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CCP-TP-172

Revision 0

CCP
Calibrating the Mobile Segmented Gamma Scanner

EFFECTIVE DATE: 10/12/2007

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PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	10/12/2007	Initial issue.

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1.0 PURPOSE

The Segmented Gamma Scanner (SGS) is used to quantify the activity of individual radioisotopes present in the waste sample. The assay must meet the requirements of CCP-PO-002, *CCP Transuranic Waste Certification Plan,* for drum shipment to the Waste Isolation Pilot Plant (WIPP).

1.1 Scope

This procedure specifies instructions to calibrate the SGS using the Canberra GENIE 2000 and NDA2000 software. The SGS system is used to quantify the activity of individual radioisotopes present in the waste sample. Data from a Coaxial Germanium detector is used to quantify the activity of individual radioisotopes present in the sample. The Multi-Group Analysis (MGA) software and a Low Energy Germanium (LEGe) detector are used for isotopic analysis.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CI-SGS01-TMU, *Total Measurement Uncertainty for the MCS Melton Valley Segmented Gamma Scanner*
- MCS-SGS-0101-CAL-001, *Segmented Gamma Scanner Calibration, Confirmation, and Verification Report*
- *NDA2000 Users Manual,* Canberra Industries, Inc.
- *NDA2000 Technical Reference Manual,* Canberra Industries, Inc.

Referenced Documents

- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-008, *CCP Records Management*
- CCP-TP-169, *CCP Operating the Mobile Segmented Gamma Scanner*

2.2 Training Requirements

2.2.1 All personnel performing this procedure will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan*, prior to performing this procedure.

2.3 Equipment List

2.3.1 Intrinsic Coaxial Germanium detector with collimator

2.3.2 Intrinsic LEGe detector with collimator and cadmium filter

2.3.3 SGS system including the following components:

- Sample rotator
- Transmission source and detector elevation mechanism
- Transmission source shutter assembly
- 4 Calibration Matrix Drums

2.3.4 Canberra Digital Signal Processor

2.3.5 Analysis computer and ancillary equipment such as monitors, printer, etc.

2.4 Software

2.4.1 GENIE 2000, Gamma Acquisition and Analysis

2.4.2 NDA2000, Waste Assay

2.5 Precautions and Limitations

2.5.1 Precautions and Limitations as detailed in the Activity Hazard Analysis (AHA), are as follows:

[A] The germanium detectors are operated at a high voltage. DO **NOT** disconnect the cables when high voltage is applied.

[B] The germanium detectors require liquid nitrogen (LN) cooling for proper operation. The extremely cold temperature of LN can cause severe burns to the skin.

[C] One radioactive transmission source is installed in the transmission source assembly. A significant dose rate can occur in the transmission source beam when the transmission shutter is open.

2.5.2 The Nondestructive Assay (NDA) Operator SHALL verify that no personnel are in the equipment bay prior to operating the SGS.

2.6 Prerequisite Actions

2.6.1 Ensure that the coaxial geranium detector has a sufficient amount of LN by observing that the green cold indicator on the detector is lit.

2.7 Definitions

2.7.1 **Daily** - Once each day the SGS is used.

2.7.2 **Operational Week** - Any week (7 consecutive days) the SGS is used.

3.0 RESPONSIBILITIES

3.1 NDA Operator

3.1.1 Operates the SGS System and manages data.

3.2 NDA Lead Operator (LO)

3.2.1 Provides the supervision of all NDA system activities including Quality Control (QC) measurements.

3.3 NDA Expert Analyst (EA)

3.3.1 Establishes QC boundary values based on actual QC measurements data.

3.3.2 Provides technical support, as needed, and is responsible for reviewing and analyzing data produced by this procedure.

3.3.3 Prepares Calibration and Confirmation Reports and Calibration Verification Reports, as required.

3.4 Facility Records Custodian

3.4.1 Receives, processes, and transmits all records generated in accordance with CCP-QP-008, *CCP Records Management*.

4.0 PROCEDURE

NOTE

Calibration standards SHALL be traceable to a nationally accredited measurement program. NDA Performance Demonstration Program (PDP) standards will **NOT** be used as primary calibration standards, but may be used with CBFO approval, for confirmatory measurements. Calibration is performed once prior to assaying transuranic (TRU) waste items. Calibration Verification SHALL be performed after any one of the following conditions has occurred:

- Major system repairs and/or modifications.
- Replacement of major system components, including detectors and supporting electronic components that have the capability to affect the measurement results.
- Significant changes to the system's software.
- Relocation of the system.

