

# CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Counting Instrument:		3030E		Detector:		43-10-1		Calibration Date:		4/6/2011								
Serial #:		217611		Serial #:		PR232046		12 month calibration:		OK								
Detector Active Area or Area Covered by Smear (cm <sup>2</sup> ):						100												
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T <sub>1/2</sub> (yr)	Source Decayed Activity	Required MDA (DPM/100cm <sup>2</sup> )	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source- Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm				
Alpha	0.3561	Th-230	7104-10	-	-	-	#VALUE!	20	10	1	0.12	0.10	6196.9	60.95				
Beta	0.2691	Tc-99	7102-10	-	-	-	#VALUE!	200	10	1	46.66	1.43	3337.4	54.83				
Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail		MDA α (dpm)	MDA β (dpm)	α MDA OK?	β MDA OK?	H.P. Technician	Technician Initials
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta						
8/17/2011	2	442	6107	3340	0.2	44.2	6106.8	3295.8	PASS	PASS	PASS	PASS	12.76	96	Yes	Yes	PR	GB
8/18/2011	0	465	6149	3482	0.0	46.5	6149.0	3435.5	PASS	PASS	PASS	PASS	8.42	99	Yes	Yes	PR	GB
8/19/2011	1	476	6269	3334	0.1	47.6	6268.9	3286.4	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	PR	GB
8/22/2011	3	466	6232	3483	0.3	46.6	6231.7	3436.4	PASS	PASS	PASS	PASS	13.73	99	Yes	Yes	PR	GB
8/23/2011	0	478	6236	3471	0.0	47.8	6236.0	3423.2	PASS	PASS	PASS	PASS	8.42	100	Yes	Yes	PR	GB
8/24/2011	1	464	6200	3359	0.1	46.4	6199.9	3312.6	PASS	PASS	PASS	PASS	11.49	98	Yes	Yes	PR	GB
8/25/2011	0	466	6251	3420	0.0	46.6	6251.0	3373.4	PASS	PASS	PASS	PASS	8.42	99	Yes	Yes	PR	GB
8/26/2011	3	492	6176	3441	0.3	49.2	6175.7	3391.8	PASS	PASS	PASS	PASS	13.73	101	Yes	Yes	PR	GB
8/29/2011	2	493	6258	3387	0.2	49.3	6257.8	3337.7	PASS	PASS	PASS	PASS	12.76	101	Yes	Yes	SD	SD
8/30/2011	2	457	6265	3428	0.2	45.7	6264.8	3382.3	PASS	PASS	PASS	PASS	12.76	98	Yes	Yes	PR	PR
8/31/2011	1	449	6318	3453	0.1	44.9	6317.9	3408.1	PASS	PASS	PASS	PASS	11.49	97	Yes	Yes	PR	PR
9/1/2011	2	453	6153	3342	0.2	45.3	6152.8	3296.7	PASS	PASS	PASS	PASS	12.76	97	Yes	Yes	BG	BG
9/2/2011	4	445	6230	3472	0.4	44.5	6229.6	3427.5	QUESTION	PASS	PASS	PASS	14.55	97	Yes	Yes	BG	BG
9/6/2011	1	488	6289	3434	0.1	48.8	6288.9	3385.2	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	BG	BG
9/7/2011	0	454	6178	3322	0.0	45.4	6178.0	3276.6	PASS	PASS	PASS	PASS	8.42	98	Yes	Yes	BG	BG
9/8/2011	1	466	6215	3402	0.1	46.6	6214.9	3355.4	PASS	PASS	PASS	PASS	11.49	99	Yes	Yes	BG	BG
9/9/2011	0	485	6239	3372	0.0	48.5	6239.0	3323.5	PASS	PASS	PASS	PASS	8.42	100	Yes	Yes	BG	BG
9/12/2011	3	493	6185	3467	0.3	49.3	6184.7	3417.7	PASS	PASS	PASS	PASS	13.73	101	Yes	Yes	BG	BG
9/13/2011	2	492	6267	3466	0.2	49.2	6266.8	3416.8	PASS	PASS	PASS	PASS	12.76	101	Yes	Yes	BG	BG
9/14/2011	2	441	6201	3401	0.2	44.1	6200.8	3356.9	PASS	PASS	PASS	PASS	12.76	96	Yes	Yes	BG	BG
