VRISHAL ENGINEERING PRIVATE LIMITED

PROCEDURE FOR WELDER QUALIFICATION

CLIENT: AARTI INDUSTRIES LTD, JHAGADIA, ZONE-4

PROJECT: CORAL-2

PO NO: 4580584722 Dt.26.02.2025 & 4580585038 Dt.01.03.2025

DOCUMENT NO: VEPL/AIL-J/CORAL-2/QSI-008

0	07.04.2025	ISSUED FOR REVIEW & APPROVAL	SHIVANG DIWAKAR	HARDIK PRAJAPATI
REV	DATE	ISSUED FOR	PREP. BY /VEPL	APPR. BY /VEPL

TABLE OF CONTENTS

1 PURPOSE & SCOPE

This procedure covers the monitoring and controlling of “Welding operations” and qualification requirements of “Welder performance.”

2 DISTRIBUTION & INTENDED AUDIENCE

AIL: AARTI INDUSTRIES LTD, JHAGADIA, ZONE-4

AIL-TPI

VEPL: VRISHAL ENGINEERING PRIVATE LIMITED

3 ABBREVIATIONS

Abbreviations	Definitions
QA/QC	Quality Assurance/Quality Control
ASME	American Society of Mechanical Engineers
NDE	Non-Destructive Examination
WQT	Welder & Welding Operator Qualification Test

4 REFERENCE DOCUMENTS

SR. NO	DOCUMENT NAME	DOCUMENT NUMBER	LATEST REVISION
1	Process Piping Code	ASME B31.3	2020
2	Boiler & Pressure Vessel Code	ASME Sec IX	2023
3	Specifications for Welding Rods, Electrodes and Filler Metals	ASME SEC II C	2023
4	Structural Welding Code - Steel	AWS D1.1	2020

5 RESPONSIBILITIES

QC Engineer / Welding Supervisor:

He shall identify the welders as per scope and plan for welder qualification.
He shall arrange required welding consumables and witness welding electrodes baking. Review the welding operation.

QC Engineer / Welding Inspector:

He shall identify Welder requirement as per the scope of work.
He shall conduct and witness the welder test.
On job inspection of welded joints and prepare the documents.

QA QC Manager:

He is responsible for review and approval of WQT.
He shall also check and review on job welding inspection.

6 WELDING POSITION

Welding position for each type of weld shall be as per approved WPS
Welding positions are required for the welding shall cover in project specific WQT.

7 PREPARATION OF TEST COUPON

Test coupon shall be prepared for “Welder qualification” as per approved WPS & ASME Sec IX for Piping / AWS D1.1 for Structural Work.

8 WELDER QUALIFICATION

- Welders shall be qualified as per Project specification and ASME Section IX / AWS D1.1
- Welds not identified and recorded, or welded by unqualified welders, shall automatically be rejected.
- Validity of welder’s certificate is for 6 months only.
- Existing Welder continuity log sheet shall be maintained with backup NDT records. Welder records shall be maintained in project welder master list.
- Quality Department shall keep track and maintain the records of periods for each certified welder.
- QC shall keep track of Welders performance, by maintaining repair percentage evidence. i.e RT / UT repair percentage.
- Tack welds shall be made by a qualified welder using the same type of electrodes as is used for the root pass.

Welder Test:

- Welders trained by production department and certified by welding supervisor are eligible for welder test.
- To prepare and arrange the test coupons as per approved WPS position.
- Conduct the test under the requirements of the codes.
- Validate the welding parameters while in welding operation.
- Ensure all measuring instruments are calibrated and good in condition.
- Identification and Marking is to be done on the Test coupon(s). Ensure Test coupon number, Topside marking, welder name and welder number on the test coupon.
- Conduct visual test and NDT of test coupon. Each Test coupon shall be 100% inspected visually. RT or Destructive tests shall be conducted as per ASME IX / AWS D1.1 and project specifications
- After welding and necessary testing, the records shall be prepared and submitted to client for approval.

