

Oilfield Services, Central U.S. Land

NM OIL CONSERVATION **PATHFINDER**
ARTESIA DISTRICT
FEB 17 2015
A Schlumberger Company

Reservoir Development

PathFinder

9200 West Reno

Oklahoma City, Oklahoma 73119 USA

Phone: (405) 789-1515

Fax: (405) 789-1519

RECEIVED

December 18, 2014

HOBBSCOCD

Cimarex

600 N MARIENFELD STREET SUITE 600

JAN 22 2015

MIDLAND, TX 79701

RECEIVED

Re:

Sec 23, T23S, R30E Eddy NM
N 32.28367 W 103.84378

CLIENT: Cimarex Energy Co.
WELL: Sandy Federal 23H
FIELD: Forty Niner Ridge; Bone Spring
RIG: Cactus 137
COUNTY: Eddy
API NO: 30-015-41793
JOB NO: 14MLD0543

Enclosed, please find the original copy of the survey performed on the referenced well by PathFinder, 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>
Jacob Collinsworth MWD	Sandy Federal 23H Original Hole	9151.00 Ft to 16465.00 Ft	July 20, 2014 to August 3, 2014	SlimPulse

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

Sincerely,

Joseph Hogan
Field Service Manager

Reservoir Development

PathFinder

9200 West Reno

Oklahoma City, Oklahoma 73119 USA

Phone: (405) 789-1515

Fax: (405) 789-1519

Well Reference:

Sec 23, T23S, R30E Eddy NM

N 32.28367 W 103.84378



I, Jacob Collinsworth certify that; I am employed by PathFinder, a division of Schlumberger Technology Corporation; that I did on the day(s) of July 20, 2014 through August 03, 2014, conduct or supervise the taking of the SlimPulse surveys from a depth of 9151.00 feet to a depth of 16465.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by PathFinder, 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. for the Sandy Federal 23H Well (Original Hole) API No. 30-015-41793 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
Jacob Collinsworth
MWD

A handwritten signature in black ink, appearing to be "J. Collinsworth", written over a horizontal line.

Subscribed and Sworn to before me this 17 day of December (month) 2014 (yr)

My Commission expires:

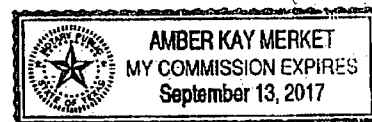
September 13, 2017

Amber Kay Merket

Notary Public

Midland County, Texas
(County State)

(signature)



SCHLUMBERGER

Survey Report

18-Dec-2014

Client.....: Cimarex Energy Co.
Field.....: Forty Niner Ridge; Bone Spring

Well.....: Sandy Federal 23H
API number.....: 30-015-41793
Engineer.....: J. Collinsworth

Spud date.....: 5-Jun-14
Last survey date.....: 3-Aug-14
Total accepted surveys.....: 83
MD of first survey.....: 9151.00 ft
MD of last survey.....: 16465.00 ft

County.....: Eddy
State.....: New Mexico
Rig.....: Cactus 137

Latitude.....: 32° 17' 1.27" N
Longitude.....: 103° 50' 37.5" W

----- Survey calculation methods-----

Method for positions.....: Minimum curvature
Method for DLS.....: Lubinski

----- Depth reference -----

Permanent datum.....: MSL
Depth reference.....: Driller's Depth
GL above permanent.....: 3294.00
KB above permanent.....: 3318.00
DF above permanent.....: 3318.00

----- Vertical section origin-----

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

----- Grid Coordinates -----

NAD27 Texas State Plane, Central Zone, US Feet
X.....: 692634.30 ft
Y.....: 467283.20 ft

Azimuth from Vsect Origin to target: 146.93 degrees

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

-----Run1----- Calculation Date: 22-Jul-2014
Location G.....: 998.83198 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48274.61 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 60.11074 degrees Tolerance Dip: 0.45 degrees

