QUALITY MANAGEMENT SYSTEM MANUAL

			QA Manager	Managing Director	C.E.O.
1	15/05/2003	**Issue for Implementation**	M. ULUS		A. YURDAYAR
0	18/05/2001	**Issue for Implementation**	B. BAŞKAYA		A. YURDAYAR
Rev	Date	Description	Prepared By	Checked By	Approved By

APPROVAL STATUS

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0.0 INTRODUCTION

0.1 Introduction

Metaleks Construction Industry Trading (METALEX) henceforth referred to as 'the Company' is an active and progressive construction company engaged in engineering, procurement, construction, commissioning and project management of Oil & Gas facilities, Petrochemical, Industrial, Power, Irrigation and related process plants, pipelines for oil, gas and water, all henceforth referred to as 'Product'. This Quality Management System Manual hereinafter referred to, as 'the Manual' is the property of the Company and shall not be reproduced and distributed to third parties without the authorization of the Quality Assurance (QA) Manager and/or the Managing Director of the Company.

This Manual describes the Company quality management system and provides references to the Quality Procedures that have been implemented to meet the requirements of ISO9001-2000 'the Standard'.

More comprehensive details of how quality is managed by the Company can be obtained by referring to the relevant quality procedures referenced as listed in Attachment 1.

The Manual provides a summary of the quality management system i.e. the policy, organizational structure, responsibilities, processes, resources, procedures, documents and records for the implementation and maintenance of the quality management system.

All the above are intended to provide an overall view on how the Company operates and implements an effective and efficient quality management system that meets the ISO-9001 Standard. The Company's quality management system is constructed based on the following structure:

Quality Management System Manual
The Standard & Operating Procedures
Project Specific Operating Procedure
Work Instruction/Method Statement and Forms

0.2 Definitions

Quality related definitions used in this Manual are according to the ISO 9000: 2000. Other definitions are as follows:

Client: Any company requesting the Company to carry out work according to an agreement/contract.
The Company: Metaleks Construction Industry Trading
Review: The systematic examination of a document or system and its supporting and descriptive data, conducted by qualified personnel who are independent of the originator of the document.
Supplier: Any person, firm or organization, with whom the Company enters into purchasing of materials, equipment and services with the issuance of a Purchase Order.
Sub-contractor: Any firm or organization, with whom the Company enters into a sub-contract of processes with the issuance of a Work Order.
Purchase Order: A formal document specifying the precise details of materials, equipment or services being purchased and providing specific purchasing conditions.
Work Order: A formal document specifying the precise details of processes being sub-contracted and providing specific sub-contract conditions.

0.0 INTRODUCTION

0.3 Distribution

The Quality Assurance Manager is responsible for the issue and distribution of the Manual.

The Company will keep a record of the distributed manual (Controlled Copy). The QA Manager shall approve any changes to the distribution list.

Controlled copies of the Quality Management System Manual and revisions thereto are distributed together with a confirmation of receipt note, which is signed by the recipient as confirmation and returned to the QA Department.

Uncontrolled copies of the Manual are marked "UNCONTROLLED COPY", and will not be updated.

0.4 Responsibility of Manual Holders

The holders of controlled copies of the Manual are:

- Responsible for that copy and for the implementation of its contents where applicable;
- Required to update the Manual as revisions are received and to sign and return the confirmation of receipt note to the QA Department;
- Required to study the revision changes, and to inform any subordinate staff regarding them.

Controlled copies of Manual are returned to the QA department when the registered holders leave the Company or at the completion of the project.

0.5 Revision

The Manual is reviewed periodically and revise as necessary. Any party within the Company may initiate revisions and proposals for the Manual. The proposal should be made in writing and be submitted to the QA Manager.
Changes to the content of the Manual are made in accordance with Document Control Procedure.

1.0 QUALITY POLICY

1.1 Quality Policy

The Company's policy for Quality is defined in the Quality Policy Statement and advised to all employees at induction and/or during planned training programs. The wording below is an extract from the policy statement that is displayed in all the Company's and Site's Offices.

QUALITY MANAGEMENT POLICY STATEMENT

POLICY

Metaleks Constraction Industry Trading (METALEKS) is an active and progressive construction company engaged in Engineering, Procurement, Construction, Commissioning and Project Management of Oil & Gas facilities, Petrochemical, Industrial, Power, Irrigation and related process plants, pipelines for oil, gas and water.

It is quality management policy to satisfy Clients as well as statutory and regulatory requirements. **METALEKS** is committed to maintain and continually improve the effectiveness of the quality management system.

METALEKS is committed to provide Clients with the satisfaction in quality products and services in compliance with the contractual requirement within the time frame and budget.

METALEKS'S PHILOSOPHIES WITH REGARD TO QUALITY

It is the philosophy of **METALEKS** that quality is the result of the systematic implementation of all **METALEKS** business processes including that of her suppliers and sub-contractors according to the quality management system. Quality is achieved by understanding and satisfying the requirements of internal organization; statutes and regulations; and of the Clients. Quality can be improved continually with commitment by all staff.

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TO ACHIEVE THE ABOVE, THE TOP MANAGEMENT IS COMMITTED TO:

- Establish, implement and maintain a Quality Management System that meets the requirements of **ISO 9001-2000;**
- Ensure that the Quality Management System is communicated, understood, adopted and practiced by all staff in the organization;
- Set practical and achievable objectives in all process areas;
- Provide adequate and competent resources;
- Conduct regular audits;
- Identify and correct non-conforming product and services;
- Conduct management review and monitor corrective and preventive actions and their implementation;
- Ensure set objectives and policy are reviewed periodically; and
- Promote continual improvement of the Quality Management System.

QUALITY IS THE RESPONSIBILITY OF ALL STAFF IN METALEKS

Aydın Yurdayar, Chairman of Board
Date: May 15, 2003

2.0 QUALITY MANAGEMENT STSTEM

2.1 Introduction

A quality management system is an essential and important part that contributes to all the Company's business activities. Management and staffs commitment is essentials to the successful planning, implementation, maintenance, review and improvement, provides the means to assure that policy, objectives, internal organization and customer's requirements for all activities are achieved.

The focus of a quality management system is 'Management' and as such, applies to all activities, whether internal or external organization. It involves every person and area within the Company in striving for and achieving a quality result for all tasks. The system developed for the Company is based on the requirements of ISO 9001:2000 'Quality Management System - Requirement'.
The QA Manager is responsible for the development of the quality management system and for its successful operation, maintenance and review.

