Engineered Metal Products Manufacturing

ASME: Code Stamps, U & R, Pressure Vessels, Tanks, Piping Skids, Filter Housings, Specialty Equipment, Mac hine Frames Steel, Stainless, Aluminum & Alloy Products

QT-1 QUALITY MANUAL

Written to the Requirements of ISO 9001:2015

Revision: N

SPRINGS FABRICATION, INC.

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Colorado Springs, CO 80916

❑ Controlled Copy – Manual Control No:_____

Adam Spriggs, EHS&Q Manager, Springs Fabrication, Inc.

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Springs Fabrication, Inc. Background

Since its founding in 1986, Springs Fabrication has grown from a two-man shop running out of a garage to approximately 200 highly skilled and qualified employees working out of a custom-designed facility. The Company utilizes the latest in manufacturing technology serving a prestigious list of clientele throughout the United States and Internationally.

Springs Fabrication has established a reputation for excellence in industries such as energy, water purification, chemical and petrochemical, mining, processing and filtration. Through responsiveness, quality, performance and value-added services, Springs Fabrication is able to enjoy mutually successful relationships with its customers.

Milestones highlighting the continuous growth of the organization include: ASME Certification in 1990, CNC plasma/punching in 1995, a custom-built manufacturing facility in 1997, 3D ProE engineering system in 1998 and ISO 9001:2000 certification in 2001. In 2005 & 2006, Springs Fabrication enhanced its machining capacity by installing large capacity CNC Horizontal Machining Centers, CNC Lathes, and CNC Vertical Machining Centers. Welding capabilities have been increased by the addition of a new Welding Positioner with a capacity of up to 40,000 lbs, and automated robotic welding systems. In 2007, SFI continued its growth by adding large capacity bridge mills making SFI one of the leaders for large capacity machining in the state of Colorado. 2008 saw the expansion of facility capacity with the addition of 50,000 square feet of manufacturing floor space and updating its ISO 9001 certification to the 2008 version of the standard. Also included is a seventy foot high bay and installation of a 40 ton bridge crane.

Safety is a top priority at SFI, and the Company has invested substantially in material handling equipment, personal protective equipment, and safety training. SFI regularly evaluates its safety program to ensure that employees are working in a safe and healthful environment.

Springs Fabrication has numerous clients who look to its certified experts for continual improvement of their product. This type of sustained business is the backbone of the Company, and in these relationships, Springs Fabrication provides its customers with expertise in manufacturing and the ability to maximize their designs. With these kinds of projects, value-added engineering services are offered with the intent of streamlining a product or process in order to save the customer money.

By continually investing in new technology that offers more efficiency, Springs Fabrication maintains a competitive edge not only for itself, but for its customers, too.

The most up to date summary of business conditions and capabilities can be found on our web site,

http://www.springsfab.com/

Springs Fabrication, Inc. Quality Policy Statement

Springs Fabrication, Inc. is engaged in machining and welding for the manufacture of engineered metal products. SFI is committed in complying with all regulatory and legal requirements while meeting and exceeding customer expectations with dedicated implementation of a certified and continually improving Quality Management System. SFI will achieve this by:

- ✓ Adopting excellence in everything we do.
- ✓ Striving for continual improvement in all aspects of SFI.
- ✓ Strict compliance to applicable standard and regulations for all of our activities.
- ✓ Management commitment and involvement in the Quality Management System.
- ✓ Continually developing the expertise, professionalism, and integrity of our people.
- ✓ Understanding our customers' needs.
- ✓ Building strong communication and relationships with our customers and vendors.

SFI will continue to grow and continuously improve the products and services it provides to our customers and the satisfaction of those customers by focusing on the following principles:

- ✓ Customer focus.
- ✓ Effective leadership.
- ✓ Engagement of people.
- ✓ Implementing process-based approaches into our work.
- ✓ Continuously improving all activities at SFI.
- ✓ Managing risks and opportunities effectively.
- ✓ Providing and maintaining evidence-based decision making.
- ✓ Putting an emphasis into relationship management.

SFI monitors performance of its Quality Management System by measuring Key Performance Indicators (KPIs). These performance indicators are a measure of performance to current quality objectives. For FY18, the KPIs are:

- ✓ Maintain Cost of Quality below 0.5% of annual revenue
- ✓ Maintain an on-time delivery of greater than 95%
- ✓ Increase employee retention by 10%
- ✓ Increase production efficiency by 25%

SFI will accomplish our quality policy goals and strive to be the premier resource for the design and manufacture of engineered metal products through a continual focus on our quality mission:

"Safety First with On-Specification, On-Budget, & On-Time Performance"

Mr. Tom Neppl
President, Springs Fabrication, Inc.

Section 1 – Scope

This Quality Manual establishes a Quality Management System (QMS), which is registered to ISO 9001-2015. The scope of the registration follows:

Machining, Welding, and Manufacture of Fabricated Metal Products, Pressure Vessels and Process Equipment.

ISO Exceptions

ISO Section 8.3 Design and Development (D/D) of Products and Services. As a contract manufacturer, design control is the responsibility of the customer. Design for manufacture is controlled by this quality system. "Design" as used in this manual includes design for manufacturability, fixturing, etc.

Section 2 – Normative References

ANSI/ASQ Q9000:2015	Quality Management Systems – Fundamentals and Vocabulary
ANSI/ASQ Q9001:2015	Quality Management Systems – Requirements
ANSI/ASQ Q9004	Quality Management – Quality of an Organization – Guidance to Achieve Sustained Success
BSR/ISO/ASQ 19011:2011	Guidelines for Auditing Management Systems

Section 3 – Terms and Definitions

CAPA	Corrective Action / Preventive Action
D/D	Design and Development
Graded Approach	A level of management control based on the following factors: safety, health, and hazard considerations, environmental compliance, and financial impact.
LMS	Learning Management System
NCP	Non Conforming Product
Organization, Company, SFI	These terms, where used in the QMS, denote Springs Fabrication, Inc
QMS	Quality Management System
SFI Server	SFI's computer server(s) which store documents and records.
SFI	Springs Fabrication, Inc.
QMS	Quality Management System

Section 4 – Context of the Organization

4.1. Understanding the Organization and its Context

Springs Fabrication, Inc. is committed to defining our position in the marketplace and understanding the relevant factors from legal, technological, competitive, market, cultural, social, and economic issues. SFI identifies, analyzes, monitors, and reviews factors that could potentially affect our ability to provide quality and timely products and services to our customers

SFI reviews internal and external factors that affect SFI in the alignment of the QMS to SFI business objectives. SFI reviews these factors and the potential positive and negative impacts to the business strategy and QMS during the quarterly risks and opportunities management meetings. The quarterly management review is SFI's point in time to generate and develop risks and opportunities for the following year and review the impacts from the preceding year. Data is recorded in the annual management reports and subsequent updates are made to the business strategy and QMS.

Table 1: Organization Internal & External Issues

INTERNAL ISSUES	EXTERNAL ISSUES
Employees	Market Competition
Performance	Customers & Suppliers
Capacity	Regulatory & Statutory
Values & Culture	Economic Backdrop
Innovation & Knowledge	Technology

4.2. Understanding the Needs and Expectations of Interested Parties

SFI's interested party's' needs and expectations are identified in Table 2 below.

Table 2: Interested Party's Needs & Expectations

INTERESTED PARTIES	NEEDS & EXPECTATIONS
Customers	Price, reliability, and value
Owner	Profitability & growth
Employees	Shared values & security
Suppliers	Beneficial relationships
Regulatory & Statutory	Compliance & reporting

To ensure that our products and processes continue to meet all relevant requirements, SFI identifies and assesses the potential impact of any relevant needs and expectations that may be elicited from the interested parties. This is performed during the quarterly management review and captured within the minutes and actions.

Where appropriate, to ensure that our processes are aligned to deliver the requirements of our interested parties; we convert relevant needs and expectations into requirements which become inputs to our QMS and to our products and services.

4.3. Determining the Scope of the Quality Management System

The scope of the QMS is defined clearly below:

"Machining, Welding, and Manufacture of Fabricated Metal Products, Pressure Vessels and Process Equipment"

4.4. Quality Management System Processes

Springs Fabrication, Inc. utilizes an approach advocated by ISO 9001:2015 for the identification, development, and maintenance of processes. This includes top management defining the required processes for achieving the intended outputs. By defining three key process-groups and by managing their inputs, activities, controls, outputs and interfaces, we ensure that system effectiveness is established and maintained.

- ✓ Management and Compliance Processes
- ✓ Production and Qualification Processes
- ✓ Evaluation and Improvement Processes

These process groups are described using tools such as documented procedures, process maps, flow diagrams, matrices, schedules, and charts. A full list of SFI processes as well as expected inputs and outputs are identified in Appendix C. A Sequence & Interaction of Processes is identified in Appendix A and Appendix B. Overview of input and output development and analysis process is identified in Figure 1 below.

SFI recognizes that defining, implementing and documenting our quality management system is only the first step towards fully implementing its requirements. The effectiveness of each process and its subsequent output is measured and evaluated through regular internal audits, quality inspections and data analysis.

SFI uses Key Performance Indicators (KPIs) that are linked to our objectives to control and monitor our processes, as well as assessments to determine the risks and opportunities inherent to each process. We use trends and indicators relating to nonconformities, objectives and corrective action, as well as, monitoring and measurement results, audit results and customer satisfaction data, process performance and the conformity of our products.

Springs Fabrication, Inc. ensures that our QMS includes the documented information that is required to be maintained and retained by ISO 9001:2015, and additionally, any documented information identified by SFI that demonstrates the effective operation of our QMS. SFI uses the Plan-Do-Check-Act cycle for all process improvements.

