AWS Welding/Fabrication
Quality Manual Sample
(No Field Installation)

Selected Pages Not a Complete Plan

Contact:
First Time Quality
410-451-8006
[CompanyName]

[CompanyAddress1] | [CompanyAddress2]
[CompanyPhone] | [CompanyPhone2]

Fabrication Quality Manual
For Compliance with: _______________

Operating Policies of the [CompanyName] Quality System

Version: 20150308

<table>
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<th>Version</th>
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<tr>
<td>20141228</td>
<td>Initial issue</td>
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Approval Signature and Date: ___________________________________ _____________________

President/ Date

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# QUALITY MANUAL

## TABLE OF CONTENTS

1. **Quality System Management and Responsibilities** .................................................. 7
   - 1.1. Overview ........................................................................................................... 7
   - 1.2. [CompanyName] Quality Policy ........................................................................ 7
   - 1.3. Quality Duties, Responsibilities, and Authority .................................................. 7
   - 1.4. Quality System Performance Measures ............................................................... 9
   - 1.5. Customer Satisfaction Performance Measures ..................................................... 10
   - 1.6. Exceptions ...................................................................................................... 10

2. **Job Quality Assurance/Quality Control Planning** .................................................... 11
   - 2.1. Overview ........................................................................................................ 11
   - 2.2. [CompanyName] License and Qualification Requirements .................................... 11
   - 2.3. QA/QC Personnel and Qualifications ............................................................... 12
   - 2.4. Planning of Quality Controlled Work Tasks ....................................................... 3
   - 2.5. Quality Inspection and Test Planning ................................................................. 4
   - 2.6. Quality Training Planning .............................................................................. 4
   - 2.7. Customer Training On Operation and Maintenance ........................................... 4
   - 2.8. Records and Documentation Plan ................................................................... 4
   - 2.9. Quality Audit Plan ......................................................................................... 4

3. **Contract Specifications** .......................................................................................... 6
   - 3.1. Overview ........................................................................................................ 6
   - 3.2. Contract Technical Specifications ..................................................................... 6
   - 3.3. Contract Drawings ......................................................................................... 6
   - 3.4. Contract Submittals ....................................................................................... 6
   - 3.5. Customer Submittal Approval ......................................................................... 8
   - 3.6. Contract Warranty ....................................................................................... 9
   - 3.7. Contract Review and Approval ..................................................................... 9

4. **Design Review and Control** .................................................................................. 10
   - 4.1. Overview ....................................................................................................... 10
   - 4.2. Design Input Review .................................................................................... 10
   - 4.3. Design Quality Assurance/Quality Control Planning ....................................... 10
   - 4.4. Design Progress Reviews ........................................................................... 11
   - 4.5. Design Output Verification and Approval ....................................................... 11

5. **Quality Standards** .................................................................................................. 12
   - 5.1. Overview ....................................................................................................... 12
   - 5.2. Regulatory Codes .................................................................................... 12
   - 5.3. Industry Quality Standards .............................................................................. 12
   - 5.4. Material and Equipment Specifications ............................................................ 14

---

Page 2
Quality Manual
Copyright
5.5. Work Process Specifications ................................................................. 14
5.6. Controlled Material Identification and Traceability .......................... 15
5.7. Measuring Device Control and Calibration ........................................ 15
5.8. [CompanyName] Quality Standards ...................................................... 15
5.9. Application of Multiple Sources of Specifications ............................ 16

6. Purchasing ............................................................................................ 17
6.1. Overview ........................................................................................... 17
6.2. Purchase Order Requirements ........................................................... 17
6.3. Purchase Order Approvals ................................................................. 17

7. Process Controls .................................................................................. 18
7.1. Overview ........................................................................................... 18
7.2. Startup and Quality Control Coordination Meeting .......................... 18
7.3. Preparatory Job Quality Assurance/Quality Control Plan Planning .... 18
7.4. Weekly Quality Planning and Coordination Meetings ....................... 19
7.5. Process Control Standards ............................................................... 19

8. Inspections and Tests ......................................................................... 22
8.1. Overview ........................................................................................... 22
8.2. Required Work Task Quality Inspections and Tests ....................... 22
8.3. Material Inspections and Tests ......................................................... 22
8.4. Work in Process Inspections ............................................................. 23
8.5. Work Task Completion Inspections .................................................. 23
8.6. Inspection of Special Processes ......................................................... 24
8.7. Independent Measurement and Tests ................................................ 24
8.8. Commissioning Functional Acceptance Tests ................................. 24
8.9. Hold Points for Customer Inspection ............................................... 24
8.10. Quality Inspection and Test Specifications .................................... 24
8.11. Inspection and Test Acceptance Criteria ........................................ 24
8.12. Inspection and Test Status ............................................................... 26
8.13. Independent Quality Assurance Inspections ................................. 26
8.15. Job Completion and Closeout Inspection ....................................... 27

