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| **Quality Control Plan** | |
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| **Client:** |  |
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| **Project:** | Pipe spools and Supports Fabrication |
|  |  |
| **RFL Enquiry No.:** | All |
|  |  |
| **Job No.:** | QP / / 001 |



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|  | **Author** | **Approved by** | **Client Approval** |
| Name | James Howard | John MacKenzie |  |
| Title | Quality Management Representative | Fabrication Director |  |
| Date | 10/4/15 | 10/4/15 |  |

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| Key: |  |  |  |
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| A | Approve Activity | | |
| RFL | Rotech Fabrication Ltd. | | |
| ICB | Independent Competent Body | | |
| R | Review. Compare data record with client specified acceptance criteria. | | |
| H | Hold. Process / activity should cease until instructed by QC department. | | |
| W | Witness. Process / activity to be witnessed, documented and maintained. | | |
| M | Monitor. Review processes / activities periodically to ensure progress. | | |
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| P.M | Production Manager | P.E | Project Engineer |
| Q.C | Quality Control | W.S | Workshop Supervisor |
| S/MC | Stores / Material Control | W.P | Workshop Personnel |

1. Applies to Percentage Activity. Petrofac / ICB to be advised when activity is to commence.
2. Applies to Safety Critical Fabrications only.

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| Ref | Process Activity | QA / QC Activity | Acceptance Criteria | QP Ref | Verification Documents | Inspection | | |
| RFL | Client | ICB |
| P.E.  P.M. | Order Receipt-Review Contract and Job Specifications. | Register-Allocate Unique Job No. | Conformance to Original Quote. | QP-02  QP-03 | Contract Review Documents | R |  |  |
| P.E.  P.M. | Receive Drawings and Specification. | Acknowledge Receipt by Signing and Dating Client Transmittal. | N/A | QP-02  QP-03 | Client Drawings/Specifications | R |  |  |
| P.M. | Review Drawing and Contract. | Finalise Full Work scope. | N/A | QP-02  QP-03 | Contract Documentation | R |  |  |
| P.M. | Check Approved for Construction Drawings & Documentation | Register Drawings & Documents. Identify Issue & Revision Status. | N/A | QP-05 | Drawing Register/Transmittal Sheets. | R |  |  |
| Q.C | Prepare NDT Schedule From Client Supplied AFC Drawings & Data. Prepare Material Traceability sheets. | Check AFC Drawings Issue/REV Status. | Clients acceptance criteria | QP-05 | AFC Drawings & Data. | H/R |  |  |
| PM  Q.C | Submit Weld Procedures For Client Approval. | Ensure Compliance with Client Requirements. | Approved procedures | QP-09 | Weld Procedures Approval Sheets. | H/R | H/A | R (2) |
| Q.C | Review Welder Qualifications | Ensure Welders Qualified To Approved Weld Procedure. | N/A | QP-09 | Welder Qualifications Matrix. | H/R | R | R (2) |

Document Approval

Material Control

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| Ref | Process Activity | QA / QC Activity | Acceptance Criteria | QP Ref | Verification Documents | Inspection | | |
| RFL | Client | ICB |
| S/MC | Receive Client Free Issue Material & Check RFL Supplied Material. Perform Materials Receipt Inspection-Mark Identification Numbers Against Supplied Test Certificates & Delivery Note. | Identify Shortages, Damage, Quantity & Report. Check Material/Test Certificates & Verify Conformance to Specs. | Material Specifications/ Certificates. | QP-10 | Material Receipt Sheets,  Test Certification, Delivery Notes. | H/R | R | R (2) |
| S/MC | Report Non-Conformances on Material Damage Etc. | Carry Out 2nd Inspection-Raise NCR | Material Specifications | QP-10 | Non-Conformance Report. | H/R | H/A |  |
| S/MC | Material & Goods To Be Stored In Accordance With Clients Requirements. | Check Storage/Handling Of Goods & Materials. | Client/Suppliers Specifications. | QP-14 | Relevant Specification. | H/R | M |  |
| S/MC | Issue Material/Items For Fabrication | N/A | AFC Drawings | QP-08 | Material Control | M | M |  |
| S/MC | Material Allocation/Traceability | Check Material Index/Traceability Logs | Material Receipt Logs | QP-08 | Material Control Sheets | M | M (2) | M (2) |

