
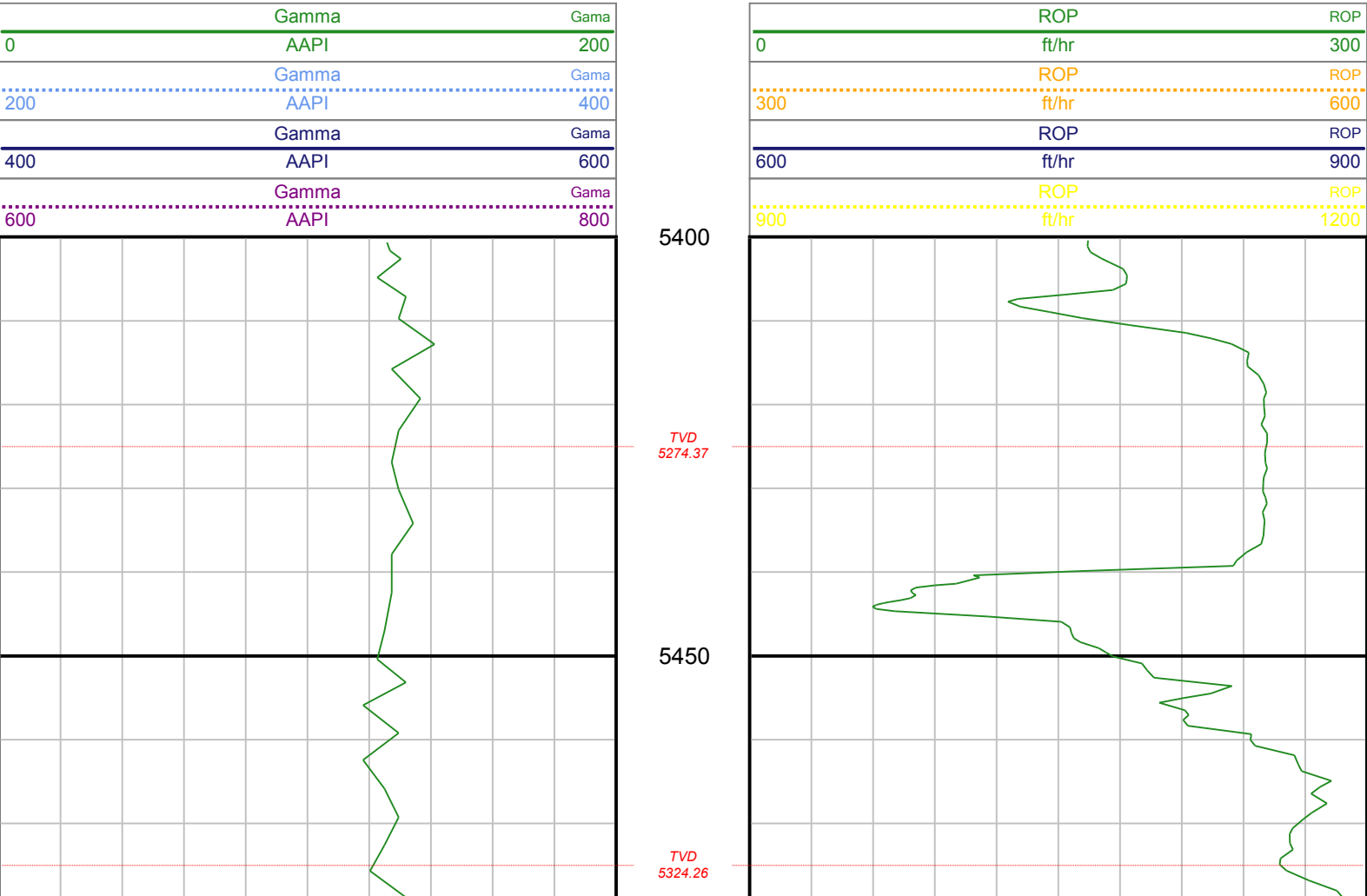


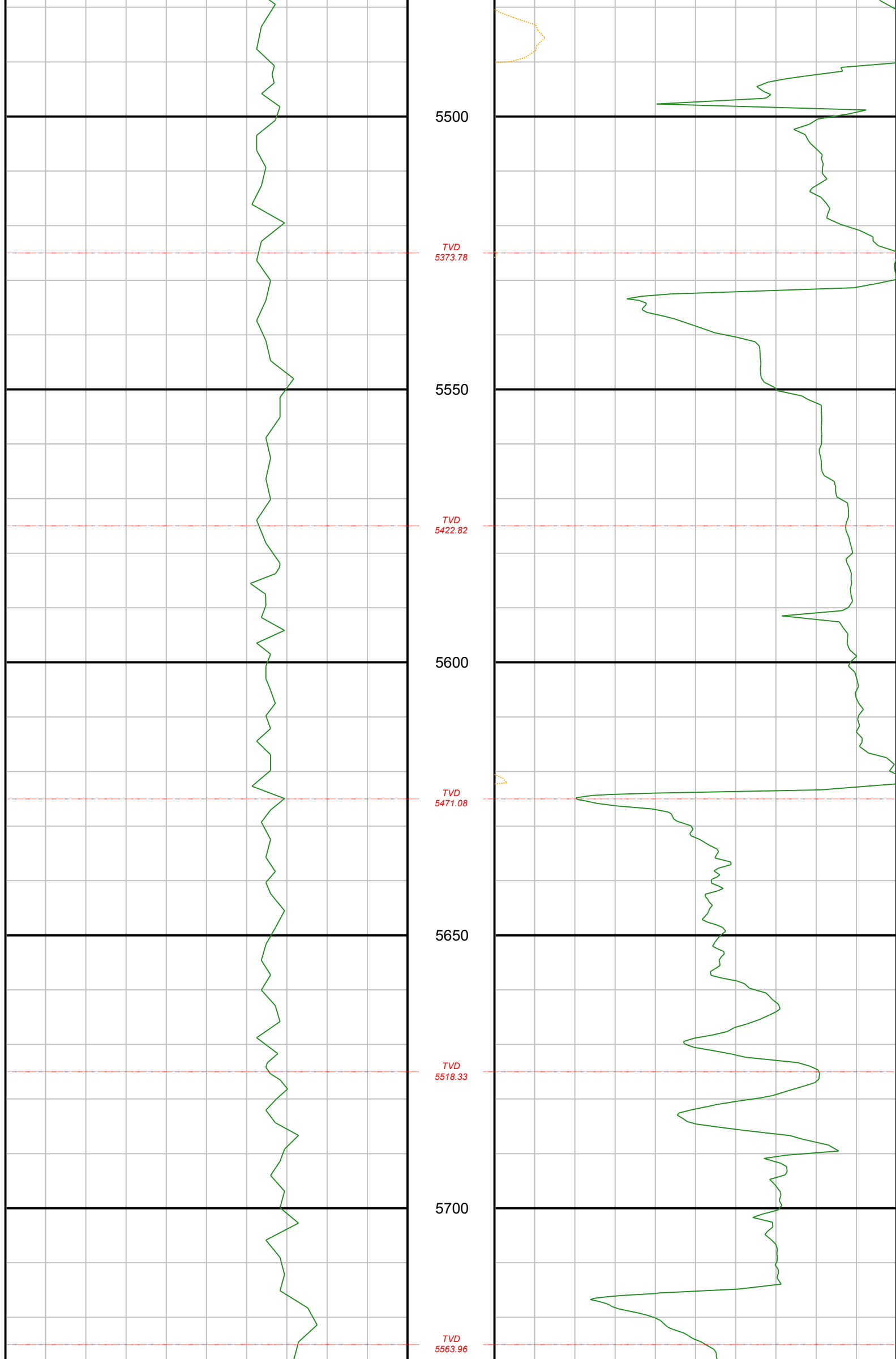
<div><div></div><div><div>PHOENIX</div><div>TECHNOLOGY SERVICES</div></div></div> <div><div>MD</div><div>1:240</div><div>Feet</div></div>	
<div>MWD Gamma / ROP (5")</div>	
<div><div>Client:</div><div>Whiting Petroleum Corp.</div></div>	
<div><div><div>Well Name:</div><div>Razor #12F-0108B</div></div><div><div>API/UWID:</div><div>051233871700</div></div><div><div>County:</div><div>Weld</div></div><div><div>Permit #:</div><div>15-0356</div></div><div><div>State:</div><div>Colorado</div></div></div> <div><div>Field:</div><div>Wildcat</div></div> <div><div>Country:</div><div>USA</div></div>	
<div><div><div>Longitude:</div><div>103° 49' 3.23 W</div></div><div><div>Latitude:</div><div>40° 51' 16.779 N</div></div></div>	
<div>Personnel</div>	
<div><div><div>Company Representative</div><div>K. Wilkerson / T. Renton</div></div><div><div>Geologist</div><div></div></div><div><div>Directional Driller(s)</div><div>Brandon Davis Derrick Gracie</div></div><div><div>MWD Operator(s)</div><div>Justin Amari Larry Seebeck</div></div></div>	
<div><div><div>Rig Name:</div><div>Unit 409</div></div><div><div>Job Number:</div><div>1523841</div></div><div><div>Ground Level:</div><div>4936.80 ft</div></div><div><div>Kelly Bushing:</div><div>4956.80 ft</div></div><div><div>Drill Floor:</div><div>20.00 ft</div></div><div><div>Permanent Datum:</div><div>Mean Sea Level</div></div><div><div>Drilling Measured From:</div><div>Kelly Bushing</div></div><div><div>Spud Date:</div><div>July 28, 2015</div></div><div><div>Bottom Hole Temp:</div><div>235 °F</div></div><div><div>Log Start Depth:</div><div>5400.00 ft</div></div><div><div>Log End Depth:</div><div>13600.00 ft</div></div></div>	
<div>Reference Data</div>	
<div><div><div>North Reference:</div><div>True North</div></div><div><div>Magnetic Declination:</div><div>7.43</div></div><div><div>Grid Convergence:</div><div>0.00</div></div><div><div>Total Mag Correction:</div><div>7.43</div></div></div>	
<div>Comments:</div>	<div>Main Leg</div>
<div>PHOENIX TECHNOLOGY SERVICES, LP ("PHOENIX") DOES NOT MAKE AND EXPRESSLY DISCLAIMS ALL WARRANTIES, REPRESENTATIONS AND CONDITIONS, WITH RESPECT TO THE INFORMATION CONTAINED IN THIS DOCUMENT, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED OR ARISING FROM CONTRACT OR OTHERWISE, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, ADEQUACY, ACCURACY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, AND NO INFRINGEMENT. PHOENIX DOES NOT WARRANT THAT THE INFORMATION IS CURRENT, COMPLETE, OR FREE FROM OMISSION, DEFECT, DEFICIENCY OR INCONFORMITY IN THE INFORMATION AND WITHOUT LIMITING THE FOREGOING, PHOENIX DOES NOT WARRANT THAT THE INFORMATION (OR THE USE THEREOF) WILL BE FREE OF ALL ERRORS OR THAT IT DOES NOT INFRINGE ANY THIRD PARTY RIGHTS. ANYONE USING THE INFORMATION AGREES TO INDEMNIFY AND HOLD PHOENIX HARMLESS FROM ALL CLAIMS, ACTIONS, COSTS (INCLUDING LEGAL COSTS ON A SOLICITOR AND HIS OWN CLIENT BASIS), AND LIABILITIES ARISING FROM OR IN CONNECTION WITH THE USE OF THE INFORMATION.</div>	

