COGCC Flowline Regulations Series 1100

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Background - Firestone Incident

- April 17, 2017 explosion
- 2 fatalities
- Gas leak from cut flowline
- New subdivision was built in area near well. Tank was moved that connected to the line.
- Gas leaked into basement where homeowners were installing water heater.

Emergency Rules – May 2017

- All flowlines within 1,000 ft of homes were identified
- Latitude/longitude of start and end points
- Map of flowlines derived from start and end points

New Rules - Feb 2018, Jan 2020, Jan 2021

- Participation of stakeholders - Local governments, Industry, COGCC, Public, Unions
- New rules focus on registration, design, construction, operations, maintenance, and abandonment of off-location flowlines, crude oil transfer lines, and produced water transfer systems

SB 19-181

Requires Commission to complete rulemaking implementing the following statutory provisions:

- ***Change the COGCC mandate from fostering to regulating oil and gas in a manner that protects and minimizes adverse impacts to public health, safety and welfare, the environment, and wildlife resources resulting from oil and gas operations;***
- Alternative location analysis process for oil and gas locations or facilities;
- Evaluate and address the potential cumulative impacts of oil and gas development; and
- Flowline and inactive, temporarily abandoned, and shut-in wells to the extent necessary to ensure compliance with SB 19-181

COGCC Commission Makeup

	Experience in the oil and gas industry	Expertise in planning or land use	Formal training or substantial experience in environmental protection, wildlife protection, or reclamation	Professional experience demonstrating an ability to contribute to the commission's body of expertise that will aid the commission in making sound, balanced decisions	Formal training or substantial experience in public health	Two Executive Directors (ex-officio voting members)	Maximum of 3 from Same political party (excluding Executive Directors)	Current Appointment Date	Current Term Expires
Bill Gonzalez	x						Unaffiliated	7/1/2020	7/1/2022
Karin McGowan					x		Democrat	7/8/2020	7/1/2024
John Messner		x					Democrat	7/1/2020	7/1/2024
Priya Nanjaapa			x				Unaffiliated	7/8/2020	7/1/2022
Jeff Robbins				x			Democrat	7/1/2020	7/1/2024
Dan Gibbs Department of Natural Resources						x	x		
John Putnam Department of Public Health & Environment						x	x		

Commissioner requrements are set by statute in the Oil and Gas Conservation Act at § 34-60-104.3.(1)(c), C.R.S. (Current as of July 1, 2020)

Definitions – Series 100

- FLOWLINE - a segment of pipe transferring oil, gas, or condensate between a wellhead and processing equipment to the load point or point of delivery to a PHMSA or Colorado PUC regulated gathering line, or a segment of pipe transferring produced water between a wellhead and the point of disposal, discharge, or loading.
- CRUDE OIL TRANSFER LINE - a piping system that is not regulated or subject to regulation by PHMSA 49 C.F.R. § 195 Subpart A, and that transfers crude oil, crude oil emulsion or condensate from more than one well site or production facility to a production facility with permanent storage capacity greater than 25,000 barrels of crude oil or condensate or a PHMSA gathering system.

Definitions - Series 100

- OFF-LOCATION FLOWLINE - a flowline transferring produced fluids (crude oil, natural gas, condensate, or produced water) from an oil and gas location to a production facility, injection facility, pit, or discharge point that is not on the same oil and gas location. This definition also includes flowlines connecting to gas compressors or gas plants.

Flowline Definition

- ***Definition of flowline does not include a gathering line.***
- The different types of flowlines are:
  - Wellhead Line means a flowline that transfers well production fluids from an oil or gas well to process equipment (e.g., separator, production separator, tank, heater treater), not including pre-conditioning equipment such as sand traps and line heaters, which do not materially reduce line pressure.
  - Production Piping means a segment of pipe that transfers well production fluids from a wellhead line or production equipment to a gathering line or storage vessel and includes the following:
    - Production Line means a flowline connecting a separator to a meter, LACT, or gathering line;
    - Dump Line means a flowline that transfers produced water, crude oil, or condensate to a storage tank, pit, or process vessel and operates at or near atmospheric pressure at the flowline's outlet;
    - Manifold Piping means a flowline that transfers fluids into a piece of production facility equipment from lines that have been joined together to comingle fluids; and
    - Process Piping means all other piping that is integral to oil and gas exploration and production related to an individual piece or a set of production facility equipment pieces.

