

Compliance Inspections of Natural Gas Systems



PHMSA

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

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**Pipeline and
Hazardous Materials
Safety Administration**

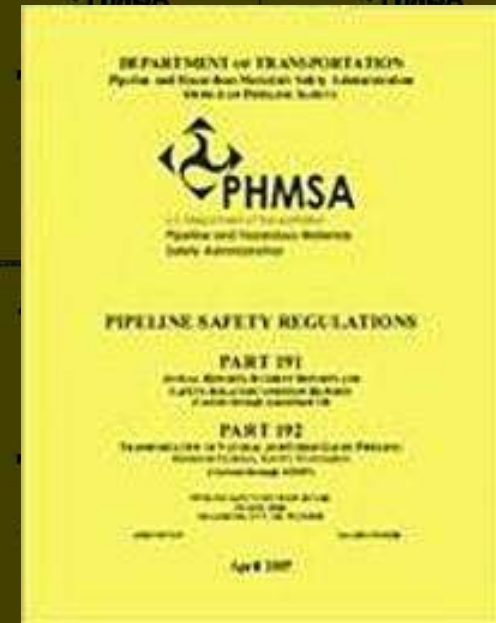
Safety Regulations Applicable to Natural Gas Systems

- Who are these people and why are they calling me?
- Where do they get their authority?

Safety Regulations Applicable to Natural Gas Systems

- The Minimum Federal Safety Standards Applicable to the Transportation of Natural Gas and for Pipeline Facilities Used for this Transportation, Are Found in Part 192, Title 49, of the Code of Federal Regulations.

- Re-Authorized by the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011



Part 190 Regulatory Authority

§190.203 Inspections and Investigations.

- (a) Officers, employees, or agents authorized by the Associate Administrator for Pipeline Safety, PHMSA, upon presenting appropriate credentials, are