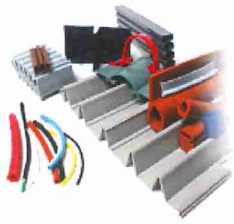
Quality Assurance Policy Manual

Revision: H

Northwest Rubber Extruders, Inc.

Since 1978

The Flexible Products People



Extruded Products

We have the capabilities to extrude products up to 20" wide from a large selection of materials.

- Silicone extrusions
- Natural rubber extrusions
- Synthetic rubber extrusions
- Flexible plastic extrusions

Molded Products

Our molding line can accommodate molds up to 32" square. Our molding capabilities include:

- Compression molding
- Transfer molding
- Injection molded products
- Rubber-to-metal bonded
- Fabric reinforced molding

Railroad Products

We have been supplying elastomeric products to the railroad industry for over 20 years. Products include:

- Rail boots
- Crossing tie pads
- Under tie pads
- Elastomeric grout

Value Added

In addition to our custom extruding and molding capabilities we offer numerous value added services:

- Part marking
- Color matching
- Special packaging
- Adhesive tape backing
- Splicing
- Flocking
- Assembly

Quality Assurance Policy Manual Approval

Bill Snyder
General Manager

Randy Robbins
Technical & Quality Director

Quality Assurance Policy Manual

Revision: H

Table of Contents

1 REVISION HISTORY

Revision History			
Revision	Date	Section(s) Updated	Description of Change
B	12/29/08	All sections & Policy consolidation into 1 document	Upgrade to TS16949: 2002
C	08/03/10	Global changes in references to ISO9001 & TS16949 and minor wording changes to sec. 4.4, 5.5.2, 7.1, 7.2.1, 7.4.1	Included minor changes to upgrade to TS16949:2009 & ISO9001:2008
D	05/12/11	3.0, 4.3, 5.2, 5.5.2, 7.1, 7.2.2, 7.4.2, 7.5, 7.5.1, 7.6, 8.2.1, 8.2.3 Added 7.1.1, 7.1.2, 7.1.3, 7.1.4	Upgrade to AS9100 Rec. C
E	11/18/13	4.1, 5.5, 5.5.2, 5.5.2.1, 7.1, 7.1.4, 7.3.4, 7.4.1, 7.5.1.1, 8.2.2	Minor wording changes, minor clarifications, removal of multiple standard revision references
F	10/05/2015	3.0, 4.1, 5.3,	Updates based on TS16949 audit findings & misc. minor updates.
G	1/08/2018	Total rewrite to upgrade and align with the revised standards.	Reorganized to the ISO9001:2015 format and include the new requirements of ISO9001:2015, AS9100 Rev. D and IATF 16949:2016
H	3/26/2019	Cover page & various sections	Title changes of QM & SM. Added Kerry for policy sign off page.

2 INTRODUCTION

The incorporation of Northwest Rubber Extruders, Inc. **(NWRE)** occurred on September 12, 1978. The main thrust for the creation of the business came from the efforts of Joe Lucas Jr. It was through his survey of the market that determined that a viable market existed in the production of short run/quick turn around organic extrusion. At that time, the majority of the larger manufacturers were overlooking the production of small quantity runs of organic extrusion. The survey revealed that the demands of the consumers in this market were substantial enough that potential opportunities were plausible for the company. Through utilizing his background in chemistry, 12 years of hands-on experience, and his current position as owner/manager at Waters Industries, Joe Lucas Jr. was able to enter the market with a head start.

NWRE evolved through a series of stages. In March of 1986, the company purchased state-of-the-art silicone extrusion equipment. The objective in this purchase was to expand into the architectural seismic seal industry. Further change took place in April 1986, with the consolidation of Joe Lucas' two companies, Waters Industries and Northwest Rubber Extruders, Inc. This consolidation added a molding operation to the business' organic and silicone extrusion lines, and in 1988, a thermoplastic extrusion line was added to expand the company's product line.

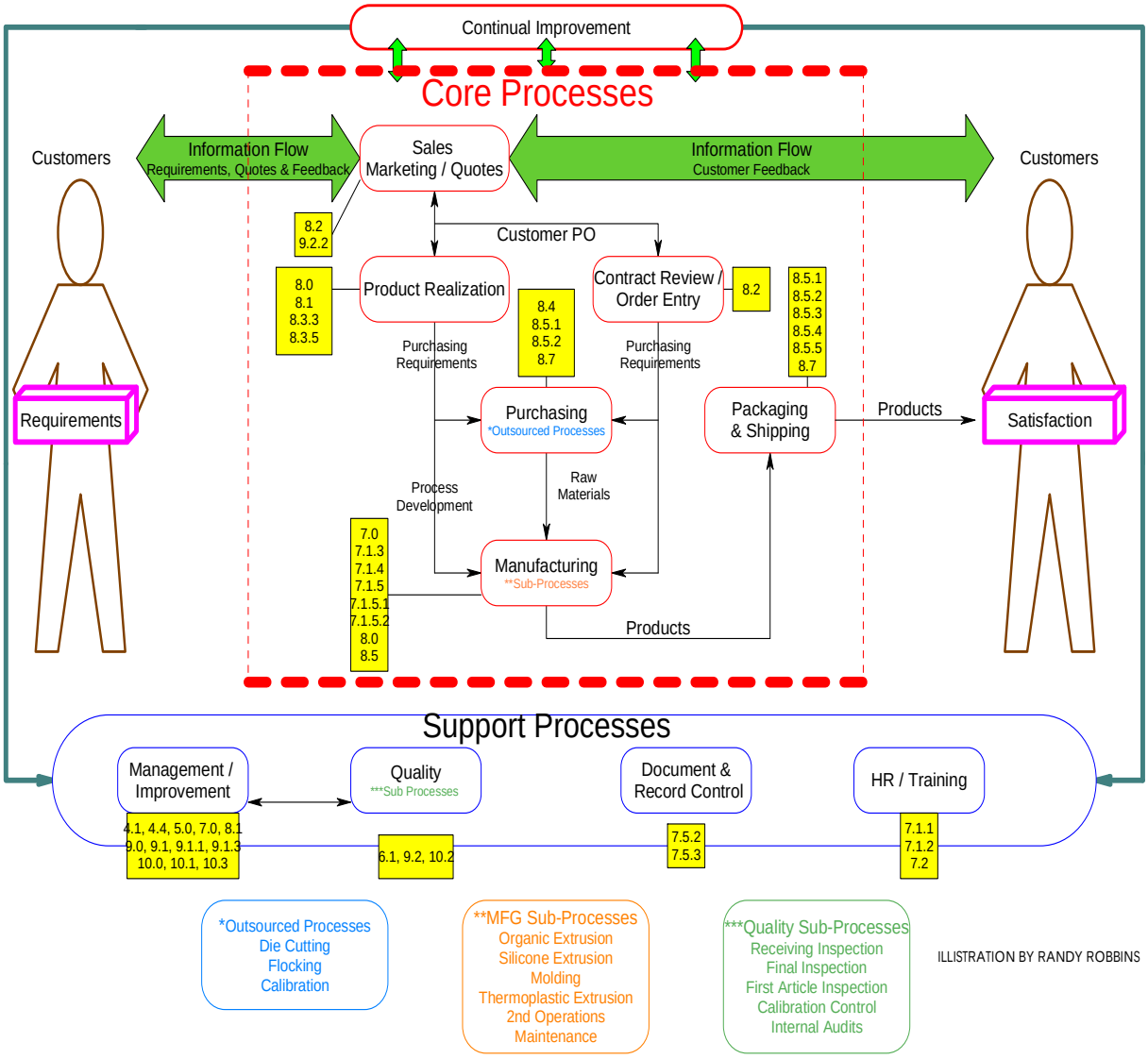
In March of 1998 Northwest Rubber Extruders, Inc. faced with demands requiring substantial expansion, moved to its present location, a new up-to-date facility to meet anticipated growth and products with more sophisticated requirements.

3 PROCESS INTERACTION

NWRE has determined the processes needed for the quality management system and their application throughout the organization. The process interaction diagram identifies NWRE's core processes, support processes, sub-processes, outsourced processes, information flow to and from the customer and feedback into the system for continual improvement. Each core process and sub process is described in the applicable process (turtle) diagram. The process (turtle) diagrams may contain proprietary information and are not included in this manual, but are available for customer review upon request. **(note: Outsourced processes under a different QMS are handled as Suppliers per sec. 8.4 Purchasing).**

NW Rubber Extruders, Inc.

Process Interaction Diagram



4 CONTEXT OF THE ORGANIZATION

4.1 Understanding & Context of the Organization

Northwest Rubber Extruders, Inc. produces its goods on a job order basis. To produce a product that meets the specifications of the customer involves research and development work, such as developing dies, color matching, and extruding and/or molding a first article sample for the customer. It requires making adjustments to meet our customers' ever-changing needs, but in the end, to produce a quality extruded and/or molded good(s) that can be marketed to the customer.

Along with this Quality Policy, the Company maintains an Organizational Chart, Process (turtle) diagrams for manufacturing processes and Job Descriptions for all staff. The Cross Reference Matrix / Index (Appendix 1) and the Process Interaction Diagram (Sec. 3.0) show the interrelation between the quality standards requirements and the NWRE Quality Management System.

4.2 Understanding the Needs and Expectations of Interested Parties

The strategic direction of NWRE is identified and communicated through the annual business plan that is developed by the General Manager. The business plan conveys the external and internal issues that are relevant to NWRE's strategic direction as identified in the SWOT analysis. The business plan also includes a list of interested parties and their needs, expectations and requirements. Information related to internal and external issues along with interested parties that are relevant to the Quality Management System are monitored and reviewed annually by the General Manager in order to develop the business plan. The business plan acts as a management tool that can be referred to regularly to ensure that the business is on course with meeting goals, sales targets and the needs, expectations and requirements of interested parties.

4.3 Manual Structure & Scope of the Quality Management System

The boundaries and applicability of the quality management system has been determined based on the context of NWRE and the business plan to include external and internal issues, requirements of interested parties and NWRE products and services. This information has been used to determine the scope of the QMS as outlined below.

The Quality Assurance Policy Manual describes the Quality Management System in operation at NWRE. This manual is the primary reference document within the company for all quality related activities. It is used to inform customers, suppliers and personnel about NWRE policy and to audit the effectiveness of the Quality Management System. Further detail is provided in the Quality Procedures, which are supplemented by Work Instructions.

The scope of NWRE's quality management system is the manufacture of custom extruded and molded, organic and silicone rubber products and extruded thermoplastic products in compliance with IATF16949 and ISO9001 and extruded and molded organic and silicone products in compliance with AS9100.

The scope applies to NWRE's manufacturing location at 11155 SW Denney Rd. in Beaverton Oregon. There are no design centers, corporate headquarters or distribution centers.

Exclusions of the NWRE QMS

NWRE provides products made to the customers' design and designated drawings and specifications, therefore, takes exception to product design and development requirements of ISO9001, AS9100 & IATF16949 section 8.3. Also, based on the above exclusion and due to the nature of the NWRE's finished products, service provisions and post-delivery activities of ISO9001, AS9100 & IATF16949 section 8.5 are not applicable.

A **Q** level system is used as an initial risk evaluation tool to define how to apply the requirements of the quality system and prioritize those products that have the highest quality requirements. A **Q** level will be assigned at contract review and indicated on the production Traveler.

> **Q 1** is used where the customer's quality requirements exceed ISO 9001 and / or have any special requirements or special characteristics. Examples may be aerospace or automotive customers / products.
>
> **Q 2** indicates that all the requirements of ISO 9001 and NWRE Quality System must be met. The products have general quality requirements.
>
> **Q 3** means that the customer does not require any certain quality system requirements. The products do not have any specified quality requirements other than meeting the customer's drawing requirements.
>
> **Q 4** indicates that the customer has no quality system requirements or the Traveler is for production of tooling or production of related fixture or R&D sample prototype only. The products may not have a drawing and the quality expectation is low.

Automotive Customers' Specific Requirements

For automotive customers that require NWRE to be IATF16949 certified NWRE maintains a Customer Specific Requirements (CSR) matrix. The matrix identifies each automotive customer and their specific requirements. When CSR's are revised, they are evaluated and the matrix is updated. The CSR matrix is used to identify and maintain the requirements, document that the requirements are reviewed, evaluated and incorporated into NWRE's QMS. The CSR matrix is also used as a tool to audit compliance to the automotive customer requirements.

4.4 Quality Management System and Processes

The NWRE Quality Management System including the processes and their interactions have been established, implemented, maintained, and are continually improved. The Process Interaction Diagram in sec. 3.0 shows the processes required to maintain the QMS. This diagram also shows the sequence and interactions between the processes

and provides a high level description of NWRE. Each individual process also has a more detailed process (turtle) diagram that shows the required inputs, expected outputs, responsibilities and authorities assigned, performance indicators that are measured and monitored, resources needed and risk and opportunities of the process.