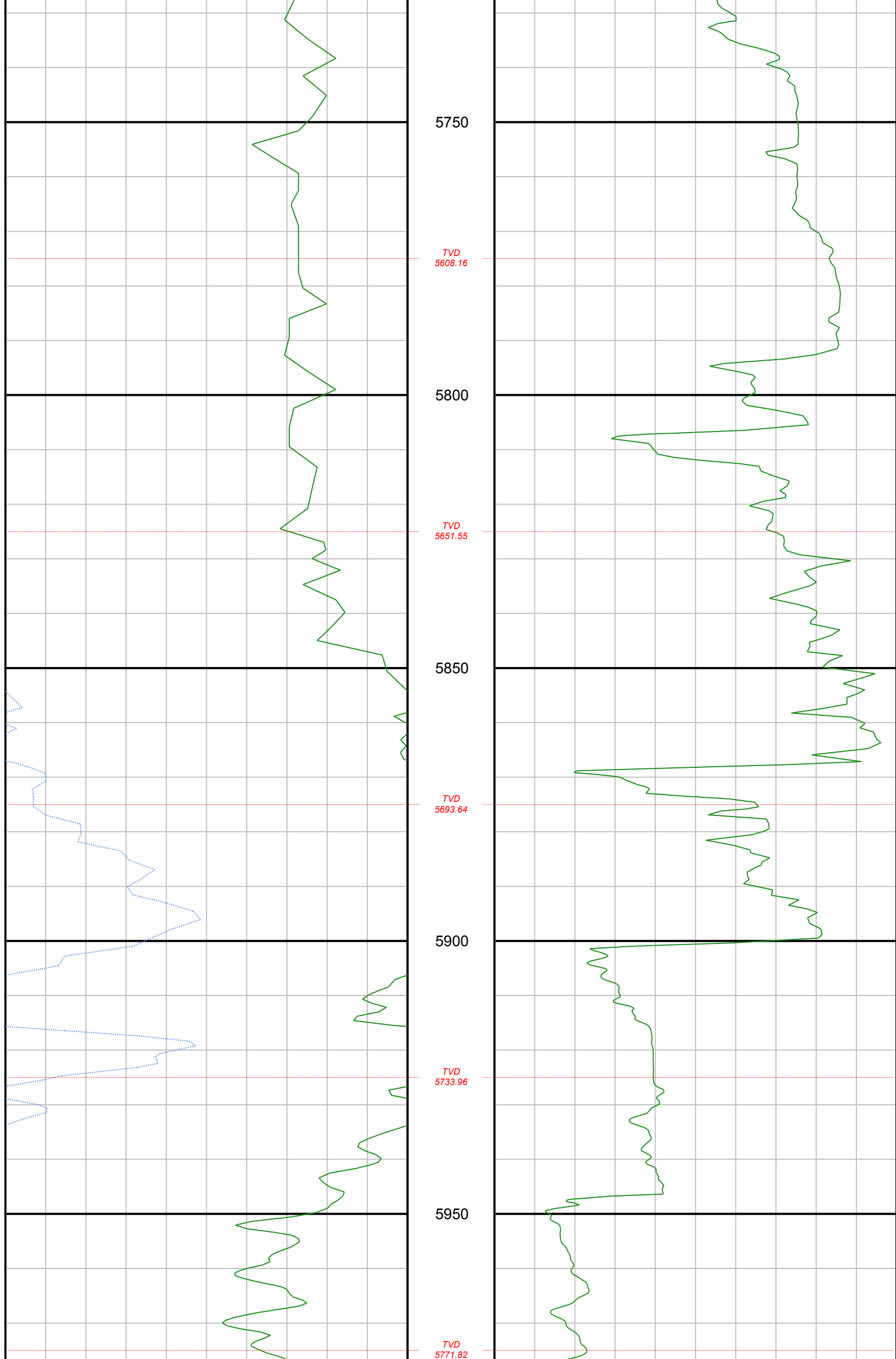
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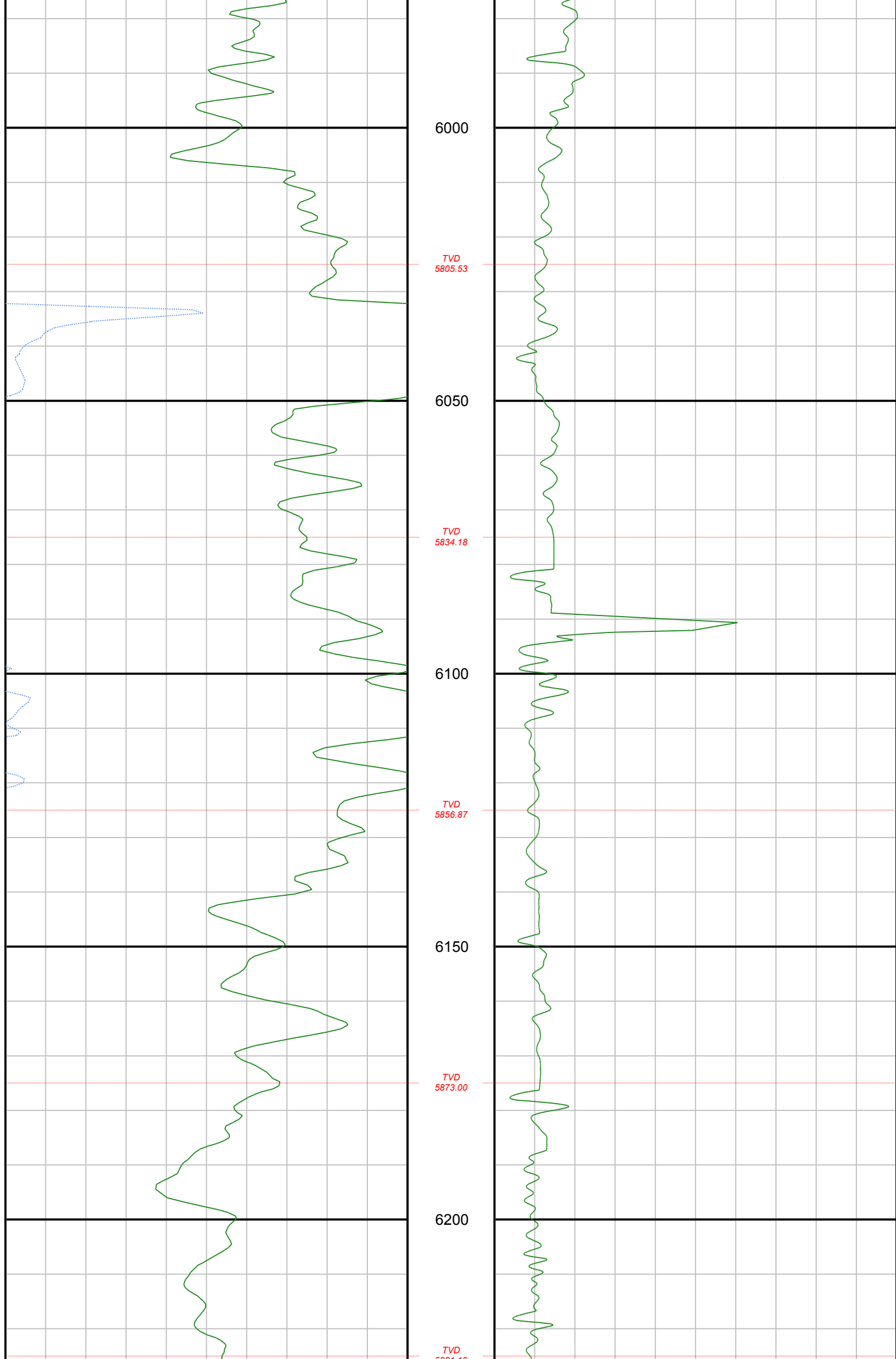
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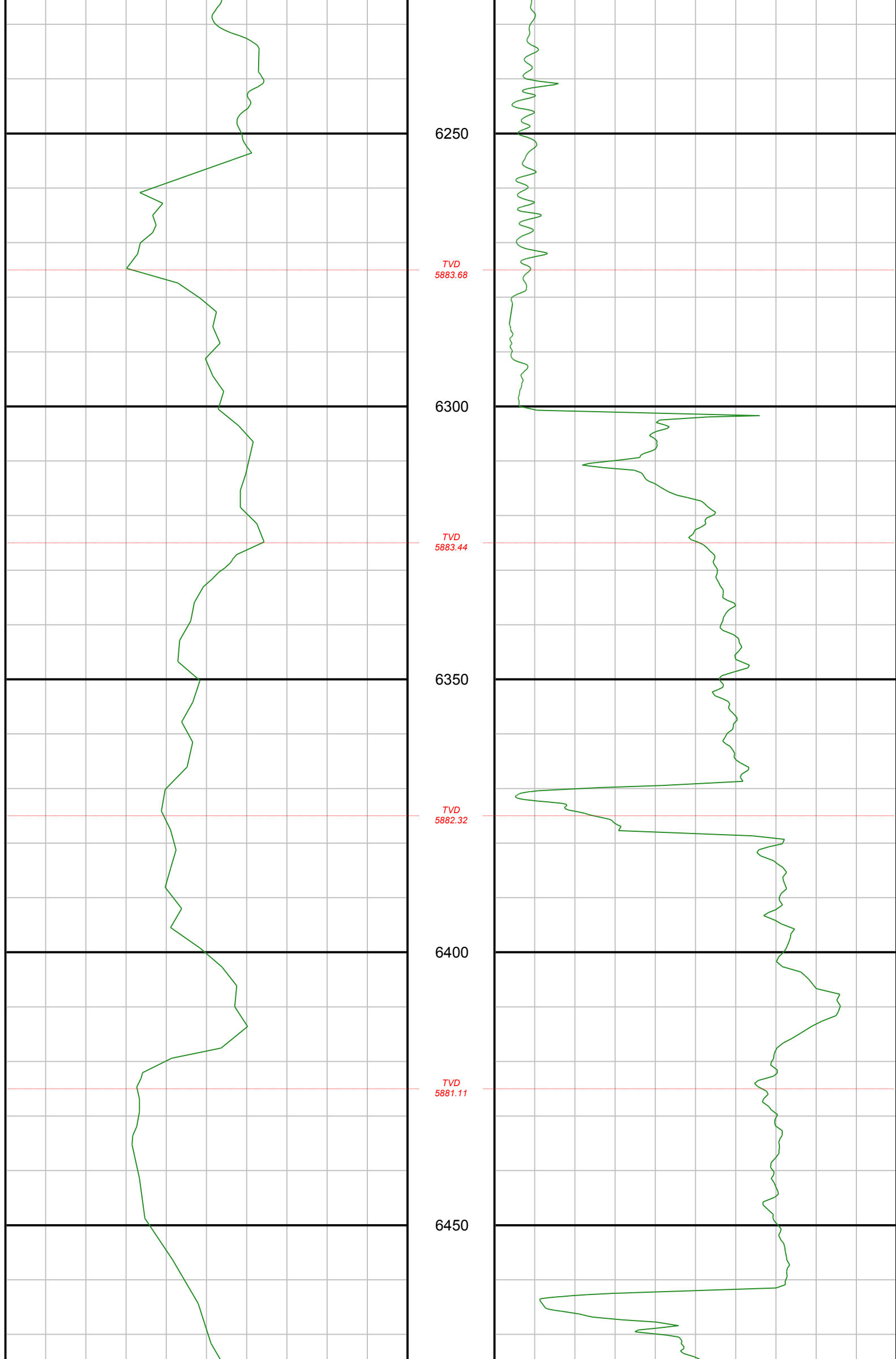
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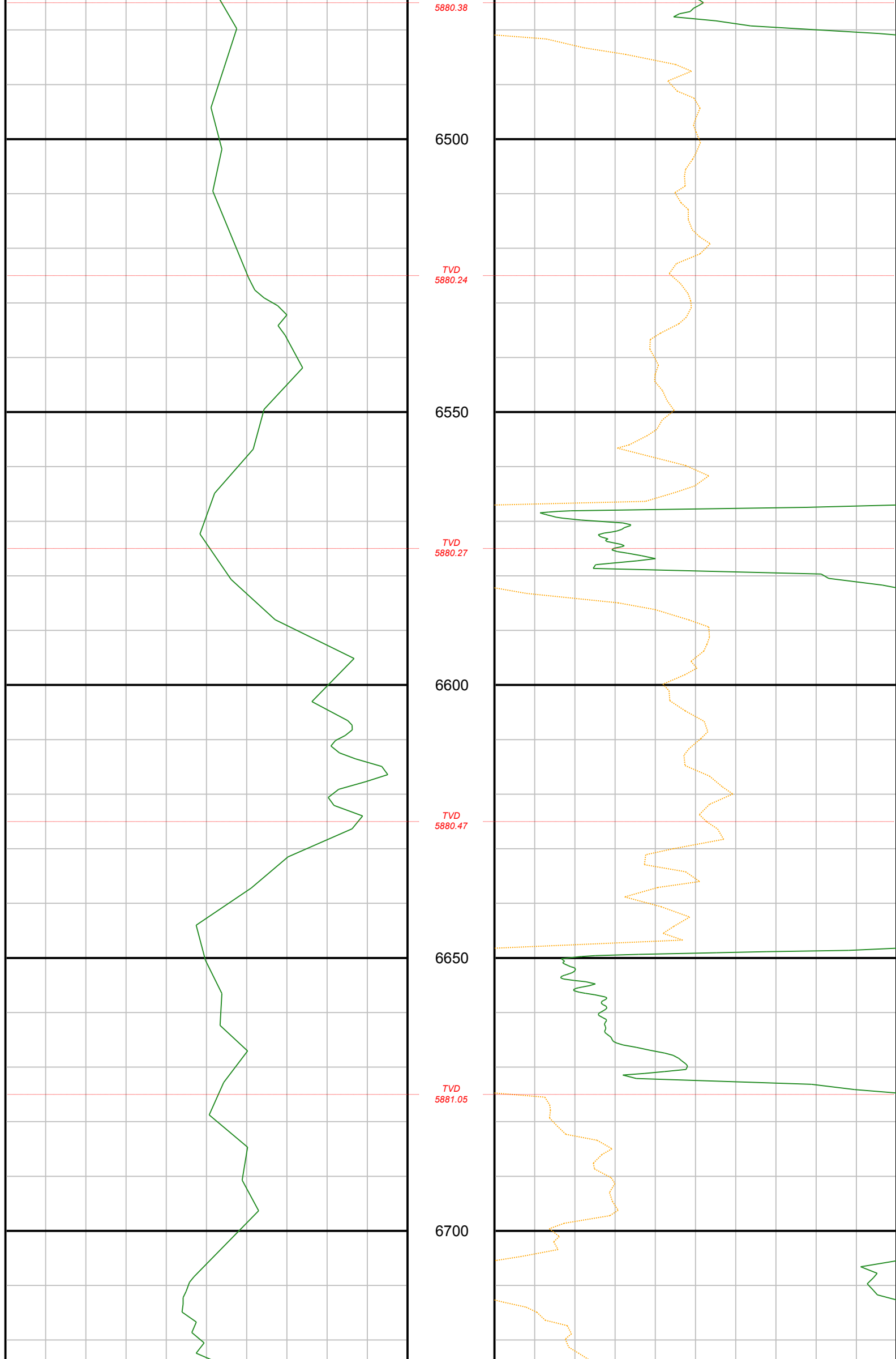


