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1.4 ORGANIZATION CHART
1.1 PURPOSE

This chapter describes the overall organization of CHIENG SHYONG MACHINERY CO., LTD., the authorities, the assigned responsibilities, and the various functions in the quality control system are shown in the organization chart. Specific duties and responsibilities are described in the following chapters.

1.2 ORGANIZATION

The organizational chart is shown in paragraph 1.4., and Chapter 12 describes the field construction in detail.

1.3 AUTHORITY & RESPONSIBILITY

1.3.1 BUSINESS MANAGER

He shall have overall responsibility for the following:
Contract negotiation / confirmation with customer.
Coordinating with customer for specification and/or drawing clarifications and approval.
Assigning the project number and issuing order entry and customer’s inquiry specification to QC, Engineering, and Fabrication Departments for review.

1.3.2 ASSISTANCE PURCHASING MANAGER

He shall have overall responsibility of purchasing related activities.

1.3.3 ENGINEERING MANAGER

He shall have overall responsibility for the following:
Review and evaluation of customer’s inquiry prior to acceptance of job order.
Assigning equipment serial number if not assigned by customer.
Preparation / Review / Approval / Revision of shop drawings and design calculation.
Preparation of RPE qualification record and arrangement of RPE certification of design document for vessel construction in accordance with Section VIII Div. 2.
Review/Approval of drawings/design calculation provided by customer.
Preparation and approval of purchase specification for Code material and parts other than welding materials and NDE materials.

1.3.4 FABRICATION MANAGER

Undertaking of fabrication activities, including material issue, cutting, forming, welding, PWHT and pressure testing etc.
Qualification and certification of PQR/WPQ.
Training, qualification and certification of welders/welding operators and maintenance of their qualification.
Handling, storage and/or conditioning of materials including welding material except NDE materials.
Preparation and approval of purchase specification of welding materials.
Preparation and approval of fabrication flow chart and traveler sheet.
Conducting the qualification tests for WPS, preparation of WPS of each Code work.
Review customer inquiry specification and order entry.

1.3.5 QUALITY CONTROL MANAGER

Review of customer’s specification and order entry to ensure applicable Code edition/addenda has been designated.
Review of shop drawings/design calculations and all purchase specifications to ensure they meet Code and customer’s requirement.
To ensure only Code permitted materials are used for fabrication.
To ensure all tests, examinations and inspections have been planned and carried out as per the Code, customer, and this Manual requirements.
Review of PQR/WPQ and approve WPS to ensure proper qualification in accordance with the Code requirements.
Training, qualification and certification of VT examiner/NDT personnel, or evaluation of external agency’s qualifications to meet Code requirements, and maintenance of valid
qualifications.
Control and assign of National Board Serial Number.
Preparation, review and sign off Manufacturer’s Data Report and submission of the same to National Board for registration.
Maintenance of ASME Code Symbol Stamps and the Certificates of Authorization.
Review and approval of RPE qualification for Section VIII Div 2, U2 vessels.
Preparation, review, revision, approval and distribution of Quality Control Manual.
Review of newly issued Code edition / addenda to identify the need for necessary change of existing Quality Control System.
Review of purchase specification.
Review of fabrication flow chart and traveler sheet.

1.3.6 SITE QC REPRESENTATIVE
Review of Material Requisition Sheet (EXHIBIT 5) prepared by Site Chief prior to submit to Engineering Department.
Carry out receiving inspection of all materials, parts, items.
To ensure only Code permitted materials, parts or items are used for field construction.
To ensure all tests, examination and inspections have been carried out in accordance with the planning prepared and/or approved by shop. He is responsible for quality document control.
Handling and storage of NDE materials.
Coordinating to work out/follow up on corrective actions to non-conformities.
Request the QC Manager to issue NBSN.
Coordinating with AI and/or customer for inspection.
Maintenance of NDT examiner qualification and applicable written procedures.
Preparation Manufacturer’s Data Report and submit the same for QC Manager written approval prior to sign the MDRT.
Responsible of ASME Code Symbol Stamping and return the stamp to QC Manager after such use.
1.3.7 SITE CHIEF

Undertaking of construction activities in accordance with approved drawings.
Preparation of Material Requisition Sheet.
Handling, storage and/or conditioning of materials including welding materials except NDE materials.
Training, qualification and certification of welders/welding operators and maintenance of their qualifications.
Coordinating with Engineering Department, and client where applicable for clarification/revision of drawings.
1.4 Organization Chart
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2.1 PURPOSE

2.2 DESIGN CONTROL

2.3 PURCHASE SPECIFICATION

2.4 DESIGN DOCUMENT CONTROL AND DISTRIBUTION
2.1 PURPOSE

This chapter defines the control methods and identifies the responsibilities of preparation, review, approval and revision procedures to ensure that only the latest applicable design documents are used in the Fab./Cons. in accordance with the Code and Customer’s Specifications. The design documents include: purchase specifications, customer’s specifications, drawings, and design calculations.

2.2 DESIGN CONTROL

2.2.1 Upon confirmation of contract, Sales Department is responsible to issue a specific “Order Entry” for circulation to Engineering/Fabrication Department. The “Order Entry” (EXHIBIT 6) shall include the following information as a minimum:

- A unique project number shall be assigned by Sales Department, and the assigned project number shall be used throughout the processes which also served as an identification of the vessel/boiler/part.
- Equipment number if assigned already by customer, if not, it will be assigned by Engineering Department.
- Reference number of Customer’s Specification.
- And countersigned by them as evidence of acknowledgement.

Sales Department shall distribute one (1) copy of Order Entry with Document Transmittal after aforementioned circulation together with relevant customer’s specifications, drawing and design calculation to Engineering Department, if provided by customer. Engineering Department is responsible to translate all contract/Code requirements and incorporate the same into the design documents. To achieve this, an evaluation of the Customer’s Specification shall be carried out by the Engineering and reviewed by the QC prior to start of design work. For U2 production, The form of Evaluation of User’s Design Specification “(EXHIBIT 7) shall be used for such evaluation.

2.2.3 Design Section Chief is responsible to assign one (1) competent Design Engineer to work out the drawings and design calculations.
And the project no. shall be assigned on all design documents. The drawings except for “PP” work shall include, but not limited to, the following information:

- Nature of special services, where applicable.
- MAWP (for U & S) or design pressure (for U2) and corresponding design temperature.
- Minimum Design Metal Temperature (for U and U2).
- Operating pressure and temperature, if provided by the customer.
- Corrosion allowance.
- Hydrostatic or pneumatic test pressure.
- Extent of NDE.
- Impact test requirement, or reference Code paragraph if exempted.
- PWHT Requirements.
- Weld joint geometry (or welding symbol).
- Weld joint number.
- ASME stamping or nameplate contents and locations.
- Bill of material
- Nozzle chart, including dimension and purpose.
- Fabrication tolerance requirements.

For “PP” production, the drawings shall include the aforementioned items nos. , , , , , , , , , as minimum. Over pressure protection shall be included in design documents where Code required so.

2.2.4 Design Section Chief shall re-check the drawings / design calculations and circulate the same to QC Department for review and comment, to ensure fully compliance with contract/Code requirements. When comments justified, the drawings / design calculations concerned shall be revised by the Design Engineer and the recheck/review procedure shall be repeated.

2.2.5 At the time, when all drawings / design calculations have been agreed by QC Department. Engineering Manager shall approve the drawings / design calculations, submit the same for customer approval, if required. And then release the same for fabrication / construction, upon releasing, red stamped the drawings with “For
2.2.6 Fabrication” or “For Construction”. It shall be noted in the revision history block with revision level, starting with Arabic numeral of “0” and so on.

2.2.6 DRAWINGS/DESIGN CALCULATIONS OF EXTERNAL ORIGIN:
In case when drawings / design calculations are provided by customer or external engineering corporation, the same shall be reviewed by designated Design Engineer for compliance with contract / Code requirements. After necessary revision / deletion / additions to the design package, re-check / review / approval shall follow the same procedure described in aforementioned paragraph. 2.2.4. and 2.2.5.

