



Gamma Ray

Scale:

1:1200 TVD

Depth Reference:

Driller's Depth

Company: Noble Energy
Well: Minutemen Federal LC21-620
Field: DJ Basin
County: Weld
State: Colorado
Country: United States

Status:

Final Print

Surface Location:
Latitude: 39° 41' 45" N
Longitude: 106° 04' 11" W
Other Services:
Wellbore Surveys

API No: 0512342787

Job ID: 8597136

SEC: 22

TWN: 9N

RGE: 59W

Permanent Datum (P.D.): Ground Level

Elevation:

4877.00 ft

Elev. KB:

4907.00 ft

Elev. DF:

4877.00 ft

Log Measured From: Rig Floor

Above P.D.

30.00 ft

Elev. GL:

4877.00 ft

Dates

Interval Logged

Magnetic Field Reference

Date From: 2017-08-01

Top: (ft) 1940.00

Azi Reference North:

Grid

Dip Angle: (deg) 67.06

Date To: 2017-08-02

Bottom: (ft) 11082.00

Total Magnetic Field Strength: (nT) 52589

Spud Date: 2017-07-31

Mag to Reference North Correction: (deg) 6.74 E

Borehole Record

Casing Record

Hole Size (in)

From (ft)

To (ft)

Size (in)

Weight (lb/ft)

From (ft)

To (ft)

8.500

1940.00

11082.00

9.625

36.00

30.00

1940.00

Mud Record

Deviation Record

Type

From (ft)

To (ft)

Hole Size (in)

Interval (ft)

Inc | Az (Start)

Inc | Az (End)

