

# Hughes Christensen

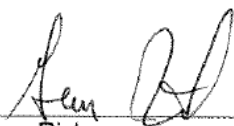
# Quality Policy Manual

**Title: Quality Policy Statement**

At Hughes Christensen, we maintain our role as the industry leader by conducting our business with a commitment to manufacturing products and services of the highest quality and reliability that continually exceed the requirements and expectations of our Customers worldwide.

We believe that quality is everyone's responsibility. Our quality programs embrace this philosophy and support continuous improvement, its strategies and methodologies.

As a result, Hughes Christensen employees are committed to performing their job in the highest quality manner in order to build value for our customers and shareholders, to be seen as a world class leader and to do their job right, the first time – every time.

A handwritten signature in black ink, appearing to read "Gary Rich", written over a horizontal line.

Gary Rich

President, Hughes Christensen

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## 1.0 Scope

The Hughes Christensen quality program is designed to involve all functional groups within the Hughes Christensen Company in a total quality effort. This quality concept is based on the principle that quality is everybody's job. Similarly, it is recognized that quality production is the result of quality consciousness at every level of the organization. The Quality Policy described in this manual is designed with the intent of meeting API Q1, ISO 9001:2000 and ISO TS 29001 and addresses commitment to quality and a warranty from the highest level of management that quality will not be compromised. The management of Hughes Christensen ensures that this policy is understood, implemented, and maintained at all levels in the organization. The quality program embraces the teamwork philosophy which directly involves Engineering, Quality, Manufacturing, Research, Purchasing, Marketing and Human Resources in a total quality effort.

## 2.0 Related Documents

Documents related to the Quality Policy include, but are not limited to, the following:

- The Quality Management System Manual and all other Level 2 documents, specific or inferred.
- All Work Instructions that directly or indirectly have any impact on the Quality Program and Process described within.
- All forms that are directly used in conjunction with either of the above.

## 3.0 Terms and Definitions

### 3.1 Quality Policy

The Organization's requirements for all issues dealing with and relating to quality.

### 3.2 Quality Procedure

The Organization's directions for implementing and maintaining the Quality Policy.

### 3.3 Work Instructions

Detailed descriptions for the work to be done in the various processes necessary to manufacture an acceptable product.

## 4.0 Quality Management Systems

### 4.1 General Requirements

Manufacturing and Operations Management shall establish, document, implement and maintain a quality management system and continually improve its effectiveness in accordance with the requirements of:

National/International Standard ISO 9001:2000  
National/International Standard ISO TS 29001  
API Spec Q1  
National/ Local Statutory Regulations  
Legal Obligations

These requirements are met by using the essential components below:

- Identify the processes needed for the quality management system and their application throughout the organization.
- Determine the sequence and interaction of these processes.
- Determine the criteria and methods needed to ensure HCC the operation and control of these processes is effective.
- Ensure availability of resources and information necessary to support operation and monitoring of the processes.
- Monitor measure and analyze these processes.
- Implement actions necessary to achieve planned results and continual improvement of these processes.

When HCC chooses to outsource any process that affects product conformity with requirements, HCC will ensure control over such processes and will be identified within the quality management system.

HCC will maintain responsibility for product conformance to specified requirements when such processes are outsourced.

### 4.2 Documentation Requirements

#### 4.2.1 General

The Quality System structure employed by Hughes Christensen operating units shall be a three level system where:

Level One is the Quality Policy Manual. This Manual (QPM) sets out Hughes Christensen's policy on the implementation of the applicable standards.

Level Two refers to the quality management system manuals written by respective operating units to implement the Quality Policy Manual for their respective functional areas. This level of documentation provides consistency with Hughes Christensen Quality Policy, and effective implementation of the quality management system and thus compliance to National/International Standards.

