NAREL AirBeta Batch Analysis

NAREL assay batch:	0017379W
G5000 batch:	0017379W-20130906153150
Instrument:	PR01
Operator:	Siddiqui, Nina S.
Background:	2013-09-06 08:07 CDT 100.00 min
Alpha:	27 count(s) 0.27 cpm Within target range
Beta:	539 count(s) 5.39 cpm Within target range
Efficiencies:	Alpha 0.3088(93) Beta 0.453(14)
Efficiency check:	2013-09-06 09:48 CDT 10.00 min
Alpha:	Within target range
Beta:	Within target range
Data file:	0017379W-20130906153150.air

Vere
9/10/13

Pos	Sample ID	Size	Unit	Fraction	
1	B3.09138L	$2.85(14) \times 10^3$	M^3	1	
2	B3.09139M	$4.29(21) \times 10^3$	M^3	1	
3	B3.09140E	$4.28(21) \times 10^3$	M^3	1	
4	B3.09141F	$3.39(17) \times 10^3$	M^3	1	
5	B3.09142G	$4.28(21) \times 10^3$	M^3	1	
6	B3.09143H	$4.03(20) \times 10^3$	M^3	1	
7	B3.09144J	$5.70(28) \times 10^3$	M^3	1	
8	B3.09145K	$4.28(21) \times 10^3$	M^3	1	
9	B3.09146L	$4.21(21) \times 10^3$	M^3	1	
10	B3.09147M	$4.28(21) \times 10^3$	M^3	1	
11	B3.09148N	$8.81(44) \times 10^3$	M^3	1	**> 5 d of sampling**
12	B3.09149P	$7.16(36) \times 10^3$	M^3	1	
13	B3.09150G	$5.77(29) \times 10^3$	M^3	1	
14	B3.09151H	$2.86(14) \times 10^3$	M^3	1	
15	B3.09152J	$5.85(29) \times 10^3$	M^3	1	
16	B3.09153K	$4.30(21) \times 10^3$	M^3	1	
17	B3.09154L	$4.32(22) \times 10^3$	M^3	1	
18	B3.09155M	$4.32(22) \times 10^3$	M^3	1	
19	B3.09156N	$4.32(22) \times 10^3$	M^3	1	
20	B3.09157P	$4.19(21) \times 10^3$	M^3	1	
21	B3.09158Q	$4.32(22) \times 10^3$	M^3	1	
22	B3.09159R	$5.67(28) \times 10^3$	M^3	1	
23	B3.09160J	$5.42(27) \times 10^3$	M^3	1	
24	B3.09161K	$4.12(21) \times 10^3$	M^3	1	
25	B3.09162L	$4.42(22) \times 10^3$	M^3	1	
26	B3.09163M	$5.84(29) \times 10^3$	M^3	1	
27	B3.09164N	$4.29(21) \times 10^3$	M^3	1	
28	B3.09165P	$9.98(50) \times 10^3$	M^3	1	**> 5 d of sampling**
29	B3.09166Q	$4.35(22) \times 10^3$	M^3	1	
30	B3.09167R	$4.35(22) \times 10^3$	M^3	1	
31	B3.09168T	$3.62(18) \times 10^3$	M^3	1	
32	B3.09169U	$7.99(40) \times 10^3$	M^3	1	**> 5 d of sampling**
33	B3.09170L	$5.71(29) \times 10^3$	M^3	1	
34	B3.09171M	$1.037(52) \times 10^4$	M^3	1	**> 5 d of sampling**
35	B3.09172N	$4.29(21) \times 10^3$	M^3	1	
36	B3.09173P	$6.76(34) \times 10^3$	M^3	1	
37	B3.09174Q	$4.29(21) \times 10^3$	M^3	1	
38	B3.09175R	$4.24(21) \times 10^3$	M^3	1	
39	B3.09206F	$5.71(29) \times 10^3$	M^3	1	
40	B3.09207G	$2.82(14) \times 10^3$	M^3	1	