Oil Based Mud

1940.00

11082.00

8.500

9142.00

0.16 | 87.98

90.68 | 266.04

Acquisition System

Software Version

Other

Baker Hughes Cadence

RT4.1

4.0.7570.8

Rig: HP 524

Contractor: Helmerich & Payne Drilling Co

District: RMD

Unit: D&E

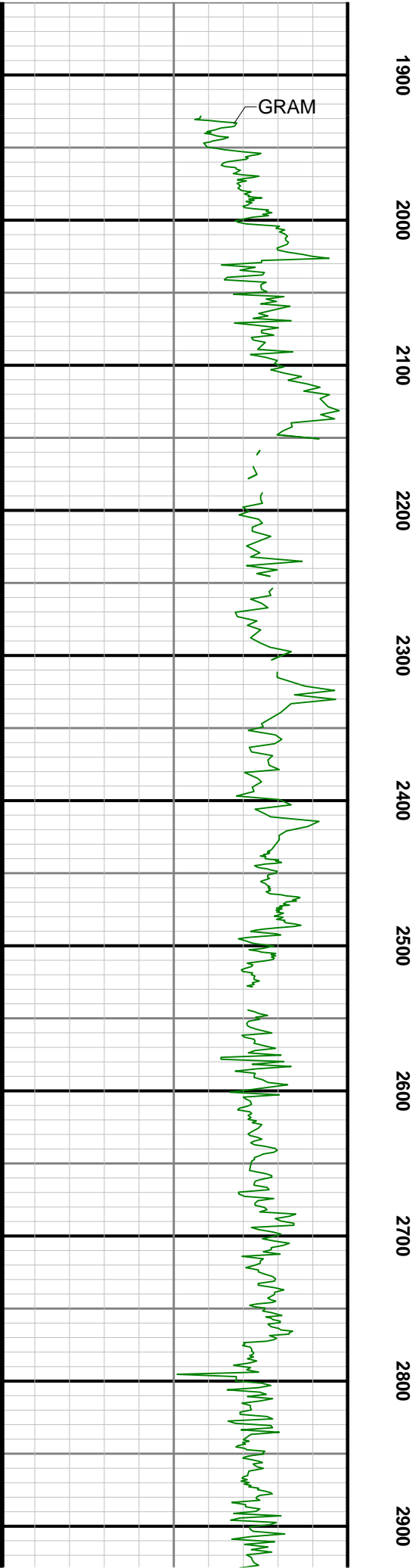
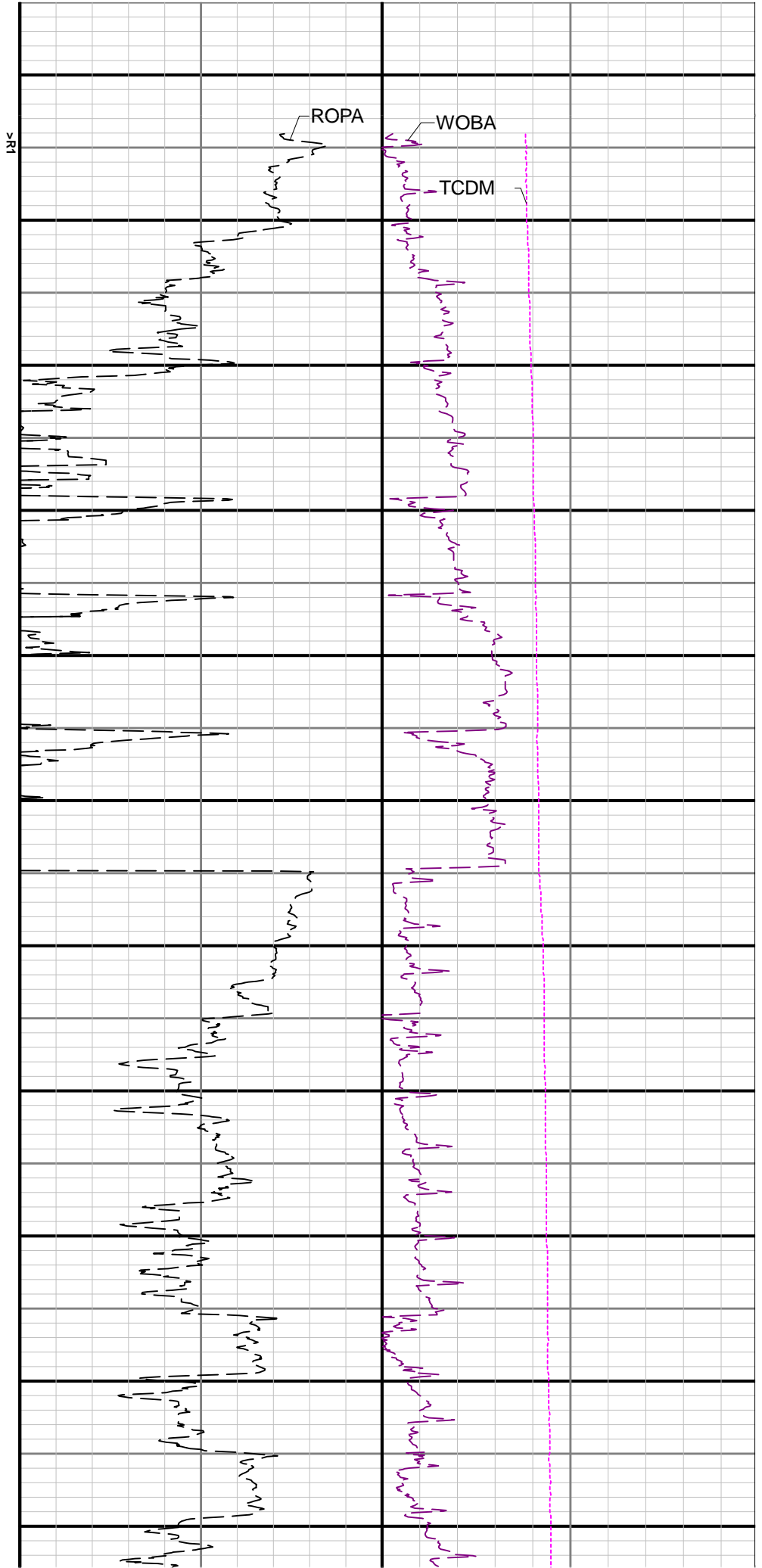
"These interpretations and analyses ("Interpretations") are opinions provided by Baker Hughes Oilfield Operations, Inc ("Baker Hughes"), based upon industry practice, empirical relationships, assumptions and measurements, (many of which may be provided by the customer). The Interpretations are not infallible and may be subject to different opinions. Vjwu."Dcmgt"JwiJgu"fqgu"pqv"ycttcpv"vjgkt"ceewtce{"."eqttgevpguu."qt"eqorngvgpguu."qt"vjcv"vjg"ewuvqogtøu"cpflqt"cp{"vjktf"rctv{øu"tgnkcpv"qp"uwej"Kpvgttrtgvcvkqpu"yknn"ceeqornkuj"cp{"rctvkewnct"tguwnvu0"Vjg"ewuvqogt"cuuwogu"hwnn"responsibility for the use of the Interpretations and for decisions based thereon and the customer agrees to release, defend and indemnify Baker Hughes, its parent, subsidiaries and affiliated or related entities, and subcontractors, together with its and their officers, directors, employees, agents and invitees against, any and all claims, losses, damages, or expenses sustained by the customer or any third party arising out of reliance upon or use of the Interpretations, without regard to the cause(s) thereof, including without limitation any form of negligence on the part of Baker Hughes. Unless other contract terms have been agreed to by the parties, each party's liabilities and qdnkicvkqpu"ujcnn"dg"iqxgtpgf"d{"Dcmgt"JwiJgu"Kpeqtrrtqtcvgføu"Yqtnfykfg"Vgtou"cpf"Eqpfkvkqpu0\$""

