

# CCP-QP-016

Revision 15

## CCP

# Control of Measuring and Testing Equipment

EFFECTIVE DATE: 05/18/2010

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PRINTED NAME

APPROVED FOR USE

**RECORD OF REVISION**

Revision Number	Date Approved	Description of Revision
4	02/25/2002	Added requirements for M&TE items controlled under the e-QA® system. Added a new Section 4.9 for entering data into the e-QA® database.
5	05/14/2002	Made changes to 4.1.4 and 4.1.7. Updated references in 2.6.1, 4.1.1 and 4.8.1.
6	05/14/2003	Change to 3.3.3 and NOTE before 4.1.2.
7	08/05/2003	Revised to address shipment of M&TE from the generator sites directly to/from suppliers of calibration services (instead of being calibrated at the WIPP site). Revised in response to CAR-SRS-0002-03, to clarify M&TE related activities performed at the project office versus those performed at the generator sites.
8	11/18/2003	Revised to address that e-QA® system is being eliminated for use by the CCP Program. Deleted Section 4.9 from procedure.
9	03/14/2005	Revised to address the concerns of Surveillance Report SUR-SRS-0003-04 and Savannah River Site Audit Report 2004-AR-26-0005, Finding #2. Addressed CBFO comments.
10	03/09/2006	Revised to correct reference in Section 2.6 and added CCP Vendor Project Manager to Responsibilities Section.
11	09/26/2006	Revised Attachment 1 to require that 'CCP' be included as part of the unique calibration identifier in response to CAR-RHANL-001-06.
12	11/16/2006	Revised to implement the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/Remote-Handled (RH) Permit Modification Request (PMR). This revision includes changing SPQAO to CCP QA and TS to Lead Operator. Other editorial changes are also included.
13	03/30/2007	Revised to clarify the unique identifiers and to remove nonconformance report (NCR) requirement for out-of-calibration equipment.

**RECORD OF REVISION**

Revision Number	Date Approved	Description of Revision
14	02/07/2008	Revised to address the assignment of responsibilities, disconnects between the Quality Credit Card process and Central Characterization Project (CCP)-driven requirements, and proper usage of "out-of-calibration" versus "out-of-tolerance" terminology in response to Corrective Action Report (CAR), CAR-CCP-0006-07.
15	05/18/2010	Revised to clarify responsibilities for providing calibration documentation to the measuring and test equipment (M&TE) Custodian.

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1.0 PURPOSE

This procedure implements the requirements and processes for properly controlling measuring and test equipment (M&TE).

1.1 Scope

This procedure describes the processes to ensure equipment used for measuring and testing are properly controlled, calibrated, and maintained.

This procedure is applicable to M&TE that is controlled by the CCP Program, including CCP responsibilities as defined in the applicable site interface documents.

## 2.0 REQUIREMENTS

### 2.1 References

#### Baseline Documents

- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- ANSI/NCSL Z540-1-1994, *Calibration Laboratories and Measuring and Testing Equipment - General Requirements*

#### Referenced Documents

- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*
- CCP-QP-015, *CCP Procurement*

### 2.2 Training Requirements

2.2.1 None.

### 2.3 General Information

2.3.1 M&TE are devices used to measure, gauge, test, inspect, or otherwise determine compliance with prescribed technical requirements or measuring instruments used in taking quantitative or qualitative measurements. M&TE is normally used when a precision measurement with known tolerance and calibration traceability to National Institute of Standards and Technology (NIST) or other recognized standards is required.

2.3.2 Calibration and control measures may not be required for rulers, tape measures, levels, and other such devices if normal commercial equipment provides adequate accuracy.

