

**Utilities and Transportation Commission**  
**Standard Inspection Report for Intrastate Gas Systems**  
**Procedures and Plan Review**

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 **Inspection Checklist, Cover Letter and Field Report** are to be submitted to the Senior Engineer within **30 days** from completion of the inspection.

Inspection Report			
<b>Docket Number</b>	PG-090041		
<b>Inspector Name &amp; Submit Date</b>	Joe Subsits 4/06/2009		
<b>Sr. Eng Review/Date</b>	D. Lykken 4/7/2009		
Operator Information			
<b>Name of Operator:</b>	Air Liquide Industrial, U.S. LP	<b>OP ID #:</b>	1850
<b>Name of Unit(s):</b>	Kalama Plant		
<b>Records Location:</b>	Kalama		
<b>Date(s) of Last Review:</b>	N/A, First inspection	<b>Inspection Date</b>	March 23, 2009 to March 25, 2009

**Inspection Summary:**

Operations and Maintenance procedures Manual were reviewed. Several required items were not found. These are:

- a. 49 CFR 192.55 Steel Pipe
- b. 49 CFR 192.150 Passage of Internal Inspection Devices
- c. 49 CFR 192.179 Transmission Line Valves
- d. 49 CFR 192.463 External Corrosion Control: Cathodic Protection-(Criteria needs to reflect appendix D considering IR drop)
- e. 49 CFR 192.469 External Corrosion Control: Test Stations
- f. WAC 480-93-013 Covered Tasks

HQ Address:		System/Unit Name & Address:	
Air Liquide. Industrial U.S. LP 2700 Post Oak Blvd Suite 1800 Houston, Texas. 77056		Air Liquide Industrial U.S. LP 185 East Wind Road PO Box 10 Kalama, WA 98625	
<b>Co. Official:</b>	Mike Graff, President	<b>Phone No.:</b>	(360) 673-1400
<b>Phone No.:</b>	(713) 624-8000	<b>Fax No.:</b>	(360) 673-1428
<b>Fax No.:</b>	(713) 438-6990	<b>Emergency Phone No.:</b>	(360) 673-1488
<b>Emergency Phone No.:</b>	(713) 438-6302		
Persons Interviewed	Title	Phone No.	
Eric Thorstenson	Plant Manager	(360) 673-1400	
Bobby Skelton	Senior Maintenance Engineer	(713) 438-6351	
Kenny Ortamond	District Engineer	(979) 239-5266	

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GAS SYSTEM OPERATIONS		
Gas Supplier: Air Liquide		
Operating Pressure(s):	MAOP (Within last year)	Actual Operating Pressure (At time of Inspection)
Feeder:		
Town:		
Other: Hydrogen manufactured by Air Liquide	354 psig	280 psig max (based on compressor capacity)
Does the operator have any transmission pipelines?    yes		

Pipe Specifications:			
Year Installed (Range)	1997	Pipe Diameters (Range)	2-inch
Material Type	Steel	Line Pipe Specification Used	X-42, w.t. -.218 inch
Mileage	2.03 M	SMYS %	9 %

