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CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES

NONCONFORMANCE REPORT

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Project No. 20-1402-861

NCR No. 98-12

PART 1: DESCRIPTION OF NONCONFORMANCE

Contrary to CQAM Section 12, Paragraph 12.4.1 (Equipment Subject To Periodic Recalibration), metallic spheres used for calibrating the CNWRA Pycnometer were not being maintained as required.

Initiated by: Mark R. Ehnstrom *MRE*

Date: **16 November 1998**

PART 2: PROPOSED DISPOSITION AND CORRECTIVE ACTION

Disposition: *Metallic spheres will be retained for their stated use for CNWRA project activities.*

Basis of Disposition: *No critical measurement information has been used in any report issued to the USNRC.*

Action to correct nonconformance: *Metallic spheres will be brought to the Institute Calibration Laboratory for diameter measurements traceable to NIST.* Target date for completion: 12/4/98

Proposed by: *Melissa Hill*

Date: Nov. 20, 1998

PART 3: APPROVAL

Element Manager: *E.C. [Signature]*

Date: 11/20/98

Director of QA: *[Signature]*

Date: 11/24/98

Comments/Instructions:

NONE..

PART 4: CLOSE OUT

Comments: *Received ANCA notification 11/24/98. Inspection Report dated 11/24/98 from H. HENZ of The SWRI QA Department. LATER 12/21/98 memo received.*

Verified by: *[Signature]* Date: 12/23/98

Distribution: *M. Hill*
Element Mgrs.
R. GREEN
B. SAGAN
H. GARCIA
J. WINTERLE

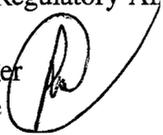
Institute Quality Assurance

Memorandum

December 21, 1998

TO: Bruce Mabrito, Director of Quality Assurance
Center for Nuclear Waste Regulatory Analyses

FROM: Rodney M. Weber, Manager
Institute Quality Assurance



SUBJECT: Dimensional Inspection Results for Quantachrome Calibration Spheres

On November 24, 1998, three stainless steel spheres were measured for diameter and form variation using the coordinate measuring machine (CMM) noted on the attached data sheet. The following supplementary data is provided for your information:

Procedure: The three spheres were measured using the Unitouch software measuring program for measurement of spherical shapes. Forty (40) random points were selected and measurements taken uniformly over the outside surface.

Item Identification: The containers for the spheres were given serial numbers as noted on the data sheet. The item noted as Serial # 6969 was a two-ball set and measurements for each item were identical.

Diameter Measurement: The resulting diameter measurement is a calculated (internal to the CMM software) average of all data for the points measured and assumes the item being measured is spherical in shape. The measured data for each sphere was:

S/N 6970	Diameter	1.8752 inches
	Metric (Calculated)	4.763 cm
S/N 6969	Diameter	.5001 inches (ea. for 2)
	Metric (Calculated)	1.270 cm

Form Measurement: This measurement indicates the amount of variation that exists compared to that of an exact spherical shape. It can be visualized by assuming the existence of two perfect spheres having the same center, but with two different diameters. All dimensions of the measured item will fall within the maximum and minimum diameters of these two imaginary spheres and the difference in diameters is defined as the "form".

Memorandum to Bruce Mabrito
December 18, 1998
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Comparison to Manufacturer's Certification: The manufacturer, Quantachrome, certifies the spheres' specified diameter to be within a tolerance of .000254 cm (.0001 in.). Our CMM capability (accuracy specification) is .00026 inches, full travel (40 inches travel) and .0006 inches volumetric. Our measurement capability is not accurate enough to verify to the manufacturer's specified tolerance.

Please note that this is not a calibration. The items have been included in our recall system at your request for records keeping purposes. Please contact Jim Patterson (Ext. 2702) or Don Dunavant (Ext. 2942) for further information regarding calibration services.

Attachment

cc: Jim Patterson
Don Dunavant

NOTE TO FILE: Although a calibration was NOT accomplished, this dimensional inspection verified the size of the spheres and provides a baseline for future inspections. I am accepting these measurements as a verification (with minor limitations) of the specification sheets obtained from Quantachrome Corporation. *Bruce Mabrito*
12/23/98

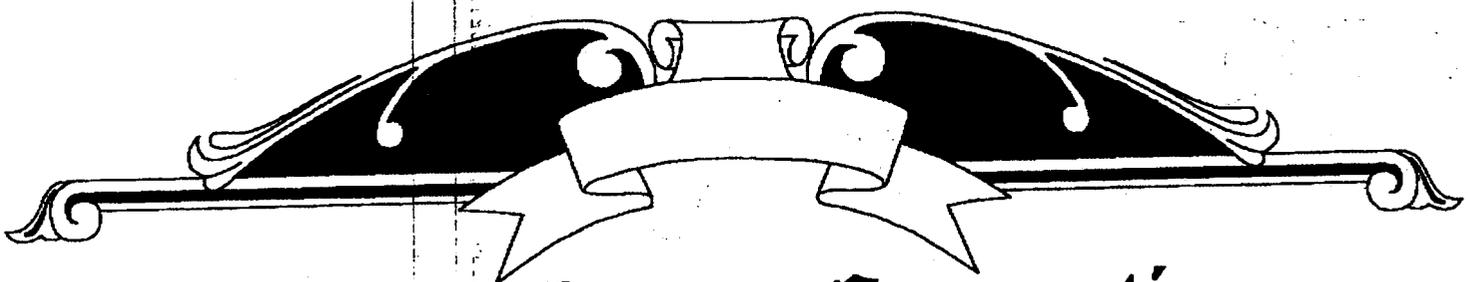
November 24, 1998

TO WHOM IT MAY CONCERN:

Calibration Sphere Assembly was measured and data recorded in building # 162 at a temperature of 70 degrees (F) and humidity of 61%. The Coordinate Measuring Machine Serial Number CMM900900871 with traceability to N.I.S.T. was used for measurement.

Serial #6970	Diameter 1.8752	Form .0006
Serial #6969	Diameter .5001	Form .0005

Harold Henze
HAROLD HENZE
IQA INSPECTOR



Quantachrome Corporation
SPECIFICATION SHEET

Calibration Sphere - Large

Part Number 75212

SERIAL No. 6970

6.5m

Material: Type 440-C Stainless Steel
Nominal Diameter 4.7625 cm
Diameter Tolerance 0.000254 cm

Volume 56.5592 ± 0.0023 cubic centimeters

Quantachrome Corporation
1900 Corporate Drive
Boynton Beach FL 33426

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QUANTACHROME CORPORATION

SPECIFICATION SHEET

CALIBRATION SPHERE - MICRO

(Part number: 75152*)

SERIAL No. 6969

Description: Stainless steel ball, Rockwell C55-60

Material: Type 440 stainless steel

Nominal diameter: 0.50000 inches

Diameter tolerance: 0.00005 inches

Volume: 1.0725 ± 0.0004 cubic centimeters

*Supplied as a pair; above information is for one ball

Quantachrome Corporation,
1900 Corporate Drive,
Boynton Beach FL 33426

Sen

6969

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