2.2.7 ADDITIONAL REQUIREMENTS FOR SECTION VIII, DIV. 2;
Design Section Chief is responsible to ensure the UDS has been certified by RPE to comply with the requirements stipulated in the Code paragraph AG-301.1, AG-301-2 and AD-160. This certification process may be arranged and completed by the customer.
Design Section Chief is responsible to nominate a qualified RPE to certify the Manufacturer’s Design Report, who has experienced in pressure vessel design, using form of RPE Qualification Acceptance Record (EXHIBIT 8) and pass it over to QC Manager to determine the acceptability of the RPE.
Before releasing drawings for construction, Design Section Chief is responsible to ensure the drawing and design calculation of the MDR are completed. And it has been certified by the RPE accepted by C.S. for the condition set forth in the certified UDS. Revisions to the essential parameters / conditions/definitions which are required to be specified as per AG-301.1, or other revisions which might reflect on the stress analysis in the MDR, it shall be reconciled with the RPE to re-certify the UDS and / or MDR.
QC Manager is responsible to review the data package prior to final hydrostatic or pneumatic test, verify the appropriateness and completeness of RPE certification of UDS and MDR plus all reconciliation in connection with relevant revisions to UDS and / or MDR.
The requirements of load combinations of AD-150 shall also be taken into consideration.
2.2.8 SECTION I ISOLABLE SUPERHEATER
The design calculation for isolable superheater of PG-58.3.1, shall be certified by a Professional Engineer experienced in the mechanical design of power plants.

2.2.9 FABRICATION OF “U” OR “U2” PARTS
Fabrication of “U” or “U2” parts with partial or without design responsibility may be performed in accordance with customer provided drawings. CS shall retain the responsibilities for Code compliance in all respects except the design responsibility, which is precluded in the relevant contract. QC Manager shall specify the extent of design responsibilities that CS is to assume in the Manufacturer’s Partial Data Report accordingly.

2.2.10 AI REVIEW
When the design calculations / drawings have been completed with aforementioned review / approval procedure, QC Department is responsible to submit one (1) complete set of design document for the review and comments of AI. For “U2” production, QC Department shall submit the certified UDS and MDR for AI’s verification of their existence prior to sign the MDRT, AI is not responsible to determine the correctness and completeness of UDS and MDR.

2.3. PURCHASE SPECIFICATION

2.3.1 Design Engineer of Engineering Department is responsible to prepare a Material Take Off List (EXHIBIT 9) based on the approved drawings, and to prepare the necessary Purchase Specifications for Code materials and parts other than welding and NDE materials.

2.3.2 In case of external services such as forming, heat treatment, calibrations, engineering, and NDE are required as determined by responsible Department, applicable Purchase Specification shall be prepared by responsible Department as follow:
- Engineering, forming: Engineering Department
- Heat treatment: Fabrication Department
- NDE, Calibration: QC Department.

2.3.3. Purchase Specification for welding materials shall be prepared by Welding Engineer.
2.3.4. NDT Level III shall prepare purchase Specification for NDE material.

2.3.5. All Purchase Specifications for materials listed in Material Take Off List shall be forwarded to QC Department with Documents Transmittal for review and comments prior to final approval. The same will be distributed to Fabrication Department with Document Transmittal after approval. When additional material is requested for the same project number, it is allowed to use the same Purchase Specification, which has already issued.

2.4. DESIGN DOCUMENT CONTROL AND DISTRIBUTION

2.4.1. All generated drawings and related design documents, customer’s specifications, design calculations, and Purchase Specifications shall be red stamped with “ASME S”, “ASME PP”, “ASME U”, or “ASME U2” as appropriate.

All drawings released to the shop for fabrication or construction shall be red stamped with “For Fabrication” or “For Construction”, and distributed with a Design Document List (EXHIBIT 10) together with Document Transmittal by the Engineering Department. Photocopy of stamped drawing or related documents for further distribution within any Department (or at site), if required, shall be only through the authorization of respective manager (or Site Chief) by signing his name and date on that photocopy.

2.4.2. At the time design documents are released for fabrication / Construction, a updated Design Document List shall be prepared and maintained by Engineering Department and distributed to, but not limited to, QC and Fabrication Department.

2.4.3. Revision to design documents shall be handled in accordance with the same procedure as for the original. Superseded design documents shall be stamped “OBSOLETE” upon receipt of revised drawings.
2.4.4. All the latest design documents and the Design Document List shall be made available for review by AI.

2.4.5. All non-conformities to the design documents shall be handled in accordance with Chapter 9 of this manual.
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3.1 PURPOSE

3.2 PROCUREMENT CONTROL

3.3 RECEIVING INSPECTION

3.4 CERTIFICATION OF MATERIALS

3.5 MATERIAL HANDLING AND STORAGE

3.6 MATERIAL IDENTIFICATION AND TRACEABILITY
3.1 PURPOSE

This chapter defines the control methods and identifies the responsibilities to ensure that only Code permitted materials, parts, items or acceptable services are purchased, received and/or used for fabrication/construction. Also defines the methods to maintain the identification and traceability of the materials, parts, or items during fabrication/construction.

3.2 PROCUREMENT CONTROL

3.2.1 Purchase Specifications (EXHIBIT 11) shall be prepared, reviewed and approved by responsible Department and personnel as prescribed per Chapter 2. Paragraph 2.3 of this Manual to ensure all purchasing information is accurately defined and provided to the supplier, so that required materials and/or parts or services are received and used for Code products meeting the requirements of the Code and/or customer’s specifications.

3.2.2 Fabrication Engineer shall be responsible for preparing the Material Requisition Sheet (EXHIBIT 5) in accordance with the MTOL and has it approved for purchasing, then pass it over to the Purchasing Clerk to generate Purchase Order (EXHIBIT 4) and issue order to the supplier attached with the relevant Purchase Specification.

3.2.3. Purchased raw materials of pressure part/filler metal shall be one of the SA or SB or SFA specification accepted by the applicable Code Section, or others specifically permitted by the Code. Substitution of material shall not be used without prior approval of Design Section Chief, the acceptance of QC Manager/AI, and/or customer if so required. All applicable design and fabrication documents shall be revised to reflect the new material requirements.

3.2.4 Purchased NDE materials shall meet requirements of Section V, applicable Article and traceable to qualified NDE procedures, where required.
3.2.5 Sub-contracted services such as forming, heat treatment, engineering, or NDE shall meet all requirements of applicable Code Sections. When purchasing forming services, such as cold formed heads, shells or other pressure boundary parts made of carbon or low alloy steel plate. It is required that the Purchasing Specification shall include the requirements for that part manufacturer to certify that the heat treatment requirements have been met as stipulated in UG 79.

3.2.6 RAW MATERIALS / PARTS
Upon completion of preparation /review/ approval of Material Take-Off List which giving information on the required materials, and together with the relevant P.S. shall be forwarded by the Engineering Department to Fabrication Department to check with the stock status. If an item is available, it shall be marked “USE STOCK” in Material Take Off List then the Ware House Clerk shall move the materials/ parts to the Code receiving area and request QC Engineer to perform the receiving inspection in accordance with the approved P.S. All existing CMTR or records pertaining to the stock materials shall be retrieved from QC file and reviewed for acceptance for applicable Code use by QC Engineer. When acceptable, RIR (EXHIBIT 12) and receiving inspection acceptance label / tag shall be issued by QC Department. If a material is not available in stock, it shall be marked with “PURCHASE” and pass the MTOL to Purchasing Department together with Material Requisition Sheet for purchasing.

3.3 RECEIVING INSPECTION
3.3.1 When purchased materials are delivered to the ASME receiving area, Ware House Clerk shall perform visual examination for shipping damages and verify the type, specification, size and quantity whether or not conforming to the P.O.. Ware House Clerk shall mark the project number, equipment number if applicable and P.O. # on the materials and notify QC Engineer for receiving inspection , and forward all quality records such as CMTR/ COC together with P.S. to QC Department.
3.3.2 QC Engineer shall use applicable P.S. cross check with RIR which detailing the examination / review requirements and to serve as a check list for receiving inspection. He shall coordinate and arrange, where required, NDE by NDT examiner and / or any other additional testing / examination stipulated in the P.S.

3.3.3 QC Engineer shall review all quality records and inspect the materials with respect to the size, quantity, specification and grade number, test report, COC, dimension, marking, finish, etc., all of them shall be accurately recorded on the RIR. If inspection is satisfactory, he shall indicate his acceptance in the RIR and submit the same to QC Manager for approval. QC Manager who has authority to issue the Receiving Inspection Acceptance Label/Tag (EXHIBIT 13). Every Acceptance Label shall be indicated with the RIR# project # and / or equipment #, where applicable. Only materials with such label/tag may be moved to ASME stock area and issued for Code fabrication / construction use.