Each of these processes are evaluated by internal auditing and any needed changes are implemented to ensure that the processes achieve the intended results. Along with the internal audits, the core processes identified in the Process Interaction Diagram are reviewed bi-annually and the results are provided to the Management Team. Adjustments and changes are made as necessary to meet requirements and continually improve the processes and there by improve NWRE's QMS.

Conformance of Products & Processes

To ensure that all processes conform to all applicable customer, statutory, and regulatory requirements the processes are audited as described in the above paragraphs. To ensure that all manufactured products conform to all applicable customer, statutory, and regulatory requirements the products are subjected to First Article Inspection per QP10200, In-Process Inspection per QP10180 and Final Inspection per QP10190. All outsourced products, materials and components are subjected to Receiving Inspection per QP10100.

Safety Related Products

Due to the nature of NWRE products and rubber products in general Safety Related Products are generally not applicable. Should a customer designate a product as safety related it would be identified as either a Key Characteristic or Special Requirement during quotation and managed per Quality Procedure **QP10070 Contract Review**.

5 LEADERSHIP (MANAGEMENT RESPONSIBILITY)

5.1 to 5.1.1 Leadership and Commitment

NWRE's Management Team is committed and dedicated to the development and implementation of the quality management system and continuous improvement of its effectiveness. Evidence of this commitment can be seen by the following activities:

- Communicating the importance of meeting customer as well as statutory and regulatory requirements throughout the organization.
- Establishing and communicating the quality assurance policy.
- Ensuring that quality objectives are established at all levels.
- Conducting management reviews and ensuring the availability of resources.
- Review of the product realization process and support processes to assure their effectiveness and efficiency.

5.1.1.1 Corporate Responsibility

Corporate responsibility policies are defined in the NWRE Employee Handbook. These policies include, but are not limited to, anti-bribery, employee code of conduct, and ethics escalation otherwise known as "Whistle-blowing".

5.1.1.2 Process Effectiveness and Efficiency

As part of the internal audits, the product realization process and support processes are evaluated annually, including their effectiveness and efficiency. The results of the process review activities are included in management review so that top management can evaluate and improve these processes as needed.

5.1.1.3 Process Owners

Top management is responsible for identifying process owners who are responsible for managing the organization's processes and related outputs. The "Turtle" process diagrams for each process identify the process owner, which is responsible for the process. The process owners are trained to understand their processes and competency is evaluated annually.

5.1.2 Customer Focus

NWRE's management team is committed to enhancing customer satisfaction by ensuring that all customer requirements are determined, implemented into the quality management system and communicated throughout the organization with the intension of meeting all customer requirements. The management team will also ensure 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. When the customer supplies feedback, such as, metrics or scorecards, the information will be regularly reviewed to track NWRE's performance.

5.2 Quality Policy, Vision and Mission Statements

QUALITY POLICY

Northwest Rubber Extruders, Inc. is committed to consistently meeting or exceeding our customers' requirements for products and services, complying with the requirements of the NWRE Quality Management System and actively pursuing continuous improvement.

VISION and MISSION STATEMENT

Our Vision

At Northwest Rubber Extruders, Inc., our vision is to be a leading manufacturer in the industrial rubber products industry. We will cultivate a thriving business by empowering our people, by implementing lean manufacturing practices, and by utilizing new tools and processes to build strong lasting relationships with our customers and suppliers.

Our Mission

Northwest Rubber Extruders, Inc. is in the business of supplying custom manufactured elastomeric products for all types of applications. Our mission is to exceed our customers' expectations by providing unsurpassed customer service with quality parts at cost effective prices. We will accomplish our mission within the framework of the following core values:

- **People** - Encourage a culture that values and empowers employees through open communication, integrity and teamwork. Provide a safe environment for employees to work and grow.
- **Products** - Continuously improve our products and services to maintain our reputation as a custom, high quality, manufacturer.
- **Business** - Operate according to sound business principles, guided by strong ethics to achieve profit and performance goals.
- **Customers** - Enable the success of our customers by understanding their unique requirements and by providing reliable, innovative custom products and services.
- **Partners** - Foster supplier relationships to ensure mutual value and success.
- **Environment** - Support and encourage activities that lead to environmental responsibility and cleaner safer neighborhoods in which we live.

Bill Snyder, General Manager

Brenda Gaither, Document Control, Assist. Treasurer (Corporate President)

Kerry Parham, Director of Sales

Joe Lucas III, Plant Manager (Corporate Vice President)

Randy Robbins, Technical & Quality Director

Amy Harris, Controller & Admin. Manager (Corporate Treasurer & Secretary)

5.3 to 5.3.2 Roles, Responsibility, and Authority

NWRE's management team is responsible for communicating the responsibilities and authorities of personnel related to conformity to product requirements. Personnel are provided the organizational freedom and authority to ensure cost and schedules do not compromise quality and prevent further processing of non-conforming product including stopping production to correct quality problems. Personnel responsible for ensuring conformity to product requirements shall be available for all shifts. See Quality Procedure **QP10040 Management Responsibility** for additional details.

Each quality procedure identifies the responsibility, authority and interrelation of personnel who manage, perform and verify work affecting quality. These activities may include:

- Initiating actions to prevent occurrence of non-conformities.
- Identify and record problems relating to product process and the quality system.
- Initiate, recommend, or provide solutions through designated channels and verify the implementation of the solutions.
- Promptly notify managers of products or processes that do not conform to requirements.
- Control further processing, deliveries or installation of non-conforming product until deficiencies or unsatisfactory conditions have been corrected.
- Disposition of non-conforming product.

Management Representative

The authority and responsibility for establishing, implementing, and maintaining the quality management system is delegated to the Technical & Quality Director, who reports directly to the General Manager. The Technical & Quality Director is responsible for reporting on the performance of the quality system and, if and when there is a need for improvement. The Technical & Quality Director also ensures that customer requirements are communicated and promoted throughout NWRE and is responsible for delegated inspection activities. As the organization's management representative for quality, the Technical & Quality Director has been assigned the necessary authority and organizational freedom and unrestricted access to top management to resolve quality management issues. The management representative is actively involved in decisions related to development, sales, manufacturing and delivery and has the responsibility to ensure that the requirements of applicable quality standards are met and maintained. Customers will be notified of changes in the management representative assignment as appropriate.

Delegated quality activities will follow procedures that include corresponding training, proficiency requirements, and a process for retracting delegated authority.

If and when the company utilizes external delegated quality verification it shall be controlled and authorized per procedure QP10180.

Customer Representative

The Director of Sales is the customer representative with the responsibility and authority to ensure that customer requirements are addressed. The Director of Sales directs the Account Managers in the determination of customer specific requirements and ensures that the requirements are understood and implemented within NWRE. These requirements may include, but are not limited to, special characteristics, quality objectives, related training, corrective and preventive actions and product development.

6.0 to 6.1.2 Planning

The business plan is where planning at NWRE begins. It addresses the issues referred to in section 4.1 and the requirements referred to in section 4.2. By addressing these issues and developing a business plan, NWRE can give assurance that the quality management system can achieve its intended results, enhance desirable effects, prevent or reduce undesired effects and achieve improvement.

Through risk based thinking and risk management NWRE plans actions to address the risks and opportunities, determines how to integrate and implement the actions into its QMS processes and evaluates the effectiveness of the actions. The actions taken to address risks and opportunities will be proportionate to the potential impact on the conformity of products.

6.1.2.1 Risk Analysis

Quality procedure **QP10230 Risk Based Thinking** includes NWRE's approach to Risk Analysis that includes addressing lessons learned from product recalls, product audits, field returns, complaints, scrap and rework. The risk analysis will be documented and retained as evidence of the results of risk analysis.

6.1.2.2 Preventive Action

Preventive action is also included in NWRE quality procedure **QP10220 Corrective and Preventive Action** and establishes and defines the requirements for; determining potential nonconformities and their causes, evaluating the need for action to prevent occurrence of nonconformities, determine and implementing action needed. Records of the results of actions taken and reviewing the preventive action are maintained. Other sources and methods of Preventive Action exist and provide evidence of these activities such as:

- Continuous Improvement Projects
- SWOT Analysis Activities
- Lean Manufacturing Activities
- FMEA & CA activities applied to similar products or processes
- Activities resulting from customer feedback, sales calls or customer / supplier visits
- Preventative & Predictive Maintenance

6.1.2.3 Contingency Plans

Contingency plans have also been developed in order to satisfy customer requirements in the event of an emergency such as utility interruption, labor shortage, key equipment failure and field returns.

6.2 to 6.2.2 Quality Objectives and Planning to Achieve Them

The NWRE quality system has been planned to ensure that measurable quality objectives are established at all relevant functions and levels within NWRE. The planning will also include those objectives that are needed to meet the requirements of the product. The quality objectives and measurements will be consistent with the quality policy and be linked to and deployed through the business plan. For quality objectives, the following will be determined:

- What will be done?
- What resources will be required?
- Who will be responsible?
- When will it be completed?
- How will the results be evaluated?

6.3 Planning of Changes

Changes to the quality system will be reviewed by the NWRE Management Team to ensure that the integrity of the system is maintained. When changes are needed they will be carried out in a planned manner.

Before implementing changes, the Management Team will consider the following:

- The purpose of the changes and their potential consequences
- The integrity of the quality management system
- The availability of resources
- The allocation or reallocation of responsibilities and authorities

7 SUPPORT (RESOURCE MANAGEMENT)

7.1.1 Provisions of Resources

NWRE's Management Team is responsible for allocating adequate resources and competent personnel with the appropriate education, trained skills, and experience to ensure that verification activities can be handled in a thorough and effective manner. This includes the resources necessary for implementing, maintaining and continually improving the quality management system with the aim of meeting customer requirements and enhancing customer satisfaction.

NWRE reviews and considers the capabilities of, and constraints on, its existing internal resources and determines what needs to be obtained from external providers annually as part of the annual business plan.

7.1.2 Human Resources and Training

NWRE is committed to ensuring that personnel performing work affecting conformity to product requirements are qualified and competent based on appropriate education, training, skills and experience. NWRE personnel are made aware of the relevance and importance of their activities and how they contribute to the achievement of quality objectives.

7.1.3 Infrastructure

NWRE determines, provides and maintains an infrastructure to achieve product conformity requirements. The infrastructure includes, but is not limited to, buildings, workspace, utilities, process equipment and support services. Methods, such as, lean manufacturing have been developed and implemented to evaluate and monitor the effectiveness of the existing operations. NWRE utilizes lean manufacturing principles with a multidisciplinary approach to develop and optimize plant, facility and equipment plans that include considerations for material travel, handling and value-added use of floor space.

7.1.3.1 Plant, Facility and Equipment Planning

Plant, facility and equipment planning is outlined in Quality Procedure QP10060 Process Control

7.1.4 and 7.1.4.1 Work Environment

NWRE provides and manages a safe and clean work environment to achieve product conformity. Factors, such as, temperature, humidity, lighting, cleanliness and protection from electrostatic discharge are considered and controlled in relation to product requirements. The company premises are maintained in a state of order, cleanliness and repair consistent to the manufacturing process. Product safety and potential risks to employees are considered and addressed during development and manufacturing process activities.

7.1.5 thru 7.1.5.1 Control of Monitoring and Measuring Equipment

All tools and test equipment used to provide evidence of conformity to specified requirements for NWRE's products are controlled, calibrated and maintained per NWRE quality procedure **QP10150 Control of Inspection, Measuring and Test Equipment.** A list of all inspection, measuring, and test equipment is maintained in a computer database. All such equipment is uniquely identified and records are maintained that identify the equipment's type, location, frequency of checks, check methods and acceptance criteria.

Technical data pertaining to inspection, measuring, and test equipment, as a specific requirement, will be made available to the customer for verification that the equipment is functionally adequate.

7.1.5.1.1 Measurement System Analysis

Measurement systems that are referenced in a control plan that is developed during advanced product quality planning (APQP), will be analyzed. Statistical studies are conducted to identify the variation that is present in the results of each type of measuring and test equipment. The Automotive Industry Action Group (AIAG) Measurement Systems Analysis (MSA) manual is used to identify the analytical methods and acceptance criteria for the MSA studies. Other methods and acceptance criteria may be used with the customer's approval. If and when alternative MSA is used, records of the customer's acceptance of the alternative methods will be retained along with results from the alternative measurement system analysis.

