

**SUBJECT** : STANDARD OPERATING PROCEDURE – QA QC

### 1. REVISION RECORD

Doc. No.	Rev.	Date	Prepared By	Approved By	Description of Changes
BISPL/QA/SOP/01	00	14-11-2024	S Harikrisha	T.Raju	Initial issue

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**1.0 PURPOSE**

The purpose of this procedure is to define the method of Inspection and Testing activities to ensure that specified contractual requirements for the products are met during material receipt, in process & final inspection stages.

**2.0 SCOPE**

This procedure is applicable to all processes, controlling the quality requirements at various stages of execution during design, procurement, material receipt, fabrication & painting, delivery & installation at project sites (where applicable).

**3.0 DEFINITIONS AND ABBREVIATIONS**

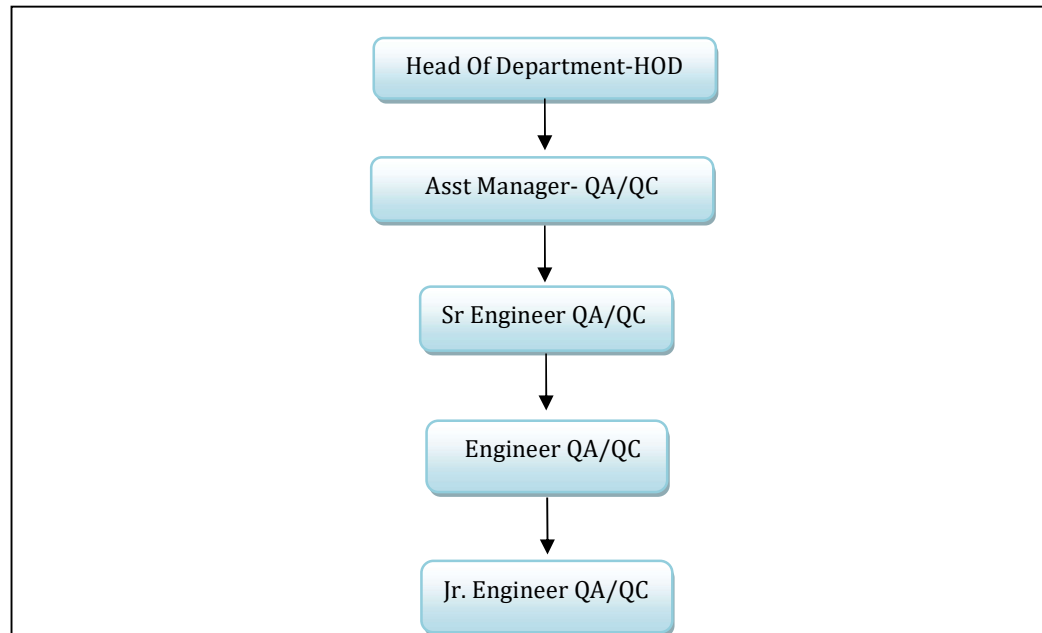
- SOP – Standard Operating Procedure
- QCP – Quality Control Procedure
- CWI - Certified Welding Inspector
- QAP – Quality Assurance Plan
- WPS – Welding Procedure Specification
- PQR – Procedure Qualification Record
- WPQR – Welder Performance Qualification Record
- NDT – Non-Destructive testing
- IC-Instrument Calibration

**4.0 REFERENCE STANDARDS AND DOCUMENTS**

- ISO 9001:2015 –Quality Management Systems -Requirements
- BISPL Quality Manual (BISPL/QMS/01)
- AWS D1.1-2020 Structural Welding Code
- IS, ASTM, ASME & MBMA standards relevant to steel structures
- Project Specifications
- BISPL/QA/QAP/03 – STD QAP for Pre-Engineered Structures
- BISPL/QA/BIR/14 – Built Up Inspection Report
- BISPL/QA/WIR/15 – Welding Inspection Report
- BISPL/QA/LPR/16 – Liquid Penetrant Report
- BISPL/QA/UR/17 – Ultrasonic Report
- BISPL/QA/FIR/18 – Final Inspection Report

- BISPL/QA/BPIR/19 – Blasting & Painting Inspection Report
- BISPL/QA/PDIR/24 - Pre-dispatch Inspection Report.

