



Description	The purpose of this procedure is to establish a method for visual inspections of welds.	
Regulatory Applicability	<input checked="" type="checkbox"/> Regulated Transmission Pipelines <input checked="" type="checkbox"/> Regulated Gathering Pipelines (Type A) ¹ <input checked="" type="checkbox"/> Regulated Gathering Pipelines (Type B) <input checked="" type="checkbox"/> Regulated Distribution Pipelines	
Frequency	As needed	
Reference	49 CFR 192.241 LA Title 43 Part XIII 1321	<i>Inspection and Test of Welds</i> <i>Inspection and Test of Welds</i>
Forms	F-192.225	<i>Pipeline Welding Packet</i>
Related Specifications	API 1004	<i>Welding of Pipelines and Related Facilities</i> ASME Boiler Pressure Vessel Code (Section 9)
OQ Covered Task	0641 <i>Visually Inspect Pipe and Components Prior To Installation</i> (In order to perform the tasks listed above, personnel must be qualified in accordance with West Texas Gas's Operator Qualification program or directly supervised by a qualified individual.) 0811 <i>Visual Inspection of Welding and Welds</i> (In order to perform the tasks listed above, personnel must be qualified in accordance with West Texas Gas's Operator Qualification program or directly supervised by a qualified individual.)	

¹ If the line is new, replaced, relocated or changed.



Procedure Steps

1. Review job specifications and welder certifications prior to beginning work.
 - a) Review job specifications, materials list and other applicable documentation. The review should answer questions about the procedures to be used, electrodes, and the acceptance standards to be followed for welding. If there are any conditions or circumstances that need clarification, bring them up during a pre-job meeting.
 - b) Review the welding procedures to be used. Ensure the welding procedures are appropriate for the materials to be welded - the wall thickness, diameter ranges and electrodes allowed. Evaluate the pre-heat and post-weld heat treatment requirements.
 - c) Review the welder qualifications to ensure the welders are certified for the welding they will perform. Verify the expiration date, materials, sizes, position, direction, joint design and electrodes for which each welder is qualified. Ensure that they are qualified to perform the procedure that will be used.
2. Visually inspect pipe, bevels, fit-up, line-up clamps, etc.
 - a) Visually inspect each pipe joint interior, remove any foreign matter immediately prior to installation. Properly clean the ends of each joint of pipe prior to alignment and welding.
 - b) Ensure that reasonable precautions are taken to keep pipeline free from dust, dirt, debris, or any other foreign material while the work is being done. Nightcaps should be installed on open-ended pipe at the end of each workday. Ensure that the nightcaps are watertight when installed below grade. Support pipe in such a manner to assure the section will not endanger job site personnel and the coating will not be damaged due to expansion and contraction or any other pipe movement. Where possible, place pipe supports approximately 8 feet from each field girth weld.
 - c) Ensure the bevels, both internal and external, are made by machine tool or machine-oxygen cutting and they meet the dimensional requirements of the appropriate welding procedure specification(s). Ensure the welding surfaces uniform, free of fins, laminations tears, scale, slag, oil, grease, paint, dirt, moisture and any other foreign material that might adversely affect welding or weld quality.
 - d) For below and aboveground piping, ensure that welded pipe is aligned so that longitudinal seams will be located on the bottom quarters. Rotate successive joints of pipe so that longitudinal seams of two successive joints of pipe are not aligned with each other. Ensure that minimum separation between weld seams is 20°.
 - e) Ensure the longitudinal seams are not located at the 6 o'clock position on pipe supports and pipe straps.
 - f) Ensure proper alignment is achieved immediately prior to welding. When external alignment clamps are used, ensure 50% of the root pass has been deposited before the clamps are removed. When internal alignment clamps are used, ensure 100% of the root pass has been deposited before the clamps are removed. Exception: When welding in a bell hole or other tie-in situations, hold pipe movement to a minimum until the root pass and the hot pass are complete.



- g) Do not allow heating of the pipe to obtain proper alignment for welding.
- h) Hammering of the pipe to attain alignment is not permitted.

3. Monitor welding equipment and welding operations.

- a) Make the electrical ground contact point of a material grade not greater than that of the line pipe material. Securely attach the ground to the bevel or an existing weld in such manner to prevent arc bums. Make the contact area large enough to prevent local overheating or arcing between the contact. There can be no magnetic ground clamps or magnets of any kind on the pipe during welding.
- b) Use insulated electrode holders on fabrication, repairs, or tie-ins. There can be no arc strikes or dragging of electrodes on the surface of the work. Confine striking of arcs within the welding groove. Treat any arc bum on a finished weld that results in pitting or loss of weld metal in the same manner as an arc strike outside the welding groove.
- c) Ensure that the maximum time lapse between weld passes as outlined on the welding procedure specification is being followed. Exception: Complete tie-in welds and live-line welding without interruption once welding is started.
- d) Ensure that specific preheating requirements and temperatures as outlined in the approved welding procedure specification are being used. Other conditions may exist where preheating is required. Preheat using a propane torch or other approved method. Do not use oil burners - they are not permitted. Check preheating temperatures just prior to the start of welding by using temperature-indicating crayons, thermocouple pyrometers, or by other approved methods. Make sure the preheated area extends at least 3" on each side of the weld preparation and is uniform around the pipe circumference. Do not permit the temperature in the weld area to fall below the required preheat temperature at any time during the welding process. If welding is interrupted for any reason make sure the weld is preheated to the proper temperature before welding is resumed.
- e) Ensure that slag and remaining flux is removed from each weld pass by hand power tools prior to deposition of additional weld metal. Ensure visible defects such as slag cavities, cold laps, surface porosity, starts, stops, and high points are removed by grinding. Make sure that no two adjacent or successive weld beads are started or stopped at the same location.
- f) Backwelding shall not be permitted as a routine welding practice. Determine whether to allow back welding for fabricated assemblies and pipeline weld repairs. Approve suitable back-welding prior to use.
- g) Make sure that used welding rods are placed in an appropriate bucket and not discarded on the ground.

4. Visually inspect completed welds

- a) Inspect before, during, and after welding operations. Ensure that the completed weld is brushed and thoroughly cleaned before the weld is visually inspected. Make sure the completed weld has a uniform appearance around the entire pipe circumference and that the weld surface and surrounding area is free of weld spatter.



- b) Ensure that each weld meets standards of acceptability prescribed in API 1104 (latest DOT-approved edition), unless otherwise specified in the job specifications, contract or drawings. The welding inspector shall be responsible for the final decision on weld acceptability.
- c) Make sure the nondestructive testing requirements (see Procedure P-192.243) are met.
- d) Order the repair or replacement of each weld or portion thereof that does not meet the visual and/or nondestructive acceptability requirements of the applicable code in accordance with procedure P-192.245 Repair and Removal of Weld Defects. The repair shall meet the same acceptance requirements as the original weld.
- e) Document the completed weld on Form F-192.225.