In addition, verifications are performed at such time that routine performance checks DO **NOT** meet the acceptance criteria and thereafter as required by the EA.

Calibrations SHALL be documented in the NDA Operational Logbook. Calibration results will be summarized and documented in a Calibration and Confirmation Report. Calibrations will be saved with the associated data files and the date of the calibration will be logged into the NDA Operational Logbook.

A Multi-curve Efficiency Calibration will be performed to establish the relationship between matrix density, detector efficiency and source activity.

Upon completion of the gamma calibration measurements and the insertion of the results into the appropriate parameter files, the NDA EA will approve the calibration parameters.

The gamma-ray spectrometer accomplishes two functions, isotopic analysis and quantitative analysis. An Energy Calibration of the LEGe detector of the gamma-ray spectrometer is required for the isotopic analysis. An Energy Calibration and an Efficiency Calibration of the Coaxial Germanium detector of the gamma-ray spectrometer are required for quantitative analysis.

Access to the equipment bay SHALL be controlled by the NDA Operator. The NDA Operator will perform the calibration under the direct guidance of the NDA LO.

4.1 Gamma Energy Pre-Calibration

NDA LO or NDA EA or NDA Operator

4.1.1 Double-click on the NDA2000 SETUP icon on the desktop, **AND** perform the following:

[A] Select the GAMMA tab.

[B] Select the CALIBRATION SOURCE CERTIFICATE button.

[C] Select the NEW button.

4.1.2 Enter certificate name (e.g., All Lines).

4.1.3 Using the Certificates of Calibration for all the line sources, sum the activities, **AND** enter the following:

[A] Nuclide

[B] Energy (e.g., 59.5 keV)

[C] Summed Rate (e.g., 65866.5 gammas/sec)

[D] Uncertainty (percent [%])

[E] Half-Life (years [yrs])

[F] Uncertainty (yrs)

[G] Units (select years)

4.1.4 Select ADD ROW.

4.1.5 Repeat steps 4.1.3 through 4.1.4 for each nuclide listed on the Certificates of Calibration.

4.1.6 Select SAVE.

4.2 Energy Calibration for Gamma-Ray Analysis

NOTE

Copies of the Certificates of Calibration for the six line sources used for calibration will be included in the Calibration and Confirmation Report.

The gamma-ray energy calibration is set from the GENIE 2000 Software and requires the use of one or more sources that emit gamma-rays with energies between approximately 50 keV and 2000 keV.

The energy calibration extends from a nominal range of 0 to 2000 keV and is set manually, using GENIE 2000 Software.

The line sources will be placed in the Calibration Matrix Drum (typically foam) according to NDA EA direction and recorded for all energy calibrations.

Minor adjustments to system components may be made by the NDA Operators during the establishment of system calibration parameters. These include system gain, count times, etc., and are considered part of the NDA Operator's craft.

4.2.1 Load the online sources into the Calibration Matrix Drum as directed by the NDA EA.

4.2.2 Position the Calibration Matrix Drum with mixed-nuclide gamma sources on the SGS.

4.2.3 Select OPEN DATASOURCE, from the File drop down menu, **AND** perform the following:

[A] Select the DETECTOR SOURCE button.

[B] Select DET 1, as the Data Source, **AND** click on the OPEN button.

4.2.4 Adjust the settings to produce an 8,000 channel spectrum with approximately 0.25 keV/channel and an approximately ZERO offset.

4.2.5 Select START to obtain a spectrum of the reference sources for at least 300 seconds, **OR** as directed by the NDA EA.

4.2.6 Select SETUP, from the Calibrate drop down menu, **AND** establish the following settings:

[A] Energy Units set to keV.

[B] Tolerance Units set to ENERGY.

[C] Analysis Sequence Description set to ENERGY CALIBRATION REPORT.

[D] Calibration settings:

[D.1] Energy Calibration set to 1.5 keV.

[D.2] Efficiency Match set to 1.0 keV.

[E] Tail Curves set to NONE.

[F] Continuum set to STEP.

[G] Channels set to 4.

