1.0 Purpose/Scope

1.1 To outline the requirements for control of measuring and monitoring equipment at Triad

1.2 The procedure applies to equipment where monitoring or measuring is used for evidence of conformity of products and services.

2.0 Responsibilities and Authorities

2.1 The QMS representative has the prime responsibility and approval authority for this procedure.

2.2 In support of Top management and where monitoring or measuring is used for evidence of conformity of products and services, the QMS representative is responsible for determining the resources needed to ensure valid and reliable monitoring and measuring results.

2.3 Top management is responsible to designate the Equipment coordinator, and to assign responsibility for calibration and maintenance of the equipment. Typically, this coordination is assigned to the Infrastructure Management team.

3.0 References and Definitions

3.1 Reference

3.1.1 This document addresses clause 7.1.5 of the AS 9100 D standard, Monitoring and measuring resources.

3.2 No definitions

4.0 Resources

4.1 Accelo Query for Assets due for calibration

5.0 Instructions

5.1 Top management determines and provides the resources needed to ensure valid and reliable results when monitoring and measuring is used to verify conformity to requirements.

5.1.1 With procedures 8.1 for Operational planning and control, 8.5.1 for Control of production and service provision, and 9.1 for Monitoring, measurement, analysis and evaluation, consideration is given to monitoring and measuring resources to ensure that they are:

- Suitable for the specific type of monitoring and measuring activities undertaken.
- Maintained to ensure their continuing fitness for their purpose and documented information maintained as evidence of fitness for their purpose.

- Calibrated or verified in suitable environmental conditions.

5.2 The QMS representative ensures that measuring instruments are calibrated when said measurement traceability is considered to be an essential part of providing confidence in the results, or is a statutory or regulatory requirement, or to meet customer or interested party expectations.

5.2.1 Monitoring and measuring equipment is recalled for calibrations or verifications at specified intervals and prior to use against certified equipment having a known valid relationship to internationally or nationally recognized standards. Where no such standards exist, the basis used for calibration is documented.

5.2.2 Measuring instruments are maintained and identified in order to determine their calibration status.

- Measuring and monitoring equipment is assigned a unique identification number and entered into Accelo as an asset (Triad or Customer) then tagged for Calibration Required. With this method, tools can be recalled for scheduled calibration and/or verification and adjustment made, if necessary.
- Tasks are generated from the asset log in Accelo to prompt recall procedures.

5.2.3 All measuring and monitoring equipment is logged as an asset in Accelo and the following information is recorded for each entry:

- Equipment name or description
- Triad asset number (TAxxxx)
- Customer asset number (Txxxx-xx)
- Serial number if available
- Service Date - IN
- Make & Model
- Status - ACTIVE or INACTIVE
- Attachments
- Acceptance criteria is defined by the OEM and carried out as pass/fail by the 3rd party calibration vendors.

5.2.4 The Equipment coordinator maintains the calibration entries, schedules the calibrations, and reviews calibration reports for external calibration services. All documented records are archived according to the Triad asset number. They can be attached in Accelo at the asset number OR can be located in Google Drive artifacts under the same naming convention.

5.2.5 Before measuring equipment is put into use, some initial verification may be done and only equipment that passes verification is put in use. Appropriate documented verification information as evidence of suitability

is retained when required.

5.2.6 Employees using monitoring and measuring equipment are required to:

- Inform the Equipment coordinator when monitoring or measurement equipment needs to be added or deleted from the calibration register.
- Check the calibration status of measuring and monitoring equipment prior to using the equipment. This is performed during job set-up and FAI processing
- Calibrate and maintain equipment if assigned (internal).
- Inform the Equipment coordinator when a (real or perceived) monitoring or measurement equipment problem is noted. An equipment case is required in Accelo to track the problem and resolution.

5.3 For internal equipment maintenance and calibration, instructions, related measuring or monitoring steps or equipment manuals may be provided to the assigned employee.

5.3.1 This information includes:

- Calibration or verification requirements
- Triad asset number/Item ID
- Method of calibration or verification
- Acceptance criteria for calibration
- Storage location when applicable

The environment in which calibration occurs is only critical if temperature or environmental conditions are directly related to calibration results. Third party calibration shall determine suitable environments and include this data on their certificates. Any internal calibration performed by Triad is not currently susceptible to environmental conditions.