authorized to enter upon, inspect, and examine, at reasonable times and in a reasonable manner, the records and properties of persons to the extent such records and properties are relevant to determining the compliance of such persons with the requirements of 49 U.S.C. 60101 et seq., or regulations, or orders issued there under.

Part 190 Regulatory Authority

§190.203 Inspections and Investigations.

(b) Inspections are ordinarily conducted pursuant to one of the following:

- (1) Routine scheduling by the Regional Director of the Region in which the facility is located;
- (2) A complaint received from a member of the public;
- (3) Information obtained from a previous inspection;
- (4) Report from a State agency participating in the Federal Program under 49 U.S.C. 60105;
- (5) Pipeline accident or incident; or
- (6) Whenever deemed appropriate by the Administrator, PHMSA or his designee.

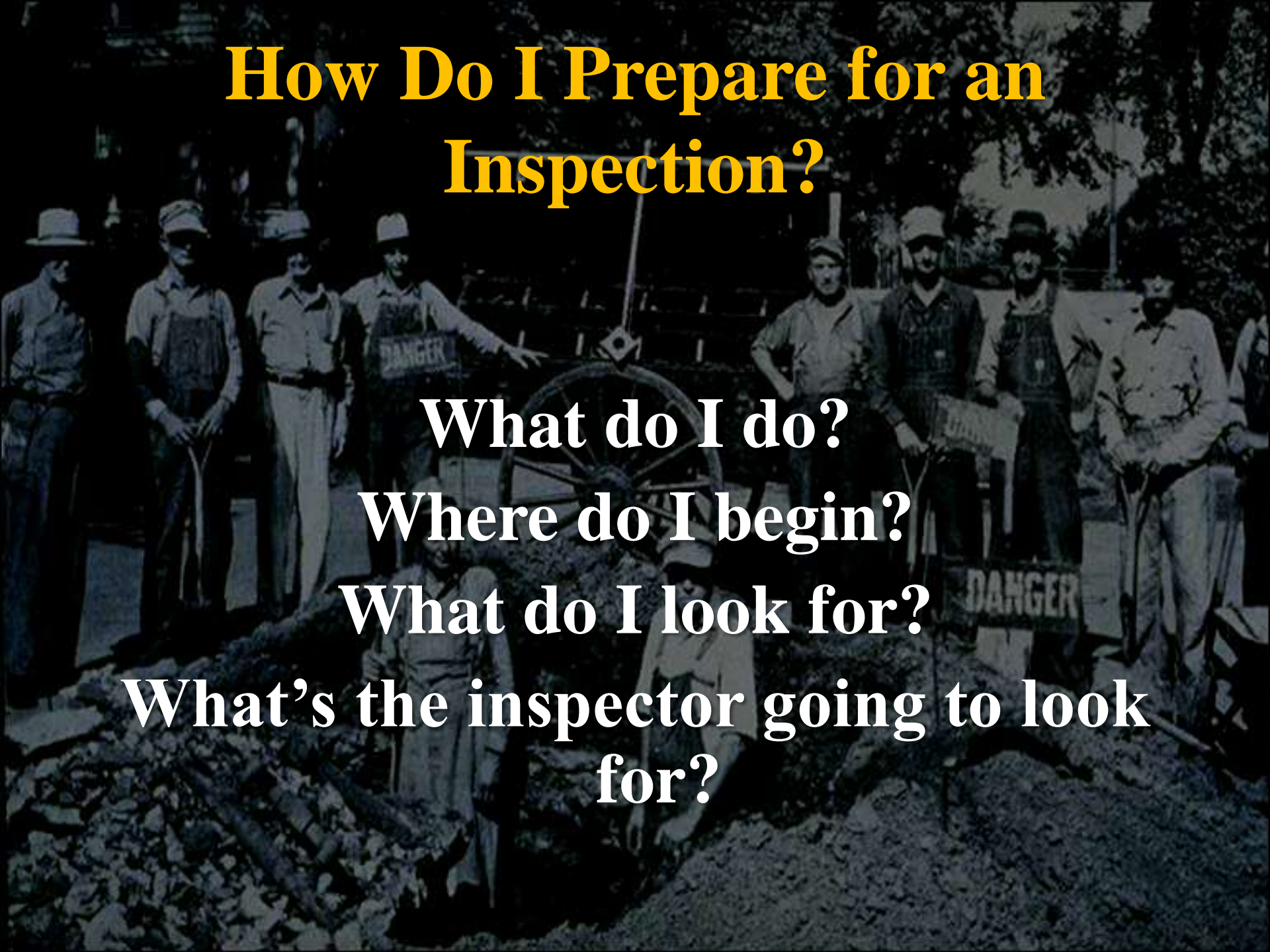
How Do I Prepare for an Inspection?