9/15/2011	0	502	6281	3332	0.0	50.2	6281.0	3281.8	PASS	QUESTION	PASS	PASS	8.42	102	Yes	Yes	BG	BG
9/16/2011	2	467	6183	3367	0.2	46.7	6182.8	3320.3	PASS	PASS	PASS	PASS	12.76	99	Yes	Yes	BG	BG
9/19/2011	0	489	6349	3408	0.0	48.9	6349.0	3359.1	PASS	PASS	QUESTION	PASS	8.42	101	Yes	Yes	BG	BG
9/20/2011	1	484	6281	3435	0.1	48.4	6280.9	3386.6	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	BG	BG
9/21/2011	1	458	6305	3464	0.1	45.8	6304.9	3418.2	PASS	PASS	PASS	PASS	11.49	98	Yes	Yes	PR	PR
9/22/2011	1	467	6183	3356	0.1	46.7	6182.9	3309.3	PASS	PASS	PASS	PASS	11.49	99	Yes	Yes	BG	BG
9/23/2011	1	490	6183	3407	0.1	49.0	6182.9	3358.0	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	PR	PR
9/26/2011	2	460	6222	3381	0.2	46.0	6221.8	3335.0	PASS	PASS	PASS	PASS	12.76	98	Yes	Yes	PR	PR
9/27/2011	3	482	6274	3409	0.3	48.2	6273.7	3360.8	PASS	PASS	PASS	PASS	13.73	100	Yes	Yes	PR	PR
9/28/2011	1	451	6245	3453	0.1	45.1	6244.9	3407.9	PASS	PASS	PASS	PASS	11.49	97	Yes	Yes	PR	PR
9/29/2011	1	462	6299	3442	0.1	46.2	6298.9	3395.8	PASS	PASS	PASS	PASS	11.49	98	Yes	Yes	PR	PR
9/30/2011	2	448	6284	3419	0.2	44.8	6283.8	3374.2	PASS	PASS	PASS	PASS	12.76	97	Yes	Yes	GB	GB
10/3/2011	1	476	6211	3446	0.1	47.6	6210.9	3398.4	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	PR	PR
10/4/2011	1	493	6298	3406	0.1	49.3	6297.9	3356.7	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	PR	PR
10/5/2011	1	475	6287	3449	0.1	47.5	6286.9	3401.5	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	PR	PR
10/6/2011	1	499	6309	3440	0.1	49.9	6308.9	3390.1	PASS	QUESTION	PASS	PASS	11.49	102	Yes	Yes	PR	PR
10/7/2011	1	476	6234	3494	0.1	47.6	6233.9	3446.4	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	PR	PR
10/10/2011	3	489	6312	3487	0.3	48.9	6311.7	3438.1	PASS	PASS	PASS	PASS	13.73	101	Yes	Yes	GB	GB

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	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T <sub>1/2</sub> (yr)	Source Decayed Activity	Required MDA (DPM/100cm <sup>2</sup> )	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source- Sample Count Time	Control Chart bkg Average α/β cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average α/β cpm	Control Chart source 1 sigma, cpm					
Alpha	0.3561	Th-230	7104-10	-	-	-	#VALUE!	20	10	1	0.12	0.10	6196.9	60.95					
Beta	0.2691	Tc-99	7102-10	-	-	-	#VALUE!	200	10	1	46.66	1.43	3337.4	54.83					
Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail		MDA α (dpm)	MDA β (dpm)	α MDA OK?	β MDA OK?	H.P. Technician	Technician Initials	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta							
10/11/2011	2	464	6312	3454	0.2	46.4	6311.8	3407.6	PASS	PASS	PASS	PASS	12.76	98	Yes	Yes	GB	GB	
10/12/2011	1	468	6300	3481	0.1	46.8	6299.9	3434.2	PASS	PASS	PASS	PASS	11.49	99	Yes	Yes	GB	GB	
10/13/2011	1	484	6334	3387	0.1	48.4	6333.9	3338.6	PASS	PASS	QUESTION	PASS	11.49	100	Yes	Yes	GB	GB	