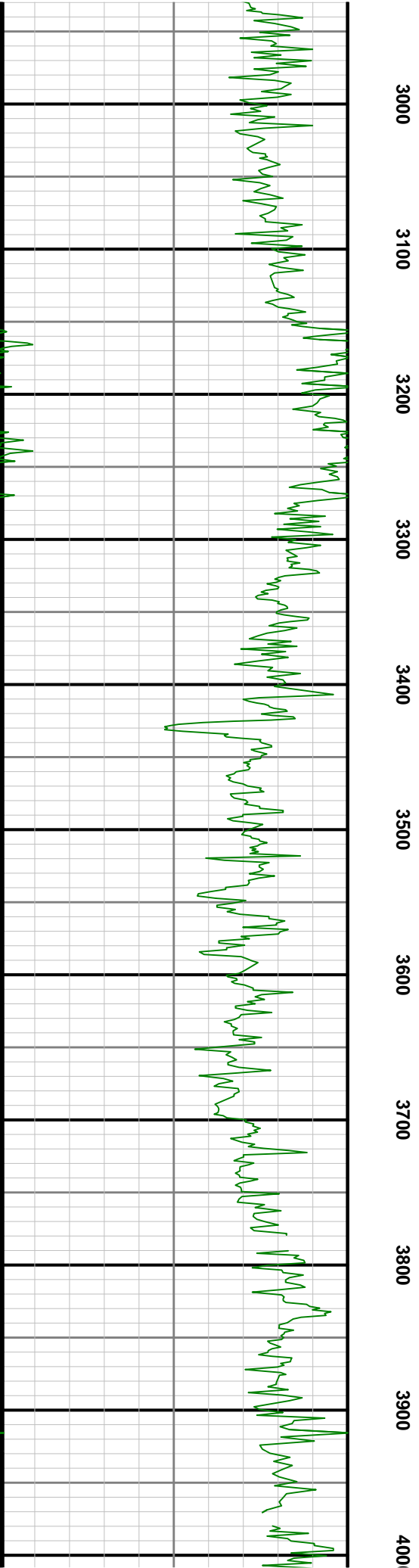
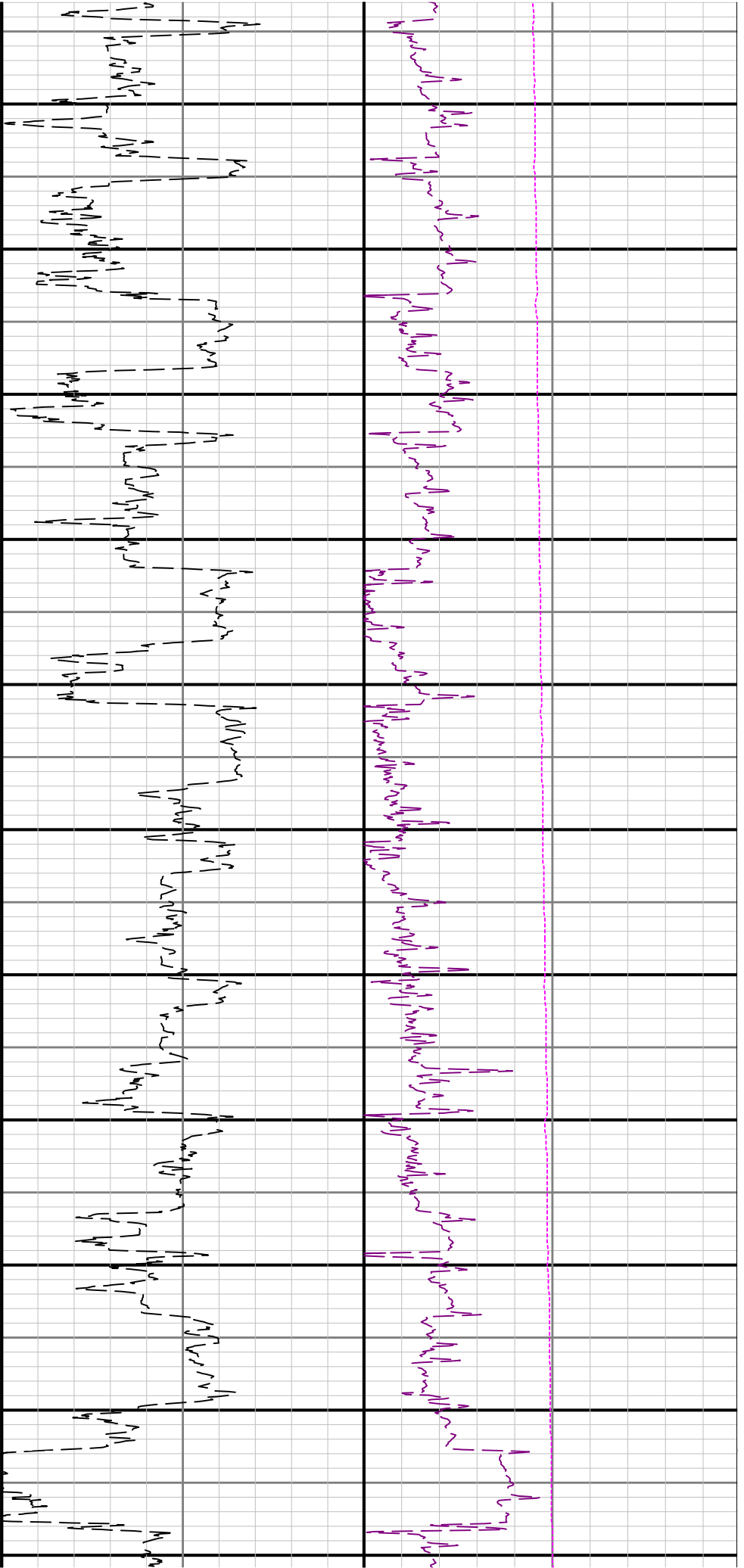
Log Run Summary

