

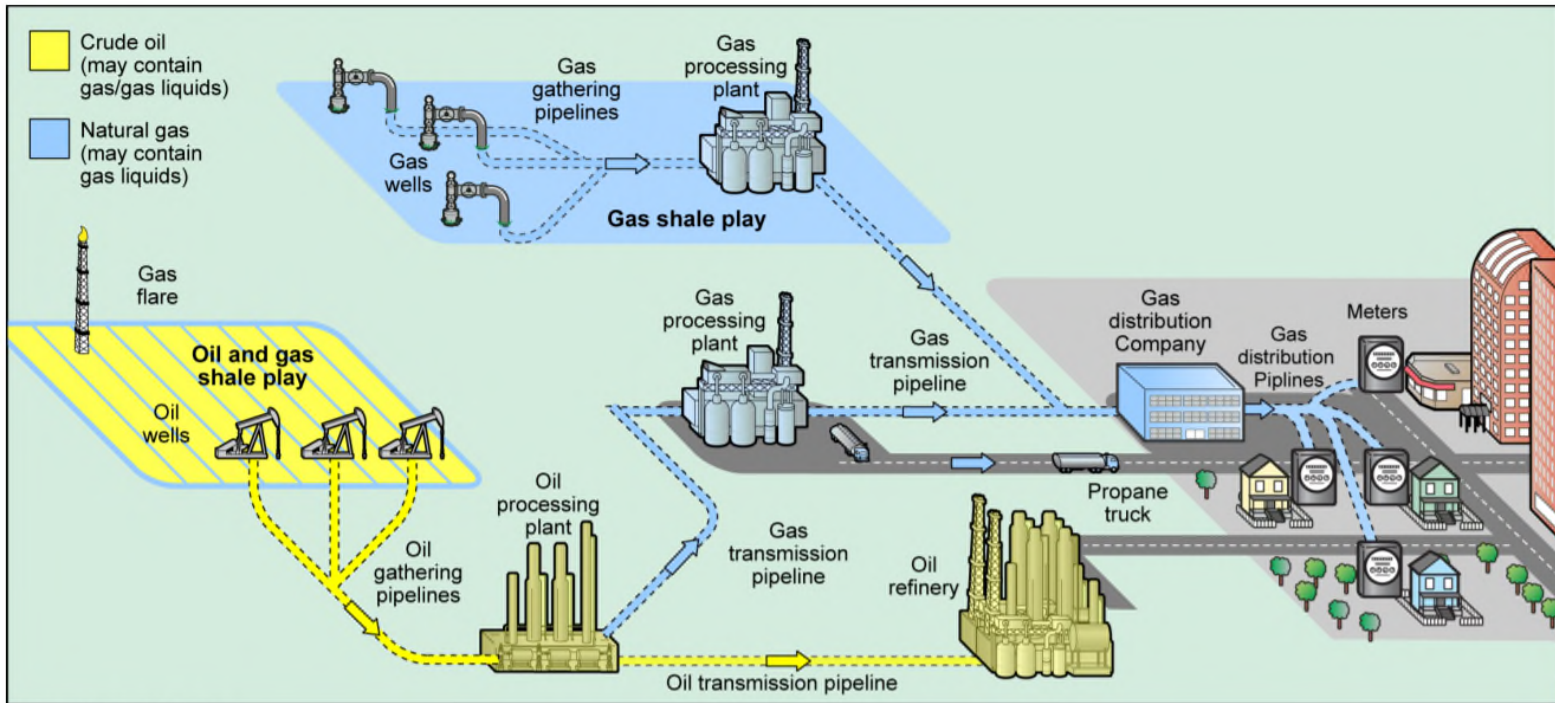
# **GAS GATHERING LINES**

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# Pipeline Functions



Source: GAO. | GAO-17-639

Note: Oil products are also transmitted from the refinery through transmission pipelines to storage tanks and other facilities not depicted in this figure.

