FMC Technologies

Quality Manual

Corpus Christi Operations

FMC Technologies, Inc.
Corpus Christi Operations
Corpus Christi, Texas, USA

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Management Preface

FMC Technologies, Corpus Christi, Texas, USA is a subsidiary of FMC Technologies, Inc.

FMC Technologies is a worldwide leading manufacturer of liquid and gas flow meters, electronic and mechanical metering accessories, and custom-designed measuring systems for custody transfer applications, product distribution, and process control.

The quality of our products is a cornerstone of our success, upholding both the reputation and the existence of our company. We, therefore, continuously strive to provide our customers with improved products and services meeting every expectation.

The management of FMC Technologies, Corpus Christi Operations accepts the responsibility for, and the commitment to, the Quality Policy, Quality Objectives, Processes and Procedures comprising the Quality Management System as described in this manual, as well as the responsibility for its implementation, including periodic review, measurement and analysis of its effectiveness for continual improvement to enhance the performance of the organization.

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General Manager,
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Corpus Christi, Texas, USA

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1.0 INTRODUCTION

The Quality Manual describes herein covers the quality management system that is in place in FMC Technologies, Corpus Christi Operations.

The quality management system is customer focused; designed to consistently meet or exceed the needs and expectations of customers and other interested parties (employees, suppliers, subcontractors, society) - the basic requirement of the international standard ISO 9001:2008.

In view of the changing organizational environment and to mitigate the risks associated with that environment, the quality management system has adopted process approach to confine the organizational efforts to certain core and support processes. It determines the suitability and capability of the processes, including process interactions and resource needs by means of periodic review, verification and measurement for an effective and efficient performance of the organization. It also establishes the methods and controls, the suitability of which are periodically reviewed to verify the effectiveness and to continually improve the processes so as to enable the organization meet or exceed customer needs and expectations, and fulfill its quality policy and objectives.

2.0 QUALITY POLICY

1. We strive for excellence by means of internal processes and quality management system that are continually being improved through periodic review, measurement and communication, and commitment by all employees within the organization.
2. We provide superior, competitive products and services that bring maximum value to our worldwide customers on time, every time.
3. We support the economic and social well-being of our employees and the communities in which we live and work.

The **quality policy** is reviewed periodically for continuing suitability and to ensure that it is appropriate to the purpose of the organization.

3.0 QUALITY OBJECTIVES

Continually improve and maintain overall organizational performance and process capabilities to achieve

- Increased ability to win work
- Increased ability to meet the needs and expectations of customers
- Reliability
- Superior products and services at competitive pricing
- On or before time delivery

- Zero defects on deliverable products and services
- Increased contribution to profit margin
- Reduced warranty cost
- Incident free, safe and secured work environment

The organization's **quality objectives** are reviewed periodically for continuing suitability and to ensure that the objectives are linked with and supported by the division level objectives established within the organization and that the quality objectives are measurable and consistent with the organization's quality policy.

4.0 QUALITY MANAGEMENT SYSTEM

4.1 Organizational Environment – Influence on Design and Scope:

The organization's **quality management system** is process based. It determines all of the key and support processes required to provide deliverable product and services in accordance with customer requirements and the organization's policy and quality objectives. In order to function effectively and efficiently and to enhance customer satisfaction, each of these processes are suitably managed and periodically verified, and measured where applicable for continual improvement.

The oil industry environment is very unique and complex in nature in terms of opportunities, challenges, risks (financial and political) and uncertainties. With the growth of technologies, the complexity of oil industry requirements has increased in terms of material specifications, codes, aesthetics, safety and environmental standards. Increased competition has placed a premium on customer satisfaction. Customers now require more customized products to cater to specific needs. On the other hand, because the oil industry activities are purely oil price driven, bringing cost and time effective solution is essential.