4.2.7 Select the OK button to accept the settings.

4.2.8 Select ENERGY ONLY CALIBRATION, from the Calibrate drop down menu, **AND** perform the following:

[A] Position the cursor on the appropriate energy peak, **AND** click on the CURSOR button to automatically determine the Peak Channel.

[B] Enter the energy value in the ENERGY: box, **AND** click on the ACCEPT button.

[C] Repeat steps 4.2.8[A] and 4.2.8[B] for the additional energy peaks.

[D] Select the OK button to accept the Two-Point Calibration.

4.2.9 Select ENERGY FULL BY CERTIFICATE FILE from the Calibrate drop down menu, **AND** perform the following:

[A] Select the ALL LINES Certificate File created in step 4.1.3.

[B] Select the AUTO button.

[C] Select the SHOW button and set the “Order of the Polynomial” to 3.

NDA EA

[D] Review both the Energy and Shape Curves to determine if any discordant points exist.

[E] Delete any points that are discordant, for assignable cause, **AND** annotate the deletions and causes in the Calibration and Confirmation Report.

NDA Operator

[F] Print the amended Energy and Shape Calibration Curves to be included in the Calibration and Confirmation Report.

[G] Select the USE-RESULTS button to accept the Energy and Shape Calibration Curves.

[H] Select the OK button to finish the Energy Calibration.

4.2.10 Select SAVE, from the File drop down menu, to preserve the Data Source new Energy Calibration.

4.3 Reference Peak Calibration

4.3.1 Remove the Calibration Matrix Drum with mixed-nuclide gamma sources from the SGS.

4.3.2 Double-click the REFERENCE PEAK Calibration icon and select OPEN Data Source from the File drop down menu, **AND** perform the following:

[A] Select the DETECTOR SOURCE button.

[B] Select DET 1, as the Data Source, **AND** click on the OPEN button.

4.3.3 Set the Pulser Amplitude to produce a spectral peak at approximately 1800 keV.

4.3.4 Set the Pulse Rate to approximately 100 Hz.

4.3.5 Acquire a spectrum of the Pulser peak alone, for at least 100 seconds.

4.3.6 Select PEAK LOCATE>UNIDENTIFIED 2nd, from the Analyze drop down menu, **AND** perform the following:

[A] Check “T” for the GENERATE REPORT box.

[B] Select the EXECUTE button.

4.3.7 Select PEAK AREA>SUM/NON-LINEAR LSQ FIT from the Analyze drop down menu, **AND** perform the following:

[A] Check “T” for the GENERATE REPORT box.

[B] Select the EXECUTE button.

4.3.8 Select PRINT REPORT WINDOW, from the File drop down menu, to generate a printout.

4.3.9 Forward the printout to the NDA EA for review and inclusion in the Calibration and Confirmation Report.

4.3.10 Double-click on the REFERENCE PEAK CALIBRATION icon on the desktop.

4.3.11 Using the File menu, **OR** the OPEN TOOLBAR icon on the desktop, OPEN the COAX Gamma Detector 01as a Data Source.

4.3.12 From the Reference Peak Calibration Program perform the following:

[A] Select the spectral peak at approximately 1800 keV, **AND** designate it as the REFERENCE PEAK.

[B] Select the REFERENCE PEAK from the peaks in the lower grid, **AND** check “T” for the SELECT AS REFERENCE box.

[C] Select PULSER as the Source Type.

4.3.13 From the File drop down menu perform the following:

[A] Save the Reference Peak information in the Detector Data Source.

[B] EXIT the NDA2000 Reference Peak Program.

4.4 Transmission Peak Calibration

4.4.1 Position an empty 55-gallon drum on the SGS.

4.4.2 Double-click on the NDA2000 SETUP icon on the desktop, **AND** perform the following:

[A] Select the GAMMA tab.

[B] Select the TRANSMISSION SOURCE CERTIFICATION button.

[C] Select the NEW button.

[D] Enter the CERTIFICATE DESCRIPTION.

[E] Select the EXTRACT FROM LIBRARY button to populate the table.

[F] Select the SAVE button to EXIT the editor.

4.4.3 Double-click on the NDA2000 OPERATIONS icon on the desktop to start the count.

4.4.4 Select the GREEN light on the tool bar, **AND** perform the following:

[A] Select the TRANSMISSION CALIBRATION.

[B] Set the Assay Count Time to 100 SECONDS, **AND** select the REAL button.