# Natural Gas Act of 1968

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- Provided PHMSA the jurisdiction over pipeline facilities from downhole to the burner tip
- Chose not to regulate certain parts of system
  - Downstream of meter – National Fuel Gas Code
  - Downhole – until added storage in 2016
  - Production and gathering outside of the limits of any incorporated or unincorporated city, town or village and any designated residential or commercial area

# Gathering and Production

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- In 1992, Congress gave the authority to define gas gathering for purpose of safety regulations, and to designate “regulated gas gathering lines”
- API RP 80, published in 2000
- In 2006, published Gas Gathering Line Definition
  - Relied on API RP 80 to help define gathering
  - Established regulatory requirements for newly regulated gathering lines

# Gathering Lines - 2006

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- Established the start and end points of gathering as defined in §192.8 and API RP 80
- Incorporated by reference API RP 80 (1<sup>st</sup> edition, 2000)
- Established regulated gathering lines by class location.
  - Class 2, 3, and 4 became regulated
  - Class 1 (<10 buildings per mile) remained unregulated
- Established types of regulated lines by material and pressures


# Gathering Lines - 2006

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## ➤ Type A

- metallic, MAOP with hoop stress  $\geq 20\%$  SMYS
- Non-metallic with MAOP  $>125$  psig
- Class 2, 3, or 4 locations
- Full transmission requirements (§192.9(c))

## ➤ Type B

- Metallic with MAOP  $< 20\%$  SMYS
  - Non-metallic with MAOP  $\leq 125$  psig
  - Class 3 and 4, Class 2 by one of three methods (cluster)
  - Limited transmission requirements (§192.9(d))
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# Gathering Lines

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Conventional wells when regulation issued

- Never anticipated:
  - Growth of new technology for horizontal wells
  - Shale plays such as Utica and Marcellus
- Safety concerns – large diameter pipeline operating at pressures exceeding most transmission lines



# NPRM; 4/16/2016

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- All gas gathering lines subject to Annual and Incident reports
- Changes in Definitions; Move away from RP 80
- New category of regulated gathering lines
  - Class 1
  - Diameter 8" or greater
  - High-pressure
    - Metallic with MAOP >20% of SMYS
    - Non-metallic MAOP > 125 psi
- Approximately 90,000 miles affected.



# Gas Gathering Final Rule

## 11/15/2021

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- Subject all gas gathering lines, including previously unregulated lines, to PHMSA annual and incident reporting requirements (estimated > 425,000 miles of pipeline nationally)
  - WV – unknown – between 500 and 5000 miles, and a number of new operators
- Limit the use of the incidental gathering line exception to lines 10 miles or less. No other definition changes adopted.

# Gas Gathering Final Rule

## 11/15/2021

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Previously-unregulated gathering pipelines (SMYS >20% in Class 1 areas) now subject to safety standards:

- Approximately 91,000 additional miles of pipe subject to damage prevention, and emergency planning requirements.
- 20,000 additional miles of pipe subject to public awareness, line marker, corrosion control and leak survey requirements.
- 14,000 additional miles of pipe subject to MAOP requirements.
- All new and replaced pipe 8 inches or greater will have to be constructed in accordance with the current pipeline safety regulations.

# Gas Gathering Final Rule

## 11/15/2021

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- Still use API RP 80 (1<sup>st</sup> edition, 2000) to determine gathering lines
- Added two new categories of gathering line - Type R & Type C
- Effective Date – May 16, 2022
  - Incident reporting after this date
- Annual Reports – Due March 15, 2023
- Type C lines identified by November 16, 2022
- Compliance with safety standards by May 16, 2023
  - Limited stay of enforcement until May 17, 2024

# Type R Gathering Lines

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- §192.8(c)(3) defines Type R as all other onshore gathering lines, specifically in Class 1 and Class 2 locations
  - Class 1 <8" in diameter, no pressure limitation
  - Class 1 ≥8" with MAOP <125 psig or ≤20% SMYS
  - Class 2 location outside of Area 2 (b) and (c) definitions
- Type R gathering line is subject to the reporting requirements under Part 191, but is **not** a regulated gathering line under Part 192.

