EG&G ROCKY FLATS

USWA

JOINT COMPANY-UNION SAFETY COMMITTEE

January 27, 1995

To: [redacted]
HPI
Building 123
Ext. [redacted]

From: C.W. Buchholz / D.D. Melton
Joint Company/Union Safety Comm.
Building T690G / Building T452B
Ext. 5801 / Ext. 5130

SUBJECT: RESOLUTION OF SAFETY CONCERN 94-058

In response to your safety concern involving, CALIBRATING AND PROCEDURE ISSUES WITH LUDLUM 12-1A, an investigation has been conducted.

A meeting was held to discuss the subject safety concern. R.L. Kennard, Health Physics Instrumentation, recommended three actions to achieve consistency calibrating the LUDLUM Model 12-1A. The JCUSC concurs with these recommendations.

- To determine the reference value from the attached check source and mark each instrument with the identified value.
- Label each instrument with the efficiency of the probe used during calibration.
- A Document Modification Request (DMR), 94-DMR-000893, was written to ROI 6.01/Rev.2 to identify the instruments used for uranium surveys.

Based on the actions described herein, the JCUSC considers this safety concern resolved. Closure will take place pending verification of agreed to corrective actions.

Changes to this agreement cannot be made without concurrence by the JCUSC. If you have additional problems with this concern, the resolution, or the implementation of the corrective action, please contact the JCUSC. Thank you for participating in the safety concern process.

C.W. Buchholz
Union Safety Representative

D.D. Melton
Company Safety Representative

cc:
D.K. Balmer
R.L. Kennard
J.D. Rivera
B.J. Markoff
W.H. Tyree
S.R. Worthington
T.J. Tegeler
E.I. Tietenberg
PATS

EG&G ROCKY FLATS

USWA

JOINT COMPANY - UNION SAFETY COMMITTEE

March 10, 1994

TO: [redacted]
HPI
Building 123
Ext. [redacted]

FROM: E. I. Tietenberg / T. J. Tegeler
Joint Company/Union Safety Committee
Building T452B / Building T690G
Ext. 7620 / Ext. 5800

SUBJECT: ASSIGNMENT OF SAFETY CONCERN: 94-058
CALIBRATING & PROCEDURE ISSUES W/LUDLUM 12-1A

The Joint Company/Union Safety Committee (JCUSC) has received your safety concern and assigned the following investigators. They will contact you to discuss this concern.

Company Representative: D. D. Melton Phone: 5130

Union Representative: C. W. Buchholz Phone: 5801

cc:
C. W. Buchholz
J. R. Cable
W. D. Ewan
R. L. Kennard
D. D. Melton
S. R. Worthington
PATS

JOINT COMPANY/UNION SAFETY COMMITTEE CONCERN FORM

THIS FORM IS TO BE USED BY ALL EMPLOYEES ON PLANT SITE

Mail to: JCUSC, T-690G

(Please mail Blue Copy to JCUSC when the Concern is initiated)

Case No. 94.058

EMPLOYEE NAME [redacted] EMPLOYEE NUMBER [redacted]

DEPARTMENT HPL BLDG. 123 PHONE [redacted] SHIFT 1ST

SUPERVISOR (Print) STEVE WORTHINGTON SUPV. EXT. 2255

MANAGER REPORTING TO DIRECTOR (Print): ROBERT KENNARD MANAGER EXT. 4905

I have previously discussed this Concern with Supervision: X Yes ____ No.

Concern (briefly) (SEE Attached)

Recommendation (Optional)

[redacted] 03-01-94

Employee Signature Date Steward Signature **(If Applicable)** Date

Supervision Response (within 5 working days) (Please see attached)

Supervision Signature Steve R Worthington Date 3-3-94

Manager Reporting to Director M R Kennard Date 3-4-94

NOTE: TIMELINESS IN COMPLETING THIS FORM IS OF THE UTMOST IMPORTANCE.

____ I am satisfied with the results. X I am not satisfied.

Brief reason if not satisfied: EVALUATIONS AND POSSIBILITIES ARE NOT ADEQUATE SOLUTIONS TO THE ADDRESSED PROBLEMS THAT HAVE BEEN IN EXISTANCE FOR A PERIOD OF TIME - YOU AND OTHER SUPERVISIONS WERE NOTIFIED PRIOR TO FILLING OF THIS CONCERN.

Employee Signature [redacted] Date 03-04-94

JCUSC received Safety Concern on: 3/9/94

To be completed by the JCUSC Co-Chairperson(s)

Assigned to: Union: Buchholz Date 3-9-94

Company: D. Melton Date 3/9/94

Distribution: Safety Committee (White) (Completed Form)
Union Steward (Yellow)
Employee (Green)
Safety Committee (Blue) (When Concern Initiated)

RF-45500 (Rev. 10/90) Destroy Previous Issues

EG&G ROCKY FLATS

INTEROFFICE CORRESPONDENCE

DATE: March 4, 1994

TO: [redacted], Health Physics Instrumentation, Bldg. 123,X[redacted]

FROM: S.R. Worthington, Health Physics Instrumentation, Bldg. 123,X6568

SUBJECT: SUPERVISION RESPONSE TO SAFETY CONCERN -SRW-004-94

Supervision Response (within 5 working days)

I appreciate your concern in filing this Joint Company/Union Safety Committee Concern Form (JCSCCF). However, in the future, if you have any concerns, please give me the opportunity to resolve the problem internally.

The following are CORRECTIVE ACTIONS to be taken to resolve this safety concern.

1. Evaluate the possibility of replacing the Ludlum 12-1As and the Ludlum Model 31s with one instrument that will read both Alpha and Beta.

2. Evaluate the possibility of using one thickness of Mylar for both Black and Green faced Ludlum 12-1As.

3. Evaluate the need to change the Health Physics Instrumentation (HPI), Radiological Operating Instructions (ROI) to provide a better understanding of Uranium Instruments.

