
	SPACE AND DEFENSE DIVISION – U.S. STANDARD OPERATING PROCEDURE		
	Quality Manual		
	Affects: Cockeysville Site	SOP Number: 153	Revision: L
	Effective: 3/30/11	Prepared By: N. Murray	Approved By: F. Rosenthal

Quality Manual


Space & Defense Division - US

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INTRODUCTION:

This Quality Manual describes the basic Quality Management System for Saft America Inc. (Saft) – Space and Defense Division - US (SDD) in Cockeysville, Maryland. It is intended to address all applicable requirements of the International Quality Management System Standards ISO 9001 and **AS9100**.

In addition to producing superior products, Saft is keenly focused on its customers and their ultimate satisfaction. This is accomplished through the discipline and controls of Saft's Quality Management System and by continually improving its processes, and by the commitment of Saft's management and personnel.

This manual is controlled, maintained and issued by the Quality Manager (appointed as the Quality Management Representative (QMR)) and is reviewed and approved by the appropriate staff and executive-level management of Saft.

Implementation of this manual is accomplished within Saft's facility through:


- Quality Plans related to projects, when required
- Saft Operating procedures
- Process Specifications
- Work instructions
- Test Plans
- Records, forms and other related documents

Saft is committed to define, develop, and maintain, a Quality Policy in conformance with ISO 9001 and **AS9100**. The Management Committee fully support and approve this Quality Manual including the stated Quality Policy and Objectives. They commit themselves to make the Saft Quality Policy and Objectives known to each employee and they will ensure that each manager is aware of and understands the requirements of this manual.

PURPOSE:

The purpose of this Quality System manual is to:

- a) Document and provide guidance for consistency of Quality Systems employed throughout Saft.
- b) Communicate the Saft Quality Policy, Objectives, and quality commitment, to our Customers and to all personnel.
- c) Attain and maintain desired quality at optimum cost through planned and efficient utilization of available technological, personnel, and material resources.
- d) Provide Customers with confidence that Saft can and will deliver products and services which satisfies their needs, requirements and expectations.

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SCOPE:

The scope of activity covered by their Quality Management System (QMS) includes Design, and Manufacture of Electrochemical energy systems, cells, batteries and associated electronics - for commercial, military and aerospace applications.

Saft's Quality Manager (appointed as QMR) is responsible for:


- a) Establishing and maintaining an efficient organizational structure.
- b) Developing, documenting, implementing and maintaining an effective and economical quality system in accordance with the guidelines of this manual and the applicable requirements of Standards ISO 9001 and **AS9100**.
- c) Conducting internal audits to verify compliance with the established system, and taking appropriate corrective and preventive actions based on audit findings.
- d) **The organizational freedom and unrestricted access to top management to resolve quality management issues**

APPROVAL, ISSUANCE and CHANGE:

The General Manager of Saft SDD will approve the original release of the Quality Manual, and any amendments.

The Quality Manager (appointed as QMR) will coordinate, issue, distribute, maintain and otherwise control the Quality Manual according to the following:

- a) Prior to issue, the manual and any subsequent changes will be coordinated within the facility. The Saft QM/QMR will decide in case of discrepancy.
- b) The manual is available electronically to all employees in the facility.
- c) Revision level and application date will be displayed prominently on the revision page of the manual and on each page. Changes will be indicated on the revision page referencing the concerned paragraph or statement of change.
- d) Upon receipt of a revised manual, it will be distributed in accordance with the document control procedure.
- e) All changes proposed to the Manual will be made in accordance to Saft's change control procedure.
- f) All proposed changes to the manual will be forwarded to Saft's QM/QMR for review, evaluation, and approval, and to the General Manager, or assigned delegate, for approval.

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QUALITY SYSTEM REQUIREMENTS:

The remainder of this Quality Manual addresses each of the elements in Standards ISO 9001 and **AS9100**.

- a) For each element of ISO 9001 and **AS9100**, a paragraph below provides general directions / acknowledgement for that specific requirement.
- b) Based on these directions and the requirements of ISO 9001 and **AS9100**, Saft will develop and maintain the tailored Operating Procedures, Documentation, Work Instructions and Inspection/Test Data necessary to define and effectively and economically carry out the Quality System.

Quality Manual numbering convention: It is intended that the numbering system used throughout the manual (i.e. clause, element, paragraph numbers. etc.) closely approximates that of Standard **AS9100**.

NOTE: Throughout Saft's documented Quality Management System (QMS), procedure-level document numbers may be prefixed with either "SOP" (Standard Operating Procedure) or "SDN" (Saft Document Number). Both prefixes are acceptable, equivalent and interchangeable.

4. Quality Management System:


4.1 General Requirements: (Ref. SOP 153, 421)

Saft shall establish, document, implement and maintain a Quality Management System (QMS) and continually improve its effectiveness in accordance with the requirements of this Quality Manual.

Saft has / does:

- a) determined the processes needed for the quality management system and their application throughout Saft.
- b) determined the sequence and interaction of these processes,
- c) determined criteria and methods needed to ensure that both the operation and control of these processes are effective,
- d) ensured the availability of resources and information necessary to support the operation and monitoring of these processes,
- e) monitor, measure where applicable, and analyze these processes, and
- f) implemented actions necessary to achieve planned results and continual improvement of these processes.

See Table IV for a listing of Saft's QMS processes and further description of their sequence and interaction, as applicability to each element in **AS9100** and Table V for interaction between processes.

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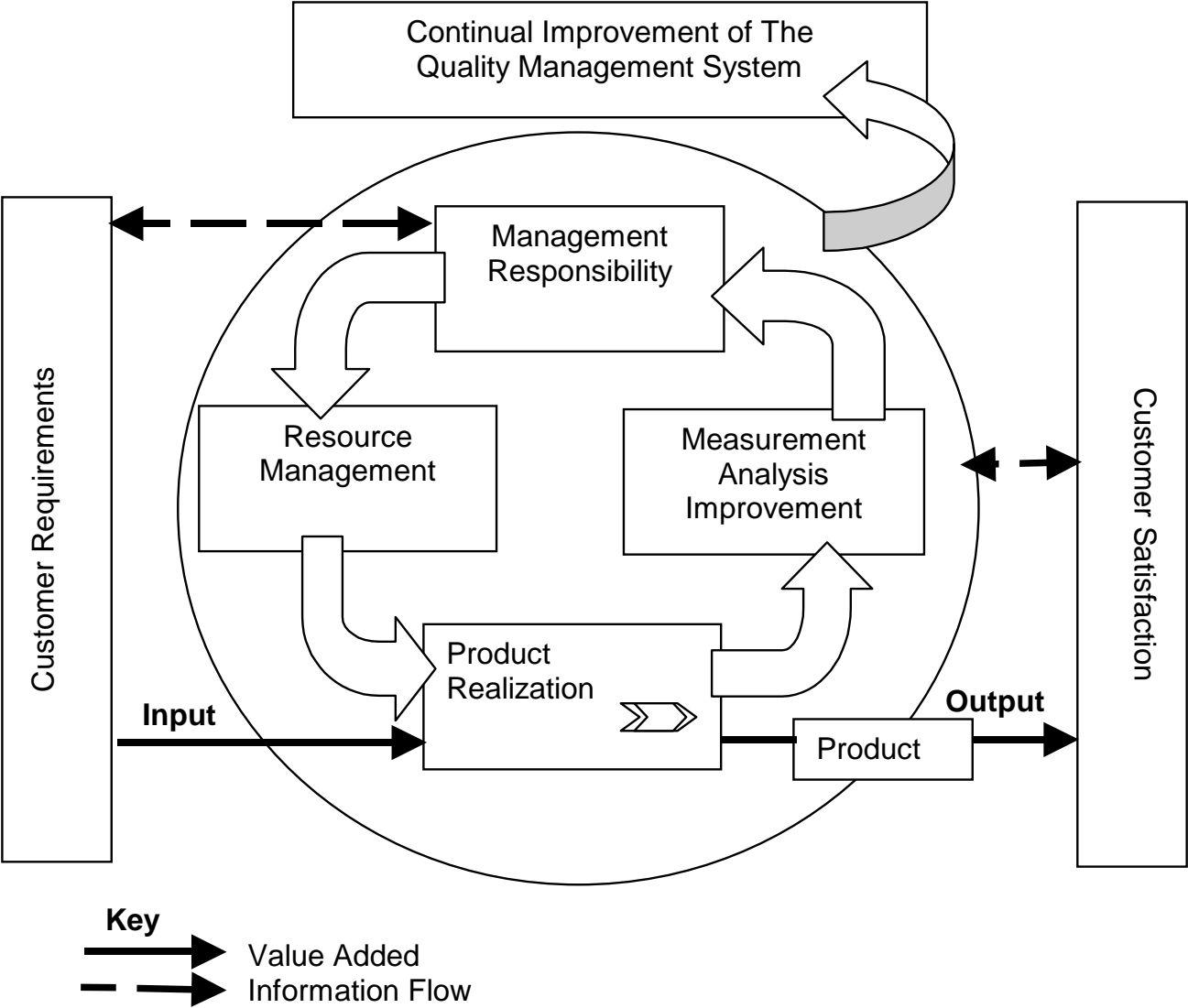
These processes shall be managed by Saft in accordance with the requirements of this Quality Manual.


Where Saft chooses to outsource any process that affects product conformity to requirements, Saft shall ensure control over such processes. The type and extent of the control of such outsourced processes shall be defined within the quality management system

Saft understands that their Quality Management System, Quality Manual, and related documents are complementary to (not alternative to) applicable statutory and regulatory requirements.

Since all Saft SDD work is done under specific contracts with customers, the contract and its order of precedence will take final authority over all performance to said contract, including compliance to this policy manual. On rare occasion there may be a minor conflict between contractual requirements and those in the AS9100 Standard. In such cases, Saft will obtain a documented exception / waiver from the customer.