## 5.0 QA/QC ORGANOGRAM



## 6.0 RESPONSIBILITIES

### 6.0.1 QA/QC IN-CHARGE

#### Quality Assurance Activities

- Finding out project specific requirements and ensuring it is met during various stages of execution.
- Ensure that an effective and efficient quality management system is established, implemented and maintained in the organization to achieve quality objectives.
- Ensuring QMS effectiveness throughout the organization and the demonstration of the effectiveness of quality system through management review meetings
- Plan and Carry internal ISO audits in accordance with the documented procedures,
- Coordinates for external audits

- Prepare Quality Assurance Plan (QAP), Quality System procedures in accordance with the applicable standards/ Client specifications.
- Guide and direct the QA/QC team to implement established procedures through quality control systems.
- Client Submission
- Initial Submission-Ensuring Submittals of documents for approval like QAP, Internal Formats & Procedures
- Final Submission-Ensuring Final dossiers submitted to client as per the agreed plan/approved procedure.
- Liaise on quality matters with customers, suppliers and certification authorities, vendors, sub-contractors etc.
- Recording & addressing the customer complaints.
- Organizing management review meeting every six months.
- Identify training needs and organize training program/induction through internal /external agencies.
- Raising internal NCR for any non-conformity / deficiency in the process.

**Quality Control Activities**

- Inspection at sub-contractors' shop is carried out for the outsourced jobs.
- Inspection at vendor/supplier before purchasing bulk items for stock /projects.
- Ensuring quality records are maintained as per the requirement.
- Attending and coordinating meetings within the company for internal dept. and client.
- Assessing new vendor capability through Vendor evaluation.
- Promote teamwork and liaise with other departments to maintain the same.

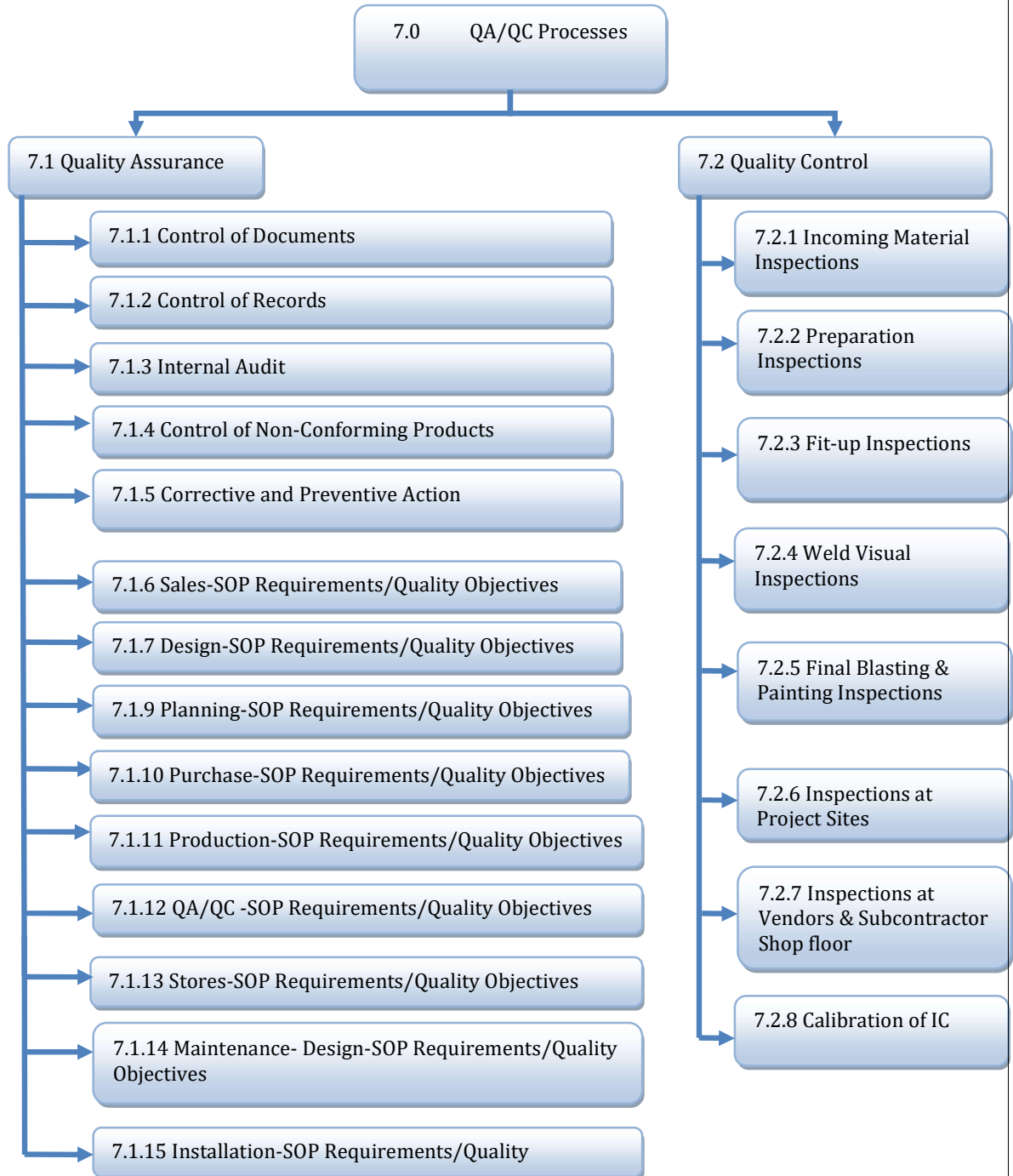
**6.0.2 QA/QC ENGINEER (FABRICATION & WELDING)**

