



DOOLEY TACKABERRY QUALITY MANUAL

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**Houston Corporate Headquarters
1515 West 13th Street
Deer Park, Texas 77536
U.S.A.
Phone: 281-479-9700
Fax: 281-478-4527**

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1 Scope

1.1 General

This Quality Manual documents Dooley Tackaberry, Inc.'s (hereafter referred to as DTI) quality management system to demonstrate the company's ability to consistently provide products that meet customer and regulatory requirements.

This manual establishes compliance with ISO 9001:2000. This Quality Manual applies to our Distribution and Projects divisions.

The numbering of this Quality Manual corresponds directly to the numbering of ANSI/ISO/ASQ Q9001-2000, Quality Management Systems-Requirements (hereafter referred to as ISO 9001:2000). Only Section 2 does not follow the number and subject matter of ISO 9001:2000.

Updates to this manual will be made by re-issuing the entire manual and updating the revision number.

1.2 Application

Where any requirement of ISO 9001:2000 can not be applied due to the nature of our organization, its activities and its products, they will be considered for exclusion.

An ISO 9001:2000 requirement may be excluded only when both of the following conditions are met:

- the requirement must be within ISO 9001:2000 Section 7, Product Realization, and
- the exclusion may not affect our ability, nor absolve us from the responsibility, to provide product that meets customer and applicable regulatory requirements.

The Quality Manager is responsible for identifying those requirements of ISO 9001:2000 that do not apply to our organization or products, and to propose exclusions of such requirements from the scope of the quality system.

The Chief Executive Officer (hereafter referred to as CEO) (or the President in his absence) has the responsibility and authority for examining whether the proposed exclusions are appropriate and for approving them. Evaluation and approval of exclusions are conducted within the framework of management reviews of the quality system (refer to procedure P561 Management Review).

Any exclusion taken is documented in this section of the Quality Manual. The excluded requirements are precisely identified with reference to specific clauses and/or statements in the standard. There is also a brief justification why the exclusion is taken and why it is appropriate.

At the time this manual was last reviewed, there were no proposed exclusions taken for our quality management system.

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2 Company Background

2.1 Company Activities & Background

Since 1986, Dooley Tackaberry has developed its reputation as a leading supplier of Fire and Safety Equipment in the oil and gas industry. Arthur Dooley & Son, Inc. (ADS) and The Tackaberry, Co. (TC) (which was acquired in 1986 by Arthur Dooley & Son through an asset purchase agreement) precedes DTI. ADS was formed in 1926 and evolved into one of the most reliable fire equipment suppliers along the Gulf Coast. TC was created in 1946 to supply personal protective equipment to Houston Ship Channel customers and it slowly grew into a small, but successful safety equipment distributor. Both companies over the years were able to secure the premier product lines in their respective fields, and today DTI represents every major product line in the fire and safety equipment industry. DTI has two divisions that give us a unique ability to provide fire and safety products to our customers in the domestic and international marketplace.

The first division is Projects. Since the early 1970's, this unit has focused on capital projects that are developed by companies in the energy industry, designed by Engineering, Procurement and Construction (EPC) companies and built by contractors around the world. We work with Shipyards, EPC companies, and end-users to develop fire protection and suppression systems for their purposes and individual needs. Depending on the solution, we will procure off-the-shelf items from our suppliers while in other situations we will design and build custom fire protection or safety equipment. We have design and fabrication teams working together to supply equipment that matches the customer's specification and fire and safety needs.

The second division is Distribution, which supplies fire and safety equipment to Exploration and Production (E&P) companies, contractors, and end-users locally along the Gulf Coast as well as internationally.

Our core business, which is the distribution of fire and safety equipment, has been successful by creating relationships with key customers and providing a supply source to small and midsize customers who prefer excellent customer service and dependable product delivery. We believe that our customers buy from us because we deliver intangible benefits in addition to the equipment that is ordered. Our customer service team is professional and reliable, and our company is small enough to be flexible to adapt to a particular customer's needs.

3 Terms and Definitions

3.1 Definitions and Terminology

The ISO 9000:2000, Quality Management System-Fundamentals and Vocabulary are referenced for definitions and terminology.

3.2 Abbreviations

Abbreviations used in this manual are defined fully upon their first use in the manual.

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4 Quality Management System

4.1 General Requirements

DTI has established, documented, implemented and maintains a Quality Management System (hereafter referred to as QMS) in accordance with the requirements of ISO 9001:2000. The company continually improves the effectiveness of its QMS.