Generic QMS Process Model



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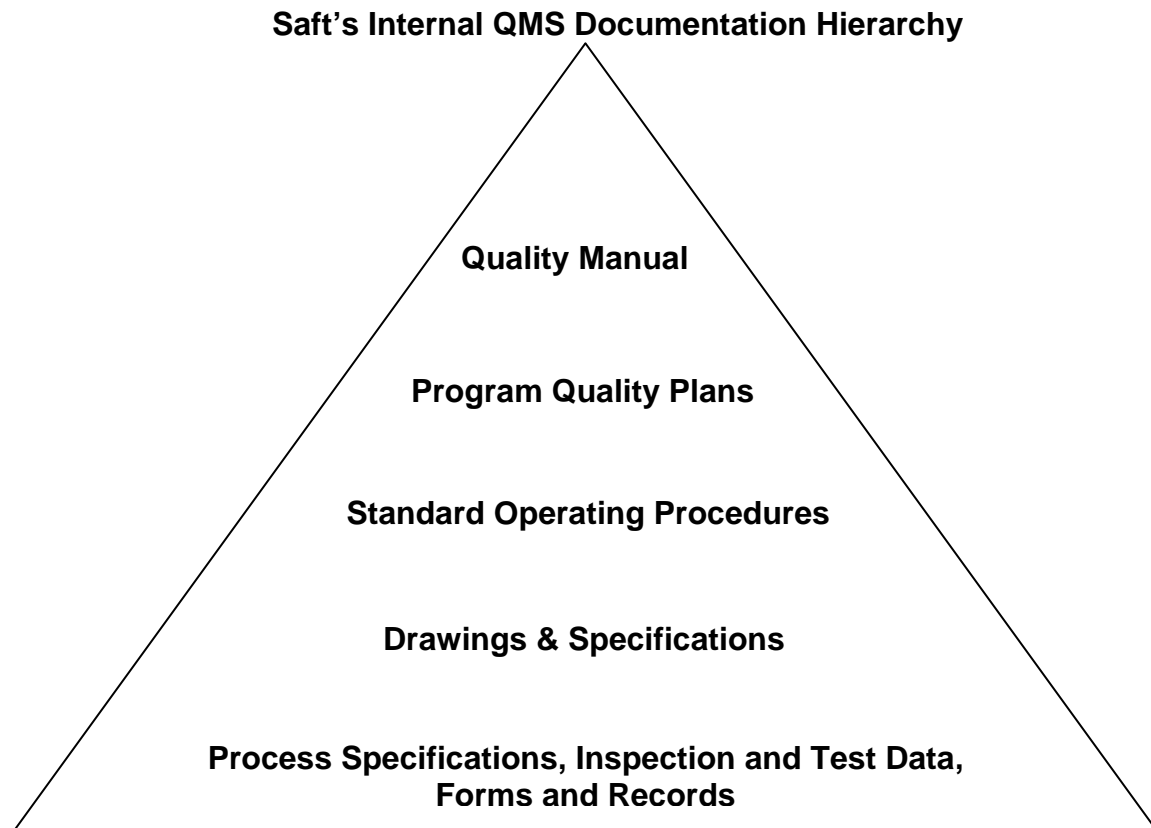
4.2 Documentation Requirements:


4.2.1 General: (Ref. SOP 153, 421)

The Quality Management System (QMS) documentation includes:

- a) documented statements of a quality policy and quality objectives
- b) a quality manual
- c) documented procedures and records required by this Quality Manual
- d) documents, including records, determined by Saft to be necessary to ensure effective planning, operation and control of its processes
- e) records required by this Quality Manual
- f) ***quality system requirements imposed by applicable statutory and regulatory authorities.***

Saft has ensured, and will continue to ensure, that affected personnel have appropriate access to and are aware of the QMS documentation, and that affected personnel are aware of relevant procedures (and associated work instructions, forms, etc.). Saft grants customers and applicable statutory and regulatory authorities freedom of access to the QMS documentation.



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4.2.2 Quality Manual: (Ref. SOP 153)

Saft has established and maintains a quality manual that includes

- a) the scope of the quality management system, including details of, and justification for, any exclusions,
- b) the documented procedures established for the QMS or reference to them, and
- c) a description of the interaction between the processes of the quality management system.

When and where the Quality Manual makes reference to pertinent / applicable QMS procedures – those references are clearly shown throughout (imbedded within) the text of the manual. Furthermore, Saft has clearly shown the linkage / cross-reference between the requirements in AS9100 and the Saft Quality Manual and QMS procedures. See Table I near the back of this manual.

4.2.3 Control of Documents: (Ref. SOP 412, 416)


Saft controls a variety of documents required by the quality management system. Quality records are a special type of document and are controlled according to the requirements given in paragraph 4.2.4 below.

Throughout this document and related QMS procedures, various forms / electronic formats are exhibited. They are controlled by virtue of their inclusion in the controlled QMS document.

Saft procedures define the controls needed to:

- a) approve documents for adequacy prior to issue,
- b) review and update as necessary and re-approve documents,
- c) ensure that changes and the current revision status of documents are identified,
- d) ensure that relevant versions of applicable documents are available at points of use,
- e) ensure that documents remain legible and readily identifiable,
- f) ensure that documents of external origin ***determined by the organization to be necessary for the planning and operation of the quality management system*** are identified and their distribution controlled, and
- g) prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

Saft coordinates changes to controlled QMS documentation with its customer and statutory and regulatory authorities – as pre-

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scribed in, and according to contractual and/or statutory and regulatory requirements.

4.2.4 Control of Records: (Ref. SOP 412)

Records are established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system and shall be controlled. Records shall remain legible, readily identifiable and retrievable. A documented procedure shall be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records. Retention times will be based upon contract and/or statutory and regulatory requirements.

Saft has also defined the method used by Saft to control QMS records that are created by and/or retained by its suppliers.

Saft grants its customers and regulatory authorities freedom to access and review pertinent QMS records – as prescribed in, and according to, contractual and/or statutory and regulatory requirements.

4.2.5 Control of QMS Forms: (Ref. SOP 412)


Forms pertinent to Saft's QMS are controlled by inclusion of the form directly within the applicable governing procedure, work instruction, process specification, etc.

5. Management Responsibility

5.1 Management Commitment: (Ref. SOP 409)

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

- a) communicating to Saft the importance of meeting customer as well as statutory and regulatory requirements,
- b) establishing the quality policy,
- c) ensuring that quality objectives are established,
- d) conducting management reviews, and
- e) ensuring the availability of resources.

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5.2 Customer Focus: (Ref. SOP 409)

Top management ensures that customer requirements are determined and are met with the aim of enhancing customer satisfaction.


Top management ensures that product conformity and on-time delivery performance are measured and that appropriate action is taken if planned results are not, or will not be, achieved.

5.3 Quality Policy: (Ref. SOP 153)

Saft – Space and Defense Division is committed to satisfying our Customers by providing them with high quality products and services, on time and every time, and to continually improve the effectiveness of Saft's Quality Management System and its processes, while achieving Corporate expectations for growth and profitability.

Top management ensures that the quality policy:

- a) is appropriate to the purpose of Saft,
- b) includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system,
- c) provides a framework for establishing and reviewing quality objectives,
- d) is communicated and understood within Saft, and
- e) is reviewed for continuing suitability.

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5.4 Planning:

5.4.1 Quality Objectives: (Ref. SOP 409, 421)

Saft's top management has ensured that quality objectives, including those needed to meet requirements for product, are established at relevant functions and levels within Saft. The quality objectives are measurable and consistent with the Quality Policy.

5.4.2 Quality Management System Planning: (Ref. SOP 409, 421)

Top management ensures that:

- a) The planning of the quality management system is carried out in order to meet the requirements given in paragraph 4.1 above, as to achieve the quality objectives.
- b) The integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.
- c) Saft's Quality planning activity is a cross-functional effort involving Contract Administration, Program Management, Quality Assurance, Design Engineering and Process Engineering.

5.5 Responsibility, Authority and Communication:


5.5.1 Responsibility and Authority: (Ref. Table II, and SOP 409)

Top management ensures that responsibilities and authorities are defined and communicated within Saft. That definition is included in the Saft Organization Chart (Table II) and throughout the QMS Quality Manual, Procedures and Work Instructions. Further description of personnel responsibilities and interactions is provided in Table III at the back of this manual.

5.5.2 Management Representative: (Ref. SOP 409)

Top management has appointed a member of management (the Quality Manager) who, irrespective of other responsibilities, shall have responsibility and authority that includes:

- a) ensuring that processes needed for the quality management system are established, implemented and maintained,
- b) reporting to top management on the performance of the quality management system and any need for improvement, and
- c) ensuring the promotion of awareness of customer requirements throughout Saft.

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- d) ***the organizational freedom and unrestricted access to top management to resolve quality management issues.***
- e) ***That freedom is expressed by the reporting structure shown in Saft's Organization Chart.***

The Quality Engineer(s) has/have been appointed as "alternate of backup" management representative(s).

NOTE: The responsibility of a management representative can include liaison with external parties on matters relating to the quality management system.

5.5.3 Internal Communication: (Ref. SOP 409)

Top management ensures that an appropriate communication processes are established within Saft and that communication take place regarding the effectiveness of the quality management system. The monthly Management Review meetings communicate the effectiveness of the quality management system. Related information is also communicated during daily production meetings, departmental meetings, and 'all hands' meetings. Internal emails, memos and ad-hoc meetings also serve to communicate information about Saft's quality system. Results of QMS audits (internal, customer and 3rdParty) are communicated. Personal resumes and training records shall be maintained and used to evaluate the employee's ability to fulfill the requirements of assigned job functions. Management shall identify in-house verification requirements and provide adequate resources and trained personnel for verification activities and trained personnel for management and performance of work.


5.6 Management Review:

5.6.1 General: (Ref. SOP 409)

Top management reviews aspects of Saft's quality management system, on a monthly basis, to ensure the system's continuing suitability, adequacy and effectiveness. These reviews are incorporated as part of Saft's weekly staff meetings. Each individual monthly metrics review may not cover all aspects of the QMS.

5.6.2 Review input: (Ref. SOP 409)

However, at defined intervals, all aspects will be reviewed at least once. The reviews shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives. Records from management reviews are maintained.

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The review includes (as appropriate) information on:

- a) results of audits
- b) customer feedback
- c) process performance and product conformity
- d) status of preventive and corrective actions
- e) follow-up actions from previous management reviews
- f) changes that could affect the quality management system
- g) recommendations for improvement

5.6.3 Review output: (Ref. SOP 409)

The review may result in (as appropriate) decisions and actions related to:

- a) improvement of the effectiveness of the quality management system and its processes
- b) improvement of product related to customer requirements
- c) resource needs

6.0 Resource Management:

6.1 Provision of Resources: (Ref. SOP 410)

Saft determines and provide the resources needed to:

- a) implement and maintain the quality management system and continually improve its effectiveness, and
- b) enhance customer satisfaction by meeting customer requirements.

6.2 Human Resources: (Ref. SOP 410)


6.2.1 General

Personnel performing work affecting conformity to product requirements are deemed to be competent on the basis of appropriate education, training, skills, and experience.

6.2.2 Competence, Training, and Awareness:

Saft:

- a) determines the necessary competence for personnel performing work affecting conformity to product requirements,
- b) where applicable, provides training or take other actions to achieve the necessary competence,
- c) evaluates the effectiveness of the actions taken

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- d) ensures that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives
- e) maintains appropriate records of education, training, skills and experience.

6.3 Infrastructure: (Ref. SOP 153)

Saft determines, provides, and maintains the infrastructure needed to achieve conformity to product requirements. Infrastructure includes, as applicable

- a) buildings, workspace, and associated utilities,
- b) process equipment (both hardware and software), and
- c) supporting services (such as transport, communication, or information systems).

