QMS-2016

FEC QUALITY MANUAL

QUALITY MADE
CUSTOMER DRIVEN

Federal Equipment Company

5298 River Rd

Cincinnati, Ohio 45233

www.federalequipment.com

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www.usdrillhead.com

www.orionseals.com

www.tkf.com

REVISION: 2 **"Per Requirements of ISO9001-2015"** **DECEMBER 14, 2015**

FORWARD

QUALITY CONTROL MANUAL

This manual is issued to describe the Quality Management System (QMS) employed at Federal Equipment Company (FEC). Compliance with all procedures contained herein is mandatory unless specifically exempted by the Quality Control Manager.

Revisions to this manual will be incorporated by the issuance of dated, numbered, and signed change notices. Change notices will be distributed to all holders of this manual immediately upon receipt.

All proposed changes to this manual will be submitted to the president of Federal Equipment Company for his evaluation and approval prior to issue.

Numbered copies of the manual will be made available to our customers through the Quality Assurance Department upon request.

_____
President, F.E.C.

_____
Date

_____
Q.C. Manager

_____
Date

REVISION HISTORY			
Rev	**Description of Change**	**Author**	**Effective Date**
0	Initial Document	JLD	12-14-15
1	Incorporated Requirements of EB2678	JLD	12-14-15
2	Edited per HII Audit 2016FEB17	JLD	2-17-16

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(Recorded in Master Copy on File with Quality Manager)

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Section 1: Scope

1.1 General

In order for Federal Equipment Company (FEC) to maintain our business successes, it is critical that we satisfy our customer's requirements by continually improving upon the quality, cost and delivery of our products and services. FEC has developed and implemented the following quality management system to better satisfy the needs of its customers and to improve management of the company. This quality system was developed to comply with the international standard ISO 9001:2008. The primary scope of our system is to:

"Allow for the efficient design and manufacture of shipboard systems for the military and heliport, drill-head and conveyor systems for private industries".

This manual describes the FEC policies that reflect the requirements of ISO 9001:2008, *Quality Management Systems*. Implementing and maintaining these policies will ensure our continued improvement of our quality management system as we perform to our customer's requirements.

FEC has maintained and included additional policies and procedures into this QMS to meet the specific requirements of other Quality Systems, including the historical document MIL-I-45208A, Lockheed Martin Specification LMSSC/SMP010710U05, Electric Boat 2678 and Newport News Shipbuilding Quality Requirements of Appendix Q.

1.2 Application

Federal Equipment Company takes no exclusions to the requirements of ISO9001-2015, and as such, it is the commitment of all employees of Federal Equipment Company to improve upon our internal policies and practices throughout the implementation of our ISO 9001 quality management system.

This Quality Manual applies to all Federal Equipment Company's business locations, specifically the following:

Worldwide Headquarters - 5298 River Road, Cincinnati Ohio 45233

East Coast Fabrication – 650 Woodlake Dr, Chesapeake, VA 23320

Cincinnati Conveyor Fabrication – 726 Mehring Way, Cincinnati, OH 45203

Section 2
References

The following documents were used as reference during the preparation of the Quality Management System:

- ANSI/ISO/ASQ Q9001-2015, American National Standard; Quality Management Systems – Requirements
- LMSSC/SMP010710U05 Lockheed Martin Space Systems Company (LMSSC) Subcontractor Technical Program Management Specification
- MIL-I-45208A Department of Defense; Quality Systems philosophy
- EB2678L, Quality Control Requirements for Procured Materials, Electric Boat
- Appendix Q-DOD Contracts DTD 9-14-2014 Newport News Shipbuilding

Section 3
Quality Policy

Federal Equipment Company will promote a

"Quality Made – Customer Driven"

philosophy, committed to customer satisfaction and continuous improvement.

Section 4
Quality Management System

Section 4.1
General Requirements

FEC's top management is ultimately responsible for the establishment, implementation, and maintenance of our Quality Management System (QMS). Specific responsibilities comprise: establish the quality policy; define the organizational structure; assign authorities and responsibilities; identify processes, and the sequence of their interactions (ref: Flow Chart SP 4.2.2), then monitor, measure and ensure effectiveness of the processes. In addition, top management appoints the Management Representative(s); who provides information for Top Management to periodically review the QMS to ensure conformance to the ISO 9001:2008 standard, provides the resources and information necessary to maintain the system and ensures quality objectives are established and understood throughout the organization.

SP 4.1 General Requirements.

