

Results of Directional Survey

API number:	30-025-40476		
OGRID:		Operator:	CIMAREX ENERGY CO. OF COLORADO
		Property:	HALLERTA 4 FEDERAL # 7H

surface	ULSTR:	B	04	T 26S	R 32E
				330 FNL	1650 FEL

BH Loc	ULSTR:	O	04	T 26S	R 32E
15169	MD	10712.7	TVD	276 FSL	1579 FEL
				5004 FNL	

Top Perf/OH	ULSTR:	B	04	T 26S	R 32E
11612	MD	10701.7	TVD	1457 FNL	1655 FEL

Bot Perf/OH	ULSTR:	O	04	T 26S	R 32E
15058	MD	10709.9	TVD	387 FSL	1578 FEL
				4893 FNL	

	MD	N/S	E/W	VD
	11595	-1109.63	-5.61	10702.17
TOP PERFS/OH	11612	-1126.61	-5.06	10701.68
	11689	-1203.54	-2.55	10699.46
	15024	-4529.15	71.66	10709.18
BOT PERFS/OH	15058	-4563.14	71.79	10709.91
	15120	-4625.12	72.03	10711.25

NEXT TO LAST	15141	-4646.10	71.58	10711.83
LAST READING	15169	-4674.08	70.91	10712.66
TD	15169	-4674.08	70.91	10712.66

Surface Location	330	FN	1650	FE
Projected BHL	5004	FN	1579	FE
Location of				
Top Perfs/OH	1457	FN	1655	FE
Bottom Perfs/OH	4893	FN	1578	FE

SUMMARY of Subsurface Locations

Surface Location	B-04-26S-32E	330	FN	1650	FE	Vert. Depth
Top Perfs/OH	B-04-26S-32E	1457	FN	1655	FE	10701.68
Bottom Perfs/OH	O-04-26S-32E	4893	FN	1578	FE	10709.91
Projected TD	O-04-26S-32E	5004	FN	1579	FE	10712.66

AUG 29 2013

Reservoir Development

Drilling & Measurements (Anadrill)

4301 SW 44th St

Oklahoma City, Oklahoma 73119 USA

Phone: (405) 682-2284

Fax: (405) 682-3937

November 19, 2012

Cimarex Energy Co. of Colorado

600 N MARIENFELD STREET SUITE 600

MIDLAND, TX 79701

Re:

CLIENT: Cimarex Energy Co. of Colorado

WELL: Hallertau 4 Federal No. 7H

FIELD: Bone Spring Wildcat

RIG: Cactus 101

COUNTY: Lea New Mexico

API NO: 30-025-40476

JOB NO: 12MLD0471

B-04-26S-32E 330 FNL 1650 FEL

N 32.07879 W 103.67678

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation.

Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Daniel Roberts MWD	Hallertau 4 Federal No. 7H Original Hole	10204.00 Ft to 15141.00 Ft	November 13, 2012 to November 22, 2012	SlimPulse

If any other information is required, please contact the undersigned at the above letterhead and phone number.

Sincerely,

Chad McMillan
Field Service Manager

Reservoir Development

Drilling & Measurements (Anadrill)

4301 SW 44th St

Oklahoma City, Oklahoma 73119 USA

Phone: (405) 682-2284

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Well Reference:

B-04-26S-32E 330 FNL 1650 FEL

N 32.07879 W 103.67678

I, Daniel Roberts certify that; I am employed by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation; that I did on the day(s) of November 13, 2012 through November 22, 2012, conduct or supervise the taking of the SlimPulse surveys from a depth of 10204.00 feet to a depth of 15141.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Cimarex Energy Co. of Colorado for the Hallertau 4 Federal No. 7H Well (Original Hole) API No. 30-025-40476 and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

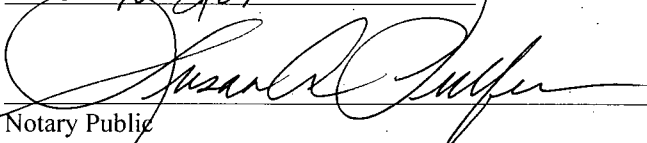
By
Daniel Roberts
MWD



Subscribed and Sworn to before me this 26th day of February (month) 2013 (yr)