2.4 Use and Control of M&TE

- 2.4.1 M&TE needed to support CCP characterization and packaging activities shall be controlled in a database maintained by the CCP M&TE Custodian.
- 2.4.2 CCP shall maintain records documenting that established M&TE schedules and procedures have been followed. These records shall include an individual record of calibration, or other means of control.
- 2.4.3 M&TE shall be labeled to indicate the calibration status, the date calibrated, the calibration due date or usage equivalent, and the identification of any limitations. When it is impractical to apply a label directly to an item, the label may be affixed to the instrument container or some other suitable means may be used to reflect the calibration status.
- 2.4.4 When M&TE is found to be out-of-calibration or out-of-tolerance, the equipment shall be tagged and segregated, and the validity of previous inspection and test results and the acceptability of related items, data collected, and processes monitored shall be evaluated.
- 2.4.5 M&TE shall be handled in a manner that DOES **NOT** adversely affect the accuracy of the equipment.
- 2.4.6 Due consideration shall be given to temperature, humidity, lighting, vibration, dust control, cleanliness, electromagnetic interference, and any other factors affecting the results of measurements. Where pertinent, these factors shall be monitored and recorded and, when appropriate, correcting compensations shall be applied to measurement results.
- 2.4.7 Damaged or suspect M&TE shall be tagged and segregated to prevent use until the condition has been resolved.
- 2.4.8 M&TE that is suspended from use and calibration by the M&TE user organization shall have a closing calibration performed. If the equipment has not been used for precision measurement since its last calibration, that calibration may serve as the closing calibration. The suspended M&TE shall be tagged and segregated.
- 2.4.9 M&TE that is permanently suspended from use and calibration by the M&TE user organization shall have an exit calibration performed. If the equipment has not been used for precision measurement since its last calibration, that calibration may serve as

the closing calibration. This action shall be performed before initiating action to transfer custody of the item. The M&TE shall be tagged and segregated to prevent use.

2.4.10 The location of M&TE shipped from the site where it is assigned to another site in support of a short term CCP need will be tracked by the M&TE Custodian.

## 2.5 Calibrating M&TE

### 2.5.1 General

- [A] M&TE requiring calibration shall be calibrated at periodic intervals established and maintained to ensure acceptable reliability, where reliability is described as the probability that M&TE will remain in tolerance throughout the interval.
- [B] M&TE shall be calibrated to provide traceability of the calibration against certified equipment having known valid relationships to nationally recognized standards. If nationally recognized standards **DO NOT** exist, the bases for calibration shall be documented.
- [C] Intervals shall be established for all M&TE requiring calibration unless the equipment is regularly monitored through the use of check standards in a documented measurement assurance process. Check standards must closely represent the item parameters normally tested in the process, and the check standard must be verified periodically.
- [D] Where intervals are used to ensure reliability, the interval setting system must be systematically applied and shall have stated reliability goals and a method of verifying that the goals are being attained.
- [E] Intervals may be based on usage or time since last calibration.
- [F] All exemptions from periodic calibration shall be approved and documented.
- [G] The recall system may provide for the temporary extension of the calibration due date for limited periods of time under specified conditions that **DO NOT** unreasonably impair the satisfaction of task objectives.

- [H] If any M&TE is found to be significantly out-of-tolerance during the calibration process, the calibrating organization shall provide for the notification to the user and CCP QA management of the out-of-tolerance condition, with the associated measurement data, so that appropriate action can be taken.

#### 2.5.2 Procured M&TE

- [A] All M&TE shall be procured in accordance with CCP-QP-015, *CCP Procurement*. The procurement request should address the following:
  - [A.1] The appropriate operation and maintenance manuals.
  - [A.2] Whether the equipment is to be calibrated when shipped or after receipt.
  - [A.3] A calibration certificate that shows traceability to NIST or other recognized standard.
  - [A.4] Adequate packaging, handling, and shipping requirements.
  - [A.5] The required ranges and tolerance in the procurement specifications.
- [B] Newly-procured M&TE will be tagged, segregated, or otherwise controlled to prevent its use until it is calibrated.

### 3.0 RESPONSIBILITIES

#### 3.1 CCP M&TE Custodian

3.1.1 Maintains a database that includes a recall system to track and control M&TE needed to support CCP characterization and packaging activities.