Fabrication

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| Ref | Process Activity | QA / QC Activity | Acceptance Criteria | QP Ref | Verification Documents | Inspection | | |
| RFL | Client | ICB |
| Q.C  WS | Check Structural/Piping Drwgs/Procedures Revision Status-Issue for Fabrication. | Confirm all Structural /Piping Drwgs are Current Status. | AFC Drawings Procedures. | QP-10 | AFC Drawings, Piping Isometrics. | R | M |  |
| WP | Draw Material From Stores & Return all Surplus Materials to Stores | Check-Mark Out-Transfer Identification No’s To All Off Cuts. Check Material Type. | AFC Drawings | Job Spec | AFC Drawings Piping Isometrics. | M | M |  |
| WP | Prep & Clean Weld Ends on Material. | Check Prep Angles Against Relevant Weld Procedure. | Approved Weld Procedure | Job Spec | Weld/NDT Logs. | H/M | M (2) | M (2) |
| WP QC | Assemble & Fit Up Components. | Sample Check Fit Up Dimension-Root-Gap. Tack Welding. | AFC Drawings. Approved Weld Procedures. | Job Spec | Weld/NDT Logs. | M | M (2) | M (2) |
| WP | Weld Components. | Check Welders Qualified - Ensure WPS Correct - Consumables Comply With WPS. Check Pre-Heat Requirements, Weld Parameters, Consumables, Interpass Temperature, Weld Interruption & Record Welder Indents. | Job Spec, NDT Drawings, Piping Isometrics. | QP-9 | Weld/NDT Logs. | M | M (2) | M (2) |

Fabrication cont.

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| Ref | Process Activity | QA / QC Activity | Acceptance Criteria | QP Ref | Verification Documents | Inspection | | |
| RFL | Client | ICB |
| QC | Check Completed Welds. | Visual Examination Of Welds. | Job Spec | QP-09 | Weld/NDT Logs. | H | M (2) | M (2) |
| QC | Dimensional Control. | Carry Out Dimensional Survey. | Job Spec | QP-09 | AFC Drawings | M/R | M | M (2) |
| WS | Submit NDT Procedures. | Client Approval of NDT Procedures. | Approved Procedures |  | NDT Procedures. | H/R | R | R (2) |
| QC | Carry out NDT On Welds | Check NDT Requirements. Raise PO For NDT Sub Contractor. | Client spec | QP-05  QP-09  QP-10 | NDT Reports/Radiographs | H/R/M | R | R (2) |
| QC | NDT | Check Reports for Accuracy & Legibility, Identify Repairs/Area Where Found. | Client spec | QP-09  QP-10 | NDT Reports/Radiographs | H/R/M | R | R (2) |
| WP | Repair Welds As Required. | Identify Non-Conforming Welds, Place on Hold Until Disposition Actioned. | Job Spec | QP-09  QP-10 | NDT Reports/Radiographs | H/R/M | R |  |
| QC | Load testing | Check Loadtest Requirements/Raise PO for Loadtest Sub Contractor | Job spec | QP-05  QP-09  QP-10 | Reports | H/R/M | R | R (2) |
| QC | Loadtest / Post load test ndt | Check Reports for Accuracy | Client spec | QP-09  QP-10 | Reports | H/R/M | R | R (2) |

Hydrotesting

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| Ref | Process Activity | QA / QC Activity | Acceptance Criteria | QP Ref | Verification Documents | Inspection | | |
| RFL | Client | ICB |
| WS | Submit Hydrotest / Procedure | Client Approval for Hydrotest Procedures | Approved Procedures | QP-05  QP-10 | Approved Procedure | H/R/W | R | R |
| QC | Hydrotest Pipespools. Items | Check Welds Complete Monitor Test in Accordance with Procedure. Carry Out Final Visual. Carry Out NDT where required. | Clients Specs | QP-10 | Hydrotest Reports/Graphs | W/R | W (1) (2) | W (1) (2) |

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| WS QC | Submit Coating Requirements Procedure. | Sample Check On Completion That Coating Is Per PO/Procedure. Carry Out Visual. | Client spec | QP-05  QP-10 | Coating Reports. | R/W | R/W |  |

Coating

Final Inspection and Despatch

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| Ref | Process Activity | QA / QC Activity | Acceptance Criteria | QP Ref | Verification Documents | Inspection | | |
| RFL | Client | ICB |
| WS QC | Final Inspection | Final Visual Inspection, Review all Documentation | Ensure compliance with contract requirements | QP-14 | Contract requirements | R/W | H | R (2) |
| QC WS | Despatch | Cleanliness, Flange Faces & Machined Surfaces are Protected, Items Are Ready For Shipping Etc.  Prepare: Release Dispatch Notes. Ship To Client. | Contract Requirements | QP-14 | Release And Dispatch Notes. | H/M | W |  |

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| QC | Documentation | Check All QC Documentation Is In Order, Prepare Completed Contract QC Pack. Submit To Client For Acceptance. | Contract Requirements. | QP-15 | QC Documentation Package | H/R | R/A | R (2) |

Documentation