



JAMES C. MOSS
PRESIDENT

TULSA GAMMA RAY, INC.

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TULSA, OKLAHOMA 74104
585-3228

APR 29 1987

April 24, 1987

Mr. Jack Whitten
NUCLEAR REGULATOR COMMISSION REGION IV
Material Radiation Protection Section
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

REF: License No. 35-17178-01

Dear Jack:

Reference our telephone conversation please amend our license to using Gulf Nuclear Model 1C-51, Serial Number CSV-578 containing 1000 mCi Cesium 137 to be used for the calibration of survey instruments.

Enclosed are the following:

- a. My check for \$230.00 for the amendment fee
- b. Pre-calibration procedure
- c. Calibration procedure
- d. Calibration set-up

Leak Testing will be performed using Gulf Nuclear Leak Test Kit # LTK-1 in accordance with procedures as approved in my existing license page # 70, a copy of which is enclosed.

Thank you very much for your effort.

Sincerely yours,

James C. Moss
James C. Moss
President

JCM:hc
Enclosures

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PRE-CALIBRATION PROCEDURE

1. Place the IC-51 calibrator on a flat surface. Refer to appendix B for recommended set-up.
2. Check batteries in survey meter to be sure that all batteries are functioning properly.
3. Check battery position and note if battery check is giving a reasonable response. (This pertains only to instruments with battery check built in.)
4. Select one point on the dose rate chart that reflects from twenty-five percent (25%) to thirty-three percent (33%) of the range selected for calibration and one point that reflects from sixty-six percent (66%) to seventy-five percent (75%).

Examples:

- a. For 0-1R meters the point C for 250 mR/hr and point B for 700 mR/hr may be selected.
- b. For 0-50 mR meters the point H for 16 mR/hr and point F for 36 mR/hr may be selected.
5. Repeat step 4 for the middle scale. This is generally x10 for the 0-1R meters and x1 for the 0-50 mR meters.

Examples

- a. Twenty-five to thirty-three percent of the 0-1R meters would be 25 to 33 mR/hr and the upper limits would be 66 to 75 mR/hr.
- b. On the 0-50 mR/hr meter, the readings would be 1.25 mR/hr to 1.5 mR/hr and the high side would be 3.3 mR/hr to 3.75 mR/hr.
6. Repeat the procedure for the low scale which is generally x1 on the 0-1R meters and x0.1 on the 0-50 mR/hr meters.

NOTE: It will be necessary to use the lead shield (see Appendix H) in front of the beam port for readings less than 7 mR/hr, I, J, K and L. (See Appendix E)

Examples:

- a. Readings on the 0-1R low side would be 2.5 to 3.3 mR/hr and on the high side 6.6 to 7.5 mR/hr.
- b. For 0-50R meters, the readings would be .125 to .15 mR/hr and .33 to .375 mR/hr on the high side of the scale.

GULF NUCLEAR IC-51

MODEL IC-51 CALIBRATION PROCEDURES

NOTE: THE OPERATION OF THIS CALIBRATOR SHOULD BE PERFORMED BY EXPERIENCED OR QUALIFIED PERSONNEL.

1. Turn the meter to be calibrated on and place at the first position selected in paragraph 4 of the Pre-calibration Procedure. Refer to the IC-51 calibration certificate to obtain proper point. (mR/hr.)
2. Position yourself such that the beam port is directed over the chart and away from your body. Remove the lock and then pull the brass handle up and fix in the open position with the sliding latch.
3. Note the meter reading and record; also record the dose rate at the meter position as stated on the IC-51 calibration certificate.
4. Turn the IC-51 off by holding the brass handle and sliding the latch away from the handle. Lower the handle.
5. If the meter requires adjustments to fulfill the requirements of $\pm 20\%$ of the reading on the IC-51 calibration certificate, make the adjustment and reposition the meter.
6. Repeat steps 2, 3 and 4.
7. It will be necessary to repeat steps 2, 3 and 4 until you obtain the proper reading with the survey meter.
8. Place the meter at the second position as selected in Paragraph 4 in the Pre-Calibration Procedures. Check that the meter is on and is on the proper range.
9. Repeat steps 2, 3 and 4.
10. Repeat steps 8 and 9 until all ranges have been calibrated. (Two points on each range)
11. Please note that if the meter has only one calibration adjustment potentiometer, it will be necessary to recheck the ranges.
12. Record data on your calibration certificate. (See Appendix A for a sample certificate)

Leak Testing Procedure for GULF NUCLEAR Leak Test Kit #LTK-1

1. Be sure the sealed source is fully retracted into the container. (Use a survey meter to be sure that radiation levels are normal.)
2. Wet the swab with EDT A Solution. Shake off excess and wipe around the top of the source rod.
3. Standing away from the beam port, raise the source rod to the open position and wipe the exposed source rod thoroughly.
4. Place the leak test swab in the plastic envelope.
5. Set the survey meter on the 1x range. Move the swab, in its plastic envelope, to the meter, not the meter to the swab.
6. If the meter indication is less than 0.2 mr/hr, above background, place the plastic envelope with the swab into the mailing box and mail to Gulf Nuclear.
7. If the swab should show more than 0.2 mr/hr, DO NOT MAIL. Contact Gulf Nuclear, Inc.
8. Secure the source in the calibrator and survey in accordance with Section 14 C (Item 17).