3.3.4 All quality records received/reviewed/accepted by QC shall be marked with project #, and equipment #, where applicable, endorsed by QC Engineer and then filed at QC Department.

3.3.5 All non-conformities to the material shall be handled in accordance with Chapter 9 of this Manual.

3.4 CERTIFICATION OF MATERIALS

3.4.1 ASME CODE SECTION I AND ASME B31.1
For all materials subject to stress due to pressure, certified material test reports, certificate of compliance shall be obtained. Exception is permitted for standard pressure parts such as ASME/ANSI B16 Fittings covered by PG-11.1 and 11.3, where standard required markings may be considered as manufacturer’s certification.
3.4.2 ASME CODE SECTION VIII, Div. 1
For carbon and low alloy steel products that are cold formed by a sub-contractor, the certificate shall be provided and certify that UG-79 requirements have been met. CMTR or COC shall be obtained for all materials used for pressure parts.

3.4.3 ASME CODE SECTION VIII, Div. 2
Following requirements shall be applied:
The material manufacturer shall provide CMTR or COC with a statement that “All requirements of the Material Specification and all special requirements of part AM which are to be fulfilled by the material manufacturer has been complied with. Such CMTR / COC shall be obtained for all materials used for pressure parts and non-pressure parts welded to pressure parts. If CS performs the treatments, tests or examination on the material, A certification shall be prepared by CS to certify the material is in compliance with the special requirements of part AM, this certification shall include certified reports of the results of all tests and examinations on the material.
The Design Section Chief is responsible to add heat treatment, NDE, and impact testing requirements to the materials or test specimens/ coupons in the PS, unless they are to be performed by C.S.
All pressure retaining parts purchased for Section VIII, Div. 2, except for Code permitted ASME/ANSI standard fittings, must specify that the vendor shall provide copies of the certified material test reports/COC, traceable to all materials with that shipment.

3.4.4 It is mandatory, that in the P.S., it shall be indicated whether a CMTR or COC and related requirements are required or not.

3.5 MATERIAL HANDLING AND STORAGE
3.5.1 When material is required for fabrication/construction, the Foreman shall fill out the “Material Receipt Form (EXHIBIT 14), request Ware House Clerk to withdraw material from the ASME stock area.

3.5.2 Before issuing the requested material, Ware House Clerk shall verify that the RI Acceptance Label /Tag does exists on the material, and the project number, equipment number, where applicable, is correct.

3.6 MATERIAL IDENTIFICATION (ID) AND TRACEABILITY

3.6.1 Materials for pressure parts and non-pressure parts welded to pressure parts should be laid out so that when the Code products are completed, one complete set of original ID markings required by the material specification or component standard will be plainly visible. In case the original ID marking would unavoidably cut out or the material is divided into two or more parts, the material heat number shall be transferred to each piece of material prior to cutting during fabrication and subsequent processes by marking or stamping. However, it may allow recording the material heat number on the Traveler Sheet for the traceability of original ID marking and to CMTR or COC. QC Engineer shall prepare a material tabulation or as built sketches for each Code product after completion of construction for AI review prior to sign the MDRT.

3.6.2 For the following condition where die stamping is not permitted, the material may be marked by paint.
   Steel plates of less than 1/4”Th’k.
   Non-ferrous plates of less than 1/2 Thickness.
   Materials where CVN toughness requirement is applicable.
   When customer prohibits or Code forbids due to service requirement or other reason.

3.6.3 For “U2” production
Requirements prescribed in paragraph 3.6.1 of this chapter shall apply to attachments welded to non-pressure parts.
QC Department shall arrange to have AI inspect all materials to see that they bear the ID markings as required per the applicable material specification and component standards prior to fabrication process.
An as-built sketch or a tabulation of material shall be prepared by the QC Engineer, so as to maintain traceability each piece of materials to CMTR or COC and/or coded marking and original ID markings.

3.6.4 For “S” Production
When the boiler is completed, one group of plate manufacturer’s stamps consisting of manufacturer’s name, plate ID, material specification number and grade, class and type as appropriate shall remain visible on shell plates, furnace sheets and heads except that heads containing tube holes and butt straps shall have visible at least a sufficient portion of such stamps for ID. In lieu of the above, the complete markings except plate maker’s symbol may be transferred under control, with procedure and record acceptable to the AI. A coded marking system may be used in lieu of above, if acceptable by the AI.
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4.1 PURPOSE

4.2 RESPONSIBILITY

4.3 DOCUMENT FOR PROCESS CONTROL

4.4 FABRICATION PROCESS CONTROL

4.5 PRESSURE TEST

4.6 MANUFACTURER’S DATA REPORTS

4.7 ASME CODE MARKING
4.1 PURPOSE

This chapter identifies the responsibilities and establishes a quality control system to ensure that the fabrication activities, including Examination, Inspection and Testing (EIT) will be carried out systematically in compliance with the Code and customer’s requirements.

4.2 RESPONSIBILITY

4.2.1 Fabrication Department is responsible for the following:
- Preparation / revision / distribution of “Fabrication Flow Chart” (EXHIBIT 16).
- Preparation / revision / distribution of Traveler Sheet (EXHIBIT 17)

4.2.2 QC Department is responsible for the following:
- Submitting FFC and Traveler Sheet to AI for designate his inspection points;
- Review of WPS / PQR / WPQ to ensure compliance with Code requirements;
- Review and acceptance of heat treatment instruction prior to such treatment / and signed in QC Check Sheet if acceptable.
- Approval of NDE instruction and procedures;
- Conducting and / or arranging EIT activities which have been designated;
- Verifying completion of fabrication inspections, and EIT activities as planned in accordance with the Code requirements and customer’s specification;
- Review of all EIT reports or records to ensure the completeness and correctness of such activities or in compliance with the Code and customer’s requirements;
- Conducting the required hydrostatic or pneumatic test and having the required inspection performed during such test;
- Preparing MDRT and have signed by AI;
- Assigning National Board Serial Number, if it is requested by customer for the registration of MDRT to the National Board.
- Performing Code Symbol Stamping under the authorization of AI;
- Securing all relevant Partial Data Report;
Examination of all materials before fabrication, to make sure that they have the required thickness, to detect defects, to make certain that the materials are permitted by Code, and that the traceability to the material identification has been maintained; Documentation of impact tests results, when such tests are required; Examination of the shell and head sections to confirm that they have been properly formed to the specified shapes, and within the permissible tolerances; Examination of all parts prior to joining, to make certain that they have been properly fitted and fixed for welding, and that the surfaces to be joined have been cleaned, and the alignment tolerances are maintained; Examination of parts during each fabrication stage, to make certain that the defects are not evident, and that the dimensional geometric are maintained; Applying the required stamping and / or nameplate to the vessel, and make certain it has been applied to proper vessel.

4.3 DOCUMENTS FOR PROCESS CONTROL

4.3.1 Fabrication Flow Chart is used to set-up all fabrication processes, and EIT activities in logical sequences for each part / component / vessel / boiler that is assigned with a specific project number and / or equipment number. The traveler sheet is used as a supplementary document to describe these steps in detail, they are to be used together for fabrication / construction.

4.3.2 Fabrication Department shall prepare and approved the FFC / Traveler Sheet in accordance with the approved drawings, Code and customer’s requirements. Discussion is to be held in particular with the Welding Engineer and QC Engineer to ensure that necessary production test and / or NDE examination steps are all incorporated into FFC / Traveler Sheet. Furthermore, it shall be reviewed by QC Department and AI prior to approve / release for fabrication. Approved FCC / Traveler sheet shall be used for Fab /
Cons.

4.3.4 QC Department shall prepare the QC Check Sheet (EXHIBIT 18).
This checklist is a summary format, which is used to ensure overall conformance to the Code and customer requirements, with respect to the design, material, welding, fabrication, examination, test and inspection.
Examination, inspection and testing reports number shall be signed off in the appropriate column upon completion of each assigned activity, and it also provide with column for AI and / or customer to sign / date upon completion of such inspection.

4.4 FABRICATION PROCESS CONTROL

4.4.1 Fabrication Department shall pass over the approved drawing, FFC together with Traveler Sheet to the Foreman that is assigned to the project to start fabrication.

4.4.2 When one of the process step has been completed, and the next step is assigned as EIT, then the in charge Foreman / operator shall notify QC Department, for them to arrange / carry out this EIT operation.