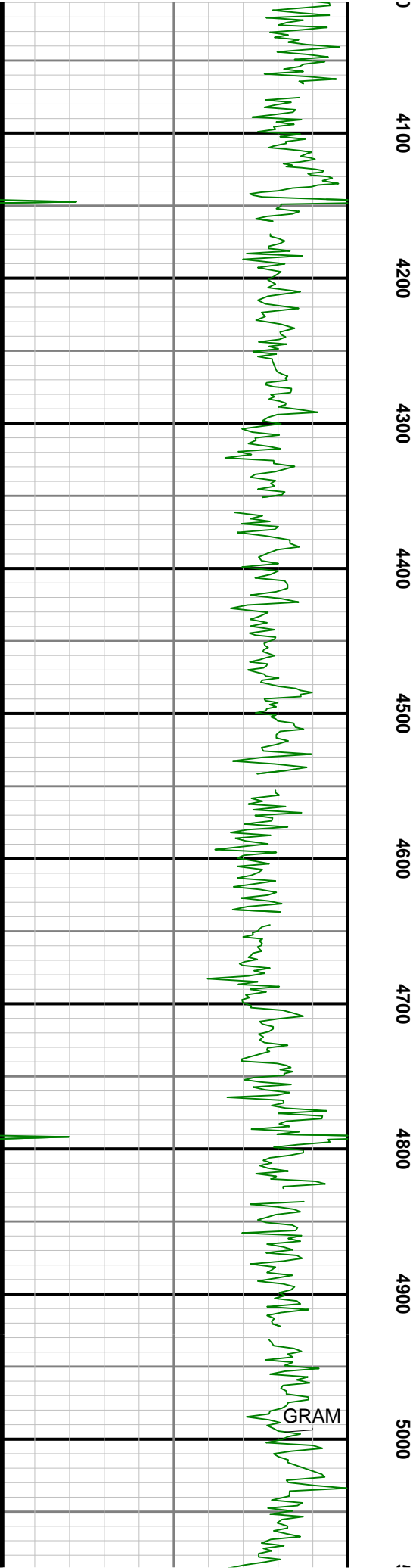
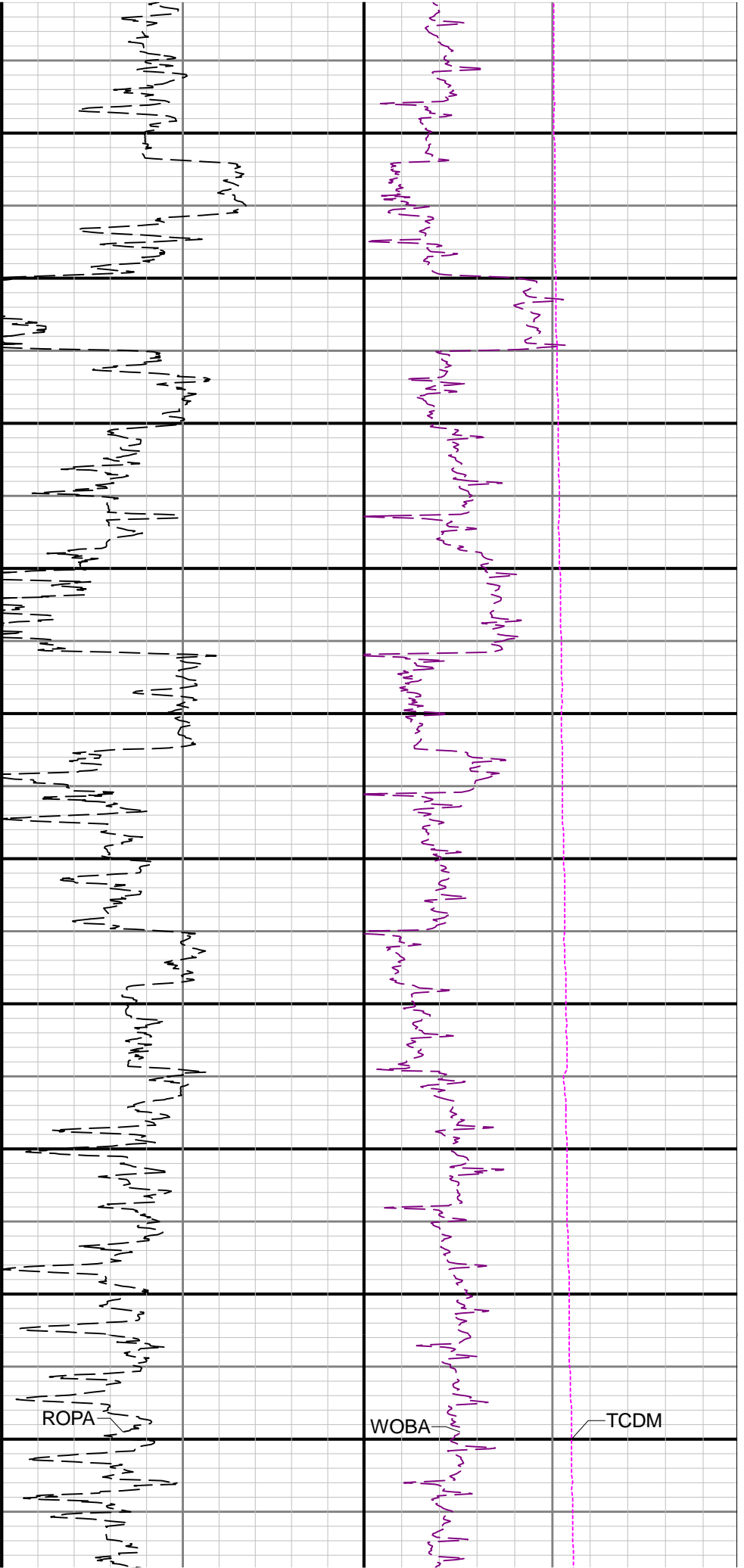
Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	8.500	PDC	3.00	AutoTrak Curve	1928.00	11069.00	1940.00	11082.00	2017-08-01 03:54	2017-08-02 13:53	30.41