My Commission expires:

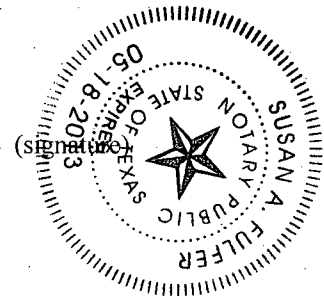
5-18-2013



Notary Public

Millard, TX

(County State)



SCHLUMBERGER
Survey Report

26-Nov-12

Client.....: Cimarex Energy Co. of Colorado
Field.....: Bone Spring Wildcat

Well.....: Hallertau 4 Federal No. 7H
API number.....: 30-025-40476
Engineer.....: D. Roberts

Spud date.....: 28-Oct-2012
Last survey date.....: 22-Nov-12
Total accepted surveys.....: 72
MD of first survey.....: 10204.00 ft
MD of last survey.....: 15141.00 ft

COUNTY.....: Lea
STATE.....: New Mexico
RIG.....: Cactus 101

Latitude: 32° 04' 43.485" N
Longitude: 103° 40' 36.519" W

--- Survey calculation methods ---
Method for positions.....: Minimum curvature
Method for DLS.....: Lubinski

--- Depth reference ---
Permanent datum.....: MEAN SEA LEVEL
Depth reference.....: Driller's Depth
GL above permanent.....: 3308 ft
KB above permanent.....: Top Drive
DF above permanent.....: 3326 ft

--- Vertical section origin ---
Latitude (+N/S-).....: 0.00 ft
Departure (+E/W-).....: 0.00 ft

--- Grid Coordinates ---
NAD83 New Mexico State Planes, Eastern Zone, US Feet
X.....: 744679.431 ft
Y.....: 393003.672 ft

Azimuth from Vsect Origin to target: 179.71 degrees

-----MWD Survey Reference Criteria-----

---Run1---

Geomag Model:	: BGGM 2012	Calculation Date:	: 11-Nov-2012
Location G	: 998.81 mgn	Tolerance G	: 2.50 mgn
Location B	: 48362.33 nT	Tolerance B	: 300.00 nT
Magnetic Dip	: 59.96 degrees	Tolerance Dip	: 0.45 degrees

---Run2---

Geomag Model:	: BGGM 2012	Calculation Date:	: 17-Nov-2012
Location G	: 998.81 mgn	Tolerance G	: 2.50 mgn
Location B	: 48360.28 nT	Tolerance B	: 300.00 nT
Magnetic Dip	: 59.96 degrees	Tolerance Dip	: 0.45 degrees

---Run3---

Geomag Model:	: BGGM 2012	Calculation Date:	: 19-Nov-2012
Location G	: 998.81 mgn	Tolerance G	: 2.50 mgn
Location B	: 48359.59 nT	Tolerance B	: 300.00 nT
Magnetic Dip	: 59.96 degrees	Tolerance Dip	: 0.45 degrees

-----MWD Survey Azimuth Correction-----

---Run1---

Magnetic dec (+E/W-) : 7.5520 degrees
Grid convergence (+E/W-) : 0.3487 degrees
GTotal az corr (+E/W-) : 7.2033 degrees

---Run2---

Magnetic dec (+E/W-) : 7.5501 degrees
Grid convergence (+E/W-) : 0.3487 degrees
GTotal az corr (+E/W-) : 7.2014 degrees

---Run3---

Magnetic dec (+E/W-) : 7.5495 degrees
Grid convergence (+E/W-) : 0.3487 degrees
GTotal az corr (+E/W-) : 7.2008 degrees

