

EVALUATION REPORT OF LIQUID PIPELINE CONSTRUCTION

Unless otherwise noted, all code references are to 49CFR Part 195. S – Satisfactory U – Unsatisfactory N/A – Not Applicable N/C – Not Checked
 If an item is marked U, N/A, or N/C, an explanation must be included in this report.

A completed **Standard Inspection Report** is to be submitted to the Director within 60 days from completion of the inspection. A **Post Inspection Memorandum (PIM)** is to be completed and submitted to the Director within 30 days from the completion of the inspection, or series of inspections, and is to be filed as part of the **Standard Inspection Report**.

Inspection Report		Post Inspection Memorandum	
Inspector/Submit Date: _____		Inspector/Submit Date:	
		Peer Review/Date:	
		Director Approval/Date:	
POST INSPECTION MEMORANDUM (PIM)			
Name of Operator:		OPID #:	
Name of Unit(s):		Unit #(s):	
Records Location:		Activity #	
Unit Type & Commodity:			
Inspection Type:		Inspection Date(s):	
PHMSA Representative(s):		AFO Days:	

Summary:

Findings:

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Name of Operator:			
OP ID No. ⁽¹⁾		Unit ID No. ⁽¹⁾	
HQ Address:		System/Unit Name & Address: ⁽¹⁾	
Co. Official:		Activity Record ID No.:	
Phone No.:		Phone No.:	
Fax No.:		Fax No.:	
Emergency Phone No.:		Emergency Phone No.:	
Persons Interviewed	Title	Phone No.	
PHMSA Representative(s) ⁽¹⁾		Inspection Date(s) ⁽¹⁾	
Company System Maps (Copies for Region Files):			
Description of Construction ⁽¹⁾			

¹ Information not required if included on page 1.

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PIPE SPECIFICATIONS		
.51	.112	Steel Pipe
		▪ Manufacturer:
		▪ Manufacturing Standard:
		▪ Pipe Grade:
		▪ Outside Diameter (D):
		▪ Wall Thickness (t):
		▪ Type of Longitudinal Seam:
		▪ Specified Min. Yield Strength (S):
		▪ Joint Design - Bevel:
		▪ External Coating:
		▪ Internal Coating:
		▪ Minimum Joint Length:
	▪ Footage or Miles:	

Comments:

.100	DESIGN REQUIREMENTS		S	U	N/A	N/C
		.102	Check temperature rating (particularly if this is a CO2 line).			
	.104	All components are consistent with pressure rating. (consider MOP changes along PL)				
	.106	Pipeline design formula: $P = (2St/D) \times F \times E \times T$ F = .72 most cases F = other, Special Permit (typically 0.8) F = 0.6 offshore platform, risers, inland navigable waters F = 0.54 cold expanded to meet minimum SMYS				
	.108	External design pressure.				
	.110(a)	Design pipeline system to anticipated external loads, e.g., earthquakes, vibration, thermal expansion, and contraction. Follow section 419 of ASME/ANSI B31.4 for expansion and flexibility.				
	.110(b)	Pipe/components supported in a manner to minimize localized stresses. Compute and compensate for stresses to the pipe wall caused by attachments to the pipe.				
	.111	CO2 lines must be designed to mitigate fracture propagation				
	.112(b)	Pipe manufactured in accordance to API or ASTM.				
	.112(c)	Mark each length of pipe $\geq 4\frac{1}{2}$ inches OD to indicate SMYS or grade, pipe size, and specification.				
	.114	Used pipe installed in a pipeline system must comply with §195.112(a) and (b) and the following:				
		▪ Known API or ASTM specification, seam joint factor determined IAW .106(e), unknown yield or wall thickness IAW .106(b) or (c) as appropriate.				
		▪ Free of buckles, cracks, grooves, gouges, dents, corroded areas, or other surface defects that exceed the maximum depth.				
		▪ Depth of the corroded areas - is the remaining wall thickness equal to or greater than the minimum required by the tolerance in specifications, or MOP reduced.				
	.116	Valves installed in the pipeline system must comply with the following:				
		(a) ANSI/API Spec 6D, 23 rd edition April 2008, and errata 3 (2009)				
		(b) Compatible with the pipe or fittings to which the valve is attached.				
		(c) Compatible with carbon dioxide or each hazardous liquid the pipeline may carry.				
		(d) Both hydrostatically shell and seat tested without leakage.(Sect. 11 API 6D)				
		(e) Equipped with a means for clearly indicating valve position (open, closed, etc).				
		(f) Marked on the body or nameplate with the following:				
		(1) Manufacturer's name or trademark.				

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.100	DESIGN REQUIREMENTS			S	U	N/A	N/C
		(2)	Class designation or maximum working pressure.				
		(3)	Body material.				
		(4)	Nominal size.				
	.118(a)	Butt-welding type fittings meet marking, end preparation, and bursting requirements of ANSI B16.9, (December 2007 edition) , or MSS SP-75-2004 .					
	.118(b)	Fittings must be free of any buckles, dents, cracks, gouges, or other defects that might reduce strength.					
	.118(c)	Fittings must suitable for the intended service and at least as strong as the pipe and other fittings in the pipeline system to which it is added.					
	.120	New and replaced line pipe, valve, fitting, or other line component designed and constructed to accommodate the passage of instrumented internal inspection devices.					