What do I do?

Where do I begin?

What do I look for?

What's the inspector going to look for?



What Type of Inspector Will I Get?

What an inspector will focus on may vary depending on their personality, work background, or recent industry events.

Let's look at a few misconceptions about inspectors.

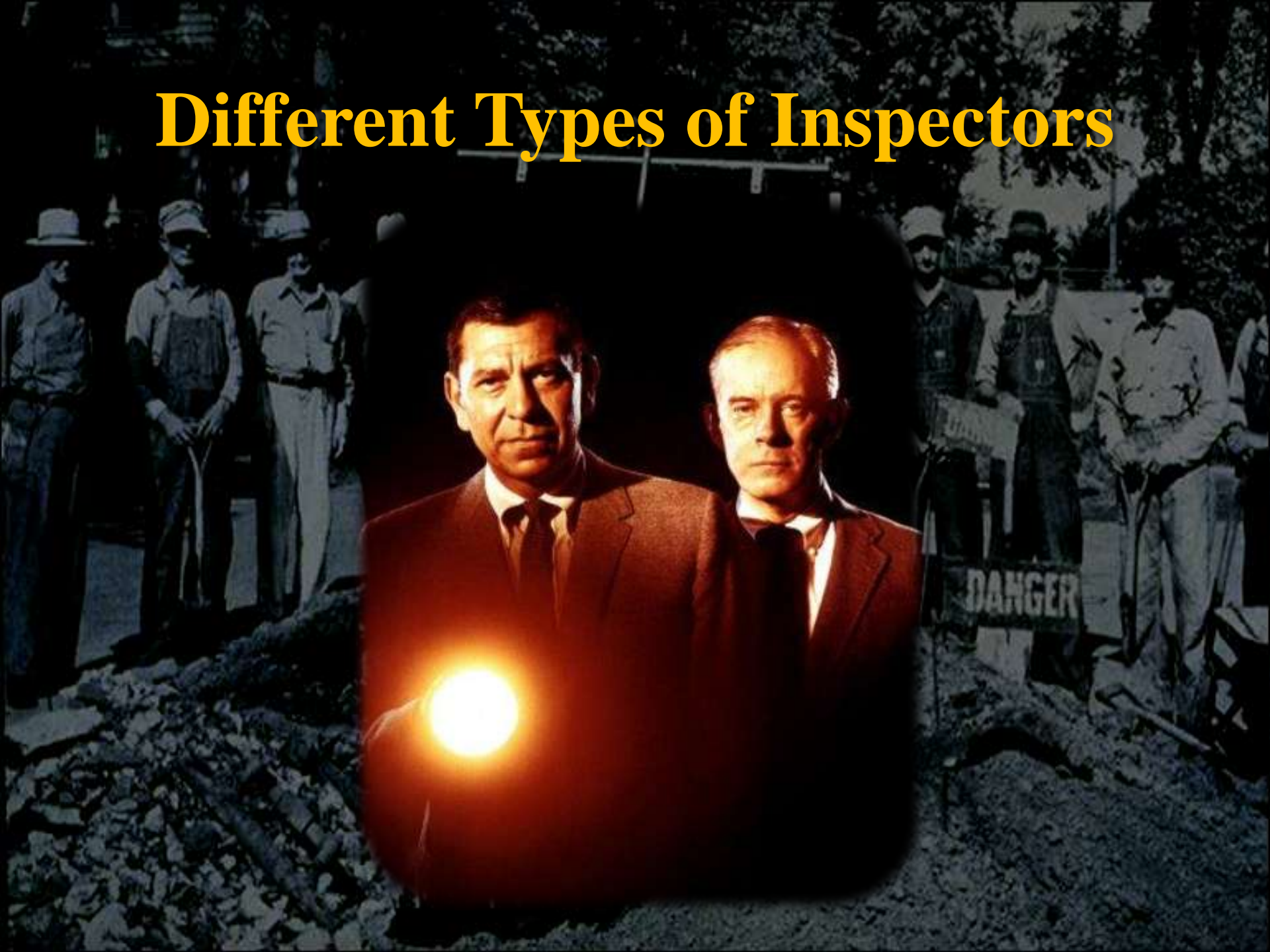
Different Types of Inspectors



Different Types of Inspectors



Different Types of Inspectors



Where Do I Begin?

- **Think like an inspector.**
 - **Think about code requirements and not just company requirements.**
 - **Make sure you have current operator name, operator official, address, and contact information.**
 - **Make sure you have a complete, up-to-date operations and maintenance manual.**
 - **Does the manual have the right company information?**
 - **Does the manual have procedures and processes to instruct someone how to safely perform operations and maintenance tasks your system, and do all employees have access to it?**
 - **Does the manual have procedures for handling emergencies?**
 - **Emergency response procedures.**
 - **Actions directed toward people first.**

Where Do I Begin?

- **Think like an inspector.**
 - **Make sure you have a complete and up-to-date operations and maintenance manual. (Continued)**
 - **Does your manual have procedures for reporting accidents / incidents and safety related conditions?**
 - **Make sure you have a complete and up-to-date damage prevention plan.**
 - **Make sure you have a complete and up-to-date public awareness plan.**
 - **Does your plan meet the requirements of API Standard 1162?**
 - **Make sure you have an up-to-date operator qualification plan.**
 - **Make sure you have an up-to-date drug and alcohol plan.**

Where Do I Begin?

- **Think like an inspector.**
 - **Make sure you have all of the records required by the code for your system.**
 - **Make sure company records contain all code required information for your system.**
 - **Make sure records are complete and up-to-date.**
 - **What work was performed? (New Const., Repair, O&M Task)**
 - **Who performed the work? (Company or Contractor) (OQ)**
 - **When was the work performed? (Date & Time)**
 - **Where was the work performed? (System, Line Segment, Station)**

How Do I Go About It?