7.1.5.2 Measurement Traceability & 7.1.5.2.1 Calibration / verification records

Calibration activities are traceable to the National Institute of Standards and Technology (NIST). Where no standard exists, the basis used for calibration or verification will be identified and recorded. The calibration interval is dependent upon use, findings and conditions. The Technical & Quality Director authorizes any changes to the calibration interval before the change is implemented. Calibration and use of the equipment is to take place in suitable environmental conditions. The calibration status is displayed on all inspection, measurement, and test equipment and the items are safeguarded against adjustments that would invalidate measurement results. Records of calibration are maintained to provide details of results, traceability, and calibration intervals. If and when test hardware and / or software is used in production, it is verified prior to use in order to prove its capability to verify the acceptability of product and is re-verified at prescribed intervals. Accuracy of inspection equipment will generally be 10 times the tolerance, with a minimum of 4 times the tolerance. All devices used to accept parts, including supplier and employee owned tools are included in a calibration system. When a measuring device is found to be out of calibration it is adjusted or re-adjusted as necessary. An evaluation also takes place to determine if the erroneous readings may have resulted in the production of non-conforming product. If so, the product is recalled for re-inspection. Measuring and test equipment is handled, stored, and transported in a manner that prevents damage, deterioration and a negative effect on calibration or the condition of the equipment. See Quality Procedure **QP10150 Control of Inspection, Measuring and Test Equipment** for additional details. Calibration records are stored and controlled as quality records per Quality Procedure **QP10030 Control of Quality Records.**

7.1.5.3. Laboratory Requirements

7.1.5.3.1 Internal Laboratory

NWRE staffs and maintains a quality control laboratory that performs inspections and materials testing. The scope of the laboratory activities and capabilities is included in Appendix 3 of this document. The technical requirements for adequacy of procedures, competency of personnel and capabilities relevant to the applicable standards are specified, implemented and reviewed. Documentation is provided for calibration when performed in-house, according to the scope of NWRE's internal QC laboratory.

7.1.5.3.2 External Laboratory

External laboratory facilities used for inspection, test or calibration services will be approved and identified on the approved supplier list. A record of their approval and qualifications will be on file. These external laboratories are required to have a defined scope that includes the capability to perform the required inspection, test or calibration and be certified to ISO/IEC 17025 or other national equivalent. In the event that a certified laboratory is not available or practically feasible, the customer will be contacted to obtain approval of the laboratory.

7.1.6 Organizational Knowledge

NWRE organizational knowledge that is needed to achieve conformity of products has been determined and is maintained as work instructions. These work instructions are used for training of employees and made available to employees as needed. When changes occur or needs and trends change the work instructions are reviewed and updated. Employees receive updated or refresher training as needed to maintain competence.

7.2 Thru 7.2.2 Employee Competence and On-the-job Training

NWRE procedure **QP10050 Training** defines the methods used to determine the necessary competence for personnel and provide and evaluate training and on-the-job training to ensure that training activities are effective. The procedure also identifies the method used to maintain records of education, training, skills and experience.

7.2.3 Internal auditor Competency and 7.2.4 Second-party Auditor Competency

Internal Auditor competency is addressed in Quality Procedure **QP10170 Quality Audits** section 5.0. Second-party auditor competency is addressed in the same procedure section 6.0. The training is addressed in Quality Procedure **QP10050 Training**.

7.3 Awareness

Persons doing work under NWRE's control are made aware of NWRE's quality policy, quality objectives, relevant documentation, relevant changes, the implications of not conforming to QMS requirements and their contributions to; the effectiveness of QMS, benefits of improved performance, product conformity, product safety and ethical behavior. This awareness is conveyed though various means including, but not limited to, quality training, new employee orientation, on the job training, etc.

7.4 Internal Communication

NWRE's management team has established appropriate internal communication processes to communicate on the effectiveness of the quality management system. This communication begins at the management review meetings where the effectiveness of the quality management system is reported, discussed and analyzed. The communication is flowed throughout the organization by management to supervisors and other employees. Bulletin boards are used to display company objectives performance, customer feedback and continuous improvement activities. Staff and department meetings are held as needed to communicate company performance, safety issues and report on the state of the company.

7.5 Documented Information (Approval, Distribution & Control)

The General Manager and the Technical & Quality Director approve all releases of the Quality Assurance Policy Manual. Controlled copies are serialized and provided with revision and up-date service. Uncontrolled copies are so marked. The Technical & Quality Director is responsible for issuing controlled copies and maintaining a distribution list.

7.5.2 Document & Data Control

NWRE maintains a controlled system for documents, of either internal or external original, that have been determined by NWRE to be necessary for the planning and operation of the quality management system. These quality system related documents are released and controlled by content, revision, and issue date. This policy applies to all of NWRE's quality system documents. Documents and data can be in the form of any media such as hard copy or electronic media and may be of internal or external origin.

NWRE's policy requires that documents are identified, controlled, reviewed, and approved prior to issue. Pertinent issues of the appropriate documents are available at all locations requiring such documents (point of use). Documents of the latest revisions supersede previous issues and are distributed in a timely manner. Obsolete documents are removed from use and discarded or marked obsolete to prevent unintended use. (Note: timely review should be ASAP and shall not exceed two working weeks.)

A master list of documents is maintained that identifies each document's current status. The documents are to be legible, dated and include the revision level or revision date. The documents will be traceable to the product, where applicable, and maintained in an orderly and accessible manner.

Changes to documents are implemented in a controlled manner with traceability. NWRE will evaluate the impact of documentation changes, as necessary, prior to release. NWRE will maintain a record of change affectivity that may affect the customer and if affected by the change, shall coordinate implementation with the customer. NWRE personnel are notified of changes to documents that affect them and / or are applicable to their job function.

7.5.3 thru 7.5.3.2.2 Control of Documented Information (Quality Records)

This policy applies to all quality records and may include electronic media. The Technical & Quality Director is responsible for the identification of records required in the operation of the Quality Management System.

Quality records may include, but are not limited to, inspection reports, test data, certificates of conformity, calibration results, supplier assessment reports, corrective and preventive action reports, training records, internal audit reports, and management review meeting minutes.

Quality records are to be legible and identifiable to the related product or process as appropriate. Quality records are stored and maintained in a manner that provides ready access, minimizes deterioration or damage and prevents loss. Quality records are retained for a minimum period of 10 years after the conclusion of the contract, unless otherwise specified by statutory, regulatory or customer requirements. When specified by contract, quality records are made available to the customer.

8 OPERATIONS

8.1 Operational Planning and Control

In order to provide the products that are required by NWRE's customers, NWRE has determined the needed processes and described them in section 3.0. These processes have been planned, implemented and controlled to meet the requirements for products and to facilitate any actions that have been determined from the planning described in section 6.0.

NWRE plans and manages product realization in a structured and controlled manner to meet the requirements at acceptable risk and within resource and schedule constraints as appropriate to NWRE and the product.
Determining the requirements for products begins with Sales by completing the quote review. Once a quotation is accepted by the customer, Sales completes the contract review per QP10070. This information is transferred to Order Entry and initiates the launch of the Sales Order. Order Entry uses the information gathered to develop the traveler (quality plan) and initiates a First Article Meeting.

The traveler (quality plan) is defined as a document that specifies the processes of the quality management system and the resources to be applied to a specific product, project or contract. NWRE utilizes a production traveler to ensure that all production activities are planned and defined before initiating the order and are carried out under controlled conditions.

The First Article meeting includes representatives from all affected functions, such as, the Sales person responsible for the account, manufacturing area supervisor, tool and die maker, Plant Manager and quality representative.

The outputs from these review processes include, as appropriate:

- Determining the requirements for the products.
- Establish criteria for the processes and the acceptance of products.
- Determining the resources needed to achieve conformity to the product and meet on-time delivery of products.
- Implementing control of the processes in accordance with the defined criteria.
- Determining, maintaining, and retaining documented information to the extent necessary.
- Determining the processes and controls needed to manage critical items, including production process controls when key characteristics have been identified.
- Determining the products and services to be obtained from external providers.
- Establishing the controls needed to prevent the delivery of nonconforming products to the customer.

These records are maintained per NWRE **QP10030 Control of Quality Records**.

Automotive customers that invoke IATF16949 requirements will be identified on the contract review form. NWRE will include advanced product quality planning (APQP) activities along with the above quality planning for these customers.

Planned changes are controlled per procedure **QP10060 Process Control**. The Plant Manager or the General Manager is authorized to review and approve changes made to production processes. They shall identify those changes, which require customer or regulatory acceptance in accordance with contractual or regulatory requirements before approving changes. Changes affecting processes, production equipment, tools, and programs shall be documented. Procedures shall be available to control their implementation. The results of changes to production processes shall be assessed by the Plant Manager to confirm that the desired effect has been achieve without adverse effect to product quality.

NWRE outsourced processes are identified in the Process Interaction Diagram in Sec. 3.0 and controlled per **QP10080 Purchasing**.
Work that is occasionally, temporarily or permanently planned to be performed outside NWRE's facility, but, still subject to NWRE's QMS will be assigned a Traveler, which will define the process, identify the location, and control the work performed. Typically these products are subject to receiving inspection to verify conformity once returned to NWRE along with the documentation **(note: Outsourced processes under a different QMS are handled as Suppliers per sec. 8.4 Purchasing)**.

Additional details of planning of product realization can be found in NWRE quality procedures **QP10060 Process Control** and **QP10070 Contract Review**.

8.1.1 Operational Risk Management

NWRE does not perform product engineering design functions and, therefore, takes exception to the design and development requirements of ISO9001, AS9100 &

IATF16949 section 8.3. Initial risk is evaluated at the quotation phase and, if necessary, managed as appropriate to NWRE and the product. The process is defined in **QP10070 Contract Review**.

The process for managing operational risk is described in procedure **QP10230 Risk Based Thinking.**

8.1.2 Configuration Management

Due to the nature of NWRE products, configuration management is typically not applicable. If configuration management is applicable, NWRE will maintain the identification of the configuration in a manner that identifies any differences between actual configuration and the agreed upon configuration. See **QP10060 Process Control** and **QP10110 Identification and Traceability** for additional details.

Confidentiality

NWRE maintains a confidentiality program per our internal work instruction WI1002701 to ensure the confidentiality of customer-contracted products and projects under development and related product information.

8.1.3 Product Safety

The applicability of Product Safety related to NWRE and NWRE's products is addressed in section 4.4 of this policy.

8.1.4 Prevention of Counterfeit Parts

Due to the fact that NWRE only builds to the Customers' design, drawings and requirements and the nature of NWRE's products, the potential for counterfeit parts is generally not applicable. The purchasing process is used to plan, implement and control purchases and would prevent counterfeit or suspect counterfeit materials from being used in NWRE products. See **QP10080 Purchasing**.

8.2 Requirements for Products and Services

8.2.1 Customer Communication

Customer communication related to product information, enquiries, purchase order, contract, changes, customer feedback / complaints, handling or controlling customer property, or specific requirements for contingency will be channeled through the sales department. NWRE will maintain the ability to communicate necessary information, including data, in a customer specified language and format as found feasible.

8.2.2 Determination of Requirements Related to the Product

NWRE's procedure **QP10070 Contract Review** defines the process for the review of new customer contracts / purchase orders. The contract review process is used to

determine customer designated requirements and any special characteristics, including the requirements for delivery and post delivery activities. This review is also used to identify any requirements that are not stated by the customer but are necessary for specified or intended use and any statutory, regulatory or additional requirements as determined by NWRE.

Repeat purchase orders / contracts or releases of established products will be reviewed and approved by Order Entry in lieu of the sales person responsible for the account. Order Entry will review the purchase order, contract to verify the correct: part number, part name, revision level, price, quantity, material, components, and delivery are appropriate. Prices are reviewed by the sales department on a periodic basis as directed by management. When Order Entry identifies a part's quote has expired, the purchase order is routed to the Sales Department for review or renewal. Any purchase order / contract discrepancies or changes noted by Order Entry will cause the purchase order / contract to be given to the responsible sales person for resolution. Any verbal orders are considered advisory until a written purchase order / contract is received from the customer. A copy of the customers approved purchase order / contract will be acknowledged and sent to the customer by Order Entry or customer service to confirm receipt of the order. A NWRE sales order is then written by Order Entry and filed in the open order file.

8.2.3 Review of Requirements Related to the Product

For new orders, a review of the requirements related to the product is conducted prior to NWRE's commitment to supply the product to the customer. This is generally done during the quotation phase to ensure that the product requirements are defined, any contract or order requirements differing from those previously expresses are resolved, any special requirements are determined and that NWRE has the ability to meet the defined requirements and manufacturing the product is feasible. Risks, such as, new technology or short delivery time frames will also be evaluated at this time. When changes in product requirements are made, NWRE Sales will ensure that relevant documents are amended and relevant personnel are made aware of the changed requirements. If and when the customer is unable to provide documented requirements, NWRE will confirm with the customer that no documented requirements are invoked prior to acceptance of the order. The formal review of new requests for quotes / orders will only be waived at the customers' request and authorization. This information is used as input into **Operational Planning and Control per section 8.1**. Records of the review, including results and actions, will be maintained per NWRE **QP10030 Control of Quality Records.**

8.3 Design and Development

NWRE does not perform product engineering design functions and, therefore, takes exception to the design and development requirements of section 8.3. Development support and assistance in providing the customer with material or product configuration information is provided when requested. The manufacturing process design portions included in this section are only applicable to automotive customers that invoke ISO / TS 16949 requirements as identified on the contract review form. NWRE will include

advanced product quality planning (APQP) activities along with the typical quality planning identified in section 8.1 for these customers.

