NIST Scoping	Scoping Report: 144265-RPT-001, NIST Scoping Study Report						
Study	Revision: A	Appendix					
	Appendix A						
	Scoping Survey Calibration Sheets						



### Safety and Ecology Corporation SEC PROCEDURE # ICAL # 67 Rev 0

10512 Lexington Drive, Suite 200, Knoxville, TN 37932

#### Calibration Certificate

Calibration Certificate	for MICRO REM,Serial	# E050A, Bar Code #	,Property # SEC-5378
-------------------------	----------------------	---------------------	----------------------

Date: 04/26/22

Date Last Cal. Expires: 12/10/20

Technician: Jacob Galyon

Reason For Calibration:

Due for Calibration

#### **EQUIPMENT USED DURING CALIBRATION**

MODEL MP-2

SERIAL #: 314

CAL DUE: 01/11/23

MODEL 87 V

SERIAL #: 18740384

CAL DUE: 03/01/23

MODEL

SERIAL #:

CAL DUE:

**NIST TRACEABLE SOURCES USED** 

SOURCE 0300-GY

ISOTOPE Cs-137

ACTIVITY ASSAY DATE 202.897 Ci 2/14/2022

KR-4097

Cs-137

.65.94 mCi

2/14/2022

**AS FOUND DATA** 

Physical Cond

SAT

Geotropism:

SAT

Bat. Check SAT

Speaker Check

As Left

N/A

**High Voltage** 

High Voltage Indicated in OK Band

As Found OK

OK

+5 Volt Power Supply (4.5 to 5.5V) -5 Volt Power Supply (-3.74 to -5.06 V) 5.086 -4.27

5.086 -4.27

CAL	<b>IBR</b>	ATIC	)N	DATA

ALIDICATI	ONDATA	HV AL					
	Scale	Exposure	Rate	Instrument	t Reading	Percent	Error
		uR/HR	(MR/HR)	As Found	As Left	As Found	As Left
	0.1	, 5	(Pulsed = TO)	5.25	5.25	5.00	5.00
	•	10	(Pulsed = TO)	10	10	0.00	0.00
		15	(Pulsed = TO)	16	16	6.67	6.67
	1	, 50 <sup>1</sup>	(.05)	52.5	52.5	5.00	5.00
		100	(.1)	100	100	0.00	0.00
	, <del></del>	150	(.15)	160	160	6.67	6.67
	. 10	500	(0.5)	500	500	0.00	0.00
		1000	(1.0)	950	1000	-5.00	0.00
		1500	(1.5)	1500	1550	0.00	3.33
	100	5000	(5)	4500	5000	-10.00	0.00
		10000	(10)	9250	10000	-7.50	0.00
		1 15000 ;	(15)	14000	15000	-6.67	0.00
	1000	50000	(50)	47500	47500	-5.00	-5.00
		100000	(100)	100000	100000	ō.oō	0.00
Precision Scale		150000	(150)	147500	147500	-1.67	-1.67
		Exposu	Exposure Rate		Mean Value	% Dev	
	X1000	100000	(100)	100000.00		0.00	
				100000.00	100000.00	0.00	

100000.00

#### Comments:

✓	Does	Instrument	Meet I	Final A	Acceptance	Criteria <sup>*</sup>
---	------	------------	--------	---------	------------	-----------------------

Calibration Sticker Attached? Next Calibration Due Date:

Performed by Printed Name:

Jacob Galyon

Reviewed by:

0.00

All instrumentation/is calibrated in accordance with the QAP to meet the criteria of ANSI N323AB-2013 The results in this report relate only to the item calibrated or tested.





# Safety and Ecology Corporation SEC PROCEDURE # SEC-IS-407 Rev 3

### 10512 Lexington Drive, Suite 200, Knoxville, TN 37932

#### Calibration Certificate

#### Calibration Certificate for 44-9, Serial # PR150385, Bar Code # , Property # SEC-5121

2
2

Date Last Cal. Expires: 10/19/22

Technician: Jake Alcorn

Reason For Calibration: Due for Calibration

Temp:

BP:

CableLength 5 Ft

#### NIST EQUIPMENT USED DURING CALIBRATION

MODEL: 12

SERIAL #: 229284

CAL DUE: 09/28/23

MODEL:

SERIAL #:

**CAL DUE:** 

#### **NIST TRACEABLE SOURCES USED**

SOURCE	ISOTOPE	ACTIVITY	2π	ASSAY DATE
5746-06	Tc-99	31899 dpm	19,999 cpm	1/31/2022
5744-06	Sr-90	14539 dpm	10,202 cpm	1/31/2022

Geometry = in contact with surface unless otherwise specified.

PREVIOUS Tc-99 EFFICIENCY: 13.66%

Calibration Voltage: 900 V

Calibration Threshold:

35 mV

AS FOUND Instrument Condition:

AS LEFT Instrument Condition: SAT

## AS FOUND DATA

#### 1 MINUTE COUNTS (CPM)

AF Background:

Tc-99 Count:

26

**AVERAGE** 

4212

4156.7

Sr-90 Count: 3294

4 π Efficiencies

Tc-99 EFF: 12.95%

Sr-90 EFF: 22.48%

# AS LEFT DATA

#### 1 MINUTE COUNTS (CPM)

AL Background:

Tc-99 Count:

4212

4134

<u>AVERAGE</u> 4124

4156.7

Sr-90 Count: 3294

4 π Efficiencies

Tc-99 EFF: 12.95%

Sr-90 EFF: 22.48%

"AF" in the AL Efficiency fields means to refer to the AF Efficiencies in the AS FOUND DATA Section

✓ Is the AS FOUND efficiency within 20% of efficiency from last calibration?

✓ Reproducibility: Are the individual counts within 10% of the average?

Does the probe meet final acceptance criteria?

✓ Calibration sticker attached?

Comments: Married as a set with:

Model: 12

Serial #: 229284

Bar Code #:

Date Instrument is Due For Next Calibration:

09/28/23

Performed by:

Reviewed by

Issue Date: 10 -22 -27

Printed Name:

Jake Alcorn

All instrumentation is calibrated in accordance with the QAP to meet the criteria of ANSI N323AB-2013

The results in this report relate only to the item calibrated or tested.





The results in this report relate only to the item calibrated or tested.