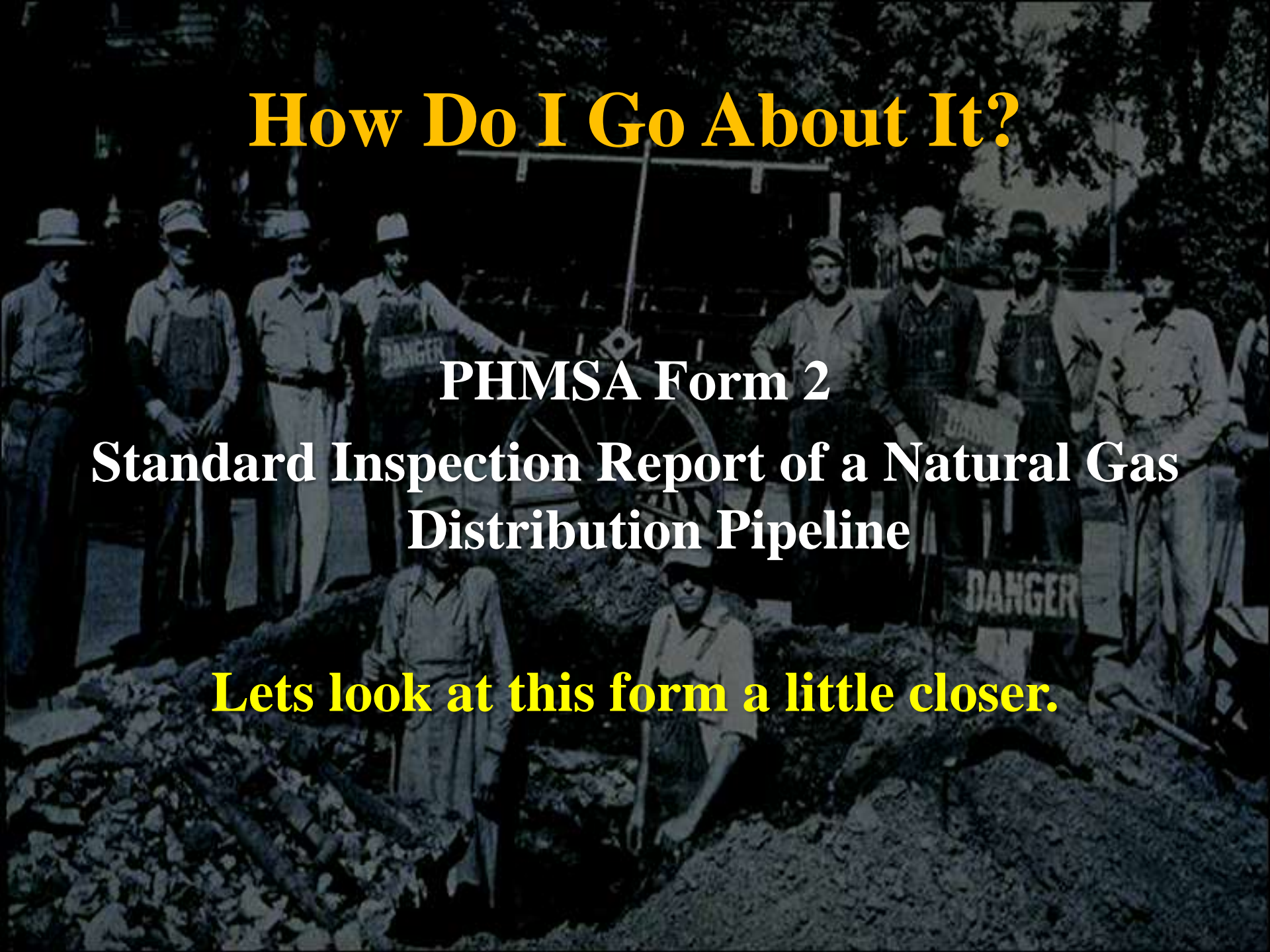
- **Use the tools and inspector will use.**
 - **Use a current and up-to-date code book.**
 - **Some code books are only updated once a year and are out of date when they are printed.**
 - **Download the most current code book from the PHMSA website.**
 - **Use a federal inspection report sheet.**
 - **You can download a copy of any of the federal inspection sheets from the PHMSA website.**
 - **Standard, Specialized, Accident, and IMP inspection sheets are all available on the website.**

How Do I Go About It?

PHMSA Form 2

Standard Inspection Report of a Natural Gas Distribution Pipeline

Lets look at this form a little closer.



STANDARD INSPECTION REPORT OF A GAS DISTRIBUTION OPERATOR			
Name of Operator: _____		Unit ID No. ⁽¹⁾ _____	
OP ID No. ⁽¹⁾ _____		System/Unit Name & Address: ⁽¹⁾ _____	
HQ Address: _____		_____	
Co. Official: _____		Activity Record ID No: _____	
Phone No.: _____		Phone No.: _____	
Fax No.: _____		Fax No.: _____	
Emergency Phone No.: _____		Emergency Phone No.: _____	
Persons Interviewed	Title	Phone No.	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
PHMSA Representative(s) ⁽¹⁾ _____		Inspection Date(s) ⁽¹⁾ _____	
Company System Maps (Copies for Region Files): _____			
Unit Description _____			
Portion of Unit Inspected: ⁽¹⁾ _____			

Unit Description

Portion of Unit Inspected: (1)

GAS SYSTEM OPERATIONS				
Gas Supplier <input type="text"/>		Date: <input type="text"/>		
Unaccounted Gas: <input type="text"/> for <input type="text"/>		Services: <i>Residential</i> <input type="text"/> <i>Commercial</i> <input type="text"/> <i>Industrial</i> <input type="text"/> <i>Other</i> <input type="text"/>		
Operating Pressure(s):		MAOP (Within last year)		Actual Operating Pressure (At time of Inspection)
Feeder: <input type="text"/>		<input type="text"/>		<input type="text"/>
Town: <input type="text"/>		<input type="text"/>		<input type="text"/>
Other: <input type="text"/>		<input type="text"/>		<input type="text"/>
Does the operator have any transmission pipelines? <input type="text"/>				
For compressor station inspections, use Attachment 4.				