6.4 Work Environment: (Ref. SOP 153)

Saft determines and manages the work environment needed to achieve conformity to product requirements. ***Some factors that may impact the conformity of Saft's product may include: foreign object debris, temperature, humidity, cleanliness, electrostatic discharge, product/material handling and storage, etc.***


7.0 Product Realization:

7.1 Planning of Product Realization: (Ref. SOP 411, 416)

Saft plans and develops the processes needed for product realization. Planning of product realization is consistent with the requirements of the other processes of the Quality Management System.

When planning for product realization, Saft determines the following, as appropriate:

- a) quality objectives and requirements for the product
- b) the need to establish processes, documents, and provide resources specific to the product
- c) required verification, validation, monitoring, measurement, inspection and test activities specific to the product and the criteria for product acceptance
- d) records needed to provide evidence that the realization processes and resulting product meet requirements the identification of resources to support the operation and ***maintenance of Saft's product (when/if applicable and contractual).***
- e) ***Configuration management appropriate to the product***
- f) ***Resources to support the use and maintenance of the product***

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The output of this planning is in a form suitable for Saft's method of operations and generally includes routers/travelers, bills of material, assembly drawings, procedures and work instructions, schematics, test plans, etc.

7.1.1 Project Management (SOP 416)

As appropriate to Saft and the product, Saft manages product realization in a structured and controlled manner to meet requirements at acceptable risk, within resource, and schedule constraints.

7.1.2 Risk Management (SOP 40032)

Saft establishes, implements, and maintains a process for managing risk to the achievement of applicable requirements, that includes as appropriate to Saft and the product:


- a) assignment of responsibilities for risk management,
- b) definition of risk criteria (i.e. likelihood, consequences, risk acceptance),
- c) identification, assessment and communication of risks throughout product realization
- d) identification, implementation and management of actions to mitigate risks that exceed the defined risk acceptance criteria, and
- e) acceptance of risks remaining after implementation of mitigating actions

7.1.3 Configuration Management (SOP 412)

Saft has established, documented, implemented, and maintains a Configuration Management (CM) Process that is appropriate to its products. See procedure SOP 412 (Configuration Management). Among other things, the process helps Saft insure that: 1) correct configurations of the product are delivered for testing; and 2) differences between actual (as built) and agreed-upon configurations are identified.

Basic components and considerations of the 'CM' process include (but are not limited to):

- ***Design and development change control***
- ***Engineering drawing change control***
- ***Manufacturing drawing change control***
- ***QMS documentation change control***
- ***Manufacturing process change control***
- ***Software revision change control***
- ***Number Identification of components, sub-assemblies and assemblies***
- ***Procurement source traceability of selected items***
- ***Manufacturing Batch /Lot traceability***

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- ***Serialization of selected components, sub-assemblies and assemblies***

7.1.4 Control of Work Transfers (Ref. SOP 020, 411, 412, 419, 485)

When / if Saft plans to transfer work outside of their facility they will establish, implement, and maintain a process to plan and control the temporary or permanent transfer of work and verify the conformity of the work to requirements

7.2 Customer-Related Processes:

7.2.1 Determination of Requirements Related to the Product: (Ref. SOP 405)

Saft determines:

- requirements specified by the customer, including the requirements for delivery and post-delivery activities,
- requirements not stated by the customer but necessary for specified or intended use, where known,
- statutory and regulatory requirements applicable to the product, and,
- any additional requirements considered necessary by Saft.


7.2.2 Review of requirements related to the product (Ref. SOP 405)

Saft reviews the requirements related to the product. This review shall be conducted prior to Saft's commitment to supply a product to the customer (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders) and shall ensure that:

- product requirements are defined
- contract or order requirements differing from those previously expressed are identified and resolved to the customer's satisfaction (including all items identified above (7.2.1 b,c,d) but not identified formally by the customer).
- Saft has the ability to meet the defined requirements
- Special requirements of the product are determined and***
- risks (e.g. new technology, short delivery time frame, etc.) are identified.***

Records of the results of the review, and actions arising from the review, are maintained.

Where the customer provides no documented statement of requirement, the customer requirements shall be confirmed by Saft before

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acceptance. Where product requirements are changed, Saft shall ensure that relevant documents are amended and that relevant personnel are made aware of the changed requirements.

NOTE In some situations, such as internet sales, a formal review is impractical for each order. Instead the review can cover relevant product information such as catalogues or advertising material.

7.2.3 Customer Communication: (Ref. SOP 405)

Saft has determined and implemented effective arrangements for communicating with its customers, using accepted industry methods) in relation to:

- a) product information
- b) enquiries, contracts or order handling, including amendments
- c) customer feedback, including customer complaints.

7.3 Design and Development:

7.3.1 Design and Development Planning: (Ref. SOP 167, 339, 416, 419, 400003, 400004)


Saft plans and controls the design and development of product and associated deliverable software. During the design and development planning, Saft determines: the design and development stages – respective of organization, task sequence, mandatory steps, significant stages, and methods of **configuration control**

- a) the review, verification and validation that are appropriate to each design and development stage
- b) the responsibilities and authorities for design and development

When appropriate for the complexity of the design and development effort, Saft divides the design and development effort into distinct activities and for each activity define:

- ***the tasks***
- ***necessary resources***
- ***responsibilities***
- ***design content***
- ***input and output data and***
- ***planning constraints***

Different design and development tasks being carried out are based on the safety and functional objectives of the product – in accordance with applicable customer, statutory and regulatory requirements.

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Design and Development planning considers the ability to produce, inspect, test, and maintain the product.

Saft manages the interfaces between different groups involved in design and development to ensure effective communication and clear assignment of responsibility.

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

Note: Design and Development review, verification, and validation have distinct purposes. As suitable for Saft's products, they can be conducted and recorded separately or in any combination.

7.3.2 Design and Development Inputs: (Ref. SOP 167, 339, 416, 419, 400003, 400004)

Inputs relating to product requirements are determined and records maintained. These inputs include:

- a) functional and performance requirements
- b) applicable statutory and regulatory requirements
- c) where applicable, information derived from previous similar designs
- d) other requirements essential for design and development


The inputs are reviewed for adequacy, and to insure that they are complete, unambiguous and not in conflict with each other.

7.3.3 Design and Development Outputs: (Ref. SOP 167, 339, 416, 419, 400003, 400004)

Design and development outputs are provided in a form that ***is suitable for Saft to verify them against the design and development input. Outputs are approved prior to release.***

Design and development outputs:

- a) meet the input requirements for design and development
- b) provide appropriate information for purchasing, production and for service provision
- c) contain or reference product acceptance criteria
- d) specify the characteristics of the product that are essential for its safe and proper use.
- e) ***specify, as applicable, any critical items, including any key characteristics, and specific actions to be taken for these items.***

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As required by each contract, Saft defines the data required to permit the product to be identified, manufactured, inspected and tested, and used and maintained. Such data may include (but is not limited to):

- ***the drawings, parts lists and specifications necessary to define the configuration and the design features of the product***
- ***the material, processes, manufacturing and assembly data needed to ensure product conformity***

7.3.4 Design and Development Review: (Ref. SOP 167, 339, 416, 419, 400003, 400004)

At suitable stages, systematic design and development reviews are performed in accordance with planned arrangements to: evaluate the ability of the results of design and development to meet requirements

- a) identify any problems and propose necessary actions
- b) *authorize progression to the next stage***

Participants in such reviews include representatives of functions concerned with the design and development stage(s) being reviewed. Records of the results of the reviews and any necessary actions are maintained.


7.3.5 Design and Development Verification: (Ref. SOP 167, 339, 416, 419, 400003, 400004)

Verification is performed in accordance with planned arrangements to ensure that the design and development outputs have met the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained. Verification may be truncated by the requirements of a specific contract.

7.3.6 Design and Development Validation: (Ref. SOP 167, 339, 416, 419, 400003, 400004)

Design and development validation shall be performed in accordance with planned arrangements to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use, where known. Wherever practicable, validation shall be completed prior to the delivery or implementation of the product. Records of the results of validation and any necessary actions shall be maintained.

7.3.6.1 *Design and Development Verification and Validation testing:*

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Where Saft performs tests needed for verification and validation, those tests are planned, documented, controlled, reviewed and approved – to ensure and prove:

- a) test plans and specifications identify the product being tested and the resources being used, define the test objectives and conditions, parameters to be recorded, and relevant acceptance criteria,*
- b) test procedures describe the method of operation, the performance of the test, and the recording of results,*
- c) the correct configuration standard of the product is submitted for test,*
- d) the requirements of the test plan and the test procedures are followed,*
- e) the established acceptance criteria are met.*

7.3.6.2 Design and/or Development Verification and Validation Documentation:

At the completion of design and/or development activity, Saft ensures that:

- pertinent documentation demonstrates that the product definition meets the specification requirements for all identified operational conditions. Such documentation may include various reports, calculations, and inspection and test results.*


7.3.7 Control of Design and Development Changes: (Ref. 412)

Design and development changes shall be identified and records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of design and development changes shall include evaluation of the effect of the changes on constituent parts and product already delivered.

Saft's design / development change control process provides for notification and approval of changes to its customers and regulatory authorities, when this is required by either contract or regulatory requirement.

Design and development changes are controlled in accordance with Saft's Configuration Management process.

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

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7.4 Purchasing:

7.4.1 Purchasing Process: (Ref. SOP 267, 268, 327, 328, 448)


Saft ensures that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization or the final product.

Saft understands that it is responsible for the conformity of all products purchased from its suppliers, including those sources defined by the customer.

Saft evaluates and selects suppliers based on their ability to supply product in accordance with Saft's requirements. Criteria for selection, evaluation and re-evaluation shall be established. Records of the results of evaluations and any necessary actions arising from the evaluation are maintained.

As part of their Purchasing activity, Saft:

- a) maintains a register (including the 'scope of approval') of suppliers,***
- b) periodically reviews the performance of its suppliers, the results of the reviews are used as a basis for determining the level of control to be exercised over suppliers,***
- c) has defined the necessary actions to be taken when dealing with suppliers that do not meet requirements, or whose performance is not acceptable,***
- d) ensures (when required) that they, and their suppliers, used customer-approved special process sources,***
- e) defines the process, responsibilities and authority for the approval status decision, changes of the approval status and conditions for a controlled use of suppliers depending on their approval status***
- f) determines and manages the risk associated when selecting and using suppliers***

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7.4.2 Purchasing Information: (Ref. SOP 267, 268, 327, 328, 448)


Purchasing information describes the product to be purchased, including where appropriate:

- a) requirements for approval of product, procedures, processes and equipment,
- b) requirements for qualification of personnel,
- c) quality management system requirements,
- d) ***the identification, and revision status of specs, drawings, process requirements, inspection/verification instructions, and other relevant documents and technical data,***
- e) ***requirements for design, test, inspection, verification, use of statistical techniques for product acceptance, and related instructions for acceptance by Saft, and as applicable critical items including key characteristics***
- f) ***requirements for test specimens (e.g. production method, number, storage conditions) for design approval, inspection/verification, investigation or auditing,***
- g) ***requirements regarding the need for the supplier to:***
 - ***notify Saft of nonconforming product, and***
 - ***obtain Saft's approval of such nonconforming product,***
 - ***notify Saft of any changes in their product and/or process, changes of suppliers, change of manufacturing facility location and where required obtain Saft's approval, and***
 - ***flow down to the supply chain the applicable requirements including customer requirements,***
- h) ***records retention requirements, and***
- i) ***right of access by Saft, their customers and regulatory authorities to the applicable areas of all facilities, at any level of the supply chain, involved in the order and to all applicable records***

Saft ensures the adequacy of specified purchase requirements prior to their communication to the supplier.