- Ensure focus on customer requirements throughout the project execution.
- Ensure that inspection and testing comply with the specified requirements in QAP
- Preparing of quality documents for client/consultant submission for initial submission and final dossier submission.
- Physical inspection of the incoming raw materials, review of MTC and authorizes for use.
- Coordination with NDT Technicians. Ensures NDT being carried out in accordance with approved QAP and randomly witness the NDT test.
- Carry out fit-up and dimensional inspections.
- Ensures fabrication control, welding control and welding consumable control is being done as per BISPL/QA/SOPW/02.
- Create awareness to welders on requirements of the WPS, PQR
- Training of tradesmen in workshop.
- Liaise on quality matters with production department on a daily basis.
- Liaise with client /consultant inspector for inspection in workshop.
- Generate & Maintain Quality Records in accordance with the established procedures.
- Inspection of all activities in accordance with Quality Assurance Plan.
- Updating and maintaining records for Qualification of welders, NDT Qualification & Calibration of IC etc.)
- In-process inspection during preparation, fit-up, welding, final, blasting & painting.
- Prepare and sign paint inspection reports and where applicable, coordinate with TPI / Client representatives.
- Releasing items for blasting and painting after visual & dimensional inspection.

**6.0.3 QA/QC ENGINEER(PAINTING)**

- Promote established policies and objectives throughout the department to increase awareness, motivation, and involvement.
- To focus on procedure requirements throughout the painting process.
- Adhering to the specifications, inspection and test plans are being followed at each stage of surface preparation & coating activities.
- Ensure inspection and test equipment used are calibrated and are maintained in good condition.
- On Job training to blasters & painters & to reduce paint wastage by adopting proper techniques
- Regular surveillance inspections on paint storage as per manufacturer's recommendation.
- Check & record climatic conditions at regular intervals so as to ensure painting is done in a controlled atmosphere.
- Highlight any deficiencies to QA/QC HOD to take necessary actions.
- Batch Certificates for paint, thinners and abrasives shall be reviewed by and same shall be documented in Incoming material inspection report.
- In-process inspection to monitor mixing of paints, pot life and induction time, application techniques, etc.
- To conduct crosscut test on random basis to ensure proper adhesion is achieved.
- Visual Inspection after Blasting and after application of each coat to be done by painting Inspector and results to be recorded in Blasting and Painting report
- Prepare and sign paint inspection reports and where applicable, coordinate with TPI / Client representatives.
- Dispatch clearance after final visual and DFT check

### 7.0 QUALITY PROCESSES





**7.1 QUALITY ASSURANCE PROCESS****7.1.1 List of Documented Information**

List of documented Information shall be done in accordance with BIS/LDI/QA/001.

**7.1.2 Control of Records**

Control of records shall be done in accordance with BISPL/IMS/DC/017

**7.1.4 Internal Audit**

Internal audit process shall be done in accordance with BSIPL/IMS/IAPR/011.

**7.1.5 Control of Non-Conforming Products**

Non-conforming product process shall be done in accordance with BISPL/IMS/IAO/015.