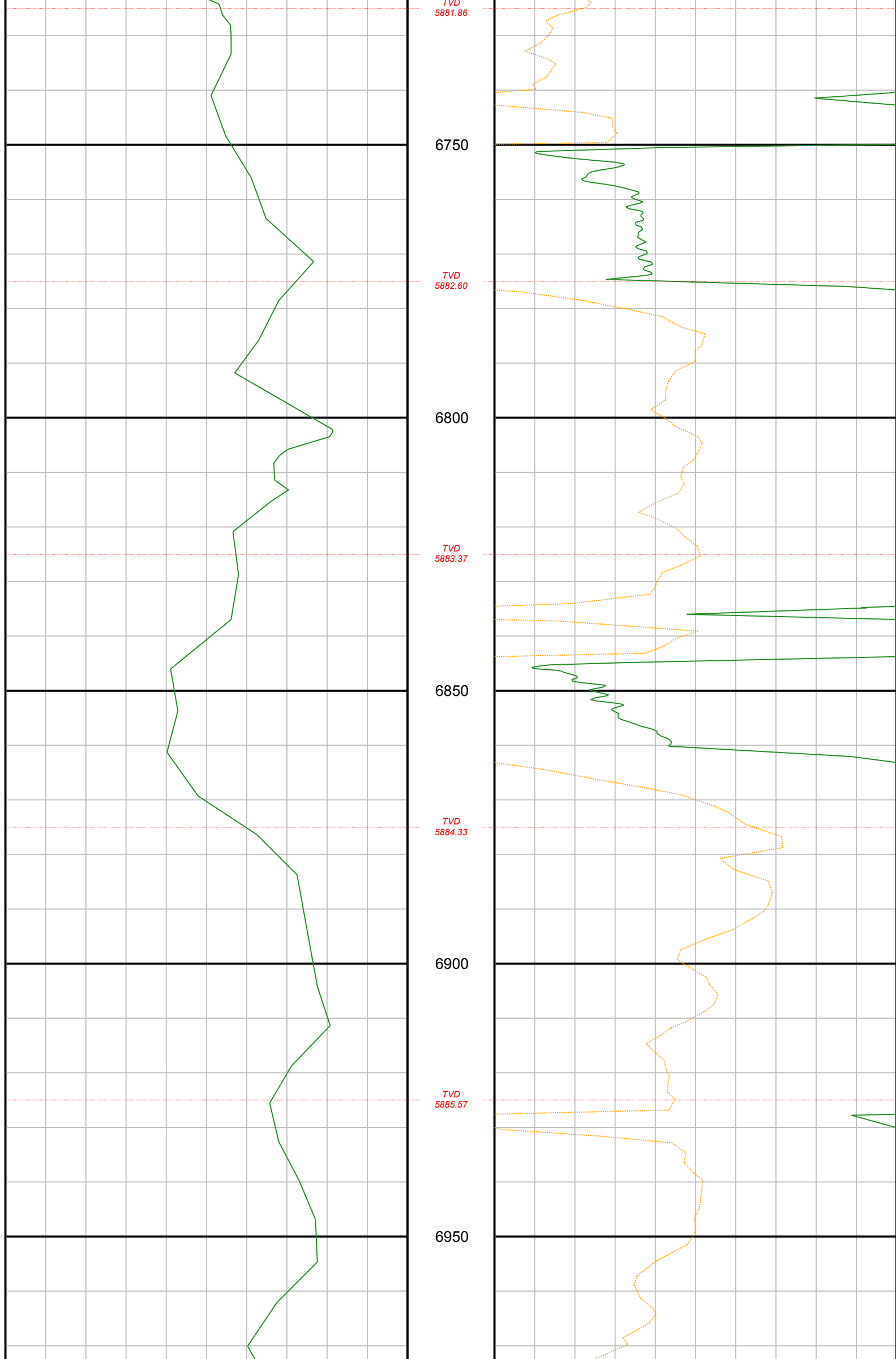


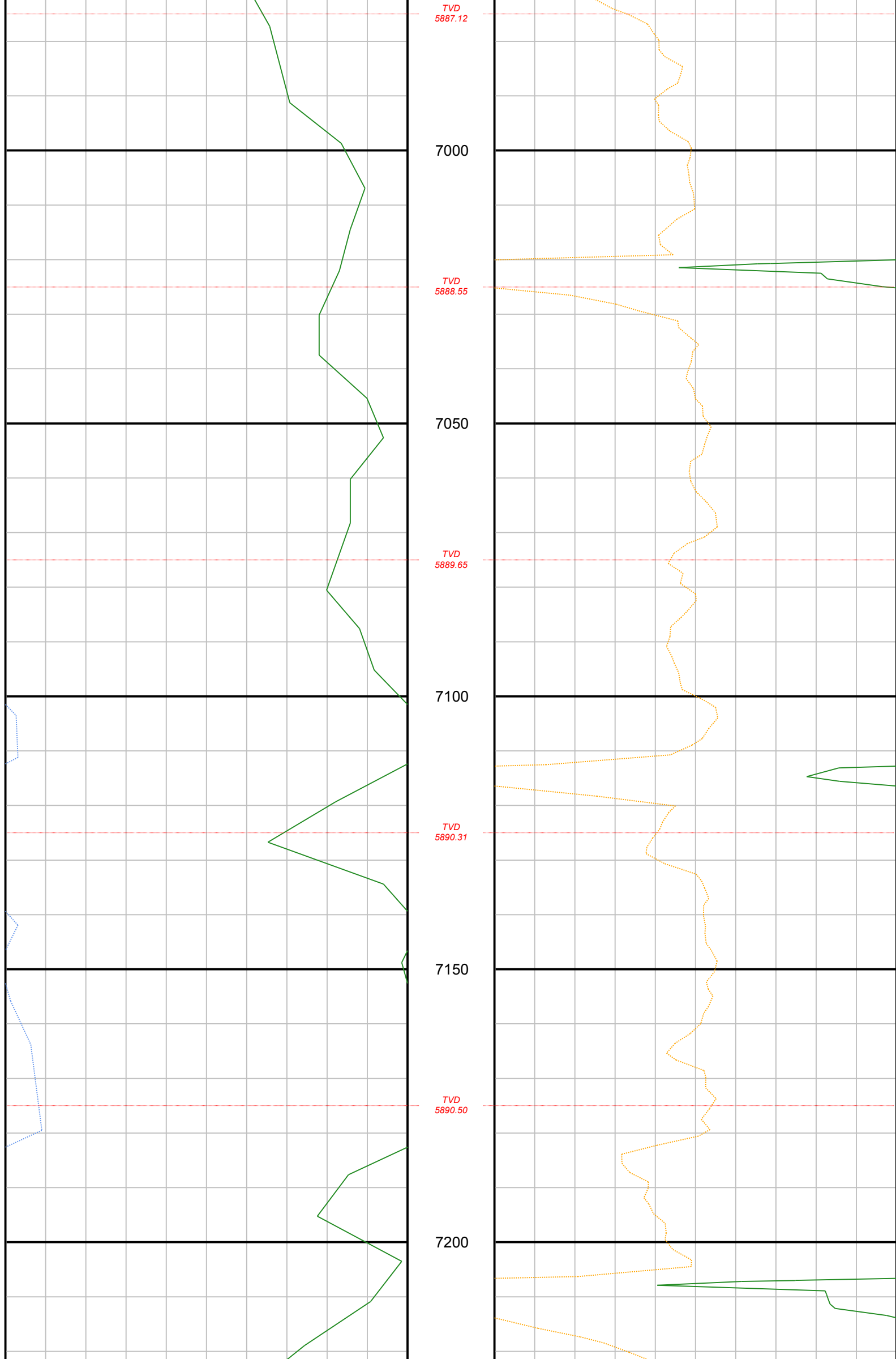




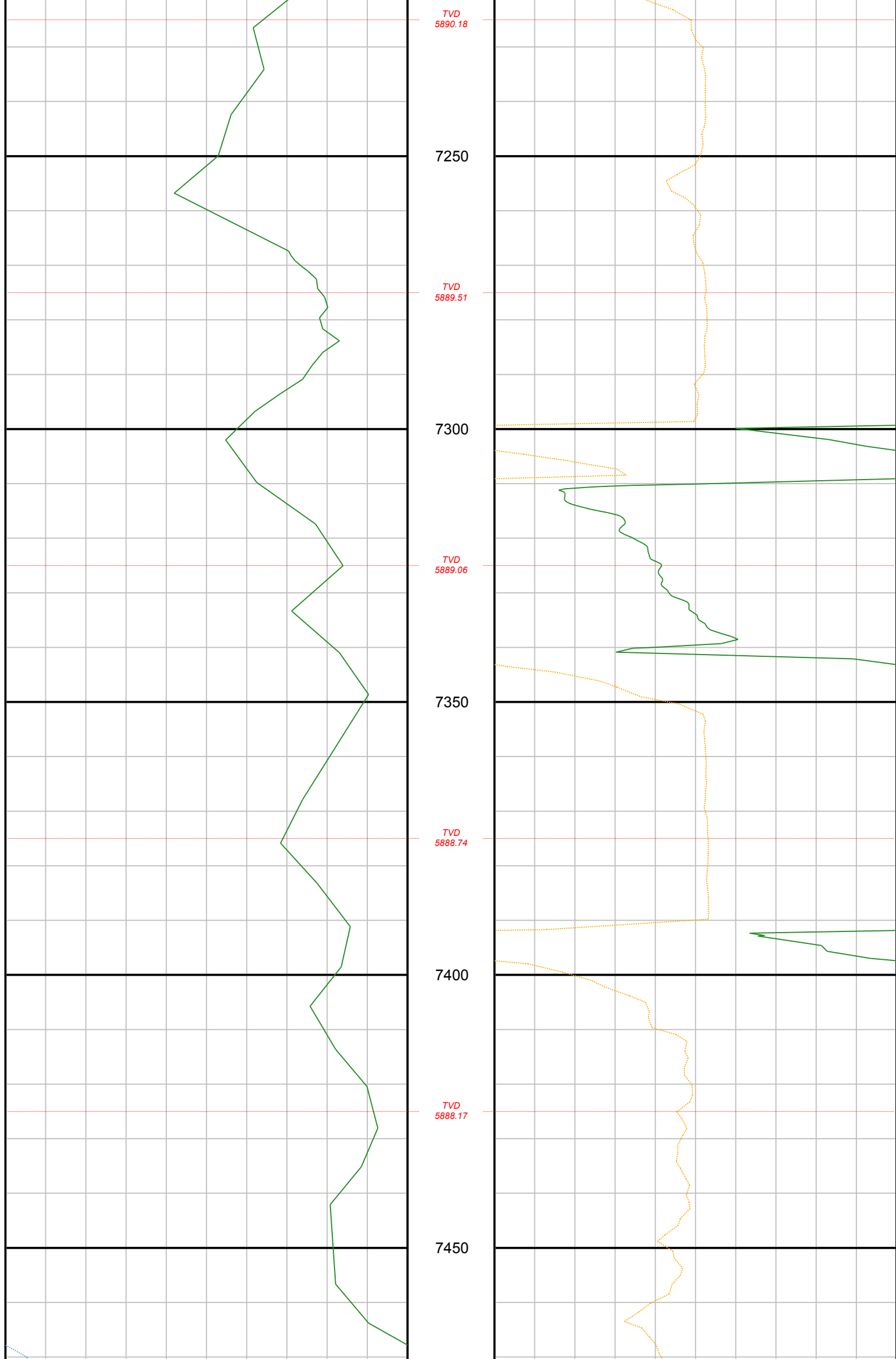


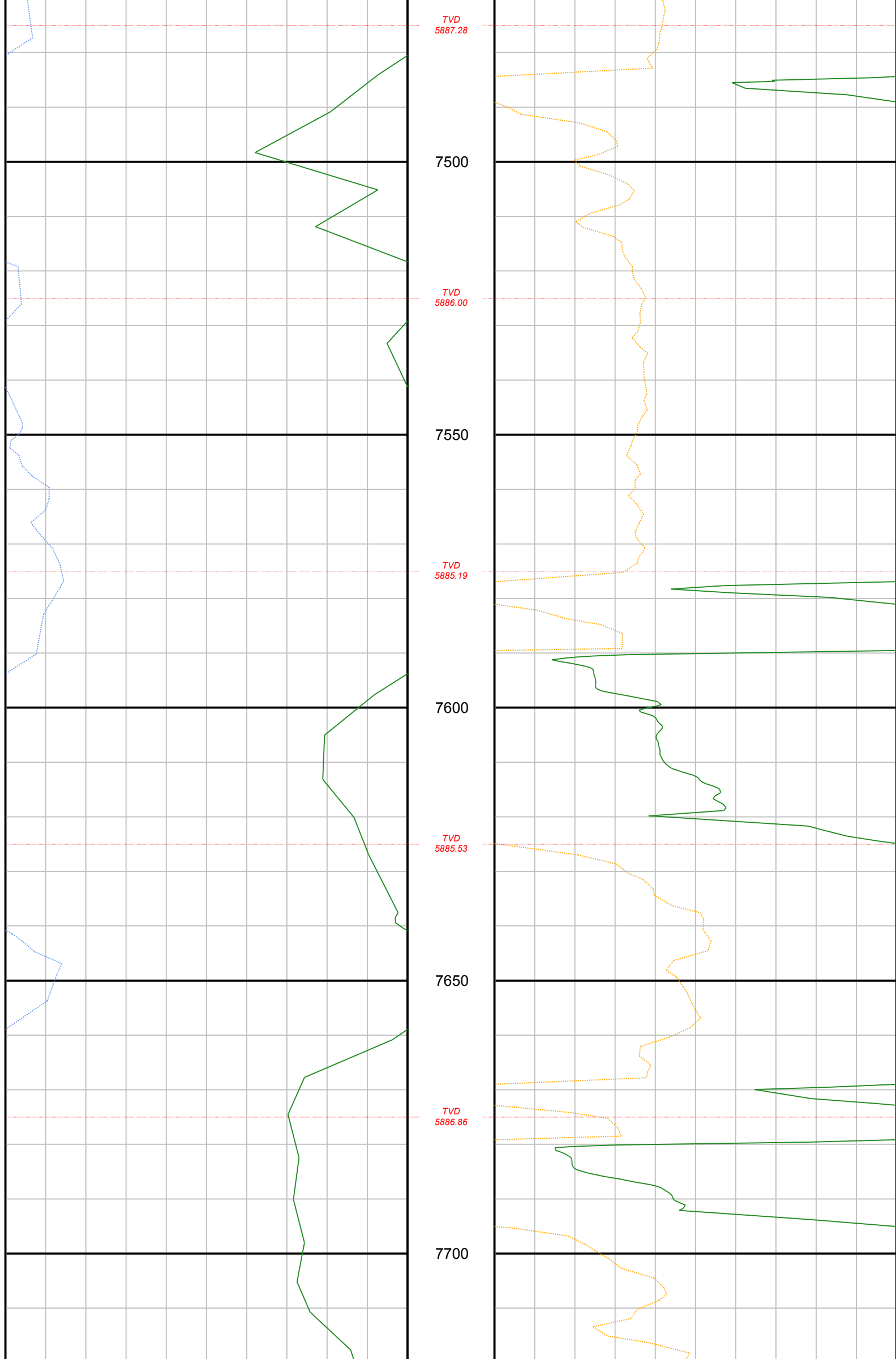


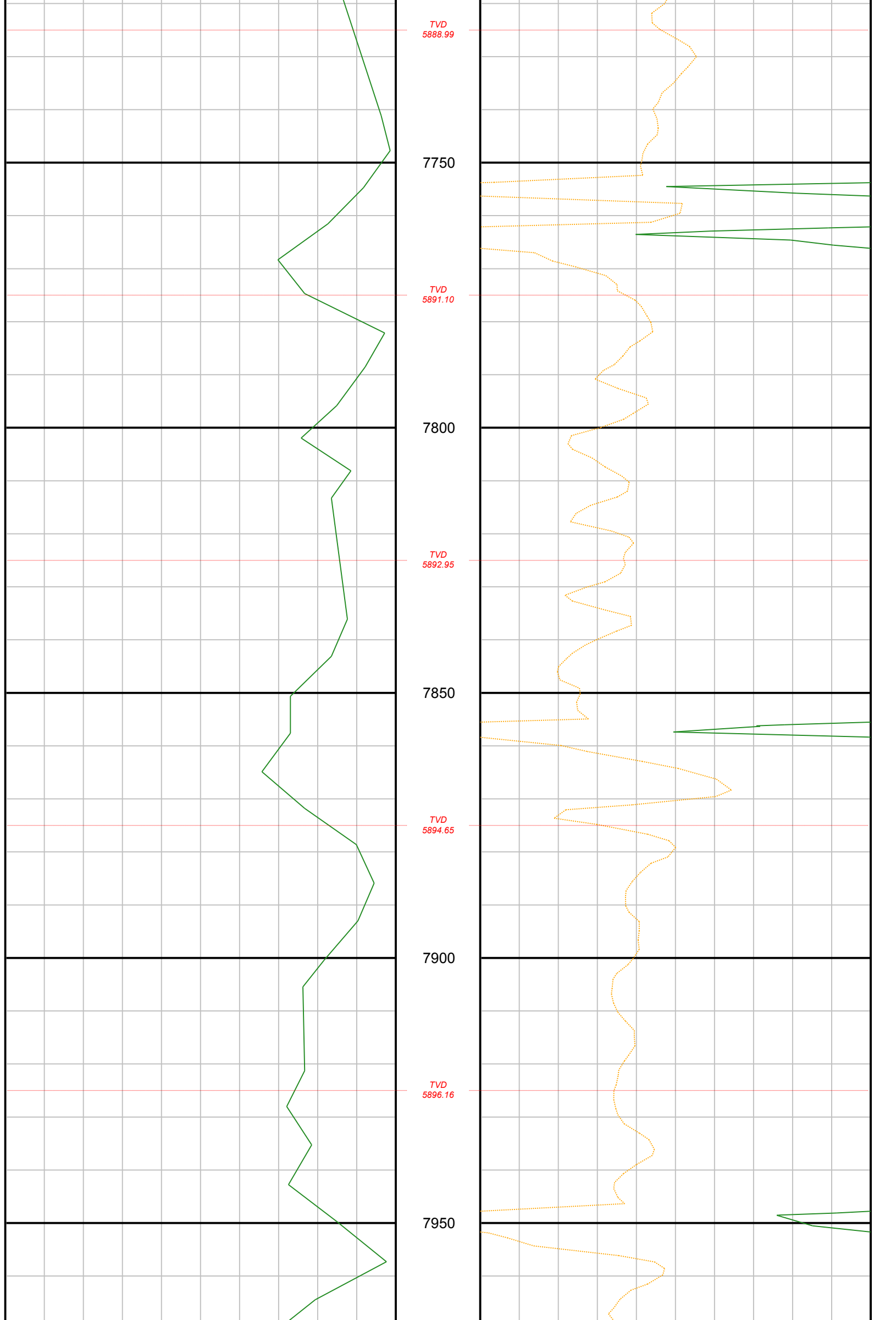


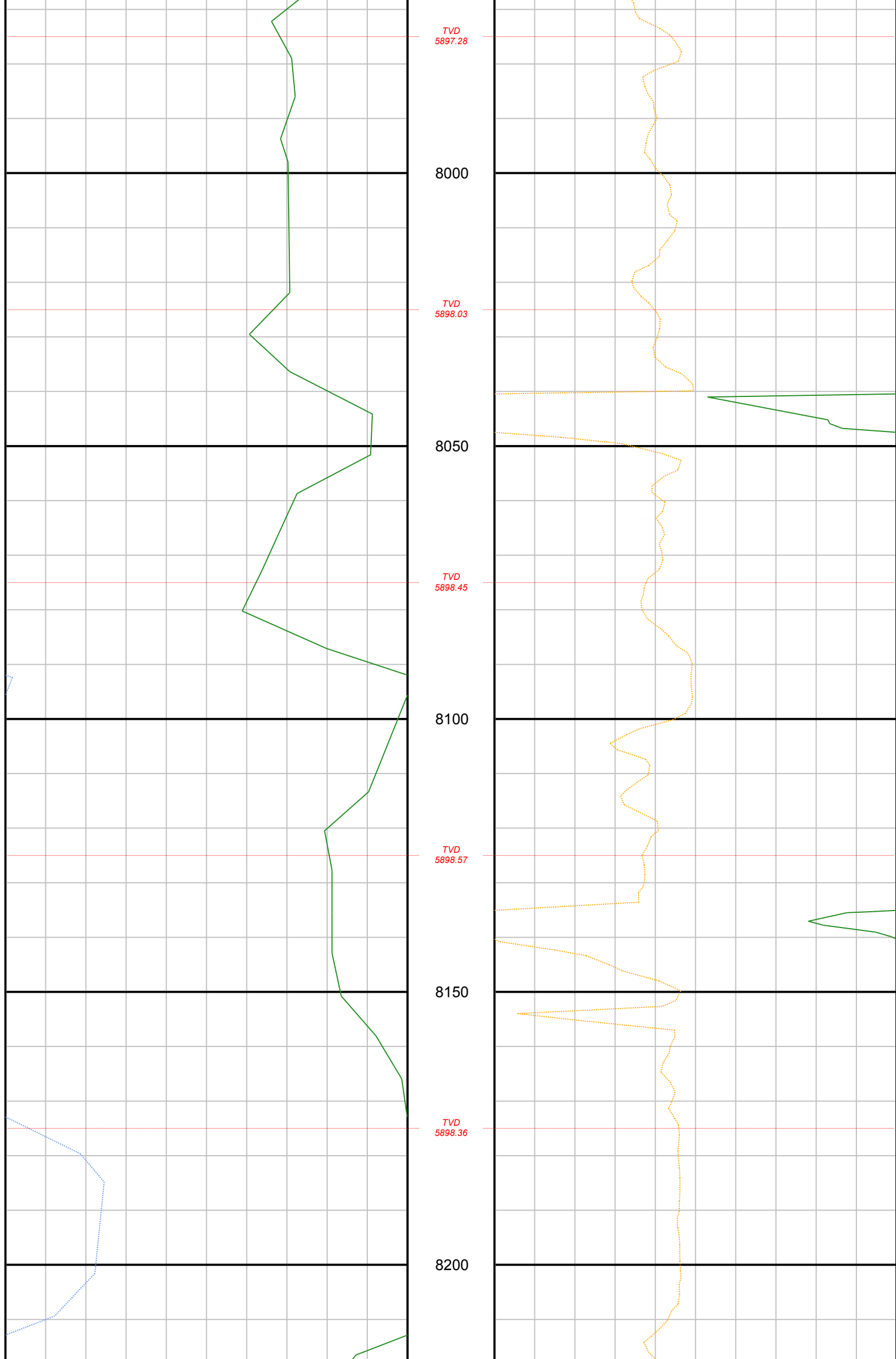


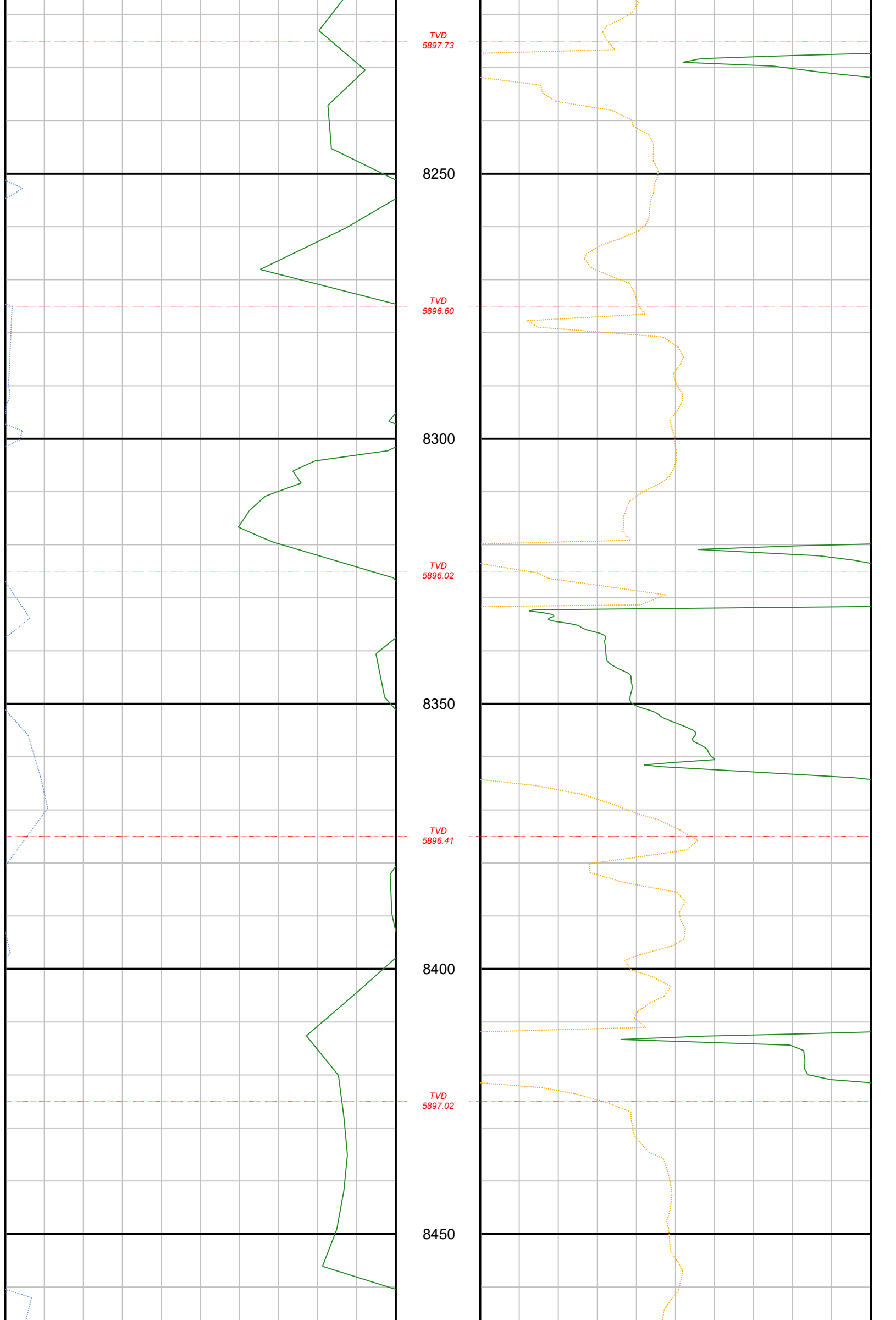


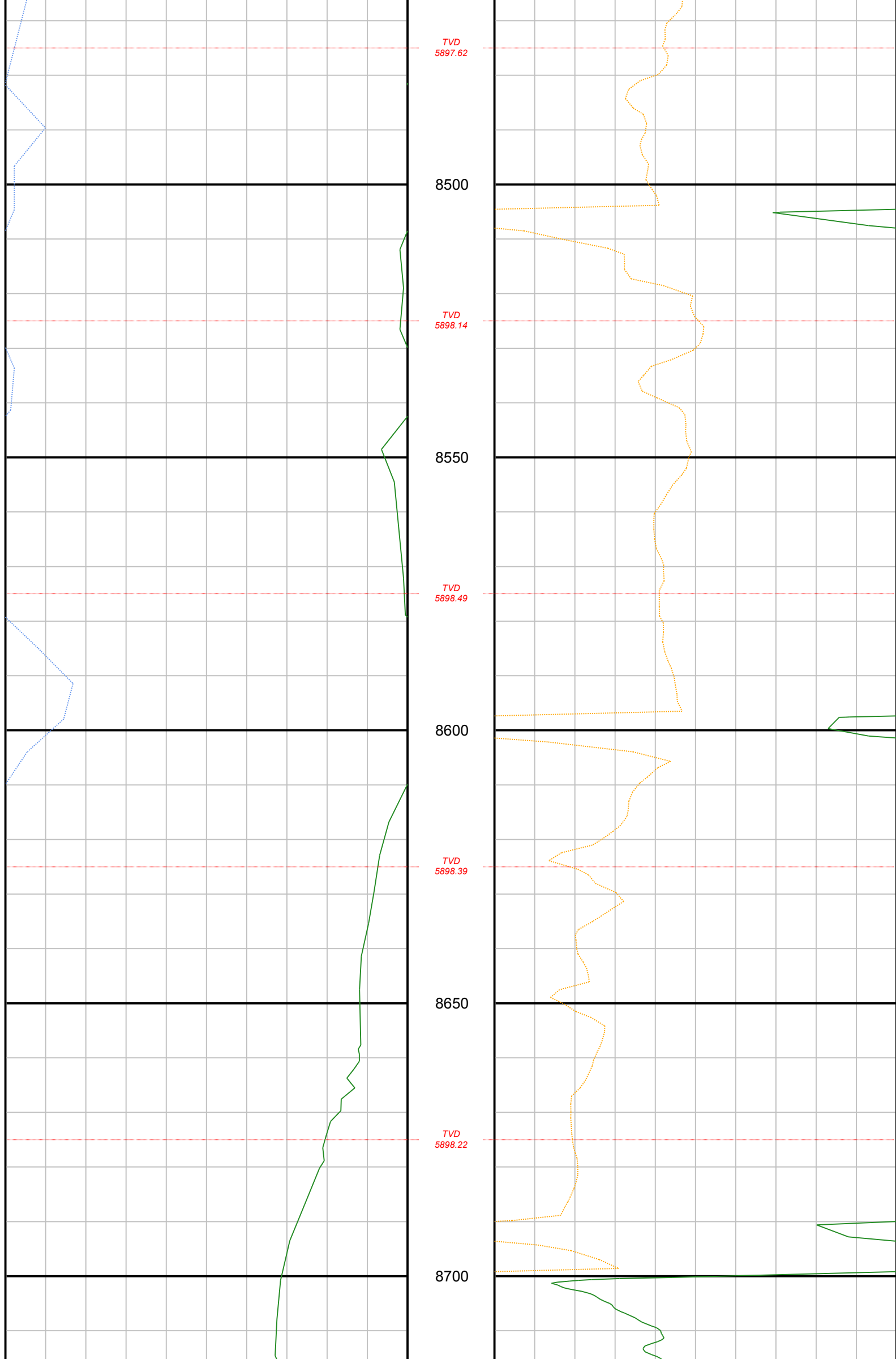


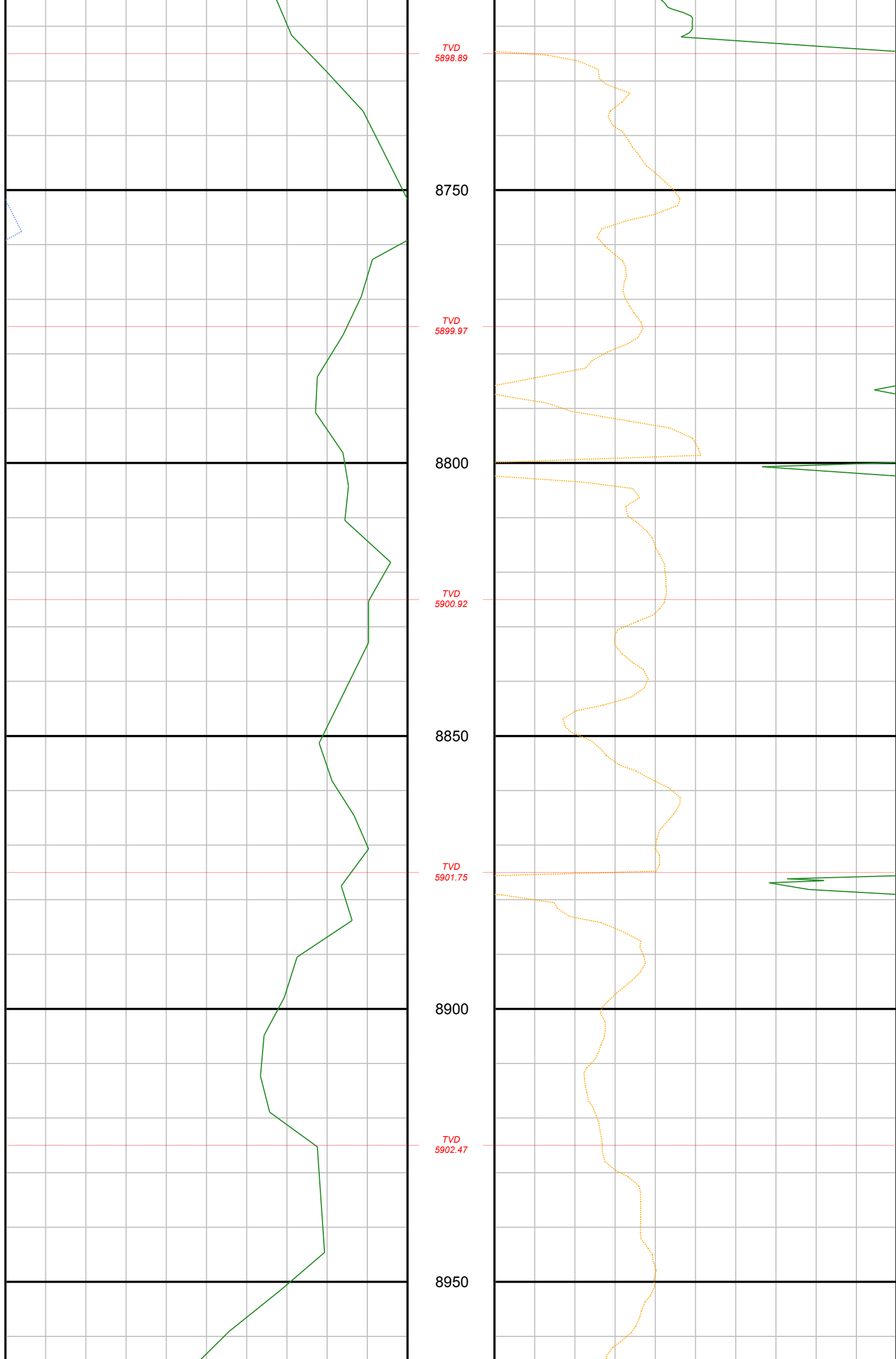


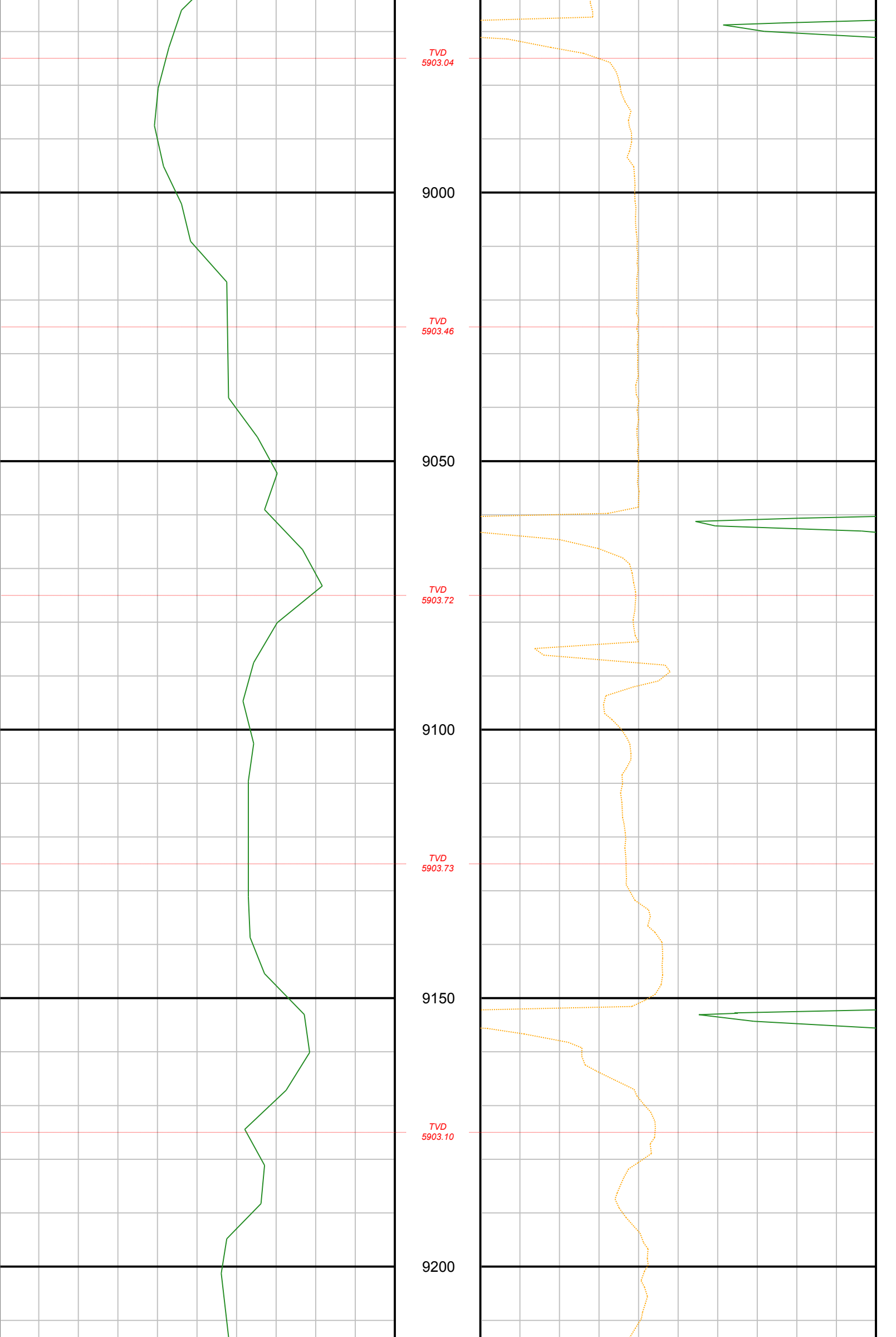




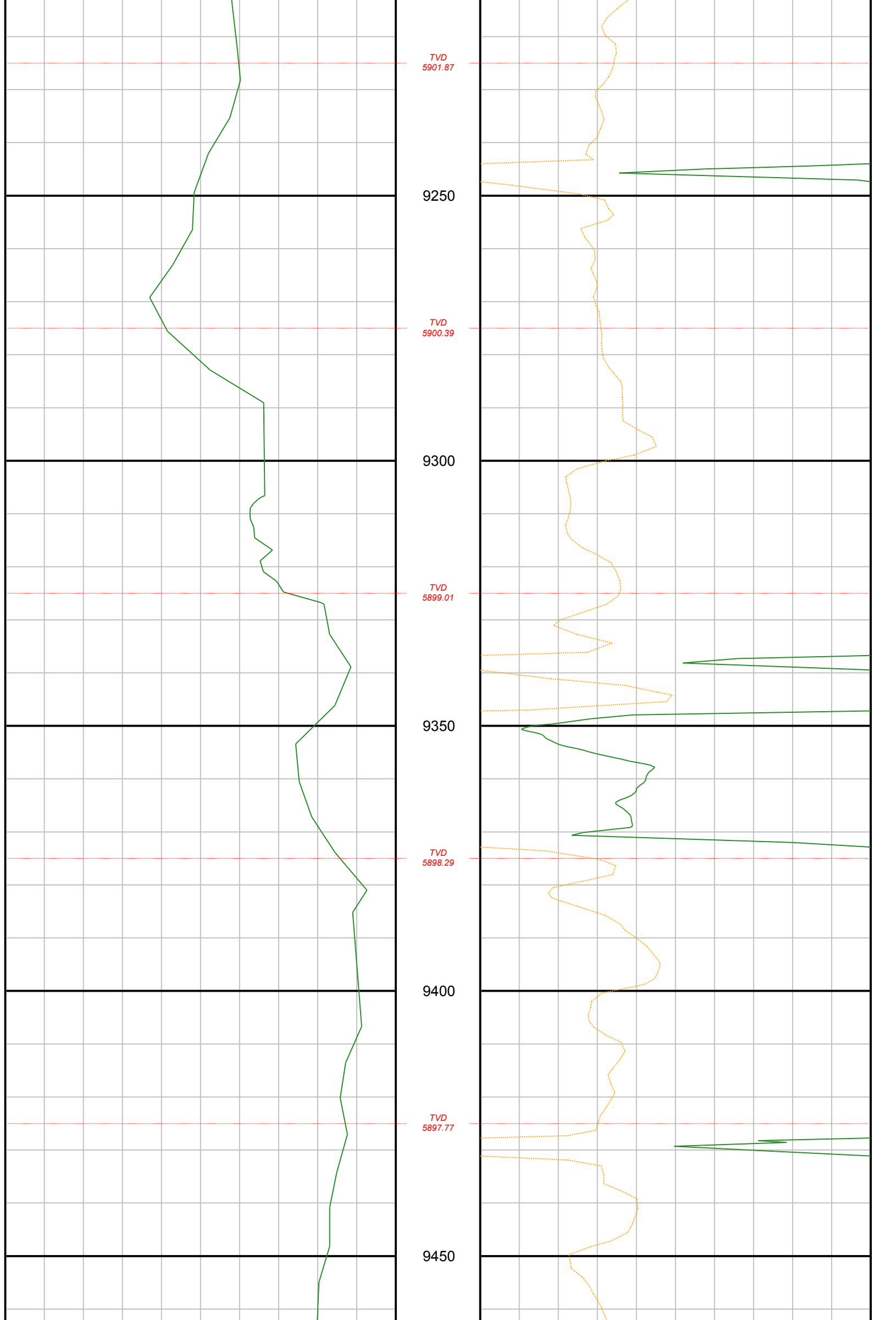


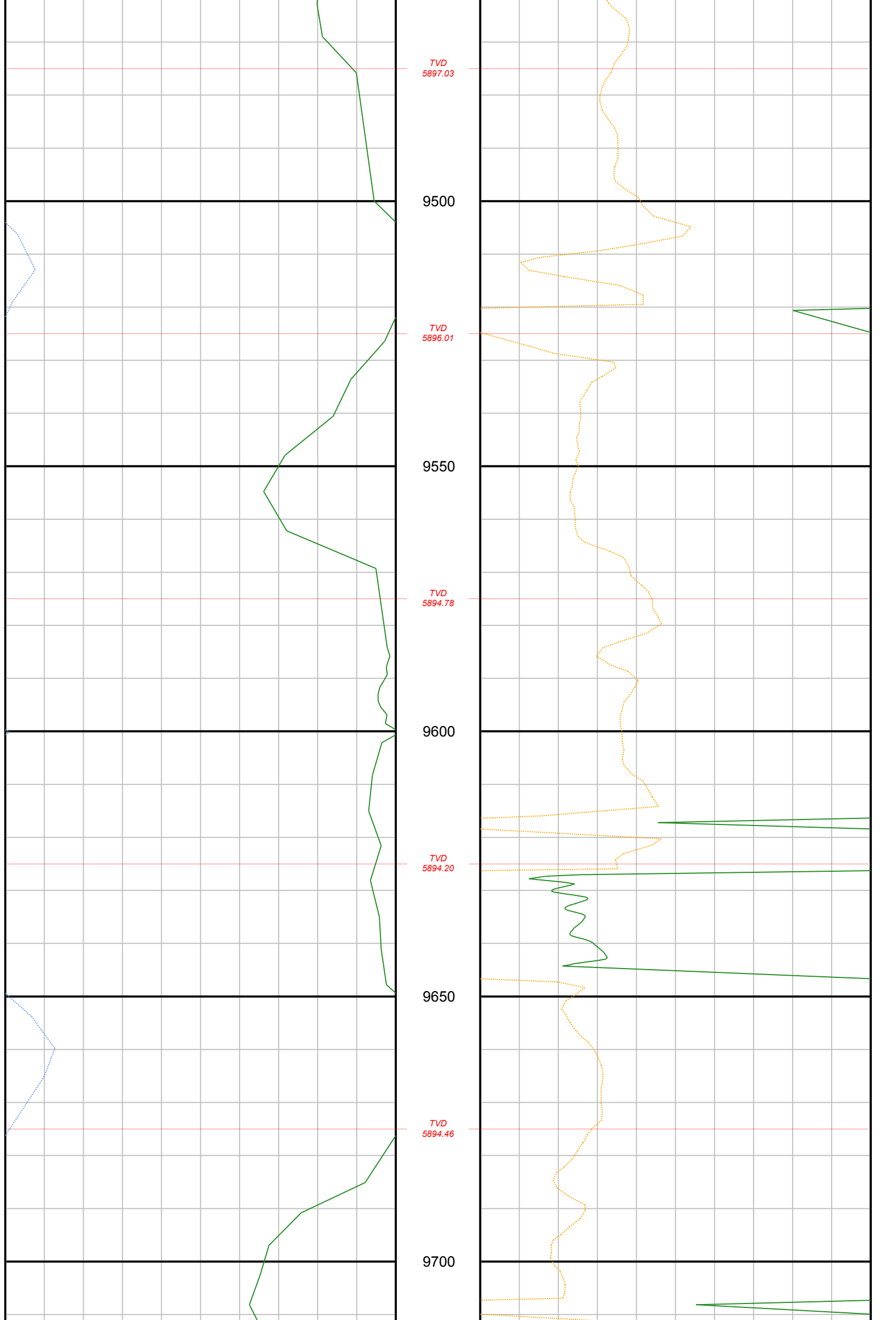


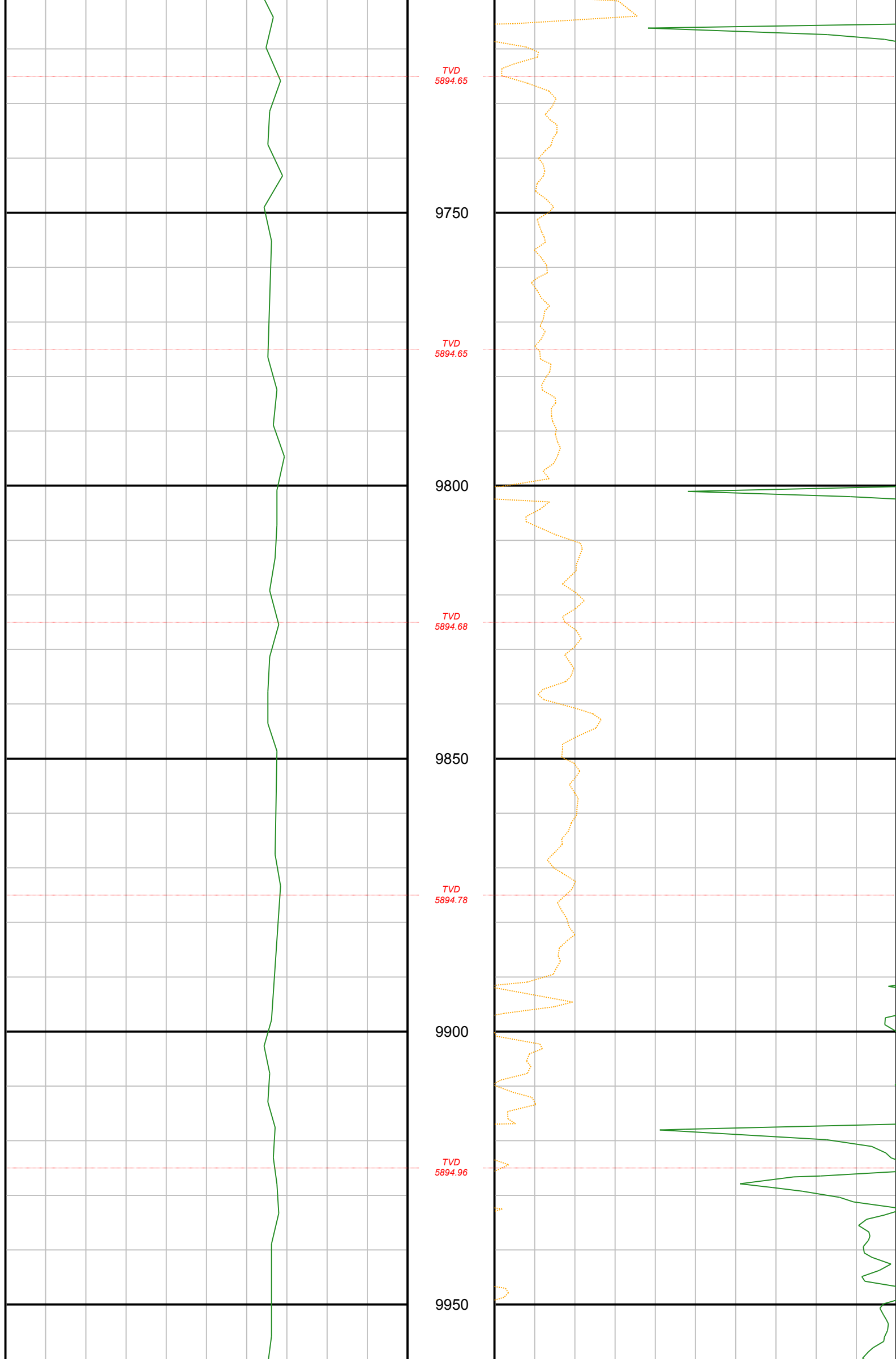


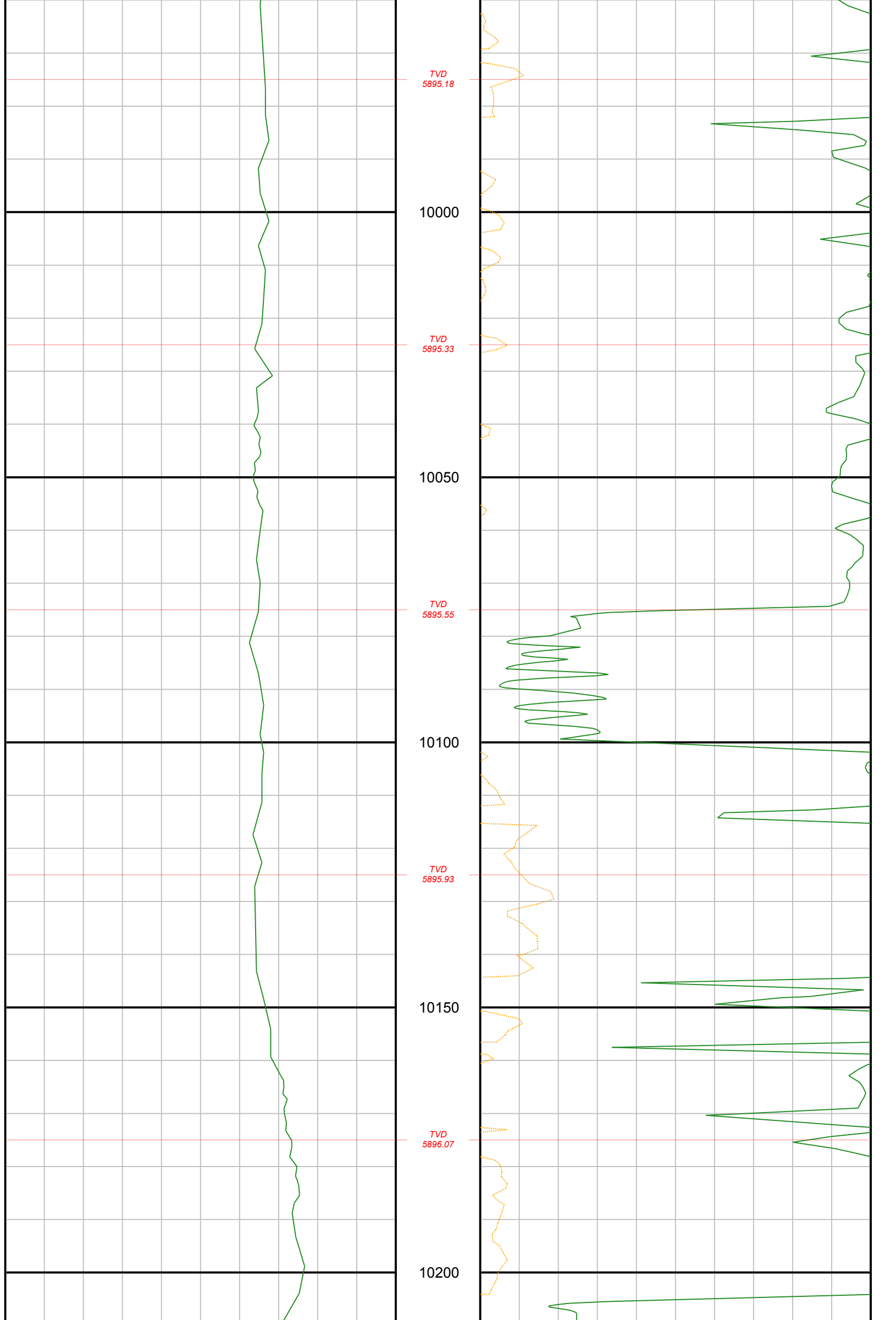


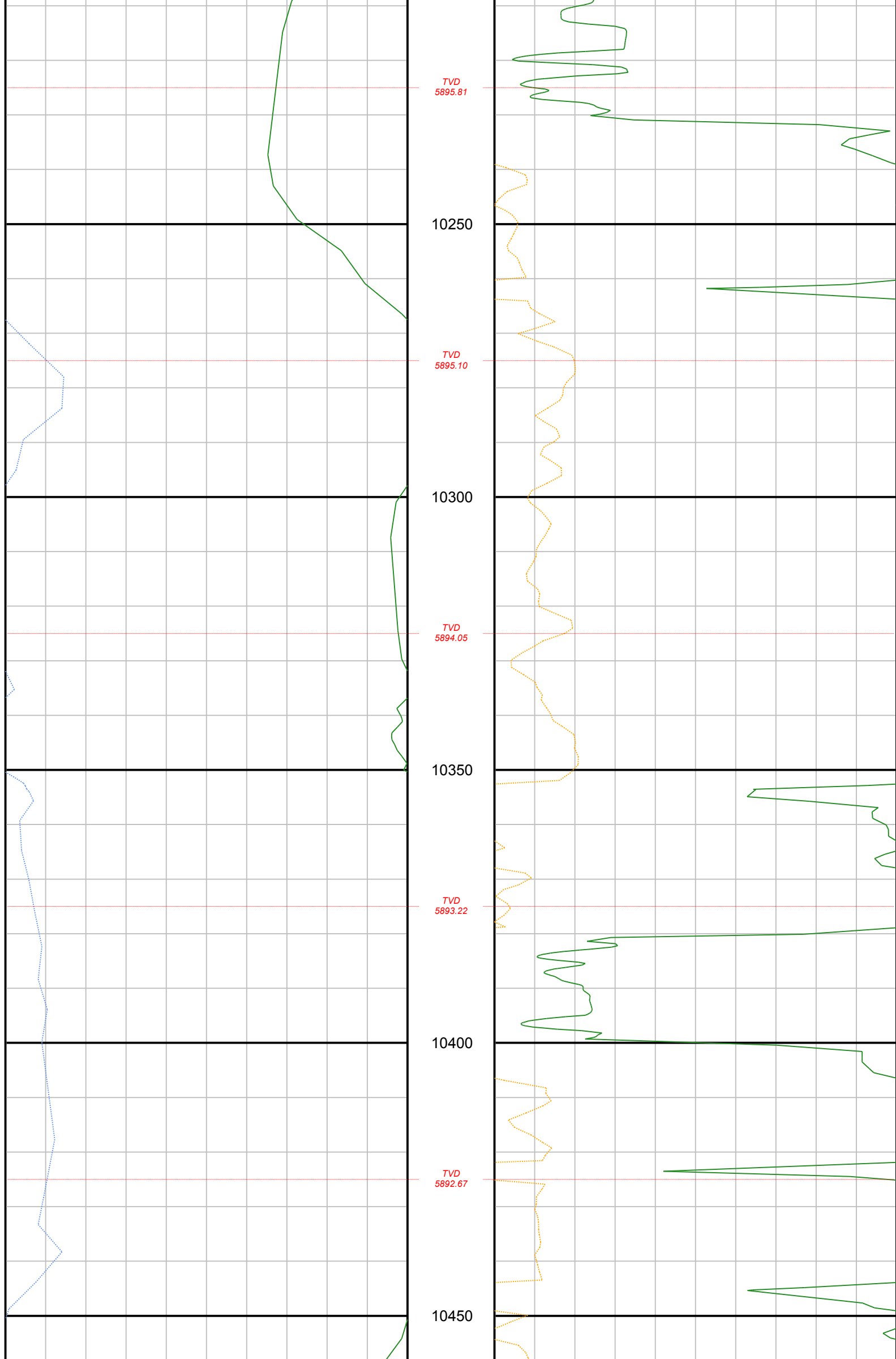


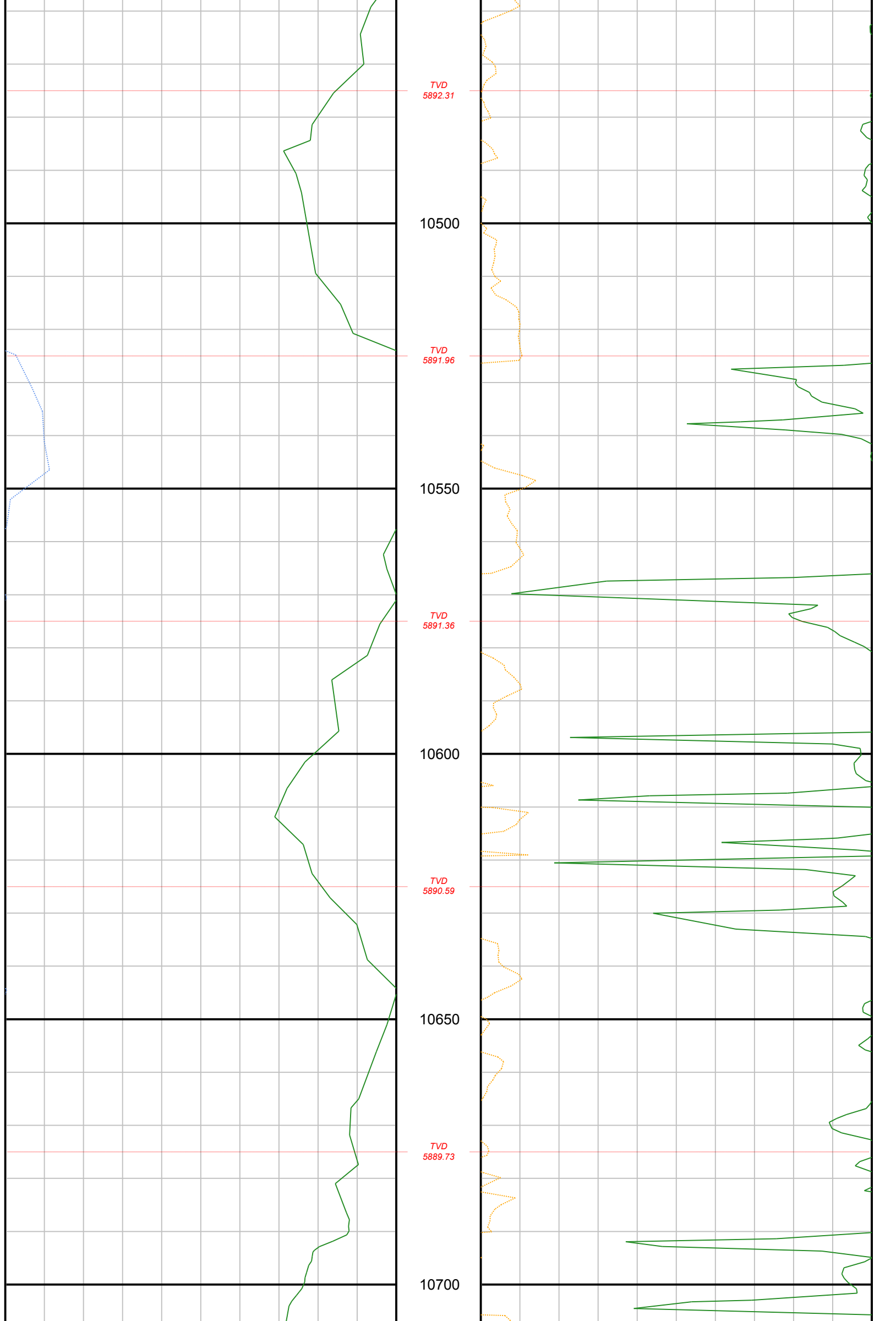


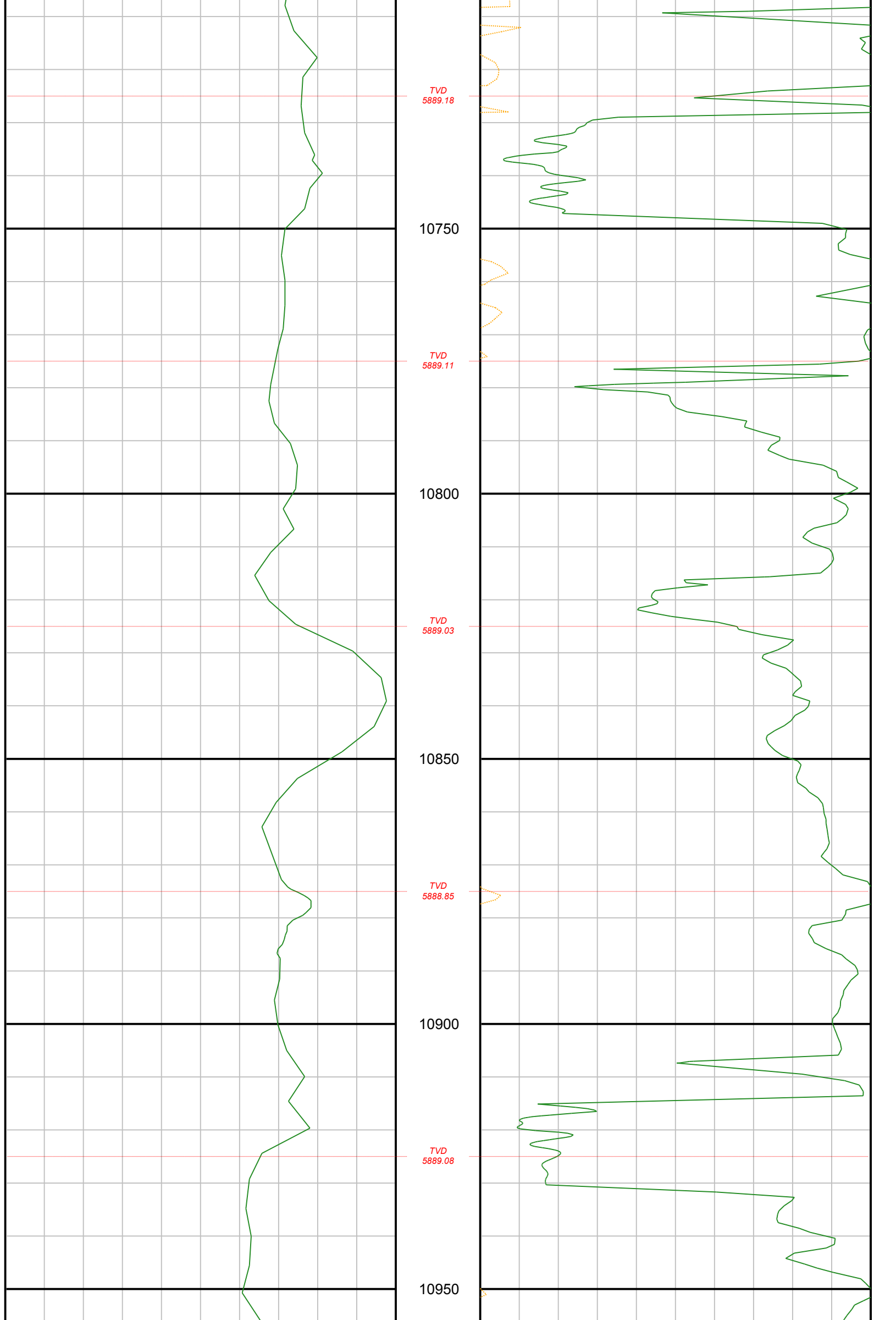


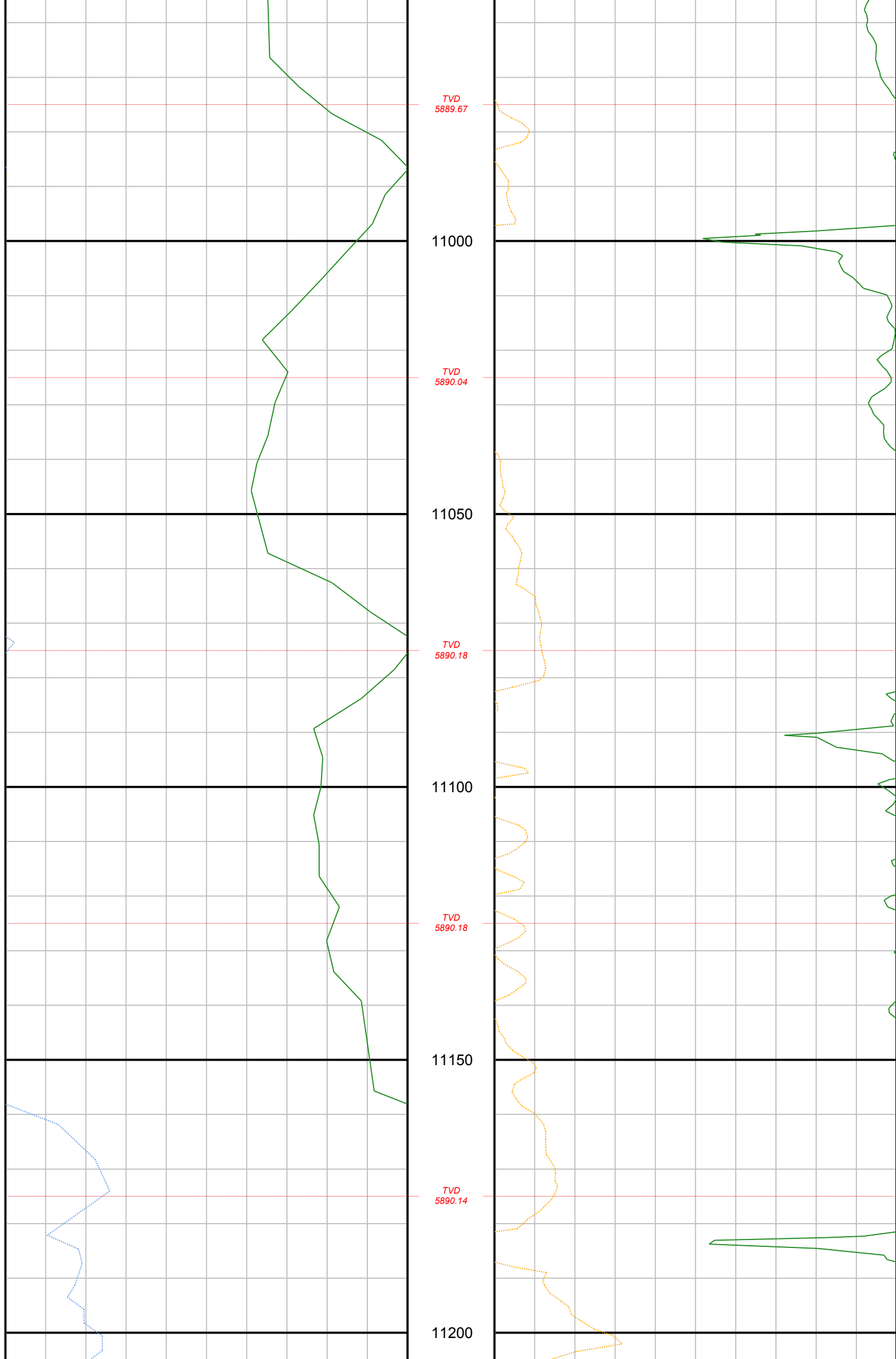




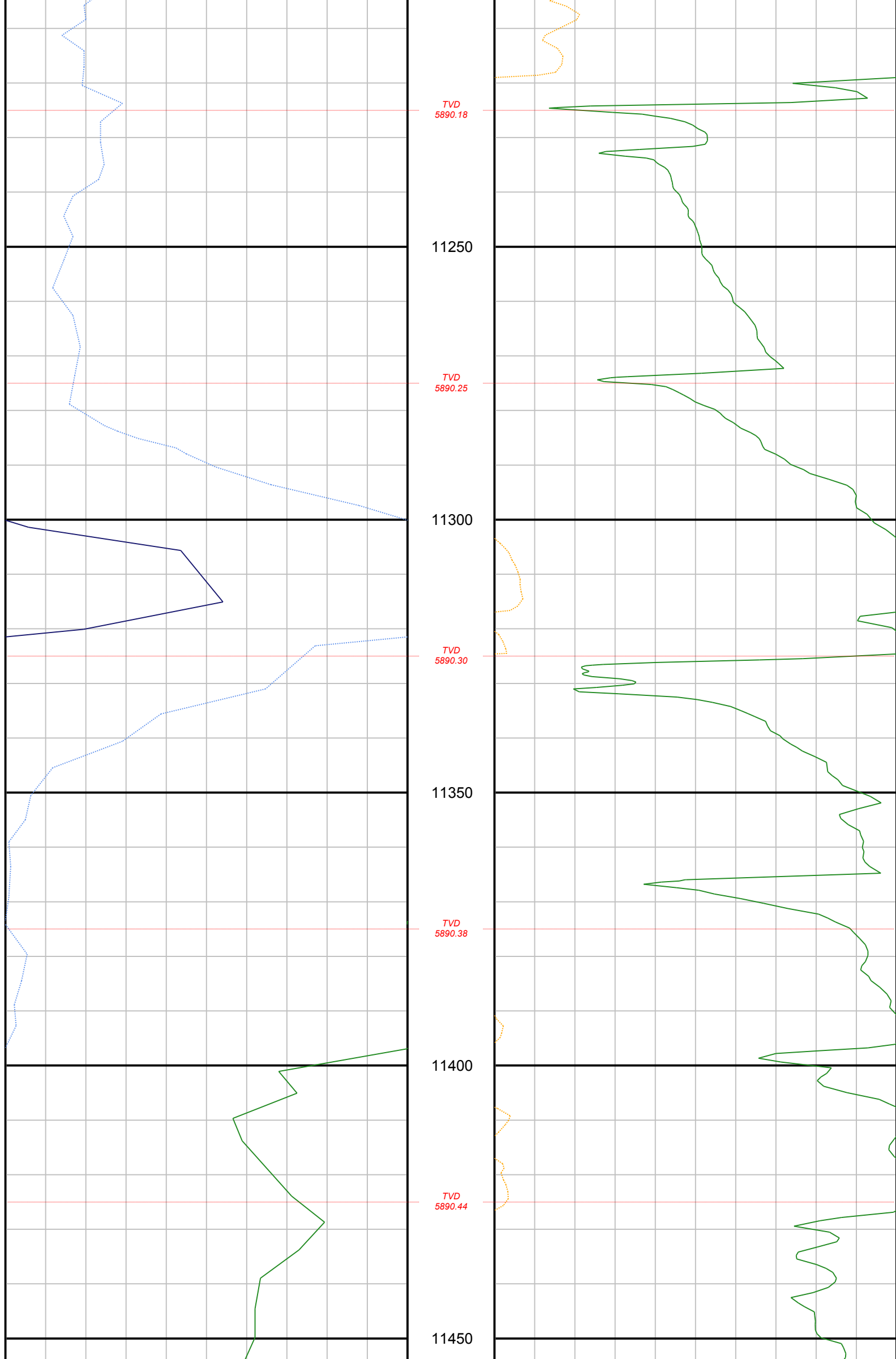


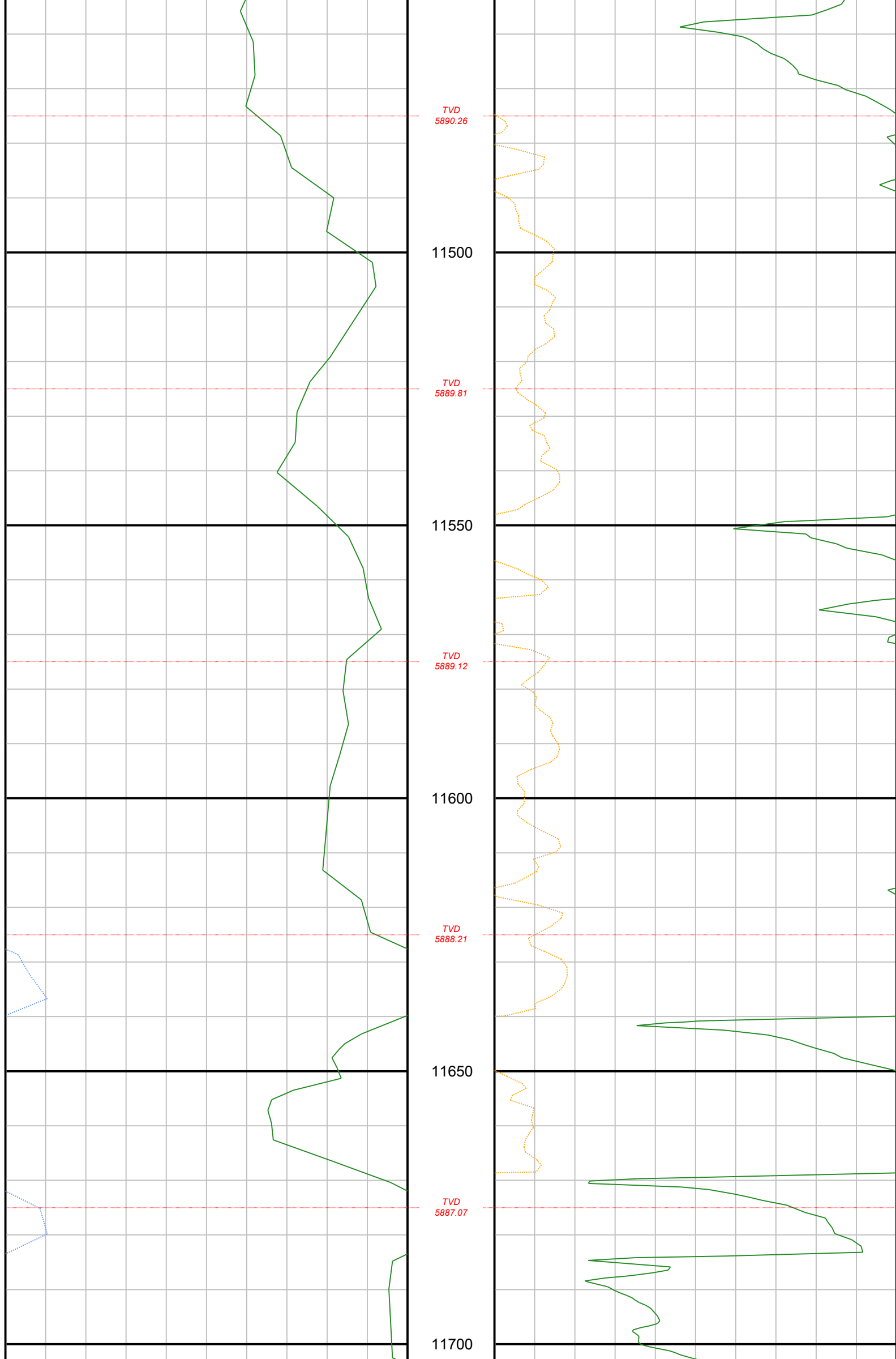


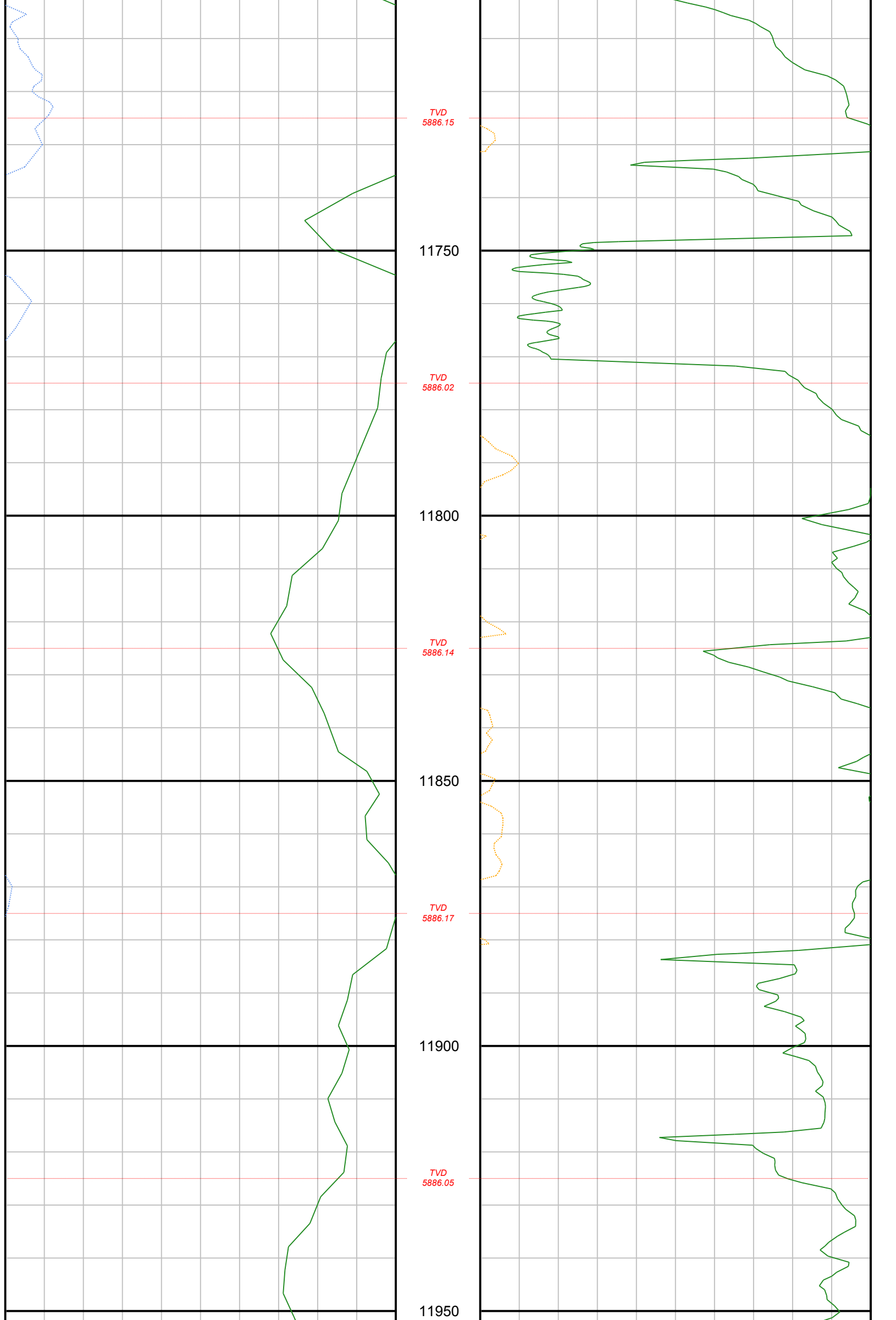


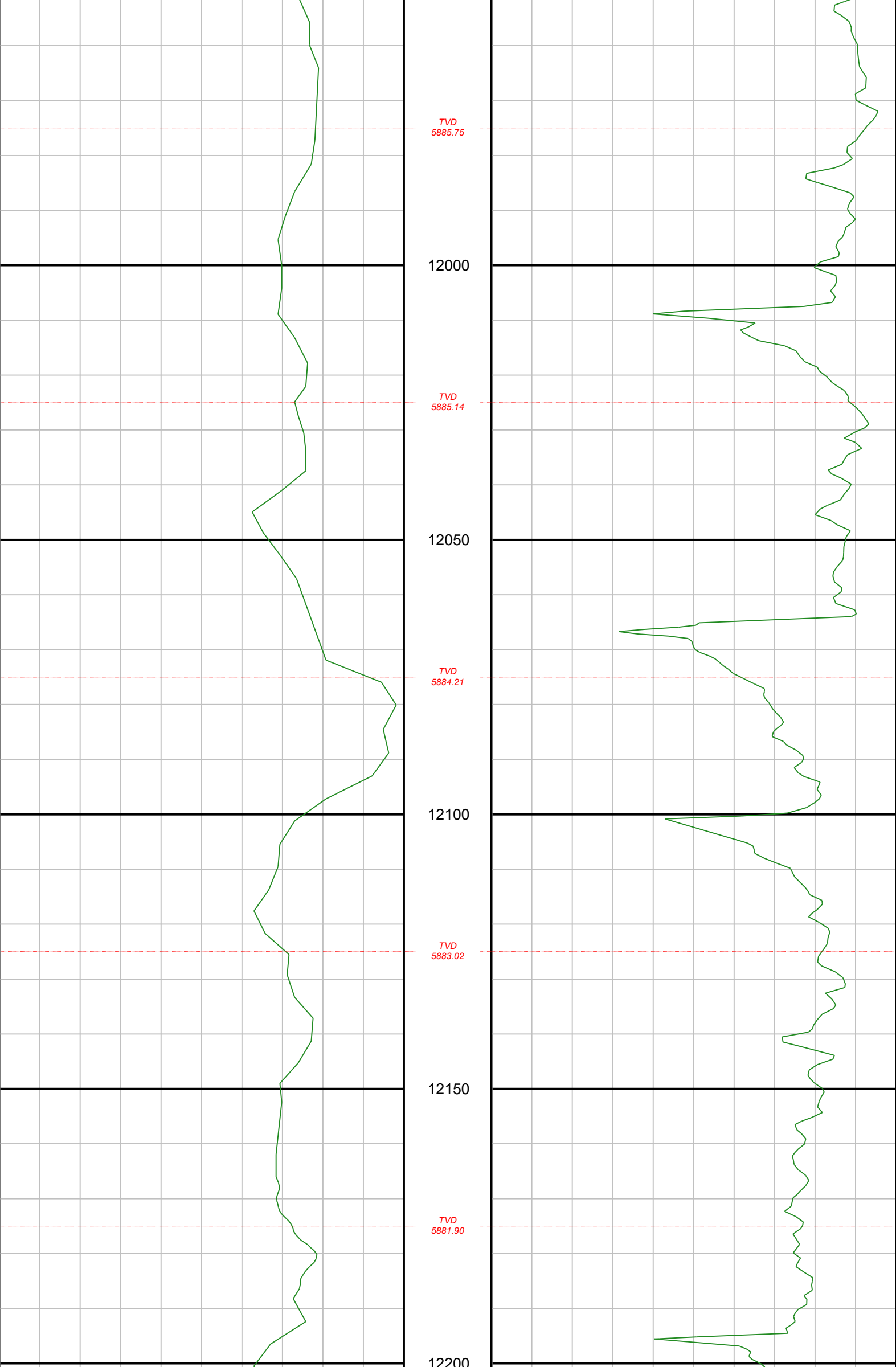


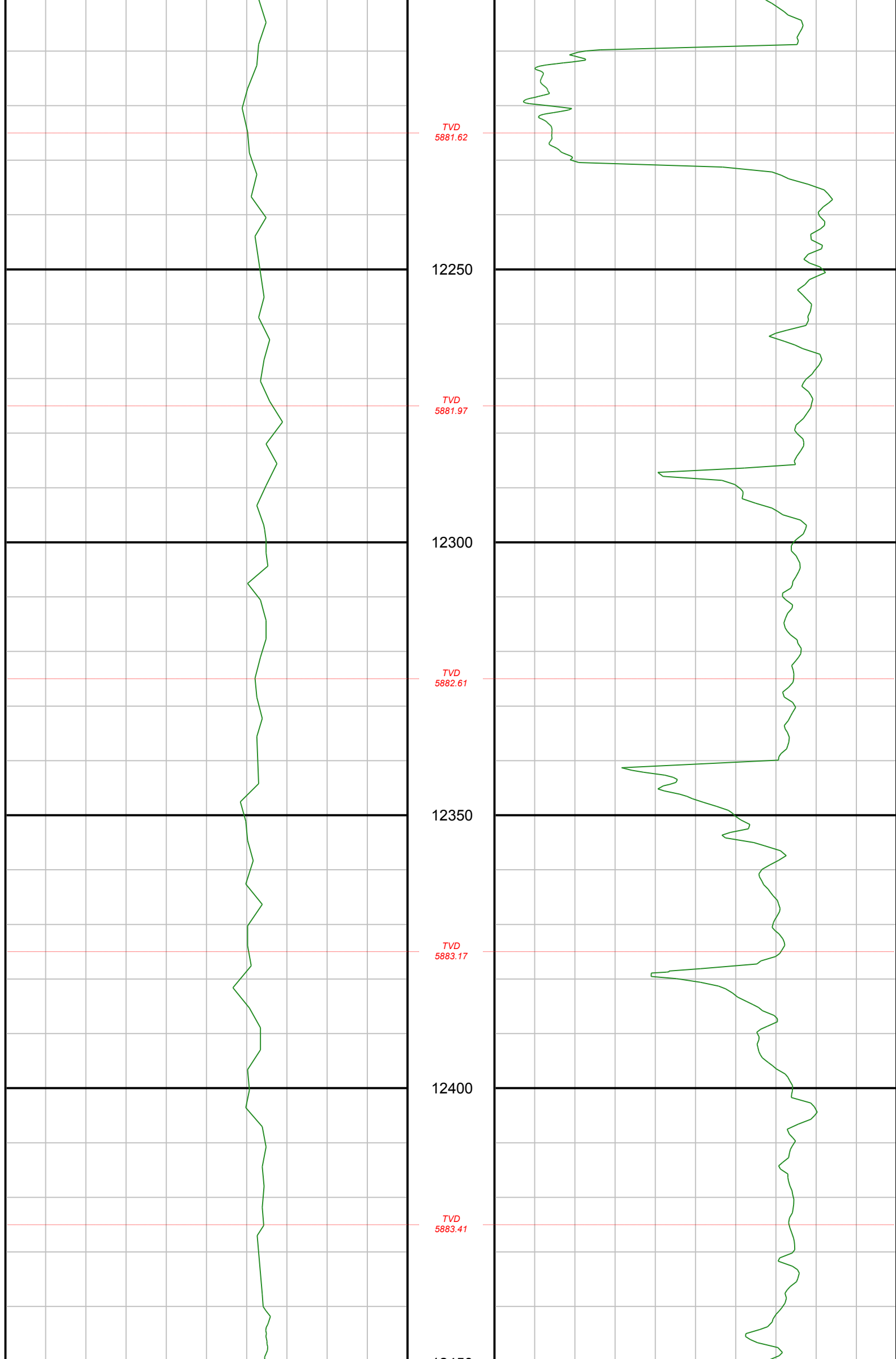


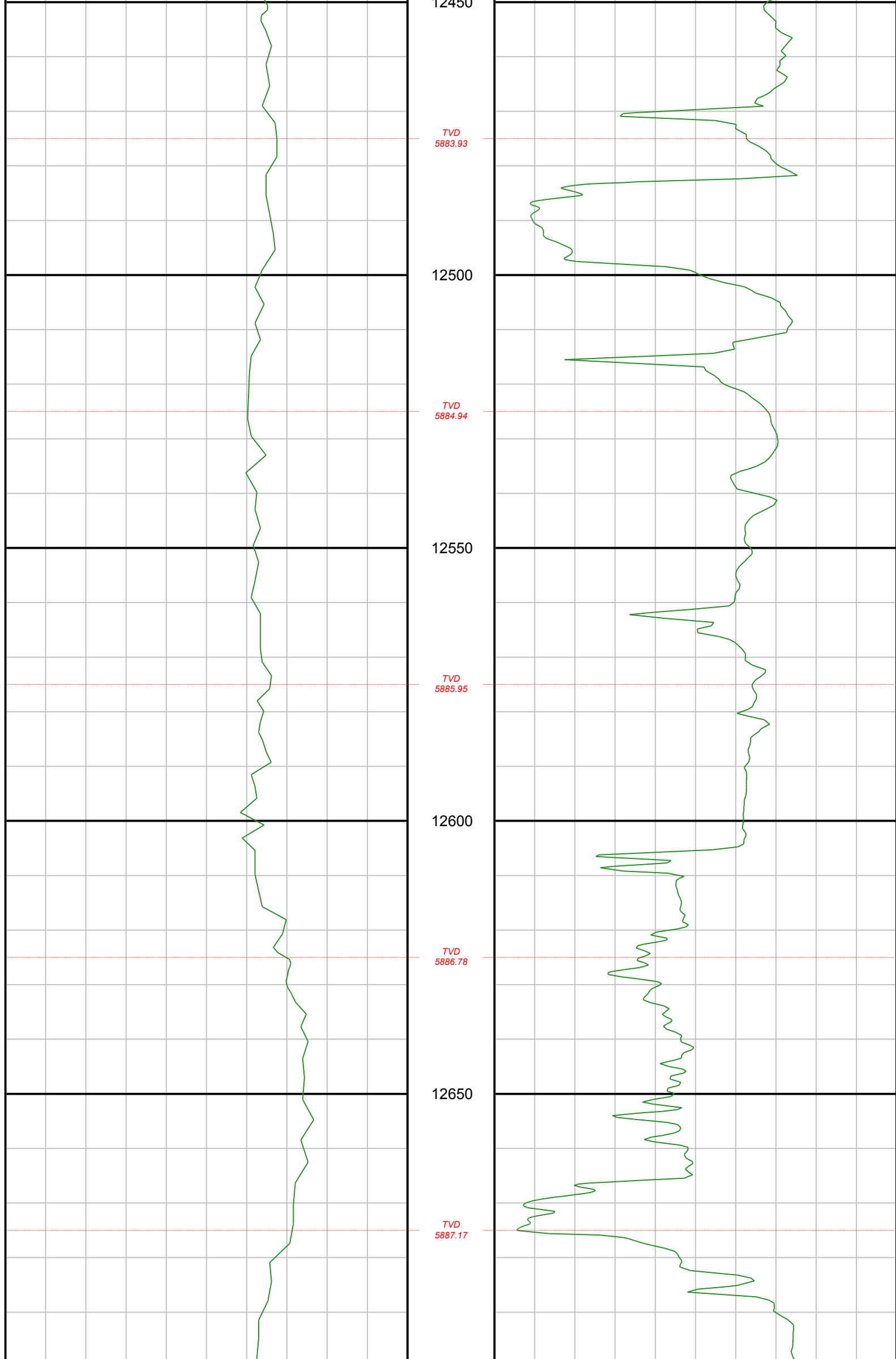


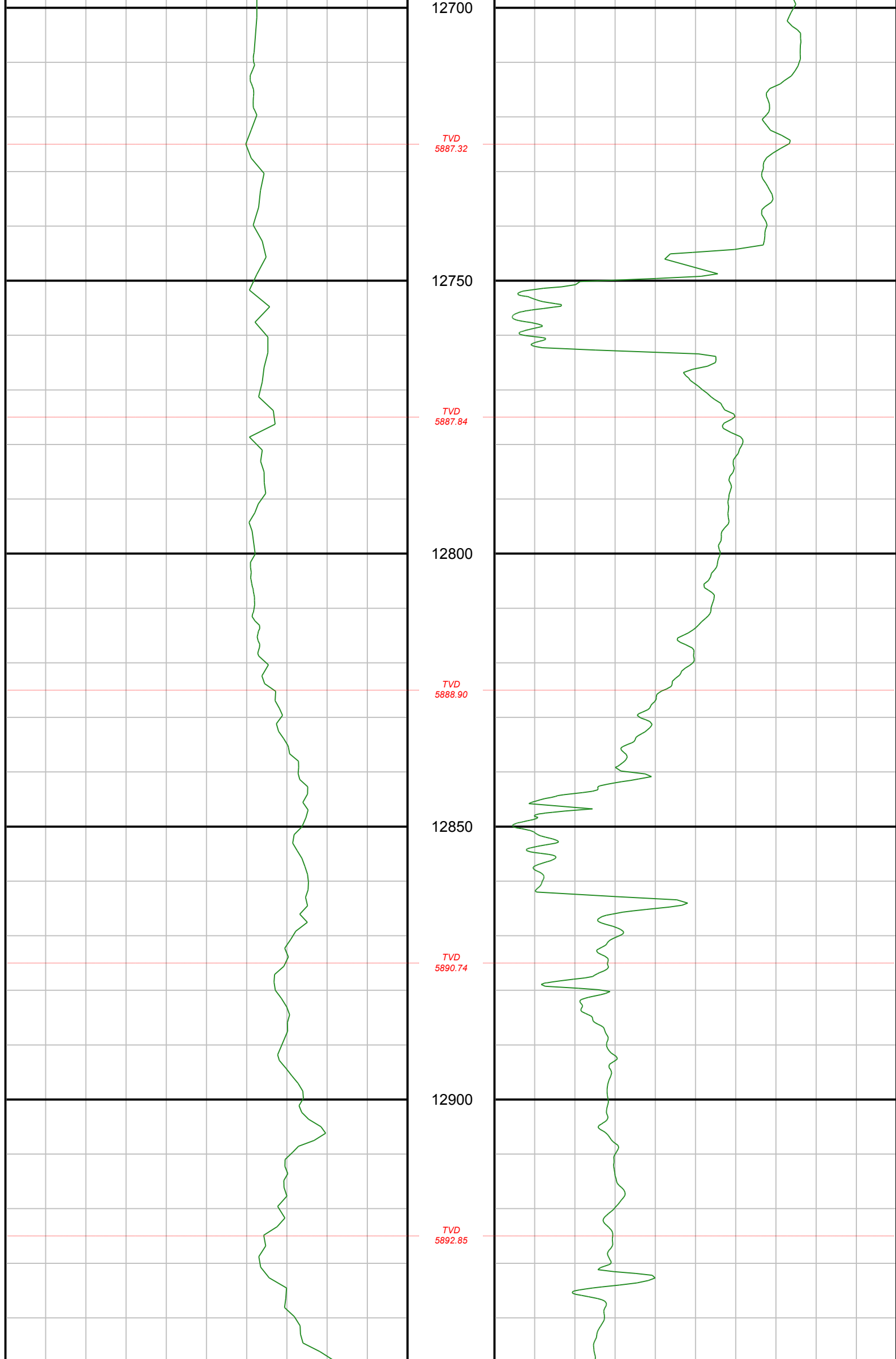


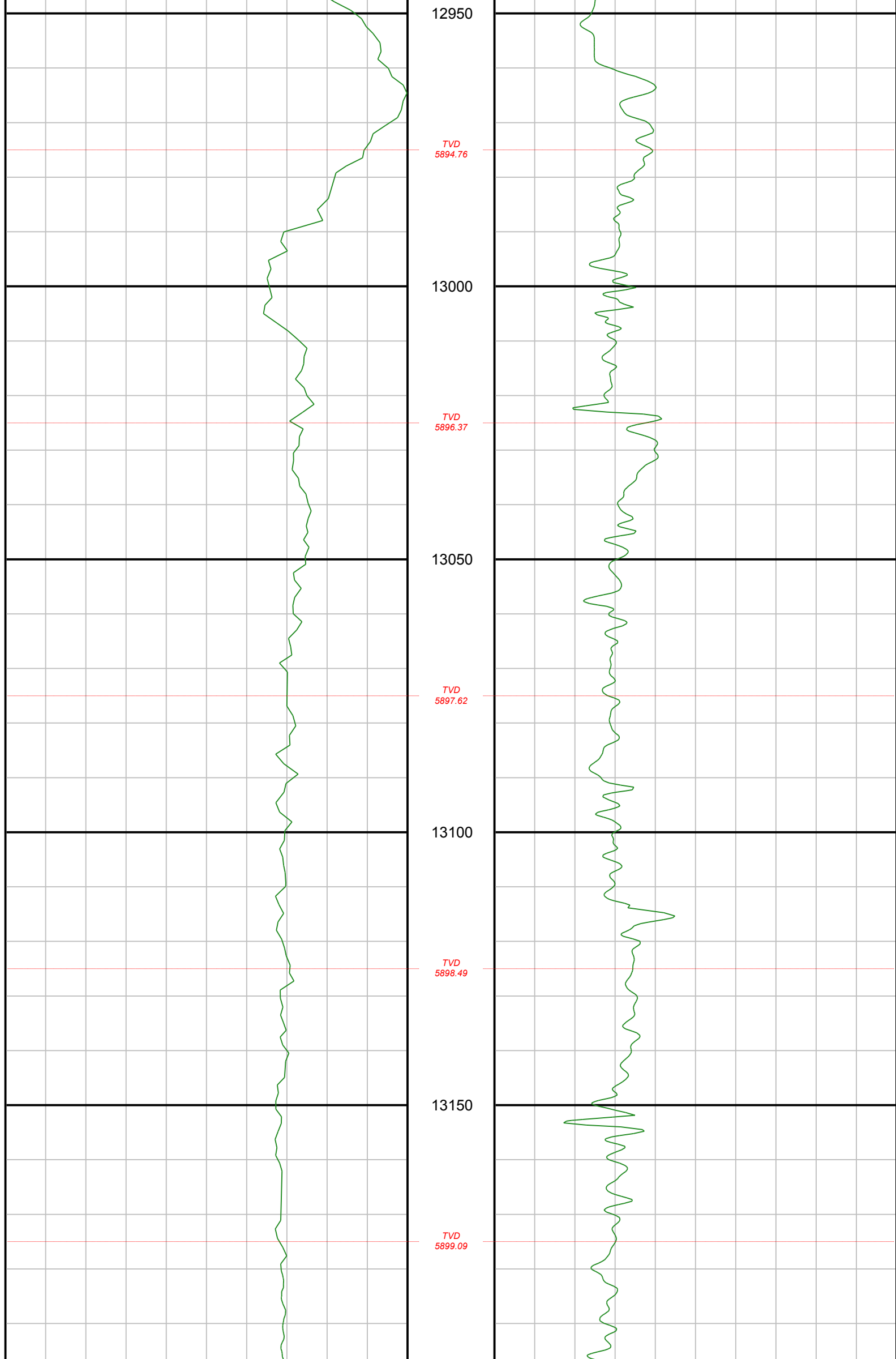




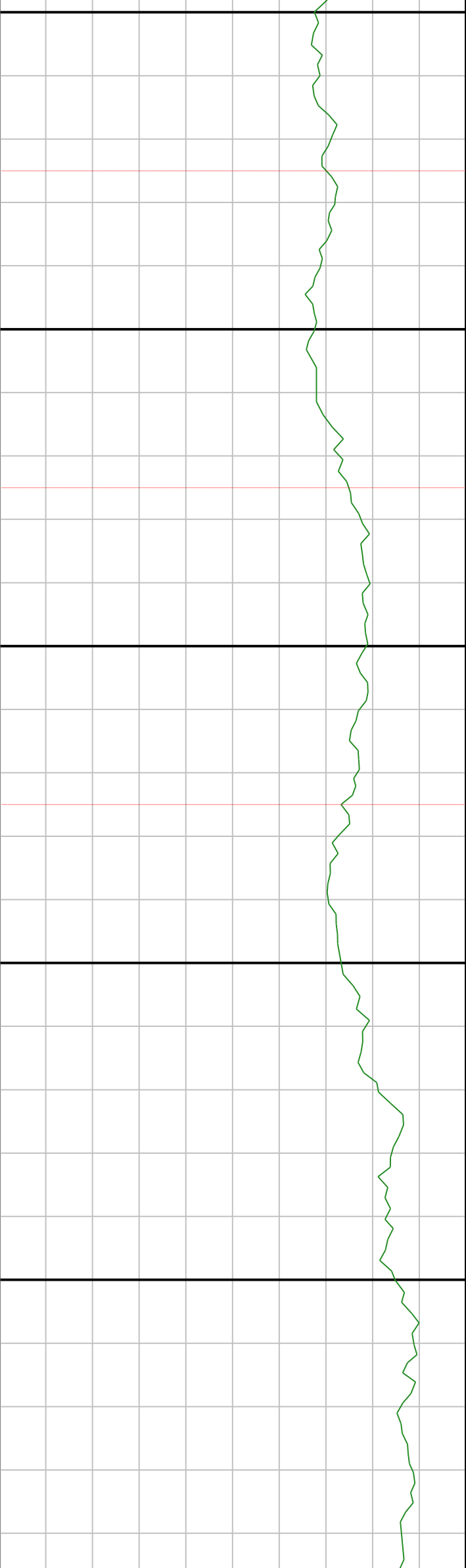












13200

*TVD*  
5900.05

13250

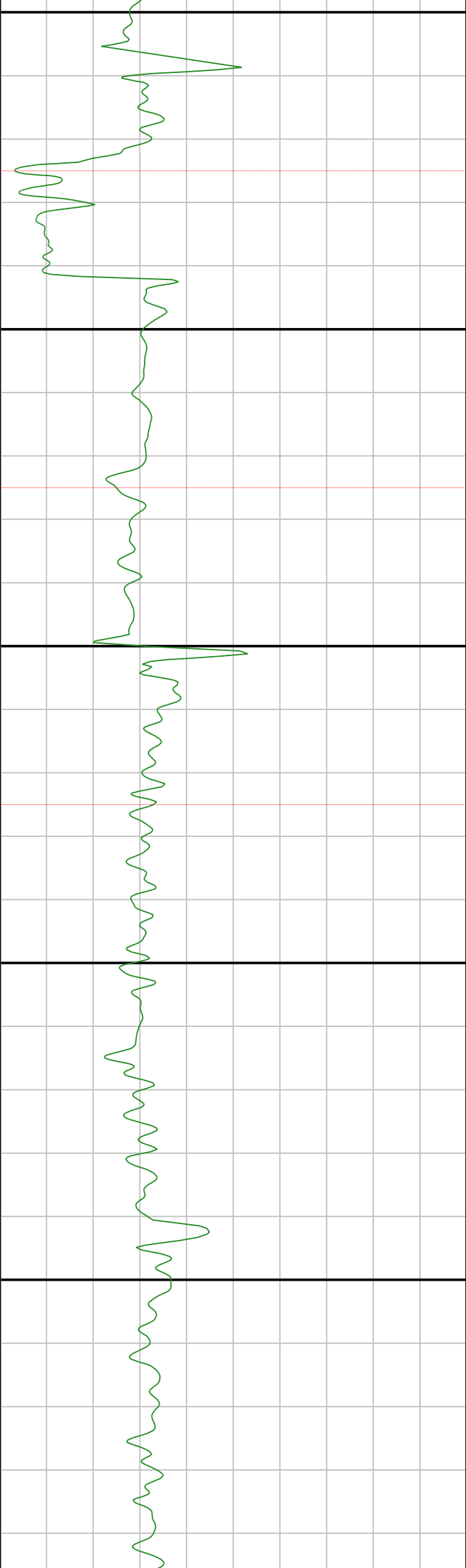
*TVD*  
5901.32

13300

*TVD*  
5902.35

13350

13400





	ROP	ROP
0	ft/hr	300
	ROP	ROP
300	ft/hr	600
	ROP	ROP
600	ft/hr	900
	ROP	ROP
900	ft/hr	1200

- *Tie-in Point*

	1616.00	17.26	139.23	1379.42	-191.10	-214.32	176.43	2.26	-0.02
16	1801.00	16.36	139.45	1756.51	-227.07	-255.10	211.29	0.49	0.00
17	1844.00	15.92	138.91	1797.82	-235.08	-264.15	219.10	1.08	-0.01
18	1982.00	14.08	134.67	1931.11	-257.94	-290.22	243.48	1.55	-0.01