**49 CFR PART 191 & CHAPTER 480-93 WAC**

REPORTING PROCEDURES		S	U	N/A	N/C
1.	Telephonic reports to NRC (800-424-8802)    191.5	x			
2.	Telephonic Reports to UTC Pipeline Safety Incident Notification 1-888-321-9146 (Within 2 hours) for events which;    480-93-200(1) (eff 6/02/05)				
3.	(a) Results in a fatality or personal injury requiring hospitalization;	x			
4.	(b) Results in damage to the property of the operator and others of a combined total exceeding fifty thousand dollars;	x			
5.	(c) Results in the evacuation of a building, or high occupancy structures or areas	x			
6.	(d) Results in the unintentional ignition of gas;	x			
7.	(e) Results in the unscheduled interruption of service furnished by any operator to twenty-five or more distribution customers;			x	
8.	(f) Results in a pipeline or system pressure exceeding the MAOP plus ten percent or the maximum pressure allowed by proximity considerations outlined in WAC 480-93-020;	x			
9.	g) Is significant, in the judgment of the operator, even though it does not meet the criteria of (a) through (e) of this subsection; or	x			
10.	(h) Results in the news media reporting the occurrence, even though it does not meet the criteria of (a) through (e) of this subsection.	x			
11.	Telephonic Reports to UTC Pipeline Safety Incident Notification 1-888-321-9146 (Within 24 hours) for;    480-93-200(2) (eff 6/02/05)	x			
12.	(a) The uncontrolled release of gas for more than two hours;	x			
13.	b) The taking of a high pressure supply or transmission pipeline or a major distribution supply pipeline out of service;	x			
14.	(c) A pipeline or system operating at low pressure dropping below the safe operating conditions of attached appliances and gas equipment; or			x	
15.	(d) A pipeline or system pressure exceeding the MAOP.	x			
16.	Annual reports; (DOT Form F 7100.1)    191.11	x			
17.	30 day written incident (federal) reports; (DOT Form F 7100.2)    191.15(a)	x			
18.	Supplemental incident reports    191.15(b)	x			
19.	Written incident reports including supplemental reports (within 30 days); and include the following; 480-93-200(4) (a) thru (g) (eff 6/02/05)	x			

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REPORTING PROCEDURES			S	U	N/A	N/C
20.	480-93-180 (1)	Written report within 45 days of receiving the failure analysis of any incident or hazardous condition due to construction defects or material failure 480-93-200(5) (eff 6/02/05)	x			
21.		Annual Report (DOT Form PHMSA F-7100.2-1) 191.17(a)	x			
		Annual Reports filed no later than March 15 for the proceeding calendar year 480-93-200(6) (eff 6/02/05)				
22.	480-93-180 (1)	<ul style="list-style-type: none"> <li>A copy of PHMSA form F-7100.1-1 or F-7100.2-1 annual report required by the PHMSA/OPS 480-93-200(6)(a) (eff 6/02/05)</li> </ul>	x			
23.		<ul style="list-style-type: none"> <li>Annual Damage Prevention Statistics Report (eff 6/02/05) including the following; 480-93-200(6)(b)(i) thru (iii) (eff 6/02/05)</li> </ul>	x			
24.		Annual report on construction defects or material failures 480-93-200(6)(c) (eff 6/02/05)	x			
25.		Providing updated emergency contact information to the Commission and appropriate officials 480-93-200(7) (eff 6/02/05)	x			
26.		Providing daily construction and repair activities reports 480-93-200(8) (eff 6/02/05)	x			
27.		Submitting copy of DOT Drug and Alcohol Testing MIS Data Collection Form (when required) 480-93-200(9) (eff 6/02/05)	x			
28.		Safety related condition reports (SRCR) 191.23	x			
29.	Filing the SRCR within 5 days of determination, but not later than 10 days after discovery 191.25	x				

Documentation Reviewed:		
Document Title	Document/Section Number	Revision Date
Operations and Maintenance Manual	P-191.5	May 2008
Operations and Maintenance Manual	P-191.17	May 2008
Operations and Maintenance Manual	P-191.23	May 2008

**Comments:**  
System has 2 customers

49 CFR PART 192 SUBPART A – GENERAL CHAPTER 480-93 WAC – GAS COMPANIES---SAFETY			S	U	N/A	N/C
30.	480-93-180 (1)	Procedures for notifying new customers, within 90 days, of their responsibility for those selections of service lines not maintained by the operator. §192.16			x	
31.		Conversion to Service - Any pipelines previously used in service not subject to Part 192? 192.14	x			

Documentation Reviewed:		
Document Title	Document/Section Number	Revision Date
Operations and Maintenance Manual	P-192.161	May 2008

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**Comments:**  
Not a distribution system