1	B3.09138L	$2.85(14) \times 10^3$	M^3	1	
2	B3.09139M	$4.29(21) \times 10^3$	M^3	1	
3	B3.09140E	$4.28(21) \times 10^3$	M^3	1	
4	B3.09141F	$3.39(17) \times 10^3$	M^3	1	
5	B3.09142G	$4.28(21) \times 10^3$	M^3	1	
6	B3.09143H	$4.03(20) \times 10^3$	M^3	1	
7	B3.09144J	$5.70(28) \times 10^3$	M^3	1	
8	B3.09145K	$4.28(21) \times 10^3$	M^3	1	
9	B3.09146L	$4.21(21) \times 10^3$	M^3	1	
10	B3.09147M	$4.28(21) \times 10^3$	M^3	1	
11	B3.09148N	$8.81(44) \times 10^3$	M^3	1	**> 5 d of sampling**
12	B3.09149P	$7.16(36) \times 10^3$	M^3	1	
13	B3.09150G	$5.77(29) \times 10^3$	M^3	1	
14	B3.09151H	$2.86(14) \times 10^3$	M^3	1	
15	B3.09152J	$5.85(29) \times 10^3$	M^3	1	
16	B3.09153K	$4.30(21) \times 10^3$	M^3	1	
17	B3.09154L	$4.32(22) \times 10^3$	M^3	1	
18	B3.09155M	$4.32(22) \times 10^3$	M^3	1	
19	B3.09156N	$4.32(22) \times 10^3$	M^3	1	
20	B3.09157P	$4.19(21) \times 10^3$	M^3	1	
21	B3.09158Q	$4.32(22) \times 10^3$	M^3	1	
22	B3.09159R	$5.67(28) \times 10^3$	M^3	1	
23	B3.09160J	$5.42(27) \times 10^3$	M^3	1	
24	B3.09161K	$4.12(21) \times 10^3$	M^3	1	
25	B3.09162L	$4.42(22) \times 10^3$	M^3	1	
26	B3.09163M	$5.84(29) \times 10^3$	M^3	1	
27	B3.09164N	$4.29(21) \times 10^3$	M^3	1	
28	B3.09165P	$9.98(50) \times 10^3$	M^3	1	**> 5 d of sampling**
29	B3.09166Q	$4.35(22) \times 10^3$	M^3	1	
30	B3.09167R	$4.35(22) \times 10^3$	M^3	1	
31	B3.09168T	$3.62(18) \times 10^3$	M^3	1	
32	B3.09169U	$7.99(40) \times 10^3$	M^3	1	**> 5 d of sampling**
33	B3.09170L	$5.71(29) \times 10^3$	M^3	1	
34	B3.09171M	$1.037(52) \times 10^4$	M^3	1	**> 5 d of sampling**
35	B3.09172N	$4.29(21) \times 10^3$	M^3	1	
36	B3.09173P	$6.76(34) \times 10^3$	M^3	1	
37	B3.09174Q	$4.29(21) \times 10^3$	M^3	1	
38	B3.09175R	$4.24(21) \times 10^3$	M^3	1	
39	B3.09206F	$5.71(29) \times 10^3$	M^3	1	
40	B3.09207G	$2.82(14) \times 10^3$	M^3	1	
41	RBK	1	SAMP	1	
42	RBK	1	SAMP	1	