10/14/2011	1	483	6272	3421	0.1	48.3	6271.9	3372.7	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	GB	GB	
10/17/2011	1	493	6261	3460	0.1	49.3	6260.9	3410.7	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	GB	GB	
10/18/2011	2	472	6165	3481	0.2	47.2	6164.8	3433.8	PASS	PASS	PASS	PASS	12.76	99	Yes	Yes	GB	GB	
10/19/2011	0	475	6313	3488	0.0	47.5	6313.0	3440.5	PASS	PASS	PASS	PASS	8.42	100	Yes	Yes	GB	GB	
10/20/2011	2	476	6159	3430	0.2	47.6	6158.8	3382.4	PASS	PASS	PASS	PASS	12.76	100	Yes	Yes	GB	GB	
10/21/2011	1	470	6096	3399	0.1	47.0	6095.9	3352.0	PASS	PASS	PASS	PASS	11.49	99	Yes	Yes	GB	GB	
10/24/2011	0	486	6268	3529	0.0	48.6	6268.0	3480.4	PASS	PASS	PASS	QUESTION	8.42	101	Yes	Yes	GB	GB	
10/25/2011	1	443	6253	3404	0.1	44.3	6252.9	3359.7	PASS	PASS	PASS	PASS	11.49	96	Yes	Yes	GB	GB	
10/26/2011	1	499	6231	3478	0.1	49.9	6230.9	3428.1	PASS	QUESTION	PASS	PASS	11.49	102	Yes	Yes	GB	GB	
10/28/2011	1	470	6302	3418	0.1	47.0	6301.9	3371.0	PASS	PASS	PASS	PASS	11.49	99	Yes	Yes	GB	GB	
11/1/2011	2	458	6316	3460	0.2	45.8	6315.8	3414.2	PASS	PASS	PASS	PASS	12.76	98	Yes	Yes	PR	PR	
11/2/2011	3	489	6162	3409	0.3	48.9	6161.7	3360.1	PASS	PASS	PASS	PASS	13.73	101	Yes	Yes	PR	PR	
11/3/2011	1	484	6286	3493	0.1	48.4	6285.9	3444.6	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	N. Berliner	NMB	
11/4/2011	1	485	6185	3464	0.1	48.5	6184.9	3415.5	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	N. Berliner	NMB	
11/7/2011	1	465	6129	3456	0.1	46.5	6128.9	3409.5	PASS	PASS	PASS	PASS	11.49	99	Yes	Yes	N. Berliner	NMB	
11/8/2011	2	487	6288	3467	0.2	48.7	6287.8	3418.3	PASS	PASS	PASS	PASS	12.76	101	Yes	Yes	GB	GB	
11/9/2011	0	490	6306	3445	0.0	49.0	6306.0	3396.0	PASS	PASS	PASS	PASS	8.42	101	Yes	Yes	GB	GB	
11/10/2011	1	476	6173	3463	0.1	47.6	6172.9	3415.4	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	N. Berliner	NMB	
11/11/2011	3	499	6109	3488	0.3	49.9	6108.7	3438.1	PASS	QUESTION	PASS	PASS	13.73	102	Yes	Yes	GB	GB	
11/14/2011	2	495	6311	3493	0.2	49.5	6310.8	3443.5	PASS	PASS	PASS	PASS	12.76	101	Yes	Yes	GB	GB	
11/15/2011	2	456	6157	3481	0.2	45.6	6156.8	3435.4	PASS	PASS	PASS	PASS	12.76	98	Yes	Yes	GB	GB	
11/16/2011	1	478	6234	3448	0.1	47.8	6233.9	3400.2	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	GB	GB	
11/17/2011	1	491	6201	3459	0.1	49.1	6200.9	3409.9	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	GB	GB	
11/18/2011	1	487	6212	3455	0.1	48.7	6211.9	3406.3	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	S.Devlin	SD	
11/21/2011	1	474	6140	3376	0.1	47.4	6139.9	3328.6	PASS	PASS	PASS	PASS	11.49	99	Yes	Yes	GB	GB	
11/22/2011	4	471	6131	3454	0.4	47.1	6130.6	3406.9	QUESTION	PASS	PASS	PASS	14.55	99	Yes	Yes	GB	GB	
11/23/2011	3	473	6134	3491	0.3	47.3	6133.7	3443.7	PASS	PASS	PASS	PASS	13.73	99	Yes	Yes	GB	GB	
11/28/2011	0	457	6257	3457	0.0	45.7	6257.0	3411.3	PASS	PASS	PASS	PASS	8.42	98	Yes	Yes	GB	GB	