Comments:

.200	CONSTRUCTION REQUIREMENTS			S	U	N/A	N/C
SPECIFICATIONS							
	.202	Comprehensive written construction specifications.					
	.204	Qualified inspector performing inspections.					
	.206	Materials visually inspected at site of installation for damage or service impairment					
	.207	Pipe transported in accordance with API RP 5L1 (6 th edition, July 2002), or 5LW (2 nd edition effective March 1, 1997), as applicable					
	.208	Supports and braces not welded to the pipe operating above 100 p.s.i.					
	.210(a)	Pipeline ROW selected to avoid areas containing private dwellings, industrial buildings, and places of public assembly.					
	.210(b)	Pipeline located within 50 feet of any private dwelling, industrial building, or place of public assembly provided with at least an additional 12 inches of cover .					
	.212(b)	Field bends cannot be wrinkle bends and made in compliance with:					
		(1)	Not impair serviceability.				
		(2)	Smooth, free from buckles, cracks, or mechanical damage.				
		(3)	Longitudinal weld near neutral axis unless - an internal bending mandrel is used; or pipe is ≤ 12 ¾ inches or D/t ratio is less than 70% .				
INSTALLATION OF PIPE							
	.246(a)	Pipe installed to minimize stresses and protect the pipe coating from damage.					
	.248(a)	Installed with appropriate cover and below cultivation (refer to table below)					

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.200	CONSTRUCTION REQUIREMENTS		S	U	N/A	N/C
	Location	Cover (inches) For Normal Excavation For Rock Excavation ¹				
	Industrial, commercial, and residential areas	36 30				
	Crossings of inland bodies of water with a width of at least 100 ft from high water mark to high water mark	48 18				
	Drainage ditches at public roads and railroads	36 36				
	Deepwater port safety zone	48 24				
	Gulf of Mexico and its inlets in water less than 15 ft deep as measured from the mean low tide.	36 18				
	Other offshore areas under water less than 12 ft deep as measured from the mean low tide.	36 18				
	Any other area	30 18				
	Additional cover required by 195.210.	As Above + 12 As Above + 12				
	¹ Rock excavation is defined as any excavation that requires blasting or removal by equivalent means.					
	.248(b)	If minimum cover prescribed above cannot be attained because it is impracticable to do otherwise additional protection being provided as required				
	.250	12 inches of clearance between the pipeline and any other underground structure.				
	.252	Backfilling performed in a manner that provides firm support for the pipe and does no damage to the coating				
	.256	Pipe at each railroad or highway crossing installed so as to adequately withstand the dynamic forces exerted by anticipated traffic loads.				
	VALVES					
	.258(a)	Install valve in a location, accessible to authorized employees and protected from damage or tampering.				
	.258(b)	Each submerged valve located offshore or in inland navigable waters must be marked, or located by conventional survey techniques, to facilitate quick location when operation of the valve is required.				
	.260	Valves installed at each of the following locations:				
	(a)	On the suction end and discharge end of a pump station in a manner that permits isolation of the pump station equipment in the event of an emergency.				
	(b)	On each line entering or leaving a breakout storage tank area in a manner that permits isolation of the tank area from other facilities.				
	(c)	On each mainline at locations along the pipeline system that minimizes damage or pollution from accidental hazardous liquid discharge, as appropriate for the terrain in open country, for offshore areas, or for populated areas.				
	(d)	On each lateral takeoff from a trunk line in a manner that permits shutting off the lateral without interrupting the flow in the trunk line.				
	(e)	On each side of a water crossing that is more than 100 feet wide from high-water mark to high-water mark unless a waiver has been granted for a particular case where valves not are justified.				
	(f)	On each side of a reservoir holding water for human consumption.				

Comments:

.200	WELDING		S	U	N/A	N/C
	.214(a)	Welding must be performed by qualified welders using qualified welding procedures.				
		Welding procedures are qualified in accordance with Sec. 5 of API 1104 or Section IX of ASME Boiler & Pressure Code				
		Welding procedures must be qualified by destructive testing.				