In order to mitigate the risks associated with this kind of changing environment, the organization has designed its quality management system to intensely focus on core activities while managing quality non-core works outsourced through supplier and subcontractor management. Outsourcing of non-core works allows the organization to maintain manpower and resources at a minimum. The organization determines and plans for education and training needs for its employees to improve the competence level. The organization thus ensures that it has the right people with necessary competence, suitable processes and procedures forming the quality management system that enables it to consistently provide quality product that meets customer and applicable statutory and regulatory requirements.

4.2 Key and Support Processes:

The quality management system determines the following as the organization's key and support processes:

Key Processes:

- Explore, Bid, Negotiate
- Initiate – Order Entry, Project/Service Plan
- Monitor & Control – Project Design Work/Service Development
- Monitor & Control – Project Fab./Assembly Work/Performance of Service
- Monitor & Control – Project Testing Calibration Final Inspection and Delivery/ Service Report

Support Processes:

- Strategic Sourcing/Supplier Management;
- Purchasing/Expediting;
- Subcontract Management – Fabrication/Assembly;
- Product/Service – Quality Assurance;
- Document Control;
- Export Import Compliance;
- Health, Safety and Environment (HSE); and
- Hiring, Training and Development;

4.3 Processes, Process Interactions, Methods and Controls

4.3.1 Explore, Bid, Negotiate

Supplier to the Process:
- Customer Requirements;
- Monitor & Control – Project Design Work/Service Development;
- Purchasing/Expediting;
- Product/Service – Quality Assurance
- Health, Safety and Environment (HSE); and
- Hiring, Training and Development

The process reviews and determines all requirements related to the product, such as

- requirements specified by customer;
- requirements for delivery and post-delivery activities;
- requirements not stated by customer but necessary for performance;
- statutory and regulatory requirements; and
- any additional requirements, for example, delivery, actions under warranty provisions, maintenance services, etc.

and transforms all inputs into complete bid proposal. The process also conducts necessary bid clarification on technical and commercial terms, meeting with customer, negotiation, etc., the cumulative efforts of which result into customer order.

Customer to the Process:
- Initiate – Order Entry, Project Service Plan; and
- Document Control.

Methods and Controls:
- Export Compliance Manual
- SS-102: Quotation Procedure
- SS-151: Parts Dept. Quotation and Order Processing Procedure

4.3.2 Initiate – Order Entry, Project/ Service Plan

Supplier to the Process:
- Explore, Bid, Negotiate
- Monitor & Control – Project Design Work/Service Development
- Monitor & Control – Project Fab./Assembly Work/Performance of Service
- Monitor & Control – Project Testing Calibration Final Inspection and Delivery/ Service Report;
- Purchasing/Expediting;
- Product/Service – Quality Assurance; and
- Hiring, Training and Development

4.3.2.1 Review of Contract Package

The process reviews and verifies customer order/package to ensure that product requirements are defined, and that no ambiguity or dispute exists in the contract package vis-à-vis bid proposal concerning the requirements and associated terms and conditions.

4.3.2.2 Project Plan/Schedule/WBS

The process determines quality objectives and requirements for the product, all associated risks and the risks mitigation strategy, resource needs, inspection, measurement and test requirements, customer communication and transforms all inputs into integrated project plan/schedule/WBS so as to lead project and/or services as per the planned requirements.

4.3.2.3 Customer Communication

Project/Service Managers are only authorized to establish and maintain communication with customer in relation to contracts, including contract amendments, customer feedback and customer complaints.

Customer to the Process:
- Monitor & Control – Project Design Work/Service Development;
- Monitor & Control – Project Fab./Assembly Work/Performance of Service;
- Monitor & Control – Project Testing Calibration Final Inspection and Delivery/ Service Report; and
- Document Control

Methods and Controls:

- SS-111: Order Entry and Contract Review Procedure
- SS-139: Service Procedure
- SS-141: Project Schedule Procedure
- SS-151: Parts Dept. Quotation and Order Processing Procedure
- Contract Guidelines

4.3.3 Monitor & Control – Project Design Work/Service Development

Supplier to the Process:

- Initiate – Order Entry, Project/ Service Plan
- Strategic Sourcing/Supplier Management
- Monitor & Control – Project Fab./Assembly Work/Performance of Service
- Product/Service – Quality Assurance; and
- Hiring, Training and Development

4.3.3.1 Design and Development Inputs:

The process ensures that the contract technical package/bid proposal is reviewed thoroughly to determine the functional and performance requirements, including any applicable statutory, regulatory and other requirements as deemed essential for the design and development works. The process also ensures that the requirements are complete, unambiguous and not in conflict with each other.