2.2 Quality Management System

In order to ensure the developed quality management system in compliance with the Standard requirement and consistent with the Company processes the following main functions in the Company are used as a basis for the quality system implementation. The processes are arranged in sequence as follows:

- Contract Services (Bidding, Tendering and Contract Agreement Process);
- Project Management Process;
- Engineering Process;
- Procurement Process;
- Sub-contracting Process;
- Fabrication and Construction Process;
- Commissioning Process;
- Quality Assurance and Control Process; and
- Health, Safety and Environment Control Process.

As defined in Section 0.1, the Company's quality management system structure has been developed in 4 Tiers named Quality Management System Manual, The Standard and Operating Procedures (hereinafter referred to as 'Procedures'), Project Operating Procedures and Work Instruction/Method Statement/Forms (if any).

Tier 1) Quality Assurance Manual: Define the overview of overall quality management system of the Company.

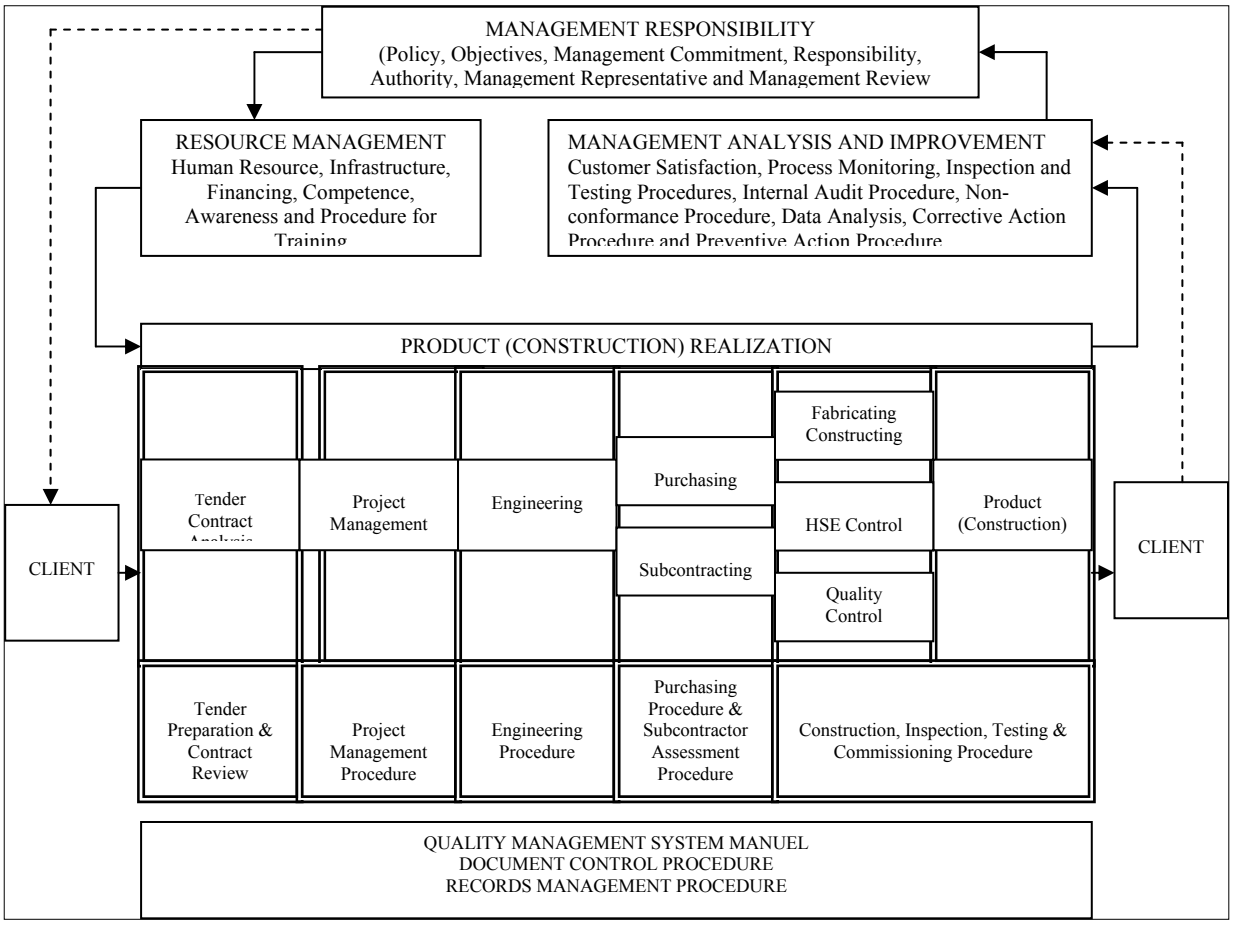
Tier 2) The Standard and System Operating Procedures: Tier 2 is divided into two areas namely The Standard Procedures and System Operating Procedures. The Standard Procedures outline procedures that required by the Standard for monitoring and control the overall quality management system whereas Quality System Operating Procedures outline routine procedures that required by the organization to control system processes.

Tier 3) Project Operating Procedures: Project specific procedures are developed in accordance with the needs of each project. This type of procedure is applicable up to the project level only and shall be developed specifically for each project to ensure compliance to the project requirement. This procedure may include Tier 1 and 2 types of documents.

Tier 4) Work Instruction /Method Statement /Form (if any): In case a short definition instruction is required for any task this work instruction will be developed to ease Tier 2 or Tier 3 as application as well as for processes not specified in Tier 2 and 3. Where required, specific "Work Instructions/Method Statement/Form", will provide detailed information on "HOW" an activity is to be performed.

2.3. Process Interaction

The following diagram demonstrates the interaction between processes in METALEKS's Quality Management System.



2.4. System Limitation and Exclusion

The company quality management system is subjected to the specific product realization's processes exclusion when the process is not part of the contract requirement or when the responsibility for each processes are clearly defined in the joint venture contract. In the event of joint venture, the Company will apply the requirement of the Company's Quality Management

System only on the applicable processes as defined in the joint venture contract unless the Consortium decided to use a specific Project Quality Management System.

2.5. Criteria and Methodology of Processes

The Company defines criteria and methodology for all processes in the relevant section of this Manual, procedures or method statement.