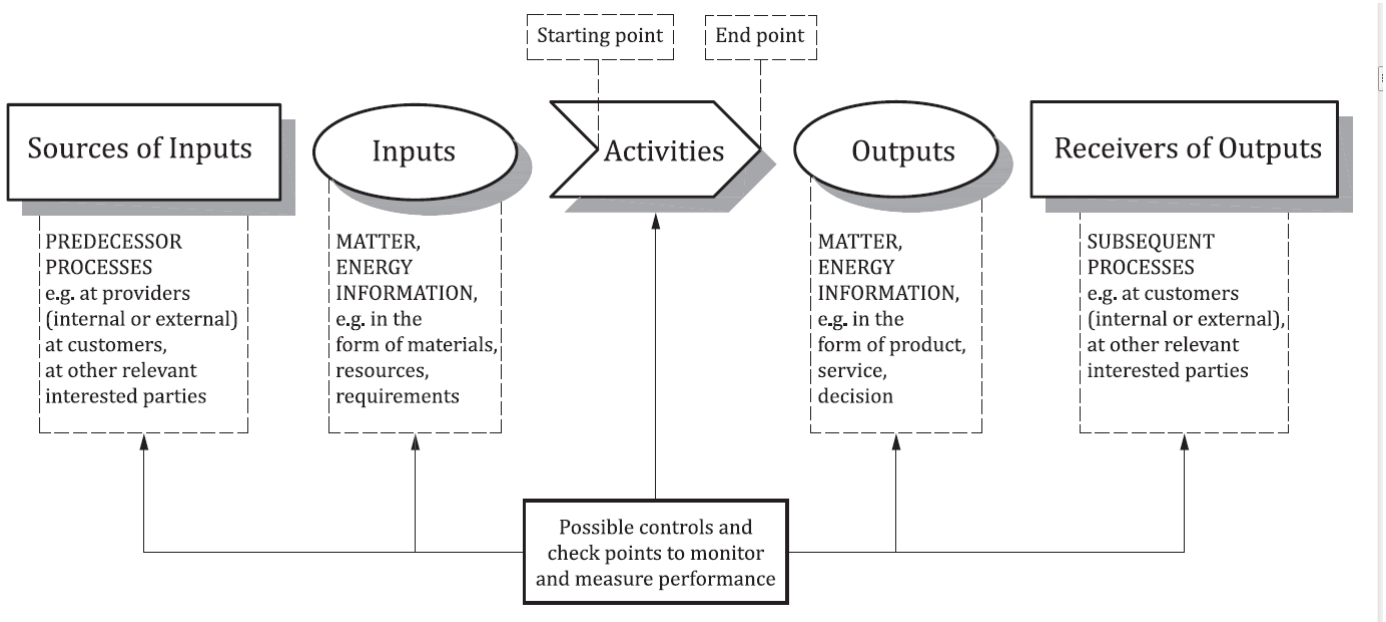


Figure 1: Schematic Representation of Inputs and Outputs to Processes at SFI

Section 5 – Leadership

5.1. Leadership and Commitment

5.1.1.General

Springs Fabrication, Inc.'s leadership is responsible for implementing the QMS, which includes the development and deployment of the quality policy, the quality objectives, and product/project-specific plans that are customer focused. Top management provides the leadership and governance to all activities related to the lifecycle processes including defining the strategic direction, responsibility, authority, and communication to assure the safe and effective performance.

SFI's governance structure provides necessary support for creating and establishing appropriate processes that are important for maintaining and achieving our quality objectives and policies. In addition, governance activities include systematic verification of the effectiveness of our QMS by undertaking internal audits and analyzing performance data. Regular management reviews ensure that our quality management system is adequate and effective, and that any necessary adjustments are made as a result.

Top management is committed to implementing and developing the quality management system and this commitment is defined by our corporate policies and objectives. SFI ensures that our policies are understood, implemented and maintained throughout at all levels of the organization through printed distribution of our policy statements and through periodic management review of the policy statements and corporate level improvement objectives. SFI communicates our mission, vision, strategy, policies and processes to all employees through the employee manual, orientation training, policy postings, and ongoing training.

In addition, our policies, objectives and targets are communicated and deployed throughout the business via individual performance objectives which are established and discussed during employee performance reviews.

5.1.2 Customer Focus

Springs Fabrication, Inc. strives to identify current and future customer needs, to meet their requirements and to exceed their expectations. Top management ensures that the focus on improving customer satisfaction is maintained by setting and reviewing objectives related to customer satisfaction at management review meetings.

Top management also ensures that customer requirements are understood and met. Customer requirements are understood, converted into internal requirements and communicated to appropriate personnel within the organization. Customer complaints and other customer feedback are continually monitored and measured to identify opportunities for improvement. We continually look for ways to interact directly with our customers to ensure that we focus on their unique needs and expectations.

The QA Department collects customer scorecards to determine customer satisfaction. Reviews of customer issues occur daily. The EHS&Q Manager works with the product development department to improve our customer experience by reviewing all scorecard and customer satisfaction feedback and driving initiatives to improve scores.

The risks and opportunities for conformity of products and services and the ability to enhance customer satisfaction and the associated actions are identified in Section 6.1 of this document.

5.2. Policy

5.2.1.Establishing and Communicating the Quality Policy

The quality policy acts as a compass by providing the direction and framework for establishing key corporate level performance measures, as well as related objectives and targets. Top management ensures that our corporate policy is established and documented, and that the policy is available to all interested parties as requested.

The EHS&Q Manager has overall responsibility for defining, documenting, implementing and reviewing our quality policy in consultation with senior management. The policy is reviewed annually, as part of the annual management review or at a frequency determined by:

- ✓ The changing needs and expectations of relevant interested parties, Section 4.2.
- ✓ The risks and opportunities that are presented through the risk management process, Section 6.1.

The SFI Quality Policy addresses the purpose of the organization, commitment of continual improvement, and quality objectives. The policy is reviewed with all new employees during new employee orientation and is reviewed annually to ensure continuing suitability. The updated policy is also posted in all public break areas within SFI. Lastly, the quality policy is published within this Quality Management System Manual.

5.3. Organizational Roles, Responsibilities, and Authorities

Springs Fabrication, Inc.'s organizational structure is defined in Appendix E of this manual. The organization chart shows the interrelation of personnel within SFI, while job descriptions define the responsibilities and authorities of each role. Job descriptions and the organizational structure are reviewed and approved by senior management for adequacy as determined by the changing needs and expectations of the interested parties identified in Section 4.2, and any risk and opportunities presented through the risk management process, Section 6.1.

Senior management are ultimately responsible for the quality of SFI's products and services since they control the resources, systems and processes by which conforming work is accomplished. Senior management are responsible for business planning, development and the communication of our policies, quality management system planning, the establishment and deployment of objectives, the provision of resources needed to implement and improve the quality management system and for undertaking management reviews.

The EHS&Q Manager:

- ✓ Ensures that QMS processes are delivering their intended outcomes;
- ✓ Reports on the operation of the QMS and identifying any opportunities;
- ✓ Ensures that improvement is taking place;
- ✓ Ensures that customer focus is promoted throughout the organization;
- ✓ Ensures that changes to the QMS are planned and implemented;
- ✓ Ensures the integrity of the system is maintained during changes;
- ✓ Ensures that responsibilities and authorities relating to the QMS are communicated and understood.

All managers demonstrate their commitment to the development and improvement of the quality management system through the provision of necessary resources, through their involvement in the internal audit process and through their proactive involvement in continual improvement activities. Emphasis is placed on improving both the effectiveness and efficiency of key system processes.

All managers are responsible for execution of the business objectives and the implementation of the policies, processes and systems described in this manual. All managers are responsible for planning and controlling the management system processes within their area of responsibility, including the establishment and deployment of operational level objectives and the provision of resources needed to implement and improve these processes.

All employees are responsible for the quality of their work and implementation of the policies and procedures applicable to processes they perform. Employees are empowered to identify and report any known or potential problems and to recommend related solutions to aid the corrective and preventive action process.

Section 6 – Planning

6.1 Actions to Address Risks and Opportunities

6.1.1 Determining Risks and Opportunities

When planning for the quality management system, SFI considers the issues referred to in 4.1 and the requirements referred to in 4.2 and determine the risks and opportunities that need to be addressed to:

- ✓ Give assurance that the quality management system can achieve its intended result(s);
- ✓ Enhance desirable effects;
- ✓ Prevent, or reduce, undesired effects; and
- ✓ Achieve improvement.

This is performed during the quarterly management risks and opportunities meetings.

6.1.2 Planning for Risks and Opportunities

The overall aim of risk and opportunity management within SFI is to ensure that organizational capabilities and resources are employed in an efficient and effective manner to take advantage of opportunities and to mitigate risks.

Top management is responsible for incorporating risk-based thinking into our organization's culture. This includes the establishment of risk management policies and targets to ensure effective implementation of risk and opportunity management principles and activities by:

- ✓ Providing sufficient resources to carry out risk and opportunity management activities;
- ✓ Assigning responsibilities and authorities for risk and opportunity management activities; and
- ✓ Reviewing information and results from audits and risk and opportunity management activities.

The scope of SFI's risk and opportunity management process includes the assessment of the internal and external issues identified in Section 4.1, and the assessment of the needs and expectations of any interested parties identified in Section 4.2. Risk and opportunity management is undertaken as part of SFI's day-to-day operations and is captured at the following hierarchy:

- ✓ Strategic level;
- ✓ Department level;
- ✓ Job Shop level; and
- ✓ Process level.

Establishing such a hierarchy for capturing risk and opportunity ensures that each is managed at the most appropriate level within our organization. The EHS&Q Manager collects the data quarterly and provides analysis and updates to actions as necessary. Typically, the categories shown in Table 3 are assigned to each level in the hierarchy as shown in the table below.

Table 3: Organizational Risks & Opportunities

BUSINESS HIERARCHY	RISK/OPPORTUNITY
Strategic Level	Budgets & Profitability
Department Level	Resources & Targets
Job Shop Level	Performance & Efficiency
Process Level	Evaluation & Assurance

SFI has classified its 'risk appetite' as the amount of risk that we are willing to accept in pursuit of an opportunity or the avoidance of risk where each pertains to product and/or system conformity, and which reflect the following considerations:

- ✓ Risk management philosophy per product or process;
- ✓ Capacity to take on or mitigate risk;
- ✓ Our objectives, business plans and respective stakeholder demands;
- ✓ Evolving industry and market conditions; and
- ✓ Tolerance for failures.