4.4.3 In case of an AI inspection point, QC Department shall give reasonable prior notice to AI, for him to attend that inspection. Fabrication shall never be proceeded to the next step without acceptance of that said inspection.
For an inspection point designated as review point, operation may be continued. As long as the relevant EIT activities, or operation such as RT film review, heat treatment record review, or taking of production test coupon, has been effetely conducted, and their reports / records are being or can be prepared for future review by AI or customer.
4.4.4 For operation step related to EIT, or review activities on the FFC and Traveler Sheet, or on the QCCS, when the results are found satisfactory, it shall be signed and dated by QC Engineer, NDT Examiner, QC Manager and/or AI or customer, where appropriate.

4.4.5 When the next operation step is assigned as taking of production test coupon, the in charge Foreman shall notify:
- Welding Engineer to provide the test plates, and give advice on the test weldments.
- QC Engineer to verify that the heat number of the test plate, and to record the same on the QCCS.

4.4.6 In case of a customer inspection point, QC Department shall notify customer with reasonable time prior to such inspection. Fabrication process shall not be proceeded to the next step without acceptance of this inspection, except that with an oral/written notice, that this inspection point has been waived by the customer. Then QC Department shall conduct such inspection and prepares record as required.

4.4.7 When a pressure vessel is not provided with a manhole or other means of access to internal for inspection. An inspection point shall be set up on the FFC/Traveler Sheet, in order to permit an internal inspection by the QC Engineer and the AI, before starting the final closure welding, or bolting up that inspection openings.

4.5 PRESSURE TEST “PRESSURE TEST REPORT” (EXHIBIT 19)

4.5.1 When all fabrication/construction, inspection, examination, and testing, prior to conduct the Code required pressure test, QC Engineer shall do the following:
- To verify that all required EIT activities have been properly carried out. That all relevant reports/records (data package) have been collected, which including as a minimum but not limited to the following:
  - CMTR/COC
  - Traveler Sheet
FFC
QCCS
WPS Summary & Welder’s Log
NDE report
CVN production test reports
PWHT reports & T-T chart
Dimensional inspection records

To review / verify that the above records are in compliance with Code requirements. It shall be further reviewed by QC Manager, and if found satisfactory, then submitted for review / acceptance by AI.

4.5.2 After AI satisfied and signed off / date the “Data Package Review” step on the QCCS. QC Engineer may proceed to arrange Code required pressure test, which is an AI hold point that is required by the Code.

4.5.3 A standard hydrostatic test shall be carried out in accordance with the “Procedure for Hydrostatic Test “Procedure No. 003.

4.5.4 An alternative pneumatic test may only be carried out in accordance with the provisions set in Section VIII Div.1 & 2, UG-100 and AT-400 respectively. Testing shall be per “Procedure For Pneumatic Test” procedure No.006.

4.6 MANUFACTURER’S DATA REPORTS

4.6.1 Upon satisfactory completion of Code required pressure test, QC Engineer shall prepares the MDRT as required by the Code. When requested by the customer for registration of MDRT, he shall obtain a NBSN that is controlled and issued with neither skip nor gap by the QC Manager. It is the duty of QC Manager to maintain a “National Board Number Control Log (EXHIBIT 20) showing:

- Date of issued
- Type of Code symbol stamped
- Mailing date
- Type of vessel
Manufacturer’s Serial Number and NBSN
Project NO.
Equipment No. if applicable

4.6.2 QC Manager shall verify correctness and completeness of the MDRT, and sign MDRT to certify for the shop compliance and / or field assembly compliance portion. Then submit that MDRT to AI for sign off and provide necessary documents as requested by AI.

4.6.3 AI shall sign the MDRT to certify shop inspection and / or field assembly inspection portion when he is satisfied, that to the best of his knowledge and belief all ASME Code requirements have been complied with. The Code Symbol Stamps when not in use, shall be kept by the QC Manager. When the vessel / part is ready for stamping, and obtained concurrence of AI, QC Manager may give the stamp to the responsible QC Engineer to carry out stamping on the vessel / part or on the nameplate, at the presence of AI. After the stamp has been properly applied, it shall be returned to the custody of QC Manager.

4.6.4 The Code required marking stamped directly on the component or on a separate nameplate for “PP” “S” ”U” and “U2” are shown on exhibit form 21, 22, 23, 24, and 25 their detail location, arrangement, and application shall be in accordance with requirements.

4.6.5 The distribution and registration of MDRT are described in the Chapter 10, paragraph 4, Documents Retention.

4.7 ASME CODE STAMPING

4.7.1 Except for:
Boiler and power pipings or parts, manufactured to Sec. I operating at temperature 800°F or below where stamping directly on the boiler / piping / parts are mandatory. Pressure vessel manufactured to Section VIII Div. 2., Where stamping must be shown on a separate nameplate securely attached to the vessel.
The ASME Code required stamping may be directly stamped on the vessel or shown on a separate nameplate. When nameplate is used, Code symbol, manufacturer's serial number shall be stamped, and the same applies to NBSN, if requested by customer for the registration of MDRT with NATL BD.

4.7.2 QC Manager and AI shall verify the correctness of the nameplate or stamping contents prior to the stamping.

4.7.3 The QC Manager is responsible for Code symbol stamping after he has obtained concurrence of AI. He is also the custodian of all Code Symbol Stamps.
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5.1 PURPOSE

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5.1 PURPOSE

This chapter defines the method and identifies the responsibilities to ensure that all Code welding work is to be performed in accordance with an approved Welding Procedure Specification by qualified welders / welding operators per ASME Code Section IX, and additional requirements stipulated in ASME Code Section I, VIII, Div. 1 and 2, and/or ASME B31.1, as appropriate.

5.2 RESPONSIBILITY

5.2.1 Welding Engineer is responsible for:
- Establish all testing parameters for qualification of WPS (EXHIBIT 26).
- Conduct and supervise the qualification test for WPS.
- Prepare PQR (EXHIBIT 27) and WPQ (EXHIBIT 40).
- Prepare/updating and maintenance of “Welder Qualification Continuity Record” (EXHIBIT 28).
- Prepare and/or select supporting qualified WPS for each and every Code construction project.
- Training and supervising of welders and welding operators.
- Prepare of P.S. and Material Requisition Sheet of welding material.
- Prepare/Revise “Procedure For Welding Material Control”.
- Prepare and supervise test plates/coupon for qualification and/or production tests (such as for CVN test).
- Prepare WPS Summary & Welder’s Log of production welds for each project.

5.2.2 Welding Foreman is responsible for:
- Assist Welding Engineer in preparation for welding procedure qualification / production tests.
- Assign qualified welders and welding operators for production welding.
- Prepare and issue of “Welding Material Issue Slip” (EXHIBIT 29)
- Record the date & welder’s ID for each and every joint in WPS Summary & Welder’s Log. After completion of the log, sign and
submit for approval.
Supervise of production welding.

5.2.3 NDT level III is responsible for:
Performance of NDE as required on the weldments.

5.2.4 QC is responsible for:
Review of PQR and WPQ and signed QC Check Sheet if acceptable.
Approval of WPS.
Approval of WPS Summary & Welder’s log.
Verification of production test plate ID number and monitoring of test plate welding.
Review and acceptance of production test report, where applicable.
Concurrence of the AI prior to any repairs.

5.3 WELDING QUALIFICATIONS

5.3.1 Welding Engineer shall plan and conduct the qualification tests of WPS and welders/welding operators when there are not qualified welders/welding operator(s) existing to meet the specific project need.

5.3.2 For WPS qualification, test weldment shall be performed by skillful welder. Welding Engineer shall:
Record on PQR of all essential and supplementary essential (when the CVN test is required)variables for each welding process used during the welding of the test coupon. All actual values shall be recorded and monitored during the test welding. Plan & supervise preparation of test specimens, and the testing facilities shall be under appropriate calibration control. Maintain the laboratory test reports on file and document the test results on the PQR, and if found satisfactory, submit the PQR to Fabrication Manager for certification.
Prepare WPS, using the data on the relevant supporting PQR, to cover all applicable variables of that production welding. A
completed WPS shall describe all of the essential, non-essential, and when CVN test is required, supplementary essential variables for each welding process that is used in that WPS. Furthermore, it shall be checked by Fabrication Manager and approved by the QC Manager.

5.3.3 For welders / welding operators qualification, it shall be carried out in accordance with a qualified WPS, except that the preheat temperature and / or PWHT requirements of the WPS may be disregarded. Welding Engineer shall:
- Plan and supervise the preparation of test specimen, and
- arrange the mechanical test and / or request QC Department to arrange NDE.
- Record on the WPQ all actual welding test data pertaining to essential variables applicable to the welding process, the test results, and if satisfactory, specify the qualified range to every essential variables. Fabrication Manager shall certify the WPQ.