DTI's QMS:

- identifies the processes needed for its operations and their application throughout the organization in document D42202 Index of Processes.
- determines the sequence and interaction of these primary processes in a master process flowchart, document D42202FD Flowchart of Processes.
- customer requirements, purchase orders, specifications, drawings, customer satisfaction, and company profitability are criteria which are measured against to determine if the quality management system is effective.
- methods such as constant management review, specific procedures, work instructions, quality documents, and internal audits and are used to ensure that both the operation and management of these processes are effective.
- ensures the availability of resources and information necessary to support the operation and monitoring of these processes through timely management decisions regarding personnel, technology, tools and equipment, and financing.
- ensures monitoring, measurement and analysis of these processes with specific procedures such as inspection and test and internal audits.
- ensures implementation of actions necessary to achieve planned results and continual improvement of these processes by utilizing this quality management system.

The company manages these processes in accordance with the requirements of ISO 9001: 2000.

Where any processes that affect product conformity with requirements are outsourced, DTI ensures management of such processes. Methods of management of such outsourced processes are identified within the QMS per the procedure P741 Vendor Evaluation and P743 Verification of Sub-contracted product.

Processes needed for the QMS referred to above include processes for management activities, provision of resources, product realization and measurement.

4.2 Documentation Requirements

4.2.1 General

The processes governed by the quality system are identified and documented. These documented procedures are controlled and effectively implemented to ensure that our products meet customer requirements. The quality management system is defined in the following controlled documents:

- the quality policy and the quality objectives
- the Quality Manual

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- documented procedures required by ISO 9001:2000
- work instructions
- quality records required by ISO 9001:2000

Where the term "documented procedure" is used in this Quality Manual, the procedure is established, documented and maintained.

The extent of the DTI's quality management system is based on:

- the size of the organization and the type of its activities
- the complexity of the processes and their interactions, and
- the competence of the personnel

4.2.2 Quality Manual

DTI has established and maintains this Quality Manual including:

- the scope of the quality management system, including details of and justification for any exclusions per the application section of this Quality Manual,
- reference to the documented procedures established for the quality management system, and
- a diagram of the interaction between the processes of the quality management system described in document D42302FD Flowchart of Processes.

4.2.3 Control of Documents

Documents required by the QMS are managed per procedure P423 Control of Documents. Quality records are managed per the procedure P424 Control of Quality Records.

The procedure P423 Control of Documents describes the methods of:

- approving documents for adequacy prior to issue
- reviewing and updating documents
- ensuring that changes and the 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 managed
- preventing the unintended use of obsolete documents, and applying suitable identification to them if they are retained for any purpose

Changes in the documents will be reviewed for adequacy and approved (or rejected) by the management team. This team will have access to pertinent background information.

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4.2.4 Control of Records

Records are established and maintained to provide evidence of conformity to requirements and of the effective operation of the QMS. Procedure P424 Control of Quality Records is established to define the means needed for the identification, storage, protection, retrieval, retention time and disposition of records. This procedure also defines the guidelines to ensure records remain legible, readily identifiable and retrievable.

When arranged contractually, quality records will be available for customer evaluation.

5 Management Responsibility

5.1 Management Commitment

The management team formulates the organization's Quality Policy and the associated quality objectives. The Quality Policy is reviewed once a year.

The CEO promotes the need to meet customer requirements and regulatory and legal requirements.

The tasks, the responsibilities and the authorities of the personnel have been defined via job descriptions, procedures, and work instructions.

The President is responsible for the provision of resources to ensure that the company continuously meets the requirements of our customers.

The Quality Manager is appointed as the management representative and is responsible for the maintenance of the quality management system.

The management reviews the quality management system at least annually. The procedure P561 Management Review is employed.

5.2 Customer Focus

The procedures P521 Customer Needs and Communications, P722 Customer Feedback, and P821 Customer Satisfaction are employed.

With focus on customer satisfaction, top management shall ensure that customer requirements are determined and met.

Customer requirements are identified. If these requirements are appropriate, feasible and meet applicable codes and standards, they are met.

Customer requirements can range from the reliability of a product, product specifications, product safety and functionality, to meeting defined delivery dates. This includes requirements not directly specified by the customer, which are considered as implied.

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The intent of this clause is to identify customer requirements, to analyze them regarding their feasibility and to convert them into requirements if applicable. The results could be changes, amendments or establishment of customer service procedures, packaging, delivery methods, etc. or changes or improvements to products or services provided, or could lead to the development of a new product or service.

5.3 Quality Policy

The company's philosophy and hence commitment to quality is declared in a Quality Policy statement signed by the CEO. The policies for enabling this philosophy to be maintained throughout the company's operations are documented in a Quality Manual, and approved by the management.