The organization has determined and documented in our QMS, the criteria for required processes and implementation methods to control all activities from the initiation of a sales contract to final delivery to the customer, and all ongoing support activities. FEC maintains, monitors and measures our internal processes, manufactured products and customer services against their procedures, objectives and customer requirements and reports the results of these surveys in order to allow actions that can be taken to improve the overall system. Table 4.1 lists these controlled Standard Procedures (SP's).

FEC effectively communicates the importance of meeting customer and applicable regulatory requirements with all employees and our subcontractors. FEC at the present time outsources many processes to subcontractors that could ultimately affect conformity and quality of our products and services. For this reason, our vendors are strictly controlled and monitored through quality evaluations that are utilized in our purchasing and production decisions (Section 7.4).

Table 4.1

FEC Standard Procedure Matrix

SP ID	FEC Standard Procedure	Department Interactions	Applicable Controlled Forms
SP 4.1	General Requirements	MGMT	QMS-001
SP 4.2.3	Control of Documents	Sales/Eng/QC/SysAdm	Q-104
SP 4.2.4	Quality Records	QC	Q-102
SP 5.5.1	Organization Chart	MGMT	ORG2011
SP 5.6.1	Management Review	MGMT / QC	QMS-002 / QMS-001
SP 6.2.1	Personnel Requirements	MGMT	S-109A
SP 6.2.2	Personnel Evaluation	MGMT	S-105A & B , S-109B
SP 7.1	Job Releasing	Sales / QC / Purch. / Eng.	S-101 / S-102
SP 7.1.1	FAST TRACK Procedure	Sales / FTC / Ship	S-101 / S-102
SP 7.1.2	HOT RUSH Procedure	Sales/QC/Eng/Prc/Ship	S-101 / S-102
SP 7.2.1	Contract Review	Sales	S-101
SP 7.2.2.1	Amendment Review	Sales	S-101
SP 7.2.2.2	Cancellations	Sales	S-101 / S-102
SP 7.2.3	Customer Feedback	Sales	S-108
SP 7.2.4.1	Customer Return Policy	Sales / FT	S-108 / W-122 / P-104, 105
SP 7.2.4.2	FEC Warranty Procedure	Sales/FTC	S-108 / W-122
SP 7.4.1	Supplier Evaluation	Purch / QC	Q-116
SP 7.4.2	Purchasing Process	Purch/Sales/QC/Eng	P-100/P-104/E-101/Q-106
SP 7.4.2.1	Outside Process Procedure	Purch/QC	P-100/P-104/Q-106
SP 7.4.3	Receiving Inspection	QC/SHIP	P-107 / Q-120
SP 7.5.2	Production Order Procedure	QC/Eng/Sales/Ship/Pur	P-101
SP 7.5.3	Product Identification	QC / Ship	Q-120
SP 7.5.4	Customer Furnished Material (CFM)	QC / Ship	Q-102
SP 7.5.5	Preservation of Product	QC / Ship-Rec	Q-119 / S-101
SP 7.6	Equipment Calibration Procedures	QC	Q-107B
SP 8.2.2	Internal Auditing	QC / MGMT	Q-151 / Q-117
SP 8.2.4	Product Inspection Procedure	QC	Q-102 / Q-106
SP 8.3	Nonconforming Product	QC / SHP	Q-109 / Q-112
SP 8.5.2	Corrective Action	QC	Q-109
SP 8.5.3	Preventative Action	QC	Q-109

Section 4.2
Documentation Requirements

4.2.1 General

FEC's Quality Management System includes a quality policy and quality objectives. The QMS includes this quality manual, Standard Procedures (SP's), work instructions, process flow charts and any other documents that are needed to ensure the effective planning, operation and control of our internal processes. The extent and complexity of documentation is based on the activity, as well as the relation of the activity to our quality objectives (see 5.4.1).

4.2.2 The Quality Manual

The purpose of this manual is: to define and describe the quality system, to define the authorities and responsibilities of the management personnel affecting the system and to reference general procedures for all activities comprising the quality system. The manual references the interaction between processes as described in the following Flow Chart:

Table 4.2.2 Process Flow Chart

This manual also presents the quality system to our customers and other interested parties, and informs them about our processes implemented to ensure quality service. When required, FEC will notify customers in writing of any change, other than editorial, to the quality manual.

