

4010 – Documentation of Pipeline Construction

Effective 11/8/21

1. Required Documentation

Any addition or modification made to the pipeline system shall be documented on:

1. Transmission

1. In accordance with [§192.67\(a\)](#) and [§192.205\(a\)](#), pipe and all appurtenances installed after July 1, 2020 ***DESC will collect and retain for the life of the pipeline the following records documenting:***

1. Pipe – physical characteristics including diameter, yield strength, ultimate tensile strength, wall thickness, seam type and chemical composition in accordance with [§192.53](#) & [§192.55](#). Records must include tests, inspections, and attributes required by the manufacturing specifications applicable at the time the pipe was manufactured.

2. Components:

1. Valves – records documenting the manufacturing standards and pressure ratings

2. Other Components such as, flanges, fittings, branch connections, extruded outlets, anchor forgings, etc. with material yield strength grades, equal to or greater than 42,000 with nominal diameter of 2" or larger documenting manufacturing specification in effect at the time of manufacture including yield strength, ultimate tensile strength, and chemical composition

2. The following documents are required for all transmission projects to be filed as MAOP Records. The Transmission Project Records Checklist Form should be completed and submitted with all projects.

a) Construction As-Built

a. The weld map typically serves as the construction as-built for mainline pipe and fittings. The weld location file and the pipe detail form are attachments to this procedure. Both provide a template for as-built weld map content.

b. Detailed as-built drawings are required for stations and other configurations with fittings and components (i.e. tie-in locations). As-built drawings may also be appropriate for limited scope pipeline replacements or installations in lieu of a weld map. As-built drawings should contain the following information:

i. As-built bill of materials

1. Size, grade/rating, wall thickness, coating type, quantity/dimensions

ii. Material heat numbers and component serial numbers for pipe and components 2 inch nominal size and larger

iii. Welder and Inspector names

- iv. X-ray numbers (4 inch and larger) that tie back to non-destructive examination reports
 - v. Pressure test boundaries
 - vi. For underground facilities, GPS coordinates and/or stationing of tie-in locations and center point of fittings, depth of cover, transition coatings
- b) Purchase Records
 - a. Purchase Orders for all materials.
 - b. Packing Slips or material receipt documentation if available.
- c) Material Test Reports (MTRs) for pipe and fittings 2 inch nominal size and larger
- d) Component Certification Records for 2 inch nominal size and larger
 - a. Valve or component certification records and applicable cut sheets.
- e) Add / Modify Forms
 - a. Add/Modify/Verify for newly installed pressure rated fittings and/or components.
 - b. Add/Modify/verify forms for existing facilities exposed in bellhole, Add / Modify/Verify Aboveground Pipeline Record
- f) Weld and Non Destructive Examination Records
 - a. Welders shall be identified on the as-built drawings or weld map. Welder qualification records are maintained in the Operator Qualification system (Integrated Training Services).
 - b. X-ray examination reports shall be archived with project records and shall be easily traced back to the as-built drawings or weld map.
- g) Pressure Test
 - a. Pipeline Test Report form shall be filled out and complete with test pressure, test medium, calibration information, test duration, and final signature.
 - b. Test log data shall be included as a record.
 - c. Pressure test boundaries must be clearly described in as-built drawings or detailed written description shall be provided.
- h) MAOP Verification
 - a. All transmission projects must include an MAOP verification for as-built materials in accordance with 192.127. See MAOP Verification Form.
 - b. MAOP verification report performed by a third party may be used in lieu of the MAOP Determination Form.

c. Other design considerations must be documented such as external pressure and loads.

3. Additional Supporting Documents to be used for DESC As-Built / close out purposes should include but are not limited to the following:

- a) Work procedures, reference welding procedures and construction standards.
- b) Permits (ACOE, SCDHEC, SCDOT, County)
- c) Inspector Daily Reports
- d) Bore Logs
- e) Material Receipts

4. As-built record collection and organization shall be indexed and organized consistent across all projects. The in-process file structure shall align with Gas Operations records management hierarchy. See [Table 4010-1](#).

5. Electronic record naming convention should be easily auditable. The following naming convention is suggested so that file naming is consistent between projects:

Document Type_Project Number_Project Name_Additional Detail

Examples:

- Design Report_G54321_12th Street Main Ext _HDD Design
- Procedure_G54321_12th Street Main Ext_Blowdown-Construction
- As-Built_G54321_12th Street Main Ext _Main St Reg Station
- Weld Map_G54321_12th Street Main Ext
- MTR_G54321_12th Street Main Ext _8in Pipe
- Pressure Test_G54321_12th Street Main Ext _8in main

Table 4010-1: Gas Operations Records Management Hierarchy

Record Type	Sub-Type	Document Types
Design	Drawing	Design drawings
	Procedure	Work procedures, reference standards
	Engineering Report	Bid Package; Bore Path; Design Calculation; Geotech Report; Subsurface Utility Report; Synergee Model; SC811 Ticket; Service Order; Preconstruction Meeting Form; Station Design Form; Add/Modify Station Form
Correspondence		Email; Job Site Contact;
Permitting	Environmental	Storm water Permit; Wetlands Delineation
	DOT/County/Muni	SCDOT Permit; County Permit; City Permit