5.3.4 A “Welder Qualification Continuity Record “ shall be prepared by Welding Engineer to document the following:
- Welder I.D. number
- Type of welding process qualified, and the reference number of WPQ.
- Validity of qualification.
This record shall be updated once every three (3) months time by the Welding Engineer, that he shall update the record in accordance with the “Welding Material Issue Slip” filed in the Ware House.

5.4  WPS SUMMARY & WELDER’S LOG

5.4.1 Prior to start of production welding, Welding Engineer shall give base material / welding material information, specify the applicable welding process, and designate the WPS number for each welding joint on the WSWL (EXHIBIT 30).

5.4.2 Upon completion of welding concerned, Welding Foreman shall record the welder’s ID number on WSWL.
5.4.3. CVN production test:
Welding Engineer shall plan and indicate “CVN “in the “Remark” space (of WSWL) corresponding to the welding joint, where CVN production test plates are to be simultaneously welded.

5.5. PRODUCTION WELDING

5.5.1 Welding Foreman shall, based on the information specified in the approved drawings and WSWL, do the following:
Provide the applicable WPS and give necessary directions to the qualified welders / welding operators, in which they are been selected in accordance with their WPQ, and updated “Welder Qualification Continuity Record”.
Prepare the Welding Material Issue Slip for the welder(s) Welding operator(s) to withdraw the specified welding materials from the Ware House.
Monitor production welding to assure that welding is carried out in accordance with applicable qualified WPS and using of correct welding materials.
Document on the WPS Summary & Welder’s Log of the welder(s)/welding operator(s) employed on each welding joint, or mark the welder’s ID number adjacent to the welding joints at every 3 feet. This marking shall be maintained until Code Symbol Stamping.
Set up the CVN production test plates, place it as extension to the end of or adjacent to the production joint concerned, in case of “CVN” is marked in the “REMARK” space of a WSWL.

5.5.2 TACK WELDS
Tack welds, whether removed or left in place, shall be made using with an approved fillet weld or groove weld procedure. Both WPS and welders / welding operators for tack welding shall be qualified in accordance with Section IX.
Tack welds used to secure alignment shall either be removed completely when they have served their purpose, or their stopping and starting ends shall be properly prepared by grinding or other suitable means so that they may be satisfactorily incorporated into the final weld.
Tack welds to be left in place shall be examined visually for defects and, if found defective, it shall be removed. It is the Welding Foreman’s responsibility to identify the specified WPS applicable to the welding joint concerned, and assign the qualified welder/welding operator. In case of any discrepancy as he may find between the actual conditions and the range of variables specified in the WPS or WPQ, he shall consult this with the Welding Engineer for instruction.

5.6 PURCHASING, RECEIVING, HANDLING AND STORAE OF WELDING MATERIAL

5.6.1 PURCHASING
Welding materials shall be traceable to a qualified WPS. Welding Engineer shall prepare P.S. and “Material Requisition Sheet” and submit to Fabrication Manager for approval. Furthermore, QC Manager shall review this P.S. prior to release, then this approved P.S. and “Material Requisition Sheet” shall be forwarded to Purchaser to issue of P.O. accordingly.

5.6.2 RECEIVING INSPECTION
The receiving inspection procedure as described in Chapter 3, paragraph 3.3 shall be followed.

5.6.3 STORAGE
The accepted welding materials shall be stored in the Warehouse, which is a restricted area that unauthorized entry is prohibited. All welding materials in the designated ASME storage area shall have an RI acceptance label/tag attached thereon.

5.6.4 CONDITIONING
Prior to issue of low hydrogen type covered welding electrodes, or fluxes for submerged arc welding process that has been removed from manufacturer’s packaging, shall be stored in a holding oven, and drying at specified temperature and time in accordance with the manufacturer’s recommendations.
5.6.5 ISSUE AND RETURN
The Ware House Clerk shall issue welding materials in accordance with approved “Welding Material Issue Slip”.
Low hydrogen type covered welding electrodes shall not be issued for more than four(4) hours use, and shall be kept in heated quiver after being withdrawn from the holding oven. Those electrodes that has been exposed to ambient atmosphere for longer than four(4) hours shall not be reused for Code welding.
Welder / welding operator shall return unused welding material to Warehouse, and Ware House Clerk shall record the returned quantity and time on the “Welding Material Control Log” (EXHIBIT 31). The returned low hydrogen type covered welding electrodes shall not be reused for further Code welding.

5.7 The QC Manager shall make available all relevant WPS, PQR, WPQ and WQCR to AI for review.

5.8 In case of specific doubt or cause, QC Manager and AI may require re-qualification of WPS or welder / welding operator.

5.9 When a welder / welding operator has not welded with a process during a period of 6 months or more, his qualification for that process shall be expired.

5.10 Expiration or disqualification of a welder or welding operation as per 5.8 and / or 5.9 shall be re-qualified in accordance with ASME Section IX and applicable Code Section before further performing any Code welding.
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6.1 PURPOSE

6.2 APPLICABLE CODE

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6.4 NDE SUBCONTRACTOR

6.5 NDE PERFORMANCE

6.6 NDE EQUIPMENT
6.1 PURPOSE

This chapter defines the responsibilities and methods to ensure that the required NDE is accurately identified in accordance with the Code and/or customer’s requirements, and properly performed by a qualified examiner in accordance with approved/qualified written procedure.

6.2 APPLICABLE CODE

6.2.1 RT / UT / PT / MT shall be performed in accordance with a written procedure. UT / PT / MT shall be certified in accordance with the requirements of T-150 of ASME Code Section V, demonstrated to the satisfaction of AI prior to use. Relevant Articles of Section V shall be applied for the detail requirements in technical methods, procedures, and the additional requirements specified within relevant Code paragraphs of Section I, VIII Div. 1 & 2, and B31.1 as listed below.
Article 2, Radiographic examination
Article 5, Ultrasonic examination
Article 6, Liquid penetrant examination
Article 7, Magnetic particle examination

6.2.2 RT / UT / PT / MT Examiner(s) shall be qualified and certified in accordance with “Procedure for Qualification of NDT Examiner”, Procedure No. 007, which is established by using current Code accepted edition and addenda of SNT-TC-1A as a guideline.

6.3 RESPONSIBILITIES

6.3.1 Engineering Department is responsible to identify the necessity, and to what extent of NDE is required. NDE related to later fabrication, and those related to materials, but not performed by the material manufacturer, shall be clearly specified in the fabrication drawings.
6.3.2 QC Department is responsible to:
   Review and check if NDE requirements specified in the P.S. or fabrication drawings have met Code requirements.
   Specify the required NDE in the Traveler Sheet.
   Evaluate the qualification and approved / accepted of the NDE subcontractor / and / or independent Level III providing service to C.S.
   Document the procedure, instruction and revision number / or report number on the QCCS, where applicable.

6.3.3 QC Manager shall review and appoint the independent Level III as C.S. Level III, if his qualification has met the requirements of C.S.’s Procedure NO. 007

6.4 NDE SUBCONTRACTOR

6.4.1 RT / UT / PT / MT is to be subcontracted to a testing organization, whose personnel qualification/certification comply with the requirements of Procedure NO.007 and subcontractors written practice. NDE procedures used for Code work shall be in accordance with Section V, and the referenced construction Code requirements.

6.4.2 QC Department is responsible to the following:
   Collect all written inspection standards, personnel qualifications, and certification documents, review to ensure Code compliance, and maintain one (1) complete set of aforementioned documents to make it readily available to AI for review and acceptance.
   Collect all written procedures for NDE that is to be used, review to ensure Code compliance, arrange the subcontractor to demonstrate the effectiveness of the procedure to the satisfaction of AI before use, and maintain one (1) complete set of the aforementioned documents on file.
   Verify that the certification and qualification of subcontractor’s personnel who is to be performed NDE remains valid.
   Collect all examination reports, verify that they are in compliance with the Code and the drawing requirements. QC Manager shall sign off and approval of the reports when he found satisfactory,
then submit the same for AI review.

6.4.3 The personnel qualification and certification documentation shall include those documents contained in the Procedure number 007 and subcontractors written practice. The subcontractor/independent Level III shall review NDT subcontractors examiners qualification / certification records and certify them as C.S. NDT Personnel for Level I or Level II of applicable NDT method if they meets the requirements of Chieng Shyong’s Procedure NO.007.