The Quality Policy is developed in conjunction with other organizational goals and periodically reviewed by the management team.

The Quality Policy emphasizes the need to meet requirements and makes a commitment to continuous improvement.

In order to maintain established quality standards and facilitate continuous improvement in the quality of the company's products, quality objectives are maintained and the company continuously uses its Quality Management System to achieve them.

This policy is developed in conjunction with the management team that will implement them and only published once they have been agreed upon and understood. Managers train their staff to ensure understanding and provide help and advice in the implementation of the published quality policy, quality objectives, procedures, work instructions, records, and other quality related documents.

Procedures are developed to implement the agreed policy and subject to a comprehensive program of independent and internal audits.

5.4 Planning

5.4.1 Quality Objectives

Quality objectives are established throughout the organization to implement the quality policy, to meet requirements for products and processes, and to improve the quality management system performance.

Quality objectives define the direction and priorities for continual improvement.

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5.4.2 Quality Management System Planning

Quality system elements and processes are planned to ensure that the system is appropriate for its intended purpose, and that it is effective and efficient. The purpose of the quality system is:

- to achieve the quality policy
- to ensure and demonstrate our ability to provide products that meet customer and regulatory requirements
- to ensure a high level of customer satisfaction
- to facilitate continual improvement
- to comply with the requirements of ISO 9001:2000 standard

The output of quality system planning is documented in this Quality Manual, in associated procedures and in other referenced documents. These documents identify and define all elements and processes of the quality system.

Planning of product realization, verification and validation processes are addressed in section 7.1 of this manual.

Improvements of the quality system are planned within the framework of management reviews. The output of this planning is expressed in the form of quality objectives, as defined above and in procedure P561 Management Review.

Changes to the QMS will be reviewed and approved by top management to ensure that the integrity of the QMS is maintained.

5.5 Responsibility, Authority and Communication

5.5.1 Responsibility and Authority

The responsibility and authority of all personnel is defined within the procedures that apply to the operations they perform. In addition, the responsibilities, authority and accountabilities for those holding specific positions or carrying out a particular trade or profession are defined in job descriptions.

Each of the company's procedures indicates the interrelation of personnel in performing specific tasks of operating specific processes. The responsibilities and authorities of functions and their interrelation are communicated by each Departmental Manager.

Where the policies and procedures indicate that actions and decisions are to be taken by certain authorities, the organization to which this authority has been delegated for a particular contract/project is specified in the project specific Inspection and Test Plan (Quality Plan).

All staff has the freedom to identify problems and initiate action to prevent their recurrence but only those with responsibility for certain results have the authority to determine how those results are to be achieved or improved. In the event of a member of staff identifying either an

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actual or a potential problem for which they are not responsible, the problem and any feasible solutions are reported to their manager for consideration.

The personnel assigned to investigate particular problems, implement and verify solutions are identified in forms or reports that relate to the problem and these documents retained in the form of quality records.

Personnel responsible for releasing products to the customer or authorizing installation to commence are responsible for ensuring that all previously reported and documented problems have been resolved to the satisfaction of those concerned before commencing.

5.5.2 Management Representative

A position of Quality Manager has been established and maintained and filled by a permanent member of staff appointed by and responsible to the President.

The Quality Manager has the delegated authority of the President and CEO to represent the company regarding the quality system employed to ensure that its products and services meet customer requirements. He or she is responsible for ensuring that the quality system meets the conditions required to maintain registration to any external quality system standard relevant to the business.

The Quality Manager has the delegated authority of the President and CEO to:

- manage the design, development, implementation and evaluation of the quality system including the necessary resources
- determine whether proposed policies and practices meet the requirements of the standard, are suitable for meeting the business needs, are being properly implemented and ensure corrections of issues of non-compliance
- determine and communicate the effectiveness of the quality system
- report on the quality performance of the organization
- identify and manage programs for improvement in the quality system
- promote the awareness of customer requirements throughout the organization and communicate the importance in meeting these requirements (together with regulatory and statutory requirements)
- interface with the appointed Registrar

5.5.3 Internal Communication

The Quality Manager is responsible for communication. The effectiveness of the quality management system is periodically communicated, at a minimum, to staff via:

- monthly management meetings
- as needed staff/departmental meetings (before and after internal audits)
- quarterly company newsletter
- annual management review meetings

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The meetings are documented, including issues discussed, decisions made, responsibilities assigned and deadlines to be met. The timely distribution of minutes of meetings to the concerned functions is important.