SUBPART B - MATERIALS			S	U	N/A	N/C
		Are minimum requirements prescribed for the selection and qualification of pipe and components for use in pipelines 192.51				
32.	480-93-180 (1)	For steel pipe, manufactured in accordance with and meet the listed specification found under Appendix B 192.55		x		
		For new plastic pipe, qualified for use under this part if: 192.59(a)				
33.	480-93-180 (1)	<ul style="list-style-type: none"> <li>• It is manufactured in accordance with a listed specification; and 192.59(a)(1)</li> <li>• It is resistant to chemicals with which contact may be anticipated. 192.59(a) (2)</li> </ul>			x	
		For used plastic pipe, qualified for use under this part if: 192.59(b)				
34.	480-93-180 (1)	<ul style="list-style-type: none"> <li>• It was manufactured in accordance with a listed specification; 192.59(b)(1)</li> <li>• It is resistant to chemicals with which contact may be anticipated; 192.59(b)(2)</li> <li>• It has been used only in natural gas service. 192.59(b)(3)(4)</li> <li>• Its dimensions are still within the tolerances of the specification to which it was manufactured; and, 192.59(b)</li> <li>• It is free of visible defects. 192.59(b)(5)</li> </ul>			x	
35.		Marking of Materials 192.63	x			

Documentation Reviewed:		
Document Title	Document/Section Number	Revision Date
Operations and Maintenance Manual	P-192.305	May 2008

**Comments:**  
No plastic in system

SUBPART C – PIPE DESIGN						
		Procedures for assuring that the minimum requirements for design of pipe are met				
		For Steel Pipe	S	U	N/A	N/C
36.		Pipe designed of sufficient wall thickness, or installed with adequate protection, to withstand anticipated external pressures and loads that will be imposed on the pipe after installation. 192.103	x			
37.		Design formula for steel pipe. 192.105(a)	x			
38.	480-93-180 (1)	Yield strength (S) for steel pipe. 192.107				

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**SUBPART C – PIPE DESIGN**

39.	480-93-180 (1)	Nominal wall thickness (t) for steel pipe. 192.109 (a) & (b) (a) If the nominal wt is not known..... Determined by measuring the thickness of each piece of pipe at quarter points on one end unless..... (b) If the pipe is of uniform grade, size, and thickness and more than 10 lengths of pipeline, only 10 percent of the individual lengths, but not less than 10 lengths, need be measured. The thickness of the lengths that are not measured must be verified by applying a gauge set to the minimum thickness found by the measurement. The nominal wall thickness to be used in the design formula in §192.105 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 (508 millimeters) in outside diameter, nor more than 1.11 times the smallest measurement taken on pipe 20 inches (508 millimeters) or more in outside diameter.	x				
40.		Design factor (F) for steel pipe. 192.111					
41.		(a) Except as otherwise provided in paragraphs (b), (c), and (d) of this section, the design factor to be used in the design formula in §192.105 is determined in accordance with the following Class location Design factor (F) table. Class 1 0.72, Class 2 0.60, Class 3 0.50, Class 4 0.40	x				
42.		(b) A design factor of 0.60 or less must be used in the design formula in §192.105 for steel pipe in Class 1 locations that: (1) Crosses the right-of-way of an unimproved public road, without a casing; (2) Crosses without a casing, or makes a parallel encroachment on, the right-of-way of either a hard surfaced road, a highway, a public street, or a railroad; (3) Is supported by a vehicular, pedestrian, railroad, or pipeline bridge; or (4) Is used in a fabricated assembly, (including separators, mainline valve assemblies, cross-connections, and river crossing headers) or is used within five pipe diameters in any direction from the last fitting of a fabricated assembly, other than a transition piece or an elbow used in place of a pipe bend which is not associated with a fabricated assembly.	x				
43.		(c) For Class 2 locations, a design factor of 0.50, or less, must be used in the design formula in §192.105 for uncased steel pipe that crosses the right-of-way of a hard surfaced road, a highway, a public street, or a railroad.	x				
44.		(d) For Class 1 and Class 2 locations, a design factor of 0.50, or less, must be used in the design formula in §192.105 for- (1) Steel pipe in a compressor station, regulating station, or measuring station, and (2) Steel pipe, including a pipe riser, on a platform located offshore or in inland navigable waters.	x				
45.		Longitudinal joint factor (E) for steel pipe. 192.113	x				
46.	480-93-180 (1)	Temperature derating factor (T) for steel pipe. 192.115	x				
		<b>For Plastic Pipe</b>					
47.	480-93-180 (1)	Subject to the limitations of §192.123, for determining the design pressure for plastic pipe in accordance with either formula listed. 192.121				x	
48.		For assuring that the design limitations for plastic pipe are not exceeded. 192.123 (a) thru (e)				x	