The subcontractor/independent NDT Level III shall keep in his file all papers of in-house written examination / practical tests and make them readily available for AI review, when required.

The QC Manager and AI may require re-qualification of a NDT examiner or procedure, if in any specific doubt.

The subcontractor/independent NDT Level III is responsible for the preparation of new written procedures, and revise the existing procedures in accordance with applicable Code and / or drawing requirements, including demonstration to the satisfaction of AI prior to use. The QC Manager and AI may require re-qualification of the procedures in case of any specific doubts about it’s effectiveness.

6.4.4 In case of specific doubt or cause, QC Manager and AI may require re-qualification of an NDT examination or procedure.

6.5 NDE PERFORMANCE

6.5.1 NDE Instruction

subcontractor/Independent NDT Level III shall designate the procedure, and prepare or appoint a qualified NDT Level II to prepare specific NDE instruction for each method. The instruction shall meet the Code and drawing requirements, and it shall be reviewed / approved by subcontractor/independent NDT Level III, then submit to QC Manager and AI for reviewed / accepted prior to start of examination.
6.5.2 Performance
The Level III shall assign qualified NDT Level II / Level I examiner to perform the required NDE in accordance with FFC and Traveler Sheet. The NDE shall be performed strictly in accordance with the applicable written procedure and the NDE instruction specifically. Upon completion of a certain NDE operation required per FFC and Traveler Sheet, the NDT examiner shall prepare the report which shall be reviewed by the QC Engineer / QC Manager, and if acceptable, be further submitted to AI for review / acceptance. QC Engineer and AI shall sign on the Traveler Sheet or QCCS as evidence of acceptance. In case of unacceptable defects are found, and rework is required, NDT examiner shall inform the QC Engineer and in charge Foreman.

6.5.3 Reports
When all designated NDE operations have been completed, required reports shall be collected by the QC Engineer, attached to NDE instructions and submitted to QC Manager and AI to verify its completeness / acceptability. QC Engineer shall document the relevant report numbers on the QCCS.

6.6 NDE EQUIPMENT

6.6.1 Independent NDT Level III shall have all NDE equipment under proper calibration control. The control scheme shall be acceptable to the QC manager.

6.6.2 A master calibration control sheet giving calibration status of all relevant NDE equipment shall be regularly updated and one (1) certified copy shall be submitted and keep by QC Department.
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7.2 RESPONSIBILITIES

7.3 IDENTIFICATION

7.4 PROCEDURE
7.1 PURPOSE

This chapter describes the control methods and identifies the responsibilities to ensure Code required heat treatment including Post Weld Heat Treatment are carried out in accordance with approved written procedure and/ or instruction meeting Code requirements.

7.2 RESPONSIBILITIES

7.2.1 Engineering Department is responsible for:
- For each specific project or equipment, determine what kind of heat treatment is required in accordance with the Code and / or customer’s specification. Specify the heat treatment requirement / condition on the drawing.
- Prepare P.S., which is to contain the HTI for subcontractor only.

7.2.2 Fabrication Engineer is responsible for:
- Prepare HTI (EXHIBIT32)
- Monitor heat treatment operation , including verifying the calibration status, functioning status of temperature control & recording devices and attachment method of thermal couple.
- Collect T-T charts and pass over to responsible QC Engineer.

7.2.3 QC Engineer is responsible for:
- Review HTI and supporting T-T chart if acceptable then submit the same to QC Manager and AI for review and acceptance.
- Arrange necessary hardness test when required by Code or customer.
- Document the PWHT procedure and record numbers on the QCCS.
- QC Manager shall review and make comments prior to approval of P.S. prepared by the Engineering Department.

7.4 PROCEDURE

7.4.1 Written procedures, such as Procedure No. 005, 020, 022, have been prepared and adopted as part of the quality system.

7.4.2 Heat treatments required per material specification shall be completed by material manufacturer, Engineering Department shall incorporate the heat treatments requirements into the P.S. for material procurement.
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8.1 PURPOSE

8.2 SCOPE

8.3 RESPONSIBILITIES

8.4 PROCEDURE

8.5 PRESSURE GAUGES

8.6 CHARPY IMPACT TEST

8.7 DOCUMENTATION OF ID NUMBER ON REOCRD
8.1 PURPOSE

This chapter defines the responsibilities and defines the method to ensure that inspection, measuring and testing I / E (instruments / equipments) are of adequate accuracy and precision necessary for use in production and only properly calibrated I / E are used in quality verification and / or operation control.

8.2 SCOPE

This chapter covers calibration control of all I / E, in-house or external for verification of quality requirements such as weld quality, dimensions, and for manufacturing or testing operation control such as temperature or pressure measuring.

8.3 RESPONSIBILITIES

8.3.1 QC Manager is responsible to ensure all I / E concerned are of adequate accuracy, precision and under proper calibration control by the Calibration Clerk.

8.3.2 It is the responsibility of the user to ensure, prior to use; instruments / equipments are with valid calibration label. Any instruments / equipments with expired calibration status shall be returned to Calibration Clerk for further calibration.

8.4 PROCEDURE

8.4.1 A Calibration Master Control Log (EXHIBIT 33) shall be prepared to list all in-house I / E so that their calibration status and period can be readily identified. For every I / E, an unique calibration control equipment ID number shall be assigned and used for traceability in lieu of its original manufacturer’s serial number. Actual calibration date and next due date shall be documented on the CMCL. For detail calibration control procedure, refer to procedure No. 017.

8.4.2 Prior to the end of every month, the Calibration Clerk shall look into the CMCL to identify those I / E of which the calibration will be due in the following month. He / She shall prepare the “Instrument Recall List “ (EXHIBIT 34) to record the ID numbers concerned
and use the same list to locate, recall and calibrate the I/E before their respective due dates.

8.4.3 An “Instrument Borrow Card” (EXHIBIT 35) shall be prepared and maintained by the Calibration Clerk so that the I/E may be located at any time.

8.4.4 For every I/E, a “Calibration Record “ (EXHIBIT 36) shall be maintained to contain the following information relevant to calibration:

- Equipment ID number
- Calibration interval
- Dates of calibration
- ID number of master standard (instrument / equipment)
- Results
- Next due date
- Standard and deviation value
- Other data if applicable

8.4.5 “CALIBRATION LABEL “ (EXHIBIT 37)

Label shall be used and attached to indicate calibration status of each I/E. Equipment number, calibration date and valid date shall be indicated on the label and signed by Calibration Clerk. In case of where application of label is not practical, other appropriate means may be used to mark ID number and next due date on the I/E.

8.4.6 Calibration Work Instruction:

Calibration Clerk shall prepare the relevant work instruction, which shall specify the type of master standards, calibration techniques and acceptance criteria. All instructions shall be approved by QC Manager prior to use.

QC Manager has the authority to determine acceptance criteria within accuracy/precision requirements of the products. The master standard shall be traceable to National / industrial / manufacturer standards.
8.4.7 Calibration carry out by laboratory other than C.S.
The calibration record shall indicate the Master Standards which shall be traceable to National or industrial/manufacturer standards. External laboratory shall certify on its record that this requirement has been satisfied. The certificate issued by the manufacturer for the new I / E may be considered as a valid calibration record at the time when the new I / E is first purchased. Recommended next calibration date indicated on the external calibration record are considered only as for reference. QC Manager has the authority to determine the calibration interval in view of frequency of usage, environment where the I / E are used, method of preservation and condition of storage, etc.

8.5 PRESSURE GAUGES

All gauges shall be calibrated against a standard dead-weight tester or a calibrated master gage at least every 6 months or at any time in doubt.

8.6 CHARPY IMPACT TEST

Charpy impact test shall be performed per SA-370 requirements. And charpy impact tests services, when required, will be subcontracted to a test laboratory whose charpy impact machine shall be under proper calibration and adjustment in accordance with the requirements of the latest revision of ASTM E23. That requires annual calibration of impact machine and semiannual calibration of temperature measuring devices. This test laboratory shall certify to this conformance and document the machine and temperature measuring devices ID number and calibration records reference number on the test report, and provide copy of such calibration record. The responsibility to ensure compliance with the above requirements rests on:
QC Engineer : In case of tests related to material.
Welding Engineer :In case of tests related to welding specimens.

8.7 DOCUMENTATION OF ID NUMBER OF RECORDS

8.7.1 QC Engineer is responsible to document ID numbers of pressure gauge on the pressure test report.
8.7.2 Fabrication Engineer shall document ID numbers of thermocouples on HTI.

