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DEPARTMENT OF ENVIRONMENTAL PROTECTION



Oil and Gas Management

Chapter 78a Oil and Gas Regulations Pipelines

August 22, 2016

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Tom Wolf, Governor

Patrick McDonnell, Acting Secretary

Pipelines Covered in Chapter 78

- No pipeline-specific regulations under Chapter 78.
- Current DEP inspections of pipelines primarily use Chapters 102 and 105 to protect the Waters of the Commonwealth.
- New Chapter 78a regulations address Pipelines in Sections 78a.68, 78a.68a, and 78a.68b.

Pipelines: Three Types

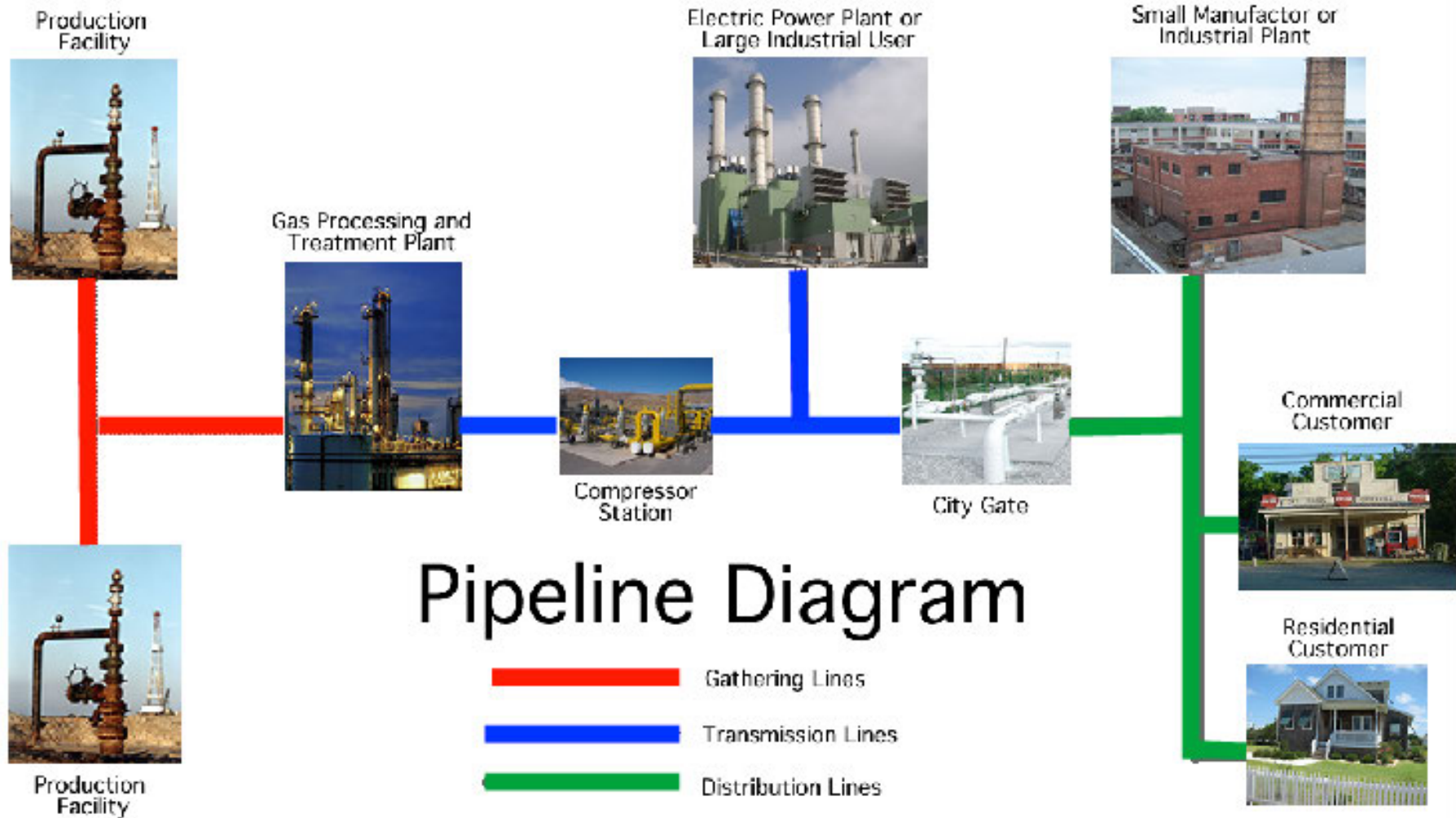
In Sections 78a.68, 78a.68a, and 78a.68b three types of pipelines are covered:

- Gathering Pipelines (§78a.68)
- Horizontal Directional Drilling (HDD) (§78a.68a)
- Well Development Pipelines (§78a.68b)

Gathering Pipelines

§ 78a.1 Definitions. *Gathering Pipeline* – a DEP regulated pipeline that transports oil, liquid hydrocarbons or natural gas from individual wells to an intrastate or interstate transmission pipeline.

Gathering Pipelines



Gathering Pipelines

- Erosion and Sediment Pollution Control General Permit – 2 (ESCGP-2)
 - County Conservation District (CCDs)/DEP Bureau of Waterways, Engineering and Wetlands
 - DEP Bureau of Oil and Gas Planning and Program Management District Offices

Gathering Pipelines



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Gathering Pipelines



Gathering Pipelines

- § 78a.68(a) **Requirements** of this section apply to **all earth disturbances** associated with **gathering pipelines** during **construction/installation/use/maintenance/repair/removal**.
- These activities must be conducted in accordance with Chapters 102 and 105.
- This includes: the construction right-of-ways, work space areas, pipe storage yards, borrow and disposal areas, access roads and other **necessary areas identified** on required E&S Control Plans.

Gathering Pipelines - Flagging

- § 78a.68(b) Highly visible flagging, markers or signs must be used to identify the **shared boundaries** of the LOD, wetlands and locations of T&E habitat **prior to** land clearing. The flagging, markers or signs shall be maintained **throughout** the earth disturbance activities and into the final restoration stage and PCSM activities.

Gathering Pipeline Topsoil & Subsoil

§ 78a.68(c) Topsoil and Subsoil

(1) Topsoil and subsoil must remain segregated until restoration.

(2) Topsoil and subsoil must be prevented from entering watercourses and bodies of water.

(3) Topsoil **cannot be used** as bedding for pipelines.

(4) Native topsoil and imported topsoil must be of equal or greater quality to ensure the land is capable of supporting the uses that existed prior to earth disturbance.

Gathering Pipeline Backfilling

§ 78a.68(d) Backfilling of the pipeline trench.

- Shall be conducted in a manner that **minimizes soil compaction** at the surface to ensure that water infiltration will be sufficient to support the establishment of vegetative growth to meet stabilization or restoration requirements.

Gathering Pipeline Backfilling



Gathering Pipeline Backfilling



Gathering Pipelines: Refueling

§ 78a.68(e) Refueling: equipment may not be refueled within **the floodway** or **within 50 feet of any body of water.**

▶ Gathering Pipelines: Material Staging

§ 78a.68(f) **Materials staging areas shall be located outside of a floodway or greater than 50 feet from any body of water, unless otherwise approved in writing by the department.**

▶ Gathering Pipeline Corrosion Control

§ 78a.68(g) **All buried metallic gathering pipelines** shall be installed and placed in operation in accordance with 49 CFR Part 192, Subpart I (relating to **requirements for corrosion control**) or 195, Subpart H (relating to **corrosion control**).