[C] Set Scanning Mode to NORMAL SCAN, **AND** select the AUTOMATIC button.

[D] Set Transmission Mode to TWO PASS, Source to CERTIFICATE DESCRIPTION NAME, **AND** Count Time to 100 SECONDS.

4.4.5 Select START ASSAY, **AND** perform the following:

[A] Enter the ITEM ID at the Basic Information Screen.

[B] Select DONE when completed.

4.4.6 **AFTER** the data are acquired,
THEN double-click the NDA2000 CALIBRATION icon on the desktop to perform the calibration.

4.4.7 In the Select Calibration Window, Select TRANSMISSION.

4.4.8 Select PERFORM CALIBRATION.

4.4.9 Select CALIBRATION OPERATIONS from the menu.

4.4.10 Select the category, geometry, container, and transmission source from the screen.

NOTE

The Transmission Source Wizard displays the Transmission Calibration Data, which is the observed count rate for each transmission peak through the empty container.

4.4.11 Select NEW TRANSMISSION CALIBRATION to start the Transmission Source Wizard.

4.4.12 Enter a description of the new calibration, **AND** press NEXT.

4.4.13 Check the box next to the date the calibration counts were performed, **AND** press NEXT.

4.4.14 Select FINISH to save the Transmission Calibration Data.

4.4.15 Remove the empty 55-gallon drum from the SGS.

4.5 Efficiency Calibration

4.5.1 Ensure that all calibration sources are traceable to a nationally accredited measurement program.

4.5.2 Assemble a Calibration Matrix Drum as indicated by the NDA EA, **AND** insert the calibration sources into their assigned tube positions.

NOTE

A uniform distribution of source material is approximated by using line sources (sources with uniformly deposited radioactivity along the length of the rod) placed vertically in the drum at specific radial distances such that when the drum is rotated the radiation response seen by the detector is uniform. The system will automatically perform a full efficiency calibration and display a plot of the results. The process is repeated for all 4 Calibration Matrix Drums. The count time for each Calibration Matrix Drum will be determined by the NDA EA and entered in accordingly. The NDA EA will provide tare and gross weights of the Calibration Matrix Drums.

4.5.3 Load the selected Calibration Matrix Drum onto the SGS.

4.5.4 Double-click on the NDA2000 OPERATIONS icon on the desktop, **AND** perform the following:

[A] Click on the first Toolbar icon (a GREEN light) **AND** select EFFICIENCY CALIBRATION from the Count Type drop down menu.

[B] On the Assay-Routine Screen perform the following:

[B.1] Enter the Container Type.

[B.2] Set the Gamma Preset Counting Time.

[C] On the Item Identification screen, enter the following:

[C.1] Item ID.

[C.2] For Description 1, enter the Calibration Matrix Drum ID.

[C.3] For Description 2, enter Reference Source ID Number(s).

[C.4] Site Location.

[C.5] Select the appropriate Matrix Type.

[C.6] Drum Gross Weight.

[C.7] **IF** the tare weight DOES **NOT** match the tare weight provided by the NDA EA,
THEN perform the following:

(a) Click on the NDA2000 Setup icon on the NDA 2000 main screen tool bar.

(b) Click on the GENERAL tab.

(c) Click on CONTAINER TYPE button.

(d) Select 17C w/o liner.

(e) Change tare weight to the tare weight provided by the NDA EA.

(f) Select SAVE, CLOSE, **AND** click on the x at top right of screen to EXIT setup.

[C.8] For Sample Type, select NONE.

[C.9] Select the appropriate Declaration.

[C.10] Click on the DONE button to start the measurement.

[D] Upon completion of the measurement, print the results, **AND** forward the printout to the NDA EA for review and inclusion into the Calibration and Confirmation Report.

[E] Remove the Calibration Matrix Drum from the SGS.

[F] CLOSE the NDA2000 Operations Software.

[G] Double-click on the NDA2000 CALIBRATIONS icon on the desktop, **AND** perform the following:

[G.1] Select EFFICIENCY from the Calibration drop down menu.

[G.2] Select PERFORM CALIBRATION from the Calibration Operations drop down menu **OR** click on the PERFORM... icon on the desktop.

[G.3] Select 55-GALLON DRUM from the drop down menu, **AND** click on the NEW EFFICIENCY CALIBRATION button.

