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pipe shall be in the 6G position (inclined 45 degrees from horizontal). The sleeve shall be fitted with a backing bar for the long seam weld.

- 11.5.1.2. The welder shall follow WPS 200 while depositing the sleeve fillet weld. The long seam weld shall be deposited following any appropriate welding procedure based on the grade of sleeve used. At a minimum the welding heat input, joint configuration, including the joint bevel and root opening, travel speed and corresponding welding parameters shall be monitored to ensure compliance with the corresponding welding procedure.
- 11.5.1.3. The completed in-service qualification weld shall be inspected and tested in accordance with Section 11.3.1.1, as applicable, with the following exceptions.
- The in-service sleeve fillet weld shall be tested as a branch groove weld, with 4 nick break specimens being taken, per Figure 10 in API 1104.
  - The type and number of destructive test specimens for long seam welder qualification are provided in **Table 15**.

**Table 15. Type and Number of SMAW Welder Qualification Long Seam Weld Test Specimens**

Wall Thickness	Tensile	Number of Specimens				
		Nick Break	Root Bend	Face Bend	Side Bend	Total
≤0.500 in. (12.7 mm)	1	1	1	1	0	4

- 11.5.1.4. After successful completion of the IN-A welder qualification test the welder will be qualified to deposit in-service welds following any SMAW in-service welding procedure in accordance with **Table 16** and Section 11.2.

**Table 16. IN-A Welder Qualification Ranges for In-Service Welding**

Weld Direction	Filler Metal Group	Outside Diameter Range	Wall Thickness Range	Positions	Joints	Pipeline Operating Conditions
Uphill	Group 3	All	All	All	All In-service Weld Joints	All
Uphill	Group 3	All	0.188 – 0.750 inch	Horizontal, Flat or Overhead	All Long Seams on a Backing Bar	All

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### 11.5.2. IN-B Welder Qualification Requirements

- 11.5.2.1. The welder shall have a current B Welder qualification in accordance with Section 11.3.2. The welder shall complete a sleeve fillet weld and a sleeve long seam weld on a 8.625 inch outside diameter, minimum .250 inch thick API 5L pipe of any grade but shall have a maximum CEPCM of 0.25 or CEI IW of 0.43, as appropriate (See API 5L 9.2 for each formula). The pipe shall be filled with water and the water shall be allowed to flow during welding by welding caps on the pipe. The pipe shall be in the 6G position (inclined 45 degrees from horizontal). The sleeve shall be fitted with a backing bar for the long seam weld.
- 11.5.2.2. The welder shall follow WPS 200 while depositing the sleeve fillet weld. The long seam weld shall be deposited following any appropriate welding procedure based on the grade of sleeve used. At a minimum the welding heat input, joint configuration, including the joint bevel and root opening, travel speed and corresponding welding parameters shall be monitored to ensure compliance with the corresponding welding procedure.
- 11.5.2.3. The completed in-service qualification welds shall be inspected and tested in accordance with Section 11.3.1.1, as applicable, with the following exceptions.
- The in-service sleeve fillet weld shall be tested as a branch groove weld, with 4 nick break specimens being taken, per Figure 10 in API 1104.
  - The type and number of destructive test specimens for long seam welder qualification are provided in **Table 15**.
- 11.5.2.4. After successful completion of the IN-B welder qualification test the welder will be qualified to deposit in-service welds following any SMAW in-service welding procedure in accordance with **Table 17** and Section 11.2. Additionally, the IN endorsements keep the same max MAOP as the equivalent regular endorsement (see **Table 6**).

**Table 17. IN-B Welder Qualification Ranges for In-Service Welding**

Weld Direction	Filler Metal Group	Outside Diameter Range	Wall Thickness Range	Positions	Joints	Pipeline Operating Conditions
Uphill	Group 3	≤ 8.625 inch	All	All	All In-Service Weld Joints	All
Uphill	Group 3	≤ 8.625 inch	0.188 – 0.750 inch	Horizontal, Flat or Overhead	All Long Seams on a Backing Bar	All

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### 11.5.3. IN-C Welder Qualification Requirements

- 11.5.3.1. The welder shall have a current C Welder qualification in accordance with Section 11.3.3. The welder shall complete a sleeve fillet weld and a sleeve long seam weld on a 6.625 inch outside diameter, minimum .280 inch thick API 5L pipe of any grade but shall have a maximum CEPCM of 0.25 or CEIWI of 0.43, as appropriate (See API 5L 9.2 for each formula). The pipe shall be filled with water and the water shall be allowed to flow during welding by welding caps on the pipe. The pipe shall be in the 6G position (inclined 45 degrees from horizontal). The sleeve shall be fitted with a backing bar for the long seam weld.
- 11.5.3.2. The welder shall follow WPS 200 while depositing the sleeve fillet weld. The long seam weld shall be deposited following any appropriate welding procedure based on the grade of sleeve used. At a minimum the welding heat input, joint configuration, including the joint bevel and root opening, travel speed and corresponding welding parameters shall be monitored to ensure compliance with the corresponding welding procedure.
- 11.5.3.3. The completed in-service qualification welds shall be inspected and tested in accordance with Section 11.3.1.1, as applicable, with the following exceptions.
- The in-service sleeve fillet weld shall be tested as a branch groove weld, with 4 nick break specimens being taken, per Figure 10 in API 1104.
  - The type and number of destructive test specimens for long seam welder qualification are provided in **Table 16**.
- 11.5.3.4. After successful completion of the IN-C welder qualification test the welder will be qualified to deposit in-service welds following any SMAW in-service welding procedure in accordance with **Table 18** and Section 11.2. Additionally, the IN endorsements keep the same max MAOP as the equivalent regular endorsement (see **Table 6**).

**Table 18. IN-C Welder Qualification Ranges for In-Service Welding**

Weld Direction	Filler Metal Group	Outside Diameter Range	Wall Thickness Range	Positions	Joints	Pipeline Operating Conditions
Uphill	Group 3	≤ 6.625 inch	All	All	All In-Service Weld Joints	All
Uphill	Group 3	≤ 6.625 inch	0.188 – 0.750 inch	Horizontal, Flat or Overhead	All Long Seams on a Backing Bar	All

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## 11.6. Approval of Third Party Fabrication Contract Welder Qualifications

- 11.6.1. Third Party Fabrication Contract welders can be used to weld on NGBU facilities upon review and approval of the contract welder qualifications by a Welder Qualifier. The Third Party Fabrication Contractor Qualification Approval Form provided in Form C of WEL-PR-1000 shall be signed and dated by the Welder Qualifier accepting responsibility of the contract welder's qualifications. Qualifications to either API 1104 or ASME Section IX will be considered as acceptable.

## 11.7. Welder Qualification Maintenance and Limitations



**NOTE:** Welders shall maintain their qualification by having at least one weld destructively or nondestructively tested and found acceptable in accordance with the edition of API 1104 which is referenced in 49 CFR 192 at the time they are testing. Welders shall be tested a minimum of twice per year with the time between test welds not to exceed 7 ½ months.