# Safety and Ecology Corporation

SEC PROCEDURE # SEC-IS-404 Rev 3

## 10512 Lexington Drive, Suite 200, Knoxville, TN 37932

## Calibration Certificate

alibratio	on Certifi	icate for	12,Serial #	229284, Bar	Code #	Property # SEC-6,	278			
Date: 09/2	28/22 <b>D</b> at	te Last Cal.	Expires: 10	)/19/22 <b>T</b> e	chnician:	Jake Alcorn	Reason For C	alibration: Due	for Calibration	
Temp	Rell	Hum:	BP:							
***		4		NIST FOLIDM	- FNT HSE	D DURING CALIBRATI	ıon	<del></del> -	ala apu	
		MOD	EL - 500 2			CAL DUE:				
			EL: 500-2	SERIAL#			00/00/23			
NAMES OF THE OWNER OF	and the second section of the section of	MOD	EL:	SERIAL#		CAL DUE:	****			
AS FOU	ND DATA	Geotro	ppism: SAT	AS I	FOUND In	strument Condition: S	SAT AS	LEFT Instrum	ent Condition:	SAT
HIGH V	OLTAGE	AS	FOUND HV	AS LEFT HV	☐ New	Batteries? Batter	y Check: SAT	Alar	m: N/A	
+/- 10% to		500 V:	515	515	AS FOU	ND Mechanical Zero:	0· A	S LEFT Mechar	nical Zero: 0	
		1000 V:	990	1000		OUND THRESHOLD:		AS LEFT THE	RESHOLD: 3	35mV
		1500 V:	1475	1480		FOUND HV Reading:		AS LEFT HV		00 V
HV	Range 400	-1500 <b>V</b> :	SAT		7.0		000 V			•
		RATÍ	E METER				DIGITAL	SCALER		
SCALE	RATE CPI	•	•	DR AS LEFT %	ERROR		ERR: 0.40%		AF % ERR:	n 40%
x.1 or	100	100	0.00%	100	0.00%					
<b>x</b> 1	250	255	. +		0.00%	<b>AF 2500: ,</b> 2510 %	ERR: 0.40%		AF % ERR:	
	400	405			0.00%	<b>AF 25K:</b> 25.1 K %	ERR: 0.40%	AL 25K:	AF K % ERR:	0.40%
x1 or	1000	1000			0.00%	AF 100K: 100.4 K %	ERR: 0.40%	AL 100K:	AF K % ERR:	0.40%
x10	2500	2550	<del></del>		0.00%	✓ Is the As	Found Data Wi	thin 20% of the	Set Point?	
	4000	400			0.00%	and Augusti	PÉDDOD	UCIĐILITY	,	1
x10 or x100	10K	10	0.00%	}	0.00%	of Nazar	KEPROD	UCIBILITY		ţ
X100	25K	25.5			0.00%	x.1 or x1 Scale	e: 250	250	250	
400	40K	40.5		- +	0.00%	x1 or x10 Scale	e: 2500	2500	2500	
x100 or x1000	100K	105			0.00%	x10 or x100 Scale	e: 25 K	25 K	25 K	
X1000	250K	255	<del></del>		0.00%	x100 or x1000 Scale			250 K	
	400K	410	2.50%	1 400	0.0076					
						✓ Are the Individual	Counts Within	10% of the Av	/erage?	
✓ Is the	ne As Foun	d Data With	nin 20% of the	Set Point?		Fast / Slow Response	onse Switch Fu	ınctions Prope	rly?	
						Audio Response: S	ΑŤ	Audio Divide: N	N/A	
						Push Buttons: S	AT	Lamp: N	N/A	
						Scaler/Digital: S	ΔΤ	-		
`ommor	its: Marrie									
CHILLE	ito. Marrie	ed as a set	with: Mode	el: 44-9	Seri	al #: PR150385		sar Code #:		
	Door Inch	rumant Ma	ot Einal Aggar	tanco Critoria	<b>,</b>	✓ Calibration	Sticker Attach	nd2		
	Dues Insti		_	otance Criteria?			Guckei Allaciii	5U 1		
	—	Date In	strument IS D	ue For Next Ca		09/28/23	X	Date: 46	20.02	
Performe	-	wie _	ioceri		Reviewed	Dy: Wy JY	Iss	ue Date: <u>//</u>	<u>24°</u> 1-L	
Printed N	lame:	Jake Alcon	n			1111				
All instrum	nentation is	calibrated in	n accordance v	with the QAP to	meet the c	riteria of ANSI N323AB	-2013	i natina zitri atti	र स्थान वर्षण तीम शिर्ण वरण	





## Safety and Ecology Corporation SEC PROCEDURE # SEC-IS-417 Rev 5

10512 Lexington Drive, Suite 200, Knoxville, TN 37932

#### Calibration Certificate

Calibration C	`ortifioata for A	2 27 Sarial #	DD011717	Par Cada#	Property # SEC-5027
Janui audii C	rei liiillale ivi 4	3-37,3411a1 #	FRV42411.	Dai Guue #	FIUDELLY # 3EG-3021

Date: 10/17/22

Date Last Cal. Expires: 05/05/23

Technician:

Jeffrey Knight Reason For Calibration:

Temp: 74 F RelHum: 30 %

**EQUIPMENT USED DURING CALIBRATION** 

BP: 28.96 inHG

CableLength MODEL: 2360

**SERIAL** #: 287589

**CAL DUE** 10/17/23

1	NIST TRA	CEABLE	SOURCES USED	SOURCE	ISOTOPE	ACTIVITY	2π	ASSAY DATE
Ĺ	Efficien	cies from	last calibration	5747-06	Pu-239	25793 dpm	13,097 cpm	1/31/2022
	Pu:	12.10	%	5746-06	Tc-99	31899 dpm	19,999 cpm	1/31/2022
	Tc:	17.54	%	5748-06	Th-230	34897 dpm	17,699 cpm	1/31/2022
	Th:	7.44	%	5744-06	Sr-90	14539 dpm	10,202 cpm	1/31/2022
	SrY:	28.65	%					

**AS FOUND DATA** 

AS FOUND Instrument Condition: **Calibration Setpoints** 

HV: 1750 V

AS LEFT Instrument Condition: SAT

AS LEFT DATA after repair, HV adjust or Plateau

Threshold Beta: - 40 mV Alpha: 120 mV AF 4 π Efficiences Alpha Back <u>Beta</u> A-B XTLK ground: 4 **CPM** 669 16.57% 10.36% Pu-239: 4278 CPM CPM 1112 19.58% Tc-99: 28 **CPM** 6916 **CPM** Th-230: **CPM** N/A SrY-90: N/A **CPM** 

☐ Is the As Found Data within 20% of the efficiency from the last cal.?

HV: 1700

Back	<u>Alpha</u>		<u>Beta</u>	AL 4	rr Efficienc	ies
ground:	2	CPM	533	CPM		A-B XTLK
Pu-239:	3883	CPM	757	CPM	15.05%	5.77%
Tc-99:	13	CPM	7511	CPM	21.88%	
Th-230:	4419	CPM	N/A		12.66%	
SrY-90:	N/A		4661	CPM	28.39%	

"AF" in the AL Efficiency fields means to refer to the AF Efficiencies in the AS FOUND DATA Section

Reproducibility: Isotope:

Tc-99 7468

Average:

7393.7 Are the individual counts within 10% of the average?

If the As Found data (even after repair) is within 10% of the last calibration and the B-A Xtalk is <1% and the A-B Xtalk is <10%, then the technician may N/A the Plateau Data and go directly to Comments. 'Geometry of source = flush to surface, except gas proportional probes = 1/8' from surface unless otherwise specified.