-----Run2----- Calculation Date: 29-Jul-2014
Location G.....: 998.83198 mgn Tolerance G.....: 2.50 mgn
Location B.....: 48272.25 nT Tolerance B.....: 300.00 nT
Magnetic Dip: 60.11022 degrees Tolerance Dip: 0.45 degrees

BGGM Model: 2014

-----Run1-----
Magnetic dec (+E/W-).....: 7.49644 degrees
Grid Conv (+E/W-).....: 0.2615 degrees
Total Azim Corr (+E/W-).....: 7.23494 degrees

-----Run2-----
Magnetic dec (+E/W-).....: 7.49456 degrees
Grid Conv (+E/W-).....: 0.2615 degrees
Total Azim Corr (+E/W-).....: 7.23306 degrees

----- Survey Correction Index Description-----

0 = Uncorrected 1 = Sag Corrected
2 = DMAG Corrected 3 = Sag + DMAG Corrected

===== Survey List =====													
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)	Tool	Correction
1	0.00	0.00	0.00	-999.25	0.00	0.00	0.00	0.00	0	90.00	0.00	TIP	0
2	77.00	0.31	294.32	77.00	77.00	-0.18	0.09	-0.19	0.2083	294.32	0.40	SingleShot	0
3	131.00	0.70	244.22	54.00	131.00	-0.34	0.00	-0.62	0.61998	270.23	1.03	SingleShot	0
4	168.00	0.48	238.02	37.00	168.00	-0.37	-0.18	-0.95	0.97138	259.45	0.62	SingleShot	0
5	195.00	0.40	220.40	27.00	194.99	-0.35	-0.31	-1.11	1.15425	254.44	0.58	SingleShot	0
6	285.00	0.40	225.72	90.00	284.99	-0.20	-0.77	-1.54	1.72139	243.50	0.04	SingleShot	0
7	318.00	0.31	226.60	33.00	317.99	-0.16	-0.91	-1.69	1.91747	241.67	0.27	SingleShot	0
8	337.00	0.22	247.60	19.00	336.99	-0.16	-0.96	-1.76	2.00341	241.40	0.69	SingleShot	0
9	445.00	0.22	259.73	108.00	444.99	-0.27	-1.08	-2.15	2.40795	243.48	0.04	SingleShot	0
10	500.00	0.22	251.51	55.00	499.99	-0.34	-1.13	-2.36	2.61426	244.45	0.06	SingleShot	0
11	559.00	0.22	246.81	59.00	558.99	-0.39	-1.21	-2.57	2.83991	244.83	0.03	SingleShot	0
12	621.00	0.09	267.29	62.00	620.99	-0.44	-1.26	-2.73	3.00395	245.26	0.22	SingleShot	0
13	649.00	0.00	308.42	28.00	648.99	-0.45	-1.26	-2.75	3.02435	245.42	0.32	SingleShot	0
14	743.00	0.09	252.69	94.00	742.99	-0.47	-1.28	-2.82	3.0976	245.59	0.10	SingleShot	0

