WTG

New Construction Checklist - Plastic

Once task is completed check box

Tab 1 ☐ Fill-out and Submit RRC New construction Form PS-48 if required
-Keep record of submital and approval

Tab 2 ☐ Fill-out and submit any state or county permits
- Keep record of submital and approvals

Tab 3 ☐ Ensure project is covered by digtess grids. See 4.3.2 of Texas Damage Prevention Plan
- if not covered, send mapping department a proposed route prior to start of construction

Tab 4 ☐ Bids and Signed Contract

Tab 5 ☐ Run a report of contractors EWN qualifications prior to start of project
- keep record of this report. Records should include all personnel involved with project

Tab 6 ☐ Contractor given the O&M Procedures to have on sight
- Contractor is required to follow O&M Procedures
- Document on signature page within Tab 6

Tab 7 ☐ Daily Reports - document anything you see in the field throughout the project
- visually inspected joints, pipe installation, service installations, etc
- helps to prove that contractor followed WTG Procedures and OQ

Tab 8 ☐ Record the handling and storage of pipe used for project
- enusre compliance with 192.69 and document on WTG 1400

Tab 9 ☐ Visually inspect all material used on project to ensure compliance with P192.305
- document on Form WTG 1400 and keep any pertinent records
- invoices, pictures, etc

Tab 10 ☐ Verify that all casing, poly pipe, fittings and valves comply with P192.105
- keep records of any supporting documentation. MTR's, etc

Tab 11 ☐ Verify that the design of pipe line is protected against accidental over pressuring (P-192.105)
-Regulators and Reliefs added: Document on WTG 1102 and maintain in Compliance Records

Tab 12 ☐ Pressure test pipelines in accordance with P192.513
- Fill out appropriate form (F-192.513 for plastic pipe or WTG 1400 Project Report Form)

Tab 13 ☐ Fill out and keep F192.619 - MAOP Determination

Tab 14 ☐ Purge pipeline in accordance with P-192.629
- Scheduled emmissions (purging): Fill out report and submit to Compliance Department prior to purge

Tab 15 ☐ Start up of pipeline: Ensure compliance with P-192.605(b)(5)

Tab 16 ☐ Facility Abandonments: Document on appropriate form (F192.727 or WTG 1400)
- ensure compliace with P-192.727

Tab 17 ☐ Complete and submit Project Report WTG 1400 to Mapping Department

Tab 18 ☐ Miscellaneous - Any additional items not included above

TAB 1

- **Fill-out and Submit RRC New construction Form PS-48 if required. Fillable PDF must be utilized. RRC will not accept hand written scanned document.**
- **Form available to be downloaded from link below Texas RRC Webpage - PS-48 or https://www.rrc.state.tx.us/pipeline-safety/pipeline-safety-forms/#GeneralPipeline**
- **Keep records of submittal and approval**

Texas
Pipeline Construction Reporting Requirements:

(Please see requirements below)

NOTE: All " new developments" or projects that will result in a new "System ID"
Will require us to notify and gain approval from the RRC 30 days prior to starting.
When requesting approval and a PO# for a new development this will need to be part of the process.

TAC "New Construction Commencement Report"	TAC 8.115	PS-48 RRC Form
Transmission Lines		
New / Relocated / Replacement	greater than 10 miles	(60) day prior notice
	1 mile to 10 miles	(30) day prior notice
Distribution Systems		
New / Relocated / Replacement	greater than 10 miles	(60) day prior notice
Relocated / Replacement/	less than 3 miles	NO notice required
New Construction(except new subdivision or new System ID)	3 miles to 10 miles	(30) day prior notice
New Construction(new subdivision or new System ID)	less than 10 miles	(30) day prior notice

Data needed for PS-48

Company	T-4 Permit (Transmission Only)	Oper ID	P-5
West Texas Gas Utility, LLC - except for Interstate	00748	22435	910284
West Texas Gas Utility, LLC - Interstate	00820	22435	910284
WTG Gas Transmission Company, LLC - all	05135	31968	945243
Western Gas Interstate Company, LLC	00835	22462	911897

PS-48 Required Y or N PS-48 Date Submitted to RRC _____ PS-48 Date Approved by RRC _____

TAB 2

- **Fill-out and submit any state or county permits**
- **Keep records of submittals and approvals**

TAB 3

- **Ensure project is covered by digtess grids. See 4.3.2 of Texas Damage Prevention Plan**
- **If not covered, send mapping department a proposed route prior to start of construction**

4.3.2 New Installations or Re-routes

- Prior to re-routing a pipeline system or installing a new pipeline system, where either extends outside of the existing One Call grids, WTG will ensure the following:
    - All District Managers or their designee, will submit a “Proposed” pipeline installation route to the WTG Mapping department
    - WTG’s mapping department will add the “proposed” pipeline system to the GIS mapping program
    - Once added into the GIS system, WTG will ensure the “proposed” pipeline is buffered
    - WTG will submit the new pipeline buffer to the applicable One Call Center
- During the pipeline installation process if any deviation from the original “proposed” pipeline route is necessary, the District Manager, or their designee, will submit a revised pipeline route to the WTG mapping department. The WTG Mapping department will revise the route on the GIS mapping system, and if needed, will submit a newly revised buffer for the pipeline to the applicable One Call Center.
- After the pipeline installation has been completed and finalized, WTG will ensure the following is completed:
    - All District Managers or their designee, will submit a final copy of the completed project report (Form WTG 1400) to the WTG mapping department.
    - The WTG mapping department will ensure all data which is associated with the pipeline installation project has been completed correctly and added to the GIS mapping system.
    - Once this has been completed, if any changes are necessary to the One Call grids, the WTG mapping department will submit new buffers to the applicable One Call agency.

TAB 4

- **Bid request documentation**
- **Bids**
- **Signed Contract**

TAB 5

- **Run a report of contractors EWN qualifications prior to start of project**
- **Keep record of this report.**
- **Records should include all personnel involved with project**

TAB 6

- **Give Contractor the O&M Procedures to have on sight**
- **Contractor is required to follow O&M Procedures**
- **Provide Contractor with either a hard copy or electronic copy of O&M Procedures**
- **Document this process using signature page within tab**
- **Ensure procedures are current by visiting WTG website and verifying revision dates**

I, _____, who represents, _____, here by acknowledge that I have received either a hard copy or an electronic copy of the WTG Procedures required for this project. The copy contains the procedures listed below:

P-192.105: Design of Pipelines

P-192.225: Pipeline Welding

P-192.243: Non- Destructive Testing of Welds

P-192.245: Repair and Removal of Weld Defects

P-192.281: Joining of Plastic Pipe

P-192.305: General Inspection

P-192.351: Customer Meters, Service Regulators, and Service Lines

P-192.319: Installation of Pipe in a Ditch

P-192.461: Apply and Repair External Coating

P-192.513 Plastic Pipe Pressure Test Requirements

P-192.627: Tapping Pipelines under Pressure

P-192.629: Purging or Blowing Down of Pipeline

P-192.711: Pipeline Repairs

Signature_____ Date_____

TAB 7

- **Daily Reports - document anything you see in the field throughout the project**
- **Visually inspected joints, pipe installation, service installations, etc**
- **This will help to prove that contractor followed WTG Procedures**

TAB 8

- **Record the handling and storage of pipe used for project to ensure compliance with 192.69**
- **Document on WTG 1400**

Plastic Pipe Procedure Steps

Qualifying Storage Specifications:

All individuals purchasing and storing plastic pipe must document for the life of the pipeline the method in which the pipe was stored in form WTG-1400 and adhere to the procedures as described below:

1. High Density pipe as defined in ASTM Specification D3350
   A. Indoor storage - Plastic pipe that is stored indoors shall be adequately supported to prevent deformation of pipe, protected from UV exposure and harmful chemicals, and may be deemed acceptable for use for 10 years or more.
   B. Outdoor Storage - Plastic pipe that is stored outdoors shall be adequately supported to prevent deformation of pipe, protected from excessive heat and harmful chemicals, and may be suitable for use in a timeframe not to exceed 10 years.
2. Medium Density pipe as defined in ASTM Specification D3350
   A. Indoor Storage - Plastic pipe that is stored indoors shall be adequately supported to prevent deformation of pipe, protected from UV exposure and harmful chemicals, and may be deemed acceptable for use for 3 years or more.
   B. Outdoor Storage- Plastic pipe that is stored outdoors shall be adequately supported to prevent deformation of pipe, protected from excessive heat and harmful chemicals, and may be suitable for use in a timeframe not to exceed 3 years.