- 11.7.1. The welder qualification maintenance weld shall be deposited following a qualified welding procedure for the process for which the welder was initially qualified. The welder shall deposit the entire qualification maintenance weld. Approved documentation for welder qualification maintenance is either an acceptable non-destructive test report of a production weld or acceptable destructive tests of a test weld in accordance with Sections 10-14, as applicable. If the welder qualification maintenance is based on a non-destructive test report of a production weld then the weld shall be deposited on a NGBU facility.
- 11.7.2. The welder qualification maintenance weld shall be scheduled by OQ personnel once the Veriforce system sends out a welder qualification expiration notification. Compression station welders shall maintain their welder qualification by destructive testing only.
- 11.7.3. The required documentation for welder maintenance is provided in Form N of WEL-PR-1000 and shall be filled out by the Welder Qualifier. If a welder fails to maintain their qualification or the interval for testing is exceeded the welder shall re-qualify in accordance with Section 11, as applicable.

## 11.8. Disqualification of Welders

- 11.8.1. During qualification, a Welder Qualifier can suspend welding operations of any welder whose ability to deposit an acceptable weld is in question. During construction welding a Welding Inspector or Welder Qualifier can suspend welding operations of any welder whose ability to deposit an acceptable weld is in question. Any welder who has more than two cutouts on any one job, the welder will be disqualified and will be asked to requalify at a later date. Any welder can be asked to requalify at any time if NGBU has any concern about the welder's competence or skill. Welder Certificates can only be pulled by a Welder Qualifier.
- 11.8.2. Consequences of failing a welder qualification test are covered in NGBU's Operator Qualification Plan. A welder who fails a qualification test because of

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an unavoidable condition or conditions beyond the welder's control, the welder may be given a second opportunity to qualify with approval from NGBU Technical Training and Operator Qualification.

#### 11.9. Documentation and Recordkeeping Requirements for Welder Qualifications



**NOTE:** *It shall be the responsibility of a Welder Qualifier to approve welders in accordance with this standard, review test results, confirm the acceptability of the welder's qualification, maintain qualification documentation, and maintain a list of qualified welders.*

- 11.9.1. Each welder qualification record must be recorded in sufficient detail on the forms provided in Form D through Form L of WEL-PR-1000, as applicable, and shall include the qualification test results.
- 11.9.2. New NGBU welders with previous documented experience can begin at any welder endorsement as determined and approved by the Welder Qualifier.

#### 12. Weld Inspection Practice

Details on weld inspection practice may be found in WEL-ST-1060 Non-Destructive Evaluation and Inspection of Steel Pipeline Welds, and WEL-PR-1080 Visual Inspection of Welds.

#### 13. Contact

Gas Engineering

#### 14. Appendices

Appendix A: Appendix C to Part 192—Qualification of Welders for Low Stress Level Pipe

#### 15. Revision Log

The table below documents the history of each revision issued and identifies the following: Revision Number, Date, Summary of Changes (including reason for change, and a list of Legacy Duke/Piedmont Documents used to integrate this document), Responsible Party (person or group facilitating changes).

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Rev #	Date	Summary of Changes	Responsible Party
0	03/31/2019	<ul style="list-style-type: none"> <li>Initial Issue</li> </ul> Legacy Documents incorporated into this Standard: <ul style="list-style-type: none"> <li>CM-ST-2170 <i>Fabrication</i></li> <li>CM-PL-4000 <i>PNG Welding Manual, Sections 4.3.6, 4.3.7, 4.4, and 4.5</i></li> </ul>	Members of Work Process Integration Team
1	04/11/2019	<ul style="list-style-type: none"> <li>Minor edit in Section 10.3 to add clarity</li> </ul>	Policies & Procedures Team
2	05/01/2019	Revised the "WHO" section, added Gas Engineering, Gas Field Operations, and Technical Field Operations  Added references for region specific procedures on sections: <ul style="list-style-type: none"> <li>10.6.1 - Qualification of Repair Butt Welding Procedures</li> <li>10.6.2 - Qualification of Repair Branch Groove or Fillet Welding Procedures</li> <li>10.7.4 - Qualification and Testing of In-Service Welding Procedures</li> <li>12 - Weld Inspection Practice</li> </ul> Legacy Documents incorporated into this Standard: <ul style="list-style-type: none"> <li>GD55.505-1 Welding Qualifications</li> <li>GD55.512-1 Limitations of Welders and Welding Processes</li> <li>6.1.1 Preparation Of Coupons For Tensile, Nick Break &amp; Guided Root Bend Tests</li> </ul>	Work Process Integration Team
3	03/09/2020	In section 10.1.2, added verbiage to clarify that welding miter joints is not permitted to address a Feb. 2020 PUCO Procedures Audit concern.	Policies and Procedures
4	07/09/2020	Revised sections 10.3, 10.6.1, 10.6.2, 10.7.4 and section 12. to reflect newly integrated Welding document references.	Policies and Procedures

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**Appendix: A    Appendix C to Part 192—Qualification of Welders for Low Stress Level Pipe**

I. *Basic test.* The test is made on pipe 12 inches (305 millimeters) or less in diameter. The test weld must be made with the pipe in a horizontal fixed position so that the test weld includes at least one section of overhead position welding. The beveling, root opening, and other details must conform to the specifications of the procedure under which the welder is being qualified. Upon completion, the test weld is cut into four coupons and subjected to a root bend test. If, as a result of this test, two or more of the four coupons develop a crack in the weld material, or between the weld material and base metal, that is more than 1/8 -inch (3.2 millimeters) long in any direction, the weld is unacceptable. Cracks that occur on the corner of the specimen during testing are not considered. A welder who successfully passes a butt-weld qualification test under this section shall be qualified to weld on all pipe diameters less than or equal to 12 inches.

II. *Periodic tests for welders of small service lines.* Two samples of the welder's work, each about 8 inches (203 millimeters) long with the weld located approximately in the center, are cut from steel service line and tested as follows:

- (1) One sample is centered in a guided bend testing machine and bent to the contour of the die for a distance of 2 inches (51 millimeters) on each side of the weld. If the sample shows any breaks or cracks after removal from the bending machine, it is unacceptable.
- (2) The ends of the second sample are flattened and the entire joint subjected to a tensile strength test. If failure occurs adjacent to or in the weld metal, the weld is unacceptable. If a tensile strength testing machine is not available, this sample must also pass the bending test prescribed in subparagraph (1) of this paragraph

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## 1. Purpose

To comply with federal and state regulations, the Duke Energy Natural Gas Business Unit (NGBU) has established this procedure to facilitate regulatory compliance and support safe, reliable operations during the visual inspection of welds. Accurate visual inspection of welds is necessary to prevent defective welds from being placed into service.

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## 2. Governing Code and References

- 49 CFR 192.241 *Inspection and Test of Welds*
  - 49 CFR 195.222 *Welders and Welding Operators: Qualification of Welders and Welding Operators*
  - 49 CFR 195.228 *Welds and Welding Inspection: Standards of Acceptability*
  - API Standard 1104 *Welding of Pipelines and Related Facilities – (currently incorporated by reference in CFR 192.7)*
  - API Standard 5L *Specification for Line Pipe – (currently incorporated by reference in CFR 192.7)*
  - [WEL-ST-1010](#) *Construction Field Welding & Fabrication*
  - [WEL-ST-1060](#) *Non-Destructive Evaluation and Inspection of Steel Pipeline Welds*
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## 3. State Specific Requirements

N/A

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## 4. Environmental Information

Refer to the Environmental Health and Safety Handbook or contact your Region's Environmental Field Support.