8.7.3 Foreman shall document the electric meter ID number, in case of CVN; test is required, in the remark column on the WPS Summary & Welders Log. Above records provides a function of traceability to assess previous testing/treatment results when the instruments are found out of calibration later on.

8.7.4 Dimensional and Thickness measurement devices shall be verified it’s accuracy prior and after each use.

8.7.5 Pressure testing shall be conducted by using two calibrated gauges.
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9.1 PURPOSE

9.2 RESPONSIBILITIES

9.3 PROCEDURE

9.4 SPECIAL REQUIREMENTS
9.1 PURPOSE

This chapter defines the control procedures and methods to identify, document, evaluate, and provide solution of non-conformities, and verify that every dispositions have been completed as required, also defines how to initiate, follow-up on corrective actions. Non-conformity is any condition, which does not comply with the applicable rules of Code or this Manual or other specified requirements.

9.2 RESPONSIBILITIES

9.2.1 QC Engineer is responsible to:
- Identify the non-conformities,
- Segregate the non-conforming items where applicable,
- Write up the “Non-Conformity Report” (EXHIBIT 38)
- Coordinate with Department or personnel concerned for proposal, comment, and approval of disposition and/or preventive action.
- Verify and report the follow-up on disposition.

9.2.2 QC Manager is responsible to:
- Control and issue the NCR number.
- Designate Department or personnel responsible to propose or comment on disposition and/or preventive action.
- Approve proposed disposition and/or preventive action request.
- Coordinate with AI for his concurrence when it is required by the Code.
- Keep central file of all NCR.

9.2.3 Business Department shall be responsible for communication with customer to obtain their prior consent when Code requires.

9.2.4 General Manager has the ultimate authority to approve proposed disposition to non-conformities or requested preventive action, when there are different opinion of un-solved question on the proposed dispositions, and to meet Code requirements.
9.3 PROCEDURE

9.3.1 When a non-conformity is found by a personnel, he or she shall immediately inform the QC Engineer, the QC Engineer shall collaborate with the personnel concerned to identify, examine or evaluate the situation.

When verified as non-conformity, QC Engineer shall do the following in sequence:

Stop of further proceeding operation,
Isolate, segregate if applicable and attach a “Non-Conformity” (EXHIBIT 39) tag to the items concerned,
Prepare a NCR to QC Manager, request a NCR number and indicate the NCR NO. on QCCS.
Mark the assigned NCR number to the tag,
Arrange for further review and / or evaluation by the responsible and/ or related Department Manager or his designee to propose and comment on the disposition and / or preventive action.
Ensure the responsible Department or personnel concerned to acknowledge the required disposition and / or preventive action.
Ensure that Sales Department has consulted with customer, where applicable, and documents customer’s consent or comments on the NCR.
Submit the NCR with proposed dispositions and / or preventive action to QC Manager.
File the NCR.

9.3.2 The segregated non-conforming items shall be evaluated to determine whether they:

Can be “Accept as it is”,
Shall be “Reworked and / or Repaired”,
Shall be “Rejected and Scrapped”

9.3.3 QC Manager is responsible to approve the proposed disposition and preventative action but subject to the concurrence of AI when Code required.
9.3.4 QC Engineer shall:
Follow up and verify the completion of disposition.
Document his findings on the NCR and submit the same for review / acceptance of QC Manager and, where required by the Code and / or contract, AI and / or customer.
Remove the Non-Conformity tag and move the segregated items back to production line, or to materials or finished products stock, or designated area as appropriate, when non-conformity has been corrected and / or AI or customer are satisfied.
Notify personnel or Department concerned to resume operation.

9.3.5 It is within the QC Manager’s discretion to submit the NCR to General Manager for his review and comments.

9.4 SPECIAL REQUIREMENTS

9.4.1 “ACCEPT AS IT IS”
All dispositions involving “Accept As It Is” related to the following:
Materials
Dimensions
Inspection, examination and testing
Heat Treatments
Any deviation from approved drawing
This shall be evaluated by the Engineering Department who, if found agreeable, shall have the dispositions reconciled in the final design documents, as appropriate.
For Section VIII, Div. 2 production, any revision which affected to the MDR shall be reconciled with the fact of the case by the RPE who certifying the MDR.

9.4.2 REPAIRS OF MATERIALS
Repairs of materials or welds may be conducted only by C.S. provided acceptance by AI is first obtained for the extent and method of repairs. Fabrication and QC Departments shall prepare a repair plan, QC Engineer shall request AI to review and designate his inspection points either by using the NCR itself or separately preparing repair plan.
For welding repairs of materials, Welding Engineer shall determine
WPS and Engineering Department shall provide specific instruction at least related to:

- NDE
- PWHT

The WPS shall be qualified in accordance with ASME Code Section IX, where materials required impact testing, deposited weld metal test specimens shall be prepared form the WPS qualification test plate and tested in accordance with referenced construction Code. The test result shall meet the Code requirements for the materials.
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10.1 PURPOSE

10.2 SCOPE

10.3 RESPONSIBILITIES

10.4 SPECIAL RETENTION REQUIREMENT FOR SECTION VIII DIV. 2

10.5 DOCUMENT REQUIREMENTS

10.6 DISTRIBUTION FOR MANUFACTURER'S DATA REPORT
10.1 PURPOSE

Documents including quality records described herein shall be indexed, filed and, if specifically required, maintained in storage facilities for a prescribed period to demonstrate in compliance with Code requirements and the effectiveness operation of the quality system.

10.2 SCOPE

The documents under control are part of or all of the following:
- Certified User’s Design Specification (for Section VIII, Div. 2 only),
- Certified Manufacturer’s Design Report (for Section VIII, Div. 2 only),
- Manufacturing drawing and design calculation, and specifications
- Material certifications,
- Tabulation of materials,
- Component inspection records, such as for formed head with or without fabrication by welding,
- Manufacturer’s Partial Data Reports,
- Welding qualification document-WPS, PQR & WPQ.
- WPS Summary & Welder’s Log,
- Examination Procedure, testing instruction and records,
- Heat Treatment Procedure, Instruction and Records,
- Fabrication Flow Chart, Traveler Sheet Manufacturing Procedures and QC Check Sheet,
- Records of repairs to material and item (for Section VIII, Div. 2 only)
- Manufacturer’s Data report,
- Radiographs and other NDE records.

10.3 RESPONSIBILITIES

10.3.1 The individual or Department that is responsible for generating documents, as defined in this Manual and related written procedures, shall make the documents readily available to AI for review during Fab / Cons and at the time when AI signs the Manufacturer’s Data Reports.

10.3.2 QC Department is responsible for the following:
- To collect and maintain all radiographs and other documents
as specifically required elsewhere in this chapter in safe storage facilities providing suitable protection from deterioration and damage for a required period.
Registration of Manufacturer’s Data Report to the National Board, if requested by customer.
Distribution of Manufacturer’s Data Report.
Retain a complete set of radiographs for each job on file for a period of at least 5 years (for Section I )
Retain a complete set of radiographs/records / UT reports until the MDRT has been signed by AI (for Section VIII, Div. 1)

10.4 SPECIAL RETENTION REQUIREMENTS FOR SECTION VIII, DIV.2

10.4.1 All documents as per aforementioned scope, pertaining to a vessel or part which is ASME Code symbol stamped, shall be maintained in an exclusive file for a period of ten (10) years after completion of the Code products or intended life of the vessel whichever is longer. After this period, QC Manager may decide to continue maintenance, or offer them to the vessel user, and if receiving is rejected, they may be destroyed.

10.4.2 The complete file shall be maintained for all material certification and / or Partial Data Reports, examination, testing, heat treatment and manufacturing procedures, specifications, and drawings used. All records shall be fully identified by material or item identification numbers. The record shall include all data on repaired material, items, and assemblies. Records specified above shall be filed and maintained in a manner which will allow access by the Inspector to specific information contained therein within a period not in excess of 24 hrs at any time during the period of vessel being manufacture. The Manufacturer shall take such steps as may be required to provide suitable protection of all records from deterioration or damage.

10.5 DOCUMENT REQUIREMENTS

Documents to be retained may be either the original or legible copy.
10.6 DISTRIBUTION FOR MANUFACTURER’S DATA REPORT

For any item to which an ASME Code Symbol Stamp was applied, the Manufacturer’s Data Reports shall be handled as follows:

10.6.1 When it is required to register with the National Board by the purchaser, the original and one (1) legible copy shall be mailed to and registered with the National Board within 60 days time after Certified by QC Manager and signed by AI.

