A Guide to Shapefile Submissions

RRC Pipeline Permitting

When submitting shapefiles to the Pipeline Online Permitting System (POPS), there are specific requirements that need to be met. Use this document as a guide to these requirements. Requirements come from Railroad Commission of Texas (RRC) rule 16 Texas Administrative Code (TAC) §8.1 and 49 Code of Federal Regulations (CFR) Parts 191 – 195.

To read 49 CFR Parts 191 – 195, visit the Code of Federal Regulations website at https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-D.
To read 16 Texas Administrative Code (TAC) §8.1, visit the Texas Secretary of State website at https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=8&rl=1.

Please remember:
- All numbers must be positive; all characters must be capitalized
- Must use an RRC-approved coordinate system
- Shapefiles must contain all 15 required fields
- Must assign fields with the appropriate data type and character limit

Overview

1. Coordinate Systems
2. Required fields, data types and lengths
3. Additional fields, if necessary

1. Coordinate Systems

Shapefiles must be using one of two coordinate systems: *NAD 1927 or NAD 1983.* These are geographic coordinate systems (GCS), meaning they use an angular unit of measurement (e.g. degrees). We do not accept shapefiles that are using a projected coordinate system (PCS), meaning they use a linear distance of measurement (e.g. feet).

2. Required fields, data types and character limits

1. P5_NUM **"P-5 Operator Number"**

(Data Type: Text, Character Limit: 6)

A six-digit number assigned by the RRC to identify a pipeline operator (not the pipeline owner).

2. T4PERMIT **"T-4 Permit Number"**

(Data Type: Text, Character Limit: 5)

A five-digit number assigned by the RRC to identify a T-4 permit number (e.g. 00001—99999).
Only use 5 zeros (00000) for new permits that do not already have a T4 permit number assigned.

3. SYS_NM **"System Name"**

(Data Type: Text, Character Limit: 40)

A name for a single pipeline system, assigned by the operator. Can be any alphanumeric value; blank values are **NOT** accepted.

4. SUBSYS_NM **"Subsystem Name"**

(Data Type: Text, Character Limit: 40)

A name for a sub-section of a pipeline system, assigned by the operator. This is a subset of SYS_NM. Can be any alphanumeric value; blank values are **NOT** accepted.

5. PLINE_ID **"Pipeline ID"**

(Data Type: Text, Character Limit: 20)

An identifier for a pipeline segment, assigned by the operator. This is a subset of SUBSYS_NM. Can be any alphanumeric value. Blank values are acceptable**. May be used to indicate an amendment reason when there are multiple reasons for one T4_AMD code within one system or subsystem.**

6. INTERSTATE **"Interstate Designation"**

(Data Type: Text, Character Limit: 1)

Identifies if a pipeline segment is interstate (crossing the Texas border, or crossing into Federal waters or terminal) or intrastate (within the Texas border).

Permits with both 'Y' & 'N' values are **NOT** accepted.

Code	Code Description
Y	Interstate pipeline
N	Intrastate pipeline

7. DIAMETER **"Diameter"**

(Data Type: Float, Precision 5, Scale 2)

Nominal Pipe Size refers to the inside diameter of the pipe; the Outside Diameter refers to the inside diameter of the pipe plus the pipe wall thickness. Always use Outside Diameter unless the diameter is greater than 12 inches, then use Nominal Pipe Size. Zero diameters are **NOT** accepted. Use up to two decimal places.

Nominal Pipe Size	Outside Diameter (inches)
1 "	1.32
1 ¼"	1.66
1 ½"	1.90
2"	2.38
2 ½"	2.88
3"	3.50
3 ½"	4.00
4"	4.50
5"	5.56
6"	6.63
8"	8.63
10"	10.75
12"	12.75

8. COMMODITY1 **"Commodity"**

(Data Type: Text, Character Limit: 3)

Abbreviation for the primary commodity carried by the pipeline system. There can be multiple commodities in one T-4 Permit, but there cannot be both gas and liquid commodities in the same permit. Any crude line with a diameter of 10.75" and over is treated as CRO (Crude Transmission).