9. Nonconformances and Corrective Actions ......................................... 29
9.1. Overview ........................................................................................... 29
9.2. Nonconformances .......................................................................... 29
9.3. Corrective Actions .......................................................................... 30

10. Preventive Actions ............................................................................. 31
10.1. Overview ........................................................................................ 31
10.2. Identify Preventive Actions for Improvement .................................. 31
10.3. Train Preventive Actions for Improvement ..................................... 31

11. Quality System Audits ....................................................................... 33
11.1. Overview ........................................................................................ 33
11.2. Company-wide Quality System Audit ................................................................. 33

12. Record and Document Controls ........................................................................... 34
   12.1. Overview ............................................................................................................. 34
   12.2. Quality System Documents .............................................................................. 34
   12.3. Document Controls ........................................................................................... 34
   12.4. Record Controls ................................................................................................. 35

13. Appendix .................................................................................................................. 37
   13.1. Definitions of Terms ........................................................................................ 37

14. Forms ....................................................................................................................... 40
5. **QUALITY STANDARDS**

**APPLICABLE REGULATIONS, INDUSTRY, and COMPANY STANDARDS**

5.1. **OVERVIEW**

[CompanyName] personnel and suppliers are accountable for compliance to standards-based written specifications.

To achieve expectations reliably and consistently, specifications are clearly spelled out, not only for results but also for processes. Specifications apply to materials, work steps, qualified personnel and suppliers, safe work rules, and environmental work conditions.

Standards ensure that results are specified rather than left to discretionary practices.

5.2. **REGULATORY CODES**

All [CompanyName] Welding and Fabrication activities comply with the relevant regulations. The Quality Manager identifies regulatory requirements applicable to the jurisdictions served, including:

- Applicable Federal regulations
- Applicable State regulations
- Applicable building codes and local addenda to building codes
- Applicable Fire Code
- Applicable Fuel and Gas Code
- Applicable Mechanical Code
- Applicable Plumbing Code
- Additional regulations specified by the customer contract

The Quality Manager identifies regulatory requirements that apply to a specific job.

The Supervisor had shop access to relevant codes and government regulations.

5.3. **INDUSTRY QUALITY STANDARDS**

All [CompanyName] Welding and Fabrication activities comply with generally accepted good workmanship practices and industry standards.

The Quality Manager identifies supplemental requirements for industry standards that apply to a specific job during the Quality Assurance/Quality Control Planning when it is not otherwise specified by the contract, contract technical specifications, or approved drawings.
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<td>AWS D1.1/D1.1M</td>
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JOB - SPECIFIC WELDING PROCEDURE STANDARDS

The Quality Manager approves welding procedures before they can be used to fabricate metal.

Records of approved welding procedures are maintained on Form QW-483 Welding Procedure Qualification Record, included as an exhibit.

Welding procedures shall be qualified and approved, in accordance with the applicable ASME Welding Code(s) or Specification(s) (i.e., D1.1, D1.1M) or AWS B2.1, Specification for Welding Procedure and Performance Qualification.

The welding procedure must identify the filler material.

When the governing AWS Welding Code(s) mandates that welding procedures be qualified by test, the Welding Fabricator shall have PQRs that support the applicable WPSs. When prequalified WPSs or Standard Welding Procedure Specifications (SWPSs) published by the AWS are permitted, PQRs are not required.

The Quality Manager or Certified Welding Inspector (CWI) reviews and approves the welding procedure before being used in production welding operations.

The WPSs and PQRs are controlled by the Quality Manager according by the document and record control procedures specified in the relevant section of this Quality Manual.

The applicable WPSs shall be available to welders or welding operators during testing and production welding.

5.4. MATERIAL AND EQUIPMENT SPECIFICATIONS

The Quality Manager ensures that all types of materials and equipment that affect quality are identified and controlled.

The Quality Manager evaluates the expected use of materials and equipment and identifies types of materials and equipment that may affect project quality. For each item, the Quality Manager sets specifications for their intended use, including:

- Compliance to contract requirements
- Compliance to code and industry standards and listing requirements
- Structural integrity
- Performance
- Durability
- Appearance
- Product identification for traceability.

The Quality Manager identifies controlled material and equipment that apply to the project.