PLATEAU	J DATA	Sour	ce 1: S	r-90	Source	2: Pu	-239				
	Response (CPM)		Resp	onse (C	CPM)	Backgrou	ind (CPM)	Net A to B			
	<u>High Voltage</u>	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.	Xtalk: <10%	
	1700	9	4537	27.42%	3987	741	15.44%	5	550	4.80%	7
	1720	9	4716	28.58%	3969	882	15.36%	7	561	8.10%	<del>-</del> 1
	1730	11	4967	30.17%	4194	2873	16.26%	0	580	54.67%	-1
				1		į F					1
				ı							
				1		I .					
<u>Pu-239</u> <u>Tc-99</u> <u>Th-23</u>							Th-230	SrY-90			
2 Pi Efficiencies: 29,63% 34,89% 24,96% 40.									40.46%		

Comments: Married as a set with:

Model: 2360

Serial #: 287589

Bar Code #:

Calibrated with Teflon spacers installed. New plateau to determine HV setting.

**✓** Does Instrument Meet Final Acceptance Criteria?

✓ Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

10/17/23

All instrumentation is calibrated in accordance with the QAP to meet the criteria of ANSI N323AB-2013

Reviewed by:

Performed byz **Printed Name:** 



SEC PROCEDURE # SEC-IS-418 Rev 3

#### 10512 Lexington Drive, Suite 200, Knoxville, TN 37932

#### Oak Ridge, TN 37830 Calibration Certificate

Calibration Certificate for 2360,Serial # 287589, Bar Code # ,Property # SEC-7426
---

Date: 10/17/22 Date Last Cal. Expires: 05/05/23 Technician: Jeffrey Knight Reason For Calibration: Due for Calibration

N	NIST EQUIPMENT	USED	<b>DURING CALIB</b>	RATION

MODEL: 500-2

SERIAL #: 153622

CAL DUE: 11/16/22

MODEL:

SERIAL #:

CAL DUE:

AS FOUND DATA	Geon	opism: SA	AS F	OUND instrume	AS LEFT Instrument Condition: SAT			
☐ New Batteries? Battery Check: SAT		<del>-</del>	AS FOUND Mechanical Zero: 0			AS LEFT Mechanical Zero: 0		
<u>HIGH VOLTAGE</u>	AS F	OUND HV	<u> </u>	S LEFT HV	WINDOW SETTING	S AS FOUND	AS LEFT	
(+/- 10% tolerance)	500 V:	500 <b>V</b>		513 <b>V</b>			AF mV	
	1000 V:	980 <b>y</b>		1000 <b>v</b>	BT (4 mV +/4 mV	): 4 mv	AL MV	
	1500 V:	1458 <b>v</b>		1492 <b>v</b>	BW (40 mV +/- 4 mV	r): 41 mV	40 mV	
AF H	V Setting:	1750 <b>V</b>	AL HV Setting:	1700 <b>v</b>	AT (120 mV +/- 10 mV	'): 120 mV	AF mV	

	**************************************	RATE M	ETER	1	
SCALE	RATE CPM	AS FOUND	% ERROR	AS LEFT	% ERROR
x.1 or	100	100	0.00%	AF	0.00%
x1	250	250	0.00%	AF	0.00%
	400	400	0.00%	AF	0.00%
x1 or x10	1000	1000	0.00%	AF	0.00%
	2500	2500	0.00%	AF	0.00%
	4000	4000	0.00%	AF	0.00%
x10 or	10K	10	0.00%	AF	0.00%
x100	25K	25	0.00%	AF	0.00%
	40K	40	0.00%	AF	0.00%
x100 or	100K	100	0.00%	AF	0.00%
x1000	250K	250	0.00%	AF	0.00%
	400K	400	0.00%	AF	0.00%

	DIGITAL SCALER												
AF 250:	249	% ERR:	0.40%	AL 250:	AF	% ERR:	0.40%						
AF 2500:	2494	% ERR:	0.24%	AL 2500:	AF	% ERR:	0.24%						
AF 25K:	24.94 K	% ERR:	0.24%	AL 25K:	AF K	% ERR:	0.24%						
AF 250K:	249.4 K	% ERR:	0.24%	AL 250K:	AF K	% ERR:	0.24%						
	1			000/ 54	~								

✓ Is the As Found Data Within 20% of the Set Point?

,	REPRODUCIBILITY										
	x.1 or x1 Scale:	250	250	250							
	x1 or x10 Scale:	2500	2500	2500							
	x10 or x100 Scale:	25 K	25 K	25 K							
	x100 or x1000 Scale:	250 K	250 K	250 K							

✓ Are the Individual Counts Within 10% of the Average?

✓ Is the As Found Data Within 20% of the Set Point?

Audio Response: SAT

Overload Light: SAT

Low Battery (2.2V): SAT

Comments: Married as a set with:

Model: 43-3

Serial #: PR042477

Bar Code #:

**✓** Does Instrument Meet Final Acceptance Criteria?

✓ Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

10/17/23

Performed by: \_4

Reviewed by:

Date: 10/19

Printed Name:

Jeffrey Knight

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All instrumentation is calibrated in accordance with the QAP to meet the criteria of ANSI N323AB-2013

The results in this report relate only to the item calibrated or tested.



SEC PROCEDURE # SEC-IS-418 Rev 3

10512 Lexington Drive, Suite 200, Knoxville, TN 37932

Oak Ridge, TN 37830 Calibration Certificate

	ration Certificate for 2360,Serial # 227394, Bar Code # ,Property # SEC-6283										
e:	10/20/22	Date Last Cal. Expires:	06/21/23	Technician:	Jeffrey Knight	Reason For Calibration:	Other (See Comments)				