Handling Specifications:

All individuals handling plastic pipe must document for the life of the pipeline in form WTG-1400 the method in which the pipe was handled and adhere to the procedures as described below:

1. Plastic pipe shall be carefully inspected for cuts, scratches, gouges, and other imperfections before use, and any pipe containing harmful imperfections shall be cut out and replaced.
2. Care shall be exercised to avoid rough handling of plastic pipe. It shall not be pushed or pulled over sharp projections, or it shall not have other objects dropped on it. Care shall be taken to prevent kinking or buckling, and any kinks or buckles that occur shall be removed by cutting out as a cylinder.
3. Care shall be exercised at all times to protect the plastic material from fire, excessive heat, or harmful chemicals.
4. Each installation shall be field inspected to detect harmful imperfections. Any such imperfections found shall be eliminated.

Steel Pipe Procedure Steps

Transportation & Handling Specifications:

All individuals responsible for ordering of steel pipe must inform the vendor that the pipe must be shipped in accordance with CFR 192.65. Specifically, paragraph (c) and API RP 5LT as all pipe is shipped by truck for WTG at this time. If there are any questions concerning the context of API RP 5LT, please contact the compliance department.

Handling steel pipe must document for the life of the pipeline in form WTG-1400 the method in which the pipe was handled and adhere to the procedures as described below:

1. Steel pipe shall be carefully inspected for cuts, scratches, gouges, and other imperfections within coating and pipe before use, and any pipe containing harmful imperfections shall be cut out and/or not accepted.
2. Care shall be exercised to avoid rough handling of steel pipe. It shall not be pushed or pulled over sharp projections, or it shall not have other objects dropped on it. Care shall be taken to prevent damage. In the event of damage during handling shall be removed by cutting out as a cylinder.

Qualifying Storage Specifications:

All individuals purchasing and storing steel pipe must document for the life of the pipeline the method in which the pipe was stored in form WTG-1400 and adhere to the procedures as described below:

1. Outdoor Storage – Steel pipe that is stored outdoors shall be adequately supported to prevent deformation of pipe, protected from excessive heat and harmful chemicals.
2. If pipe is ordered and received for a specific job:
   A. Upon receipt of pipe, Mill Test documentation must be reviewed and ensure that documentation matches pipe received.
   B. File Mill Test documentation in job folder for life of the pipe a central location
   C. If pipe is ordered and received for a standby / emergency repair pipe and used at a future date:
   D. Upon receipt of pipe, Mill Test documentation must be reviewed and ensure that documentation matches pipe received.
   E. File Mill Test documentation in a known location and held for future use when pie is installed.
3. Care shall be exercised at all times to protect the steel material from fire, excessive heat, or harmful chemicals.
4. Each installation shall be field inspected to detect harmful imperfections. Any such imperfections found shall be eliminated.

TAB 9

- **Visually inspect all material used on project to ensure compliance with P192.305**
- **Document on Form WTG 1400**
- **Keep any pertinent records to prove compliance - invoices, pictures, etc**

Procedure Steps

1. Check components and consumables upon receipt.
   a) Ensure that they are marked properly:
      i) Each valve, fitting, length of pipe, and other component must be marked as prescribed in the specification or standard to which it was manufactured. However, thermoplastic fittings must be marked in accordance with ASTM D2513. Markings may also indicate size, material, manufacturer, pressure rating and temperature rating. Also, type, grade and model as appropriate.
      ii) Surfaces of pipe and components that are subjected to stress from internal pressure may not be field die stamped.
      iii) If any item is marked by die stamping, the die must have blunt or rounded edges that will minimize stress concentrations.
      iv) Butt-welding type fittings must meet the marking, end preparation, and the bursting strength requirements of ASME/ANSI B16.9 or MSS Standard Practice SP-75.
   b) Verify that the material received is marked as shown on the purchase document and that the material received is what was ordered. Review the documentation and verify that information agrees with purchase document requirements and material markings. Only items which meet or exceed the purchase document requirements are to be accepted by the receiving location.
   c) Maintain the purchase document number and any other appropriate identification markings on the material in a manner that does not damage the material so that the marking remains visible until the material is installed. Review markings as necessary.
   d) Cross reference mill test reports and fitting certification papers with the purchase order number. All steel pipe must have mill test reports when received and all fittings and other components must have certifications.
2. Visually inspect all pipe and components at the site to ensure that they are not damaged in a manner that could impair their strength or reduce serviceability.
3. Plastic pipe used in new construction must meet the criteria established in 49 CFR 192.63 and 49 CFR 192.123.
   a) Each valve, fitting, length of pipe and other component must be marked with its manufacturing standard, or, in the case of thermoplastic fittings, to the standards of ASTM D2513-87. All pipe must also be marked indicating size, material, manufacturer, pressure and temperature ratings, type, grade and model.
   b) All plastic pipe installed must meet the design limitations set forth in 49 CFR 192.123, including standards for temperature and pressure limitations.
   c) All installed radius fittings will meet or exceed the minimum bend radius specified by the manufacturer for the diameter of the pipe being installed.
4. Ensure welding is done in accordance with a qualified written procedure and procedure P-192.225.

5. Ensure welds are done according to procedure. This inspection must be conducted according to procedures P-192.241 and/or P-192.243 by a qualified inspector.
6. Ensure that the welder is shielded form weather related conditions that can impair the weld.
7. Inspect to ensure each component is provided with protection against external corrosion per procedures P-192.455 and P-192.461. Ensure that the coating has not been damaged. If damage has occurred, the coating must be repaired or replaced prior to covering the pipe.
8. Visually inspect entire length of exposed pipeline to ensure there are no wrinkles, gouges or other apparent physical damage.
9. Ensure each field bend in steel pipe complies with the following:
   a) Does not impair the serviceability of the pipe.
   b) Wrinkle bend are not made on steel pipe that will be operated at a pressure that produces a hoop stress of 30 or more, of SMYS.
   c) Does not have any sharp kinks.
   d) When measured along the crotch of the bend, the wrinkles are a distance of at least one pipe diameter.
   e) On pipe 16” or larger diameter, the bend does not have a deflection of more than 1 ½ percent for each wrinkle.
   f) Has a smooth contour and is free from buckling, cracks, or any other mechanical damage.
   g) On pipe containing a longitudinal weld, it must be as near as practicable to the neutral axis of the bend unless:
   h) Is made with an internal bending mandrel; or
   i) The pipe is 12 inches or less in outside diameter or has a diameter to wall thickness ratio less than 70.
   j) Each circumferential weld of steel pipe which is located where the stress during bending causes a permanent deformation in the pipe must be non-destructively tested either before or after the bending process.
   k) Wrought-steel welding elbows and transverse segments of these elbows may not be used for changes in direction on steel pipe that 2” or more in diameter unless the arch length, as measured along the crotch, is at least 1”.
   l) No Bend shall have a difference between the maximum and minimum diameters in excess of 2.5 percent of the nominal diameter.
10. Ensure all pipe installed in a ditch is installed in a manner that minimizes secondary stresses and the possibility of damage to the pipe.
    a) Inspect the ditch to ensure materials capable of damaging the coating are not present.
    b) Identify and remove foreign objects that could cause damage to the pipeline system.
    c) Ensure backfilling is done in a manner that protects the pipe coating and provides support for the pipe.

d) Inspect backfill material before and during operations to prevent damage to pipeline.

