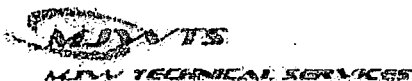


Appendix E  
Instrument Check Sheets

Appendix E –  
Instrument Check Sheets October



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No: 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No: PR 111127  
 Bicron MicroRem Meter: Serial No: A224U Cal. Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 115 Activity: <0.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: uCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RET Date: 10/8/12 Time: 0900

#### 4. Site or Location: Site/Job: 4.2

Location Description: WOODS

GPS Coordinates (when required): X-Coord: N 42° 32' 28.4" Y-Coord: W 78° 59' 51.1"

Instrument Field Response <sup>1</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time (MIN)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (MIN)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1	7856 cpm	1	20132 cpm	Y	Y	Y	0900	36.8	Th 232 SK
Ratemeter	1	7856 cpm	1	11370 cpm	Y	Y	Y	0900	36.8	Cs 137 SK
Ratemeter	1	7883 cpm	1	20382 cpm	Y	Y	Y	1230	42.9	Th 232 SK
Ratemeter	1	7883 cpm	1	11652 cpm	Y	Y	Y	1230	42.9	Cs 137 SK
Ratemeter	1	8174 cpm	1	20873 cpm	Y	Y	Y	15:35	46.0	Th 232 SK
Ratemeter	1	8174 cpm	1	11507 cpm	Y	Y	Y	15:35	46.0	Cs 137 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	0900	36.8	Th 232 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1230	42.9	Th 232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	15:35	46.0	Th 232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 2.0 uRem/hr -20% .14 net cpm +20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT Date: 10/9/15 Time: 0900

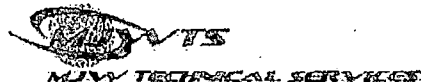
## 4. Site or Location: Site/Job: 4.1

Location Description: WOODS

GPS Coordinates (when required): X-Coord: N 42° 32' 28.2" Y-Coord: W 78° 59' 50.6"

Instrument Field Response						Use Acceptance Criteria				Remarks
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add info, Inst. Condition, etc.)
Ratemeter	1	8093 cpm	1	20300 cpm	Y	Y	Y	0900	39.8	Th232 SK
Ratemeter	1	8093 cpm	1	11502 cpm	Y	Y	Y	0900	39.8	Cs137 SK
Ratemeter	1	8076 cpm	1	20475 cpm	Y	Y	Y	1245	58.8	Th232 SK
Ratemeter	1	8076 cpm	1	11783 cpm	Y	Y	Y	1245	58.8	Cs137 SK
Ratemeter	1	8739 cpm	1	20395 cpm	Y	Y	Y	1515	57.2	Th232 SK
Ratemeter	1	8739 cpm	1	12014 cpm	Y	Y	Y	1515	57.2	Cs137 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	0900	39.8	Th232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1245	58.8	Th232 SK
Bicron	NA	5 uRem/hr	NA	16 uRem/hr	Y	Y	Y	1515	57.2	Th232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

## Instrument Field Response Check Log

### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-12 Serial No. 206098 Cal. Due Date: 9/1/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR112642  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% 41 net cpm + 20% 53799 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13213 net cpm -20% 8849

### 3. Technician/Worker Performing Checks:

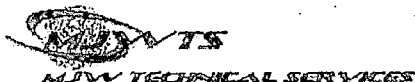
Name: J. Edwards Title: RCT Date: 10/15/15 Time: 1005

### 4. Site or Location:

Site/Job: Area 3.2 Location Description: Farm  
 GPS Coordinates (when required): X-Coord: NA Y-Coord: NA

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l Info: Inst. Condition, etc.)
Ratemeter	1 min	9431 cpm	1 min	44882 cpm	Y	Y	Y	1045	55.7	Th-232 <u>JE</u>
Ratemeter	1 min	9431 cpm	1 min	10972 cpm	Y	Y	Y	1058	56.3	Cs-137 <u>JE</u>
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LuMm 2741-2 Serial No. 806098 Cal. Due Date: 9/1/16  
 Detector 1: Make/Model: LuMm 94-10 Serial No. PR112642  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 22.01 units: uCi Assay Date: 12/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 58798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

## 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT Date: 10/15/15 Time: 1354

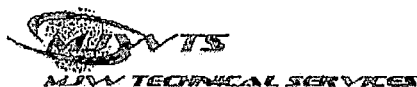
## 4. Site or Location:

Site/Job: Area 3.1 Location Description: Cornfield

GPS Coordinates (when required): X-Coord: N 42°28'54.9" Y-Coord: W 078°40'39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l Info: Inst. Condition, etc.)
Ratemeter	1 min	9793 cpm	1 min	11597 cpm	Y	Y	Y	1400	64.4	Cs-137 DE
Ratemeter	1 min	9793	1 min	47539 cpm	Y	Y	Y	1408	64.1	Th-232 DE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 206098 Cal. Due Date: 9/1/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PC112642  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

#### 2. Check Source Information:

Source 1 Isotope: CS-137 Serial No.: 119E23-12 Activity: 0.02 units: µCi Assay Date: N/A  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 5313273 net cpm -20% 8849

Source 2 Isotope: Th-232 Serial No.: 111 Activity: 0.1 units: µCi Assay Date: 10/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 53798 net cpm -20% 35866

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT Date: 10/15/15 Time: 1640

#### 4. Site or Location:

Site/Job: Area 3.1 Location Description: Cornfield  
 GPS Coordinates (when required): X-Coord: N42°28'54.9" Y-Coord: W078°40'39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	9761 cpm	1 min	11888 cpm	Y	Y	Y	1645	56.3	CS-137 JE
Ratemeter	1 min	9761 cpm	1 min	47818 cpm	Y	Y	Y	1650	55.9	Th-232 JE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



## Instrument Field Response Check Log

### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: BICRON MICRO RCM Serial No. A2244  
 Detector 1: Make/Model: INTERNAL Serial No. N/A  
 Detector 2: Make/Model: \_\_\_\_\_ Serial No. \_\_\_\_\_

Cal. Due Date: 8/4/16

### 2. Check Source Information:

Source 1 Isotope: Th232 Serial No.: 116 Activity: 40.1 units: uCi  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):

Assay Date: 12/30/10  
 net cpm +20% 22924 net cpm -20% 15284

Source 2 Isotope: \_\_\_\_\_ Serial No.: \_\_\_\_\_ Activity: \_\_\_\_\_ units: \_\_\_\_\_ Assay Date: \_\_\_\_\_  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):

net cpm +20% \_\_\_\_\_ net cpm -20% \_\_\_\_\_

### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT

Date: 10/16/15 Time: 0957

### 4. Site or Location: Site/Job: 3.2

Location Description: FARM

GPS Coordinates (when required): X-Coord: N 42° 28' 50.7" Y-Coord: W 078° 40' 27.2"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Det. No. (1 / 2)	Bkg Cnt Time	Bkg (avg of 3) (cpm) uR/HR	Source Cnt Time	Source Response (cpm - bkg) Net cpm	+/- 20% of source Net cpm (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (F)	Initials and Comments (add'l info: temperature, Inst. Condition, etc.)
N/A	N/A	5	N/A	174 uR/HR	Y	Y	Y	0957	48.2	SK Th 232

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.





MVT TECHNICAL SERVICES

## Instrument Field Response Check Log

### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PPH1187  
 Detector 2: Make/Model: \_\_\_\_\_ Serial No. \_\_\_\_\_

Cal. Due Date: 9/2/10

### 2. Check Source Information:

Source 1 Isotope: Th232 Serial No.: 116 Activity: 40.1 units: uci  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):

Assay Date: 12/30/10  
 net cpm + 20% 22924 net cpm - 20% 15234

Source 2 Isotope: Cs137 Serial No.: R7E13-48 Activity: .02 units: uci  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):

Assay Date: 1/20/10  
 net cpm + 20% 13375 net cpm - 20% 8919

### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT

Date: 10/16/15 Time: 1000

### 4. Site or Location:

Site/Job: 3-Z  
 GPS Coordinates (when required): X-Coord: N 42° 25' 50.7" Y-Coord: W 078° 40' 27.2"

Location Description: FARM

SOURCE Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Det: No. (1/2)	Bkg Cnt Time	Bkg (avg of 3) (cpm)	Source Cnt Time	Source Response (cpm - bkg) Net cpm	+/- 20% of source Net cpm (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (F)	Initials and Comments (add'l info: temperature, inst. Condition, etc.)
Th232	1 MIN	7820	1 MIN	19105	Y	Y	Y	1000	48.2	SK
Cs137	1 MIN	7820	1 MIN	11146	Y	Y	Y	1005	48.2	SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

### Instrument Field Response Check Log

1. **Instrument Information<sup>1</sup>**

Ratemeter: Make/Model: Lydium 2241-2 Serial No: 206098 Cal. Due Date: 9/1/16  
 Detector 1: Make/Model: Lydium 44-10 Serial No: PR112642  
 Bicon MicroRem Meter: Serial No: N/A Cal. Due Date: N/A

2. **Check Source Information:**

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm +20% 55798 net cpm -20% 35866  
 Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm +20% 13273 net cpm -20% 8849

3. **Technician/Worker Performing Checks:**

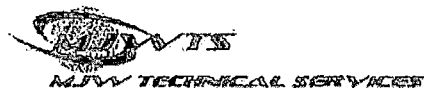
Name: J. Edwards Title: RCT Date: 10/16/15 Time: 1000

4. **Site or Location:**

Site/Job: Area 3.1 Location Description: cornfield  
 GPS Coordinates (when required): X-Coord: N 42°29'54.9" Y-Coord: W 078°46'39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l Info: Inst. Condition, etc.)
Ratemeter	1 min	9563 cpm	1 min	46041 cpm	Y	Y	Y	1005	51.0	Th-232 JE
Ratemeter	1 min	9563 cpm	1 min	11526 cpm	Y	Y	Y	1010	51.2	Cs-137 JE
Ratemeter										
Ratemeter										
Bicon	NA		NA							
Bicon	NA		NA							
Bicon	NA		NA							
Bicon	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

**1. Instrument Information<sup>1</sup>**

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 206098 Cal. Due Date: 9/1/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR112692 Cal. Due Date: N/A  
 Bicron MicroRem Meter: Serial No. N/A

**2. Check Source Information:**

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 0.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 53798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119823-12 Activity: 0.02 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

**3. Technician/Worker Performing Checks:**

Name: J. Edwards Title: RCI Date: 10/16/15 Time: 1304

**4. Site or Location:**

Site/Job: Area 3.1 Location Description: Camfield  
 GPS Coordinates (when required): X-Coord: N 42°28'54.9" Y-Coord: W 078°40'39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1m2h	9176 cpm	1m2h	45890 cpm	Y	Y	Y	1368	59.0	Th-232 DE
Ratemeter	1min	9176 cpm	1m2h	11145 cpm	Y	Y	Y	1311	59.0	Cs-137 DE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



NJW TECHNICAL SERVICES

## Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: BICOIN MICROBAM Serial No. A224U  
 Detector 1: Make/Model: INTERNAL Serial No. N/A  
 Detector 2: Make/Model: \_\_\_\_\_ Serial No. \_\_\_\_\_

Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th232 Serial No.: 116 Activity: 40.1 units: uCi Assay Date: 12/30/10  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):  
 net cpm +20% 22726 net cpm -20% 15284  
uRem/hr +20% 20 uRem/hr -20% 14  
 Source 2 Isotope: \_\_\_\_\_ Serial No.: \_\_\_\_\_ Activity: \_\_\_\_\_ units: \_\_\_\_\_ Assay Date: \_\_\_\_\_  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):  
 net cpm +20% \_\_\_\_\_ net cpm -20% \_\_\_\_\_

## 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCTDate: 10/16/15 Time: 14004. Site or Location: Site/Job: 3.2Location Description: FARM

GPS Coordinates (when required): X-Coord: \_\_\_\_\_ Y-Coord: \_\_\_\_\_

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Det. No. (1/2)	Bkg. Cnt Time	Bkg (avg of 3) (cpm)	Source Cnt Time	Source Response (cpm - bkg) Net cpm	+/- 20% of source Net cpm (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (F)	Initials and Comments (add'l info: temperature, inst. Condition, etc.)
N/A	N/A	<u>uR/Hr</u> <u>6</u>	N/A	<u>18 uR/Hr</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>1400</u>	<u>53.6</u>	<u>SK Th232</u>

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



MDV TECHNICAL SERVICES

## Instrument Field Response Check Log

### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR111127  
 Detector 2: Make/Model: \_\_\_\_\_ Serial No. \_\_\_\_\_

Cal. Due Date: 9/2/16

### 2. Check Source Information:

Source 1 Isotope: Th232 Serial No.: 116 Activity: <0.1 units: uCi  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):

Assay Date: 12/30/10  
 net cpm + 20% 22926 net cpm - 20% 15284

Source 2 Isotope: Cs137 Serial No.: 87E13-48 Activity: -02 units: uCi  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):

Assay Date: 1/20/10  
 net cpm + 20% 13375 net cpm - 20% 8919

### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN

Title: RCT

Date: 12/16/15 Time: 1410

### 4. Site or Location: Site/Job: 3.2

Location Description: Room

GPS Coordinates (when required):

X-Coord: \_\_\_\_\_

Y-Coord: \_\_\_\_\_

SOURCE Instrument Field Response <sup>2</sup> <small>GPS CTS</small>					Use Acceptance Criteria					Remarks
Dep. No. (1/2)	Bkg Cnt Time	Bkg (avg of 3) (cpm)	Source Cnt Time	Source Response (cpm - bkg) <small>Net cpm</small>	+/- 20% of source Net cpm (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (F)	Initials and Comments (add'l info: temperature, inst. condition, etc.)
Th232	1 MIN	7621	1 MIN	19835 cpm	Y	Y	Y	1410	53.6	SK
Cs137	1 MIN	7621	1 MIN	11161 cpm	Y	Y	Y	1415	53.6	SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