15	838.00	0.00	7.27	95.00	837.99	-0.49	-1.30	-2.89	3.17165	245.76	0.09	Singleshot	0
16	993.00	0.00	7.27	155.00	992.99	-0.49	-1.30	-2.89	3.17165	245.76	0.00	Singleshot	0
17	1073.00	0.00	7.27	90.00	1072.99	-0.49	-1.30	-2.89	3.17165	245.76	0.00	Singleshot	0
18	1167.00	0.00	167.62	94.00	1166.99	-0.49	-1.30	-2.89	3.17165	245.76	0.00	Singleshot	0
19	1257.00	0.00	31.61	90.00	1256.99	-0.49	-1.30	-2.89	3.17165	245.76	0.00	Singleshot	0
20	1353.00	0.09	52.00	96.00	1352.99	-0.49	-1.26	-2.83	3.09847	246.09	0.09	Singleshot	0
21	1447.00	0.09	266.10	94.00	1446.99	-0.54	-1.22	-2.85	3.09653	246.89	0.18	Singleshot	0
22	1542.00	0.00	143.10	95.00	1541.99	-0.55	-1.22	-2.92	3.16709	247.33	0.09	Singleshot	0
23	1637.00	0.09	323.72	95.00	1636.99	-0.67	-1.16	-2.97	3.18547	248.64	0.09	Singleshot	0
24	1732.00	0.00	184.19	95.00	1731.99	-0.72	-1.10	-3.01	3.20549	249.93	0.09	Singleshot	0
25	1828.00	0.09	85.80	96.00	1827.99	-0.68	-1.09	-2.94	3.13304	249.55	0.09	Singleshot	0
26	1923.00	0.09	43.83	95.00	1922.99	-0.67	-1.04	-2.81	2.99421	249.77	0.07	Singleshot	0
27	2019.00	0.22	6.41	96.00	2018.99	-0.82	-0.80	-2.74	2.85062	253.75	0.16	Singleshot	0
28	2114.00	0.09	117.90	95.00	2113.99	-1.01	-0.55	-2.69	2.7481	258.55	0.14	Singleshot	0
29	2208.00	0.09	148.42	94.00	2207.99	-0.99	-0.54	-2.63	2.68651	258.44	0.17	Singleshot	0
30	2304.00	0.09	176.02	96.00	2303.99	-0.84	-0.68	-2.59	2.67461	255.32	0.04	Singleshot	0
31	2400.00	0.22	216.49	96.00	2399.99	-0.71	-0.90	-2.69	2.83852	251.49	0.17	Singleshot	0
32	2495.00	0.09	186.69	95.00	2494.99	-0.59	-1.12	-2.81	3.02459	248.23	0.16	Singleshot	0
33	2591.00	0.09	123.33	96.00	2590.99	-0.47	-1.24	-2.75	3.02011	245.80	0.15	Singleshot	0
34	2687.00	0.22	151.71	96.00	2686.99	-0.21	-1.44	-2.60	2.9768	241.03	0.15	Singleshot	0
35	2781.00	0.09	34.20	93.00	2780.99	0.04	-1.65	-2.46	2.96444	236.19	0.15	Singleshot	0
36	2874.00	0.62	34.20	93.00	2873.99	-0.09	-1.28	-2.13	2.48178	238.92	0.69	Singleshot	0
37	2970.00	0.09	334.31	96.00	2969.98	-0.36	-0.78	-1.87	2.02407	247.22	0.60	Singleshot	0
38	3066.00	0.09	14.12	96.00	3065.98	-0.49	-0.64	-1.88	1.98725	251.13	0.06	Singleshot	0
39	3160.00	0.62	350.83	94.00	3159.98	-1.00	-0.07	-1.94	1.98866	267.30	0.57	Singleshot	0
40	3258.00	0.22	43.30	98.00	3257.98	-1.30	0.59	-1.90	1.98866	267.30	0.53	Singleshot	0
41	3348.00	0.22	131.50	91.00	3348.98	-1.40	0.60	-1.65	1.75499	290.08	0.34	Singleshot	0
42	3443.00	0.40	26.82	94.00	3442.98	-1.57	0.78	-1.37	1.57017	299.61	0.54	Singleshot	0
43	3541.00	0.09	235.83	98.00	3540.98	-1.40	1.04	-1.27	1.64362	309.16	0.49	Singleshot	0
