



Instrument Field Response Check Log

1. Instrument Information¹

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: J. Edwards Title: RCT 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° 38' 50.7"

Instrument Field Response ⁴					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	6822cpm	1min	19447cpm	Y	Y	Y	0902	53.2°	Th-232 SK
Ratemeter	1min	6822cpm	1min	10751cpm	Y	Y	Y	0908	53.4°	Cs-137 SK
Ratemeter	1min	8060cpm	1min	20355cpm	Y	Y	Y	1300	69.8	Th-232 SK
Ratemeter	1min	8060cpm	1min	11589cpm	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

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



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

4. Site or Location:

Site/Job: Rock Springs Rd Location Description: Across main entrance WUDP
 GPS Coordinates (when required): X-Coord: 42°26'50.434" Y-Coord: 78°39'19.2666"

Instrument Field Response ²					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	11255 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	12078 cpm	Y	Y	Y	1509	76.1°	CS-137 DE
Bicron	NA	8 µrem/hr	NA	18 µrem/hr	Y	Y	Y	0913	64.9°	TH-232 DE
Bicron	NA	8 µrem/hr	NA	17 µrem/hr	Y	Y	Y	1310	78.6°	TH-232 DE
Bicron	NA	17 µrem/hr	NA	17 µrem/hr	Y	Y	Y	1455	75.5°	TH-232 DE

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Rev 1 10/18/15

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1. Instrument Information¹

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 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: 11/18/15 Time: 1000

4. Site or Location:

Site/Job: 4.3 Location Description: FIELD

GPS Coordinates (when required): X-Coord: N 42° 32.425 Y-Coord: W 79° 02.930

Instrument Field Response ²					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.)
temeter	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
temeter	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

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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.



Instrument Field Response Check Log

1. Instrument Information¹

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
 Detector 2: Make/Model: _____ Serial No. _____

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: <0.1 units: uCi Assay Date: 12/24/10
 Instrument Response Acceptance Range (source cpm - bkg +/-20%): net cpm + 20% 53798 net cpm -20% 35866
 Source 2 Isotope: Cs-137 Serial No.: 11912512 Activity: 0.02 units: uCi Assay Date: NA
 Instrument Response Acceptance Range (source cpm - bkg +/-20%): net cpm + 20% 3273 net cpm -20% 8847

3. Technician/Worker Performing Checks:

Name: J. Edwards Title: RC+ Date: 1008 ← Time: 11/18/15

4. Site or Location: Site/Job: Ara. 43 Location Description: Woods

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

Instrument Field Response ²					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	—	—	—	Y	Y	1010	57.9°	JE
2	1min	—	1min	11466 c	Y	Y	Y	1013	59.4°	Th-232 JE Cs-137
1	1min	—	1min	46783	Y	Y	Y	1016	57.3°	Cs-137 JE TH-232
1	1min	9956 cpm	—	46303	Y	Y	Y	1350	62.2°	JE
1	—	—	1min	46325	Y	Y	Y	1338	62.0°	Th-232 JE
1	—	—	1min	11694	Y	Y	Y	1341	62.6°	Cs-137 JE
1	1min	—	—	9824	Y	Y	Y	1530	60.2°	JE
1	—	—	1min	46665	Y	Y	Y	1538	60.0°	Th-232 JE
1	—	—	1min	11838	Y	Y	Y	1543	60.0°	Cs-137 JE

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1. Instrument Information¹

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.: 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: AREN 43

Location Description: PARKING LOT

GPS Coordinates (when required): X-Coord: N 42° 32' 28.7 Y-Coord: W 078° 59' 51.2