11. Ensure buried pipe is provided with adequate cover per 49 CFR 192.327 and there is appropriate clearance between the pipe and underground structures per 49 CFR Part 192.325. (See Procedure P-192.325.)
12. Ensure pipe at each railroad and highway crossing is installed to adequately withstand the dynamic forces exerted by the anticipated traffic loads.
13. Ensure valves are accessible to authorized employees and are protected from damage and tampering.
14. Complete all applicable forms, gather all construction records (mill specs) and file. These are to be retained for the life of the pipeline.

TAB 10

- **Verify that all casing, poly pipe, fittings and valves comply with P192.105**
- **Keep records of any supporting documentation. MTR's, etc**

2	0.216	11
3	0.259	13.5
4	0.265	17
6	0.315	21
8	0.411	21
10	0.512	21
12	0.607	21
16	0.762	21
18	0.857	21
20	0.952	21
22	1.048	21
24	1.143	21

* Copper Tubing Size (CTS) Iron Pipe Size (IPS)

d) For PE pipe produced after July 14, 2004, but before January 22, 2019, a design pressure of up to 125 psig may be used, provided:
   i. The material designation code is PE2406 or PE3408.
   ii. The pipe has a nominal size (Iron Pipe Size (IPS) or Copper Tubing Size (CTS)) of 12 inches or less (above nominal pipe size of 12 inches, the design pressure is limited to 100 psig); and
   iii. The wall thickness is not less than 0.062 inches (1.57 millimeters).

e) For PE pipe produced on or after January 22, 2019, a DF of 0.40 may be used in the design formula, provided:
   i. The design pressure does not exceed 125 psig;
   ii. The material designation code is PE2708 or PE4710;
   iii. The pipe has a nominal size (IPS or CTS) of 24 inches or less; and
   iv. The wall thickness for a given outside diameter is not less than that listed in the above table.

Other plastic pipe materials will be designed according to 49 CFR 192.121.

Design of Casings:
For each casing installed on a regulated gathering, transmission or distribution main pipeline, the casing must comply with**:**

1. The casing must be designed to withstand superimposed loads
2. If there is a possibility of water entering the casing, the end must be sealed
3. If the ends of an unvented casing are sealed and the sealing is strong enough to retain the MAOP pressure of the pipeline, the casing must be designed to hold the pressure at a stress level of < 72% SMYS.
4. If vents are installed on casing, the vents must be protected to prevent water from entering the casing.

Pipeline Components:
Ensure each component that will be installed in the pipeline complies with the following:

1. It can withstand operating pressures and other anticipated loadings without impairment of its serviceability with unit stresses equivalent to those allowed for comparable material in pipe in the

same location and kind of service. However, if design based upon unit stresses is impractical for a particular component, design may be based upon a pressure rating established by the manufacturer by pressure testing that component or a prototype of the component. Note: These components must also meet the requirements for corrosion control requirements in Subpart I of 49 CFR Part 192.

2. If manufactured in accordance with any other edition of a document incorporated by reference in §192.7 or Appendix B of 49 CFR Part 192, -
   a) It can be shown through visual inspection of the cleaned component that no defect exists which might impair the strength or tightness of the component; and
   b) The edition of the document under which the component was manufactured has equal or more stringent requirements for the following as an edition of that document currently or previously listed in §192.7 or appendix B of 49 CFR Part 192:
      i. Pressure testing;
      ii. Materials; and
      iii. Pressure and temperature ratings.
3. Emergency Valves (49 CFR 192.145 / 19 CFR 192.179)
   a) Meet the minimum requirements of API 6D or to a national or international standard that provides an equivalent performance level. A emergency valve may not be used under operating conditions that exceed the applicable pressure-temperature ratings contained in those requirements.
   b) Can meet the anticipated operating conditions.
   c) Each transmission line has sectionalizing emergency block valves spaced as follows, unless in a particular case the Administrator finds that alternative spacing would provide an equivalent level of safety:
      i. Each point on the pipeline in a Class 4 location must be within 2 ½ miles of a valve.
      ii. Each point on the pipeline in a Class 3 location must be within 4 miles of a valve.
      iii. Each point on the pipeline in a Class 2 location must be within 7 ½ miles of a valve.
      iv. Each point on the pipeline in a Class 1 location must be within 10 miles of a valve.
      a. Each sectionalizing block valve on a transmission line complies with the following:
         - The valve and the operating device to open or close the valve are readily accessible and protected from tampering and damage.
         - The valve is supported to prevent settling of the valve or movement of the pipe to which it is attached.
      b. Each section of a transmission line between main line emergency valves has a blowdown valve with enough capacity to allow the transmission line to be blown down as rapidly as practicable. Each blowdown discharge is located so the gas can be blown to the atmosphere without hazard and, if the transmission line is adjacent to an overhead electric line, so that the gas is directed away from the electrical conductors.
      c. Each high-pressure distribution system must have emergency valves spaced so as to reduce the time to shut down a section of main in an emergency. The valve spacing is determined by the operating pressure, the size of the mains, and the local physical conditions.
      d. Each regulator station controlling the flow or pressure of gas in a distribution system must have a emergency valve installed on the inlet piping at a distance from the regulator station sufficient to permit the operation of the valve during an emergency that might preclude access to the station.
      e. Each emergency valve on a main installed for operating or emergency purposes must comply with the following:
         i. The valve must be placed in a readily accessible location so as to facilitate its operation in an emergency.

ii. The operating stem or mechanism must be readily accessible.
iii. If the valve is installed in a buried box or enclosure, the box or enclosure must be installed so as to avoid transmitting external loads to the main.

4. Flange or flange accessory
   a) Meet the minimum requirements of ASME/ANSI B16.5, MSS SP-44, or the equivalent.
   b) The flange assembly is able to withstand the maximum pressure at which the pipeline is to be operated and maintain its physical and chemical properties at any temperature to which it is anticipated that it might be subjected in service.
5. Threaded fittings have a minimum metal thickness that is not less than specified for the pressures and temperatures in the applicable standards referenced in 49 CFR Part 192, or their equivalent.
6. Each steel butt-welding fitting has pressure and temperature ratings based on stresses for pipe of the same or equivalent material. The actual bursting strength of the fitting is at least equal the computed bursting strength of pipe of the designated material and wall thickness, as determined by a prototype that was tested to at least the pressure required for the pipeline to which it is being added.
7. Except for branch connections and assemblies of standard pipe and fittings joined by circumferential welds, the design pressure of each component fabricated by welding, whose strength cannot be determined, is established in accordance with paragraph UG-101 of section VIII, Division 1, of the ASME Boiler and Pressure Vessel Code.
8. Each prefabricated unit that uses plate and longitudinal seams will be designed, constructed, and tested in accordance with the ASME Boiler and Pressure Vessel Code.
9. Orange-peel bull plugs and orange-peel swages are not used on pipelines that are to operate at a hoop stress of 20 percent or more of the SMYS of the pipe.
10. Except for flat closures designed in accordance with section VIII of the ASME Boiler and Pressure Code, flat closures and fish tails are not used on pipe that either operates at 100 p.s.i. gauge, or more, or is more than 3 inches nominal diameter.
11. Each welded branch connection made to pipe in the form of a single connection, or in a header or manifold as a series of connections, is designed to ensure that the strength of the pipeline system is not reduced, taking into account the stresses in the remaining pipe wall due to the opening in the pipe or header, the shear stresses produced by the pressure acting on the area of the branch opening, and any external loadings due to thermal movement, weight, and vibration.
12. Each extruded outlet is suitable for anticipated service conditions and at least equal to the design strength of the pipe and other fittings in the pipeline to which it is attached.
13. Each pipeline is designed with enough flexibility to prevent thermal expansion or contraction from causing excessive stresses in the pipe or components, excessive bending or unusual loads at joints, or undesirable forces or moments at points of connection to equipment, or at anchorage or guide points.

