Distribution Integrity Management

Record Requirements

CONTACT INFORMATION

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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

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

WHERE DO I START?

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://www.phmsa.dot.gov/pipeline/library/data-stats

    (Then click on Distribution, Transmission, and Liquid, Annual Data)
  - System description by material, diameter, and decade of installation
  - Bare, coated, cathodically protected lines and mains
  - Number and causes of leaks

ANNUAL REPORTING

Docket No. PHMSA-RSPA-2004-19854

The portion of the annual report relative to mechanical fitting (compression coupling) failures will be delayed by one year and will take effect starting with the 2011 calendar year.

(2011 report due March 15th 2012)

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 -0.850 mV
  - Need to consider IR drop, readings of -0.850 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
  - Cast 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 my 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 re-examine 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 a 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/regs/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/gotocommitteepages/gaspiping

SHRIMP

Simple, Handy, Risk-based Integrity Management Plan

- 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 NAPSR

http://www.apgasif.org/shrimp

QUESTIONS?