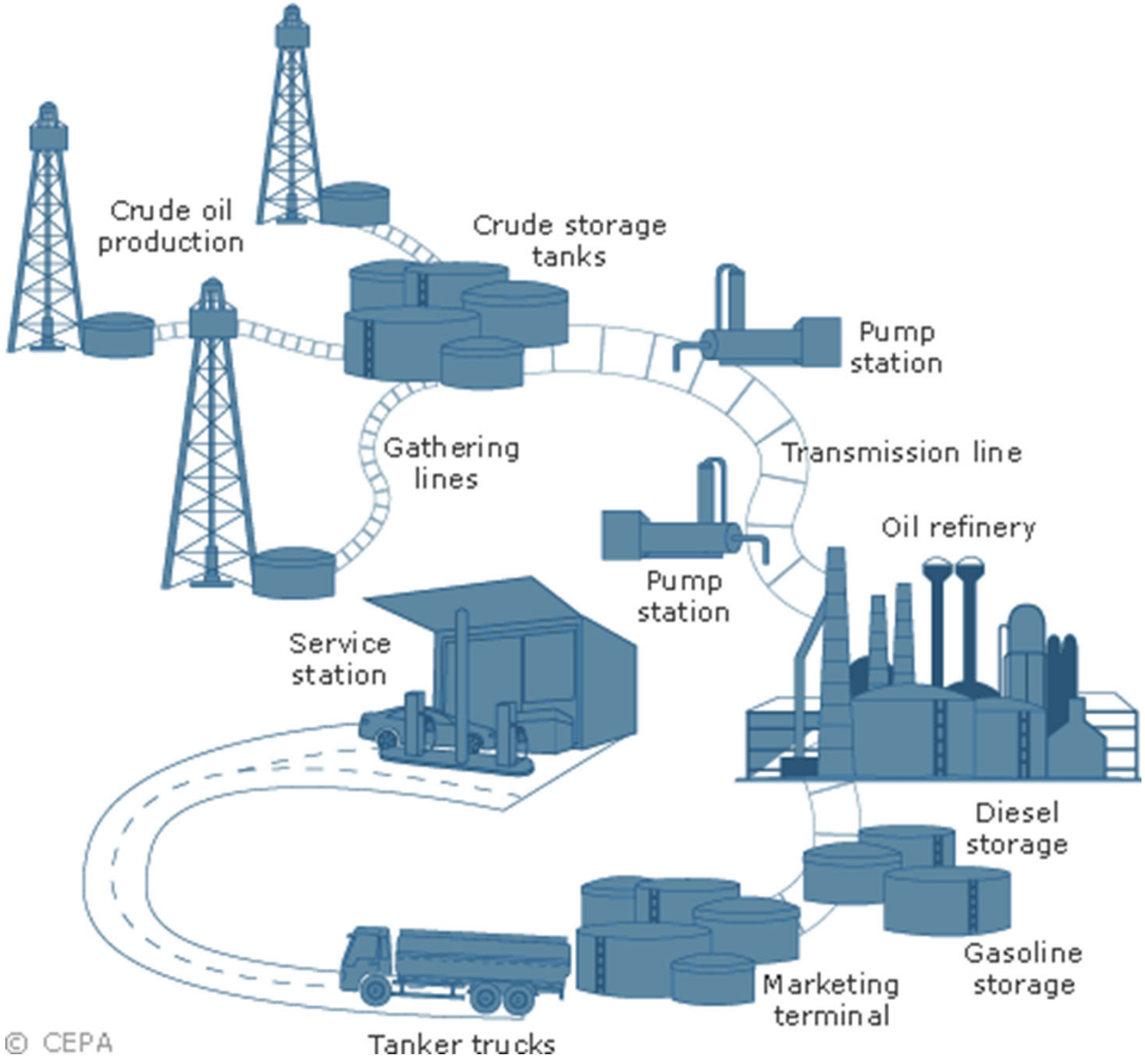
Which Pipelines are Covered?

