

Specialties Manufacturing

Talladega Castings & Machine Co., Inc.

ISO 9001:2008

Quality Manual

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Introduction

TMS – Specialties Manufacturing Co., Inc. TMS – Talladega Castings & Machine Co., Inc.

TMS operates multiple manufacturing facilities in Talladega totaling more than 300,000 square feet on over 60 acres of land. We employ 16 field sales reps servicing a variety of industries including: Aluminum Reduction, Food Products, Forest Products, Power Generation, Printing, Rail, Steel, Transportation, and Wire manufacturing.

TMS is a conformance-to-requirements company. We have, therefore, established a climate favorable to quality such that adverse conditions are prevented or quickly detected. We address and correct nonconformance to prevent recurrence. We continue to build on a culture of continuous improvement, customer satisfaction, and employee involvement.

Our operation can support customer source inspection visits, audits, and surveys.

This (QMS) Quality Management System is applicable to all Manufacturing Departments within TMS. Due to the diverse nature of products and services generated, specific Procedures and Work Instructions are developed to facilitate control of quality and compliance with the Quality Manual. These Procedures are prepared by the Management Representative and approved by the appropriate Division Manager. All Procedures and Work Instructions (Standard Operating Procedures) are controlled documents.

TMS developed and implemented a quality management system to demonstrate its ability to consistently provide product that meets customer and applicable regulatory requirements, and to address customer satisfaction through the effective application of the system, including continual improvement and the prevention of nonconformity. The quality system complies with the international standard ISO 9001 (2008) AWS and ASME.

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COMPANY EXCLUSIONS & SCOPES

1. **Exclusion: as listed**
TMS Specialties Manufacturing - None
Talladega Casting & Machine Co., Inc. – Does not design or develop products.

Scope of Registrations

TMS Specialties Manufacturing – Design, Fabrication, Contract Manufacturing, CNC Machining, Gear Hobbing, Machinery Rebuilds and Replacement Parts

Talladega Casting & Machine Co., Inc – Sand Foundry, Steel, Stainless Steel, Irons, and Temperature Resistant Steel Alloys.

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PROCEDURAL POLICIES

1. Quality system processes

- 1.1 Processes needed for the quality management system are identified in this quality manual and in associated procedures and work instructions. (See Process Flow)
- 1.2 The documentation defines these quality system processes and their sequence and interaction. (See Appendix C Process Flow)
- 1.3 Quality system documentation also defines criteria and methods needed to ensure that the operation and control of quality system processes are effective.
- 1.4 This includes assignment of responsibilities and allocation of resources for the process, instructions on how to carry out (or operate) the process, and definition of methods for monitoring and/or measuring the effectiveness of the process.
- 1.5 The effectiveness of the system is monitored thru the (QMS) Quality Management System team meetings, internal audits, and management review.

2. Resources and information

- 2.1 The Management Representative is responsible for determining resource and information requirements necessary to support the operation and monitoring of quality system processes, and for communicating these requirements to the top management.
- 2.2 Top management is responsible for ensuring the availability of necessary resources and information.

3. Monitoring and measurement

- 3.1 The performance of (QMS) Quality Management System processes are systematically monitored and measured by top management, to achieve planed results and continual improvement of these processes. Product realization and process results are monitored through programs of receiving, in-process and final inspections.

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4. Conformance and continual improvement

- 4.1 Top management and the (QMS) Quality Management System team shall identify any possible failures or breakdowns, as well as opportunities for improvement during weekly reviews of the Quality Management System and related processes.
- 4.2 Actions necessary to address actual or potential problems, to improve the quality system, or achieve planned results are implemented through corrective and preventive actions and management improvement projects.

5. Outsourced (subcontracted) processes

- 5.1 When processes that affect product conformity are outsourced, special controls are implemented to ensure that these processes meet specified requirements.
- 5.2 Such controls may include, as appropriate: evaluation and pre-qualification of suppliers; and assessment of supplier product realization processes and quality systems.

Section 4.2	Quality Manual	
Documentation and Records	Rev Date 6/16/09	Section Rev.: D

GENERAL POLICY

The establishment, revision, and distribution of documents is controlled.

PROCEDURAL POLICIES

1. Scope

- 1.1 TMS quality systems documentation is comprised of the following types of documents:
- Quality manual (including a documented quality policy);
 - Documented statements of quality policy objectives;
 - Procedures (PR);
 - Standard Operating Procedures (SOP);
 - Standards and other technical reference materials;
 - Product realization and process control plans; (drawings, route sheets, traveler's etc.)

2. Quality Manual

- 2.1 The Quality Manual defines the overall quality management system. It includes:
- The scope of the quality system, including details of and justification for any exclusions.
 - Description of quality system processes including their sequence and interrelation.
 - References to documented procedures.

3. Document control

- 3.1 TMS document control system is defined in PR-4.2A, Control of Documents
- 3.2 New documents and document changes can be requested by anyone in the company, but may only be issued by the location Management Representative.
- 3.3 (QMS) Quality Management System documents are reviewed for adequacy and approved before issue by the Management Representative and the Vice President of Operations.
- 3.4 The Quality Manual and procedures are stored electronically for controlled access. All paper documents are distributed to locations where they are used.
- 3.5 Document placements are regulated by PR-4.2A, Control of Documents.

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- 3.6 Obsolete documents are removed from points of use. Retained masters or copies of obsolete documents are properly marked and/or kept separate from active documents.
- 3.8 The Document Master List is maintained specifying the latest issues and revisions of all documents used in the Quality Management System.
- 3.9 Documents of external origin are identified, and their distribution controlled.

4. Control of records

- 4.1 Records are established and maintained to provide evidence that:
 - Product designs satisfy design-input requirements.
 - Materials, components, and production processes meet specified requirements.
 - Finished products conform to specifications.
 - The (QMS) Quality Management System is operated in accordance with documented procedures and that it is effective.
- 4.2 Records are stored in dry and clean areas and electronic records are regularly backed up.
- 4.3 Retention periods for quality records are listed on the Document Master List including any regulatory and contractual requirements.
- 4.4 System documents and forms are numbered per PR-4.2B, Format & Numbering.
- 4.5 Quality records maintained by the company are listed on the Document Master List as described in PR-4.2D, Control of Quality Records.
- 4.6 Drawings are controlled per PR-4.2C, Control of Drawings & Specifications.

Section 5.1	Quality Manual	
Management Commitment	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

Management is ultimately responsible for establishing, implementing, maintaining, and improving the quality system. Management commitment is demonstrated by communicating to the organization the importance of meeting requirements, establishing the quality policy and quality objectives, conducting management reviews of the quality system, and ensuring the availability of necessary resources.

PROCEDURAL POLICIES

- 1.1 For the purpose of administrating the quality management system, management is defined to include the Owners, VP of Operations, and each location Plant Managers, and Supervisors.
- 1.2 Management is committed to communicating the importance of meeting customer as well as regulatory and legal requirements.
- 1.3 Management defines the purpose and objectives for the quality management system. They are documented and communicated in the form of quality policy and quality policy objectives.
- 1.4 Management annually reviews the quality management system to ensure its continuing suitability, adequacy, and effectiveness. The review evaluates current status and performance of the quality system and initiates actions for improvement of the system.
- 1.5 Management is committed to providing resources necessary for establishing, implementing, and improving the quality management system.