3.0 ORGANISATION

3.1 Management Commitment

The top management of the Company is committed to provide adequate resources in the development and implementation of the established Quality Management System. In order to satisfy the said commitment the top management shall carry out the following task in order to monitor effectiveness and ensure continual improvement of its quality management system:

- Quality policy is established and reviewed periodically for its adequacy;
- Quality Objectives are established at the Company and process levels;
- The importance of Customer's requirement is communicated to the organization;
- The importance of legal requirement is communicated to the organization.

3.2. Responsibility and Authority

The responsibility, authority and the inter relation of all personnel who mange, perform, and verify work affecting quality of the Company's product are defined in:

- The corporate and the project organization charts
- Job Descriptions
- Procedures

Corporate organization chart is attached in Attachment 2 whereas key personnel responsibility and authority is described in Attachment 3 of this Manual.

3.3. Management Representative

The Managing Director has appointed the QA Manager as the Company's Management Representative with responsibility and authority for the development, implementation and maintenance of the Company's quality management system.

As part of this role, the QA Manager advises the Managing Director on:

- Ensuring that processes needed for the quality management system are established, implemented and maintained;
- Reports to the top management on the performance of the quality management system and any needs for improvement;
- Ensuring the promotion of awareness of quality management system and customer requirements throughout the organization;
- Liaison with the external auditors (e.g Certification Body, Client etc.) for the matters relating to quality management system.

3.4. Internal Communication

An internal communication throughout the Company operations is established through the following channel in order to ensure that all information in its operations as well as client, legal and internal quality management system requirements are smoothly and appropriately communicated throughout the organization:

- Management Review Meeting;
- Management, Process and Project Meeting;
- Daily, Weekly and Monthly Project Reporting;

3.0 ORGANISATION

Records in the form of minutes of meeting or report may be prepared and maintained for all meetings and training/briefing that conducted.

Telephone and verbal communication shall not be used as a tool to demonstrate the flow of information and data in the quality management system unless it is recorded in the form of one of the above.

4.0 QUALITY MANAGEMENT PLANNING

4.1 Quality Planning General

Planning for quality is relevant in all areas of work in which the Company is involved. The planning phase in the Company can be divided into two main areas namely Quality Management Planning Phase and Process Execution Planning Phase. Quality management planning phase involves planning to satisfy the needs of the quality management system and the requirement in the Standard whereas process execution planning phase is the plan to ensure that all Client requirements are met throughout the execution of the work from the tender enquiry stage until the delivery of the products or processes.

The objective setting in both phases shall be consistent with Company's primary quality management policy and objective as outlined in the Company Quality Management Policy.

4.2 Quality Management Planning Phase

Planning in this phase involves the determination of the Quality Objectives at the Management and Process functional level. The top management of the Company shall ensure that measurable quality objectives shall be established at the management and process level within the organization. The top management of the Company shall ensure that the objectives are communicated through the organization.

The objectives shall be established at the beginning of the year and shall be reviewed periodically for its achievement, effectiveness and performance by the top management. The elements to be considered when setting the objectives are:

- Company Quality Management Policy;
- Top Management Strategy and Plan;
- Potential Improvement Opportunities;
- Previous Performance Records; and
- Resources to execute to meet the objectives.

4.3 Process Execution Planning Phase

Process execution planning phase involves planning in all relevant business areas as specified in Section 2.2. This planning phase is important in order to ensure that all the requirements for product and services by the client are properly identified, understood, established, and communicated throughout the relevant processes or functions.

4.3.1 Planning at Bid/Tender Preparation Stage

Upon receipt of an approved for tender document from the Managing Director office, the Senior Manager (Contract Services) appoints a Proposal Coordinator (PC), and arranges for Bid/Tender Execution Meeting. Prior to the meeting, The PC shall review the content of the Invitation to Bid (ITB) document and determine the scope of supply, technical, specification, commercial and delivery requirements of the bid and prepare a Tender Execution Plan. The meeting shall be used to determine the bidding strategy and resources for the bid. All bids shall be reviewed and approved prior to submission to the client.

4.3.2 Planning at Contract Award Stage

All contracts received shall be reviewed against the ITB document and the submitted tender document. Any exception and variation in the contract shall be highlighted and communicated with the client. All deficiencies shall be resolved prior to the acceptance of the contract.

4.0 QUALITY MANAGEMENT PLANNING

4.3.3 Planning of Project Start-up Activities

The PC is responsible to arrange for internal Kick-off Meeting with the related departments (Projects, Quality, Health & Safety, Finance, Construction, Contract Services as well as the top management) in order to officially execute the project. The meeting shall be used to communicate the requirement of the project such as:

- Content of the contract document;
- Project execution strategies;
- Project Resources (Personnel and other resources);
- Project Scope of Supply;
- Project Specifications and Specific requirements;
- Regulatory and Legal requirements;
- Any outstanding issues in the contract documents;
- Project Execution and Implementation Strategy; and
- Contract documents (c/w specification, variations etc.) handover to Projects department.

4.3.4 Planning in Project Management

Depending on the size and nature of the project the Company develops and provides the client with the following primary project control documents (depending to the contract requirements):

- Project Execution Plan;
- Project Manpower Plan;
- Project Quality Assurance Plan;
- Project Document Schedule;
- Project Inspection and Test Plan;
- Project Sub-contracting Plan;
- Project Procurement Plan;
- Project Schedule; and
- Project HSE Plan;

4.3.5 Planning at Fabrication and Construction Stage

The designated Project Manager shall update the above plans and established the following document:

- Project specific fabrication and construction procedures;
- Project specific inspection and testing procedures;
- Methods of Statement

4.3.6 Planning of the Standard's Requirement Processes

The planning for all processes that specify in the ISO 9001:2000 Standard is illustrated in following section of this Manual:

- Resources Management Planning - Section 5.0
- Document Management Planning - Section 6.0
- Product Realization - Section 7.0 to Section 11.0
- Measurement, Analysis and Improvement - Section 12 to 15
- Records Management Planning - Section 16

4.0 QUALITY MANAGEMENT PLANNING

4.4 Management Review

The suitability, adequacy, and effectiveness of the Company's quality management system is reviewed periodically (but not less than once a year) by the Managing Director and QA Manager and, as appropriate, other relevant personnel during Management Review Meetings. The QA Manager maintains records of reviews and follows up actions within the time frame agreed. Management Review is a formal, systematic review of the effectiveness of the overall quality management system of the Company.