- *Flowlines* – COGCC jurisdiction (Mainly upstream production)
- *Crude oil transfer lines* (generally unregulated crude oil gathering lines) – COGCC jurisdiction unless PHMSA regulated
- *Produced water lines/Produced water transfer systems* – COGCC jurisdiction
- *Gas gathering lines* – COPUC jurisdiction but COGCC requires gas gathering system registration on Form 12

PHMSA Regulated Liquid Pipelines

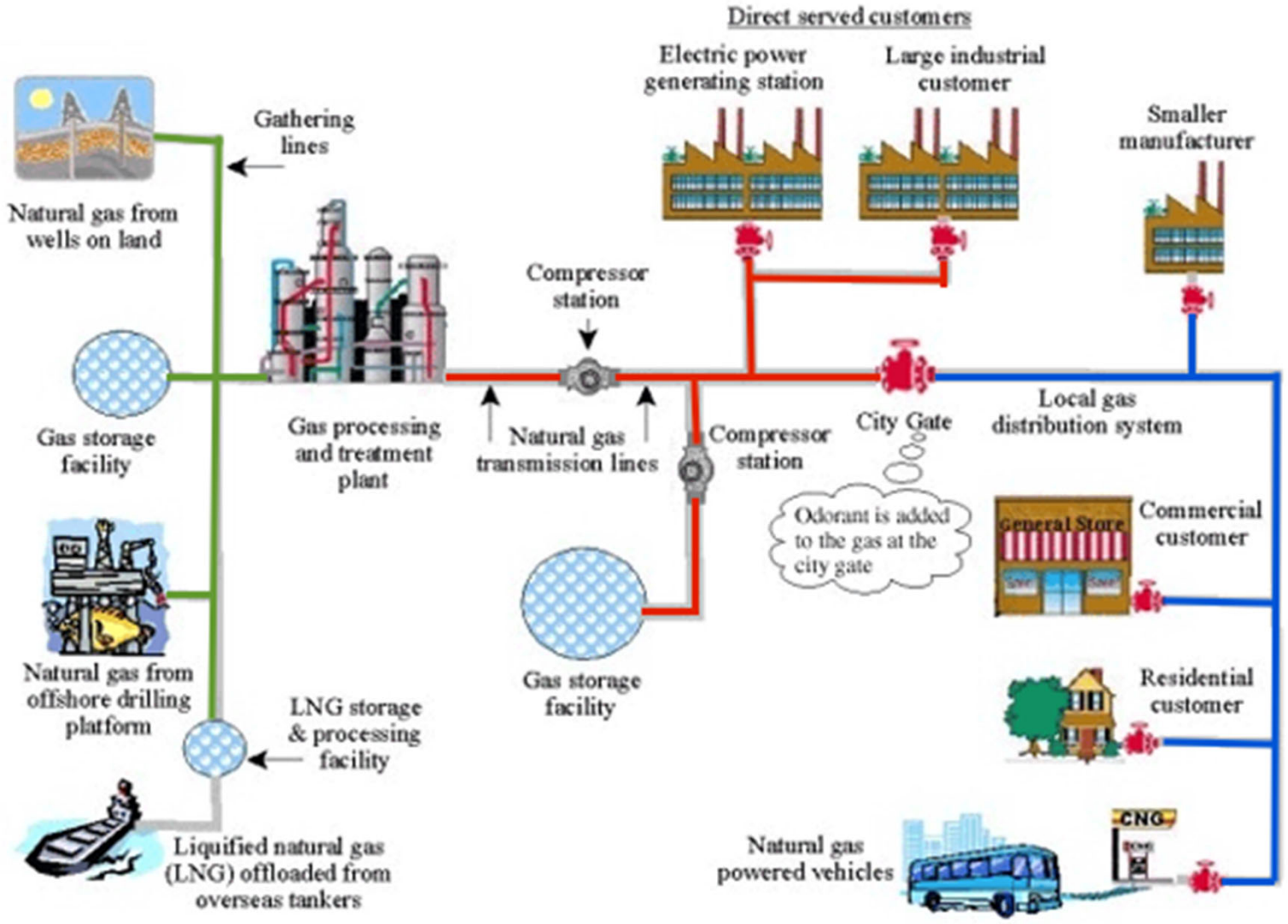
- Gathering lines through city limits (non-rural)
- Gathering lines 6-8” diameter, operate >20% SMYS, and within ½ mile of USA (regulated rural)
- Gathering lines located in an inlet of the Gulf of Mexico
- HVL pipelines
- Pipelines that cross commercially navigable waterway
- Non-gathering pipelines

Gathering is defined as less than 8” in diameter and coming from production.