9 ACCEPTANCE CRITERIA FOR WELDER QUALIFICATION

Piping Welders shall be qualified as per ASME Sec IX QW-191.1.2
Structural Welders shall be qualified as per AWS D1.1 Clause 6, Part C

10 WELDING

- Welding shall be performed as per approved WPS.
- No chill rings or back-up rings are to be used.

Preparation of Weld Joints

- The weld joint dimensions shall be as per relevant drawing WPS. This may be done by grinding, Oxy fuel, gas cutting, air carbon gouging or machining and shall be free from all oil grease and other harmful materials.
- All gouges shall be ground, power wire brushed, or grit blasted to remove all traces of residual carbon and oxidation. Oxygen gouging shall not be used in quenched and tempered, normalized or TMCP steels.
- Electrodes used for tack welding shall be the same as the electrodes used to complete the weld.
- Tack weld length shall be four times the base metal thickness or 50mm whichever is minimum.
- Cleat plates should be welded at least 50mm away from bevel edge.

Before Welding

Before welding the following points to be ensured by QC engineer

- Electrode/filler wire for welding is as per approved WPS
- Bevel preparation is as per joint design in WPS.
- Welder is qualified for welding.
- Joint identification is done as per requirement.
- Check surface to be welded is free from oil, grease or any other impurities.
- Check purity of argon gas.
- All safety precautions before start of hot job.
- Welding machine, mother oven and portable oven need to be calibrated on timely basis.

Backing

- Backing is a material or device placed against the back side of the joint. To support shield molten weld metal, Permanent backing is designed to remain in place as part of the finished weld.

During Weld

- Check current polarity and voltage
- Check Inter-pass temperature.
- Pre heating to be done as per approved WPS
- Conditions of electrodes/filler wire.

After Welding

- All scale of slag remaining on any bead or pass shall be removed before depositing the next successive bead. Any unacceptable discontinuity that appears on the surface of any bead shall be removed by grinding, gouging or complete removal of the bead(s) before depositing the next successive bead.
- For, SMAW bead width shall be not more than 2 ½ times the diameter of electrode. Weld reinforcement shall be as per B31.3.

Joint Identification & Marking

- Before welding, each connecting part shall be hard stamped with a low stress die punch. Identification shall consist of spool/part no, joint no, isometric/drawing no, welder no, etc.

- All these identifications are to be verified by the QC Engineer prior to give the permission for welding.

11 ATTACHMENTS

- Welder Performance Qualification Record : Attachment: I

ATTACHMENT: I

VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED
GROUP OF COMPANIES

WELDER PERFORMANCE QUALIFICATION
(code of construction)

PROJECT NAME :
CLIENT :
NAME OF WELDER :
WELDER ID :
WPS NO. FOLLOWED :
TEST COUPON :
BASE METAL :
TEST COUPON SIZE :

Welding Variables	Actual Values	Range Qualified
Welding Process(es)		
Type (i.e, Manual, Semi-Automatic)		
Material Size (mm)		
Material Thickness (mm)		
Type of Weld Joint		
Base Metal		
Filler Metal Specification		
Filler Metal Classification		
Filler Metal F No.		
Filler Metal Product Form (Solid/ Core / Flux Core)		
Welding Position		
Progression (Uphill / Downhill)		
Single or Multiple Electrode		
Backing Gas for GTAW, PAW, GMAW, FUEL Gas to OFW		
GMAW Transfer mode / Metal Transfer mode		
Polarity		

Examination Details :

Radiographic Test :	Report no. :
Tensile Test :	Report no. :
Bend Test :	Report no. :
Fillet Test :	Report no. :
Macro Test :	Report no. :
Film Evaluated By :	Report no. :

REVIEWED & APPROVED BY :

VE QC	CLIENT-QC/TPI
SIGN:	SIGN:
Name:	Name:
Date:	Date:

VE/QA/FORMAT/51 REV.01