This review shall be used to assess any opportunities for improvement and the need for changes to the quality management system, including the Company policy and its objectives.

The review result shall be a primary input to the continual improvement program for the Company quality management system.

5.0 RESOURCES MANAGEMENT

5.1 Provision of Resources

The top management of the Company is committed to determine, plan and provide adequate resources that needed by the internal organization and the client in providing assurance that the quality targets are met and quality management system of the company is implemented and maintained. Resources required to continually improve the effectiveness of the quality management system will be adequately provided. The resources are:

- People;
- Infrastructures;
- Safe and Healthy Working Environment;
- Suppliers (Sub-Suppliers & Sub-Contractors);
- Business Partners/Ventures;
- Communication Technology;
- Processes, Products and Services Technology;
- Processes, Products and Services Information;
- Financial Resources.

Periodic assessment on the adequacy of the resources will be continually made.

5.2 Resources Management Planning

Planning for resources management shall be based on the following main criteria:

- Organizational needs
- Contractual needs

5.3 Human Resources

5.3.1 Competence

The management of the Company shall ensure that the employees involve in managing the effectiveness of quality management system and those performing work effecting product qualities are competent.

This competency requirement shall be based on the right combination of the following:

- Educational background;
- Skills;
- Experience; and
- Training.

In line with the Quality Management Policy for continual improvement philosophy, the management of the Company shall encourage the involvement and development of its employees. Competency needs shall be assessed during the Staff Appraisal to ensure the employees are able to satisfy the needs of the current and/or future organization and contract.

5.3.2 Awareness and Training

The result from annual staff appraisal shall be evaluated and the management of the Company shall prepare a necessary awareness and training plan to satisfy the needs of the new competency requirement. The awareness and training plan shall include the objectives, training programs, methods and resources needed. The result from the training programs shall be evaluated to measure it effectiveness, efficiency and impact to the organization as well as to the prepared training plan.

The management of the Company shall ensure that all employees are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives through continuous awareness program either in Organization or Projects.

5.4 Infrastructure

The management of Company is committed to determine, provide and maintain the infrastructure needed to achieve the conformity of the system and product realization. Periodical infrastructure evaluation may be carried out depending to the expectations and needs of the organization, product or any interested parties. The following issues shall be considered when developing building, workplace, tools, and process equipment, supporting services and all other associated utilities and facilities assessment:

- Objectives;
- Function and Performance;
- Technology and Availability;
- Health, Safety and Security;
- Maintenance;
- Organization, Client and Legal expectation and needs;
- Environmental Issue; and
- Cost.

Project's infrastructure study shall be assessed at the tendering and bidding stage.

5.5 Others

The management shall adequately provide the following support facilities in order to aid and increase the ability and potential in providing quality product and services to the organization and the client and the same time meeting the outlined organizational and project policy and objective:

- Safe and Healthy Work Environment;
- Adequate information and technology;
- Qualified and competent suppliers and potential partners;
- Project potential natural resources; and
- Adequate Financial backup.

6.0 DOCUMENT CONTROL

6.1 Introduction

Procedures have been established to handle, control and store all types of documents and data relevant to the Company's activities. The documents are divided into five main categories:

- QMS Documents (QMS Manual, QMS Standard Procedures and QMS Operating Procedures);
- Project Documents (Project Specific QA Plan, ITP, Specific QMS and Operating Procedures, Fabrication and Construction Procedures, Method of Statement, Quality Control Procedures, Engineering Documents and Drawings.);
- Suppliers Supplied Documents (Project Specific QA Plan, ITP, Specific QMS and Operating Procedures, Fabrication and Construction Procedures, Quality Control Procedures, Engineering Documents and Drawings); and
- Client Supplied Documents (Project Technical Specifications, Engineering Documents and Drawings).
- Regulations, Acts, Codes and Standards

6.2 Document Registers

A QMS document register is maintained by the QA Manager to provide control of corporate manuals and procedures.

Project Document Schedule (PDS) is developed for each project, and is used to control project specific documents as well as suppliers supplied documents.

Client supplied document list as specified in the contract document shall be used to monitor and control all Client Supplied Documents. In the event this list is not available in the contract document, the Project Manager/Engineer in charge is responsible to obtain the list from the client.

Applicable Regulations, Acts, Codes and Standards will be registered and controlled for revision status only and is not mandatory to make it available unless required by the contract. All necessary information shall be positively identified in the register.

6.3 Preparation, Review Approval, Issue, Revision and Distribution Control

Document preparation, review, approval, issuance, revision, obsolescence control, and distribution control is explained in the Document Control Procedure established by the Company.

7.0 PRODUCT (CONSTRUCTION) REALIZATION PLAN

7.1 Introduction

This Section describes the process and procedures established by the Company for the product realization processes. Planning for product realization in the Company is divided into four stages namely:

- Tender Enquiry Review, Preparation;
- Contract Review Stage;
- Project Execution Stage;
- Fabrication and Construction Verification Stage; and
- Commissioning and Handover Stage.

7.2 Tender Inquiry Review, Tender Preparation

Prior to commencing development of the tender proposal, the tender inquiry document is reviewed to ensure the Company clearly understands the technical and contractual requirements. Inquiries are recorded and analyzed/evaluated with respect to:

- All necessary requirements specified are understood;
- The requirements of the inquiry can be met;
- Specifications are complete;
- Deviations to be resolved;
- Technology is available;
- Resources are available;
- Capacity is available;
- Co-operation with others.

Any specific product risks, penalties, guarantees and milestones are highlighted, clarified, and discussed with the Client.

Upon completion of tender document, it shall be reviewed to ensure the proposal is in compliance to the required product requirement and all exception and addition are clearly identified.

7.3 Contract Award Stage

At contract award, a review of the proposed contract agreement is carried out by the PC. This review looks for completeness, accuracy, ambiguity or insufficient detail in the document, i.e. that:

- All product requirements are defined and are unambiguous;
- Any product requirements differing from those in the bid are resolved;
- Schedules of submissions of data to the Client and/or regulatory authority can be met;
- The roles, formal lines of communication and interfaces are clearly defined;
- The Company is capable of meeting the contractual product requirements.

The result from this process should be a defined and understood product objectives and requirements (Client, Product, Statutory, Regulation, Code, Standard and any additional requirements), and this information shall be communicated through the project organization.

