NAREL AirBeta Batch Analysis

NAREL assay batch:	0017382Q
G5000 batch:	0017382Q-20130909155245
Instrument:	PR01
Operator:	Siddiqui, Nina S.
Background:	2013-09-09 08:15 CDT 100.00 min
Alpha:	33 count(s) 0.33 cpm Within target range
Beta:	495 count(s) 4.95 cpm Within target range
Efficiencies:	Alpha 0.3088(93) Beta 0.453(14)
Efficiency check:	2013-09-09 09:56 CDT 10.00 min
Alpha:	Within target range
Beta:	Within target range
Data file:	0017382Q-20130909155245.air

Veri
9/10/13

Pos	Sample ID	Size	Unit	Fraction	
1	B3.09220D	$1.004(50) \times 10^4$	M^3	1	**> 5 d of sampling**
2	B3.09225J	$4.30(21) \times 10^3$	M^3	1	
3	B3.09226K	$4.25(21) \times 10^3$	M^3	1	
4	B3.09227L	$4.32(22) \times 10^3$	M^3	1	
5	B3.09228M	$8.31(42) \times 10^3$	M^3	1	**> 5 d of sampling**
6	B3.09229N	$9.66(48) \times 10^3$	M^3	1	**> 5 d of sampling**
7	B3.09230F	$7.19(36) \times 10^3$	M^3	1	**> 5 d of sampling**
8	B3.09231G	$4.28(21) \times 10^3$	M^3	1	
9	B3.09232H	$4.30(22) \times 10^3$	M^3	1	
10	B3.09233J	$8.69(43) \times 10^3$	M^3	1	**> 5 d of sampling**
11	B3.09234K	$4.28(21) \times 10^3$	M^3	1	
12	B3.09235L	$7.16(36) \times 10^3$	M^3	1	
13	B3.09236M	$7.16(36) \times 10^3$	M^3	1	
14	B3.09237N	$5.70(29) \times 10^3$	M^3	1	
15	B3.09238P	$5.34(27) \times 10^3$	M^3	1	
16	B3.09243L	$9.70(49) \times 10^3$	M^3	1	**> 5 d of sampling**
17	B3.09244M	$4.75(24) \times 10^3$	M^3	1	
18	B3.09245N	$5.82(29) \times 10^3$	M^3	1	
19	B3.09246P	$5.73(29) \times 10^3$	M^3	1	
20	B3.09247Q	$8.59(43) \times 10^3$	M^3	1	**> 5 d of sampling**
21	B3.09248R	$1.004(50) \times 10^4$	M^3	1	**> 5 d of sampling**
22	B3.09249T	$1.004(50) \times 10^4$	M^3	1	**> 5 d of sampling**
23	B3.09250K	$5.73(29) \times 10^3$	M^3	1	
24	B3.09251L	$5.84(29) \times 10^3$	M^3	1	
25	B3.09252M	$4.29(21) \times 10^3$	M^3	1	
26	B3.09253N	$4.32(22) \times 10^3$	M^3	1	
27	B3.09254P	$7.17(36) \times 10^3$	M^3	1	
28	B3.09255Q	$5.57(28) \times 10^3$	M^3	1	
29	B3.09256R	$5.76(29) \times 10^3$	M^3	1	
30	B3.09257T	$7.14(36) \times 10^3$	M^3	1	
31	B3.09258U	$2.86(14) \times 10^3$	M^3	1	
32	B3.09259V	$1.006(50) \times 10^4$	M^3	1	**> 5 d of sampling**
33	B3.09260M	$4.36(22) \times 10^3$	M^3	1	
34	B3.09261N	$1.011(51) \times 10^4$	M^3	1	**> 5 d of sampling**
35	B3.09262P	$7.13(36) \times 10^3$	M^3	1	
36	B3.09263Q	$5.78(29) \times 10^3$	M^3	1	
37	B3.09264R	$7.16(36) \times 10^3$	M^3	1	
38	B3.09265T	$5.73(29) \times 10^3$	M^3	1	
39	B3.09266U	$5.74(29) \times 10^3$	M^3	1	
40	B3.09267V	$5.66(28) \times 10^3$	M^3	1	