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<b>Document Title</b>	<b>Document/Section Number</b>	<b>Revision Date</b>
Operations and Maintenance Manual	P-192.105	March 2009

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**Comments:**  
No plastic pipe in system

<b>SUBPART D – DESIGN OF PIPELINE COMPONENTS</b>		<b>S</b>	<b>U</b>	<b>N/A</b>	<b>N/C</b>
	For the design and installation of pipeline components and facilities, and relating to protection against accidental over-pressuring. 192.141				
49.	480-93-180 (1)	General requirements... 192.143	x		
50.		Qualifying metallic components. 192.144 (a) & (b)	x		
51.		For steel valves; meeting the minimum requirements of API 6D, or other standard that provides an equivalent performance level. 192.145 (a) thru (e)	x		
52.		For each flange or flange accessory (other than cast iron) must meet the minimum requirements of ASME/ANSI B16.5, MSS SP-44, or the equivalent. 192.147 (a) thru (c)	x		
53.		For ensuring that each new transmission line and each replacement of line pipe, valve, fitting, or other line component in a transmission line is designed and constructed to accommodate the passage of instrumented internal inspection devices. 192.150 (a) thru (c)		x	
54.		Components fabricated by welding. 192.153 (a) thru (d)	x		
55.		Welded branch connections. 192.155	x		
56.		Flexibility. 192.159	x		
57.		Supports and Anchors 192.161(a) (a) thru (f)	x		
	<b>Compressor Stations</b>				
58.	480-93-180 (1)	Compressor stations: Design and construction. 192.163 (a) thru (e)			x
59.		Compressor stations: Liquid removal. 192.165 (a) & (b)			x
60.		Compressor stations: Emergency shutdown. 192.167 (a) thru (c)			x
61.	480-93-180 (1)	Compressor stations: Pressure limiting devices. 192.169 (a) & (b)			x
62.		Compressor stations: Additional safety equipment. 192.171 (a) thru (e)			x
63.		Compressor stations: Ventilation. 192.173			x
64.		Pipe-type and bottle-type holders. 192.175			x
65.	Additional provisions for bottle-type holders. 192.177			x	
66.	480-93-180 (1)	Transmission line valves. 192.179 (a) thru (d)		x	
67.		Distribution line valves. 192.181(a) thru (c)			x
68.	480-93-180 (1)	Vaults: Structural design requirements 192.183 (a) thru (c)			x
69.		Vaults: Accessibility 192.185 (a) thru (c)			x
70.		Vaults: Sealing, venting, and ventilation. 192.187 (a) thru (c)			x

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<b>SUBPART D – DESIGN OF PIPELINE COMPONENTS</b>			<b>S</b>	<b>U</b>	<b>N/A</b>	<b>N/C</b>
71.	480-93-180 (1)	Vaults: Drainage and waterproofing 192.189 (a) thru (c)			x	
72.		Design pressure of plastic fittings 192.191 (a) & (b)			x	
73.		Valve installation in plastic pipe. 192.193			x	
74.		Protection against accidental over-pressuring 192.195 (a) & (b)			x	
75.		Control of the pressure of gas delivered from high-pressure distribution systems. 192.197 (a) thru (c)			x	
76.		Except for rupture discs, each pressure relief or pressure limiting device must: 192.199 (a) thru (h)			x	
77.		Required capacity of pressure relieving and limiting stations. 192.201(c)			x	
78.		Instrument, Control, and Sampling Pipe and Components 192.203(a) & (b)	x			

<b>Documentation Reviewed:</b>		
<b>Document Title</b>	<b>Document/Section Number</b>	<b>Revision Date</b>
Operations and Maintenance Manual	P-192.105	March 2009

**Comments:**

No regulated compressor stations in system, existing compressor station is considered processing equipment.  
 No bottle-type holder in system  
 Not a distribution system  
 No vaults in system  
 No plastic in system