**7.1.6 Corrective and Preventive Action**

Corrective and Preventive Action shall be done in accordance with BISPL/IMS/IAC/016

**7.1.7 Control of Sales Process**

Control of the sales process shall be done in accordance with Standard operating procedure : BISPL/SM/SOP/001.

**7.1.8 Control of Design Process**

Control of the design process shall be done in accordance with Standard operating procedure: BISPL/D&D/SOP/001.

**7.1.9 Control of Planning Process**

Control of the planning process shall be done in accordance with Standard operating procedure: BISPL/PPC/SOP/PP/001

**7.1.10 Control of Purchase Process**

Control of the planning process shall be done in accordance with Standard operating procedure: BISPL/PR/PP/001

**7.1.11 Control of Production Process**

Control of production process shall be done in accordance with Standard operating procedure: BISPL/PRD/SOP/001

**7.1.12 Control of QAQC Process**

Control of QA/QC process shall be done in accordance with Standard operating procedure : BISPL/QA/SOP/01.

**7.1.13 Control of stores process**

Control of the store's process shall be done in accordance with Standard operating procedure: BISPL/STORE-SOP-001.

**7.1.14 Control of Maintenance process**

Control of maintenance process shall be done in accordance with Standard operating procedure: BISPL/MTN/SOP/001.

**7.1.15 Control of Project process**

Control of project process shall be done in accordance with Standard operating procedure: BISPL/INSTALLATION/SOP/001.