8.3.1 through 8.3.3.1 are generally not applicable to NWRE, Inc.

8.3.3.2 Manufacturing Process Design Input

During APQP activities the team will identify, document and review the manufacturing process design input requirements including product design output data including special characteristics, targets for productivity, process capability, timing and cost, customer requirements and experience from previous developments, new materials, product handling and ergonomic requirements, design for manufacturing, design for assembly and error proofing methods, as applicable.

Any applicable special characteristics (product characteristics and / or process parameters) will be identified and included in the control plan and will comply with the customer specified definitions and symbols. These special characteristics will be identified on process control documents including drawings, FMEAs, control plans and operator instructions where applicable.

8.3.3.3 Special Characteristics and Multidisciplinary Approach

NWRE utilizes a multidisciplinary approach to prepare for product realization of automotive products through Advanced Product Quality Planning (APQP) as recommended by The Automotive Industry Action Group (AIAG). This method includes, but is not limited to; the identification of special characteristics including those determined by the customer and based on risk analysis performed by NWRE and includes documentation of special characteristics from the drawings, risk analysis, control plans, and work instructions. These special characteristics will be identified with special markings and cascaded throughout these documents as applicable.

8.3.4 through 8.3.4.2 are generally not applicable to NWRE, Inc.

8.3.4.3 Prototype Program

NWRE utilizes an R&D process to produce prototype parts at the request of the customer. Whenever possible, NWRE uses the same suppliers, tooling and manufacturing processes for the production part. If and when performance testing activities are requested and prescribed by the customer, NWRE maintains the responsibility for all outsourced services.

8.3.4.4 Product Approval Process

Manufacturing process verification and validation is completed through the planned arrangements identified in NWRE quality procedure **QP10200 First Article Production**. The first article production and approval ensures that the manufacturing process outputs meet the input requirements and produce a product that meets the customers' requirements. This activity is completed prior to the delivery or implementation of the

product and is documented through the Production Part Approval Process (PPAP) as recommended by the Automotive Industry Action Group (AIAG) and maintained as a quality record. NWRE will conform to a product and manufacturing process approval procedure that is recognized by the customer. The same product and manufacturing process approval procedure will be applied to the supplier as necessary.

8.3.5 through 8.3.5.1 Design & Development output is generally not applicable to NWRE, Inc.

8.3.5.2 Manufacturing Process Design Outputs

The manufacturing process design output will be expressed in terms that can be verified against the corresponding inputs and validated. Manufacturing process design output will include, as applicable; specifications, drawings, process flow chart / layout, process FMEAs, control plans, work instructions, process approval acceptance criteria, capacity analysis, data for quality, reliability, maintainability and measurability, results of error proofing activities, and methods of rapid detection and feedback of production / manufacturing process nonconformities.

When applicable, critical Items will specified and include key characteristics and the specific actions to be taken for these items. The actions will be approved by authorized personnel prior to release.

8.3.6 Design and Development Changes (Control of Manufacturing Process Changes)

Since NWRE does not design product, control of design and development changes are generally not applicable to NWRE. However, if the customer initiates changes that affect the process, NWRE does have a method to capture and control these changes. Once the manufacturing process has been established, verified and validated, changes will be controlled per NWRE quality procedure **QP10060 Process Control**.

8.4 Purchasing

8.4.1 Purchasing Process

Quality procedure **QP10080 Purchasing** defines the purchasing process used at NWRE to ensure that all purchased products and / or materials used in products meet the specified requirements of the purchase order, including any statutory and regulatory requirements. NWRE maintains the responsibility for the quality of all products purchased from suppliers, including customer designated or approved sources.

Suppliers, including customer-directed suppliers, are assessed and evaluated based on their ability to supply product in accordance with the specified requirements. The assessment of suppliers consists of an initial assessment and ongoing monitoring of performance. In some cases, customer specified suppliers, sole source suppliers and suppliers without an official quality system may be evaluated based on first time receipt of acceptable product or service and may be listed as Conditionally Approved. Risk

associated with suppliers of processes, products and services is identified and managed as applicable. Supplier approval is granted by the Technical & Quality Director and the Purchasing Agent and can be withdrawn by the Technical & Quality Director due to the supplier's poor performance. Once approved, the supplier is added to the Approved Supplier List (ASL), which includes their scope of approval. All suppliers are made aware of NWRE's purchasing terms and conditions and are required to enter into a confidentiality agreement if they receive or have access to confidential information.

Through NWRE Terms and Conditions, NWRE passes requirements down to suppliers and sub-tier suppliers to ensure that applicable requirements are met.

These controls and the controls identified in the Quality Procedure QP10080 Purchasing are used to ensure that externally provided processes, products, and services do not adversely affect NWRE's ability to consistently deliver conforming products and services to NWRE's customers.

8.4.2 Type & Extent of Control (Verification of Purchased Product)

Purchased product or material is subjected to verification per NWRE quality procedure **QP10100 Receiving Inspection**. It is the responsibility of NWRE to verify conformance of purchased product before acceptance. This verification may take place at NWRE or the supplier's premises by NWRE personnel. Delegation of verification is not permitted. NWRE will utilize one or more of the following methods before further processing:

- Receiving Inspection and / or Testing (such as sampling based on performance and risk).
- Receipt and evaluation of statistical data by NWRE.
- Part evaluation by a designated laboratory.
- Second- or third-party assessments or audits of the supplier sites, when coupled with records of acceptable delivered product quality.
- Another method agreed upon with the customer.

The customer may verify the acceptability of the product at the source or on receipt when specified in the contract. This however, does not absolve NWRE of the responsibility for verifying conformity to product requirements, including the possibility of rejection.

When the customer provides approved sources for special processes they must be used by NWRE and the supplier. NWRE flows down quality system requirements to suppliers to the extent necessary to ensure that the supplier adequately controls characteristics not verifiable upon receipt.

8.4.2.1 Type and extent of control – supplemental

Quality Procedure **QP10080 Purchasing** identifies the outsourced processes and types and extent of controls used to verify conformity of purchased products, processes and services to customer requirements.

This process includes the criteria and actions used to escalate or reduce the types and extent of controls and development activities based on the supplier's performance and assessment of product, material, or service risk.

8.4.2.2 Statutory and regulatory requirements

Quality Procedure **QP10080 Purchasing** identifies the process used to ensure that purchased products, processes, and services conform to the current applicable statutory and regulatory requirements in the country of receipt, country of shipment, and the customer identified country of destination, if provided.

If the customer defines special controls for certain products with statutory and regulatory requirements, it will be ensured that they are implemented and maintained as defined, including at suppliers.

8.4.2.3 Supplier quality system management system development

Suppliers of products, services or materials for automotive customers that invoke IATF 16949 requirements are required to be third party registered to the most current version of ISO9001 unless otherwise specified by the customer. These suppliers are prioritized by the importance of the product supplied and are developed and encouraged toward conformity to the most current revision of IATF 16949.

8.4.2.3.1 Automotive product related software or automotive products with embedded software are not applicable to NWRE products.

8.4.2.4 Supplier monitoring

Quality Procedure QP10080 Purchasing describes the process for supplier monitoring. The supplier's performance is monitored through delivered product quality, customer disruptions including field returns, delivery schedule performance, occurrences of premium freight, and special status customer notifications related to quality, delivery dealer returns, warranty, field actions, and recalls if provided by the customer.

8.4.2.4.1 Second party audits

The process for second party audits of suppliers is defined in Quality Procedure **QP10170 Internal Audits**.

8.4.2.5 Supplier development

Active suppliers are reviewed annually to determine the priority, type, extent, and timing of required supplier development actions. Inputs include but are not limited to performance issues identified through supplier monitoring, second party audit findings, third party certification status and risk analysis. Actions will be implemented as necessary to resolve open (unsatisfactory) performance issues and pursue opportunities for improvement.

8.4.3 Purchasing Information

NWRE purchase orders will contain a clear description of the product or service ordered and includes appropriate Identification, part number, revision level references, and other relevant data as outlined in NWRE quality procedure **QP10080 Purchasing**. These purchase orders are reviewed and approved prior to release to the supplier.

The flow-down of right-of-entry provisions and requirements relative to the notification of changes, records retention, anomalies and non-conforming materials are communicated through NWRE purchasing terms and conditions.

8.5 Production and Service Provision

Due to the nature of NWRE products, NWRE does not perform product service operations or post-delivery support, therefore, this section mainly addresses production provisions.

8.5.1 Production Process Control

NWRE plans and initiates production provisions under controlled conditions as outlined in quality procedure **QP10060 Production Process Control**. The planning considers, as applicable, the establishment of process controls and development of control plans where key characteristics have been identified, the identification of in-process verification points for special processes, and the design, manufacture, and use of tooling so that variable measurements can be taken with particular attention to key characteristics.

NWRE completes production operations in accordance with approved data, such as but not limited to, drawings, parts lists, inspection documents, process flow charts that include inspection operations, a list of specific and non-specific tools and numeric control machine programs including instructions associated with their use and production documents.

The main production document at NWRE is the production traveler. The Traveler assigned to the product being produced is developed to include the quality plan requirements and other pertinent data that is identified on the Contract Review Order Checklist Form #245. The traveler identifies the process sequence, product inspection, testing, special procedures, standards, key characteristics and any codes needed to manufacture the product. Special requirements that are included on the customers purchase order or contract will be included on the Traveler, including any requirements for qualification of processes, equipment or personnel.

The Traveler provides a space for acknowledgement of all items to be signed off and dated for verification of job set-up, operations completed, inspection compliance and quantities of product accepted and / or rejected.

8.5.1.1 (IATF16949) Control Plans

For automotive customers that invoke IATF16949, control plans are established during Advanced Product Quality Planning (APQP). The control plan is developed at the system, sub-system, component and / or material level for all product supplied, includes the manufacturing process' Process Failure Mode Effects Analysis (pFMEA) outputs and are available for pre-launch and production.

The control plan will identify the controls used for the manufacturing process, include any customer required information, the methods of monitoring the control of special characteristics that have been defined by the customer or NWRE and initiate a reaction plan when the process becomes unstable or not capable of delivering acceptable products. These control plans will be reviewed and updated when changes occur that affect product, manufacturing process, measurement, logistics, supply sources or pFMEA or after corrective action has taken place related to shipped nonconforming product or customer complaint.

The control plans and pFMEA's will be maintained as living documents and will be reviewed annually and updated as needed.

8.5.1.1 (AS9100) Control of Production Equipment and Tooling and Software Programs

New customer furnished and reactivated tooling shall be released for production use only after parts produced have been verified to the part drawings and specifications and approved either by the customer or the NWRE Sales representative with customer granted approval authority. The Plant Manager is responsible to ensure that all customer owned tooling is accurately identified, inventoried, and that records are kept for the type of tool, tooling number, customer name, and tool location. These records shall document proper control and care of customer owned tooling.

Tooling is inspected at the end of each production run by the appropriate department supervisor or designated individual. The inspector examines the tool for visual damage to verify the continued accuracy of the tool for manufacturing use. Tooling is properly stored and controlled to prevent misuse, damage, and deterioration. Periodic or routine inspection intervals of customers tooling are tightened or loosened based on data collected from previous inspections. *Additional Boeing tooling inspections may be initiated by Boeing or as defined in Boeing document D33200.*

Order Entry is responsible for maintaining a list (Black Book) of specific or non-specific tools used in production operations. The documents associated with the specific tools enabling the tool to be designed, produced, validated, controlled, and used will be maintained per NWRE procedure **QP10030 Control of Quality Records**.

Production equipment is effectively maintained through the preventive and predictive maintenance program. The program identifies and provides resources for key process equipment and includes planned maintenance activities, packaging and preservation of equipment, tooling and gauging, availability of replacement parts for key equipment

and documenting, evaluating and monitoring maintenance objectives. If and when applicable, predictive maintenance methods will be used to continually improve that effectiveness and efficiency of production equipment.

8.5.1.2 (AS9100) Validation and control of Special Processes

Special processes are defined as processes that cannot be verified by subsequent inspection and testing of the product and where process deficiencies may become apparent only after the product is in use. These processes will be carried out by qualified personnel and / or require continuous monitoring and control of process parameters in order to verify that the specific requirements are met.

These special processes may be controlled and validated through the use of certified operators, statistical process control, quality assurance monitoring or other methods acceptable to the customer. The control and validation method(s) will demonstrate the ability of the process to achieve planned results. The qualification requirements of process operations, equipment, and personnel will be specified and documented and the records will be maintained.

When special processes are identified NWRE will make arrangements, as applicable, to define the criteria for review and approval of the process, obtain qualification and approval prior to use, obtain approval of equipment and qualification of personnel, use specific methods and procedures, control significant operations and parameters in accordance with documented process specifications and define record requirements and revalidation.

8.5.1.2 (IATF16949) Standardized Work – Operator Instructions & Visual Standards

Work Instructions are prepared and available at work stations for all employees having responsibilities for the operation of processes that impact product quality. These work instructions will be derived from sources such as the quality plan, the control plan and the product realization process and may be specific to the product or process. The work instructions include job set-up instructions that are then validated and documented on the traveler during initial run, material changeover or job change. Statistical methods of verification are used when and where applicable.