1	B3.09220D	$1.004(50) \times 10^4$	M^3	1	**> 5 d of sampling**
2	B3.09225J	$4.30(21) \times 10^3$	M^3	1	
3	B3.09226K	$4.25(21) \times 10^3$	M^3	1	
4	B3.09227L	$4.32(22) \times 10^3$	M^3	1	
5	B3.09228M	$8.31(42) \times 10^3$	M^3	1	**> 5 d of sampling**
6	B3.09229N	$9.66(48) \times 10^3$	M^3	1	**> 5 d of sampling**
7	B3.09230F	$7.19(36) \times 10^3$	M^3	1	**> 5 d of sampling**
8	B3.09231G	$4.28(21) \times 10^3$	M^3	1	
9	B3.09232H	$4.30(22) \times 10^3$	M^3	1	
10	B3.09233J	$8.69(43) \times 10^3$	M^3	1	**> 5 d of sampling**
11	B3.09234K	$4.28(21) \times 10^3$	M^3	1	
12	B3.09235L	$7.16(36) \times 10^3$	M^3	1	
13	B3.09236M	$7.16(36) \times 10^3$	M^3	1	
14	B3.09237N	$5.70(29) \times 10^3$	M^3	1	
15	B3.09238P	$5.34(27) \times 10^3$	M^3	1	
16	B3.09243L	$9.70(49) \times 10^3$	M^3	1	**> 5 d of sampling**
17	B3.09244M	$4.75(24) \times 10^3$	M^3	1	
18	B3.09245N	$5.82(29) \times 10^3$	M^3	1	
19	B3.09246P	$5.73(29) \times 10^3$	M^3	1	
20	B3.09247Q	$8.59(43) \times 10^3$	M^3	1	**> 5 d of sampling**
21	B3.09248R	$1.004(50) \times 10^4$	M^3	1	**> 5 d of sampling**
22	B3.09249T	$1.004(50) \times 10^4$	M^3	1	**> 5 d of sampling**
23	B3.09250K	$5.73(29) \times 10^3$	M^3	1	
24	B3.09251L	$5.84(29) \times 10^3$	M^3	1	
25	B3.09252M	$4.29(21) \times 10^3$	M^3	1	
26	B3.09253N	$4.32(22) \times 10^3$	M^3	1	
27	B3.09254P	$7.17(36) \times 10^3$	M^3	1	
28	B3.09255Q	$5.57(28) \times 10^3$	M^3	1	
29	B3.09256R	$5.76(29) \times 10^3$	M^3	1	
30	B3.09257T	$7.14(36) \times 10^3$	M^3	1	
31	B3.09258U	$2.86(14) \times 10^3$	M^3	1	
32	B3.09259V	$1.006(50) \times 10^4$	M^3	1	**> 5 d of sampling**
33	B3.09260M	$4.36(22) \times 10^3$	M^3	1	
34	B3.09261N	$1.011(51) \times 10^4$	M^3	1	**> 5 d of sampling**
35	B3.09262P	$7.13(36) \times 10^3$	M^3	1	
36	B3.09263Q	$5.78(29) \times 10^3$	M^3	1	
37	B3.09264R	$7.16(36) \times 10^3$	M^3	1	
38	B3.09265T	$5.73(29) \times 10^3$	M^3	1	
39	B3.09266U	$5.74(29) \times 10^3$	M^3	1	
40	B3.09267V	$5.66(28) \times 10^3$	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