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## 5. Who

Fabrication Resources and the NGBU Representative are responsible for performing visual inspections.

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## 6. Safety Requirements

At Duke Energy, Health and Safety is a Core Company Value. Employees are responsible for maintaining the highest regard for safety while planning and conducting work.

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Employees are also responsible for ensuring a safe work environment exists for themselves, their coworkers and their surrounding community.

## 7. Procedures/Process

### 7.1. General

7.1.1. Visual inspection of welding must be conducted to ensure that:

7.1.1.1. The welding is performed in accordance with the welding procedure and NGBU's welding standards.

7.1.1.2. The weld is acceptable. The acceptability of a weld that is visually inspected is determined according to the standards in Section 6.4 of the API Standard 1104.

7.1.1.3. The NGBU reserves the right of rejection, following section 9.2 of API 1104, and may reject any weld that appears to meet acceptance standards of visual testing. The NGBU may reject any weld if the NGBU feels the discontinuities noted may be detrimental to the weld.

7.1.1.4. All welds present a neat work-man-like appearance.

7.1.2. Inspection requirements for all welds based on pipe outside diameter and MAOP are outlined in **Table 1**.

**Table 1.** Inspection Requirements for All Welds Based on Pipe Outside Diameter and MAOP.

Pipe Size	MAOP	% of Welds to be Visually Inspected <sup>^</sup>	% of Welds to be NDT
< NPS 2	All	100%	0%
≥ NPS 2	125 psi and less	100%	0%
≥ NPS 2	Over 125 psi	100%	100%
HDD	All MAOP's	100%	100%*

<sup>^</sup>Note: Reference Appendix O "Visual Weld Inspection Report Form" in WEL-PR-1000 in conjunction with this policy for documentation requirements subsequent to visual inspections.

\*Note: This excludes steel lines that are smaller than NPS 2"

7.1.3. Visual inspections are intended only to determine that welds are performed according to approved procedures by welders certified by the Company. The visual inspections do not replace leakage or strength tests.

7.1.4. Fabrication Resources and/or NGBU Representative are responsible for ensuring that the Inspectors in charge of welding projects have the proper training and experience. Each Inspector must understand and apply the

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requirements of API Standard 1104 and Subpart E of Part 192 – Minimum Federal Safety Standards, by:

7.1.4.1. Determining the acceptability of a weld under API Standard 1104.

7.1.4.2. Determining whether an unacceptable weld should be removed or repaired.

7.1.4.3. Ensuring the following steps are taken:

- Each Welder is currently qualified under the welding procedure being used, by actually viewing the up-to-date qualification card issued to the welder
- Each weld is made according to the written procedure and other instructions issued by NGBU Engineering
- The welding is performed in accordance with the welding procedure and as defined by Gas Standards
- The correct pipe is being welded
- The welding operation is protected from weather conditions that would impair the quality of the completed weld
- The welding surfaces are clean and free of any materials that might be detrimental to the weld;
- The materials being welded (pipe or components) are properly aligned while the root bead is being deposited
- Each defective weld is either repaired or removed in strict accordance with the welding procedures. The welding procedure used to create the original weld is the welding procedure that is allowed for the repair weld. If 2<sup>nd</sup> weld repairs (multiple repairs), or repairs of cracks are authorized by the NGBU, then a weld repair procedure in accordance with Section 10 of API 1104 will be used.

7.1.5. In addition to the requirements in 7.1.3, Transmission Inspectors must also meet the following requirements:

7.1.5.1. Be a current Certified Welding Inspector (CWI) by AWS (American Welding Society); or Certified Pipeline Welding Inspector (CPWI) by the National Welding Inspection School. These are accepted credentials for inspections of weldments on the NGBU pipeline.

7.1.5.2. Visual Examination personnel shall be capable of reading a Jaeger Number 1 test chart or equivalent, with or without corrected vision, at a distance of not less than 12”.

7.1.6. Many of the visual inspection requirements below are NGBU construction requirements from WEL-ST-1010. They are repeated here so that the person performing welding inspection duties knows which requirements to inspect before, during, and after welding.

7.2. Inspection Prior to Welding

7.2.1. Inspection of Pipe

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- 7.2.1.1. The pipe ends shall be free of dents, gouges, and have uniform roundness.
- 7.2.1.2. Grade of pipe and heat numbers should be verified
- 7.2.1.3. C.E. (carbon equivalency) checks will use the formula in API 5L.
- 7.2.2. Pipe Preparation
  - 7.2.2.1. The welding surfaces must be cleaned and be free of any material that may be detrimental to the weld.
- 7.2.3. Alignment
  - 7.2.3.1. The fit-up of the joint and bevel shall be visually inspected before the weld is made.
  - 7.2.3.2. The alignment of the abutting ends shall be such as to minimize the offset between surfaces and misalignment. For pipe of the same normal wall thickness the offset shall not exceed 1/8 inches.
  - 7.2.3.3. Misalignment will not exceed that as permitted in the designated welding procedure specification (WPS) or 1/8" when not specified.
  - 7.2.3.4. Mitering of joints is not permitted. A miter is defined as:
    - A deflection of more than 3° on steel pipe that will be operated at a pressure that produces a hoop stress of 30% or more of SMYS.
    - A deflection of more than 12.5° on steel pipe that will be operated at a pressure that produces a hoop stress of more than 10% but less than 30% of SMYS. Deflections 12.5° or less in this range must be at a distance equal to one pipe diameter or more away from any other deflection, as measured from the crotch of each joint.
    - A deflection of more than 90° on steel pipe that will be operated at a pressure that produces a hoop stress of 10% or less of SMYS.
  - 7.2.3.5. The longitudinal joints are offset by 90° (between 10 and 2 o'clock) and located in the top section of each pipe.
  - 7.2.3.6. Unequal wall thickness should be in accordance with ASME B31.8 Appendix I. The offset shall be equally distributed around the circumference of the pipe if within acceptable limits (see Appendix B).
  - 7.2.3.7. Line-up clamps shall be used where applicable. The aggregate of the weld length shall be at least 50% and uniformly placed, when using external clamps, prior to removing the clamps. When internal clamps are used, the root bead shall be completed before the clamp is removed.
  - 7.2.3.8. Fillet welds must be made with clean surfaces mated to the proper size.

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- The throat dimension (the actual theoretical throat) of a weld-o-let type fitting shall not be significantly modified so as to reduce the wall thickness of the fitting.

### 7.3. Inspection During Welding

#### 7.3.1. Welding Electrodes and Rods

- 7.3.1.1. Welding electrodes must be kept dry with flux intact.
- 7.3.1.2. Low hydrogen electrodes shall follow the manufacturer's guidelines for electrode storage. Five (5) lb. containers are recommended for use. Low hydrogen electrodes shall be placed in a storage oven that is operating and at temperature before four (4) hours of atmospheric exposure have elapsed.
- 7.3.1.3. Type and size shall be in accordance with the applicable welding procedure.

