

**CENTER FOR NUCLEAR WASTE
REGULATORY ANALYSES**

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QUALITY ASSURANCE PROCEDURE

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Title

QAP-019 CONTROL OF MEASURING AND TEST EQUIPMENT

EFFECTIVITY AND APPROVAL

Revision 0 of this procedure became effective on 01/13/2004. This procedure consists of the pages and changes listed below.

<u>Page No.</u>	<u>Change</u>	<u>Date Effective</u>
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Approvals

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Quality Assurance <i>R. Brient</i> R. Brient	Date <i>1/15/04</i>	Cognizant Director <i>B. Sagar</i> B. Sagar	Date <i>1/14/2004</i>

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CONTROL OF MEASURING AND TEST EQUIPMENT

1. PURPOSE

The purpose of this procedure is to describe the controls to be applied to the use of measuring and test equipment at the Center for Nuclear Waste Regulatory Analysis (CNWRA). This procedure applies to activities conducted at the CNWRA and at other sites and facilities.

2. RESPONSIBILITIES

- 2.1 The Principal Investigator of the laboratory or field activity is responsible for assuring that equipment used during testing, investigation, or analysis work is appropriate for the measurements being made and that the equipment requiring periodic calibration is encoded in the recall notification system.
- 2.2 The Southwest Research Institute® (SwRI®) Calibration Laboratory is responsible for maintaining an accredited calibration system in accordance with nationally and internationally recognized standards. The calibration system used by the CNWRA is described in SwRI Quality Systems procedure IQS-OP-761.
- 2.3 Individual equipment users are responsible for assuring that calibration of each instrument is valid prior to use.

3. PROCEDURE

3.1 Selection of Equipment

Measuring and test equipment shall be selected based on the range and accuracy (i.e., uncertainty) required of the measurements being taken. Prior to purchasing new measuring and test equipment that will be periodically recalibrated, the SwRI Calibration Laboratory Group Leader should be consulted to determine the range and accuracy/ uncertainty required of the equipment and to determine if the SwRI Calibration Laboratory, or its approved suppliers, has the resources to perform calibration activities on the new equipment.

Prior to placing new CNWRA measuring and test equipment into use, equipment requiring periodic calibration (see Section 3.2.2) shall be enrolled in the SwRI Calibration Laboratory recall notification system. The calibration laboratory also shall provide for

- Recalling instruments for a calibration at established intervals
- Labeling with instrument identification and calibration status
- Placing tamper-proof seals to prevent adjustments affecting a calibration
- Using of documented procedures
- Reporting calibration results
- Evaluating results
- Documenting history of instrument calibrations and repairs

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3.2 Calibration

3.2.1 Equipment Calibrated Before Each Use

Measuring and test equipment that is not scheduled for periodic recalibration shall be calibrated before use with appropriate measurement standards. Examples of equipment in this category include

- Total Organic Carbon Analyzer
- CO₂ Atmospheric Analyzer
- pH meter
- Analytical equipment
- Potentiostat

As appropriate, equipment calibrated before use shall be subject to periodic checks to determine whether the calibration is still valid.

Evidence of the calibrations shall be documented in logs or appropriate scientific notebooks.

3.2.2 Equipment Periodically Calibrated

Calibration intervals should be established when equipment is obtained following the equipment manufacturer's recommended interval or industry practice. Intervals may be adjusted based on the history of stability in accordance with IQS-OP-761. For CNWRA measuring and test equipment that is periodically recalibrated, the SwRI Calibration Laboratory shall provide to the Principal Investigator a list of measuring and test equipment due for recalibration on a monthly basis. Within the month, the Principal Investigator shall arrange for the recalibration, either by scheduling an on-site calibration (for balances) or by shipping the equipment to the Calibration Laboratory. Upon completion of the calibration, the equipment shall be returned to service along with a calibration certificate and current calibration label.

3.2.3 Use of Measuring and Test Equipment by Other Organizations

Whenever measuring and test equipment is subjected to conditions or damage that could affect its performance, the instrument should be recalibrated. If equipment is used by divisions outside the CNWRA, the Principal Investigator should evaluate the equipment on return, and if necessary, require recalibration before use on CNWRA activities. Necessary calibration and repair should be charged to the division using the equipment. Equipment no longer capable of meeting accuracy and precision requirements shall be removed from service.

3.3 Out of Tolerance Condition

If any equipment is found to be out of tolerance upon recalibration, the SwRI Calibration Laboratory will send out an Out of Tolerance Notice. A Nonconformance Report shall be

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initiated by the Principal Investigator in accordance with QAP-009, Nonconformance Control. The investigation of the Nonconformance Report will determine and document the impact of the out of tolerance and disposition of measurements/tests conducted since the last valid calibration and any remedial action necessary.

4. RECORDS

Calibration documentation on a calibration before use equipment shall be maintained in the appropriate scientific notebook or log and retained as quality assurance records.

Records for measuring and test equipment periodically calibrated shall be retained as Quality Assurance records in accordance with QAP-012, including

- Calibration records
- Certificates of calibration
- Calibration histories
- Any other pertinent documentation