44	3637.00	0.09	53.63	96.00	3636.98	-1.57	1.04	-1.28	1.64641	309.19	0.19	Singleshot	0
45	3727.00	0.09	74.50	90.00	3726.98	-1.55	1.10	-1.15	1.59293	313.73	0.04	Singleshot	0
46	3769.00	0.09	53.63	42.00	3768.98	-1.54	1.13	-1.09	1.57156	315.95	0.08	Singleshot	0
47	3855.00	0.22	333.12	86.00	3854.98	-1.71	1.32	-1.11	1.72417	319.80	0.26	Singleshot	0
48	3950.00	0.31	319.32	95.00	3949.97	-2.15	1.67	-1.36	2.1159	320.86	0.12	Singleshot	0
49	4047.00	2.81	42.82	97.00	4046.94	-2.99	3.62	0.08	3.61875	1.30	2.88	Singleshot	0
50	4142.00	5.10	45.19	95.00	4141.70	-4.41	8.30	4.66	9.5214	29.31	2.42	Singleshot	0
51	4239.00	5.01	54.99	98.00	4239.32	-5.45	13.83	11.26	17.82963	39.15	2.25	Singleshot	0
52	4320.00	6.50	68.53	89.00	4327.98	-4.56	17.90	19.13	26.19813	46.90	2.85	Singleshot	0
53	4425.00	7.60	79.82	96.00	4423.15	-1.00	21.01	30.43	36.98322	55.38	1.84	Singleshot	0
54	4520.00	7.91	86.63	95.00	4517.29	4.88	22.51	43.14	48.66118	62.45	1.42	Singleshot	0
55	4615.00	6.90	93.53	95.00	4611.50	11.32	22.54	55.37	59.77743	67.85	1.01	Singleshot	0
56	4711.00	7.12	91.90	96.00	4706.78	18.17	21.99	67.07	70.57929	71.85	0.31	Singleshot	0
57	4804.00	7.12	91.99	93.00	4799.06	24.78	21.60	78.59	81.50092	74.63	0.01	Singleshot	0
58	4899.00	6.81	92.83	95.00	4893.36	31.47	19.93	90.10	92.53798	76.81	0.34	Singleshot	0
59	4993.00	7.12	91.73	94.00	4986.67	38.06	20.66	101.49	103.56848	78.49	0.36	Singleshot	0
60	5088.00	7.21	91.99	95.00	5080.32	44.84	20.28	113.33	115.12905	79.86	0.10	Singleshot	0
61	5183.00	7.38	91.29	95.00	5175.15	51.71	19.93	125.39	126.96155	80.97	0.20	Singleshot	0
62	5275.00	6.42	89.62	92.00	5266.49	57.83	19.83	136.44	137.87201	81.73	1.07	Singleshot	0
63	5372.00	6.02	91.89	97.00	5362.32	63.67	19.70	146.94	148.25955	82.36	0.48	Singleshot	0
64	5467.00	5.41	94.19	95.00	5457.44	69.23	19.21	156.39	157.5655	83.00	0.69	Singleshot	0
65	5564.00	3.78	118.01	97.00	5554.14	74.80	17.38	163.77	164.69354	83.94	2.55	Singleshot	0
66	5656.00	3.91	112.40	92.00	5641.72	85.90	11.21	174.65	175.00536	86.33	0.26	Singleshot	0
67	5752.00	3.78	118.80	96.00	5741.50	80.13	14.49	169.11	169.72891	85.10	0.06	Singleshot	0
68	5848.00	4.00	96.69	96.00	5837.50	91.02	9.07	180.74	180.96272	87.13	1.83	Singleshot	0
69	5944.00	4.31	89.40	96.00	5933.25	95.10	8.72	187.67	187.87038	87.34	0.64	Singleshot	0
70	6041.00	4.70	89.00	97.00	6029.95	99.16	8.82	195.29	195.48547	87.41	0.40	Singleshot	0
71	6132.00	4.92	88.92	91.00	6120.63	103.21	8.96	202.92	203.1133	87.47	0.24	Singleshot	0
72	6225.00	4.92	91.11	93.00	6213.29	107.56	8.96	210.89	211.08041	87.57	0.20	Singleshot	0
73	6322.00	4.22	92.39	97.00	6309.98	111.97	8.73	218.61	218.78915	87.71	0.73	Singleshot	0