49CFR PART 191							
	REPORTING PROCEDURES			S	U	N/A	N/C
.605(b)(4)	Procedures for gathering data for incident reporting						
	191.5	Telephonically reporting incidents to NRC (800) 424-8802		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	191.15(a)	30-day follow-up written report (Form 7100-2)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	191.15(b)	Supplemental report (to 30-day follow-up)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
.605(a)	191.23	Reporting safety-related condition (SRCR)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	191.25	Filing the SRCR within 5 days of determination, but not later than 10 days after discovery		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
.605(d)	Instructions to enable operation and maintenance personnel to recognize potential Safety Related Conditions			<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

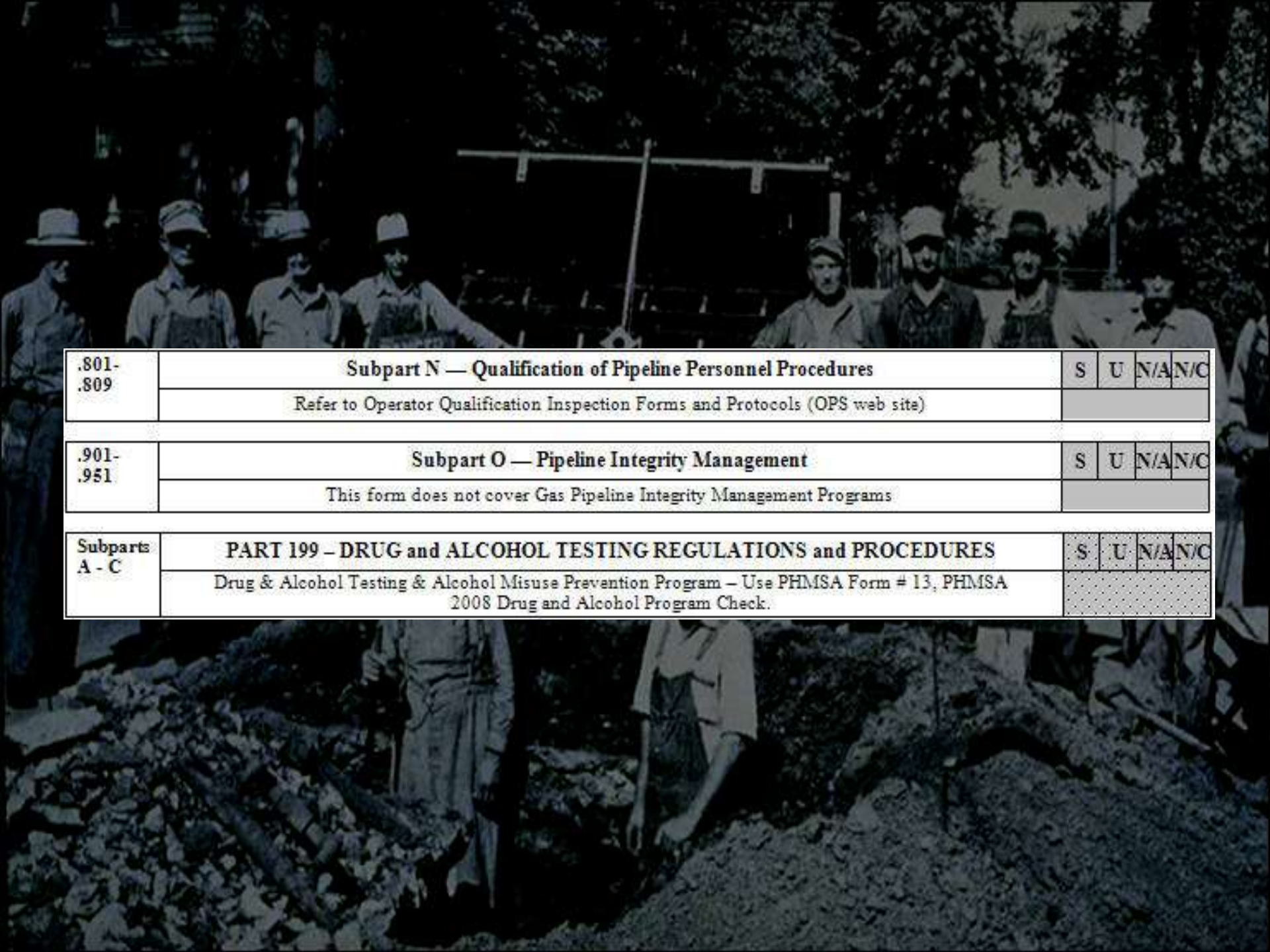
.615			EMERGENCY PROCEDURES			
			S	U	N/A	N/C
	.615(a)(1)	Receiving, identifying, and classifying notices of events which require immediate response by the operator				
	.615(a)(2)	Establish and maintain communication with appropriate public officials regarding possible emergency				
	.615(a)(3)	Prompt response to each of the following emergencies:				
		(i) Gas detected inside a building				
		(ii) Fire located near a pipeline				
		(iii) Explosion near a pipeline				
		(iv) Natural disaster				
	.615(a)(4)	Availability of personnel, equipment, instruments, tools, and material required at the scene of an emergency				
	.615(a)(5)	Actions directed towards protecting people first, then property				
	.615(a)(6)	Emergency shutdown or pressure reduction to minimize hazards to life or property				
	.615(a)(7)	Making safe any actual or potential hazard to life or property				
	.615(a)(8)	Notifying appropriate public officials required at the emergency scene and coordinating planned and actual responses with these officials				
	.615(a)(9)	Instructions for restoring service outages after the emergency has been rendered safe				
	.615(a)(10)	Investigating accidents and failures as soon as possible after the emergency				
	.615(b)(1)	Furnishing applicable portions of the emergency plan to supervisory personnel who are responsible for emergency action				
	.615(b)(2)	Training appropriate employees as to the requirements of the emergency plan and verifying effectiveness of training				
	.615(b)(3)	Reviewing activities following emergencies to determine if the procedures were effective				
	.615(c)	Establish and maintain liaison with appropriate public officials, such that both the operator and public officials are aware of each other's resources and capabilities in dealing with gas emergencies				