Instrument Field Response ⁴					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	7507 cpm	1 MIN	19866 cpm	Y	Y	Y	0950	63.5	TK232 SK
Ratemeter	1 MIN	7507 cpm	1 MIN	11046 cpm	Y	Y	Y	0950	63.5	Cs137 SK
Ratemeter	1 MIN	8111 cpm	1 MIN	20602 cpm	Y	Y	Y	1300	64.5	Th232 SK
Ratemeter	1 MIN	8111 cpm	1 MIN	11365 cpm	Y	Y	Y	1300	64.5	Cs137 SK
Ratemeter	1 MIN	7810 cpm	1 MIN	20272 cpm	Y	Y	Y	1515	67.4	Th232 SK
Ratemeter	1 MIN	7810 cpm	1 MIN	11300 cpm	Y	Y	Y	1515	67.4	Th232 SK Cs137
Bicron	NA	5 uRem/hr	NA	18 uRem/hr	Y	Y	Y	0950	63.5	Th232 SK
Bicron	NA	7 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1300	64.5	Th232 SK
Bicron	NA	6 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1515	67.4	Th232 SK

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Instrument Field Response Check Log

1. Instrument Information¹

Ratemeter: Make/Model: Ludlum 224-2 Serial No. 206098 Cal. Due Date: 09/01/16
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR12642
 Detector 2: Make/Model: _____ Serial No. _____

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 0.1 units: MC Assay Date: 12/5/10
 Instrument Response Acceptance Range (source cpm - bkg +/-20%): net cpm + 20% 53798 net cpm -20% 35866
 Source 2 Isotope: Cs-137 Serial No.: 119E2312 Activity: 0.02 units: MC 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: 11/19/15 Time: 1000
 Site or Location: Site/Job: Area 4.3 Location Description: woods
 GPS Coordinates (when required): X-Coord: N 42° 32' 42.7 Y-Coord: W 79° 02' 9.26

Instrument Field Response ²					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	9368	—	—	—	Y	Y	1005	62.9°	JE
1	—	—	1min	47358	Y	Y	Y	1008	62.9°	Th-232 JE
1	—	—	1min	11261	Y	Y	Y	1012	63.8°	Cs-137 JE
1	1min	9200	—	—	Y	Y	Y	1308	64.9°	JE
1	—	—	1min	45493	Y	Y	Y	1313	62.0°	Th-232 JE
1	—	—	1min	11263	Y	Y	Y	1318	62.0°	Cs-137 JE
1	1min	9258	—	—	Y	Y	Y	1518	65.3°	JE
1	—	—	1min	46811	Y	Y	Y	1520	64.7°	Th-232 JE
1	—	—	1min	11246	Y	Y	Y	1528	64.0°	Cs-137 JE

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Rev 1 10/18/15

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1. Instrument Information¹

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 KINSMAN Title: RET Date: 11/24/15 Time: 0930

4. Site or Location: Site/Job: 4.3

Location Description: WOODS

GPS Coordinates (when required): X-Coord: 47° 22' 28.3" Y-Coord: W 79° 02' 54.7"

Instrument Field Response ²					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	726 cpm	1 MIN	19986 cpm	Y	Y	Y	1300	44.2	Th232 SK
Ratemeter	1 MIN	766 cpm	1 MIN	11304 cpm	Y	Y	Y	1300	44.2	Cs137 SK
Ratemeter	1 MIN	779 cpm	1 MIN	19322 cpm	Y	Y	Y	1545	45.5	Th232 SK
Ratemeter	1 MIN	779 cpm	1 MIN	11426 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

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.
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Instrument Field Response Check Log

1. Instrument Information¹

Ratemeter: Make/Model: Ludlum 224-2 Serial No. 506098 Cal. Due Date: 09/01/16
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PK12642
 Detector 2: Make/Model: _____ Serial No. _____

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: 40.1 units: uCi Assay Date: 12/20/10
 Instrument Response Acceptance Range (source cpm - bkg +/-20%): net cpm + 20% 52715 net cpm -20% 35866

 Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: uCi 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 72° 32.427 Y-Coord: W 79° 02.926

Instrument Field Response ²					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	9993	—	—	—	Y	Y	0944	48.1°	JE
1	—	—	1min	46940	Y	Y	Y	0949	52.7°	Th-232 JE
1	—	—	1min	11910	Y	Y	Y	0953	53.6°	Cs-137 JE
1	1min	9752	—	—	Y	Y	Y	1114	47.6°	Th-232 JE
1	—	—	1min	46193	Y	Y	Y	1118	47.4°	Cs-137 Th-232 JE
1	—	—	1min	11792	Y	Y	Y	1124	47.4°	Cs-137 JE
1	1min	9815	—	—	Y	Y	Y	1549	44.9°	JE
1	—	—	1min	45538	Y	Y	Y	1553	44.7°	Th-232 JE
1	—	—	1min	11659	Y	Y	Y	1556	44.7°	Cs-137 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.
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Instrument Field Response Check Log