**7.2 QUALITY CONTROL -PROCESS FLOW CHARTS**

7.2.1 Incoming Material Inspection

7.2.2 Preparation Inspection

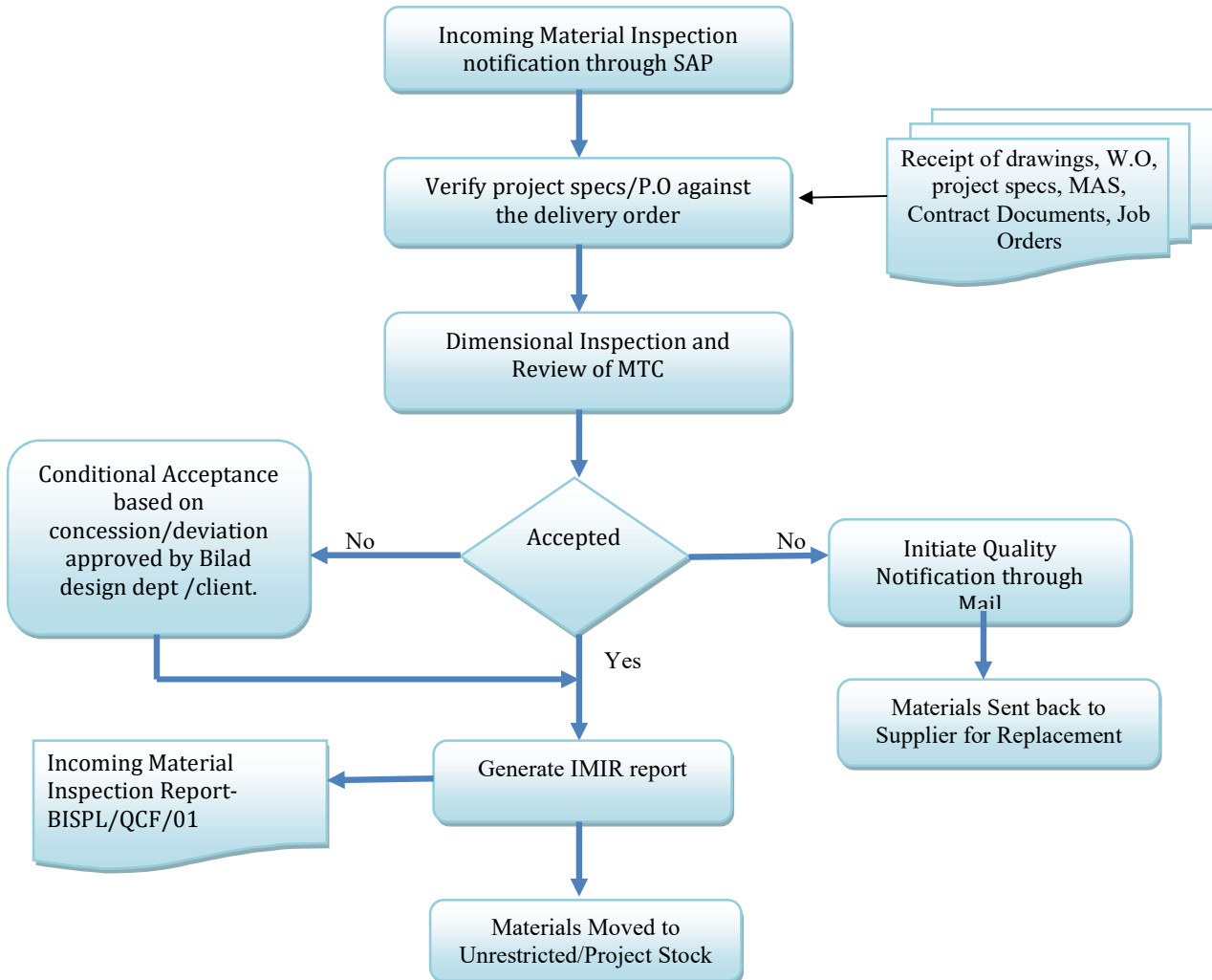
7.2.3 Fit Up Inspection

7.2.4 Weld Visual Inspection

7.2.5 Final Blasting & Painting Inspection

7.2.6 Pre-dispatch Inspection Report (PDIR)

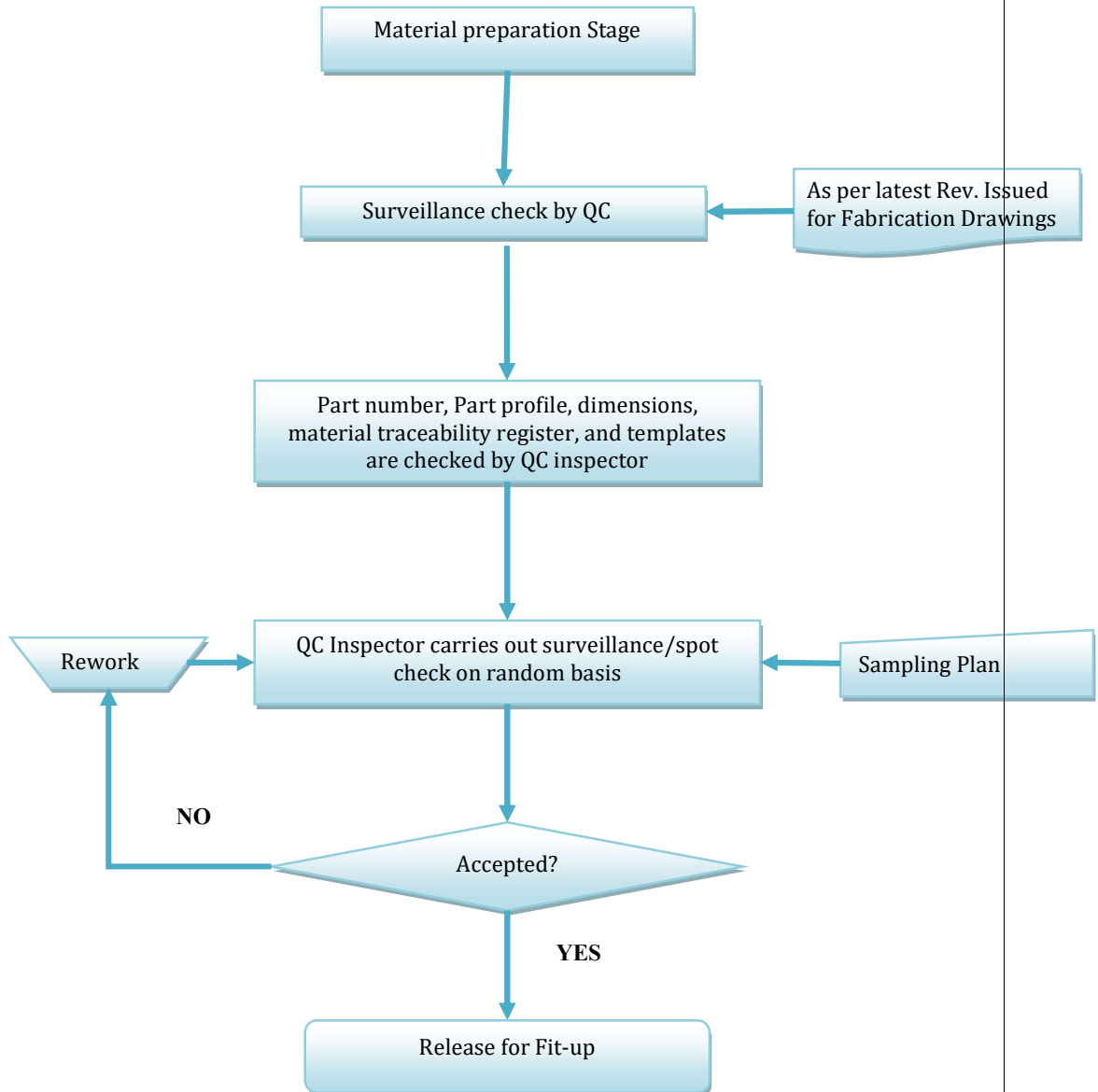
### 7.2.1 INCOMING MATERIAL INSPECTIONS



### 7.2.2 PREPARATION INSPECTIONS

- In-process inspection for erection works will be carried out by Project Engineer and