SFI uses *QP-025, Risks and Opportunities Management Procedure*, and the SFI Risk Register ("W:\Quality\Risks and Opportunities\SFI Risk Register.xls") to record, assess, respond, review, report, monitor and plan for the risks and opportunities that we perceive to be relevant. Utilizing the established procedure and risk register allows our organization to methodically assess each risk and to study each opportunity associated with our organizational context, and the needs and expectations of our interested parties. The risk register is the record of controls and treatments of risks and opportunities and preserves this knowledge as documented information.

During quarterly risks and opportunity reviews, management will utilize the *QP-025, Risks and Opportunities Management Procedure* to develop current risks and opportunities for the following years. Data will be recorded in the Risk and Opportunities database. Senior management will review past risks and opportunities and follow-up on actions to close them.

6.2 Quality Objectives and Planning to Achieve Them

6.2.1 Establishing Quality Objectives

Springs Fabrication, Inc. sets out its objectives and targets on an annual basis within the management review minutes where details of program dates and responsibilities are defined. Improvements in quality and performance are incremental and are in keeping with the size and complexity of our organization.

When setting objectives and targets, SFI ensures that they are consistent with the needs and expectations of our interested parties, as defined in Section 4.2, and to our corporate policies.

In addition, technological options, financial, operational and business requirements are considered. In order to determine whether or not our objectives and targets are being met, they are measured and reported as a set of key performance indicators (KPI). This allows progress to be monitored as metrics are gathered and data is analyzed. KPIs and objectives for our organization include the following aspects:

- ✓ Turnover & profitability;
- ✓ Sales targets & production efficiency targets;
- ✓ Reject and rework & cost of quality targets; and
- ✓ Staffing breakdown.

On the basis of the set quality policies and in connection with the application of the ISO 9001 quality management principles, SFI sets quality objectives and reviews them annually within the quality manual. All employees are responsible for fulfillment of the quality policies and processes and subsequent objectives. Managers of all departments are obliged to develop general objectives into objectives applicable to their departments and employees.

Table 4: CY2018 Quality Objectives

QUALITY OBJECTIVE	TARGET	MEASURE
Implement ISO 9001:2015	Achieve Certification by Q3 2018	ISO 9001:2015 Certificate
Implement Standard Training and Certification Program	All Employees by Q4 2018	Feedback, improved performance and morale
Reduce Rework and Reject	Targets to be set by Q2 2018	Decreased rework/reject rate from QA
Implement New Customer Satisfaction Program	First electronic questionnaires and data by Q3 2018	Collection of data and analysis in management review

6.2.2 Planning How to Achieve Quality Objectives

The quality management system is planned and implemented in order to meet our corporate objectives and the requirements of ISO 9001:2015. The planning process involves establishing and communicating our policies, objectives and associated operational procedures. Planning occurs during quarterly risks and opportunities management reviews and as needed during weekly management meetings. Resources are planned for during the management reviews and meetings. The EHS&Q Manager is responsible for establishing proposed quality objectives based on the annual performance to prior year metrics. The President is responsible for approving the Quality Objectives by signing any updated SFI Quality Policy changes.

This document constitutes our overall plan for establishing, maintaining and improving the quality management system. For each instance of management system planning, the output is documented and retained accordingly and changes are conducted in a controlled manner. The management review and the internal audit processes ensure that the integrity of the QMS is maintained when significant changes are planned which may affect key processes.

Whenever quality management system changes are planned, senior management ensures that all personnel are made aware of any changes which affect their process, and that subsequent monitoring is undertaken to ensure that QMS changes are effectively implemented.

6.3 Planning of Changes

Changes to the SFI Quality Management System are first drafted by the EHS&Q Manager (or designee) and proposed during the quarterly management reviews. The changes are discussed, modified, and approved during the meeting with notes captured in meeting minutes. Senior management considers consequences of changes, availability of resources, and assignment of responsibility while planning changes.

When SFI plans changes, the Company incorporates changes at all levels including communication, competence, process, and documented information. As needs for change are identified, they are captured in the company's corrective action system and processed according to internal procedure based on the type of change.

Section 7 – Support

7.1 Resources

7.1.1 General

Resources at SFI include our people, infrastructure, work environment, and financial resources. The resource requirements for the implementation, management, control and continual improvement of the quality management system, and activities necessary to enhance customer satisfaction, are defined in our operational procedures, work instructions and the following sections of this QMS manual:

- ✓ Planning; Section 6.0
- ✓ Management Review; Section 9.3
- ✓ People; Section 7.1.2
- ✓ Infrastructure; Section 7.1.3
- ✓ Environment for the Operation of Processes; Section 7.1.4
- ✓ Operational Planning and Control; Section 8.1
- ✓ Requirements for Products and Services; Section 8.2

7.1.2 People

Staffing needs are analyzed weekly during senior management meetings. Analysis includes review and input from all department senior leaders. Effective implementation of the quality management system and the required staffing needs are fulfilled through the senior management meetings and implementation through human resources.

7.1.3 Infrastructure

SFI is responsible for planning, providing and maintaining the resources needed to achieve product and process conformance, including buildings, workspace and associated utilities; process equipment (hardware and software); and supporting services. The President, Controller, Maintenance Manager, and Information Systems Manager have overall responsibility for managing our services.

The Maintenance Manager serves as the facility manager and schedules/performs routine maintenance, repairs, installations, and inspections. Resources are provided through SFI's requisitioning system. The VP of Manufacturing plans for and funds activities based on risk and through daily manufacturing meetings.

The Information Systems Manager has maintains and upgrades SFI's computer network and peripheral resources and equipment. Information system needs are identified through management meetings, continuous improvement initiatives, and development of new quality objectives.

7.1.4 Environment for the Operation of Processes

Springs Fabrication, Inc. ensures that our office complies with relevant health and safety regulations. The EHS&Q Manager carries out regular compliance audits to ensure that appropriate standards are maintained. Senior management along with the maintenance manager are committed to providing:

- ✓ A place of work that is safe, non-discriminatory, and non-confrontational including all equipment and methods of work;
- ✓ Training, instruction, information and supervision for employees;
- ✓ A means of safe handling, storage, use and transportation of equipment, materials and chemicals;
- ✓ Safe working environment with good lighting, ventilation, safe passageways, stairs and corridors.

SFI's *SFP-01, Employee Policy and Safety Manual* details how SFI manages safety throughout the facility.

7.1.5 Monitoring and Measuring Resources

7.1.5.1 General

Required product/service measurements are identified, and appropriate monitoring/measuring devices are identified, used and controlled to ensure that measurement capability is consistent with measurement requirements. A documented procedure, *QP-004, Calibration of Measuring and Test Equipment*, describes the controls employed to ensure that Measuring and Test Equipment is calibrated or verified to international or national standards.

To ensure validation of results, monitoring/measuring equipment are:

Calibrated or verified, or both, adjusted periodically or prior to use against equipment traceable to international or national standards. If such standards do not exist, the basis for calibration is recorded; and,

- ✓ Adjusted or re-adjusted as necessary; and,
- ✓ Identified to enable determination of calibration status; and,
- ✓ Safeguarded from adjustments that would invalidate proper calibration; and,
- ✓ Protected from damage and/or deterioration during use, handling, storage, and maintenance.
- ✓ Records of the results of calibration are maintained.

If a measuring/monitoring device is found out of calibration, the validity of previous inspection/test results are assessed if the requirements of *QP-004, Calibration of Measuring and Test Equipment* require this action. If required, corrective action regarding any nonconforming product is taken. The equipment shall be removed from service until it is recalibrated. The results of all re-verifications and re-calibrations are recorded.

Software used for monitoring/measuring is validated for adequacy prior to use and reconfirmed as necessary. Information Systems management shall provide maintenance of software.

7.1.5.2 Measurement Traceability

Records of the physical calibration and NIST-traceable documentation are maintained electronically. Only the EHS&Q Manager and Calibration Coordinator responsible for maintaining calibration have immediate access to adjust these electronic files. It is the responsibility of the EHS&Q Manager to maintain and audit the scheduled performance and documentation of calibration activities.

7.1.6 Organizational Knowledge

SFI recognizes that organizational knowledge is a valuable resource that supports our quality management activities and ensures continual product and service conformity. There is a strong link between organizational knowledge and the competence of our people, the latter being peoples' ability to apply knowledge to their work.

To ensure that organizational knowledge is retained and transferred, organizational knowledge is recorded in documented information through our competency matrices, and is embedded in our processes, products and services. Examples of organizational knowledge include:

- ✓ Documented information regarding a process, product or service;
- ✓ Previous specifications and work instructions;
- ✓ The experience of skilled people and their processes and operations;
- ✓ Knowledge of technologies and infrastructure relevant to our organization.

Sources of internal knowledge also include our intellectual property; knowledge gained from experience and coaching; lessons learned from failures and successes; capturing and sharing undocumented knowledge and experience; the results of improvements in processes, products and services.

Sources of external knowledge often include other ISO standards; research papers; webinars from conferences; or knowledge gathered from customers, stakeholders or other external parties. SFI determines and reviews internal and external sources of knowledge, such as:

- ✓ Lessons learned from non-conformities, corrective actions, and the results of improvement;
- ✓ Gathering knowledge from customers, suppliers and partners, benchmarking against competitors;
- ✓ Capturing knowledge existing within the organization, e.g. through mentoring/succession planning;
- ✓ Sharing knowledge with relevant interested parties to ensure sustainability of the Organization; and
- ✓ Knowledge from conferences, attending trade fairs, networking seminars, or other external events

SFI continues to improve organizational knowledge retention by:

- ✓ Analyzing key sources of knowledge and developing preservation plans and development of processes;
- ✓ Continuing standardization and sustainment of training and competence for roles and responsibilities; and
- ✓ Utilizing industry best learning management systems to simple, succinct, and sustainable training.

7.2 Competence

Top management identifies emerging competency needs during management reviews and meetings. Emergent competency needs are updated into job descriptions for the type and number of positions that need to be filled through internal or external recruitment.

Where required; competency training and monitoring is conducted in-house, although for more specialist skills, external courses are utilized. The effectiveness of training is evaluated by the performance of work to the training. The company induction includes an introduction to our policies and objectives.