Passage of Internal Inspection Devices

New transmission lines and replacement of pipe and components must be designed and constructed to allow for instrumented internal inspection devices in accordance with NACE SP0102, Section 7. This requirement does not include manifolds, compressor, meter, and regulator stations, line pipe sizes that cannot accommodate ILI tools, and other exceptions listed in 49 CFR 192.150.

Launcher and receiver safety

Any launcher or receiver used after July 1, 2021, must be equipped with a device capable of safely relieving pressure in the barrel before removal or opening of the launcher or receiver barrel closure or flange and insertion or removal of in-line inspection tools, scrapers, or spheres. An operator must use a device to either: Indicate that pressure has been relieved in the barrel; or alternatively prevent opening of the barrel closure or flange when pressurized, or insertion or removal of in-line devices (*e.g.* inspection tools, scrapers, or spheres), if pressure has not been relieved.

Vaults

1. Ensure vaults meet the following structural design requirements.
   a) able to meet the loads which may be imposed upon it, and to protect installed equipment.
   b) enough working space so that all of the equipment required in the vault or pit can be properly installed, operated, and maintained.
   c) each pipe entering, or within, a regulator vault or pit is be steel for sizes 10 inch and less, except that control and gage piping may be copper. Where pipe extends through the vault or pit structure, provision must be made to prevent the passage of gases or liquids through the opening and to avert strains in the pipe.
2. Ensure each vault is located in an accessible location and, so far as practical, away from:
   a) Street intersections or points where traffic is heavy or dense;
   b) Points of minimum elevation, catch basins, or places where the access cover will be in the course of surface waters; and
   c) Water, electric, steam, or other facilities.
3. Ensure each underground vault or closed top pit containing either a pressure regulating or reducing station, or a pressure limiting or relieving station, is sealed, vented or ventilated as follows:
   a) When the internal volume exceeds 200 cubic feet:
      i. The vault or pit must be ventilated with two ducts, each having at least the ventilating effect of a pipe 4 inches in diameter;
      ii. The ventilation must be enough to minimize the formation of combustible atmosphere in the vault or pit; and
      iii. The ducts must be high enough above grade to disperse any gas-air mixtures that might be discharged.
   b) When the internal volume is more than 75 cubic feet but less than 200 cubic feet:
      i. If the vault or pit is sealed, each opening must have a tight fitting cover without open holes through which an explosive mixture might be ignited, and there must be a means for testing the internal atmosphere before removing the cover;
      ii. If the vault or pit is vented, there must be a means of preventing external sources of ignition from reaching the vault atmosphere; or
      iii. If the vault or pit is ventilated, paragraph (a) or (c) of this section applies.

TAB 11

- **Verify that the design of pipe line is protected against accidental over pressuring (P-192.105)**
- **If regulators and reliefs added, document on WTG 1102 and maintain in Compliance Records**

   c) If a vault or pit covered by paragraph (b) of this section is ventilated by openings in the covers or gratings and the ratio of the internal volume, in cubic feet, to the effective ventilating area of the cover or grating, in square feet, is less than 20 to 1, no additional ventilation is required.
4. Ensure each vault is designed so as to minimize the entrance of water and is not connected by a drain connection to any other underground structure is the vault contains gas piping.
5. Ensure electrical equipment in vaults conforms to the applicable requirements of Class 1, Group D, of the National Electrical Code, ANSI/NFPA 70.

Supports and Anchors

1. Ensure pipeline and its associated equipment has enough anchors or supports to:
   a) Prevent undue strain on connected equipment;
   b) Resist longitudinal forces caused by a bend or offset in the pipe; and
   c) Prevent or damp out excessive vibration.
2. Each exposed pipeline has enough supports or anchors to protect the exposed pipe joints from the maximum end force caused by internal pressure and any additional forces caused by temperature expansion or contraction or by the weight of the pipe and its contents.
3. Each support or anchor on an exposed pipeline is made of durable, noncombustible material and must be designed and installed as follows:
   a) Free expansion and contraction of the pipeline between supports or anchors may not be restricted.
   b) Provision must be made for the service conditions involved.
   c) Movement of the pipeline may not cause disengagement of the support equipment.
4. Each support on an exposed pipeline operated at a stress level of 50 percent or more of SMYS will comply with the following:
   a) A structural support may not be welded directly to the pipe.
   b) The support must be provided by a member that completely encircles the pipe.
   c) If an encircling member is welded to a pipe, the weld must be continuous and cover the entire circumference.
5. Each underground pipeline that is connected to a relatively unyielding line or other fixed object has enough flexibility to provide for possible movement, or has an anchor that will limit the movement of the pipeline.
6. Each underground pipeline that is being connected to new branches has a firm foundation for both the header and the branch to prevent detrimental lateral and vertical movement

Design pressure of plastic fittings

Design pressure for fittings exceeds or is equal to pipe design pressure. Ensure thermosetting fittings for plastic pipe conforms to ASTM 2513.

Valve installation in plastic pipe

Design pressure for valves exceeds or is equal to pipe design pressure. Ensure each valve installed in plastic pipe protects the plastic material against excessive torsional or shearing loads when the valve or shutoff is operated, and from any other secondary stresses that might be exerted through the valve or its enclosure.

Protection against accidental overpressuring

General requirements

Except as provided in §192.197, ensure each pipeline that is connected to a gas source so that the maximum allowable operating pressure could be exceeded as the result of pressure control failure or of some other type of failure, has pressure relieving or pressure limiting devices that meet the requirements below.

Additional requirements for distribution systems

Ensure each distribution system that is supplied from a source of gas that is at a higher pressure than the maximum allowable operating pressure for the system -

(1) Has pressure regulation devices capable of meeting the pressure, load, and other service conditions that will be experienced in normal operation of the system, and that could be activated in the event of failure of some portion of the system; and

(2) Is designed so as to prevent accidental overpressuring.

Control of the pressure of gas delivered from high-pressure distribution systems

1. If the maximum actual operating pressure of the distribution system is 60 p.s.i. gage, or less and a service regulator having the following characteristics is used, no other pressure limiting device is required:

   a) A regulator capable of reducing distribution line pressure to pressures recommended for household appliances.
   b) A single port valve with proper orifice for the maximum gas pressure at the regulator inlet.
   c) A valve seat made of resilient material designed to withstand abrasion of the gas, impurities in gas, cutting by the valve, and to resist permanent deformation when it is pressed against the valve port.
   d) Pipe connections to the regulator not exceeding 2 inches (51 millimeters) in diameter.
   e) A regulator that, under normal operating conditions, is able to regulate the downstream pressure within the necessary limits of accuracy and to limit the build-up of pressure under no-flow conditions to prevent a pressure that would cause the unsafe operation of any connected and properly adjusted gas utilization equipment.
   f) A self-contained service regulator with no external static or control lines.

2. If the maximum actual operating pressure of the distribution system is 60 p.s.i. gage, or less, and a service regulator that does not have all of the characteristics listed in paragraph (a) of this section is used, or if the gas contains materials that seriously interfere with the operation of service regulators, there must be suitable protective devices to prevent unsafe overpressuring of the customer's appliances if the service regulator fails.