Section 5.2	Quality Manual	
Customer Focus	Rev Date 6/16/09	Section Rev: D

GENERAL POLICY

The principal objective of the quality management system is to focus our organization on the customer, and in particular, on customer satisfaction.

The key to achieving high customer satisfaction is a good understanding of customer requirements and a capability to consistently fulfill these requirements.

PROCEDURAL POLICIES

- 1.1 Customer requirements are determined and verified through the process of order review. This process is defined in PR-7.2A, Contract Review.
- 1.2 Customer needs and expectations are determined and incorporated into product requirements.
- 1.3 The Quality system is designed and implemented to ensure that customer requirements can be consistently fulfilled.

Section 5.3	Quality Manual	
Quality Policy	Rev Date 6/16/09	Section Rev: D

QUALITY POLICY

“To Deliver Products and Services That Meet Our Customers Requirements”

TMS - achieves the Quality Policy through continual improvement of its products, services, and the Quality Management System.

PROCEDURAL POLICIES

- 1.1 The Quality policy is established by the Top Management and is approved by the President-QA Manager.
- 1.2 The main role of the quality policy is to communicate the company’s commitments and aspirations concerning quality, and to define principal objectives for the quality management system.
- 1.3 The use of the policy to facilitate continual improvement is explained in this manual in Section 8.5, Continual Improvement.
- 1.4 The quality policy is posted throughout the company, and its role is explained and discussed at the general orientation training provided to all employees.
- 1.5 The process for reviewing the quality policy is defined in Section 5.6, Management Review in the Quality Manual.

Section 5.4	Quality Manual	
Quality System Planning	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

Quality objectives are established to support and implement the quality policy and continual improvement. Quality planning includes identification and determination of quality system processes; priorities for continual improvement; and resources needed to achieve quality objectives and to maintain and improve the quality system.

PROCEDURAL POLICIES

1. Quality objectives

- 1.1 Quality objectives are established throughout the organization to implement the quality policy, to meet requirements for products and processes, and to improve quality system and quality performance.
- 1.2 Quality objectives define the direction and priorities for continual improvement.

Quality Policy Objective

“Zero” Customer Complaints

2. Quality system planning

- 2.1 Quality system elements and processes are planned to ensure that the system is appropriate for its intended purpose. The purpose of the quality system is to achieve the quality policy; and quality objectives.
- 2.2 Improvements of the quality system are planned within the framework of management reviews. The integrity of the quality management system is maintained when improvements are planned and implemented.

Section 5.5	Quality Manual	
Organization and Communication	Rev Date 6/16/09	Section Rev.: D

GENERAL POLICY

Top management appoints a management representative at each location to be responsible for establishment and maintenance of the quality system, and for reporting to the top management on the performance of the system and any need for improvement.

PROCEDURAL POLICIES

1. Responsibility and authority

- 1.1 Departments, groups' functions and responsibilities within the company, and their interrelations, are defined in the location Job Responsibility, Authority and Organizational Charts. (See appendix A & B)

2. Management Representative

- 2.1 Top Management appoints a Management Representative for each division.
- 2.2 The Management Representative has the authority and responsibility to:
 - Ensure that the quality management system is implemented, maintained, and continually improved
 - Promote awareness of customer requirements throughout the organization;
 - Report to the top management on the performance of the quality system, including needs for improvement.

3. Internal communication

- 3.1 Management communicates to the organization: the quality policy and objectives, customer and regulatory requirements, product and process specifications, verification and validation requirements, and instructions on how to implement and use the quality system.
- 3.2 The organization communicates to the management information and data regarding customer needs and expectations, customer satisfaction, quality performance, the effectiveness of the quality system, and opportunities for improvement.

Section 5.6	Quality Manual	
Management Review	Rev Date 6/16/09	Section Rev.: D

GENERAL POLICY

Each TMS location conducts weekly (QMS) team management meetings. Top Management, President, Vice President of Operations and the Management Representatives conduct an annual Management Review of the entire quality system. The review evaluates the suitability and effectiveness of the system, identifies opportunities for improvement, and considers the need for changes to the quality policy and quality objectives. Results of the reviews are documented.

PROCEDURAL POLICIES

1. General

- 1.1 Weekly Quality Management System team meetings may include but are not limited to all location top management, Management Representative and various department employees as needed to input information to the meeting.
- 1.2 The plant manager prepares an agenda prior to the meeting.
- 1.3 The purpose of this weekly meeting is to:
 - Review non-conformances and corrective action
 - Discuss and implement action items as necessary to meet the company Quality Policy and Quality Policy Objectives.
 - Discuss vendor problems
 - Any other related issues that may arise and warrant discussion.
- 1.4 The purpose of annual management reviews is to:

Evaluate the suitability, adequacy and effectiveness of the Quality Management System.

Consider changes to the Quality Management System and to the quality policy and quality objectives.

Identify opportunities for improvement of the Quality Management System and Processes.
- 1.5 The Annual Management Review Meeting is chaired by the Vice President of Operations and is attended by;
 - Top Management
 - President-QA Manager
 - Location Plant Managers
 - Location - ISO Management Representatives.

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Management Review	Rev Date 6/16/09	Section Rev.: D

- 1.6 More frequent reviews are scheduled when circumstances require increased attention and input from the top management.
- 1.7 Minutes of this meeting are recorded and distributed to each location Plant Manager.

2. Review input

- 2.1 Input into the management reviews consists of information and data related to quality performance of the organization.
- 2.2 At a minimum, this includes:
 - Information and actions taken at the locations (QMS) Quality Management System team meeting
 - Results of audits, (internal and external)
 - Customer Feedback Satisfaction and Complaints,
 - Process performance and product conformance data,
 - Status of preventive and corrective actions,
 - Changes that could affect the quality system,
 - Follow-up actions from earlier management reviews, and recommendations for changes.
 - Recommendations for improvement

3. Review output

- 3.1 Output from management reviews concludes actions related to improvement of the quality management system, and improvement of processes and products to better meet customer requirements. The review also identifies resource needs to implement these actions.
- 3.2 Results of management reviews are documented in minutes of the review meeting.

Section 6.1	Quality Manual	
Resource Management	Rev Date 6/16/09	Section Rev D

GENERAL POLICY

Management is committed to provide adequate resources for the implementation and improvement of the quality system, and for enhancing customer satisfaction.

PROCEDURAL POLICIES

- 1.1 Resources required for implementation and improvement of the quality system, and for addressing customer satisfaction, may include people, suppliers, information, infrastructure, work environment, and financial resources.
- 1.2 The Management Representative and other management personnel involved in the quality management system are responsible for determining resource requirements for the implementation, maintenance and improvement of the system.
- 1.3 The principal forum for determining and communicating resource requirements are management reviews.
- 1.4 Top management has the responsibility and authority for provision of resources.