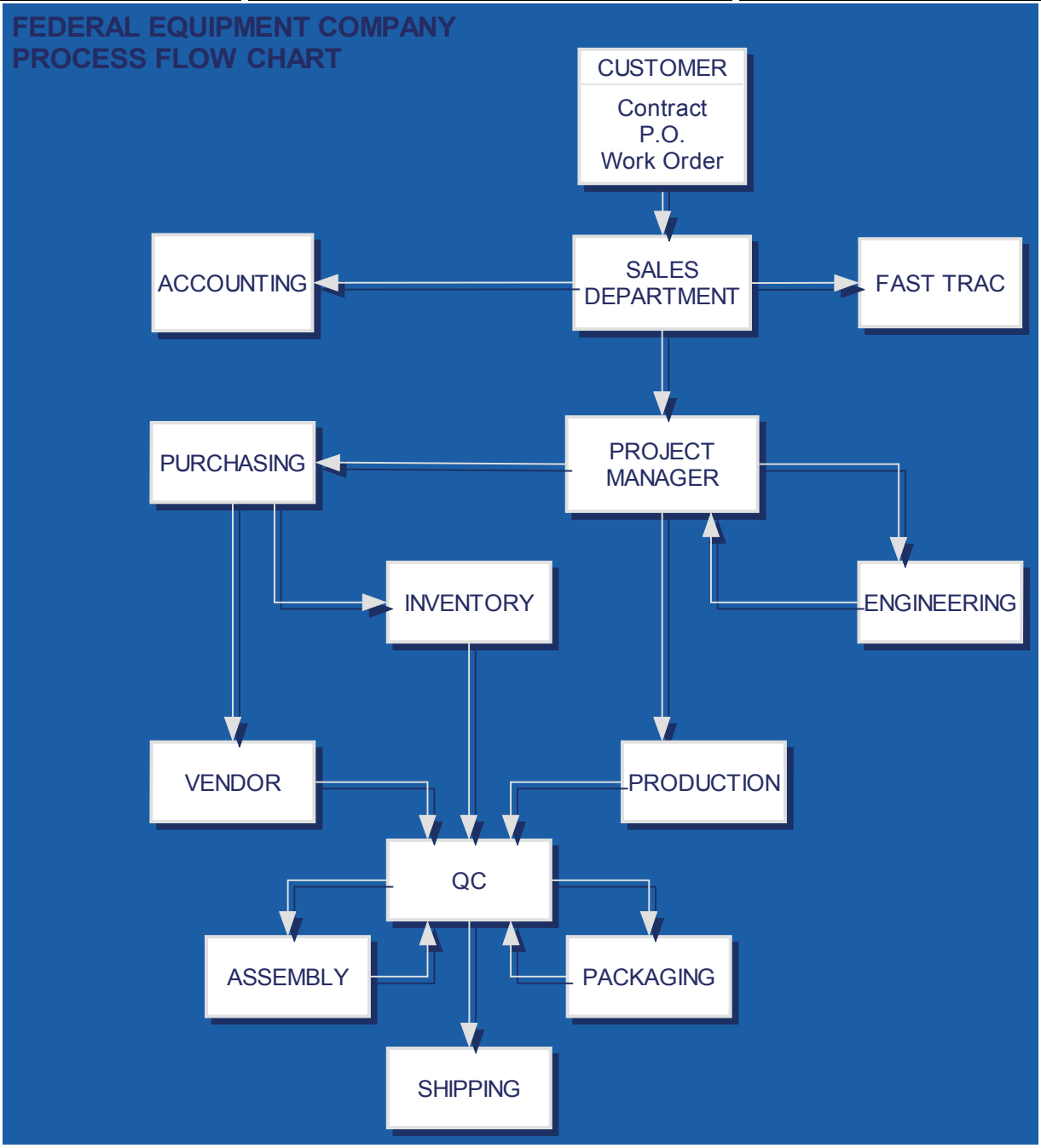

TABLE 4.2.2 PROCESS FLOW CHART

4.2.3 Control of Documents

The purpose and scope of quality system documents is defined. All documents are reviewed and approved prior to issue. The quality manual and quality procedures are maintained by the Quality Manager. Documents are accessible, in "Read Only" status in the QC office, available to all departments through hard copies in the document center. Work instructions & forms are controlled and maintained in electronic & hard copy. Obsolete documents are removed from points of use and destroyed. The previous revision level, which is now obsolete, is also maintained electronically in a file. The Quality Manager is responsible for the coordination, & maintenance of document control activities.