3.1.2 Supplies lists of M&TE to Host site as appropriate.

3.1.3 Notifies Vendor Project Manager (VPM) or designee and CCP QA 60 days in advance of when a calibration is due.

3.1.4 Controls M&TE to prevent its use until the equipment is calibrated.

3.1.5 Assigns each piece of M&TE a unique identification number.

3.1.6 Labels and tags M&TE in accordance with Attachment 1, Labels and Tags.

3.1.7 Establishes and maintains communications with calibration organizations.

3.1.8 Verifies Certificate of Calibration for completeness and submits to CCP Records.

3.1.9 Schedules those calibration activities performed by the calibration organization that support CCP activities.

3.1.10 Updates M&TE Database to reflect current applicable equipment list, calibration certifications, and calibration due dates.

3.1.11 Coordinates with the Cognizant Engineer to establish the interval of calibration.

3.1.12 For M&TE found to be out-of-tolerance, notifies the VPM or Designee and CCP QA.

3.1.13 Tracks M&TE removed from its assigned location to a new location for short term use.

#### 3.2 Cognizant Engineer

3.2.1 Establishes calibration intervals.

3.2.2 Adjusts calibration intervals.

3.2.3 Provides recommendations concerning calibration data set points and tolerances.

3.2.4 Evaluates and approves exemptions and temporary extensions from periodic calibrations.

### 3.3 Calibration Organization/Approved Suppliers

3.3.1 Performs calibration, maintenance, and/or measurement in accordance with accepted methods.

3.3.2 Notifies M&TE Custodian if calibrations cannot be completed as described in accepted methods.

3.3.3 Notifies the M&TE Custodian of the following:

[A] Out-of-tolerance condition upon completion of maintenance/calibration.

[B] Out-of-tolerance condition not corrected by the maintenance/calibration method.

[C] Problems found that could not be corrected.

### 3.4 CCP M&TE User

3.4.1 Confirms that M&TE calibration tags are not expired.

3.4.2 For M&TE calibration tags that are expired, notifies M&TE Custodian.

3.4.3 Stores M&TE in an environment that will not adversely affect its accuracy to ensure M&TE integrity.

3.4.4 Coordinates equipment recall and calibration with the M&TE Custodian.

3.4.5 Notifies the M&TE Custodian when M&TE is shipped out and returned for short term activities.

### 3.5 CCP Vendor Project Manager (VPM) or Designee

3.5.1 Interfaces with the M&TE Custodian to schedule calibration and maintenance activities, and forwards copies of Host site provided calibration records to the M&TE Custodian.

- 3.5.2 Controls M&TE to prevent its use until the equipment is calibrated.
- 3.5.3 Issues an NCR in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control* for M&TE found to be lost or defective.
- 3.5.4 Permanently marks the item with the unique identification in a manner that will not affect its form, fit, or function, if it is affixed to the container.
- 3.5.5 Stores M&TE in an environment that will not adversely affect its accuracy to ensure M&TE integrity.
- 3.5.6 Coordinates the calibration activities with the M&TE Custodian.

4.0 PROCEDURE

4.1 Use of M&TE

**CCP M&TE User**

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**NOTE**

While M&TE is in use, the user will be responsible for control of the M&TE and maintaining the M&TE in a manner that will not adversely affect its accuracy. Definitions for "in use" and "storage" are included in Attachment 2, Glossary.

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4.1.1 Store M&TE in an environment that will not adversely affect its accuracy to ensure M&TE integrity when not in use.

4.1.2 Confirm that M&TE calibration tags are not expired.

4.1.3 For M&TE calibration tags that are expired, notify M&TE Custodian.

4.1.4 Coordinate equipment recall and calibration with the M&TE Custodian.

4.2 CCP M&TE Database

**CCP M&TE Custodian**

4.2.1 Maintain a database to track and control M&TE needed to support CCP characterization and packaging activities.

4.2.2 Enter the following data for all M&TE into the database:

[A] Calibration date

[B] Calibration expiration date

[C] Recall frequency

[D] ID number

[E] Description

[F] Manufacturer

[G] Model number

[H] Serial number

[I] Property tag number, where applicable

4.2.3 Maintain a recall system to notify users when equipment is due for calibration determined by the recall frequency determined in the M&TE Database.

[A] Equipment shall be recalled for calibration if:

[A.1] It has exceeded its calibration interval.

[A.2] It has broken calibration seals.