<b>SUBPART E – WELDING OF STEEL IN PIPELINES</b>			<b>S</b>	<b>U</b>	<b>N/A</b>	<b>N/C</b>
<b>WAC 480-93-080 – WELDER &amp; PLASTIC JOINER IDENTIFICATION and QUALIFICATION</b>						
79.	480-93-180(1)	Welding procedures must be qualified under <b>Section 5 of API 1104</b> (19 <sup>th</sup> ed.1999, 10/31/01 errata) or <b>Section IX of ASME Boiler and Pressure Code</b> (2001 ed.) by destructive test. .225(a)	x			
80.		Retention of welding procedure – details and test .225(b)	x			
81.		Welders must be qualified by <b>Section 6 of API 1104</b> (19 <sup>th</sup> ed.1999, 10/31/01 errata) or <b>Section IX of ASME Boiler and Pressure Code</b> (2001 ed.) See exception in .227(b). .227(a)	x			
82.		Welders may be qualified under <b>section I of Appendix C</b> to weld on lines that operate at < <b>20% SMYS</b> . .227(b)	x			
		Oxyacetylene welders may qualify under 49 CFR § 192 Appendix C, but may only weld the	S	U	N/A	N/C

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		following size pipe: 480-93-080(1)(a) (eff 6/02/05)					
83.	480-93-180 (1)	<ul style="list-style-type: none"> <li>Nominal <b>two-inch</b> or smaller branch connections to nominal <b>six-inch</b> or smaller main or service pipe. 480-93-080(1)(a)(i)</li> </ul>			x		
84.		<ul style="list-style-type: none"> <li>Nominal <b>two-inch</b> or smaller below ground butt welds 480-93-080(1)(a)(ii)</li> </ul>			x		
85.	480-93-180(1)	<ul style="list-style-type: none"> <li>Nominal <b>four-inch</b> or smaller above ground manifold and meter piping operating at 10 psig or less. 480-93-080(1)(a)(iii)</li> </ul>			x		
86.		<ul style="list-style-type: none"> <li>Appendix C Welders re-qualified <b>2/Yr (7.5Months)</b> 480-93-080(1)(a)(iv)</li> </ul>			x		
87.		Use of testing equipment to record and document essential variables 480-93-080(1)(b) (eff 6/02/05)	x				
88.		Qualified written welding procedures must be located on-site where welding is being performed 480-93-080(1)(d)	x				
89.		Identification and qualification cards/certificates w/name of welder/joiner, their qualifications, date of qualification and operator whose qualification procedures were followed. 480-93-080(3) (eff 6/02/05)	x				
90.	480-93-180(1)	To weld on compressor station piping and components, a welder must successfully complete a destructive test .229(a)			x		
91.		Welder must have used welding process within the preceding <b>6 months</b> .229(b)	x				
92.		A welder qualified under .227(a)... .229(c)					
93.		<ul style="list-style-type: none"> <li>May not weld on pipe that operates at <math>\geq</math> 20% SMYS unless within the preceding 6 calendar months the welder has had one weld tested and found acceptable under the <b>sections 6 or 9 of API Standard 1104</b>; may maintain an ongoing qualification status by performing welds tested and found acceptable at least <b>twice per year</b>, not exceeding <b>7½ months</b>; may not requalify under an earlier referenced edition. .229(c)(1)</li> </ul>	x				
94.		<ul style="list-style-type: none"> <li>May not weld on pipe that operates at <math>&lt;</math> 20% SMYS unless is tested in accordance with .229(c)(1) or re-qualifies under .229(d)(1) or (d)(2). .229(c)(2)</li> </ul>	x				
		Welders qualified under .227(b) may not weld unless: .229(d)	S	U	N/A	N/C	
95.	480-93-180(1)	<ul style="list-style-type: none"> <li>Re-qualified within <b>1 year/15 months</b>, or .229(d)(1)</li> </ul>			x		
96.		<ul style="list-style-type: none"> <li>Within <b>7½ months</b> but at least <b>twice per year</b> had a production weld pass a qualifying test .229(d)(2)</li> </ul>			x		
97.		Welding operation must be protected from weather .231	x				
98.		Miter joints ( <b>consider pipe alignment</b> ) .233	x				
99.		Welding preparation and joint alignment .235	x				
100.		Visual inspection must be conducted by an individual qualified by appropriate training and experience to ensure: .241(a) thru (c)	x				
101.		Nondestructive testing of welds must be performed by any process, other than trepanning, that clearly indicates defects that may affect the integrity of the weld .243 (a) thru (f)	x				
102.		Repair or removal of defects.245 (a) thru (c)	x				
		<ul style="list-style-type: none"> <li>Sleeve Repair – low hydrogen rod (<b>Best Practices –ref. API 1104 App. B, In Service Welding</b>)</li> </ul>					

