Null, Kevin

From: demossd@aol.com
Sent: Monday, April 21, 2014 7:33 PM
To: Null, Kevin
Subject: Renewal of License
Attachments: NRC_LETTER_OF_RESPONSE.pdf; Sources_Certificate.pdf; Sources remaining to be disposed.docx

Kevin:

Please see the attached.

Thanks again for your assistance.

Don DeMoss

NMC
Nuclear Instrumentation

Date: April 17, 2014
Subj: Application for renewal of license # 13-03341-03

Attn: Kevin Null

The purpose of this transmittal is to summarize and to clarify outstanding items for NMC's renewal request.

Attached is the list of sources we want to maintain on our license at the present time. This is the same list of sources that I had previously sent. This time I have attached the documentation that was received with each source from the source manufacturer. To reiterate from my previous letter, these sources will probably be replaced sometime during this calendar year with the EAB series sources from Eckert & Zeigler.

To further simplify the renewal process, remove lead-210 from our renewal application. Should we require it in the future I will request an amendment.

As I also stated previously, the users of NMC's instruments often require the use of a Cesium-137 check source with an approximate activity of 5 µCi and a 2.0 µCi Barium-133 to verify correct operation of detectors. It is my understanding these sources are designated by Eckert & Zeigler as GF-137 and GF-133 respectively.

Additionally, NMC's customers often require calibration sources which are usually one or some combination of Cesium-137, Chlorine-36 or Barium-133. We are therefore requesting that our license reflect that we can redistribute Cesium-137, Chlorine-36 and Barium-133 calibration sources. They are designated as EAB-137, EAB-036 and EAB-133 series sources by Eckert & Zeigler.

50.8 mm OD x 45 mm AD
Deposited onto polymeric Membrane,
0.9 mg/cm^2 Aluminized Mylar Cover, NIST.
Exempted Quantities

Internally we occasionally have a need to use Strontium-90, Cobalt-60, Americium-241, Krypton-85 and Xenon-133 for calibration purposes. These would also be purchased for Eckert & Zeigler and would be of the EAB series. Therefore, we have a need to maintain these isotopes on our license.

NMC
Nuclear Instrumentation

Finally, I have also attached a list of sources that are scheduled with Chase Environmental Group to be picked up and disposed of in May 2014.

All other line items in our current licenses in Item 6 can be removed. This would include 6B, 6F, 6J, 6L, 6M, 6N, 6O, 6P, and 6Q.

Thank you for your assistance in this matter.

Very truly yours,

Donald L. DeMoss
President
Cell Phone: 317-590-3824
Office: 317-546-2415
Email: demossd@aol.com

THE SOURCE INC.
Radiation standards and check sources
2810 Siler Lane, Santa Fe, NM 87501
(505)473-9538 FAX(505)473-5805

Ref. PO# 42521

Certificate of Calibration
(Gamma Sources)

The Cesium 137 gamma ray emmission rate was compared with a NIST (formerlyNBS) SRM 4200B-134 . The comparison was completed using a Sodium Iodide or GeLi gamma detector.

The gamma activity of the standard on May 12, 1991 was 0.215uCi.

The uncertainty of the measurement and the activity of the source is ± 10% which is the sum of the uncertainty of the NBS standard and the random error of counting at the 99% confidence interval.

Serial NO. 91CS4702313

Active Diameter(or area) 42mm Mounting Material SS/Kapton/Al

Total Diameter(or area) 47mm Thickness 2mm

Calibrated by: Calibration Manager
Date Signed: 6-5-91 Michael A. Ortiz

Approved by: Q.A. Manager Charles L. Gonzales

THE SOURCE INC.

Radiation standards and check sources
2810 Siler Lane Santa Fe, NM 87501
(505)473-9538 FAX(505)473-5805

Ref. PO # 47702

Certificate of Calibration
(Gamma Source)

The Barium 133 gamma source was compared with a calibrated NIST gamma source 4241B-19 used in establishing traceability. The comparison was completed using a sodium iodide detector.

The activity of the source on 04-01-95 was 0.48uCi .

The overall uncertainty of the measurement and the activity of the source is ± 10%.