7.4.3 Verification of Purchased Product: (Ref. SOP 413)

Saft shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements.

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Saft utilizes a combination of purchased product verification activities including (but not limited to):

- a) obtaining objective evidence from suppliers on the conformity of the product (such as certs, inspection/test reports, SPC data, etc.),***
- b) inspection and audit at the supplier's facility,***
- c) review of required documentation,***
- d) inspection of product upon receipt at Saft,***
- e) delegation of verification authority to the supplier, and***
- f) supplier certification***

Product purchased by Saft is seldom used or further processed before it has been verified as conforming to requirements. In exceptional cases, product may be released prior to verification – but Saft has the ability to recall that product should eventual verification indicate a nonconformance.

When Saft utilizes test reports (e.g. certificates of conformance or analysis) to verify purchased product, the data in those reports will be reviewed to insure it is acceptable per the applicable specifications.


For purchased raw materials, Saft will periodically validate incoming test reports (e.g. certificates of analysis).

When Saft delegates verification authority to its suppliers, information regarding that delegation is defined and maintained in a register.

Where Saft or its customer intends to perform verification at the supplier's premises, Saft will state the intended verification arrangements and method of product release in the purchasing information.

Product verification by Saft's customer is not used by Saft as a means of effective control over the supplier, nor does such verification by the customer absolve Saft of the responsibility to provide acceptable product to the customer, nor does it preclude subsequent rejection by the customer.

The exception to this is when the contract specifies either customer-furnished material or a specific part or supplier, and absolves Saft of the responsibility for the part or supplier quality.

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7.5 Production and Service Provision:


7.5.1 Control of Production and Service Provision: (Ref. SOP 020, 411, 412, 419, 485)

During planning for production and service, Saft considers, as applicable:

- *the establishment, implementation and maintenance of appropriate processes to manage critical items, which include process controls where key characteristics have been identified,*
- *the identification of in-process inspection/verification points when adequate verification of conformance cannot be performed at later stages of realization,*
- *the designing, manufacturing, and use of tooling to measure variable data, and*
- *special processes.*

Saft plans and carries out production and service provision under controlled conditions. Controlled conditions include, as applicable

- a) the availability of information that describes the characteristics of the product,
- b) the availability of work instructions, as necessary,
- c) the use of suitable equipment,
- d) the availability and use of monitoring and measuring equipment,
- e) the implementation of monitoring and measurement,
- f) the implementation of product release, delivery and post-delivery activities,
- g) *accountability for all product during production (e.g. part quantities, split lots and batches, nonconforming product, rework, etc.),***
- h) *evidence that all production and inspection/verification operations have been performed as planned, or otherwise documented and authorized,***
- i) *provisions for the prevention, detection and removal of foreign objects,***
- j) *monitoring and control of utilities and supplies (e.g. water, compressed air, electricity, chemicals, etc.) – to the extent that they affect conformity to product requirements,***
- k) *criteria for workmanship, which is specified in the clearest practical way (e.g. written standards, representative samples, photographs, illustrations, etc.).***

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7.5.1.1 Production Process Verification: (Ref. SOP 268, 413, 416, AS9102)

Saft's QMS provides a process for the inspection, verification and documentation of a representative item from the first production lot of a new part or assembly to verify the production processes, production documentation and tooling are capable of producing parts and assemblies that meet requirements. The process is again repeated when changes occur that invalidate the original results.

7.5.1.2 Control of Production Process Changes: (Ref. SOP 020, 411, 412, 419, 485)

Personnel authorized to approve changes to production processes have been identified.

Changes affecting processes, production equipment, tools and software programs are documented, and, in accordance with Saft's procedures.

The results of changes to production processes are evaluated to confirm that the desired effect was achieved without causing adverse impact on product conformity. This evaluation may be done prior to implementation when required by contract.

7.5.1.3 Control of Production Equipment, Tools and Software Programs: (Ref. SOP 020, 411, 412, 419, 485)


Production equipment, tools and software programs used to automate and control/monitor product realization processes are validated prior to release for production, and are maintained and periodically inspected per Saft procedure.

Saft has defined storage requirements (including preservation and condition checks) for production equipment and tooling in storage.

7.5.1.4 Post Delivery Support (Ref. SOP 020, 411, 412, 419, 485)

Saft's post delivery support provides as applicable for

- a) collection and analysis of in-service data,***
- b) actions to be taken, including investigation and reporting, when problems are detected after delivery,***
- c) control and updating of technical documentation,***

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- d) *approval, control and use or repair schemes,*
- e) *controls required for off-site work (e.g. Saft work performed at a customer's facility).*

7.5.2 Validation of Processes for Production and Service: (Ref. SOP 020, 411, 412, 419)

Saft validates any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement. *As a consequence deficiencies become apparent only after the product is in use or the service has been delivered. These are often referred to as 'special processes'.*

Validation demonstrates the ability of these processes to achieve planned results.

Saft has established arrangements for these processes including, as applicable:

- a) defined criteria for review and approval of the processes
- b) approval of equipment and qualification of personnel,
- c) use of specific methods and procedures
- d) requirements for records,
- e) *revalidation after changes*

7.5.3 Identification and Traceability: (Ref. SOP 411, 412, 413, 420)

Where appropriate, Saft shall identify the product by suitable means throughout product realization.


Saft maintains the identification of the configuration of the product in order to identify any differences between the actual configuration (as built) and the agreed configuration.

Saft shall identify the product status with respect to monitoring and measurement requirements throughout product realization.

When 'acceptance authority media' are used (e.g. stamps, passwords and Electronic signatures, etc.) Saft maintains and controls them according to documented procedure.

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

Within Saft, the configuration management process is a means by which identification and traceability are maintained.

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7.5.4 Customer Property: (Ref. SOP 411, 415, 40024)

Saft exercises care with customer property while it is under Saft's control or being used by Saft. Saft identifies, verifies, protects and safeguards customer property provided for use or incorporation into the product. If any customer property is lost, damaged or otherwise found to be unsuitable for use, Saft shall report this to the customer and records maintained. *Customer property may include intellectual property and personal data.* Customer property is controlled by contractual requirements agreed to with the customer.

7.5.5 Preservation of Product: (Ref. SOP 020, 241, 411, 485)

Saft preserves the product during internal processing and delivery to the intended destination in order to maintain conformity to requirements. This preservation, as applicable, includes identification, handling, packaging, storage and protection. Preservation also applies to the constituent parts of a product.

Saft's product preservation activities / practices include where applicable in accordance with product specifications and applicable statutory and regulatory requirements, provisions for:


- a) ***cleaning,***
- b) ***prevention, detection and removal of foreign objects,***
- c) ***special handling for sensitive products,***
- d) ***marking and labeling, including safety warnings,***
- e) ***shelf life control and stock rotation, and***
- f) ***special handling for hazardous materials***

7.6 Control of Monitoring and Measuring Devices: (Ref. SOP 401)

Saft has determined the monitoring and measurement to be undertaken and the monitoring and measuring equipment needed to provide evidence of conformity of product to determined requirements.

Saft maintains a register of those monitoring and measuring equipment, and has defined the process(es) employed for their calibration/verification – including details such as equipment type, unique identification, location, frequency of checks, check method(s), and acceptance criteria.

Personally-owned and customer-supplied equipment (if/when used to determine product conformity) will be subject to Saft's calibration system.

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Saft has established processes to ensure that monitoring and measurement are carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements. **Further, Saft insures that environmental conditions are suitable for their calibration, measurement, inspection and testing activities.**

Where necessary to ensure valid results, measuring equipment is:

- a) calibrated or verified or both at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification is recorded,
- b) adjusted or re-adjusted as necessary,
- c) identified in order to determine the calibration,
- d) safeguarded from adjustments that would invalidate the measurement result;
- e) protected from damage and deterioration during handling, maintenance and storage,.

Saft has established, implemented and maintains a process for the recall of monitoring and measuring equipment requiring calibration or verification.

In addition, Saft assesses and records the validity of the previous measuring results when the equipment is found not to conform to requirements. Saft takes appropriate action on the equipment and any product affected. Records of the results of calibration and verification are maintained.

When used in the monitoring and measurement of specified requirements, the ability of computer software to satisfy the intended application is confirmed. This is undertaken prior to initial use and reconfirmed as necessary.


8.0 Measurement, Analysis and Improvement:

8.1 General: (Ref. SOP 421)

Saft plans and implements the monitoring, measurement, analysis and improvement processes needed to:

- a) demonstrate conformity to product requirements
- b) ensure conformity of the quality management system
- c) continually improve the effectiveness of the quality management system.

This includes determination of applicable methods, including statistical techniques, and the extent of their use.

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Saft may (when and as deemed appropriate) apply a variety of statistical techniques to applications such as:

- ***design verification (e.g. safety, reliability, maintainability, etc.),***
- ***process control***
 - ***statistical process control,***
 - ***selection and inspection of key characteristics,***
 - ***process capability measurements,***
 - ***design of experiments,***
- ***inspection***
- ***failure mode, effect, and criticality analyses for designs and processes,***

8.2 Monitoring and Measurement: (Ref. SOP 421)

8.2.1 Customer Satisfaction: (Ref. SOP 421)

As one of the measurements of the performance of their quality management system, Saft monitors information relating to customer perception as to whether Saft has met customer requirements. Contract Administration, Program Management and Quality Assurance are the primary sources of information on customer satisfaction. Saft determines customer satisfaction based on a composite of the following information:


- repeat business,
- product conformity
- on-time delivery,
- customer complaints,
- corrective action requests
- audit findings,
- customer source inspection,
- surveys,
- daily feedback.

Saft has plans for customer satisfaction improvement that address deficiencies identified by the above evaluations, and assesses the effectiveness of the results.

8.2.2 Internal Audit: (Ref. SOP 407)

Saft conducts internal audits at planned intervals to determine whether their quality management system:

- a) conforms to the planned arrangements (including customer contractual requirements) to the requirements of this Quality Manual and to the quality management system requirements established by Saft is effectively implemented and maintained

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An audit program has been planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods are defined. Selection of auditors and conduct of audits ensure objectivity and impartiality of the audit process. Auditors do not audit their own work.

The responsibilities and requirements for planning and conducting audits, and for reporting results and establishing records are defined in a documented procedure.