The Quality Manager ensures that purchase orders for listed materials and equipment include the relevant specifications as specified in section 6.2 Purchase Order Requirements.

Only approved materials are used in the fabrication process.

5.5. WORK PROCESS SPECIFICATIONS
The Quality Manager ensures that work processes are controlled to ensure that the specified requirements are met. When appropriate, the Quality Manager will specify project quality standards for work processes that may include:

- References to documented procedures such as manufacturer’s installation instructions
- Procedures for carrying out process steps
- Methods to monitor and control processes and characteristics
- Acceptability criteria for workmanship
- Tools, techniques and methods to be used to achieve the specified requirements.

5.6. **CONTROLLED MATERIAL IDENTIFICATION AND TRACEABILITY**

The Quality Manager determines types of project materials that require quality controls.

For each type of quality-controlled material, the Quality Manager determines lot control traceability requirements, if any, and specifies the means of lot identification. Identification methods may include physical labels, tags, markings and/or attached certification documents.

When lot controlled materials are received, the Superintendent verifies that materials have the specified lot identifications.

The Superintendent maintains lot identification at all production phases from receipt, through production, installation, or assembly, to final completion. Acceptable methods for preserving lot identification include physically preserving observable lot identifications, recording the lot identification on a work task quality inspection form or other work record, or collecting the physical lot identifier as a record along with supplemented with location.

If lot controlled materials are without lot identification, the Superintendent deems the materials as nonconforming and segregates them and/or clearly marks them to prevent inadvertent use. The Superintendent treats the material according to the company policy for nonconformances. Only the Quality Manager can re-identify or re-certify the materials.

5.7. **MEASURING DEVICE CONTROL AND CALIBRATION**

The Quality Manager evaluates the project requirements and determines if there are measuring devices that require controls to assure quality results.

For each type of device the Quality Manager identifies:

- Restrictions for selection
- Limitations on use.
- Calibration requirements including the frequency of calibration. All calibrations must be traceable to national measurement standards.

When a measurement device is found not to conform to operating tolerances, the Quality Manager validates the accuracy of previous measurements.

5.8. **[CompanyName] QUALITY STANDARDS**

[CompanyName] quality standards supplement contract requirements when they are necessary to ensure quality.

The Quality Manager identifies supplemental requirements for [CompanyName] Quality standards that apply to a specific job on the Job Quality Assurance/Quality Control Manual.
When [CompanyName] quality standards differ from industry standards or product manufacturer instructions, the Quality Manager justifies that the standard reliably achieves quality results and then documents the justification.

All [CompanyName] fabrication activities conform to the company quality standards.

5.9. **Application of Multiple Sources of Specifications**

Should multiple sources of specifications apply to a work task, the higher level of specification applies. When there are equal levels of specifications that conflict, the specifications are applied in this order:

- Submittals approved by the customer
- Contract technical specifications
- Contract drawings
- Government regulations that exceed requirements of items below
- [CompanyName] quality specifications, including subcontract specifications
- [CompanyName] Quality Manual
- Product installation instructions
- Industry standards
- Generally accepted practices

Should multiple sources of conflicting specifications apply to a job, the Quality Manager defines the standards that apply to the specific job on the Job Quality Assurance/Quality Control Manual.
12. RECORD AND DOCUMENT CONTROLS

12.1. OVERVIEW

[Company Name] ensures that quality related documents and records are created, current versions are in use, complete, identifiable, and stored properly.

12.2. QUALITY SYSTEM DOCUMENTS

12.2.1. QUALITY MANUAL

The Quality Manager maintains the [Company Name] Quality Manual that documents [Company Name] quality policies. Each policy identifies the titles of personnel responsible.

The Quality Manager ensures that the Quality Manual and documents related to a work task are accessible to personnel performing the work.

The Quality Manager maintains, improves, and updates the manual as necessary. At least annually, the Quality Manager determines if updated versions of standards and product installation instructions are available. If so, the Quality Manager updates the Quality System documentation accordingly.