Documentation Reviewed:		
Document Title	Document/Section Number	Revision Date
Operations and Maintenance Manual	P-192.221	May 2008
Operations and Maintenance Manual	P-122.243	May 2008
Operations and Maintenance Manual	P-192.245	May 2008

**Comments:**  
No oxy-acetylene or appendix C welding performed  
No regulated compressor stations in system



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SUBPART F - JOINING OF PIPELINE MATERIALS OTHER THAN BY WELDING WAC 480-93-080 – WELDER & PLASTIC JOINER IDENTIFICATION and QUALIFICATION			S	U	N/A	N/C
103.		Joining of plastic pipe .281				
104.		A plastic pipe joint that is joined by solvent cement, adhesive, or heat fusion may not be disturbed until it has properly set. Plastic pipe may not be joined by a threaded joint or miter joint. .281(a)			x	
105.		Each solvent cement joint on plastic pipe must comply with the following: .281(b)			x	
106.		• The mating surfaces of the joint must be clean, dry, and free of material which might be detrimental to the joint. .281(b)(1)			x	
107.		• The solvent cement must conform to ASTM Designation: D 2513. .281(b)(2)			x	
108.		• The joint may not be heated to accelerate the setting of the cement. .281(b)(3)			x	
109.		Each heat-fusion joint on plastic pipe must comply with the following: .281(c)				
110.		• A butt heat-fusion joint must be joined by a device that holds the heater element square to the ends of the piping, compresses the heated ends together, and holds the pipe in proper alignment while the plastic hardens. .281(c)(1)			x	
111.		• A socket heat-fusion joint must be joined by a device that heats the mating surfaces of the joint uniformly and simultaneously to essentially the same temperature. .281(c)(2)			x	
112.	480-93-180(1)	• An electrofusion joint must be joined utilizing the equipment and techniques of the fittings manufacturer or equipment and techniques shown, by testing joints to the requirements of §192.283(a)(1)(iii), to be at least equivalent to those of the fittings manufacturer. .281(c)(3)			x	
113.		• Heat may not be applied with a torch or other open flame. .281(c)(4)			x	
114.		Each adhesive joint on plastic pipe must comply with the following: .281(d)				
115.		• The adhesive must conform to ASTM Designation: D 2517. .281(d)(1)			x	
116.		• The materials and adhesive must be compatible with each other. .281(d)(1)			x	
117.		Each compression type mechanical joint on plastic pipe must comply with the following: .281(e)				
118.		• The gasket material in the coupling must be compatible with the plastic. .281(e)(1)			x	
119.		• A rigid internal tubular stiffener, other than a split tubular stiffener, must be used in conjunction with the coupling. .281(e)(2)			x	
120.		Before any written procedure established under §192.273(b) is used for making plastic pipe joints by a heat fusion, solvent cement, or adhesive method, the procedure must be qualified by subjecting specimen joints made according to the procedure to the following tests: .283(a)				
121.		The burst test requirements of— .283(a)(1)				
122.		• Thermoplastic pipe: paragraph 6.6 (sustained pressure test) or paragraph 6.7 (Minimum Hydrostatic Burst Test) or paragraph 8.9 (Sustained Static pressure Test) of ASTM D2513 .283(a)(1)(i)			x	
123.		• Thermosetting plastic pipe: paragraph 8.5 (Minimum Hydrostatic Burst Pressure) or paragraph 8.9 (Sustained Static Pressure Test) of ASTM D2517; or .283(a)(1)(ii)			x	
124.	480-93-180(1)	• Electrofusion fittings for polyethylene pipe and tubing: paragraph 9.1 (Minimum Hydraulic Burst Pressure Test), paragraph 9.2 (Sustained Pressure Test), paragraph 9.3 (Tensile Strength Test), or paragraph 9.4 (Joint Integrity Tests) of ASTM Designation F1055. .283(a)(1)(iii)			x	
125.		For procedures intended for lateral pipe connections, subject a specimen joint made from pipe sections joined at right angles according to the procedure to a force on the lateral pipe until failure occurs in the specimen. If failure initiates outside the joint area, the procedure qualifies for use; and, .283(a)(2)			x	
126.		For procedures intended for non-lateral pipe connections, follow the tensile test requirements of ASTM D638, except that the test may be conducted at ambient temperature and humidity if the			x	