	Other	Railroad Permit, Utility Encroachment Permit
Land Rights	Fee Property	Fee Property
	Easement	Easement; Land Plat
Procurement	Material	Material Purchase Order, Requisition, Contract, Bill of Materials, Packing List, Receipt, Invoice
	Labor	Labor Purchase Order, Contract, Receipt, Invoice
Pictures		Picture; Video
Construction As-Built	Drawing	As Built, Operations Cover Sheet, Strip Map
	Engineering	HDD As Built; Records Inventory Form, SCE&G General Data Sheet, SCE&G MAOP Review
	Material	Fittings, Pipe, Valves, MTR, Add/Remove/Modify Sheet
	Miscellaneous	Inspector Daily Report; Repair; Pipeline Inspection/Exposed Pipe Form; Black Plastic Checklist, Excavation Checklist, Tapping Checklist, Pre Job Brief
	Testing	Pressure Test Report, NDT Report
Regulatory Engineering		Ops Cover Sheet, CEI MAOP Calculation, Historical MAOP Form, Historical Regulations, SCE&G General Data Sheets, SCE&G MAOP Reviews, SCPC MAOP Calculation, SCPC MAOP Map, Legal Transfer Documents, Property Acct Ledger
Miscellaneous		Leak/Damage/Failure Report

2. High Pressure Distribution Mains (MAOP > 60 psig but less than 20% SMYS)

1. Installation of Material Properties and Attributes

1. Records establishing pipeline characteristics including diameter, wall thickness, seam type and grade (e.g. yield strength, ultimate tensile strength, or pressure rating for pressure rating for valves and flanges, etc.) should be gathered in a manner similar to transmission mains noted above.
2. Documentation pertaining to installation of appurtenances of any size that are directly installed on a transmission pipeline and cannot be isolated from transmission mainline pressures shall, at a minimum, contain the information in the preceding paragraph.

2. Additional Supporting Documents to be used for DESC As-Building / Close Out Purposes should include but are not limited to the following: Permits (ACOE, SCDHEC, SCDOT, County); Inspector Daily Reports; Bore Logs; Material Receipts.

3. Medium Pressure Distribution Mains (MAOP < 60 psig)-Document various attributes on the Construction As-Built, Add/Modify Valve Record, Add/Modify Fitting Sheet, and Pipeline Test Report form for distribution mains.

1. Additional Supporting Documents to be used for DESC As-Building / Close Out Purposes should include but are not limited to the following: Permits (ACOE, SCDHEC, SCDOT, County); Inspector Daily Reports; Bore Logs; Material Receipts.

4. Services-Document on the As-Built Service Order Form for service lines.

Modifications or additions may include but are not limited to new construction, pipeline enhancements, repairs and cathodic protection enhancements. Section 4 below contains a copy of the Weld location spreadsheet. Other documents referenced are housed in various locations within the D&I and O&M Manual, and shown below in Section C. Station as-built template applicable to newly designed stations only, where this template does not exist for regulator/stations on transmission/high pressure pipelines Weld Location Spreadsheet and drawings should be utilized to properly identify station components.

2. Information That Should Be Reported Location Documentation

All applicable sections of the Weld location spreadsheet shall be completed, and the pipeline system drawing should include the following information:

1. Location - If possible, distances to the centerline of two perpendicular roads should be noted to locate the pipeline system including cathodic protection equipment. Linear measurements should also be made to fittings and components. Lengths of pipe should be noted on the drawing. Names of streets and landmarks should be noted. Accuracy is essential for one to locate the pipeline after it has been buried.
2. Pipe or Components - The type of pipe, fittings, and other should be clearly noted on the drawing. If applicable, the following information should be noted: material, outer diameter, wall thickness, coating, DESC Item number, manufacturer and model/figure number. Generally, this information may be obtained by visually examining the pipe or component. Other information may be obtained from the receiving document, including but not limited to; ANSI rating, pressure rating, serial number, manufacturer and manufacturer part number.
3. Mill Test Reports are required to be kept and noted in as-built forms/documentation for materials installed to operate as steel transmission and high pressure operating >100 psig.
4. Approximate Pipeline Depth - The approximate pipeline depth should be noted at points along the pipeline. Field conditions will dictate how often the burial depth should be noted.
5. North Arrow
6. Any Other Pertinent Information - Other pertinent information such as pipe-to-soil readings, new structures near the pipeline, etc.

3. Referenced Documents

1. [Add / Modify Pipe Record](#)
2. [Add / Modify / Remove Valve Record](#)
3. [Add / Remove Fitting Record for Mains](#)
4. [Pipeline Test Report](#) (and supporting documentation, i.e. test chart, digital gauge test report, etc.)
5. [Add / Modify / Verify Transmission Record](#)
6. [Add / Modify Aboveground Pipeline Record](#)
7. [Weld Location Spreadsheet](#) (Attachment 1)

4. Attachments

[Weld Location File \(Excel\)](#)

[Weld Location Spreadsheet \(pdf\)](#)

[Pipe Detail Form \(pdf\)](#)

[Pipe Detail Identification \(pdf\)](#)

[X-Ray Identification \(pdf\)](#)

[Cover Sheet \(pdf\)](#)

[Welder X-Ray ID \(pdf\)](#)

[Welder Stencil \(pdf\)](#)

[MAOP Verification Form \(Excel\)](#)

[Transmission Project Records Checklist \(pdf\)](#)

(UNCONTROLLED IF PRINTED)