# Type R Requirements

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## §191.22 – National Registry of Operators

- OPID request PHMSA Form F 1000.1
- Form available at:
  - [PHMSA OPID Form F 1000.1](#)
- Electronic filing for all Type R reporting requirements except as allowed by § 191.7(d)

# Type R Requirements

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## §191.7 – Report Submission Requirements

- Each report required by this part must be submitted electronically at <http://portal.phmsa.dot.gov/pipeline> unless alternative reporting is authorized
- Operator may submit request use of alternative reports if undue burden and hardship (§191.7(d))
- PHMSA will review request and determine reporting method

# Type R Requirements

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§191.5 – Immediate notice of certain incidents

- Incident defined in §191.3
- Call within 1 hour of confirmation to NRC

§191.15 – Transmission Systems; gathering systems .....:  
Incident report

- Written report within 30 days of incident using PHMSA Form F 7100.2-2

Incident form PHMSA F 7100.2-2 posted at:

<https://www.phmsa.dot.gov/forms/pipeline-compliance-forms>

# Type R Requirements

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§191.17 – Transmission Systems; gathering systems;...:  
Annual Report

- Due March 15 of every year
- First annual report due March 15, 2023 for lines operated in 2022
- PHMSA Form F 7100.2-3 posted at:  
<https://www.phmsa.dot.gov/forms/pipeline-compliance-forms>



# Type C Gathering Lines

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Defined in §192.8(b)(2) - Outside diameter  $\geq 8.625$ " in Class 1 locations, and any of the following:

- Metallic with MAOP produces hoop stress  $> 20\%$  SMYS
- If hoop stress unknown, metallic with MAOP  $> 125$  psig
- Non-metallic with MAOP  $> 125$  psig
  - Non-metallic could include plastic or various composite type pipe

# Summary of Type C Requirements

Criteria	Type C requirements (cumulative)
All pipelines with diameter equal to or greater than 8.625 inches	<ul style="list-style-type: none"> <li>-Damage prevention §192.614</li> <li>-Emergency Plans §192.615</li> <li>- New/replaced - Design, installation, construction, inspection, and testing requirements* (allowance for composite pipe)</li> </ul>
Diameter 8.625 inches through 12.75 inches with a PIR exception:	<p>The above and:</p> <ul style="list-style-type: none"> <li>-Public Awareness §192.616</li> <li>-Line Markers §192.707</li> <li>-Corrosion control (subpart I</li> <li>- Leakage surveys (§192.706)</li> </ul>
Diameter > 12.75 inches through 16 inches with a PIR exception, or Diameter > 16 inches	<p>All the above and:</p> <ul style="list-style-type: none"> <li>-Plastic pipe requirements</li> <li>-Establish maximum allowable operating pressure (MAOP § 192.619)</li> </ul>

# Type C Requirements

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All gathering lines >8.625" must:

- Meet reporting requirements of Part 191
  - Immediate notice of incidents (§191.5)
  - Incident report (§191.15)
  - Annual report (§191.17) due March 15, 2023
  - Obtain OPID and reporting (§191.22)
  
- Exempt from safety related conditions as found in §192.23 <12.75" or covered by PIR/Class exception

# Type C Requirements

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All gathering lines >8.625" must:

- Damage prevention program meeting requirements of §192.614
  - Written plan
  - One Call - all lines >3" must belong to 811



# Type C Requirements

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All gathering lines >8.625" must:

- Develop Emergency Plans as outlined in §192.615
  - Written plan to minimize hazard from a gas pipeline emergency
  - Protecting people first, then property, then environment
  - Mean to receive, identify and classify to respond
  - Includes personnel training, liaison with emergency responders
  - Responding to emergencies such as explosions and natural disasters

# Type C Requirements

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All gathering lines >8.625” must:

- Meet design (§192, Subparts B, C and D), construction (§192. Subparts E, F, and G), and testing (§192, Subpart J) for all:
  - New pipelines
  - Replaced, relocated, or otherwise changed lines
- Exemption for composite materials (§192.9(h)), including notification to PHMSA – but allows short (<40 feet replacements) on existing composite lines

# Type C Requirements

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All gathering lines >8.625" must:

- Keep records to documenting methodology for start and endpoint of regulated pipelines (§192.8(b)) and current class location in compliance with §192.5
- Includes segment identification for Type A, Type B, Type C lines and Type R by default, and determination for “production”