Section 6.2	Quality Manual	
Competence, Awareness and Training	Rev Date 6/16/09	Section Rev D

GENERAL POLICY

TMS monitors and evaluates personnel training needs, provides required training, and evaluates the effectiveness of the training provided. Employees are made aware of the relevance and importance of their activities and skills, and how they contribute to the achievement of quality objectives. (Records of personnel qualifications and training are maintained.)

PROCEDURAL POLICIES

- 1.1 Management is responsible for identifying training needs and awareness programs for company-wide participation.
- 1.2 Departmental supervisors are responsible for identifying competency requirements and training needs in their departments, and for establishing departmental training programs.
- 1.3 On the job departmental training is primarily focused on increasing the level of skills in operating equipment and processes, conducting inspections and testing.
- 1.4 In addition, training needs are often identified in response to corrective or preventive action requests, as inadequate training may cause nonconformities.
- 1.5 TMS provides, or supports, the following categories of company-wide and departmental training and awareness programs:

General orientation and (QMS) Quality Management System awareness training — Explains how the quality system works to ensure product quality. Provided to all employees.

Safety training — Instruction in safe working practices, use of personal protective equipment, first aid, etc. Provided to all employees.

External training — External seminars, conferences, and courses are provided to individual employees on an as-needed basis.

Self-study — Reading magazines, books, and reports.

- 1.6 Effectiveness of training is evaluated using the following approaches:
 - Follow-up performance evaluation of trained employees;
 - Consideration of competency and training when investigating causes of quality system failures and product or process nonconformities; and
 - A global review of all training and awareness programs, conducted within the framework of management reviews of the quality system.
- 1.7 Training records are kept as defined in the training procedure, PR 6.2. Training and PR 4.2B, Control of Records

Section 6.3	Quality Manual	
Infrastructure & Work Environment	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

Suitable infrastructure, facilities and work environments are provided as required to achieve product conformity. This includes planning, provision, and maintenance of employee facilities, workspaces, equipment, software, and associated services.

PROCEDURAL POLICIES

1. Infrastructure and Facilities

- 1.1 Planning of new, and/or modification of existing infrastructure and facilities (and associated utilities) is usually conducted in conjunction with product or process changes; capacity and/or work force expansions; and other such events. Facilities may also be expanded or modified to improve productivity and/or quality, or to improve the work environment.
- 1.2 Production equipment maintenance is addressed in Section 7.5 of this manual (Operations).
- 1.3 The location Plant Manager and departmental supervisors are responsible for ensuring suitable working environment for personnel.

Section 7.1	Quality Manual	
Planning of Product Realization	Rev Date 6/16/09	Section Rev.: D

GENERAL POLICY

Planning of product realization processes includes determination of quality objectives for products; development of required processes and process documentation; and establishment of product verification and validation programs. The plan also defines requirements for records necessary to demonstrate process and product conformity.

PROCEDURAL POLICIES

1. Product quality requirements

- 1.1 Quality requirements for manufactured products are defined in specifications, contract documents, shop drawings, shop travelers, internal and external standards, workmanship standards, and applicable legal and regulatory requirements.
- 1.2 Sales, Engineering and Customer Service are responsible for identifying product quality requirements.
- 1.3 Engineering designs new products per, PR 7.3

2. Product realization planning

- 2.1 Product realization planning includes, as applicable:
 - Evaluation of manufacturing operations and processes,
 - Development of adequate and capable processes, and appropriate controls.
 - Identification of special processes and consideration of associated risks and consequences,
 - Development of instructions and training for process operators, and
 - Requirements for records necessary to demonstrate process conformity.
- 2.2 The plans are defined in PR7.1, Quality Planning, as various types of production documents, such as shop travelers, drawings, bill of materials, final inspection reports, etc.

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Planning of Product Realization	Rev Date 6/16/09	Section Rev.: D

3. Product verification and validation planning

3.1 Product verification and validation plans determine the inspection and testing program for a product, and for materials and components incorporated into the product. This includes:

Identification of inspection and testing points as indicated on the appropriate document.

Inspection and testing scope, frequency, and method.

Acceptance criteria, and

Requirements for records necessary to demonstrate product conformity.

3.2 Production, Quality Assurance and Engineering are responsible for development of product verification plans.

3.3 The plans are defined in various types of documents, such as product drawings and specifications, shop travelers, purchasing documents, inspection and testing procedures.

3.4 Documents defining the inspection and testing program for a product are collectively referred to as control plans.

3.5 Operational PR 8.2A, Receiving Inspection & Testing, and PR 8.2B, In-process Inspections, and PR 8.2C, Final Inspection, explain how outputs of product verification and validation of this manual planning are used.

Section 7.2	Quality Manual	
Customer Related Processes	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

Product requirements are determined to include customer requirements and legal, regulatory, and other necessary requirements that may not be specified by customers. Orders are reviewed to ensure that product and order requirements are defined and can be met, and to resolve any incomplete or conflicting requirements. Verbal orders are confirmed and documented before acceptance. Order amendments and changes are likewise reviewed, documented, and communicated to all relevant functions. Arrangements for communication with customers relating to product information, order handling, and customer feedback and complaints are defined and implemented.

PROCEDURAL POLICIES

1 Product Requirements & Review

- 1.1 Product requirements are determined and reviewed by Management, Sales, and Customer Service.
- 1.2 This process often involves input from Engineering, Production, Purchasing, and Quality Assurance, depending on the nature and complexity of the order, capacity and whether a similar order has been recently processed. PR-7.2, Contract Review, instructs on how to carry out this review.
- 1.3 Any incomplete or conflicting requirements are resolved with the customer before acceptance of the order.
- 1.4 Verbal orders are confirmed before acceptance. This may be accomplished by repeating the order requirements back to the customer, or by sending a confirming fax or e-mail.
- 1.5 Change orders are received, reviewed, and processed by the same functions that are responsible for the review of the initial orders.
- 1.6 Reviews of product requirements are recorded.

2. Customer Communication

- 2.1 Management, Sales, Customer Service and Engineering are authorized to communicate with customers regarding product information.

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Customer Related Processes	Rev Date 6/16/09	Section Rev. D

- 2.2 Customer Service reviews inquiries and orders. Management, Engineering, Production, Purchasing, and Quality Assurance may be called to assist with the review of orders.
- 2.3 Handling of order amendments is controlled to the same extent as the handling of initial orders.
- 2.4 Procedure PR-7.2, Contract Review, instructs how to handle inquiries, orders and amendments.
- 2.5 Customer Service is responsible for receiving and processing customer feedback and complaints. All formal customer communication is recorded on a Corrective Action Report (CAR)

Section 7.3	Quality Manual	
Design & Development Control	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

The design process is planned. Design activities are identified, qualified personnel are assigned to specific design responsibilities, and organizational interfaces are defined and controlled. Design input is formally documented and reviewed. The design is verified and, when applicable, is validated with prototype testing or by other means. The design output is documented and checked before it is released for production. Design changes are controlled.