The management responsible for the area being audited ensures that any necessary corrections and corrective actions are taken without undue delay to eliminate detected nonconformities and their causes. Follow-up activities include the verification of the actions taken and the reporting of verification results.

8.2.3 Monitoring and Measurement of Processes: (Ref. SOP 421)

Saft applies suitable methods for monitoring and, where applicable, measurement of the quality management system processes. These methods demonstrate the ability of the processes to achieve planned results. To ensure conformity of the product when these results are not achieved, correction and corrective action is taken, as appropriate.


In the event of a process nonconformity, Saft will:

- a) take appropriate action to correct the nonconforming process,***
- b) evaluate whether or not the process nonconformance resulted in a product nonconformity, and***
- c) determine if the process nonconformity is limited to a specific case or whether it could have affected other processes or products***
- d) identify and adequately control and disposition any non-conforming product.***

8.2.4 Monitoring and Measurement of Product: (Ref. SOP 413)

Saft monitor and measures the characteristics of its product to verify that product requirements have been met. This is carried out at appropriate stages of the product realization in accordance with the planned arrangements.

Measurement requirements for product or service acceptance are documented. This documentation, which may be part Saft's production and/or quality information, includes:

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- a) *criteria for acceptance and/or rejection,*
- b) *an indication as to where in the sequence of events, the measuring and testing operations are to be performed,*
- c) *required records of the measurement results expressed in attribute terms (at a minimum indication of acceptance or rejection),*
- d) *any specific measurement instruments required and associated specific user instructions (if any).*

When critical items, including key characteristics (associated with products and processes) are identified by Saft or their customers, they are monitored and controlled in accordance with the established processes.

When Saft uses sampling inspection / test plans as a means of product acceptance, the sampling plans:


- *are statistically valid,*
- *are appropriate for the particular application,*
- *preclude the acceptance of lot populations whose selected sample contains one (1) or more rejections – except when allowed / required by contract,*
- *submitted for customer approval, when required.*

Product is rarely used until it has been inspected, tested, or otherwise verified as conforming to specified requirements. In exceptional cases (i.e. 'urgent release', etc.) product may be released prior to completion of verification activities. In those unusual cases, the product will be identified and controlled under positive recall procedures – pending the completion of the required monitoring and measuring activity.

Product release and service delivery does not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer.

Where required to demonstrate product qualification, Saft ensures that records provide objective evidence that the product meets defined requirements.

Saft ensures that documents required by the contract or order to accompany the product are available and present at the time of delivery, and that those documents are protected against loss or deterioration during transit.

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8.3 Control of Nonconforming Product: (Ref. SOP 402, 415)

Saft ensures that product which does not conform to product requirements is identified and controlled to prevent its unintended use or delivery. The controls and related responsibilities and authorities for dealing with nonconforming product are defined in a documented procedure.

As applicable, Saft exercises its nonconforming product controls over that which is returned from customers.

Saft's documented procedure defines the responsibility for review, and authority for the review and disposition of nonconforming product, and describes the process for approving personnel making those decisions.

Saft deals with nonconforming product by one or more of the following ways, where applicable:


- a) by taking action to eliminate the detected nonconformity;
- b) by authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer;
- c) by taking action to preclude its original intended use or application.
- d) by taking action appropriate to the effects, or potential effects, of the nonconformity when nonconforming product is detected after delivery or use has started
- e) by taking necessary actions to contain the effect of the nonconformity on other processes or products.

Nonconforming product dispositions of 'use as is' or repair are not used by Saft, unless specifically authorized by the customer (or delegated authority) – if the product is produced to customer design requirements, or if the nonconformity departs from contract requirements. However, Saft may apply dispositions of 'use as is' (unless restricted by contract) on customer-controlled designs –provided the nonconformance does not result in a departure from customer-specified requirements.

Nonconforming product that has been dispositioned for scrap (to be scrapped) is conspicuously and permanently marked, or otherwise positively controlled, until it is physically rendered unusable.

Records of the nature of nonconformities and any subsequent actions taken, including concessions obtained, shall be maintained.

When nonconforming product is corrected it shall be subject to re-verification to demonstrate conformity to the requirements.

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8.4 Analysis of Data: (Ref. SOP 409, 421)

Saft determines, collects and analyzes appropriate data to demonstrate 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. This includes data generated as a result of monitoring and measurement of Saft's products and QMS processes, and from other relevant sources (both internal and external). Data analysis is conducted on an ongoing basis primarily by Program Managers, Process Engineers and by members of Quality Assurance. Pertinent results of this data analysis activity are applied throughout the organization as appropriate, and are provided as input to Management Review.

The analysis of data provides management with information relating to:

- a) customer satisfaction,
- b) product conformity,
- c) process performance,
- d) characteristics and trends of processes and products,
- e) opportunities for corrective and preventive action,
- f) supplier performance,
- g) continual improvement,
- h) on-time delivery, and
- i) customer complaints.

8.5 Improvement:

8.5.1 Continual Improvement: (Ref. SOP 402, 407, 409, 417)


Saft endeavors to continually improve the effectiveness of its QMS through the use of the quality policy, quality objectives, audit results, analysis of data, resolution of nonconforming product, corrective and preventive actions, QMS Management Reviews, and special programs/events like "5S", SMED, PDCA, etc. Saft monitors improvement activities and evaluates the effectiveness of the results.

8.5.2 Corrective Action: (Ref. SOP 402, 417)

When nonconformities do occur, Saft takes action to eliminate the causes of the nonconformities in order to prevent their recurrence. Corrective actions are appropriate to the effects and severity of the nonconformities encountered.

A documented procedure has been established and defines requirements for:

- a) reviewing nonconformities (including customer complaints),
- b) determining the causes of nonconformities,

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- c) evaluating the need for action to ensure that nonconformities do not recur,
- d) determining and implementing action needed,
- e) recording of the results of action taken,
- f) reviewing the effectiveness of the corrective action taken,
- g) *flowing down of the corrective action requirements to suppliers, when it is determined that they are responsible (in whole or in part) for the root cause,***
- h) *taking specific actions when corrective action responses are either untimely and/or ineffective.***
- i) Determining if additional nonconforming product exists based on the causes of the nonconformities and takes further action when required.

8.5.3 Preventive Action: (Ref. SOP 402, 417)

Saft shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems.

A documented procedure shall be established to define requirements for:

- a) determining potential nonconformities and their causes,
- b) evaluating the need for action to prevent occurrence of nonconformities,
- c) determining and implementing action needed,
- d) records of results of action taken,
- e) reviewing the effectiveness of the preventive action taken.



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TABLE I
AS9100 and ISO 9001
Cross Reference

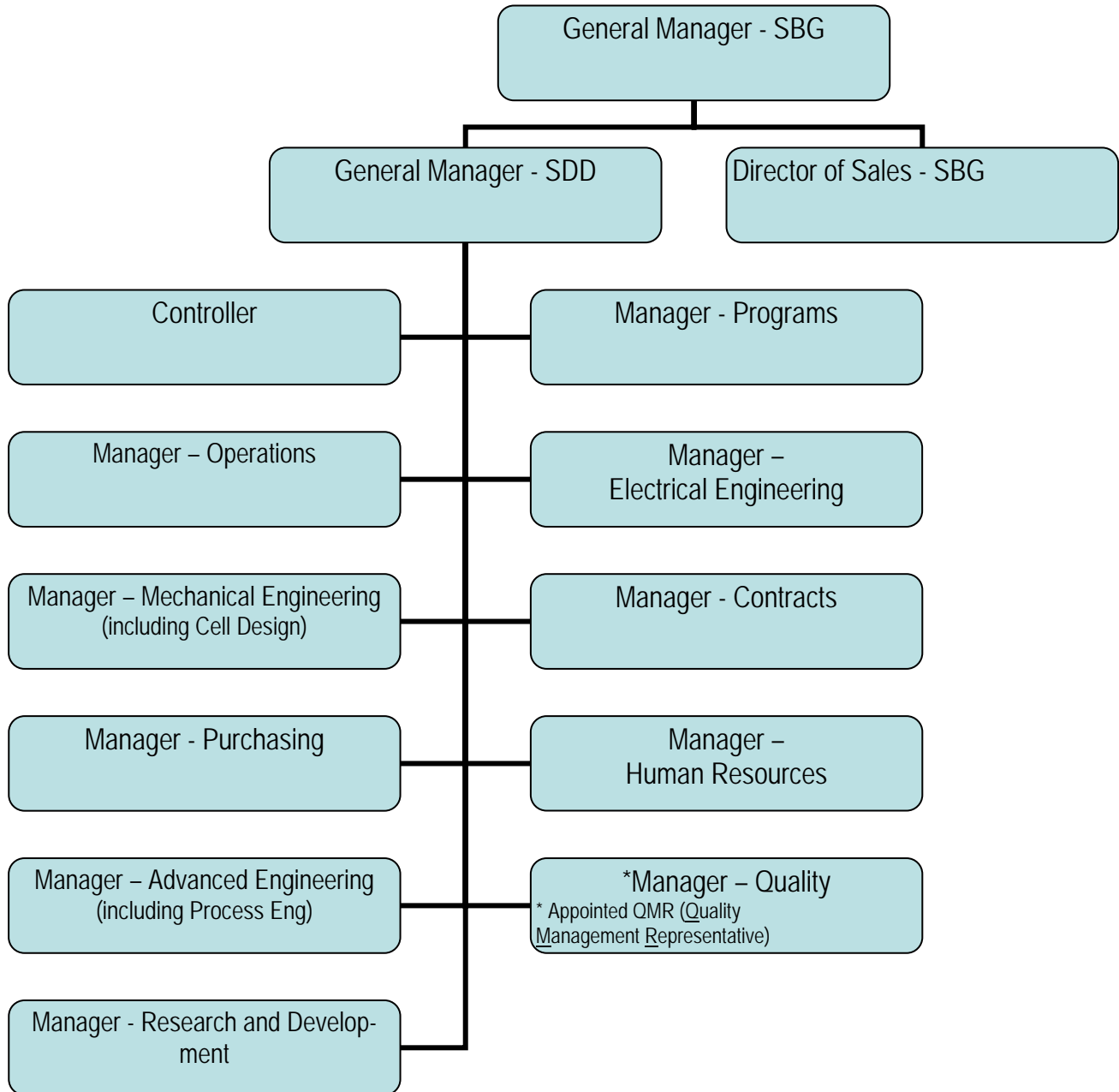
AS9100 Element	DESCRIPTION	Saft Document (SOP)
4.	Quality Management Systems	
4.1	General Requirements	153, 421
4.2	Documentation Requirements	
4.2.1	General	153, 421
4.2.2	Quality Manual	153
4.2.3	Control of Documents	412, 40020, 416
4.2.4	Control of Records	412
5.	Management Responsibility	
5.1	Management Commitment	409
5.2	Customer Focus	409
5.3	Quality Policy	153
5.4	Planning	
5.4.1	Quality Objectives	409, 421
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7.1.1	Project Management	416
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7.1.3	Configuration Management	412, 415, 419
7.1.4	Control of work transfers	020, 411, 412, 419, 485
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7.2.2	Review of Requirements Related to the Product	405
7.2.3	Customer Communication	405
7.3	Design and Development	
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7.3.2	Design and Development Inputs	167, 339, 416, 419, 400003, 400004
7.3.3	Design and Development Outputs	167, 339, 416, 419, 400003, 400004
7.3.4	Design and Development Review	167, 339, 416, 419, 400003, 400004
7.3.5	Design and Development Verification	167, 339, 416, 419, 400003, 400004
7.3.6	Design and Development Validation	167, 339, 416, 419, 400003, 400004
7.3.6.1	Design and development verification and validation testing	167, 339, 416, 419, 400003, 400004
7.3.6.2	Design and Development Verification and Validation documentation	167, 339, 416, 419, 400003, 400004
7.3.7	Control of Design and Development Changes	412
7.4	Purchasing	
7.4.1	Purchasing Process	267, 268, 327, 328, 448
7.4.2	Purchasing Information	267, 268, 327, 328, 448
7.4.3	Verification of Purchased Product	413
7.5	Production and Service Provision	
7.5.1	Control of Production and Service Provision	020, 411, 412, 419, 485
7.5.1.1	Production process verification	020, 411, 412, 419, 485, 268, 413, 416, AS9102
7.5.1.2	Control of Production Process Changes	020, 411, 412, 419, 485
7.5.1.3	Control of Equipment, Tools, and software programs	020, 411, 412, 419, 485
7.5.1.4	Post Delivery Support	402, 020, 411, 412, 419, 485
7.5.2	Validation of Processes for Production and Service Provision	020, 411, 412, 419
7.5.3	Identification and Traceability	411, 412, 413, 420
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8.3	Control of Nonconforming Product	402, 415
8.4	Analysis of Data	409, 421
8.5	Improvement	
8.5.1	Continual Improvement	402, 407, 409, 417
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8.5.3	Preventive Action	402, 417