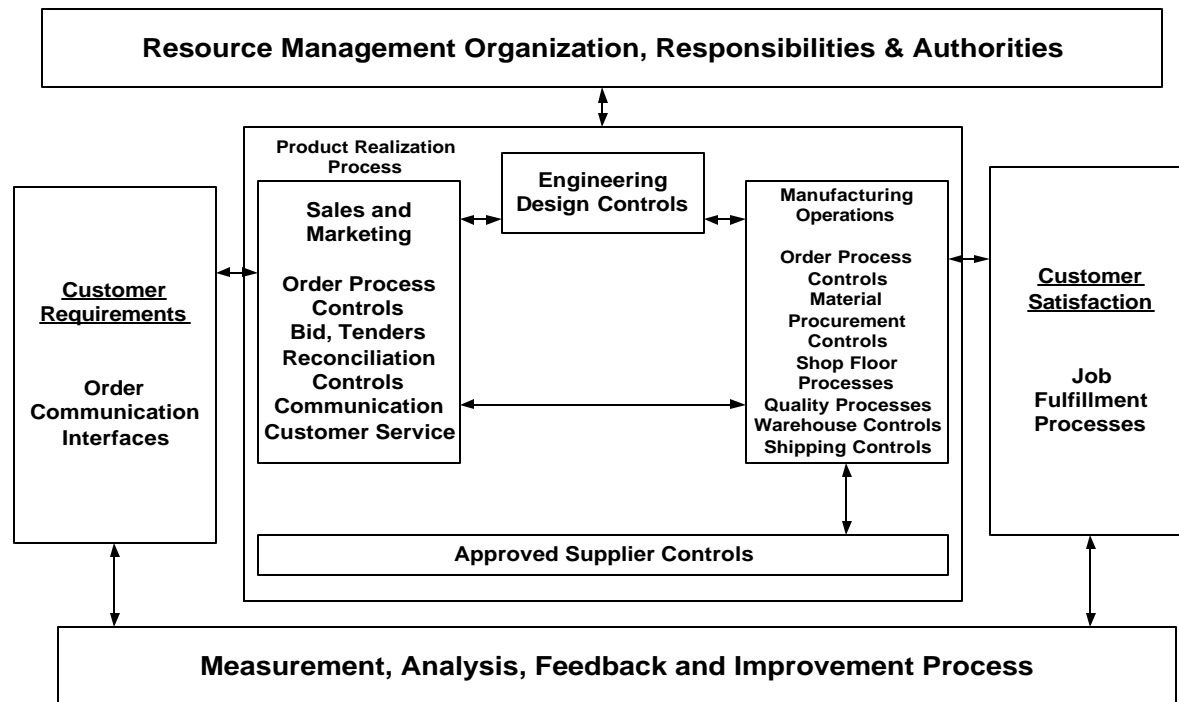
Level Three includes applicable controlling documentation; examples are Technical Units, Work Instructions, Drawings, Process Flow charts.

#### 4.2.2 Quality Policy Manual

This Hughes Christensen Quality Policy Manual is established and maintained to define the requirements for the quality management system for Christensen operations and includes:

- The scope of the quality management system.
- Reference to documented procedures established for the Quality Management system.
- The Hughes Christensen Business Process Model, shown below, that describes the interaction between the processes of the Quality Management System.

Each Operating Unit shall develop a Business Process Model specific to the interaction between the processes at their location.



### 4.2.3 Control of Documents

A master list or equivalent document control procedure shall be established and maintained by each operating unit that outlines the control of document required by the quality system. The controls shall include:

- Approval of documents prior to issue.
- Ensure that the review and approval of changes and modification to documentation is performed by the same functions/organizations that performed the original review and approval.
- Ensure changes and the current revision status of documents is identified in the document.
- Ensure that relevant versions of applicable documents are available at points of use.
- Ensure that documents remain legible and readily identifiable.
- Ensure that documents of external origin are identified and their distribution controlled.
- Prevent the unintended use of obsolete documents and to apply suitable identification to them if they are retained for any purpose.

### 4.2.4 Control of Quality Records

Each operating unit shall establish and maintain a documented procedure for identification, collection, indexing, filing, storage, access, maintenance and disposition of quality records, including electronic or other media storage arrangements.

Quality records are established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system. These records shall include, but not be limited to qualified processes, equipment and personnel, as appropriate.

Quality records will be legible and readily identifiable. Quality records are stored and maintained in such a way that they are readily retrievable in facilities that provide a suitable environment to minimize deterioration or damage and to prevent loss.

