cathodically protected lines and mains
  - \* Number and causes of leaks

## **INFORMATION SOURCES**

- \* Incident Reports (§191.19)
- \* Other State Reporting Requirements
- \* Safety Related Condition Reports (§191.23)
- \* Investigation of incidents and failures, or root cause analysis (§192.617)

## **§192 INFORMATION SOURCES**

- \* Subpart C – Pipe Design
  - \* Pipe material and specifications
    - \* Steel, plastic, copper, cast iron
  - \* Design calculations
- \* Purchase orders, completion reports, repair information, and maps
- \* Operational knowledge from individuals

## **§192 INFORMATION SOURCES**

- \* Subpart D – Design of Components
  - \* Valves, flanges, fittings, other manufactured components, fabricated components, overpressure protection, regulators
- \* Purchase orders, completion reports, repair information, and maps
- \* Operational knowledge from individuals

## **§192 INFORMATION SOURCES**

- \* Subpart E (Welding)
  - \* Inspection of welds nondestructive testing (steel), repair of defects
- \* Subpart F (Joining other than Welding)
  - \* Method of making plastic joints, couplings, mechanical joints, threads
- \* Completion reports, repair information, and maps
- \* Operational knowledge from individuals

## **§192 INFORMATION SOURCES**

- \* Subpart G – Construction Requirements
  - \* All pipe – method of installation, depth of burial, casings, clearance, protected from hazards,
  - \* Steel pipe – dents, wrinkle bends, repairs
  - \* Plastic pipe – tracer wire, UV exposure, repairs
- \* Completion reports, repair information, and maps
- \* Operational knowledge from individuals

## **§192 INFORMATION SOURCES**

- \* Subpart H – Customer Meters and Service Lines
  - \* Materials used in service lines, types of taps, types of meter and replacement programs, excess flow valves
- \* Completion reports, repair information, and maps
- \* Operational knowledge from individuals



## **§192 INFORMATION SOURCES**

- \* Subpart I – Corrosion Control
- \* §192.459 - Exposed pipe inspections
  - \* Any time metallic pipe is exposed, an inspection should be recorded.
  - \* Not necessary to remove coating if in good condition
  - \* Only required for metallic pipe, but good idea for plastic to help determine unknown material

## **§192 INFORMATION SOURCES**

- \* Subpart I – Corrosion Control
- \* §192.461 – Protective Coatings
  - \* Type and method of coating
  - \* Follow manufacturers recommendations
- \* Completion reports, repair information, and maps
- \* Operational knowledge from individuals

## **§192 INFORMATION SOURCES**

- \* §192.465 External Monitoring
- \* The annual survey consists of taking the following readings along the pipeline:
  - \* Rectifier readings (6 times per year)
  - \* Test point readings (may include pipe-to-soil, valve taps, risers, and other above ground structures) (once per year)
  - \* Casing-to-soil readings (once per year)
  - \* Anode bed readings (once per year)
  - \* Bond Readings (once or 6 times per year)

## **§192 INFORMATION SOURCES**

- \* §192.467 – Electrical Isolation
  - \* Readings part of annual survey to ensure isolation
- \* §192.469 – Test Stations
  - \* Adequate number of test points
  - \* Delete test point document reason or designate alternate point

## **§192 INFORMATION SOURCES**

- \* Readings must meet criteria of Appendix D
  - \* Normal pipe to soil readings should be a minimum of -850 mV
  - \* Need to consider IR drop, readings of -850 mV may not be adequate when calculated IR is removed
  - \* If improper readings obtained, additional actions may be required as per §192.613, Continuing Surveillance

## **§192 INFORMATION SOURCES**

To help determine IR drop, pipe potentials should be taken each time the pipe coating is removed for repair or construction to help meet the requirements of §192.613, Continuing Surveillance

## **§192 INFORMATION SOURCES**

- \* §192.475 (b) – Internal Pipe Inspections
  - \* Any time pipe is cut, an internal pipe inspection must be performed.
  - \* Only required for metallic pipe, but good idea for all lines
- \* §192.477 – Internal Corrosion Monitoring
  - \* Gas quality records

## **§192 INFORMATION SOURCES**

- \* §192.479, §192.481, Atmospheric Corrosion
  - \* All piping exposed to the atmosphere must be inspected every 3 years, remedial actions
  - \* Particularly important for meter sets

## **§192 INFORMATION SOURCES**

- \* §192.487 – Remedial Measures
  - \* Record of assessments, repairs, or remedial actions
  - \* Installation of cathodic protection on isolated short sections or fittings

## **INFORMATION SOURCES**

- \* Corrosion Abnormal Operating Conditions
  - \* No output from rectifier – rectifier or ground bed problems
  - \* Inadequate CP levels
  - \* Improper Pipe to soil readings
  - \* Vandalism and third party damage
  - \* Improper insulation
  - \* Unauthorized uses of above ground structures
  - \* Atmospheric corrosion
  - \* Internal corrosion issues
  - \* Iron pipe - graphitization

## **INFORMATION SOURCES**

- \* Corrosion information found in records, surveys, or patrol information
  
- \* Other Corrosion Information
  - \* Close interval surveys
  - \* Other electrical studies such as DCVG
  - \* Shorted casings and electrical isolation

## **§192 INFORMATION SOURCES**

- \* Subpart J – Testing
  - \* Pressure test and leak test records as required by §192.517
  - \* For pipelines operating below 100 psi, service lines, and plastic pipelines, only require a minimum of 5 year retention

## **§192 INFORMATION SOURCES**

- \* 192.605 – O&M Manual
  - \* Procedures used for operations and maintenance
  - \* Recent changes, sales and acquisitions
  - \* Training for changes
  - \* Documentation of code required inspections