Gas Operations and Maintenance Manual

FORM WTG-1102

Regulator Station Inspection Sheet

District _____ System _____ TRC/CC UNIT _____

STATION NBR _____ LOCATION _____ GPS _____

STATION TYPE: SINGLE CUT ____ SERIES CUT PARALLEL ____ MONITOR ____ WORKING MONITOR ____ MAOP _____ IN ____ OUT ____

REGULATOR DATA NO. 1

Size _____ Make _____
Model # _____ S/N _____
Press Rating _____ Orifice Size _____
Spring Color _____ Spring Range _____
In Press Max _____
Out Press Max _____

REGULATOR DATA NO. 2

Size _____ Make _____
Model # _____ S/N _____
Press Rating _____ Orifice Size _____
Spring Color _____ Spring Range _____
In Press Max _____
Out Press Max _____

REGULATOR DATA NO. 3

Size _____ Make _____
Model # _____ S/N _____
Press Rating _____ Orifice Size _____
Spring Color _____ Spring Range _____
In Press Max _____
Out Press Max _____

REG CAPACITY

At Max Inlet & MAOP Outlet SCFH #1 _____ #2 _____ #3 _____

Relief Valve Data No. 1

Size _____ Make _____
Model # _____ Press Rating _____
Spg Color _____ Range _____

Relief Valve Data No. 2

Size _____ Make _____
Model # _____ Press Rating _____
Spg Color _____ Range _____

Relief Valve Data No. 3

Size _____ Make _____
Model # _____ Press Rating _____
Spg Color _____ Range _____

Capacity Downstream at MAOP SCFH #1 _____ #2 _____ #3 _____

INSPECTION SHEET

Bypass Locked Closed?	Y ☐	N ☐	N/A ☐	Regulators stroked?	Y ☐	N ☐	N/A ☐
RV Locked Open?	Y ☐	N ☐	N/A ☐	Lockup checked?	Y ☐	N ☐	N/A ☐
Building Okay?	Y ☐	N ☐	N/A ☐	Orfice working properly?	Y ☐	N ☐	N/A ☐
Fence secure?	Y ☐	N ☐	N/A ☐	Seats working properly?	Y ☐	N ☐	N/A ☐
Weeds cut?	Y ☐	N ☐	N/A ☐	Relief valve popped?	Y ☐	N ☐	N/A ☐
Bypass valve oper. & serviced?	Y ☐	N ☐	N/A ☐	Relief valve insp & cleaned?	Y ☐	N ☐	N/A ☐
Caution signs in place & legible?	Y ☐	N ☐	N/A ☐	Was Nitrogen used?	Y ☐	N ☐	N/A ☐
All vents clear & protected?	Y ☐	N ☐	N/A ☐	Paint Okay?	Y ☐	N ☐	N/A ☐
Inlet valve oper. & serviced?	Y ☐	N ☐	N/A ☐	Atmospheric corrosion present?	Y ☐	N ☐	N/A ☐
Outlet valve oper. & serviced?	Y ☐	N ☐	N/A ☐	Filter replaced / cleaned?	Y ☐	N ☐	N/A ☐
Slam valve insp & cleaned?	Y ☐	N ☐	N/A ☐	Relief Blk Valve oper & serviced?	Y ☐	N ☐	N/A ☐

Regulator Settings As Left

Reg No 1 _____ psi Reg No 2 _____ psi Reg No 3 _____ psi

Relief Valve Settings as Left

Rel No 1 _____ psi Rel No 2 _____ psi Rel No 3 _____ psi

Slam Valve Settings As Left

_____ psi _____ ppm _____ other

Date Inspected _____ AOC's Found Y ☐ N ☐ Person Qualified? Y ☐ N ☐

Note: This inspection sheet must agree with the equipment installed. Any changes to MAOP, orifice size, relief valves, orfices or springs require revisions to the sheet and the regulator design sheet. Is there anything on the station that does not agree with this form, or is not consistent with the operation conditions? Y ☐ N ☐ If yes, please note in REMARKS on back of this form(if needed check here) ☐

Inspector Signature _____ AOC's Y ☐ N ☐

Reviewing Supervisor _____

Revised: May 2022

TAB 12

- **Pressure test pipelines in accordance with P192.513**
- **Fill out appropriate form (F-192.513 for plastic pipe or WTG 1400 Project Report Form)**

FORM F-192.513
Plastic Pipeline Pressure Test Record

System			Date
Location of Line			
Length of Line:		Size of Pipe:	Type of Pipe:
Test Medium: ☐Air ☐ Nitrogen ☐Water ☐Natural Gas ☐Other:_____			
Time Test started: am / pm		Time test complete: am / pm	
Test Start	Pressure	Temperature	Elevation
Test Stop	Pressure	Temperature	Elevation
Purpose: ☐Initial Construction ☐Pretest ☐Retest ☐Repair or replacement			
Explanation of pressure gain / Loss			
Person Making Test:		Date:	

Procedure Steps

NOTES:

- Written job-specific pressure test procedure/instructions to cover the items discussed in this procedure are suggested for complex tests.
- During the test the temperature of the thermoplastic material may not be more than 100° F or less than 35° F.
- Any leak discovered during testing must be repaired before final testing is complete.

Test requirements for Plastic Pipeline Mains.

1. The test procedure must ensure discovery of all potentially hazardous leaks in the segment being tested.
2. Pipeline pressure tests are not to exceed the following maximum pressures:

Grade	Type	Maximum Test Pressure (psig)
SDR 11	4710	150
SDR 11	3408	150
SDR 11	2406	120
SDR 17	3408	96

Note: The test pressure must be at least 150% of the Maximum Operating Pressure or 50 psig; whichever is greater. The maximum test pressure may not be more than 2.5 times the pressure determined under CFR 192.121 at a temperature not less than the pipe temperature during the test.

Test Requirements for Plastic Service Lines

1. If feasible, the service line connection to the main must be included in the test. If this is not feasible, it must be given a leakage test at the operating pressure when placed in service.
2. If plastic service lines are to be tested at the same time as the distribution mainline, operating personnel completing the test must ensure that all EFV's included in the test are in the open position and not disrupting flow to the downstream side of the EFV. To do this, the operating personnel will need to either test the service for adequate flow or check pressure at the riser valve once the mainline is brought up to the proper test pressure.

3. Pipeline pressure tests are not to exceed the following maximum pressures:

Grade	Type	Maximum Test Pressure (psig)
SDR 11	4710	150
SDR 11	3408	150
SDR 11	2406	120
SDR 17	3408	96

Note: The test pressure must be at least 150% of the Maximum Operating Pressure or 50 psig; whichever is greater. However, the maximum test pressure may not be more than 3 times the design pressure of the pipe.

Environmental Protection and Safety Requirements

1. Every reasonable precaution must be taken to protect employees and the general public during testing. All practical steps shall be taken to keep people not working on the testing operations outside of the testing area until the test is complete and pipeline segment pressure is return to normal operations.
2. The test medium shall be disposed of in a manner that will minimize damage to the environment.

Records

1. Each District/Division Manger shall make, and retain for the useful life of the pipeline, a record of each test performed under these requirements. The record must contain the following information:
   a) Name of employee or Contractor Employee that conducted the test.
   b) Test medium used.
   c) Test pressure and temperature.
   d) Test duration.
   e) Elevation variations, if significant.
   f) Leaks and failures and the root cause of such.

TAB 13

- **Fill out and keep F192.619 - MAOP Determination (Excel Version of F192.619 can be used if preferred. Formulas are built in to aid in calculation. After completing worksheet, print and file in book. Link found on WTG Project Requirement web page)**

Form F-192.619

Poly Pipe MAOP Determination
Revision January 2022

System Information

Company:			**Distrtict:**			
Pipeline System :			**Class Location:**			
Segment:			**GPS Coordnates:**	**Start:**		
				End:		
Pipe Material:		**System MAOP:** 0.00	**Nominal O.D. (in.):**			
Wall Thickness:			**Pipe Grade:**			
Pipe Class:			**Length (ft.):**			
Pipe Manufacturer:			**Max. Operating Temp. (°F):**			
Year Manufactured:		**Year Purchased:**	**Test Pressure after Construction:**			
Thermoplastic Pipe Value (psi):			**Test Press. Factor:**	1.5		
Internal Design Press. (psi):			**ASME/ANSI Flange Rating:**			
Seam Joint Factor:			**SDR Value:**		**Design Factor:**	
List specifications/standards that the pipe and/or components were designed/constructed under. (49 CFR 192.303):						
Comments:						
Determination Factor; (a)(1) (a)(2) (a)(3) or (a)(4)						
* **If (a)(4) was selected, why?**		**Explain:**				
Signature:			**Date:**			

Form F-192.619

Poly Pipe MAOP Determination

MAOP Calculation

1. Results of Design Pressure calculations, Step 10. (See attached Worksheet) **(a)(1)**		psi.
3. Flange Pressure Rating. **(a)(1)**		psi.
4. Flanged Valve Pressure Rating. **(a)(1)**		psi.
5. Design Pressure of any other component if less than flange or valve rating. **(a)(1)**		psi.
5.(a) Description of component entered on line 5. Relief valve, regulator, etc		
2. Results of Test Pressure calculations, Step 3. (See attached Worksheet) **(a)(2)**		psi.
8. Notwithstanding the other requirements of this section, 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 last 5 years preceeding the applicable date in the second column of the table listed in Procedure P-192.619. If this applies enter the appropriate pressure here. **(a)(3)**		psi.
7. The pressure determined by the operator to be the maximum safe pressure after considering the history of the segment, particularly known corrosion, and the actual operating pressure. **(a)(4)** * Note: Over-Pressure protective devices must be installed on the segment in a manner that will prevent the maximum allowable operating pressure from being exceeded in accordance with 49 CFR 192.195.		psi.
10. The Pipeline MAOP is the lowest of steps 1-8 above, or the pressure from step 9 above. **MAOP =**	**0.00**	psi.