Retention times of quality records shall be established and recorded, and shall comply with minimum retention periods established by applicable regulatory requirements and/or customer contractual agreements.

For API licensed operating units, the retention period for quality system records shall be for a minimum of 5 years or as specified within the applicable API Product Specification 7 or 7-1.

## 5.0 Management Responsibility

### 5.1 Management Commitment

Top management provides evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by:

- Communicating the importance of meeting customer, statutory and regulatory requirements.
- Establishing the quality policy.
- Ensuring that quality objectives are established.
- Conducting management reviews.
- Ensuring resources are available for the implementation of the quality management system.

### 5.2 Customer Focus

Top management shall establish processes to ensure that customer requirements are determined and met with the aim of enhancing customer satisfaction.

### 5.3 Quality Policy Requirements

Hughes Christensen shall ensure that the established quality policy:

- Is appropriate to the organization.
- Includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system.
- Provides a framework for establishing and reviewing quality objectives.
- Is communicated and understood within the organization.
- Is reviewed for continuing suitability.

### 5.4 Planning

#### 5.4.1 Quality Objectives

Top management shall ensure quality objectives, including those needed to meet requirements for product, are established within each of the operating units at relevant functions and levels of the organization. Quality objectives shall be measurable and consistent with the Quality Policy.

## 5.4.2 Quality Management System Planning

Top management shall ensure that:

- The planning of the quality management system is carried out in order to meet the requirements in section 4.1 of this manual as well as the established quality objectives.
- The integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.

## 5.5 Responsibility, Authority and Communication

### 5.5.1 Responsibility and Authority

The responsibility, authority and the interrelation of personnel, who manage, perform and verify work affecting quality in each of the functional areas of the organization shall be defined in written procedures or job descriptions and communicated within the organization.

All such personnel shall have the authority and organizational freedom to :

- Initiate action to prevent the occurrence of any nonconformity relating to product, process and quality management system.
- Identify and record any problems related to product, process and quality management system.
- Initiate, recommend or provide solutions through designated channels.
- Verify the implementation of solutions.
- Control of further processing, delivery or installation of nonconforming product until the deficiency or unsatisfactory condition has been corrected.
- Have direct access to management at levels where appropriate action can be initiated.

### 5.5.2 Management Representative

The President and V.P.(s) of Manufacturing and Technology have given the Quality Managers, irrespective of their other responsibilities, the authority and responsibility to ensure:

- Processes needed for the quality management system are established, implemented and maintained in accordance with National/International Standards, customer requirements and this manual.
- Report on the performance of the quality system during their respective management review meetings and any need for improvement.

- Ensuring the promotion of awareness of customer requirements throughout the organization.

In addition this responsibility can include liaison with external parties on matters relating to the quality management system. The management representative's duties may be delegated to other personnel.

### **5.5.3 Internal Communication**

Top management shall ensure that established communication processes support and communicate the effectiveness of the quality management system within the organization.

## **5.6 Management Review**

### **5.6.1 General**

Facility top management shall review the quality management system annually, at a minimum, to ensure continuing satisfactory suitability, effectiveness of the program and monitoring of quality objectives according to the requirements of National/International Standards and the Hughes Christensen quality policy and quality objectives.

### **5.6.2 Review Input**

Review input for management review at each operating unit shall include as a minimum:

- The results of internal/external audits.
- Customer feedback.
- Process performance and product conformity, including field nonconformities.
- Status of corrective and preventive actions.
- Follow-up actions from previous management reviews
- Changes which may affect the quality management system, including changes applicable to oil and gas industry standards.
- Recommendations for improvement.
- Continuing suitability of the Quality Policy.

### 5.6.3 Review Output

Output from the management review shall include any decisions and actions related to:

- Improvement of the effectiveness of the quality management system and its processes.
- Improvement of product related to customer requirements.
- Resource needs.

Records of the management review are retained on file.

## 6.0 Resource Management

### 6.1 Provision of Resources

Top management shall ensure the identification and provision of resources to:

- Implement and maintain the quality management system.
- Continually improve its effectiveness.
- Enhance customer satisfaction by meeting customer requirements.