				NIST I	EQUIPMEN	T USED DUF	RING CAL	IBRATIO	<u>N</u>				
		MC	DDEL: 500	-2	SERIAL #:	153622	C	CAL DUE:	11/16/22				
		МС	DDEL:		SERIAL #:		C	CAL DUE:					
AS FOU	ND DATA	Geotro	pism: SAT		AS FOUR	ID Instrume	nt Condi	tion: SAT	- A	S LEFT Inst	rumen	t Conditio	n: SA
ា ា New i	Batteries?	Battery C	heck: SAT		AS	FOUND Mec	hanical Z	ero: 0		AS LEFT	Mecha	anical Zero	o: 0
	OLTAGE	•	UND HV			EFT HV							
	olerance)	500 V:	509 V		AO L	AF V	W	INDOW S	ETTINGS	AS FO	<u>UND</u>	AS LE	<u>FT</u>
T/- 10 /0 E	<u>Oleranicer</u>						E	3T (4 mV ·	+/4 mV):	3.4	mV	4 1	mV
		1000 V:	995 γ			AF V	B)	<i>N (4</i> 0 mV	+/- 4 mV):	40	mV	AF ı	mV
		1500 V:	1488 <b>V</b>			AF V		•					
	AF HV	Setting:	1800 <b>V</b>	AL HV Se	tting:	1800 <b>V</b>	AT (	(120 mV +	:/- 10 mV):	120	mV	AF ı	m <b>V</b>
*		RATE N	IETER			DIGITAL SCALER							
SCALE	RATE CPM	AS FOUND	% ERROR	ASLEFT	% ERROR	AF 250:	249	% ERR:	0.40%	AL 250:	AF	% ERR: (	n 40%
x.1 or	100	100	0.00%	AF	0.00%								
x1	250	250	0.00%	AF	0.00%	AF 2500:		% ERR:		AL 2500:	AF	% ERR: (	
	400	400	0.00%	AF	0.00%	AF 25K:	24.95 K	% ERR:	0.20%	AL 25K:	AF K	% ERR: (	0.20%
x1 or	1000	1000	0.00%	AF	0.00%	AF 250K:	249.9 K	% ERR:	0.04%	AL 250K:	AF K	% ERR: (	0.04%
×10	2500	2500	0.00%	AF	0.00%		Is the As	Found E	ata Withi	n 20% of the	e Set P	oint?	
$\cup$ .	4000	4000	0.00%	AF	0.00%	REPRODUCIBILITY							
x10 or	10K	10	0.00%	AF	0.00%	ļ	~. <del></del>		KUDU	(BILLI)	<b>.</b>		
x100	25K	25	0.00%	AF	0.00%	-	x.1 or x1	Scale:	250	250		250	
	40K	40	0.00%	AF	0.00%	:	x1 or x10	Scale:	2500	2500		2500	
х100 ог х1000	100K	100	0.00%	AF	0.00%	x1	0 or x100	Scale:	25 K	25	K	25 K	
X1000	250K	250	0.00%	AF AF	0.00%	×100	or x1000	Scale:	250 K	250	К	250 K	
	400K	400	, 0.00%	AF	0.00%					in 10% of th			
						W Ale					e Avei	aye r	
✓ Is the	As Found I	Data Within 20	0% of the Se	et Point?			Au	dio Resp	onse: S	SAT			
								Overload	Light: S	SAT			
							Low	Battery (	( <b>2.2V</b> ): S	SAT			
Comm	ents: Mai	rried as a set	with Mc	odel: 43	-37	Serial #:	PR03744			Bar Code #	£•		
	INIG	nica as a sci	Witti. 1010	Juei. 40	-01	Octiai m.	1 110017	70		Dai Gode F	r•		

Issue Date: <u>|</u>10/20/22 Performed by: 4 Reviewed by: Printed Name:

10/20/23

Date Instrument is Due For Next Calibration:

All instrumentation is calibrated in accordance with the QAP to meet the criteria of ANSI N323AB-2013 The results in this report relate only to the item calibrated or tested.





## Safety and Ecology Corporation SEC PROCEDURE # SEC-IS-417 Rev 5

10512 Lexington Drive, Suite 200, Knoxville, TN 37932

#### Calibration Certificate

Calibration Certificate for 43-37	Serial # PR037440	Bar Code # Property	# SEC-5030
Calibration Certificate for 43-37	,UCIIAI # F I\UU/443, ,	Dai Gode # .Flobelly	# ひたし ひひひひ

Date: 10/20/22 Date Last Cal. Expires: 06/21/23 Technician: Jeffrey Knight Reason For Calibration: Other (See Comments

Temp: 73 F RelHum: 24 % BP: 22.44 inHG CableLength

**EQUIPMENT USED DURING CALIBRATION** MODEL: 2360 SERIAL #: 227394 **CAL DUE** 10/20/23

NIST TRA	ACEABLE SOURCES USED	SOURCE	ISOTOPE	ACTIVITY	2тг	ASSAY DATE
Efficier	ncies from last calibration	5747-06	Pu-239	25793 dpm	13,097 cpm	1/31/2022
Pu:	13.90 %	5746-06	Tc-99	31899 dpm	19,999 cpm	1/31/2022
Tc:	15.96 %	5744-06	Sr-90	14539 dpm	10,202 cpm	1/31/2022
Th:	11.82 %	5748-06	Th-230	34897 dpm	17,699 cpm	1/31/2022
		AK-2579	C-14	23986 dpm		1/31/2022
SrY:	27.61 %					

**AS FOUND DATA** 

AS FOUND Instrument Condition: **Calibration Setpoints** 

1800 V

Threshold Beta: - 40 mV Alpha: 120 mV AF 4 π Efficiences <u>Alpha</u> <u>Beta</u> Back A-B XTLK ground: 20 **CPM** 712 **CPM** 9.71% 17.28% Pu-239: 4478 **CPM CPM** 1145 14.62% c-99: 307 **CPM** 5376 **CPM** Th-230: CPM N/A

☐ Is the As Found Data within 20% of the efficiency from the last cal.?

AS LEFT Instrument Condition: SAT AS LEFT DATA after repair, HV adjust or Plateau

HV: 1725

Back	<u>Alpha</u>		<u>Beta</u>	AL 4 π Efficiencies			
ground:	3	CPM	582	CPM		A-B XTLK	
Pu-239:	3560	CPM	868	CPM	13.79%	8.04%	
Tc-99:	17	CPM	7117	CPM	20.49%		
Th-230:	3694	CPM	N/A		10.58%		
SrY-90:	N/A		4836	CPM	29.26%		

"AF" in the AL Efficiency fields means to refer to the AF Efficiencies in the AS FOUND DATA Section

Reproducibility: Isotope: Sr-90

N/A

SrY-90:

PL

5026 4926

CPM

4931

Average:

4961.0 ✓ Are the individual counts within 10% of the average?

If the AS Found data (even after repair) is within 10% of the last calibration and the B-A Xtalk is <1% and the A-B Xtalk is <10%, then the technician may N/A the Plateau Data and go directly to Comments. Geometry of source = flush to surface, except gas proportional probes = 1/8" from surface unless otherwise specified.

ATEAL	J DATA	Sour	ce 1: S	r-90	Source	2: Pu	-239				
·		Re	sponse	(CPM)	Response (CPM)		Backgrou	ind (CPM)	Net A to B		
	High Voltage	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.	Xtalk: <10%	
	1700	7	4442	26.76%	3548	796	13.74%	5	552	6.89%	₹ •
	1725	5	4931	29.44%	3414	946	13.22%	3	650	8.68%	
	1750	33	5163	30.75%	3717	1070	14.40%	3	692	10.18%	
						ļ					
			<del> </del>	-							
	i i	11				1	Pu-239	<u>Tc-</u>	9 <u>9</u>	Th-230	SrY-90
			2 F	Pi Effici	encies	:	27:16%	32.6	8%	20.85%	41.70%

Comments: Married as a set with:

Model: 2360

Serial #: 227394

Bar Code #:

AF: High background - new plateau to verify HV setting. Calibrated with Teflon spacers installed. C-14 source #AK-2579: 3164 gcpm/23,986 dpm = 10.76% efficiency.