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		specimen elongates no less than 25 percent or failure initiates outside the joint area, the procedure qualifies for use. .283(a)(3)				
127.	480-93-180(1)	Before any written procedure established under §192.273(b) is used for making mechanical plastic pipe joints that are designed to withstand tensile forces, the procedure must be qualified by subjecting five specimen joints made according to the procedure to the following tensile test: .283(b)				
128.		<ul style="list-style-type: none"> <li>Use an apparatus for the test as specified in ASTM D 638 (except for conditioning). .283(b)(1)</li> </ul>			x	
129.		<ul style="list-style-type: none"> <li>The specimen must be of such length that the distance between the grips of the apparatus and the end of the stiffener does not affect the joint strength. .283(b)(2)</li> </ul>			x	
130.		<ul style="list-style-type: none"> <li>The speed of testing is 0.20 in. (5.0 mm) per minute, plus or minus 25 percent. .283(b)(3)</li> </ul>			x	
131.		<ul style="list-style-type: none"> <li>Pipe specimens less than 4 inches (102 mm) in diameter are qualified if the pipe yields to an elongation of no less than 25 percent or failure initiates outside the joint area. .283(b)(4)</li> </ul>			x	
132.		<ul style="list-style-type: none"> <li>Pipe specimens 4 inches (102 mm) and larger in diameter shall be pulled until the pipe is subjected to a tensile stress equal to or greater than the maximum thermal stress that would be produced by a temperature change of 100° F (38° C) or until the pipe is pulled from the fitting. If the pipe pulls from the fitting, the lowest value of the five test results or the manufacturer's rating, whichever is lower must be used in the design calculations for stress. .283(b)(5)</li> </ul>			x	
133.		<ul style="list-style-type: none"> <li>Each specimen that fails at the grips must be retested using new pipe. .283(b)(6)</li> </ul>			x	
134.		<ul style="list-style-type: none"> <li>Results pertain only to the specific outside diameter, and material of the pipe tested, except that testing of a heavier wall pipe may be used to qualify pipe of the same material but with a lesser wall thickness. .283(b)(7)</li> </ul>			x	
135.		A copy of each written procedure being used for joining plastic pipe must be available to the persons making and inspecting joints. .283(c)			x	
136.		Pipe or fittings manufactured before July 1, 1980, may be used in accordance with procedures that the manufacturer certifies will produce a joint as strong as the pipe. .283(d)			x	
137.	No person may make a plastic pipe joint unless that person has been qualified under the applicable joining procedure by: .285(a)					
138.	<ul style="list-style-type: none"> <li>Appropriate training or experience in the use of the procedure; and .285(a)(1)</li> </ul>			x		
139.	<ul style="list-style-type: none"> <li>Making a specimen joint from pipe sections joined according to the procedure that passes the inspection and test set forth in paragraph (b) of this section. .285(a)(2)</li> </ul>			x		
140.	The specimen joint must be: .285(b)					
141.	480-93-180(1)	<ul style="list-style-type: none"> <li>Visually examined during and after assembly or joining and found to have the same appearance as a joint or photographs of a joint that is acceptable under the procedure; and .285(b)(1)</li> </ul>			x	
142.		<ul style="list-style-type: none"> <li>In the case of a heat fusion, solvent cement, or adhesive joint; .285(b)(2)</li> </ul>			x	
143.		Tested under any one of the test methods listed under §192.283(a) applicable to the type of joint and material being tested; .285(b)(2)(i)			x	
144.		Examined by ultrasonic inspection and found not to contain flaws that may cause failure; or .285(b)(2)(ii)			x	
145.		Cut into at least three longitudinal straps, each of which is: .285(b)(2)(iii)			x	
146.		Visually examined and found not to contain voids or discontinuities on the cut surfaces of the joint area; and .285(b)(2)(iii)(A)			x	
147.		Deformed by bending, torque, or impact, and if failure occurs, it must not initiate in the joint area. .285(b)(2)(iii)(B)			x	
148.		A person must be requalified under an applicable procedure, if during any 12-month period that person: .285(c)				
149.	480-93-180(1)	<ul style="list-style-type: none"> <li>Does not make any joints under that procedure; or .285(c)(1)</li> </ul>			x	
150.		<ul style="list-style-type: none"> <li>Has 3 joints or 3 percent of the joints made, whichever is greater, under that procedure that are found unacceptable by testing under §192.513. .285(c)(2)</li> </ul>			x	
151.		Each operator shall establish a method to determine that each person making joints in plastic			x	