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.214(b)	Each welding procedure must be recorded in detail, including results of qualifying tests.				
.222(a)	Welders must be qualified in accordance with Section 6 of API Standard 1104 (20 th edition 2007, including errata 2008) or Section IX of the ASME Boiler and Pressure Vessel Code (2007 edition), except that a welder qualified under an earlier edition than listed in 195.3 may weld, but may not requalify under that earlier edition.				
.222(b)	Welders may not weld with a particular welding process unless, within the preceding 6 calendar months, the welder has – (1) Engaged in welding with that process; and (2) Had one weld tested and found acceptable under Section 9 of API 1104.				
.224	Welding operations protected from weather conditions.				
.226(a)	Arc burns require repair.				
.226(b)	If a notch is not repairable by grinding, a cylinder of the pipe containing the entire notch must be removed. Do arc burn repair procedures require verification of the removal of the metallurgical notch by nondestructive testing? (Ammonium Persulfate).				
.226(c)	Ground not welded to pipe.				
.228(a)	Welding must be inspected to insure compliance with the requirements of this subpart (line-up, pipe not in a bind, API 1104 requirements, welding procedures followed, etc). Visual inspections must be supplemented by nondestructive testing.				
.228(b)	Except for cracks, acceptability of welds per Section 9 or Appendix A, API 1104 .				
.230(a)	Remove or repair cracks \leq 8% , remove cracks longer than 8% .				
.230(b)	Welds repaired, remove defect down to clean metal, preheat pipe, and assure acceptability.				
.230(c)	Repairs in a previously repaired area must be in accordance with qualified written welding procedures and mechanical properties of the repaired weld equal to those specified for the original weld.				

Comments:

.200	NONDESTRUCTIVE TESTING OF WELDS				S	U	N/A	N/C
	.228/.234	Detailed written procedure established and qualified for nondestructive testing.						
.234(b)	Nondestructive testing of welds must be performed:							
	(1) In accordance with written procedures for NDT .							
	(2) Radiographer trained and qualified. (Level II or better).							
	(3) By a process that will indicate any defects that may affect the integrity of the weld							
.234(c)	Procedures established for proper interpretation.							
.234(d)	Nondestructively test 10% of each welder's welds per day.							
.234(e)	Test 100% or 90% , if impractical.							
	(1) Stream, river, lake, reservoir, or other body of water.							
	(2) Within railroad or public road ROWs.							
	(3) Overhead road crossings and within tunnels.							
	(4) Within the limits of any incorporated subdivision.							
	(5) Within populated areas such as residential subdivisions.							
.234(f)	100% of all girth welds nondestructively tested on used pipe.							
.234(g)	Test 100% of girth welds at tie-ins.							

Comments:

CORROSION PROTECTION REQUIREMENTS				S	U	N/A	N/C
.557	Buried or submerged pipelines (constructed, relocated, replaced, or changed) must be externally coated prior to placing in service. See code for exceptions.						

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CORROSION PROTECTION REQUIREMENTS		S	U	N/A	N/C
	.561(a)	All external pipe coating inspected just prior to lowering the pipe into the ditch			
	.561(b)	Repair any coating damage discovered.			
	.563(a)	Adequate cathodic protection of the system.			
		Cathodic protection system installed 1 year . (refer. ADB note below)			
	.567	Sufficient number of test leads properly installed.			

Comments:

.266	CONSTRUCTION RECORDS		S	U	N/A	N/C
	Complete records showing the following:					
	(a)	Number of girth welds and number of nondestructively tested welds, including number and disposition of each rejected weld.				
	(b)	The amount, location, and cover of each size of pipe installed				
	(c)	The location of each crossing of another pipeline				
	(d)	The location of each buried utility crossing				
	(e)	The location of each overhead crossing				
	(f)	The location of each valve and corrosion test station				

Comments:

.300	PRESSURE TESTING		S	U	N/A	N/C
	.302(a)	Hydrostatic testing required:				
		1. The entire buried portion tested without leakage for 8 hours				
		2. The above ground portion tested for at least 4 hours (if visually inspected)				
	.304	Test pressure at least 4 continuous hours at a pressure equal to 125 percent, or more, of the MOP. If not visually inspected, at least an additional 4 hours at 110 percent of MOP.				
	.305	Hydrostatically test all pipe and attached fittings, including components, (unless - if a component is the only item being replaced or added - manufacturer certifies hydrostatically tested at the factory)				
	.306	Appropriate test medium				
	.308	Pipe associated with tie-ins either pretested or hydrostatically tested in place				
	.310(a)	Hydrostatic test records retained for the life of the facility tested				
	.310(b)	Do the hydrostatic test records include the following:				
		(1) Pressure recording charts				
		(2) Test instrument calibration data				
		(3) Operator's name, name of the person responsible for making the test, and the name of the test company used, if any				
		(4) Date and time of the test				
		(5) Minimum test pressure				
		(6) Test medium				
		(7) A description of the facility tested and the test apparatus				
		(8) An explanation of any pressure discontinuities, including test failures, that appear on the pressure recording charts				

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.300	PRESSURE TESTING			S	U	N/A	N/C
		(9)	Where elevation differences in the test section exceed 100 feet , a profile of the pipeline showing the elevation and test sites over the entire length of the test section				
		(10)	Temperature of the test medium or pipe during the test period				

Comments:

.501-.509	OPERATOR QUALIFICATION (OQ) FIELD VERIFICATION			S	U	N/A	N/C
	Operator Qualification - Use PHMSA Form 15 OQ Field Inspection Protocol Form if applicable.						