
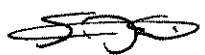


RADIATION DETECTION INSTRUMENT CALIBRATION PROCEDURE (In-House Calibrations and Licensed Vendor Services)

RSP-350

(Radiation Safety Program Number 350)

Revised and Approved By William Batting, Radiation Safety Officer	Dated:
	11/06/14
Reviewed and Approved By Stacey Spike, President/CEO	Dated:
	11/6/14

Revision Number	Description	By	Date
2	Revised to Include Performing In-House Calibrations <i>Revisions/Additions will be Bolded, Underlined and/or in Italics</i>	WEB	11/04/14
1	Revised	WEB	01/04/13
0	Issued for NRC Approval and Use	WEB	12/08/02

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1.0 SCOPE

1.1 This procedure describes the calibration requirements for radiation detection instruments. These instruments: radiation survey meters, rate alarm meters and direct-reading pocket dosimeters or electronic personal dosimeters used by Integrity Testlabs shall be calibrated by licensed vendors in accordance NRC and Agreement State Regulations and this procedure.

1.2 *When practical, the calibrations of radiation detection instruments possessed and utilized by Integrity Testlabs shall be calibrated by a trained and qualified individual approved by the Radiation Safety Officer. Calibrations performed "in-house" shall be accomplished using OSA Global-Sentinel Model 773 with Cs-137 isotope and this procedure.*

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2.0 GENERAL

- 2.1 Calibrations performed by licensed vendors shall ensure that Integrity Testlabs radiation detection instruments meet the minimum requirements of the NRC and Agreement State Regulations and Integrity Testlabs' material license conditions.
- 2.1.1 Calibrations performed by Integrity Testlabs shall ensure that all radiation detection instruments meet the minimum requirements of the NRC and Agreement State Regulations and Integrity Testlabs' material license conditions.**
- 2.2 Radiation Survey Meters: The following calibration conditions apply:
1. Linear Scale Instruments: at two points located approximately one-third (1/3) and two-thirds (2/3) of full-scale on each scale;
 2. Logarithmic Scale Instruments: at mid-range of each decade, and at two points of at least one decade; and
 3. Digital Instruments: at 3 points between 2mR and 1000mR (0.02mSv and 10mSv) per hour.
- NOTE:** An accuracy within plus or minus (\pm) twenty percent (20%) of the calibration source must be demonstrated at each point checked.
- 2.2.1 Radiation Survey Meters, Calibrations - Every Six (6) Months: Shall be calibrated at intervals not to exceed six (6) months and shall be calibrated after servicing. Calibration is not required if only the batteries are replaced. ***A calibration shall be performed if there is reason to believe it is not functioning properly.***
- 2.2.2 Radiation Survey Meters, Calibrations - Every Three (3) Months: Shall be calibrated within the past three (3) months for use in the following jurisdictions:
1. State of Maryland
 2. State of New Jersey ***only when using x-ray producing machines***
 3. Other Pertinent Agreement States per these Agreement State's Regulations
- 2.3 Rate Alarm Meters, Calibrations: Shall be calibrated at intervals not to exceed twelve (12) months. Whenever servicing is performed on rate alarm meters, calibration shall be performed. ***A calibration shall be performed if there is reason to believe it is not functioning properly.*** Calibration is not required if only the batteries are replaced. The following requirements apply:
1. Calibration must be set to give an alarm signal at a preset dose rate of 5mSv/hr (500mR/hr);
 2. Have an accuracy of plus or minus (\pm) 20% of the true radiation dose rate; and
 3. Require special means to change the preset alarm function
- 2.4 Direct-Reading Pocket Dosimeters or Electronic Personal Dosimeters, Calibrations: Must be checked at periods not to exceed twelve (12) months for correct response to radiation. Acceptable dosimeters must read within plus or minus (\pm) twenty percent (20%) of the true radiation exposure. Whenever it is suspected that direct-reading pocket dosimeters or electronic personnel dosimeters are not properly responding to radiation, the dosimeters shall be removed from use. ***A calibration shall be performed if there is reason to believe it is not functioning properly.***