74	6417.00	3.21	90.89	95.00	6404.78	115.48	8.54	224.77	224.92915	87.82	1.07	Singleshot	0
75	6513.00	2.50	92.70	96.00	6500.66	118.21	8.40	229.55	229.69954	87.90	0.75	Singleshot	0
76	6606.00	3.69	88.40	93.00	6593.52	121.00	8.34	234.56	234.71269	87.96	1.29	Singleshot	0
77	6696.00	4.79	92.70	92.00	6685.27	124.84	8.19	241.36	241.50083	88.06	1.22	Singleshot	0
78	6796.00	4.48	95.73	98.00	6782.94	129.63	7.61	249.26	249.37372	88.25	0.40	Singleshot	0
79	6891.00	4.39	96.61	95.00	6877.66	134.27	6.82	256.56	256.65169	88.48	0.12	Singleshot	0
80	6989.00	4.48	99.73	98.00	6975.37	139.27	5.75	264.06	264.12162	88.75	0.26	Singleshot	0
81	7080.00	4.39	99.90	91.00	7066.09	144.06	4.55	270.99	271.03111	89.04	0.10	Singleshot	0
82	7176.00	4.70	100.83	96.00	7161.79	149.29	3.18	278.48	278.49355	89.35	0.33	Singleshot	0
83	7273.00	4.00	104.52	97.00	7258.51	154.54	1.58	285.65	285.65828	89.68	0.78	Singleshot	0
84	7370.00	2.81	108.69	97.00	7355.34	158.91	-0.03	291.18	291.18153	90.01	1.25	Singleshot	0
85	7458.00	2.42	101.40	88.00	7443.25	161.90	-1.09	295.05	295.04809	90.21	1.32	Singleshot	0
86	7556.00	3.69	96.91	98.00	7541.11	165.38	-1.88	300.21	300.21099	90.36	1.58	Singleshot	0
87	7651.00	3.69	97.00	95.00	7635.91	169.31	-2.62	306.27	306.28533	90.49	0.01	Singleshot	0
88	7748.00	4.92	87.03	97.00	7732.64	173.41	-2.78	313.53	313.53898	90.51	1.48	Singleshot	0
89	7842.00	4.31	85.71	94.00	7826.33	177.13	-2.31	321.07	321.08282	90.41	0.66	Singleshot	0
90	7937.00	2.20	72.70	95.00	7921.17	179.34	-1.50	326.38	326.37932	90.26	2.34	Singleshot	0
91	8033.00	2.29	83.20	96.00	8017.10	180.60	-0.72	330.04	330.04041	90.13	0.44	Singleshot	0
92	8128.00	3.60	93.22	95.00	8111.97	183.30	-0.67	334.90	334.90299	90.11	1.48	Singleshot	0
93	8222.00	2.50	97.22	94.00	8205.84	186.37	-1.09	339.88	339.88458	90.18	1.19	Singleshot	0
94	8318.00	3.78	92.12	96.00	8301.69	189.55	-1.47	345.12	345.12558	90.24	1.36	Singleshot	0
95	8414.00	5.10	86.19	96.00	8397.40	193.46	-1.30	352.54	352.54499	90.21	1.45	Singleshot	0
96	8507.00	4.09	80.30	93.00	8490.10	196.79	-0.47	359.94	359.93669	90.07	1.20	Singleshot	0
97	8603.00	4.31	82.19	96.00	8585.85	199.69	0.60	366.88	366.88532	89.91	0.27	Singleshot	0
98	8698.00	6.02	95.02	95.00	8686.40	204.29	0.65	375.38	375.38543	89.90	2.16	Singleshot	0
99	8792.00	5.58	101.92	94.00	8773.98	210.56	-0.73	384.77	384.7675	90.11	0.88	Singleshot	0
100	8888.00	5.80	91.73	96.00	8869.51	216.63	-1.84	394.18	394.18651	90.27	1.08	Singleshot	0
101	8985.00	5.32	83.73	97.00	8966.05	221.45	-1.50	403.55	403.55412	90.21	0.94	Singleshot	0