The Plant Manager or the General Manager is authorized to review and approve changes made to production processes. They shall identify those changes, which require customers or regulatory acceptance in accordance with contractual or regulatory requirements before approving changes. Changes affecting processes, production equipment, tools, and programs shall be documented. The results of changes to production processes shall be assessed by the Plant Manager to confirm that the desired effect has been achieve without adverse effect to product quality.

8.5.1.3 (AS9100) Production Process Verification

Production process verification in the form of first article inspection is addressed in section 8.2.4.1 of this policy and described in **QP10200 First Article Production and Inspection.**

8.5.1.3 (IATF16949) Verification of Job Set-Ups

For all NWRE products setup verification is conducted on initial runs, material changeover or a job change that requires a new set-up. The traveler contains a sequence for setup verification that is signed off once setup has been verified. The Work Instruction and traveler contain the documented information used by setup personnel. When applicable and feasible, statistical methods of verification may be used.

For Q1 level products, NWRE performs a first off / last off part validation. For extruded products, first off and last off samples are retained as production samples for a period of 1 year. The first off / last off validation may be used to compare subsequent runs as applicable. It is not feasible to retain molded products, assemblies and large extruded products. Records of the process and product approval following setup and first off / last off part validation are retained as Quality Records per QP10030

8.5.1.4 (IATF16949) Verification after Shutdown

For automotive products, in the event of a planned or unplanned production shutdown period, production personnel will begin restart by reinitiating the setup verification and first off / last off validation as defined above in section 8.5.1.3 to ensure product compliance with requirements.

8.5.1.5 Total Productive Maintenance

The NWRE General Manager and Maintenance Supervisor will develop, implement and maintain a documented Total Productive Maintenance plan that describes the TPM system. At a minimum the system will include the following:

- Identification of process equipment necessary to produce conforming product at the required volume.
- Availability of replacement parts for the equipment identified above
- Provision of resources for machine, equipment and facility maintenance
- Any applicable customer specific requirements
- Documented maintenance objectives, for example: Overall Equipment Effectiveness (OEE), Mean Time Between Failures (MTBF), Mean Time To Repair (MTTR), Preventive maintenance compliance metrics, etc. Note: Performance to maintenance objectives shall be an input into Management Review.
- Regular review of maintenance plan and objectives and documented action plan to address corrective actions where objectives are not met.
- Use of preventive maintenance methods.
- Use of predictive maintenance methods, as applicable
- Periodic overhaul

8.5.1.6 Management of Production Tooling and Manufacturing, Test, Inspection Tooling and Equipment

The resources for applicable tool and gauge design, fabrication and verification activities for production, service materials and bulk materials are defined in Quality Procedure **QP10060 Process Control**.

8.5.1.7 Production Scheduling

The Plant Manager is responsible for providing a production schedule which tracks the traveler number, completion status and the location of the product being produced. Production scheduling is order driven and intended to meet customer delivery requirements, such as, just-in-time.

8.5.2 Identification and Traceability

NWRE describes and defines the process of identification and traceability in quality procedure **QP10110 Product Identification and Traceability**. All material is identified upon receipt and during all stages of production by means of an attached label, storage bin label or marking on the material. Product is identified by individual tagging or marking, or in the case of multiple parts, by marking or tagging the container. Unique identification of individual product or lots are maintained to provide traceability to the applicable materials. Traceability is documented on NWRE's Traveler and supporting documentation and is maintained in the appropriate quality record file. If identification or traceability is lost NWRE will process the material as nonconforming product.

The product's inspection and test status will be identified on the product or through sequence completion of the traveler. The traveler will be readily available at or near the location of the product. The inspection stamps, electronic signatures or passwords used as acceptance media are maintained and controlled per NWRE quality procedure **QP10120 Inspection and Test Status**.

If and when special levels of traceability are required by contract, regulatory agency or other, NWRE will provide for the following as applicable;

- Identification to be maintained throughout product life
- All products manufactured from the same batch of raw material or from the same manufacturing batch to be traced as well as the destination of all products of the same batch
- The identity of all components of an assembly and those of the next higher level to be traced
- The sequential record of a products manufacture, assembly or inspection to be retrieved.

Due to the nature of NWRE products, configuration management is typically not applicable. If configuration management is applicable, NWRE will maintain the

identification of the configuration in a manner that identifies any differences between actual configuration and the agreed upon configuration.

8.5.3 Customer Property

Customer supplied product is subject to receiving inspection per NWRE quality procedure **QP10100 Receiving Inspection**. Product received in a nonconforming or damaged condition is documented on a nonconformance report (NCR), identified and segregated. The customer is then notified of the nonconformance or defect. After receipt of the product any product that becomes lost, damaged, or unsuitable for use will be recorded on an NCR and reported to the customer. Customer supplied product / property is maintained and stored per NWRE quality procedure **QP10130 Control of Customer Supplied Product**.

Customer supplied documents such as specifications and drawings will be controlled per NWRE quality procedure **QP10020 Document Control**. Records or documents associated with customer supplied products will be controlled and maintained per NWRE quality procedure **QP10030 Control of Quality Records**.

Customer supplied tooling is addressed in NWRE quality procedure **QP10060 Process Control**. Customer owned manufacturing, test, inspection tooling and equipment will be permanently marked so that the ownership of each item is visible and easily determined.

8.5.4 Preservation of Product

NWRE maintains quality procedure **QP10140 Preservation of Product** that describes and defines the specific methods of handling, storage, packaging, preservation and delivery of products. The product is handled to preserve the conformity of the product and prevent damage or deterioration at all stages of production. Preservation of product includes, where applicable, the provisions for cleaning, prevention, detection and removal of foreign object debris (FOD), special handling for sensitive products or hazardous materials, marking and labeling requirements including safety warnings, and shelf life control and stock rotation. Bins, containers, pallets, trays, racks, or bags are used, as applicable, to move product in-house. Defined storage areas are provided for product prior to use. Receipt and issue of materials from stores is performed in accordance with written instructions. Storage methods and first-in-first-out (FIFO) stock rotation maintains the product quality and identification. Product susceptible to deterioration is identified and assessed at defined intervals. Product of limited shelf life is identified with expiration date.

Product approved for delivery to customers is packaged to provide adequate protection from damage during storage and delivery. The use and configuration of packaging material is defined in written specification, Work Instructions or in accordance with the customer's requirements. Packaged product is appropriately identified. The Shipping documentation identifies the product, customer and destination. Unless otherwise instructed by the customer, carriers are selected by NWRE based on the ability to provide dependable delivery without product damage. The

pack list and applicable quality documentation, as defined by the contract, are included with all shipments.

8.5.5 Post Delivery Activities

Due to the nature of NWRE products, NWRE does not generally perform post-delivery activities, however, the limited activities related to customer requirements, customer feedback and problems detected after delivery are covered in Quality Procedure **QP10070 Contract Review**.

8.5.5.1 Feedback of Information from service & 8.5.5.2 Service Agreements with Customers

Due to the nature of NWRE products, NWRE does not perform product service operations, therefore, feedback and service agreements with customers are not applicable.

8.5.6 Control of Changes, 8.5.6.1 Control of Changes Supplemental through 8.5.6.1.1 Temporary Changes of Process Controls (IATF16949)

Planned changes are controlled per procedure **QP10060 Process Control.** See section 8.1 paragraph 7 for additional policy information regarding changes.

8.6 Release of Products (services not applicable)

NWRE monitors and measures characteristics of the product at various stages of product realization to verify that the product requirements have been met. This includes key characteristics that have been identified. The monitoring and measurement stages include receiving inspection, in-process inspection and final inspection and are documented procedures.

Product is not used until it has been inspected or otherwise verified as conforming to the specific requirements unless released under positive-recall procedures pending completion of all requirement measuring and monitoring activities. Sequence completion and inspection sign-off on the traveler provides evidence of conformity with the acceptance criteria. Other production documentation that includes additional information, such as, criteria for acceptance and / or rejection, where in the sequence measurement and test operations are performed and type of measurement instruments are required may be used. Product release does not proceed until all of the planned arrangements have been satisfactorily completed unless otherwise approved by the relevant authority or the customer. The traveler identifies the person authorizing the release of the product and is maintained as a quality record. Test records show the actual test results data when required by the specification or acceptance plan. When required to demonstrate product qualification, records will provide evidence that the product meets that defined requirement.

Sampling inspection used for product acceptance is outlined and defined in NWRE quality procedure **QP10090 Statistical Sampling.** The sampling plan is statistically valid

and is based on acceptance on zero criteria (C=0). Nonconforming conditions are not permitted in a sample. The procedure or sampling plan is submitted for customer approval when required.

8.6.1 (IATF16949) Release of Product - Supplemental

For automotive products, the planned arrangements to verify the product requirements have been met will encompass the control plan and are documented in the control plan. Planned arrangements for initial release of products encompass the product PPAP approval. After any changes following initial release the product approval process will be initiated and controlled per ISO9001 section 8.5.6.

8.6.2 (IATF16949) Layout Inspection and Functional Testing (First Article Inspection)

NWRE completes first article inspection (layout inspection) of all new products. Quality procedure **QP10200 First Article Production and Inspection** describes the inspection, verification and documentation of a representative item from the first production run of a new part or following any change that invalidates the previous first article. The first article inspection includes the product dimensions, layout inspection and functional verification to the applicable customer purchase order, engineering design records and material / performance standards as applicable. NWRE provides for the customer's designation of first article method, such as, AS9102 for aerospace or Production Part Approval Process (PPAP) for automotive.

8.6.3 Appearance Items

For products that are designated by the customer as appearance items, NWRE provides the appropriate resources as needed. These may include lighting or evaluation equipment, masters for color, grain, gloss and texture. The maintenance and control of appearance masters and verification of personnel competence and qualification in appearance evaluations is also provided.

8.6.4 (IATF16949) Verification and Acceptance of Conformity of Externally Provided Products and Services

See quality policy section 8.4.2 and Quality Policy **QP10100 Receiving Inspection** for details.

8.6.5 Statutory and Regulatory Conformity

Statutory (Legal), Regulatory (Compliance) and other requirements will be identified for externally provided products and conformance verified prior to the release into the production flow. These include statutory, regulatory and other requirements in countries where the product is manufactured and in the customer-identified countries of destination, if provided.

8.6.6 Acceptance Criteria

For externally provided products used in the manufacture of NWRE product acceptance criteria is defined on the purchase order and may include a specification that defines additional criteria. The criteria are approved by the customer when and if required by the customer. For attribute data sampling see section 8.6 paragraph 3 and Quality Procedure **QP10090 Acceptance Sampling**.

8.7 Control of Nonconforming Outputs (Products)

NWRE quality procedure **QP10210 Control of Nonconforming Product** identifies the method that NWRE uses to ensure that product that does not conform to specified requirements is prevented from unintended use or delivery. The procedure defines the responsibility for review and authority for the disposition of the nonconforming product and the process for approving personnel that make these decisions. The control of nonconforming product procedure applies to all nonconforming product and materials including products or materials received from suppliers, NWRE product from nonconforming processes, product returned to NWRE from the customer and any unidentified or suspect product or material.

All nonconforming products and materials are identified and segregated from conforming products. The details of the nonconforming product are documented, indicating the material or product identification, the description of the non-conformance, and the quantity involved. The nonconformance details are forwarded to the Technical & Quality Director for review and evaluation.

The nonconforming product disposition is indicated and may include, use-as-is (with customer approval), rework, re-grade or scrap. For use-as-is disposition of product or manufacturing processes that are different from that which is currently approved, NWRE will obtain the customer's approval prior to further processing. This applies equally to purchased product. NWRE will maintain a record of the expiration date or quantity authorized to ensure compliance with the original or superseding specifications and requirements when the authorization expires. Material that is shipped on an authorization will be properly identified as such on each shipping container.

All reworked product will have rework instructions and is re-inspected and / or re-tested in accordance with documented procedures prior to release. The rework instructions and re-inspection verification may be included on the nonconformance report in the disposition area or on a rework traveler.

Product that is dispositioned as scrap is conspicuously and permanently marked or positively controlled until rendered unusable and / or discarded. Automotive and Aerospace products that are dispositioned as scrap are mutilated, destroyed or rendered unusable. This process is recorded on the nonconformance report and the completion signed and dated by the Quality Manage.

Customers are promptly notified in detail when a non-conformity is discovered in the processes or product that may affect product that has already been delivered. This

includes the notification to customers and / or regulatory authorities on issues of product reliability and / or safety. The notification will include a clear description of the nonconformity and identify the parts affected, customer and / or organization part numbers, quantity and dates delivered.

8.7.1.1 thru 8.7.1.7 (IATF16949)

Addressed in Quality Procedure **QP10210 Control of Nonconforming Product**.