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3.0 REFERENCES

3.1 The following documents form a part of this procedure:

1. U.S. Nuclear Regulatory Commission Title 10 CFR Regulations and applicable Regulatory Guide(s)
2. State of Delaware Radiation Control Regulations
3. State of New Jersey Radiation Regulations Chapter 225, Radiation Safety Requirements for Industrial Radiographic Operations
4. The Pennsylvania Code, Title 25, Article V: Radiological Health, Chapters 215-240
5. New York State 12 NYCRR Part 38
6. ***Texas Administrative Code, Title 25, Chapter 289, Texas Regulations for Control of Radiation***
7. Pertinent Agreement State Regulations
8. U.S. Department of Transportation Title 49 CFR
9. Integrity Testlab:
 - a. Operating and Emergency Procedure RSP-310
 - b. Source Recovery Operation Procedure RSP-312
 - c. Security Awareness Procedure RSP-315
 - d. Integrity Testlab ALARA Procedure RSP-320
 - e. Radiographic Personnel Training and Certification Procedure RSP-330
 - f. Radiographic Equipment Inspection and Maintenance Procedure RSP-340
 - g. Source Exchanging Procedure RSP-360
 - h. Leak Testing Procedure RSP-370
 - i. Receipt, Shipping, Transfer and Disposal Procedure RSP-380
10. ***NDS manufacturer's equipment operation and maintenance manuals***
11. ***QSA Global Model 773 Operating manual***
12. Applicable manufacturer's equipment operation and maintenance manuals

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4.0 EQUIPMENT

- 4.1 Any licensed vendor service performing radiation detection instrument calibration shall comply with the requirements as specified in this procedure and all pertinent NRC and Agreement State Regulations.
- 4.2 The following radiation detection instrument may be utilized by Integrity Testlab:
1. NDS ND-2000 Survey Meter, or equivalent;
 2. NDS ND-3000 Survey Meter, or equivalent;
 3. NDS RA-500 Rate Alarm Meter, or equivalent;
 4. Arrow-Tech W138, 0-200mR Direct-Reading Pocket Dosimeter, or equivalent;
 5. *Arrow-Tech W175, 0-1000mR Direct-Reading Pocket Dosimeter, or equivalent;*
 6. *Arrow-Tech W500, 0-500mR Direct-Reading Pocket Dosimeter, or equivalent;*
 7. Electronic Personal Dosimeter (industry accepted device)
- 4.3 Radiation detection instruments; such as radiation survey meters, alarm ratemeters, and direct-reading pocket dosimeters or electronic personal dosimeters shall be calibrated by utilizing calibration devices containing Cobalt 60 or Cesium 137 or other sources of ionizing radiation of the same energy and type appropriate with the radiation energy and type encountered during licensed activities.
- 4.4 **OSA Global – Sentinel Model 773 Calibrator: Contains a Cesium 137 (Cs-137) gamma radiation source.**
- 4.4.1 *The Model 773 is designed for use with 200mCi of Cs-137. The unit is equipped with three moveable attenuators (Transmission of 0.25, 0.10 and 0.10) to allow different intensities during calibrations for various ranges of radiation detection instruments.*
- 4.4.2 *The Model 773 can be used to calibrate radiation detection instruments with ranges up to 2000mR.*

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5.0 PROCEDURE

- 5.1 **Vendor Calibrations:** Radiation detection instruments; such as radiation survey meters, rate alarm meters, and direct-reading pocket dosimeters or electronic personal dosimeters shall be calibrated in accordance with the licensed vendor's approved calibration procedures and shall meet the requirements of this procedure.
- 5.2 **Calibration Labels:** The vendor performing the calibration shall affix a label to the radiation detection instruments. The radiation detection instruments are:
1. Radiation Survey Meters;
 2. Rate Alarm Meters;
 3. Direct-Reading Pocket Dosimeters or Electronic Personal Dosimeters
- 5.2.1 The calibration label shall contain, as a minimum:
1. Company name or logo of the vendor
 2. Date of calibration
 3. Due date of calibration
 4. Serial number of the radiation detection instrument

NOTE: When Integrity Testlabs performs "in-house" calibration, paragraphs 5.2 and 5.2.1 above shall apply.

- 5.3 **Records of Calibrations:** The vendor performing the calibration shall provide documentation of each calibrated radiation detection instrument. As a minimum, the documented information should include:
1. Name of the calibration vendor
 2. Name and/or signature of the technician performing the calibration
 3. Make, model and serial number of the radiation detection instrument
 4. The radiation type, energies and/or calculated radiation intensity field(s)
 5. Range(s) on which the instrument was calibrated
 6. Readings of the instrument in the calculated radiation intensity field(s)
 7. Whether the instrument is acceptable or unacceptable for the calculated radiation intensity field(s)
 8. Date of calibration and due date for re-calibration
 9. Whether the instrument required repairs or adjustments
 10. ***Calibration records shall be retained for a minimum of 3 years after it is made.***

NOTE: When Integrity Testlabs performs "in-house" calibration, records shall be maintained as indicated in paragraph 5.3.