19	2074.00	15.73	130.39	2020.02	-271.62	-306.17	260.94	2.15	0.02
20	2166.00	15.34	126.40	2108.66	-284.42	-321.47	280.24	1.24	0.00
21	2258.00	14.67	129.88	2197.52	-296.69	-336.16	298.97	1.22	-0.01
22	2350.00	15.55	136.56	2286.35	-310.84	-352.59	316.39	2.12	0.01
23	2442.00	14.81	132.51	2375.14	-325.49	-369.49	333.54	1.41	-0.01
24	2534.00	14.45	126.93	2464.16	-338.02	-384.33	351.38	1.58	0.00
25	2626.00	17.07	129.30	2552.70	-350.93	-399.78	371.01	2.93	0.03
26	2718.00	18.43	129.63	2640.31	-365.95	-417.61	392.66	1.48	0.01
27	2810.00	18.09	125.45	2727.69	-380.56	-435.17	415.50	1.47	0.00
28	2902.00	17.48	133.53	2815.30	-395.55	-452.97	437.16	2.76	-0.01
29	3086.00	17.63	139.13	2990.74	-430.63	-493.08	475.43	0.92	0.00
30	3177.00	17.04	137.41	3077.61	-448.48	-513.32	493.47	0.86	-0.01
31	3269.00	15.64	132.93	3165.90	-464.47	-531.69	511.67	2.05	-0.02
32	3361.00	14.11	130.12	3254.81	-477.84	-547.36	529.33	1.84	-0.02
33	3454.00	16.68	130.93	3344.47	-491.46	-563.41	548.08	2.77	0.03
34	3545.00	16.01	134.94	3431.79	-506.43	-580.84	566.83	1.44	-0.01
35	3638.00	15.14	134.63	3521.38	-521.70	-598.43	584.56	0.94	-0.01
36	3729.00	14.68	133.08	3609.31	-535.72	-614.65	601.43	0.67	-0.01
37	3821.00	15.51	131.83	3698.14	-549.58	-630.82	619.12	0.97	0.01
38	3913.00	15.55	131.34	3786.78	-563.53	-647.17	637.54	0.15	0.00
39	4005.00	14.68	131.51	3875.60	-577.06	-663.04	655.53	0.95	-0.01
40	4097.00	13.45	128.48	3964.84	-589.22	-677.42	672.63	1.56	-0.01
41	4189.00	15.66	133.63	4053.88	-602.19	-692.65	690.00	2.78	0.02
42	4281.00	14.42	138.37	4142.73	-617.14	-709.78	706.60	1.90	-0.01
43	4373.00	13.67	134.29	4231.98	-631.27	-725.94	721.99	1.35	-0.01
44	4465.00	12.71	132.30	4321.56	-643.68	-740.34	737.26	1.15	-0.01