Serial No. 95BA5002651 Cover Mylar Thickness 2mm
Model S-Ba-50 Mounting Material Plastic
Active Diameter (or area) 44mm Total Diameter(or area) 50mm

Michael A. Ortiz
Calibration Manager

Charles L. Gonzales
Quality Assurance Manager

less than 0.005 leak test results(uCi)

The overall uncertainty of the measurement is three times the value found from combining quadratically the sum of the overall uncertainty reported by NIST in the radioactive measurements assurance program; the standard deviation of the mean for the NIST standard as measured in the system used for calibration; and the standard deviation of the mean for the source measurements.

GC008-95

THE SOURCE INC.
Radiation standards and check sources
2810 Siler Lane Santa Fe, NM 87501
(505)473-9538 FAX(505)473-5805

Certificate of Calibration
(Alpha Source)

The Americium 241 alpha source was measured in a gas proportional counter using P-10 as counting gas. The alpha emissions from the surface of the source were measured at it's plateau voltage to determine it's 2π cpm rate. Corrections were applied for background, coincidence loss and backscatter factors when applicable. Alpha standard 93AM3204191 is our NIST referenced source used in establishing NIST traceability.

REF.PO# 48066
Model S-Am-47

Active Diameter(or area) 25mm
Total Diameter(or area) 47mm
Mounting Material SS
Thickness 0.79mm

35,600	cpm ±	1,780	cpm 2π
70,200	dpm ±	3,510	dpm 4π
0.0316	microcurie		
08/02/95	date of measurement		
95AM4703621	source serial number		
5.0	overall uncertainty(percent)		
1.5	backscatter (percent)		

Michael A. Ortiz
Calibration Manager

Charles L. Gonzales
Quality Assurance Manager

less than 20 leak test results(dpm /source100cm^2)

The overall uncertainty of the measurement is three times the value found from combining quadratically the sum of the overall uncertainty reported by NIST in the radioactive measurements assurance program; the standard deviation of the mean for the NIST standard as measured in the system used for calibration; and the standard deviation of the mean for the source measurements. AC006-95

THE SOURCE INC.
Radiation standards and check sources
2810 Siler Lane ,Santa Fe, NM 87501
(505)473-9538 FAX(505)473-5805

REF.PO# 43098

Certificate of Calibration
(Beta Sources)

The Strontium Yttrium 90 beta source was measured in a hemispherical 2pi windowless proportional counter using P-10 as counting gas. The beta emissions from the surface of the source were measured at its plateau voltage to determine its 2pi cpm rate. Corrections were applied for background, coincidence loss and backscatter factors when applicable. The source is referenced to NIST(formerly NBS) 4919E.
Active Diameter(or area) 41mm Mounting Material SS/Al/Kapton
Total Diameter(or area) 47mm Thickness 2mm

1,390,000 cpm +/- 69,500 cpm 2pi

1,990,000 dpm +/- 99,500 dpm 4pi

0.896 microcurie

07-10-91 date of measurement

Michael A. Ortiz Calibration Manager

Charles L. Gonzales Q.A. Manager

91SR4702793 source serial number

The uncertainty of the measurement at the 99% confidence interval is 5 percent.

THE SOURCE INC.

Radiation standards and check sources
2810 Siler Lane, Santa Fe, NM 87501
(505)473-9538 FAX(505)473-5805

Ref. PO# 46403

Certificate of Calibration
(Gamma Source)

The Cobalt 60 gamma ray emission rate was compared with NIST referenced source SRM4203D-18. The comparison was completed using a Sodium Iodide or GeLi gamma detector.

The activity of the source on 12-01-93 1200EST was 0.015uCi.

The uncertainty of the measurement and the activity of the source is 10.0% which is the sum of the uncertainty of the NIST standard and the random error of counting at the 99.0% confidence interval.

Serial NO. 93C04704147 Cover
Active Diameter(or/area) 44mm Mounting Material SS
Total Diameter(or/area) 47mm Thickness 0.79mm

Calibration Manager
Michael A. Ortiz

Q.A. Manager
Charles L. Gonzales

The source was leak tested and was found to have ≤0.005uCi removeable activity.

GC007-93

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Isotopes Scheduled for Disposal in May

Isotope	Activity (µCi)
Americium-241	2.16
Barium-133	6.91
Carbon-14	0.79
Chlorine-36	0.85
Cobalt-60	0.06
Cesium-137	18.23
Europium-152	0.14
Hydrogen-3	0.04
Potassium-40	0.0002
Lead-210	0.059
Strontium-90	0.01
Technicum-99	1.00
Thalium-204	0.01