8.7.2 Documented Information for Nonconforming Product

The documented information regarding nonconforming product will be maintained per Quality Procedure **QP10030 Control of Quality Records**.

9 PERFORMANCE EVALUATION (MONITORING, MEASUREMENT, ANALYSIS AND EVALUATION)

9.1.1 General

NWRE's management team is responsible for the measurement, analysis, and improvement processes that demonstrate conformity of the product and ensure conformity and continual improvement of the effectiveness of the quality management system. The processes are described and defined in NWRE quality procedure **QP10160 Measurement, Analysis and Improvement**. These include the determination of applicable methods including, where applicable, statistical techniques and the extent of their use. Basic statistical concepts will be understood and utilized throughout the organization, where applicable. When Advanced Product Quality Planning (APQP) is used, appropriate statistical tools will be determined for the process and included in the control plan as applicable.

9.1.1.1 thru 9.1.1.3 Monitoring and Measurement of Manufacturing Processes

The quality management system processes of NWRE are monitored and, where applicable, measured to demonstrate the ability of the processes to achieve the planned results. When planned results are not achieved or a process is found to be nonconforming, NWRE takes appropriate action to correct the nonconformance, evaluates the process nonconformity to determine if it has resulted in product nonconformity, and determine the extent of the nonconformity related to other processes or products. If product nonconformity exists, NWRE will identify and control the nonconforming product and take the appropriate corrective action to ensure the conformity of the product per NWRE Quality Procedure **QP10210 Control of Nonconforming Product**.

On new products for automotive customers that invoke IATF 16949 requirements, process studies are performed to verify process capability and provide additional input for process control. The process study results are included with the Production Part Approval Process (PPAP) documentation. The results of the process studies are used to determine any necessary process specification limits, objectives, and acceptance

criteria. The process capability or performance identified in the approved production part (PPAP) documentation will be maintained along with the control plan and process flow diagram specifics, such as, measurement techniques, sampling plans, acceptance criteria and reaction plans.

Reaction plans for characteristics that are not statistically capable or unstable will be initiated. The reaction plans will include containment of the product and 100% inspection as appropriate. Corrective action is taken to assure that the process becomes stable and capable. This corrective action plan or changes to the reaction plan will be reviewed and approved by the customer if required.

Significant process events, such as tool changes or machine repair are recorded. NWRE maintains records of process changes and their effective dates.

9.1.2 Customer Satisfaction

The perception of customer satisfaction is monitored and measured by the analysis of data provided from internal schedule performance, quality reports, customer feedback (complaints) and corrective action requests. The customer feedback may include but not limited to customer supplied vendor ratings and audits, other sources that include delivered part quality performance, customer disruptions or field returns, delivery performance (including incidents of premium freight) and the customer's notification related to quality and delivery issues. This information will be included in the management meeting notes / agenda.

9.1.2.1 Customer Satisfaction – supplemental

Customer satisfaction is monitored through continual evaluation of internal and external performance indicators to ensure compliance to the product and process specifications and other customer requirements. The performance indicators will be based on objective evidence and include the following:

- Delivered part quality performance (Escapes and complaints monitoring)
- Customer disruptions (Escapes, Complaints, On-Time Delivery)
- Field returns, recalls, and warranty (where applicable)
- Delivery schedule performance, including incidents of premium freight
- Customer notification related to quality or delivery issues, including special status
- Customer Survey's

The manufacturing processes are monitored for performance of product quality and process efficiency to demonstrate compliance with customer requirements for products. When scorecards or customer portal performance data is provided by the customer, this data is included in the performance monitoring.

9.1.3 Analysis and Evaluation & 9.1.3.1 Prioritization

NWRE collects and analyzes data to demonstrate the suitability and effectiveness of the quality management system and identify opportunities for continual improvement. The

data generated from measuring and monitoring, along with other sources, provides information relating to customer satisfaction, conformity of product requirements, suppliers, characteristics / trends of processes and products including opportunities for preventive action. Trends in quality and operational performance are compared with the progress toward objectives and lead to action to support the development of priorities and prompt solutions to customer related problems. Key customer related trends and correlations are used for decision making and long term planning. These actions also support the information system used for timely reporting of product information related to usage.

9.2 to 9.2.2 Internal Audits

NWRE performs internal audits of the quality management system in relation to current revisions of IATF16949, ISO9001 and AS9100. Internal audits are planned to ensue that all aspects of the quality management system processes, including all activities and shifts, are audited at least once a year. The internal audits will also meet any applicable contract and regulatory requirements. The frequency of the audits is determined by the results of previous audits, customer complaints and the significance of the individual system activities. The audits include an evaluation of the effectiveness of activities, processes, products, work areas, and services being performed and any associated documentation. Qualified staff that is independent of the work being performed audit in compliance with NWRE Quality Procedure **QP10170 Internal Quality Audits**.

Detailed tools and techniques are developed such as check sheets, process flowcharts or any similar method that supports the process approach to auditing of the quality management system. All findings and observations are documented during the audits and the individuals responsible for the audited areas review and agree on the corrective actions that are required to correct any deficiencies. The corrective or preventive actions are completed according to NWRE Quality Procedure **QP10220 Corrective and Preventive Action**. Corrective and preventive actions receive follow up activity to ensure that the corrective action has been implemented and is effective in solving the problem. Management reviews the internal audit reports to ensure the continued effectiveness of the quality management system and determine if there are any improvements to be made.

9.2.2.1 to 9.2.2.4 Internal Audit Program

Along with the details of the Internal Audit program listed above that generally covers quality system audits, NWRE also performs product audits and manufacturing process audits for automotive products. The audits are prioritized based on risk, internal and external performance trends and critical processes, as applicable.

Along with the review of the audit program effectiveness, the frequency of audits is reviewed annually by the Technical & Quality Director and adjusted based on occurrence of process changes, internal and external nonconformities, and customer complaints. The review of the effectiveness of the audit program is included in the Management Review that occurs after the first of each year.

NWRE's audit program is developed to ensure that the full quality system, each automotive product manufacturing process and all automotive customer specific requirements are audited annually and that the automotive manufacturing and automotive product audits include all shifts and shift handovers.

When customer specific approaches to auditing are required, NWRE will integrate these approaches into NWRE's auditing process and methods.

9.3 Management Review

NWRE's Management Team reviews the quality management system on a monthly basis to evaluate the adequacy and effectiveness of the system and to ensure its continued suitability. The review includes opportunities for improvement and changes that may be required to meet current and future needs related to the quality policy and quality objectives. The results of the reviews are recorded and maintained to provide evidence of improvement and achievement of quality objectives related to the business plan and customer satisfaction with the products supplied. The frequency of management reviews are increased based on risk to compliance with customer requirements resulting from internal or external changes impacting that QMS and performance related issues as needed. Details of the management review inputs and outputs are described in Quality Procedure **QP10040 Management Responsibility**.

10 Improvement

10.1 Continual Improvement

The continual improvement process and activities are outlined in NWRE Quality Procedure **QP10160 Measurement, Analysis and Improvement**. The management team of NWRE utilizes and analyzes the information and data gathered from the quality policy, quality objectives, audit results, corrective and preventive action through management review. The management team selects continuous improvement projects from manufacturing as well as supporting business processes and determines the objectives, the method of measurement, and evaluates the ability of the process or product to achieve the results of the plan. Manufacturing process improvement is focused on controlling and reducing variation in the product characteristics and manufacturing process as far as economically feasible. The results are integrated with the corrective and preventive action system as necessary.

The management team selects the specific continuous improvement projects, including their priorities and subsequent activities to achieve their objectives. They collect and analyze appropriate data along with supporting input provided by the responsible managers and / or supervisors. Categories for project selection may include, but are not limited to:

- Customer Satisfaction (includes the customers' perception as to whether NWRE has met their requirements)
- Quality
- Employee Welfare i.e. Training, Attendance, Safety

- Product and process improvement and consistency
- Supplier Performance

10.2 to 10.2.2 Nonconformity and Corrective Action

NWRE Quality Procedure **QP10220 Corrective and Preventive Action** establishes and defines the requirements for; reviewing nonconformities, reviewing customer complaints, analyzing rejected products, determining root causes of nonconformities, evaluating the need for actions to prevent reoccurrence, reviewing corrective action taken and maintaining the records of the results of actions taken. NWRE uses various methods of problem solving to identify the root causes, unless the customer prescribes a certain format. In that case NWRE will use the customer prescribed format. Error proofing is used when and where it is both economical and feasible. Similar processes and products are considered to determine if the corrective action and controls implemented can be applied to eliminate other potential nonconformance. When it is determined that the supplier is responsible for the root cause, the corrective action requirement is flowed down to the supplier. In cases where timely and / or effective corrective actions are not accomplished, the specific actions are documented and the corrective action is escalated within NWRE.

10.2.3 Problem Solving

Quality Procedure **QP10220 Corrective and Preventive Action** includes a section that outlines NWRE's process for problem solving. The problem solving methodology will include the items listed in IATF 16949 sec. 10.2.3.

10.2.4 Error Proofing

Quality Procedure **QP10220 Corrective and Preventive Action** includes a section that outlines NWRE's process for Error Proofing. The error proofing methodology will include the items listed in IATF 16949 sec. 10.2.4.

10.2.5 Warranty Management System

Since NWRE does not design products and builds to customer's prints, NWRE is not responsible for functional or performance related warranty, therefore, a warranty management system is not required. Issues related to manufacturing defects and nonconforming products are covered under section 8.7 Control of Nonconforming Output (Products).

10.2.6 Customer Complaints and Field Failures

Monitoring and analysis of Customer Complaints is addressed under section 9.1.2 Customer Satisfaction. Since NWRE is not design responsible, field failures are generally not applicable to NWRE. Returns are addressed under section 10.2 of this policy and processed per **QP10210 Control of Nonconforming Product.** Returns are entered into the corrective action and problem solving processes per **QP10220 Corrective and Preventive Action**.

10.3 to 10.3.1 Continual Improvement

Continual improvement of the quality management system is included and addressed in section 9.0 Performance Evaluation and under section 10.1 Continuous Improvement. The process of continuous improvement is documented in Quality Procedure **QP10160 Measurement, Analysis and Improvement**.

Appendix 1

NWRE Cross Reference Matrix / Index

ISO9001 / AS9100 Section	***NWRE Title*** Also see NWRE Process Interaction Diagram	***NWRE Quality Policy Reference***	***NWRE Quality Procedure Reference***
N/A	Introduction to NWRE	2.0	N/A
N/A	Process Interaction	3.0	N/A
4.0 Context of the Organization	Context of the Organization	4	QP10010
4.1 Understanding the organization and its Context	Understanding & Context of the Organization	4.1	QP10010
4.2 Understanding the Needs and Expectations of Interested Parties	Understanding the Needs and Expectations of Interested Parties	4.2	QP10070, QP10080, QP10200
4.3 Determining the Scope of the Quality Management System	Manual Structure & Scope of the Quality Management System	4.3	QP10010, QP10040
4.3.1 Determining the Scope of the Quality Management System	**Manual Structure & Scope of the Quality Management System**	**4.3**	**QP10010, QP10040**
4.3.2 Customer-specific Requirements	**Automotive Customers' Specific Requirements**	**4.3**	**QP10070, QP10200**
4.4 Quality Management System and Its Processes	Quality Management System and Processes	4.4	QP10010, QP10060
4.4.1.1 Conformance of Products and Processes	**Conformance of Products & Processes**	**4.4**	**QP10060**
4.4.1.2 Product Safety	**Safety Related Products**	**4.4**	**QP10070**
5.0 Leadership	Leadership (Management Responsibility)	5.0	QP10040
5.1 Leadership and Commitment	Leadership and Commitment	5.1 to 5.1.1	QP10040
5.1.1 General	Leadership and Commitment	5.1 to 5.1.1	QP10040
5.1.1.1 Corporate Responsibility	**Corporate Responsibility**	**5.1.1.1**	**QP10040**
5.1.1.2 Process Effectiveness and Efficiency	**Process Effectiveness and Efficiency**	**5.1.1.2**	**QP10170, QP10040**
5.1.1.3 Process Owners	**Process Owners**	**5.1.1.3**	**QP10040, QP10060**
5.1.2 Customer Focus	Customer Focus	5.1.2	QP10040
5.2 Policy	Quality Policy, Vision and Mission Statements	5.2	QP10040, QP10010
5.2.1 Establishing the Quality Policy	Quality Policy, Vision and Mission Statements	5.2	QP10010, QP10040
5.2.2 Communicating the Quality Policy	Quality Policy, Vision and Mission Statements	5.2	QP10040, QP10050
5.3 Organizational Roles, Responsibilities, and Authorities	Roles, Responsibility, and Authority	5.3 to 5.3.2	QP10040, QP10180
5.3.1 Organizational roles, Responsibilities, and Authorities – Supplemental	**Roles, Responsibility, and Authority**	**5.3 to 5.3.2**	**QP10040, QP10180**
5.3.2 Responsibility and Authority for Product Requirements and Corrective Actions	**Roles, Responsibility, and Authority**	**5.3 to 5.3.2**	**QP10040, QP10180**
6.0 Planning	Planning	6.0 to 6.1.2	QP10010, QP10060
6.1 Actions to Address Risks and Opportunities	Planning	6.0 to 6.1.2	QP10220, QP10230
6.1.2.1 Risk Analysis	**Risk Analysis**	**6.1.2.1**	**QP10230**
6.1.2.2 Preventive Action	**Preventive Action**	**6.1.2.2**	**QP10220**
6.1.2.3 Contingency Plans	**Contingency Plans**	**6.1.2.3**	**QP10040**
6.2 Quality Objectives and Planning to Achieve Them	Quality Objectives and Planning to Achieve Them	6.2 to 6.2.2	QP10010, QP10040
6.3 Planning of Changes	Planning of Changes	6.3	QP10040, QP10060
7.0 Support	Support (Resource Management)	7.0	QP10080
7.1 Resources	Provisions of Resources	7.1.1	QP10040, QP10050, QP10080
7.1.1 General	Provisions of Resources	7.1.1	QP10040, QP10050, QP10080
7.1.2 People	Human Resources and Training	7.1.2	QP10050
7.1.3 Infrastructure	Infrastructure	7.1.3	QP10060

