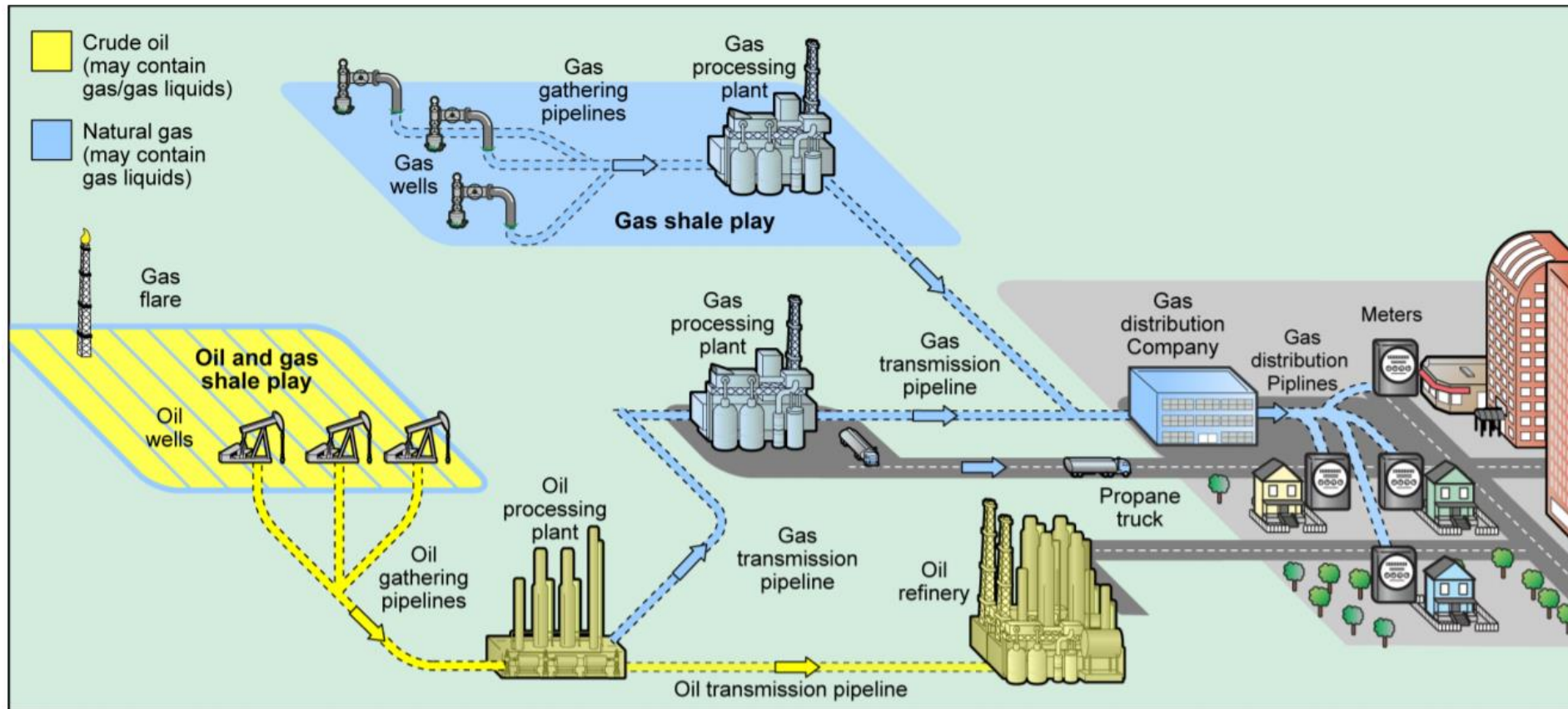


GAS GATHERING LINES

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Gathering Function



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.