Survey Correction Index Description

0 = Passed all criteria 2 = Failed mag criteria

9 = Manual 28 = Tie-In point

Survey List												Tool	Correction
Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/-S (ft)	E/-W (ft)	Closure (ft)	at Azi (deg)	DLS (deg/100ft)		
1	0	0	0	0	0	0	0	0	0.00	90.00	0	Other	28
2	100	0.34	95.66	100	100	0.03	-0.03	0.3	0.30	95.66	0.34	GyroTool	9
3	200	0.29	134.47	100	200	0.24	-0.24	0.77	0.81	107.00	0.21	GyroTool	9
4	300	0.22	188.37	100	300	0.61	-0.6	0.92	1.10	123.14	0.24	GyroTool	9
5	400	0.52	225.44	100	400	1.11	-1.11	0.57	1.25	152.75	0.37	GyroTool	9
6	500	0.5	254.91	100	499.99	1.54	-1.54	-0.17	1.55	186.36	0.26	GyroTool	9
7	600	0.8	334.59	100	599.99	1.02	-1.03	-0.89	1.36	221.02	0.86	GyroTool	9
8	700	1.5	352.18	100	699.97	-0.91	0.9	-1.37	1.64	303.32	0.78	GyroTool	9
9	800	1.95	341.79	100	799.92	-3.82	3.81	-2.08	4.34	331.39	0.55	GyroTool	9
10	900	2.09	341.99	100	899.86	-7.18	7.16	-3.18	7.84	336.09	0.14	GyroTool	9
11	1000	1.92	339.01	100	999.8	-10.48	10.46	-4.34	11.33	337.47	0.2	GyroTool	9
12	1100	1.97	349.54	100	1099.74	-13.74	13.72	-5.25	14.69	339.05	0.36	GyroTool	9
13	1200	2.02	347.65	100	1199.68	-17.16	17.13	-5.94	18.13	340.87	0.08	GyroTool	9
14	1300	2.25	352.86	100	1299.61	-20.83	20.8	-6.56	21.81	342.49	0.3	GyroTool	9
15	1400	2.22	356.15	100	1399.53	-24.71	24.68	-6.94	25.63	344.30	0.13	GyroTool	9
16	1500	1.75	6.78	100	1499.47	-28.16	28.13	-6.89	28.96	346.24	0.6	GyroTool	9
17	1600	1.3	12.58	100	1599.44	-30.78	30.75	-6.46	31.42	348.14	0.48	GyroTool	9
18	1700	0.9	8.2	100	1699.42	-32.67	32.63	-6.1	33.20	349.41	0.41	GyroTool	9
19	1800	0.66	7.08	100	1799.41	-34.01	33.98	-5.92	34.49	350.12	0.24	GyroTool	9
20	1900	0.4	353.52	100	1899.41	-34.93	34.9	-5.88	35.39	350.43	0.29	GyroTool	9
21	1950	0.8	0.72	50	1949.4	-35.45	35.42	-5.9	35.91	350.54	0.81	GyroTool	9
22	2045	0.84	2.49	95	2044.39	-36.81	36.78	-5.86	37.25	350.95	0.05	GyroTool	9
23	2140	0.69	3.26	95	2139.38	-38.08	38.05	-5.8	38.49	351.34	0.16	GyroTool	9
24	2235	0.54	7.47	95	2234.38	-39.09	39.06	-5.71	39.48	351.69	0.16	GyroTool	9
25	2330	0.51	9.16	95	2329.38	-39.95	39.93	-5.58	40.31	352.04	0.04	GyroTool	9
26	2425	0.46	0.7	95	2424.37	-40.75	40.72	-5.51	41.10	352.29	0.09	GyroTool	9
27	2520	0.32	355.17	95	2519.37	-41.4	41.37	-5.53	41.74	352.39	0.15	GyroTool	9
28	2615	0.18	312.94	95	2614.37	-41.77	41.74	-5.66	42.12	352.28	0.23	GyroTool	9
29	2710	0.2	270.76	95	2709.37	-41.87	41.84	-5.93	42.26	351.93	0.15	GyroTool	9
30	2805	0.4	234.32	95	2804.37	-41.68	41.65	-6.37	42.13	351.30	0.28	GyroTool	9
31	2900	0.53	229.02	95	2899.36	-41.2	41.17	-6.97	41.75	350.39	0.14	GyroTool	9