PROCEDURAL POLICIES

1. Design planning

- 1.1 Engineering is responsible for the planning of design projects, including the identification of design, review, verification, and validation activities; scheduling the project; assignment of qualified personnel; and control of organizational and technical interfaces.

2. Design inputs

- 2.1 Design inputs are defined and documented.
- 2.2 Design inputs include functional and performance requirements, applicable statutory and regulatory requirements, and where applicable, information derived from previous similar designs.
- 2.3 Design inputs are reviewed and approved before their release to the design team.

3. Design outputs

- 3.1 Design outputs are documented on two levels: Primary output consists of documents defining the designed product, while secondary output supports the design with calculations, analysis, etc.
- 3.2 Design output documents are checked and approved before they are released for production. All design output documents are maintained and controlled.
- 3.3 Design outputs meet the input requirements, provide appropriate information for purchasing, production and service, reference product acceptance criteria, and

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Design & Development Control	Rev Date 6/16/09	Section Rev. D

specify the characteristics of the product that are essential for safe and proper use.

4. Design reviews, verification and validation

- 4.1 Systematic reviews of design are performed to evaluate the ability of the results of the design to meet requirements, and to identify problems and proposed actions. The reviews are documented.
- 4.2 Verification is performed to ensure that design outputs have met input requirements. This process and determined action plan are documented.
- 4.3 Validation is performed to ensure that the product meets the requirements of intended use. This process and determined action plan are documented.

5. Design changes

- 5.1 Design changes are initiated using (ECR's) engineering change request forms. Requests for engineering changes are evaluated, and are recommended or rejected, by Engineering, Production and Quality Assurance, as applicable. The (ECR's) engineering change request forms provides design input for designing the change. All changes are documented.

Section 7.4	Quality Manual	
Purchasing	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

TMS evaluates its suppliers and purchases only from those that can satisfy quality, and delivery requirements. Supplier performance is monitored.

Purchasing documents clearly and completely describe ordered products, including quality requirements. Purchasing documents are reviewed and approved by the originator before release.

Purchased products are verified before they are used or shipped.

PROCEDURAL POLICIES

1. Supplier evaluation

- 1.1 Purchasing evaluates new suppliers with reference to quality and delivery, product or process capability.
- 1.2 Criteria for selection of suppliers are dependent upon the effect on the purchased product on subsequent product realization.

2. Supplier performance monitoring

- 2.1 Suppliers are evaluated for product quality and service.
- 2.2 Suppliers showing inadequate performance will be contacted and made aware of the problem and given an opportunity for correction.
- 2.3 If the request for corrective actions are not implemented and there is no improvement, the item is no longer purchased from that supplier.
- 2.4 Records of supplier monitoring, re-evaluations and any action item that may arise are maintained.

3. Approved supplier list

- 3.1 Approved suppliers are maintained via E2.

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4. Purchasing information

- 4.1 Purchasing information is documented as described in Procedure PR-7.4, Purchasing.
- 4.2 The documents clearly and completely describe ordered products, including precise product identification and quality requirements.
- 4.3 Purchasing reviews and approves all purchasing documents before release as described in Procedure PR-7.4, Purchasing.

5. Verification of purchased product

- 5.1 The receiving clerk inspects purchased products in accordance with PR-8.2A, Receiving Inspection & Testing. Quality Control may also assist in this review.
- 5.2 QC inspection or testing may not be necessary when products are supplied with records or certificates demonstrating conformity; or when the supplier is qualified based on their quality system certification or supplier audits, and has a satisfactory quality performance history.
- 5.3 When required verification of purchased product is to be performed at supplier's premises, the purchasing documents specify the intended verification arrangements and method of product release.

Section 7.5	Quality Manual	
Operations	Rev Date 6/2009	Section Rev. E

GENERAL POLICY

Product and process information and appropriate work instructions are established and are communicated to relevant personnel. Operations and production processes are monitored and controlled, and are validated where appropriate. Machines and equipment used in production and for monitoring and measurement activities are maintained. Methods for product release and delivery are defined.

Materials, components, parts, subassemblies, and finished products are identified. When required, traceability of materials and processes is recorded and maintained. Inspection and test status of product is identified to ensure that only product that has passed the required inspections is used, installed, or dispatched.

Customer-supplied products are normally controlled in the same manner as are purchased products. Customer-owned tools, equipment, software, or other property are marked to indicate ownership. Loss, damage, or unsuitability of a customer's product is recorded and reported to the customer.

Appropriate handling, storage, identification and preservation methods are implemented to prevent product damage or deterioration. Receipt and dispatch to and from storage areas are controlled. The condition of products in stock is regularly assessed. Product packaging materials and methods are specified and controlled.

PROCEDURAL POLICIES

- 1. Product and process specifications**
 - 1.1 Information specifying product characteristics is communicated to production in the form of drawings, specifications, samples, instructions, work orders, and product-specific templates and other tooling.
 - 1.2 Product and process information required by process operators is communicated through the work order or is included in work instructions.
 - 1.3 Procedure PR-7.5A Process Control, explains how to establish and use these documents.
 - 1.4 Production and Quality Assurance determine requirements for measuring and monitoring equipment. This is in accordance with process control and product verification programs defined in product realization planning.

Section 7.5	Quality Manual	
Operations	Rev Date 6/2009	Section Rev. E

- 1.5 Processes are monitored and controlled through a variety of approaches, activities and techniques. The system is designed to control:

Information, material, and human (operator) input into the process;

Technology, tools and equipment used;

Process environment and performance.

Process output.

Process monitoring activities are further defined in Section 8 of this manual.

- 1.6 Products are released for delivery only after all specified activities have been satisfactorily completed and conformity of the product has been verified.

2. Product identification & traceability

- 2.1 Purchased products are identified with unique numbers, codes, names or locations. The identification is the same as, or is cross-referenced with, the designations used in drawings, specifications, bills of materials, parts lists, purchase orders, etc.
- 2.2 Final products are identified by their name, part number and/or order no., which is labeled or marked on the products and/or is printed on the primary product packaging.
- 2.3 Procedure PR-7.5C, Product Identification, Traceability and Status govern rules and activities related to identification and status of products.
- 2.4 When required traceability is implemented to control and record product identification.
- 2.5 Material or processes that require inspection are documented to indicate whether they have passed or failed the inspection. This is to prevent nonconforming product from being used or dispatched.
- 2.6 Products that have passed the receiving inspection are moved to the material stockroom or designated material staging areas in production. Where intermingling with other product is a possibility, the inspected items are also appropriately tagged or labeled.

3. Customer Property

- 3.1 Customer-supplied products are received inspected, and processed following the same procedure that applies to purchased products.
- 3.2 In the event the supplied products fail receiving inspection or are not suitable for any other reason the customer is contacted.

Section 7.5	Quality Manual	
Operations	Rev Date 6/2009	Section Rev. E

- 3.3 Marking, storage, handling, and preservation of customer supplied products follow the same procedures that apply to purchased products.
- 3.4 When specified in a contract, special handling instructions from customers will take precedent over the company's standard procedures.
- 3.5 Customers are contacted in case of loss, damage, deterioration, or unsuitability of their products.