7.0 PRODUCT (CONSTRUCTION) REALIZATION PLAN

7.4 Project Execution Stage

The responsible Project Manager shall ensure all resources needed are identified, obtained, prepared and provided in order to satisfy the requirement that outlined in the contract for the product. The planning at this stage includes:

- Identify the necessary processes;
- Identify, prepare/obtain and provide documents (i.e. process procedures, design documents and drawings, catalogues etc.);
- Identify, prepare/obtain and provide specific resources for the product (i.e. equipment, materials, personnel, information, facilities, etc.); and
- Communication channel with client to handle product enquiries, amendments and changes.

Engineering planning is described in Section 8.0 whereas Purchasing and Sub-contracting planning is described in Section 9.0 of this Manual.

The result from this planning stage shall be in the form of Project Execution and/or Quality Plan, Project Schedule, Inspection and Test Plan, Procurement Plan, Project Document Schedule, Engineering Document and Drawings, Operating Procedures, Method of Statement, Inspection and Testing Procedures, Communication Channel with the client, and reporting method.

7.5 Fabrication and Construction Verification Stage

Primary planning document for this stage is the Project Schedule and Inspection and Test Plan. Engineering documents, drawings, production process procedures, inspection and testing procedures shall be the aid to the verification process of the plan that identified in the schedule, inspection and testing plan. Activities involved or related to this stage are explained in the following respective sections:

- Production and Service Control - Section 10.0
- Control of Monitoring and Measuring Devices - Section 11.0
- Monitoring and Measurement of Processes and Product - Section 12.0

7.6 Commissioning and Delivery Stage

This stage shall be used as a final verification and validation processes to confirm product satisfaction with regards to the product objectives, requirement, contract, regulation and legal. This process commonly plans in stages depending to the complexity of the product. Acceptance from the client at this stage shall note compliance to the all requirements.

8.0 ENGINEERING CONTROL

8.1 Introduction

Design and Development, which is known as 'Engineering' by the Company, is controlled and planned as per the following requirement. The Company performs formal design and verification activities during the design process. Qualified personnel are nominated for the various design responsibilities and allocated sufficient resources to fulfill commitments. Engineering process in the Company is described in this section and detailed in the Engineering Procedure.

In the event that design and development is sub-contracted to an engineering company, their design and development quality system shall comply with the requirement in the Standard and the Company's contract with the client.

8.2 Engineering Planning

Engineering planning involves the following activities;

- Determine of scope;
- Determine of tools;
- Determination of responsibility and authorities;
- Determine interface between a different group in the process;
- Determine output requirements (Drawings, datasheets, calculations, materials, etc.);
- Review and verified input data;
- Verification Process (Single Discipline Check, Inter Discipline Check, Third Party Review and Client Review);
- Validation Process (Third Party Approval, Client Approval, Engineering Tools Validation and Client Acceptance upon completion of commissioning activity)

8.3 Review, Approval, Verification and Validation

The Engineering Manager is responsible to coordinate at suitable stages, systematic reviews, approval, verification and validation of design and development program to ensure the process is capable of providing information/data:

- Ability of the process result to meets requirement;
- Ability to identify problems and propose alternative solutions;
- Inputs are determined and understood;
- Outputs have met the input requirements;
- Products that developed/fabricated/constructed/installed are capable to operate as desired in the operation requirements.

Review, approval, verification and validation processes are detailed in Engineering Procedure established (See Attachment 1).

8.4 Engineering Changes

Any changes to the design and development data shall be reviewed, verified and validated, as appropriate, and approved prior to implementation. The effects and risks due to the changes shall be evaluated, reviewed and approved by the authorized authority prior to implementation. Detail process of change control for design and development is described in the Engineering Procedure.

9.0 PURCHASING AND SUBCONTRACTING

9.1 Introduction

The management of the Company is committed to ensure that all purchasing and sub-contracting processes are planned, controlled and maintained as per the requirement in the Standard and comply to the contractual needs in the contract with the client. This section together with the developed procedures for this activity shall be used in controlling these activities in the Company.

Process sub-contracting is a responsibility of Sub-contract department whereas Purchasing Department controls the material, services and equipment purchasing activity.

9.2 Purchasing Planning and Control

Purchasing department is responsible for all Company's and projects related materials, services and equipment purchasing.

Planning for purchasing involves the following processes:

- Determination of purchasing scope (in associate with Projects department);
- Determination of purchasing requirements (in associate with Projects department);
- Determination of sub-suppliers;
- Preparation of quotation based on the approved material requisitions;
- Evaluation of participated sub-suppliers;
- Preparation of Purchase Orders;
- Receiving or Acceptance of purchased services, equipment and materials;

It is a responsibility of Project department to determine purchasing scope and requirements. Material, services and equipment requirements shall be obtained from the approved for construction documents.

Determination of suppliers involves selection, evaluation, and re-assessment of them, and the preparation and maintaining of Approved Sub-suppliers register.

Purchasing department is responsible to carry out sub-suppliers evaluation and issue a purchase order to those who are successfully complying to all requirement of purchased.

In both cases the purchasing document (requisition and purchase order) shall contain where appropriate the quality standard of the purchased item, qualification requirement of personnel executing the task and the approval/verification requirement.

9.3 Sub-contracting Planning and Control

Sub-contract department is responsible for all projects related processes sub-contract such as engineering, fabrication, construction, inspection and testing.

Planning for sub-contracting involves the following processes:

- Determination of sub-contract scope (in associate with Contract Services and Projects department);
- Determination of sub-contract requirements (in associate with Contract Services and Projects department);
- Capability evaluation of the sub-contractors;
- Preparation of quotation based on the process sub-contract requisitions;
- Evaluation of participated sub-contractors;
- Preparation of Work Orders;
- Site monitoring the performance of the sub-contractors;
- Evaluate and accept/reject the output produced by the sub-contractors;

9.0 PURCHASING AND SUBCONTRACTING

It is a responsibility of Contract Services and Project departments to determine process sub-contract scope and requirements.

Determination of sub-contractors involves selection, capability evaluation (technical and commercial), and re-assessment of them, and the preparation and maintaining of Approved Sub-contractors register.

Sub-contract, Contract Services and Projects department is responsible to evaluate the sub-contractors that involve in the bidding and issue a work order to those who are successfully complying to all requirement.