✓ Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Performed by:

Reviewed by:

Issue Date:



SEC PROCEDURE # SEC-IS-418 Rev 3

## 10512 Lexington Drive, Suite 200, Knoxville, TN 37932

#### Oak Ridge, TN 37830 Calibration Certificate

∡libration C	Certificate for	2360,Serial #	227402, Ba	r Code#,	Property # SEC-6214
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Date: 09/20/22

Date Last Cal. Expires: 09/20/23

Technician: Noah Kaye

Reason For Calibration: Due for Calibration

#### **NIST EQUIPMENT USED DURING CALIBRATION**

MODEL: 500-2

SERIAL #: 171700

CAL DUE: 06/07/23

MODEL: Gootroniem: SAT ' SERIAL #:

CAL DUE:

AS FOUND DATA	Geof	tropism: SAT	AS F	OUND Instrume	AS LEFT Instrumen	t Condition: SAT	
New Batteries?	Battery Check: SAT		•	AS FOUND Mechanical Zero: 0		AS LEFT Mecha	anical Zero: 0
<u>HIGH VOLTAGE</u>	AS F	OUND HV	<u> </u>	AS LEFT HV	WINDOW SETTING	CS AS FOLIND	ACIEET
(+/- 10% tolerance)	500 V:	511 <b>V</b>		AF V			AS LEFT
	1000 V:	1009 <b>v</b>		AF <sub>V</sub>	BT (4 mV +/4 m	ıV): 4 mV	AF mV
	1500 V:	1508 <b>v</b>		AF <b>y</b>	BW (40 mV +/- 4 m	1V): 30 mV	AF mV
AF HV	Setting:	680 <b>V</b>	AL HV Setting:	675 <b>V</b>	AT (120 mV +/- 10 m	ıV): 121 mV	AF mV

	RATE METER								
SCALE	RATE CPM	AS FOUND	% ERROR	AS LEFT	% ERROR				
x.1 or	100	100	0.00%	AF	0.00%				
x1	250	250	0.00%	AF	0.00%				
	400	400	0.00%	AF	0.00%				
x1 or	1000	1000	0.00%	AF	0.00%				
×10	2500	2500	0.00%	AF	0.00%				
$\subseteq$	4000	4000	0.00%	AF	0.00%				
x10 or	10K	10	0.00%	AF	0.00%				
x100	25K	25	0.00%	AF	0.00%				
	40K	40	0.00%	AF	0.00%				
x100 or	100K	100	0.00%	AF	0.00%				
x1000	250K	250	0.00%	AF	0.00%				
	400K	400	0.00%	AF	0.00%				

	Jake Marine Street representation		DIGITAL	SCALER	Land May remarker	مالة حقم ما	
į	AF 250:	250	% ERR: 0.00%	AL 250:	AF	% ERR: 0.00%	
	AF 2500:	2514	<b>% ERR:</b> 0.56%	AL 2500:	AF	% ERR: 0.56%	
	AF 25K:	24.9 K	% ERR: 0.40%	AL 25K:	AF K	% ERR: 0.40%	
	AF 250K:	249 K	% ERR: 0.40%	AL 250K:	AF K	% ERR: 0.40%	

✓ Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY							
x.1 or x1 Scale:	250	250	250	me. et silve			
x1 or x10 Scale:	2500	2500	2500				
x10 or x100 Scale:	25 K	25 K	25 K				
x100 or x1000 Scale:	250 K	250 K	250 K				

✓ Are the Individual Counts Within 10% of the Average?

✓ Is the As Found Data Within 20% of the Set Point?

Audio Response: SAT Overload Light: FSAT Low Battery (2.2V): SAT

Comments: Married as a set with: Serial #: PR394086 Bar Code #:

**✓** Does Instrument Meet Final Acceptance Criteria?

✓ Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

09/20/23

Performed by: Printed Name:

Noah Kaye

Reviewed by:

All instrumentation is calibrated in accordance with the QAP to meet the criteria of ANSI N323AB-2013 The results in this report relate only to the item calibrated or tested.





## Safety and Ecology Corporation SEC PROCEDURE # SEC-IS-420 Rev 3

10512 Lexington Drive, Suite 200, Knoxville, TN 37932

#### Calibration Certificate

Calibration Certificate for 43-93,Serial # PR394086, Bar Code # ,Property # PFL-354	1
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Date: 09/20/22

**EQUIPMENT USED DURING CALIBRATION** 

Date Last Cal. Expires: 03/30/23

Technician: Noah Kaye

Reason For Calibration: Due for Calibration

A-B XTLK

Temp:

RelHum:

CableLength 5 Ft MODEL: 2360

SERIAL #: 227402

CAL DUE 09/20/23

NIST TRACEABLE SOURCES USED						
Efficiencies from last calibration						
Pu:	23.40	%				
Tc:	17.24	%				
Th:	21.63	%				
SrY:	35.20	%				

SOURCE	ISOTOPE	ACTIVITY	2π	ASSAY DATE
4079-02	Pu-239	28991 dpm	14,695 cpm	1/31/2022
4072-02	Тс <sub>7</sub> 99	28299 dpm	17,699 cpm	1/31/2022
4071-02	Th-230	40296 dpm	20,498 cpm	1/31/2022
4076-02	∲Sr-90	9306 dpm	6,529 cpm	1/31/2022

AS FOUND DATA

AS FOUND Instrument Condition: **Calibration Setpoints** 

AS LEFT Instrument Condition: SAT AS LEFT DATA after repair, HV adjust or Plateau

HV: 675

HV: 675 V

20 mV

Threshol	d Beta:	4	- 40	mV	Alpha:	120 mV
Back	<u>Alpha</u>		Beta	<u>AF 4 т</u>	т Efficienc	<u>es</u>
ground:	2	CPM	143	CPM	r	A-B XTLK
Pu-239:	6709	CPM	556	CPM	23.13%	6.16%
Tc-99:	3	CPM	5450	CPM	18.75%	
Th-230:	8505	СРМ	N/A		21.10%	
) SrY-90:	N/A		3/35	CDM	35.38%	

<u>Alpha</u> <u>Beta</u> AL 4 π Efficiencies Back ground: 2 **CPM** 143 **CPM** Pu-239: 6809 **CPM** 556 CPM 23.48% Tc-99: 3 CPM 5450 CPM 18.75% Th-230: 8505 CPM N/A 21.10% SrY-90: 3435 35:38% CPM

"AF" in the AL Efficiency fields means to refer to the AF Efficiencies in the AS FOUND DATA Section

Reproducibility: Isotope: | Sr-90 | 3555

3515 3532

Average:

3534.0 ✓ Are the individual counts within 10% of the average?