MUTS TECHNICAL SERVICES

## Instrument Field Response Check Log

### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR111127  
 Detector 2: Make/Model: \_\_\_\_\_ Serial No. \_\_\_\_\_

Cal. Due Date: 9/2/16

### 2. Check Source Information:

Source 1 Isotope: Th 232 Serial No.: 116 Activity: 40.1 units: uCi  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):

Assay Date: 12/30/10  
 net cpm + 20% 22726 net cpm -20% 15284

Source 2 Isotope: CS137 Serial No.: 87E13-48 Activity: .02 units: uCi  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):

Assay Date: 1/26/10  
 net cpm + 20% 13375 net cpm -20% 8919

### 3. Technician/Worker Performing Checks:

Name: Steve Kinsman Title: RCT

Date: 10/16/15 Time: 1515

### 4. Site or Location: Site/Job: Area 3.2

Location Description: Farm

GPS Coordinates (when required): X-Coord: \_\_\_\_\_ Y-Coord: \_\_\_\_\_

SOURCE		Instrument Field Response <sup>2</sup>			Use Acceptance Criteria					Remarks
Det. No. (1/2)	Bkg Cnt Time	Bkg (avg of 3) (cpm)	Source Cnt Time	Source Response (cpm - bkg) Net cpm	+/- 20% of source Net cpm (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (F)	Initials and Comments (add'l info: temperature, inst. Condition, etc.)
Th232	1 min	7496	1 min	19694 cpm	Y	Y	Y	1515	53.6	SK
CS137	1 min	7496	1 min	16845 cpm	Y	Y	Y	1520	53.6	SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



METS TECHNICAL SERVICES

## Instrument Field Response Check Log

### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: BICRON MICROREM Serial No. A2244  
 Detector 1: Make/Model: INTERNAL Serial No. \_\_\_\_\_  
 Detector 2: Make/Model: \_\_\_\_\_ Serial No. \_\_\_\_\_

Cal. Due Date: 8/4/16

### 2. Check Source Information:

Source 1 Isotope: Th 232 Serial No.: 116 Activity: 40.1 units: uCi  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):

Assay Date: 12/30/10

net cpm +20% 22126 net cpm -20% 15284  
 uCi/cm/hr +20% 20 uCi/cm/hr -20% 14

Source 2 Isotope: \_\_\_\_\_ Serial No.: \_\_\_\_\_ Activity: \_\_\_\_\_ units: \_\_\_\_\_

Assay Date: \_\_\_\_\_

Instrument Response Acceptance Range (source cpm - bkg +/-20%):

net cpm +20% \_\_\_\_\_ net cpm -20% \_\_\_\_\_

### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN

Title: RCT

Date: 10/16/15 Time: 1515

### 4. Site or Location: Site/Job: 3-2

Location Description: FARM

GPS Coordinates (when required):

X-Coord: \_\_\_\_\_

Y-Coord: \_\_\_\_\_

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Det. No. (1/2)	Bkg Cnt Time	Bkg (avg of 3) (cpm)	Source Cnt Time	Source Response (cpm - bkg) / net cpm	+/- 20% of source Net cpm (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (F)	Initials and Comments (add'l info: temperature, inst. Condition, etc.)
N/A	N/A	7	N/A	17	Y	Y	Y	1515	56.3	SK Th 232

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 206098 Cal. Due Date: 9/1/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR112642  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 20.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm +20% 53798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E2342 Activity: 0.02 units: uCi Assay Date: N/A  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm +20% 13873 net cpm -20% 8845

## 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT Date: 10/16/15 Time: 1628

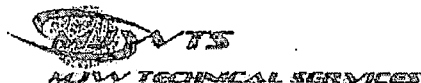
## 4. Site or Location:

Site/Job: Area 3.1 Location Description: Cornfield  
 GPS Coordinates (when required): X-Coord: N 42°28'54.9" Y-Coord: W 078°40'39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	9218 cpm	1 min	42357 cpm	Y	Y	Y	1632	53.7	Th-232 JDE
Ratemeter	1 min	9218 cpm	1 min	11197 cpm	Y	Y	Y	1637	53.5	Cs-137 JDE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.





Rev 1 10/18/15

### Instrument Field Response Check Log

**1. Instrument Information:**

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 206098 Cal. Due Date: 7/1/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR112642  
 Bicron MicroRem Meter: Serial No. NA Cal. Due Date: NA

**2. Check Source Information:**

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 0.1 units: NCI Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 53798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: NCI Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

**3. Technician/Worker Performing Checks:**

Name: Jonathan Edwards Title: RCT Date: 10/19/15 Time: 0925

**4. Site or Location:**

Site/Job: Area 3.1 Location Description: Cornfield  
 GPS Coordinates (when required): X-Coord: N 42° 28' 34.9" Y-Coord: W 67° 40' 39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	9600 cpm	1 min	46426 cpm	Y	Y	Y	0952	26.5	Th-232 JGE
Ratemeter	1 min	9600 cpm	1 min	11509 cpm	Y	Y	Y	0940	36.1	Cs-137 JGE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2  
 Detector 1: Make/Model: LUDLUM 44-1D  
 Bicron MicroRem Meter:

Serial No. 262737  
 Serial No. PR111127  
 Serial No. A224U

Cal. Due Date: 9/2/16

Cal. Due Date: 8/4/16

2. Check Source Information:

Source 1 Isotope: Th 232 Serial No.: 116  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20

Activity: 40.1 units: uci  
 uRem/hr -20% 14

Assay Date: 12/30/10

net cpm + 20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs 137 Serial No.: 87E13-48  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_

Activity: .02 units: uci  
 uRem/hr -20% \_\_\_\_\_

Assay Date: 1/20/10

net cpm + 20% 13375 net cpm -20% 8919

3. Technician/Worker Performing Checks:

Name: STEVE KIMSAN

Title: RCT

Date: 10/19/15 Time: 0930

4. Site or Location: Site/Job: 3.2

Location Description: FARM

GPS Coordinates (when required): X-Coord: 78.67417°

Y-Coord: 42.48070°

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 MIN	7893 cpm	1 MIN	19674 cpm	Y	Y	Y	0935	33.4	Th 232 SK
Ratemeter	1 MIN	7893 cpm	1 MIN	11228 cpm	Y	Y	Y	0940	33.4	Cs 137 SK
Ratemeter	1 MIN	7552 cpm	1 MIN	19351 cpm	Y	Y	Y	1325	54.5	Th 232 SK
Ratemeter	1 MIN	7552 cpm	1 MIN	10692 cpm	Y	Y	Y	1325	54.5	Cs 137 SK
Bicron	NA	5 uR/hr	NA	18 uR/hr	Y	Y	Y	0930	33.4	Th 232 SK
Bicron	NA	6 uR/hr	NA	17 uR/hr	Y	Y	Y	1320	54.5	Th 232 SK
Bicron	NA	6 uR/hr	NA	16 uR/hr	Y	Y	Y	1325	58.6	Th 232 SK
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



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# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 224-2 Serial No. 206098 Cal. Due Date: 7/1/16  
 Detector 1: Make/Model: Ludlum 44-18 Serial No. PR12242  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: µCi Assay Date: 12/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 53798 net cpm -20% 35806

Source 2 Isotope: Cs-137 Serial No.: 119E3-12 Activity: 0.02 units: µCi Assay Date: N/A  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

## 3. Technician/Worker Performing Checks:

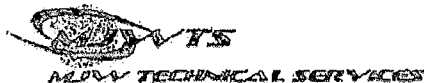
Name: Jonathan Edwards Title: RCT Date: 10/19/15 Time: 1125

## 4. Site or Location:

Site/Job: Area 3.1 Location Description: Cornfield  
 GPS Coordinates (when required): X-Coord: N 42° 28' 54.9" Y-Coord: W 078° 40' 39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1min	9264 cpm	1min	45989 cpm	Y	Y	Y	1132	46.5	Th-232 JE
Ratemeter	1min	9264 cpm	1min	11244 cpm	Y	Y	Y	1138	47.8	Cs-137 JE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



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### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 262737 Cal. Due Date: 9/2/14  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR 1111 27  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

#### 2. Check Source Information:

Source 1 Isotope: Th 232 Serial No.: 116 Activity: 40.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs 137 Serial No.: 87E13-48 Activity: .02 units: uCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13375 net cpm -20% 8719

#### 3. Technician/Worker Performing Checks:

Name: Steve Kinsman Title: RCT Date: 10/19/15 Time: 1540

#### 4. Site or Location: Site/Job: 3.2

Location Description: Farm

GPS Coordinates (when required): X-Coord: \_\_\_\_\_ Y-Coord: \_\_\_\_\_

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1 min	8854 cpm	1 min	19517 cpm	Y	Y	Y	1540	58.6	Th232 SK
Ratemeter	1 min	8854 cpm	1 min	12422 cpm	Y	Y	Y	1545	58.6	Cs137 SK
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



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### Instrument Field Response Check Log

1. Instrument Information

Ratemeter: Make/Model: Lyd/ua 2241-2 Serial No. 206098 Cal. Due Date: 9/1/16  
 Detector 1: Make/Model: Lyd/ua 44-10 Serial No. PR252142  
 Bicron MicroRem Meter: Serial No. B378A Cal. Due Date: 12/17/15

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: uCi Assay Date: 12/29/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 166 uRem/hr -20% 110 net cpm + 20% 53798 net cpm -20% 35866  
 Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT Date: 10/29/15 Time: 0917

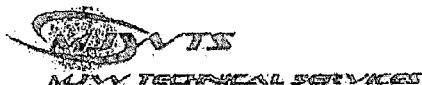
4. Site or Location: Site/Job: Area 32

Location Description: Cornfield

GPS Coordinates (when required): X-Coord: N 42° 28' 54.9" Y-Coord: W 078° 40' 39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp: (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	9683 cpm	1 min	45161 cpm	Y	Y	Y	0924	57.0	Th-232 JE
Ratemeter	1 min	9683 cpm	1 min	11559 cpm	Y	Y	Y	0933	57.6	Cs-137 JE
Ratemeter										
Ratemeter										
Bicron	NA	6 uRem/hr	NA	138 uRem/hr	Y	Y	Y	0938	58.0	JE Th-232
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

### Instrument Field Response Check Log

**1. Instrument Information<sup>1</sup>**

RateMeter: Make/Model: Ludlum 2241  
 Detector 1: Make/Model: Ludlum 44-10  
 Bicron/MicroRem Meter:

Serial No. 196664  
 Serial No. 256142  
 Serial No. B6936

Cal. Due Date: 10/15/16

Cal. Due Date 05/08/16

**2. Check Source Information:**

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: MC Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 154 uRem/hr -20% 103 net cpm + 20% 53798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: MC Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20%          uRem/hr -20%          net cpm + 20% 13273 net cpm -20% 8749

**3. Technician/Worker Performing Checks:**

Name: J. Edwards Title: RCT

Date: 10/20/15 Time: 1320

**4. Site or Location:**

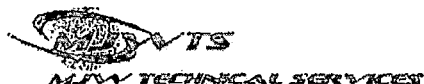
Site/Job: Area 3.1

Location Description: Cornfield

GPS Coordinates (when required): X-Coord: N42°28'54.9" Y-Coord: W078°40'39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
RateMeter	1 min	8929 cpm	1 min	47629 cpm	Y	Y	Y	1325	66.6	Th-232 JE
RateMeter	1 min	8929 cpm	1 min	11016 cpm	Y	Y	Y	1332	66.7	Cs-137 JE
RateMeter										
RateMeter										
Bicron	NA	9 uRem/hr	NA	130 uRem/hr	Y	Y	Y	1337	66.9	Th-232 JE
Bicron	NA		NA							Cs-137 JE
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241  
 Detector 1: Make/Model: Ludlum 44-10  
 Bicron MicroRem Meter:

Serial No. 196664  
 Serial No. PR 256142  
 Serial No. B6936

Cal. Due Date: 10/15/16

Cal. Due Date: 05/05/16

#### 2. Check Source Information:

Source 1 Isotope: Tl-232 Serial No.: 111  
 Response Acceptance Range (+/-20%): uRem/hr +20% 154

Activity: 40.1 units: uCi  
 uRem/hr -20% 103

Assay Date: 12/30/10  
 net cpm + 20% 55798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_

Activity: 6.02 units: uCi  
 uRem/hr -20% \_\_\_\_\_

Assay Date: NA  
 net cpm + 20% 13273 net cpm -20% 8849

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: RCT

Date: 10/20/15 Time: 1550

#### 4. Site or Location:

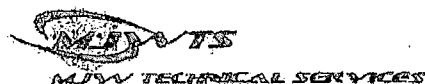
Site/Job: Area 3.1

Location Description: cornfield

GPS Coordinates (when required): X-Coord: N 42° 28' 54.9" Y-Coord: W 078° 40' 39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1min	986 cpm	1min	48633 cpm	Y	Y	Y	1555	65.5	JE TL-232
Ratemeter	1min	986 cpm	1min	11398 cpm	Y	Y	Y	1600	65.5	JE Cs-137
Ratemeter										
Ratemeter										
Bicron	NA	6 uRem/hr	NA	125 uRem/hr	Y	Y	Y	1603	65.3	JE TL-232
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR11127  
 Bicron MicroRem Meter: Serial No. A2246 Cal. Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th 232 Serial No.: 116 Activity: <0.1 units: uci Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15254  
 Source 2 Isotope: Cs 137 Serial No.: 87E13-48 Activity: -02 units: uci Assay Date: 8/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm +20% 13375 net cpm -20% 7919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT Date: 10/21/15 Time: 0900

Area

#### 4. Site or Location: Site/Job: 3-1

Location Description: cornfield

GPS Coordinates (when required): X-Coord: N 42° 27' 48.0" Y-Coord: W 078° 40' 35.2"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 MIN	8603 cpm	1 MIN	19804 cpm	Y	Y	Y	0900	55.7	Th 232 SK
Ratemeter	1 MIN	8603 cpm	1 MIN	11972 cpm	Y	Y	Y	0900	55.7	Cs 137 SK
Ratemeter	1 MIN	8975 cpm	1 MIN	20965 cpm	Y	Y	Y	1230	65.1	Th 232 SK
Ratemeter	1 MIN	8975 cpm	1 MIN	12498 cpm	Y	Y	Y	1230	65.1	Cs 137 SK
Ratemeter	1 MIN	9007 cpm	1 MIN	17981 cpm	Y	Y	Y	1600	66.2	Th 232 SK
Ratemeter	1 MIN	9007 cpm	1 MIN	12443 cpm	Y	Y	Y	1600	66.2	Cs 137 SK
Bicron	NA	7 uRem/hr	NA	17 uRem/hr	Y	Y	Y	0900	55.7	Th 232 SK
Bicron	NA	7 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1230	65.1	Th 232 SK
Bicron	NA	7 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1100	66.2	Th 232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.