- 5.4 **In-House Calibrations:** Radiation detection instruments; such as radiation survey meters, rate alarm meters, and direct-reading pocket dosimeters or electronic personal dosimeters shall be calibrated in accordance with this procedure.
- 5.5 **Calibrations:** Following the manufacturer's safety precautions, locate the calibrator in a restricted area in such a way that the radiation beam will be aimed horizontally towards an area from which all personnel can be excluded.

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5.6 Radiation Survey Meters:

1. Linear Scale Instruments: at two points located approximately one-third (1/3) and two-thirds (2/3) of full-scale on each scale;
2. Logarithmic Scale Instruments: at mid-range of each decade, and at two points of at least one decade; and
3. Digital Instruments: at 3 points between 2mR and 1000mR (0.02mSv and 10mSv) per hour.

NOTE: Per Section 2.0 Paragraph 2.2, accuracy within plus or minus (\pm) twenty percent (20%) of the calibration source must be demonstrated at each point checked.

I. SOURCE ACTIVITY:

Calculate the source strength using:

$$A = A_0 e^{-kt}$$

Where A = the present activity of the source, A_0 = activity on the original date from the decay chart, t = number of months elapsed from the original date from the decay chart, and k = a decay constant with the value of 0.00192 (value for $T_{1/2} = 30.07$ from Table of Isotopes, 8th Edition by R. B. Firestone)

OR

Calculate the source strength using:

$$A = \text{EXP}((-0.693/11012.05)*X)*Y$$

Note: Type this formula in Micro-Soft Office Excel

Where A = the present activity of the source, -0693 is a constant, 11,012.05 = Cs-137 half life in days (30.17 years multiplied by 365), X = Isotope Age in # of days, and y = the date the source activity was measured (date it was made).

II. DISTANCE CALCULATIONS:

Calculate the distance(s) for the desired radiation intensities using:

$$D \text{ (inches)} = 22.2 \text{ (mCi/mR/hr)}^{1/2}$$

Example: If the decay source strength is 146mCi and the desired intensity is 800mR/hr, the distance would be:

$$D = 22.2 \text{ (146/800)}^{1/2} \approx 9.5 \text{ inches}$$

5.6.1 SURVEY INSTRUMENTS (Meters):

1. Install Fresh Batteries and Adjust/Zero Meter Movement
2. Follow the survey meter manufacturer's calibration procedure. Turn survey meter on and allow to "warm-up" for approximately 10 minutes.
3. Determine source activity for the day the survey meter will be calibrated; document the activity.
4. Calculate the desired distances for unattenuated and attenuated intensities for the following ranges:
 - 0 to 1000mR/hr (X100 Scale)
 - 0 to 100mR/hr (X10 Scale)
 - 0 to 10mR/hr (X1 Scale)

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NOTE: The following procedure is designed for a survey meter with three scales and a range of 0-1000 mR/hr. For instruments with different ranges, the procedure will be similar but the points will differ.

5. ***Using the tape measure attached to the Model #773, place the survey meter such that the axis of the detector is located at the proper distance from the source as determined above.***

NOTES:

- 1) ***The survey meter should be located so that the center of the detector is at the correct distance and centered on the centerline of the radiation beam. The axis of the detector should be perpendicular to the centerline of the radiation beam. Depending upon the physical size of the survey meter, it may be necessary to mount it somewhat higher than the bench surface.***
- 2) ***For the Model 773 Calibrator, the beam axis is centered at approximately 5.31 inches above the base of the 773.***
- 3) ***When the proper geometry for the survey meter has been established, use the same physical arrangement consistently in future calibration operations.***

CAUTION

The meter should be placed so that you can read it from a distance without exposing yourself to the primary beam.