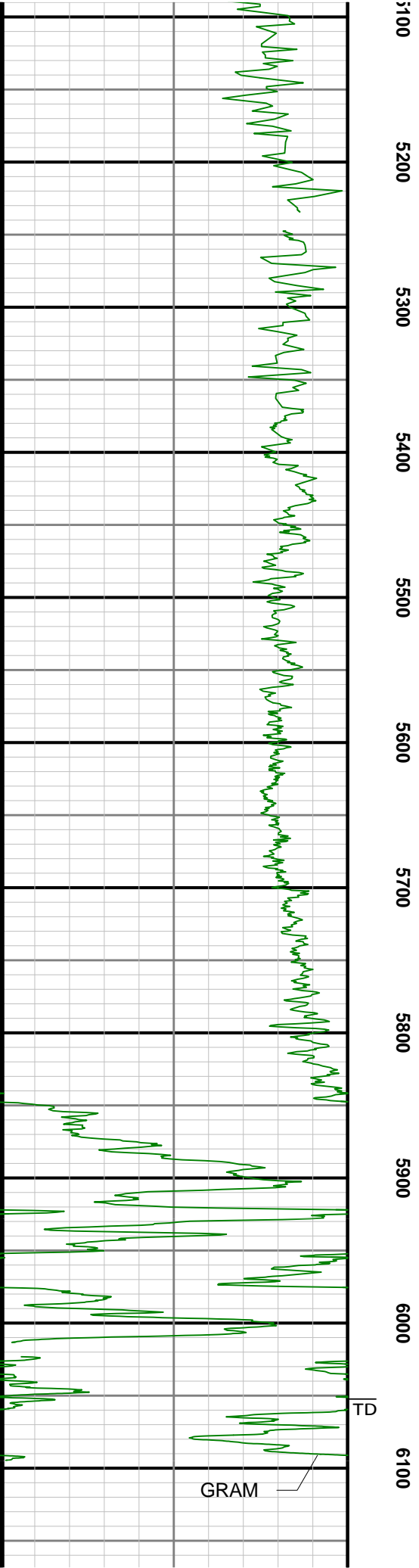
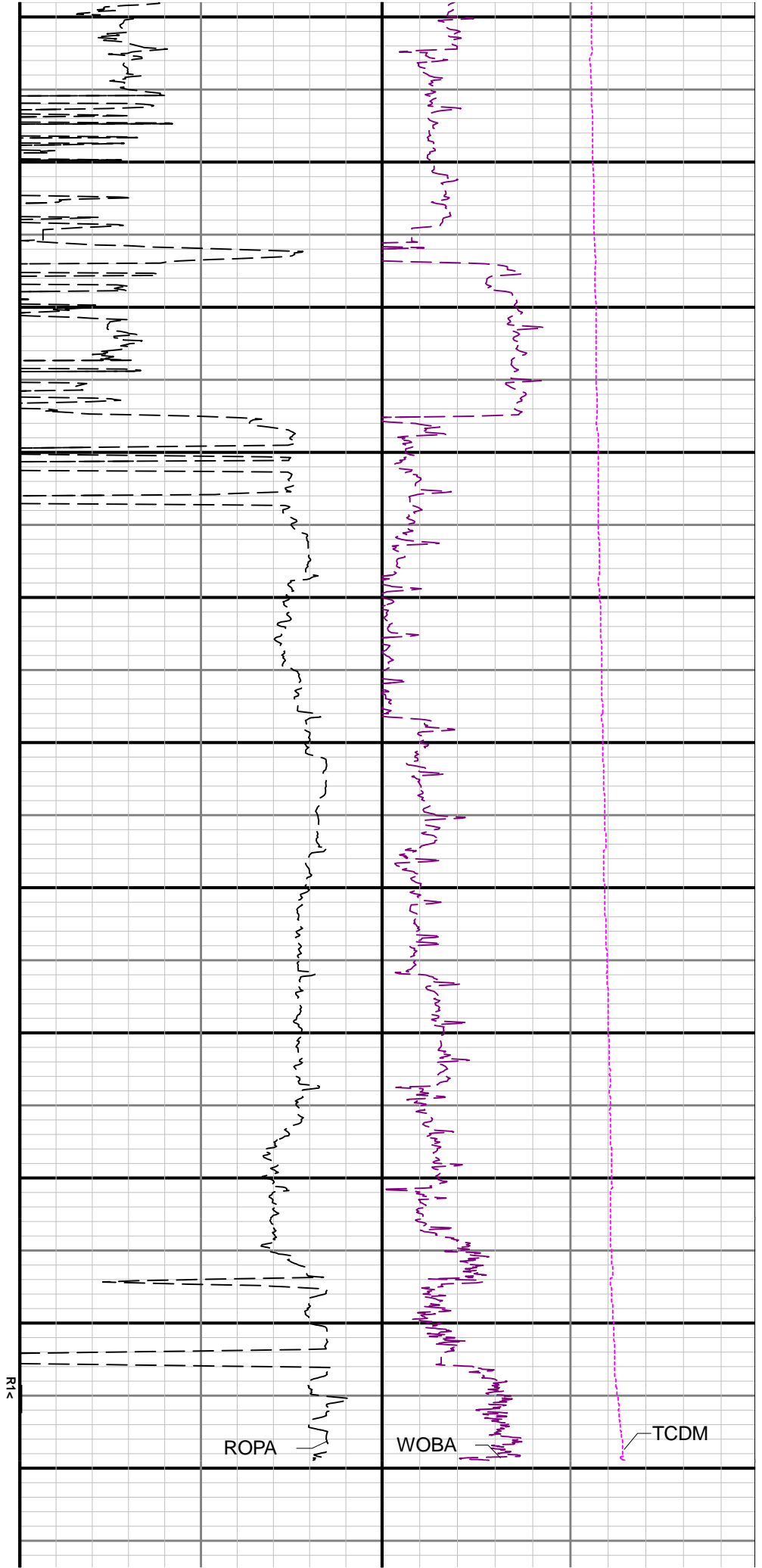
Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
------	-----------------	-----------------	------	-----------------	-----------------	------	-----------------	-----------------