This includes the assignment of qualified personnel for management, performance of work, and verification activities including internal quality audits.

### 6.2 Human Resources

#### 6.2.1 General

Personnel performing work affecting product quality shall be determined competent on the basis of appropriate education, training, skills and experience.

Documented procedures shall be established and maintained for identifying training needs and competency measures. The documented procedure provides for the training of all personnel performing activities affecting quality.

#### 6.2.2 Competence, Awareness and Training

Each operating unit shall:

- Determine necessary competence and frequency of training for personnel performing work affecting product quality based on education, training examination, or experience.

- Provide training which is classroom or on the job as deemed necessary by the individual department and department supervision to satisfy training needs.
- Evaluate the effectiveness of training provided.
- Ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives. This includes having a process to measure the extent of awareness for relevance and a method to inform personnel about the consequences to the customer of nonconformity to quality requirements.
- Maintain appropriate records of education, training, skills and experience.
- Provide quality system indoctrination of all personnel performing activities addressed in the quality system.

### **6.3 Infrastructure**

The infrastructure to achieve conformity to product/service requirements shall be provided and maintained for each operating unit. Infrastructure includes, as applicable:

- Buildings, workspace and associated utilities.
- Process equipment (HCC hardware and software).
- Supporting services (such as transport or communication).

### **6.4 Work Environment**

The work environment in each operation unit shall be determined and managed, to achieve conformity to product/service requirements.

## **7.0 Product Realization**

### **7.1 Planning of Product Realization**

Processes shall be planned and developed for product realization consistent with the requirements of the other processes of the quality management system. Each operating unit shall determine the following as appropriate:

- Quality objectives and requirements for the product.
- The need to establish processes, documents and provide resources
- Required verification, validation, monitoring, inspection and test activities specific to the product, under controlled conditions that include clearly stipulate the criteria for workmanship and product acceptance.
- Records as needed to provide evidence that the processes and resulting product meet requirements.

- Product requirements provided by external sources will have defined and controlled features to translate these requirements into the product realization process.

## **7.2 Customer Related Processes**

### **7.2.1 Determination of Requirements Related to the Product**

Each operating unit shall determine:

- Requirements specified by the customer, including the requirements for fabrication and delivery activities.
- Requirements not specified by the customer but necessary for the specified or intended use, where known.
- Statutory and regulatory requirements related to the product.
- Any additional requirements determined by the organization.

### **7.2.2 Review of Requirements Related to the Product**

Each operating unit shall establish and maintain documented procedures for contract/order review including orders received by verbal means. This review shall be conducted prior to commitment to supply a product/service to the customer. Examples include enquiry leading to submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders.

The review of requirements shall ensure that:

- Product requirements are defined, agreed and documented before order acceptance.
- Contract or order requirements differing from those previously expressed are resolved.
- The organization has the ability to meet the defined requirements.

Amendments to orders/contracts shall receive the same co-ordination, review and communication to those that must be aware of the requirements, as the initial order/contract.

Records of order/contract reviews and actions to be taken to support the requirements shall be maintained.

### **7.2.3 Customer Communication**

Each operating unit shall determine and implement effective arrangements for communicating with the customer in relation to:

- Product information.
- Enquiries, contracts or order handling, including amendments.
- Customer feedback, including customer complaints.

### **7.3 Design and Development**

Each operating unit shall determine the scope of ISO 9001:2000 appropriate to its operation with regard to design and development activities.

Documented procedures shall be established and maintained to plan, control and verify the design, design changes, design specifications and associated documentation of products to meet specified contractual requirements.

#### **7.3.1 Design and Development Planning**

Design and development of the product shall be planned and controlled. During the design and development planning the operating unit shall determine:

- The design and development stages.
- Review, verification and validation activities that are determined to be appropriate to each design and development stage.
- The responsibilities and authorities for design and development of the product.
- Documentation shall include the methods, assumptions, formulations, and calculations.
- Qualified personnel shall be assigned to the design development and will be responsible for updating the plans as the design evolves.
- Where the design process requires additional input from other organizational groups the interface communication shall be defined and the necessary information documented, transmitted and regularly reviewed.