32	2995	0.52	225.77	95	2994.36	-40.62	40.58	-7.61	41.29	349.38	0.03	GyroTool	9
33	3090	0.48	212.56	95	3089.36	-39.98	39.94	-8.13	40.76	348.49	0.13	GyroTool	9
34	3185	0.41	178.49	95	3184.35	-39.31	39.27	-8.34	40.14	348.01	0.28	GyroTool	9
35	3280	0.48	155.38	95	3279.35	-38.61	38.57	-8.16	39.42	348.05	0.2	GyroTool	9
36	3375	0.55	131.38	95	3374.35	-37.94	37.9	-7.66	38.67	348.58	0.24	GyroTool	9
37	3470	0.62	112.22	95	3469.34	-37.44	37.41	-6.84	38.03	349.64	0.22	GyroTool	9
38	3565	0.74	99.29	95	3564.34	-37.14	37.11	-5.76	37.56	351.18	0.2	GyroTool	9
39	3660	0.66	89.8	95	3659.33	-37.04	37.02	-4.61	37.30	352.91	0.15	GyroTool	9
40	3755	0.48	81.34	95	3754.32	-37.1	37.08	-3.66	37.26	354.36	0.21	GyroTool	9
41	3850	0.47	72.9	95	3849.32	-37.27	37.25	-2.9	37.37	355.55	0.07	GyroTool	9
42	3945	0.52	78.68	95	3944.32	-37.46	37.45	-2.1	37.51	356.78	0.07	GyroTool	9
43	4040	0.73	81.22	95	4039.31	-37.63	37.63	-1.08	37.64	358.35	0.22	GyroTool	9
44	4135	0.76	82.71	95	4134.3	-37.8	37.8	0.14	37.80	0.21	0.04	GyroTool	9
45	4230	0.76	86.31	95	4229.3	-37.91	37.92	1.39	37.95	2.10	0.05	GyroTool	9
46	4325	0.82	95.06	95	4324.29	-37.89	37.9	2.7	38.00	4.07	0.14	GyroTool	9
47	4420	0.78	98.81	95	4419.28	-37.72	37.74	4.02	37.96	6.07	0.07	GyroTool	9
48	4515	0.55	87.4	95	4514.27	-37.64	37.67	5.11	38.01	7.73	0.28	GyroTool	9
49	4539	0.31	86.29	24	4538.27	-37.65	37.67	5.29	38.04	7.99	1	GyroTool	9
50	4626.41	0.62	281.76	87.41	4625.68	-37.76	37.79	5.06	38.12	7.63	1.06	GyroTool	9
51	4720.8	0.4	98.07	94.39	4720.07	-37.82	37.84	4.89	38.16	7.36	1.08	GyroTool	9
52	4820.37	0.4	111.08	99.57	4819.63	-37.64	37.67	5.56	38.08	8.39	0.09	GyroTool	9
53	4915.16	0.48	95.96	94.79	4914.42	-37.48	37.51	6.26	38.03	9.48	0.15	GyroTool	9
54	5009.15	0.4	90.86	93.99	5008.41	-37.43	37.46	6.98	38.11	10.56	0.09	GyroTool	9
55	5103.64	0.48	112.18	94.49	5102.9	-37.27	37.31	7.68	38.09	11.63	0.19	GyroTool	9
56	5198	0.4	134.76	94.36	5197.25	-36.89	36.93	8.28	37.85	12.63	0.2	GyroTool	9
57	5293.27	0.31	120.35	95.27	5292.52	-36.52	36.56	8.74	37.59	13.44	0.13	GyroTool	9
58	5386.97	0.22	133.36	93.7	5386.22	-36.27	36.31	9.09	37.43	14.05	0.11	GyroTool	9
59	5481.63	0.22	160.16	94.66	5480.88	-35.97	36.02	9.28	37.19	14.45	0.11	GyroTool	9
60	5583.86	0.4	140.56	102.23	5583.11	-35.51	35.56	9.57	36.82	15.07	0.2	GyroTool	9
61	5678.31	0.31	165.17	94.45	5677.56	-35	35.06	9.85	36.41	15.69	0.19	GyroTool	9
62	5771.62	0.31	138.37	93.31	5770.87	-34.57	34.62	10.08	36.06	16.23	0.15	GyroTool	9
63	5866.4	0.4	161.88	94.78	5865.64	-34.06	34.12	10.35	35.65	16.88	0.18	GyroTool	9