2013-09-09 15:53	20.0	7	00673718Z	B3.09230F		α	25	0.92	$1.87(54) \times 10^{-4}$	PCI/M^3	D	
						β	2262	108.15	$1.497(93) \times 10^{-2}$	PCI/M^3		
2013-09-09 16:14	20.0	33	00673788P	B3.09260M		α	30	1.17	$3.91(98) \times 10^{-4}$	PCI/M^3	D	
						β	1118	50.95	$1.163(78) \times 10^{-2}$	PCI/M^3		
2013-09-09 16:34	20.0	1	00673701P	B3.09220D		α	24	0.87	$1.26(38) \times 10^{-4}$	PCI/M^3	D	
						β	1162	53.15	$5.27(35) \times 10^{-3}$	PCI/M^3		
2013-09-09 16:55	20.0	2	00673708X	B3.09225J		α	16	0.47	$1.60(73) \times 10^{-4}$	PCI/M^3	D	
						β	1446	67.35	$1.56(10) \times 10^{-2}$	PCI/M^3		
2013-09-09 17:15	20.0	3	00673710Q	B3.09226K		α	18	0.57	$1.95(78) \times 10^{-4}$	PCI/M^3	D	
						β	1468	68.45	$1.60(10) \times 10^{-2}$	PCI/M^3		
2013-09-09 17:36	20.0	4	00673712T	B3.09227L		α	19	0.62	$2.09(79) \times 10^{-4}$	PCI/M^3	D	
						β	1604	75.25	$1.73(11) \times 10^{-2}$	PCI/M^3		
2013-09-09 17:57	20.0	5	00673714V	B3.09228M		α	46	1.97	$3.46(64) \times 10^{-4}$	PCI/M^3	D	
						β	2966	143.35	$1.72(11) \times 10^{-2}$	PCI/M^3		
2013-09-09 18:17	20.0	6	00673716X	B3.09229N		α	33	1.32	$1.99(46) \times 10^{-4}$	PCI/M^3	D	
						β	1973	93.70	$9.66(61) \times 10^{-3}$	PCI/M^3		
2013-09-09 18:38	20.0	7	00673898V	B3.09230F	DUP	α	27	1.02	$2.07(56) \times 10^{-4}$	PCI/M^3	D	
						β	2324	111.25	$1.540(96) \times 10^{-2}$	PCI/M^3		
2013-09-09 18:58	20.0	41	00673899W		RBK	α	2	–0.23	$-3.4(15) \times 10^{-1}$	PCI/SAMP	D	
						β	103	0.20	$2.0(60) \times 10^{-1}$	PCI/SAMP		
2013-09-09 19:19	20.0	8	00673720T	B3.09231G		α	20	0.67	$2.28(82) \times 10^{-4}$	PCI/M^3	D	
						β	2535	121.80	$2.83(18) \times 10^{-2}$	PCI/M^3		
2013-09-09 19:40	20.0	9	00673722V	B3.09232H		α	13	0.32	$1.08(67) \times 10^{-4}$	PCI/M^3	D	
						β	1025	46.30	$1.071(73) \times 10^{-2}$	PCI/M^3		
2013-09-09 20:00	20.0	10	00673724X	B3.09233J		α	29	1.12	$1.88(48) \times 10^{-4}$	PCI/M^3	D	
						β	2102	100.15	$1.147(72) \times 10^{-2}$	PCI/M^3		
2013-09-09 20:21	20.0	11	00673726Z	B3.09234K		α	33	1.32	$4.5(10) \times 10^{-4}$	PCI/M^3	D	