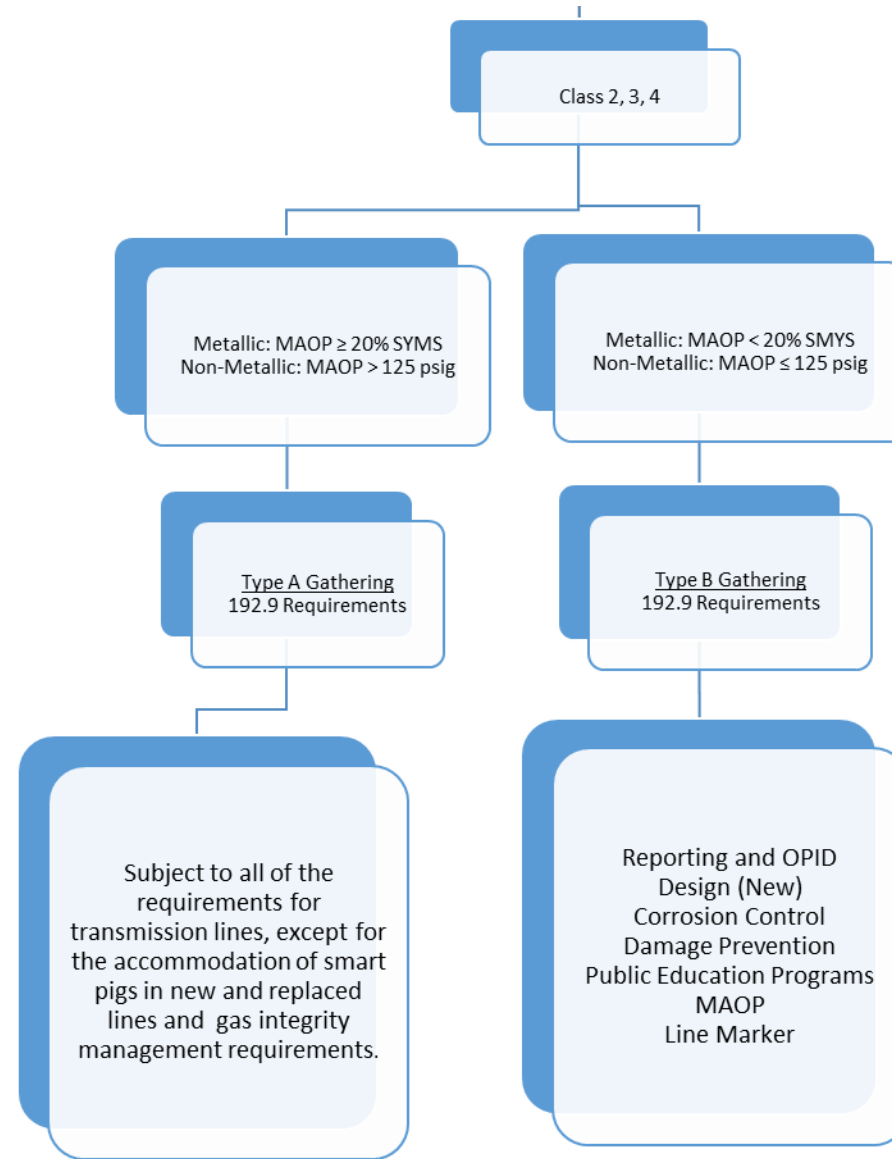
Gathering Lines - 2006

➤ Type A

- Metallic, MAOP produces hoop stress $\geq 20\%$ SMYS
- Non-metallic with MAOP > 125 psig
- Class 2, 3, or 4 locations

➤ Type B

- Metallic with MAOP produces hoop stress $< 20\%$ SMYS
- Non-metallic with MAOP ≤ 125 psig
- Class 3 and 4, Class 2 by one of three methods (cluster)



MAOP Determination

- MAOP is calculated by using 192.619 – Maximum allowable operating pressure: steel or plastic pipelines
- MAOP is affected by: Class location, design of pipe and components, system pressure, operating history, overpressure protection
- MAOP cannot exceed the LOWEST of: Design pressure, Test Pressure (de-rated), or MOP during the 5 years preceding applicable date.
- MAOP Plastic Pipe (Design of Pipe)
 - $P = \left(\frac{2S}{SDR-1} \right) x DF$
- MAOP Steel Pipe (Design of Pipe)
 - $P = \left(\frac{2St}{D} \right) x F x E x T$

MAOP and SMYS Example

Steel Gathering – Constructed in 2008, 8” Grade B, .322 wall thickness, Installed in Class 1 location, Valves/fittings ANSI 300, Tested to 650 psig for 8 hours, operated at 350 psi in 2019.