Liquid Commodity Table

Code	Code Description	System Type
AA	Anhydrous Ammonia	Transmission
CO2	Carbon Dioxide	Transmission
CRO	Crude Oil	Transmission
CRL	Crude Oil	Gathering
CFL	Crude Oil	Full Well Stream Gathering
CRA	Crude Oil	Offshore Gathering
HVL	Highly Volatile Liquid	Transmission
PRD	Refined Liquid Product	Transmission

Gas Commodity Table

Code	Code Description	System Type
CO2	Carbon Dioxide	Transmission
NGT	Natural Gas	Transmission
NGG	Natural Gas	Gathering
NFG	Natural Gas	Full Well Stream Gathering
NGZ	Natural Gas	Offshore Gathering
OGT	Other Gas	Transmission

9. STATUS_CD **"Pipeline Status"**

(Data Type: Text, Character Limit: 1)

Identifies status of pipeline segment. Unless the pipeline has been physically removed from the ground, always include abandoned lines in shapefile submissions.

Code	Code Meaning	Code Description
I	In Service	Includes Active and/or Idle lines that are maintained according to our rules
B	Abandoned	Lines that are not maintained and have no intention for future use

10. TX_REG "Texas Regulatory Pipeline Status"

(Data Type: Text, Character Limit: 1)

Identifies if a pipeline segment is part of the standard RRC inspection schedule as defined in the table below.

Code	Code Meaning	Code Description
Y	Inspected	Facilities are subject to 49 CFR Part 191 – 195 and subject to 16 Texas Administrative Code (TAC) §8.1, excluding facilities defined as Type R gathering lines under 49 CFR Part §192.8 (c).
N	Not Inspected	Facilities defined as Type R gathering lines under 49 CFR Part §192.8 (c) and facilities covered under 16 Texas Administrative Code (TAC) §8.110.

Use the two tables below to determine if a permit is regulated or un-regulated.

Determine TX_REG for Liquid Permits

TX_REG = **Y** if any of the following are true:	TX_REG = **N** if any of the following are true:
• COMMODITY1 = CRO, CRA, PRD, AA, CO2 or HVL • COMMODITY1 = CRL or CFL and LOC_DES = N • COMMODITY1 = CRL or CFL and LOC_DES = R and DIAMETER = 6.63" - 8.63" and USA = Y and SMYS >= 20%	• COMMODITY1 = CFL or CRL and LOC_DES = R • INTERSTATE = Y* • STATUS_CD = B*

Determine TX_REG for Gas Permits

TX_REG = **Y** if any of the following are true:	TX_REG = **N** if any of the following are true:
• COMMODITY1 = NGT, NGZ, OGT, or CO2 • COMMODITY1 = NFG and LOC_DES = 2, 3 or 4 • COMMODITY1 = NGG and PL_TYPE = A, B, or C	• COMMODITY1 = NFG and LOC_DES = 1 • COMMODITY1 = NGG and PL_TYPE = R • INTERSTATE = Y* • STATUS_CD = B*

* Overrides all other criteria (e.g. if COMMODITY1 = NGT and STATUS_CD = B, TX_REG = N)

11. SYS_ID **"PIPES System ID Number"**

(Data Type: Text, Character Limit: 8)

An eight-digit identification number assigned to regulated (subject to 49 CFR Part 191 – 195 and 16 Texas Administrative Code (TAC) §8.1) pipeline segments. This number is assigned by the RRC and should be kept as a reference number by the pipeline operator for field inspection purposes. If there is no PIPES System ID assigned, use 8 zeroes (00000000).