4.3.3.2 Control of Design and Development Work:

Drawings/package and Bill of Materials are the typical process outputs that require customer approval. Before release of any such documents for customer approval, the process ascertains that a systematic review, verification and validation are implemented at each stage of design and development work, as appropriate, and that all review, verification and validation are performed in accordance with the planned arrangements. This includes review of any interface issue between different design groups to ensure no conflict in the drawings/packages for the product/system. Construction drawings/ documents are issued only after receipt of customer approval on the drawings/packages.

The process ensures that records of the results of all review, verification and validation identifying any problem and necessary actions are maintained.

4.3.3.3 Control of Design and Development Changes:

The process ensures that for any design and development changes to take place, a systematic review, evaluation, verification and validation are implemented, and the end result approved. Records of the results of the review of the changes identifying any necessary actions, including evaluation of the effect of the changes to the product/contract are maintained.

Customer to the Process:
- Monitor & Control – Project Fab./Assembly Work/Performance of Service;
- Purchasing/Expediting;
- Monitor & Control – Project Testing Calibration Final Inspection and Delivery/ Service Report;
- Document Control;
- Customer Satisfaction and Feedback

Methods and Controls:
- SS-105: Design Control Procedure
- SS-106: System Design Control Procedure
- SS-108: Drawing Change Notice Procedure
- SS-110: Software Design Procedure
- SS-113: Standard Drawing Control Procedure
- SS-126 Project Design Review Procedure
- SS-135: Prover/System Drawing Checklist
- SS-103: Purchasing Procedure

4.3.4 Monitor & Control – Project Fab./Assembly Work/Performance of Service

Supplier to the Process:
- Initiate – Order Entry, Project/ Service Plan;
- Monitor & Control – Project Design Work//Service Development;
- Purchasing/Expediting;
- Subcontract Management –Fabrication/Assembly;
- HSE;
- Document Control;
- Product/Service – Quality Assurance; and
- Hiring, Training and Development

4.3.4.1 Award of Subcontracted Work

The process ensures that approved construction package, customer specs and necessary other work instructions/procedures are available to conduct bidding for the project fabrication/assembly works. Subcontractors are invited from the List of Approved Subcontractors available. The process also ascertains that the requirements are complete, unambiguous and understood by all subcontractors invited to bid and that thorough review and evaluation of bids is conducted on a comparable basis toward selecting the successful bidder.

4.3.4.2 Control of Project Fabrication/Assembly Work

The process ensures that, after award of subcontract and before commencement of work, the subcontractor facility is reviewed and verified thoroughly, and processes validated, to ascertain deployment by the subcontractor an adequate and suitable manpower, equipment and other resources to properly perform the subcontracted work.

Customer to the Process:
- Monitor & Control – Project Testing Calibration Final Inspection and Delivery/ Service Report;
- Document Control;
- Customer Satisfaction and Feedback

Methods and Controls:
- SS-103: Purchasing Procedure
- SS-126 Project Design Review Procedure
- SS-135: Prover/System Drawing Checklist
- SS-127: Material Review Procedure
- SS-118: System's Cabinet/Console Assembly Procedure
- SS-119: Electrical Requirement for Packaged Equipment
- SS-129: Technical Spec. for Fabrication and Inspection Thereof
- SS-139: Service Procedure
- SS-153: Expediting Procedure

4.3.5 Monitor & Control – Project Testing Calibration Final Inspection and Delivery/ Service Report

Supplier to the Process:
- Initiate – Order Entry, Project/ Service Plan;
- Monitor & Control – Project Design Work//Service Development;
- HSE;
- Document Control;
- Product/Service – Quality Assurance; and
- Hiring, Training and Development

4.3.5.1 Control of Test Specification Development Work

Test specifications are developed from the approved design and drawing specification that determines the requirements and accuracy level of the final product performance to be verified by conducting inspection, calibration, measurement and testing. The process ensures that necessary work instructions/procedures are in place for review and verification of the test specifications so developed.