4. Preservation of Product

- 4.1 Production is responsible for product handling and preservation; and in particular for ensuring that containers holding products are suitable and are in good condition, that equipment used for internal transportation of products is well maintained and is properly operated, and that products are adequately protected during production and storage.
- 4.2 Shipping is responsible for establishing specifications for packaging and labeling. The specifications are compatible with requirements of commonly used carriers and for intended means of delivery (ground, sea, and air).
- 4.3 Packaging specifications are documented in drawings, written standards, and/or customer packaging instructions.

5. Validation of Processes

- 5.1 Processes where the resulting output cannot be verified by subsequent measurement or monitoring are designated as special processes.
- 5.2 Production and Quality Assurance are responsible for identifying, validating, and documenting special processes. Where applicable, Engineering may assist with establishing validation specifications and testing of samples.
- 5.3 Special processes are validated and controlled by applicable methods, such as *welding (aws & ansi codes), heat-treating*, destructive testing of product samples, equipment, personnel qualification, S.O.P's and process procedures. ***Special Processes may be noted on Traveler and/or Print or by Customer's Requirements.***
- 5.4 Production and Quality Assurance are responsible for selecting and implementing appropriate process validation and control measures for each special process. At a minimum, all special processes are documented in work instructions.
- 5.5 Special process records are established and maintained as appropriate. Depending on the control measures implemented, these records may include process qualification and validation reports, equipment qualification and maintenance records, first article inspections and tests, operator qualification and training records, and so forth.

Section 7.6	Quality Manual	
Monitoring & Measuring Equipment	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

Appropriate measuring and monitoring instruments are maintained and selected to ensure that measurement capability is consistent with the measurement requirements. Equipment used for assuring product conformity is calibrated using calibration standards traceable to the national standard.

Calibration status of measuring equipment is identified with calibration stickers. Measuring equipment is properly maintained and its placement and use are controlled.

PROCEDURAL POLICIES

1. Controlled and uncontrolled equipment

1.1 The scope of the calibration control system extends to the measuring and test equipment, comparative reference hardware (such as gauges and measuring tools), and test software used for:

Monitoring of production processes;

Monitoring of environmental conditions as required by regulatory requirements;

Verification of product conformity; and

Operations where defined accuracy of a measurement is required to assure product conformity.

1.2 Equipment used for other purposes may be exempted from calibration.

2. Measurement identification and selection of equipment

2.1 Identification of measurements to be made and the tolerance of the measured characteristics are documented in the product drawings and specifications.

2.2 Gauges, instruments, and other measuring and monitoring equipment are selected on the basis of their capability to provide the necessary accuracy of the measurement. Quality Assurance is responsible for selecting appropriate company measuring and monitoring equipment.

Section 7.6	Quality Manual	
Monitoring & Measuring Equipment	Rev Date 6/16/09	Section Rev. D

3. Equipment calibration and maintenance

- 3.1 Quality Assurance is responsible for calibrating and maintaining company measuring and monitoring equipment. All active equipment is inventoried in a controlled list, indicating equipment calibration status and location.
- 3.2 Only calibration instruments and standards having known relationship to the nationally recognized standards are used for calibrating measuring and test equipment.
- 3.3 Calibration is recorded in a calibration certificate and the calibrated equipment is labeled with a calibration sticker as defined in PR-7.6, - Calibration

4. Validation of software

- 4.1 In-house developed inspection, test, and monitoring software is validated before it is used for product assurance or verification.
- 4.2 Commercial software is purchased with validation certificates where available. Software is revalidated or rectified when conditions for which it was initially validated are materially changed.

Section 8.1	Quality Manual	
Planning of Monitoring & Measurement	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

Measurement and monitoring activities required to assure product conformity, and to achieve improvement, are planned and defined. When applicable, statistical techniques are used for analyzing measurement data.

PROCEDURAL POLICIES

1. Planning

1.1 The effectiveness of the quality system is monitored by internal audits and by measuring quality performance and customer satisfaction.

2. Statistical techniques

2.2 Statistical techniques may be applied when applicable.

Section 8.2	Quality Manual	
Monitoring & Measurement	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

Customer satisfaction is the principal objective of the quality system, and the level of customer satisfaction is the most important measure of the effectiveness of the system.

Customer satisfaction is measured by collecting and analyzing direct customer feedback, and by measuring secondary indicators of customer satisfaction. The (QMT) Quality Management Team and Top Management identify opportunities and priorities for improvement using customer satisfaction data.

All activities and areas relevant to the quality system are audited at least once a year. Audits are scheduled on the basis of the status and importance of the activity. Internal auditors are independent of those having direct responsibility for the audited activity. Identified nonconforming conditions are brought to the attention of the responsible managers and corrective actions are implemented in response to audit findings.

Quality system processes are monitored to ensure that they achieve planned results. Relevant product characteristics are measured through inspections, tests, and other product verification activities, as specified in control plans. Evidence of product conformity is recorded. Products are released for delivery only after all specified activities have been satisfactorily completed and verified.

PROCEDURAL POLICIES

1. Customer Satisfaction

- 1.1 The (QMS) Quality Management System Team is responsible for developing suitable indicators of customer satisfaction, and for defining methods for collecting and analyzing the pertinent information.
- 1.2 Information and data pertaining to customer satisfaction are collected from several sources. Specifically, these are:
 - (QMS) Quality Management System Status Report.
 - Product returns and warranty claims.

2. Internal Audit

- 2.1 The Management Representative establishes an internal audit plan and schedule.
- 2.2 Every area is audited at least once a year.

Section 8.2	Quality Manual	
Monitoring & Measurement	Rev Date 6/16/09	Section Rev. D

- 2.3 Selected activities and/or processes are audited more frequently, depending on their importance and quality performance history.
- 2.4 Only personnel independent of the audited activities are assigned to conduct internal audits.
- 2.5 Auditors prepare for audits by reviewing applicable standards and procedures, analyzing quality records, and establishing questionnaires and checklists.
- 2.6 Conducting the audit, auditors seek objective evidence indicating whether the audited activities comply with the requirements of the documented quality system and ISO 9001:2008, and whether the quality system is effective. The auditors observe activities, interview personnel, and examine records to collect the evidence.
- 2.7 Nonconforming conditions are documented and recorded using the audit report.
- 2.8 Audits are conducted in a way that minimizes disruption of the audited activities.
- 2.9 When nonconforming conditions are identified, the manager responsible for the affected area or activity is requested to propose and implement a corrective action. Implementation and effectiveness of the action are verified by a follow-up audit.
- 2.10 The audit report is used for monitoring and recording the implementation of the corrective actions.

3. Monitoring of Quality System Processes

- 3.1 Quality system processes are monitored by variety of approaches and techniques, including:
 - Conducting internal audits of the quality system;
 - Monitoring trends in corrective and preventive action requests;
 - Analyzing product conformity and other quality performance data and trends;
 - Measuring and monitoring customer satisfaction.
- 3.2 When a quality system process does not conform to requirements, Management Representative may request the manager responsible for the process to implement a corrective action, in accordance with PR-8.5, Corrective and Preventive Action.