#### 7.3.2. Technique

- 7.3.2.1. All welding procedures shall be done in accordance with the specific WPS being used.
- 7.3.2.2. Clearance when the weld is completed above ground, at least 16" of space for the welder will be needed. When in the trench enough room will be provided for the welders to safely produce a quality weld.
- 7.3.2.3. Each weld bead shall be completed before the next bead is started.
- 7.3.2.4. Starts and stops will be staggered in such a manner as to not allow any series of starting weld buttons, or tie-ins, to stack upon each other.
- 7.3.2.5. Two welders (brother-in-law) will be used with 12" diameter and greater pipe during SMAW. NGBU may take exception to this if travel speed requirements are met, and the WPS is adhered to.
- 7.3.2.6. The butt weld root pass shall meet or extend uniformly past the inside surface of the pipe.
- 7.3.2.7. After completion of the stringer and each filler bead, the inspector shall check for proper slag removal and that all visible defects are removed or repaired before the next bead is started.
- 7.3.2.8. During weld repair, the same method used to discover the discontinuity will be used to re-inspect the repaired area.
- 7.3.2.9. Repairs will follow Section 10 of API 1104.
- 7.3.2.10. NGBU authorization is required for 2<sup>nd</sup> weld repairs (multiple repairs), and repairs of cracks. Repair authorization will be defined by the application of heat or weld metal. Grinding and filing will not constitute an application of heat or weld metal.
- 7.3.2.11. Welds repaired will be repaired in strict accordance with the welding procedures. The welding procedure used to create the

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original weld is the welding procedure that is allowed for the repair weld. If 2<sup>nd</sup> weld repairs (multiple repairs), or repairs of cracks are authorized by the NGBU, then a weld repair procedure in accordance with Section 10 of API 1104 will be used.

### 7.3.3. Weather

7.3.3.1. The welding operation will be protected from weather conditions that would impair the quality of the weld.

7.3.3.2. If the weather, such as high winds that the arc cannot be protected from, poses a risk to the quality of the weld and welding operations, welding operations shall not be allowed. The NGBU shall approve suitable welding conditions.

## 7.4. Inspection of Completed Weld

### 7.4.1. Cap Bead

7.4.1.1. Shall have a uniform cross section around the entire circumference of the pipe.

7.4.1.2. The butt weld cap pass shall be approximately 1/16 inch wider on each side of the original groove.

7.4.1.3. At no point shall the crown be below the surface level of the pipe and the cap should not be raised above the outside surface of the pipe by more than 1/16".

7.4.1.4. Any defects seen visually shall not exceed the limits presented in Section 9 of API 1104.

### 7.4.2. Undercutting

7.4.2.1. The depth of undercutting must not be more than 1/32" or 12.5% of the pipe wall thickness, whichever is smaller.

7.4.2.2. If the depth of undercutting is greater than 1/64" but less than or equal to 1/32", or greater than 6% but less than or equal to 12.5% of pipe wall thickness, whichever is smaller, then the maximum allowable length of undercutting is 2.0" of undercutting in a continuous 12" weld length or 1/6 the weld length, whichever is smaller.

7.4.2.3. If the depth of undercutting is less than or equal to 1/64" or 6% of the pipe wall thickness, whichever is smaller, then the undercut is acceptable, regardless of length.

### 7.4.3. Identification

7.4.3.1. The inspector should check each weld to assure that it is identified per the NGBU welding nomenclature, or as approved by the appropriate NGBU representative.

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**8. Associated Operator Qualifications and Technical Training**

Operator Qualifications (Covered Tasks) and Training may be required to perform all or part of this procedure. Please ensure you have completed the applicable Training and Operator Qualifications before performing a covered task.

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**9. Contact**

NGBU Engineering

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**10. Appendices**

- Appendix A: Fillet Welds and Recommended Attachment Details for Flanges
  - Appendix B: Permissible Mismatch of Wall Thickness for Butt Welding
- 

**11. Signature**

Reviewed and approved by:

*Steve Fields*  
Steve Fields (Jun 16, 2020 12:19 EDT)

*MPPetchul*  
MPPetchul (Jun 17, 2020 11:51 EDT)

*MA Phillips*  
MA Phillips (Jun 16, 2020 15:01 EDT)

*Brian Woody*  
Brian Woody (Jun 17, 2020 13:18 EDT)

---

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## 12. Revision Log

The table below documents the history of each revision issued and identifies the following: Revision Number, Date, Summary of Changes (including reason for change, and a list of Legacy Duke/Piedmont Documents used to integrate this document), Responsible Party (person or group facilitating changes).

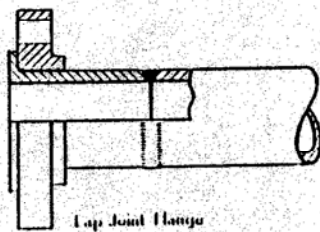
Rev #	Date	Summary of Changes	Responsible Party
0	6/23/2020	<ul style="list-style-type: none"> <li>Initial Issue</li> </ul> Legacy Documents incorporated into this procedure: <ul style="list-style-type: none"> <li>GD.60.738 <i>Weld Inspection – Visual</i></li> <li>GD55.500 <i>Visual and Radiographic Weld Inspection On Steel Pipelines, Section 3</i></li> <li>CM-PL-4000 <i>PNG Welding Manual, Section 7</i></li> </ul>	Members of Work Process Integration Team



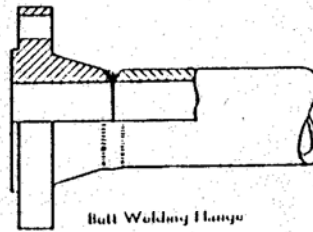
## Welding

### Appendix A: Fillet Welds and Recommended Attachment Details for Flanges

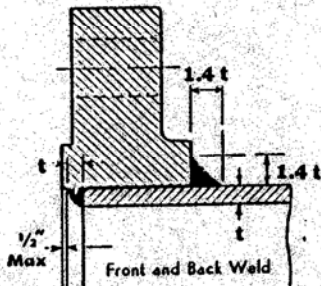
#### RECOMMENDED ATTACHMENT DETAILS OF FLANGES



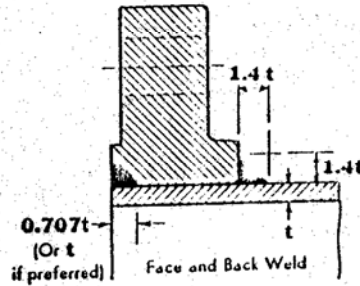
(1)



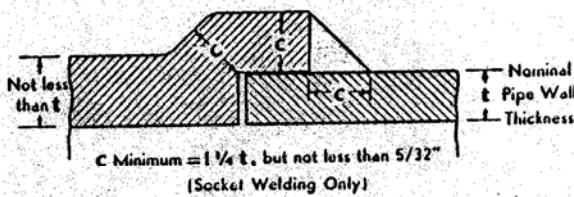
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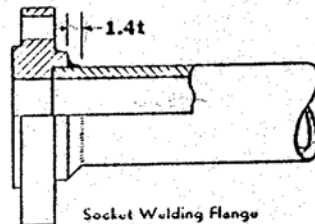
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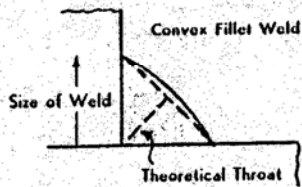
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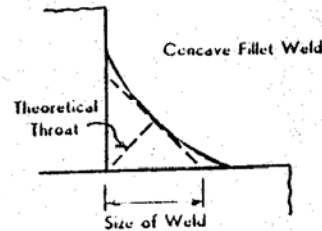
(5)