# Type C Exception

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192.9(f)(1) Pipeline <16" diameter may apply a exception (similar to clustering for class location)

Allows operators to parse line if one of the following

- Method 1 – no building for human occupancy or other impacted site located in PIR (potential impact radius)
- Method 2 - the segment is not located in a class location unit containing a building intended for human occupancy or other impacted site



# Type C Exception

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Both methods use

- Buildings suitable for human occupancy
  - Houses, office buildings, stores, restaurants, factories, outside recreation areas
- Other impacted sites
  - Small well defined outside area occupied by 20 or more persons at least 5 days/week for 10 weeks (days and week do not need to be consecutive) – ball fields, playgrounds, picnic areas, rest areas
  - Any portion of paved surface of designated interstate, other freeway or expressway or other principal arterial road with 4 or more lanes

# Type C Exception

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Exceptions limit compliance with §192.9(e) requirements of corrosion control, public awareness, line markers, and leakage surveys, for areas that are outside of those defined by Method 1 and Method 2

Excepted out but still Type C lines



# Type C Exceptions – Method 1

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PIR – Potential impact radius as defined in §192.903

$$\text{PIR} = .73 * d * p^{1/2}$$

d = diameter

p = pressure

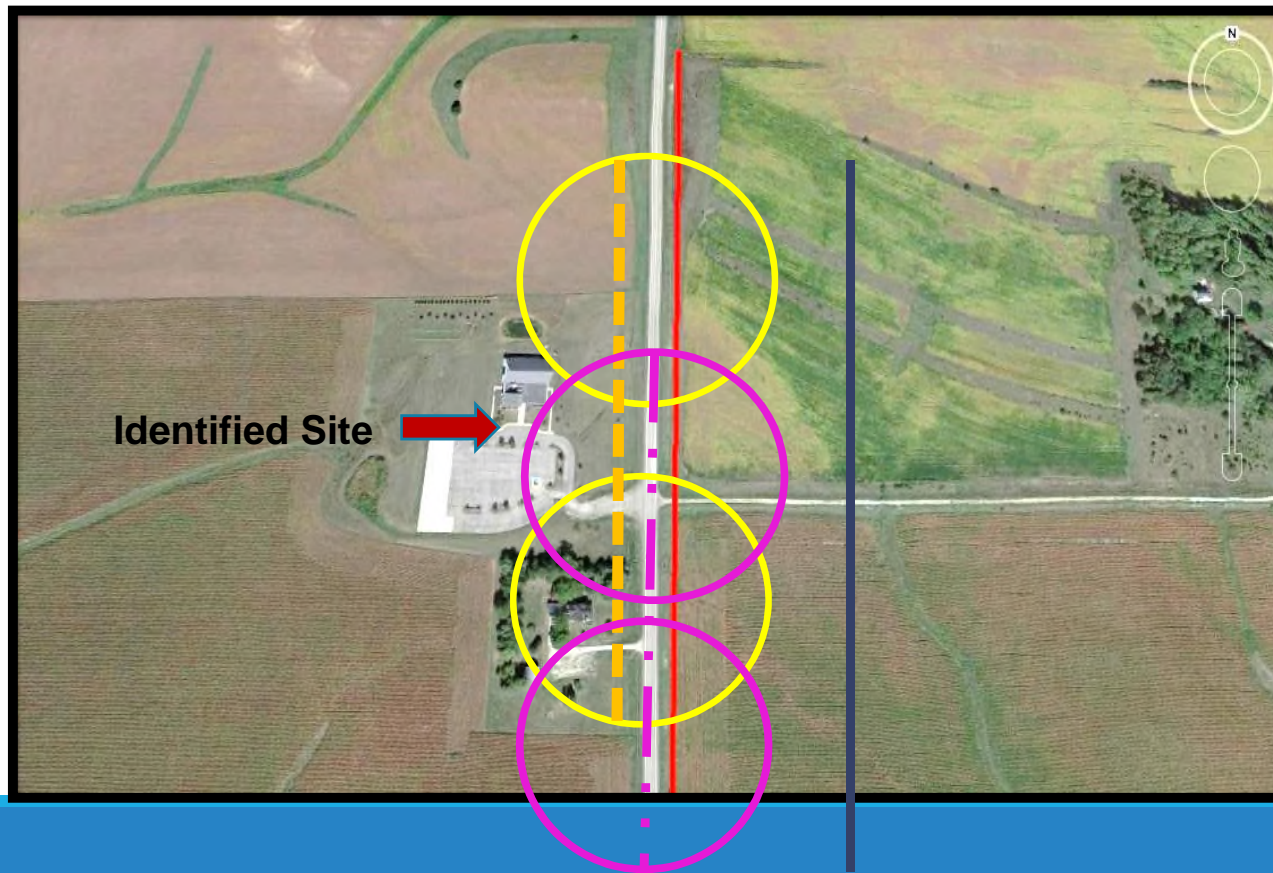
PIR = radius in feet

.73 safety factor for production or high BTU gas

# Pipeline Rupture Appomattox Co, VA 9/28/08



# Method 1 - PIR Exception



# **Type C Exceptions – Method 2**

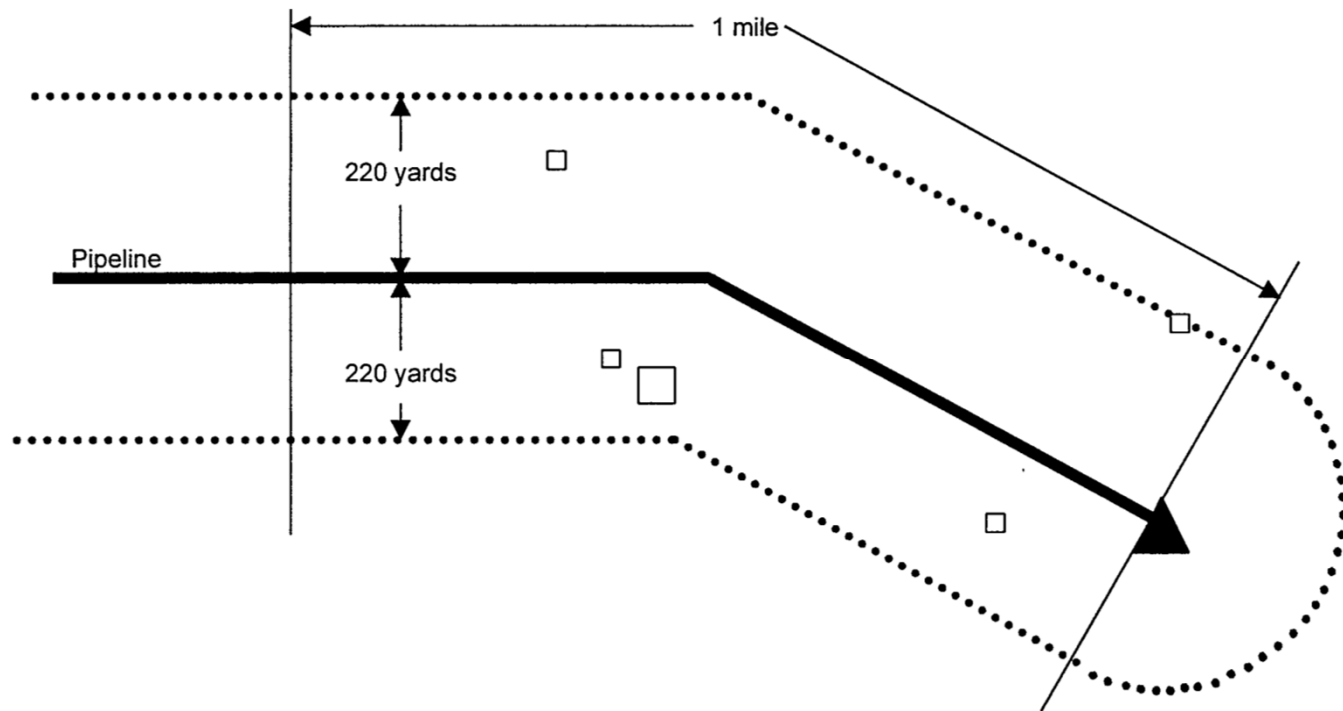
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Class unit defined in §192.5