64	5964.27	0.48	149.66	97.87	5963.51	-33.38	33.44	10.67	35.10	17.69	0.13 GyroTool	9
65	6056.59	0.48	149.75	92.32	6055.83	-32.71	32.77	11.06	34.59	18.64	0 GyroTool	9
66	6151.15	0.4	122.15	94.56	6150.38	-32.19	32.25	11.54	34.25	19.68	0.24 GyroTool	9
67	6245.27	0.22	131.07	94.12	6244.5	-31.9	31.96	11.95	34.12	20.50	0.2 GyroTool	9
68	6340.06	0.31	160.16	94.79	6339.29	-31.54	31.6	12.17	33.86	21.07	0.17 GyroTool	9
69	6433.96	0.4	134.98	93.9	6433.19	-31.06	31.13	12.49	33.54	21.87	0.19 GyroTool	9
70	6533.46	0.31	131.55	99.5	6532.69	-30.64	30.7	12.94	33.32	22.85	0.09 GyroTool	9
71	6627.66	0.4	158.89	94.2	6626.89	-30.16	30.23	13.25	33.00	23.67	0.2 GyroTool	9
72	6722.14	0.62	168.56	94.48	6721.36	-29.35	29.42	13.47	32.36	24.60	0.25 GyroTool	9
73	6816.73	0.7	166.97	94.59	6815.95	-28.28	28.35	13.7	31.49	25.79	0.09 GyroTool	9
74	6910.17	1.32	146.28	93.44	6909.37	-26.83	26.9	14.43	30.53	28.20	0.76 GyroTool	9
75	7008.63	0.7	201.47	98.46	7007.82	-25.32	25.4	14.84	29.42	30.29	1.1 GyroTool	9
76	7105.15	0.7	209.78	96.52	7104.33	-24.27	24.34	14.33	28.24	30.48	0.11 GyroTool	9
77	7199.54	0.79	206.88	94.39	7198.71	-23.19	23.26	13.75	27.02	30.58	0.1 GyroTool	9
78	7294.82	1.58	203.05	95.28	7293.97	-21.4	21.46	12.94	25.06	31.07	0.83 GyroTool	9
79	7391.21	1.71	219.18	96.39	7390.32	-19.07	19.13	11.51	22.32	31.03	0.5 GyroTool	9
80	7482.97	1.19	233.16	91.76	7482.05	-17.44	17.49	9.88	20.09	29.45	0.68 GyroTool	9
81	7579.85	1.32	223.05	96.88	7578.91	-16.03	16.08	8.31	18.10	27.34	0.26 GyroTool	9
82	7673.16	1.1	218.08	93.31	7672.2	-14.55	14.59	7.03	16.19	25.72	0.26 GyroTool	9
83	7767.62	1.01	204.77	94.46	7766.64	-13.08	13.12	6.12	14.47	25.01	0.28 GyroTool	9
84	7861.91	1.01	198.66	94.29	7860.92	-11.55	11.57	5.5	12.82	25.43	0.11 GyroTool	9
85	7961.65	0.79	193.87	99.74	7960.65	-10.05	10.07	5.06	11.27	26.66	0.23 GyroTool	9
86	8055.71	0.88	189.39	94.06	8054.7	-8.71	8.73	4.78	9.96	28.72	0.12 GyroTool	9
87	8151.74	0.79	189.08	96.03	8150.72	-7.33	7.35	4.56	8.65	31.81	0.09 GyroTool	9
88	8343.31	1.1	181.56	191.57	8342.26	-4.19	4.21	4.3	6.02	45.63	0.17 GyroTool	9
89	8440.39	1.1	191.67	97.08	8439.32	-2.34	2.36	4.09	4.72	59.96	0.2 GyroTool	9
