

## Attachment 7

### Example Standard Operating Procedure: Calibration by Work Order

|                                     |   |                       |                          |             |  |
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| <b>STANDARD OPERATING PROCEDURE</b> |   |                       |                          |             |  |
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## 1.0 OBJECTIVE

This procedure details the activities required to calibrate instrumentation outside of the time based formula activity covered by procedure.

## 2.0 SCOPE

This procedure is invoked by the raising of a Works Order to carry out calibration.

## 3.0 DEFINITIONS

See Section 6.

## 4.0 RESPONSIBILITIES

### ENGINEERING

To propose the use of suitable instrumentation and assess whether instruments are fit for purpose.

### PROCESS OWNER

To identify the critical parameters, the process variables and to derive acceptable limits.

### QUALITY ASSURANCE (QA)

To verify the limits are acceptable and ensure parameters meet regulatory compliance

Specific expertise in other areas can be called on when required to identify other aspects.

## 5.0 PROCEDURE

### 5.1 Raising the Works Order

- 5.1.1 Where an instrument is identified by the process owner as requiring calibration a work order be raised, in accordance with Works Order Procedure.
- 5.1.2 The works order should not be raised for more than one instrument loop and must not be raised for more than one plant item.
- 5.1.3 The works order must identify the instrument tag number, the process operating range of the instrument, the required process accuracy of the instrument reading, and the date pre-calibration is required.

### 5.2 Calibration

- 5.2.1 The work will be carried out in accordance with the site Permit To Work procedure and the appropriate calibration procedure selected from the list in Section 8.
- 5.2.2 The points checked in pre-calibration must be specified on the works order. The calibration results must be entered on the works order.
- 5.2.3 Instrument pre-calibration will be carried out using the following points as a minimum:
  - (a) Near the maximum point of the operating range of the instrument.

(b) Near the minimum point of the operating range of the instrument.

(c) A midpoint within the process specific operating range.

5.2.4 Where the pre-calibration is successful the results must be conveyed to the permit to work issuer in accordance with departmental procedures.

5.2.5 Where the pre-calibration required an adjustment to be made. The results should be filled in on the calibration sheet associated with the calibration procedure.

5.2.6 Pre-Calibration

5.2.6.1 If the pre-calibration is found to be outside the specified process accuracy the pre-calibration will be classified as failed. If the instrument is product critical an Exception Report must be raised and sent to the Process Owner and to the QA Compliance Manager. Where any instrument has failed the post calibration test it will be examined, rectified or replaced and re-calibrated.

5.2.6.2 If the pre-calibration is found to be outside the specified process accuracy the pre-calibration will be classified as failed. If the instrument is product critical an Exception Report must be raised and sent to the Process Owner and to the Compliance Manager. Where any instrument has failed the post calibration test it will be examined, rectified or replaced and re-calibrated.

### **5.3 Instrument Cleaning**

5.3.1 All instruments will be washed or wiped in order to remove any residual substances and general soiling that may be present. The cleaning must be carried out inside the designated plant area.

### **5.4 Recording of Results**

5.4.1 The raw data of the pre-calibration test must be recorded on the works order.

5.4.2 The results of the test must be recorded on the Instrument Recording System referenced by date.

5.4.3 Where the activity is carried out by a member of a shift team, the works order number and result of the pre-calibration test must be entered in the shift log.

5.4.4 Fail reports (and corrective actions) will be filed on the plant with the equipment record.

## 6.0 APPENDIX

### Appendix A – Definitions

#### **CALIBRATION**

The set of operations, which establish, under specified conditions, the relationship between values indicated by a measuring instrument or measuring system, or values represented by a material measure, and the corresponding known values of a reference standard.

#### **PRODUCT CRITICAL INSTRUMENTS**

A product critical instrument is an instrument whose failure may have a direct effect on product quality.

#### **PROCESS / SYSTEM CRITICAL INSTRUMENT**

A process / system critical instrument is an instrument whose failure may have a direct effect on process or system performance without affecting final product quality, or safety.

#### **SAFETY/ENVIRONMENTAL CRITICAL INSTRUMENT**

A safety/environmental critical instrument is an instrument whose failure may have a direct effect on safety/environment.

#### **NON-CRITICAL INSTRUMENT**

An instrument whose failure is deemed to have no effect on product quality, process / system performance, safety or the environment.

#### **INSTRUMENT PRE-CALIBRATION CHECK**

An instrument pre-calibration check is where the applied signal to the temperature transmitter is compared and corresponds to the displayed reading. The test equipment used is traceable to national standards.

#### **VALIDATION**

The action of proving, in accordance with the principles of GxP, that any procedure, process, equipment material, activity or system actually leads to the expected results.

## 7.0 REFERENCES

Site Non-Conformance Reporting System

Works Request System Procedure

The Production of Qualification Documents for Instruments

Contents List for the Calibration Procedures Manual