Planning output shall be updated, as appropriate, as the design and development progresses.

#### **7.3.2 Design and Development Inputs**

Inputs related to product requirements shall be identified, reviewed for adequacy and records maintained. These inputs include:

- Functional and performance requirements.
- Applicable statutory and regulatory requirements.
- Where applicable, information derived from previous similar designs.

- Other requirements essential for design and development.
- Activities of any contract review results.
- Any requirements resulting from conflicting observations shall be discussed and resolved with those responsible for imposing these requirements.

### **7.3.3 Design and Development Outputs**

Design output shall be provided in a format that enables verification against the design and development input and shall be approved prior to release. Design and development outputs shall:

- Meet the input requirements for design and development.
- Provide appropriate information for purchasing, production and for service provision.
- Be translated into instructions, procedures, specifications and drawings that include acceptance criteria, and
- Specify the characteristics of the product that are essential for its safe and proper use.
- Design and development outputs will be documented.

### **7.3.4 Design and Development Review**

Systematic documented reviews of the design results shall be planned and conducted at appropriate stages of the design process:

- To evaluate the ability of the results of design and development to meet requirements.
- To identify any problems and propose necessary actions.
- And, include participants that represent functions concerned with the design and development stages being reviewed. Other representatives with specialized skills may also attend, as required.
- Final design review to be conducted and documented by individuals other than the person(s) that developed the original design.

Records of the results and any necessary actions of the design reviews shall be maintained.

### **7.3.5 Design and Development Verification**

Product design verification shall be performed during design development stages to ensure that the design and development output meets the design and development input requirements. This may include activities such as, alternative calculations, tests, demonstrations, design stage document review, and comparison with similar proven designs, before release.

Records of the results of verification and any necessary actions shall be maintained.

### **7.3.6 Design and Development Validation**

Design and development validation shall be performed to ensure that products conform to specified requirements for the specified applications or intended use.

When practical, validation shall be completed prior to delivery or implementation of the product. This may include multiple validations before validation on final product under defined operating conditions is performed.

Records of the results of validation and any necessary actions shall be maintained.

### **7.3.7 Control of Design and Development Changes**

Design and development changes shall be identified and records maintained. Changes shall be reviewed, verified, and validated as appropriate and approved before implementation.

Design changes and changes to design documents shall require the same control features as the original design and design documentation.

Records of the results of the review of changes and any necessary actions shall be maintained.

## **7.4 Purchasing**

### **7.4.1 Purchasing Process**

Each operating unit shall establish documented procedures for purchasing controls.

The type and extent of control applied to the supplier is dependant upon the type of product, the impact of subcontracted product on the quality of final product and where applicable, on any quality audit reports and/or previously demonstrated supplier quality performance.

Suppliers shall be evaluated and selected on their ability to meet Hughes Christensen requirements.

Each acceptable supplier shall be maintained on an approved supplier list.

Selection Criteria for suppliers of purchased products and services, and evaluation and re-evaluation shall be established. Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained.

Assessment of suppliers of purchased product and services will include documentation of any of the following:

- Inspection at the supplier's facility of the final product.
- Inspection of the suppliers' product upon delivery at the HCC site.
- Surveillance of the supplier's conformance to purchasing requirements.
- Verification by HCC that the supplier's quality system conforms to an acceptable quality system standard (the standard must be API Q1 for API licensed operating units).

Where HCC chooses to outsource any process that requires validation, the supplier will be required to comply with the requirements of 7.5.2, as applicable (see 4.1)

#### **7.4.2 Purchasing Information**

Purchasing documentation shall clearly describe the materials, items, products and services procured. Including where appropriate:

- Requirements for approval of product, procedures, processes and equipment.
- Requirements for qualification of personnel.
- Quality management system requirements.

The operating unit shall review and approve purchasing documentation for adequacy of specified requirements prior to release.

#### **7.4.3 Verification of Purchased Product**

Each operating unit shall establish and implement inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements.