If the As Found data (even after repair) is within 10% of the last calibration and the B-A Xtalk is <1% and the A-B Xtalk is <10%, then the technician may N/A the Plateau Data and go directly to Comments: Geometry of source = flush to surface, except gas proportional probes = 1/8" from surface unless otherwise specified.

PLATEA	U DATA	Sour	ce 1: T	c-99	Source	2: Th-	230				
	Response (CPM) Response (CPM)		Background (CPM)		Net A to B						
Ħ	<u>High Voltage</u>	A ch.	B ch.	Net Eff.	A ch.	B ch.	Net Eff.	A ch.	B ch.	Xtalk: <10%	
¥	N/A									N/A	
										N/A	
										N/A	
										N/A	]
	127									N/A	
4										N/A	
					R.		Pu-239	Tc-9	99 -	Th-230	<u>SrY-90</u>
<u>"""</u>			2 F	Pi Effici	encies	:	46.32%	29.9	8%.	41.48%	50.42%

Comments: Married as a set with:

Model: 2360

Serial #: 227402

Bar Code #:

**☑** Does Instrument Meet Final Acceptance Criteria?

✓ Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

09/20/23

All instrumentation is calibrated in accordance with the QAP to meet the criteria of ANSI N323AB-2013

Reviewed by:

Page 1 of 2

Performed by: **Printed Name:** 

Is the As Found Data within 20% of the efficiency from the last cal.?



SEC PROCEDURE # SEC-IS-418 Rev 3

#### 10512 Lexington Drive, Suite 200, Knoxville, TN 37932

#### Oak Ridge, TN 37830 Calibration Certificate

Date: 10/14/22

Date Last Cal. Expires: 06/07/23

Technician: Jeffrey Knight

Reason For Calibration: Repair

MICT EQUIDMEN	IT HEED DHOIN	G CALIBRATION
MIST EGOILIME	VI USED DUKIN	G CALIBRATION

MODEL: 500-2

**SERIAL #: 153622** 

CAL DUE: 11/16/22

MODEL:

SERIAL #:

CAL DUE:

AS FOUND DATA	Geot	ropism: SAT	AS F	OUND Instrume	nt Condition: UNSAT	AS LEFT Instrument	Condition: SAT
New Batteries?	Battery	Check: SAT		AS FOUND Med	hanical Zero: 0	AS LEFT Mecha	nical Zero: 0
HIGH VOLTAGE	AS F	OUND HV	A	S LEFT HV	WINDOW SETTING	S AS FOUND	AS LEFT
(+/- 10% tolerance)	500 V:	496 <b>V</b>		502 <b>V</b>	BT (4 mV +/4 mV		4 mV
	1000 V:	984 <b>v</b>		1000 <b>y</b>	•	,	
	1500 V:	1473 <b>v</b>		1489 <b>v</b>	BW (40 mV +/- 4 mV	): 28 mV	40 <b>mV</b>
AF HV	/ Setting:	650 <b>V</b>	AL HV Setting:	650 <b>V</b>	AT (120 mV +/- 10 mV	): 120 mV	123 <b>mV</b>

RATE METER										
SCALE	RATE CPM	AS FOUND	% ERROR	AS LEFT	% ERROR					
x.1 or	100	100	0.00%	AF	0.00%					
x1	250	250	0.00%	AF	0.00%					
	400	400	0.00%	AF	0.00%					
χ₁−or	1000	1000	0.00%	AF	0.00% 0.00%					
x10	2500	2500	0.00%	AF						
	4000	4000	0.00%	AF	0.00%					
x10 or	10K	10	0.00%	AF	0.00%					
x100	25K	25	0.00%	AF	0.00%					
	40K	40	0.00%	AF	0.00%					
x100 or	100K	100	0.00%	AF	0.00%					
x1000	250K	250	0.00%	AF	0.00%					
·	400K	400	0.00%	AF	0.00%					

			<del></del>		
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	101			$\sim$ L	

AF 250: 250 % ERR: 0.00% AL 250: AF % ERR: 0.00% AF 2500: 2494 % ERR: 0.24% AL 2500: AF % ERR: 0.24%

AF 25K: 24.94 K % ERR: 0.24% AL 25K: AF K % ERR: 0.24% AF 250K: 249.4 K % ERR: 0.24% AL 250K: AF K % ERR: 0.24%

✓ Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY									
x.1 or x1 Scale:	250	250	250						
x1 or x10 Scale:	2500	2500	2500						
x10 or x100 Scale:	25 K	25 K	25 K						
x100 or x1000 Scale:	250 K	250 K	250 K						

✓ Are the Individual Counts Within 10% of the Average?

Audio Response:

SAT

Overload Light: SAT

Low Battery (2.2V):

✓ Is the As Found Data Within 20% of the Set Point?

Comments: Married as a set with:

Model:

43-93

Serial #: PR293983

Bar Code #:

AF: Broken HV/Reset switch - replaced switch.

**✓** Does Instrument Meet Final Acceptance Criteria?

✓ Calibration Sticker Attached?

**Date Instrument is Due For Next Calibration:** 

10/14/23

Performed by:\_\_@ Printed Name:

Issue Date:\_*[0/19/*}\_

instrumentation is calibrated in accordance with the QAP to meet the criteria of ANSI N323AB-2013

e results in this report relate only to the item calibrated or tested.