Most planning activities performed by multi-disciplinary teams are also an important part of communication and are included in the overall approach of effective communication. The same applies to quality system procedures, work instructions, technical data and information that are required for the proper functioning of processes and activities, etc. Also, training activities can be used to communicate information, instructions, requirements and responsibilities.

5.6 Management Review

5.6.1 General

Informal management reviews take place during the monthly managers meetings which are attended by the CEO, the President, the Quality Manager and the Departmental Managers. At the end of the fiscal year a formal management review takes place according to P561 Management Review.

5.6.2 Management Review Input

The Quality Manager collects objective evidence on the effectiveness of the quality management system. This includes:

- audit results
- customer feedback
- process performance and product conformity
- status of preventive and corrective actions
- follow-up actions from previous management reviews
- changes affecting the quality system
- recommendations for improvement

5.6.3 Management Review Output

On the basis of this input the quality system is tested for its effectiveness, for its relevance and for its implementation.

In particular, quality objectives and resource availability are examined and adjustments are considered because of changes in the conduct of business. These adjustments can be the consequence of:

- new technologies
- new quality ideas
- social developments
- new regulatory requirements
- the organization's strengths and weaknesses
- new customer requirements

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Decisions are made on what action is needed to improve the effectiveness of the quality management system.

Details of this review, how it will be performed and recorded, and the associated responsibilities may be found in the procedure P561 Management Review.

6 Resource Management

6.1 Provision of Resources

The management team is responsible for identifying and providing the resources necessary to implement, maintain, and continually improve the effectiveness of the QMS.

The management team is responsible for the customer satisfaction examination and for identifying and providing the resources needed to achieve customer satisfaction.

6.2 Human Resources

6.2.1 General

The management team ensures that adequate resources are available and competent personnel are assigned for the control and implementation of the processes and verification actions such as internal audits and personnel reviews.

6.2.2 Training

Management determines the necessary competence of personnel who perform work that affect quality. Job descriptions describe the requirements for particular jobs. Managers select staff for particular jobs who meet the requirements of the job description.

Training needs are identified, planned, and documented in accordance with procedure P621 Training and Awareness.

Any routine training and re-training necessary for a person to perform a particular job effectively is determined by the concerned manager.

Special training required as a result of new technologies, contracts, markets, company-wide improvement programs, etc. is specified in the associated training plans.

Details of any training carried out are recorded on personnel training records and, where applicable, certificates provided to the individual. Training records are maintained for each employee.

The effectiveness of the training is evaluated based on the feedback from the employee who received the training and/or on the performance of the employee prior to and after the training.

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Training records are periodically reviewed by managers to identify gaps in training and new training or re-training is scheduled. If the gap(s) in training are determined to affect work in progress by DTI which the employee is working on, then an employee with proper training is assigned to that task.

6.2.3 Competence, Awareness and Training

Other measures include the availability of clear and precise instructions, procedures, flowcharts, etc. for activities which do not require specific training.

Appropriate records of the employee's education, training, skills and experience are kept in the employee's personal file.

The awareness of employees regarding the importance of their activities and their contribution in achieving quality objectives is established through an information session at the beginning of their employment or when they assume new responsibilities.

Employees are informed of the current quality objectives and participate actively in achieving these objectives.

6.3 Infrastructure

An estimate of the manpower, material, and facilities needed to execute a particular contract is established, documented and agreed with the management team prior to submission of any tender, bid or offer. The estimate includes the resources to manage and carry out the work required and in addition the resources required to verify that the work has been completed in accordance with the contractual requirements.

If current resources are insufficient to meet projected or real demand, adjustments are made to meet the requirements by adding additional resources where they are needed.

On receipt of either an invitation to tender or a contract, the documentation is reviewed to identify any verification requirements that may be imposed by the customer. If required, the aspects requiring verification will be identified and the results documented in the form of an Inspection and Test Plan and specifications that will govern the verification of work under the contract.

6.4 Work Environment

The working environment is specified in the appropriate manufacturing, installation or process specification when conditions other than normal atmospheric conditions are required for cleanliness, temperature or other constraints.

Where the working environment needs to be controlled, measures are taken to train staff, prevent unauthorized access, record environmental conditions and regulate the ingress of contaminants, wind, rain, etc. that would be detrimental to the environment.

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In the event that requirements related to the working environment are in conflict with regulatory requirements, the regulatory requirements will have precedence and an alternative approach should be found to satisfy the requirements of quality.

7 Product Realization

7.1 Planning of Product Realization

The quality system defines and controls the preparation, use and maintenance of those documents that describe how the required features and characteristics are to be designed and built into the company's products and how the achievement of these features and characteristics are to be verified.

Quality planning is undertaken in conjunction with other planning activities as directed by quality system policies and procedures.