SYS_ID is **required to be filled in for all regulated pipeline** segments that have been assigned a System ID in the Pipeline Inspection, Permitting, and Evaluation System (PIPES). Find a list of PIPES System IDs on the RRC website at https://www.rrc.texas.gov/pipeline-safety/reports/ and click the appropriate list. Note that all regulated gas gathering lines can be found in "Pipeline Operator Systems - Gas Transmission" and all regulated liquid lines can be found in "Pipeline Operator Systems - Hazardous Liquid".

12. PLS_SYSNM **"PIPES System Name"**

(Data Type: Text, Character Limit: 40)

The name associated with SYS_ID. It is assigned to regulated (subject to 49 CFR Part 191 – 195 and 16 Texas Administrative Code (TAC) §8.1) pipeline segments. This name is assigned by the RRC and should be kept as a reference name by the pipeline operator for field inspection purposes. PLS_SYSNM is **required to be filled in for all regulated pipeline** segments that have been assigned a System ID number in the Pipeline Inspection, Permitting, and Evaluation System (PIPES). Find a list of PIPES System IDs on the RRC website at https://www.rrc.texas.gov/pipeline-safety/reports/ and click the appropriate list, or email POPS@rrc.texas.gov with the T-4 permit number(s). If a pipeline segment is not Texas regulated, PLS_SYSNM can be left blank. If a pipeline segment is Texas regulated but a System ID has not yet been assigned, PLS_SYSNM can be left blank by the operator, and RRC mappers will enter the PLS_SYSNM value into TPMS.

13. QUALITY_CD **"Data Quality"**

(Data Type: Text, Character Limit: 1)

Operator's estimate of the positional accuracy of the submitted pipeline segment.

Code	Code Description
E	Excellent: within 50 feet
V	51 –300 feet
G	301 –500 feet
P	501 –1000 feet
U	Unknown

14. LOC_DES **"Location Designation"**

(Data Type: Text, Character Limit: 1)

Determines the class location of the pipeline. Class location is defined differently for liquid and gas permits. Liquid permits designate an area as either rural (R) or non-rural (N), while gas permits designate an area as class 1, 2, 3 or 4. For abandoned lines where class location is unknown, use a value of R for liquid lines, or a value of 1 for gas lines.

To determine class location for a gas permit, it is important to understand a "class location unit". A class location unit is defined in our rules as "an onshore area that extends 220 yards (200 meters) on either side of the centerline of any continuous 1- mile (1.6 kilometers) length of pipeline." To see Class Location Definitions for gas permits, view 49 CFR Part 192.5 (linked at the top of this document).

Determine LOC_DES for Liquid Permits:

Code	Code Description
R	Rural
N	Non-rural

Determine LOC_DES for Gas Permits:

Code	Code Description
1	An offshore area OR any class location unit that has 10 or fewer buildings intended for human occupancy.
2	Any class location unit that has more than 10 but fewer than 46 buildings intended for human occupancy.
3	Any class location unit that has 46 or more buildings intended for human occupancy; OR an area where the pipeline lies within 100 yards of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. (The days and weeks need not be consecutive
4	Any class location unit where buildings with four or more stories above ground are prevalent

15. T4_AMD **"T-4 Amendment Code"**

(Data Type: Text, Character Limit: 2)

Specifies which lines in the shapefile are being amended and the type of amendment. Include these codes in the T-4 Permit Cover Letter to create a connection between the shapefile and the cover letter. See examples of how to write a T-4 Permit Cover Letter with T4_AMD codes on our website at: https://www.rrc.texas.gov/pipeline-safety/permitting-and-mapping/.