[A.3] It has been modified.

[A.4] It has been repaired.

[A.5] It has had components replaced.

[A.6] It is suspected to be malfunctioning because of mishandling, misuse, or unusual results.

[B] Notify VPM or Designee and CCP QA upon expiration of M&TE calibration for recall.

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**NOTE**

This notification should be 60 days in advance for items that must be sent off site for calibration.

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4.3 Procured M&TE

**VPM or Designee**

4.3.1 Initiate request for needed equipment, **AND** procure the equipment in accordance with CCP-QP-015. The procurement request should address the following:

[A] The appropriate operation and maintenance manuals.

[B] Adequate packaging, handling, and shipping requirements.

[C] The required ranges and tolerance in the procurement specifications.

**VPM or Designee/CCP M&TE Custodian**

- 4.3.2 Inspect newly procured M&TE to verify correct serial number and equipment ID number, as applicable.
- 4.3.3 Tag, segregate, or otherwise control newly-procured M&TE to prevent its use until it is calibrated.
- 4.3.4 Coordinate with the Cognizant Engineer to establish the interval of calibration per Section 4.5.1.
- 4.3.5 Create an M&TE identification label per Attachment 1, Labels and Tags that bears a unique M&TE identification number, and affix it to the item or its container.
- 4.3.6 Arrange for calibration.

**VPM or Designee**

- 4.3.7 If the ID label is affixed to the container, permanently mark the item with the unique identification number in a manner that will not affect its form, fit, or function.

**CCP M&TE Custodian**

- 4.3.8 Enter data into M&TE database.
- 4.4 Controlling CCP M&TE

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**NOTE**

M&TE will be transported, stored, and calibrated in an environment that will not adversely affect its accuracy. Whenever possible, M&TE is shipped directly from the generator site to the calibrating agency. The instrument is then returned directly to the generator site. Returned instruments are checked by a person designated by the project manager. After the check is complete, the designated person attaches a calibration tag to each instrument (if required). If an out-of-calibration is identified the M&TE will be tagged and segregated to prevent use until recalibrated.

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- 4.4.1 Assign each piece of M&TE used in the CCP program a unique identification number.

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**NOTE**

Identification numbers are serialized and not duplicated or reissued. They are attached to equipment using an appropriate label. All references to equipment are by means of these ID numbers. M&TE provided by the host location will be tracked and controlled by CCP using the host location's identification methodology. CCP identification labels and numbering are applied to M&TE procured and provided by CCP.

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4.4.2 Enter the information for all M&TE, including recall information, into the M&TE database.

4.4.3 Provide physical separation of the following categories of M&TE:

[A] Ready-to-use, calibrated M&TE.

[B] Suspended, rejected, and calibration overdue M&TE.

4.4.4 Label M&TE with a unique identification label as indicated in Attachment 1, Labels and Tags.

4.4.5 **IF** labeling or tagging is not practical,  
**THEN:**

[A] Determine an acceptable means of ensuring control of M&TE.

[B] Document any alternative control methods that are established.

[C] File documentation of control methods with the equipment records per Section 5.0.

4.4.6 Provide traceability and recall for M&TE to support tracking, calibration control and evaluation.

**CCP M&TE Custodian/VPM or Designee**

4.4.7 Inspect M&TE received from calibration to verify correct serial number and equipment ID number, as applicable.

4.4.8 Tag, segregate, or otherwise control out-of-calibration M&TE to prevent use until recalibrated.

- 4.4.9 Tag, segregate, or otherwise control damaged, suspect, and out-of-tolerance M&TE to prevent use until the condition has been resolved. If an evaluation or previous measurements is needed, the M&TE will be handled in accordance with Section 4.7.
  - 4.4.10 Track usage of M&TE to facilitate evaluation of any notice of deficiencies received, as applicable.
  - 4.4.11 Store M&TE in an environment that will not adversely affect its accuracy to ensure M&TE integrity.
- 4.5 Determination of Calibration Interval