Where verification activities shall take place at the supplier's premises, the intended verification arrangements and method of product release will be stated in the purchasing documentation. Where processes that affect product quality are outsourced, the operating unit must identify and control these processes.

Each operating unit shall establish control features for the verification of purchased product and maintain records of these verification activities.

Control procedures shall ensure that where incoming product is released for urgent production purposes prior to verification, it is positively identified and recorded in order to permit immediate recall and replacement in the event of nonconformity to specified requirements.

## **7.5 Production and Service Provision**

### **7.5.1 Control of Production and Service Provision**

Each operating unit shall plan and carry out production under controlled conditions.

Controlled conditions shall include as applicable:

- Availability of information that describes the characteristics of the product provided.
- The availability of work instructions where necessary.
- The use of suitable equipment.
- The availability and use of monitoring and measuring devices.
- The implementation of monitoring and measurement.
- The implementation of release, delivery and post delivery activities.

Where appropriate, documented evidence for process control will be retained on file.

Responsibility for approval of process control documents, processes, and equipment shall be specified in the operating unit's quality management system.

### **7.5.2 Validation of Process for Production and Service Provision**

Each operating unit shall identify the "special processes" utilized in its quality management system.

The operating unit shall validate "special processes" for production 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. Special processes shall include, but not be limited to, Heat Treating, Welding, and Non Destructive Examination.

Validation shall demonstrate the ability of these "special processes" to achieve planned results.

Operating units shall establish arrangements for these processes including:

- Defined criteria for review and approval of the processes.

- Approval of equipment and qualification of personnel.
- Use of specific methods and procedures.
- Requirements for records.
- Revalidation.

### 7.5.3 Identification and Traceability

Documented procedures are required for control identification and traceability. The documented procedure shall provide for the traceability of products as required by the customer, the applicable company standard, the National/International Standard, and where appropriate National/Regional Regulations.

Where appropriate, the operating unit shall identify the product by suitable means throughout the product realization processing.

The product status shall be identified with respect to monitoring and measurement requirements.

Where traceability is a requirement, the organization shall control and record the unique identification of the product.

Traceability is maintained to control the identification of materials and products as required, to the applicable product specifications and the applicable National/International standard. The requirement for identification applies to all stages of production, storage, and delivery. Product identification and traceability as required by the organization, the customer and the applicable product specifications will be identified.

The documented procedure shall provide for maintenance or replacement of identification marks and identification control records.

For API units, the following specific controls for the application of the API monogram shall be identified in their Level 2 quality system documentation:

- Provision for removal of the monogram if the product is found to be in non-conformance subsequent to the application of the monogram.
- Application only by Hughes Christensen.
- Application only at the licensed facility.
- Application of monogram and date of manufacture per the applicable API specification.
- Application of the API license number per specified requirements.
- Defined authority responsible for the application and removal of the API Monogram.

#### 7.5.4 Customer Property

Customer property is treated the same as purchased material and handled in accordance with the applicable Level II documents.

#### 7.5.5 Preservation of Product

Product is preserved and protected from non-conformance during internal processing and delivery to the intended destination. This preservation shall include identification, handling, packaging, designated storage areas, and protection. Preservation shall also apply to the component parts of a product.

Each operating unit shall document a process for the maintenance of the condition of product and or parts in stock at specified intervals.

Product preservation procedures shall be documented.

#### 7.6 Control of Monitoring and Measuring Devices

Documented procedures shall be established and maintained for control of inspection, measuring and test equipment. Monitoring and measurement activity to be undertaken shall be determined, together with the measuring devices needed to provide evidence of conformity of product to determined requirements.

Processes shall be established to ensure that monitoring and measurement activity can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements.

Where necessary to provide valid results, measuring equipment shall:

- Be calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards. Where no standards exist, the basis used for calibration or verification shall be recorded.
- Be adjusted or re-adjusted as necessary.
- Be identified to enable the calibration status to be determined.
- Be safeguarded from adjustments that would invalidate the measurement result.
- Be protected from damage and deterioration during handling, maintenance and storage.
- Ensure that the environmental conditions are suitable for the calibrations, inspections, measurements, and tests being carried out.