## **§192 INFORMATION SOURCES**

- \* Subpart L – Operations
- \* §192.613 – Continuing Surveillance
  - \* Actions taken for failures, leakage history, changes in CP requirements, and other unusual operating and maintenance conditions
  - \* Determined to be unsatisfactory condition – initiate program to recondition or phase out, or reduce MAOP

## **§192 INFORMATION SOURCES**

- \* §192.614 – Damage Prevention
  - \* One call tickets – involved, not involved
    - \* Blasting, crossings, proximity to other utilities
  - \* Developers, any others planning work
  - \* Damage associated with one calls
  - \* Documentation of damage without one-calls
  
- \* One call tickets, other records

## **§192 INFORMATION SOURCES**

- \* §192.619, §192.621 and §192 .623 – MAOP
  - \* MAOP of system
  - \* How was it established
  - \* Over pressure and under pressure conditions
  
- \* Records, but operations personnel may provide more information



## **§192 INFORMATION SOURCES**

- \* Subpart M – Maintenance
- \* §192.721 – Patrolling
  - \* Areas patrolled more frequently because of severity of conditions, or on structures where physical movement or external loading (i.e. – bridges)
- \* Records of results of patrols

## **§192 INFORMATION SOURCES**

- \* §192.723 – Leakage Surveys
  - \* Periodic leakage surveys and reported leaks
  - \* Records of surveys
- \* Leak Management Program
  - \* Hazardous leaks repaired
  - \* Develop a leak management program based on knowledge of system

## **§192 INFORMATION SOURCES**

- \* §192.739, §192.741, and §192.743 – Pressure limiting and regulating stations
  - \* Set points, testing and inspections, capacity verifications
- \* Written documents, pressure records, overpressure conditions
- \* May require contact with transmission company who does inspections/testing

## **§192 INFORMATION SOURCES**

- \* §192.747 – Valves
  - \* List of valves necessary for safe operation of the distribution system
  - \* Annual valve inspections
- \* Inspection records and remedial actions

## **§192 INFORMATION SOURCES**

- \* §192.753 – Caulked bell and spigot joints
- \* §192.755 - Protecting cast iron pipeline
  - \* Areas where bell and spigot joints sealed
  - \* Protection of cast iron lines from outside forces
- \* Written records and maps
- \* Operational knowledge from individuals

## **§192 RISK INFORMATION SOURCES**

- \* §192.615 – Emergency Plans
  - \* Knowledge and training
  - \* Response times
  - \* Liaison with public officials
- \* §192.616 – Public Awareness
  - \* Records showing population along pipeline, areas of higher risk such as schools, business districts, hospitals

## **§192 RISK INFORMATION SOURCES**

- \* §192.625 – Odorization
  - \* Records showing over odorization and under odorization
  - \* Used in conjunction with leak calls
  
- \* §192.727 – Abandoned or deactivated Facilities
  - \* Location of such facilities

## **OTHER RISK INFORMATION SOURCES**

- \* Geological conditions such as:
  - \* River crossings or areas prone to washouts or flooding
  - \* Areas prone to subsidence/mining
  - \* Areas prone to landslides
  - \* Areas prone to earthquakes
- \* Public considerations
  - \* Areas of future development
  - \* Proposed infrastructure changes

## OTHER RISK INFORMATION SOURCES

- \* Call Center Logs
  - \* Primarily leaks and odor calls
  - \* No gas calls may indicate anything from plugged or frozen off regulator to system constraints during extreme weather conditions
  - \* Third party hits and other outside force damage (i.e. – automobile crashes which damage equipment)

## RECORD RETENTION

- \* Life of Facility Documents
  - \* Design, materials, construction records
  - \* Some corrosion records including internal pipe inspections
- \* Transient Records
  - \* Patrols, inspections – no specified interval, but at least until next inspection
  - \* Test requirements – 5 years

## RECORD RETENTION

\* §192.1015(c) - The operator must maintain, for a period of at least 10 years, the following records:

- (1) Written IM plan (including superseded plans)
- (2) Documents supporting threat identification
- (3) Documents showing location and material of piping and appurtenances installed after IM, and to the extent know, the location and material of all existing pipe and appurtenances

## RECORD RETENTION

**A prudent distribution operator may want to reexamine their record retention intervals as part of DIMP.**

## **INFORMATION SOURCES**

- \* Incident, failure, and other information useful for:
  - \* Knowledge of system
  - \* Trending
  - \* Threat identification and assessment
  - \* Risk analysis
  - \* Developing Performance measures

## **PERFORMANCE MEASURES**

- \* Routine O&M tasks may be method of obtaining additional information regarding system
  - \* During excavation, examine pipe/fittings for markings
  - \* Modify forms/procedures to include collection of other information

## ADDITIONAL INFORMATION

- \* Regulations

<http://www.phmsa.dot.gov/pipeline/regs>

- \* Advisory Bulletins

<http://www.phmsa.dot.gov/pipeline/advisory-bulletin>

- \* Substandard plastic materials, mechanical coupling issues, snow buildup

## ADDITIONAL INFORMATION

- \* DIMP

<http://primis.phmsa.dot.gov/dimp/>

- \* GPTC guide information for DIMP

<http://www.aga.org/Committees/gotocommittee/pages/gaspiping/>



## SHRIMP

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### **S**imple, **H**andy, **R**isk-based **I**ntegrity **M**anagement **P**lan

- \* On-line tools that operators may use to create a written distribution integrity management plan customized for the specific needs of the operator
- \* Developed by APGA with input from PHMSA and NAPS

<http://www.apgasif.org/shrimp>

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**QUESTIONS?**