12.3. DOCUMENT CONTROLS

The President controls all company-wide quality system documents including:

- Approval of all quality system documents and for adequacy prior to issue or reissue.
- Ensures that applicable documents are available and usable at points of use
- Prevents unintended use of obsolete documents

The Quality Manager controls quality system documents including:

- Approval of all quality documents and for adequacy prior to issue or reissue
- Ensures that applicable documents are available and usable at points of use
- Prevents unintended use of obsolete documents

12.3.1. CONTROL OF SYSTEM DOCUMENTS

The Quality Manager controls documents related to the [Company Name] Quality System including:

- Quality System Manual
- Quality System Procedures
- Contract Management Procedures (including interface and coordination with customers and regulatory agencies)
- Government regulations
- Industry standards
- Procurement specifications

The Quality Manager ensures that records of the distribution of Quality System documents are kept. When new versions are distributed, obsolete versions are destroyed or controlled to prevent inadvertent use.
12.3.2. CONTROL OF CONTRACT DOCUMENTS
The Operations Manager controls documents related to specific customer contracts including:

- Customer contracts
- Contract technical specifications
- Contract drawings
- Shop drawing submittals and approvals
- Product data submittals and approvals
- Allowances and unit price submittals and approvals
- Requests for information and customer responses
- Inspection and test plans

12.4. RECORD CONTROLS
The Quality Manager verifies records for conformance to the Quality System Requirements and approves all Quality System records.

Records demonstrating conformance with and operation of the Quality System are retrievable for at least five years. The Quality Manager verifies records for conformance to the Quality System Requirements.

12.4.1. QUALITY SYSTEM RECORDS CONTROL
The Quality Manager verifies the completeness, accuracy, and retention of job-specific Quality System records including:

- Annual reviews
- Quality improvement records

12.4.2. CONTRACT RECORDS CONTROL
The Quality Manager verifies the completeness, accuracy, and retention of contract-specific Quality System records including:

- Inspection and test records
- Quality submittals to the customer
- Quality system audits
- reviews
- Calibration certificates
- Daily log reports
- Incident reports
- Redline drawings
- Qualified personnel approvals
- Quality improvement records
- Quality records specified by customer contract, or contract technical specifications
- Welding quality records, forms, and reports including:
  - Welder Performance Qualification records (WPQRs)
  - Welding Procedure Specifications (WPSs)
  - Procedure Qualification Records (PQRs)
  - Material Test Reports (MTRs) (when required by the contract, governing code or specification)
  - Nondestructive Examination (NDE) reports (when required by the contract, governing code, or specification)
  - Nondestructive Examination Personnel Qualification Records
- Weld Identification Reports (weld mapping) when required
- Record of Final Inspection (i.e., traveler, inspection record, check off list)
- Heat Treatment Records (when required by the contract, governing code, or specification)
- Receiving Material Inspection Reports
- Nonconformance Reports (NCRs)
- Calibration Records of Test Equipment
- Internal Quality Audit Rep

The Quality Manager assigns record control responsibilities and document location that apply to a specific job.
14. FORMS

[CompanyName] Controlled Materials Form ................................................................. 41
[CompanyName] Material Inspection and Receiving Report ............................................ 42
[CompanyName] Daily Production Report ........................................................................ 43
[CompanyName] Work Task Inspection Form ............................................................... 44
[CompanyName] Nonconformance Report ...................................................................... 45
Form M-8 Ultrasonic Unit Calibration Report-AWS .................................................. 46
Form M-9 dB Accuracy Evaluation ................................................................................ 47
Form M-10 Decibel (Attenuation or Gain) Values Nomograph ................................... 48
Form M-11 Report of UT of Welds .............................................................................. 49
Form N-1 Welding Procedure Specification Prequalification ...................................... 51
Form N-3 WPS QUALIFICATION TEST RECORD_ELECTROSLAG AND ELECTROGAS WELDING...................... 53
Form N-4 WELDER, WELDING OPERATOR, OR TACK WELDER QUALIFICATION TEST RECORD........... 54
Form N-7 REPORT OF RADIOGRAPHIC EXAMINATION OF WELDS ..................................................... 55
Form N-8 REPORT OF MAGNETIC-PARTICLE EXAMINATION OF WELDS ........................................... 56
Form N-9 STUD WELDING APPLICATION QUALIFICATION TEST DATA ........................................ 57
Form S-15 Report of UT (Alternative Procedure) ....................................................... 58
### Material Inspection and Receiving Report

#### Version 20150308

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#### Receiving Quality Control

**ACCEPTANCE**

Listed items have been accepted by me or under my supervision

- [ ] Conform to contract specifications EXCEPT as noted herein or on supporting documents.
- [ ] Received in apparent good condition EXCEPT as noted

Signature of authorized person and date: ____________________________________________________________

**EXCEPTIONS:**

---

Questions? Call First Time Quality 410-451-8006
Form N-1 Welding Procedure Specification Prequalification

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Form N-1 (Front)
## ANNEX N

### Procedure Qualification Record (PQR)

**Test Results**

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</tbody>
</table>

#### GUIDED BEND TEST

<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>Type of Bend</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### VISUAL INSPECTION

- Appearance
- Undercut
- Piping porosity
- Convexity
- Test date
- Witnessed by

Other Tests

- All weld-metal tensile test
  - Tensile strength, psi
  - Yield point/strength, psi
  - Elongation in 2 in, %
  - Laboratory test no.

