

KLM Technology Group Project Engineering Standard	 www.klmtechgroup.com	Page : 1 of 13
		Rev: 01
		July 2012
KLM Technology Group #03-12 Block Aronia, Jalan Sri Perkasa 2 Taman Tampoi Utama 81200 Johor Bahru Malaysia	Welding Control Procedure (PROJECT STANDARDS AND SPECIFICATIONS)	

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
1.0	PURPOSE	2
2.0	SCOPE	2
3.0	REFERENCES	2
4.0	DEFINITIONS	2
5.0	PROCEDURE	2
	5.1 Welding Procedure Specification	2
	5.2 Welder Qualification	3
	5.3 Welder Performance	4
	5.4 Welding Machine Maintenance	4
	5.5 Material Inspection	5
	5.6 Fit-Up	5
	5.7 Welding Sequence	6
	5.8 Preparation Prior Welding	7
	5.9 Inspection during Welding	8
	5.10 Inspection after Welding	9
6.0	SPECIAL REQUIREMENTS	11
7.0	RECORD	13

KLM Technology Group Project Engineering Standard	 www.klmtechgroup.com	Page : 2 of 13
		Rev: 01
		July 2012
KLM Technology Group #03-12 Block Aronia, Jalan Sri Perkasa 2 Taman Tampoi Utama 81200 Johor Bahru Malaysia	Welding Control Procedure (PROJECT STANDARDS AND SPECIFICATIONS)	

1.0 PURPOSE

This purpose describes the general requirements for control of welding activities to ensure all production welds are of good quality, meeting COMPANY's specifications.

2.0 SCOPE

This procedure covers all stages of work before welding, which include selection of WPS, welder qualification, welding machine maintenance, material identification, visual inspection, welding sequence and inspection during and after welding.

3.0 REFERENCES

- ANSI B31.3 (Latest Edition) : Chemical Plant and Petroleum Refinery Piping
- ASME IX (Latest Edition) : Welding and Brazing Qualification
- AWS D1.1 (Latest Edition) : Structural Welding Code

4.0 DEFINITIONS

- UT - Ultrasonic Testing
- RT - Radiographic Testing
- WPS - Welding Procedure specification
- MPI - Magnetic Particle Inspection
- NDE - Non Destructive Examination
- NDT - Non Destructive Testing
- QA - Quality Assurance
- QC - Quality Control
- AFC - approved for Construction

KLM Technology Group Project Engineering Standard	 www.klmtechgroup.com	Page : 3 of 13
		Rev: 01
		July 2012
KLM Technology Group #03-12 Block Aronia, Jalan Sri Perkasa 2 Taman Tampoi Utama 81200 Johor Bahru Malaysia	Welding Control Procedure (PROJECT STANDARDS AND SPECIFICATIONS)	

5.0 PROCEDURE

5.1 WELDING PROCEDURE SPECIFICATIONS

- 5.1.1 Prior to fabrication, CONTRACTOR shall identify from the pre-accepted Welding Procedure Specifications, the applicable WPS for the work. The list of the applicable WPS shall be submitted to COMPANY for review and approval.
- 5.1.2 If additional WPS is required, the additional WPS shall be qualified in accordance with the latest edition of AWS D.1.1 for structural, ASME section IX for piping and COMPANY specifications.
- 5.1.3 It is the duty of the Contractor's Welding Engineer to formulate WPS applicable to the joint configuration and application.
- 5.1.4 The additional WPS shall be submitted to COMPANY for review and approval before commencement of qualification test.
- 5.1.5 Upon approval of the procedure, a welding procedure qualification test shall be carried out in the presence of COMPANY's representative. COMPANY shall be informed at least two (2) days before the testing.
- 5.1.6 The test piece shall be visually inspected before and after welding and nondestructive tested in accordance with COMPANY specification. The acceptable test piece shall be sent for mechanical testing by an independent third party approved by COMPANY. COMPANY shall be informed at least two (2) days before the testing and reserve the right to witness the testing.
- 5.1.7 A complete documentation of the Welding Procedure Qualification Records, NDT reports, material mill certificates, welding consumable certificates, welding procedure chart and mechanical test results shall be compiled together with WPS and submitted to COMPANY for endorsement.

KLM Technology Group Project Engineering Standard	 www.klmtechgroup.com	Page : 4 of 13
		Rev: 01
		July 2012
KLM Technology Group #03-12 Block Aronia, Jalan Sri Perkasa 2 Taman Tampoi Utama 81200 Johor Bahru Malaysia	Welding Control Procedure (PROJECT STANDARDS AND SPECIFICATIONS)	

5.1.8 Contractor's Welding Engineer shall issue a monthly updated WPS summary register of all the approved WPSs applicable to the work to the relevant Contractor's departments i.e. QA/QC, Production, Engineering, etc for information.

5.2 WELDER QUALIFICATION

- 5.2.1 Prior to fabrication, CONTRACTOR may submit names of welders who were previously qualified on COMPANY's projects or from other projects together with their performance records to COMPANY for consideration on acceptance without qualification test.
- 5.2.2 Those welders or welding operators that need to be qualified shall undergo Welders or Welding Operators Qualification Test using the approved previously qualified WPS for each welding process to be used in the production welding as per the latest edition of AWS D1.1 or ASME section IX requirements for structural and piping respectively.
- 5.2.3 CONTRACTOR shall inform COMPANY at least 48 hours prior to any welder qualification test. Contractor's welding inspector shall monitor the welders during the qualification and check the welding parameters used by the welders from time to time.
- 5.2.4 The performance test may be terminated at any stage of the qualification test, when the welder or welding operator does not have the required skill to produce satisfactory results.
- 5.2.5 The qualification of welders or welding operators shall be conducted in the presence of a COMPANY representative.
- 5.2.6 The final acceptance of the welders or welding operators qualification test shall be approved by COMPANY.