45	4557.00	11.65	133.70	4411.48	-655.05	-753.57	751.46	1.20	-0.01
46	4649.00	9.73	134.16	4501.88	-665.28	-765.40	763.75	2.09	-0.02
47	4741.00	8.25	133.83	4592.75	-673.92	-775.39	774.09	1.61	-0.02
48	4833.00	6.54	136.77	4683.98	-681.21	-783.78	782.44	1.90	-0.02
49	4925.00	5.83	132.80	4775.45	-687.28	-790.77	789.46	0.90	-0.01
50	5017.00	4.72	126.61	4867.06	-691.88	-796.20	795.93	1.35	-0.01
51	5109.00	3.57	123.23	4958.81	-695.00	-800.03	801.36	1.28	-0.01
52	5201.00	3.33	115.90	5050.65	-697.13	-802.77	806.16	0.55	0.00
53	5293.00	2.58	116.89	5142.53	-698.69	-804.87	810.41	0.82	-0.01
54	5385.00	2.52	119.61	5234.43	-700.17	-806.81	814.02	0.15	0.00
55	5477.00	6.52	353.30	5326.25	-695.86	-802.61	815.17	8.98	0.04
56	5523.00	9.40	3.32	5371.81	-689.57	-796.27	815.08	6.93	0.06
57	5569.00	12.45	0.51	5416.97	-680.90	-787.56	815.34	6.73	0.07
58	5614.00	16.34	7.98	5460.55	-669.74	-776.43	816.27	9.56	0.09
59	5661.00	19.80	10.91	5505.23	-655.19	-762.06	818.69	7.61	0.07
60	5707.00	25.01	11.83	5547.74	-637.71	-744.88	822.16	11.35	0.11
61	5753.00	28.31	11.79	5588.84	-617.14	-724.68	826.39	7.17	0.07
62	5799.00	29.56	12.80	5629.10	-594.98	-702.94	831.13	2.92	0.03
63	5845.00	32.21	12.46	5668.57	-571.48	-679.90	836.29	5.77	0.06
64	5890.00	35.57	14.16	5705.92	-546.54	-655.49	842.08	7.76	0.07
65	5937.00	38.77	12.94	5743.37	-518.33	-627.89	848.72	6.99	0.07
66	5983.00	45.37	11.76	5777.50	-487.65	-597.79	855.29	14.45	0.14
67	6029.00	51.37	11.90	5808.04	-453.41	-564.16	862.34	13.05	0.13
68	6085.00	61.04	10.21	5839.16	-407.03	-518.53	871.21	17.45	0.17
69	6131.00	67.16	8.69	5859.24	-365.71	-477.73	877.99	13.63	0.13
70	6177.00	76.78	6.51	5873.46	-322.02	-434.43	883.74	21.39	0.21
71	6223.00	84.35	5.64	5881.00	-276.69	-389.34	888.54	16.56	0.16