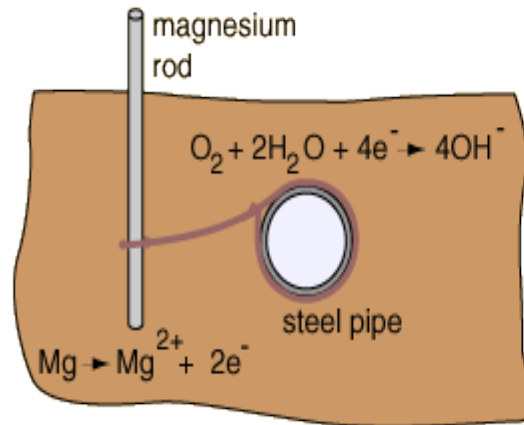
▶ Gathering Pipeline Corrosion Control



Anti-corrosion Spray Coating

Gathering Pipeline Corrosion Control

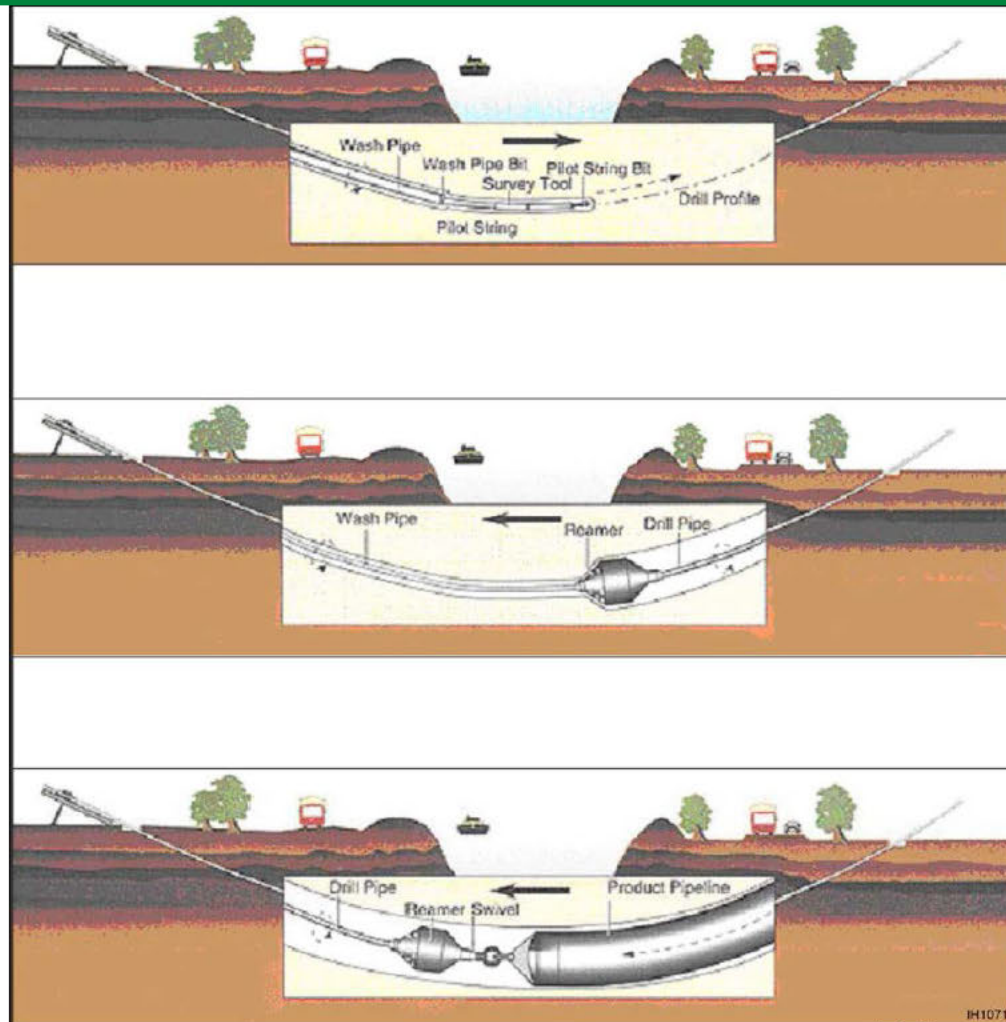
Cathodic Protection Against Corrosion



Connecting the steel pipe to a more active metal like magnesium makes an iron-magnesium voltaic cell which oxidizes the magnesium in preference to the iron. Replacing the magnesium rod is easier than digging up the pipe.