To ensure competence of our personnel, job descriptions have been prepared identifying the qualifications, experience and responsibilities that are required for each position that affects product and system conformity. Qualifications include desired requirements for education, skills and experience. Appropriate qualifications, along with the provision of any required training, provide the competence required for each position.

Qualifications are reviewed upon hire, when an employee changes positions or the requirements for a position change. The Human Resources department maintains records of employee qualifications through a combination of applications, resumes, job description requirements. If any differences between the employee's qualifications and the requirements for the job are found, training or other action is taken to provide the employee with the necessary competence. The results of training are then evaluated to determine if it was effective.

All employees are made aware of the relevance and importance of their activities and how they contribute to the achievement of our policies and objectives. The Human Resources manager maintains records of introductory training of personnel. For regulatory and safety training, SFI utilizes a third-party in a fully integrated LMS. Courses are assigned and scheduled based on job description. Quarterly, departmental competency matrices are updated by managers and supervisors. Adjunct and on-the-job training is planned based off of competency scoring and current needs. Training processes are identified in *QP-002, Training*.

7.3 Awareness

All employees are trained on the relevance and importance of their activities and how they contribute to the achievement of our policies and objectives. This training occurs during orientation training and monthly during plant meetings. Where required; awareness training and monitoring is conducted in-house, although for more specialist skills, external courses are utilized. The effectiveness of awareness training is evaluated by supervisors with notes captured in minutes from weekly continuous improvement meetings.

7.4 Communication

7.4.1 Internal Communication

SFI communicates information internally regarding our QMS and its effectiveness, through documented training, internal audit reports and continual improvement processes. All managers are responsible for establishing regular formal and informal communications as needed to convey to their employees the relevance and importance of their activities; typically this information is conveyed through team meetings and cross-functional improvement projects.

Communications regarding how employees contribute to the achievement of objectives are also conveyed and reinforced during employee performance reviews. Issues pertaining to our QMS that may be communicated internally include:

- ✓ Day-to-day operations and general awareness;
- ✓ SFI Quality Policy;
- ✓ Information on achieving objectives and targets; and
- ✓ Risks and opportunities.

Senior management and their direct reports are responsible for communicating the corporate policies as well as the importance of meeting customer, statutory and regulatory requirements to employees within their respective departments. They ensure the quality policy is understood and applied to the daily work of the organization through the establishment of measurable goals and objectives. Internal communication occurs on an on-going basis and is achieved through various mechanisms as appropriate:

- ✓ Regular meetings and briefings;
- ✓ Training sessions and training material;
- ✓ Display boards, memorandums, letters;
- ✓ Website, intranet, internal e-mails;
- ✓ Product and process performance data analysis and audit results;
- ✓ Targets, objectives, scorecards, KPIs, management system manual and procedures;
- ✓ Corrective action and non-conformance reports; and
- ✓ Minutes of ad-hoc and scheduled meetings.

7.4.2 External Communication

SFI determines the need to communicate information externally to our interested parties, as defined in Section 4.2, regarding the effectives of our QMS. In most instances, external interested parties (such as consumers, stockholders, neighboring communities, etc.) are the main driving force for our organization to implement our QMS. Table 5 below details SFI external communication.

Table 5: SFI External Communication

INTERESTED PARTIES	NEEDS & EXPECTATIONS	POSSIBLE MODES OF COMMUNICATION
Customers	Price, reliability, & value	Publications, online advertising, blog posts, other electronic media
Owner	Profitability & Growth	Annual reports
Suppliers	Beneficial Relationships	Meetings and Questionnaires
Regulatory & Statutory	Compliance & Reporting	Regulatory compliance submissions or results of other audits

As appropriate, senior management will authorize certain communication. Where required, advice appropriate to the context of the communication may be sought concerning the content and dissemination of certain external communications. Responses to external communications are recorded if they are transmitted by email or letter. In each case the response is retained and controlled in accordance with the requirements for documented information.

7.5 Documented Information

7.5.1 General

SFI ensures that our QMS includes the documented information that is required to be maintained and retained by ISO 9001:2015, and additionally, any documented information identified by our organization that demonstrates the effective operation of our QMS.

SFI applies the following criteria to all types of documented information in order to assess whether the information is necessary for demonstrating the effectiveness of our QMS, and whether it should be formally controlled.

- ✓ Communicates a message internally or externally;
- ✓ Provides evidence of process and product conformity;
- ✓ Provides evidence that planned outputs were achieved;
- ✓ Provides knowledge sharing.

Should any of the above criteria apply, SFI ensures that this information is retained and/or maintained as a form of documented information.

7.5.2 Creating and Updating

SFI ensures that when we create documented information it is appropriately identified and described (e.g. title, date, author, reference number) and is available in an appropriate format (e.g. language, software version, graphics, etc.) and on appropriate media (e.g. paper, electronic). All documented information is reviewed and approved for suitability and adequacy utilizing *QP-018, Origination and Control of QMS Documents and Records*.

7.5.3 Control of Documented Information

7.5.3.1 Control of Documentation

Documented information is retained to provide evidence of conformity to the requirements specified by ISO standards, customer requirements and of the effective operation of our management system. SFI houses these documents and records on the internal network drives. These drives are access controlled to protect against loss of confidentiality, improper use, and/or loss of integrity. This electronic document management system, which is backed up and updated as required, is used to retain documented information ensuring only the current versions are available to users. All management system documents are controlled by:

- ✓ Approving documents for adequacy prior to issue;
- ✓ Reviewing and revising as necessary and re-approving documents;
- ✓ Ensuring that changes and current revision status of documents are identified;
- ✓ Ensuring that relevant versions of applicable documents are available at points of use;
- ✓ Ensuring that documents remain legible and readily identifiable;
- ✓ Ensuring that documents of external origin are identified and their distribution controlled; and
- ✓ Preventing the unintended use of obsolete documents.

7.5.3.2 Additional Requirements for Control of Documentation

A system of documentation provides the structure for QMS implementation. Appendix D documents a matrix between this Quality Manual and the Level 2 Quality Procedures. Various documents within this system may be in any form or type of media. The depth of detail required is dependent on the complexity and interaction of the particular process and on the competency of the personnel involved in its implementation. A four-level system is used at SFI:

- ✓ Level 1: Quality Manual: It describes the QMS in terms of overall policy and objectives and also references specific quality procedures.
- ✓ Level 2: Quality Procedures. Where required, these documented procedures describe how major elements of the QMS policy are implemented.
- ✓ Level 3: Work Instructions. These detail methods for completing specific tasks. These documents may be issued at either the systems or operating department levels.
- ✓ Level 4: Forms and Records required to document QMS implementation and provide historic data.

The Quality Manual: This manual is established, controlled, and maintained to state the goals and scope of the QMS; to define and justify any exclusions to the Standard; to provide listings and/or direct references to various QMS documents; and to describe, in broad terms, the sequence and interactions of various QMS processes.

- ✓ If requested, a hard-copy of this Quality Manual (at its most current revision) may be distributed to customers, regulatory bodies and other interested parties. SFI will not maintain these manuals unless contractually required to do so. The Quality Manual shall be considered "UNCONTROLLED" until the title page is marked as a "CONTROLLED COPY", identified, and dated accordingly. After appropriate document control processes have been completed, the manual is then forwarded to the requestor.
- ✓ In addition to the documents discussed herein, SFI may use additional quality systems specifically applicable to other contractually required quality standards.

Control of Documents: A documented procedure, *QP-018, Origination and Control of QMS Documents and Records*, provides for document control, identification, legibility, retrieval, and appropriate availability of relevant versions. Methods of archiving or destroying obsolete documents are specified: The approval, review, updates, and re-approval of QMS documents is discussed. Master listings of the current revision status, date of issue, and distribution of all systems documents, including those of external origin, are maintained on the SFI server. All documents maintained on the SFI server are backed up daily and stored in an off-site facility.

Control of Quality Records: Evidence of conformance to the requirements of this manual and other legal and regulatory documents, and of the effective operation of the QMS, require adequate records. A documented procedure, *QP-018, Origination and Control of QMS Documents and Records*, details the methods used to identify, store, retrieve, protect, establish retention times for, and dispose of, legible quality records. All records maintained on the SFI server are backed up daily and stored in an off-site facility.

Section 8 – Operation

8.1 Operational Planning and Control

SFI performs planning for operations, product realization, and output evidence formally as identified in *QP-019, Product Planning and Scheduling*, and informally through scheduled and impromptu planning/scheduling meetings. Annual meetings and outputs are utilized to review ongoing operational capabilities to meet industry products and services. Periodic planning/scheduling meetings are utilized for review of new product and service lines. Daily planning/scheduling meetings are utilized to verify and monitor product and service realization and review documented evidence. Meeting inputs and outputs include:

- ✓ Product quality objectives and requirements (e.g., specifications chemical compositions, dimensions);
- ✓ Appropriate processes, documents and resources required to realize the product;
- ✓ Criteria for product acceptance and determination of appropriate verification, validation, monitoring, inspection and test activities required to ensure fulfillment of these criteria; and
- ✓ Required records to document that the realization process and the resultant product fulfill product requirements.

8.2 Requirements for Products and Services

8.2.1 Customer Communication

In accordance with our commitment to exceed our customer's expectations, SFI highlights effective customer communication as an essential element of delivering customer satisfaction. SFI manages communication with customers by the following means:

Products and services - www.springsfab.com, meetings, trade shows, and electronic communication.

Contract/order changes - *WI-026, MCN-ECN Process*

Customer satisfaction, feedback, and complaints - *QP-015, Customer Satisfaction*

Handling/Controlling customer property - *QP-019, Product Planning & Scheduling*; *QP-022, Handling, Storage, Preservation & Delivery (HSPPD)*

Contingency actions (as required) - *QP-019, Product Planning & Scheduling*

Complaint Investigation (as required) - *QP-009, Complaint Investigation.*

8.2.2 Determining the Requirements for Products and Services

Initial customer requirements are identified and reviewed prior to acceptance of a contract. These include product, delivery, and post-delivery requirements, unspecified product requirements that SFI determines are necessary to fulfill customer intentions or specified usages, and product-related obligations (including statutory and regulatory requirements). Additional requirements that SFI perceives will add value to the final deliverable are also identified and brought to the customer's attention for possible inclusion.