surveillance inspection is carried out by Project Manager/ Quality In-charge as per the ITP for Erection Works
- If site welding activities are carried out inspections will be organized for fully completed site welded connections.
- Final DFT check is carried out for fireproofing to structural members and for paint touch ups. Conducting internal quality audits for

compliance with the procedures



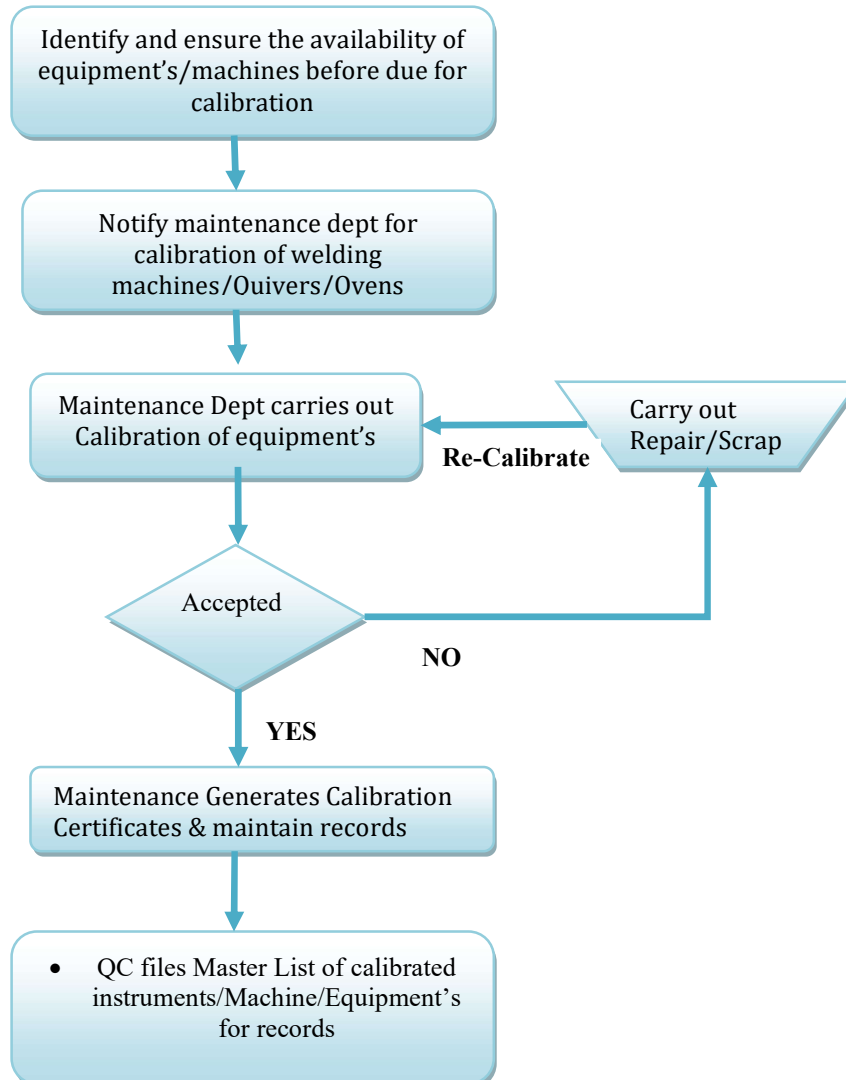
**7.2.7 Inspections at Vendor & Subcontractor Shop floor**