						β	1571	73.60	$1.71(11) \times 10^{-2}$	PCI/M^3		
2013-09-09 20:41	20.0	12	00673728B	B3.09235L		α	22	0.77	$1.57(51) \times 10^{-4}$	PCI/M^3	D	
						β	1879	89.00	$1.237(78) \times 10^{-2}$	PCI/M^3		
2013-09-09 21:02	20.0	13	00673730V	B3.09236M		α	19	0.62	$1.26(48) \times 10^{-4}$	PCI/M^3	D	
						β	2013	95.70	$1.330(84) \times 10^{-2}$	PCI/M^3		
2013-09-09 21:23	20.0	14	00673732X	B3.09237N		α	23	0.82	$2.10(66) \times 10^{-4}$	PCI/M^3	D	
						β	1585	74.30	$1.297(83) \times 10^{-2}$	PCI/M^3		
2013-09-09 21:43	20.0	15	00673734Z	B3.09238P		α	13	0.32	$8.7(54) \times 10^{-5}$	PCI/M^3	D	
						β	534	21.75	$4.06(33) \times 10^{-3}$	PCI/M^3		
2013-09-09 22:04	20.0	16	00673755E	B3.09243L		α	48	2.07	$3.11(56) \times 10^{-4}$	PCI/M^3	D	
						β	2376	113.85	$1.168(73) \times 10^{-2}$	PCI/M^3		
2013-09-09 22:24	20.0	17	00673757G	B3.09244M		α	10	0.17	$5.2(54) \times 10^{-5}$	PCI/M^3	D	
						β	257	7.90	$1.66(20) \times 10^{-3}$	PCI/M^3		
2013-09-09 22:45	20.0	18	00673759J	B3.09245N		α	16	0.47	$1.18(54) \times 10^{-4}$	PCI/M^3	D	
						β	379	14.00	$2.39(22) \times 10^{-3}$	PCI/M^3		
2013-09-09 23:06	20.0	19	00673760B	B3.09246P		α	12	0.27	$6.9(48) \times 10^{-5}$	PCI/M^3	D	
						β	849	37.50	$6.52(46) \times 10^{-3}$	PCI/M^3		
2013-09-09 23:26	20.0	20	00673762D	B3.09247Q		α	30	1.17	$1.99(50) \times 10^{-4}$	PCI/M^3	D	
						β	1877	88.90	$1.030(65) \times 10^{-2}$	PCI/M^3		
2013-09-09 23:47	20.0	21	00673764F	B3.09248R		α	17	0.52	$7.6(32) \times 10^{-5}$	PCI/M^3	D	
						β	1466	68.35	$6.77(44) \times 10^{-3}$	PCI/M^3		
2013-09-10 00:07	20.0	22	00673766H	B3.09249T		α	46	1.97	$2.86(53) \times 10^{-4}$	PCI/M^3	D	
						β	3280	159.05	$1.578(96) \times 10^{-2}$	PCI/M^3		
2013-09-10 00:28	20.0	23	00673768K	B3.09250K		α	8	0.07	$1.8(41) \times 10^{-5}$	PCI/M^3	D	
						β	232	6.65	$1.15(16) \times 10^{-3}$	PCI/M^3		
2013-09-10 00:49	20.0	24	00673770D	B3.09251L		α	49	2.12	$5.29(95) \times 10^{-4}$	PCI/M^3	D	
						β	1726	81.35	$1.387(88) \times 10^{-2}$	PCI/M^3		