Code	Code Meaning	Code Description
NC	No Change	Existing segments that are not being modified
NP	New Permit	Only for new permits; do not use if a T-4 Permit Number has already been assigned
PA	Pipeline Addition	New pipeline added to an existing permit
BP	Abandon in Place	Pipeline abandoned in place, according to our rules
MP	Merge Permit	Merge entire permit into an existing permit, same operator
PM	Partial Merge	Merge a portion of a permit into an existing or new permit, same operator
PT	Partial Transfer	Transfer part of a permit into an existing or new permit, different operator
TM	Transfer Merge	Full permit transfer + merge permit. Acquire full permit(s) from different operator, then merge that permit(s) into an existing permit, same operator
FC	Fluid Change	Product change (i.e. crude oil to carbon dioxide)
DP	Delete Pipeline	Pipeline removed from permit for one of the following reasons: removed from ground, never built, exempted from 49 CFR Part 191 – 195 and therefore should not be permitted with the RRC (e.g. in-plant piping, Coast Guard jurisdiction). If deleting pipeline, provide the reasoning in the cover letter and assure that STATUS_CD = B and TX_REG = N.
OM	Other Modification	Use if none of the above codes are suitable (i.e. change to diameter, system name, or pipeline location)

3. Additional fields, if necessary

Two additional fields are required if lines meet the criteria listed below.

1. USA
   - Required if COMMODITY1 = CRL or CFL and DIAMETER is between 6.63" and 8.63"
2. SMYS
   - Required if COMMODITY1 = CRL or CFL and DIAMETER is between 6.63" and 8.63"
   - Required if COMMODITY1 = NGG

Six additional fields are required if COMMODITY1 = NGG.

3. PL_MAT_MTL
4. MAOP_PSIG
5. AREA_2A

6. AREA_2B
7. AREA_2C
8. PL_TYPE

1. USA **"Unusually Sensitive Area"**

(Data Type: Text, Character Limit: 1)

Designates when a segment is within quarter mile of an unusually sensitive area. If a pipeline does not meet the minimum reportable criteria listed above, the field can be left blank.

Code	Code Description
Y	Segment is within a quarter mile of an unusually sensitive area
N	Segment is NOT within a quarter mile of an unusually sensitive area

2. SMYS **"Percentage of the Specified Minimum Yield Strength"**

(Data Type: Float, Precision 5, Scale 2)

The percentage of the specified minimum yield strength. This percentage is represented as a whole number with up to two decimal places. If a pipeline is abandoned, or non-metallic, or the SMYS value is unknown, or the pipeline does not meet the criteria listed above, enter a value of 1.

Use the following equation to calculate percent SMYS:

Percent SMYS = PMAOP/P * 100

- PMAOP = MAOP of the pipeline
- P = (2 * S * t)/D
- P = Pressure
- S = Yield Strength, may be written 52000 or X-52
- t = Wall thickness, may be written .375" or 3/8"
- D = Outside diameter (OD), may be written like 8.625" or 8 5/8"

Six additional fields are required if lines are NGG.

3. PL_MAT_MTL **"PIPELINE MATERIAL"**

(Data Type: Text, Character Limit: 1)

Based on type of material used to manufacture pipe. Categorized as metallic, and non-metallic pipes.

Code	Code Description
Y	Metallic
N	Non-Metallic

4. MAOP_PSIG **" MAXIMUM ALLOWABLE OPERATING PRESSURE"**

(Data Type: Double, Precision 8, Scale 2)

Maximum Allowable Operating Pressure (MAOP) or Maximum Operating Pressure (MOP - for liquids). Defined as the maximum pressure at which a pipeline or segment of a pipeline may be operated. For TX & PHMSA

regulated pipelines, MAOP / MOP must be determined based on the requirements of 49CFR 192.619 / 49CFR 195.406.

Enter data as a number in psig (pounds per square inch gauge) unit. Must be a value of 1 to 999,999.99.

5. AREA_2A **"Type B gas gathering line in Area 2(a)"**

(Data Type: Text, Character Limit: 1)

Defined as Type B gas gathering pipeline in Area 2, determined by method (a), i.e., in a Class 2 location, as described under 49CFR 192.8 (c). If a pipeline segment is Y for AREA_2A, then AREA_2B and AREA_2C must be N.