Appendix 1

NWRE Cross Reference Matrix / Index

7.1.3.1 Plant, Facility, and Equipment Planning	**Plant, Facility and Equipment Planning**	**7.1.3.1**	**QP10060**
7.1.4 Environment for the Operation of Processes	Work Environment	7.1.4 and 7.1.4.1	QP10060
7.1.4.1 Environment for the Operation of Processes – Supplemental	**Work Environment**	**7.1.4 and 7.1.4.1**	**QP10060**
7.1.5 Monitoring and Measuring Resources	Control of Monitoring and Measuring Equipment	7.1.5 thru 7.1.5.1	QP10150
7.1.5.1 General	Control of Monitoring and Measuring Equipment	7.1.5 thru 7.1.5.1	QP10150
7.1.5.1.1 Measurement Systems Analysis	**Measurement System Analysis**	**7.1.5.1.1**	**QP10150, QP10160**
7.1.5.2 Measurement Traceability	Measurement Traceability	7.1.5.2	QP10150, QP10030
7.1.5.2.1 Calibration/Verification Records	**Calibration / Verification Records**	**7.1.5.2.1**	**QP10150, QP10030**
7.1.5.3 Laboratory Requirements	**Laboratory Requirements**	**7.1.5.3**	**QP10050**
7.1.5.3.1 Internal laboratory	**Internal Laboratory**	**7.1.5.3.1**	**QP10050**
7.1.5.3.2 External Laboratory	**External Laboratory**	**7.1.5.3.2**	**QP10080**
7.1.6 Organizational Knowledge	Organizational Knowledge	7.1.6	QP10030, QP10050
7.2 Competence	Employee Competence and On-the-job Training	7.2 thru 7.2.2	QP10050
7.2.1 Competence – Supplemental	**Employee Competence and On-the-job Training**	**7.2 thru 7.2.2**	**QP10050**
7.2.2 Competence – On-the-job training	**Employee Competence and On-the-job Training**	**7.2 thru 7.2.2**	**QP10050**
7.2.3 Internal Auditor Competency	**Internal Auditor Competency**	**7.2.3**	**QP10170, QP10050**
7.2.4 Second-Party Auditor Competency	**Second-Party Auditor Competency**	**7.2.4**	**QP10170, QP10050**
7.3 Awareness	Awareness	7.3	QP10050
7.3.1 Awareness – Supplemental	**Awareness**	**7.3**	**QP10050**
7.3.2 Employee Motivation and Empowerment	**PROCEDURES FOR EMPLOYEE MOTIVATION**	**5.2**	**WI1004017**
7.4 Communication	Internal Communication	7.4	QP10040, QP10160
7.5 Documented Information	Documented Information (Approval, Distribution & Control)	7.5	QP10020, QP10030
7.5.1 General	Documented Information (Approval, Distribution & Control)	7.5	QP10020, QP10030
7.5.1.1 Quality Management System Documentation	**Documented Information (Approval, Distribution & Control)**	**7.5**	**QP10020, QP10030**
7.5.2 Creating and Updating	Document & Data Control	7.5.2	QP10020, QP10030
7.5.3 Control of Documented Information	Control of Documented Information (Quality Records)	7.5.3 thru 7.5.3.2.2	QP10020, QP10030
7.5.3.2.1 Record Retention	**Control of Documented Information (Quality Records)**	**7.5.3 thru 7.5.3.2.2**	**QP10020, QP10030**
7.5.3.2.2 Engineering Specifications	**Control of Documented Information (Quality Records)**	**7.5.3 thru 7.5.3.2.2**	**QP10020, QP10030**
8.0 Operation	Operations	8.0	QP10070, QP10030, QP10060, QP10080
8.1 Operational Planning and Control	Operational Planning and Control	8.1	QP10070, QP10030, QP10060, QP10080
8.1.1 Operational Risk Management	Operational Risk Management	8.1.1	QP10070, QP10230
8.1.1 Operational Planning and Control – Supplemental	**Operational Risk Management**	**8.1.1**	**QP10070, QP10230**
8.1.2 Configuration Management	Configuration Management	8.1.2	QP10060, QP10110

Appendix 1

NWRE Cross Reference Matrix / Index

8.1.2 Confidentiality	**Confidentiality**	**8.1.2**	**QP10020**
8.1.3 Product Safety	Product Safety	8.1.3	QP10070
8.1.4 Prevention of Counterfeit Parts	Prevention of Counterfeit Parts	8.1.4	QP10080
8.2 Requirements for Products and Services	Requirements for Products and Services	8.2	QP10070
8.2.1 Customer Communication	Customer Communication	8.2.1	QP10070
8.2.1.1 Customer Communication – Supplemental	**Customer Communication**	**8.2.1**	**QP10070**
8.2.2 Determining the Requirements for Products and Services	Determination of Requirements Related to the Product	8.2.2	QP10070
8.2.2.1 Determining the Requirements for Products and Services – Supplemental	**Determination of Requirements Related to the Product**	**8.2.2**	**QP10070**
8.2.3 Review of the Requirements for Products and Services	Review of Requirements Related to the Product	8.2.3	QP10030, QP10070
8.2.3.1.1 Review of the Requirements for Products and Services – Supplemental	**Review of Requirements Related to the Product**	**8.2.3**	**QP10030, QP10070**
8.2.3.1.2 Customer-Designated Special Characteristics	**Review of Requirements Related to the Product**	**8.2.3**	**QP10030, QP10070**
8.2.3.1.3 Organization Manufacturing Feasibility	**Review of Requirements Related to the Product**	**8.2.3**	**QP10030, QP10070**
8.2.4 Changes to Requirements for Products and Services	Review of Requirements Related to the Product	8.2.3	QP10030, QP10070
8.3 Design and Development of Products and Services	Design and Development	8.3	QP10060
8.3.3.2 Manufacturing Process Design Input	**Manufacturing Process Design Input**	**8.3.3.2**	**QP10060**
8.3.3.3 Special Characteristics	**Special Characteristics and Multidisciplinary Approach**	**8.3.3.3**	**QP10070, QP10200**
8.3.4.3 Prototype Programme	**Prototype Program**	**8.3.4.3**	**QP10070, QP10200**
8.3.4.4 Product Approval Process	**Product Approval Process**	**8.3.4.4**	**QP10200**
8.3.5.2 Manufacturing Process Design Output	**Manufacturing Process Design Outputs**	**8.3.5.2**	**QP10160, QP10200**
8.3.6 Design and Development Changes	Design and Development Changes (Control of Manufacturing Process Changes)	8.3.6	QP10060
8.3.6.1 Design and Development Changes – Supplemental	**Design and Development Changes (Control of Manufacturing Process Changes)**	**8.3.6**	**QP10060**
8.4 Control of Externally Provided Processes, Products, and Services	Purchasing	8.4	QP10080
8.4.1 General	Purchasing Process	8.4.1	QP10080
8.4.1.1 General – Supplemental	**Purchasing Process**	**8.4.1**	**QP10080**
8.4.1.2 Supplier Selection Process	**Purchasing Process**	**8.4.1**	**QP10080**
8.4.1.3 Customer-Directed Sources (also known as "Directed-Buy")	**Purchasing Process**	**8.4.1**	**QP10080**
8.4.2 Type and Extent of Control	Type & Extent of Control (Verification of Purchased Product)	8.4.2	QP10100, QP10080
8.4.2.1 Type and Extent of Control – Supplemental	**Type and Extent of Control – Supplemental**	**8.4.2.1**	**QP10080**
8.4.2.2 Statutory and Regulatory Requirements	**Statutory and Regulatory Requirements**	**8.4.2.2**	**QP10080**
8.4.2.3 Supplier Quality Management System Development	**Supplier Quality System Management System Development**	**8.4.2.3**	**QP10080**
8.4.2.4 Supplier Monitoring	**Supplier Monitoring**	**8.4.2.4**	**QP10080**
8.4.2.4.1 Second-Party Audits	**Second Party Audits**	**8.4.2.4.1**	**QP10170**
8.4.2.5 Supplier Development	**Supplier Development**	**8.4.2.5**	**QP10080**
8.4.3 Information for External Providers	Purchasing Information	8.4.3	QP10080
8.4.3.1 Information for External Providers – Supplemental	**Purchasing Information**	**8.4.3**	**QP10080**
8.5 Production and Service Provision	Production and Service Provision	8.5	QP10060
8.5.1 Control of Production and Service Provision	Production Process Control	8.5.1	QP10060
8.5.1.1 Control of Equipment, Tools, and Software Programs	(AS9100) Control of Production Equipment and Tooling and Software Programs	8.5.1.1	QP10030, QP10060
8.5.1.1 Control Plan	**(IATF16949) Control Plans**	**8.5.1.1**	**QP10030, QP10060**
8.5.1.2 Validation and Control of Special Processes	(AS9100) Validation and Control of Special Processes	8.5.1.2	QP10060

8.5.1.2 Standardized Work – Operator Instructions and Visual Standards	**(IATF16949) Standardized Work – Operator Instructions & Visual Standards**	**8.5.1.2**	**QP10020, QP10060**
8.5.1.3 Production Process Verification	(AS9100) Production Process Verification	8.5.1.3	QP10200
8.5.1.3 Verification of Job Set-ups	**(IATF16949) Verification of Job Set-Ups**	**8.5.1.3**	**QP10200, QP10030**
8.5.1.4 Verification After Shutdown	**(IATF16949) Verification After Shutdown**	**8.5.1.4**	**QP10120, QP10030**
8.5.1.5 Total Productive Maintenance	**Total Productive Maintenance**	**8.5.1.5**	**WI1004039, QP10060, QP10230**
8.5.1.6 Management of Production Tooling and Manufacturing, Test, Inspection Tooling and Equipment	**Management of Production Tooling and Manufacturing, Test, Inspection Tooling and Equipment**	**8.5.1.6**	**QP10060**
8.5.1.7 Production Scheduling	**Production Scheduling**	**8.5.1.7**	**QP10060**
8.5.2 Identification and Traceability	Identification and Traceability	8.5.2	QP10110, QP10120
8.5.2.1 Identification and Traceability – Supplemental	**Identification and Traceability**	**8.5.2**	**QP10110, QP10120**
8.5.3 Property Belonging to Customers or External Providers	Customer Property	8.5.3	QP10100, QP10130, QP10020, QP10030, QP10060
8.5.4 Preservation	Preservation of Product	8.5.4	QP10140
8.5.4.1 Preservation – Supplemental	**Preservation of Product**	**8.5.4**	**QP10140**
8.5.5 Post-Delivery Activities	Post Delivery Activities	8.5.5	QP10070
8.5.6 Control of Changes	Control of Changes	8.5.6	QP10060
8.5.6.1 Control of Changes – Supplemental	**Control of Changes Supplemental**	**8.5.6.1**	**QP10060**
8.5.6.1.1 Temporary Change of Process Controls	**Temporary Changes of Process Controls (IATF16949)**	**8.5.6.1.1**	**QP10060**
8.6 Release of Products and Services	Release of Products (Services not Applicable)	8.6	QP10090
8.6.1 Release of Products and Services – Supplemental	**(IATF16949) Release of Product – Supplemental**	**8.6.1**	**QP10180, QP10190**
8.6.2 Layout Inspection and Functional Testing	**(IATF16949) Layout Inspection and Functional Testing (First Article Inspection)**	**8.6.2**	**QP10200**
8.6.3 Appearance Items	**Appearance Items**	**8.6.3**	**QP10180, QP10190, QP10200**
8.6.4 Verification and Acceptance of Conformity of Externally Provided Products and Services	**(IATF16949) Verification and Acceptance of Conformity of Externally Provided Products and Services**	**8.6.4**	**QP10100**
8.6.5 Statutory and Regulatory Conformity	**Statutory and Regulatory Conformity**	**8.6.5**	**QP10100**
8.6.6 Acceptance Criteria	**Acceptance Criteria**	**8.6.6**	**QP10090**
8.7 Control of Nonconforming Outputs	Control of Nonconforming Outputs (Products)	8.7	QP10210
8.7.1.1 Customer Authorization for Concession	**Control of Nonconforming Product**	**8.7.1.1 thru 8.7.1.7**	**QP10210**
8.7.1.2 Control of Nonconforming Product – Customer-specified Process	**Control of Nonconforming Product**	**8.7.1.1 thru 8.7.1.7**	**QP10210**
8.7.1.3 Control of Suspect Product	**Control of Nonconforming Product**	**8.7.1.1 thru 8.7.1.7**	**QP10210**
8.7.1.4 Control of Reworked Product	**Control of Nonconforming Product**	**8.7.1.1 thru 8.7.1.7**	**QP10210**
8.7.1.5 Control of Repaired Product	**Control of Nonconforming Product**	**8.7.1.1 thru 8.7.1.7**	**QP10210**
8.7.1.6 Customer Notification	**Control of Nonconforming Product**	**8.7.1.1 thru 8.7.1.7**	**QP10210**
8.7.1.7 Nonconforming Product Disposition	**Control of Nonconforming Product**	**8.7.1.1 thru 8.7.1.7**	**QP10210**