If required, a project-specific Inspection and Test Plan (Quality Plan) is prepared to tailor the company's quality system to a specific product, project or contract. This plan defines the specific responsibilities, activities and equipment required to implement specific verification or validation products or systems in accordance with the customer's requirements.

On receipt of a purchase order, the controls, processes, inspection equipment, fixtures, production resources (including equipment, plant, environment, machines, materials, processes, skills, documentation and utilities) required to execute the work is determined. When required, they are specified in a project-specific Inspection and Test Plan (Quality Plan) and the plan is approved by the Department Manager prior to the commencement of the work.

In order to ensure compatibility between contractual requirements, company specifications, procedures and process capability, reviews are undertaken at each document release stage.

Contracts, the associated documents and any specifications produced by the company to implement the requirements, are assessed and any changes needed to the existing quality controls, inspection and test techniques and instrumentation are determined. Where changes or additional provisions are necessary, they are specified in the project-specific Quality Plan and arrangements are made for their acquisition prior to implementation.

The contractual requirements and any company specifications produced to meet them are assessed for any measurement capability that exceeds the state of the art. If such a capability is identified, the customer is notified and the contract re-negotiated or the parameters re-defined so that they can be met with existing measurement capabilities.

On receipt of either an invitation to tender or a contract, the documentation is reviewed to identify any verification requirements that may be imposed by the customer. Following determination of the work needed to satisfy the customer requirements and provide the required products and services, the aspects requiring verification are identified. The stage of verification is determined and the results documented in the form of plans and specifications that will govern the conduct of work under the specific contract.

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It is imperative that the company determines the customer requirements and ensures that they are understood, achievable and verifiable using the available company resources. Where the customer has not adequately specified the acceptance requirements and declines or is unwilling to be specific, they are advised, in writing, that the company standards will prevail.

The contractual requirements and the plans prepared to execute a contract are assessed and the quality records required identified. Any new records required are designed and implemented using quality system procedures.

7.2 Customer Related Processes

7.2.1 Determination of Requirements Related to the Product

Customer requirements are normally provided in a functional specification or drawing set. Determination of these requirements will be accomplished through a complete review of these documents, relevant codes and standards, or applicable statutory regulations. Where the customer does not provide these documents, clarifications will be made in our quotation to ensure that the customer understands the other relevant requirements for the product's intended use. Further, we shall include clarifications based on our own practical experience if it would enhance the ability of the product to meet its intended use.

7.2.2 Review of Requirements Related to the Product

Contracts and quotations for products in our catalog are reviewed in accordance with the procedures P720 Order Processing-Projects, P721 Order Processing-Distribution, and P723 Project Quotations.

On receipt of an inquiry or invitation to bid, the product requirements are examined by the Estimating Manager, Salesperson, or Chief Engineer to establish that they are adequately defined and that the company is able and willing to meet them.

Customer requirements for custom products are defined in a functional specification and treated according to the procedure P731 Design Control.

For both products in our catalog and custom products, the requirements not specified by the customer, but which are necessary for the defined, implied or intended use of the product, as determined by the relevant codes and standards, are also identified in our quotation.

7.2.3 Customer Communication

Communication will be sent to the customer according to procedure P521 Customer Needs and Communication and there is also communication sent to the customer via customer feedback and complaints according to procedure P722 Customer Feedback.

Customer communication includes information on products, general inquiries, contracts, order handling, change orders, customer feedback, and customer complaints.

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7.3 Design and Development

7.3.1 Design and Development Planning

The design of custom products is controlled in accordance with procedure P731 Design Control during which the design and development stages are determined. This includes the review, verification and validation that are appropriate during each stage. In addition, the responsibilities and authority for design and development are determined.

7.3.2 Design and Development Inputs

Design inputs will include customer supplied specifications and drawings, functional and performance requirements, applicable statutory requirements, international standards, and information derived from previous experience and other essential information. Inputs are reviewed for adequacy, ambiguity, and completeness.

7.3.3 Design and Development Outputs

Design outputs will be in the form of documents appropriate to the scope of work and will include, but not limited to drawings, sketches, calculations, and will be subject to internal and customer approval prior to release.

The outputs shall meet the input requirements for design and development, provide adequate information for purchasing, fabrication, assembly, and test. Design outputs will include reference product acceptance criteria and specify the characteristics of the product that are essential for its safe and proper use.

7.3.4 Design and Development Review

Design review meetings are held at different stages of the design and development process in accordance with procedure P731 Design Control. The Chief Engineer, Operations Manager, Project Manager and Designer all have input into this review process with the Chief Engineer having final internal approval authority.