(6)



(7)



(8)



# Visual Inspection of Welds

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### Appendix B: Permissible Mismatch of Wall Thickness for Butt Welding

		PERMISSABLE MISMATCH OF WALL THICKNESS FOR BUTT WELDING																							
		X = <20% SMYS (<1/8")										B31.8 APPENDIX I													
		# = >20% SMYS (<3/32")																							
		0.120"	0.125"	0.154"	0.156"	0.172"	0.188"	0.203"	0.216"	0.219"	0.237"	0.250"	0.277"	0.281"	0.312"	0.322"	0.344"	0.365"	0.375"	0.438"	0.469"	0.500"			
0.120"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X		0.120"	
0.125"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.125"
0.154"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.154"
0.156"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.156"
0.172"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.172"
0.188"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.188"
0.203"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.203"
0.216"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.216"
0.219"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.219"
0.237"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.237"
0.250"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.250"
0.277"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.277"
0.281"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.281"
0.312"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.312"
0.322"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.322"
0.344"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.344"
0.365"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.365"
0.375"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.375"
0.438"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.438"
0.469"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.469"
0.500"	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	#	X	0.500"

To determine whether two wall thicknesses can be joined without special end preparation, the following steps shall be followed:

- First you must determine the MAOP of the line - X is used for under 20% SMYS and # is used for equal to/over 20% SMYS.
- Find the horizontal column for one of the wall thicknesses to be used.
- Follow the horizontal column until it intersects the vertical column for the other wall thickness.
- If an "X or #" appears at the intersection of the two columns, the wall thicknesses may be joined without special end preparation.
- If no "X or #" appears at the intersection of the two columns, the thicker section shall be tapered (1 on 4) to meet the thinner section or the joint shall be backed up by welding.

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## 1. Purpose

To comply with federal and state regulations, the Duke Energy Natural Gas Business Unit (NGBU) has established this procedure to facilitate regulatory compliance and support safe, reliable operations.

The purpose of this procedure is for the installation of welded fittings on in-service piping for distribution and transmission systems.

---

## 2. Governing Code and References

- 49 CFR 192.225 *Welding Procedures*
  - [CM-ST-1300](#) *Pressure Testing*
  - [EHS-PR-1000](#) *Control of Hazardous Energy*
  - [GD01.25-49](#) *Pipe Condition Report (PCR)*
  - [GD60.162](#) *Leak & Strength Testing of Short Segments of Steel Pipe Used for Tie-Ins & Main Repairs*
  - [OM-PL-6800](#) *Examination of Buried Pipelines When Exposed*
  - [OM-PR-6800](#) *Pipeline Visual Inspection and Reporting Form*
  - [WEL-PR-1010](#) *Duke Energy NGBU Welding Procedure Specifications*
  - [WEL-ST-1000](#) *Duke Energy NGBU Welding Standard*
  - [WEL-ST-1060](#) *Non-Destructive Evaluation and Inspection of Steel Pipeline Welds*
- 

## 3. State Specific Requirements

N/A

---

## 4. Environmental Information

Refer to the Environmental Health and Safety Handbook or contact your Region's Environmental Field Support.

---

## 5. Who

Distribution and Transmission Operations

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## 6. Task Summary

This procedure describes installing welded fittings on in-service pipelines.

## 7. Preparation

- Carefully excavate the pipeline and remove pipeline coating from the weld area.
- Completely dry and power brush the weld area to remove all remaining coating material, dust, and rust.
- Use an ultrasonic indicator to determine the actual wall thickness of the pipeline in the weld area.
- Examine the pipe wall for evidence of corrosion or lamination.
- Record the actual wall thickness readings and the pipe-to-soil potential on the appropriate form in **GD01.25-49, OM-PL-6800, OM-PR-6800**. Submit completed work report to the Division Office upon completion of work.
- At an MAOP greater than 125 psig, confirmed by NGBU Engineering, give proper notification to Gas Control and request a pressure reading for the pipeline.
- A welding procedure specifically designated for in-service welding must be chosen for use in welding on in-service pipelines.
- Remove fire extinguisher(s) from vehicles. They must be readied and manned upwind of the weld area.
- Evenly preheat pipeline to remove free moisture (if present) before welding.

## 8. Safety Requirements

At Duke Energy, Health and Safety is a Core Company Value. Employees are responsible for maintaining the highest regard for safety while planning and conducting work. Employees are also responsible for ensuring a safe work environment exists for themselves, their coworkers and their surrounding community.



Appropriate personnel protective equipment must be used in accordance with the Environmental Health & Safety Handbook.

Some common safety issues that can occur are present below in **Table 1**.

**Table 1.** Potential Safety Issues that Can Occur

If	Then
If the minimum wall thickness reading is less than 95% of the nominal wall expected for the pipeline.	Contact supervisor immediately, who will escalate to System Integrity for further analysis.

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If	Then
If poor coating is evident, or if corrosion or lamination exists	Contact supervisor immediately, who will notify corrosion personnel for further inspection as needed.
If the current operating pressure is higher than the maximum pressure rating of the tapping equipment or materials utilized.	Work shall NOT proceed.
If ambient temperature is less than 40°F.	The fitting should be preheated as specified in the welding procedure specification.



*Initiate LOTO process to control hazardous energy. Refer to EHS-PR-1000.*

Icon Key:



**NOTE:** *This icon raises awareness to important non-safety related information.*



*This icon references Duke Energy's "Keys to Life" safety information to note significant or life-threatening hazards and related precautions to be taken. A link to the Keys to Life Gas Operations document is provided [here](#). Additional links may exist in the document.*



**LOTO:** *This icon raises awareness that Duke Energy's Lock-Out-Tag-Out process for controlling hazardous energy should be initiated.*

## 9. Tools, Materials, and Equipment

- Ultrasonic Indicator
- Fire Extinguisher(s)

## 10. Procedures/Process

### 10.1. In-Service Welding Permit Request

- 10.1.1. The Engineering Department must approve all in-service welding permit requests.
- 10.1.2. A welding permit (the In-Service Welding Permit, noted below in **Table 2**), shall be submitted by the project representative (may be the Superintendent, Distribution Project Specialist, Operations & Maintenance

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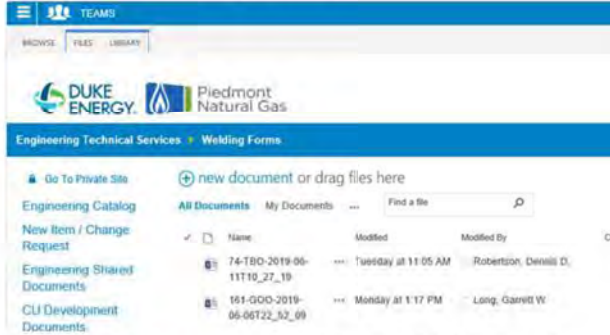
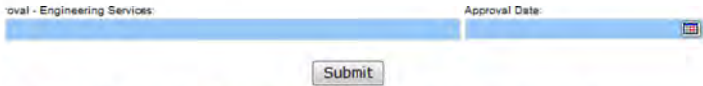
*Please refer to the Duke Energy NGBU Portal site for the latest authorized version.*

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Supervisor, Work Coordination Specialist, Gas Marketing Services, Scheduler, or the Construction & Maintenance Supervisor) and approved by Engineering when welding on an in-service pipeline at an MAOP greater than 125 psig.