# Safety and Ecology Corporation SEC PROCEDURE # SEC-IS-420 Rev 3

10512 Lexington Drive, Suite 200, Knoxville, TN 37932

Date   10/14/22   Date   10/14/23   Technician:   Jeffrey Knight Reason For Calibration:   Married Inst Needed For Temp: 75 F   Relitum: 26 %   BP; 31,19 in-HG   ZebleLength   5Ft   2Ft   2F	Opporation		ISO/IEC 17025:20: Accordingt on #107-	17 462 -			C	alibratio	n Certifi	cate					
Temp: 75 F   RelHum: 26 %   BP: 31.19 inHG   CableLength 5 Ft	Calibra	tion Ce	ertifica	te for	43-9	3,Seria	I # PR2	93983, Bar	Code#,	Proper	ty # SEC	-7164	<del></del>		
Temp: 75 F   RelHum: 26 %   BP: 31.19 inHG   CableLength 5 Ft	Date: 10	/14/22	Date	e Last	Cal. E	xpires:	06/07/23	Techni	ician: Jeff	rey Knigh	<sup>it</sup> Reason I	For Calil	oration:	Married In	st Needed F
MIST TRACEABLE SOURCE   ISOTOPE   ACTIVITY   2	Temp: 75	F Rel	Hum: 26	%	BP:	31.19 inl	HG			_					
Pu: 21.74 %   4079-02   Pu-239   28991 dpm   14,695 dpm   1/31/2022	EQUIPM	ENT U	SED DI	URIN	G CA	ALIBRA	TION	MODEL: 23	60	SERIA	L#: 1849	47	CAL	. DUE 10.	/14/23
Pu: 21.74 %   4079-02   Pu-239   28991 dpm   14,695 dpm   1/31/2022	NICT TO A	CEARLE				0011001	-								
Pu: 21.74 % 4075-02 Tc-99 28299 dpm 14,696 cpm 1/31/2022 Tc: 16.77 % 4071-02 Tb-230 40296 dpm 20,498 cpm 1/31/2022 Th: 18.95 % 4076-02 Sr-90 9308 dpm 6,529 cpm 1/31/2022 SrY: 34.27 %  AS FOUND Instrument Condition: SAT AS FOUND DATA  Calibration Setroints HV: 650 V  Threshold Beta: 4 - 40 mV Alpha: 120 mV  Back Alpha Beta AF 4 T Efficiences ground: 1 CPM 195 CPM 19.53% Tc-99: 1 CPM 5721 CPM 19.53% Tr-99: 1 CPM 5721 CPM 19.53% Tr-90: NIA 3487 CPM 35.38% SrY-90: NIA 3487 CPM 36.88 SrY-90 Source 1: Tc-99 Source 2: Tr-230 Response (CPM) Response (C	NIST TRA	CEABLE	SOURC	E9 U	===	SOURCE	<b>-</b>	ISOTOP	E 	ACTIVI	ΓY		2π	ASSA	Y DATE
To: 16.77 % 4071-02 Th-230 40296 dpm 17,699 cpm 1731/2022 Th: 18.95 % 4076-02 Sr.90 9306 dpm 20,498 cpm 1/31/2022 SrY: 34.27 %  AS FOUND Instrument Condition: SAT  AS FOUND DATA  AS FOUND DATA  AS FOUND Instrument Condition: SAT  AS FOUND DATA  AS FOUND Instrument Condition: SAT  AS FOUND DATA  AS FOUND Instrument Condition: SAT  AS LEFT Instrument Condition: SAT		cies fron	ı last ca	<u>librati</u>	<u>on</u>	4079-02		Pu-239		28991 d	lpm	14	4,695 cpm	1/3	1/2022
Th: 18.95 % 4076-02 Sr-90 9306 dpm 6,529 cpm 1/31/2022 SrY: 34.27 %    AS FOUND Instrument Condition: SAT		21.74	%		ļ	4072-02		Tc-99		28299 dpm		1	17,699 cpm		1/2022
Sry: 34.27 %  AS FOUND Instrument Condition: SAT Calibration Setationits  HV: 650 V  Threshold Beta: 4 - 40 mV Alpha: 120 mV Back Alpha Beta AF 4 π Efficiences ground: 1 CPM 195 CPM ABXTLK ground: 1 CPM 195 CPM 195.33%.  T-0-99: 1 CPM 5721 CPM 19.533%.  T-0-99: 1 CPM 5721 CPM 19.533%.  T-2-99: 1 CPM 5721 CPM 19.53%.  Sry-90: N/A 3487 CPM 33.33%.  Sry-90: N/A 3487 CPM 3488 CPM 3						4071-02		Th-230		40296 d	pm	20	0,498 cpm	1/31	1/2022
AS FOUND Instrument Condition: SAT	Th:	18.95	%		ı	4076-02		Sr-90		9306 dp	m	(	6,529 cpm	1/31	1/2022
AS FOUND DATA	SrY:	34.27	%												
AS FOUND DATA			40.5				****		<u> </u>		401 === :				
HV: 650 V  Threshold Beta: 4 - 40 mV Alpha: 120 mV Back Alpha Beta: 4 - 40 mV Alpha: 120 mV Back Alpha Beta: 4 - 40 mV Alpha: 120 mV Alpha: 1 CPM 195 CPM 1 CPM 195 CPM 1 CPM 195 CP	AS FO	UND D		OUNL											Distant
Back   Alpha   Beta   AF 4 π Efficiences   A-B XTLK   Ground: 1   CPM   195   CPM   19					Н	V: 65	0 <b>V</b>			<u> </u>	CLI I DA	1 A aitei	repair, 11v	aujust or	Flateau
Second   1   CPM   195   CPM   22.12%   5.00%   Fu-239: 6415   CPM   195   CPM   4B XTLK   Fu-239: 6415   CPM   19.53%   5.00%   Tc-99: 1   CPM   5721   CPM   19.53%   Tc-99: 1   CPM   79.53%   Tc-99: 1   CPM   Tc-90   Tc-230: 8215   CPM   N/A   20.38%   SrY-90: N/A   3487   CPM   35.38%   SrY-90: N/A   3487   CPM   35.38%   SrY-90: N/A   3487   CPM   Tc-230: 8215   CPM   N/A   20.38%   SrY-90: N/A   3487   CPM   Tc-230: 8215   CPM   N/A   20.38%   SrY-90: N/A   3487   CPM   Tc-230: 8215   CPM   N/A   20.38%   SrY-90: N/A   3487   CPM   Tc-230: 8215   CPM   N/A   20.38%   SrY-90: N/A   3487   CPM   Tc-230: 8215   CPM   N/A   20.38%   SrY-90: N/A   3487   CPM   Tc-230: 8215   CPM   N/A   20.38%   SrY-90: N/A   3487   CPM   Tc-230: 8215   CPM   N/A   20.38%   SrY-90: N/A   3487   CPM   Tc-230: 8215   CPM   N/A	Threshol	d Beta:	4		40	mV	Alpha:	120 mV				HV:	650	v	
ground: 1 CPM 195 CPM 195 CPM 195 CPM 195 CPM 195 CPM 195.39% 1 C-99: 1 CPM 5721 CPM 195.39% 1 CPM 195.39				<u>B</u>	<u>eta</u>	<u>ΑF 4 π</u>	Efficienc		Back	<u>Alpha</u>		<u>Beta</u>	AL 4	π Efficien	<u>cies</u>
Tc-99: 1 CPM 5721 CPM 19.53% 20.38% 345 CPM N/A 3487 CPM 35.38% 35.38% 347 CPM 35.38% 36.20% SrY-90: N/A 3487 CPM 35.38% 35.38% 36.20% SrY-90: N/A 3487 CPM 35.38% 36.20% N/A 3487 CPM 36.20% N/A 348	_						22 12%		2	1	CPM	195	СРМ		A-B XTLK
Th-230: 8215 CPM N/A 3487 CPM 35.38% SrY-90: N/A 3487 CPM								3.0070	Pu-239:	6415	CPM	1	CPM	22.12%	-3.02%
Sry-90: N/A 3487 CPM 35.38%  It is the As Found Data within 20% of the efficiency from the last cal.?  Reproducibility: Isotope: Sr-90 3470 3412 3427 Average: 3436.3 Are the individual counts within 10% of the average?  If the As Found date (even atterrepair) is within 10% of the last californian is vide at the As Kilalk is <10%, then the Lectrician may N/A the Plateau Data and go directly to Comments. Geometry of source is flush to surface, except gas proportional probes = 1/8 from surface inhese otherwise specified.  PLATEAU DATA  Source 1: Tc-99  Response (CPM)  Response (CPM)  Response (CPM)  N/A  N/A  N/A  N/A  N/A  N/A  N/A  N/		-				СРМ			Tc-99:	1	CPM	5721	CPM	19.53%	1