4.3.5.2 Control of Monitoring and Measuring Equipment

Prior to use of any measuring equipment for conducting calibration, measurement or performance test, the suitability and calibration status of the measuring equipment is verified. Necessary care is taken for all measuring equipment to ensure

- calibration log is maintained to determine the calibration status
- recalibrated at specified intervals to accepted measurement standards

- safeguarded from adjustments that would otherwise invalidate the measurement result
- protected from damage and deterioration during handling, maintenance and storage

4.3.5.3 Control of Monitoring, Measurement and Testing

The process ensures that necessary resources are available for all calibration, measurement and performance testing (such as simulations, skid continuity, Pre-FAT and FAT) and that they are carried out in a manner to provide evidence of conformity of final product to determined requirements. Punch lists (records) are prepared from any such calibration and verification and maintained for necessary action.

In case, any measuring equipment is found not to conform to requirements, the process ensures that appropriate action is taken on the equipment and on any product affected, and that validity of any previous measuring results is verified and recorded.

Customer to the Process:
- Monitor & Control – Project Fab./Assembly Work/Performance of Service;
- Monitor & Control – Project Design Work/Service Development
- Document Control;
- Customer Satisfaction and Feedback

Methods and Controls:
- SS-110: Software Design Procedure
- SS-123: Calibration Procedure for Measuring, Test and Standard Equipment
- SS-143: System's Test Spec. Compilation Procedure
- SS-139: Service Procedure

4.3.6 Strategic Sourcing/Supplier Management

Supplier to the Process:
- Monitor & Control – Project Design Work//Service Development;
- Purchasing;
- Product/Service – Quality Assurance; and
- Hiring, Training and Development

4.3.6.1 Supplier Selection and Control

The process conducts review and evaluation (both technical and commercial) of existing and potential new suppliers. It ensures that necessary procedures, including criteria for selection, evaluation and re-evaluation are in place for the purpose, as applicable to both existing and potential new suppliers, and that records of the results of evaluation and any necessary action arising from the evaluation are maintained. This is to ascertain that suppliers selected are capable to supply product in accordance with the organization's requirements.

4.3.6.2 Supplier Relationship Management

The process ensures that suppliers that are of strategic interest and those for "High Value/High Annual Spend" items are selected, performance monitored for necessary development and relationship management to leverage competitive advantage.

Customer to the Process:
- Monitor & Control – Project Design Work//Service Development;
- Monitor & Control – Project Fab./Assembly Work/Performance of Service;
- Purchasing/Expediting;
- Product/Service – Quality Assurance; and
- Document Control;

Methods and Controls:
- SS-103: Purchasing Procedure
- SS-121: Supplier Selection and Control
- SS-153: Expediting Procedure

4.3.7 Purchasing/Expediting

Supplier to the Process:
- Monitor & Control – Project Design Work//Service Development;
- Strategic Sourcing/Supplier Management;
- Monitor & Control – Project Fab./Assembly Work/Performance of Service;
- Hiring, Training and Development

The process ensures that product description and any changes to the product requirement, including inspection, documentation and certification requirement, is included in the purchase requisition and that it has necessary approval for the product component to be purchased. This shall be verified prior to requesting any quote and issuing PO to suppliers. Where appropriate, quotes shall be received from at least three suppliers to ensure competitive pricing for the purchased product.

The process also ensures that necessary procedures are in place to ensure on-time delivery of any product purchased.