72	6239.00	86.64	4.03	5882.26	-260.75	-373.44	889.88	17.48	0.14
73	6313.00	91.15	355.33	5883.69	-187.47	-299.55	889.46	13.24	0.06
74	6407.00	91.48	354.93	5881.53	-95.54	-205.91	881.49	0.55	0.00
75	6500.00	90.08	352.76	5880.26	-5.03	-113.47	871.52	2.78	-0.02
76	6593.00	89.86	353.06	5880.31	85.14	-21.18	860.04	0.40	0.00
77	6685.00	89.02	354.98	5881.21	174.75	70.31	850.45	2.28	-0.01
78	6778.00	89.22	357.96	5882.64	266.13	163.12	844.73	3.21	0.00
79	6871.00	88.80	359.82	5884.25	358.16	256.08	842.93	2.05	0.00
80	6964.00	88.10	358.82	5886.76	450.27	349.04	841.82	1.31	-0.01
81	7056.00	88.77	358.17	5889.27	541.21	440.97	839.41	1.01	0.01
82	7150.00	89.78	358.06	5890.46	634.05	534.91	836.32	1.08	0.01
83	7243.00	90.87	357.45	5889.94	725.81	627.84	832.67	1.34	0.01
84	7336.00	90.28	0.21	5889.00	817.83	720.80	830.78	3.03	-0.01

85	7428.00	90.81	0.19	5888.13	909.16	812.80	831.10	0.58	0.01
86	7522.00	91.68	359.79	5886.09	1002.42	906.77	831.08	1.02	0.01
87	7614.00	89.22	1.02	5885.36	1093.78	998.76	831.73	2.99	-0.03
88	7707.00	87.32	1.35	5888.17	1186.24	1091.69	833.65	2.07	-0.02
89	7800.00	87.90	0.88	5892.05	1278.66	1184.59	835.46	0.80	0.01
90	7893.00	88.18	0.58	5895.23	1371.03	1277.53	836.65	0.44	0.00
91	7986.00	89.05	0.62	5897.48	1463.41	1370.50	837.62	0.94	0.01
92	8079.00	89.72	0.48	5898.48	1555.79	1463.49	838.51	0.74	0.01
93	8172.00	90.39	0.08	5898.39	1648.14	1556.49	838.97	0.84	0.01
94	8265.00	91.51	0.25	5896.84	1740.45	1649.47	839.23	1.22	0.01
95	8357.00	89.30	1.23	5896.19	1831.87	1741.46	840.42	2.63	-0.02
96	8450.00	89.30	0.84	5897.33	1924.35	1834.43	842.10	0.42	0.00
97	8543.00	89.50	0.48	5898.30	2016.76	1927.42	843.17	0.44	0.00