The work order and the requisition submitted to the sub-contractors shall contain enough information about the sub-contracted processes and comply with all client requirements. In general the sub-contract process requirement shall be the same (back to back) with the requirement that imposed by the client to the Company.

Approval and verification requirement for the product; procedures used for processes, procedures used for inspection and testing; design and development data; and equipment used shall be clearly identified in the purchasing document.

9.4 Verification of Purchased and Sub-contract Product

The requirement for this verification process shall be clearly identified in the purchase order or sub-contract agreement between the Company and the sub-suppliers or sub-contractors respectively. In the Company this process in general can be in the form of simple instruction inspection or testing request to a detailed inspection and test plan development.

Client involvement in this process shall also be made known to the suppliers and sub-contractors and shall be captured in the inspection and testing plan that prepared.

This process can be carried out in the Company, Company's sites, suppliers or sub-contractors premises depending to the requirement in the contract between the Company and the client and the nature of the purchased or sub-contracted process, product or services.

9.5 Suppliers and Sub-contractors Evaluation

All suppliers and sub-contractors in the Company shall be initially evaluated based on their previous experiences, its quality management system and potential capability to provide the required processes, products, materials or services. Quality management system shall not be a sole factor in the suppliers or sub-contractors selection but the Company shall always encourage its suppliers and sub-contractors to developed or maintained suitable quality management system in supplying product or services to the Company.

As part of the improvement program in suppliers and sub-contractors performance, selected suppliers and sub-contractors shall be re-evaluated based on the evaluation factors set by the Company. Suppliers and sub-contractors selection and evaluation program is described in the Suppliers Evaluation and Sub-contactors Evaluation procedures respectively.

9.6 Client Approved Suppliers and Sub-contractors

Client approved suppliers and sub-contractors shall be used if this requirement is appeared in the contract document. No additional evaluation is required except for the commercial issues. The Company may propose another sub-suppliers or contractors if they are unable to comply to the needs of the Company technically and commercially.

10.0 PRODUCTION (CONSTRUCTION) AND SERVICE PROVISION

10.1 Introduction

Production and service in the company cover the process of fabrication, construction, pre-commissioning, commissioning and handover or delivery of the product. The Company acknowledges its responsibility to provide adequate resources needed to ensure that production and service process has the ability to provide the client with a quality product

10.2 Planning and Control of Production and Service Provision

As part of the planning program for the control of this process, the Company shall ensure the following documents or information is available at the point of production and service:

- Project Production Schedule;
- Project Inspection and Test Plans;
- Information that describes the characteristic of the product in the form of and documents; product catalogues etc.;
- Engineering drawings;
- Necessary production process procedures and work instructions;
- Necessary client specification;
- Necessary inspection and testing procedures;
- Suitable tools, equipments and personnel;
- Suitable monitoring and measuring devices;

In ensuring the above information is properly carried out, the following verification processes are used to ensure compliance of the product against its specification and requirement as described in the contract document:

- The implementation of the monitoring and measurement processes as agreed in the Inspection and Test Plan;
- The implementation and use of correct monitoring and measuring devices;
- Inspection release note or Pre-Commissioning or Commissioning acceptance note is used to verify the completeness of any product or sub-product throughout the production process. This release note can be in the form of acceptance on the reports by the quality control and/or the client and third party inspection agency.

10.3 Validation of Processes

Any production processes result that cannot be verified by subsequent monitoring or measurement as well as those that deficiencies become apparent only after the product is used or in service shall be validate prior to use and the records for this validation process shall be kept for review and approval.

10.4 Identification and Traceability

Process of identification and traceability in the Company is in practice in order to ease monitoring, evaluation, controlling and data collecting in the related activities. In respect to this fundamental the following items, processes, parts and products are identified in order to ease its traceability:

- Tender and bid - Identified by Tender/Bid number;
- Project - Identified by unique Project number as well as name;
- Processes - Identified by relevant processes name or description;

10.0 PRODUCTION (CONSTRUCTION) AND SERVICE PROVISION

- Documents/Reports - Identified by unique document number or make use of the identification that already provided above;
- Product and Sub-product - Identified by a unique products or parts number or by a relevant drawings number. This identification normally specified in the engineering document or drawings by any means. In most cases the client provides this number.
- Parts or sub-parts - The Company utilize the information in the engineering document or drawings or may be the drawing itself in providing unique identification number for this items.

All work carried out by the Company and the Company's Suppliers (as appropriate) is identified and made traceable to the requirements stated in specified Codes, Standards and industry recommended practices. The extent of identification and traceability is related to the item being designed and/or fabricated and is generally identified in relevant Codes, Standards and industry recommended practices

10.5 Customer Property Handling

Customer property in the Company is divided into three categories namely:

- Customer Intellectual Properties - Drawings, Specification & Proprietary information.
- Equipment/Parts - Any equipment or parts for the project that supplied by the client.
- Site Services - Site facilities such as storage, infrastructures and even the site itself.

All the above shall be controlled in a systematic manner by the Project and/or Construction Manager. Any suitable means of identification as described in section 10.4 may be used to control and monitor the above. The Company shall ensure proper safety, security, value and deterioration control measures are in place for the above. This is to ensure recall process can be implemented and at the same time safeguard the Company interest on the above items.

Any change from the original state of the above items shall be communicated with the client.

10.6 Preservation of Product

The Company is shall preserve and maintain product conformity during internal processing and delivery to the client.

Product preservation in the Company is divided into three categories:

- Category 1: In progress sub-product (Includes parts and pre-completed product)
- Category 2: In progress completed product - Completed sub-product, equipment, etc. prior to final assembly
- Category 3: Final product: Completed final product as per the contract

The management shall provide proper and adequate resources to control and maintain handling, packaging, storage and preservation, and delivery mode of the above in order to prevent damage, deterioration *or* misuse.

Suitable preservation work instruction or procedure for Category 1 and 2 will be established if required by the contract. Category 3 Preservation commonly executed as per the client specific specification in the contract.

11.0 CONTROL OF MONITORING AND MEASURING DEVICES

11.1 Monitoring and Measuring Plan

The Company shall use Inspection and Test Plan to identify and monitor inspection and testing activity. This plan shall provide detail for the monitoring and measuring needs of all activities in relation to client requirement and specification.

Suitable monitoring and measurement devices shall be used and posses necessary valid calibration records.