Crude oil production
Crude storage tanks
Pump station
Gathering lines
Transmission line
Oil refinery
Pump station
Service station
Diesel storage
Gasoline storage
Marketing terminal
Tanker trucks
© CEPA

PHMSA Regulated Gas Pipelines

- Transmission Pipelines
- Distribution Pipelines
- Gathering Pipelines
  - Class 2
  - Class 3
  - Class 4


Direct served customers
Electric power generating station
Large industrial customer
Smaller manufacturer
Gathering lines
Natural gas from wells on land
Compressor station
Gas storage facility
Gas processing and treatment plant
Natural gas transmission lines
Compressor station
City Gate
Local gas distribution system
Odorant is added to the gas at the city gate
General Store
Commercial customer
Natural gas from offshore drilling platform
Gas storage facility
Residential customer
LNG storage & processing facility
Liquified natural gas (LNG) offloaded from overseas tankers
Natural gas powered vehicles
CNG

Flowline / Crude Oil Transfer Statuses – 1101.a

- Pre-Commissioned Status
  - Constructed but has not been connected to sources of oil, condensate, produced water, or natural gas
  - Is isolated from active status assets
  - Does not contain oil, condensate, produced water or natural gas
  - Is OOSLAT – (OUT OF SERVICE LOCKS AND TAGS) means locks and tags that an operator applies when equipment is in pre-commissioned status, is placed in an out of service status, or is in the process of abandonment. Out of service locks and tags must be visibly different from lock out and tag out devices used during repair or maintenance of the equipment.

Flowline / Crude Oil Transfer Statuses – 1101.a

- Active Status – connected or open to sources of oil, condensate, produced water, or natural gas or contains these products
- Out-of-Service Status – flowline or crude oil transfer line associated with inactive well or have ceased normal operations
  - Isolate or disconnect from sources
  - Evacuate all product to ensure line is safe and inert and depressurized
  - Apply OOSLAT
- Abandoned Status – permanently removed from service

Registration Requirements New Facilities

- *Off-location flowlines* constructed on or after May 1, 2018 either individually or as part of a flowline system- 1101.b
  - Register on Form 44 within 90 days after placed into service
- *Crude oil transfer* and *produced water transfer systems* constructed on or after May 1, 2018 - 1101.d
  - Register on Form 44 at least 10 days prior to start of construction
  - Register on Form 44 within 90 days after placed into service

Registration Requirements Existing Pipelines

- Off-location flowlines, crude oil transfer lines, and produced water systems constructed before May 1, 2018
- Registration on Form 44 by October 31, 2019
- Update GIS data by December 1, 2020
- Update when information becomes known
- Update changes to alignments
- At a minimum, the horizontal positional accuracy of the data must meet or exceed +/- 25 feet.

Off-Location Flowline Registration Requirements 1101.b(2)

- GIS Data
  - Pipeline alignment
  - Fluid Type
  - Pipe Material
  - Pipe size
- Bedding materials
- Pipe Material
- Diameter
- Product
- MOP/MAOP, testing pressure, test date, chart
- Describe start and end oil and gas locations
- Description of corrosion protection
- Description of integrity management system
- Description of construction method (open trench, bored, bored and cased) used for crossings

Crude Oil / Produced Water As Built Requirements 1101.d(2)

- GIS Data
  - Line alignment
  - Isolation valves
  - Fluid type
  - Pipe material
  - Pipe size
- Bedding material
- Product
- MOP
- Test pressure, test date, chart
- Pipe specs
- Burial depth
- Description of corrosion protection
- Integrity management system
- Description of construction method at crossings (bored, cased, etc)
- Leak detection and monitoring plan (crude oil transfer only)
- Affidavit of completion