.605(a)	MAOP PROCEDURES			S	U	N/A	N/C									
	.619	Establishing MAOP so that it is commensurate with the class location														
		MAOP cannot exceed the lowest of the following														
		(a)(1) Design pressure of the weakest element														
		(a)(2) Test pressure divided by applicable factor														
.605(a)	MAOP PROCEDURES			S	U	N/A	N/C									
	(a)(3) The highest actual operating pressure to which the segment of line was subjected during the 5 years preceding the applicable date in second column, unless the segment was tested according to .619(a)(2) after the applicable date in the third column or the segment was uprated according to subpart K.															
	<table><tr><td>Pipeline segment</td><td>Pressure date</td><td>Test date</td></tr><tr><td>- Onshore transmission line that was a gathering line not subject to this part before March 15, 2006.</td><td>March 15, 2006, or date line becomes subject to this part, whichever is later.</td><td>5 years preceding applicable date in second column.</td></tr><tr><td>All other pipelines.</td><td>July 1, 1970.</td><td>July 1, 1965.</td></tr></table>			Pipeline segment	Pressure date	Test date	- Onshore transmission line that was a gathering line not subject to this part before March 15, 2006.	March 15, 2006, or date line becomes subject to this part, whichever is later.	5 years preceding applicable date in second column.	All other pipelines.	July 1, 1970.	July 1, 1965.				
	Pipeline segment	Pressure date	Test date													
	- Onshore transmission line that was a gathering line not subject to this part before March 15, 2006.	March 15, 2006, or date line becomes subject to this part, whichever is later.	5 years preceding applicable date in second column.													
	All other pipelines.	July 1, 1970.	July 1, 1965.													
	(a)(4) Maximum safe pressure determined by operator.															
	(b) Overpressure protective devices must be installed if .619(a)(4) is applicable															
	(c) The requirements on pressure restrictions in this section do not apply in the following instance. An operator may operate a segment of pipeline found to be in satisfactory condition, considering its operating and maintenance history, at the highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column of the table in paragraph (a)(3) of this section. An operator must still comply with § 192.611															
	.621	MAOP - High Pressure Distribution Systems Note: New PA-11 design criteria is incorporated into 192.121 & .123, (Final Rule Pub. 24 December, 2008)														
.623	Max./Min. Allowable Operating Pressure - Low Pressure Distribution Systems															

.605(b)	DISTRIBUTION SYSTEM PATROLLING & LEAKAGE SURVEY PROCEDURES	S	U	N/A	N/C
.721(a)	Frequency of patrolling mains must be determined by the severity of the conditions which could cause failure or leakage (i.e., consider cast iron, weather conditions, known slip areas, etc.)				
.721(b)	Mains in places or on structures where anticipated physical movement or external loading could cause failure or leakage must be patrolled . . .				
(b)(1)	In business districts at intervals not exceeding 4½ months, but at least four times each calendar year; and				
(b)(2)	Outside business districts at intervals not exceeding 7½ months, but at least twice each calendar year				
.723(a) & (b)	Periodic leak surveys determined by the nature of the operations and conditions.				
(b)(1)	In business districts as specified, 1/yr (15 months)				
(b)(2)	Outside of business districts as specified, once every 5 calendar years/63 mos.; for unprotected lines subject to .465(e) where electrical surveys are impractical, once every 3 years/39 mos.				