Welder's name

- Clock no.
- Stamp no.

Tests conducted by

- Laboratory

- Test number
  - P/N
  - Form no.

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in conformance with the requirements of Clause 4 of AWS D1.1/D1.1M, ( _____ ) Structural Welding Code—Steel (year)

Signed

- Manufacturer or Contractor

By

- Title

Date

Form N-1 (Back)

[http://www.aws.org/technical/forms/N-1.pdf](http://www.aws.org/technical/forms/N-1.pdf)
Form N-3 WPS QUALIFICATION TEST RECORD_ELECTROSLAG AND ELECTROGAS WELDING

**ANNEX N**

**WPS QUALIFICATION TEST RECORD FOR ELECTROSLAG AND ELECTROGAS WELDING**

### PROCEDURE SPECIFICATION

- Material specification
- Welding process
- Position of welding
- Filler metal specification
- Filler metal classification
- Filler metal
- Flux
- Shielding gas
- Flow rate
- Gas dew point
- Thickness range this test qualifies
- Single or multiple pass
- Single or multiple arc
- Welding current
- Preheat temperature
- Postheat temperature
- Welder's name
- Guide tube flex
- Guide tube composition
- Guide tube diameter
- Vertical rise speed
- Traverse length
- Traverse speed
- Dwell
- Type of molding shoe

### VISUAL INSPECTION (Table 6.1, Cyclically loaded limitations)

- Appearance
- Undercut
- Piping porosity
- Test date
- Witnessed by

### WELDING PROCEDURE

<table>
<thead>
<tr>
<th>Pass No.</th>
<th>Electrode Size</th>
<th>Welding Current</th>
<th>Welding Current</th>
<th>Joint Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Amperes</td>
<td>Volts</td>
<td></td>
</tr>
</tbody>
</table>

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in conformance with the requirements of Clause 4 of AWS D1.1/D1.1M (_______) Structural Welding Code—Steel (year)

- Procedure no.
- Revision no.
- Authorized by
- Date

Form N-4 WELDER, WELDING OPERATOR, OR TACK WELDER QUALIFICATION TEST RECORD

AWS D1.1/D1.1M:2010

ANNEX N

WELDER, WELDING OPERATOR, OR TACK WELDER QUALIFICATION TEST RECORD

<table>
<thead>
<tr>
<th>Variable</th>
<th>Record Actual Values Used in Qualification</th>
<th>Qualification Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Welding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rev</td>
<td>Date</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Process/Type (Table 4.12, Item 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrode (single or multiple) (Table 4.12, Item 7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current/Polarity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Position (Table 4.12, Item 4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weld Progression (Table 4.12, Item 5)</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Variables</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Backing (YES or NO) (Table 4.12, Item 6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material Spec.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Metal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness: (Plate) Groove</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness: (Pipe/tube) Groove</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diameter: (Pipe) Groove</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groove</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filler Metal (Table 4.12)</td>
<td></td>
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<tr>
<td>Spec. No.</td>
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<tr>
<td>Class</td>
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<tr>
<td>F-No. (Table 4.12, Item 2)</td>
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<tr>
<td>Gas/Flux Type (Table 4.12)</td>
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</tr>
<tr>
<td>Other</td>
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</tbody>
</table>

| Visual Inspection (4.9.1)     |                                            |                     |
| Acceptable YES or NO          |                                            |                     |

<table>
<thead>
<tr>
<th>Guided Bend Test Results (4.31.5)</th>
<th>Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Fillet Test Results (4.31.2.3 and 4.31.4.1)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td></td>
</tr>
<tr>
<td>Fracture Test Root Penetration</td>
<td></td>
</tr>
<tr>
<td>Microetch</td>
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</tr>
<tr>
<td>(Describe the location, nature, and size of any crack or tearing of the specimen.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Radiographic Test Results (4.31.3.2)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film Identification Number</td>
<td>Results Remarks</td>
</tr>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Interpretation by</th>
<th>Test Number Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td></td>
</tr>
</tbody>
</table>

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in conformance with the requirements of Clause 4 of AWS D1.1/D1.1M, ______ Structural Welding Code—Steel (year).

Manufacturer or Contractor Authorized By
Form N-4 Date

For More Information:
Contact: Ed Caldeira
410-451-8006
www.firsttimequality.com
EdC@FirstTimeQuality.com