98	8636.00	90.50	1.29	5898.30	2109.21	2020.41	844.61	1.38	0.01
99	8728.00	88.69	1.27	5898.95	2200.73	2112.38	846.66	1.97	-0.02
100	8821.00	88.97	0.67	5900.85	2293.18	2205.35	848.24	0.71	0.00
101	8913.00	89.22	0.26	5902.31	2384.55	2297.33	848.99	0.52	0.00
102	9005.00	89.53	359.96	5903.31	2475.87	2389.33	849.16	0.47	0.00
103	9098.00	89.89	359.53	5903.78	2568.10	2482.32	848.75	0.60	0.00
104	9190.00	91.37	0.17	5902.77	2659.36	2574.31	848.51	1.75	0.02
105	9282.00	91.87	359.94	5900.17	2750.63	2666.28	848.60	0.60	0.01
106	9375.00	90.45	0.72	5898.29	2842.96	2759.25	849.13	1.74	-0.02
107	9467.00	90.95	0.41	5897.16	2934.36	2851.24	850.04	0.64	0.01
108	9560.00	91.54	0.00	5895.14	3026.67	2944.22	850.37	0.77	0.01
109	9652.00	89.52	359.54	5894.29	3117.91	3036.21	850.00	2.25	-0.02
110	9745.00	90.03	359.40	5894.66	3210.08	3129.20	849.14	0.57	0.01
111	9837.00	89.92	358.22	5894.70	3301.12	3221.18	847.23	1.29	0.00
112	9929.00	89.72	357.31	5894.98	3391.91	3313.11	843.64	1.01	0.00
113	10021.00	89.86	356.35	5895.32	3482.43	3404.97	838.56	1.05	0.00
114	10113.00	89.50	357.36	5895.84	3572.97	3496.83	833.51	1.17	0.00
115	10205.00	90.34	357.57	5895.96	3663.67	3588.74	829.44	0.94	0.01
116	10298.00	91.31	359.53	5894.62	3755.63	3681.69	827.09	2.35	0.01
117	10390.00	90.67	0.81	5893.03	3846.94	3773.67	827.36	1.56	-0.01
118	10483.00	90.28	0.94	5892.26	3939.39	3866.66	828.78	0.44	0.00
119	10575.00	90.84	1.02	5891.36	4030.86	3958.64	830.35	0.61	0.01
120	10667.00	91.03	0.64	5889.86	4122.30	4050.62	831.69	0.46	0.00
121	10759.00	89.92	2.10	5889.10	4213.84	4142.59	833.88	1.99	-0.01
122	10851.00	90.31	1.81	5888.92	4305.47	4234.53	837.02	0.53	0.00
123	10943.00	89.22	2.06	5889.29	4397.09	4326.48	840.13	1.22	-0.01