The operating unit shall assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements.

The operating unit shall take appropriate action on the equipment and any product affected.

Records of results of calibration and verification and the validity of measured results shall be maintained.

Computer software, when used in the monitoring and measurement of specified requirements, shall be confirmed as being able to satisfy the application. This confirmation shall be undertaken prior to initial use and reconfirmed as determined necessary.

## **8.0 Measurement, Analysis and Improvement**

### **8.1 General**

The monitoring, measurement, analysis and improvement processes needed to demonstrate conformity of the product and continually improve the effectiveness of the quality management system, shall be planned and implemented to:

- Demonstrate conformity of the product.
- Ensure conformity of the quality management system.
- Continually improve the effectiveness of the quality management system.

The monitoring and measurement processes shall include determination of applicable methods, including statistical techniques, and the extent of their use.

### **8.2 Measurement, Monitoring and Analysis**

#### **8.2.1 Customer Satisfaction Measurement**

Each operating unit shall determine the measurement method to be used to monitor information relating to customer perception as to whether the organization has met customer requirements.

Each operating unit shall demonstrate customer satisfaction measurement fulfillment using the method determined above.

#### **8.2.2 Internal Audit**

Internal quality audits shall be conducted at planned intervals to determine whether the quality management system conforms to the planned arrangements, to the requirements of ISO 9001:2000, ISO TS 29001 and API Q1, and to determine that the quality management system is effectively implemented and maintained.

Each operating unit shall establish an audit procedure to ensure compliance of their quality management system to all sections of the Quality Policy Manual annually. The documented audit procedure shall define the criteria for:

- The responsibilities and requirements of planning and conducting audits, taking into consideration the status and importance of the processes and areas to be audited as well as the results of previous audits.
- Reporting results of the audits performed.
- Maintaining records of the audits.

Qualified auditors, independent of those having direct responsibility for the area audited, shall perform audits. Audit criteria, audit scope, audit frequency, and methods used shall be defined.

Conduct of audits shall ensure objectivity and impartiality of the audit process. Recorded audit results shall be brought to the attention of personnel responsible for the area audited.

Any deficiencies recorded during the audit shall be addressed by a responsible management representative for the area. An established response time of 60 days shall be used for each corrective or preventive action to eliminate the detected non-conformance and their causes.

Audit results will be included in management reviews.

Audit follow up activity shall record the actions taken and report on the effectiveness of the corrective / preventive actions taken.

### **8.2.3 Monitoring and Measurement of Processes**

Each operating unit shall apply suitable methods for monitoring and where applicable, measurement of the quality management system process to demonstrate the ability to achieve planned results.

When planned results are not achieved, correction and corrective action shall be taken as appropriate to ensure conformity of the product.

Records shall be maintained for the effective dates of such process changes

### **8.2.4 Monitoring and Measurement of Products**

Each operating unit shall have documented procedures for control of inspection and testing to verify requirements have been met. These activities shall be carried out for

inspection and testing operations performed in receiving, in-process and final stages. Evidence of conformity with the specified acceptance criteria shall be maintained. Records shall indicate the person(s) authorizing release of the product. Product release and service delivery shall not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and where applicable by the customer.

Planned inspection stages and final acceptance inspection and testing is to be performed or controlled by personnel other than those who performed or directly supervised the manufacture of the materials or products for API Q1 licensed units.

### 8.3 Control of Non-Conforming Product

Documented procedure(s) shall be established and maintained to ensure that:

- Non-conforming products are identified and controlled to prevent inadvertent use or installation, and for notification to the functions concerned.
- The controls and related responsibilities and authorities for dealing with non-conformities are defined.

The operating unit shall deal with non-conforming product by:

- Taking action to eliminate the detected non-conformity.
- By authorizing its use, release or acceptance under concession by a relevant authority and where applicable by the customer.
- Taking action to preclude its original intended use or application
- Re-verifying corrected product to demonstrate conformity to the requirements.
- Taking action, if non-conforming product is detected after delivery or use has started, that is appropriate to the effects or potential effects of the non-conformity. Records of the nature of non-conformities and any actions, including concessions obtained, shall be maintained including repair and reworks.