**Cognizant Engineer**

4.5.1 Determine the Initial Calibration Interval

- [A] Consider any or all of the following when determining the calibration interval:
  - [A.1] Calibration range, tolerance, and job requirements.
  - [A.2] Review of the manufacturer's tolerance, wear allowance, and recommended calibration interval.
  - [A.3] Comparison of calibration intervals for similar instruments or M&TE.
  - [A.4] Consultation with calibration organization for historical data on similar instruments.
  - [A.5] Intended use and frequency of the instrument.
  - [A.6] Environment in which the device will be subject.
  - [A.7] Results of previous calibration.
  - [A.8] Document the rationale for the resulting calibration interval.
  - [A.9] Submit a copy of calibration interval documentation in accordance with Section 5.0.
- [B] Notify the M&TE Custodian of the approved Calibration Interval.

4.5.2 Adjustment of Calibration Interval

- [A] Document the rationale for assigning a revised calibration interval and new calibration interval recommendation.

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**NOTE**

The calibration organization should be contacted to provide assistance.

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- [B] Shorten calibration interval to ensure continued accuracy, **OR** lengthen calibration interval when evaluation shows lengthening will not affect accuracy, **OR** violate procedural or regulatory requirements.
- [C] Notify the M&TE Custodian of Calibration Interval adjustments.
- [D] Submit a copy of the calibration interval documentation in accordance with Section 5.0.

**CCP M&TE Custodian**

4.5.3 Evaluation of exemptions and temporary extensions.

- [A] Evaluate and approve exemptions and temporary extensions from periodic calibrations.
- [B] Document evaluation and submit in accordance with Section 5.0.

4.5.4 Update the Recall frequency for evaluated equipment in the M&TE database.

4.6 Calibration

**VPM or Designee**

4.6.1 Coordinate the calibration activities with the M&TE Custodian.

**CCP M&TE Custodian**

4.6.2 Procure Calibration Services from Approved Calibration Supplier per CCP-QP-015. Specify in the procurement documentation that a Certificate of calibration be produced upon successful calibration containing at a minimum the following information:

- [A] A description of identification of the item

- [B] Calibration interval
- [C] Date Calibrated
- [D] Identification of the calibration source
- [E] Calibration results (data and status)
- [F] Calibration action taken (e.g. adjusted, repaired, new value assigned, derated)
- [G] Evaluation and corrective action taken in response to out of calibration or out-of-tolerance conditions

**Calibration Organization/Approved Supplier**

4.6.3 Calibrate equipment using appropriate methods.

4.6.4 Forward original **OR** copies of calibration documentation and any recommendations **OR** deficiencies to M&TE Custodian as specified in purchase order **OR** each CCP Interface document.

[A] **IF** M&TE is found to be out-of-tolerance or defective, **THEN** notify the M&TE Custodian.

4.6.5 Verify calibration reports for completeness.

4.6.6 Update M&TE Database, as needed.

4.6.7 Submit records for M&TE in accordance with Section 5.0.

4.7 Out-of-Tolerance CCP M&TE

**CCP M&TE Custodian**

4.7.1 **IF** M&TE is found to be out-of-tolerance or defective, **THEN** notify the VPM or Designee and CCP QA.

**VPM or Designee**

- 4.7.2 **IF** the M&TE is out-of-tolerance,  
**THEN** initiate an evaluation of measurements made by the M&TE since its last calibration to determine if recalibration or rework is required.
  - 4.7.3 Document results of evaluation on Attachment 3, Out-of-Tolerance Evaluation.
  - 4.7.4 Submit Attachment 3, Out-of-Tolerance Evaluation to records in accordance with Section 5.0.
  - 4.7.5 Initiate appropriate action based on the results of the evaluation.
  - 4.7.6 **IF** the M&TE is lost or defective,  
**THEN** initiate an NCR in accordance with CCP-QP-005.
  - 4.7.7 Arrange for disposition of the M&TE according to recommendation and further technical evaluation, including NCR disposition.
  - 4.7.8 Coordinate with M&TE users as appropriate to calibrate **OR** excess M&TE.
- 4.8 Closing/Exit Calibrations

**CCP M&TE Custodian**

- 4.8.1 **WHEN** notified that M&TE is being taken out of service, arrange for a closing or exit calibration in accordance with Section 4.6.
- 4.8.2 Tag, segregate, or otherwise control the M&TE to prevent use.
- 4.8.3 **IF** results of calibration indicate M&TE out-of-tolerance,  
**THEN** evaluate in accordance with Section 4.7.
- 4.8.4 **IF** an exit calibration was performed,  
**THEN** arrange for the M&TE to be excessed.
- 4.8.5 **IF** a closing calibration was performed,  
**THEN** remove the M&TE from service.
- 4.8.6 Update the M&TE database.