Quality System Documentation

FEC's quality system documentation comprises the following types of documents:

- Quality Manual
- Quality Procedures
- Work Instructions
- Standards and other technical reference materials as applicable
- Flow Charts

SP 4.2.3 Control of Documents

4.2.4 Quality Records

Quality records demonstrate achievement and effectiveness of the quality system. Records provide evidence of conformance and, when required, product and process traceability. Records are identified, indexed, and stored in a suitable environment to minimize deterioration. Records are identified on the summary of documentation. Quality records are retained for a minimum of seven years after completion of contract or date of work performance (whichever is later) with final disposition identified and recorded. Records are available to customers within 36 hours upon request to confirm product, material or service was in full compliance to all specifications as required.

FEC identifies the categories of quality records to be maintained and the controls needed for the identification, storage, protection, legibility, retrieval, retention time and disposition of these records (SP4.2.4a). FEC does not utilize electronic signatures, signatures on official records shall be legible, permanent (ink) and performed by an FEC authorized individual, as granted by title.

SP 4.2.4 Quality Records

Section 5
Management Responsibility

Section 5.1
Management Commitment

FEC's top management is ultimately responsible for the establishment, implementation, and maintenance of the quality system. Definition of responsibilities comprise endorsement and establishment of the quality policy; definition of the organizational structure; assignment of authorities and responsibilities (Responsibility Matrix); appointment of the ISO Management Representative(s); periodic review of the quality system in management reviews. The necessary resources and personnel are provided to maintain the system and ensure that quality objectives are established and understood throughout the organization. Top management also communicates the importance of meeting customer and regulatory requirements throughout the organization via various media and activities.

Section 5.2
Customer Focus

Top Management ensures that customer requirements are determined, understood and fulfilled with the aim of enhancing customer satisfaction. This is monitored and reviewed at periodic Management Review Meetings as described in Section 5.6.

Section 5.3
Quality Policy

"Quality Made – Customer Driven"

This policy is based on the recognition of top management's commitment to comply with customer requirements and continually improve our quality management system. This policy provides a framework for establishing measurable quality objectives, as described in Section 5.4.1. This Quality Policy has been established and is endorsed by the Top Management of FEC and is periodically reviewed for continued suitability. The policy is explained and discussed at the general orientation training given to all existing and new employees. The policy is also posted in conspicuous locations throughout the company, including our website, www.federalequipment.com.

Section 5.4
Planning

5.4.1 Quality Objectives

Quality objectives of **On Time Delivery, Customer Satisfaction & Quality of Products** are established as company objectives. Objectives to support company objectives have been established for each relevant function and reviewed in management review. Objectives are measurable and consistent with the organizational quality objectives and supports the quality policy.

Achievement data of these organizational objectives are presented at management review (section 5.6).

Objectives / Data:

- On Time Delivery / Monthly Delivery Reports
- Customer Satisfaction / Feedback and On-line Surveys
- Quality of Product / Warranty Feedback and Product Returns

5.4.2 Quality Management System Planning

FEC's top management maintains a documented QMS to fulfill ISO 9001:2008 requirements. The QMS ensures that the processes to meet our customer's requirements are planned and carried out in a controlled manner. The integrity of the QMS is always maintained when planned changes are implemented. The process for controlling the integrity of the Quality Management System changes is through the management review process.

Section 5.5
Responsibility, Authority and Communication

5.5.1 Responsibility and Authority

The interrelationship of team members who manage, perform, and verify work which effects quality is highlighted in the Organizational Chart, and/or site procedures & work instructions matrix. All departments, functions and team members in the company are responsible for the implementation, maintenance, and support of the quality system. ISO Management Representative is responsible to coordinate, monitor, audit and report on the status of the QMS, to management.

SP 5.5.1 Organizational Chart

5.5.2 ISO Management Representative

Top Management has appointed the ISO Management Representative(s) who is given the authority and responsibility to ensure the establishment and implementation of the QMS. The ISO Representative(s) have the authority to continually maintain and improve the system, and ensure compliance with the requirements of ISO 9001:2008. The ISO Management Representaitve(s) conveys customer requirements throughout the organization and reports to top management on the performance of the QMS, based upon internal audit results, corrective/preventive actions, customer feedback and continuous improvement initiatives.

5.5.3 Internal Communication

Top Management ensures that communication processes are established and maintained throughout the organization and that the status and effectiveness of the QMS is known through a variety of means such as company meetings, internal e-mail system and company information board postings.

Section 5.6
Management Review

5.6.1 General

Management Reviews are held quarterly for the purpose to assess the effectiveness and continuing suitability of the QMS. Quality Manager is responsible to schedule and conduct the reviews, including preparation of an agenda, review data and a summary report.