TABLE II

Generic Organizational Chart





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TABLE III

Key

GM = General Manager
CONT = Contracts
MFG = Manufacturing
ENG = Engineering
PER = Personnel (Human Resources)
MTN = Maintenance
PRO = Process Engineering
PRCH = Purchasing
QM = Quality Management
PM = Program Management

AS9100 Element	DESCRIPTION	PRIMARY RESPONSIBILITY
4.	Quality Management Systems	
4.1	General Requirements	QM
4.2	Documentation Requirements	
4.2.1	General	QM
4.2.2	Quality Manual	QM
4.2.3	Control of Documents	QM, PM, MFG
4.2.4	Control of Records	QM, PM, MFG, ENG, PRCH, CONT, CAL, PER, MTN
5.	Management Responsibility	
5.1	Management Commitment	QM, GM
5.2	Customer Focus	QM, GM, PM, CONT, MFG, PRCH
5.3	Quality Policy	QM, GM
5.4	Planning	
5.4.1	Quality Objectives	QM, GM
5.4.2	Quality Management Systems Planning	QM, GM, CONT, PM, MFG, PRCH, ENG
5.5	Responsibility, Authority and Communication	
5.5.1	Responsibility and Authority	GM, PM, CONT
5.5.2	Management Representative	QM, GM
5.5.3	Internal Communication	QM, GM, PM, CONT
5.6	Management Review	
5.6.1	General	QM, GM
5.6.2	Review Input	QM, GM, PM, CONT, MFG, PRCH, ENG
5.6.3	Review Output	QM, GM
6.	Resource Management	
6.1	Provision of Resources	GM, PM, PER, MFG
6.2	Human Resources	
6.2.1	General	GM, PM, PER
6.2.2	Competence, Training and Awareness	GM, PM, PER, MFG
6.3	Infrastructure	GM, PM, MFG, QM, PRO
6.4	Work Environment	GM, PM, MFG, QM, PRO

	Quality Manual		
	SOP Number: 153	Revision: L	Effective: 3/30/11

AS9100 Element	DESCRIPTION	PRIMARY RESPONSIBILITY
7.	Product Realization	
7.1	Planning of Product Realization	PM, CONT, MFG, PRO
7.1.1	Project Management	PM
7.1.2	Risk Management	PM, QM
7.1.3	Configuration Management	QM, PM, MFG, ENG, PRCH, CONT
7.1.4	Control of Work Transfers	PM, MFG, QM, PRO
7.2	Customer-Related Processes	
7.2.1	Determination of Requirements Related to the Product	PM, CONT, MFG, ENG, QM
7.2.2	Review of Requirements Related to the Product	PM, CONT, MFG, ENG
7.2.3	Customer Communication	CONT, PM
7.3	Design and Development	
7.3.1	Design and Development Planning	PM, QM
7.3.2	Design and Development Inputs	PM, CONT, ENG, QM
7.3.3	Design and Development Outputs	PM, CONT, ENG, QM
7.3.4	Design and Development Review	PM, ENG, QM
7.3.5	Design and Development Verification	PM, ENG, QM
7.3.6	Design and Development Validation	PM, ENG, QM
7.3.6.1	Design & development verification & validation testing	PM, ENG, QM
7.3.6.2	Design & Development Verification & Validation Doc.	PM, ENG, QM
7.3.7	Control of Design and Development Changes	PM, CONT, QM
7.4	Purchasing	
7.4.1	Purchasing Process	PRCH, PM
7.4.2	Purchasing Information	PRCH, PM, CONT, ENG
7.4.3	Verification of Purchased Product	PRCH, PM, QM
7.5	Production and Service Provision	
7.5.1	Control of Production and Service Provision	GM, PM, MFG, QM, PRO
7.5.1.1	Production process verification	PM, MFG, ENG, QM, PRO
7.5.1.2	Control of Production Process Changes	PM, MFG, QM, PRO
7.5.1.3	Control of Equipment, Tools, and software Programs	PM, MFG, QM, PRO, MTN
7.5.1.4	Post Delivery Support	PM, MFG, QM, PRO
7.5.2	Validation of Processes for Prod. & Service Provision	PM, MFG, ENG, QM, PRO
7.5.3	Identification and Traceability	PM, MFG, QM
7.5.4	Customer Property	PRCH, CONT
7.5.5	Preservation of Product	PM, PRCH, MFG, ENG, PRO
7.6	Control of Monitoring and Measuring Equipment	CAL, QM
8.	Measurement, Analysis and Improvement	
8.1	General	GM, QM, PM, CONT, MFG, ENG, PER, PRCH, PRO
8.2	Monitoring and Measurement	
8.2.1	Customer Satisfaction	GM, QM, PM, CONT, MFG, ENG, PER, PRCH, PRO
8.2.2	Internal Audit	QM
8.2.3	Monitoring and Measurement of Processes	GM, PM, MFG, ENG, PRO
8.2.4	Monitoring and Measurement of Product	PM, MFG, ENG, PRO
8.3	Control of Nonconforming Product	PM, PRCH, MFG, ENG, QM
8.4	Analysis of Data	GM, QM, PM, CONT, MFG, ENG, PER, PRCH, PRO
8.5	Improvement	
8.5.1	Continual Improvement	GM, QM, PM, CONT, MFG, ENG, PER, PRCH, PRO
8.5.2	Corrective Action	GM, QM, PM, CONT, MFG, ENG, PER, PRCH, PRO
8.5.3	Preventive Action	GM, QM, PM, CONT, MFG, ENG, PER, PRCH, PRO

TABLE IV

ISO 9001 & AS9100 QMS FUNCTION / PROCESS & APPLICABILITY MATRIX

QMS PROCESSES		Contracts Mgmt.	Program Management	Deliverable Software Design	Electrical Design	Mechanical Engineering	Cell Design	Production Process Engineering	Purchasing	Receiving Inspection	Materials Management	Electrode Processing	Cell Assembly / Filling / Formation / Cell Test	Module / Battery Ass'y & Test	Human Resource Management
4.	Quality Management Systems														
4.1	General Requirements	√	√	√	√	√	√	√	√	√	√	√	√	√	√
4.2	Documentation Requirements														
4.2.1	General	√	√	√	√	√	√	√	√	√	√	√	√	√	√
4.2.2	Quality Manual	√	√	√	√	√	√	√	√	√	√	√	√	√	√
4.2.3	Control of Documents		√	√	√	√	√	√					√	√	
4.2.4	Control of Records	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.	Management Responsibility														
5.1	Management Commitment	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.2	Customer Focus	√	√	√	√	√	√								
5.3	Quality Policy	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.4	Planning	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.4.1	Quality Objectives	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.4.2	Quality Management Systems Planning	√	√						√	√	√				
5.5	Responsibility, Authority and Communication														
5.5.1	Responsibility and Authority	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.5.2	Management Representative														
5.5.3	Internal Communication	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.6	Management Review														
5.6.1	General	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.6.2	Review Input	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.6.3	Review Output	√	√	√	√	√	√	√	√	√	√	√	√	√	√
6.	Resource Management														
6.1	Provision of Resources	√	√	√	√	√	√	√	√	√	√	√	√	√	√
6.2	Human Resources														
6.2.1	General	√	√	√	√	√	√	√	√	√	√	√	√	√	√
6.2.2	Competence, Training and Awareness			√	√	√	√	√		√		√	√	√	√
6.3	Infrastructure							√		√	√	√	√	√	
6.4	Work Environment							√		√	√	√	√	√	√

TABLE IV (continued)

ISO 9001 & AS9100 QMS FUNCTION / PROCESS & APPLICABILITY MATRIX

QMS PROCESSES		Contracts Mgmt.	Program Management	Deliverable Software Design	Electrical Design	Mechanical Engineering	Cell Design	Production Process Engineering	Purchasing	Receiving Inspection	Materials Management	Electrode Processing	Cell Assembly / Filling / Formation / Cell Test	Module / Battery Ass'y & Test	Human Resource Management
7.	Product Realization														
7.1	Planning of Product Realization		√	√	√	√	√	√		√	√	√	√	√	
7.1.1	Project Management		√	√	√	√	√	√							
7.1.2	Risk Management		√	√	√	√	√	√							
7.1.3	Configuration Management	√	√	√	√	√	√	√	√	√	√	√	√	√	√
7.1.4	Control of work transfers	√	√					√							
7.2	Customer-Related Processes														
7.2.1	Determination of Requirements Related to the Product	√	√												
7.2.2	Review of Requirements Related to the Product	√	√												
7.2.3	Customer Communication	√	√												
7.3	Design and Development														
7.3.1	Design and Development Planning		√	√	√	√	√	√							
7.3.2	Design and Development Inputs		√	√	√	√	√	√							
7.3.3	Design and Development Outputs		√	√	√	√	√	√	√						
7.3.4	Design and Development Review		√	√	√	√	√	√							
7.3.5	Design and Development Verification		√	√	√	√	√	√							
7.3.6	Design and Development Validation		√	√	√	√	√	√							
7.3.6.1	Design & Development verification & validation testing		√					√							
7.3.6.2	Design & Development Verification & Validation Documentation		√	√	√	√	√	√							
7.3.7	Control of Design and Development Changes	√	√	√	√	√	√	√							
7.4	Purchasing														
7.4.1	Purchasing Process		√						√		√				
7.4.2	Purchasing Information		√						√	√	√				
7.4.3	Verification of Purchased Product		√						√	√	√				
7.5	Production and Service Provision														
7.5.1	Control of Production and Service Provision		√					√				√	√	√	
7.5.1.1	Production Process verification		√					√							
7.5.1.2	Control of Production Process Changes		√					√				√	√	√	
7.5.1.3	Control of Production Equipment, Tools, Software Programs, etc.		√					√				√	√	√	
7.5.1.4	Post Delivery Support	√	√					√							
7.5.2	Validation of Processes for Production and Service Provision		√	√	√	√	√	√	√	√	√	√	√	√	