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4.9 M&TE Short Term Relocation

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**NOTE**

Short term relocation of M&TE will be tracked to assure that recalled equipment is removed from service no matter its location.

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**CCP M&TE User**

4.9.1 When preparing to ship M&TE for short term relocation, send an email to the M&TE Custodian listing the following:

- M&TE ID Number
- Date Shipped for relocation
- Location of short term usage

**CCP M&TE Custodian**

4.9.2 Enter the M&TE ID number, date shipped for relocation, and date shipped for relocation, and location of short term usage in a tracking mechanism (i.e., spreadsheet, logbook, etc.).

**CCP M&TE User**

4.9.3 When M&TE items are returned to their assigned location, send an email to the M&TE custodian listing the following:

- M&TE ID Number
- Date Returned

**CCP M&TE Custodian**

4.9.4 Enter the date returned for each M&TE ID number in the tracking mechanism.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as QA records in accordance with CCP-QP-008, *CCP Records Management*. The records are the following:

5.1.1 QA/Nonpermanent

- [A] Maintenance and Testing Equipment (M&TE) Database
  - [A.1] CCP Approved Equipment List
  - [A.2] Calibration Recall System
- [B] Notice of Deficiency
- [C] Manufacturer's Certificate of Calibrations
- [D] Calibration Interval Documentation
- [E] Exemptions and Temporary Extensions
- [F] Evaluations/Impact Studies using Attachment 3, Out-of-Tolerance Evaluation, as applicable.

Attachment 1 – Labels and Tags

This attachment describes the labels and tags used to indicate the status of M&TE. Use only black, indelible ink when making entries on the labels, tags, and data records.

**CALIBRATION**

A label that identifies the calibration status shall include, as a minimum, a unique identification number for the type of equipment, the name (initial or stamp) of the individual performing the calibration, date calibrated and next calibration due date. The unique identification number may be alpha numeric or any combination of numbers or symbols as long as it is unique to that piece of equipment. For CCP owned equipment, the unique identification number will end with “-CCP” (e.g., XC0410-CCP).

<b>CALIBRATION</b>	
<b>I.D. No.</b> _____	
<b>By</b> _____	<b>Date</b> _____
<b>Due</b> _____	

\* This label is red lettering on white background.

Attachment 1 – Labels and Tags (Continued)

### LIMITED CALIBRATION

A label that identifies calibration status when all ranges and/or functions of an item have not (or cannot) be calibrated. Limitations will be noted on the label and recorded on the item calibration maintenance record. The label will include, as a minimum, the name (initial and stamp) of the individual performing the calibration, date calibrated, and all limitations/restrictions. If the limitation/restriction is too lengthy to include on the label, a copy of the item's calibration maintenance record will be retained with the item at all times. This label will be applied in addition to the calibration label.

<b>LIMITED CALIBRATION</b>	
<b>By</b> _____	<b>Date</b> _____

\* This label is black lettering on yellow background.

### DO NOT USE, OUT OF CALIBRATION

A label that identifies a piece of M&TE as being overdue for calibration or suspended, suspected to be, or actually out-of-calibration. The label will include the date when the label was affixed and the name (initial or stamp) of the individual affixing the label.

<b>OUT OF CALIBRATION</b>	
<b>By</b> _____	<b>Date</b> _____
<b>DO NOT USE</b>	

\* This label is red and white.

Attachment 2 – Glossary

**accuracy** – Measure of the degree by which the actual output of a device approximates the output of an ideal device nominally performing the same function.

**as-found** – Measurements made during calibration before any adjustments are made that could affect the accuracy and acceptability of the data collected with the M&TE since its last calibration.