Alignment Changes

- Off-location flowlines, crude oil transfer lines – Report changes on Form 44 within 90 days of modifying alignment – 1101.b(4) and 1101.d(3)
- Produced water transfer systems - Report changes of preceding year on Form 44 by May 1 – 1101.d(4)

Other Requirements

- ROW access or easement documents after May 1, 2018, must be recorded in the County Clerk office and recorder - 1101.b(5) and 1101.d(5)
- Disclosure of Form 44 data, GIS data to local governments - 1101.e(2)
- GIS data available through publicly accessible online map viewer at scales 1:6000 - 1101.e(1)

Design Requirements -1102

- Applicable technical standards (generally DOT/PHMSA requirements)
- Minimize internal or external corrosion
- Withstand external pressures and loads
- Piggability – line maintenance, cleaning and integrity testing
- Protection from overpressure
- Isolation valve locations (see 195.260 and 1103.c)
- Check valves – 1103.e

Construction Requirements - 1102

- Applicable technical standards
- Third party inspectors - trained and certified
- Certified welders
- Nondestructive testing of welds
- Backfill material
- Bore municipality, county or state graded roads
- Caution tape in trench one ft below grade
- Coating inspections before lowering
- Min 3ft cover
- Locatable by tracer line
- Top soil management
- Markers
- Initial pressure test to MOP
- Third party inspector certification that line was installed as prescribed
- Bored crossings

Documentation!!!

Inspector Qualifications - 1102.h

- Trained in installation of crude oil transfer and off-location flowlines
- Steel welded pipe
  - PE registered with State of CO
  - Working under supervision of CO PE
  - CPWI/CWI
  - National Welding Inspection School Certified Hydrotest Inspector
  - National Association of Corrosion Engineers Certified Coating Inspector (Level 1 or higher), or
  - API Certified Pipeline Inspector.
- Non steel pipe
  - PE registered with State of CO
  - Working under supervision of CO PE, or
  - who has been trained on proper installation techniques by the pipe manufacturer or their representative, if available.

Operations and Maintenance Requirements - 1102

- *Must demonstrate integrity management before placing in service*
- One call – 1102.n
- Annual valve maintenance/inspection
- Leak protection, detection and monitoring (crude oil transfer)
- Records
  - Maintenance
  - Repairs
  - MOP
  - Integrity testing inspections, results, etc.
- Corrosion control – 1102.l

Shut-in or Out-of-Service Lines Inspection Requirements – 1102.o

- Active but shut-in more than 90 days
  - Tag out each riser
  - Apply integrity management
  - Pressure test before returning line to service
  - Notify 48 hours prior to pressure test – Form 42 Notice of Return to Service
- Out of service more than 90 days
  - Submit Form 44 within 120 days of OOSLAT
  - Pressure test before returning line to service
  - Notify 48 hours prior to pressure test – Form 42 Notice of Return to Service

Isolation Valve Requirements – 1103.a

- Locations:
  - Suction and discharge end of a pump station that permits isolation of the pump station equipment in the event of an emergency;
  - Entering or leaving a breakout tank that permits isolation of the breakout tank from other facilities;
  - At locations along a flowline or crude oil transfer line that will minimize damage or pollution from accidental discharge of hydrocarbons or E&P Waste, as appropriate for the terrain in open country or for populated areas;
  - On each side of crossing a Rule 317B Public Water System defined water supply or a waterbody that is more than 100 feet (30 meters) wide from high- water mark to high-water mark; and
  - On each side of crossing a reservoir storing water for human consumption.
- *Retrofit -Isolation valves by Oct 31, 2019 for crude oil transfer and flowlines constructed before May 1, 2018*

Initial Pressure Test Requirements – 1104.a

- Pressure test off location flowline or crude oil transfer lines within 90 days before active status
- If greater than 90 days – pre-commissioned status
  - Apply best practices to protect integrity
  - Submit Form 42 within 48 hours prior to active status

Integrity Management Requirements -Crude Oil Transfer – 1104.f and 1104.g

- Leak Protection and Monitoring Plan – 1104.g
  - Assess all inflow and outflow data
- Integrity Management – 1104.f
  - Annual pressure test to MOP;
  - Continuous pressure monitoring (1104.i);
    - Must be able to identify integrity or pressure anomalies
    - Shut in immediately upon discovery of suspected leak
  - Smart pigging every 3 years; OR
  - Annual instrument monitoring (1104.j(2))