Customer to the Process:
- Monitor & Control – Project Design Work//Service Development;
- Monitor & Control – Project Fab./Assembly Work/Performance of Service;
- Product/Service – Quality Assurance
- Document Control;

Methods and Controls:
- SS-103: Purchasing Procedure
- SS-104: Receiving Inspection Procedure
- SS-153: Expediting Procedure

4.3.8 Product/Service – Quality Assurance

Supplier to the Process:
- Customer Requirements;
- Monitor & Control – Project Design Work//Service Development;
- Purchasing/Expediting;
- HSE;
- Hiring, Training and Development

4.3.8.1 Control of Nonconforming Product

The process ensures that product which does not conform to product requirements is identified and controlled to prevent its unintended use or delivery. Any nonconforming product, when corrected under authorized concession, is re-verified to demonstrate conformity to the requirements and records maintained.

4.3.8.2 Receiving Inspection

The process conducts receiving inspection of all product components purchased by the organization to ensure no damage during transport and to verify conformity to purchase requirements.

4.3.8.3 Inspection and Testing During Fabrication/Assembly until Delivery

The process conducts necessary inspection and testing during fabrication/assembly work. Subcontractor facility is reviewed and verified thoroughly, and processes validated to ascertain deployment of adequate and suitable manpower and resources by the subcontractor to properly perform the subcontracted work. The process also determines inspection hold points (QVR) and other procedures that will be followed by the subcontractors to ensure quality fabrication/assembly work.

After the fabrication/assembly work is completed, the process conducts final inspection. Product is released to customer when the requirements are completed satisfactorily to the planned arrangements and, where applicable, after approval by the customer.

4.3.8.4 Identification and Traceability

The process ensures that the final assembled product is identified during the fabrication/ assembly operations by appropriate means, such as attached routing slips, drawings or by part numbers attached, marked or stamped to the individual product components.

It also ensures that traceability of raw material is recorded and maintained by means of heat number, material certification tag, serial number or by other means when required by customer.

4.3.8.5 Preservation of Product

The process ensures necessary protection for all individual product components from damage and deterioration during identification, handling, packaging, maintenance and storage and during final product assembly work-in-process until delivery to customer so as to maintain conformity to requirements.

Customer to the Process:
- Monitor & Control – Project Fab./Assembly Work/Performance of Service;
- Subcontract Management – Fabrication/Assembly
- Document Control;
- Customer Satisfaction and Feedback

Methods and Controls:
- SS-104: Receiving Inspection Procedure
- SS-107: Handling, Storage, Packing Procedure
- SS-120: Water-draw Calibration for Bi and Uni-Directional Prover
- SS-129: Technical Spec. for Fabrication and Inspection Thereof
- SS-131: Hydrostatic Testing procedure
- SS-130: Consoles/Cabinets - Final Inspection Procedure
- SS-138: Inspection Procedure – Prover Quality Pipe and Fittings

4.3.9 Document Control

Supplier to the Process:
- Process Owners

The process ensures that documents, including records, determined by the organization to be necessary to provide evidence of conformity to requirements are maintained for the effective planning, operation, reference and control of the quality management system. All Records shall be legible, readily available, retrievable and controlled.

The process also ensures that necessary procedure/work instruction is in place to define the controls needed for the identification, storage, protection, retrieval, retention and disposition of records.

Customer to the Process:
- Process Owners

Methods and Controls:
- SS-101: Records Maintenance Procedure
- SS-106: System Drawing Control Procedure
- SS-113: Standard Drawing Control Procedure
- SS-128: Standard Manual Procedure
- SS-137: Documentation Control Procedure
- Record Retention Schedule

4.3.10 Export/Import Compliance

Supplier to the Process:
- Explore, Bid, Negotiate
- Purchasing/Expediting
- Document Control

It is the policy of the organization to comply with the Export/Import regulations for any export/import in connection with manufacturing and exporting of its product/system and technology.