Section 8.2	Quality Manual	
Monitoring & Measurement	Rev Date 6/16/09	Section Rev. D

4. Monitoring and Measurement of Product

- 4.1 Inspection and testing program for a product is defined in various types of documents, such as product purchasing documents, and inspection and testing procedures.
- 4.2 Documents defining the inspection and testing program for a product are collectively referred to as Procedures. Section 7.1 of this manual defines the process for establishing control plans.
- 4.3 PR8.2A, Receiving Inspection, & Testing, sets forward detailed rules for performing receiving and inspections.
- 4.4 In-process inspections may be in the form of first article inspections, operator or quality inspections, or continuous product verification.
- 4.5 Finished products are subjected to the final inspection. Inspectors verify that all specified receiving and in-process inspections have been carried out satisfactorily. Then they perform the remaining inspections and tests necessary to complete the evidence of product conformity. Only products that pass the final inspection can be shipped. PR8.2C, Final Inspection, regulates these activities.
- 4.6 Results of inspections and tests are recorded.

Section 8.3	Quality Manual	
Control of Nonconforming Product	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

Nonconforming product is identified, documented, evaluated, and prevented from being used or shipped. Repaired or reworked products are re-inspected. Appropriate actions are taken when product nonconformity is identified after delivery.

PROCEDURAL POLICIES

1. Identification and documentation

- 1.1 TMS identifies and documents product nonconformities as described in PR 8.3, Control of Nonconforming Product and PR-8.5, Corrective and Preventive Action
- 1.2 Nonconforming products are documented using a Corrective Action Report recorded in the non-conformance report generated in E2.
- 1.3 To prevent nonconforming products from being used or shipped, the products are marked, tagged or segregated as required.

2. Nonconformity review and disposition

- 2.1 Inspectors together with production supervisors are responsible for making disposition decisions.
- 2.2 The disposition options are: Rework or Repair, Accept As-Is, or Scrap.

3. Re-verification of repaired or reworked product

- 3.1 Repaired or reworked products are re-inspected in accordance with applicable procedures and instructions (refer to PR-8.2A, Receiving Inspection & Testing; PR8.2B In-process Inspections; or PR8.2C, Final Inspection, as applicable).

4. Product returns and recalls

- 4.1 When the customer detects product nonconformity after delivery or use has started, the customer is instructed to return the product, or a part.
- 4.2 When product nonconformity is detected internally after delivery or use has started, customers are informed and instructed what to do with the product. In situations when the nonconformity may create a safety or other hazard, the product may be recalled.

Section 8.4	Quality Manual	
Analysis of Data	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

TMS collects, compiles and analyzes information and data required for evaluating the suitability and effectiveness of the quality system and for identifying opportunities for continual improvement.

PROCEDURAL POLICIES

1. General

- 1.1 Data and information recorded in quality records are compiled on the E2 Management System and analyzed to determine trends in the performance and effectiveness of the quality system and to identify opportunities for improvement.
- 1.2 The (QMS) Quality Management System Team is responsible for coordinating these activities, analyzing data, drawing conclusions and initiating necessary actions.
- 1.3 This is done within the framework of (QMS) Quality Management System Team meeting and the management review process of the quality system.

2. Customer Satisfaction:

- 2.1 Returns, complaints – recorded on Corrective Action Report (CAR) Forms and reviewed.
- 2.2 Delivery performance — recorded in delivery performance reports and reviewed.
- 2.3 Customer satisfaction – discussed in Management and Review

3. Conformance to product requirements:

- 3.1 Recorded in non-conformance reports
- 3.2 Discussed in Management and Review

4. Characteristics and trends of processes and products:

- 4.1 Analysis completed in (QMS) Quality Management System Team meetings.

5. Suppliers:

- 5.1 Supplier's quality performance is monitored and recorded.
- 5.2 Trends are monitored and evaluated by Purchasing and the (QMS) Quality Management System Team.

Section 8.5	Quality Manual	
Continual Improvement	Rev Date 6/16/09	Section Rev. D

GENERAL POLICY

TMS ensures continual improvement throughout the entire organization. The improvement effort is driven by goals defined in the quality policy and quality objectives. Improvement projects are defined and implemented through the system of corrective and preventive and management review actions.

Causes of identified nonconformities are investigated and, where appropriate, corrected to ensure that nonconformities do not recur. Preventive actions are implemented to eliminate the causes of potential nonconformities. Corrective and preventive actions taken are recorded and are followed up to ensure that they have been properly implemented and that they are effective.