Rev 1 10/18/15

### Instrument Field Response Check Log

1. **Instrument Information<sup>1</sup>**

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR111127  
 Bicron MicroRem Meter: Serial No. A224U

Cal. Due Date: 9/2/16

Cal. Due Date: 8/4/16

2. **Check Source Information:**

Source 1 Isotope: Th 232 Serial No.: 116 Activity: ±0.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm + 20% 22526 net cpm -20% 15284

Source 2 Isotope: Cs 137 Serial No.: 87E13-48 Activity: ±0.2 units: uCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13375 net cpm -20% 8919

3. **Technician/Worker Performing Checks:**

Name: STEVE KINSMAN

Title: RET

Date: 10/21/15 Time: 0915

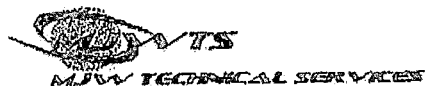
4. **Site or Location:** Site/Job: 3.1

Location Description: CORN FIELD

GPS Coordinates (when required): X-Coord: N 42.48191 Y-Coord: W 078.67772

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info; inst. Condition, etc.)
Ratemeter	1 MIN	8847 cpm	1 MIN	20316 cpm	Y	Y	Y	0915	58.4	Th 232 SK
Ratemeter	1 MIN	8897 cpm	1 MIN	12485 cpm	Y	Y	Y	0915	58.4	Cs 137 SK
Ratemeter	1 MIN	9019 cpm	1 MIN	21199 cpm	Y	Y	Y	1300	66.7	Th 232 SK
Ratemeter	1 MIN	9019 cpm	1 MIN	12577 cpm	Y	Y	Y	1300	66.7	Cs 137 SK
Ratemeter	1 MIN	9024 cpm	1 MIN	20789 cpm	Y	Y	Y	1500	72.3	Th 232 SK
Ratemeter	1 MIN	9034 cpm	1 MIN	12544 cpm	Y	Y	Y	1500	72.3	Cs 137 SK
Bicron	NA	7 uRem/hr	NA	18 uRem/hr	Y	Y	Y	0915	58.4	Th 232 SK
Bicron	NA	7 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1300	66.7	Th 232 SK
Bicron	NA	7 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1500	72.3	Th 232 SK

1. Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
2. Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

### Instrument Field Response Check Log

1. Instrument Information

Ratemeter: Make/Model: Ludlum 2241  
 Detector 1: Make/Model: Ludlum 44-10  
 Bicon MicroRem Meter:

Serial No. 196664  
 Serial No. PE258142  
 Serial No. R6936

Cal. Due Date: 10/15/16

Cal. Due Date: 05/05/16

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111  
 Response Acceptance Range (+/-20%): uRem/hr +20% 154

Activity: 40.1 units: uCi  
 uRem/hr -20% 103

Assay Date: 12/30/10  
 net cpm + 20% 53798 net cpm -20% 35866

Source 2 Isotope: CS-137 Serial No.: 119E23-12  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_

Activity: 0.02 units: uCi  
 uRem/hr -20% \_\_\_\_\_

Assay Date: NA  
 net cpm + 20% 13273 net cpm -20% 8849

3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: RCT

Date: 10/21/15 Time: 0925

4. Site or Location:

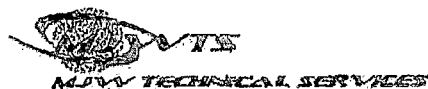
Site/Job: Area 3.1

Location Description: cornfield

GPS Coordinates (when required): X-Coord: N 42° 28' 54.9" Y-Coord: W 078° 40' 39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1 min	9197 cpm	1 min	47648 cpm	Y	Y	Y	0930	56.4	Th-232 JE
Ratemeter	1 min	9197 cpm	1 min	10948 cpm	Y	Y	Y	0937	56.3	CS-137 JE
Ratemeter										
Ratemeter										
Bicon	NA	8 uRem/hr	NA	125 uRem/hr	Y	Y	Y	0938	56.3	Th-232 JE
Bicon	NA		NA							
Bicon	NA		NA							
Bicon	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum  
 Detector 1: Make/Model: Ludlum  
 Bicron MicroRem Meter:

Serial No. 196664  
 Serial No. PR256142  
 Serial No. B6956

Cal. Due Date: 10/15/16  
 Cal. Due Date: 05/05/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 50.1 units: uG Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 154 uRem/hr -20% 103 net cpm + 20% 53798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 802 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13277 net cpm -20% 8849

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT

Date: 10/21/15 Time: 071303

#### 4. Site or Location:

Site/Job: Area 3.1

Location Description: Cornfield

GPS Coordinates (when required): X-Coord: N 42° 28' 54.9" Y-Coord: W 078° 40' 39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	9292 cpm	1 min	47753 cpm	Y	Y	Y	1307	66.7	Th-232 JE
Ratemeter	1 min	9292 cpm	1 min	11400 cpm	Y	Y	Y	1315	66.3	Cs-137 JE
Ratemeter										
Ratemeter										
Bicron	NA	9 uRem/hr	NA	130 uRem/hr	Y	Y	Y	1313	66.3	Th-232 JE
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241 Serial No. 196664 Cal. Due Date: 10/15/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR256142  
 Bicron MicroRem Meter: Serial No. 36936 Cal. Due Date: 05/05/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 154 uRem/hr -20% 103 net cpm + 20% 53798 net cpm -20% 35866

Source 2 Isotope: CS-137 Serial No.: 119F23-12 Activity: 0.02 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RC T Date: 10/14/15 Time: 1534

#### 4. Site or Location:

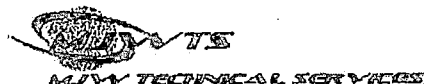
Site/Job: Area 3.1

Location Description: cornfield

GPS Coordinates (when required): X-Coord: N 42° 28' 54.9" Y-Coord: W 078° 40' 39.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l Info: Inst. Condition, etc.)
Ratemeter	1 min	8901 cpm	1 min	48490 cpm	Y	Y	Y	1537	68.1	Th-232 JE
Ratemeter	1 min	48490 cpm	1 min	10987 cpm	Y	Y	Y	1544	67.4	CS-137 JE
Ratemeter		8901 cpm								
Ratemeter										
Bicron	NA	8 pRem/hr	NA	133 uRem/hr	Y	Y	Y	1540	67.4	Th-232 JE
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 7241-2 Serial No. 262641 Cal. Due Date: 11/03/15  
 Detector 1: Make/Model: Ludlum 44.10 Serial No. PR288429  
 Bicron MicroRem Meter: Serial No. 1487 Cal. Due Date: 06/18/16

## 2. Check Source Information:

Source 1 Isotope: 137Cs Serial No.: 111 Activity: 40.1 units: MC Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm + 20% 53790 net cpm -20% 35864

Source 2 Isotope: 137Cs Serial No.: 119E23-12 Activity: 0.02 units: MC Assay Date: 12/14  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

## 3. Technician/Worker Performing Checks:

Name: [Signature] Title: RCT Date: 10/24/15 Time: 09:11

## 4. Site or Location:

Site/Job: 1.1 + 1.2 Location Description: Driveway by Car  
 GPS Coordinates (when required): X-Coord: 47° 20' 12.3 Y-Coord: 078° 41' 06.0

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
1 Ratemeter	1.0	7149 cpm	1.0	9310 cpm	Y	Y	Y	09:20	60.9°	SC taken on concrete CS137
2 Ratemeter	1.0	7344 cpm	1.0	9597 cpm	Y	Y	Y	11:10	60.4°	Driveway * CS137
Ratemeter										
Ratemeter										
Bicron	NA	7.0 uRem/hr	NA	40.0 uRem/hr	Y	Y	Y	09:11	60.9°	* Th 232
3 Bicron	NA	7.0 uRem/hr	NA	30.0 uRem/hr	Y	Y	Y	11:00	60.4°	* Th 232
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2

Serial No. 262737

Cal. Due Date: 9/2/16

Detector 1: Make/Model: LUDLUM 44-10

Serial No. 1R11127

Cal. Due Date: 8/4/16

Bicron MicroRem Meter:

Serial No. A2244

#### 2. Check Source Information:

Source 1 Isotope: Th 232 Serial No.: 116

Activity: CP-1 units: NCI

Assay Date: 12/30/10

Response Acceptance Range (+/-20%): uRem/hr +20% 20

uRem/hr -20% 14

net cpm + 20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs 137 Serial No.: 87E13-48

Activity: OL units: NCI

Assay Date: 1/20/10

Response Acceptance Range (+/-20%): uRem/hr +20%       

uRem/hr -20%       

net cpm + 20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN

Title: RCT

Date: 10/23/15 Time: 0900

#### 4. Site or Location: Site/Job: 2.1

Location Description: Seoby Dam

GPS Coordinates (when required): X-Coord: N 47.48316 Y-Coord: W 78.70142

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (Gross cpm or uRem/hr)	+/-20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 MIN	7407 cpm / MIN		18526 cpm	Y	Y	Y	0900	37.9	Th 232 SK
Ratemeter	1 MIN	7407 cpm / MIN		10965 cpm	Y	Y	Y	0900	37.9	Cs 137 SK
Ratemeter	1 MIN	8606 cpm / MIN		19166 cpm	Y	Y	Y	1230	49.4	Th 232 SK
Ratemeter	1 MIN	8606 cpm / MIN		12192 cpm	Y	Y	Y	1230	49.4	Cs 137 SK
Ratemeter	1 MIN	7523 cpm / MIN		11171 cpm	Y	Y	Y	1510	52.8	Th 232 / Cs 137 SK
Ratemeter	1 MIN	7523 cpm / MIN		19582 cpm	Y	Y	Y	1510	52.8	Cs 137 Th 232 SK
Bicron	NA	6 uRem/hr	NA	16 uRem/hr	Y	Y	Y	0900	37.9	Th 232 SK
Bicron	NA	7 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1230	49.4	Th 232 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1510	52.8	Th 232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev.1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 206898 Cal. Due Date: 09/01/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR12642  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 4.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 53798 net cpm -20% 55866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: uCi Assay Date: N/A  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 15273 net cpm -20% 8049

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT Date: 10/25/15 Time: 0902

#### 4. Site or Location:

Site/Job: Area 2.1 Location Description: Scoby Dam  
 GPS Coordinates (when required): X-Coord: N 42.48212° Y-Coord: W 078.70197°

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1min	8728 cpm	1min	41841 cpm	Y	Y	Y	0907	34.7	Th-232 J.E.
Ratemeter	1min	8728 cpm	1min	105491 cpm	Y	Y	Y	0912	34.9	Cs-137 J.E.
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/13/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 206098 Cal. Due Date: 09/01/16  
 Detector 1: Make/Model: Ludlum 4410 Serial No. PE112642  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 53798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: U9E23-12 Activity: 0.02 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT Date: 10/23/15 Time: 1229

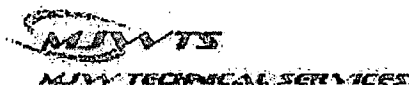
#### 4. Site or Location:

Site/Job: Area 2.1 Location Description: Scooby Dam  
 GPS Coordinates (when required): X-Coord: N42.48217° Y-Coord: W078.70197°

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1min	9314 cpm	1min	46913 cpm	Y	Y	Y	1234	50.1	Th-232 JE
Ratemeter	1min	9319 cpm	1min	11552 cpm	Y	Y	Y	1239	50.3	Cs-137 JE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.





Rev 110/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No: 262737 Cal Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No: PR 111127  
 Bicron MicroRem Meter: Serial No: A224U Cal Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No: 87E13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT Date: 10/26/15 Time: 0900

#### 4. Site or Location: Site/Job: 2.2

Location Description: DOT

GPS Coordinates (when required): X-Coord: N 42.474740 Y-Coord: W 078.69512

Instrument Field Response					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/-20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add info, inst. condition, etc.)
Ratemeter	1 MIN	7803 cpm	1 MIN	14966 cpm	Y	Y	Y	0900	35.6	Th 232 SK
Ratemeter	1 MIN	7803 cpm	1 MIN	11187 cpm	Y	Y	Y	0900	35.6	Cs 137 SK
Ratemeter	1 MIN	7588 cpm	1 MIN	19603 cpm	Y	Y	Y	1315	53.4	Th 232 SK
Ratemeter	1 MIN	7588 cpm	1 MIN	11122 cpm	Y	Y	Y	1315	53.4	Cs 137 SK
Ratemeter	1 MIN	7850 cpm	1 MIN	20172 cpm	Y	Y	Y	1530	52.6	Th 232 SK
Ratemeter	1 MIN	7850 cpm	1 MIN	11457 cpm	Y	Y	Y	1530	52.6	Cs 137 SK
Bicron	NA	7 uRem/hr	NA	18 uRem/hr	Y	Y	Y	0900	35.6	Th 232 SK
Bicron	NA	5 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1315	53.4	Th 232 SK
Bicron	NA	5 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1530	52.6	Th 232 SK

1. Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
2. Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 206098  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR112692  
 Bicron MicroRem Meter: Serial No. N/A

Cal. Due Date: 09/01/16

Cal. Due Date: N/A

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: CO. 1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 5378 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: µCi Assay Date: N/A  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: RCT

Date: 10/26/15 Time: 0913

#### 4. Site or Location:

Site/Job: Area 2.2

Location Description: Woods

GPS Coordinates (when required):

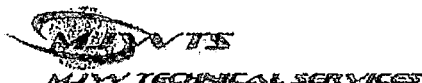
X-Coord: N 42.47474°

Y-Coord: W 078.69572°

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. condition, etc.)
Ratemeter	1 min	8757 cpm	1 min	45115 cpm	Y	Y	Y	0925	39.5	Th-232 JE
Ratemeter	1 min	8757 cpm	1 min	10764 cpm	Y	Y	Y	0930	37.5	Cs-137 JE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

1. Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.

2. Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 206098 Cal. Due Date: 09/01/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR112642  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: <0.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 53798 net cpm -20% 85866  
 Source 2 Isotope: Cs-137 Serial No.: 119E2342 Activity: 0.02 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

## 3. Technician/Worker Performing Checks:

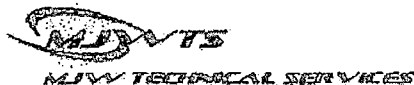
Name: J. Edwards Title: RCT Date: 10/26/16 Time: 1322

## 4. Site or Location:

Site/Job: Area 2.2 Location Description: Woods  
 GPS Coordinates (when required): X-Coord: N 42.47474° Y-Coord: W 078.69512°

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	8061 cpm	1 min	45135 cpm	Y	Y	Y	1326	54.6	Th-232 DE
Ratemeter	1 min	8061 cpm	1 min	10,229 cpm	Y	Y	Y	1333	54.8	Cs-137 JS
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/14  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR11127 Cal. Due Date: 8/4/16  
 Bicron MicroRem Meter: Serial No. A224u

#### 2. Check Source Information:

Source 1 Isotope: Th 232 Serial No.: 116 Activity: <0.1 units: uci Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm + 20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs 137 Serial No.: 87E13-48 Activity: .02 units: uci Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT Date: 10/27/15 Time: 0845

#### 4. Site or Location: Site/Job: AREA 1

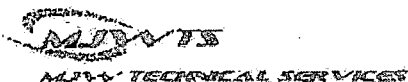
Location Description: NYSCROA

GPS Coordinates (when required): X-Coord: N 42° 27' 17.1" Y-Coord: W 078° 39' 41.5"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info; inst. Condition, etc.)
Ratemeter	1 MIN	8115 cpm	1 MIN	19687 cpm	Y	Y	Y	0845	41.9	Th 232 SK
Ratemeter	1 MIN	8115 cpm	1 MIN	11565 cpm	Y	Y	Y	0845	41.9	Cs 137 SK
Ratemeter	1 MIN	7666 cpm	1 MIN	19014 cpm	Y	Y	Y	1415	59.1	Th 232 SK
Ratemeter	1 MIN	7666 cpm	1 MIN	11034 cpm	Y	Y	Y	1415	59.1	Cs 137 SK
Ratemeter	1 MIN	7384 cpm	1 MIN	19504 cpm	Y	Y	Y	1515	58.8	Th 232 SK
Ratemeter	1 MIN	7384 cpm	1 MIN	10894 cpm	Y	Y	Y	1515	58.8	Cs 137 SK
Bicron	NA	5 uRem/hr	NA	17 uRem/hr	Y	Y	Y	0845	41.9	Th 232 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1415	59.1	Th 232 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1515	58.8	Th 232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability

Appendix E –  
Instrument Check Sheets November



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm + 20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm + 20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

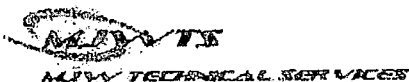
Name: J. Edwards Title: RCF Date: 11/02/15 Time: 0857

## 4. Site or Location:

Site/Job: C-3 Location Description: Field  
 GPS Coordinates (when required): X-Coord: N 42° 27' 05.2" Y-Coord: W 078° 58' 50.7"

Instrument Field Response					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	6822 cpm	1 min	19447 cpm	Y	Y	Y	0902	53.2°	Th-232 SK
Ratemeter	1 min	6822 cpm	1 min	16731 cpm	Y	Y	Y	0908	53.4°	Cs-137 SK
Ratemeter	1 min	8060 cpm	1 min	20355 cpm	Y	Y	Y	1300	69.8	Th-232 SK
Ratemeter	1 min	8060 cpm	1 min	11589 cpm	Y	Y	Y	1300	69.8	Cs-137 SK
Ratemeter				N/A						
Ratemeter				N/A						
Bicron	NA	4 uRem/hr	NA	165 uRem/hr	Y	Y	Y	0904	53.2°	Th-232 SK
Bicron	NA	5 uRem/hr	NA	16 uRem/hr	Y	Y	Y	1300	69.8	Th-232 SK
Bicron	NA	N/A	NA	N/A		N/A				Th-232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: uCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT Date: 11/05/15 Time: 0911

4 Site or Location: Site/Job: Rock Springs Rd Location Description: Across main entrance WVDP  
 GPS Coordinates (when required): X-Coord: 42°26'30.434" Y-Coord: 78°39'19.2666"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1min	7473 cpm	1min	19893 cpm	Y	Y	Y	0916	64.9°	Th-232 DE
Ratemeter	1min	7473 cpm	1min	11238 cpm	Y	Y	Y	0920	68.1°	Cs-137 DE
Ratemeter	1min	12719 cpm	1min	21357 cpm	Y	Y	Y	1315	78.6	Th-232 DE
Ratemeter	1min	12719 cpm	1min	18619 cpm	Y	Y	Y	1322	76.2°	Cs-137 DE
Ratemeter	1min	13023 cpm	1min	20809 cpm	Y	Y	Y	1502	76.2°	Th-232 DE
Ratemeter	1min	13023 cpm	1min	12028 cpm	Y	Y	Y	1509	76.1°	Cs-137 DE
Bicron	NA	8 uRem/hr	NA	18 uRem/hr	Y	Y	Y	0913	64.9°	Th-232 DE
Bicron	NA	8 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1310	78.6°	Th-232 DE
Bicron	NA	7 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1455	75.5°	Th-232 DE

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



JMW TECHNICAL SERVICES

Rev.1 10/18/15

## Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm + 20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm + 20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: ECT Date: 11/18/15 Time: 1000

4. Site or Location: Site/Job: 4.3Location Description: FIELD

GPS Coordinates (when required): X-Coord: N 42° 22.425 Y-Coord: W 79° 22.930

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
ratemeter	1 MIN	8680 cpm	1 MIN	20839 cpm	Y	Y	Y	1000	57.7	Th232 SK
temeter	1 MIN	8680 cpm	1 MIN	12256 cpm	Y	Y	Y	1000	57.7	Cs137 SK
temeter	1 MIN	8533 cpm	1 MIN	20704 cpm	Y	Y	Y	1330	61.8	Th232 SK
temeter	1 MIN	8533 cpm	1 MIN	11946 cpm	Y	Y	Y	1330	61.8	Cs137 SK
temeter	1 MIN	8563 cpm	1 MIN	20124 cpm	Y	Y	Y	1540	60.2	Th232 SK
arneter	1 MIN	8563 cpm	1 MIN	12006 cpm	Y	Y	Y	1540	60.2	Cs137 SK
ron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1000	57.7	Th232 SK
ron	NA	8 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1330	61.8	Th232 SK
ron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1540	60.2	Th232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.





## Instrument Field Response Check Log

### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No: 206098  
 Detector 1: Make/Model: Ludlum 44-70 Serial No: PR112647  
 Detector 2: Make/Model: \_\_\_\_\_ Serial No: \_\_\_\_\_

Cal. Due Date: 09/01/16

### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: 0.01 units: μCi Assay Date: 12/22/10  
 Instrument Response Acceptance Range (source cpm - bkg +/- 20%): net cpm + 20% 53798 net cpm - 20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119525-12 Activity: 0.02 units: μCi Assay Date: NA  
 Instrument Response Acceptance Range (source cpm - bkg +/- 20%): net cpm + 20% 13273 net cpm - 20% 8849

### 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT

Date: 1008 Time: 1118/15

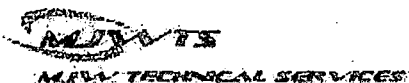
### 4. Site or Location: Site/Job: Aren 43

Location Description: Woods

GPS Coordinates (when required): X-Coord: N 42° 32.427 Y-Coord: W 79° 02.926

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Det. No. (1/2)	Bkg Cnt Time	Bkg (avg. of 3) (cpm)	Source Cnt Time	Source Response (cpm - bkg) Net cpm	+/- 20% of source Net cpm (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (F)	Initials and Comments (add'l info: temperature, inst. Condition, etc.)
1	1min	9765 cpm	—	—	—	✓	✓	1010	57.9°	JE
2	1min	—	1min	11466 c	Y	✓	✓	1013	59.4°	JE Th-232
3	1min	—	1min	46783	Y	✓	✓	1016	57.8°	JE Cs-137
4	1min	9456 cpm	—	46365	Y	✓	✓	1350	62.2°	JE Th-232
5	—	—	1min	46365	Y	✓	✓	1358	62.0°	JE
6	—	—	1min	11694	Y	✓	✓	1341	62.6°	JE Cs-137
7	1min	—	—	9824	Y	✓	✓	1530	60.2°	JE
8	—	—	1min	46665	Y	✓	✓	1538	60.0°	JE Th-232
9	—	—	1min	11838	Y	✓	✓	1543	60.0°	JE Cs-137

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR111127  
 Bicorn MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 29 uRem/hr -20% 19 net cpm +20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT Date: 11/19/15 Time: 0950

## 4. Site or Location: Site/Job: ALCN 4-3

Location Description: PARKING LOT

GPS Coordinates (when required): X-Coord: N 42° 32' 28.3" Y-Coord: W 078° 59' 51.2"

Instrument Field Response					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time OF check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. condition, etc.)
Ratemeter	1 MIN	750.7 cpm	1 MIN	1986.6 cpm	Y	Y	Y	0950	63.5	Th232 SK
Ratemeter	1 MIN	750.7 cpm	1 MIN	1104.6 cpm	Y	Y	Y	0950	63.5	Cs137 SK
Ratemeter	1 MIN	811.1 cpm	1 MIN	2060.2 cpm	Y	Y	Y	1300	64.5	Th232 SK
Ratemeter	1 MIN	811.1 cpm	1 MIN	1136.5 cpm	Y	Y	Y	1300	64.5	Cs137 SK
Ratemeter	1 MIN	781.0 cpm	1 MIN	2027.2 cpm	Y	Y	Y	1515	67.4	Th232 SK
Ratemeter	1 MIN	781.0 cpm	1 MIN	1130.0 cpm	Y	Y	Y	1515	67.4	Th232 SK Cs137
Bicorn	NA	5 uRem/hr	NA	18 uRem/hr	Y	Y	Y	0950	63.5	Th232 SK
Bicorn	NA	7 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1300	64.5	Th232 SK
Bicorn	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1515	67.4	Th232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



## Instrument Field Response Check Log

### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 806098  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR112642  
 Detector 2: Make/Model: \_\_\_\_\_ Serial No. \_\_\_\_\_

Cal. Due Date: 07/01/16

### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 181 Activity: 40.1 units: MC  
 Instrument Response Acceptance Range (source cpm - bkg +/- 20%):

Assay Date: 01/05/10  
 net cpm + 20% 53798 net cpm - 20% 35866

Source 2 Isotope: CS-137 Serial No.: 119E2312 Activity: 0.02 units: MC  
 Instrument Response Acceptance Range (source cpm - bkg +/- 20%):

Assay Date: NA  
 net cpm + 20% 13273 net cpm - 20% 8849

### 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RET

Date: 11/19/15 Time: 1000

### 4. Site or Location: Site/Job: Aren 4.3

Location Description: Woods

GPS Coordinates (when required): X-Coord: N 42° 32' 4.27" Y-Coord: W 74° 02' 9.26"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Det. No. (1/2)	Bkg Cnt Time	Bkg (avg of 3) (cpm)	Source Cnt Time	Source Response (cpm - bkg) Net cpm	+/- 20% of source Net cpm (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (F)	Initials and Comments (add'l info: temperature, Inst. Condition, etc.)
1	1 min	9368	—	—	—	Y	Y	1005	62.9°	JE
1	—	—	1 min	47358	Y	Y	Y	1008	62.9°	Th-232 JE
1	—	—	1 min	11261	Y	Y	Y	1012	63.8°	CS-137 JE
1	1 min	9200	—	—	Y	Y	Y	1308	64.9°	JE
1	—	—	1 min	45493	Y	Y	Y	1313	62.0°	Th-232 JE
1	—	—	1 min	11263	Y	Y	Y	1318	62.0°	CS-137 JE
1	1 min	9258	—	—	Y	Y	Y	1518	65.3°	JE
1	—	—	1 min	46811	Y	Y	Y	1520	64.7°	Th-232 JE
1	—	—	1 min	11240	Y	Y	Y	1528	64.0°	CS-137 JE

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No: 252737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No: PR111127  
 Bicron MicroRem Meter: Serial No: A224U Cal. Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No: 87E13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: PCT Date: 1/20/15 Time: 0930

#### 4. Site or Location: Site/Job: 4.3

Location Description: W-205

GPS Coordinates (when required): X-Coord: 42° 32' 28.3" Y-Coord: W 74° 02' 54.7"