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		pipelines in the operator's system is qualified in accordance with this section. .285(d)					
		Plastic pipe joiners re-qualified 1/Yr (15 Months) 480-93-080 (2) (eff 6/02/05)					
152.	480-93-180(1)	<ul style="list-style-type: none"> <li>Qualified written plastic joining procedures must be located on-site where plastic joining is being performed. 480-93-080(2)(a)</li> </ul>				x	
153.		<ul style="list-style-type: none"> <li>Plastic pipe joiners re-qualified if no production joints made during any 12 month period 480-93-080(2)(b) (eff 6/02/05)</li> </ul>				x	
154.		<ul style="list-style-type: none"> <li>Tracking production joints or re-qualify joiners 1/Yr (12Months) 480-93-080(2)(c) (eff 6/02/05)</li> </ul>					x
155.	480-93-180(1) / 192.273(b)	No person may carry out the inspection of joints in plastic pipes required by §§192.273(c) and 192.285(b) unless that person has been qualified by appropriate training or experience in evaluating the acceptability of plastic pipe joints made under the applicable joining procedure. .287					x

Documentation Reviewed:		
Document Title	Document/Section Number	Revision Date

**Comments:**  
No plastic in system

SUBPART G – CONSTRUCTION REQUIREMENTS for TRANSMISSION LINES and MAINS			S	U	N/A	N/C
156.	480-93-180(1)	Compliance with specifications or standards. 192.303	x			
157.		Inspection of each transmission line and main during construction 192.305	x			
158.		Inspection of materials 192.307	x			
159.		Repair of steel pipe 192.309 (a) thru (e)	x			
160.		Repair of plastic pipe. 192.311				x
161.		Bends and elbows. 192.313 (a) thru (c)	x			
162.		Wrinkle bends in steel pipe. 192.315 (a) & (b)	x			
163.		Protection from hazards 192.317 (a) thru (c)	x			
164.		Installation of Pipe in a ditch 192.319 (a) thru (c)	x			
165.		Installation of plastic pipe. 192.321 (a) thru (h)				x
480-93-178 WAC PROTECTION OF PLASTIC PIPE			S	U	N/A	N/C
166.	480-93-180(1)	Procedures for the storage, handling, and installation of plastic pipelines in accordance with the latest applicable manufacturer's recommended practices. 480-93-178(1) eff 6/02/06)				x
167.		Stated acceptable time limit for maximum cumulative ultraviolet light exposure 480-93-178 (2) eff 6/02/06)				x
168.		Separation requirements when installing plastic pipelines parallel to other underground utilities 480-93-178 (4) eff 6/02/06)				x
169.		Separation requirements when installing plastic pipelines perpendicular to other underground utilities 480-93-178 (5) eff 6/02/06)				x
170.		Casings 192.323 (a) thru (d)	x			
171.		Casing of pipelines. 480-93-115 (1) thru (4)	x			