PROCEDURAL POLICIES

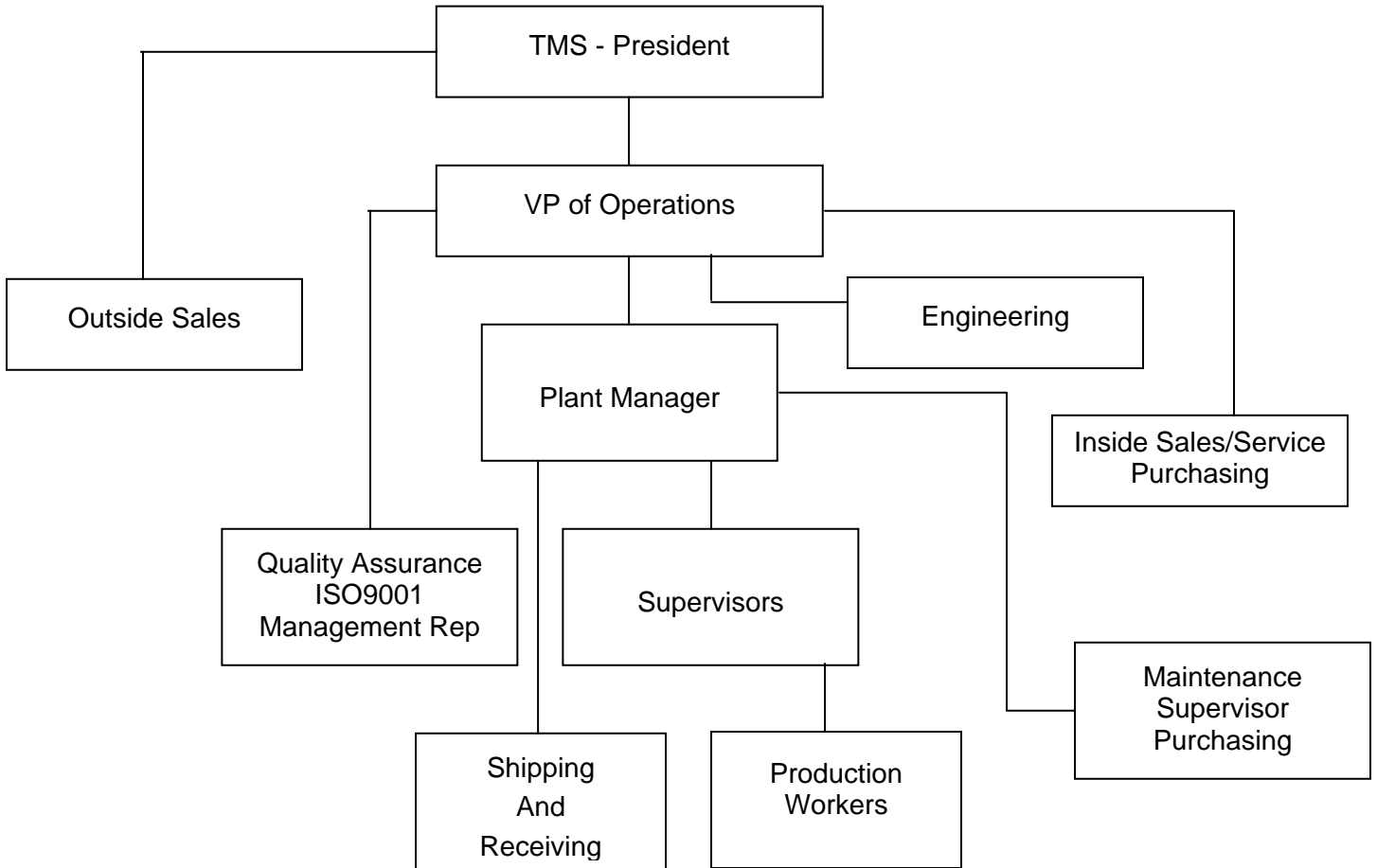
1. Continual Improvement

- 1.1 Quality performance is determined by comparing the present quality performance to objectives and action items defined in the (QMS) Quality Management System Team meeting and by analyzing information about customer satisfaction.
- 1.2 Quality performance is evaluated by management reviews of the quality system. Where quality performance falls short of a defined objective, the management review identifies specific improvement actions to reach the objective.

2. Preventive versus corrective action

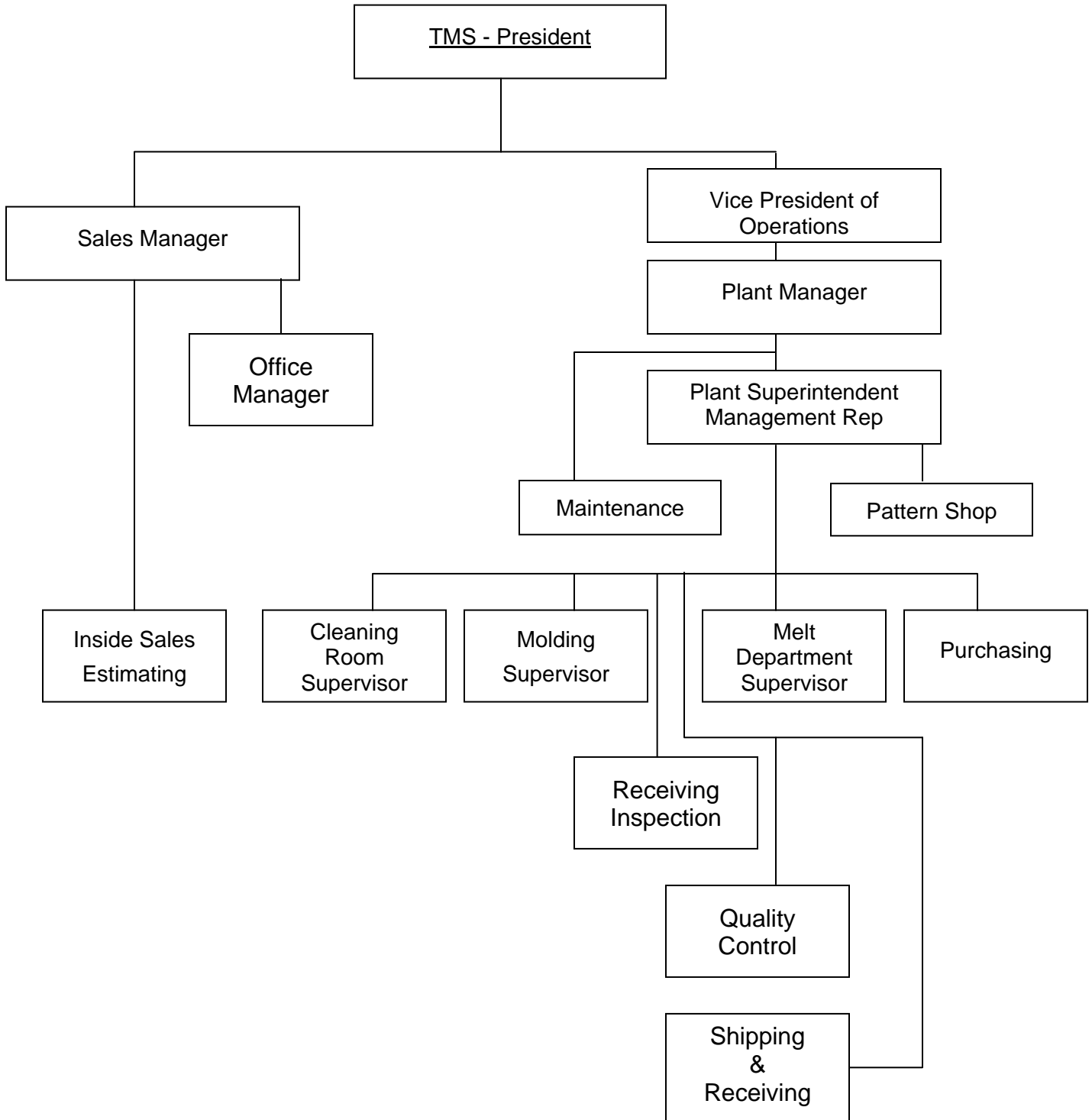
- 2.1 Preventive actions are requested and implemented when there are trends of decreasing quality capability and/or effectiveness of the quality system that create a risk for a potential nonconformity. Corrective actions are used when an actual nonconformity is identified.
- 2.2 Preventive and corrective actions are initiated, processed and followed up using the Corrective Action Report (CAR) System.
- 2.3 Open Non-conformances are reviewed regularly to ensure that the actions are implemented and followed up in a timely manner.
- 2.4 Procedure PR-8.5, Corrective, and Preventive Action explain how to use this procedure.

Specialties Manufacturing



Appendix A

Talladega Casting & Machine Co.