2013-09-10 01:10	20.0	25	00673772F	B3.09252M		α	14	0.37	$1.26(69) \times 10^{-4}$	PCI/M^3	**D**	
						β	945	42.30	$9.81(68) \times 10^{-3}$	PCI/M^3		
2013-09-10 01:30	20.0	26	00673774H	B3.09253N		α	4	–0.13	$-4.4(43) \times 10^{-5}$	PCI/M^3	**D**	
						β	269	8.50	$1.96(23) \times 10^{-3}$	PCI/M^3		
2013-09-10 01:51	20.0	27	00673776K	B3.09254P		α	14	0.37	$7.5(41) \times 10^{-5}$	PCI/M^3	**D**	
						β	529	21.50	$2.99(24) \times 10^{-3}$	PCI/M^3		
2013-09-10 02:11	20.0	28	00673778M	B3.09255Q		α	30	1.17	$3.06(77) \times 10^{-4}$	PCI/M^3	**D**	
						β	1887	89.40	$1.60(10) \times 10^{-2}$	PCI/M^3		
2013-09-10 02:32	20.0	29	00673780F	B3.09256R		α	31	1.22	$3.09(75) \times 10^{-4}$	PCI/M^3	**D**	
						β	1718	80.95	$1.399(89) \times 10^{-2}$	PCI/M^3		
2013-09-10 02:53	20.0	30	00673782H	B3.09257T		α	19	0.62	$1.27(48) \times 10^{-4}$	PCI/M^3	**D**	
						β	1044	47.25	$6.58(45) \times 10^{-3}$	PCI/M^3		
2013-09-10 03:14	20.0	31	00673784K	B3.09258U		α	13	0.32	$1.6(10) \times 10^{-4}$	PCI/M^3	**D**	
						β	860	38.05	$1.325(93) \times 10^{-2}$	PCI/M^3		
2013-09-10 03:34	20.0	32	00673786M	B3.09259V		α	46	1.97	$2.86(53) \times 10^{-4}$	PCI/M^3	**D**	
						β	2311	110.60	$1.094(68) \times 10^{-2}$	PCI/M^3		
2013-09-10 03:55	20.0	33	00673900V	B3.09260M	DUP	α	38	1.57	$5.3(11) \times 10^{-4}$	PCI/M^3	**D**	
						β	1080	49.05	$1.120(76) \times 10^{-2}$	PCI/M^3		
2013-09-10 04:15	20.0	42	00673901W		RBK	α	1	–0.28	$-4.1(13) \times 10^{-1}$	PCI/SAMP	**D**	**<<0**
						β	99	0.00	$0.0(59) \times 10^{-1}$	PCI/SAMP		
2013-09-10 04:36	20.0	34	00673790H	B3.09261N		α	25	0.92	$1.33(39) \times 10^{-4}$	PCI/M^3	**D**	
						β	1209	55.50	$5.47(36) \times 10^{-3}$	PCI/M^3		
2013-09-10 04:57	20.0	35	00673792K	B3.09262P		α	30	1.17	$2.39(60) \times 10^{-4}$	PCI/M^3	**D**	
						β	1882	89.15	$1.245(79) \times 10^{-2}$	PCI/M^3		
2013-09-10 05:17	20.0	36	00673794M	B3.09263Q		α	19	0.62	$1.57(59) \times 10^{-4}$	PCI/M^3	**D**	
						β	1421	66.10	$1.139(74) \times 10^{-2}$	PCI/M^3		
2013-09-10 05:38	20.0	37	00673796P	B3.09264R		α	19	0.62	$1.26(48) \times 10^{-4}$	PCI/M^3	**D**	
						β	1365	63.30	$8.80(58) \times 10^{-3}$	PCI/M^3		
2013-09-10 05:58	20.0	38	00673798R	B3.09265T		α	10	0.17	$4.3(45) \times 10^{-5}$	PCI/M^3	**D**	
						β	350	12.55	$2.18(21) \times 10^{-3}$	PCI/M^3		
2013-09-10 06:19	20.0	39	00673800R	B3.09266U		α	18	0.57	$1.45(58) \times 10^{-4}$	PCI/M^3	**D**	
						β	1221	56.10	$9.73(65) \times 10^{-3}$	PCI/M^3		
2013-09-10 06:40	20.0	40	00673802U	B3.09267V		α	9	0.12	$3.1(43) \times 10^{-5}$	PCI/M^3	**D**	
						β	435	16.80	$2.95(26) \times 10^{-3}$	PCI/M^3		