Some reference tools such as rulers, may be verified using a secondary device registered to a measurement standard. Said devices typically do not have a set recall cycle for purchase or 3rd party calibration and are replaced based on visual inspection (wear/tear evidence) and criticality of said measurements . The risk associated with this process is low.

5.4 Equipment is safeguarded from unauthorized adjustments, deterioration or damage that would invalidate the calibration status and subsequent measurement results. It is handled, preserved and stored in a manner that protects its accuracy and fitness for use.

5.4.1 If precautions, in addition to standard plant practices and conditions, are required, they are outlined in the equipment manual, the calibration or maintenance work instructions or other related work instructions.

5.5 Maintenance and calibration of measuring equipment.

5.5.1 All measuring equipment is used within the environmental controls specified in the instructions or manufacturer's manuals.

5.5.1 Employees are qualified, with procedure 7.2 for Competence, awareness and training, to perform equipment maintenance and calibration as assigned.

5.5.2 All maintenance and calibration is documented in the calibration logs or in records provided by 3rd parties.

5.5.3 The calibration status of equipment requiring calibration is clearly labeled on the equipment.

- A label stating the date of the most recent calibration and date of next calibration indicates that the equipment is calibrated at prescribed intervals as indicated by the OEM.
- A label stating, "Out of Service" indicates that the equipment is not in use. The reason that the equipment is out of service is recorded in the equipment non-conformance case or the asset instance in Accelo.
- Equipment that is calibrated each time by method of 'set-up' is labeled NO CALIBRATION REQUIRED and is not listed in Accelo for asset calibration.

5.5.4 Whenever the equipment is found to be out of calibration, corrective action is initiated to restore the intended calibration status.

- An equipment case is opened in Accelo
- The equipment is removed from access and isolated until the case is resolved

5.5.5 If a calibration task results in a failed calibration, the impact on product that had been produced since the last valid calibration date is assessed and documented.

- The equipment coordinator acknowledges the failing calibration report and opens an equipment case in Accelo.
- In the event that nonconforming products or services result from an out of calibration condition, they are controlled with procedure 8.7 for Control of nonconforming outputs.

5.6 Whenever equipment calibrations need to be performed by external providers, such calibration services are controlled with the procedure 8.4 for control of external providers.

5.6.1 The equipment coordinator reviews calibration reports from external laboratories upon receipt. The calibration report shall include:

- Before and after readings
- The traceable number of the equipment used for calibration
- The tolerance

- Calibration results
- Calibration procedure reference

5.7 Where test software is used as a form of inspection, it is checked to prove it is capable of verifying the acceptability of the product or the monitoring required prior to its release for use during production. It is listed on the internal calibration procedures associated with the Asset ID.

5.8 Where a secondary tool or equipment is used as a form of inspection or calibration, it must be calibrated in turn by a 3rd party.

5.9 It is strictly prohibited to bring a personal tool of any kind to Triad for use in the manufacturing, testing, inspection or any 'process' directly related to produce/service completion. During job set-up, FAI inspections and WIP observation all employees are responsible for ensuring tools being used for production and/or QA purposes are properly labeled, up to date in calibration and authorized for use.

6.0 Forms and Documented Information

6.1 Forms / Records

- Equipment case in Accelo (electronic)
- Accelo Query of assets requiring calibration
- Calibration reports from external providers
- Calibration stickers from external providers
- Internal calibration logs
- Internal calibration stickers

6.2 Documented information / Related processes

Related Processes:

- 6.0
- 7.2
- 8.1
- 8.4
- 8.5.1
- 8.7
- 9.1

7.0 Opportunities and Risks

7.1 The planning procedure P-600 for Planning for the Quality management system addresses opportunities and risks (risk-based thinking).

7.2 Triad makes use of organizational knowledge, lessons learned and experience with the activities associated with **Control of Monitoring and Measurement Equipment** to determine the opportunities and risk that need to be addressed and that can:

- Give assurance that the procedure can achieve its intended result(s).

- Enhance desirable effects, and prevent or reduce undesired effects.
- Achieve improvement.