11.2 Monitoring and Measuring Devices Requirement

All monitoring and measuring devices shall have the fitness and accuracy requirement as specified by the following requirement;

- Client Specification;
- International Codes and Standards;
- Industrial Practice;
- Or the combination of the above.

All required test equipment is calibrated at regular intervals and the results are documented. The Company shall keep and maintain a register with information of Identification Number, Calibration Date, Calibration Due, Accuracy Requirement and Origin of Calibration to ease monitoring and review by all the interested parties.

If an independent body is used to calibrate Company test equipment, the Company specifies calibration requirements and requests valid calibration certificates from the independent body. The independent body or in-house equipment use to calibrate the devices shall be made traceable to international or national measuring standards. In the event that this is not possible then the party that agreed by the contract shall verify the calibration process.

Sub-Suppliers or Contractors are responsible to keep a valid calibration certification of their devices and ensure its accessibility by a Company representative for review and approval prior to use.

Detail monitoring and measuring devices control process is explained in the Monitoring and Measuring Devices Control Procedure developed for the project.

12.0 MONITORING AND MEASURMENT PERFORMANCE

12.1 Introduction

It is a policy of the Company to adequately monitor, measure, analyse and continually improve the processes that implemented in the Company to ensure product conformity, quality management system conformity and continually improve the effectiveness of the quality management system.

This performance review shall include the process of measuring customer satisfaction in processes and , products provided, the analysis from the internal quality audit, processes and products monitoring and measurement assessment.

Method for the above measurement can be one or a combination of satisfaction survey, audits, inspection, testing, financial base study, circle time study, self or third party assessment.

12.2 Customer Satisfaction

The Company shall monitor and measure client satisfaction based on the data collected from the following sources:

1. Business Development & Tendering Stage

- Company-Customer Relations
- Client's approved suppliers/bidders list
- Client's Supplier audit report and Company's profile review
- Tender document feedback

2. Project Execution Stage

- Project Management Feedback/Complaints (Project Control, Document Control, Engineering Control, Procurement Control etc.)
- Fabrication and Construction Feedback/Complaints (Non-compliances, Arrangement of works etc.)
- Inspection and Testing Feedback/Complaints (Non-compliances in processes and products)
- Customer Survey/Inspection and Audit reports

3. Project Completion Stage

- Products feedback
- Services feedback
- Overall Project Completion Survey report
- Final documentation submission

- Customer awards

4. Other Sources

- Third Party reports
- Media reports
- Industry study

Almost all the *sources* are customer base except for the Overall Project Completion Survey report, which shall be issued to the client at the completion of each project to measure client satisfaction. Relevant department is responsible to capture and maintain the records of the above for project closeout analysis.

12.0 MONITORING AND MEASURMENT PERFORMANCE

12.3 Internal Audit

Internal quality audits of the Company's quality management system are independent examinations of evidence performed by trained personnel to determine whether the quality management system is effective and that the requirements of the system are being met.

In the Company internal audit is divided into two categories namely:

- Quality Management System Audit; and
- Project Audit

Quality management system audit will focus on the established quality system that outline in the Company's Quality Management Manual whereas project audit shall cover the relevant associated QMS processes and specific project QMS and client requirement.

The detail planning, responsibility and management of the internal audit shall be as per the Internal Audit Procedure.

The result from the audit shall be used to measure quality management system for it:

- Effectiveness of processes;
- Efficiency of processes;
- Opportunities for continual improvement;
- Capability of processes; and
- Capability of resources

12.4 Monitoring and Measurement of Process

Company processes can be categorized in two areas namely processes that described in the quality management system and processes utilized during project execution (fabrication, construction, inspection and testing). All processes shall be monitored for its capability to increase quality, safety, ease methodology but reduce cost and other resources used. Quality management processes shall be monitored through internal and third party audits programs. Project Schedule, Inspection and Test Plan shall be used to monitor the effectiveness of the fabrication, construction, inspection and testing processes. The internal audit output, users and client feedback shall be used as a basis for the needs of processes measurement review.

12.5 Monitoring and Measurement of Product

Engineering, procurement, Inspection and test plan and all associated inspection and testing procedures development shall be used as a basis for product monitoring and measurement planning. Engineering data and client specification shall be used to determined methods and criteria for product monitoring and measurement. Inspection and test plan shall be used for the detail inspection and testing planning of the specific parts or products. All inspection and testing as well construction or fabrication procedures shall be used for the correct execution of the monitoring and measuring activities.

Monitoring and measurement stages in practice by the Company consist of:

- Material receiving stage - to verify correctness of the purchased materials or equipment
- Material Identification stage - to verify the correctness of the materials or equipment to be used
- Material traceability stage - to ensure traceability of the used materials or equipments
- In progress Inspection and testing stage — to ensure all the necessary inspection and testing required for the product by the codes, standards, regulations, client's specification are properly executed and recorded.

12.0 MONITORING AND MEASURMENT PERFORMANCE

- Final Inspection and testing stage - to verify all inspection and testing verification and validation for the parts or products are accepted and comply with the requirement specified in codes, standards, regulations and client's specification.
- Commissioning stage - this is the final stage of the measurement and monitoring process to ensure the product is comply with the function needed by the client.

Monitoring and measurement stages described above shall also consider the involvement of the client and any other interested party as per the contract. All monitoring and measurement devices shall posses' valid calibration certification as per the client's requirement. When required by the codes, standards and/or client specification all personnel involved in the monitoring and measuring processes shall have valid competency and qualification certificates.

All measuring and monitoring reports and records shall be kept for verification per the contract.

13.0 CONTROL OF NONPERFORMANCE PRODUT

13.1 Introduction

Non Conformance Report (NCR) shall be used to monitor and control any product, which does not conform to product requirement. NCRs shall be managed and controlled in accordance with the requirements in 'Non-conformance Report Procedure'.

NCRs are used by the Company to safeguard against work that has not been accepted being used or incorporated into the Company's final product. Typical non-conformances (NCs) with regard to work produced by the Company include:

- Errors or inconsistencies in drawings and documents issued to Clients, Certification Authorities, Fabrication Facilities, Sub-suppliers;
- Difficulties experienced with interfacing, resulting in designed-in deficiencies;
- Construction feedback on deficiencies resulting in project change requests;
- Deficiencies in Work Orders and/or Purchase Order documents;
- Deficiencies resulting from tests, inspections, verification or audit;
- Deficiencies in inspection, test and verification procedures.