Note: If the MAOP is being re-calculated due to a change in class location, refer to Form F-192.611.

Note: Any flanged or steel fitting used will have a higher pressure rating than PE pipe.

Note: Additional requirements apply to distribution systems. See 49 CFR 192.621 and 192.623, if necessary.

Design Pressure Calculations Worksheet (49 CFR 192.121)

1.Thermoplastic Pipe Value (S) The hyrdrostatic design basis (HDB) is determined in accordance with the listed specification at a temperature equal to 73 °F (23 °C), 100 °F (38 °C), 120 °F (49 °C), or 140 °F (60 °C). In the absence of an HDB established at the specified temperature, the HDB of a higher temperature may be used in determining a design pressure rating at the specified temperature by arithmetic interpolation using the procedure in Part D.2 of PPI TR-3/2008, HDB/PDB/SDB/MRS Policies (incorporated by reference, see § 192.7). For reinforced thermosetting plastic pipe, 11,000 psig (75,842 kpa).
[**Note**: Arithmeticinterpolation is not allowed for PA-11 pipe]

Pipe Grade	Design Temp (°F)			
	73	**100**	**120**	**140**
2306	1250	1250	1000	800
2406	1250	1250	1000	800
3406	1250	1250	1000	800
3408	1600	1250	1000	800
4710	1600	1250	1000	800

Highlighter the criteria used above to determine the thermoplastic pipe value, and enter here.	**S=**		**psi.**

2. Nominal Wall Thickness (t) (49 CFR 192.109)

This is the nominal wall thickness of the pipe in inches, as described in the applicable pipe specification.

a) If the nominal wall thickness for steel pipe is not known, it is determined by measuring the thickness of each piece of pipe at quarter points on one end.

b) However, if the pipe is of uniform grade, size, and thickness and there are more than 10 lengths, only 10 percent of the individual lengths, but not less than 10 lengths, need to be measured. The thickness of the lengths that are not measured must be verified by applying a gauge set to a minimum thickness found by the measurement. The nominal wall thckness to be used in the design formula is the next wall thickness found in commercial specifications that is below the average of all the measurements taken. However, the nominal wall thickness used may not be more than 1.14 times the smallest measurement taken on pipe less than 20 inches in outside diameter, nor more than 1.11 times the smallest measurement taken on pipe 20 inches or more in outside diameter.

Note: Additional wall thickness required for concurrent external loads in accordance with 49 CFR 192.103 may not be included in computing design pressure.

Circle the criteria used above to determine the Nominal Wall Thickness, and enter here.	**t=**		**in.**

3. Standard Dimension Ratio (SDR)

Standard dimension ratio, the ratio of the average specified outside diameter to the minimum specified wall thickness, corresponding to a value from a common numbering system that was derived from the American National Standard Institute preferred number series 10.

PE Pipe - Minimum Wall Thickness and SDR Values

Pipe size (inches)	Minimum wall thickness (inches)	Corresponding SDR (values)
1/2 CTS	0.09	7
1/2 IPS	0.09	9.3
3/4 CTS	0.09	9.7
3/4 IPS	0.095	11
1 CTS	0.099	11
1 IPS	0.119	11
1 1/4 IPS	0.151	11
1 1/2 IPS	0.173	11
2	0.216	11
3	0.259	13.5
4	0.265	17
6	0.315	21
8	0.411	21
10	0.512	21
12	0.607	21
16	0.762	21
18	0.857	21
20	0.952	21
22	1.048	21
24	1.143	21

* Copper Tubing Size (CTS) Iron Pipe Size (IPS)

Highlight the criteria used above to determine the SDR value, and enter here.	**SDR =**	

4. Design Factor (DF)

DF = 0.32 or

PE pipe produced after January 22, 2019, a DF of 0.40 may be used in the design fomula, provided one of the following requirements are met:

1) The design pressure does not exceed 125 psig;

2) The material designation code is PE2708 or PE4710;

3) The pipe has a nominal size (IPS or CTS) of 24 inches or

4) The wall thickness for a given outside diameter is not less than that listed in the table listed in 3. Standard Dimension Ratio (SDR)

For Polyamide (PA-11) and Polyamide (PA-12) refrence CRF 129.121 (d) & (e)

Highlight the Criteria used above to determine the Design Factor, and Enter here.	**DF=**

5. Nominal Outside Diameter (D)		
Enter the Nominal Outside Diameter of the pipe in inches here.	**D=**	
6. Design Pressure - Nominal (P) Use the results of steps 1-5 above in the following formula to calculate the nominal design pressure. $P = \frac{2 * S * t}{D-t} * DF$		
$P = 2 * \frac{\quad}{\quad - \quad} *$	**P=**	

Form F-192.619

Poly Pipe MAOP Determination

Test Pressure Calculation Worksheet

1. Test Pressure after construction		**psi.**
2. Test Derating Factor Plastic Pipe = 1.5		
3. MAOP Limited by Test Pressure Line 1 divided by Line 2		**psi.**

Operating Pressures for Flanged Valves (if applicale)			
ANSI Class	Maximum Operating Pressure	Hydrostatic Test Pressure	
		Shell	Seat

Operating and Pressures for Flanges (if applicale)		
ANSI Class	Maximum Operating Pressure	Hydrostatic Test Pressures

Pressure test calcualtion results		Design Pressure Results	

Is Any Component being Installed that has a lower MAOP than row 192 other than a flange or flanged valve?			
Description of Component	ANSI Class	Maximum operating Pressure	

Temporary Piping Blinds Blind Thickness (Inches) for Flange Sizes * Blinds Cut from ASTM A36 Carbon Steel Plate for Maximum Actual Hydrostatic Pressure as Given						
Nominal Pipe Size	ANSI 150	ANSI 300	ANSI 600	ANSI 900	ANSI 1500	ANSI 2500
	285 psig	740 psig	1480 psig	2220 psig	2500 psig	3000 psig

TAB 14

- **Purge pipeline in accordance with P-192.629**
- **Scheduled emissions (purging) require you to fill out the Field Emissions Report within Tab 13 and submit to Compliance Department prior to purge**

Purge Procedure Steps

Note: The following precautions should be taken while conducting this procedure:

Safety precautions should be observed during the purging operations. These precautions should include, but not limited to:

1. Prohibit smoking and open flames in the area
2. Prohibit operation of spark producing equipment such as internal combustion engines, electric motors or switches, etc
3. In the event the facilities being purged are straight forward without multiple laterals or looping systems that includes only one upstream valve or isolation device and one downstream valve or isolation device with an existing blowdown valve, step 4 does not have to be completed.
4. In the event the purging process is for new construction and/or includes multiple laterals or loop lines, a written purge plan must be developed, approved by District Manager and followed during the purge process. Within the written purge plan, careful consideration must be given to the following:
    a. Completely purging of extremities of all segments/laterals
    b. Purge process of any piping “loops” within the system which has the potential of air being reintroduced into the main body of the pipeline system.
    c. When tying in a poly system and there is not a permanent vent valve:
        i. There must be a safe method to isolate the blowdown process (i.e., temporary manual valve installed or a set of poly squeezers a safe distance from the purge point)
        ii. Purge point must be located outside of bell hole, be completely vertical and secured to the ground to prevent movement.
5. (If Necessary) Post warning signs and/or barricade area to control public access
6. Purge only thru a vent stack that is at least 6 feet above ground, with secured fittings
7. Each venting areas must be supervised by qualified company employees during purging
8. Provide a fire extinguisher of appropriate type and size at the purging area

Precautions should also be taken to prevent static electrical sparks from igniting escaping gas vapors on plastic pipe.