- 10.1.3. Electronic copies of the In-Service Welding Permit form are available on the Intranet.
- 10.1.4. For printing copies of Welding Permit, see **Table 3**.

**Table 2. In-Service Welding Permit**

Step	Action
1	<p>Navigate to the SharePoint InfoPath form:</p> <p><a href="https://teams.piedmontng.com/sites/ETS/Forms/Forms/AllItems.aspx">https://teams.piedmontng.com/sites/ETS/Forms/Forms/AllItems.aspx</a></p> <p>(Hint: Save this to My Links for quick access)</p>
2	<p>To initiate a Welding Permit, click “New Document”</p>  <p>Contact Engineering if unable to add document.</p>
3	<p>Fill in all necessary information on the InfoPath form</p>
4	<p>At the bottom of the form click Submit:</p>  <p><b>NOTE:</b> <u><i>If required fields are not filled in, an error message will appear:</i></u></p>



# Welding on In-Service Piping

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## Welding

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	<p>Click OK and fill in the required fields marked with a red asterisk. The Submit button will then work.</p>
5	Once Engineering has approved the permit, an email confirmation will be sent.

**Table 3.** Steps to Print a Copy of Welding Permit

Step	Action
1	Navigate to: <a href="https://teams.piedmontng.com/sites/ETS/Forms/Forms/AllItems.aspx">https://teams.piedmontng.com/sites/ETS/Forms/Forms/AllItems.aspx</a>
2	Choose the drop down for the corresponding Resource Center.
3	Click on the name of the file with the information needed.
4	Choose File in the Task Ribbon. Click Print.

### 10.2. Weld Fitting Installation Process

- 10.2.1. A welding procedure specifically designated for in-service welding must be followed when welding on in-service pipelines. Welding procedure specifications are all found in WEL-PR-1010.
- 10.2.2. Protect weld area from moisture and winds in excess of eight (8) mph during welding and until weld completely cools.
- 10.2.3. Depending on the soil conditions and size of the fitting to be installed, additional support may be required.
- 10.2.4. Use operating pressure and temperature calculations to install welded fittings on in-service pipelines.

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- 10.2.5. If required, test for defects in accordance with WEL-ST-1060.
- 10.2.6. If the weld is acceptable, then leak test the fitting in accordance with **CM-ST-1300** and **GD60.162**. Soap test all welds and connections.
- 10.2.7. If the soap test is satisfactory, then tapping can proceed. Notify Gas Control that the tapping operation is about to proceed on lines that are greater than 125 psig.

### 11. Recordkeeping

All records shall be retained in accordance with the NGBU records retention policy.

### 12. Associated Operator Qualifications and Technical Training

Operator Qualifications (Covered Tasks) and Training may be required to perform all or part of this procedure. Please ensure you have completed the applicable Training and Operator Qualifications before performing a covered task.

### 13. Contact

NGBU Engineering  
 Fabrication Resources  
 Major Projects

### 14. Required Forms


- In-Service Welding Permit

### 15. Signature

Reviewed and approved by:

  
 Steve Fields (Jun 16, 2020 12:14 EDT)

  
 MP Petchul (Jun 16, 2020 17:22 EDT)

  
 Brian Woody (Jun 17, 2020 05:03 EDT)

	<b>Welding on In-Service Piping</b>	<b>WEL-PR-1050</b>
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Rev #	Date	Summary of Changes	Responsible Party
0	6/23/2020	<ul style="list-style-type: none"> <li>Initial Issue</li> </ul> Legacy Documents incorporated into this procedure: <ul style="list-style-type: none"> <li>OM-PR-1230 <i>Installation of Welded Fittings on In-service Piping</i></li> <li>OM-PL-1230 <i>Welding on Hot Lines (Greater than 125 psig)</i></li> </ul>	Members of Work Process Integration Team

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# OQ Test and Performance Evaluation Form

Covered Task: **TNDTW003** Description: **NDT-Liquid Penetrant Testing**

ID#: \_\_\_\_\_ Vendor Company: \_\_\_\_\_

Individual: \_\_\_\_\_ DOB: \_\_\_\_\_ Resource Center: \_\_\_\_\_

## Verification of Training

This section **MUST** be completed if:

- This is an Initial Evaluation, or,
- The individual's qualification has been expired for more than 90 days, or
- The individual has lost their qualification due to poor performance or incident, or
- There has been a significant change that impacts the way the task is performed

Training Method:  CBT (Computer Based Training)  Shadowing  
 ILT (Instructor Lead Training)  Other \_\_\_\_\_

*I acknowledge that this training was verified and in accordance with the learning objectives identified for this Covered Task.*

\_\_\_\_\_  
 Evaluator/Instructor \*\*\*PLEASE PRINT NAME ID Number Date

## Pre-Evaluation Testing

Testing Method:  Written  CBT (Computer Based Training)

- Passed Pre-evaluation has been successfully completed by scoring **80% or greater**.
- Failed The individual listed above has **FAILED** the pre-evaluation test by scoring **less than 80%**.

\_\_\_\_\_  
 Test Administrator \*\*\*PLEASE PRINT NAME ID Number Date

## Performance Evaluation

Evaluation Reason:  Initial  Subsequent  Incident  Poor Performance

Evaluation Method:  Field Evaluation  Simulated Evaluation

**Qualified:**  **Yes** Individual listed above has performed the evaluation steps in accordance to NGBU Policies and Procedures.

**Qualified:**  **No** The individual listed above has **FAILED** to perform the evaluation steps in accordance to NGBU Policies and Procedures. Please attach completed **Qualification Suspension Form** and email to address below.

\_\_\_\_\_  
 Evaluator Signature \*\*\*PLEASE PRINT & SIGN ID Number Date

\_\_\_\_\_  
 Individuals' Signature \*\*\*PLEASE PRINT & SIGN ID Number Date

Please sign and e-mail completed form and certifications to: [OQPEF@duke-energy.com](mailto:OQPEF@duke-energy.com)  
Only **LEGIBLE**, fully completed and signed forms will be accepted. You must verify all ID#'s are correct.

