

**Instrument Field Response Check Log**

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

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 200095 Cal. Due Date: 09/01/16  
 Detector 1: Make/Model: Ludlum 44-16 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: CC-1 units: MC Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm + 20% 5379 net cpm -20% 35866  
 Source 2 Isotope: CS-137 Serial No.: 119623-12 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% 5849

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

Name: T. E. Swabe Title: TRC1 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' 51.102" Y-Coord: W 75° 55' 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	1min	616 cpm	1min	42744 cpm	Y	Y	Y	0957	37.0	Th-232 SE
Ratemeter			1min	8945 cpm	Y	Y	Y	1002	37.2	CS-137 SE
Ratemeter	1min	6420 cpm	1min	42845 cpm	Y	Y	Y	1156	43.3	Th-232 SE
Ratemeter			1min	8920 cpm	Y	Y	Y	1200	43.5	CS-137 SE
Ratemeter	1min	6787 cpm	1min	45788 cpm	Y	Y	Y	1450	47.1	Th-232 SE
Ratemeter			1min	8935 cpm	Y	Y	Y	1454	47.2	CS-137 SE
Bicron	NA	5 uRem/hr	NA	30 uRem/hr	Y	Y	Y	1230	44.0	Th-232 SE
Bicron	NA	6 uRem/hr	NA	40 uRem/hr	Y	Y	Y	1446	47.1	Th-232 SE
Bicron	NA		NA	115 uRem/hr						

- 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 Cal. Due Date: 09/01/16  
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR1126412  
 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: µCi Assay Date: 12/30/10  
 Response Acceptance Range (+/-20%): uRem/hr +20% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ net cpm +20% 53799 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: 12/01/15 Time: 0930

**4. Site or Location:**

Site/Job: Area 4.5 Location Description: WOODS  
 GPS Coordinates (when required): X-Coord: N42° 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	1min	7112 cpm	1min	44204 cpm	Y	Y	Y	0935	49.1°	Th-232 DE
Ratemeter			1min	8984 cpm	Y	Y	Y	0941	49.2°	Cs-137 DE
Ratemeter	1min	8664 cpm	1min	46307 cpm	Y	Y	Y	1220	52.3°	Th-232 DE
Ratemeter			1min	10798 cpm	Y	Y	Y	1225	52.5°	Cs-137 DE
Ratemeter	1min	6467 cpm	1min	43667 cpm	Y	Y	Y	1529	53.7°	Th-232 DE
Ratemeter			1min	8859 cpm	Y	Y	Y	1524	53.2°	Cs-137 DE
Bicron	NA	6 µrem/hr	NA	40 µrem/hr	Y	Y	Y	0931	48.5°	Th-232 DE
Bicron	NA	6 µrem/hr	NA	30 µrem/hr	Y	Y	Y	1215	52.3°	Th-232 DE
Bicron	NA	5 µrem/hr	NA	30 µrem/hr	Y	Y	Y	1520	54.1°	Th-232 DE

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 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% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ 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: 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	1	17679	Y	Y	Y	0930	49.1	Th 232 SK
Ratemeter	1	5456	1	9125	Y	Y	Y	0930	49.1	Cs 137 SK
Ratemeter	1	7755	1	20128	Y	Y	Y	1230	52.3	Th 232 SK
Ratemeter	1	7755	1	11356	Y	Y	Y	1230	52.3	Cs 137 SK
Ratemeter	1	5795	1	18280	Y	Y	Y	1530	53.2	Th 232 SK
Ratemeter	1	5795	1	9520	Y	Y	Y	1530	53.2	Cs 137 SK
Bicron	NA	3	NA	17	Y	Y	Y	0930	49.1	Th 232 SK
Bicron	NA	6	NA	17	Y	Y	Y	1230	52.3	Th 232 SK
Bicron	NA	4	NA	17	Y	Y	Y	1530	53.2	Th 232 SK

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**Instrument Field Response Check Log**

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

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 200098 Cal. Due Date: 09/01/15  
 Detector 1: Make/Model: Ludlum 44-70 Serial No. PR12600  
 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: 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.: 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: 12/30/15 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	42216 cpm	Y	Y	Y	0810	42.0°	Th-232 JE
Ratemeter			1 min	5892 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 JE
Ratemeter			1 min	5835 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 JE
Ratemeter			1 min	9137 cpm	Y	Y	Y	1537	45.8°	Cs-137 JE
Bicron	NA	7 uRem/hr	NA	40 uRem/hr	Y	Y	Y	1400	44.0°	Th-232 JE
Bicron	NA	50 uRem/hr	NA	50 uRem/hr	Y	Y	Y	1527	46.0°	Th-232 JE
Bicron	NA		NA	12/02/15 JE						

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**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% \_\_\_\_\_ uRem/hr -20% \_\_\_\_\_ 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: 12/7/15 Time: 0900

**4. Site or Location:**

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

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	8455	1	21187	Y	Y	Y	0900	35.2	Th232 SK
Ratemeter	1	8455	1	11962	Y	Y	Y	0900	35.2	Cs137 SK
Ratemeter	1	8098	1	20712	Y	Y	Y	1230	41.5	Th232 SK
Ratemeter	1	8098	1	11414	Y	Y	Y	1230	41.5	Cs137 SK
Ratemeter	1	8053	1	20458	Y	Y	Y	1500	41.1	Th232 SK
Ratemeter	1	8053	1	11878	Y	Y	Y	1500	41.1	Cs137 SK
Bicron	NA	5	NA	17	Y	Y	Y	0900	35.2	Th232 SK
Bicron	NA	4	NA	18	Y	Y	Y	1230	41.5	Th232 SK
Bicron	NA	6	NA	18	Y	Y	Y	1500	41.1	Th232 SK

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- 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