The process of evaluation and disposition of non conformance shall include one or more of the following:

- Be repaired or reworked to meet specified requirements.
- Accepted with or without repair by concession.
- Re-graded for alternative application.
- Rejected or scrapped.

Operating units licensed to API Q1.

Accepting materials or products that do not satisfy manufacturing acceptance criteria provided:

- Materials or products satisfy the design acceptance criteria.
- The violated manufacturing acceptance criteria is categorized as unnecessary to satisfy the design acceptance criteria or;
- Materials or products are reworked to satisfy the design acceptance criteria or manufacturing acceptance criteria.

Accepting materials or products that do not satisfy the original design acceptance criteria provided:

- The original design acceptance criteria are changed per design control procedures.
- The materials or products satisfy the new design acceptance criteria.
- Not accepting the non-conforming materials or products.

The operating unit shall notify customers in the event that product which does not conform to design acceptance criteria and shall maintain record of such notification.

## 8.4 Analysis of Data

Each operating unit shall determine, collect and analyze appropriate product and process data that demonstrates the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the effectiveness of the quality management system can be made.

The analysis of data shall provide information relating to:

- Customer satisfaction.
- Conformity to product requirements.
- Characteristics and trends of processes and products including opportunities for preventive action.
- Suppliers.

## 8.5 Improvement

### 8.5.1 Continual Improvement

Each operating unit shall continually improve the effectiveness of the quality management system through the use of:

- The quality policy.
- Quality objectives established in the operating unit planning
- Audit results.
- Analysis of data from products and processes.
- Corrective and preventive actions.

- Management review.

### **8.5.2 Corrective Action**

Each operating unit shall take action to eliminate the causes of nonconformities detected in their processes in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the non-conformities encountered.

A documented procedure shall be established to define requirements for:

- Reviewing non-conformities (including customer complaints).
- Determining the causes of non-conformities.
- Evaluating the need for action to ensure that non-conformities do not recur.
- Determining and implementing action needed.
- Records of the results of action taken.
- Reviewing correction action results for effectiveness.

### **8.5.3 Preventive Action**

Each operating unit shall take action to eliminate the causes of potential non-conformities in their processes in order to prevent occurrence. Preventive actions shall be appropriate to the effects of the potential problems.

A documented procedure shall be established to define requirements for;

- Determining potential non-conformities and their causes.
- Evaluating the need for action to prevent occurrence of non-conformities.
- Determining and implementing action needed.
- Records of results of action taken, and
- Reviewing preventive action results for effectiveness.

Corrective and Preventive action response times shall be established at 60 days to ensure prompt action.

## Exclusions Matrix

Reference: Hughes Christensen Quality Policy Manual

This document identifies the Quality Management System exclusion status of Hughes Christensen facilities certified to ISO 9001:2000, ISO TS29001 and API Q1.

| Facility Exclusions Requested For API Q1  | Justification   | Facility Exclusions Requested For ISO9001 And ISO TS 29001                       | Justification   |
|---|---|--|---|
| <p><b>7.5.4 Customer Product</b></p> <p>Woodlands Tricone &amp; PDC Bits<br/>Lic# 7-1-017706</p> <p>Celle PDC Bits<br/>Lic # 7-1-0177.4</p> <p>Maracaibo PDC Bit<br/>Lic # 7-1-0177.7</p> <p>Lafayette PDC Bits<br/>Lic # 7-1-0177.3</p> <p>Belfast PDC Bits<br/>Lic # 7-1-0177.1</p> | <p>Currently the control of <b>Customer Supplied Product (7.5.4)</b> elements of the ISO and API quality standard do not apply to the Hughes Christensen product lines and customer support activities.</p> | <p><b>7.3 Design and Development</b></p> <p>Maracaibo PDC Bit<br/>Lic # 0117</p> | <p>The <b>Design (7.3)</b> of product is the responsibility of the Engineering Department in the Hughes Christensen facility in The Woodlands, Texas. The Hughes Christensen Woodlands facility (<b>Lic # 0116</b>)</p> |