102	9081.00	5.01	82.02	96.00	9061.66	225.24	-0.43	412.13	412.12667	90.06	0.36	SimpShot	0
103	9151.00	5.01	85.28	70.00	9131.40	227.98	0.25	418.20	418.19964	89.97	0.41	SimpPulse	1
104	9182.00	5.07	82.35	31.00	9162.28	229.21	0.54	420.91	420.90653	89.93	0.85	SimpPulse	1
105	9214.00	5.13	72.45	32.00	9194.15	230.20	1.16	423.67	423.67327	89.84	2.75	SimpPulse	1
106	9245.00	7.03	86.78	31.00	9224.98	231.52	1.69	426.89	426.89095	89.77	7.80	SimpPulse	1
107	9277.00	9.98	99.36	32.00	9256.62	234.36	1.34	431.58	431.58224	89.82	10.85	SimpPulse	1
108	9309.00	12.30	101.76	32.00	9288.02	238.64	0.20	437.65	437.65394	89.97	7.39	SimpPulse	1
109	9340.00	102.56	102.56	31.00	9318.12	243.89	-1.36	444.87	444.87478	90.18	9.60	SimpPulse	1
110	9436.00	21.07	87.71	96.00	9409.34	261.78	-3.43	474.50	474.50776	90.41	7.69	SimpPulse	1
111	9531.00	26.10	92.91	95.00	9496.39	282.81	-3.80	512.46	512.4712	90.43	5.73	SimpPulse	1
112	9626.00	38.90	87.49	95.00	9577.18	311.35	-5.53	562.13	562.15281	90.56	11.61	SimpPulse	1
113	9721.00	37.10	91.31	95.00	9652.05	342.70	-4.87	620.58	620.60232	90.45	3.12	SimpPulse	1
114	9816.00	48.75	89.41	95.00	9720.51	377.13	-3.20	686.26	686.26549	90.27	10.46	SimpPulse	1
115	9911.00	61.13	91.08	95.00	9774.88	419.83	-3.61	763.86	763.87211	90.27	13.11	SimpPulse	1
116	10006.00	68.45	94.09	95.00	9815.42	469.94	-7.55	849.65	849.68629	90.51	8.22	SimpPulse	1
117	10101.00	75.06	95.28	95.00	9845.15	525.17	-14.94	939.52	939.64075	90.91	7.06	SimpPulse	1
118	10196.00	82.72	98.83	95.00	9863.44	585.22	-26.41	1031.95	1032.28441	91.47	8.86	SimpPulse	1
119	10255.00	88.22	100.79	95.00	9868.10	625.22	-36.43	1089.88	1090.48519	91.91	9.89	SimpPulse	1
120	10391.00	89.97	100.46	96.00	9868.67	650.09	-43.07	1125.25	1126.07732	92.19	4.95	SimpPulse	1
121	10386.00	89.63	107.26	95.00	9869.00	719.44	-65.82	1217.43	1219.21017	93.09	7.17	SimpPulse	1
122	10480.00	89.70	106.80	94.00	9869.55	791.56	-93.34	1307.31	1310.63719	94.08	0.49	SimpPulse	1
123	10574.00	89.76	106.44	94.00	9870.00	863.23	-120.23	1397.38	1402.54348	94.92	0.39	SimpPulse	1
124	10665.00	89.80	107.42	95.00	9870.36	936.01	-147.89	1488.26	1495.5921	95.68	1.03	SimpPulse	1
125	10765.00	85.46	108.55	94.00	9874.25	1009.03	-176.88	1577.57	1587.45544	96.40	4.77	SimpPulse	1
126	10859.00	87.56	106.25	96.00	9880.09	1082.93	-205.53	1669.00	1681.60429	97.02	3.24	SimpPulse	1
127	10954.00	88.32	102.15	95.00	9883.51	1152.65	-228.82	1761.01	1775.81741	97.40	4.39	SimpPulse	1
128	11050.00	87.67	100.89	96.00	9886.87	1220.00	-247.98	1855.02	1871.5213	97.61	1.48	SimpPulse	1
129	11145.00	85.83	104.79	95.00	9892.25	1288.10	-269.05	1947.47	1965.97108	97.87	2.53	SimpPulse	1