- Underground steel pipes offer the strength to transport fluids at high pressures, but they are vulnerable to corrosion driven by electrochemical processes. A measure of protection can be offered by driving a magnesium rod into the ground near the pipe and providing an electrical connection to the pipe. Since the magnesium has a standard potential of -2.38 volts compared to -.41 volts for iron, it can act as a anode of a voltaic cell with the steel pipe acting as the cathode. With damp soil serving as the electrolyte, a small current can flow in the wire connected to the pipe. The magnesium rod will be eventually consumed by the reaction - while the steel pipe as the cathode will be protected by the reaction

Horizontal Directional Drilling (HDD)



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Horizontal Directional Drilling (HDD)

§ 78a.68a(a) No horizontal directional drilling activities associated with pipeline construction related to oil and gas operations, including gathering and transmission pipelines, that occur **beneath any body of water or watercourse** may commence **prior to authorization by the Department** in accordance with Chapters 102 and 105

Horizontal Directional Drilling (HDD)

§ 78a.68a(b) Prior to any HDD activity, the person planning to conduct those activities shall develop a **PPC plan** (§ 102.5(l)). It must include a site specific **contingency plan that describes the measures to be taken to control, contain and collect any discharge of drilling fluids** and minimize impacts to waters of the Commonwealth. The **PPC plan** must be **present onsite during drilling operations** and made available to the Department upon request.

Horizontal Directional Drilling (HDD)

§ 78a.68a(c) The Department shall be notified at least **24 hours** prior to beginning of any HDD activities, including conventional boring, beneath any body of water or watercourse. Notice shall be made **electronically** to the Department through its **web site** and include the name of the **municipality** where the activities will occur, **GPS** coordinates of the **entry point** of the drilling operation and the **date** when drilling will begin.

Horizontal Directional Drilling (HDD)

§ 78a.68a(d) **All required permits** and Safety Data Sheets (**SDSs**) shall be **on site** during horizontal directional drilling activities and be made available to the Department upon request.

▶ Horizontal Directional Drilling (HDD)

§ 78a.68a(e) **Materials staging areas** shall be located **outside of a floodway** (as that term is defined in § 105.1) of any watercourse or greater than **50 feet from any body of water**, unless otherwise approved in writing by the department.

▶ Horizontal Directional Drilling (HDD)

§ 78a.68a(f) **Drilling fluid additives** other than bentonite and water **must be approved by the Department prior** to use. All approved horizontal directional drilling fluid additives will be listed on the Department's web site.

Use of a pre-approved horizontal directional drilling fluid **additives does not** require **separate Department approval.**

▶ Horizontal Directional Drilling (HDD)

§ 78a.68a(g) HDD **activities** shall be monitored for **pressure and loss of drilling fluid returns**.

Bodies of water and watercourses over and adjacent to horizontal directional drilling activities **shall also be monitored** for any **signs of drilling fluid discharges**. Monitoring shall be **in accordance with the PPC plan**.

Horizontal Directional Drilling (HDD)

§ 78a.68a(h) **HDD activities** may not result in a **discharge of drilling fluids** to waters of the Commonwealth. **If a discharge occurs** during the authorized HDD activities, **the person subject to this authorization shall immediately implement the site specific contingency plan as outlined and approved in the PPC Plan.**

▶ Horizontal Directional Drilling (HDD)

§ 78a.68a(i) When a **drilling fluid discharge** or **loss of drilling fluid circulation** is discovered during an authorized HDD activity, the loss or discharge **shall be immediately reported to the Department**, and **the person** subject to this authorization **shall request an emergency permit under § 105.64**, if necessary for emergency response or remedial activities to be conducted.

Horizontal Directional Drilling (HDD)

§ 78a.68a(j) Any **water supply complaints received** by the person subject to the HDD authorization, shall be **reported** to the **Department within 24 hours ELECTRONICALLY** through its **web site**.

Horizontal Directional Drilling (HDD)

§ 78a.68a(k) **HDD fluid returns and drilling fluid discharges** shall be managed in accordance with **Subpart D, Article IX** - relating to **residual waste management**.