4. Evaluate the need to change the tolerance band on efficiency in HPI Procedures.

SRW:srg

cc:
R. L. Kennard
T. L. Vaughn

ROCKY FLATS
RADIOLOGICAL DEFICIENCY REPORT

RDR Number:
RWP Number:
Occurrence Reporting Number:

DATE: 2-25-94
TIME: 1325

LOCATION: (indicate all applicable locations)
Building 123 Room 133 Building ____ Room ____
Building ____ Room ____ Building ____ Room ____
Pad ____ Pad ____ Pad ____ Other ____

INDIVIDUALS INVOLVED: [ ] Unknown

Name	Employee No.	Org/Company	Job/Classification	Supervisor
[redacted]	[redacted]	EG&G Health Physics Instrumentation	Maintenance Technologist	Steve Worthington

DESCRIPTION OF EVENT: (Check all that apply. If none apply, check "other" and explain)

[ ] General Area Contamination
[ ] Personnel Contamination (Skin)
[ ] Company Clothing Contamination
[ ] Personal Clothing Contamination
[ ] Contamination in Uncontrolled Area
[ ] Spill Contributing to Area Contamination
[ ] Loss of Radioactive Sources
[ ] Improperly Marked Radioactive Material
[ ] Improper or Lacking Radiological Posting
[ ] ALARA Concerns
[ ] Exceeding Exposure Limits
[ ] Exceeding Exposure Administrative Limit
[ ] Procedure Violation/Inadequacy
[ ] Rad Work Permit Violation/Inadequacy
[ ] Positive SAAM Alarm w/o Respiratory Protection
[ ] Wound (confirmed positive)
[ ] Failure to Obtain/Adhere to Pre-evolution
[ ] Poor Housekeeping in Controlled Area
[ ] Misuse of Respiratory System
[ ] Radiological Posting Violation
[ ] Dosimeter Lost/Not Worn
[ ] Improper Use of Radiological Containment
[ ] Improper Disposal of Rad Waste
[ ] Improper Wearing of Anti-C Clothing
[ ] Improper Frisking of Personnel/Items
[ ] Potential/Confirmed Inhalation Ingestion
[ ] Loss of Containment/Control
[X] Other RI2000 Calibration of the Ludlum Model 12-1A count Rate Meter with Air Proportional Probe.

DESCRIPTION OF DEFICIENCY: INCLUDE DOCUMENTATION - RWPs, SURVEYS, AIR SAMPLES RESULTS, ETC.
ANSWER WHO, WHAT, WHEN, WHERE, WHY, AND HOW
(use additional pages as necessary)

2. 12-1A Count Rate Meter Probe Efficiencies
3. 12-1A Count Rate Meters used with special use probes.
4. ROI and RI Procedures dealing with count rate meters.

Please see attached.

IMMEDIATE CORRECTIVE ACTION: [redacted]

ORIGINATOR: EMPLOYEE # [redacted] DATE: 2-25-94 TIME: 1330

REVIEWED: RAD OPS FOREMAN DATE: EMPLOYEE # TIME:

DOE 5000.3A, CATEGORIZATION: [ ] Emergency [ ] Unusual Occurrence [ ] Off Normal [ ] Internally Reportable
OPS Manager: (if applicable) DATE:
EMPLOYEE # TIME:

RESPONSIBLE MANAGER: MANAGER RESPONSIBLE FOR CORRECTIVE ACTION: TARGET DATE:

RADIOLOGICAL BUILDING ENGINEER DATE:
NAME: TIME:

RESPONSIBLE MANAGER: ACTIONS TAKEN INCLUDING THOSE TO PREVENT RECURRENCE:
(use additional pages as necessary)

I HAVE CORRECTED THIS RDR AND RECOMMEND CLOSEOUT. DATE:
RESPONSIBLE MANAGER: EMPLOYEE #:

RBE

STATUS: [ ] Satisfactory [ ] Unsatisfactory [ ] Redirected NAME:
CONCURRENCE: EMPLOYEE #: DATE:
APPARENT CAUSE CATEGORY: [ ] Procedures [ ] Communications [ ] Equipment [ ] Training [ ] Personnel
[ ] Management Systems [ ] Planning [ ] Other ____

THIS RDR APPEARS TO HAVE BEEN ADEQUATELY ADDRESSED, REQUIRES NO FURTHER ACTION, AND IS CLOSED.
RBE MANAGER: DATE:

2/23/94

The efficiency of the probes used with the Ludlum 12-1A Alpha Count Rate meters has caused wide variances of response on the rate meter drive.

One example is when a Ludlum 12-1A (count rate meter #97563) was submitted for calibration on 1-15-93 as a new instrument. It was calibrated with probe #8412587. Approximately one year later the instrument was returned for calibration (due cal.) with probe #84-1-9496 attached.

As the calibration technologist I found no problem with the high voltage or instrument sensitivity measurements per the electronic portion of RI2000 Procedure. When I got to the as found source portion with probe #84-1-9496 attached to instrument #97563 as it arrived at Bldg. 123 for recalibration I found the internal ±10% linearity portion to be outside the standard limits. Also, the final reproduction specfications were exceeded on three of 4 final range measurements.

As I understand, the purpose of calibration is to ensure all measurements taken with the Ludlum Count Rate Meter are within ±20% of the standard. Most 12-1A Count Rate Meters returned for calibration from plutonium operations or used to measure plutonium with the same probe attached as when they were last calibrated meet the requirements RI2000 with no adjustments required for calibration.

I found probes in the field to vary in efficiency's from 6.4% (probe #8413765, 8/18/93) to 8% (probe #8414144, 10/20/92). Variances like this cause the Count Rate Meter to drive meter readings to differences of greater than 20% of the calibration standard for which the 12-1A was set for at calibration. With such probe variances Ludlum 12-1A's are found to be over ±20% of what the standard states.

Employing the above probes, I ran a comparison. Using the probe with the 6.4% efficiency, I adjusted the rate meter to the 2π value of the standard. Then I ran the 8% probe. The results are as follows.