Code	Code Description
Y	Pipeline is Type B gathering in Area 2, as determined by method (a)
N	Pipeline is Type B gathering in Area 2, as determined by method (b) or (c), OR Pipeline is Type B gathering in Area 1, OR Pipeline is not a Type B gathering

6. AREA_2B **"Type B gas gathering line in Area 2(b)"**

(Data Type: Text, Character Limit:1)

Defined as Type B regulated gas gathering pipeline in Area 2, determined by method (b), i.e., an area extending 150 feet (45.7 m) on each side of the centerline of any continuous 1 mile (1.6 km) of pipeline and including more than 10 but fewer than 46 dwellings, as described under 49CFR 192.8 (c). If a pipeline segment is Y for AREA_2B, then AREA_2A and AREA_2C must be N.

Code	Code Description
Y	Pipeline is Type B gathering in Area 2, as determined by method (b)
N	Pipeline is Type B gathering in Area 2, as determined by method (a) or (c), OR Pipeline is Type B gathering in Area 1, OR Pipeline is not a Type B gathering

7. AREA_2C **"Type B gas gathering line in Area 2(c)"**

(Data Type: Text, Character Limit:1)

Defined as Type B regulated gas gathering pipeline in Area 2, determined by method (c), i.e., in an area extending 150 feet (45.7 m) on each side of the centerline of any continuous 1000 feet (305 m) of pipeline and including 5 or more dwellings, as described under 49CFR 192.8 (c). If a pipeline segment is Y for AREA_2C, then AREA_2A and AREA_2B must be N.

Code	Code Description
Y	Pipeline is Type B gathering in Area 2, as determined by method (c)
N	Pipeline is Type B gathering in Area 2 as determined by method (b) or (a), OR Pipeline is Type B gathering in Area 1, OR Pipeline is not a Type B gathering

8. PL_TYPE **"PIPELINE TYPE"**

(Data Type: Text, Character Limit: 1)

Applicable to regulated onshore gas gathering lines as defined under 49 CFR Part 192.8 (c).
See page below for table…

Type	Feature	Area	Additional Safety buffer
A	—Metallic and the MAOP produces a hoop stress of 20 percent or more of SMYS. —If the stress level is unknown, an operator must determine the stress level according to the applicable provisions in subpart C of this part. —Non-metallic and the MAOP is more than 125 psig (862 kPa).	Class 2, 3, or 4 location (see § 192.5).	None.
B	—Metallic and the MAOP produces a hoop stress of less than 20 percent of SMYS. If the stress level is unknown, an operator must determine the stress level according to the applicable provisions in subpart C of this part —Non-metallic and the MAOP is 125 psig (862 kPa) or less	*Area 1*. Class 3, or 4 location *Area 2*. An area within a Class 2 location the operator determines by using any of the following three methods: (a) A Class 2 location; (b) An area extending 150 feet (45.7 m) on each side of the centerline of any continuous 1 mile (1.6 km) of pipeline and including more than 10 but fewer than 46 dwellings; or (c) An area extending 150 feet (45.7 m) on each side of the centerline of any continuous 1000 feet (305 m) of pipeline and including 5 or more dwellings.	If the gathering pipeline is in Area 2(b) or 2(c), the additional lengths of line extend upstream and downstream from the area to a point where the line is at least 150 feet (45.7 m) from the nearest dwelling in the area. However, if a cluster of dwellings in Area 2(b) or 2(c) qualifies a pipeline as Type B, the Type B classification ends 150 feet (45.7 m) from the nearest dwelling in the cluster.
C	Outside diameter greater than or equal to 8.625 inches and any of the following: —Metallic and the MAOP produces a hoop stress of 20 percent or more of SMYS; —If the stress level is unknown, segment is metallic and the MAOP is more than 125 psig (862 kPa); or —Non-metallic and the MAOP is more than 125 psig (862 kPa).	Class 1 location	None
R	—All other onshore gathering lines	Class 1 and Class 2 locations	None.