NOTE: When the pipeline is being purged of air using natural gas, the gas must be released into the pipeline at a moderately rapid and continuous flow. If the gas cannot be supplied in enough quantity to prevent the formation of a hazardous mixture of gas and air, a slug of inert gas must be placed into the line before the gas. The same is true of air being used to purge gas from the pipeline.

1. Conduct a tailgate meeting prior to purging the pipeline. Discuss the following:
   a) Blowdown and purging safety and possible hazards
   b) Location of personnel involved and their duties
   c) Description, use, and location of each piece of work equipment
   d) Flow of the purge gas
   e) Location of firefighting equipment
   f) Pressure of the gas used to purge the pipeline
   g) Time required
   h) Method to check air/gas mixture concentration
   i) Sequence of valve operations
   j) Presence of liquids or other special conditions
   k) Use of personal protective equipment
2. Determine the blow off size, pipeline size, and length of section to be purged
3. Determine the inlet control pressure (see table below)
4. Calculate the purging time period (2 minutes per mile)
5. Before purging is completed, a 100% combustible gas must be achieved and verified with a CGI
6. Install a pressure gauge at the inlet of the section to be purged
7. Have local law enforcement control traffic as necessary
8. Establish communications with all personnel involved in purging of the pipeline
9. Open the blow off valve at the downstream end of the section to be purged
10. Inject inert gas into the inlet end of the pipeline to rapidly displace at least 2 miles of pipe, if necessary in order to prevent a hazardous mixture of gas and air
11. Open the inlet valve far enough to quickly obtain the determined control pressure and maintain this pressure for the necessary purging time
12. At the end of the purging time, close the inlet gas flow valve and continue to vent through the downstream blow off valve for an additional minute per mile of pipe being purged
13. Close the downstream blow off valve

14. Open the inlet valve and slowly bring the pipeline to operating pressure
15. Ensure all valves on the system are open to the proper operating position

Minimum Purge Gas Control Pressure (PSIG) Required for a 2 Minute/Mile Purge Rate

PIPELINE LENGTH	2" B/OFF VALVE Inlet Pressure (psig)		4" BLOWOFF VALVE Inlet Pressure (psig)				6" BLOWOFF VALVE Inlet Pressure (psig)					
(MILE)	4" Pipe	6" Pipe	6" Pipe	8"Pipe	10" Pipe	12" Pipe	12" Pipe	16" Pipe	18" Pipe	20" Pipe	22" Pipe	24" Pipe
1	6	9	3	3	3	5	2	3	4	5	8	12
2	12	13	7	5	5	7	3	4	5	6	8	12
3	18	17	10	7	7	8	5	5	5	7	9	13
4	24	21	13	10	9	10	6	6	6	8	10	14
5	32	25	16	12	11	11	7	7	7	8	11	15
6	40	30	20	14	12	13	9	8	8	9	12	15
7	49	35	24	17	14	14	10	9	9	10	12	16
8	59	41	28	20	16	16	11	10	10	11	13	17
9	71	46	33	22	18	18	13	11	11	12	14	18
10	83	52	38	25	20	19	14	12	12	13	15	19
11	97	59	43	28	22	21	16	13	13	14	16	20
12		66	48	31	25	23	17	14	14	15	17	20
13		73	54	35	27	25	19	15	15	15	17	21
14		81	60	38	29	27	21	16	16	16	18	22
15		90	67	42	32	29	22	18	17	17	19	23
20				63	45	40	31	24	22	22	24	28
25				90	62	52	42	31	28	28	29	33
30					81	66	54	39	35	33	34	38
35						82	68	47	42	40	40	44
40							84	57	50	46	46	50
45								67	58	54	53	56
50								79	67	61	60	63

PIPELINE LENGTH	8" BLOWOFF VALVE Inlet Pressure (psig)			10" BLOWOFF VALVE Inlet Pressure (psig)			12" BLOWOFF VALVE Inlet Pressure (psig)			
(MILE)	20" Pipe	22" Pipe	24" Pipe	24" Pipe	26" Pipe	30" Pipe	34" Pipe	36" Pipe	42" Pipe	48:" Pipe
1	2	3	3	2	2	3	2	3	6	10
2	3	3	4	2	3	3	3	3	6	11
3	3	4	5	3	3	4	3	4	6	11
4	4	5	5	3	4	5	4	4	6	11
5	5	5	6	4	4	5	4	4	7	12
6	6	6	6	5	5	5	4	5	7	12
7	7	7	7	5	5	6	5	5	7	12
8	7	7	8	6	6	6	5	6	8	12
9	8	8	8	6	6	7	6	6	8	13
10	9	9	9	7	7	7	6	6	8	13
11	10	9	10	8	7	8	6	7	9	13
12	10	10	10	8	8	8	7	7	9	14
13	11	11	11	9	9	9	7	7	9	14
14	12	12	12	9	9	9	8	8	10	14
15	13	12	12	10	10	10	8	8	10	15
20	17	16	16	13	13	12	10	10	12	16
25	22	20	19	17	16	15	12	12	14	18
30	27	24	23	20	19	17	14	14	15	20
35	32	29	27	24	22	20	17	16	17	22
40	38	34	32	28	26	23	19	18	19	24
45	44	39	36	32	29	26	21	21	21	25
50	51	45	41	37	33	29	24	23	23	27

Notes:

(1) Purge pressures that exceed 100 psig are not shown in the table. Possible detonation of flammable gases could create unsafe pipeline pressures. Longer purge times (greater that 2 min/mile) and lower purge pressures should be used. See Figure 5-3 for geometry and operating conditions used to calculate the purge pressures in Table 5-1.

(2) Add 5 psig to the pressures shown in Table 5-1, if purging is done through a crossover arrangement and the pressure is measured at the crossover valve. Example: A 30" pipe, 13 miles long, is to be placed into service. A 10" blowdown is to be used for venting. A fifty percent safety factor is selected. Table 5-1 shows that 30" pipe, 13 miles long, requires a natural gas inlet pressure of 9 psig. The length of time is 13 miles times 2 minutes per mile or 26 minutes. After 26 minutes have elapsed, the venting continues for an additional 13 minutes more. Then the blowoff valve is closed.

Source: AGA Purging Principles and Practice Third Edition 2001

Blowdown Procedure/Safety Precautions

The following Safety precautions should be taken while conducting this blowdown procedure including, but are not limited to:

1) Proper PPE
2) Prohibit smoking and open flames in area
3) Prohibit operation of spark producing equipment such as internal combustion engines, electric motors, or switches, cell phones, or other ignition sources
4) (If Necessary) Post warning signs and/or barricade area to prevent public access
5) Purge only through a vent stack that is at least 6 feet above ground level with secured fittings
6) Each venting area must be supervised by qualified company employees during blowdown.