.605(b)	PRESSURE LIMITING and REGULATING STATION PROCEDURES		S	U	N/A	N/C
.739(a)	Inspection and testing procedures for pressure limiting stations, relief devices, pressure regulating stations and equipment (1 per yr/15 months)					
	(1) In good mechanical condition					
	(2) Adequate from the standpoint of capacity and reliability of operation for the service in which it is employed					
	(3) Set to control or relieve at correct pressures consistent with .201(a), except for .739(b).					
	(4) Properly installed and protected from dirt, liquids, and other conditions that may prevent proper oper.					
.739(b)	For steel lines if MAOP is determined per .619(c) and the MAOP is 60 psi (414 kPa) gage or more . . .					
	If MAOP produces hoop stress that	Then the pressure limit is:				
	Is greater than 72 percent of SMYS	MAOP plus 4 percent				
	Is unknown as a percent of SMYS	A pressure that will prevent unsafe operation of the pipeline considering its operating and maintenance history and MAOP				
.741	Telemetry or Recording Gauges					
	(a) In place to indicate gas pressure in the district that is supplied by more than one regulating station					
	(b) Determine the need in a distribution system supplied by only one district station					
	(c) Inspect equipment and take corrective measures when indications of abnormally high or low pressure					
.743	Testing of Relief Devices					
.743	(a) Capacity must be consistent with .201(a) except for .739(b), and be determined 1 per yr/15 mo.					
	(b) If calculated, capacities must be compared; annual review and documentation are required.					
	(c) If insufficient capacity, new or additional devices must be installed to provide required capacity.					

13(c)	WELDING AND WELD DEFECT REPAIR/REMOVAL PROCEDURES	S	U	N/A	N/C
227	(a) Welders must be qualified by Section 6 of API 1104 (19 th ed 1999, 10/31/01 errata) or Section IX of ASME Boiler and Pressure Code (2004 ed. Including addenda through July 1, 2005) See exception in 227(b).				
	(b) Welders may be qualified under section I of Appendix C to weld on lines that operate at < 20% SMYS.				
229	(a) To weld on compressor station piping and components, a welder must successfully complete a destructive test				
	(b) Welder must have used welding process within the preceding 6 months				
	(c) A welder qualified under 227(a)-				
229(c)	(1) May not weld on pipe that operates at \geq 20% SMYS unless within the preceding 6 calendar months the welder has had one weld tested and found acceptable under the sections 6 or 9 of API Standard 1104, may maintain an ongoing qualification status by performing welds tested and found acceptable at least twice per year, not exceeding 7 1/2 months; may not requalify under an earlier referenced edition.				
	(2) May not weld on pipe that operates at < 20% SMYS unless is tested in accordance with 229(c)(1) or requalifies under 229(d)(1) or (d)(2).				
	(d) Welders qualified under 227(b) may not weld unless:				
	(1) Requalified within 1 year/15 months, or				
	(2) Within 7 1/2 months but at least twice per year had a production weld pass a qualifying test				
231	Welding operation must be protected from weather				
233	Miter joints (consider pipe alignment)				
235	Welding preparation and joint alignment				
241	(a) Visual inspection must be conducted by an individual qualified by appropriate training and experience to ensure:				
	(1) Compliance with the welding procedure				
	(2) Weld is acceptable in accordance with Section 9 of API 1104				
	(b) Welds on pipelines to be operated at 20% or more of SMYS must be nondestructively tested in accordance with 192.243 except welds that are visually inspected and approved by a qualified welding inspector if:				
	(1) The nominal pipe diameter is less than 6 inches, or				
	(2) The pipeline is to operate at a pressure that produces a hoop stress of less than 40% of SMYS and the welds are so limited in number that nondestructive testing is impractical				
241	(c) Acceptability based on visual inspection or NDT is determined according to Section 9 of API 1104. If a girth weld is unacceptable under Section 9 for a reason other than a crack, and if Appendix A to API 1104 applies to the weld, the acceptability of the weld may be further determined under that appendix.				
	Repair and Removal of Weld Defects				
245	(a) Each weld that is unacceptable must be removed or repaired. Except for offshore pipelines, a weld must be removed if it has a crack that is more than 8% of the weld length				



.801- .809	Subpart N — Qualification of Pipeline Personnel Procedures	S	U	N/A	N/C
	Refer to Operator Qualification Inspection Forms and Protocols (OPS web site)				
.901- .951	Subpart O — Pipeline Integrity Management	S	U	N/A	N/C
	This form does not cover Gas Pipeline Integrity Management Programs				
Subparts A - C	PART 199 – DRUG and ALCOHOL TESTING REGULATIONS and PROCEDURES	S	U	N/A	N/C
	Drug & Alcohol Testing & Alcohol Misuse Prevention Program – Use PHMSA Form # 13, PHMSA 2008 Drug and Alcohol Program Check.				