8.2.3 Review the Requirements for Products and Services

Prior to committing to the customer, SFI ensures and confirms our capacity to supply the required product or service. Pre-acceptance reviews are conducted to ensure that:

- ✓ Product requirements are defined and are appropriate;
- ✓ Any additional requirements determined by SFI are appropriate;
- ✓ Contract or order requirements differing from those previously expressed are resolved;
- ✓ SFI has the ability to meet the defined requirements;
- ✓ Documented information is retained and maintained showing the results of the review.

- ✓ Customer requirements are confirmed before acceptance by the exchange of contracts, purchase orders via appropriate electronic or hard copy formats.

Senior and department managers, as applicable, review orders or requests relating to products to ensure manufacturability and that they are adequately defined and documented for feasibility and profitability to ensure that the order requirements are agreed to before their acceptance. As applicable for non-standaard work, department managers receive the request for proposal material to review manufacturability, resources needed, time and cost.

8.2.3.1 Identifying Ability to Meet Requirements for Products and Services

SFI ensures that it has the ability to meet the requirements for products and services to be offered to customers by conducting a review before committing to supply products and services to a customer, to include:

- ✓ requirements specified by the customer, including the requirements for delivery and post delivery activities;
- ✓ requirements not stated by the customer, but necessary for the specified or intended use, when known;
- ✓ requirements specified by the organization;
- ✓ statutory and regulatory requirements applicable to the products and services;
- ✓ contract or order requirements differing from those previously expressed.

All requirements are confirmed by the customer via electronic quotation containing all contractual and agreed requirements before accepting a purchase order.

8.2.3.2 Required Documentation

Results of the review process and of any subsequent actions, including changes to the contract, are recorded. When there are no documented requirements given, acceptance of customer requirements shall be confirmed. Amended changes shall be provided to relevant personnel in sufficient detail to enable them to provide product that meets customer expectations.

8.2.3.3 Changes to Requirements for Products and Services

SFI ensures that all relevant documented information; relating to changes in product or service requirements, is authorized and amended where necessary, and that all relevant personnel are made aware of the documented requirement changes.

8.3 Design and Development (D/D) of Products and Services (EXCLUDED)

8.3.1 General

SFI establishes, implements and maintains a design and development process that is appropriate to ensure the subsequent provision of products and services.

8.3.2 Design and Development Planning

A documented procedure, *QP-012, Design and Drawing Control*, describes the processes that ensure SFI is meeting customer requirements regarding designs and drawings. D/D activities are planned and controlled, and include the following:

- ✓ Definition of various stages of the D/D process; and,
- ✓ Review, verification and validation activities appropriate to each stage; and,
- ✓ Appointment of responsibilities and authorities for each stage; and,

- ✓ Management of interfaces between different groups to ensure both effective communications and clarity of responsibilities; and,
- ✓ Provisions for updating planning activities, when appropriate, during the D/D process.

8.3.3 Design and Development Inputs

Product requirements comprise D/D inputs and are defined and documented. These requirements include:

- ✓ Functional and performance requirements; and,
- ✓ Applicable statutory and regulatory requirements; and,
- ✓ Appropriate information derived from similar previous designs; and,
- ✓ Other essential D/D elements; and,
- ✓ Review of defined inputs for adequacy, completeness, clarity, and lack of internal conflict.

8.3.4 Design and Development Controls

Reviews are held at point(s) determined during design planning. Attendance at D/D review includes representatives of the functions involved in the relevant review. Reviews evaluate the ability of the design, to that point, to fulfill requirements. Problem areas are identified and follow-up/corrective actions are proposed. D/D reviews and any follow-up activities are recorded.

Verification is a process-oriented activity and is performed at points determined during design planning. Verification evaluates the ability of the D/D output to fulfill D/D input requirements, and describes required follow-up/corrective actions if needed. D/D verifications and any follow-up activities are recorded.

Validation is a product-oriented activity that confirms that the resulting product meets the requirements for its known intended use or application. Preferably, full validations are performed prior to delivery or implementation. In cases where this is impractical, partial validations are performed to the extent possible. D/D validations and any follow-up activities are recorded.

8.3.5 Design and Development Outputs

D/D outputs are documented to enable verification against established inputs. Output documents are not released prior to formal approval. Output requirements include:

- ✓ Fulfillment of input requirements; and,
- ✓ Information for purchasing, production, and service operations; and,
- ✓ Provision of product acceptance criteria; and,
- ✓ Product characteristics essential to safe and proper use.

8.3.6 Design and Development Changes

Changes are identified, documented and controlled, and include evaluations of their effects on component parts and on deliverable products. Appropriate review, verification and validation activities are performed and approved before change implementation. D/D change reviews and any follow-up activities are recorded.

8.4 Control of Externally Provided Processes, Products and Services

8.4.1 General

SFI assures that purchased products and/or services conform to specified requirements. A documented procedure, *QP-016, Purchasing*, describes the processes and controls used to ensure that SFI meets customer requirements regarding purchased product or services. The type and extent of control SFI exerts over its suppliers depends on the particular process(es) and output(s) in which the supplier's product is used. Suppliers are selected based on their ability to supply conforming product.

A documented procedure, *QP-020, Supplier Selection, Evaluation, and Re-evaluation*, describes the requirements and controls that assure that the external providers used at SFI will satisfy customer requirements. Criteria are defined and evaluation results and required actions are recorded for the initial evaluation and selection, and periodic appraisal of suppliers who provide product for use within the QMS or for inclusion in customer deliverables or in production/service processes.

8.4.2 Type and Extent of Control

A documented procedure, *QP-021, Material Receipt*, describes the activities required to verify that purchased product conforms to purchase requirements and are identified, implemented, and recorded. If SFI or our customer(s) intend to verify product at our external provider's premises, SFI specifies verification arrangements and product release methods in the purchasing documents. Risks are analyzed by project management during requisition of material.

8.4.3 Information for External Providers

Information in purchasing documents is reviewed for adequacy prior to release to suppliers. Where appropriate, documents include the following information:

- ✓ Requirements for approval of product, procedures, processes, equipment, and the qualification of personnel; and,
- ✓ Quality Management System requirements.

8.5 Production and Service Revision

8.5.1 Control of Production and Service Revision

Production and service operations are controlled by information describing product characteristics, appropriate work instructions, use and maintenance of suitable equipment, availability and use of appropriate monitoring and measuring equipment, implementation of monitoring and measurement activities, and the implementation of defined processes for product release, delivery, and, where applicable, post-delivery activities. A documented procedure, *QP-023, Production – Standard Practices*, describes the expectations of workmanship, procedure, and documentation of production personnel for their respective departments.

Processes whose outputs cannot be subsequently verified must be appropriately validated. A documented procedure, *QP-017, Validation of Special Processes*, describes the controls implemented for specific recurring processes employed at SFI. Validation requirements include those processes where deficiencies will only become apparent after use of the product or, where applicable, delivery of the service. Validation demonstrates process ability to achieve planned results, and includes:

- ✓ Defined criteria for review and approval of processes;
- ✓ Approval of equipment and qualification of personnel;
- ✓ Use of defined production and monitoring methods and procedures;
- ✓ Revalidations where required; and,
- ✓ Maintenance of adequate records.

8.5.2 Identification and Traceability

Throughout production operations, SFI identifies both the product and its status with respect to monitoring and measurement requirements. Further, where traceability is required or appropriate, the unique identification of the product is controlled and recorded.

8.5.3 Property Belonging to Customers or External Providers

If customer property (including intellectual property) is provided to SFI for use in processes or for incorporation into products is identified, verified, protected, safeguarded, and, where appropriate, maintained. Loss, damage, or unsuitability for use is immediately recorded and reported to the customer.

8.5.4 Preservation

The conformity of both constituent parts and shipped product, including identification, handling, packaging, storage and protection, is preserved throughout internal processes and extending to the contractually stated delivery point. Preservation ensures conformance to both to customer and internal SFI requirements. A documented procedure, *QP-022, HSPPD*, describes the methods employed to ensure that customer product is Handled, Stored, Protected, Preserved, and Delivered appropriately to satisfy customer requirements.

8.5.5 Post-Delivery Activities

Project managers and document control evaluates purchase order requirements during the planning and job creation phase. At this time, the project managers evaluate:

- ✓ Statutory and regulatory requirements;
- ✓ Potential undesired consequences associated with the product or service;
- ✓ The nature, use and intended lifetime of its products and services; and
- ✓ Customer requirements and feedback.

8.5.6 Control of Changes

Changes are identified, documented and controlled, and include evaluations of their effects on component parts and on deliverable products. Appropriate review, verification and validation activities are performed and approved before change implementation. D/D change reviews and any follow-up activities are recorded through the *WI-026, MCN-ENC Process*.

8.6 Release of Products and Services

Before products are released from shipment, the Quality Assurance and Document Control Departments along with project management verify the completion of all work order tasks and that all qualification documentation as identified in the purchase order are complete and satisfactory. Work order completion and closure is verified with QA signature on *MF-30, Part Status Tag* before parts are released from shipment.

8.7 Control of Nonconforming Outputs

8.7.1 Control of Nonconforming Products and Services

A documented procedure, *QP-001, Control of Nonconformities*, describes methods that ensure that nonconforming product (NCP) is identified and controlled to prevent unintended use or delivery. The controls, responsibilities, and authorities that implement them, are discussed in this procedure. Should detection occur after use or delivery, appropriate actions are taken to mitigate negative effects or potential effects. Issues regarding NCP are resolved by one or more of the following:

- ✓ Taking action to eliminate the nonconformity. NCP that is reworked or repaired is re-verified to ensure its conformity. Where contractually required, the methods and extent of rework/ repair is reported to the customer for concession.
- ✓ Authorizing its use, release, or acceptance ‘as-is’ by either internal or customer concession/deviation.
- ✓ Taking actions to preclude its original intended use or application. NCP that is scrapped is isolated and is physically rendered useless or clearly marked as scrap.

8.7.2 Required Documentation

Records concerning the nature of nonconformities, and subsequent actions taken, including concessions, are maintained in the SFI Continuous Improvement Database with electronic evidence records stored at W:\Document Control\Records\NCR Attachments.