6. ***Unlock the handle of the Model #773. Remove the shipping plate. Remove all the attenuators from the radiation beam.***
7. ***Place the survey meter at the calculated distance for the 800mr/hr intensity and place the survey meter on the X100 SCALE. Standing away from the radiation beam, expose the source by manually raising the source rod. THE ACTUAL INTENSITY IS 800mR/HR.***
 - a) ***Note and document the survey meter intensity then return the source to the stored position.***
 - b) ***If the reading is within plus or minus 20% of the actual intensity, continue checking the instrument.***
 - c) ***If the instrument reading is not within plus or minus 20% of the actual intensity, the instrument must be adjusted in accordance with the manufacturer's manual and recalibrated; Repeat step 6.***
8. ***Place the 0.25 attenuator in the beam. Repeat step 6; THE ACTUAL INTENSITY IS 200mR/HR.***
 - a) ***Note and document the survey meter intensity then return the source to the stored position.***
 - b) ***If the reading is within plus or minus 20% of the actual intensity, continue checking the instrument.***
 - c) ***If the instrument reading is not within plus or minus 20% of the actual intensity, the instrument must be adjusted in accordance with the manufacturer's manual and recalibrated; Repeat step 6.***
9. ***Place the survey meter at the calculated distance for the 80mr/hr intensity and place the survey meter on the X10 SCALE. Remove the 0.25 attenuator from the beam and place a 0.10 attenuator in the beam. Repeat step 6; THE ACTUAL INTENSITY IS 80MR/HR.***

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- a) Note and document the survey meter intensity then return the source to the stored position.
- b) If the reading is within plus or minus 20% of the actual intensity, continue checking the instrument.
- c) If the instrument reading is not within plus or minus 20% of the actual intensity, the instrument must be adjusted in accordance with the manufacturer's manual and recalibrated; Repeat step 6.

10. Place the 0.25 attenuator in the beam. Repeat step 6; THE ACTUAL INTENSITY IS 20mR/HR.

- a) Note and document the survey meter intensity then return the source to the stored position.
- b) If the reading is within plus or minus 20% of the actual intensity, continue checking the instrument.
- c) If the instrument reading is not within plus or minus 20% of the actual intensity, the instrument must be adjusted in accordance with the manufacturer's manual and recalibrated; Repeat step 6.

11. Place the survey meter at the calculated distance for the 8mr/hr intensity and place the survey meter on the X1 SCALE. Standing away from the radiation beam, expose the source by manually raising the source rod. Remove the 0.25 attenuator from the beam and place a 0.10 attenuator in the beam. Repeat step 6; THE ACTUAL INTENSITY IS 8mR/HR.

- a) Note and document the survey meter intensity then return the source to the stored position.
- b) If the reading is within plus or minus 20% of the actual intensity, continue checking the instrument.
- c) If the instrument reading is not within plus or minus 20% of the actual intensity, the instrument must be adjusted in accordance with the manufacturer's manual and recalibrated; Repeat step 6.

12. Place the 0.25 attenuator in the beam. Repeat step 6; THE ACTUAL INTENSITY IS 2MR/HR.

- a) Note and document the survey meter intensity then return the source to the stored position.
- b) If the reading is within plus or minus 20% of the actual intensity, continue checking the instrument.
- c) If the instrument reading is not within plus or minus 20% of the actual intensity, the instrument must be adjusted and recalibrated. Repeat step 6.

13. Upon completion of the calibration, the source rod is to be dropped to the closed position, the locking bar inserted to prevent source movement and the lock secured. Survey the source shield and return to the storage area.

14. Survey meters which cannot be calibrated should be returned to the manufacturer for repair.

15. Fasten a calibration label in accordance with paragraph 5.2.

16. The results of the survey meter calibration shall be documented in accordance with paragraph 5.3 on ITL Form RS-21 and retained for a minimum of 3 years after it is made.

5.7 RATE ALARM METERS: Follow the rate alarm meter manufacturer's calibration procedure. The following procedure is designed for rate alarm meters that are preset to alarm at 500mR/hr.

1. Install fresh battery

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2. *Turn the meter on and allow to “warm-up” for approximately 10 minutes. A single chirp should be heard when turned on. If the meter is operating properly, a low frequency “motor-boating” sound should be heard when held close to the ear. If this does not occur, the meter requires repairs; “Do Not Proceed with Calibration”.*
3. *Determine source activity for the day the rate alarm meter will be calibrated; document the activity.*
4. *Calculate the desired distance for unattenuated intensity for 400mR/hr, 450mR/hr, 500mR/hr and 600mR/hr.*
5. *Using the tape measure attached to the Model #773, place the rate alarm meter such that the axis of the detector is located at the proper distance from the source as determined above.*

NOTES:

- 1) *The rate alarm meter should be located so that the center of the detector is at the correct distance and centered on the centerline of the radiation beam. The axis of the detector should be perpendicular to the centerline of the radiation beam. Depending upon the physical size of the rate alarm meter, it may be necessary to mount it somewhat higher than the bench surface.*
- 2) *For the Model 773 Calibrator, the beam axis is centered at 5.31inches above the base of the 773.*
- 3) *When the proper geometry for the rate alarm meter has been established, use the same physical arrangement consistently in future calibration operations.*
6. *Unlock the handle of the Model #773. Remove the shipping plate. Remove all the attenuators from the radiation beam.*
7. *Standing away from the radiation beam, expose the source by manually raising the source rod.*
8. *The rate alarm meter should have a continuous tone when properly set to alarm at 500mR/h. If a crackling chirp is heard, (intensity is lower than 500mR/hr) adjust the meter per manufacturer’s instructions to achieve the continuous tone.*
9. *If the rate alarm meter does not alarm, follow the manufacturer’s manual to adjust the potentiometer to achieve a continuous tone.*
10. *Rate alarm meter which cannot be calibrated should be returned to the manufacturer for repair.*
11. *Fasten a calibration label in accordance with paragraph 5.2.*
12. *Upon completion of the calibration, the source rod is to be dropped to the closed position, the locking bar inserted to prevent source movement and the lock secured. Survey the source shield and return to the storage area.*

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13. *The results of the rate alarm meter calibration shall be documented in accordance with paragraph 5.3 on ITL Form RS-22 and retained for a minimum of 3 years after it is made.*

5.8 **POCKET DOSIMETERS:** Pocket dosimeters shall be calibrated by measuring the response to known radiation intensity. Pocket dosimeters response shall be checked at 25% and 75% of full scale.

1. *Typical dosimeters may include:*
 - a) *Arrow-Tech W-138 0-200mR*
 - b) *Arrow-Tech W-175 0-1000mR*
 - c) *Arrow-Tech W500 0-500mR*
 - d) *Dosimeters with ranges up to 2000mR*
2. *Dosimeters shall be recharged to zero and set aside for 24hours to determine if it drifts more than 2% of full scale. Any pocket dosimeter that drifts more than 2% of full scale, the dosimeter shall be discarded.*
3. *Determine source activity for the day the dosimeter will be calibrated; document the activity.*
4. *Calculate the desired distances for attenuated intensity for 25% and 75% of full scale for the dosimeter being calibrated.*

NOTES:

- 1) *The dosimeter should be positioned so that the chamber is at the correct distance using the tape measure attached to the 773 calibrator and centered on the centerline of the radiation beam.*
- 2) *For the Model 773 Calibrator, the beam axis is centered at 5.3inches above the base of the 773.*
- 3) *When the proper geometry for the dosimetry has been established, use the same physical arrangement consistently in future calibration operations.*

CAUTION

The dosimeter should be read after the required time of exposure has occurred and the source rod is to be dropped to the closed position.

5. *Unlock the handle of the Model #773. Remove the shipping plate. Place the correct attenuators to achieve the desired radiation intensity.*
6. *Standing away from the radiation beam, expose the source by manually raising the source rod.*
7. *If the dosimeter is not within plus or minus (\pm) twenty percent (20%), the dosimeter shall be discarded.*
8. *Upon completion of the calibration, the source rod is to be dropped to the closed position, the locking bar inserted to prevent source movement and the lock secured. Survey the source shield and return to the storage area.*

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9. *Fasten a calibration label in accordance with paragraph 5.2.*
10. *The results of the rate alarm meter calibration shall be documented in accordance with paragraph 5.3 on ITL Form RS-23 and retained for a minimum of 3 years after it is made.*

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6.0 ACCEPTANCE CRITERIA

- 6.1 Radiation detection instruments that will not calibrate to the requirements of this procedure or the licensed vendor's approved calibration procedures and this procedure; regardless of what range or ranges, shall be unacceptable and shall be repaired or replaced.