<p style="text-align: center;"><b>Evaluation Steps</b></p> <p style="text-align: center;"><b>NGBU Pre-Job Brief Form or Lone Worker Form</b></p>	Satisfactory	Unsatisfactory	<p style="text-align: center;"><b>Evaluation Criteria</b></p> <p><b>DOT 192.241/192.243</b>  <b>WEL-ST-1060</b>  <b>API 1104 21<sup>st</sup> Edition</b>  <b>SNT-TC-1A NDT Level II</b>  Subsequent Qualification Interval: 36 Months</p>
<p>1. Successful completion of Liquid Penetrant Training and Certification</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Must be certified at a minimum of Liquid Penetrant Level II</p>
<p>2. Perform Liquid Penetrant Testing</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Follows steps outlined in Liquid Penetrant Testing Technique</p>
<p>3. Individual demonstrated proper use of any applicable safety equipment and/or safety procedures</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Individual has available / utilizes all procedures and safety equipment</p>
<p>4. Individual identified two task specific AOC's  Examples include;</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Unable to retract radiation source</li> <li><input type="checkbox"/> Unauthorized person(s) entering testing area</li> <li><input type="checkbox"/> Uncontrolled ignition of gas</li> <li><input type="checkbox"/> Material defects</li> <li><input type="checkbox"/> Any potential hazard people, property or environment</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Follows procedures as outlined in NGBU Procedure manuals and/or training classes/instruction.</p>
<p>5. Individual verbalized appropriate reaction to the task specific AOC's</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Make area safe</li> <li><input type="checkbox"/> Report</li> <li><input type="checkbox"/> Repair if qualified</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Individual has identified and described the Abnormal Operating Condition(s) that could be encountered while performing covered task.</p>

Attach NDT Testing Certifications with this document

# OQ Test and Performance Evaluation Form

Covered Task: **TWELD003** Description: **Visual Examination of Welds**

ID#: \_\_\_\_\_ Vendor Company: \_\_\_\_\_

Individual: \_\_\_\_\_ DOB: \_\_\_\_\_ Resource Center: \_\_\_\_\_

## Verification of Training

This section **MUST** be completed if:

- This is an Initial Evaluation, or,
- The individual's qualification has been expired for more than 90 days, or
- The individual has lost their qualification due to poor performance or incident, or
- There has been a significant change that impacts the way the task is performed

Training Method:  CBT (Computer Based Training)  Shadowing  
 ILT (Instructor Lead Training)  Other \_\_\_\_\_

*I acknowledge that this training was verified and in accordance with the learning objectives identified for this Covered Task.*

\_\_\_\_\_  
Evaluator/Instructor \*\*\*PLEASE PRINT NAME ID Number Date

## Pre-Evaluation Testing

Testing Method:  Written  CBT (Computer Based Training)

- Passed Pre-evaluation has been successfully completed by scoring **80% or greater**.
- Failed The individual listed above has **FAILED** the pre-evaluation test by scoring **less than 80%**.

\_\_\_\_\_  
Test Administrator \*\*\*PLEASE PRINT NAME ID Number Date

## Performance Evaluation

Evaluation Reason:  Initial  Subsequent  Incident  Poor Performance

Evaluation Method:  Field Evaluation  Simulated Evaluation

**Qualified:**  **Yes** Individual listed above has performed the evaluation steps in accordance to DE NGBU Policies and Procedures.

**Qualified:**  **No** The individual listed above has **FAILED** to perform the evaluation steps in accordance to DE NGBU Policies and Procedures. Please attach completed **Qualification Suspension Form** and email to address below.

\_\_\_\_\_  
Evaluator Signature \*\*\*PLEASE PRINT & SIGN ID Number Date

\_\_\_\_\_  
Individuals' Signature \*\*\*PLEASE PRINT & SIGN ID Number Date

Please sign and e-mail completed form (top copy only) to: [OQPEF@duke-energy.com](mailto:OQPEF@duke-energy.com)  
Only **LEGIBLE**, fully completed and signed forms will be accepted. You must verify all ID#'s are correct.

<p align="center"><b>Evaluation Steps</b></p> <p align="center"><b>Safety Equipment:</b></p> <p align="center"><i>Refer to WEL-ST-1010: Welding Safety</i></p>	Satisfactory	Unsatisfactory	<p align="center"><b>Evaluation Criteria</b></p> <p><b>DOT:</b></p> <ul style="list-style-type: none"> <li>• 192.225,192.227,192.241,192.245, 192.328(a)(1),192.713,192.715, 192.717,192.751</li> <li>• API-1104 21<sup>st</sup> Edition</li> <li>• WEL-PR-1000/1010/1020/1030/1040</li> <li>WEL-ST-1000/1010</li> </ul> <p align="center">Subsequent renewal period: 36 months</p>
<p>1. Weld was visually inspected by welder and submitted for testing</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Follows procedures outlined in Duke/Piedmont Policies and Procedures as well as API-1104 21<sup>st</sup> Edition</p>
<p>2. Welder successfully passed destructive testing or NDT to achieve this task</p>			<p>Follows procedures outlined in Duke/Piedmont Policies and Procedures as well as API-1104 21<sup>st</sup> Edition</p>
<p>3. Individual demonstrated proper use of any applicable safety equipment and/or safety procedures</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Individual has available / utilizes all procedures and safety equipment</p>
<p>3. Individual Identified two task specific AOC's. Examples include:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Unintentional release of gas</li> <li><input type="checkbox"/> Material defects, anomalies, or physical damage of pipe or a component</li> <li><input type="checkbox"/> Unintended fire and/or explosion on or near the pipeline</li> <li><input type="checkbox"/> Examination reveals pipe or component is of different material composition than expected</li> <li><input type="checkbox"/> Any Potential Hazard to People/Property /Environment</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Individual has identified the Abnormal Operating Condition(s) that could be encountered while performing covered task.</p>
<p>5. Individual verbalized appropriate reaction to the task specific AOC's</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Make Safe</li> <li><input type="checkbox"/> Report</li> <li><input type="checkbox"/> Repair if qualified</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Individual has properly reacted to Abnormal Operating Condition(s) that could be encountered while performing this covered task by correct response.</p>



# OQ Test and Performance Evaluation Form

Covered Task: **TWELD001** Description: **Welding on Physically Connected Pipe**

ID#: \_\_\_\_\_ Vendor Company: \_\_\_\_\_

Individual: \_\_\_\_\_ DOB: \_\_\_\_\_ Resource Center: \_\_\_\_\_

## Verification of Training

This section **MUST** be completed if:

- This is an Initial Evaluation, or,
- The individual's qualification has been expired for more than 90 days, or
- The individual has lost their qualification due to poor performance or incident, or
- There has been a significant change that impacts the way the task is performed

Training Method:  CBT (Computer Based Training)  Shadowing  
 ILT (Instructor Lead Training)  Other \_\_\_\_\_

*I acknowledge that this training was verified and in accordance with the learning objectives identified for this Covered Task.*

\_\_\_\_\_  
 Evaluator/Instructor \*\*\*PLEASE PRINT NAME ID Number Date

## Pre-Evaluation Testing

Testing Method:  Written  CBT (Computer Based Training)

- Passed Pre-evaluation has been successfully completed by scoring **80% or greater**.
- Failed The individual listed above has **FAILED** the pre-evaluation test by scoring **less than 80%**.

\_\_\_\_\_  
 Test Administrator \*\*\*PLEASE PRINT NAME ID Number Date

## Performance Evaluation

Evaluation Reason:  Initial  Subsequent  Incident  Poor Performance

Evaluation Method:  Field Evaluation  Simulated Evaluation

**Qualified:**  **Yes** Individual listed above has performed the evaluation steps in accordance to DE NGBU Policies and Procedures.