The purpose of the design review is to evaluate the results of the design and development to meet requirements and to identify any problems and propose necessary actions.

A record of the review is maintained by keeping a set of the red-lined and signed drawings in accordance with procedure P424 Control of Quality Records.

7.3.5 Design and Development Verification

Verification (engineering calculations) shall be performed to ensure that the design and development outputs have met the design and development input requirements.

A record of the verification is maintained in accordance with procedure P424 Control of Quality Records.

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7.3.6 Design and Development Validation

Design and development validation shall be performed in accordance with the customer's requirements to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use. When practical, the validation shall be completed before shipment.

A record of the validation is maintained in accordance with procedure P424 Control of Quality Records.

7.3.7 Control of Design and Development Changes

The procedure P731 Design Control is employed to control and verify custom product design. Procedures are established, implemented and maintained which ensure that all product design and development changes are conducted under controlled conditions that result in designs that have been proven compliant with agreed requirements.

Each design is classified as a project. A Project Manager is appointed with responsibility and authority to direct the efforts of employees to who design tasks have been assigned and to ensure compliance with the agreed design requirements.

The design project consists of the following subdivisions:

- design planning
- gathering and reviewing of project specific specifications
- gathering and reviewing of applicable regulatory requirements
- technical development
- design review and verification
- design validation
- product realization planning

7.4 Purchasing

7.4.1 Purchasing Process

The procedure P742 Purchasing is employed to control and verify purchasing.

The company has established a purchasing process to ensure that purchased products and/or services conform to specified requirements.

Vendors will be evaluated according to procedure P741 Vendor Evaluation. To evaluate vendors, the company will:

- evaluate and select suppliers on the basis of their ability to meet specified requirements, including the quality system and any specific quality assurance requirements.
- define the type and extent of control exercised by the company over its suppliers. This will be dependent upon the type of product and/or service, the impact of the purchased products or services on the quality of the final product and if management decides to do an audit on

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the quality reports and/or quality records of the previously demonstrated capability and performance of vendors

- establish and maintain quality records of acceptable vendors

7.4.2 Purchasing Information

Purchasing documents will contain data clearly describing the product and/or services:

- the part number, description, type, class, grade or other precise identification
- the title or other positive identification and applicable revisions of specifications, drawings, or process requirements for approval (This should also include specifications of products and/or services, procedures, process equipment and personnel.)
- the title, number and revision of the quality system standards to be applied, if applicable
- the Purchasing Manager or Project Manager reviews and approves all inventory related purchase orders prior to issue. Non-inventory purchase orders are approved by the concerned manager.

7.4.3 Verification of Purchased Product

Procedures P823 Inspection and Test and P831 Control of Non-Conforming Product are used by receiving personnel to verify that the purchased product meets the requirements set forth in our purchase order to the vendor.

7.5 Production Provision

7.5.1 Control of Production Provision

The company will identify and plan the processes, which directly affect quality and will ensure that these processes are carried out under controlled conditions. Controlled conditions include:

- documented procedures and work instructions defining the manner of production or manner of service delivery where the absence of such procedures could adversely affect quality
- compliance with applicable standards/codes, quality plans, and/or documented procedures
- monitoring and control of suitable process parameters and product and/or service characteristics

The Production Manager is responsible for ensuring the production equipment is suitable, in good repair, and capable of meeting our production needs.

7.5.2 Validation of processes for production and service provision

The company uses procedures and work instructions to validate processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement. This includes any processes where deficiencies become apparent only after the product is in use or the service has been delivered.

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All personnel or sub-contractor utilized in these processes are qualified using proven methods of testing or measurement against nationally recognized standards. All equipment used in these processes is designed for its intended purpose. Where applicable, specific procedures are utilized to ensure the process will meet the planned results. In the event a process fails validation, a repair or replacement of product is made and revalidation occurs until the process meets the planned result.

When validation of production processes is required by the customer, the results are documented with a quality record and maintained in accordance with P424 Control of Quality Records.

7.5.3 Identification and Traceability

Our procedures and work instructions contain provisions for identifying products.

Products are identified by unique part numbers and/or physical attributes and retain this identity until incorporated into other products, after which their identities are traceable through the product specification.

Where the product is too small to carry full identification, a coding or tagging convention is employed.

Finished products having functional characteristics carry a *serial number* to enable records to be traced to the product that has been processed, inspected and tested.

All items received into the company which are not marked or labeled will be marked accordingly for stocking purposes. Some items may be committed to a customer's purchase order, and in this case, appropriate markings are applied to ensure proper identification. The markings are consistent with records in the database which enables traceability from the end product back to the original purchase order. Sales order number and work order number are two examples.