Prior to initiate work for any bid proposal, the process ensures that the organization's Intranet Order Screening Program (IOSP) is verified by its sales personnel to determine the end user/end use and the ultimate destination for necessary export compliance.

The process also ensures use of authorized customs broker/freight forwarder for any export/import. Records of export/import shipping documents are monitored, verified and maintained to provide evidence of conformity to the Export/Import Regulations requirements.

Customer to the Process:
- Process Owners
- Monitor & Control – Project Fab./Assembly Work/Performance of Service;

Methods and Controls:
- SS-103: Purchasing Procedure
- SS-153: Expediting Procedure
- Export Procedure Manual
- Import Procedure Manual

4.3.11 Health, Safety & Environment

Supplier to the Process:
- Process Owners
- Product/Service – Quality Assurance

It is the policy of the organization to comply with the Health, Safety & Environmental issues/regulations in connection with manufacturing and exporting of its product/system and technology.

The process ensures that necessary measures are taken toward meeting the organization's responsibility for Health, Safety & Environment by means of promoting awareness on

- safety rules and guidance, including the use of protective equipment

- environmental issues associated with infrastructure, such as conservation, waste and recycling
- health issues, such as hygiene, cleanliness, noise, vibration and pollution

The process also ensures that appropriate measures are taken both at office premises and at workplace/job site to ensure an injury free, safe and secured work environment that has a positive influence on motivation, satisfaction, and performance of people.

Customer to the Process:
- Process Owners
- Employees;
- Customer Satisfaction and Feedback

Methods and Controls:
- Safety Manual
- Subcontractor Facility Safety Audit Checklist
- Safety Training

4.3.12 Hiring, Training and Development

Supplier to the Process:
- Process Owners
- Employee

The process ensures that personnel performing work affecting conformity to product requirements have appropriate education, training, skills and experience and that they are competent enough in their respective disciplines to contribute to the quality work and objectives set by the organization. Where training, certification or specific education is a specific requirement determined by the employees and/or process owners to achieve the necessary competence, the process ensures that employees receive such training or education, and that record of all education, training, skills and experience is maintained for all personnel.

Customer to the Process:
- Process Owners
- Employees;
- Document Control

Methods and Controls:
- On-Site/Off-Site Training and Seminar
- SS-125: Training and Qualification Records

4.3.13 Internal Audit Program

Supplier to the Process:
- Process Owners

The process ensures that internal audits are conducted at regular intervals to assess the strength and weakness of the quality management system, and that record of observation details (objective evidence) maintained and reported to management for corrective actions. It considers the importance of the processes and areas to be audited, and the results of previous audits while planning an internal audit, to determine

- the effectiveness and efficiency of the processes affecting conformity to product or service requirements
- opportunities for continual improvement
- capability of processes
- improvement activities
- adequacy and accuracy of performance measurement by analysis of quality/cost data

Customer to the Process:
- Management
- Process Owners
- Employees;
- Document Control

Methods and Controls:
- SS-114: Quality Auditing and Management Review
- Quality Management System, Processes and Procedures

4.3.14 Corrective Action System

Supplier to the Process:
- Process Owners

The process ensures that corrective actions are planned to avoid recurrence, as appropriate, and that actions are monitored to ascertain that desired goals are met. Prior to undertaking corrective actions for necessary improvement, root-cause analysis is conducted, effectiveness and efficiency of processes are verified, and significance of problems is evaluated in terms of potential impact on operating costs, costs of non-conformity, product performance, dependability and the safety and satisfaction of customers.

In order to determine corrective actions, the process collects information from any of the following sources:

- customer complaints
- non-conformity report
- internal audit report
- outputs from management review
- quality management system records

- employees
- process measurements
- post project audit, and
- self assessment

When appropriate, the process also determines preventive actions to eliminate the causes of any potential non-conformity.