Instrument Field Response					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1 min	9100 cpm	1 min	21646 cpm	Y	Y	Y	0940	45.1	Th232 SK
Ratemeter	1 min	9100 cpm	1 min	12620 cpm	Y	Y	Y	0940	45.1	Cs137 SK
Ratemeter	1 min	7626 cpm	1 min	19986 cpm	Y	Y	Y	1300	44.2	Th232 SK
Ratemeter	1 min	7626 cpm	1 min	11304 cpm	Y	Y	Y	1300	44.2	Cs137 SK
Ratemeter	1 min	7797 cpm	1 min	19322 cpm	Y	Y	Y	1545	45.5	Th232 SK
Ratemeter	1 min	7797 cpm	1 min	11226 cpm	Y	Y	Y	1545	45.5	Cs137 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	0940	45.1	Th232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1300	44.2	Th232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1545	45.5	Th232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



MINTS TECHNICAL SERVICES

## Instrument Field Response Check Log

### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 206098  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR13242  
 Detector 2: Make/Model: \_\_\_\_\_ Serial No. \_\_\_\_\_

Cal. Due Date: 9/01/16

### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: μCi Assay Date: 12/20/10  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):  
 net cpm + 20% 52715 net cpm - 20% 35846

Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: μCi Assay Date: \_\_\_\_\_  
 Instrument Response Acceptance Range (source cpm - bkg +/-20%):  
 net cpm + 20% 13273 net cpm - 20% 8849

### 3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RLT

Date: 11/20/15 Time: 0940

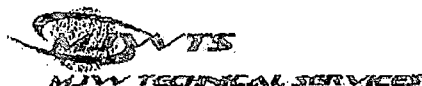
### 4. Site or Location: Site/Job: Area 4.3

Location Description: Woods

GPS Coordinates (when required): X-Coord: N 42° 32.427 Y-Coord: W 79° 02.920

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Det. No. (1/2)	Bkg Cnt Time	Bkg (avg of 3) (cpm)	Source Cnt Time	Source Response (cpm - bkg) Net cpm	+/- 20% of source Net cpm (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (F)	Initials and Comments (add'l info: temperature, inst. Condition, etc.)
1	1min	9943	—	—	—	Y	Y	0944	48.1°	OK
1	—	—	1min	469461	Y	Y	Y	0949	52.7°	Th-232 GE
1	—	—	1min	11916	Y	Y	Y	0953	53.6°	Cs-137 GE
1	1min	9752	—	—	Y	Y	Y	1114	47.6°	Th-232 GE
1	—	—	1min	46193	Y	Y	Y	1118	47.4°	Cs-137 Th-232 GE
1	—	—	1min	11794	Y	Y	Y	1124	47.4°	Cs-137 GE
1	1min	9815	—	—	Y	Y	Y	1549	44.9°	GE
1	—	—	1min	45538	Y	Y	Y	1553	44.7°	Th-232 GE
1	—	—	1min	11669	Y	Y	Y	1556	44.7°	Cs-137 GE

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev.1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Lucor 2241-2 Serial No. 286697 Cal. Due Date: 09/01/16  
 Detector 1: Make/Model: Lucor 44-1 Serial No. PR112142  
 Bicron MicroRem Meter: Serial No. 1487 Cal. Due Date: 6/13/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: CO-1 units: µCi Assay Date: 6/24/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm + 20% 53795 net cpm -20% 35866  
 Source 2 Isotope: Cs-137 Serial No.: 119523-12 Activity: 0.02 units: µCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 15075 net cpm -20% 8849

## 3. Technician/Worker Performing Checks:

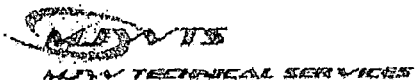
Name: J Edwards Title: RCT Date: 11/23/15 Time: 1000

## 4. Site or Location:

Site/Job: Area 4.3 Location Description: Woods  
 GPS Coordinates (when required): X-Coord: N 42° 52.427 Y-Coord: W 79° 02.926

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1min	10172cpm	1min	46597cpm	Y	Y	Y	1009	37.4°	Th-232 DE
Ratemeter	1min	49710172cpm	1min	11970cpm	Y	Y	Y	1015	37.7°	Cs-137 DE
Ratemeter	1min	9841cpm	1min	46371cpm	Y	Y	Y	1349	35.9°	Th-232 DE
Ratemeter	1min	9841cpm	1min	11891cpm	Y	Y	Y	1348	36.8°	Cs-137 DE
Bicron	NA	5 uRem	NA	40 uRem/hr	Y	Y	Y	1005	37.2°	Th-232 DE
Bicron	NA	9 uRem	NA	30 uRem/hr	Y	Y	Y	1540	37.0°	Th-232 DE
Bicron	NA		NA	11/23/15 DE						
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: UDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: UDLUM 44-10 Serial No. PR 111127  
 Blicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 13375 uRem/hr -20% 8919 net cpm +20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: Kore Brown Title: RET Date: 11-23-15 Time: 10:00

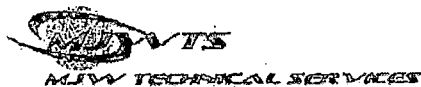
#### 4. Site or Location: Site/Job: 4.3

Location Description: Woods

GPS Coordinates (when required): X-Coord: N 79°02'55.6" Y-Coord: N 42°32'25.5"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1	795.4 cpm	1	20631 cpm	Y	Y	Y	1000	37.0	Th-232 SK
Ratemeter	1	795.4 cpm	1	11465 cpm	Y	Y	Y	1000	37.0	Cs-137 SK
Ratemeter	1 MIN	7639 cpm	1 MIN	20249 cpm	Y	Y	Y	1330	37.5	Th-232 SK
Ratemeter	1 MIN	7639 cpm	1 MIN	11450 cpm	Y	Y	Y	1330	37.5	Cs-137 SK
Ratemeter	1 MIN	7658 cpm	1 MIN	19888 cpm	Y	Y	Y	1545	37.2	Th-232 SK
Ratemeter	1 MIN	7658 cpm	1 MIN	11424 cpm	Y	Y	Y	1545	37.2	Cs-137 SK
Blicron	NA	3 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1000	37.0	Th-232 SK
Blicron	NA	3 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1330	37.5	Th-232 SK
Blicron	NA	4 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1545	37.2	Th-232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and background count-rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: 1.16in 221-2 Serial No. 206085 Cal. Due Date: 07/01/16  
 Detector 1: Make/Model: 1.16in 44-10 Serial No. PR112642  
 Bicon MicroRem Meter: Serial No. 1487 Cal. Due Date: 06/18/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: MC Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm + 20% 5379.8 net cpm -20% 3586.6  
 Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: MC Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20%        uRem/hr -20%        net cpm + 20% 132.73 net cpm -20% 8999

## 3. Technician/Worker Performing Checks:

Name: J. E. Edwards Title: RCT

Date: 11/23/15 Time: 1545

## 4. Site or Location:

Site/Job: Area 4.3  
 GPS Coordinates (when required): X-Coord: N42°32'42" Y-Coord: W79°02'02"

Location Description: woods  
 Date: 11/23/15

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1min	9855 cpm	1min	46724 cpm	Y	Y	Y	1553	37.7°	Th-232 DE
Ratemeter	1min	9855 cpm	1min	11834 cpm	Y	Y	Y	1557	37.5°	Cs-137 DE
Ratemeter										
Ratemeter										
Bicon	NA	2 uRem/hr	NA	30 cpm/hr	Y	Y	Y	1548	37.5°	Th-232 DE
Bicon	NA		NA	11/23/15 DE						
Bicon	NA		NA							
Bicon	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.





Rev 1 10/18/15

### Instrument Field Response Check Log

**1. Instrument Information<sup>1</sup>**

Ratemeter: Make/Model: Ludlum 2241-2 Serial No: 206098 Cal. Due Date: 09/01/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. 0101242  
 Bicron MicroRem Meter: Serial No. N/A Cal. Due Date: N/A

**2. Check Source Information:**

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 0.1 units: MC Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 53798 net cpm -20% 35566  
 Source 2 Isotope: CS-137 Serial No.: 119E23-12 Activity: 0.02 units: MC Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13278 net cpm -20% 8849

**3. Technician/Worker Performing Checks:**

Name: J. Edwards Title: RCT Date: 11/24/15 Time: 0953

**4. Site or Location:**

Site/Job: Area 4.3 Location Description: gravel piles  
 GPS Coordinates (when required): X-Coord: N 42° 32' 28.1" Y-Coord: W 87° 03' 04.7"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1min	9246 cpm	1min	4666.9 cpm	Y	Y	Y	0957	41.1°	Th-232 OE
Ratemeter	1min	9246 cpm	1min	11067 cpm	Y	Y	Y	0947	41.0°	CS-137 OE
Ratemeter	1min	9726 cpm	1min	46308 cpm	Y	Y	Y	1114	40.2°	Th-232 OE
Ratemeter	1min	9726 cpm	1min	11729 cpm	Y	Y	Y	1126	40.0°	CS-137 OE
Ratemeter	1min	9562 cpm	1min	45652 cpm	Y	Y	Y	1450	44.4°	Th-232 OE
Ratemeter	1min	9562 cpm	1min	11514 cpm	Y	Y	Y	1457	43.8°	CS-137 OE
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 252737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: ≤0.1 units: μCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm + 20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: μCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% --- uRem/hr -20% --- net cpm + 20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: Det. B. B. B. Title: RCT Date: 11-24-15 Time: 12:10

#### 4. Site or Location Site/Job: Environment Dept. Building - Backgrounds Location Description: Parking Lot

GPS Coordinates (when required): X-Coord: N 78° 51' 50.2" Y-Coord: N 42° 32' 28.3"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1 MIN	7793 cpm	1 MIN	20552 cpm	Y	Y	Y	1210	42.0	Th-232 SK
Ratemeter	1 MIN	7793 cpm	1 MIN	11386 cpm	Y	Y	Y	1210	42.0	Cs-137 SK
Ratemeter	1 MIN	7716 cpm	1 MIN	19954 cpm	Y	Y	Y	1430	43.3	Th-232 SK
Ratemeter	1 MIN	7716 cpm	1 MIN	11483 cpm	Y	Y	Y	1430	43.3	Cs-137 SK
Ratemeter	---	N/A	---	---	---	---	N/A	---	---	---
Ratemeter	---	N/A	---	---	---	---	N/A	---	---	---
Bicron	NA	4 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1210	42.0	Th-232 SK
Bicron	NA	5 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1430	43.3	Th-232 SK
Bicron	NA	N/A	NA	N/A	---	---	N/A	---	---	---

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm + 20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: Tom Bidaw Title: RCT Date: 11-25-15 Time: 0900

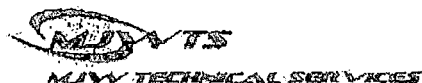
## 4. Site or Location: Site/Job: Dept. Building - 4/4

Location Description: parking lot

GPS Coordinates (when required): X-Coord: N 42° 32' 28.3" Y-Coord: W 78° 59' 50.2"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add: Info: Inst. Condition, etc.)
Ratemeter	1	7748 cpm	1	20388 cpm	Y	Y	Y	0900	37.0	Th-232 SK
Ratemeter	1	7748 cpm	1	11328 cpm	Y	Y	Y	0900	37.0	Cs-137 SK
Ratemeter	1	5925 cpm	1	17979 cpm	Y	Y	Y	1230	50.0	Th-232 SK
Ratemeter	1	5925 cpm	1	9560 cpm	Y	Y	Y	1230	50.0	Cs-137 SK
Ratemeter			N/A				N/A			
Ratemeter			N/A				N/A			
Bicron	NA	5 uRem	NA	18 uRem/hr	Y	Y	Y	0900	37.0	Th-232 SK
Bicron	NA	4 uRem	NA	17 uRem/hr	Y	Y	Y	1230	50.0	Th-232 SK
Bicron	NA	N/A	NA	N/A			N/A			

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model:  Ludlum 2244-2   
 Detector 1: Make/Model:  Ludlum 44-10   
 Bicron MicroRem Meter:

Serial No.  006098   
 Serial No.  PE112642   
 Serial No.  N/A

Cal. Due Date:  09/01/16   
 Cal. Due Date:  N/A

2. Check Source Information:

Source 1 Isotope:  Th-232  Serial No.:  111   
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_

Activity:  50.1  units:  uC   
 uRem/hr -20% \_\_\_\_\_

Assay Date:  12/30/10   
 net cpm + 20%  53794  net cpm -20%  35566

Source 2 Isotope:  Cs-137  Serial No.:  119E23-12   
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_

Activity:  0.02  units:  uC   
 uRem/hr -20% \_\_\_\_\_

Assay Date: \_\_\_\_\_  
 net cpm + 20%  13273  net cpm -20%  8849

3. Technician/Worker Performing Checks:

Name:  J. Edwards

Title:  RCT

Date:  11/25/15  Time:  0917

4. Site or Location:

Site/Job:  Environmental Dept / Area 4.4

Location Description:  Parking lot / woods

GPS Coordinates (when required): X-Coord:  N 42° 31.978'  Y-Coord:  W 079° 00.963'

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1min	8769 cpm	1min	45190 cpm	Y	Y	Y	0919	41.1°	Th-232 JE
Ratemeter	1min	8767 cpm	1min	10628 cpm	Y	Y	Y	0925	41.5°	Cs-137 JE
Ratemeter	1min	6561 cpm	1min	44091 cpm	Y	Y	Y	1230	50.9°	Th-232 JE
Ratemeter	1min	6561 cpm	1min	8885 cpm	Y	Y	Y	1235	53.6°	Cs-137 JE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT Date: 11/20/15 Time: 0930

#### 4. Site or Location:

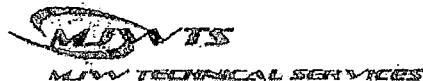
Site/Job: 4.4

Location Description: FIELD

GPS Coordinates (when required): X-Coord: N 42° 31' 58.5" Y-Coord: W 67° 00' 57.9"