- Design pressure – $P = \left(\frac{2St}{D}\right) x F x E x T = 1,881 \text{ psi}$
 - Fittings – ANSI 300 = 740 psi
- Test Pressure/Class Location Factor = (650 psi) / 1.1 = 590 psi
- Newly regulated gathering lines – MOP during the five years prior to the date becomes regulated
 - MAOP by grandfather 192.619(a)(3) = 350 psi

*If this line had no design or pressure test information the MAOP would be 350 psi

MAOP and SMYS Example

Steel Gathering – Constructed in 2008, 8” Grade B, .322 wall thickness, Installed in Class 1 location, Valves/fittings ANSI 300, Tested to 650 psig for 8 hours, operated at 350 psi in 2019.

- Determine if MAOP of 590 psi creates a Hoop Stress greater or less than 20% SMYS
- Grade B SYMS is **35,000 psi**
- 20% of 35,000 psi = **7,000 psi**
- Use Barlow’s Formula: $P = \frac{2St}{D} = \frac{2 \times 7,000 \times .322}{8.625} = \mathbf{523\text{psi}}$
- A pressure of 523 psi will produce a hoop stress 20% of SMYS. So, an MAOP of 590 psi creates a hoop stress greater than 20% of SMYS.

NPRM; 4/16/2016

- All gas gathering lines subject to annual and incident reports
- New category of regulated gathering lines
 - Class 1
 - Diameter 8" or greater
 - High-pressure
 - Metallic with MAOP \geq 20% of SMYS
 - Non-metallic MAOP > 125 psi
- Approximately 90,000 miles affected.

Gas Gathering Final Rule

11/15/2021

- Subject all gas gathering lines, including previously unregulated lines, to PHMSA annual and incident reporting requirements (estimated > 425,000 miles of pipeline nationally)
 - LA – between 4,000 and 6,000 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

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

- Approximately 90,000 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" or greater will have to be constructed in accordance with the current pipeline safety regulations.

Gas Gathering Final Rule

11/15/2021

Added two new categories of gathering line - Type C & Type R

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

Type C Exception

192.9(f)(1) Pipeline <16” diameter may apply a PIR exception

Allows operators to parse line if one of the following

- Method 1 – no building for human occupancy or other impacted site located in PIR
- 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

Both methods use:

- Buildings suitable for human occupancy such as houses, office buildings, stores, restaurants, factories, etc.

Other impacted sites include

- 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 arteria road with 4 or more lanes

Type C Exceptions – Method 1

PIR – Potential impact radius as defined in §192.903

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

d = diameter

p = pressure

PIR = radius in feet

.69 is the safety factor for natural gas

.73 safety factor for production or high BTU gas

Type C Exceptions – Method 2

Class unit defined in §192.5

- Extends 220 yards on either side of the centerline of any continuous 1 miles of pipeline

Type C

Pipelines diameter 8.625” through 16” with no PIR exception and all pipelines >16” must also have:

- Public Awareness Plan according to §192.616
 - Follow requirements of API RP 1162 (1st edition, IBR)
- Install line markers according to §192.707
 - Name of operator, product, warning, and 24 hour emergency number

Type C – Additional Requirement

Pipelines diameter 8.625” through 16” with no PIR exception and all pipelines >16” must also have:

- Corrosion Control according to §192 Subpart I
 - Only for metallic pipe
- 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

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

Not required to have:

- Operator Qualification Plan
- Integrity Management Plan
- National Pipeline Mapping System
- Exempt from certain design, construction and testing requirements – mostly records requirements

Type R Gathering Lines

- §192.8 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 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.

Type R Requirements

§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 PHSMA Form F 7100.2

Type R Requirements

§191.22 – National Registry of Operators

- OPID request PHSMA Form F 1000.1

§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
- Send annual reports to pipelineinspectors@la.gov

Compliance Deadlines

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

Compliance Deadlines

- Newly regulated Type C – one year for compliance
 - PHMSA will exercise regulatory enforcement discretion to refrain from taking enforcement action until May 17, 2024 against operators of existing Type C gas gathering pipelines with an outer diameter greater than or equal to 8.625”, but less than or equal to 12.75”
 - Operators are still required to file annual reports in March 2023