WELL DEVELOPMENT pipelines

- § 78a.1 Definitions. **Well Development Pipelines** are pipelines used for oil and gas operations that:
- Transport materials used for the **well drilling or hydraulic fracture stimulation**, or both, and the **residual waste generated** as a result of these activities.
 - WD pipelines lose functionality after the well site **it serviced** has been restored under § 78.65 (relating to site restoration).

WELL DEVELOPMENT pipelines

§ 78a.68b(a) The construction, installation, use, maintenance, repair, and removal of well development pipelines **must meet** applicable requirements in Chapters 102 and 105.

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(b) **Operators shall install WD pipelines aboveground that transport fluids OTHER THAN fresh ground water, surface water, water from water purveyors or other Department-approved sources.**

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(b) (cont'd) **Exceptions**

Crossing pathways, roads or railways where the pipeline may be **installed below ground surface,**

or

Crossing a watercourse or **body of water** where the pipeline may be installed below the ground surface **with prior Department approval.**

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(c) Well Development pipelines **MAY NOT** be installed through **existing stream culverts, storm drain pipes or under bridges crossing streams** without approval by the Department under § 105.151 (relating to permit application for construction or modification of culverts and bridges).

WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(d) The section of a Well Development pipeline crossing over a watercourse or body of water, except wetlands, **MAY NOT have joints or couplings, unless secondary containment** is provided. Well Development pipeline crossings over wetlands must utilize **a single section of pipe** to the extent practicable. **Shut off valves** shall be installed on **both sides** of the temporary Well Development pipeline crossing.

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b.(e) In addition to the requirements of subsection (c), **well development pipelines used to transport fluids** other than fresh ground water, surface water, water from water purveyors or approved sources, **must have shut off valves, check valves** or other methods of segmenting the pipeline, **placed at designated intervals**, to be determined by the pipeline diameter, **that prevent the discharge of more than 1,000 barrels of fluid.**

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(e) (con't) **Elevation changes** that would effectively limit flow in the event of a pipeline leak **shall be taken into consideration** when determining the placement of shut off valves and be considered **effective flow barriers**.

§ 78a.55(i)(5)(i)(I) The location of and monitoring plan for any emergency **shutoff valves** located along well development pipelines must be included in the operator's emergency response plan.

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(f) **Highly visible flagging, markers or signs** shall be placed at **regular intervals, no greater than 75 feet**, along the entire length of the Well Development pipeline.

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(g) WD pipelines shall be pressure tested **prior to being first placed into service and after the pipeline is moved, repaired or altered**. A passing test is holding 125% of the anticipated maximum pressure for 2 hours.

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(g) (cont'd) Leaks or other defects discovered during pressure testing shall be repaired prior to use. **Pressure test results and any defects and repairs to the WD pipeline shall be documented** and made available to the Department upon request.

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(h) **Water used for hydrostatic pressure testing shall be discharged in a manner that does not result in a discharge to waters of the Commonwealth unless approved by the Department in writing.**

WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(i) Well Development pipelines shall be **inspected prior to and during each day** the pipeline **is not emptied and depressurized**. Inspection dates and any defects and repairs to the Well Development pipeline **shall be documented** and made available to the Department upon request

WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(j) Well Development pipelines **not used to transport fluids for more than seven (7) consecutive calendar days** shall be emptied and depressurized.

In no case may a well development pipeline be used to transport or store fluids **for more than twelve months** without approval from the department.

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(k) **Flammable materials** may not be transported through a **well development** pipeline.

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(l) Well development pipelines **shall be removed** in accordance with the required **restoration timeline of the well site it serviced** under § 78a.65 (relating to site restoration).

WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(m) An operator shall keep records regarding the **location** of all well development pipelines, the **type of fluids transported** through those pipelines and the **approximate period of time** that the pipeline was installed. The records shall be made available to the Department **upon request**.

▶ WELL DEVELOPMENT (WD) pipelines

§ 78a.68b(n) **Records** required under this section **shall be retained** by the operator for **one (1) year** after the Well Development pipeline is **removed**.



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Oil and Gas Management

Questions?

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