Section 9 – Performance Evaluation

9.1 Monitoring, Measurement, Analysis and Evaluation

9.1.1 General

Monitoring, measurement, analysis, and improvement activities that ensure product and QMS conformity and drive product and QMS improvements are defined, planned, and implemented. The need for statistical techniques is explored – if such techniques are applicable, they are enacted. The Continuous Improvement Document Flowchart, see Appendix F, discusses the interrelationship of Section 8 activities.

SFI applies suitable methods for determining which aspects of the quality management system and its processes are to be monitored, measured and evaluated. The frequency and methods by which our processes are monitored, measured and evaluated is determined and informed by:

- ✓ Statutory and regulatory requirements;
- ✓ Customer feedback and specification requirements;
- ✓ Process and QMS requirements;
- ✓ Process performance and audit results;
- ✓ Level of risk and types of control measure;
- ✓ Trends in non-conformities or corrective actions; and
- ✓ Criticality for service conformity.

All monitoring, measuring and evaluation outputs are documented and analyzed to determine process effectiveness and to ensure their effectiveness in achieving in-tolerance results, and to identify opportunities for improvement.

- ✓ In-process checks relate to both quality control and productivity checks;
- ✓ Provision is made for the identification and resolution of non-conformances;
- ✓ The emphasis is to prevent any problems which might affect customer satisfaction; and
- ✓ In-process checks are performed and documented.

SFI utilizes three process groups to measure performance of the Quality Management System. These include: Evaluation and Improvement Processes, Management and Compliance Processes, and Production and Qualification Processes. From these three groups, the following outputs are monitored on at least an annual basis (see Appendix C for details on these output groups):

- ✓ Cost of Quality
- ✓ Employee Morale
- ✓ On-Time Delivery
- ✓ Schedule Variation
- ✓ Employee Retention
- ✓ First Pass Yield
- ✓ Profitability

Where applicable, records are retained as documented information for a minimum of seven years. This documented information includes details of the final inspection authority to confirm that all critical parameters were in accordance with established requirements and specifications.

Services are not normally delivered until all compliance has been completed and that documented information exists to provide evidence of conformity with acceptance criteria and identifying the person(s) authorizing release.

9.1.2 Customer Satisfaction

Analysis of information concerning customer satisfaction and/or dissatisfaction is a major metric used to measure overall QMS performance with respect to quality goals and objectives. A documented procedure, *QP-015, Customer Satisfaction*, describes how SFI obtains, analyzes, and uses customer feedback as a continuous improvement tool..

9.1.3 Analysis and Evaluation

Collection and analysis of appropriate data, including those from monitoring and measurement activities, is accomplished to determine QMS suitability and effectiveness, and to provide the basis for continuing system improvement. Analysis of these data provides information concerning:

- ✓ Customer satisfaction/dissatisfaction;
- ✓ Conformance to product requirements;
- ✓ Characteristics and trends of processes, product, including identification of possible preventive actions; and,
- ✓ Supplier performance.

Senior management and other managers and supervisors collect and analyze data to determine the suitability and effectiveness of key quality management system processes applicable to their area(s) of responsibility and to identify opportunities for improvement. At a minimum, data is analyzed to assess achievement of the corporate level objectives and customer requirements.

A process is effective if the desired results are measurably achieved. Effectiveness is measured in terms of product quality, process accuracy, delivery schedule performance, cost and budgetary performance, employee function performance against established objectives and levels of customer satisfaction. In order to identify strengths, weaknesses, threats and opportunities in our quality management system, SFI monitors and analyses trends using the following quality data points:

- ✓ Characteristics of processes, services and their trends;
- ✓ Conformity to product, customer and legal requirements;
- ✓ Customer satisfaction and perception data;
- ✓ Supplier and external provider performance data;
- ✓ Results of actions taken to address risks and opportunities;
- ✓ Effective implementation of QMS planning;
- ✓ Improvement opportunities identified during internal audits and management reviews.

Control limits for process and product performance are expressed as objectives and disseminated via documented information as appropriate. SFI undertakes corrective action when the data shows a trend toward the defined control limit.

9.2 Internal Audit

Periodic Internal audits are conducted to determine if the QMS conforms to the Standard's requirements and if it has been effectively implemented and maintained. A documented procedure, *QP-007, Internal Auditing*, describes SFI's internal auditing program. This audit system includes the following:

- ✓ Planning that considers the status and importance of the processes and areas to be audited, and the results of previous audits;
- ✓ Criteria, scope, frequency and methods of audit that are defined;
- ✓ Auditor selection and conduct is monitored to assure objectivity and impartiality of the audit process;

- ✓ Auditors do not audit their own processes; and
- ✓ Reporting audit results to senior and applicable management through scheduled management meetings.

This procedure includes responsibilities and requirements for planning and conducting audits to ensure their independence, recording audit results, and maintaining appropriate records.

Timely corrective action on audit nonconformities and their root causes is taken by the management responsible for the audited area. Implementation of such actions is verified, and the verification results are reported.

9.3 Management Review

9.3.1 General

The QMS is reviewed to ensure ongoing suitability, adequacy, and effectiveness. A documented form, *QF-94, Management Review*, describes the format and frequency of Management Review meetings. Suggestions for improvements and changes to the business goals and objectives, this QMS, the quality policy, and the quality objectives are considered as a part of this review. Records of management review are retained on the SFI server.

9.3.2 Management Review Inputs

Review Inputs: Management Review includes both current performance and opportunities for improvement of the following:

- ✓ Results of internal, and customer audits;
- ✓ Positive and negative customer feedback;
- ✓ Process performance and product conformance;
- ✓ Status of preventive and corrective actions;
- ✓ Follow-ups on action items from previous reviews;
- ✓ Business changes which could affect the QMS; and
- ✓ Recommendations for improvement to the QMS.

9.3.3 Management Review Outputs

Review Outputs: Management Review report includes a summary of the results of the review of the inputs, and, where appropriate, provides action items related to:

- ✓ Improvement to the effectiveness of the QMS and QMS processes;
- ✓ Results of completion, changes, or additions, to the listing of quality objectives;
- ✓ Risks and opportunities with actions and risk owner assignments;
- ✓ Product improvements related to customer requirements; and,
- ✓ Status of various resource needs.

Section 10 – Improvement

10.1 General

In order to determine and select opportunities for improvement or to implement any necessary actions to meet the requirements of customers and relevant interested parties, or to enhance customer satisfaction, SFI drives improvement via the analysis of relevant data. The data inputs for the improvement process include:

- ✓ Risk and opportunity evaluations;
- ✓ Assessment of the changing needs and expectations of interested parties;
- ✓ The conformity of existing products and services;
- ✓ The effectiveness of our QMS;
- ✓ Levels of customer satisfaction, including complaints and feedback;
- ✓ Internal and external audit results;
- ✓ Corrective action and non-conformance rates;

SFI also ensures that opportunities for improvement from daily feedback on operational performance are evaluated by the EHS&Q Manager which are typically implemented through the corrective action system. Weekly or bi-weekly Continuous Improvement Team meetings are utilized to plan for and implement improvement initiatives based on analysis data and current issues.

The overall effectiveness of continual improvement program (including corrective actions taken as well as the overall progress towards achieving corporate level improvement objectives) is assessed through our management review process, analysis of trend data, and feedback from department supervisors and managers.

10.2 Nonconformity and Corrective Action

10.2.1 Responding to Nonconformances

A documented procedure, *QP-001, Control of Nonconformities*, describes methods that ensure that nonconforming product (NCP) is identified and controlled to prevent unintended use or delivery. The controls, responsibilities, and authorities that implement them, are discussed in this procedure. Should detection occur after use or delivery, appropriate actions are taken to mitigate negative effects or potential effects.

Issues regarding NCP are resolved by one or more of the following:

- ✓ Taking action to eliminate the nonconformity. NCP that is reworked or repaired is re-verified to ensure its conformity. Where contractually required, the methods and extent of rework/ repair is reported to the customer for concession.
- ✓ Authorizing its use, release, or acceptance ‘as-is’ by either internal or customer concession/deviation.
- ✓ Taking actions to preclude its original intended use or application. NCP that is scrapped is isolated and is physically rendered useless or clearly marked as scrap.

10.2.2 Corrective Actions

Corrective actions (CA’s) are used to resolve issues that have occurred. A documented procedure, *QP-010, CA PA*, describes the process of managing corrective actions to resolve issues within the QMS. CA is appropriate to the impact of the issues being resolved, and is taken to eliminate the results and the causes of nonconformities in order to prevent their recurrence. Procedures define requirements for:

- ✓ Reviewing nonconformities (including customer complaints); and,
- ✓ Determining the root cause(s) of the nonconformities; and,
- ✓ Evaluating the need for actions necessary to resolve the root causes and prevent re-occurrences.

- ✓ Determining and implementing the required CA; and,
- ✓ Recording the results of the CA taken; and,
- ✓ Reviewing these results for effectiveness.

10.2.3 Required Documentation

Nonconformances of products and services are updated and stored in the Continuous Improvement database. Analysis and reporting is located at W:\Quality\METRICS. Corrective actions and tracking are maintained at "W:\Quality\Continuous Improvement\Action Item Tracking.xls."

10.3 Continual Improvement

Continual improvement of QMS effectiveness is driven by the quality policy, quality objectives, audit results, analysis of data, corrective and preventive action programs, the management review regimen, and other inputs that may be relevant. The Plan-Do-Check-Act approach is utilized in meetings and tracking.

Continuous improvement meetings are held on a monthly basis and impromptu as issues or improvement areas are identified. All actions from continuous improvement meetings are held within the SFI corrective action database. Attendees for continuous improvement meetings are as needed based on the improvement topic. Minutes are recorded and stored accordingly at W:\Quality\Continuous Improvement\CI Topic Meetings.

Preventive Actions (PA's) are used to resolve *issues that could possibly occur.* Preventive actions are part of the risk-based thinking and approach SFI utilizes. A documented procedure, *QP-010, CA PA*, describes the process of managing preventive actions to resolve issues which may potentially occur within the organization and affect planned results. PA is appropriate to the impact of the issues being explored, and is taken to prevent the results and causes of nonconformities before they occur.