130	11255.00	85.94	107.34	114.00	9900.44	1374.08	-300.51	2056.73	2078.56872	98.31	4.23	SimpPulse	1
131	11354.00	87.60	110.91	95.00	9905.79	1449.01	-331.58	2146.33	2171.78795	98.78	4.14	SimpPulse	1
132	11448.00	89.52	114.80	94.00	9908.15	1526.87	-368.15	2232.87	2263.01104	99.36	4.71	SimpPulse	1
133	11543.00	90.69	119.28	95.00	9907.58	1609.25	-411.40	2317.42	2353.65395	100.07	4.77	SimpPulse	1
134	11638.00	91.38	123.35	95.00	9906.26	1694.88	-460.75	2398.55	2442.40462	100.87	4.34	SimpPulse	1
135	11732.00	92.03	127.93	94.00	9903.66	1782.41	-515.49	2474.89	2528.00454	101.77	4.92	SimpPulse	1
136	11826.00	92.14	132.25	94.00	9900.04	1872.29	-575.97	2546.74	2611.05642	102.74	4.59	SimpPulse	1
137	11921.00	91.62	135.44	95.00	9896.93	1964.76	-641.73	2615.21	2692.79238	103.79	3.40	SimpPulse	1
138	12015.00	92.45	139.48	94.00	9893.59	2057.40	-710.93	2678.71	2771.44419	104.86	4.38	SimpPulse	1
139	12101.00	92.25	143.02	95.00	9889.69	2151.84	-784.95	2738.11	2848.40237	106.00	3.73	SimpPulse	1
140	12204.00	91.63	146.94	94.00	9886.51	2245.72	-861.87	2792.01	2922.01133	107.16	4.22	SimpPulse	1
141	12299.00	90.80	150.71	95.00	9884.49	2340.90	-943.12	2841.17	2993.61134	108.36	4.06	SimpPulse	1
142	12393.00	92.52	153.68	94.00	9881.77	2434.18	-1026.22	2884.99	3062.07434	109.58	3.65	SimpPulse	1
143	12488.00	93.80	157.61	95.00	9876.53	2527.92	-1112.61	2924.10	3128.62268	110.83	4.34	SimpPulse	1
144	12584.00	92.97	160.67	96.00	9870.86	2621.57	-1202.15	2958.22	3193.15573	112.12	3.30	SimpPulse	1
145	12679.00	91.25	164.42	95.00	9867.56	2712.98	-1292.70	2986.69	3254.4406	113.40	4.34	SimpPulse	1
146	12772.00	90.80	167.09	93.00	9865.70	2800.98	-1382.81	3009.57	3312.05064	114.68	2.91	SimpPulse	1
147	12861.00	90.42	171.23	95.00	9864.69	2889.53	-1475.78	3029.06	3369.44036	115.98	2.29	SimpPulse	1
148	12961.00	89.77	176.23	94.00	9864.33	2975.86	-1568.41	3045.01	3425.20061	117.25	2.24	SimpPulse	1
149	13056.00	89.80	173.17	95.00	9864.89	3061.76	-1662.53	3057.90	3480.62674	118.53	2.04	SimpPulse	1
150	13151.00	89.46	175.11	95.00	9865.60	3126.64	-1757.03	3067.60	3535.15334	119.80	2.07	SimpPulse	1
151	13245.00	90.35	176.21	94.00	9865.55	3248.25	-1850.76	3074.66	3588.71312	121.05	1.56	SimpPulse	1
152	13340.00	90.01	176.82	95.00	9865.36	3311.24	-1945.58	3080.39	3643.36289	122.28	0.68	SimpPulse	1
153	13434.00	89.63	177.29	94.00	9865.65	3392.54	-2039.46	3085.22	3698.37331	123.47	0.64	SimpPulse	1
154	13528.00	90.15	177.32	94.00	9865.83	3473.64	-2133.35	3089.64	3754.60587	124.62	0.55	SimpPulse	1
155	13621.00	90.35	178.72	93.00	9865.43	3553.28	-2226.30	3092.85	3810.79012	125.75	1.52	SimpPulse	1
156	13715.00	89.94	176.73	94.00	9865.19	3634.02	-2320.22	3096.58	3869.39619	126.84	2.16	SimpPulse	1