1. Instrument Information¹

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 286099 Cal. Due Date: 09/01/16
 Detector 1: Make/Model: Ludlum 44-10 Serial No. PR112642 Cal. Due Date: 6/19/16
 Bicron MicroRem Meter: Serial No. 1497

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111 Activity: CO. 1 units: µCi Assay Date: 6/23/10
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm + 20% 53798 net cpm -20% 35566
 Source 2 Isotope: Cs-137 Serial No.: 119E-23-12 Activity: 0.02 units: µCi Assay Date: NA
 Response Acceptance Range (+/-20%): uRem/hr +20% _____ uRem/hr -20% _____ net cpm + 20% 15225 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° 32.427 Y-Coord: W 79° 02.926

Instrument Field Response ²					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	499 10172cpm	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	7841cpm	1min	11841cpm	Y	Y	Y	1345	36.8°	Cs-137 DE
Bicron	NA	5µRem	NA	40µRem/hr	Y	Y	Y	1005	37.2°	Th-232 DE
Bicron	NA	9µRem	NA	30µRem/hr	Y	Y	Y	1540	37.0°	Th-232 DE
Bicron	NA		NA	11/23/15 DE						
Bicron	NA		NA							

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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: 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 ²					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	7954 cpm	1	20631 cpm	Y	Y	Y	1000	37.0	Th-232 SK
Ratemeter	1	7954 cpm	1	11485 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	7634 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
Bicron	NA	3 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1000	37.0	Th-232 SK
Bicron	NA	3 uRem/hr	NA	17 uRem/hr	Y	Y	Y	1330	37.5	Th 232 SK
Bicron	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

Instrument Field Response Check Log

1. Instrument Information¹

Ratemeter: Make/Model: Lu 116in 231-2 Serial No. 206098 Cal. Due Date: 09/01/16
 Detector 1: Make/Model: Lu 44-10 Serial No. PR112642 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: 20.1 units: uCi 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% 3588.6

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% 1327.3 net cpm -20% 899.9

3. Technician/Worker Performing Checks:

Name: J Edwards Title: RCT Date: 11/23/15 Time: 1545

4. Site or Location:

Site/Job: Area 4.3 Location Description: woods
 GPS Coordinates (when required): X-Coord: N42°32.427 Y-Coord: W 79°02.926

Instrument Field Response ²					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	32.7°	Th-232 DE
Ratemeter	1min	9855 cpm	1min	11834 cpm	Y	Y	Y	1557	32.5°	Cs-137 DE
Ratemeter										
Ratemeter										
Bicron	NA	uRem/hr	NA	30 uRem/hr	Y	Y	Y	1548	37.5°	Th-232 DE
Bicron	NA		NA	11/23/15 DE						
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 Information¹

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 Cal. Due Date: N/A
 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% 3556.6
 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% 13273 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 079° 03' 04.7"

Instrument Field Response ²					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	9246 cpm	1 min	4669 cpm	Y	Y	Y	0937	41.1°	Th-232 JE
Ratemeter	1 min	9246 cpm	1 min	11087 cpm	Y	Y	Y	0947	41.0°	Cs-137 JE
Ratemeter	1 min	9726 cpm	1 min	46308 cpm	Y	Y	Y	1114	40.2°	Th-232 JE
Ratemeter	1 min	9726 cpm	1 min	11729 cpm	Y	Y	Y	1126	40.0°	Cs-137 JE
Ratemeter	1 min	9562 cpm	1 min	45652 cpm	Y	Y	Y	1450	44.4°	Th-232 JE
Ratemeter	1 min	9562 cpm	1 min	11514 cpm	Y	Y	Y	1457	43.8°	Cs-137 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



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: Ty Bismar Title: RCT Date: 11-24-15 Time: 1210

4. Site or Location:

Site/Job: Environment Dept. Building - Backgrounds Location Description: Parking Lot
 GPS Coordinates (when required): X-Coord: W78°59'50.2" Y-Coord: N42°32'28.3"

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	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 70%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.