- Extends 220 yards (660 feet) on either side of the centerline of any continuous 1 miles of pipeline

# Class Location Unit

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# Type C

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Pipelines diameter 8.625" through 16" within compliance exception and all pipelines >16" must also have:

- Public Awareness Plan according to §192.616
  - Written program
  - Follow requirements of API RP 1162 (1<sup>st</sup> edition, IBR) for gathering lines



# Type C

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Pipelines diameter 8.625” through 16” within compliance exception and all pipelines >16” must also have:

- Install line markers according to §192.707
- Name of operator, product, warning, and 24 hour emergency number



# Type C – Additional Requirements

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Pipelines diameter 8.625” through 16” within compliance exception and all pipelines >16” must also have:

- Corrosion Control according to §192 Subpart I
  - Only for metallic pipe, metallic fittings
  - Written procedures as per §192.453
  - Records as per § 192.491



# Type C – Additional Requirement

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Pipelines diameter 8.625” through 16” within compliance exception and all pipelines >16” must also:

- Leakage survey according to §192.706
- Instruments not required for Class 1 locations
- Fix hazardous leaks as per §192.703(c)

# Type C – More Requirements

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Pipelines >12.75” through 16” with PIR and all pipelines >16”

- Follow Plastic Pipe requirements
  - Design, joining, qualification of joiners
- Establish Maximum allowable operating pressure (MAOP) according to §192.619
  - May use maximum pressure for 5 years prior to becoming regulated

# **Type C – More Requirements**

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All Type C lines subject to D&A regulations

## §199.1 Scope

This part requires operators of pipeline facilities subject to part 192, 193, or 195 of this chapter to test covered employees for the presence of prohibited drugs and alcohol.

# Type C

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Not required to have:

- Operations and Maintenance (O&M) Manual (§192.605)
- Operator Qualification Plan (§192 Subpart N)
- Integrity Management Plan (§192 Subpart O)
- CRM Plan (§192.631)
- Exempt from certain design, construction and testing requirements – mostly records requirements

# Compliance Deadlines

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Rule effective May 16, 2022

- Determine Type C by November 16, 2022 (§192.8)
  - 2022 annual report due March 15, 2023
- Existing pipelines must comply with requirements by May 16, 2023
  - Limited stay of enforcement for compliance
- Newly regulated Type C after May 2023 have one year for compliance

# Things to Consider

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- API RP 80 (2000) is standard for determination
  - Well pads with multiple horizontal legs – gathering starts at common header
  - Other locations subject to operator interpretation
  - What is the boundary between production and gathering
  - Different entities call by different name – flow line, production lines
- Operators unfamiliar with API RP 80 do not acknowledge they have gathering



# Things to Consider

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- 20% SMYS – if unknown metallic materials:
  - Follow §192.107(b)(2) and use 24,000 psi for grade
  - Measure wall thickness or conservative (thinner) estimate
- Establish operating pressure or MAOP for PIR calculation
  - Chart or record with pressure
- Regulated equipment may lie outside of regulated segment

# Things to Consider

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Composite materials grandfathered

- Regulations do not allow newly incorporated regulations to apply to existing pipelines

Operators of Type C and Type R need to apply for OPID number as per §191.22

# State Challenges

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- Reality created 4 new classifications
  - Type R, Type C 8"–12", Type C 12"–16", and Type C > 16"
  - Add on top of existing Type A and Type B
- Categorization by size, pressure, class location
  - Parsing pipeline into multiple segments based on class, exemptions, pressure
  - Confusion regarding requirements
  - Maintenance costs and abandonment
- Forms and Inspections

# Other Stuff

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PHMSA task group to work on FAQs, inspection forms and other compliance issues

- Includes PHMSA and State Program representatives

Developed resource with useful links

<https://gowv.com/update-to-pipeline-safety-regulations-new-natural-gas-gathering-rule/>

More information, email [GPSD\\_Info@psc.state.wv.us](mailto:GPSD_Info@psc.state.wv.us)

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