- Vendor inspections at the vendors manufacturing area are designed to verify that the fabrication and coating of structural steel component is being fabricated strictly to the fabrication drawings. The main aspect of the vendor inspections is to verify and ensure that the vendor has complied with the specification requirements given by BISPL.
- The documentation work related to vendor fabricated products will be generated by BISPL QC department.
- If any major deviation observed by the inspector will be documented by raising NCR as per the documented procedure for non-conforming products BISPL/QA/NCR/23 and the same will be closed by vendor by taking correction and corrective action and verified by BISPL

**7.2.8 Calibration of IMTE**

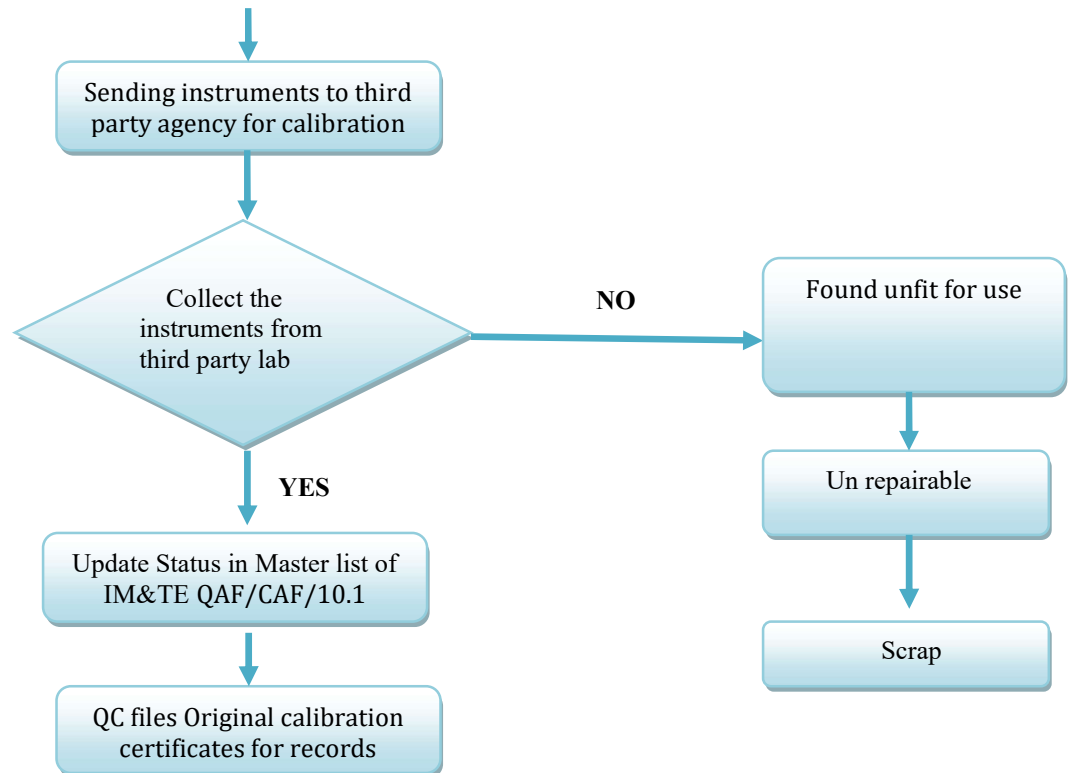
Inspection, Measuring & Test Equipment as given in the flowcharts is used to demonstrate the conformance of the product to the specified requirement.

**In-house Calibration for Welding Machines, Quiver, Ovens and Measuring tapes**



**Third Party Calibration of IM&TE**

Equipment's /Machines due for calibration before 3



## 8.0 RECORDS/ATTACHMENTS

- Incoming Material Inspection Report -BISPL/QA/IMIR/11
- Fit Up inspection Report-BISPL/QA/BIR/14
- Welding Inspection Report-BISPL/QA/WIR/15
- Dye penetration test Inspection Report-BISPL/QA/LPR/16
- Ultrasonic test Inspection report-BISPL/QA/UR/17
- Blasting and Painting Report-BISPL/QA/BPIR/19

## 9.0 Work Instruction

- Work instruction BISPL/QA/WIQ/05