	6.4% Probe #8413765	8% Probe #8414144	
X1K Range	586070 cpm	720000 cpm	=22%
X100 Range	60230 cpm	73000 cpm	=21%
X10 Range	6655 cpm	8200 cpm	=23%
X1 Range	410 cpm	500 cpm	=22%

The ROI Radiological Operational Instructional manual allows for changing of Probes and Performance testing of the changed probe before use in the field of the changed probe.

Considering this problem of which I have attempted to describe, the amount of probe changes & rework that probe & cable

receive and the following problems I feel something in the system is not working well and deserves some looking into.

The ROI does not address the fact that Rocky Flats has 12-1A count rate meters employed in both the plutonium and uranium areas of the plant. These Ludlum 12-1 count rate meters each in their prospective areas use meters identified for use by different color meter faces -ie: green or black. Thinner mylar probes are identified by special markings on the efficiency labels and the screens are identified by a red marking.

Personnel transferred from the plutonium side of the plant to the uranium side of the plant take their instruments with the & vice-versa. This produces false readings right away.

Recently, Ludlum 12-1A Count Rate Meter, SN #73250 (Probe #8417092)was submitted for calibration with an accompanying equipment repair tag that stated this 12-1A count rate meter is (1) over due cal. and (2) has the wrong probe for the instrument. This 12-1A was submitted to Bldg. 123 for calibration from Bldg. 444. From my understanding, Bldg. 444 is a uranium building.

Probe #8417092 is known as a special probe. The efficiency tag is identified with an S on the label. The screen is marked with red markings. This probe's efficiency is of a higher value. meaning, the mylar is thinner than what is employed in non-uranium areas of the plant. The purpose of a thinner mylar allows for increased sensitivity to permit ~~and~~ increased drive to the rate meter.

The reason this meter has the wrong probe attached to it is that Building 444 has meters identified by a green meter face and this meter (SN #73250) has a black meter face indicating it's use in the non-uranium areas.

Radiation Instrumentation procedure RI2000 does not address any such requirements nor does any RI procedure that I know of. The ROI procedure does not address the special probe situation either.

Most of the problems I have addressed here are not in any ROI or RI procedures, but was obtained by word of mouth.

I am available to assist any way I can for more information or clarity.

[redacted]

HEALTH PHYSICS INSTRUMENTATION EQUIPMENT DISCREPANCY REPORT

User/Organization: 750 PAD
HPI Technician: [redacted] Date/Time: _____
Instrument Serial No.: 97363 Shop Location: _____
Unit Description: 12-1A ALPHA COUNT RATE METER Instrument Cal Date: _____

✓ The instrument fails "as found" check.

___ The instrument fails a Performance Check.

___ The instrument is out of Cal., due date was _____

✓ The instrument fails a Pre-Calibration Performance Check.

AS FOUND ERROR	NORMAL TOLERANCE
_____	_____

Remarks:
PROBE IS DIFFERENT THAN WHAT HISTORICAL RECORD of 1-15-93 INDICATES 84 12587
ALL AS FOUND RANGES HAD READINGS THAT WERE > (GREATER THAN 20%) of MEAN READINGS

User Notified Time/Date _____

RI Supervision, Time/Date _____

Comments:

Disposition:

User Signature, Time/Date _____

Page 1 of 2

HPI

RF-47200 (Rev 6/92) **EQUIPMENT REPAIR TAG** ☆U.S. GPO:1992–676-502

Type/Model: 12-1A Serial # 97563

Bldg: 750 PAD User: Bailey

Date: 1-28-94 Ext./Pager: 8019

Symptoms of Malfuncton:

Cal Due

Unit Free of Contamination by: [signature]

Supervisor: Bob Davis Phone: X5677 Date: 1-25-94

Failure Code:

Corrective Action: PROBE WAS CHANGED SINCE LAST WAS CALIBRATED. ALL AS FOUND READINGS WERE OUT OF TOLERANCE. READJUSTED ALL RANGE TO SPECS.
RECALIBRATED 12-1A

Completed by [redacted] 2-23-94 Date

Historical Record updated by: [redacted]

Awaiting Parts:

B 32951

HPI-20001

ATTACHMENT 9.2

CALIBRATION DATA SHEET

INSTRUMENT MODEL: Ludlum Model 12-1A with Air Proportional Probe CAL START TIME: 7:46
LAST CAL DATE: 1-15-93 MFG SERIAL NO.: 97563
CAL DATE: 2-23-94 CAL FREQ: ~~1 year~~ 6 mos NEXT CAL DUE DATE: 8-94
ALL LIN's COMPLETED: YES (Y/N)

TEST EQUIPMENT DESCRIPTION	STD LAB NO	CAL DUE DATE	CSI SOURCE NO	DUE DATE	VALUE (DPM)
PULSER	92771	4-94	1) 603559	2-94	821
WATCH	85990	6-94	2) 603560		3310
NA	NA	NA	3) 603561		120 460
			4) 603562		117 214

PRECALIBRATION:

6.1.6 BATTERIES: CHECKED ✓ REPLACED ✓ (80 90) PASS: ✓ FAIL: ___

6.1.11 ZERO CHECK ✓ Zero Drift ≤ 1/2 of a minor division PASS: ✓ FAIL: ___

6.1.13 GEOTROPISM CHECK Needle movement ≤ 1 minor division PASS: ✓ FAIL: ___

6.4.4.14 ENVIRONMENT: Temp: 76.4 Humidity: 14.8 Baro Pres: 608.0

6.4.4.15 Probe Serial Number: 84 1 9496

REPRODUCIBILITY TEST

6.2.4 Reading 1) 76000
Reading 2) 75000
Reading 3) 75000

6.2.7 AVG 75333

6.2.7 +10% 82966

6.2.8 -10% 67799

Acceptance Criteria reading 1, 2, & 3 are between ± 10% of Average Response PASS X FAIL ___

HIGH VOLTAGE:

6.3.3 Acceptance Criteria (1840 ± 10 VDC)
AS FOUND 1842 (VDC)
AS LEFT 1442 (VDC)
PASS X FAIL ___

SENSITIVITY:

Acceptance Criteria (2.75 ± .25 mV)

6.4.12 AUDIO CHECK (HEADPHONES) Able to hear pulses PASS X FAIL ___ PASS X FAIL ___

RESPONSE TIME:

6.5.6 Fast Response Time 4:41 4 ± 1 Sec PASS X FAIL ___

6.5.10 Slow Response Time 23:63 22 ± 4 Sec PASS X FAIL ___

JAN — TRFP CALIBRATION
CAL DATE 1-15-93 SERIAL NO. 97563
DUE DATE 1-94 SOURCE Pu-239
BY 514481 TOLERANCE ± 20%

LINEARITY:

6.6.4	As Found	1K Reading: 690 000	
6.6.7	As Left	1K Reading: 586 070 (2π value of source ±10 %)	PASS ✓ FAIL ____
6.6.10	As Found	100 Reading: 90 000	
6.6.13	As Left	100 Reading: 60230 (2π value of source ±10 %)	PASS ✓ FAIL ____
6.6.17	As Found	10 Reading: 8500	
6.6.20	As Left	10 Reading: 6655 (2π value of source ±10 %)	PASS ✓ FAIL ____
6.6.30	As Found	1 Reading: 700	
6.6.321	As Left	1 Reading: 500 (500 ±50)	PASS ✓ FAIL ____
6.6.34		Meter Reading: 250 (250 ± 25)	PASS ✓ FAIL ____
6.6.36		Meter Reading: 750 (750 ±75)	PASS ✓ FAIL ____
6.6.40		Meter Reading: 250 (250 ± 25)	PASS ✓ FAIL ____
6.6.42		Meter Reading: 750 (750 ±75)	PASS ✓ FAIL ____
6.6.46		Meter Reading: 250 (250 ± 25)	PASS ✓ FAIL ____
6.6.48		Meter Reading: 750 (750 ±75)	PASS ✓ FAIL ____
6.6.52		Meter Reading: 250 (250 ± 25)	PASS ✓ FAIL ____
6.6.54		Meter Reading: 750 (750 ±75)	PASS ✓ FAIL ____
6.6.59	As Found	Meter Reading: 425	
6.6.61	As Left	Meter Reading: 410 (2π value of source ±10 %)	PASS ✓ FAIL ____

REPRODUCIBILITY TEST

6.7.4	Reading 1) 60000	
	Reading 2) 60000	
	Reading 3) 60000	
6.7.7	AVG 60000	
6.7.7	+10% 66000	Acceptance Criteria reading 1, 2, & 3 are between ± 10% of Average Response
6.7.8	-10% 54000	PASS X FAIL ____

COMMENTS: PROBE CHANGED SINCE LAST CAL. - All AS FOUND READINGS OUT OF TOLERANCE. SINCE LAST CAL, All Adj. TO SPECS WHEN CALIBRATED PROBE # 1-1543 - 84 12587

CAL SAT: YES X NO ____ CAL STOP TIME: 1227

CAL BY: HERBERT J. WEINERT Herbert J. Weinert DATE: 2-23-94

Print Signature

SUPERVISOR REVIEW: _____ DATE: _____

Signature

QA REVIEW (OPTIONAL): _____ DATE: _____

Signature

EQUIPMENT HISTORICAL RECORD
Radiation Instrumentation

NOMENCLATURE: Count rate meter
MANUFACTURE: Ludlum
CALIBRATION INTERVAL: ~~1 year~~ 6 mos

TYPE/MODE: 12-1A
INITIAL ACCEPTANCE DATE: 1-15-93
CALIBRATION REQMTS: RI-20cc

SERIAL #: 97563
BUILDING: 730 PAD

DATE	DESCRIPTION OF WORK	ACTIVITY PERFORMED	PARTS USED	EMP. #
1-15-93	Acceptance test	calcl replaced C163	.01uF cap	514481
3-23-94	DOE CAL	RECALIBRATED	- - - - - -	510547

Type/Model: [illegible] Serial #: 47503

Building: _____ User/Tech: _____

Date: 11.13.92 Org: _____

Symptoms of Malfunction:

Fluctuating H.V.

Acceptance Cal

DATA ENTERED

Unit Free of Contamination By: _____

Supervisor: _____ Phone: _____ Date: _____

Corrective Action: (If AWP-list Parts Below)

Modified H.V. per Ludlum

.001 → .01 uF Cap.

C02/12-1A

514481 1-15-93

~~E. Hathcoth~~ (518556) 11.13.92

Completed by: (Emp. #) Date

Awaiting Parts:

	Part#	Noun	Qty	ORDER Date	By
1					
2					
3					

Supervisors Review: _____ Date: _____

R 10456

ATTACHMENT 9.2

CALIBRATION DATA SHEET

DATA ENTERED

INSTRUMENT MODEL: Ludlum Model 12-1A with Air Proportional Probe CAL START TIME: 0900
LAST CAL DATE: New MFG SERIAL NO.: 97563
CAL DATE: 1-15-93 CAL FREQ: 1 year NEXT CAL DUE DATE: 1-94
ALL LIN's COMPLETED: yes (Y/N)

TEST EQUIPMENT DESCRIPTION	STD LAB NO.	CAL DUE DATE	CSI SOURCE NO.	DUE DATE	VALUE (DPM)
Pulser	RF91292	3/93	1) 603547	10/93	1100
Stopwatch	RF85990	6/93	2) 603548	10/93	13190
			3) 603549	10/93	12.3000
			4) 603550	10/93	121000

PRECALIBRATION:

6.1.6 BATTERIES: CHECKED X REPLACED ____ PASS: X FAIL: ____

6.1.11 ZERO CHECK Ø Zero Drift ≤ 1/2 of a minor division PASS: X FAIL: ____

6.1.13 GEOTROPISM CHECK Needle movement ≤ 1 minor division PASS: X FAIL: ____

6.4.4.14 ENVIRONMENT: Temp: 84.7°F Humidity: 13.4% Baro Pres: 608.4 mm Hg

6.4.4.15 Probe Serial Number: 84 12587

REPRODUCIBILITY TEST

6.2.4 Reading 1) N/A
Reading 2) N/A
Reading 3) N/A
6.2.7 AVG N/A
6.2.7 +10% N/A
6.2.8 -10% N/A

Acceptance Criteria reading 1, 2, & 3 are between ± 10% of Average Response
PASS N/A FAIL N/A

HIGH VOLTAGE:
6.3.3 Acceptance Criteria (1840 ± 10 VDC)
AS FOUND N/A (VDC)
AS LEFT 1840 (VDC)
PASS X FAIL ____

SENSITIVITY:
6.4.12 AUDIO CHECK (HEADPHONES) Acceptance Criteria (2.75 ± .25 mV) Able to hear pulses PASS X FAIL ____
PASS X FAIL ____

RESPONSE TIME:
6.5.6 Fast Response Time 2.77 4 ± 1 Sec PASS X FAIL ____
6.5.10 Slow Response Time 18.35 22 ± 4 Sec PASS X FAIL ____

LINEARITY:

6.6.4	As Found	1K Reading: N/A		
6.6.7	As Left	1K Reading: 60K (2π value of source ±10 %)	PASS X	FAIL ____
6.6.10	As Found	100 Reading: N/A		
6.6.13	As Left	100 Reading: 62500 (2π value of source ±10 %)	PASS X	FAIL ____
6.6.17	As Found	10 Reading: N/A		
6.6.20	As Left	10 Reading: 6500 (2π value of source ±10 %)	PASS X	FAIL ____
6.6.30	As Found	1 Reading: N/A		
6.6.321	As Left	1 Reading: 500 (500 ±50)	PASS X	FAIL ____
6.6.34		Meter Reading: 250 (250 ± 25)	PASS X	FAIL ____
6.6.36		Meter Reading: 750 (750 ±75)	PASS X	FAIL ____
6.6.40		Meter Reading: 250 (250 ± 25)	PASS X	FAIL ____
6.6.42		Meter Reading: 750 (750 ±75)	PASS X	FAIL ____
6.6.46		Meter Reading: 250 (250 ± 25)	PASS X	FAIL ____
6.6.48		Meter Reading: 750 (750 ±75)	PASS X	FAIL ____
6.6.52		Meter Reading: 250 (250 ± 25)	PASS X	FAIL ____
6.6.54		Meter Reading: 750 (750 ±75)	PASS X	FAIL ____
6.6.59	As Found	Meter Reading: N/A		
6.6.61	As Left	Meter Reading: 550 (2π value of source ±10 %)	PASS X	FAIL ____

REPRODUCIBILITY TEST

6.7.4	Reading 1) 62500	
	Reading 2) 62500	
	Reading 3) 62500	
6.7.7	AVG 62500	
6.7.7	+10% 68750	Acceptance Criteria reading 1, 2, & 3 are between ± 10% of Average Response
6.7.8	-10% 56250	PASS X FAIL ____

COMMENTS: Post cal. Temp 85.4°F Humidity 13.2% Pressure 603.8 mm Hg
CO2/12-1A

CAL SAT: YES X NO ____ CAL STOP TIME: 0945

CAL BY: Richard DePietro Print — Richard DePietro Signature — DATE: 1-15-93

SUPERVISOR REVIEW: ____ Signature — DATE: 1-19-93

QA REVIEW (OPTIONAL): ____ Signature — DATE: ____

HPI

3F-47200 (Rev 6/92) **EQUIPMENT REPAIR TAG** ☆U.S. GPO:1992-676-502

Type/Model: 12-1A Serial # 73250

Building: 4444 User:

Date: 2-10-94 Ext./Pager:

Symptoms of Malfuncton:

Over Due Cal
wrong probe for instr.

Unit Free of Contamination by: Doris Brewer

Supervisor: Bob Davis Phone: 5677 Date: 2-10-94

Failure Code:

Corrective Action: ATTACHED PROBE HOLDER HJW

Completed by: _____ _____
Signature & Employee Number Date

Historical Record updated by: _____

Awaiting Parts:

B 32972

HPI-20001

HEALTH PHYSICS INSTRUMENTATION
EQUIPMENT DISCREPANCY REPORT

User/Organization: 444
HPI Technician: [redacted] Date/Time: 2-23-94 1354
Instrument Serial No.: 73330 Shop Location: 23
Unit Description: LUDLUM 12-1A COUNT RATE METER Instrument Cal Date:

___ The instrument fails "as found" check.

___ The instrument fails a Performance Check.

___ The instrument is out of Cal., due date was _____

___ The instrument fails a Pre-Calibration Performance Check.

AS FOUND ERROR	NORMAL TOLERANCE
___	___

Remarks: ATTACHED PROBE HOLDER. H/W (ATTACHED REVISION LABBLE)
PROBE ON 1-11-93 ATTACHED TO 12-1A WAS
84 11 3053 WHEN SUMMITTED FOR CAL ON 2-10-94
PROBE # 841-7092 WAS ATTACHED TO INSTRUMENT.
FOUND HOLE IN PROBE - NOT SCREEN WHICH WAS
FOUND WITH FACE DOWN RED MARKED SCREEN DOES NOT
GO WITH BLACK FACED INST.