Counted	min	Pos	Analysis	Sample ID	QC	α/β	Count	Net cpm	Result	Unit	Q	Warn
2013-09-06 15:32	20.0	13	00673542T	B3.09150G		α	11	0.28	$7.1(46) \times 10^{-5}$	PCI/M^3	D	
						β	626	25.91	$4.47(34) \times 10^{-3}$	PCI/M^3		
2013-09-06 15:53	20.0	33	00673584D	B3.09170L		α	17	0.58	$1.48(57) \times 10^{-4}$	PCI/M^3	D	
						β	934	41.31	$7.20(50) \times 10^{-3}$	PCI/M^3		
2013-09-06 16:13	20.0	1	00673518T	B3.09138L		α	10	0.23	$1.18(89) \times 10^{-4}$	PCI/M^3	D	
						β	702	29.71	$1.037(77) \times 10^{-2}$	PCI/M^3		
2013-09-06 16:34	20.0	2	00673520L	B3.09139M		α	4	–0.07	$-2.4(42) \times 10^{-5}$	PCI/M^3	D	
						β	309	10.06	$2.34(26) \times 10^{-3}$	PCI/M^3		
2013-09-06 16:54	20.0	3	00673522N	B3.09140E		α	13	0.38	$1.29(67) \times 10^{-4}$	PCI/M^3	D	
						β	773	33.26	$7.73(56) \times 10^{-3}$	PCI/M^3		
2013-09-06 17:15	20.0	4	00673524Q	B3.09141F		α	20	0.73	$3.1(10) \times 10^{-4}$	PCI/M^3	D	
						β	1439	66.56	$1.95(13) \times 10^{-2}$	PCI/M^3		
2013-09-06 17:36	20.0	5	00673527U	B3.09142G		α	13	0.38	$1.29(67) \times 10^{-4}$	PCI/M^3	D	
						β	865	37.86	$8.80(62) \times 10^{-3}$	PCI/M^3		
2013-09-06 17:56	20.0	6	00673529W	B3.09143H		α	11	0.28	$1.01(66) \times 10^{-4}$	PCI/M^3	D	
						β	614	25.31	$6.25(48) \times 10^{-3}$	PCI/M^3		
2013-09-06 18:17	20.0	7	00673531P	B3.09144J		α	16	0.53	$1.36(55) \times 10^{-4}$	PCI/M^3	D	
						β	881	38.66	$6.76(47) \times 10^{-3}$	PCI/M^3		
2013-09-06 18:37	20.0	8	00673533R	B3.09145K		α	16	0.53	$1.81(73) \times 10^{-4}$	PCI/M^3	D	
						β	629	26.06	$6.07(46) \times 10^{-3}$	PCI/M^3		
2013-09-06 18:58	20.0	9	00673535U	B3.09146L		α	6	0.03	$1.0(49) \times 10^{-5}$	PCI/M^3	D	
						β	173	3.26	$7.7(18) \times 10^{-4}$	PCI/M^3		
2013-09-06 19:19	20.0	10	00673537W	B3.09147M		α	15	0.48	$1.64(71) \times 10^{-4}$	PCI/M^3	D	
						β	1245	56.86	$1.324(88) \times 10^{-2}$	PCI/M^3		
2013-09-06 19:39	20.0	11	00673539Y	B3.09148N		α	19	0.68	$1.13(39) \times 10^{-4}$	PCI/M^3	D	
						β	778	33.51	$3.79(27) \times 10^{-3}$	PCI/M^3		