**as-left** – Final measurements made during calibration, after any required adjustments to the M&TE being calibrated have been made. These data may be the same as "as-found" when no adjustments are required.

**calibration** – Set of operations that establish, under specified conditions, the relationship between values indicated by a measuring instrument or measuring systems, and the corresponding standard, or known values derived from the standard.

**calibration certificate** – Written statement, signed by a qualified party, certifying that M&TE has been calibrated, using approved procedures, by comparisons to a known standard traceable to the NIST or other nationally accepted standard for those disciplines where no NIST standard exists.

**calibration interval** – Length of time (days, months, years) that a measurement device may be used for acceptance inspections with a high level of confidence that the measurements are accurate. This time interval is based on the manufacturer's specifications, calibration history, usage, adequate storage and handling as a precise instrument.

**calibration organization/approved supplier** – Ensures proper calibration and repair of M&TE. Performs calibration/work to physical and electrical standards traceable to NIST, or nationally recognized physical constants, necessary to perform required calibration services. Ensures the performance of field calibration services traceable to NIST upon request. External organizations providing calibration services must be on the WTS Qualified Suppliers List. The CCP QSL can include suppliers previously qualified by mobile vendors or generator sites.

**closing calibration** – A calibration prior to removing M&TE from service with the intent of maintaining equipment as a spare.

**exit calibration** – A calibration prior to removing M&TE from service with the intent to excess.

**in use** – M&TE being used while CCP operators are present.

Attachment 2 – Glossary (Continued)

**measuring and test equipment (M&TE)** – Devices or systems used to calibrate, measure, gauge, test, inspect, or control to acquire research, development, test, or operational data or to determine compliance with design, specifications, or other technical requirements. M&TE is normally used when a precision measurement with known tolerance and calibration traceability to NIST or other recognized standards is required.

**M&TE history** – Data that provides a calibration reliability profile for a piece of M&TE. Data includes as-found values for the last four calibration cycles, any notes on repair, adjustments, restriction on use, next calibration due date, and other appropriate data.

**M&TE usage history** – Collection of data consisting of M&TE unique identification number, date M&TE was used, what M&TE was used on (e.g., tag, part number), and work control document (e.g., work packages, engineering maintenance standards, procedures, etc.).

**National Institute of Standards and Technology (NIST)** – U.S. Government organization that has responsibility for nationally recognized M&TE standards (formerly National Bureau of Standards).

**nondata M&TE** – Portable test equipment used for preliminary checks, troubleshooting, or other nonprecision measurements where the data obtained will not be used to determine acceptability or verify conformance to established criteria.

**notice of deficiency** – A notification that the equipment is lost, out-of-tolerance, or defective.

**out-of-calibration** – A condition in which the calibration for M&TE has expired.

**out-of-tolerance** – A condition in which the readings, results, or function of M&TE are beyond the limits of permissible error.

**precision** – The closeness of agreement between randomly selected individual measurements or test results under specified conditions. Precision can be viewed as repeatability.

**reference standard** – Standards (that is, primary, secondary, and working standards, where appropriate) used in a calibration program. These standards establish the basic accuracy limits for that program.

Attachment 2 – Glossary (Continued)

**reverse traceability** – The ability to determine what work or equipment a piece of M&TE was used on, for purposes of impact analysis in response to a notice of deficiency.

**storage** – M&TE will be stored at the end of each work shift or if CCP operators are not present. M&TE must be stored in an environment that will not adversely affect its accuracy (i.e., toolbox/storage cabinet).

**tolerance** – The allowable deviation from a specified or true value.

**traceability** – The ability to demonstrate, by means of recorded identification, a valid relationship between M&TE and nationally recognized standards (such as NIST), industry recognized standards, or accepted values of national constants.

Attachment 3 – Out-of-Tolerance Evaluation

1. ID Number:	2. Calibration Date Range:	3. Page ____ of ____
4. Description of Equipment:		
5. Evaluation:		
6. Associated NCR(s)		
7. Evaluator (Date Indicates that evaluation was completed):		
Evaluator Print Name/Sign	Date	