T ON HOLD
K. HOWE

User Notified Time/Date _____

RI Supervision, Time/Date _____

Comments:

Disposition:

User Signature, Time/Date _____

Page 1 of 2

EQUIPMENT HISTORICAL RECORD
Radiation Instrumentation

NOMENCLATURE: COUNT RATEMETER
MANUFACTURE: LUDLUM
CALIBRATION INTERVAL: 1YR.
TYPE/MODE: 12-1A
INITIAL ACCEPTANCE DATE: 4-14-90
CALIBRATION REQMTS: RI-2000
SERIAL #: 73250
BUILDING: 123

DATE	DESCRIPTION OF WORK	ACTIVITY PERFORMED	PARTS USED	EMP. #
4-14-90	ACCEPTANCE TEST.	INITIAL CAL, INSTALLED SADDLE.	1SADDLE.	514909
4-19-90	Temporarily assigned to Bldg. 4/4/4	for training	PROBE HOLDER	
1/11/93	Due cal	calibration	N/a	517971

EG&G ROCKY FLATS

USWA

JOINT COMPANY-UNION SAFETY COMMITTEE

Date: March 15, 1994

To: Distribution

From: C. W. Buchholz, Joint Company/Union Safety Committee, Building T690G, Ext. 5801
D. D. Melton, Joint Company/Union Safety Committee, Building T881B, Ext.5130

SUBJECT: REQUEST FOR PARTICIPATION IN SAFETY CONCERN PROCESS: 94-058

[redacted] has filed a safety concern with the Joint Company/Union Safety Committee (JCUSC). The responsibility for resolving safety concerns lies with line management.

The JCUSC requests participation from you or your designated representative in resolving this safety concern. **Please bring all documentation that you have in regards to this issue to this meeting.** The meeting to determine a course of action for this concern has been set for the following:

Date: **March 29, 1994**

Time: **09:00 AM**

Location: **T690G Conference Room**

Please contact C.W.Buchholz or D.D.Melton to confirm your attendance at this meeting.

The JCUSC appreciates your participation in the safety concern process.

DISTRIBUTION:
[redacted]
R.L. Kennard
J.D. Rivera
T.L. Vaughn
S.R. Worthington

ADD
W. TYREE

CONCERN NUMBER 94-058

BRIEF DESCRIPTION Procedures and Calibration of Ludlum 13-1A

DATE ~~[illegible]~~ 5-16-94

MEETING PLACE T690G

JOINT COMPANY UNION SAFETY COMMITTEE REPS. C. Buchholz

D. D. Melton

ATTENDANCE LIST

NAME	GROUP	BLDG.	PHONE	PAGE
DK Belmer	RDE	441	2670	0646
RL Kennard	HPI	720	4905	7001
J.D. Rivera	L/HS	T-690-C	2177	1636
W.H. Tyree	HPI	123	7777	0896
R. Worthington	HPI	123	6568	7007

091901SC.r

EG&G ROCKY FLATS

USWA

JOINT COMPANY - UNION SAFETY COMMITTEE

DATE: _____

TO: _____ FROM: _____

_____ _____

Bldg. _____ Bldg. _____ \ Bldg. _____

Ext. _____ Ext. _____ \ Ext. _____

SUBJECT: RESOLUTION OF SAFETY CONCERN:

TITLE _____ BLDG. _____

The Joint Company/Union Safety Committee (JCUSC) has investigated the subject safety concern, and the results of this investigation are as follows:

(Describe actions taken to resolve concern) _____

_____

_____

_____

_____

_____

Based on the actions described herein, the JCUSC considers this safety concern resolved. Closure will take place pending verification of agreed to corrective actions.

Changes to this agreement cannot be made without concurrence by the JCUSC. If you have additional problems with this concern, the resolution, or the implementation of the corrective actions, please contact the JCUSC. Thank you for participating in the safety concern process.

_____ _____

Company Safety Representative Union Safety Representative

cc:

T. J. Tegeler
E. I. Tietenberg

CAL. WAS 25% off / TOLERANCE 6.4% – 8%

difference is = 22% / Uranium probe /

source board 20K + difference (TOP)

RCT's performace test instrument after changing probe / source Boards may be drifting / re-cert to verify / Probe with only 1% windows

Pu 6.5% – 7.5% U 8.5% 9.5%

training / add eff percentage that PROBE WAS calibrated will BE added TO CAL.

STRICKER / SOURCE Board ? / D. MR. /

DMR / R. [redacted]

R. KENNARD — 5-23-94 /

5-23-94 / S. R. Worthington

MORRISEY

EG&G ROCKY FLATS

USWA

JOINT COMPANY-UNION SAFETY COMMITTEE

Date: May 5, 1994

To: Distribution

From: C.W. Buchholz, Joint Company/Union Safety Committee, Building T690G, Ext. 5801
D. D. Melton, Joint Company/Union Safety Committee, Building T881B, Ext.5130

SUBJECT: REQUEST FOR PARTICIPATION IN SAFETY CONCERN PROCESS: 94-058

[redacted] has filed a safety concern with the Joint Company/Union Safety Committee (JCUSC). The responsibility for resolving safety concerns lies with line management.

The JCUSC requests participation from you or your designated representative in resolving this safety concern. **Please bring all documentation that you have in regards to this issue to this meeting.** The meeting to determine a course of action for this concern has been set for the following:

Date: May 16, 1994

Time: 09:00 AM

Location: T690G Conference Room

Please contact C.W.Buchholz or D.D.Melton to confirm your attendance at this meeting.

The JCUSC appreciates your participation in the safety concern process.

DISTRIBUTION:
A.J. Asti
H.J. Weinert
R.L. Kennard
J.D. Rivera
T.H. Tyree
T.L. Vaughn
S.R. Worthington

6. INSTRUCTIONS - CALIBRATION OF LUDLUM MODEL 12-1A

6.1 Pre-calibration

Health Physics Instrumentation Technician

[1] Verify and document on Appendix 1, Calibration Data Sheet, hereinafter called the "Data Sheet", that all prerequisites in Section 5 are complete.

[2] Enter the Calibration Start Time/Date, Manufacturer's Serial Number, Calibration Frequency, Previous Calibration Date, Current Calibration Date, and Next Calibration Due Date on the Calibration Data Sheet.

[3] Verify all Logic Improvement Notices (LIN) have been completed per 4-61200-HPI-0008, Logic Improvement System Users Guide and document on the Calibration Data Sheet.