2013-09-06 20:00	20.0	12	00673540Q	B3.09149P		α	8	0.13	$2.6(32) \times 10^{-5}$	PCI/M^3	D	
						β	333	11.26	$1.57(16) \times 10^{-3}$	PCI/M^3		
2013-09-06 20:21	20.0	13	00673744B	B3.09150G	DUP	α	10	0.23	$5.8(44) \times 10^{-5}$	PCI/M^3	D	
						β	619	25.56	$4.41(34) \times 10^{-3}$	PCI/M^3		
2013-09-06 20:42	20.0	14	00673544V	B3.09151H		α	11	0.28	$1.43(93) \times 10^{-4}$	PCI/M^3	D	
						β	947	41.96	$1.46(10) \times 10^{-2}$	PCI/M^3		
2013-09-06 21:02	20.0	15	00673546X	B3.09152J		α	12	0.33	$8.2(47) \times 10^{-5}$	PCI/M^3	D	
						β	630	26.11	$4.44(34) \times 10^{-3}$	PCI/M^3		
2013-09-06 21:23	20.0	16	00673547Y	B3.09153K		α	26	1.03	$3.50(92) \times 10^{-4}$	PCI/M^3	D	
						β	1877	88.46	$2.05(13) \times 10^{-2}$	PCI/M^3		
2013-09-06 21:43	20.0	17	00673549A	B3.09154L		α	14	0.43	$1.45(68) \times 10^{-4}$	PCI/M^3	D	
						β	1441	66.66	$1.54(10) \times 10^{-2}$	PCI/M^3		
2013-09-06 22:04	20.0	18	00673551U	B3.09155M		α	19	0.68	$2.30(79) \times 10^{-4}$	PCI/M^3	D	
						β	1735	81.36	$1.88(12) \times 10^{-2}$	PCI/M^3		
2013-09-06 22:25	20.0	19	00673553W	B3.09156N		α	23	0.88	$2.97(86) \times 10^{-4}$	PCI/M^3	D	
						β	1794	84.31	$1.94(12) \times 10^{-2}$	PCI/M^3		
2013-09-06 22:45	20.0	20	00673555Y	B3.09157P		α	20	0.73	$2.54(83) \times 10^{-4}$	PCI/M^3	D	
						β	1564	72.81	$1.73(11) \times 10^{-2}$	PCI/M^3		
2013-09-06 23:06	20.0	41	00673745C		RBK	α	9	0.18	$2.6(24) \times 10^{-1}$	PCI/SAMP	D	
						β	133	1.26	1.25(66)	PCI/SAMP		
2013-09-06 23:26	20.0	21	00673557A	B3.09158Q		α	25	0.98	$3.31(90) \times 10^{-4}$	PCI/M^3	D	
						β	1776	83.41	$1.92(12) \times 10^{-2}$	PCI/M^3		
2013-09-06 23:47	20.0	22	00673559C	B3.09159R		α	10	0.23	$5.9(45) \times 10^{-5}$	PCI/M^3	D	
						β	940	41.61	$7.30(51) \times 10^{-3}$	PCI/M^3		
2013-09-07 00:08	20.0	23	00673561W	B3.09160J		α	11	0.28	$7.5(49) \times 10^{-5}$	PCI/M^3	D	
						β	548	22.01	$4.04(32) \times 10^{-3}$	PCI/M^3		
2013-09-07 00:28	20.0	24	00673565A	B3.09161K		α	11	0.28	$9.9(64) \times 10^{-5}$	PCI/M^3	D	
						β	621	25.66	$6.20(48) \times 10^{-3}$	PCI/M^3		

