

# Issues Identified During PHMSA Inspection of 35 Construction Projects

Issue Areas	# Found	Issue Areas	# Found
<b>Coating - 117</b>			
<b>Coating - Fusion Bonded Epoxy Issues</b>	<b>18</b>	<b>Coating - Electronic Defect Detectors - (Jeeping)</b>	<b>36</b>
• Coating over mud or rust	3	• Failing to follow manufacturer's instructions	6
• Application temperature too hot or cold	3	• Low voltage setting on holiday detector	5
• Heat damage to the factory FBE coating	3	• Inadequate training of inspectors and contractors	4
• Failing to follow manufacturer's instructions	2	• Jeeping over tape and fiberboard stuck to the pipe	4
• Sand blast technique - no correct bevel / overlap at factory coating	2	• Failing to adequately clean the pipe before jeeping	4
• Coating in high wind with blowing dirt	2	• Failing to visually inspect pipe for coating defects	2
• Water in the pipe during heating	1	• Using damaged (bent) detector springs	2
• Coating specifications not available to inspectors	1	• High resistance in electrical circuit	2
• Girth weld coating not fully bonded to pipe	1	• Jeeping at too fast a speed per the spec or manufacturer	2
<b>Coating - Melt Stick</b>	<b>36</b>	• Jeeping over coating repairs before they are dry	2
• Failing to follow manufacturer's instructions	9	• Detector failing to identify defects	1
• Not adequately heating pipe before application	9	• Detector not calibrated per manufacturer	1
• Inadequate surface preparation - abrasion	7	<b>Coating - Two Part Epoxy Issues</b>	<b>27</b>
• Use on defects larger than 0.5 in <sup>2</sup>	6	• Failing to follow manufacturer's instructions	8
• Application over two part epoxy	3	• Inadequate surface prep - abrasion	4
• Improper accelerated drying by patting	1	• Application after epoxy starts to set	5
• Use on bare metal	1	• Inadequate mixing of the epoxy	5
		• Applying above or below recommended temp - or not pre-heating pipe	4
		• Using unapproved IR temperature sensors	1
<b>Welding - 87</b>			
<b>Mechanized Welding</b>	<b>37</b>	<b>Manual Welding</b>	<b>50</b>
• Coating damage caused by welding band	5	• Not following procedures	6
• Incomplete weld procedure qualification	4	• Lack of inspector oversight	6
• Pre-heat crew not using Tempilstiks	3	• Early clamp release	5
• Pipe size - Hi-Lo alignment issues	3	• Arc burns due to poor welding practices	5
• NDT falling behind main gang	3	• Incorrect pre-heat or interpass temp	4
• Lack of padding between pipe and skids	3	• Inadequate visual weld inspection	4
• Incorrect or inadequate placement of skid cribbing	3	• Improper storage of low hydrogen rods	3
• Lack of inspector oversight	3	• Welding inspectors not in possession of welding procedures	3
• Not following procedures	2	• Use of 'hinging' technique to aid with pipe line-up	3
• Incorrect pre-heat or interpass temp	2	• Pipe size - Hi-Lo alignment issues	3
• Improper use of Tempilstik - too near weld	1	• Improper gas flow rate for gas shielded processes	2
• Amps and Volts measured at machine not weld (only long leads)	1	• Inadequate defect repair tracking	2
• Moving pipe during root bead welding	1	• Incomplete qualification documents for welders	2
• Initial high defect rates	1	• Amps and Volts measured at machine not weld (for long leads)	1
• Inadequate defect repair tracking	1	• Inadequate defect removal on repair welds	1
• Inadequate quality and documentation of MUT	1		

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<b>Excavation - 20</b>			
• Inadequate use of rock shield, padding machines or selective backfill	5	• Insufficient pipeline weights	1
• Insufficient burial depth( to code or waiver)	3	• Excavating over the pipe without protection	1
• Ditch profile not matching pipeline causing inadequate support	3	• Not reviewing as-built drawings for parallel pipelines	1
• Dents caused by placing pipe on rocks	3	• No One-Call notifications	1
• Erosion of cover at streams	1		
<b>Nondestructive Testing - 20</b>			
• Essential wire or hole not visible on radiograph	3	• NDT records not adequate or up to date	3
• Testing to achieve only the minimum requirements of 192 or 195	1	• Incomplete qualification documents for technicians	2
• Poor radiographic technique - not meeting 1104 requirements	3	• Inadequate interpretation of radiographic results	2
• Not meeting the minimum 10% NDT requirements	2	• Film density not in spec	3
<b>Pipe and Miscellaneous Issues - 40</b>			
<b>Pipe</b>	<b>12</b>	<b>Bending</b>	<b>9</b>
• Pit defects in the pipe body	4	• Ripples out of tolerance	4
• Laminations	3	• Pipe seam not in neutral axis	2
• Pipe sizing issues and variability/damage to pipe ends	3	• Inadequate construction specification	1
• Low tensile strength and/or thin wall in some pipe	2	• Not using internal mandrel when required by procedures	1
<b>Hydrostatic Testing</b>	<b>4</b>	• Not following procedures	1
• Poor test in winter due to freezing of pressure equipment	1	<b>Lowering</b>	<b>7</b>
• Cracks discovered in girth welds during hydro test	1	• Inadequate boom spacing per the ECA requirements	5
• Improper pressure maintenance during hydro test	1	• Unrepaired coating defects at lowering	1
• Long seam failure	1	<b>Operation - Insufficient line markers</b>	<b>1</b>
<b>Design</b>	<b>3</b>	<b>Inadequate Operator Qualification Documentation If Applicable</b>	<b>1</b>
• Incorrect pipe wall thickness for class location	2	<b>Post Construction Documentation</b>	<b>1</b>
• Inadequate testing documentation for pipeline components	1	<b>End Facing</b>	<b>1</b>
		<b>Stringing - Long seam alignment/orientation</b>	<b>1</b>