



***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

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://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 -0.850 V
 - ✱ Need to consider IR drop, readings of -0.850 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

- ✱ §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 DCGV
 - ✱ 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
- ★ Defined business area
- ★ Records of surveys

★ Leak Management Program

- ★ Hazardous leaks repaired (§192.703)
- ★ 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, tests 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
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- ✱ 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/](http://www.aga.org/Committees/gotocommittee/pages/gaspiping/)

QUESTIONS?