10.6.2 For Section I: Provide a copy of Manufacturer’s Data Reports and Partial Data Report to the Purchaser, the Authorized Inspection Agency (AIA) and the State, Municipal, or Principal Authority at the place of installation.

10.6.3 For Section VIII Div. 1: Provide a copy of Manufacturer’s Data Report and Partial Data Report to the user or his designated agent and upon request, to the AI.

10.6.4 For Section VIII Div. 2: Provide a copy of Manufacturer’s Data Report and Partial Data Report to the user and upon request, to the AI.
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11.1 PURPOSE

11.2 DEFINITION

11.3 INTER-RELATIONSHIP BETWEEN C.S. AND AI
11.1 PURPOSE

This chapter defines the relationship between C.S. and the AIA / Authorized Inspector (AI) / AIS.

11.2 DEFINITION

AI is an Inspector regularly employed by an ASME accredited Authorized Inspection Agency to perform the inspection required by Code. He shall have been qualified by written examination under the rules of any state of the United States or province of Canada, which has adopted the Code, and hold a valid NB commission with “A” endorsement.

11.3 INTER-RELATIONSHIP BETWEEN C.S. AND AI

11.3.1 C.S. shall maintain an inspection contract with the ASME accredited AIA to supply inspection services required by the applicable Code Section.

11.3.2 QC Manager shall make available a copy of current QC Manual to AI at the shop and field site.

11.3.3 QC Manager is the prime liaison with AI at the plant or field site. He, or the QC Engineer at the plant, or the QC Site representative at field site, under his supervision, shall apprise to the AI of work progress in a timely manner. He shall give sufficient prior notice of approaching inspection points as designated by AI on the FFC, QCCS, or Traveler Sheets, to allow AI to arrange and attend such inspection.

11.3.4 C.S. shall grant free access to any parts of the shop or field site where Code work is in progress, and access to all drawings, calculations, specifications, procedures, process sheets, repair procedures, record, test results, and any other documents as necessary for AI maybe required in order to perform his duties. This access shall also apply to Authorized Inspector Supervisor (AIS) in order to perform annual audits or additional periodic audits of the quality system and the performance of the AI as required by the ASME QAI-1.

11.3.5 When required by AI in order to carry out inspection duties, C.S. shall also arrange free access to the subcontractor’s shop or
field site to check the components or materials concerned.

11.3.6 An inspection agreement shall be signed with an ASME accredited Authorized Inspection Agency.
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12.1 PURPOSE

This chapter defines the control methods and the responsibilities to ensure assembly / erection / installation activities at the field site are in compliance with the ASME boiler and pressure Code, this QC Manual, and/or customer’s requirements.

12.2 SCOPE

The field site described in this Manual means that at any location other than shop address, where assembly, erection, and/or installation activities are carried out under direct, complete and exclusive administration and technical supervision by Chieng Shyong Machinery Co., Ltd.

12.3 CONTROL METHODS AND RESPONSIBILITIES

12.3.1 Before ship the shop-fabricated components or parts to the field site for assembly, it shall be marked at the shop for easy identification at the time of assembly as far as practical.

12.3.2 Unless otherwise specified, the Site Chief and Site QC Representative shall assume the functions / responsibility of the Fabrication and QC Manager as prescribed in Chapter 1, respectively.

12.3.3 Drawing Control

All of the drawings that are to be used at the field site shall be issued by the Engineering Department as prescribed in Chapter 2 of this Manual. All inquires for clarifications and/or requests for revision shall be directed to the Engineering Department.

12.4 PROCUREMENT AND MATERIAL CONTROL

12.4.1. For materials that are not intended to be supplied by shop may be purchased by site office. In this case, the Material Requisition Sheets shall be prepared by Site Chief and forward it to responsible Department for preparation /approval of P.S. and P.O

12.4.2. Receiving inspection shall be carried out in accordance with the
requirements as prescribed in Chapter 3 of this Manual. Shop’s Warehouse Clerk shall be responsible for arrangement of the delivery of raw materials, parts, or items attached with an acceptance label / tag.

12.4.3. QC Engineer shall pass over one copy of RIR, P.S. together with material certification / Partial Data Report to site QC Representative for him to verify the receiving materials.

12.4.4. In case of materials, parts being directly delivered by a supplier to the field site, Site QC Representative shall perform receiving inspection and review of documents as prescribed in Chapter 1. He shall required P.S. from responsible Department and use it for receiving inspection, prepare a RIR and filed the material certification, and attach an acceptance label / tag to the receiving materials, if found acceptable.

12.5 EXAMINATION AND INSPECTION PROGRAM

12.5.1 The assembly, erection or installation and examination / inspection / testing activities shall be carried out in accordance with approved FFC, Traveler Sheet, QCCS, WPS, NDE / PWHT / Pressure Test Procedures and / or instructions as prescribed in Chapter 4 of this Manual.

12.5.2 Site QC Representative shall conduct / monitor the assembly / erection / installation, and EIT activities as prescribed functions / responsibility that are assumed by QC Manager. And he is also the liaison with AI for the field assembly inspection..

12.5.3 Site QC Representative shall request QC Manager to issue a NBSN, If customer requested for registration of the Manufacturer Data Report to the NB.

12.5.4 Site QC Representative may sign the Manufacturer’s Data Report and apply the ASME Code Symbol Stamping to the boiler / vessel if he received a written authorization by QC Manager, and with the concurrence and presence of AI.
12.6 WELDING CONTROL

12.6.1 The welding Procedure Specifications, and the welders used in welding of pressure parts and in joining load-carrying non-pressure parts, shall be qualified in accordance with Section IX.

12.6.2 WPS Summary & Welder’s Log shall be used for welding joints prescribed in paragraph 12.6.1 above and to a qualified WPS.

12.6.3 In case of qualification of a welder is needed at the field site, Site QC Representative may perform the Welding Engineer function to conduct the qualification tests provided the tests are in compliance with Section IX.

12.6.4 Welding material control shall be carried out in accordance with the provisions prescribed in Chapter 5 of this Manual.

12.6.5 Subcontractor’s welder / welding operator control:

   When subcontracted welders / welding operators are to be used at the field site for welding pressure parts and in joining load-carrying non-pressure parts, the following provisions shall be met:
   
   All Code construction shall be the responsibility of Chieng Shyong.
   All welding shall be performed in accordance with Chieng Shyong’s WPS which have been qualified by Chieng Shyong in accordance with the requirements of Section IX.
   All welders shall be qualified by Chieng Shyong in accordance with Section IX.
   Complete and exclusive administrative and supervision of all welders by Chieng Shyong.
   Assign and remove welder at C.S. discretion without involvement of any other organization.
   Assign of welder’s identification symbol.
   Chieng Shyong shall be responsible for Code compliance of the weldment including Code Symbol stamping and providing Data report Forms properly executed and countersigned by the Authorized inspector.
12.7  NDE, HEAT TREATMENT AND CALIBRATION CONTROL

All NDE / heat treatment / calibration control work that is to be performed by the sub-contractor shall be done in accordance with Chapter 6 through 8 of this Manual.

12.8  NON-CONFORMITY CONTROL

12.8.1  Non conformity shall be dealt in accordance with Chapter 9 of this Manual.

12.8.2  QC Manager retains following responsibilities:
- Control and issue the NCR number,
- Approve the proposed disposition and / or preventive action.

12.9  DOCUMENT CONTROL

All documents included records, reports and radiographs shall be properly indexed, filed and made readily available to AI for his review during the period of fieldwork, and at the time when AI signs the required Manufacturer’s Data Report. Upon completion of the fieldwork, all of these documents included the Manufacturer’s Date Reports shall be returned to QC Department for further distribution, and filed. In principle, requirements prescribed in Chapter 10 of this Manual shall be met.

12.10  AUTHORIZED INSPECTOR

All requirements set in Chapter 11 of this Manual shall be met, and Site QC Representative shall be responsible of the following:

12.10.1  To keep each one (1) copy of current ASME certificate of authorization concerned and current copy of QC Manual and make them readily available to AI for review / reference at site.

12.10.2  To request one (1) photocopy of AI’s current NB commission card which shall have at least with an “A” endorsement.
SAMPLE FORMS LISTED HEREUNDER ARE USED FOR QUALITY SYSTEM PRESCRIBED IN THIS MANUAL

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