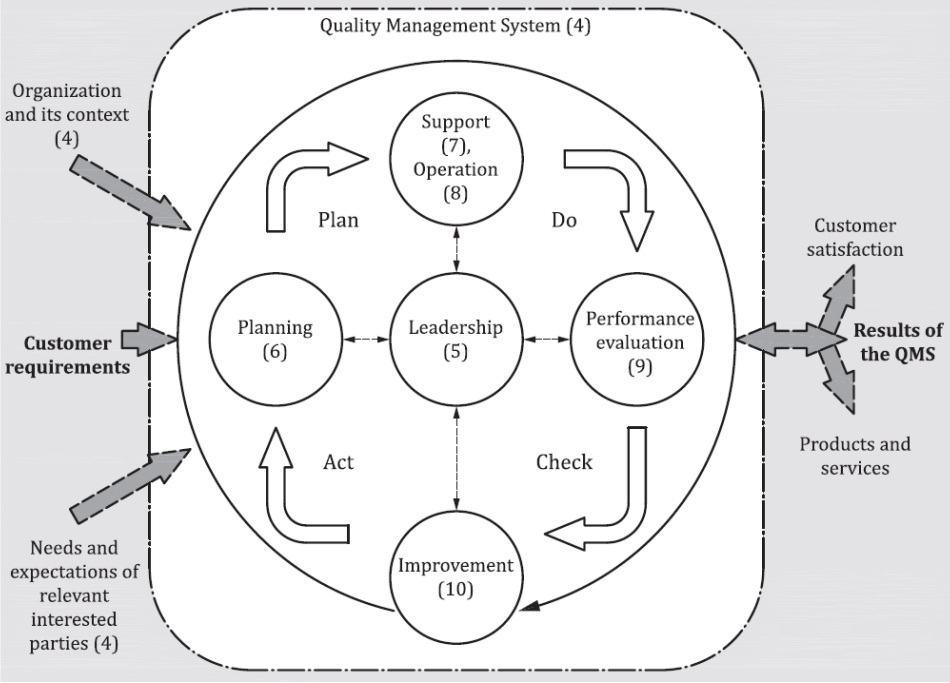


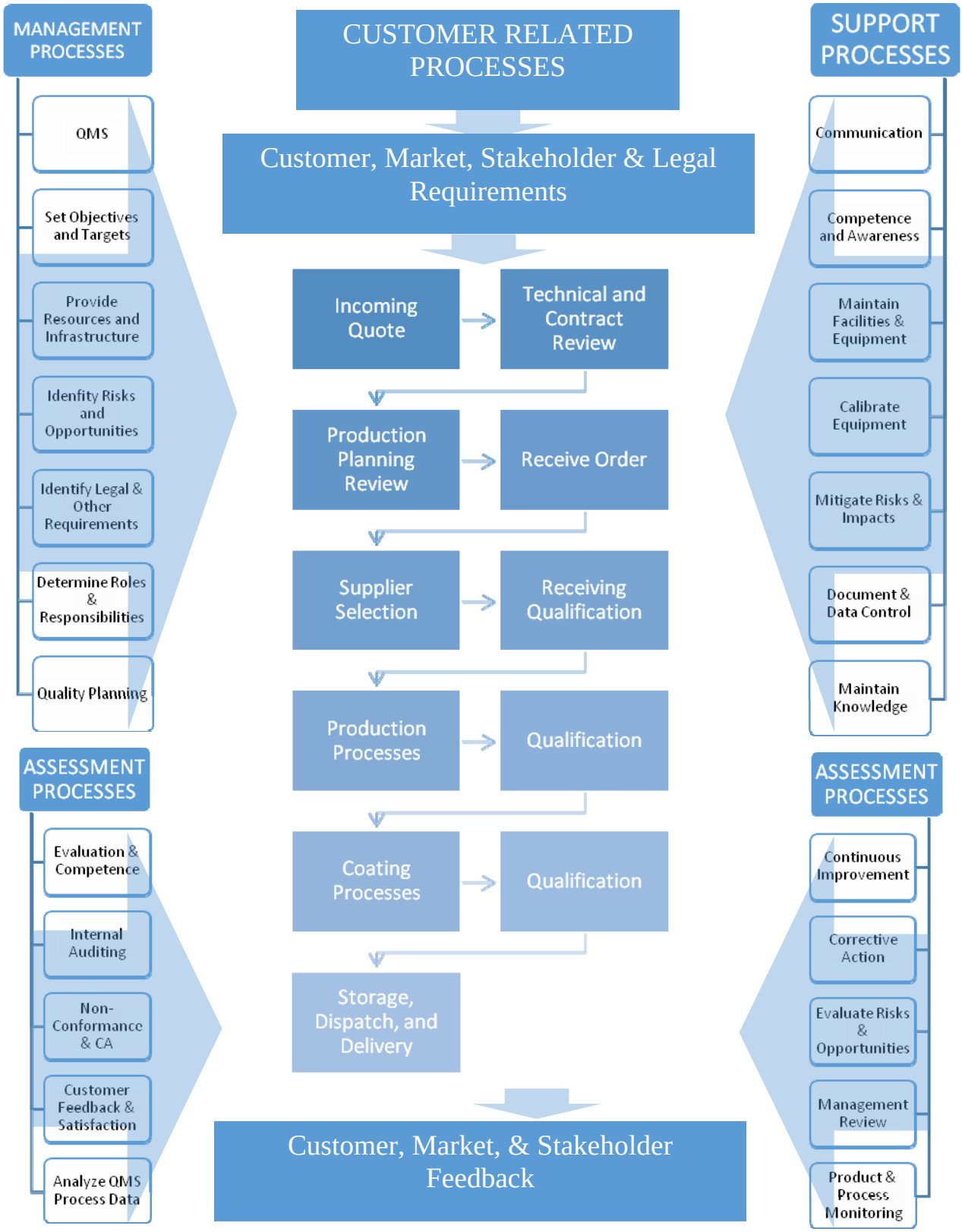
Figure 2: Plan-Do-Check-Act Cycle

Section 11 – Revision History

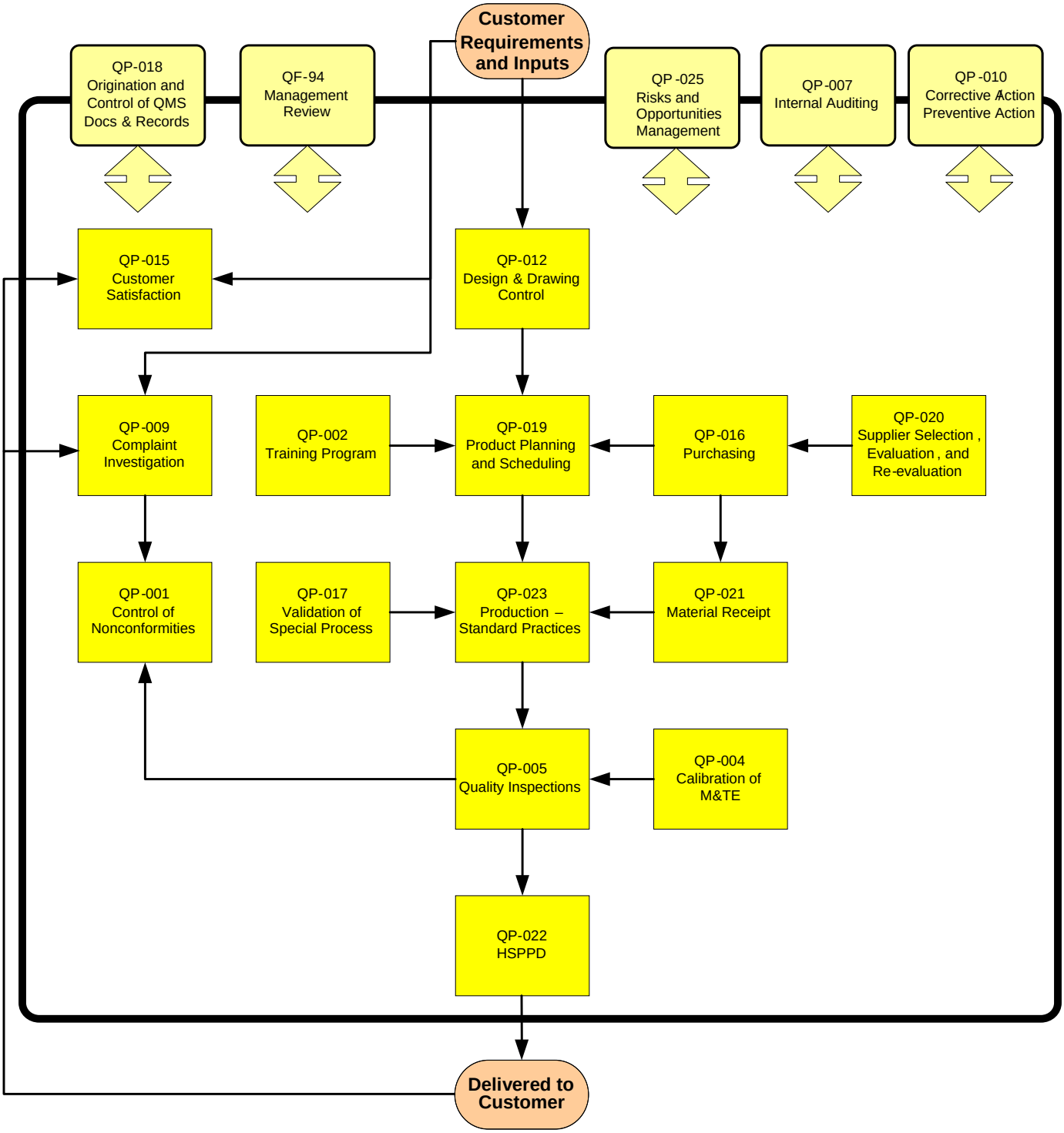
REVISION HISTORY

Revision	Date	SCO#	Description of Change
G	6/22/09	915	Revised sections 4.2.1.1, 4.2.1.2, 5.3, 6.2, 7.2.2.5, 7.5.1, 7.6.1, 7.6.3, 7.6..4, 8.5.2.3 & 8.6 to reflect current process
H	6/10/10	1061	– Replaced all references to ISO9001:2000 with ISO9001:2008 – Revised Section 7.6.3 to clarify wording – Removed signature page; use SCO process – Inserted Appendix B Quality Manual Level 1 Procedure Matrix and re-numbered Appendices B (to C), C (to D), and D (to E) – Updated Appendix D Org Chart
I	8/14/13	1315	– Updates to support physical changes made to supporting ISO procedures and work instructions. Also updated company history
J	8/6/14	1373	– Revised SFI Quality Policy to include new speak and Ownership Thinking.
K	10/28/15	1401	– Update Quality Policy Statement & add quality objectives – Remove reference to DOE O 414.1C – Remove reference to ASME “S” stamp – Update org chart
L	10/27/17	1437	– Removed ISO Exceptions 7.5.1 Control of Production & Services and 7.5.2 Validation of Processes for Production and Service – Changed “7.5.3” to “7.3” – Pg 22 – changed “QP-010 Customer Satisfaction” to “QP-015 Customer Satisfaction”
M	12/7/17	1442	– Revised Appendix C
N	6/5/2018	1475	– Revision to ISO 9001:2015