[4] **IF** all LINs have not been completed,
THEN submit instrument for LIN installation.

[5] Record the Test Equipment Description, Chemical Standards Lab (CSL) Number, and Calibration Due Date on the Data Sheet for each piece of calibrated test equipment used (see Section 5).

[6] Record the CSL Source Serial numbers, the Source Calibration Due Dates, and the CSL Source Values in dpm for each source on the Data Sheet.

NOTE *Ludlum Model 12-1A instruments with the green meter faces are for use in uranium areas only. These instruments require special uranium probes which are distinguished by the words "~~SPECIAL~~ URANIUM USE ONLY" in Green INK. on the Efficiency Tag and ~~green markings~~ Stamped on the screen." Report any out-of-compliance instruments to Health Physics Instrumentation supervision.*

[7] Visually inspect instrument, cable, probe, mylar and screen holder for obvious damage before calibration is sta

5/13/94

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1

To Steve Worthington	From Bob Stevens
Co. x6568	Co. X 7219
Dept. Rad. Instr.	Phone # Rad Eng.
Fax # 3954	Fax # 8459

5/13/94

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 2
To Steve Worthington	From Bob Stevens
Co. x6568	Co. X 7219
Dept. Rad. Instr.	Phone # Rad Eng.
Fax # 2954	Fax # 8459

6.0 INSTRUCTION

6.1 Precalibration

6.1.1 Obtain a copy of the Calibration Data Sheet (see Attachment 9.2). Enter the Manufacturer's Serial Number on the Calibration Data Sheet. Verify all LINS have been completed and document on the Calibration Data Sheet. If not submit instrument for LIN installation.

6.1.2 Enter the current Calibration Date, Previous Calibration Date, Start Time, and the Next Calibration Due Date on the Calibration Data Sheet.

6.1.3 Record the Test Equipment description, Chemical Standards Lab (CSL) number, and calibration due date on the Calibration Data Sheet for each piece of calibrated test equipment used. Verify the current calibration for each item.

6.1.4 Record the Calibration Source serial numbers, the source calibration due dates, and the CSL Standard Source Values in DPM for each source on the Calibration Data Sheet. Verify the current calibration for each source.

6.1.5 Visually inspect the instrument, cable, and probe for damage. Closely inspect for mylar damage or a bent screen holder. If the screen holder is damaged, replace the screen holder with a standard shop screen holder during calibration.

NOTE

Ludlum Model 12-1A instruments with the green meter faces are for use in uranium areas only. These instruments require special uranium probes which are distinguished by the words "SPECIAL URANIUM USE ONLY" on the Efficiency Tag and green markings on the screen. Report any out-of-compliance instruments to Health Physics Instrumentation supervision.

6.1.6 Place the range selector switch in the BAT position. The meter should deflect into the Bat. Test range. Replace batteries as necessary. Document satisfactory battery test on the Calibration Data Sheet.

6.1.7 Place the instrument range selector switch in the OFF position.

6.1.8 Remove the old Calibration Tag from the Ludlum 12-1A.

6.1.9 If necessary, adjust the meter mechanical zero for a meter reading of zero by adjusting the screw on the meter face. Minimize parallax errors by viewing from directly overhead. If meter cannot be adjusted, maintenance is required.

6.1.10 Place the range selector switch in the X10 position. Allow a warmup time of at least one minute.

6.1.11 Verify that zero drift does not cause the meter to indicate more than one half a minor division from zero. Document satisfactory zero check on the Calibration Data Sheet. Failure of the zero drift check requires maintenance.

6.1.12 Geotropism check is performed by holding the handle of the instrument at arm's length with the meter face in a vertical plane and rotating the instrument to the 90 degree, 180 degree, 270 degree, and 360 degree positions.

DRAFT

January 27, 1995

To: [redacted]
HPI
Building 123
Ext. [redacted]

From: C.W. Buchholz / D.D. Melton
Joint Company/Union Safety Comm.
Building T690G / Building T452B
Ext. 5801 / Ext. 3057

SUBJECT: RESOLUTION OF SAFETY CONCERN 94-058

In response to your safety concern involving, CALIBRATING AND PROCEDURE ISSUES WITH LUDLUM 12-1A, an investigation has been conducted.

A meeting was held to discuss the subject safety concern. R.L. Kennard, Health Physics Instrumentation, recommended three actions to achieve consistency calibrating the LUDLUM Model 12-1A. The JCUSC concurs with these recommendations.

- To determine the reference value from the attached check source and mark each instrument with the identified value.
- Label each instrument with the efficiency of the probe used during calibration.
- A Document Modification Request (DMR), 94-DMR-000893, was written to ROI 6.01/Rev.2 to identify the instruments used for uranium surveys.

Based on the actions described herein, the JCUSC considers this safety concern resolved. Closure will take place pending verification of agreed to corrective actions.

Changes to this agreement cannot be made without concurrence by the JCUSC. If you have additional problems with this concern, the resolution, or the implementation of the corrective action, please contact the JCUSC. Thank you for participating in the safety concern process.

DRAFT

C.W. Buchholz
Union Safety Representative

D.D. Melton
Company Safety Representative

cc:
D.K. Balmer
R.L. Kennard
J.D. Rivera
B.J. Markoff
W.H. Tyree
S.R. Worthington
T.J. Tegeler
E.I. Tietenberg
PATS

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

May 26, 1994

94-RF-05936

Delmar D. Melton
Joint Company Union Safety Committee
Building T452B

RESOLUTION TO SAFETY CONCERN #94-058 - RLK-057-94

This letter is to confirm the acceptance of corrective actions to be taken by my organization to resolve this safety concern.

Action Number 1:	To determine the reference value from the attached check source and mark each instrument with the identified value.
Resolution:	This will be accomplished on each Ludlum 12-1A instrument during the next calibration.
Completion Date:	May 1, 1995
Action Number 2:	Label each instrument with the efficiency of the probe used during calibration.
Resolution:	This will be accomplished on each Ludlum 12-1A instrument during the next calibration.
Completion Date:	May 1, 1995

If you have any questions regarding this issue, please contact me at Extension 4905.