90	8534.02	0.88	189.39	93.63	8532.94	-0.75	0.77	3.79	3.87	78.45	0.24 GyroTool	9
91	8629.92	0.79	203.36	95.9	8628.83	0.58	-0.56	3.41	3.45	99.33	0.23 GyroTool	9
92	8724.7	0.79	204.68	94.78	8723.6	1.77	-1.75	2.87	3.37	121.38	0.02 GyroTool	9
93	8819.09	0.62	237.55	94.39	8817.98	2.63	-2.62	2.17	3.40	140.33	0.46 GyroTool	9
94	9010.33	0.79	291.08	191.24	9009.21	2.7	-2.7	0.07	2.70	178.56	0.34 GyroTool	9
95	9107.05	1.1	282.38	96.72	9105.92	2.25	-2.26	-1.46	2.69	212.87	0.35 GyroTool	9
96	9201.51	0.62	295.78	94.46	9200.37	1.83	-1.84	-2.81	3.36	236.70	0.55 GyroTool	9
97	9297.67	0.4	20.07	96.16	9296.52	1.29	-1.3	-3.16	3.42	247.60	0.73 GyroTool	9
98	9392.13	0.48	309.97	94.46	9390.98	0.72	-0.74	-3.35	3.43	257.57	0.54 GyroTool	9
99	9488.16	0.7	221.07	96.03	9487.01	0.9	-0.92	-4.04	4.15	257.15	0.88 GyroTool	9
100	9582.45	1.1	163.46	94.29	9581.29	2.2	-2.22	-4.16	4.72	241.89	0.99 GyroTool	9
101	9678.28	0.79	177.96	95.83	9677.1	3.75	-3.77	-3.88	5.41	225.85	0.41 GyroTool	9
102	9772.7	1.19	175.37	94.42	9771.51	5.37	-5.39	-3.78	6.58	215.00	0.43 GyroTool	9
103	9867.49	1.19	203.36	94.79	9866.28	7.26	-7.28	-4.09	8.35	209.32	0.61 GyroTool	9
104	9963.68	1.41	244.58	96.19	9962.45	8.68	-8.7	-5.55	10.32	212.54	0.98 GyroTool	9
105	10058.04	1.32	254.87	94.36	10056.78	9.45	-9.49	-7.65	12.19	218.89	0.28 GyroTool	9
106	10154.36	0.79	212.68	96.32	10153.09	10.29	-10.33	-9.08	13.76	221.30	0.94 GyroTool	9
107	10204	1.13	194.71	49.64	10202.72	11.05	-11.1	-9.39	14.54	220.24	0.91 SlimPulse	2
108	10236	4.16	161.83	32	10234.68	12.46	-12.51	-9.11	15.47	216.07	10.22 SlimPulse	2
109	10266	8.08	166.6	30	10264.51	15.55	-15.59	-8.28	17.65	207.97	13.17 SlimPulse	2
110	10297	11.34	170.28	31	10295.06	20.68	-20.72	-7.26	21.95	199.31	10.68 SlimPulse	2
111	10330	13.93	172.24	33	10327.26	27.82	-27.85	-6.18	28.53	192.50	7.96 SlimPulse	0
112	10362	17	174.12	32	10358.09	36.29	-36.32	-5.18	36.69	188.11	9.72 SlimPulse	2
113	10392	20.07	178.03	30	10386.54	45.81	-45.83	-4.55	46.05	185.67	11.04 SlimPulse	0
114	10424	24.21	181.55	32	10416.17	57.86	-57.88	-4.54	58.06	184.48	13.58 SlimPulse	0