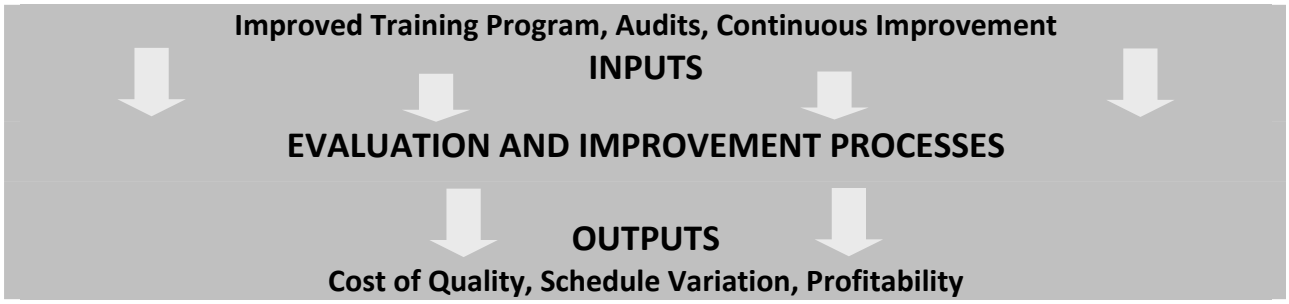
Appendix A: Diagram of Interrelated Processes

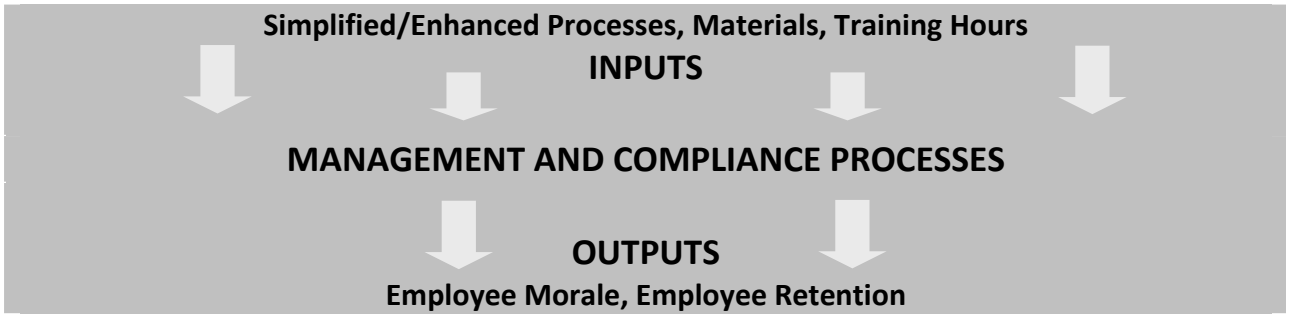


Appendix B: Sequence of Processes



Appendix C: Inputs and Outputs to Process Groups

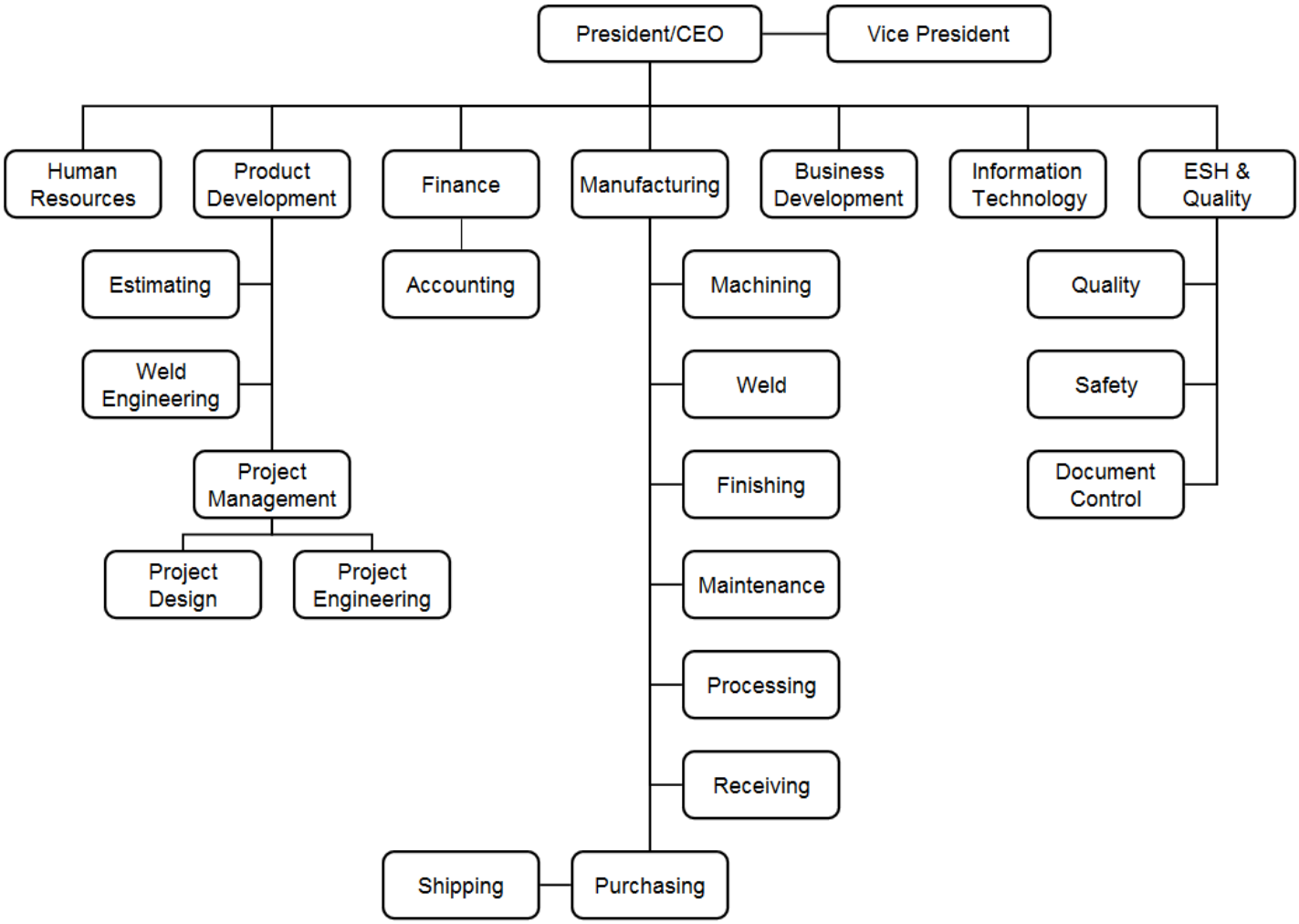




Appendix D: Crosswalk of Procedures to ISO Standard

ISO 9001:2015	QT-1 Quality Manual	QP-001 Control of Nonconformities	QP-002 Training Program	QF-94 Management Review	QP-004 Calibration of Measuring and Test Equipment	QP-005 Quality Inspections	QP-007 Internal Auditing	QP-009 Complaint Investigation	QP-010 CA PA	QP-012 Design and Drawing Control	QP-015 Customer Satisfaction	QP-016 Purchasing	QP-017 Validation and Control of Special Processes	QP-018 Origination and Control of QMS Documents and Records	QP-019 Product Planning and Scheduling	QP-020 Supplier Selection Evaluation and Re-evaluation	QP-021 Material Receipt	QP-022 HSPPD	QP-023 Production - Standard Practices	QP-025 Risks and Opportunities Management Procedure
4.1 Understanding the Organization & its Context	X			X																
4.2 Needs and Expectations of Interested Parties	X																			
4.3 Scope of the Quality Management System	X																			
4.4 Quality Management System & its Processes	X																			
5.1 Leadership & Commitment	X																			
5.2 Policy	X																			
5.3 Organizational roles, responsibilities, authorities	X																			
6.1 Risks & Opportunities	X																			X
6.2 Quality Objective & Planning to Achieve Them	X														X					
6.3 Planning of Changes	X									X					X					
7.1 Resources	X																			
7.2 Competence	X		X																	
7.3 Awareness	X		X																	
7.4 Communication	X							X			X									
7.5 Documented Information	X													X						
8.1 Operational Planning & Control	X														X			X		
8.2 Requirements for Products & Services	X					X						X	X		X	X		X		
8.4 Control of External Processes, Products, Service	X												X			X				
8.5 Production and Service Revision	X																		X	
8.6 Release of Products & Services	X				X									X	X					
8.7 Control of Nonconforming Outputs	X	X				X			X								X			
9.1 Monitoring, Measurement, Analysis, Evaluation	X						X				X									
9.2 Internal Audit	X						X													
10.1 General	X											X				X				
10.2 Nonconformity and Corrective Action	X	X							X											
10.3 Continual Improvement	X								X											

Appendix E: Organizational Chart



Appendix F: Continual Improvement Flowchart