Reviewed by: _____ Date: 9 / 10 / 20 13

National Air and Radiation Environmental Laboratory
QC Batch Report

QC Batch #: 0010318R Analytical Method: AIRBETA

METHOD BLANKS (PCI)

Sample ID	Nuclide	Activity ± 2σ	Prep Date	Flags
00673899W	BETA	1.99e-01 ± 1.2e+00	2013-09-09	OK

LABORATORY DUPLICATES (PCI/M3)

Sample ID	Nuclide	Original ± 2σ	Duplicate ± 2σ	RPD	Z
B3.09230F	BETA	1.50e-02 ± 1.9e-03	1.54e-02 ± 1.9e-03	2.83	0.32 OK

Analyst: _____ 9/10/13

QA Officer: _____ 9/10/13

National Air and Radiation Environmental Laboratory
QC Batch Report

QC Batch #: 0010319T Analytical Method: AIRBETA

METHOD BLANKS (PCI)

Sample ID	Nuclide	Activity ± 2σ	Prep Date	Flags
00673901W	BETA	0.00e+00 ± 1.2e+00	2013-09-09	OK

LABORATORY DUPLICATES (PCI/M3)

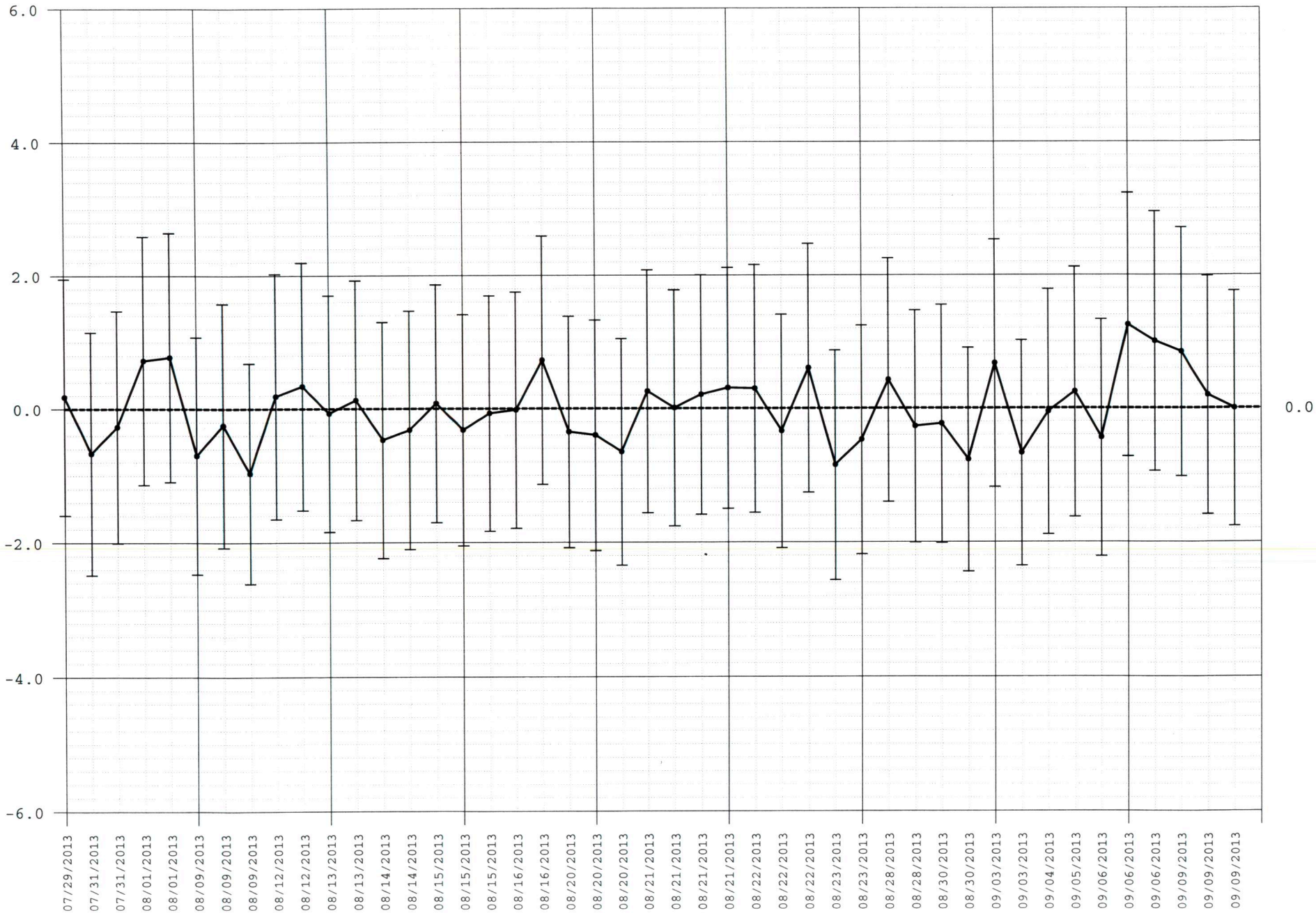
Sample ID	Nuclide	Original ± 2σ	Duplicate ± 2σ	RPD	Z
B3.09260M	BETA	1.16e-02 ± 1.6e-03	1.12e-02 ± 1.5e-03	3.80	-0.40 OK

Analyst: _____ 9/10/13

QA Officer: _____ 9/10/13

Method Blanks

Analyte: BETA

Method: AIRBETA

Analyst: Siddiqui, Nina S.