11/29/2011	3	490	6302	3372	0.3	49.0	6301.7	3323.0	PASS	PASS	PASS	PASS	13.73	101	Yes	Yes	GB	GB	
11/30/2011	2	489	6243	3526	0.2	48.9	6242.8	3477.1	PASS	PASS	PASS	QUESTION	12.76	101	Yes	Yes	GB	GB	
12/1/2011	1	480	6202	3417	0.1	48.0	6201.9	3369.0	PASS	PASS	PASS	PASS	11.49	100	Yes	Yes	GB	GB	
12/2/2011	2	476	6164	3414	0.2	47.6	6163.8	3366.4	PASS	PASS	PASS	PASS	12.76	100	Yes	Yes	GB	GB	
12/5/2011	3	489	6225	3439	0.3	48.9	6224.7	3390.1	PASS	PASS	PASS	PASS	13.73	101	Yes	Yes	GB	GB	
12/6/2011	3	454	6229	3449	0.3	45.4	6228.7	3403.6	PASS	PASS	PASS	PASS	13.73	98	Yes	Yes	PR	PR	
12/7/2011	3	471	6235	3446	0.3	47.1	6234.7	3398.9	PASS	PASS	PASS	PASS	13.73	99	Yes	Yes	GB	GB	
12/8/2011	1	469	6230	3428	0.1	46.9	6229.9	3381.1	PASS	PASS	PASS	PASS	11.49	99	Yes	Yes	GB	GB	
12/9/2011	1	498	6189	3460	0.1	49.8	6188.9	3410.2	PASS	QUESTION	PASS	PASS	11.49	102	Yes	Yes	GB	GB	
12/12/2011	3	476	6270	3374	0.3	47.6	6269.7	3326.4	PASS	PASS	PASS	PASS	13.73	100	Yes	Yes	GB	GB	
12/13/2011	1	493	6283	3430	0.1	49.3	6282.9	3380.7	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	GB	GB	
12/14/2011	0	480	6093	3400	0.0	48.0	6093.0	3352.0	PASS	PASS	PASS	PASS	8.42	100	Yes	Yes	GB	GB	

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	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T <sub>1/2</sub> (yr)	Source Decayed Activity	Required MDA (DPM/100cm <sup>2</sup> )	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source- Sample Count Time	Control Chart bkg Average $\alpha/\beta$ cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average $\alpha/\beta$ cpm	Control Chart source 1 sigma, cpm				
Alpha	0.3561	Th-230	7104-10	-	-	-	#VALUE!	20	10	1	0.12	0.10	6196.9	60.95				
Beta	0.2691	Tc-99	7102-10	-	-	-	#VALUE!	200	10	1	46.66	1.43	3337.4	54.83				
Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail		MDA $\alpha$ (dpm)	MDA $\beta$ (dpm)	$\alpha$ MDA OK?	$\beta$ MDA OK?	H.P. Technician	Technician Initials
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta						
12/15/2011	1	493	6124	3434	0.1	49.3	6123.9	3384.7	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	GB	GB
12/16/2011	3	470	6204	3383	0.3	47.0	6203.7	3336.0	PASS	PASS	PASS	PASS	13.73	99	Yes	Yes	GB	GB
12/19/2011	3	439	6163	3486	0.3	43.9	6162.7	3442.1	PASS	PASS	PASS	PASS	13.73	96	Yes	Yes	GB	GB

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Initial Background and Source Counts for Control Chart								
#	Initial bkg counts				Initial source plus bkg counts			
	Alpha	cpm	Beta	cpm	Alpha	cpm	Beta	cpm
1	1	0.1	488	48.8	6163	6163	3447	3447
2	2	0.2	472	47.2	6117	6117	3373	3373
3	1	0.1	470	47	6131	6131	3344	3344
4	0	0	481	48.1	6143	6143	3424	3424
5	3	0.3	469	46.9	6280	6280	3442	3442
6	1	0.1	451	45.1	6195	6195	3340	3340
7	2	0.2	452	45.2	6250	6250	3338	3338
8	0	0	474	47.4	6184	6184	3361	3361
9	0	0	467	46.7	6288	6288	3466	3466
10	2	0.2	442	44.2	6219	6219	3306	3306