	5003.00	0.09	185.11	N/A	-100.36	-89.27	4994.15	94.17	94.00	0.05	-0.02	24.34
	5098.00	0.10	199.48	N/A	-100.51	-89.31	5089.15	94.21	95.00	0.03	0.01	15.13
	5193.00	0.00	96.74	N/A	-100.59	-89.34	5184.15	94.24	95.00	0.11	-0.11	-108.15
	5287.00	0.06	65.29	N/A	-100.57	-89.29	5278.15	94.20	94.00	0.06	0.06	-33.46
	5382.00	0.55	30.00	N/A	-100.15	-89.02	5373.14	93.90	95.00	0.53	0.52	-37.15
	5476.00	3.11	262.03	N/A	-100.11	-91.32	5467.10	96.20	94.00	3.70	2.72	-136.14
	5571.00	10.72	270.22	N/A	-100.44	-102.72	5561.34	107.61	95.00	8.06	8.01	8.62
	5666.00	19.28	267.93	N/A	-100.97	-127.28	5653.02	132.16	95.00	9.03	9.01	-2.41
	5760.00	27.68	267.63	N/A	-102.44	-164.67	5739.16	169.57	94.00	8.94	8.94	-0.32
	5855.00	36.17	268.80	N/A	-103.94	-214.83	5819.72	219.75	95.00	8.96	8.94	1.23
	5949.00	44.65	269.05	N/A	-105.07	-275.70	5891.23	280.60	94.00	9.02	9.02	0.27
	6044.00	51.15	268.86	N/A	-106.36	-346.14	5954.88	351.02	95.00	6.84	6.84	-0.20
	6138.00	59.15	267.67	N/A	-108.73	-423.18	6008.56	428.08	94.00	8.57	8.51	-1.27
	6232.00	67.72	267.07	N/A	-112.60	-507.09	6050.55	512.08	94.00	9.13	9.12	-0.64
	6327.00	76.96	267.66	N/A	-116.75	-597.42	6079.34	602.50	95.00	9.74	9.73	0.62
	6421.00	86.98	268.23	N/A	-120.08	-690.32	6092.46	695.45	94.00	10.68	10.66	0.61
	6516.00	90.52	269.11	N/A	-122.28	-785.25	6094.53	790.38	95.00	3.84	3.73	0.93
	6610.00	90.80	269.21	N/A	-123.66	-879.24	6093.45	884.31	94.00	0.32	0.30	0.11
	6705.00	91.32	269.65	N/A	-124.60	-974.22	6091.69	979.22	95.00	0.72	0.55	0.46
	6799.00	90.83	269.29	N/A	-125.47	-1068.20	6089.93	1073.13	94.00	0.65	-0.52	-0.38
	6894.00	91.17	269.78	N/A	-126.24	-1163.18	6088.27	1168.03	95.00	0.63	0.36	0.52
	6988.00	89.91	269.04	N/A	-127.21	-1257.17	6087.38	1261.95	94.00	1.55	-1.34	-0.79
	7083.00	90.25	268.54	N/A	-129.22	-1352.14	6087.25	1356.91	95.00	0.64	0.36	-0.53
	7177.00	90.31	268.93	N/A	-131.29	-1446.12	6086.79	1450.87	94.00	0.42	0.06	0.41
	7272.00	90.12	268.34	N/A	-133.56	-1541.09	6086.43	1545.84	95.00	0.65	-0.20	-0.62
	7366.00	90.55	268.01	N/A	-136.55	-1635.04	6085.88	1639.82	94.00	0.58	0.46	-0.35
	7461.00	90.18	267.94	N/A	-139.91	-1729.98	6085.28	1734.81	95.00	0.40	-0.39	-0.07
	7556.00	90.37	268.22	N/A	-143.09	-1824.93	6084.82	1829.79	95.00	0.36	0.20	0.29
	7650.00	90.37	268.22	N/A	-146.01	-1918.88	6084.22	1923.77	94.00	0.00	0.00	0.00
	7744.00	89.82	267.37	N/A	-149.63	-2012.81	6084.06	2017.77	94.00	1.08	-0.59	-0.90
	7839.00	90.58	267.62	N/A	-153.78	-2107.72	6083.73	2112.76	95.00	0.84	0.80	0.26
	7934.00	90.80	268.30	N/A	-157.16	-2202.65	6082.58	2207.75	95.00	0.75	0.23	0.72