R. L. Kennard
Manager
Health Physics Instrumentation

cmk

FAX TRANSMITTAL MEMO	
May 13, 1994	3 page(s) total
To Steve Worthington	From Erik von Hortenau
Health Physics Instrumentation	Radiological Engineering
Building 123	Building T-690A
Fax: 2954	Fax: 8459
Phone: 7568	Phone: 8455

DOCUMENT MODIFICATION REQUEST (DMR)

Refer to 1-A01-PPG-001 for Processing Instructions.
Print or Type All Information (Except Signatures).

1. Date	26. DMR No.
April 5, 1994	94-DMR-000893

2. Existing Document Number/Revision	3. New Document Number or Document Number if it is to be changed with this revision
ROI 6.01 / Rev. 2	N/A
4. Originator's Name/Phone/Pager/Location	**5. Document Title**
G. C. Becker / X2255 / D1522 / 123	Performance Test and Operational Checks for Ludlum Models 12-1A and 31 Survey Instruments

6. Document Type: ☒ Procedure ☐ Other _____

7. Document Modification Type (Check only one): ☐ New ☐ Revision ☒ Intent Change ☐ Nonintent Change ☐ Editorial Correction ☐ Cancellation

8. Item	9. Page	10. Step	11. Proposed Modifications
1	3	5.3	Insert the following note: *NOTE: Ludlum Model 12-1A instruments with green meter faces are for use in uranium areas only. These instruments require special uranium probes which are distinguished by the words "URANIUM USE ONLY" stamped in green ink on the Efficiency Tag and on the screen.*
2	3	5.3	Insert the following new Step 5.3: *Notify Radiological Operations Foreman whenever finding a Ludlum Model 12-1A instrument or probe which is incorrect for the given area* and renumber remaining steps in Section 5 as required.

12. Justification (Reason for Modification, EJO #, TP #, etc.)

Change is required to answer Safety Concern 94-058 which resulted from finding uranium instruments with regular probes attached and regular instruments with special uranium probes attached.

If modification is for a new procedure or a revision, list concurring disciplines in Block 13, and enter N/A in Blocks 14 and 15. If modification is for any other type of change or a cancellation, organizations are listed in Block 13, and then Concurrer prints, and signs in Block 14, and dates in Block 15.

13. Organization	14. Print, Sign (if applicable)	15. Date (if applicable)
H&S AM	/s/ J. Kokot	4/11/94
Orig.	/s/ C. Becker	4/7/94
SQA	/s/ J. E. Hoff	4/13/94
SME	/s/ K. S. Kent	4/7/94
RO T&C	/s/ P. A. Dukart	5/4/94

16. Originator's Supervisor (print,sign,date): S. R. Worthington S. R. Worthington 5-5-94

17. Assigned SME/Phone/Pager/Location	18. Cost Center	19. Charge Number	20. Requested Completion Date	21. Effective Date
G. C. Becker / X2255 / D1522 / 123	0409	82403900	5-15-94	5-9-94

22. Accelerated Review? Yes ☒ No ☐

23. ORC Review: ORC review not required

24. Responsible Manager (print,sign,date): J. M. Wood JMW 5/5/94

REVIEWED FOR CLASSIFICATION/UCNI
BY _____

5.2 If Radiological Operations is informed by Health Physics Instrumentation (HPI, formerly Radiation Instrumentation - RI) that an instrument has failed calibration, The RP Foreman shall take the following actions:

5.2.1 Verify whether instrument was used since last satisfactory performance check. If not, provide appropriate remarks on HPI Equipment Discrepancy Report.

5.2.2 If instrument was used, review surveys in question from the suspect instrument and evaluate whether or not the data appears reasonable. If data appears reasonable, provide appropriate remarks on HPI Equipment Discrepancy Report.

5.2.3 If irregularities exist between historical data and data obtained, the RP Foreman shall resurvey all areas which may have questionable data, or justify actions, and initiate a RDR in accordance with ROI 10.01 (Reference 7.3).

NOTE

Ludlum Model 12-1A instruments with green meter faces are for use in uranium areas only. These instruments require special uranium probes which are distinguished by the words "URANIUM USE ONLY" stamped in green ink on the Efficiency Tag and on the screen.

5.3 Notify Radiological Operations Foreman whenever finding a Ludlum Model 12-1A instrument or probe which is incorrect for the given area.

5.4 Radiation Protection personnel are permitted to replace defective batteries in the Model 12-1A and Model 31 survey instruments. RPT personnel are also permitted to replace the probe and cable of the Model 12-1A and Model 31 survey instruments. All other instrument servicing shall be referred to Radiation Instrumentation.

5.5 Probe serial numbers and instrument serial numbers must be recorded on the Performance Test Logs.

5.6 All pen and ink changes to documents generated by this instruction shall be done in black ink. Inappropriate items shall be lined out and initialed.

6. INSTRUCTIONS

6.1 All Ludlum Model 12-1A and Model 31 survey instruments shall be performance tested daily while in use.

6.2 The calibration tag for each instrument to be used or tested shall be visually checked to ensure the due date of calibration has not expired.

6.3 A performance test shall be performed before each day of instrument use, following the operational use period, and following replacement of batteries.

6.3.1 A battery check shall be conducted before each intermittent use of an instrument. Set the Selector switch to the BATTERY position. If the batteries are satisfactory, the meter needle will come to rest over the region of the meter scale area marked BAT TEST.

- If BAT TEST indicates low batteries, replace the batteries, and repeat the above tests. If the test indicated the batteries are still low the instrument shall be tagged with RF-47200 (Attachment 9.3) and returned to Radiation Instrumentation.

- For the Model 12-1A High Voltage (HV) check (BAT TEST OK) the Selector switch shall be reset to the X1000 scale and the HV test button depressed. The meter shall read between 1.7 and 1.9 on the bottom