Rev 1 10/18/15

Instrument Field Response Check Log

1. Instrument Information¹

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: Tom Bidan Title: RET 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 ²					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	39.0	Th-232 SK
Ratemeter	1	7748 cpm	1	11328 cpm	Y	Y	Y	0900	39.0	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/hr	NA	18 uRem/hr	Y	Y	Y	0900	39.0	Th-232 SK
Bicron	NA	4 uRem/hr	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



Instrument Field Response Check Log

1. Instrument Information¹

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 006098 Cal. Due Date: 09/01/16
 Detector 1: Make/Model: Ludlum 44-10 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: 0.1 units: uCi Assay Date: 12/30/10
 Response Acceptance Range (+/-20%): uRem/hr +20% _____ uRem/hr -20% _____ net cpm + 20% 53714 net cpm -20% 3556.0
 Source 2 Isotope: Cs-137 Serial No.: 119E23-12 Activity: 0.02 units: uCi Assay Date: _____
 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: RC7 Date: 11/25/15 Time: 0917

4. Site or Location:

Site/Job: EAU Regional 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 ²					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	8769cpm	1min	45190cpm	Y	Y	Y	0919	41.1°	Th-232 JE
Ratemeter	1min	8767cpm	1min	10628cpm	Y	Y	Y	0925	41.5°	Cs-137 JE
Ratemeter	1min	6561cpm	1min	44091cpm	Y	Y	Y	1250	50.9°	Th-232 JE
Ratemeter	1min	6561cpm	1min	8885cpm	Y	Y	Y	1255	53.6°	Cs-137 JE
Ratemeter										
Ratemeter										
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 Information¹

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 KINSMAN Title: RC Date: 11/30/15 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 679° 00' 57.9"

Instrument Field Response ²					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. Callb. 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	Th 232 TB
Ratemeter	1	5626 cpm	1	9210 cpm	Y	Y	Y	1230	42.8	Cs 137 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	17 uRem/hr	Y	Y	Y	0945	31.9	Th232 SK
Bicron	NA	4 uRem/hr	NA	15 uRem/hr	Y	Y	Y	1230	42.8	Th 232 SK
Bicron	NA	4 uRem/hr	NA	17 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

Instrument Field Response Check Log

1. Instrument Information¹

Ratemeter: Make/Model: Ludlum 2241-2 Serial No. 202098 Cal. Due Date: 09/01/16
 Detector 1: Make/Model: Ludlum 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: CC-1 units: MC Assay Date: 12/30/10
 Response Acceptance Range (+/-20%): uRem/hr +20% 41 uRem/hr -20% 27 net cpm +20% 5379 net cpm -20% 3586
 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: J. 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' 44.048"

Instrument Field Response ²					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	6167cpm	1min	42744cpm	Y	Y	Y	0957	37.0	Th-232 JE
Ratemeter	1min	6167cpm	1min	8945cpm	Y	Y	Y	1007	37.2	Cs-137 JE
Ratemeter	1min	6420cpm	1min	42845cpm	Y	Y	Y	1156	43.3°	Th-232 JE
Ratemeter	1min	6420cpm	1min	8920cpm	Y	Y	Y	1200	43.5°	Cs-137 JE
Ratemeter	1min	6789cpm	1min	43768cpm	Y	Y	Y	1450	47.1°	Th-232 JE
Ratemeter	1min	6789cpm	1min	8938cpm	Y	Y	Y	1454	47.0°	Cs-137 JE
Bicon	NA	5 uRem/hr	NA	30rem/hr	Y	Y	Y	1230	44.0°	Th-232 JE
Bicon	NA	6 uRem/hr	NA	40rem/hr	Y	Y	Y	1446	47.1°	Th-232 JE
Bicon	NA		NA	1158K 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.