124	11035.00	89.80	1.87	5890.08	4488.72	4418.42	843.28	0.66	0.01
125	11127.00	90.08	1.66	5890.18	4580.32	4510.38	846.12	0.38	0.00
126	11219.00	89.92	1.41	5890.18	4671.89	4602.34	848.58	0.32	0.00
127	11311.00	89.94	1.20	5890.29	4763.42	4694.32	850.68	0.23	0.00
128	11403.00	89.89	1.36	5890.43	4854.95	4786.30	852.73	0.18	0.00
129	11495.00	90.50	1.65	5890.11	4946.51	4878.26	855.15	0.73	0.01
130	11587.00	90.98	1.65	5888.92	5038.09	4970.22	857.80	0.52	0.01
131	11679.00	91.45	1.57	5886.97	5129.65	5062.16	860.38	0.52	0.01
132	11770.00	89.78	1.32	5886.00	5220.20	5153.12	862.68	1.86	-0.02
133	11862.00	90.00	1.25	5886.17	5311.73	5245.10	864.74	0.25	0.00
134	11954.00	90.34	1.24	5885.90	5403.25	5337.08	866.74	0.37	0.00
135	12047.00	91.06	1.24	5884.76	5495.76	5430.05	868.75	0.77	0.01
136	12138.00	91.57	1.27	5882.68	5586.26	5521.00	870.74	0.56	0.01
137	12230.00	89.72	0.59	5881.64	5677.72	5612.98	872.24	2.14	-0.02
138	12322.00	89.13	0.11	5882.56	5769.08	5704.97	872.80	0.83	-0.01
139	12414.00	89.86	0.02	5883.37	5860.38	5796.97	872.90	0.80	0.01
140	12506.00	88.71	358.78	5884.52	5951.54	5888.95	871.94	1.84	-0.01
141	12598.00	88.99	358.65	5886.37	6042.54	5980.91	869.88	0.34	0.00
142	12690.00	89.97	358.91	5887.20	6133.57	6072.88	867.92	1.10	0.01
143	12782.00	89.11	359.52	5887.94	6224.70	6164.87	866.66	1.15	-0.01
144	12874.00	87.46	359.09	5890.70	6315.81	6256.82	865.54	1.85	-0.02
145	12966.00	87.88	358.49	5894.44	6406.77	6348.72	863.60	0.80	0.00
146	13058.00	88.63	358.14	5897.24	6497.65	6440.64	860.90	0.90	0.01
147	13150.00	89.44	357.53	5898.79	6588.44	6532.56	857.42	1.10	0.01
148	13242.00	88.44	357.72	5900.49	6679.17	6624.46	853.61	1.11	-0.01
149	13334.00	89.05	357.27	5902.50	6769.86	6716.35	849.59	0.82	0.01