2013-09-07 00:49	20.0	25	00673567C	B3.09162L		α	18	0.63	$2.08(75) \times 10^{-4}$	PCI/M^3	**D**
						β	1539	71.56	$1.61(10) \times 10^{-2}$	PCI/M^3	
2013-09-07 01:09	20.0	26	00673570X	B3.09163M		α	9	0.18	$4.5(42) \times 10^{-5}$	PCI/M^3	**D**
						β	892	39.21	$6.69(47) \times 10^{-3}$	PCI/M^3	
2013-09-07 01:30	20.0	27	00673572Z	B3.09164N		α	11	0.28	$9.5(62) \times 10^{-5}$	PCI/M^3	**D**
						β	509	20.06	$4.66(38) \times 10^{-3}$	PCI/M^3	
2013-09-07 01:51	20.0	28	00673574B	B3.09165P		α	16	0.53	$7.8(31) \times 10^{-5}$	PCI/M^3	**D**
						β	1104	49.81	$4.97(34) \times 10^{-3}$	PCI/M^3	
2013-09-07 02:11	20.0	29	00673576D	B3.09166Q		α	15	0.48	$1.61(70) \times 10^{-4}$	PCI/M^3	**D**
						β	819	35.56	$8.13(58) \times 10^{-3}$	PCI/M^3	
2013-09-07 02:32	20.0	30	00673578F	B3.09167R		α	16	0.53	$1.78(72) \times 10^{-4}$	PCI/M^3	**D**
						β	1076	48.41	$1.107(75) \times 10^{-2}$	PCI/M^3	
2013-09-07 02:52	20.0	31	00673580Z	B3.09168T		α	19	0.68	$2.74(94) \times 10^{-4}$	PCI/M^3	**D**
						β	1302	59.71	$1.64(11) \times 10^{-2}$	PCI/M^3	
2013-09-07 03:13	20.0	32	00673582B	B3.09169U		α	27	1.08	$1.97(51) \times 10^{-4}$	PCI/M^3	**D**
						β	939	41.56	$5.18(36) \times 10^{-3}$	PCI/M^3	
2013-09-07 03:34	20.0	33	00673746D	B3.09170L	DUP	α	29	1.18	$3.02(73) \times 10^{-4}$	PCI/M^3	**D**
						β	894	39.31	$6.85(48) \times 10^{-3}$	PCI/M^3	
2013-09-07 03:54	20.0	42	00673747E		RBK	α	2	–0.17	$-2.5(15) \times 10^{-1}$	PCI/SAMP	**D**
						β	128	1.01	1.01(65)	PCI/SAMP	
2013-09-07 04:15	20.0	34	00673586F	B3.09171M		α	12	0.33	$4.6(27) \times 10^{-5}$	PCI/M^3	**D**
						β	360	12.61	$1.21(12) \times 10^{-3}$	PCI/M^3	
2013-09-07 04:35	20.0	35	00673588H	B3.09172N		α	28	1.13	$3.85(96) \times 10^{-4}$	PCI/M^3	**D**
						β	1696	79.41	$1.84(12) \times 10^{-2}$	PCI/M^3	
2013-09-07 04:56	20.0	36	00673590B	B3.09173P		α	6	0.03	$6(31) \times 10^{-6}$	PCI/M^3	**D**
						β	226	5.91	$8.7(13) \times 10^{-4}$	PCI/M^3	
2013-09-07 05:17	20.0	37	00673592D	B3.09174Q		α	26	1.03	$3.50(93) \times 10^{-4}$	PCI/M^3	**D**
						β	1038	46.51	$1.080(74) \times 10^{-2}$	PCI/M^3	
2013-09-07 05:37	20.0	38	00673594F	B3.09175R		α	3	–0.12	$-4.1(39) \times 10^{-5}$	PCI/M^3	**D**
						β	369	13.06	$3.07(30) \times 10^{-3}$	PCI/M^3	
2013-09-07 05:58	20.0	39	00673672C	B3.09206F		α	24	0.93	$2.37(67) \times 10^{-4}$	PCI/M^3	**D**
						β	2478	118.51	$2.07(13) \times 10^{-2}$	PCI/M^3	
2013-09-07 06:18	20.0	40	00673674E	B3.09207G		α	13	0.38	$2.0(10) \times 10^{-4}$	PCI/M^3	**D**
						β	300	9.61	$3.39(38) \times 10^{-3}$	PCI/M^3	