The status of a product with respect to monitoring and measuring requirements is maintained on the Shop Work Order Traveler as well as in specific records indicating the results of any testing that is performed.

7.5.4 Customer Property

Customers occasionally supply products for incorporation into finished product and also return company supplied product they have purchased for repair and maintenance and ultimately re-supply.

Any product supplied by the customer for incorporation into the end product for use during development or manufacture thereof, is verified on receipt as meeting its description and is free of damage. No tests of customer property are carried out without authorization from the customer, provision of the relevant test instructions and relevant equipment.

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A register of all customer supplied products is established and maintained in each applicable project file and the products stored with other items for the project. While in storage, customer property is stored as directed by the customer.

No maintenance is carried out on customer property without authorization and provision of the relevant maintenance instructions and equipment.

In the event of customer property being lost, damaged or otherwise unsuitable for use, full details of the incident are recorded and reported to the customer by the Concerned Manager prior to any remedial action being taken. Any remedial action taken will be directed by the customer.

7.5.5 Preservation of Product

The need for special handling, storage, packaging, preservation and/or marking provisions is established during product design and production planning. Any appropriate standards, procedures, guidelines, and/or instructions required are issued to those concerned.

Procedure P752 Handling, Storage, Packaging, and Preservation indicates the method for special handling, storage, packaging, preservation and marking of products.

Products remain in their original packaging until required for use. Any products that need to be dispensed or removed from their original packaging are stored under conditions that provide the same degree of protection.

7.6 Control of Monitoring and Measuring Devices

Procedure P761 Measuring and Monitoring Equipment is employed to control measuring devices.

All devices used to demonstrate conformance of product with the product specification are registered with the Chief Engineer and their location, custodian and status recorded.

Measuring devices are safeguarded from adjustments which might invalidate the measurement result, and they are protected from damage and deterioration.

A means is provided to distinguish between devices which require periodic calibration and those devices that do not. Devices used for product acceptance purposes where the accuracy is susceptible to change are subject to periodic calibration. All such devices are calibrated prior to first use and the calibration intervals varied according to the nature of the device, the conditions of use and the seriousness of the consequences of any incorrect results.

The user of a measurement device ensures that it is capable of the accuracy required prior to use and if damaged submits the device to the Production Manager for disposition.

When the measuring equipment is found to be out of calibration, the condition is recorded in the calibration record and evaluated for impact on previously accepted product.

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8 Measurement, Analysis and Improvement

8.1 General

The company has planned and implemented monitoring, measurement, analysis, and improvement processes necessary to demonstrate conformity of the products through specific procedures, and work instructions.

We ensure conformance to the QMS through internal and external audits and management review.

Where applicable, statistical methods of measurement are used.

8.2 Monitoring and Measurement

8.2.1 Customer Satisfaction

The management team is responsible for developing suitable indicators of customer satisfaction, and for defining methods for collecting and analyzing the relevant information.

Data concerning customer satisfaction is collected from several sources. Specifically, these are:

- customer feedback and surveys
- awards and recognitions
- product returns and warranty claims

The procedure P821 Customer Satisfaction defines the system for collecting and analyzing the pertinent information and data, and for reporting results to the management team.

Customer feedback and survey: Customer complaints, expressions of satisfaction, and other unsolicited customer feedback are collected and processed by the Inside Sales Department. These activities are defined in procedure P722 Customer Feedback.

The Marketing Department conducts customer satisfaction surveys. Survey results are compiled and analyzed, and are combined with customer satisfaction data for compatible aspects of products and services.

Product returns and warranty claims: Information about the rate of product returns and warranty claims is extracted from accounting, and quality records.

The resulting information is periodically examined by the Quality Manager and is presented at management review meetings.

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8.2.2 Internal Audit

Planning and scheduling: The Quality Manager establishes an internal audit plan and schedule in accordance with procedure P822 Internal Quality Audits. The entire QMS system is audited annually. Selected processes may be audited more frequently, depending on their importance and quality performance history.

Audit team and preparation for audit: Only personnel independent of the audited activities are assigned to conduct internal audits. Normally, the Quality Manager leads the audit team except when quality activities are being audited. Audits of quality activities are conducted by another qualified internal auditor or a third party independent auditor.

Auditors prepare for audits by reviewing applicable standards and procedures, analyzing quality records, and reviewing previous audit reports. Selection of auditors and preparation for the audit are explained in procedure P822 Internal Quality Audits.