**Qualified:**  **No** The individual listed above has **FAILED** to perform the evaluation steps in accordance to DE NGBU Policies and Procedures. Please attach completed **Qualification Suspension Form** and email to address below.

\_\_\_\_\_  
 Evaluator Signature \*\*\*PLEASE PRINT & SIGN ID Number Date

\_\_\_\_\_  
 Individuals' Signature \*\*\*PLEASE PRINT & SIGN ID Number Date

Please sign and e-mail completed form (top copy only) to: [OQPEF@duke-energy.com](mailto:OQPEF@duke-energy.com)  
Only **LEGIBLE**, fully completed and signed forms will be accepted. You must verify all ID#'s are correct.

<p align="center"><b>Evaluation Steps</b></p> <p align="center"><b>Safety Equipment:</b> <i>Refer to:WEL-ST-1010- Welding Safety</i></p>	Satisfactory	Unsatisfactory	<p align="center"><b>Evaluation Criteria</b></p> <p><b>DOT:</b></p> <ul style="list-style-type: none"> <li>• 192.225,192.227,192.241,192.245, 192.328(a)(1),192.713,192.715, 192.717,192.751</li> <li>• API-1104 21<sup>st</sup> edition</li> <li>• WEL-PR-1000/1010/1020/1030/1040</li> <li>• WEL-ST-1000/1010</li> </ul> <p align="center">Subsequent renewal period: 7.5 months</p>
1. Make all welds following the applicable requirements	<input type="checkbox"/>	<input type="checkbox"/>	Follows procedures outlined in Duke/PNG Policies and Procedures as well as API-1104 21 <sup>st</sup> edition
2. Weld was visually inspected by welder and submitted for testing	<input type="checkbox"/>	<input type="checkbox"/>	Follows procedures outlined in Duke/PNG Policies and Procedures as well as API-1104 21 <sup>st</sup> edition
3. Weld must be evaluated and pass visual, destructive and/or NDT test	<input type="checkbox"/>	<input type="checkbox"/>	Follows procedures outlined in Duke/PNG Policies and Procedures as well as API-1104 21 <sup>st</sup> edition
4. Individual demonstrated proper use of any applicable safety equipment and/or safety procedures	<input type="checkbox"/>	<input type="checkbox"/>	Individual has available / utilizes all procedures and safety equipment
<p>5. Individual Identified two of task specific AOC's. Examples include:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Unintentional release of gas</li> <li><input type="checkbox"/> Material defects, anomalies, or physical damage of pipe or a component</li> <li><input type="checkbox"/> Unintended fire and/or explosion on or near the pipeline</li> <li><input type="checkbox"/> Examination reveals pipe or component is of different material composition than expected</li> <li><input type="checkbox"/> Any Potential Hazard to People/Property /Environment</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	Individual has identified the Abnormal Operating Condition(s) that could be encountered while performing covered task.
<p>6. Individual verbalized appropriate reaction to the task specific AOC's</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Make Safe</li> <li><input type="checkbox"/> Report</li> <li><input type="checkbox"/> Repair if qualified</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	Individual has properly reacted to Abnormal Operating Condition(s) that could be encountered while performing this covered task by correct response.





# OQ Test and Performance Evaluation Form

Covered Task: **TNTDW002** Description: **NDT - Mag Particle Testing**

ID# \_\_\_\_\_ Vendor Company: \_\_\_\_\_

Individual: \_\_\_\_\_ DOB: \_\_\_\_\_ Resource Center: \_\_\_\_\_

## Verification of Training

This section **MUST** be completed if:

- This is an Initial Evaluation, or,
- The individual's qualification has been expired for more than 90 days, or
- The individual has lost their qualification due to poor performance or incident, or
- There has been a significant change that impacts the way the task is performed

Training Method:  CBT (Computer Based Training)  Shadowing  
 ILT (Instructor Lead Training)  Other \_\_\_\_\_

*I acknowledge that this training was verified and in accordance with the learning objectives identified for this Covered Task.*

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Evaluator/Instructor **\*\*\*PLEASE PRINT NAME** ID Number Date

## Pre-Evaluation Testing

Testing Method:  Written  CBT (Computer Based Training)  
 Passed Pre-evaluation has been successfully completed by scoring **80% or greater**.  
 Failed The individual listed above has **FAILED** the pre-evaluation test by scoring **less than 80%**.

---

Test Administrator **\*\*\*PLEASE PRINT NAME** ID Number Date

## Performance Evaluation

Evaluation Reason:  Initial  Subsequent  Incident  Poor Performance  
 Evaluation Method:  Field Evaluation  Simulated Evaluation

**Qualified:**  **Yes** Individual listed above has performed the evaluation steps in accordance to NGBU Policies and Procedures.

**Qualified:**  **No** The individual listed above has **FAILED** to perform the evaluation steps in accordance to NGBU Policies and Procedures. Please attach completed **Qualification Suspension Form** and email to address below.

---

Evaluator Signature **\*\*\*PLEASE PRINT & SIGN** ID Number Date

---

Individuals' Signature **\*\*PLEASE PRINT & SIGN** ID Number Date

Please sign and e-mail completed form and certifications to: [OQPEF@duke-energy.com](mailto:OQPEF@duke-energy.com)  
Only **LEGIBLE**, fully completed and signed forms will be accepted. You must verify all ID#'s are correct.

<p>Evaluation Steps</p> <p>Required Safety:  <b>Complete NGBU Pre-Job Brief Form  or Lone Worker Form</b></p>	<p>Satisfactory</p>	<p>Unsatisfactory</p>	<p>Evaluation Criteria</p> <p><b>DOT 192.241/192.243  WEL-ST-1060  API 1104 21<sup>st</sup> Edition  SNT-TC-1A NDT Level II</b></p> <p>Subsequent Qualification Interval: 36 Months</p>
<p>1. Successful completion of Mag Particle Training and Certification</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Must be certified at a minimum of Mag Particle Level II</p>
<p>2. Perform Mag Particle Testing</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Follows steps outlined in Mag Particle Yoke Technique</p>
<p>3. Individual demonstrated proper use of any applicable safety equipment and/or safety procedures</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Individual has available / utilizes all procedures and safety equipment</p>
<p>4. Individual identified two task specific AOC's  Examples include:</p> <p><input type="checkbox"/> Unintentional release of gas</p> <p><input type="checkbox"/> Material defects</p> <p><input type="checkbox"/> Corrosion on pipeline component that has impaired or is likely to impair the serviceability of the pipeline.</p> <p><input type="checkbox"/> Any Potential Hazard to People/Property/Environment</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Follows procedures as outlined in NGBU Procedure manuals and/or training classes/instruction..</p>
<p>5. Individual verbalized appropriate reaction to the task specific AOC's:</p> <p><input type="checkbox"/> Make Safe</p> <p><input type="checkbox"/> Report</p> <p><input type="checkbox"/> Repair if qualified</p>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Individual has reacted to Abnormal Operating Condition(s) that could be encountered while performing this covered task.</p>

Attach NDT Testing Certifications with this document