SP 5.6.1 Management Review

5.6.2 Review Input

- Management Review Agenda
- Results of Internal Audits
- Results of External Audits
- Job Delivery Review
- Booked Sales/Invoiced Review
- Inventory Review
- Customer Feedback and On-Line Survey Review
- Supplier performance & product conformity
- Review and Status of Corrective Actions
- Review and Status of Preventive Actions
- Follow up actions from previous reviews
- Changes that could affect the QMS
- Recommendations for improvement
- Quality Policy and Objectives Review
- Personnel Resources Review / Suggestions Box
- Infrastructure / Environment Review

5.6.3 Review Output

A Documented Summary of this review will reflect all QMS decisions related to improving the effectiveness of QMS its processes. Improvement of products related to customer requirements and resource needs.

Section 6
Resource Management

Section 6.1
Provision of Resources

Resource needs are determined at management review. Major resource requirement determinations are addressed by top management. Minor resource requirements are approved by Operations Manager.

Section 6.2
Human Resources

6.2.1 General

FEC identifies team member qualification requirements and develops team members as appropriate. Team members assigned to perform specific tasks, operations and processes are qualified based on appropriate education, experience, and/or training.

SP 6.2.1 Personnel Requirements

6.2.2 Competence Awareness and Training

FEC determins the necessary competence requirements for all associates affecting quality. Training needs are identified, training provided, effectiveness evaluated and quality records for all training maintained. Records are also available for education, skills and experience. Educational records for primary and secondary education is not required. Prior associates to 3/1/2003 are grandfathered into current education.

SP 6.2.2 Personnel Evaluation

The Quality Manager is responsible to ensure that all associates understand the importance of their activities, the role they play in achievement of departmental objectives and their contribution to the achievement of the organization's overall quality policy and objectives.

Section 6.3
Infrastructure

FEC analyzes its infrastructure needs during the management review process. These needs include:

- Buildings, workspaces and associated facilities.
- Process equipment, both hardware and software and;
- Supporting services (communications, transport, maintenance,etc)

Section 6.4
Work Environment

FEC analyzes its work environment needs during the management review process. The condition of the work environment is maintained to allow for efficient interaction between the required processes as detailed in this manual while ensuring conformity of quality to FEC customers.

Section 7
Product Realization

Section 7.1
Planning of Product Realization

Processes are planned and documented. Team member work instructions are issued when necessary, to ensure quality. Processes are controlled through a variety of approaches, activities, and techniques. The QMS is designed to control the information, the process input, technology, tools and equipment. Objectives are reviewed at management review and requirements are established at contract review (order entry).

SP 7.1 Job Releasing

7.1.1 "Fast-Track" Job Releasing

FEC allows for a "Fast-Track" Job Releasing procedure for customer orders of material in our current inventory. These procedures provide for a quick and efficient product delivery system that minimizes internal procedures and interaction while maintaining a high level of quality.

SP 7.1.1 "FAST-TRACK" Procedures

7.1.2 "HOT RUSH" Job Releasing

FEC allows for a "HOT RUSH" Job Releasing procedure for customer orders of material that is urgently needed. These procedures provide for a quick and efficient product delivery system that minimizes internal procedures and interaction while maintaining the customer's required quality.

SP 7.1.2 "HOT RUSH" Procedures

Section 7.2
Customer–Related Processes

7.2.1 Determination of requirements related to the product

Order requirements are reviewed to verify that customer's requirements are clearly defined, well understood, including delivery and post delivery activities. Requirements not stated by the customer, including the company's capabilities and availability to meet the contract requirements are included in a contract review.

SP 7.2.1 Contract Review

7.2.2 Review of Requirements Related to the Product

The order review process verifies that all customer and organizational requirements are well understood and have been documented and that the company has the capability of meeting customer requirements. Records are maintained electronically and hardcopy.

Amendments to contracts are likewise controlled and any statutory and regulatory requirements are determined as applicable. These order changes are received and reviewed. Any and all changes are communicated to the appropriate function, to ensure compliance with customer requirements.

SP 7.2.2 Amendment Review

7.2.3 Customer Communication

It is the sales manager responsibility to communicate with customers in relation to product, contracts, order handling and amendments. Customer satisfaction is measured through feedback, online surveys and returns (8.2.1). Customer feedback is analyzed and reviewed at management review. Applicable corrective and preventative actions are linked as appropriate.

SP 7.2.3 Customer Feedback

7.2.4 Customer Returns

It is the customer service department's responsibility to communicate with customers in relation to product returns, and oversight of the policies described on external website. Returns are tracked, maintained and reviewed at management review. Applicable corrective and preventative actions are linked as appropriate.