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Manufacturer: NDS Products	Model Number	ND-2000	Serial Number	
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DATE CALIBRATED:		CALIBRATION DUE DATE:	
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Batteries Checked (circle one): Acceptable Changed

Meter Movement Adjust to Zero (circle one): Acceptable Adjusted

Remarks:	
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Model 773 Calibrator	Cs-137 S/N:		Cs-137 mCi:	
S/N:				

Calibration Point	Meter Reading	% Deviation	Corrected Reading	% Deviation
<u>X100 Scale:</u> 800mR/hr				
<u>X100 Scale:</u> 200mR/hr				
Calibration Point	Meter Reading	% Deviation	Corrected Reading	% Deviation
<u>X10 Scale:</u> 80mR/hr				
<u>X10 Scale:</u> 20mR/hr				
Calibration Point	Meter Reading	% Deviation	Corrected Reading	% Deviation
<u>X1 Scale:</u> 8mR/hr				
<u>X1 Scale:</u> 2mR/hr				

N/A: Not Applicable, Scale did not require adjustment

This unit is acceptable for use? (Circle one): Yes No

The above listed unit was calibrated in accordance with NRC Rule and Regulations, Title 10, CFR Part 34 and Agreement State Regulations. This calibration is void after replacement of any component part or when the unit is damaged, improperly stored or used at extreme temperatures. Calibration is in accordance with Radiation Detection Instrument Calibration Procedure RSP-350.

Calibrated By:	
Title	

Manufacturer: NDS Products	Model Number	RA-500	Serial Number	
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DATE CALIBRATED:		CALIBRATION DUE DATE:	
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- Install Fresh Battery (mandatory):** Yes
- Alarm Self-Check Operational (circle one):** Yes No
- Audible Chirp Sounds When Turned On? (circle one):** Yes No
- Audible "Motor-Boating" Can Be Heard? (circle one):** Yes No
- Mechanical Fixtures Secured: (circle one):** Yes No

NOTE: If any of the above fails, do not calibrate this unit until it is repaired.

Remarks:	
-----------------	--

Model 773 Calibrator	Cs-137 S/N:		Cs-137 mCi:	
S/N:				

Calibration Point	Initial Response		Adjusted Response		
	Did Audible Alarm Sound?		Did Audible Alarm Sound?		
	(circle one)		(circle one)		
400mR/hr	Yes	No	Yes	No	N/A
*450mR/hr	Yes	No	Yes	No	N/A
500mR/hr	Yes	No	Yes	No	N/A
600mR/hr	Yes	No	Yes	No	N/A

***Meter should start to "crackle, (an audible sound)" at this intensity. Adjust meter to achieve this sound.**

N/A: Not Applicable, Meter did not require adjustment

This unit is acceptable for use? (Circle one): Yes No

The above listed unit was calibrated in accordance with NRC Rule and Regulations, Title 10, CFR Part 34 and Agreement State Regulations. This calibration is void after replacement of any component part or when the unit is damaged, improperly stored or used at extreme temperatures. Calibration is in accordance with Radiation Detection Instrument Calibration Procedure RSP-350.

Calibrated By:	
Title	

Manufacturer: Arrow-Tech	Model Number		Serial Number	
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DATE CALIBRATED:		CALIBRATION DUE DATE:	
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Dosimeters shall be recharged to zero and set aside for 24 hours to determine if it drifts more than 2% of full scale. Any pocket dosimeter that drifts more than 2% of full scale, the dosimeter shall be discarded.

Leak Test Performed? (Check Box): Yes

Dosimeter Set on Zero mR? (Check Box): Yes

Was Drift ≤ 2% After 24 Hours? (Check Box): Yes No

If drift is greater than 2%, discard dosimeter, **DO NOT Proceed with Calibration!**

Example: 200mR x 0.02 = 4mR. This would be the maximum drift.

NOTE: If dosimeter is discarded, the above information must be completed and this form must be inserted into this dosimeter's folder.

Model 773 Calibrator	Cs-137 S/N:		Cs-137 mCi:	
S/N:				

Calibration Point Dose Rate (mR/hr)	Calibration Point	Exposure Time (minutes & seconds)	Actual Reading	% Deviation
	50mR			
	100mR			

Perform the Following:

- Determine Distance and Dose Rate to Calibrate this Unit.**
- Calculate:**
Time = DOSE ÷ DOSE RATE to achieve 50mR and 100mR at the calculated distance for the dose rate.

This unit is acceptable for use? (Circle one): Yes No

The above listed unit was calibrated in accordance with NRC Rule and Regulations, Title 10, CFR Part 34 and Agreement State Regulations. This calibration is void after replacement of any component part or when the unit is damaged, improperly stored or used at extreme temperatures. Calibration is in accordance with Radiation Detection Instrument Calibration Procedure RSP-350.

Calibrated By:	
Title	