Precautions should also be taken to prevent static electrical sparks from igniting escaping gas vapors on plastic pipe

Blowdown Procedure Steps

1) Conduct tailgate meeting prior to blowing down the pipeline. Discuss the following, but not limited to:
   a) Blowdown safety and possible hazards
   b) Location of personnel and their duties
   c) Description, use, and location of each piece of work equipment
   d) Where blowdown will occur
   e) When electrical high lines are an issue, it is recommended that a liquids truck be used with a long enough high pressure hose to safely vent gas away from electrical lines or an anchored directional fitting (non threaded)
   f) Sequence of valve operations
   g) Presence of liquids or other special conditions
   h) Use of proper personal protective equipment
   i) Continuous monitoring of weather conditions such as (wind direction, thunder storms, etc.) and its effects concerning surrounding facilities for possible ignition sources
   j) A review of the impact on facilities and customers (including points of receipts, delivery and farm taps) including both upstream and downstream. Affected customers shall be notified prior to work being started
2) Install a gauge at various locations to determine complete system blowdown. Ensure gauge is working properly prior to installation

3) Secure necessary local permits and have local law enforcement control traffic as necessary
4) Establish communications with all personnel involved in blowdown
5) Blowdown stack to be at least 6 feet above ground level
6) Shut in all affected valves
7) Apply WTG's lock-out tag-out procedure
8) Eliminate all potential sources of ignition, such as automobiles, cell phones, two-way radios and all other non-intrinsically safe devices
9) Begin blowdown using a continuous and moderately rapid flow
10) A slug of inert gas may be used to prevent a hazardous mixture of gas and air
11) Upon completion of blowdown allow extra time to insure complete depressurization of segment
12) Check pressure gauges to insure pipeline is completely blown down. Ensure pressure gauges are working properly
13) Use a CGI to determine area safe before introducing an ignition source and continue to check periodically to insure there is no gas build up
14) Monitor gas supply and pressure to remaining facilities that are still in-service (upstream and downstream)

Emission Field Report

District:		**Report Date:**	
County:			
GPS Coordinates Start:			
GPS Coordinates End:			
Event/Activity type:			

Date and time event discovered or scheduled activity started:		
Date and time event or scheduled activity ended:		
Event duration:		**Hours**

Is the gas odorized?		
Pipe size:		**IN**
Pipe pressure:		**PSI**
Pipe flow rate (If unknown, leave blank):		**MCF**
Distance of pipe isolated:		**FT**
Was the gas flared or vented to atmosphere:		
Estimated volume of gas released (If unknown, leave blank):		**MCF**

Cause of emission event or excess opacity event, or reason for scheduled activity:

TAB 15

- **Ensure compliance with P-192.605(b)(5) Start up of Pipelines**

Procedure Steps

Start-up

These procedures can be used on new pipeline installations or those pipelines that have been repaired.

1. If the pipeline has been pressure tested, remove any test medium; prepare the system to be purged of all air by the use of gas. Make sure all vents or valves used in the purging process are equipped with vents at least 6 feet above the ground. If necessary to protect the public, barricade the area, and stop vehicle traffic and other sources of ignition.
2. The flow of purge gas must be of sufficient pressure and volume to ensure a complete exclusion of air. The entire segment of pipeline and related equipment must be purged. (**REVIEW PIPELINE PURGING PROCEDURES IN P-192.629**).
3. After purging is completed, all open valves must be closed to prevent air from re-entering the system.
4. The pipeline and related equipment can now be pressured to the normal operating pressures. The pressurization process must be slow and steady. Pressure indicators must be monitored continuously to make certain that the system is not pressured above the established system MAOP.
5. Once the system is pressured to normal operating pressure, all valves, vents, regulators, etc. Should be checked for normal operations.

Shutdown

1. To begin the shutdown procedure, first close the upstream block valve and any additional pressure sources to stop the flow of gas into the pipeline. This will prevent over pressuring of a pipeline. Isolate the downstream block valve at the other end of the pipeline or segment.
2. If the gas pressure must be vented, precautions must be taken to prevent danger to the public, public property, our employees and our facilities. (**REVIEW PIPELINE PURGING PROCEDURES IN P-192.629).**

TAB 16

- **If facilities are abandoned, document on appropriate form (F192.727 or WTG 1400)**
- **Ensure abandonment complies with P-192.727**

Procedure Steps

Abandonment

Prepare a step-by-step procedure for each pipeline to be abandoned. These procedures must consider the following:

1. Each pipeline abandoned in place must be disconnected from all sources and supplies of gas, purged of gas, and sealed at the ends.
    a) When the volume of the pipeline is so small there is no potential hazard (less than 10% LEL), the pipeline need not be purged.
    b) Filling with inhibited water is preferred if the line has future utility.
    c) Offshore pipelines abandoned in place must be filed with water or inert materials.
2. Except for service lines, each abandoned pipeline that is not being maintained in accordance with DOT requirements must be disconnected from all input sources, purged with an inert medium and sealed at the ends. Offshore pipelines must be filled with water or inert materials. The pipeline need not be purged when the volume is so small that there is no potential hazard.
3. Whenever service to a customer is discontinued, the operator must comply with one of the following:
    a) The valve that is closed to prevent the flow of gas to the customer must be provided with a locking device or other means designed to prevent the opening of the valve by unauthorized people.
    b) A mechanical device or fitting that will prevent the flow of gas must be installed in the service line or in the meter assembly.
    c) The customer's piping must be physically disconnected from the gas supply and the open pipe ends sealed.
4. If air is used for purging, operator must ensure that after purging a combustible mixture (less than 10% LEL) is not present.
5. Whenever a vault or valve box cover has been abandoned, WTG will do the following:
    a) The vault or valve box cover must be removed or secured in a manner so the vault or valve box cover cannot be opened and/or:
    b) Each abandoned vault or valve box must be filled with a suitable compacted material.
6. Documentation of abandonment using form F-192.727 or equivalent.

Inactivation

An inactivated pipeline is a pipeline that although not currently in use, will be maintained and serviced per 49 CFR Part 192 so the pipeline may be returned to service at a future date. Inactivating a pipeline does not require NPMS submission.

1. Methods to Inactivate Pipeline

a) Isolate the pipeline segment from all gas sources by closing all valves. If accidentally pressuring up the pipeline will cause a safety problem, physically isolate the pipeline from all gas sources.

b) Use either natural gas or inert gas in the pipeline to maintain a pressure of 10 to 20 psig to prevent groundwater from entering the pipe. After the pipeline has been inactivated, take a gauge reading to insure that positive pressure exists.

c) Continue maintaining the pipeline as though it was in service (i.e., continue conducting and documenting all applicable O&M inspections).

2. Returning Inactivate Pipeline to Service

   Inactivated pipelines that have been maintained per 49 CFR Part 192 may not be returned to service without Engineering Department review and following the Management of Change (MOC) process.

3. Reactivating Pipeline

   Resolve any questions concerning safely operating the previously inactivated pipeline and appurtenances before reconnecting the pipeline to a gas source or installing a weld end cap. Verify that all isolation devices including pipes, valves and fittings are removed and that all pipe, valves, fittings, etc. that were installed during the inactivation process meet the design requirements or are removed before reconnecting the pipeline to a gas source or installing a weld end cap.

4. Discontinuing Customer Service

   When discontinuing service to a customer, complete one of the following steps to guarantee the gas is stopped and ensure that gas will not accumulate within a building or residence:

   a) Lock the block valve or provide another means to prevent an unauthorized person from opening the valve

   b) Install a mechanical device that prevents gas flow to the meter or within the service line

   c) Physically disconnect the customer's piping from the gas supply and open pipe end seals

5. Documentation

   a) Maintain operating, inspecting, testing, maintenance and repair records of each inactivated pipeline for the life of the facility.

   b) Maintain records of each pipeline reactivation (e.g., MOC, investigations, test repairs, replacements and alterations, etc.) for the life of the facility.

FORM F-192.727

Facility Abandonment Record

Company:		District/Location:	
System:		Type of Service	
Description of Facility:			
Location	City:	County:	State:
	Section:	Township:	Range:
Date placed in service:		Date Abandoned:	
Type of abandonment: ☐In place ☐Removed If abandoned in place, describe final disposition of ownership (attach additional pages if necessary).			
Purged with:		Filled with:	
Describe procedure used to insure that no volatile flammable hydrocarbons remained in the facilities (attach additional pages if necessary):			
Completed by:			Date:

TAB 17

- **Complete and submit Project Report WTG 1400 to Mapping Department**