Conducting the audit: Auditors seek objective evidence indicating whether the audited activities comply with DTI's quality management system requirements, ISO 9001:2000, and the effectiveness of the QMS. The evidence is collected by observing activities, interviewing personnel, and examining records.

Nonconforming conditions are documented and recorded in the internal audit report.

Audits are conducted in a way that minimizes disruption of the audited activities.

Corrective action and follow-up: 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.

Reporting: When the auditing cycle is completed, all nonconformity reports established during the cycle are compiled and analyzed, and are presented at the management review meeting.

8.2.3 Monitoring and Measurement of Processes

Process monitoring: Quality system processes are monitored by a variety of approaches and techniques, as appropriate for a particular process and its importance. These include:

- conducting internal audits
- monitoring trends in corrective and preventive action requests, as defined in 8.5.3 below
- analyzing product conformity and other quality performance data and trends
- measuring and monitoring customer satisfaction

Response actions: When a quality system process does not conform to requirements, the Quality Manager may request the manager responsible for the process to implement a corrective action, in accordance with procedure P851 Continual Improvement.

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8.2.4 Monitoring and Measurement of Product

Product verification: The inspection and testing program for a product is defined in various types of documents, such as product drawings and specifications, production work orders, purchasing documents, inspection and testing procedures, work instructions etc.

Verification of purchased product: All purchased products are subjected to a visual inspection by the receiving department, and then some designated products are subjected to a more detailed and technical inspection. Procedure P743 Verification of Subcontracted Product sets detailed rules for performing receiving and quality inspections.

In-process inspections: In-process inspections may be in the form of first article inspections, operator inspections, and continuous product verification by automated inspection equipment. The focus is on defect prevention rather than detection.

Final inspection: Finished products are subjected to the final quality inspection. First, *the Production Manager or Project Manager* verifies that all specified receiving and in-process inspections have been carried out satisfactorily. Then the remaining inspections and tests necessary to complete the evidence of product conformity are performed. Only products that pass the final inspection can be released for shipment.

Inspection, test and monitoring records: Results of inspections and tests are recorded. Completed inspection records are regulated by procedure P424 Control of Quality Records.

Product Release: Products are released for delivery only after all specified activities have been satisfactorily completed and conformity of the product has been verified. Only personnel performing product inspections and tests have the authority to release products. The identity of the person authorizing product release is recorded.

8.3 Control of Nonconforming Product

The procedure P831 Control of Non-Conforming Product is employed to control nonconforming products or services.

The company has established this policy to ensure that products that do not conform to specified requirements are prevented from unintended use. This control provides for identification, documentation, evaluation, segregation (when practical) and disposition of nonconforming products. The corrective action system is used to identify nonconforming products and services.

Review and disposition of nonconforming products: The concerned manager gives direction on treatment and disposition of nonconforming products in accordance with P831 Control of Non-Conforming Product. Such treatment and disposition may include:

- rework the product to meet the requirements
- reject or scrap the product

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Any nonconforming products are reported to the concerned manager who is responsible for corrective action. Records are documented on the corrective action request form (CAR).

8.4 Analysis of Data

Statistical techniques employed to determine process capability and based on proven statistical theory. Staff using the techniques are trained and provided with the necessary charts, data and instrumentation to make correct decisions from the evidence they have acquired.

The organization analyzes this data to provide information on:

- customer satisfaction
- on time delivery
- characteristics and trends of processes and products, including opportunities for preventive actions
- quotation conversions
- gross profit margins

8.5 Improvement

8.5.1 Continual Improvement

The procedure P851 Continual Improvement is employed to describe continual improvement.

Our company strives for the continual improvement of its organization and its products. Possibilities for quality improvement is gathered, reviewed and, when possible, implemented.

8.5.2 Corrective Action

Our company authorizes *employees* to take any corrective or preventive action to eliminate the causes of actual or potential non-conformities to the degree appropriate to the magnitude of problems and commensurate with the risks encountered. The management review team will approve changes resulting from corrective or preventive action.

In general the corrective action procedure includes:

- the effective handling of customer complaints and reports of product or service non-conformities
- investigation of the cause of non-conformities relating to product, process, service and quality system, and recording the results of the investigation
- determination of the corrective action needed to eliminate the cause of non-conformities
- application of controls to ensure that corrective action is taken and that it is effective

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8.5.3 Preventive Action

In general the procedure for preventive action includes:

- the use of appropriate sources of information such as processes and work operations which affect product quality, concessions, audit results, quality records, and customer complaints to detect, analyze, and eliminate potential causes of non-conformities
- determination of the steps needed to deal with any problems requiring preventive action
- initiation of preventive action and application of controls to ensure that it is effective

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