PIPELINE INSPECTION (Field)		S	U	N/A	N/C
.179	Valve Protection from Tampering or Damage				
.463	Cathodic Protection				
.465	Rectifiers				
.476	Systems designed to reduce internal corrosion				
.479	Pipeline Components Exposed to the Atmosphere				
.605	Knowledge of Operating Personnel				
.707	ROW Markers, Road and Railroad Crossings				
.719	Pre-pressure Tested Pipe (Markings and Inventory)				
.741	Telemetry, Recording gauges				
.739/.743	Pressure Limiting and Regulating Devices (spot-check field installed equipment vs. inspection records)				
.745	Valve Maintenance				
.751	Warning Signs				
.801 - .809	Operator Qualification - Use PHMSA Form 15 Operator Qualification Field Inspection Protocol Form				

CORROSION CONTROL PERFORMANCE AND RECORDS			S	U	N/A	N/C
.491	.491(a)	Maps or Records				
.491	.459	Examination of Buried Pipe when Exposed				
.491	.465(a)	Annual Pipe-to-soil Monitoring (1 per yr/15 months) for short sections (10% per year; all in 10 years)				
.491	.465(b)	Rectifier Monitoring (6 per yr/2½ months)				
.491	.465(c)	Interference Bond Monitoring – Critical (6 per yr/2½ months)				
.491	.465(c)	Interference Bond Monitoring – Non-critical (1 per yr/15 months)				
.491	.465(d)	Prompt Remedial Actions				
.491	.465(e)	Unprotected Pipeline Surveys, CP active corrosion areas (1 per 3 cal yr/39 months)				
.491	.467	Electrical Isolation (Including Casings)				
.491	.469	Test Stations – Sufficient Number				
.491	.471	Test Lead Maintenance				
.491	.473	Interference Currents				
.491	.475(a)	Internal Corrosion; Corrosive Gas Investigation				
.491	.475(b)	Internal Corrosion; Internal Surface Inspection; Pipe Replacement				
.491	.476 (d)	Internal Corrosion; New system design; Evaluation of impact of configuration changes to existing systems				
.491	.477	Internal Corrosion Control Coupon Monitoring (2 per yr/7½ months)				
.491	.481	Atmospheric Corrosion Control Monitoring (1 per 3 cal yr/39 months onshore; 1 per yr/15 months offshore)				
.491	.483/.485	Remedial: Replaced or Repaired Pipe; coated and protected; corrosion evaluation and actions				

PHMSA Form 1 Question Set (IA Equivalent)
STANDARD INSPECTION REPORT OF A GAS TRANSMISSION PIPELINE

10. Transmission Lines Testing of Repairs (detail) *Does the operator properly test replacement pipe and repairs made by welding on transmission lines?* (AR.RMP.WELDTTEST.O) (detail)

192.719(a) (192.719(b))

Sat+

Sat

Concern

Unsat

NA

NC

Notes

11. Pressure Limiting and Regulating Stations Inspection and Testing (detail) *Are field or bench tests or inspections of regulating stations, pressure limiting stations or relief devices adequate?* (MO.GMOPP.PRESSREGTEST.O) (detail)

192.739(a) (192.739(b); 192.743)

Sat+

Sat

Concern

Unsat

NA

NC

Notes

12. Valve Maintenance Transmission Lines (detail) *Are field inspection and partial operation of transmission line valves adequate?* (MO.GM.VALVEINSPECT.O) (detail)

192.745(a) (192.745(b))

Sat+

Sat

Concern

Unsat

NA

NC

Notes

What Happens When the Inspection is Over?

- The inspector will generally have a meeting with the operator to close out the inspection.
- The inspector will go over their findings with the operator, and describe what is out of compliance with the code (if anything) and why.
- The inspector will let the operator know what they might expect as a result of the inspection; letter of concern, warning letter, or violation letter.

What Happens When the Inspection is Over?

- What the inspector lists as issues found in the audit may or may not be found in the final letter from the state program manager or PHMSA regional director.
- The inspector is a fact finder and will make recommendations to their directors.
- The enforcement authority lies with the state program manager or PHMSA regional director, and that's who will send the letter.

Be an Informed Operator



Other Forms

- Operator Annual Report Forms
- Operator Incident Report Forms
- Incident Investigation Inspection Forms
- Operator Qualification Inspection Forms
- Drug and Alcohol Program Inspection Forms
- Integrity Management Inspection Forms
- Construction Inspection Forms

Information Websites

PHMSA Training and Qualification

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

PHMSA Pipeline Safety Regulations

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

PHMSA Pipeline Safety Forms

<http://www.phmsa.dot.gov/pipeline/library/forms>



*Remember,
We're with the Government
And We're Here to Help!*