NCs are identified during inspection, via complaints from Clients or observations made by any Company personnel who recognizes them. NCRs can be raised in three main areas as described below:

Internal NCRs raised by the Company on Sub-suppliers, Sub-contractors and the Client;

Client Legitimate complaints made by the Company's Clients;

External NCRs raised by Certifying Authorities, Parent Company or their agents on the Company.

13.2 Responsibility

The QA Manager responsible for all non-conformances and corrective action within the Company but has delegated responsibility for the implementation and maintenance of effective prevention and resolution systems to the Site's QA/QC Representative.

Project Managers are responsible for ensuring that action is taken to correct the non-conformances in the projects. The action taken will depend on the type of nonconformity and at what stage it is discovered.

The Site's QA/QC Representative is responsible for monitoring all projects NCs and actions to prevent recurrence and for analyzing and reporting trends or concerns for management's review.

The Company's personnel are encouraged to report NCs no matter how small or apparently trivial. This philosophy assists in detecting NCs at the earliest stage, allows timely evaluation and resolution of the problem and facilitates (if required) early modification of the quality control system to prevent recurrence.

13.3 Non-conformances Control

All non-conformances shall be managed and controlled as per Non-conformance Report Procedure that developed integral with the Company Management System.

14.0 CORRECTIVE AND PROVENTIVE ACTION

14.1 Introduction

'Corrective Action Request' (CARs) and 'Quality Improvement Request' shall be used as a methodology of the respective corrective and preventive actions to eliminate the causes and potential causes of nonconformities, or services by initiating appropriate corrective and preventive actions designed to remove the root and potential root cause of each problem. Lead Auditors from within the Company or from Clients and Certification Authorities; produce CARs or QIRs during the audit process. The Company maintains 'Corrective Action Status Log' and 'Quality Improvement Request Log' to record all issued CARs and QIRs.

14.2 Corrective Action

The Company shall ensure adequate corrective action is taken to eliminate the cause of the conformities in order to prevent recurrence.

'Corrective Action Procedure' is designed to ensure that:

- Conditions adverse to quality are identified;
- The causes of these conditions are determined;
- Evaluating the needs for action to prevent occurrence;
- Determining the implementing action needed;
- Records of results of action taken; and
- Reviewing preventive action taken.

14.3 Preventive Action

The Company shall ensure adequate preventive action is taken to eliminate the potential cause of the conformities in order to prevent occurrence.

'Preventive Action Procedure' is designed to ensure that:

- Conditions adverse to quality are identified;
- The causes of these conditions are determined;
- Evaluating the needs for action to prevent occurrence;
- Determining the implementing action needed;
- Records of results of action taken; and
- Reviewing preventive action taken.

15.0 DATA ANALYSISI AND CONTINUAL IMPROVEMENT PROGRAM

15.1 Introduction

The Company shall monitor and review the effectiveness of the implemented processes toward the achievement of its client satisfaction, product conformity, and the Quality Management System compliance. This process shall include the analysis of gathered data and provide a necessary continual improvement to the processes, product, Quality Management System and organization.

15.2 Analysis of Data

All data should be obtained from measurements and information collected as described in the ISO 9001 Standard and not limited to the following sources:

- Quality Policy Statement;
- Objectives;
- Audit results (Internal, External, Certification, etc.);
- Non-conformities reports;
- Corrective Action record;
- Preventive Action record;
- Users feedback;
- Suppliers and sub-contractors performance record;
- Resources;
- Management feedback;
- Management review;
- Clients feedback;
- Suppliers and sub-contractors feedback;
- Future Client Expectation and needs;
- International Codes and Standards revision and change;
- Technology;
- Market Trends;

Data that gathered internally shall be used as primary information and shall always be considered for this analysis process (Quality Policy to the Management review - from the above list).

15.3 Continual Improvement Program

The Company shall continually seek for improvement opportunities in its Quality Management System as well as its processes, products, and organization. Improvement program in the Company is divided into three categories namely:

- Immediate Improvement - Improvement required due to process or product non-conformity that required urgent change in process or product.
- Analytical Improvement- Improvement required from the result of data analysis (15.2)
- Strategic Improvement - Improvement required based on specific improvement project or case study.

Any improvement program to be implemented shall always consider the fundamental of the quality management policy to:

- Satisfy the client;
- Satisfy the statutory requirement; and
- Satisfy the Quality Management System.

16.0 RECORDS MANAGEMENT

16.1 Introduction

Quality records are those documents generated within the Company (or by Sub-suppliers) that demonstrate the achievement of Company requirements and policies. The Company's quality records affirm and verify the operation of the quality management system.

The Company's records are verified, dated and stored in a manner to prevent loss or damage and are maintained for prescribed periods dependent on type of record.

The Document Controllers are responsible for indexing, storing and archiving records in accordance with the 'Records Management Procedure'.

16.2 Table of Quality Records

No.	Document Description
	CONTRACTS SERVICES
1	Tender preparation and Contract review records
	SUB-CONTRACTS DEPARTMENT
1	Sub-contract Work Orders
2	Approved Sub-contractor Register & Assessment records
3	Sub-contract Change / Variation Order records
	PROJECTS DEPARTMENT (SITES)
1	Project Communication Records
2	Project Status Reports
3	Project Change / Variation Order Records
4	Authority Approval Records
5	Client Approval Records
	PROJECT DEPARTMENT (QUALITY CONTROL) (SITES)
1	Process Validation records
2	Project Competency records (Inspectors/Welders etc.)
3	Calibration Records
4	Traceability and Identification records
S	Product Conformity (Materials. Inspection and Testing) records
6	Customer property feedback records
7	NCRs records
	PURCHASING DEPARTMENT
1	Approved Suppliers Assessment records
2	Purchasing Records (MR. RFO and P.O)
	ENGINEERING DEPARTMENT
1	Engineering input records
2	Design Reviews records
3	Design Verification and Validation records
4	Engineering and Drafting Review records
5	Design Change records
	QUALITY ASSURANCE DEPARTMENT
1	Audit Reports (Internal. Client. External & Third Party)
2	Corrective and Preventive Actions records
3	Management Review reports
4	Customer Satisfaction records
	ADMINISTRATION AND HUMAN RESOURCES DEPARTMENT
1	Employment Records
2	Training and Competency Records