	8028.00	90.89	269.31	N/A	-159.12	-2296.62	6081.20	2301.69	94.00	1.08	0.10	1.07
	8123.00	90.31	269.69	N/A	-159.95	-2391.61	6080.20	2396.61	95.00	0.73	-0.61	0.40
	8217.00	90.43	270.06	N/A	-160.15	-2485.60	6079.60	2490.50	94.00	0.41	0.13	0.39
	8312.00	90.31	270.73	N/A	-159.50	-2580.60	6078.98	2585.34	95.00	0.72	-0.13	0.71
	8407.00	90.34	271.29	N/A	-157.82	-2675.58	6078.44	2680.12	95.00	0.59	0.03	0.59
	8501.00	90.40	270.55	N/A	-156.31	-2769.57	6077.84	2773.92	94.00	0.79	0.06	-0.79
	8596.00	90.40	269.19	N/A	-156.53	-2864.56	6077.17	2868.81	95.00	1.43	0.00	-1.43
	8690.00	90.40	268.08	N/A	-158.77	-2958.53	6076.52	2962.77	94.00	1.18	0.00	-1.18
	8785.00	90.58	267.96	N/A	-162.05	-3053.47	6075.70	3057.75	95.00	0.23	0.19	-0.13
	8879.00	90.58	268.19	N/A	-165.21	-3147.41	6074.75	3151.74	94.00	0.24	0.00	0.24
	8974.00	90.62	267.79	N/A	-168.54	-3242.35	6073.76	3246.72	95.00	0.42	0.04	-0.42
	9068.00	90.43	267.59	N/A	-172.33	-3336.27	6072.90	3340.71	94.00	0.29	-0.20	-0.21
	9163.00	90.49	267.74	N/A	-176.20	-3431.19	6072.13	3435.71	95.00	0.17	0.06	0.16
	9352.00	90.62	268.20	N/A	-182.89	-3620.06	6070.30	3624.68	189.00	0.25	0.07	0.24
	9541.00	90.55	267.33	N/A	-190.26	-3808.90	6068.37	3813.65	189.00	0.46	-0.04	-0.46
	9636.00	90.15	267.35	N/A	-194.67	-3903.80	6067.79	3908.65	95.00	0.42	-0.42	0.02
	9730.00	90.52	266.61	N/A	-199.63	-3997.67	6067.24	4002.65	94.00	0.88	0.39	-0.79
	9825.00	90.58	266.03	N/A	-205.72	-4092.47	6066.33	4097.63	95.00	0.61	0.06	-0.61
	10014.00	90.58	268.39	N/A	-214.92	-4281.22	6064.42	4286.61	189.00	1.25	0.00	1.25
	10109.00	90.52	267.01	N/A	-218.73	-4376.14	6063.51	4381.60	95.00	1.45	-0.06	-1.45
	10203.00	90.65	266.67	N/A	-223.91	-4469.99	6062.55	4475.59	94.00	0.39	0.14	-0.36
	10298.00	90.58	266.35	N/A	-229.70	-4564.81	6061.53	4570.58	95.00	0.34	-0.07	-0.34
	10392.00	90.52	266.38	N/A	-235.66	-4658.61	6060.62	4664.57	94.00	0.07	-0.06	0.03
	10487.00	90.62	266.76	N/A	-241.34	-4753.44	6059.68	4759.56	95.00	0.41	0.11	0.40
	10582.00	90.43	267.53	N/A	-246.07	-4848.32	6058.81	4854.55	95.00	0.83	-0.20	0.81
	10677.00	90.46	267.45	N/A	-250.23	-4943.22	6058.07	4949.55	95.00	0.09	0.03	-0.08
	10771.00	90.55	267.67	N/A	-254.23	-5037.13	6057.24	5043.54	94.00	0.25	0.10	0.23
	10866.00	90.49	267.85	N/A	-257.95	-5132.06	6056.38	5138.53	95.00	0.20	-0.06	0.19
	10960.00	90.55	267.11	N/A	-262.08	-5225.96	6055.53	5232.53	94.00	0.79	0.06	-0.79
	11055.00	90.68	266.04	N/A	-267.75	-5320.78	6054.51	5327.52	95.00	1.13	0.14	-1.13
Projection	11082.00	90.68	266.04	N/A	-269.62	-5347.72	6054.19	5354.51	27.00	0.00	0.00	0.00