Sry-90: N/A 3487 CPM 35.38%    Sry-90: N/A 3487 CPM 35.38%	<b>7</b> 5		CPM						Th-230:	8215	CPM	N/A		20.38%	.]
The last cal.?  Reproducibility: Isotope: Sr-90 3470 3412 3427 Average: 3436.3 ✓ Are the individual counts within 10% of the average?  If the As Found data (even afterrepair) is within, 10% of the last calibration and the B-AXtalk is <1% and the A-BXtalk is <10%, then the technician may N/A the Plateau Data and go directly to Comments. 'Geometry of source' = flush to surface; except gas proportional probes = 1/8" from surface interest otherwise specified.'  PLATEAU DATA  Source 1: Tc-99  Response (CPM)  High Voltage A ch. B ch. Net Eff. A ch. B ch. Net Eff. A ch. B ch. N/A  N/A  N/A  N/A  N/A  N/A  N/A  N/A							· · · · · · · · · · · · · · · · · · ·		SrY-90:	N/A		3487	CPM	35.38%	
Reproducibility: Isotope: Sr-90 3470 3412 3427 Average: 3436.3 Are the individual counts within 10% of the average?  If the As Found data (even afterrepair) is within 30% of the last catibration and the B-Axtalk is <1% and the A-B Xtalk is <10%, then the technician may N/A the Plateau Data and go directly to-Comments. 'Geometry of source = flush to surface; except gas proportional probes = 1/8" from surface unless otherwise specified.'  PLATEAU DATA  Source 1: Tc-99  Response (CPM)  Response (CPM)  Response (CPM)  Response (CPM)  N/A  N/A  N/A  N/A  N/A  N/A  N/A  N/			d Data w	ithin 2	20% of	f the effic	iency from	n	"AF" in	the AL E	fficiency fi	elds me	ans to refe	r to the A	.F
If the As Found data (even after-repair) is within, 10% of the last calibration and the B-Axtalk is <1% and the A-Bxtalk is <10%, then the technician may N/A the Plateau Data and go directly to Comments. 'Geometry of source' = flush to surface, except gas proportional probes = 1/6" from surface unless otherwise specified.'  PLATEAU DATA  Source 1: Tc-99  Response (CPM)  Response (CPM)  Net A to B  High Voltage  A ch. B ch. Net Eff. A ch. B ch. Net Eff. A ch. B ch. N/A  N/A  N/A  N/A  N/A  N/A  N/A  N/A									Efficien	cies in th	e AS FOU	ND DAT	A Section		
If the As Found data (even after-repair) is wilthin, 10% of the last calibration and the B-A-Xtalk is <10%, then the technician may N/A the Plateau Data and go directly to Comments. Geometry of source = flush to surface; except gas proportional probes = 1/8" from surface unless otherwise specified.  PLATEAU DATA  Source 1: Tc-99  Response (CPM)  Response (CPM)  Response (CPM)  Response (CPM)  N/A  N/A  N/A  N/A  N/A  N/A  N/A  N/	Reproducib	oility: Is	otope:	Sr-	90 3	470 34°	12 3427	Average:	3436.3	Are the	individua	il counts	within 10	% of the a	verage?
PLATEAU DATA	If the As Fo	und data (ev	en after reg	pair) is w	ithin 109	% of the last	calibration and	the B-A Xtalk is	<1% and the A-I	3 Xtalk is <1	0%, then the to	echnician m	ay N/A the Pla	teau Data and	go directly to.
Response (CPM)   Response (CPM)   Background (CPM)   Net A to B		*****************								inerwise spe	Cilieu.				
High Voltage   A ch.   B ch.   Net Eff.   A ch.   B ch.   Net Eff.   A ch.   B ch.   Xtalk: <10%   N/A   N	<u> </u>	<u> </u>	DAIA	i						Bad	karound (	(CPM)	Nat A to	Б	
Pu-239 Tc-99 Th-230 SrY-90  2 Pi Efficiencies: 43.65% 31.22% 40.07% 50.42%  Comments: Married as a set with: Model: 2360 Serial #: 184947 Bar Code #:		H	igh Volta	age	A ch.	B ch.	Net Eff.	A ch.	3 ch. Net E						
Pu-239 Tc-99 Th-230 SrY-90  2 Pi Efficiencies: 43.65% 31.22% 40.07% 50.42%  Comments: Married as a set with: Model: 2360 Serial #: 184947 Bar Code #:		1	N/A										N/A		
Pu-239 Tc-99 Th-230 SrY-90  2 Pi Efficiencies: 43.65% 31:22% 40:07% 50.42%  Comments: Married as a set with: Model: 2360 Serial #: 184947 Bar Code #:		ļ		_  _								ł	N/A		
Pu-239 Tc-99 Th-230 SrY-90  2 Pi Efficiencies: 43.65% 31.22% 40.07% 50.42%  Comments: Married as a set with: Model: 2360 Serial #: 184947 Bar Code #:		, 		, †   ;		<u> </u>	,		1				N/A		
Pu-239 Tc-99 Th-230 SrY-90  2 Pi Efficiencies: 43.65% 31.22% 40.07% 50.42%  Comments: Married as a set with: Model: 2360 Serial #: 184947 Bar Code #:						·						.,	N/A		
Pu-239 Tc-99 Th-230 SrY-90  2 Pi Efficiencies: 43.65% 31.22% 40.07% 50.42%  Comments: Married as a set with: Model: 2360 Serial #: 184947 Bar Code #:		1_		_   -		1	ļ						N/A		
2 Pi Efficiencies:         43.65%         31.22%         40.07%         50.42%           Comments:         Married as a set with:         Model: 2360         Serial #: 184947         Bar Code #:		<u> </u>		! L		<u> </u>	1						N/A		
Comments: Married as a set with: Model: 2360 Serial #: 184947 Bar Code #:												, ,	<u>Th-230</u>	<u>s</u>	<u>rY-90</u>
	C		· · · · · · · · · · · · · · · · · · ·				of Effic	iencies:	43.65	<b>%</b> ;	31.22%		40.07%	5	0.42%
	Comme	ents:	Married	as a s	et wit	h: Mo	del: 2360	)	Serial #	: 184947	,		Bar Co	ode #:	
Does Instrument Meet Final Accentance Criteria?								7							
	•	<b>√</b> n	loes Inst	rumei	nt Mea	et Final ∆	ccentance	- Criteria?		V Calib	ration Sti-	kor A++-	chod?		

All instrumentation is calibrated in accordance with the QAP to meet the criteria of ANSI N323AB-2013 

**Date Instrument is Due For Next Calibration:** 

✓ Calibration Sticker Attached?

10/14/23