Instrument Field Response					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1	5545 cpm	1	17689 cpm	Y	Y	Y	0945	31.9	Th232 SK
Ratemeter	1	5545 cpm	1	9185 cpm	Y	Y	Y	0945	31.9	Cs137 SK
Ratemeter	1	5626 cpm	1	18246 cpm	Y	Y	Y	1230	42.8	Th232 TB
Ratemeter	1	5626 cpm	1	9210 cpm	Y	Y	Y	1230	42.8	Cs137 SK
Ratemeter	1	5722 cpm	1	18441 cpm	Y	Y	Y	1500	47.8	Th232 SK
Ratemeter	1	5722 cpm	1	9261 cpm	Y	Y	Y	1500	47.8	Cs137 SK
Bicron	NA	4 uRem/hr	NA	1.7 uRem/hr	Y	Y	Y	0945	31.9	Th232 SK
Bicron	NA	4 uRem/hr	NA	1.5 uRem/hr	Y	Y	Y	1230	42.8	Th232 SK
Bicron	NA	4 uRem/hr	NA	1.7 uRem/hr	Y	Y	Y	1500	47.8	Th232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



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### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LiDium 2241-2 Serial No. 201079  
 Detector 1: Make/Model: LiDium 44-1B Serial No. PR112642  
 Bicon MicroRem Meter: Serial No. 1687

Cal. Due Date: 07/01/16

Cal. Due Date: 06/18/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: CC-1 units: MC Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm +20% 5377% net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119623-12 Activity: 0.07 units: MC Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm +20% 13273 net cpm -20% 8849

#### 3. Technician/Worker Performing Checks:

Name: T. Edwards

Title: RCT

Date: 11/30/15 Time: 0951

#### 4. Site or Location:

Site/Job: Area 4.4/4.5

Location Description: Woods

GPS Coordinates (when required): X-Coord: N 42° 31' 51.02" Y-Coord: W 78° 55' 44.08"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	6167 cpm	1 min	42744 cpm	Y	Y	Y	0957	37.0°	Th-232 JE
Ratemeter	1 min	6167 cpm	1 min	8945 cpm	Y	Y	Y	1002	37.2°	Cs-137 JE
Ratemeter	1 min	6720 cpm	1 min	42845 cpm	Y	Y	Y	1156	43.3°	Th-232 JE
Ratemeter	1 min	6420 cpm	1 min	8920 cpm	Y	Y	Y	1200	43.5°	Cs-137 JE
Ratemeter	1 min	6789 cpm	1 min	45788 cpm	Y	Y	Y	1460	47.1°	Th-232 JE
Ratemeter	1 min	6789 cpm	1 min	8935 cpm	Y	Y	Y	1454	47.0°	Cs-137 JE
Bicon	NA	5 uRem/hr	NA	30 uRem/hr	Y	Y	Y	1230	44.0°	Th-232 JE
Bicon	NA	6 uRem/hr	NA	40 uRem/hr	Y	Y	Y	1446	47.1°	Th-232 JE
Bicon	NA		NA	11545 JE						

1. Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.

2. Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability

Appendix E –  
Instrument Check Sheets December



MDA TECHNICAL SERVICES

Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 22 uRem/hr -20% 14 net cpm + 20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20%        uRem/hr -20%        net cpm + 20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT Date: 12/1/15 Time: 0930

## 4. Site or Location: Site/Job: 4.5 Location Description: FIELD

GPS Coordinates (when required): X-Coord: N 42° 31' 58.6" Y-Coord: W 079° 00' 58.1"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1	5456 cpm	1	17679 cpm	Y	Y	Y	0930	49.1	Th 232 SK
Ratemeter	1	5456 cpm	1	9125 cpm	Y	Y	Y	0930	49.1	Cs 137 SK
Ratemeter	1	7755 cpm	1	20128 cpm	Y	Y	Y	1230	52.3	Th 232 SK
Ratemeter	1	7755 cpm	1	11356 cpm	Y	Y	Y	1230	52.3	Cs 137 SK
Ratemeter	1	5795 cpm	1	18280 cpm	Y	Y	Y	1530	53.2	Th 232 SK
Ratemeter	1	5795 cpm	1	9520 cpm	Y	Y	Y	1530	53.2	Cs 137 SK
Bicron	NA	3 uRem/hr	NA	17 uRem/hr	Y	Y	Y	0930	49.1	Th 232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1230	52.3	Th 232 SK
Bicron	NA	4 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1530	53.2	Th 232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 3241-2

Serial No. 206098

Cal. Due Date: 07/01/16

Detector 1: Make/Model: Ludlum 44-10

Serial No. PR1121612

Cal. Due Date: 06/18/16

Bicron MicroRem Meter:

Serial No. 1487

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111

Activity: 40.1 units: MC

Assay Date: 12/30/10

Response Acceptance Range (+/-20%): uRem/hr +20% 41

uRem/hr -20% 29

net cpm + 20% 53799 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23.12

Activity: 0.02 units: MC

Assay Date: NA

Response Acceptance Range (+/-20%): uRem/hr +20%       

uRem/hr -20%       

net cpm + 20% 13278 net cpm -20% 8849

3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: RCT

Date: 12/01/15 Time: 0930

4. Site or Location:

Site/Job: Area 4.5

Location Description: Woods

GPS Coordinates (when required): X-Coord: N 42° 31' 51.102" Y-Coord: W 78° 58' 44.048"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	7112 cpm	1 min	44204 cpm	Y	Y	Y	0935	49.1°	Th-232 OK
Ratemeter	1 min	7112 cpm	1 min	8984 cpm	Y	Y	Y	1141	49.2°	Cs-137 OK
Ratemeter	1 min	8664 cpm	1 min	46307 cpm	Y	Y	Y	1230	52.3°	Th-232 OK
Ratemeter	1 min	8664 cpm	1 min	10795 cpm	Y	Y	Y	1225	52.5°	Cs-137 OK
Ratemeter	1 min	6467 cpm	1 min	43667 cpm	Y	Y	Y	1529	53.7°	Th-232 OK
Ratemeter	1 min	6467 cpm	1 min	8859 cpm	Y	Y	Y	1524	53.2°	Cs-137 OK
Bicron	NA	6 uRem/hr	NA	46 uRem/hr	Y	Y	Y	0931	49.5°	Th-232 OK
Bicron	NA	6 uRem/hr	NA	30 uRem/hr	Y	Y	Y	1215	52.3°	Th-232 OK
Bicron	NA	5 uRem/hr	NA	30 uRem/hr	Y	Y	Y	1520	54.1°	Th-232 OK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 200098  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR112600  
 Bicon MicroRem Meter: Serial No. 1487

Cal. Due Date: 09/01/16

Cal. Due Date: 06/18/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 50.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm + 20% 53798 net cpm -20% 35866

Source 2 Isotope: CS-137 Serial No.: 119E23-12 Activity: 0.02 units: uCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13273 net cpm -20% 8849

## 3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: RCT

Date: 12/15/15 Time: 0805

## 4. Site or Location:

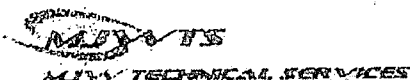
Site/Job: Area 4.5

Location Description: woods

GPS Coordinates (when required): X-Coord: N 42° 31' 51.102" Y-Coord: W 78° 58' 44.048"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	6336 cpm	1 min	42215 cpm	Y	Y	Y	0810	42.0°	Th-232 JE
Ratemeter	1 min	6336 cpm	1 min	8992 cpm	Y	Y	Y	0818	42.4°	CS-137 JE
Ratemeter	1 min	6556 cpm	1 min	43174 cpm	Y	Y	Y	1115	45.0°	Th-232 DE
Ratemeter	1 min	6556 cpm	1 min	8855 cpm	Y	Y	Y	1120	45.2°	CS-137 JE
Ratemeter	1 min	7120 cpm	1 min	44215 cpm	Y	Y	Y	1533	46.0°	Th-232 DE
Ratemeter	1 min	7120 cpm	1 min	9137 cpm	Y	Y	Y	1537	45.8°	CS-137 DE
Bicon	NA	7 uRem/hr	NA	40 uRem/hr	Y	Y	Y	1400	44.0°	Th-232 DE
Bicon	NA	7 uRem/hr	NA	50 uRem/hr	Y	Y	Y	1527	46.0°	Th-232 DE
Bicon	NA	7 uRem/hr	NA	12/02/15 DE						

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: 0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 13375 uRem/hr -20% 8919 net cpm +20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT Date: 12/2/15 Time: 0815

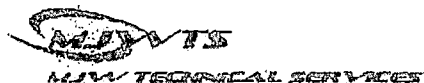
#### 4. Site or Location: Site/Job: 4.2

Location Description: WOODS

GPS Coordinates (when required): X-Coord: 78°59'50.9"W Y-Coord: 42°32'28.4"N @ environment dept building

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. condition, etc.)
Ratemeter	1	7995 cpm	1	20278 cpm	Y	Y	Y	0830	45.8	Th 232 SK
Ratemeter	1	7995 cpm	1	11700 cpm	Y	Y	Y	0830	45.8	Cs 137 SK
Ratemeter	1	7861 cpm	1	20365 cpm	Y	Y	Y	1230	45.1	Th 232 SK
Ratemeter	1	7861 cpm	1	11637 cpm	Y	Y	Y	1230	45.1	Cs 137 SK
Ratemeter	1	6007 cpm	1	18677 cpm	Y	Y	Y	1530	44.6	Th 232 SK
Ratemeter	1	6007 cpm	1	9588 cpm	Y	Y	Y	1530	44.6	Cs 137 SK
Bicron	NA	5 uRem/hr	NA	17 uRem/hr	Y	Y	Y	0830	45.8	Th 232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1230	45.1	Th 232 SK
Bicron	NA	4 uRem/hr	NA	16 uRem/hr	Y	Y	Y	1530	44.6	Th 232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Lucion 2241-2  
 Detector 1: Make/Model: Lucion 44-10  
 Bicron MicroRem Meter:

Serial No. 24698  
 Serial No. PR112642  
 Serial No. NA

Cal. Due Date: 09/01/16

Cal. Due Date: NA

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_

Activity: 0.1 units: uRem/hr  
 uRem/hr -20% \_\_\_\_\_

Assay Date: 12/30/10  
 net cpm + 20% 53798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_

Activity: 0.02 units: uRem/hr  
 uRem/hr -20% \_\_\_\_\_

Assay Date: NA  
 net cpm + 20% 13273 net cpm -20% 9849

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: RET

Date: 12/03/15 Time: 0930

#### 4. Site or Location:

Site/Job: Area 4.2

Location Description: wood's

GPS Coordinates (when required): X-Coord: N 42° 52.422" Y-Coord: W 079° 02.917"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1 min	9949 cpm	1 min	45122 cpm	Y	Y	Y	0939	37.3°	Th-232 PE
Ratemeter	1 min	9949 cpm	1 min	11611 cpm	Y	Y	Y	0845	37.5°	Cs-137 PE
Ratemeter	1 min	10408 cpm	1 min	46322 cpm	Y	Y	Y	1051	42.2°	Th-232 PE
Ratemeter	1 min	10488 cpm	1 min	11951 cpm	Y	Y	Y	1056	42.0°	Cs-137 PE
Ratemeter										
Ratemeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.

# Instrument Field Response Check Log

## 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicon MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Tl-232 Serial No.: 116 Activity: <0.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87E13-AR Activity: 0.02 units: uCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 13375 uRem/hr -20% 8919 net cpm +20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: Ten Brown Title: RCT Date: 12-3-15 Time: 0830

## 4. Site or Location:

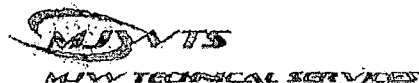
Site/Job: 4/2

Location Description: Field

GPS Coordinates (when required): X-Coord: N 12°32' 44.5" Y-Coord: W 74°02' 09.13"

Instrument Field Response					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add info: inst. Condition, etc.)
Ratemeter	1	8212 cpm	1	20,321 cpm	Y	Y	Y	0830	43.8	Tl-232 TB
Ratemeter	1	8212 cpm	1	11,887 cpm	Y	Y	Y	0830	43.8	Cs-137 TB
Ratemeter	1	8115 cpm	1	20522 cpm	Y	Y	Y	1115	44.6	Tl-232 SK
Ratemeter	1	8115 cpm	1	11640 cpm	Y	Y	Y	1115	44.6	Cs-137 SK
Ratemeter			N/A			N/A				
Ratemeter			N/A			N/A				
Bicon	NA	1.6 uRem/hr	NA	15 uRem/hr	Y	Y	Y	0830	43.8	Tl-232 TB
Bicon	NA	5 uRem/hr	NA	16 uRem/hr	Y	Y	Y	1115	44.6	Tl-232 SK
Bicon	NA	N/A	NA	N/A			N/A			

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 221-2  
 Detector 1: Make/Model: Ludlum 44-10  
 Bicron MicroRem Meter:

Serial No. 206098  
 Serial No. FR112642  
 Serial No. 1487

Cal. Due Date: 09/01/16

Cal. Due Date: 06/18/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41

Activity: 40.1 units: MC  
 uRem/hr -20% 27

Assay Date: 12/30/10  
 net cpm + 20% 53795 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41

Activity: 002 units: MC  
 uRem/hr -20% 27

Assay Date: NA  
 net cpm + 20% 13273 net cpm -20% 5849

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: RCT

Date: 12/07/15 Time: 0855

#### 4. Site or Location:

Site/Job: Area 4.1

Location Description: woods

GPS Coordinates (when required): X-Coord: N 42° 32' 27.172 " Y-Coord: W 78° 59' 50.352 "

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	9196 cpm	1 min	43110 cpm	Y	Y	Y	0857	33.3°	Th-232 FE
Ratemeter	1 min	9196 cpm	1 min	11177 cpm	Y	Y	Y	0903	33.5°	Cs-137 FE
Ratemeter	1 min	11265 cpm	1 min	46744 cpm	Y	Y	Y	1111	33.2°	Th-232 FE
Ratemeter	1 min	11265 cpm	1 min	13173 cpm	Y	Y	Y	1116	34.4°	Cs-137 FE
Ratemeter	1 min	11333 cpm	1 min	48191 cpm	Y	Y	Y	1307	44.1°	Th-232 FE
Ratemeter	1 min	11333 cpm	1 min	13057 cpm	Y	Y	Y	13	44.0°	Cs-137 FE
Bicron	NA	511 cpm/hr	NA	40 cpm/hr	Y	Y	Y	1107	33.2°	Th-232 FE
Bicron	NA	711 cpm/hr	NA	30 cpm/hr	Y	Y	Y	1304	44.1°	Th-232 FE
Bicron	NA		NA	0E 12/07/15						

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.