Specialties Manufacturing

JOB RESPONSIBILITIES & AUTHORITY

VP of Operations

- Chairs the Management Review Meetings
- Has the overall responsibility for ensuring that the company operates and maintains the Quality Management System
- Provides adequate resources and a suitable environment for the company's employees to achieve and maintain the company's Quality Policy
- Initiates, recommends or provides solutions to problems
- Establishes and maintains customer relations
- Selects qualified suppliers and subcontractors
- Monitors the process, looking for improvements

Plant Manager

- Responsible for production of manufactured goods
- Manages all areas involved in production of products
- Responsible for job cost and on-time delivery
- Monitors schedules for delivery and communicates changes to production
- Creates Order/Stock/Inventory List schedules for on-time delivery

Supervisor

- Assigns capable resources and provides a suitable environment for the company's employees to achieve customer requirements

Purchasing

- Selects qualified suppliers and subcontractors
- Purchases and expedites all required material
- Prepares and approves purchasing documents

Sales

- Records and communicates customer requirements
- Takes catalog orders via phone, fax, or hard copy
- Coordinates customer changes to insure we meet customer requirements

Engineering

- Assists Sales to develop labor and material costs for potential new designs
- Designs new products and modifies existing products
- Reverse Engineers Customer Products
- Manages all prints and technical information

Quality Assurance / Management Representative

- Performs inspections and testing in accordance with customer requirements
- Manages customer complaints
- Handles nonconforming products
- Establishes and maintains the Quality Management System
- Audits implementation of the Quality System
- Initiates requests for, and follows up on, corrective actions
- Maintains inspection records
- Assures plant efficiency and interacts with Sales to assure customer satisfaction
- Assists in meeting production levels
- Maintains and calibrates measuring and test equipment

Shipping & Receiving

- Responsible for assembly and shipment of manufactured goods
- Handles nonconforming products

Talladega Casting & Machine Co.

JOB RESPONSIBILITIES & AUTHORITY

Vice President - QA Manager

- Chairs the Management Review Meetings

Plant Manager

- Has the overall responsibility for ensuring that the company operates and maintains the Quality Management System
- Provides adequate resources and a suitable environment for the company's employees to achieve and maintain the company's Quality Policy
- Selects qualified suppliers
- Approves purchasing documents
- Initiates requests for, and follows up on, corrective actions
- Assures plant efficiency and interacts with Sales to assure customer satisfaction
- Monitors the process, looking for improvements

Plant Superintendent

- Assumes the duties of the Plant Manager in his absence
- Manages all areas involved in production of products
- Is responsible for job cost and on-time delivery
- Assures plant efficiency and interacts with Sales to assure customer satisfaction
- Monitors the process, looking for improvements

Production Manager

- Is responsible for plant scheduling and production
- Initiates requests for, and follows up on, corrective actions

Sales Manager

- Establishes and maintains customer relations
- Apprises the Customer about delivery and/or other changes
- Coordinates customer changes and makes sure we are able to meet customer requirements
- Records, translates and communicates customer requirements
- Manages Customer Complaints
- Creates stock orders for inventory
- Monitors schedules for delivery and communicates changes to production
- Selects qualified subcontractors
- Handles nonconforming products

Office Manager

- Initiates all paperwork involved in production of products

Purchasing

- Prepares and approves purchasing documents

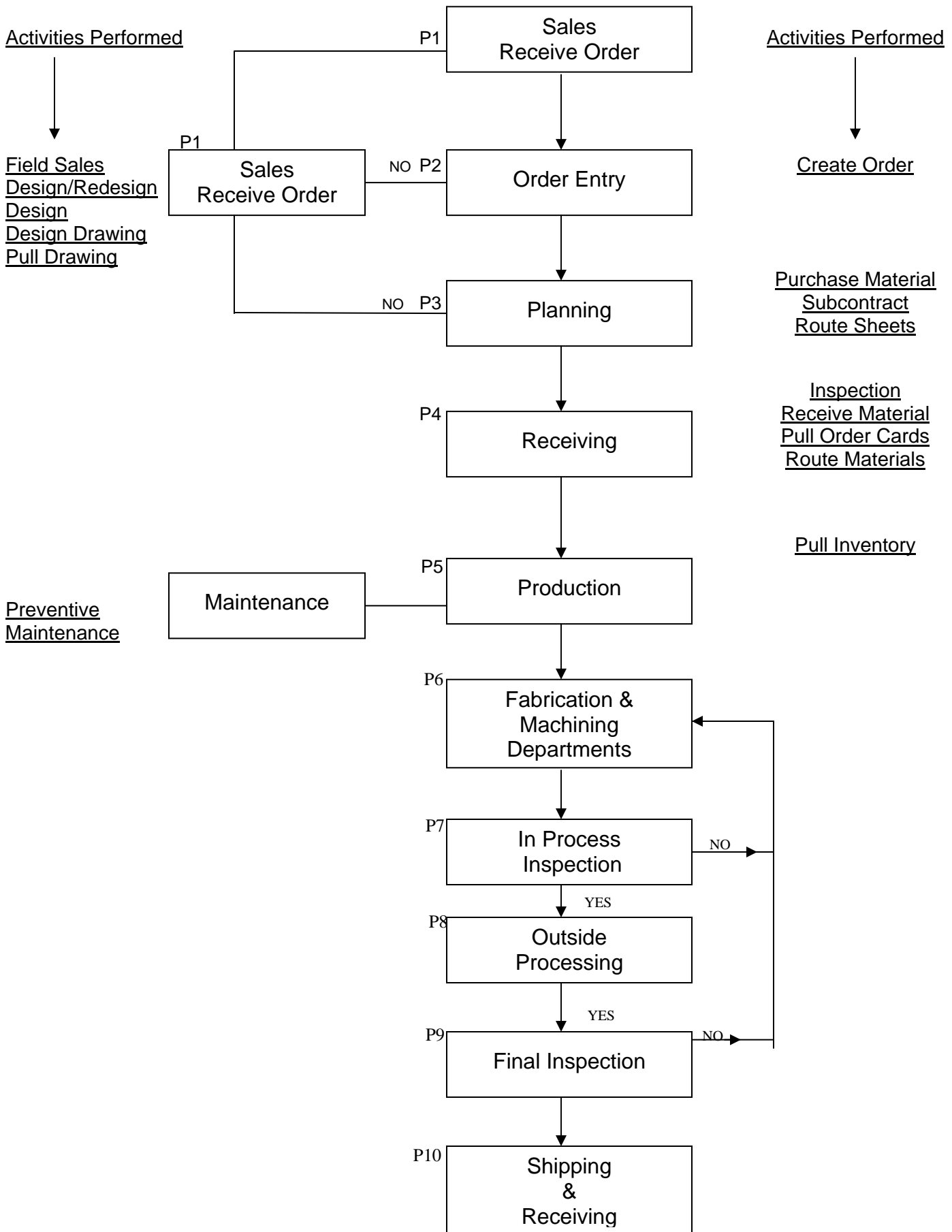
Quality Assurance / Management Representative

- Responsible for ensuring that the company operates and maintains a Quality Management System
- Initiates action to handle and prevent occurrence of product nonconformity
- Initiates, recommends or provides solutions to problems
- Coordinates customer changes and makes sure we are able to meet customer requirements
- Manages Customer Complaints and Verifies the effectiveness of corrective action
- Performs inspections and testing in accordance with the agreed Quality Plans
- Monitors the process, looking for improvements
- Maintains and calibrates measuring and test equipment
- Audits implementation of the Quality System
- Maintains quality records

Shipping & Receiving

- Responsible for cleaning and shipping of manufactured goods
- Responsible for receiving purchased materials

Specialties Manufacturing



Appendix C: Process Flow Chart **CASTING PROCESS CONTROL FLOWCHART**