TABLE IV (continued)

ISO 9001 & AS9100 QMS FUNCTION / PROCESS & APPLICABILITY MATRIX

QMS PROCESSES		Contracts Mgmt.	Program Management	Deliverable Software Design	Electrical Design	Mechanical Engineering	Cell Design	Production Process Engineering	Purchasing	Receiving Inspection	Materials Management	Electrode Processing	Cell Assembly / Filling / Formation / Cell Test	Module / Battery Ass'y & Test	Human Resource Management
7.5.3	Identification and Traceability	√	√	√	√	√	√	√	√	√	√	√	√	√	
7.5.4	Customer Property	√	√	√	√	√	√	√			√		√	√	
7.5.5	Preservation of Product					√	√			√	√	√	√	√	
7.6	Control of Monitoring and Measuring Equipment							√		√		√	√	√	
8.	Measurement, Analysis and Improvement														
8.1	General	√	√	√	√	√	√	√	√	√	√	√	√	√	√
8.2	Monitoring and Measurement														
8.2.1	Customer Satisfaction	√	√	√	√	√	√	√			√	√	√	√	
8.2.2	Internal Audit	√	√	√	√	√	√	√	√	√	√	√	√	√	√
8.2.3	Monitoring and Measurement of Processes							√				√	√	√	
8.2.4	Monitoring and Measurement of Product									√		√	√	√	
8.3	Control of Nonconforming Product		√									√	√	√	
8.4	Analysis of Data	√	√	√	√	√	√	√	√	√	√	√	√	√	
8.5	Improvement														
8.5.1	Continual Improvement	√	√	√	√	√	√	√	√	√	√	√	√	√	√
8.5.2	Corrective Action	√	√	√	√	√	√	√	√	√	√	√	√	√	√
8.5.3	Preventive Action	√	√	√	√	√	√	√	√	√	√	√	√	√	√

TABLE IV (continued)

ISO 9001 & AS9100 QMS FUNCTION / PROCESS & APPLICABILITY MATRIX

SYSTEM Activities		Management Review	Customer Commun.	Customer Complaints	Master Scheduling	Configuration Mgt.	Saft Chg. Order (SCO)	Document Control	Equipment Maintenance	Preservation	Calibration	Internal Auditing	First Article Insp.	Nonconformances	Analysis of Data	Cont. Improvement	Correct / Prevent. Act	ESD Control	Returned Product
4.	Quality Management Systems																		
4.1	General Requirements	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
4.2	Documentation Requirements	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
4.2.1	General	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
4.2.2	Quality Manual	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√
4.2.3	Control of Documents	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√
4.2.4	Control of Records	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.	Management Responsibility																		
5.1	Management Commitment	√	√	√	√				√			√			√	√			
5.2	Customer Focus	√	√	√			√					√			√	√	√		√
5.3	Quality Policy	√			√							√				√			
5.4	Planning				√	√	√	√		√		√	√			√			√
5.4.1	Quality Objectives	√	√	√	√				√			√		√	√	√	√		
5.4.2	Quality Management Systems Planning	√			√	√				√		√				√	√		
5.5	Responsibility, Authority and Communication	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.5.1	Responsibility and Authority	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5.5.2	Management Representative	√	√	√								√				√			
5.5.3	Internal Communication	√	√	√		√	√	√	√		√	√	√	√	√	√	√	√	√
5.6	Management Review	√		√	√				√			√		√	√	√	√		√
5.6.1	General	√						√				√			√	√	√		
5.6.2	Review Input	√	√	√		√						√		√		√	√		
5.6.3	Review Output	√	√													√			
6.	Resource Management																		
6.1	Provision of Resources	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
6.2	Human Resources	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
6.2.1	General								√		√		√			√		√	
6.2.2	Competence, Training and Awareness								√		√		√			√		√	
6.3	Infrastructure							√	√	√	√	√		√	√			√	√

TABLE IV (continued)

ISO 9001 & AS9100 QMS FUNCTION / PROCESS & APPLICABILITY MATRIX

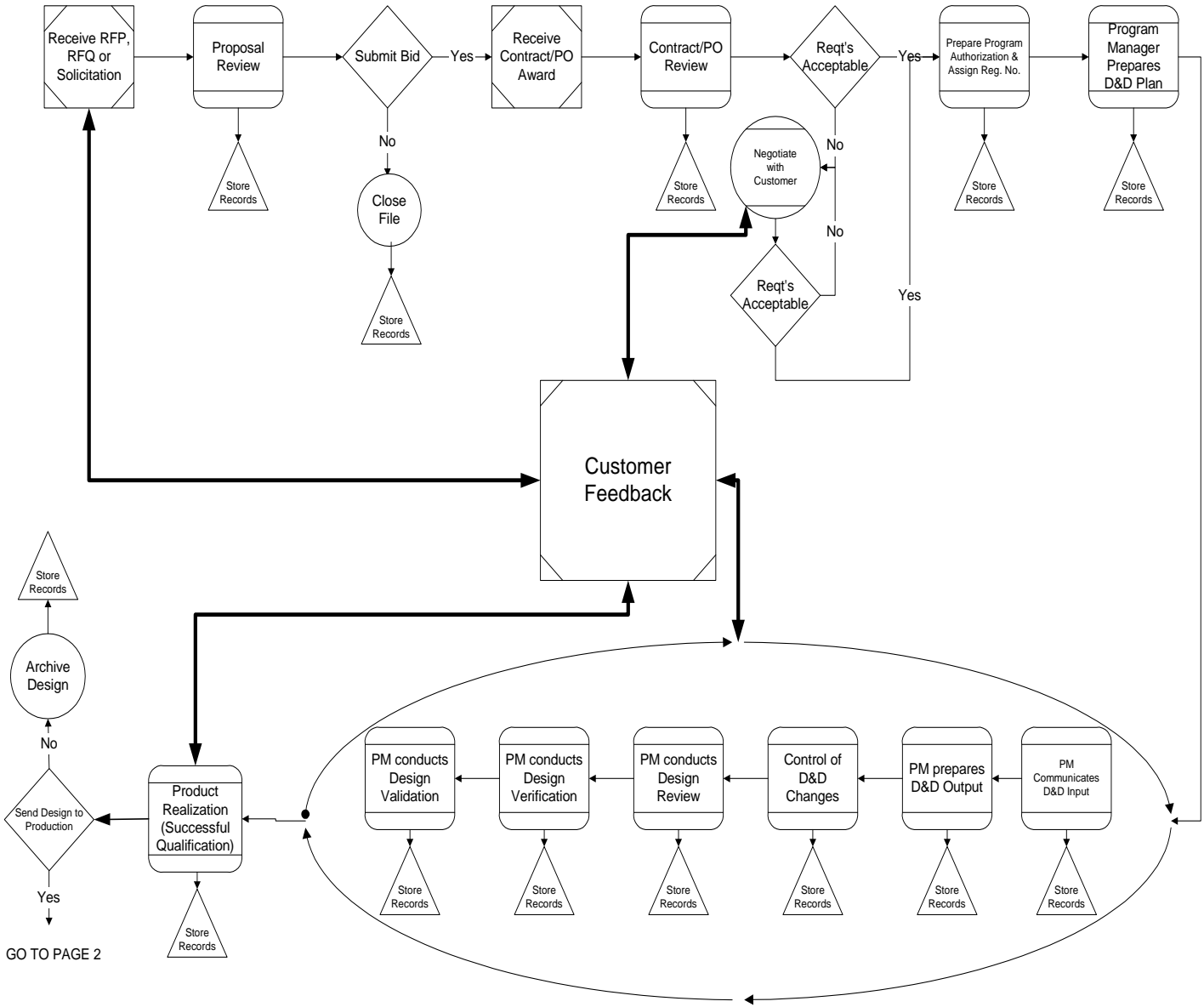
SYSTEM Activities		Management Review	Customer Commun.	Customer Complaints	Master Scheduling	Configuration Mgt.	Saft Chg. Order (SCO)	Document Control	Equipment Maintenance	Preservation	Calibration	Internal Auditing	First Article Insp.	Nonconformances	Analysis of Data	Cont. Improvement	Correct / Prevent. Act	ESD Control	Returned Product
6.4	Work Environment	√	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√	√
7.	Product Realization																		
7.1	Planning of Product Realization							√				√	√	√	√	√			
7.1.1	Project Management	√	√			√	√					√	√		√	√			
7.1.2	Risk Management	√	√	√					√	√						√			
7.1.3	Configuration Management		√			√	√	√				√	√	√					√
7.1.4	Control of Work Transfers					√				√								√	
7.2	Customer-Related Processes	√	√	√	√	√	√	√				√	√	√		√	√		√
7.2.1	Determination of Reqmnts Related to the Product	√	√	√				√								√			
7.2.2	Review of Requirements Related to the Product	√	√	√				√								√			
7.2.3	Customer Communication	√	√	√		√	√	√				√	√	√		√	√		√
7.3	Design and Development	√	√			√	√					√	√		√	√			
7.3.1	Design and Development Planning	√	√			√	√					√	√		√	√			
7.3.2	Design&Development Inputs	√				√	√	√				√	√			√			
7.3.3	Design and Development Outputs	√				√	√	√				√	√			√			
7.3.4	Design and Development Review	√						√				√		√		√	√		
7.3.5	Design and Development Verification	√											√		√	√			
7.3.6	Design and Development Validation	√				√	√	√								√			
7.3.6.1	Design & Dvlpmnt verification & validation testing	√				√		√				√	√		√				
7.3.6.2	Design & Dvlpmnt Verification & Validation Doc.	√				√	√	√				√							
7.3.7	Control of Design and Development Changes	√	√	√		√	√	√											
7.4	Purchasing					√				√		√	√	√	√				
7.4.1	Purchasing Process					√						√	√	√	√		√		
7.4.2	Purchasing Information					√						√		√	√		√		
7.4.3	Verification of Purchased Product		√			√						√	√	√	√		√		
7.5	Production and Service Provision					√						√							
7.5.1	Control of Production and Service Provision					√				√	√	√	√	√				√	
7.5.1.1	Prod. process verification		√			√	√					√	√	√			√		