115	10456	28.64	182.66	32	10444.82	72.08	-72.11	-5.07	72.29	184.02	13.92 SlimPulse	0
116	10486	33.11	182.32	30	10470.56	87.45	-87.48	-5.74	87.67	183.75	14.91 SlimPulse	0
117	10520	37.31	184.88	34	10498.34	107	-107.04	-6.99	107.27	183.74	13.1 SlimPulse	0
118	10551	40.28	184.28	31	10522.5	126.35	-126.4	-8.54	126.69	183.86	9.66 SlimPulse	0
119	10581	43.31	183.54	30	10544.86	146.29	-146.35	-9.9	146.68	183.87	10.21 SlimPulse	0
120	10616	47.13	183.25	35	10569.51	171.08	-171.14	-11.37	171.52	183.80	10.93 SlimPulse	0
121	10646	51.23	181.7	30	10589.12	193.75	-193.82	-12.34	194.21	183.64	14.21 SlimPulse	0
122	10676	53.3	180.02	30	10607.48	217.47	-217.54	-12.69	217.91	183.34	8.21 SlimPulse	0
123	10710	52.86	178.76	34	10627.9	244.65	-244.71	-12.4	245.03	182.90	3.24 SlimPulse	0
124	10741	56.34	178.7	31	10645.86	269.91	-269.97	-11.84	270.23	182.51	11.23 SlimPulse	2
125	10772	60.37	178.83	31	10662.12	296.29	-296.35	-11.27	296.57	182.18	13.01 SlimPulse	2
126	10806	64.9	179.29	34	10677.74	326.47	-326.53	-10.78	326.71	181.89	13.37 SlimPulse	2
127	10838	69.38	180.58	32	10690.18	355.95	-356.01	-10.75	356.17	181.73	14.49 SlimPulse	2
128	10867	73.5	181.67	29	10699.4	383.43	-383.49	-11.29	383.66	181.69	14.67 SlimPulse	2
129	10900	78.5	181.28	33	10707.38	415.42	-415.49	-12.12	415.67	181.67	15.19 SlimPulse	2
130	10932	83.21	180.73	32	10712.46	447	-447.07	-12.67	447.25	181.62	14.81 SlimPulse	2
131	10963	87.77	180.96	31	10714.9	477.89	-477.96	-13.13	478.14	181.57	14.71 SlimPulse	2
132	10996	89.31	180.97	33	10715.74	510.87	-510.95	-13.69	511.13	181.53	4.69 SlimPulse	2
133	11026	89.55	181.57	30	10716.04	540.86	-540.94	-14.35	541.13	181.52	2.15 SlimPulse	2
134	11057	90.14	179.99	31	10716.12	571.85	-571.93	-14.78	572.12	181.48	5.43 SlimPulse	2
135	11122	91.2	179.96	65	10715.36	636.84	-636.93	-14.75	637.10	181.33	1.64 SlimPulse	2
136	11216	91.79	178.86	94	10712.91	730.81	-730.89	-13.77	731.02	181.08	1.32 SlimPulse	0
137	11311	91.38	179.73	95	10710.29	825.77	-825.85	-12.6	825.94	180.87	1.02 SlimPulse	2
138	11404	91.68	178.72	93	10707.81	918.73	-918.8	-11.35	918.87	180.71	1.14 SlimPulse	2