157	13809.00	89.94	179.95	94.00	9865.29	3714.24	-2414.16	3099.31	3928.59803	127.92	3.43	SimpPulse	1
158	13904.00	90.11	180.28	95.00	9865.25	3793.74	-2509.16	3099.11	3987.53243	128.99	0.39	SimpPulse	1
159	13998.00	90.14	180.71	94.00	9865.04	3877.02	-2603.16	3098.30	4046.71722	130.04	0.46	SimpPulse	1
160	14094.00	90.59	178.68	96.00	9864.33	3952.79	-2699.15	3098.81	4109.50885	131.06	2.17	SimpPulse	1
161	14187.00	89.49	174.55	93.00	9864.36	4033.57	-2791.97	3104.30	4175.13862	131.97	0.46	SimpPulse	1
162	14282.00	89.73	173.00	95.00	9865.01	4118.33	-2886.40	3114.60	4246.41922	132.82	1.65	SimpPulse	1
163	14376.00	89.90	173.26	94.00	9865.31	4202.67	-2979.73	3125.85	4318.52948	133.63	0.33	SimpPulse	1
164	14470.00	89.87	173.88	94.00	9865.41	4282.03	-3073.13	3136.38	4391.01408	134.42	0.66	SimpPulse	1
165	14566.00	89.73	174.50	96.00	9865.64	4376.09	-3168.64	3146.09	4465.21926	135.20	0.66	SimpPulse	1
166	14660.00	89.97	174.87	94.00	9866.08	4455.21	-3262.24	3154.80	4538.16554	135.96	0.47	SimpPulse	1
167	14755.00	89.87	174.90	95.00	9866.22	4539.13	-3356.86	3163.27	4612.45789	136.70	0.11	SimpPulse	1
168	14849.00	89.90	175.16	94.00	9866.41	4622.05	-3450.50	3171.41	4686.5594	137.41	0.28	SimpPulse	1
169	14944.00	90.07	174.89	95.00	9866.43	4705.85	-3545.15	3179.65	4762.16802	138.11	0.34	SimpPulse	1
170	15039.00	90.11	173.76	95.00	9866.28	4790.20	-3639.68	3189.05	4839.13966	138.78	1.19	SimpPulse	1
171	15133.00	89.90	172.46	96.00	9866.27	4876.35	-3734.98	3200.56	4918.7088	139.41	1.37	SimpPulse	1
172	15229.00	89.42	173.09	94.00	9866.53	4960.95	-3828.23	3212.38	4997.47814	140.00	0.84	SimpPulse	1
173	15324.00	89.45	173.14	95.00	9867.77	5046.19	-3922.54	3223.77	5077.30831	140.58	0.06	SimpPulse	1
174	15419.00	89.59	173.09	95.00	9868.56	5131.44	-4016.86	3235.16	5157.65363	141.15	0.16	SimpPulse	1
175	15514.00	89.79	173.22	95.00	9869.08	5216.66	-4111.18	3246.48	5238.45641	141.70	0.25	SimpPulse	1
176	15609.00	89.90	173.81	95.00	9869.33	5301.62	-4205.57	3257.21	5319.42064	142.24	0.63	SimpPulse	1
177	15705.00	89.93	173.65	94.00	9869.47	5385.62	-4299.01	3267.48	5399.8024	142.76	0.17	SimpPulse	1
178	15798.00	89.69	173.02	95.00	9869.79	5470.61	-4393.36	3278.50	5481.80871	143.27	0.71	SimpPulse	1
179	15893.00	89.52	173.27	95.00	9870.44	5555.84	-4487.68	3289.84	5564.38227	143.76	0.32	SimpPulse	1
180	15988.00	89.38	173.04	95.00	9871.36	5641.06	-4582.00	3301.16	5647.33663	144.23	0.28	SimpPulse	1
181	16084.00	90.21	174.51	96.00	9871.70	5726.71	-4677.94	3311.57	5731.04443	144.70	1.76	SimpPulse	1
182	16179.00	90.96	173.87	95.00	9870.73	5811.15	-4771.94	3321.19	5813.92062	145.16	1.04	SimpPulse	1
183	16274.00	91.79	172.98	95.00	9868.45	5896.15	-						