Integrity Management Requirements Produced Water Transfer – 1104.f(2) and 1104.f(3)

- Integrity Testing
  - Annual pressure test to MOP;
  - Continuous pressure monitoring;
  - Smart pigging every 3 years; OR
  - Monthly AVO inspections (1104.j) if above ground – 1104.f(3)

Integrity Management Requirements – Off Location Flowlines – 1104.f

- Integrity Management – 1104.f
  - Annual pressure test to MOP;
  - Continuous pressure monitoring (1104.i);
    - Must be able to identify integrity or pressure anomalies
    - Shut in immediately upon discovery of suspected leak
  - Smart pigging every 3 years; OR
  - Annual instrument monitoring (1104.j(2))

Abandonment Notifications - 1105

- Off-location flowlines and Crude oil transfer lines
  - Notify county and landowner 1105.d(4)
  - Form 44 30 days prior notification – 1105.d(3)
  - Form 44 within 90 days of abandonment
    - GIS data
    - Description of manner in which the work was performed
  - Verification by 3rd party (CO PE, or specific training) of abandoned in place
- On-location flowlines
  - Form 42 – Abandonment of Flowlines 30 days before the operator will commence abandonment. 1105.d(1)
  - Form 42 Abandonment of Flowlines and Form 6 Report of Abandonment within 90 days of abandonment 1105.f(1)

Abandon in Place Allowances – 1105.d(2)

- Surface owner agreement allows abandonment in place;
- The line is subject to the jurisdiction of the federal government, and the relevant federal agency directs abandonment in place;
- The flowline or crude oil transfer line is co-located with other active pipelines or utilities or is in a recorded right of way;
- Removal of the flowline or crude oil transfer line would cause significant damage to natural resources, including wildlife resources, topsoil, or vegetation;
- The flowline or crude oil transfer line is in a restricted surface occupancy area or sensitive wildlife habitat;

Abandon in Place Allowances – 1105.d(2)

- The flowline or crude oil transfer line or a segment of the line crosses or is within 30 feet of a public road, railroad, bike path, public right of way, utility corridor, or active utility or pipeline crossing;
- The flowline or crude oil transfer line or a segment of the line crosses or is within 30 feet of or under a river, stream, lake, pond, reservoir, wetlands, watercourse, waterway, or spring; or
- The operator demonstrates and quantifies that the removal of the flowline or crude oil transfer line will cause significant emissions of air pollutants.

Abandon in Place Requirements – 1105.e

- Lockout/tagout all risers
- Evacuate to ensure the line is safe and inert
- Purge and deplete to atmospheric pressure
- Cut risers to 3ft below grade or depth of pipeline
- Seal ends below grade
- Remove above ground cathodic protect and equipment
- Include pressure test results
- For off-location flowlines and crude oil transfer lines, submit documentation supporting reason for abandoning in place

Form 12 Gas Facility Registration - 220

- Registration – within 30 days of in service
  - New gas gathering systems
  - New gas compressor station
  - New gas processing plants
  - New underground gas storage facility
- Annual Reports – May 1
  - Additions and removals of gathering lines to gas gathering systems, gas processing plants, gas compressor stations or underground storage facility
  - Expansion or reduction of its capacity of more than 10% of underground storage facility

Form 12 Gas Facility Registration – 220

- Change of Operator – within 30 days of change
  - Previous or new Operator can submit
  - Gas gathering system
  - Gas compressor station
  - Gas processing plant
  - Underground gas storage facility

Form 12 Registration Data

- Name and type of system or facility
- Gas Compression Stations and Processing Plants
  - Latitude/longitude of SE corner of facility
  - Facility layout drawing
- Underground gas storage facility
  - Latitude/longitude of center of facility
  - Certification of federal approval, if applicable
- Gas Gathering System
  - Latitude/longitude of center of system
  - GIS data
    - Line alignment
    - Isolation valves
    - Fluid type
    - Pipe material type
    - Size

Questions???

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