139	11499	91.61	178.2	95	10705.07	1013.67	-1013.73	-8.79	1013.77	180.50	0.55 SlimPulse	2
140	11595	91.86	178	96	10702.17	1109.59	-1109.63	-5.61	1109.65	180.29	0.33 SlimPulse	2
141	11689	91.44	178.27	94	10699.46	1203.51	-1203.54	-2.55	1203.54	180.12	0.52 SlimPulse	2
142	11785	91.51	177.51	96	10696.98	1299.43	-1299.44	0.98	1299.44	179.96	0.79 SlimPulse	2
143	11881	91.44	176.64	96	10694.51	1395.3	-1395.29	5.87	1395.30	179.76	0.91 SlimPulse	0
144	11975	91.24	174.88	94	10692.31	1489.05	-1489	12.82	1489.06	179.51	1.89 SlimPulse	2
145	12071	91.51	176.33	96	10690.01	1584.77	-1584.69	20.18	1584.82	179.27	1.54 SlimPulse	0
146	12166	91.55	176.08	95	10687.47	1679.56	-1679.44	26.47	1679.65	179.10	0.27 SlimPulse	0
147	12260	90.96	175.71	94	10685.41	1773.33	-1773.18	33.2	1773.49	178.93	0.74 SlimPulse	2
148	12355	90.62	177.42	95	10684.1	1868.17	-1868	38.89	1868.40	178.81	1.84 SlimPulse	0
149	12452	90.41	176.85	97	10683.23	1965.07	-1964.87	43.74	1965.36	178.72	0.63 SlimPulse	0
150	12546	89.14	177.32	94	10683.59	2058.97	-2058.75	48.52	2059.32	178.65	1.44 SlimPulse	2
151	12642	89.35	179.49	96	10684.86	2154.93	-2154.7	51.18	2155.30	178.64	2.27 SlimPulse	2
152	12735	89.66	181.76	93	10685.67	2247.91	-2247.68	50.16	2248.24	178.72	2.46 SlimPulse	2
153	12831	89.38	182.91	96	10686.48	2343.8	-2343.6	46.26	2344.05	178.87	1.23 SlimPulse	2
154	12927	89.52	186.55	96	10687.4	2439.41	-2439.25	38.35	2439.55	179.10	3.79 SlimPulse	2
155	13021	89.55	188.35	94	10688.16	2532.55	-2532.45	26.16	2532.58	179.41	1.92 SlimPulse	0
156	13116	90	183.68	95	10688.53	2626.95	-2626.9	16.2	2626.95	179.65	4.94 SlimPulse	2
157	13210	89.69	182.55	94	10688.78	2720.78	-2720.76	11.09	2720.78	179.77	1.25 SlimPulse	0
158	13309	89.69	185.72	99	10689.32	2819.47	-2819.49	3.95	2819.49	179.92	3.2 SlimPulse	2
159	13408	89.52	185.68	99	10690	2917.92	-2917.99	-5.88	2918.00	180.12	0.18 SlimPulse	2
160	13500	90.1	181.6	92	10690.3	3009.69	-3009.79	-11.72	3009.81	180.22	4.48 SlimPulse	2
161	13595	90.41	182.47	95	10689.88	3104.61	-3104.73	-15.09	3104.76	180.28	0.97 SlimPulse	2
162	13689	91.51	181.3	94	10688.3	3198.52	-3198.66	-18.18	3198.71	180.33	1.71 SlimPulse	0
163	13785	92.03	177.12	96	10685.33	3294.45	-3294.58	-16.86	3294.62	180.29	4.38 SlimPulse	2
164	13881	90.79	174.79	96	10682.97	3390.21	-3390.31	-10.1	3390.32	180.17	2.75 SlimPulse	2
165	13977	88.83	172.78	96	10683.29	3485.69	-3485.73	0.29	3485.73	180.00	2.93 SlimPulse	2
166	14072	87.9	174.9	95	10686	3580.14	-3580.14	10.48	3580.15	179.83	2.44 SlimPulse	2
167	14167	88.11	172.78	95	10689.3	3674.58	-3674.53	20.67	3674.58	179.68	2.24 SlimPulse	2
168	14262	87.59	173.32	95	10692.86	3768.88	-3768.76	32.16	3768.90	179.51	0.79 SlimPulse	2
169	14360	87.73	175.23	98	10696.86	3866.35	-3866.19	41.92	3866.42	179.38	1.95 SlimPulse	2
170	14456	88.59	174.33	96	10699.94	3961.95	-3961.74	50.65	3962.06	179.27	1.3 SlimPulse	2
171	14550	88.97	178.75	94	10701.95	4055.76	-4055.52	56.32	4055.91	179.20	4.72 SlimPulse	2
172	14645	89.79	175.97	95	10702.97	4150.66	-4150.41	60.69	4150.85	179.16	3.05 SlimPulse	2
173	14742	89.66	178.53	97	10703.44	4247.56	-4247.29	65.34	4247.79	179.12	2.64 SlimPulse	2
174	14837	88.87	178.69	95	10704.66	4342.54	-4342.25	67.64	4342.78	179.11	0.85 SlimPulse	2
175	14929	88.28	178.95	92	10706.95	4434.5	-4434.2	69.53	4434.75	179.10	0.7 SlimPulse	2
176	15024	89.04	178.48	95	10709.18	4529.46	-4529.15	71.66	4529.72	179.09	0.94 SlimPulse	2
177	15120	88.49	181.08	96	10711.25	4625.43	-4625.12	72.03	4625.68	179.11	2.77 SlimPulse	2
178	15141	88.32	181.38	21	10711.83	4646.41	-4646.1	71.58	4646.66	179.12	1.64 SlimPulse	2
179	15169	88.32	181.38	28	10712.66	4674.39	-4674.08	70.91	4674.62	179.13	0.01 PTB	9