[G.4] Enter an appropriate matrix description, **AND** click on the NEXT button.

[G.5] On the Counts screen, check "T" for all the relevant efficiency measurements, **AND** click on the NEXT button.

[H] With NDA EA supervision, examine the plot and identify any discordant data points.

[I] With NDA EA supervision, click on the OVERPLOT button to display multiple calibration curves.

[I.1] **IF** any discordant data points are noted and can be deleted for assignable cause,
THEN click on the BACK button, **AND** uncheck them from the list.

[I.2] **IF** data points were deleted,
THEN click on the NEXT button, followed by the FINISH button to save the new calibration.

[J] Print out the report, **AND** forward it to the NDA EA for approval, designation as the default calibration for the appropriate matrices, and inclusion in the Calibration and Confirmation Report.

4.5.5 Repeat steps 4.5.1 through 4.5.5 for each Calibration Matrix Drum, as required.

4.6 Calibration Verification

NOTE

Calibration Verification shall be performed using at least one source/matrix configuration. Calibration source standards or secondary source standards that have been correlated with the calibration source standards may be used.

Calibration Verification SHALL be performed after any one of the following conditions has occurred:

- Major system repairs and/or modifications.
- Replacement of major system components, including detectors and supporting electronic components that have the capability to affect the measurement results.
- Significant changes to the system's software.
- Relocation of the system.
- Failure of applicable quality assurance (QA) measurements.

The NDA LO will obtain the detailed information from the NDA EA concerning the number and strength of the sources, the matrix drum configurations, and the number of replicates.

NDA LO

4.6.1 Obtain the appropriate source/non-interfering matrix drum configuration.

4.6.2 Assemble the matrix drum as directed by the NDA EA.

4.6.3 Position the source(s) within the matrix drum as directed by the NDA EA.

NDA Operator

4.6.4 Perform QC Background and Calibration Checks in accordance with CCP-TP-169, *CCP Operating the Mobile Segmented Gamma Scanner*.

4.6.5 Perform a minimum of 3 replicates for each source/matrix configuration in accordance with CCP-TP-169, as directed by the NDA LO.

NDA EA

4.6.6 Review the data and calculate the accuracy and precision.

4.6.7 Review the data for precision and accuracy in accordance with the acceptance criteria for calibration verification as follows:

[A] Accuracy: +/- 30%

[B] Precision: Use the criteria specified in Table A-3.2 of CCP-PO-002

4.6.8 Document the results in the Calibration Verification Report and the NDA Operational Logbook.

4.6.9 Submit the Calibration Verification Report to the Facility Records Custodian.

Facility Records Custodian

4.6.10 Receive, process, and transmit all records in accordance with CCP-QP-008.

4.7 Calibration Confirmation

NOTE

Calibration Confirmation SHALL be performed after each calibration or recalibration using a non-interfering matrix. Typically, an empty drum is used for the confirmation measurements. However, matrices representative of the calibration range may also be tested as required. Source strengths shall span the range of TRU waste loadings that are to be measured with the instrument. Sources used for calibration SHALL **NOT** be used for confirmation.

The NDA LO can obtain the detailed information from the NDA EA concerning the number and strength of the sources, the matrix drum configurations, and the number of replicates.

NDA LO

4.7.1 Obtain the appropriate source/matrix configurations.

4.7.2 Verify the source standard(s) are traceable to a nationally accredited measurement program.

4.7.3 Position the source(s) within the matrix.

NDA Operator

4.7.4 Perform QC Background and Calibration Checks in accordance with CCP-TP-169.

NOTE

The selection of 6 replicate measurements is based on experience with operation of the system as demonstrated in the Calibration and Confirmation Report.

4.7.5 Perform 6 replicates for each source/matrix configuration in accordance with CCP-TP-169, **AND** as directed by the NDA EA.

NOTE

The Calibration Confirmation results are evaluated and documented in the Calibration and Confirmation Report.

NDA EA

4.7.6 Review data and calculate the accuracy and precision values, **AND** compare those to the Calibration Confirmation criteria listed in Attachment 1, Radioassay Requirements for Contact-Handled Transuranic Waste of CCP-PO-002, to determine they have been met.