SP 7.2.4.1 Return Policy

SP 7.2.4.2 FEC Warranty Procedure

Section 7.3
Design and Development

7.3.1 Design and Development Planning

Overall control of the design/development process rests with the management assigned project manager. The project manager plans the activities required by the applicable project, and ensures that the activities are assigned to qualified personnel.

a. At predetermined stages (milestones) throughout the design/development process, progress in meeting the customer requirements is reviewed and plans are updated. The stages of development include the following:

- Concept
- Preliminary Design
- Detail Design
- Production Release

b. The review, verification and validation procedures are determined for each stage.

c. Project Manager has responsibility and authority for all stages.

The design/development process may be a multi-department effort with qualified personnel carrying out prescribed duties. If needed, technical support is sought. Design activities are planned, controlled and updated as required by Federal Equipment Company's internal EMS-2014 (Engineering Management System).

7.3.2 Design and Development Inputs

Management, Quality Control, Production, Purchasing and Applicable Suppliers will add input to Engineering in the process of developing a design that meets customer's specified functional and performance requirements. Records of these inputs are maintained and reviewed for adequacy.

a. Requirements for a packaging, specialized equipment or manufacturing processes are identified either by a specific request from a customer or from a production need.

b. Statutory and regulatory requirements are considered during the design and development process.

c. Applicable historical documents are reviewed prior to new design and development. Incomplete, ambiguous or conflicting information is resolved prior to design and development.

d. Other requirements are considered as necessary.

EMS-2014 Engineering Management System

7.3.3 Design and Development Outputs

a. Design outputs are established to identify critical functional characteristics and incorporate the acceptance details that enable verification against the design input and are approved prior to release.

Drawings are reviewed and verified against the design input requirements provided throughout the design/development process.

b. Outputs provide appropriate information for purchasing, production and service provision.

c. Test procedures and acceptance criteria are documented.

d. Design drawings specify the characteristics of the product that are essential for their safe and proper use.

EMS-2014 Engineering Management System

7.3.4 Design and Development Review

Records of design review activities are maintained in the engineering files for each project.

Design review occurs at the following stages:

- Concept Design/drawing review
- Preliminary Design/drawing review
- Detail Design/drawing review
- Production Release/drawing review

a. Drawing verifications are conducted with the appropriate personnel (EMS-2014).

Records of review activities are kept in the engineering files for each project, with drawing revision information recorded on the applicable drawing revision block.

b. Need for changes are identified and acted upon at all stages of design and development.

Customer approval and/or testing of the production units confirm final validation, as required.

7.3.5 Design and Development Verification

Designs are verified against the design input requirements provided throughout the design/development process. Verification is done by computer modeling of designed dimensional characteristics as compared to specification requirements (EMS-2014).

Records of verification activities are maintained in the engineering files for each project.

7.3.6 Design and Development Validation

Designs are validated against the design input requirements provided throughout the design/development process. Validation is done by measuring product as compared to specifications and through factory assembly and acceptance testing (EMS-2014).

Records of validation activities (inspection/test reports) maintained in the QC files for each job.

7.3.7 Control of Design and Development Changes

Needed changes are identified and documented at all stages of the design/development process, including previously delivered items which effects are verified and accepted prior to adoption.

Changes are reviewed and approved by the designated personnel and where necessary, approval is sought from the customer. Changes are reviewed and approved by qualified personnel. Where applicable, Project Manager approval must come prior to a change. (Ref. SP 4.2.3 #3)

7.3.8 Customer Approval of Design Changes

Changes to the design of an item or scope of a service after acceptance of order may require the change submitted to the customer for approval. Design change is defined as changes to any of the following:

- Any change that could affect the interchangeability (form, fit or function)
- Drawings specifically approved or provided by the customer
- Specifications contractually listed or provided by the customer
- Materials or special requirements
- Specified Inspection systems, test procedures, methods or equipment.
- Reliability, Safety or Weight of the product or component item.
- Approved manufacturing processes or procedures
- Provisioning parts lists, including spare and repair parts lists
- Any other purchase order referenced instructions.

Changes to approved or contractually specified production methods may also need submitted to the customer for approval. These include the following:

- Changes to any dies / patterns / or special tooling that may affect product item
- Sourcing changes to Commercial (COTS) items when equality requires approval
- Previously approved production, inspection and/or testing processes.

When required customer approval is required the contractually specified customer review and approval processes (VIR) will be utilized as specified.

Section 7.4
Purchasing

7.4.1 Supplier Evaluation

FEC selects and evaluates suppliers and purchases only from those that can satisfy requirements. The performance of our suppliers is monitored, evaluated and re-evaluated in order to maintain an approved suppliers list.