Customer to the Process:
- Management
- Process Owners
- Document Control

Methods and Controls:
- SS-114: Quality Auditing and Management Review
- SS-144: Corrective and Preventive Action Implementation

4.3.15 Management

Supplier to the Process:
- Process Owners
- Internal Audit Program
- Customer Satisfaction and Feedback
- Corrective Action System

4.3.15.1 Responsibility and Authority

Management ensures that the needs and expectations of all interested parties are met by the systematic and continual improvement of the organization's performance. Management aims to achieve this by communicating the need and assigning the responsibility and authority within the organization.

4.3.15.2 Resource Management

Management ensures that the resources are adequate to the implementation of strategy and the achievement of the organization's objectives. Management determines the resources such as employees, infrastructure (such as plant, workspace, tools and equipment (both hardware and software), support services, information and communication system, transport facilities), work environment, suppliers and subcontractors and financial resources.

Management ensures that infrastructures and work environment are maintained in a way that they have positive influence on employees to enhance the performance of the organization.

4.3.15.3 Management Representative

Management representative ensures that the quality management system comprising the processes, procedures and controls are established, implemented and maintained. He/She liaises with external parties on matters relating to the quality management system, and reports to the management on its performance and any need for improvement.

Management representative also ensures that records of nonconformities are maintained to assist learning and to provide data for analysis and to determine continual improvement activities.

Customer to the Process:
- Customer Requirements
- Process Owners
- Employees

Methods and Controls:
- SS-000: Quality Assurance Program
- SS-114: Quality Auditing and Management Review
- SS-144: Corrective and Preventive Action Implementation

5.0 QUALITY MANAGEMENT PLAN – CONTINUAL IMPROVEMENT

The objective of the **quality management plan** is to create shared goals and accountability within the organization, and to build commitment to continual improvement. The plan incorporates internal controls at three points in time: 1) Before-The-Fact, 2) During-The-Fact and 3) After-The-Fact with a focus to meet or exceed the needs and expectation of customers thereby enhancing customer satisfaction, and to support the organization's quality policy and objectives.

5.1 Process Capability Measurement

The objective of the **process capability matrix** is to establish an improvement path for the organization to incrementally improve the processes included in the quality management system. It identifies the capability levels and criteria for achieving each incremental level against which the measurement shall take place. Management ensures that measurement of process capabilities takes place at least two times in a year to establish a trend of the organization's overall process performances. The review and analysis of the process performances and the trend will enable the organization to gauge how well the process improvement program is working and to ascertain where continual improvement of the processes can be made to continually improve the organizational performance.

5.2 Analysis of Data

Management determines the data to be collected, as appropriate, and ensures that all such data are reviewed, after collection, and analyzed to demonstrate the suitability and effectiveness of the processes included in the quality management system.

5.3 Post Project Audit

Management ensures that post project audits are conducted upon completion/delivery of each project and that any lessons learned are shared within the organization for continual improvement. The objective is to incorporate any such lessons learned into new project performance by means of amending project plan so as to meet or exceed the needs and expectations of ultimate customers.

5.4 Customer Satisfaction and Feedback

Performance measurement of the quality management system can be verified best by monitoring customer perception. Management ensures that information concerning customer perception on delivered product is obtained from sources such as customer/user satisfaction surveys, lost business analysis, compliments and warranty claims.

5.5 Management Review

Management shall conduct periodic review of the quality management system to ensure its continuing suitability, adequacy and effectiveness. The frequency of Management review will be determined by the needs of the organization. It will focus the review on assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives based on information from audit results, customer feedback, status and result of corrective/preventive action, employee feedback, supplier performance, status of strategic supplier relationship and measurement of process capability matrix. Output from such reviews focuses on achieving increased benefits, improved customer satisfaction, improved use of resources, improved internal communication and reduction of waste in the changing business environment.

5.6 Continual Improvement

Management shall ensure that data collected by means of monitoring and measurement of the organization's performance vis-à-vis the quality policy and objectives, audits, management reviews, corrective/preventive actions and other sources are used to continually improve the effectiveness of the quality management system.

Methods and Controls:

- SS-000: Quality Assurance Program
- SS-114: Quality Auditing and Management Review