Mean		0.12		46.7		6197.0		3384.1
S <sub>(n-1)</sub>		0.10		1.43		60.98		55.82
-3 sigma		-0.19		42.38		6014.07		3216.64
+3 sigma		0.43		50.94		6379.93		3551.56
-2 sigma		-0.09		43.81		6075.05		3272.46
+2 sigma		0.33		49.51		6318.95		3495.74
					Mean-bkg	6196.9		3337.4
					S <sub>(n-1)</sub>	60.95		54.83
				Mean-bkg	-3 sigma	6014.02		3172.94
				Mean-bkg	+3 sigma	6379.74		3501.94
				Mean-bkg	-2 sigma	6074.98		3227.77
				Mean-bkg	+2 sigma	6318.78		3447.11
						6162.9		3398.2
						6116.8		3325.8
						6130.9		3297
						6143		3375.9
						6279.7		3395.1
						6194.9		3294.9
						6249.8		3292.8
						6184		3313.6
						6288		3419.3
						6218.8		3261.8



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Counting Instrument:			3030E		Detector:		43-10-1		Calibration Date:		4/6/2011								
Serial #:			217611		Serial #:		PR232046		12 month calibration:		OK								
Detector Active Area or Area Covered by Smear (cm <sup>2</sup> ):							100												
	Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T <sub>1/2</sub> (yr)	Source Decayed Activity	Required MDA (DPM/100cm <sup>2</sup> )	Control Chart & Daily Bkg Count Time	Control Chart & Daily Source- Sample Count Time	Control Chart bkg Average $\alpha/\beta$ cpm	Control Chart bkg 1 sigma, cpm	Control Chart Source-bkg Average $\alpha/\beta$ cpm	Control Chart source 1 sigma, cpm					
Alpha	0.3561	Th-230	7104-10	-	-	-	#VALUE!	20	10	1	0.22	0.19	6186.5	83.23					
Beta	0.2691	Tc-99	7102-10	-	-	-	#VALUE!	200	10	1	52.70	2.74	3398.3	54.31					
Date	Daily Bkg Counts		Daily Check Source Counts		Daily Bkg Rate (cpm)		Net Daily Source Rate (cpm)		Bkg QC Pass/Fail		Source QC Pass/Fail		MDA $\alpha$ (dpm)	MDA $\beta$ (dpm)	$\alpha$ MDA OK?	$\beta$ MDA OK?	H.P. Technician	Technician Initials	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta							
12/20/2011	0	581	6186	3436	0.0	58.1	6186.0	3377.9	PASS	PASS	PASS	PASS	8.42	109	Yes	Yes	Gbright	GB	
12/21/2011	2	516	6302	3413	0.2	51.6	6301.8	3361.4	PASS	PASS	PASS	PASS	12.76	103	Yes	Yes	Gbright	GB	
12/22/2011	1	548	6207	3396	0.1	54.8	6206.9	3341.2	PASS	PASS	PASS	PASS	11.49	106	Yes	Yes	Gbright	GB	
12/23/2011	2	535	6206	3382	0.2	53.5	6205.8	3328.5	PASS	PASS	PASS	PASS	12.76	105	Yes	Yes	N Berliner	NMB	
12/28/2011	0	527	6173	3384	0.0	52.7	6173.0	3331.3	PASS	PASS	PASS	PASS	8.42	104	Yes	Yes	Gbright	GB	
1/3/2012	4	495	6082	3474	0.4	49.5	6081.6	3424.5	PASS	PASS	PASS	PASS	14.55	101	Yes	Yes	Gbright	GB	
1/4/2012	1	489	6295	3434	0.1	48.9	6294.9	3385.1	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	Ddavis	DD	
1/5/2012	2	522	6309	3375	0.2	52.2	6308.8	3322.8	PASS	PASS	PASS	PASS	12.76	104	Yes	Yes	Ddavis	DD	
1/6/2012	4	503	6111	3348	0.4	50.3	6110.6	3297.7	PASS	PASS	PASS	PASS	14.55	102	Yes	Yes	Ddavis	DD	
1/9/2012	1	494	6102	3386	0.1	49.4	6101.9	3336.6	PASS	PASS	PASS	PASS	11.49	101	Yes	Yes	Davis	DD	