SP 7.4.1 Supplier Evaluation

7.4.2 Purchasing Process

Purchasing documents clearly and completely describe ordered products. The preparation, review and approval of purchasing documents, prior to release, is explained in procedure SP 7.4.2 Records are maintained per SP 4.2.4 Quality Records.

SP 7.4.2 Purchasing Procedure
SP 7.4.2.1 Outside Process Procedure

7.4.3 Verification of Purchased Product

All purchased products are verified at receiving inspection to ensure that purchased product meets specified purchase requirements. Results of inspections are available upon request and coordination on appropriate corrective actions (when necessary) can be coordinated as required.

SP 7.4.3 Receiving Inspection

Section 7.5
Production & Service Provision

7.5.1 Control of Production and Service Provision

Top management plans production and delivery services under controlled conditions. Work instructions are available at points of use (Ref. Section 7.5.2). FEC uses suitable equipment under preventive maintenance plans with appropriate monitoring & measuring devices (Ref. Section 7.6). Delivery & post delivery activities are determined at order entry and requirements are documented, with product release only after final inspection. Ref. Sections 7.1 and 8.2.4

7.5.2 Validation of Processes for Production and Service Provisions

Production processes are prepared and documented for all manufacturing, inspection and testing processes. Records are maintained per Section 4.2.4.

SP 7.5.2 Production Order Procedure

7.5.3 Identification and Traceability

FEC maintains identification of all products throughout the manufacturing, inspection and stocking processes. Material is uniquely identified with job numbers to allow for traceability of product, while applicable inspection and routing data is documented.

SP 7.5.3 Product Identification

7.5.4 Customer Property

FEC identifies and maintains customer supplied material, equipment and intellectual property as required.

SP 7.5.4 CFM

7.5.5 Marking, Preservation and Packaging

Appropriate preservation and packaging methods are maintained throughout the process to prevent product damage or deterioration. Specific customer requirements in regards to marking, preservation and packaging are reviewed, documented and verified prior to delivery.

SP 7.5.5 Marking, Preservation and Packaging

Section 7.6
Control of Monitoring and Measuring Devices

Monitoring and measuring equipment used to determine product acceptance is identified and maintained in a known state of calibration traceable to the National Institute of Standards and Technology (NIST). Where necessary to ensure valid results:

a) Calibration is carried out using certified standards, which are traceable to NIST.
b) Calibration frequency is determined by equipment manufacturer's recommendations, historical evaluations, frequency of use, and other factors that will ensure accuracy.
c) Calibration frequency, status and due dates are controlled and documented on Q-115A.
d) Calibration equipment will be adjusted or re–adjusted when applicable.
e) Calibration status is maintained and readily identifiable on the equipment.
f) Unwarranted Adjustments are safeguarded.
g) Handling, maintenance and storage is suitable to prevent damage and deterioration.

Only qualified personnel are authorized to perform calibrations. Calibration records are established which includes the calibration method, identification, location, frequency of checks, and acceptance criteria.

SP 7.6 Equipment Calibration Procedures

Action taken when equipment is out of calibration is recorded. In the event that equipment is found to be out of calibration, an assessment of previous measuring results may be conducted to identify the need for any further action.

Hardcopy calibration records are maintained in a "Calibration and Certification and Results Log", with summary results maintained electronically in the QC Equipment Calibration Database.

Section 8
Measurement, Analysis and Improvement

Section 8.1
General

FEC generates a number of reports to monitor and measure the effectiveness of our QMS to demonstrate capability of system processes to meet customer's requirements and identify opportunities to continuously improve. Areas of analysis are listed in Section 5.6.2, and are periodically summarized in the Management Review Report QMS-002.

Section 8.2
Monitoring and Measurement

8.2.1 Customer Satisfaction

Customer satisfaction is measured and monitored in multiple ways (See Section 7.2.3). FEC records customer satisfaction surveys via our website:

http://military.federalequipment.com/node/71

Additional inputs are collected via phone call, email and other communications in order to track customer perceptions. This information is monitored, reviewed and evaluated for possible action by the management during management review meetings (Section 5.6).

8.2.2 Internal Audits

All Standard Procedures (SP's) of the QMS are audited annually, as scheduled per SP 8.2.2 Internal Audits schedule. Records are maintained per Section 4.2.4. Audits are scheduled on the basis of the status and importance of the activity.