Appendix 1

NWRE Cross Reference Matrix / Index

9.0 Performance Evaluation	Performance Evaluation (Monitoring, Measurement, Analysis and Evaluation)	9.0	QP10160
9.1 Monitoring, Measurement, Analysis, and Evaluation	Performance Evaluation (Monitoring, Measurement, Analysis and Evaluation)	9.0	QP10160
9.1.1 General	General	9.1.1	QP10160
9.1.1.1 Monitoring and Measurement of Manufacturing Processes	**Monitoring and Measurement of Manufacturing Processes**	**9.1.1.1 thru 9.1.1.3**	**QP10210**
9.1.1.2 Identification of Statistical Tools	**Monitoring and Measurement of Manufacturing Processes**	**9.1.1.1 thru 9.1.1.3**	**QP10210**
9.1.1.3 Application of Statistical Concepts	**Monitoring and Measurement of Manufacturing Processes**	**9.1.1.1 thru 9.1.1.3**	**QP10210**
9.1.2 Customer Satisfaction	Customer Satisfaction	9.1.2	QP10160
9.1.2.1 Customer Satisfaction – Supplemental	**Customer Satisfaction – Supplemental**	**9.1.2.1**	**QP10160**
9.1.3 Analysis and Evaluation	Analysis and Evaluation	9.1.3	QP10160
9.1.3.1 Prioritization	**Prioritization**	**9.1.3.1**	**QP10160, QP10220**
9.2 Internal Audit	Internal Audits	9.2 to 9.2.2	QP10170, QP10220
9.2.2.1 Internal Audit Programme	**Internal Audit Program**	**9.2.2.1 to 9.2.2.4**	**QP10170, QP10220**
9.2.2.2 Quality Management System Audit	**Internal Audit Program**	**9.2.2.1 to 9.2.2.4**	**QP10170, QP10220**
8.2.2.3 Manufacturing Process Audit	**Internal Audit Program**	**9.2.2.1 to 9.2.2.4**	**QP10170, QP10220**
9.2.2.4 Product Audit	**Internal Audit Program**	**9.2.2.1 to 9.2.2.4**	**QP10170, QP10220**
9.3 Management Review	Management Review	9.3	QP10040
9.3.1 General	Management Review	9.3	QP10040
9.3.1.1 Management Review – Supplemental	**Management Review**	**9.3**	**QP10040**
9.3.2 Management Review Inputs	**Management Review**	**9.3**	**QP10040**
9.3.3 Management Review Outputs	Management Review	9.3	QP10040
9.3.3.1 Management Review outputs – Supplemental	**Management Review**	**9.3**	**QP10040**
10.0 Improvement	Improvement	10.0	QP10160
10.1 General	Continual Improvement	10.1	QP10160
10.2 Nonconformity and Corrective Action	Nonconformity and Corrective Action	10.2 to 10.2.2	QP10220
10.2.3 Problem Solving	**Problem Solving**	**10.2.3**	**QP10220**
10.2.4 Error-Proofing	**Error Proofing**	**10.2.4**	**QP10220**
10.2.5 Warranty Management System	**Warranty Management System**	**10.2.5**	**N/A**
10.2.6 Customer Complaints and Field Failure Test Analysis	**Customer Complaints and Field Failures**	**10.2.6**	**QP10210, QP10220**
10.3 Continual Improvement	Continual Improvement	10.3 to 10.3.1	QP10160
10.3.1 Continual Improvement – Supplemental	**Continual Improvement**	**10.3 to 10.3.1**	**QP10160**

Appendix 2

Quality Procedure Index

NWRE Title	***New NWRE Quality Procedure Reference***
Quality System Planning	QP10010
Document Control	QP10020
Control of Quality Records	QP10030
Management Responsibility	QP10040
Training	QP10050
Process Control	QP10060
Contract Review	QP10070
Purchasing	QP10080
Statistical Sampling	QP10090
Receiving Inspection	QP10100
Product Identification & Traceability	QP10110
Inspection & Test Status	QP10120
Control of Customer Supplied Product	QP10130
Preservation of Product	QP10140
Control of Inspection, Measuring and Test Equipment	QP10150
Measurement, Analysis and Improvement	QP10160
Internal Quality Audits	QP10170
In-Process Inspection	QP10180
Final Inspection	QP10190
First Article Production and Inspection	QP10200
Control of Nonconforming Product	QP10210
Corrective and Preventative Action	QP10220
Risk Based Thinking	QP10230

Proprietor: R. Robbins	Northwest Rubber Extruders, Inc.	**Revision Level: C** Revision Date: 11/21/13
Reviewed By: B. Snyder **Signature:**		**Original Issue Date:** November 25, 2008
Approved By: R. Robbins **Signature:**	*THE FLEXIBLE PEOPLE*	**QA Laboratory Scope**
Title: **Internal QA Laboratory Scope**		

NWRE's Internal QA Laboratory is staffed and equipped to provide the following capabilities to support quality conformance testing of materials, verify product characteristics as specified by customer requirements and support our customers in research and development. NWRE has participated in the available interlaboratory tests to demonstrate the laboratory's testing capability and competence. Training of quality personnel is conducted, documented, recorded and maintained per NWRE Quality Procedure QP10050. The competence and performance of quality personnel is evaluated at the conclusion of training and through on-going surveillance by the Quality Manager.
All laboratory related records are reviewed prior to filing and are controlled as quality records per QP10030.

Materials Testing

NWRE utilizes the American Standard Test Methods (ASTM) as recommended by the American Society of Automotive Engineers (SAE).

Test Description	***Test Method***
Bondability: Adhesion to Rigid Substrates	ASTM D-429
Color Measurement & Analysis	Fed-Std-595, BSS7319, ASTM E-284
Compression / Deflection	ASTM D-575
Compression Set	ASTM D-395
Durometer Hardness	ASTM D-2240
Flammability: Vertical & Horizontal	BSS7230, 14CFR25.853
Fluid & Oil Resistance – Effects of Liquids	ASTM D-471
Heat Aging: Deterioration in an Air Oven	ASTM D-573
Mooney Viscometer: Viscosity, Stress Relaxation, and Pre-Vulcanization Characteristics	ASTM D-1646
Rheometer: Vulcanization using Oscillating Disk Cure Meter	ASTM D-2084
Tear Strength, of Vulcanized Rubber	ASTM D-624
Tensile Strength, Elongation, Modulus, Tension Set of Elastomers	ASTM D-412
Volume Resistivity: Conductivity & Surface Resistance	ASTM D-991

Dimensional Inspection

Parameter	***Measurement Technique***	***Range***	***Accuracy***
Linear	Caliper - Digital	0-12 inches	0.0005 inch
	Micrometer - Digital	0-1 inch	0.0001 inch
	Tape – Metalic & Non metalic	0-100 feet	0.03125 inch
	Rule	0-24 inches	0.0005 inch
	Snap Gage	0-0.5 inches	0.0005 inch
Angle	Angle Gauge - Digital	0-180 degrees	0.1 degree
	Angle Gage	0-180 degrees	0.5 degree
Weight	Scale - Digital	0-100 pounds	0.02 pounds
	Scale - Digital	0-2,000 grams	0.1 grams
	Scale - Digital	0-50,000 milligrams	0.01 milligrams
Outside Diam.	Pi Tape	0.75-7 inches	0.001 inch
Hole Diam.	Pin Gage	0-3.328 inches	0.001 inch
Linear, Angle, OD, ID	Micro-VU	0-12 inches	0.0001 inch

Calibration / Verification

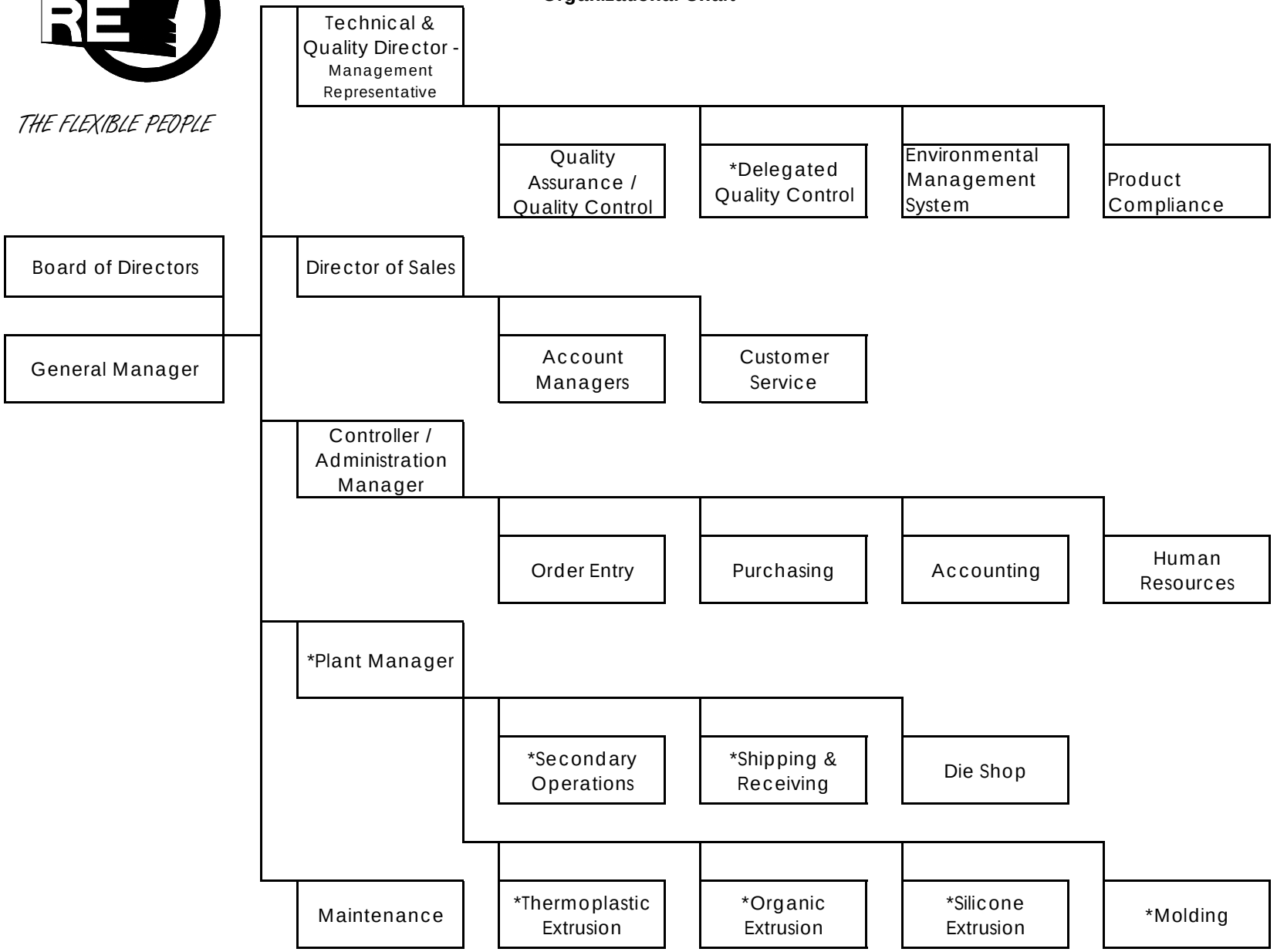
Measurement devices and gages used at NWRE are calibrated to NIST traceable standards or verified against NIST traceable standards prior to use.

Appendix 4

Northwest Rubber Extruders, Inc.

THE FLEXIBLE PEOPLE

Organizational Chart



*Indicates Certified Delegated Inspector

Rev. Date 03/27/2019