7.5.1.2	Control of Production Process Changes		√			√	√					√	√					
7.5.1.3	Control of Equipment, Tools, Software Programs									√	√	√						√
7.5.1.4	Post Delivery Support		√			√				√								√

TABLE IV (continued)
ISO 9001 & AS9100 QMS FUNCTION / PROCESS & APPLICABILITY MATRIX

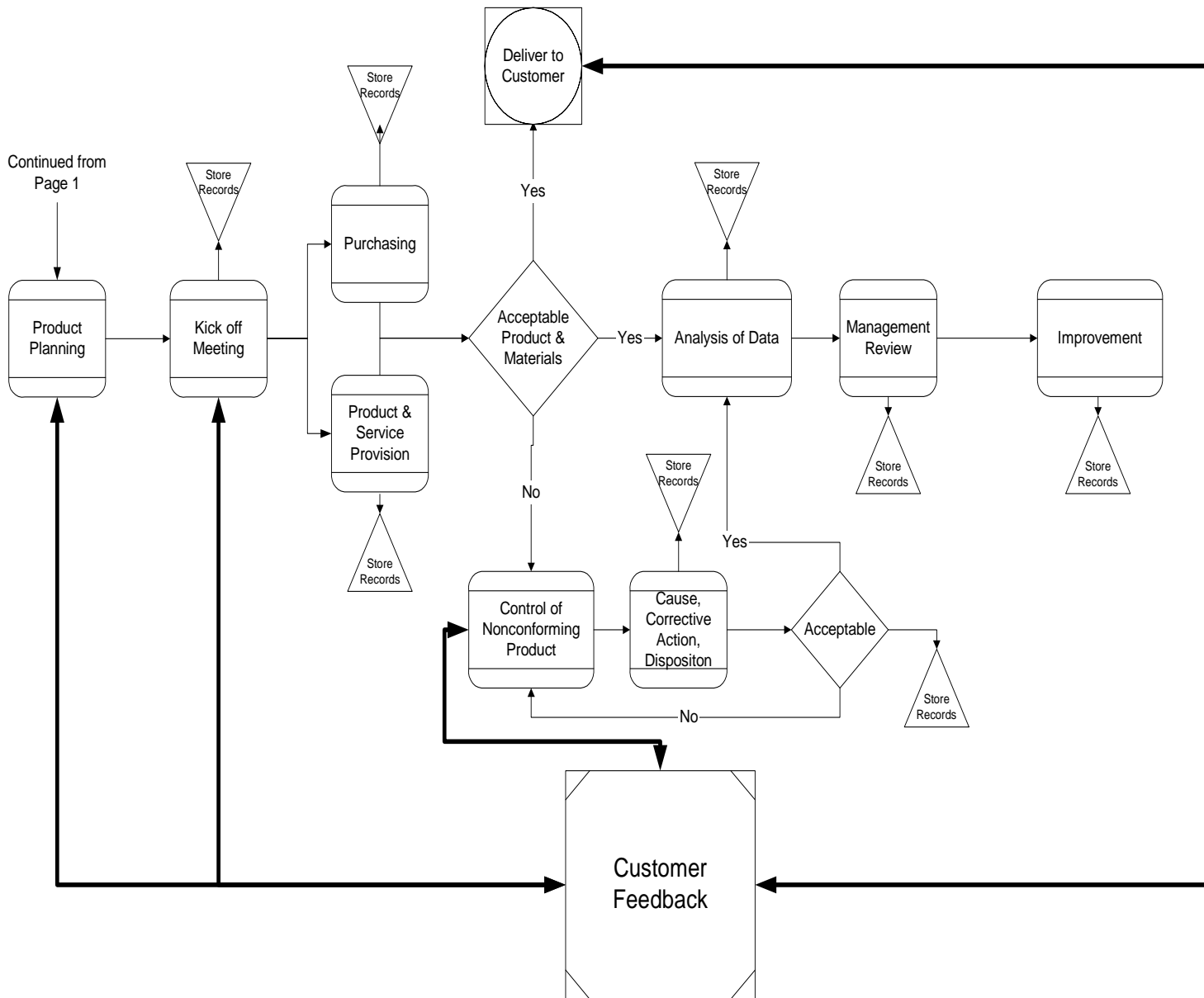
SYSTEM Activities		Management Review	Customer Commun.	Customer Complaints	Master Scheduling	Configuration Mgt.	Soft Chg. Order (SCO)	Document Control	Equipment Maintenance	Preservation	Calibration	Internal Auditing	First Article Insp.	Nonconformances	Analysis of Data	Cont. Improvement	Correct / Prevent. Act	ESD Control	Returned Product
7.5.2	Validation of Processes for Production and Service Provision	√	√			√	√	√		√		√	√	√	√		√	√	√
7.5.3	Identification and Traceability		√			√				√		√	√	√					
7.5.4	Customer Property		√	√		√	√	√		√	√	√	√	√	√		√	√	√
7.5.5	Preservation of Product									√		√		√				√	√
7.6	Control of Monitoring and Measuring Equipment			√							√	√	√						√
8.	Measurement, Analysis and Improvement																		
8.1	General				√														
8.2	Monitoring and Measurement	√									√	√	√	√			√		√
8.2.1	Customer Satisfaction	√	√	√	√							√			√	√			√
8.2.2	Internal Audit	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√
8.2.3	Monitoring and Measurement of Processes	√		√	√				√			√		√	√		√		√
8.2.4	Monitoring and Measurement of Product	√	√	√				√				√		√	√				√
8.3	Control of Nonconforming Product	√	√	√	√			√			√	√	√	√	√		√		√
8.4	Analysis of Data	√		√	√				√			√		√	√	√	√		√
8.5	Improvement	√				√								√	√		√		
8.5.1	Continual Improvement	√	√		√				√			√			√	√	√		
8.5.2	Corrective Action	√		√	√				√			√		√	√	√	√		√
8.5.3	Preventive Action	√		√	√				√			√		√	√	√	√		√

Saft SYSTEM PROCESS FLOW DIAGRAM

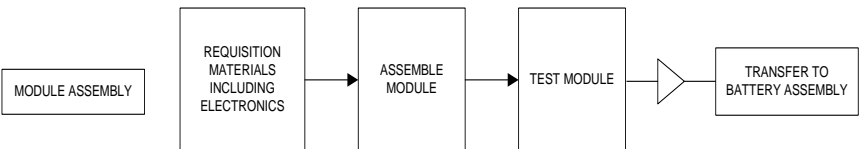
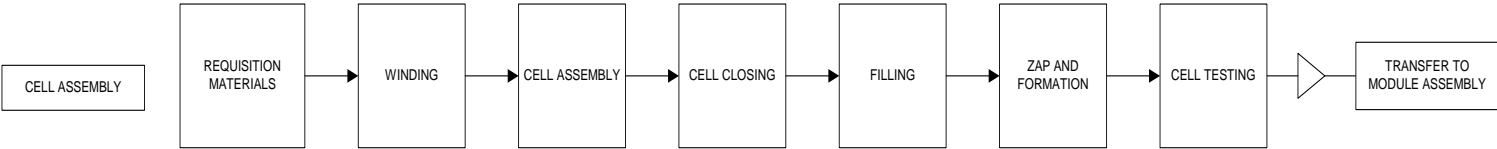
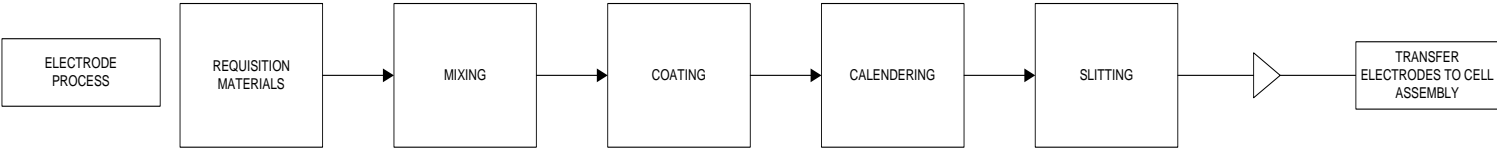



D&D = Design and Development

Saft SYSTEM PROCESS FLOW DIAGRAM




PRODUCTION PROCESS FLOW CHART



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REVISION PAGE

Rev. Level	Date	SCO No.	Section Changes	Issued By	Approved By
-	3/98		Initial Release from Bordeaux	GT	KP
A	11/98		Received from Bordeaux	GT	KP
B	8/7/02	132	Remove all reference to Bordeaux. Tailored to ISO 9000: 2000	LB	JS
C	Oct. 26, 2005	1800	Major re-write to incorporate QMS requirements in Aerospace Standard AS9100 (Rev. B)	FF	G.B
D	Nov. 15, 2005	1827	Change to Quality Policy	FF	G.B.
E	May 1 2006	2239	Thermals ISO only	FF	GB
F	May 18, 2007	3226	<ul style="list-style-type: none"> - Revise procedure referencing throughout document. - Clarify Quality Manager is Quality Management Representative throughout document. - Revision of Management Review activities. - Updated Organizational Chart (Table II). - Updated QMS Function / Process Matrix (Table IV). - General Formatting throughout document. 	SP	JM
G	July 31, 2007	3326	<ul style="list-style-type: none"> - Clarified Manual signoff procedure. - Updated Cross-reference Matrix (Table 1) - Updated Responsibility Matrix (Table III) - Updated QMS Function / Process Matrix (Table IV). - General formatting. 	SP	JM
H	March 6, 2008	3861	- Added SOP's 400003 and 40004 to Table 1	SP	JM
J	May 12, 2008	3998	<ul style="list-style-type: none"> - Update (Table II) Generic Organizational Chart - Add (Table V) ISO 9001:2000 & AS9100 QMS Process Interactions 	SP	JM

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K			<ul style="list-style-type: none"> - Correct spelling and grammatical errors. - Change ISO-9001:2000 references to ISO-9001. - Change "signs" to "signs or digitally approves" - Sect. 4: Change "law" to "statutory". - Sect. 4.2: Include records regarding document requirements. - Sect. 4.2.3.f: Include "determined by the organization to be necessary for the planning and operation of the quality management system" - Sect. 5.2: Add "Top management ensures that product conformity and on-time delivery performance are measured and that appropriate action is taken if planned results are not, or will not be, achieved." - Sect. 5.5.2: Reword QMR d) the organizational freedom and unrestricted access to top management to resolve quality management issues. - Update SOP references and Cross-reference Matrix (Table 1). - Update SOP references throughout document to match Table 1. - Updated Org Chart (Table 2). - Update Responsibility Matrix (Table 3). - Updated QMS Process references to include Cell Design and Human Resource Management. - Update Table V, ISO 9001 & AS9100 QMS Process Interactions, to match SOP 421 	SP	JM
L	TBD	6676	Updated to reflect AS9100 Revision C changes. See SCO document for specific updates.	MW	FR