1/10/2012	0	559	6246	3353	0.0	55.9	6246.0	3297.1	PASS	PASS	PASS	PASS	8.42	107	Yes	Yes	Davis	DD	
1/11/2012	1	551	6250	3494	0.1	55.1	6249.9	3438.9	PASS	PASS	PASS	PASS	11.49	106	Yes	Yes	Davis	DD	
1/12/2012	2	529	6209	3459	0.2	52.9	6208.8	3406.1	PASS	PASS	PASS	PASS	12.76	104	Yes	Yes	Davis	DD	
1/13/2012	2	503	6304	3421	0.2	50.3	6303.8	3370.7	PASS	PASS	PASS	PASS	12.76	102	Yes	Yes	Davis	DD	
1/16/2012	1	510	6179	3477	0.1	51.0	6178.9	3426.0	PASS	PASS	PASS	PASS	11.49	103	Yes	Yes	Davis	DD	
1/17/2012	3	504	6052	3401	0.3	50.4	6051.7	3350.6	PASS	PASS	PASS	PASS	13.73	102	Yes	Yes	Davis	DD	
1/18/2012	4	531	6068	3431	0.4	53.1	6067.6	3377.9	PASS	PASS	PASS	PASS	14.55	105	Yes	Yes	Davis	DD	
1/19/2012	5	506	6155	3397	0.5	50.6	6154.5	3346.4	PASS	PASS	PASS	PASS	15.28	102	Yes	Yes	Davis	DD	
1/20/2012	4	520	6082	3442	0.4	52.0	6081.6	3390.0	PASS	PASS	PASS	PASS	14.55	104	Yes	Yes	Davis	DD	
1/23/2012	1	517	6046	3520	0.1	51.7	6045.9	3468.3	PASS	PASS	PASS	PASS	11.49	103	Yes	Yes	Davis	DD	
1/24/2012	2	524	6274	3386	0.2	52.4	6273.8	3333.6	PASS	PASS	PASS	PASS	12.76	104	Yes	Yes	Davis	DD	
1/25/2012	1	522	6135	3362	0.1	52.2	6134.9	3309.8	PASS	PASS	PASS	PASS	11.49	104	Yes	Yes	Davis	DD	
1/26/2012	4	500	6075	3393	0.4	50.0	6074.6	3343.0	PASS	PASS	PASS	PASS	14.55	102	Yes	Yes	Davis	DD	
1/27/2012	2	500	6156	3364	0.2	50.0	6155.8	3314.0	PASS	PASS	PASS	PASS	12.76	102	Yes	Yes	Davis	DD	
1/30/2012	2	535	6165	3391	0.2	53.5	6164.8	3337.5	PASS	PASS	PASS	PASS	12.76	105	Yes	Yes	Davis	DD	
1/31/2012	1	518	6210	3352	0.1	51.8	6209.9	3300.2	PASS	PASS	PASS	PASS	11.49	103	Yes	Yes	Davis	DD	

CABRERA ALPHA-BETA COUNTING INSTRUMENT (Rev 6)

Initial Background and Source Counts for Control Chart								
#	Initial bkg counts				Initial source plus bkg counts			
	Alpha	cpm	Beta	cpm	Alpha	cpm	Beta	cpm
1	0	0	520	52	6346	6346	3481	3481
2	2	0.2	507	50.7	6249	6249	3475	3475
3	2	0.2	510	51	6167	6167	3518	3518
4	7	0.7	554	55.4	6047	6047	3497	3497
5	2	0.2	522	52.2	6154	6154	3517	3517
6	3	0.3	485	48.5	6206	6206	3374	3374
7	1	0.1	584	58.4	6153	6153	3431	3431
8	1	0.1	527	52.7	6229	6229	3376	3376
9	2	0.2	520	52	6099	6099	3434	3434
10	2	0.2	541	54.1	6217	6217	3407	3407
Mean		0.22		52.7		6186.7		3451.0
S <sub>(n-1)</sub>		0.19		2.74		83.09		54.38
-3 sigma		-0.34		44.48		5937.42		3287.86
+3 sigma		0.78		60.92		6435.98		3614.14
-2 sigma		-0.15		47.22		6020.52		3342.24
+2 sigma		0.59		58.18		6352.88		3559.76
					Mean-bkg	6186.5		3398.3
					S <sub>(n-1)</sub>	83.23		54.31
				Mean-bkg	-3 sigma	5936.80		3235.37
				Mean-bkg	+3 sigma	6436.16		3561.23
				Mean-bkg	-2 sigma	6020.03		3289.68
				Mean-bkg	+2 sigma	6352.93		3506.92
						6346		3429
						6248.8		3424.3
						6166.8		3467
						6046.3		3441.6
						6153.8		3464.8
						6205.7		3325.5
						6152.9		3372.6
						6228.9		3323.3
						6098.8		3382
						6216.8		3352.9