SP 8.2.2 Internal Auditing

Internal auditors are independent of the activities/functions audited. Auditors seek objective evidence that process activities comply with the documented QMS and the ISO9001:2008 standard.

If a nonconformance is identified during the audit process, the finding is documented on a Corrective Action Form. The form is then reviewed and forwarded to the appropriate manager by the ISO Management Representative, for root cause analysis and appropriate action, per SP 8.5.2 Corrective Action. Follow-up activities verify action results, which are reported to top management.

The ISO Management Representative presents the results of all auditing activity to the top management during management review meetings (Section 5.6)

8.2.3 Monitoring and Measurement of Processes

FEC monitors and measures processes, which impact customer satisfaction and quality system performance. Performance results are reviewed and monitored in management review, utilizing data provided in the QMS-001 Report. When planned results are not achieved a corrective action is initiated per Section 8.5.2 Corrective Action.

8.2.4 Monitoring and Measurement of Product

FEC monitors and measures all products under controlled conditions. Inspection activities include receiving, in process and final inspection. Controlled conditions include procedures, work instructions available at points of use and flow charts. Delivery & post delivery activities are determined at order entry and requirements are recorded. For final acceptance of all products, FEC uses suitable equipment under preventive maintenance plans and calibrated to NIST monitoring & measuring devices. Product release is dependent upon successful final inspection of all objective quality evidence to all requirements. Completion of quality records must be based on personal observation, certified records or direct reports from assigned personnel. Inspection and test reports must be signed by individual performing such test/inspection, electronic signatures shall not be used. All data compiled in acceptance must be retained and protected from unauthorized changes.

SP 8.2.4 Product Inspection Procedure

When required, FEC will make establish dates and times of customer visits and provide all available equipment and personnel resources for customer representatives to determine product conformance to contract requirements.

When required, all specified limits for machining services and dimensional control of deliverable parts and assemblies shall be interpreted as absolute limits as defined by ASTM E29, Standard Practice for Using Significant Digits in Test Data to Determine Compliance with Specifications. All other observed, measured or calculated product characteristics, specified limits shall be interpreted using round-off method as defined by ASTM E29. Tapped and fabricated internal threaded forms and diameters shall be inspected IAW System 21 of FED-STD-H28/20B.

Section 8.3
Control of Nonconforming Product

Nonconforming product is identified, segregated, documented, evaluated and prevented from delivery or shipping, unless proper notification and customer approval has been received. Any customer concessions will be maintained as quality records through the corrective action system.

SP 8.3 Non-Conforming Product

8.3.1 Recall

Nonconforming product discovered after delivery will initiate customer contact to allow awareness and appropriate recall actions to be developed and implemented as required. All potential rework / repairs will be inspected and accepted per original requirements as directed by the customer.

Section 8.4
Analysis of Data

Data is collected and analyzed to ensure the suitability and effectiveness of the QMS and to identify where continual improvement can be made. This includes the use of statistical techniques wherever appropriate. Appropriate data includes:

a) Customer satisfaction
b) Conformance to product requirements
c) Process and product trends
d) Supplier evaluation

This data is summarized into the management review meeting report that is reviewed as referenced in Section 5.6.

Section 8.5
Improvement

8.5.1 Continual Improvement

FEC continuously works to improve the effectiveness of the Quality Management System. This is done through the use of the quality policy, quality objectives, internal and external audit results, the analysis of performance and product data, through the corrective and preventive action system and management reviews. All employees are encouraged to discuss quality improvements which are then reviewed and implemented through the management review procedure as described in Section 5.6.

8.5.2 Corrective Actions

Causes of actual non-conformances are investigated. The need for corrective action is determined on the basis of actual nonconformances, which are typically triggered by customer complaints, returned products, delivery errors or an internal audit finding. Corrective actions are implemented to identify, correct and eliminate causes of non-conformances. Our procedure defines requirements of:

a) Non-conformity Reviews
b) Root Causes
c) Evaluating the need for actions – prevention of reoccurrence
d) Determining, implementing and reviewing corrective actions
e) Recording results and actions taken and the effectiveness of those actions.

SP 8.5.2 Corrective Actions

8.5.3 Preventative Actions

FEC establishes and maintains procedures for eliminating the cause of potential nonconformities identified against their products or processes in order to prevent occurrence. This Preventative Action will:

a) Determine potential non-conformities and their causes
b) Evaluate the need for action to prevent occurrence
c) Determine and implement action needed
d) Record of results of action taken
e) Review preventive action taken and the effectiveness of those actions.

SP 8.5.3 Preventative Actions

INDEX OF STANDARD PROCEDURES (SP's)