4.7.7 Document in the Calibration and Confirmation Report.

4.8 Energy Calibration for LEGe Gamma-Ray Analysis

NOTE

The Certificates of Calibration for the six line sources used for calibration will be included in the Calibration and Confirmation Report.

The gamma-ray energy calibration is set from the GENIE 2000 Software and requires the use of one or more sources that emit gamma-rays with energies between approximately 5 keV and 720 keV.

The energy calibration extends from a nominal range of 0 to 720 keV and is set manually, using GENIE 2000 Software.

The line sources will be placed in the Calibration Matrix Drum (typically foam) according to NDA EA direction.

4.8.1 Load the line sources in the Calibration Matrix Drum as directed by the NDA EA.

4.8.2 Position the Calibration Matrix Drum with mixed-nuclide gamma sources on the SGS.

4.8.3 Select OPEN DATASOURCE, from the File drop down menu, AND perform the following:

[A] Select the DETECTOR SOURCE button.

[B] Select DET 2, as the Data Source, AND click on the OPEN button.

4.8.4 Adjust the settings to produce 8,000 channel spectra approximately 0.09 keV/channel with an approximate ZERO offset.

4.8.5 Select START to obtain a spectrum of the reference sources for at least 300 seconds, **OR** as directed by the NDA EA.

4.8.6 Select SETUP, from the Calibrate drop down menu, AND establish the following settings:

[A] Energy Units set to keV.

[B] Tolerance Units set to ENERGY.

[C] Analysis Sequence Description set to ENERGY CALIBRATION REPORT

[D] Calibration settings:

[D.1] Energy Calibration set to 1.5 keV.

[D.2] Efficiency Match set to 1.0 keV.

[E] Tail Curves set to NONE.

[F] Continuum set to STEP.

[G] Channels set to 4.

4.8.7 Select the OK button to accept the settings.

4.8.8 Select ENERGY ONLY CALIBRATION, from the Calibrate drop down menu, AND perform the following:

[A] Position the cursor on the appropriate energy peak, AND click on the CURSOR button to automatically determine the Peak Channel.

[B] Enter the energy value in the ENERGY: box, AND click on the ACCEPT button.

4.8.9 Repeat step 4.8.8 for the additional energy peaks.

4.8.10 Select the OK button to accept the Two-Point Calibration.

4.8.11 Select ENERGY FULL BY CERTIFICATE FILE from the Calibrate drop down menu, AND perform the following:

[A] Select the ALL LINES Certificate File created in steps 4.1.3 through 4.1.6.

[B] Select the AUTO button.

[C] Select the SHOW button and set the "Order of the Polynomial" to 3.

NDA EA

[D] Review both the Energy and Shape Curves to determine if any discordant points exist.

[E] Delete any points that are discordant, for assignable cause, **AND** annotate the deletions and causes in the Calibration and Confirmation Report.

NDA Operator

[F] Print the amended energy and shape calibration curves and the calibration confirmation report for inclusion in the Calibration and Confirmation Report.

[G] Select the USE-RESULTS button to accept the energy and shape calibration curves.

[H] Select the OK button to finish the energy calibration.

4.8.12 Select SAVE, from the File drop down menu, to preserve the Data Source new Energy Calibration.

4.8.13 Remove the Calibration Matrix Drum from the SGS.

4.9 Preparation of the Calibration and Confirmation Report

NDA EA

4.9.1 Upon completion of the SGS calibrations, prepare a Calibration and Confirmation Report to include the following elements:

[A] Confirmation measurement results including a demonstration of precision and accuracy.

[B] All QA measurement control results and plots.

[C] Calibration measurement results.

[D] Lower Limit of Detection (LLD) results.

[E] Identification of the number of replicates and types of matrices.

4.9.2 Print name, sign, and date the Calibration and Confirmation Report.

4.9.3 Submit the Calibration and Confirmation Report to the Facility Records Custodian.

Facility Records Custodian

4.9.4 Receive, process, and transmit all records in accordance with CCP-QP-008.

5.0 RECORDS

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

5.1.1 QA/Nonpermanent

[A] Calibration and Confirmation Report, to include the following:

[A.1] QA Last Results Reports (from CCP-TP-166)

(a) QC Background Check

- SEGMENTED BKGND
- TRANSMISSION

(b) QC Calibration Check

[A.2] Calibration Confirmation Replicate Results

[B] Calibration Data Files (Electronic)

[C] Calibration Verification Report, as required