Reviewed by: _____ Date: 9 / 9 / 20 13

National Air and Radiation Environmental Laboratory
QC Batch Report

QC Batch #: 0010314M Analytical Method: AIRBETA

METHOD BLANKS (PCI)

Sample ID	Nuclide	Activity ± 2σ	Prep Date	Flags
00673745C	BETA	1.25e+00 ± 1.3e+00	2013-09-06	OK

LABORATORY DUPLICATES (PCI/M3)

Sample ID	Nuclide	Original ± 2σ	Duplicate ± 2σ	RPD	Z
B3.09150G	BETA	4.47e-03 ± 6.9e-04	4.41e-03 ± 6.8e-04	1.36	-0.13 OK

Analyst: _____ 9/9/13

QA Officer: _____ 9/9/13

National Air and Radiation Environmental Laboratory
QC Batch Report

QC Batch #: 0010315N Analytical Method: AIRBETA

METHOD BLANKS (PCI)

Sample ID	Nuclide	Activity ± 2σ	Prep Date	Flags
00673747E	BETA	1.01e+00 ± 1.3e+00	2013-09-06	OK

LABORATORY DUPLICATES (PCI/M3)

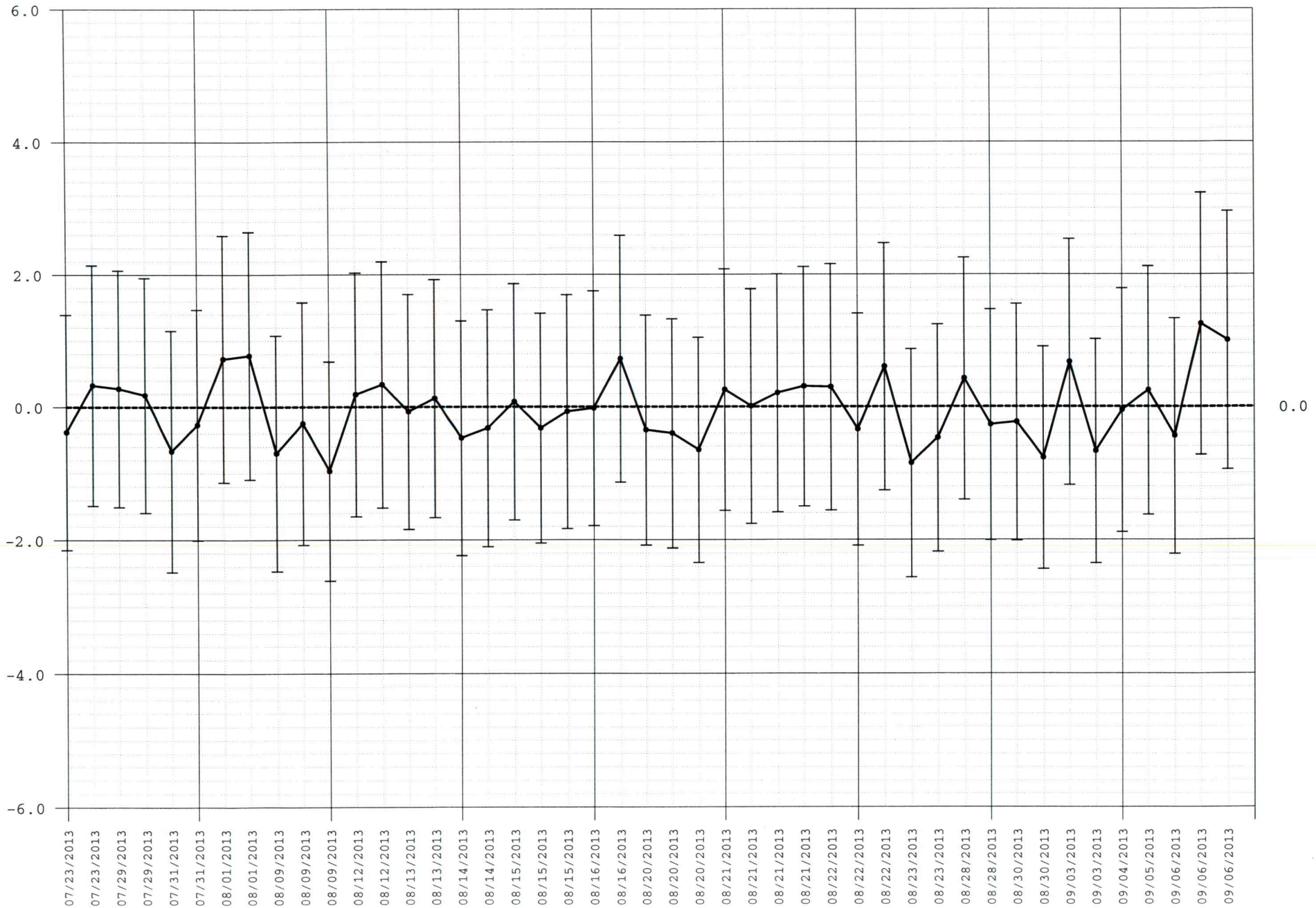
Sample ID	Nuclide	Original ± 2σ	Duplicate ± 2σ	RPD	Z
B3.09170L	BETA	7.20e-03 ± 1.0e-03	6.85e-03 ± 9.6e-04	4.96	-0.50 OK

Analyst: _____ 9/9/13

QA Officer: Kurt D. McEwen 9/9/13

Method Blanks

Analyte: BETA

Method: AIRBETA

Analyst: Siddiqui, Nina S.