# Instrument Field Response Check Log

## 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm + 20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RCT Date: 12/7/15 Time: 0900

## 4. Site or Location:

Site/Job: 4.5 Location Description: WOODS/BLUSH  
 GPS Coordinates (when required): X-Coord: N 42° 32' 28.4" Y-Coord: W 078° 59' 50.7"

Instrument Field Response					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time OI check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1	8455 cpm	1	21187 cpm	Y	Y	Y	0900	35.2	TH232 SK
Ratemeter	1	8455 cpm	1	11982 cpm	Y	Y	Y	0900	35.2	Cs137 SK
Ratemeter	1	8098 cpm	1	20712 cpm	Y	Y	Y	1230	41.5	Th232 SK
Ratemeter	1	8098 cpm	1	11414 cpm	Y	Y	Y	1230	41.5	Cs137 SK
Ratemeter	1	8053 cpm	1	20458 cpm	Y	Y	Y	1500	41.1	Th232 SK
Ratemeter	1	8053 cpm	1	11878 cpm	Y	Y	Y	1500	41.1	Cs137 SK
Bicron	NA	5 uRem/hr	NA	17 uRem/hr	Y	Y	Y	0900	35.2	Th232 SK
Bicron	NA	4 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1230	41.5	Th232 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1500	41.1	Th232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1.10/1b.

### Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Lucy/4m 2241-2 Serial No. 806098 Cal. Due Date: 09/01/16  
 Detector 1: Make/Model: Lucy/4m 44-10 Serial No. PR112642  
 Bicron MicroRem Meter: Serial No. 1487 Cal. Due Date: 06/18/16

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: MC Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm +20% 5375 net cpm -20% 3586  
 Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: MC Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20%        uRem/hr -20%        net cpm +20% 5275 net cpm -20% 3849

3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT Date: 12/08/15 Time: 0850

4. Site or Location:

Site/Job: Area 4.1 / SED Location Description: woods / parking lot  
 GPS Coordinates (when required): X-Coord: N 42° 32' 27.172" Y-Coord: W 78° 59' 58.352"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt. Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. condition, etc.)
Ratemeter	1 min	8629 cpm	1 min	43644 cpm	Y	Y	Y	0855	38.5°	Th-232 DE
Ratemeter	1 min	8629 cpm	1 min	10659 cpm	Y	Y	Y	0900	36.5°	Cs-137 DE
Ratemeter	1 min	11682 cpm	1 min	47933 cpm	Y	Y	Y	1058	37.2°	Th-232 DE
Ratemeter	1 min	11682 cpm	1 min	13124 cpm	Y	Y	Y	1103	37.3°	Cs-137 DE
Ratemeter	1 min	9641 cpm	1 min	46245 cpm	Y	Y	Y	1514	45.7°	Th-232 DE
Ratemeter	1 min	9641 cpm	1 min	11346 cpm	Y	Y	Y	1520	45.5°	Cs-137 DE
Bicron	NA	9 uRem/hr	NA	30 uRem/hr	Y	Y	Y	1107	37.3°	Th-232 DE
Bicron	NA	7 uRem/hr	NA	30 uRem/hr	Y	Y	Y	1510	45.7°	Cs-137 DE
Bicron	NA	9 uRem/hr	NA	30 uRem/hr	Y	Y	Y			Th-232 DE

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.





Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2246-2  
 Detector 1: Make/Model: Ludlum 44-10  
 Bicron MicroRem Meter:

Serial No. 200098  
 Serial No. PR12642  
 Serial No. 1487

Cal. Due Date: 07/01/16

Cal. Due Date: 06/19/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41

Activity: 201 units: uCi  
 uRem/hr -20% 27

Assay Date: 12/30/15  
 net cpm + 20% 5378 net cpm -20% 3586

Source 2 Isotope: Cs-137 Serial No.: 119E23-12  
 Response Acceptance Range (+/-20%): uRem/hr +20%       

Activity: 0.07 units: uCi  
 uRem/hr -20%       

Assay Date: NA  
 net cpm + 20% 13273 net cpm -20% 8849

#### 3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: RCF

Date: 12/07/15 Time: 0850

#### 4. Site or Location:

Site/Job: SED / Area 4.1

Location Description: Parking lot / woods

GPS Coordinates (when required): X-Coord: N 42° 22' 27.172" Y-Coord: W 78° 59' 50.352"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	8718 cpm	1 min	45240 cpm	Y	Y	Y	0854	44.1°	Th-232 DE
Ratemeter	1 min	8718 cpm	1 min	10344 cpm	Y	Y	Y	0900	44.2°	Cs-137 DE
Ratemeter	1 min	10071 cpm	1 min	46281 cpm	Y	Y	Y	1120	55.2°	Th-232 DE
Ratemeter	1 min	10071 cpm	1 min	12136 cpm	Y	Y	Y	1130	55.4°	Cs-137 DE
Ratemeter	1 min	10052 cpm	1 min	45769 cpm	Y	Y	Y	1502	56.7°	Th-232 DE
Ratemeter	1 min	10052 cpm	1 min	12135 cpm	Y	Y	Y	1458	56.9°	Cs-137 DE
Bicron	NA	7 uRem/hr	NA	30 cpm / 12 uRem/hr	Y	Y	Y	1123	52.2°	Th-232 DE
Bicron	NA	6 uRem/hr	NA	30 cpm / 12 uRem/hr	Y	Y	Y	1451	56.7°	Th-232 DE
Bicron	NA	NA	NA	DE 12/09/15						

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 2241-2  
 Detector 1: Make/Model: Ludlum 44-18  
 Bicron MicroRem Meter:

Serial No. 206098  
 Serial No. FR112642  
 Serial No. 1457

Cal. Due Date: 07/01/16

Cal. Due Date: 04/15/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41

Activity: 20.5 units: µCi  
 uRem/hr -20% 27

Assay Date: 12/30/10  
 net cpm + 20% 52798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E2312  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41

Activity: 0.02 units: µCi  
 uRem/hr -20% 27

Assay Date: NA  
 net cpm + 20% 13273 net cpm -20% 8849

## 3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: RCT

Date: 12/30/15 Time: 0855

## 4. Site or Location:

Site/Job: SED / Area 4.1

Location Description: parking lot / WDCR

GPS Coordinates (when required): X-Coord: N 42° 32' 27.172" Y-Coord: W 74° 57' 50.352"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. condition, etc.)
Ratemeter	1 min	8575 cpm	1 min	43599 cpm	Y	Y	Y	0908	43.5°	Th-232 JE
Ratemeter	1 min	8575 cpm	1 min	16497 cpm	Y	Y	Y	0908	43.7°	Cs-137 JE
Ratemeter	1 min	9015 cpm	1 min	46870 cpm	Y	Y	Y	1213	52.0°	Th-232 SE
Ratemeter	1 min	9015 cpm	1 min	11113 cpm	Y	Y	Y	1220	52.3°	Cs-137 JE
Ratemeter	1 min	9031 cpm	1 min	43789 cpm	Y	Y	Y	1503	53.7°	Th-232 JE
Ratemeter	1 min	9031 cpm	1 min	11532 cpm	Y	Y	Y	1507	53.7°	Cs-137 JE
Bicron	NA	6 uRem/hr	NA	30 uRem/hr	Y	Y	Y	0910	43.7°	Th-232 JE
Bicron	NA	8 uRem/hr	NA	40 uRem/hr	Y	Y	Y	1216	52.0°	Th-232 JE
Bicron	NA	7 uRem/hr	NA	38 uRem/hr	Y	Y	Y	1509	53.6°	Th-232 JE

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1.10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: uCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KUSMAN Title: RCT Date: 12/10/15 Time: 0900

4. Site or Location: Site/Job: 4.1 Location Description: W.C. & D.S.  
 GPS Coordinates (when required): X-Coord: N 42° 32' 28.3" Y-Coord: W 78° 59' 50.9"

Instrument Field Response					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l Info: Inst. Condition, etc.)
Ratemeter	1	7913 cpm	1	20485 cpm	Y	Y	Y	0900	42.3	Th232 SK
Ratemeter	1	7913 cpm	1	11559 cpm	Y	Y	Y	0900	42.3	Cs137 SK
Ratemeter	1	8236 cpm	1	20495 cpm	Y	Y	Y	1230	54.5	Th232 SK
Ratemeter	1	8236 cpm	1	20495 cpm	Y	Y	Y	1230	54.5	Cs137 SK
Ratemeter	1	8509 cpm	1	21117 cpm	Y	Y	Y	1500	52.8	Th232 SK
Ratemeter	1	8509 cpm	1	12123 cpm	Y	Y	Y	1500	52.8	Cs137 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	0900	42.3	Th232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1230	54.5	Th232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1500	52.8	Th232 SK

1. Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
2. Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.

Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Ludlum 241-2  
Detector 1: Make/Model: Ludlum 44-10  
Bicron MicroRem Meter:

Serial No. 206098  
Serial No. PR112642  
Serial No. 1487

Cal. Due Date: 09/01/16

Cal. Due Date: 06/18/16

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111  
Response Acceptance Range (+/-20%): uRem/hr +20% 41

Activity: 0.1 units: MCi  
uRem/hr -20% 27

Assay Date: 12/30/16  
net cpm +20% 53798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E3-12  
Response Acceptance Range (+/-20%): uRem/hr +20%       

Activity: 0.02 units: MCi  
uRem/hr -20%       

Assay Date: NA  
net cpm +20% 13273 net cpm -20% 8849

3. Technician/Worker Performing Checks:

Name: J. Edwards

Title: ECCT

Date: 12/11/15 Time: 0858

4. Site or Location:

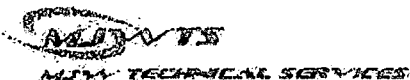
Site/Job: SEP / Area 5.2

Location Description: parking lot / woods

GPS Coordinates (when required): X-Coord: N 42° 32' 27.12" Y-Coord: W 78° 58' 50.352"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1min	8844 cpm	1min	45273 cpm	Y	Y	Y	0903	54.1°	Th-232 DE
Ratemeter	1min	8844 cpm	1min	10775 cpm	Y	Y	Y	0909	54.2°	Cs-137 DE
Ratemeter	1min	8435 cpm	1min	42589 cpm	Y	Y	Y	1304	57.3°	Th-232 DE
Ratemeter	1min	8435 cpm	1min	10451 cpm	Y	Y	Y	1308	57.5°	Cs-137 DE
Ratemeter	1min	7749 cpm	1min	45076 cpm	Y	Y	Y	1440	59.1°	Th-232 DE
Ratemeter	1min	7749 cpm	1min	9475 cpm	Y	Y	Y	1449	59.1°	Cs-137 DE
Bicron	NA	611cpm/hr	NA	30uRem/hr	Y	Y	Y	0905	54.2°	Th-232 DE
Bicron	NA	611cpm/hr	NA	25uRem/hr	Y	Y	Y	1257	57.3°	Th-232 DE
Bicron	NA	514cpm/hr	NA	30uRem/hr	Y	Y	Y	1445	59.0°	Th-232 DE

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 110/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: STEVE KUMAR Title: RET Date: 12/11/15 Time: 0900

## 4. Site or Location:

Site/Job: S-2 Location Description: WOODS  
 GPS Coordinates (when required): X-Coord: N42°32'30.0" Y-Coord: W 79°59'74.9"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add info: Inst. Condition, etc.)
Ratemeter	1.0	7770 cpm	1	19788 cpm	Y	Y	Y	0900	53.0	Th 232 SK
Ratemeter	1	7770 cpm	1	11315 cpm	Y	Y	Y	0900	53.0	Cs 137 SK
Ratemeter	1	7874 cpm	1	20148 cpm	Y	Y	Y	1300	61.3	Th 232 SK
Ratemeter	1	7874 cpm	1	11267 cpm	Y	Y	Y	1300	61.3	Cs 137 SK
Ratemeter	1	6915 cpm	1	19544 cpm	Y	Y	Y	1500	59.0	Th 232 SK
Ratemeter	1	6915 cpm	1	10359 cpm	Y	Y	Y	1500	59.0	Cs 137 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	0900	53.0	Th 232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1300	61.3	Th 232 SK
Bicron	NA	5 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1500	59.0	Th 232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



MVA TECHNICAL SERVICES

Rev 1 10/18/15

## Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. FR111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: uCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm + 20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: uCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm + 20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: RET Date: 12/14/15 Time: 0800

## 4. Site or Location:

Site/Job: S-1 Location Description: WOODS  
 GPS Coordinates (when required): X-Coord: Y-Coord:

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1	7642 cpm	1	19887 cpm	Y	Y	Y	0815	60.4	Th232 SK
Ratemeter	1	7642 cpm	1	11368 cpm	Y	Y	Y	0815	60.4	Cs137 SK
Ratemeter	1	7797 cpm	1	20369 cpm	Y	Y	Y	1230	69.8	Th232 SK
Ratemeter	1	7797 cpm	1	11539 cpm	Y	Y	Y	1230	69.8	Cs137 SK
Ratemeter	1	7156 cpm	1	19588 cpm	Y	Y	Y	1430	68.4	Th232 SK
Ratemeter	1	7156 cpm	1	10489 cpm	Y	Y	Y	1430	68.6	Cs137 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	0815	60.4	Th232 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1230	69.8	Th232 SK
Bicron	NA	8 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1430	68.6	Th232 SK

1. Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
2. Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate changes significantly, perform additional counts to evaluate instrument stability.

Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: Lucium 224-2 Serial No. 200098 Cal. Due Date: 09/01/16  
 Detector 1: Make/Model: Lucium 44-10 Serial No. PR112642  
 Bicron MicroRem Meter: Serial No. 1487 Cal. Due Date: 6/18/16

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: <0.1 units: N/C Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm + 20% 53798 net cpm -20% 35866  
 Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: µCi Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20%        uRem/hr -20%        net cpm + 20% 13273 net cpm -20% 8849

3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RCT Date: 12/14/15 Time: 0811

4. Site or Location:

Site/Job: SED Location-Description: parking lot  
 GPS Coordinates (when required): X-Coord: N 42° 32' 27.774" Y-Coord: W 78° 59' 50.396"

		Instrument Field Response <sup>2</sup>			Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response <sup>1</sup> (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1min	8827 cpm	1min	45970 cpm	Y	Y	Y	0820	57.4°	Th-232 JE
Ratemeter	1min	8827 cpm	1min	10664 cpm	Y	Y	Y	0823	57.4°	Cs-137 JP
Ratemeter	1min	8646 cpm	1min	45597 cpm	Y	Y	Y	1059	62.8°	Th-232 JE
Ratemeter	1min	8646 cpm	1min	10887 cpm	Y	Y	Y	1103	62.8°	Cs-137 JE
Ratemeter	1min	8852 cpm	1min	44772 cpm	Y	Y	Y	1444	65.2°	Th-232 JE
Ratemeter	1min	8852 cpm	1min	9941 cpm	Y	Y	Y	1448	65.2°	Cs-137 JE
Bicron	NA	6 uRem/hr	NA	35 uRem/hr	Y	Y	Y	1101	62.9°	Th-232 JE
Bicron	NA	7 uRem/hr	NA	410 uRem/hr	Y	Y	Y	1434	65.2°	Th-232 JE
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



MINTS TECHNICAL SERVICES

Rev 1 10/18/15

## Instrument Field Response Check Log

1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 19 net cpm + 20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm + 20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: PCT Date: 12/15/15 Time: 0800

4. Site or Location: Site/Job: HOME OWNER WELLS

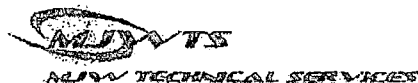
Location Description: RESIDENTIAL

GPS Coordinates (when required): X-Coord: \_\_\_\_\_ Y-Coord: \_\_\_\_\_

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: Inst. Condition, etc.)
Ratemeter	1	80.63 cpm	1	20324 cpm	Y	Y	Y	0800	48.5	Th 232 SK
Ratemeter	1	80.63 cpm	1	11700 cpm	Y	Y	Y	0800	48.5	Cs 137 SK
Ratemeter	1	86.38 cpm	1	20448 cpm	Y	Y	Y	1230	47.6	Th 232 SK
Ratemeter	1	86.38 cpm	1	11232 cpm	Y	Y	Y	1230	47.6	Cs 137 SK
Ratemeter	1	92.24 cpm	1	21926 cpm	Y	Y	Y	1500	45.8	Th 232 SK
Ratemeter	1	92.24 cpm	1	13006 cpm	Y	Y	Y	1500	45.8	Cs 137 SK
Bicron	NA	7 uRem	NA	18 uRem/hr	Y	Y	Y	0800	48.5	Th 232 SK
Bicron	NA	7 uRem	NA	18 uRem/hr	Y	Y	Y	1230	47.6	Th 232 SK
Bicron	NA	7 uRem	NA	18 uRem/hr	Y	Y	Y	1500	45.8	Th 232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.





Rev 1 10/18/15

### Instrument Field Response Check Log

**1. Instrument Information**

Ratemeter: Make/Model: Ludlum 2241-2  
 Detector 1: Make/Model: Ludlum 44-10  
 Bicron MicroRem Meter:

Serial No. 200098  
 Serial No. 78112642  
 Serial No. 1483

Cal. Due Date: 09/01/16

Cal. Due Date: 6/18/16

**2. Check Source Information:**

Source 1 Isotope: Th-232 Serial No.: 111  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41

Activity: 40.1 units: uCi  
 uRem/hr -20% 27

Assay Date: 4/30/10  
 net cpm +20% 53798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119523-12  
 Response Acceptance Range (+/-20%): uRem/hr +20%

Activity: 0.62 units: uCi  
 uRem/hr -20%

Assay Date: NA  
 net cpm +20% 3273 net cpm -20% 5849

**3. Technician/Worker Performing Checks:**

Name: J. Edwards

Title: RCT

Date: 12/15/15 Time: 0804

**4. Site or Location:**

Site/Job: Area 5.2

Location Description: woods

GPS Coordinates (when required): X-Coord: N 42° 31' 8.683" Y-Coord: W 78° 58' 41.797"

Instrument Field Response					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1 min	8333 cpm	1 min	44189 cpm	Y	Y	Y	0808	47.1°	TL-232 JG
Ratemeter	1 min	8333 cpm	1 min	10364 cpm	Y	Y	Y	0812	47.3°	CS-137 JG
Ratemeter	1 min	8944 cpm	1 min	46577 cpm	Y	Y	Y	1145	48.5°	TL-232 JG
Ratemeter	1 min	8944 cpm	1 min	10964 cpm	Y	Y	Y	1150	48.5°	CS-137 JG
Ratemeter	1 min	1118 cpm	1 min	46862 cpm	Y	Y	Y	1456	47.0°	TL-232 JG
Ratemeter	1 min	1118 cpm	1 min	13164 cpm	Y	Y	Y	1449	47.0°	CS-137 JG
Bicron	NA	8 uRem/hr	NA	40 uRem/hr	Y	Y	Y	1142	48.5°	TL-232 JG
Bicron	NA	8 uRem/hr	NA	30 uRem/hr	Y	Y	Y	1445	47.0°	TL-232 JG
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



MATS TECHNICAL SERVICES

Rev 1 10/18/15

### Instrument Field Response Check Log

#### 1. Instrument Information

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No: 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No: PR111127  
 Bicron MicroRem Meter: Serial No: A224U Cal. Due Date: 8/4/16

#### 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

#### 3. Technician/Worker Performing Checks:

Name: STEVE KINSWASH Title: RCT Date: 12/16/15 Time: 0815

#### 4. Site or Location:

Site/Job: 5-4

Location Description: WOODS

GPS Coordinates (when required): X-Coord: \_\_\_\_\_ Y-Coord: \_\_\_\_\_

Instrument Field Response					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/-20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add info: inst. Condition, etc.)
Ratemeter	1	76.25 cpm	1	21116 cpm	Y	Y	Y	0815	44.8	Th-232 SK
Ratemeter	1	76.25 cpm	1	11356 cpm	Y	Y	Y	0815	44.8	Cs-137 SK
Ratemeter	1	75.56 cpm	1	19670 cpm	Y	Y	Y	1100	45.8	Th-232 SK
Ratemeter	1	75.56 cpm	1	11260 cpm	Y	Y	Y	1100	45.8	Cs-137 SK
Ratemeter	1	74.23 cpm	1	19406 cpm	Y	Y	Y	1308	45.8	Th-232 SK
Ratemeter	1	74.23 cpm	1	11391 cpm	Y	Y	Y	1313	45.8	Cs-137 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	0815	44.8	Th-232 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1100	45.8	Th-232 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1300	45.8	Th-232 SK

1. Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
2. Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

RateMeter: Make/Model: Ludlum 2241-2  
 Detector 1: Make/Model: Ludlum 44-10  
 Bicron MicroRem Meter:

Serial No. 200098  
 Serial No. 77012642  
 Serial No. N/A

Cal. Due Date: 07/01/16  
 Cal. Due Date: N/A

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_

Activity: 201 units: uCi  
 uRem/hr -20% \_\_\_\_\_

Assay Date: 12/30/10  
 net cpm + 20% 56798 net cpm -20% 35866

Source 2 Isotope: Cs-137 Serial No.: 119E23-12  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_

Activity: 0.02 units: uCi  
 uRem/hr -20% \_\_\_\_\_

Assay Date: \_\_\_\_\_  
 net cpm + 20% 13273 net cpm -20% 8549

## 3. Technician/Worker Performing Checks:

Name: J. E. J. J. J.

Title: RCT

Date: 12/16/15 Time: 0824

## 4. Site or Location:

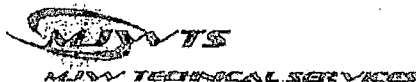
Site/Job: Area 5.1

Location Description: woods

GPS Coordinates (when required): X-Coord: N 42° 30' 45.446" Y-Coord: W 78° 58' 15.334"

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
RateMeter	1min	8149 cpm	1min	44662 cpm	Y	Y	Y	0826	39.7°	Th-232 JE
RateMeter	1min	8147 cpm	1min	10297 cpm	Y	Y	Y	0831	39.8°	Cs-137 JE
RateMeter	1min	8459 cpm	1min	44240 cpm	Y	Y	Y	1135	46.2°	Th-232 JE
RateMeter	1min	8459 cpm	1min	10365 cpm	Y	Y	Y	1140	46.2°	Cs-137 JE
RateMeter										
RateMeter										
Bicron	NA		NA							
Bicron	NA		NA							
Bicron	NA		NA							

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability



Rev 1 10/18/15

### Instrument Field Response Check Log

**1. Instrument Information<sup>2</sup>**

Ratemeter: Make/Model: Lubcor 2241-7 Serial No. 206098  
 Detector 1: Make/Model: Lubcor 44-10 Serial No. PR112642  
 Bicron MicroRem Meter: Serial No. 1487

Cal. Due Date: 07/01/16  
 Cal. Due Date: 6/18/16

**2. Check Source Information:**

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: NC Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm +20% 53798 net cpm -20% 35866  
 Source 2 Isotope: CS-137 Serial No.: 119E22-12 Activity: 0.02 units: NC Assay Date: NA  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm +20% 13273 net cpm -20% 8849

**3. Technician/Worker Performing Checks:**

Name: J. Edwards Title: RCT

Date: 12/17/15 Time: 0815

**4. Site or Location:** Site/Job: Area 5.5-5.6

Location Description: woods

GPS Coordinates (when required): X-Coord: \_\_\_\_\_ Y-Coord: \_\_\_\_\_

Instrument Field Response <sup>2</sup>					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l info: inst. Condition, etc.)
Ratemeter	1min	9274 cpm	1min	44808 cpm	Y	Y	Y	0819	49.4°	Th-232 DE
Ratemeter	1min	9274 cpm	1min	11109 cpm	Y	Y	Y	0823	49.4°	CS-137 DE
Ratemeter	1min	9433 cpm	1min	46391 cpm	Y	Y	Y	1033	50.1°	Th-232 DE
Ratemeter	1min	9433 cpm	1min	11440 cpm	Y	Y	Y	1040	50.1°	CS-137 DE
Ratemeter	1min	7868 cpm	1min	44433 cpm	Y	Y	Y	1400	43.5°	Th-232 TB
Ratemeter	1min	7868 cpm	1min	9743 cpm	Y	Y	Y	1400	43.5°	CS-137 TB
Bicron	NA	5 uRem/hr	NA	30 uRem/hr	Y	Y	Y	1035	50.3°	Th-232 DE
Bicron	NA	N/A	NA	N/A	Y	Y	Y			N/A
Bicron	NA	5 uRem/hr	NA	30 uRem/hr	Y	Y	Y	1400	73.5°	Th-232 TB

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability

# Instrument Field Response Check Log

## 1. Instrument Information<sup>1</sup>

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16  
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127  
 Bicron MicroRem Meter: Serial No. A224U Cal. Due Date: 8/4/16

## 2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: 50.1 units: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% 20 uRem/hr -20% 14 net cpm +20% 22926 net cpm -20% 15284  
 Source 2 Isotope: Cs-137 Serial No.: 87E13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm +20% 13375 net cpm -20% 8919

## 3. Technician/Worker Performing Checks:

Name: STEVE KINSMAN Title: ACT Date: 12/21/15 Time: 0830

## 4. Site or Location:

Site/Job: BEA 1 Location Description: FIELD

GPS Coordinates (when required): X-Coord: N 42 25 54.49 Y-Coord: W 78 38 17.24

Instrument Field Response					Use Acceptance Criteria					Remarks
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/-20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add: Info: Inst. Condition, etc.)
Ratemeter	1	6705 cpm	1	19313 cpm	Y	Y	Y	0830	48.2	Th232 SK
Ratemeter	1	6705 cpm	1	19385 cpm	Y	Y	Y	0830	48.2	Cs137 SK
Ratemeter	1	7729 cpm	1	19444 cpm	Y	Y	Y	1200	46.1	Th232 SK
Ratemeter	1	7729 cpm	1	10722 cpm	Y	Y	Y	1200	46.1	Cs137 SK
Ratemeter	1	7713 cpm	1	20402 cpm	Y	Y	Y	1500	45.1	Th232 SK
Ratemeter	1	7713 cpm	1	11311 cpm	Y	Y	Y	1500	45.1	Cs137 SK
Bicron	NA	5 uRem/hr	NA	17 uRem/hr	Y	Y	Y	0830	48.2	Th232 SK
Bicron	NA	6 uRem/hr	NA	18 uRem/hr	Y	Y	Y	1200	46.1	Th232 SK
Bicron	NA	8 uRem/hr	NA	19 uRem/hr	Y	Y	Y	1500	45.1	Th232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%, if count rate diverges significantly, perform additional counts to evaluate instrument stability