

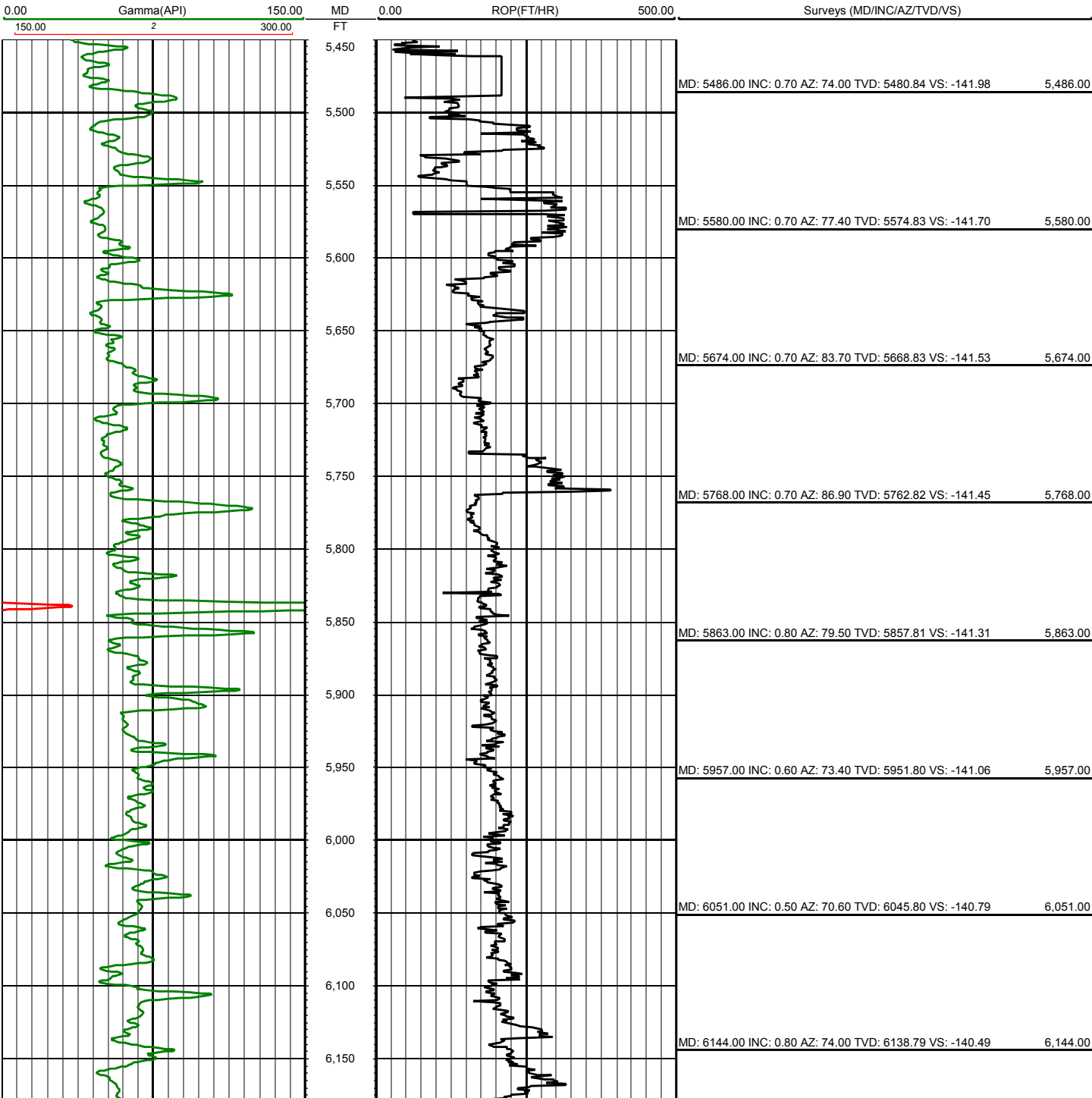
**Pro Directional**

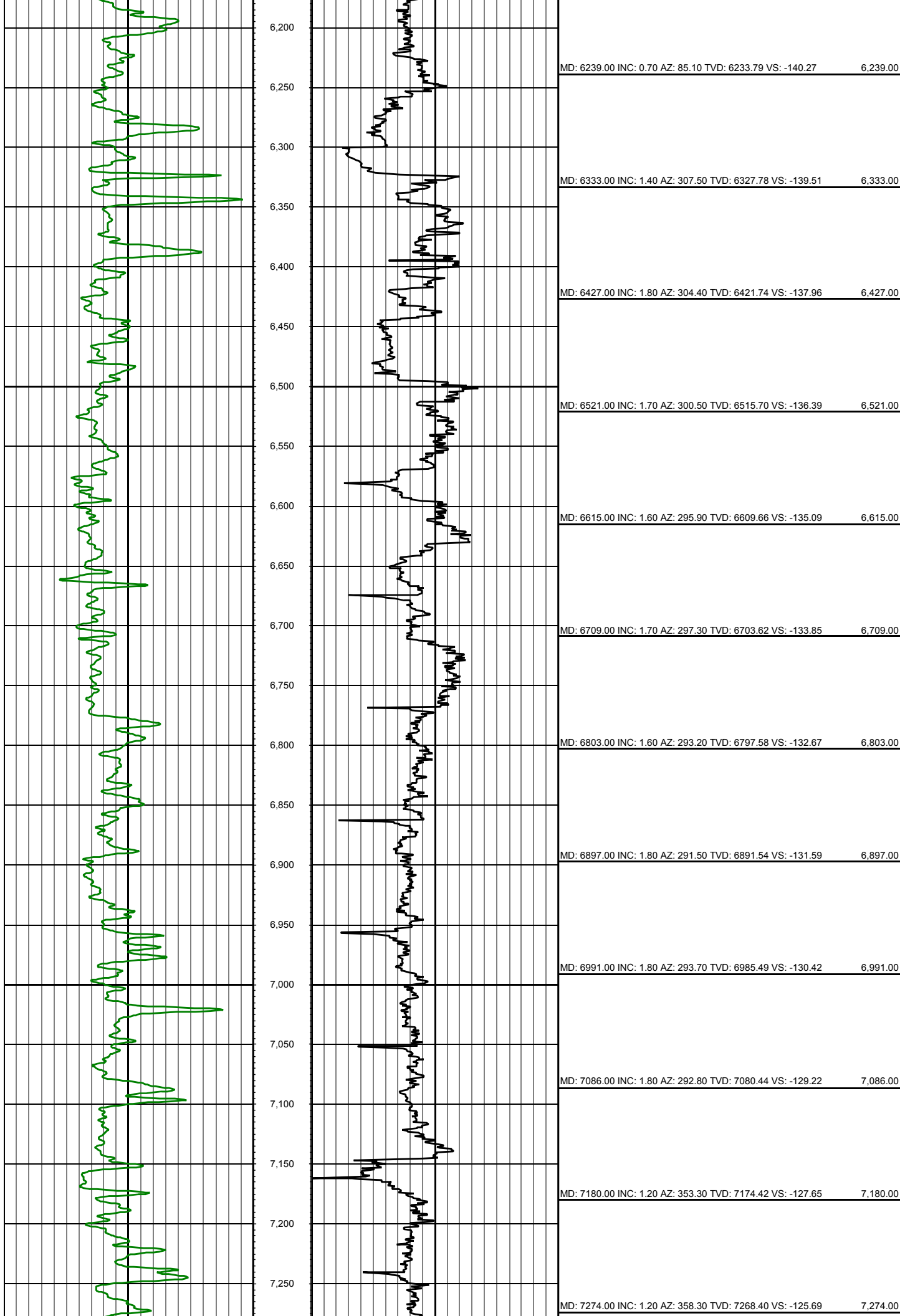
Pro Directional
850 Conroe Park West Drive
Conroe, Texas 77303

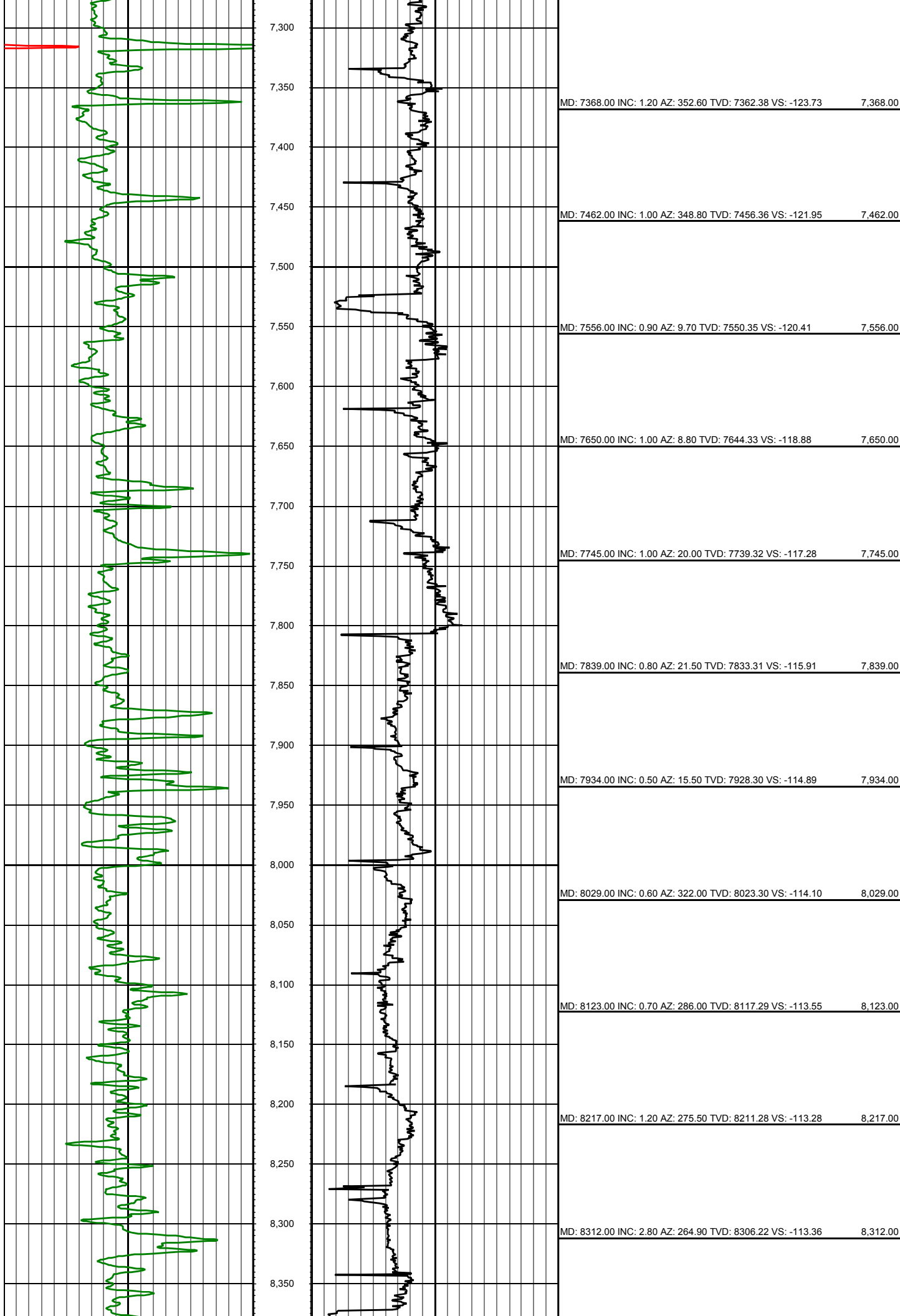
Cave Lion 5 Fededral WC 5H_ST 1**Scale 1":100' - MD****12/3/2017 2:45 AM****Oper. Company:** Marathon Oil**Well:** Cave Lion 5 Fededral WC 5H_ST 1**Field:** WolfCamp**Rig:** H&P 423**Well ID:** 30-025-44102**Job Number:** LNM1336517**State:** New Mexcio**County:** Lea**Country:** USA**Location:** 7 Miles West of Jal, NM**Start Date:** 11/08/2017 08:50:00**End Date:** 12/03/2017 02:26:19**Latitude:** 32° 3' 55.7194 N**Longitude:** 103° 23' 47.3706 W**Elev GL:** 3270**Elev DF:** 25**Elev KB:** 3295**Operator 1:** Miles A. Compton IV**Operator 2:** Mike Remore**Notes:** NAD 1927 (NADCON CONUS), US State Plane 1927 (Exact Solution), New Mexico East 3001

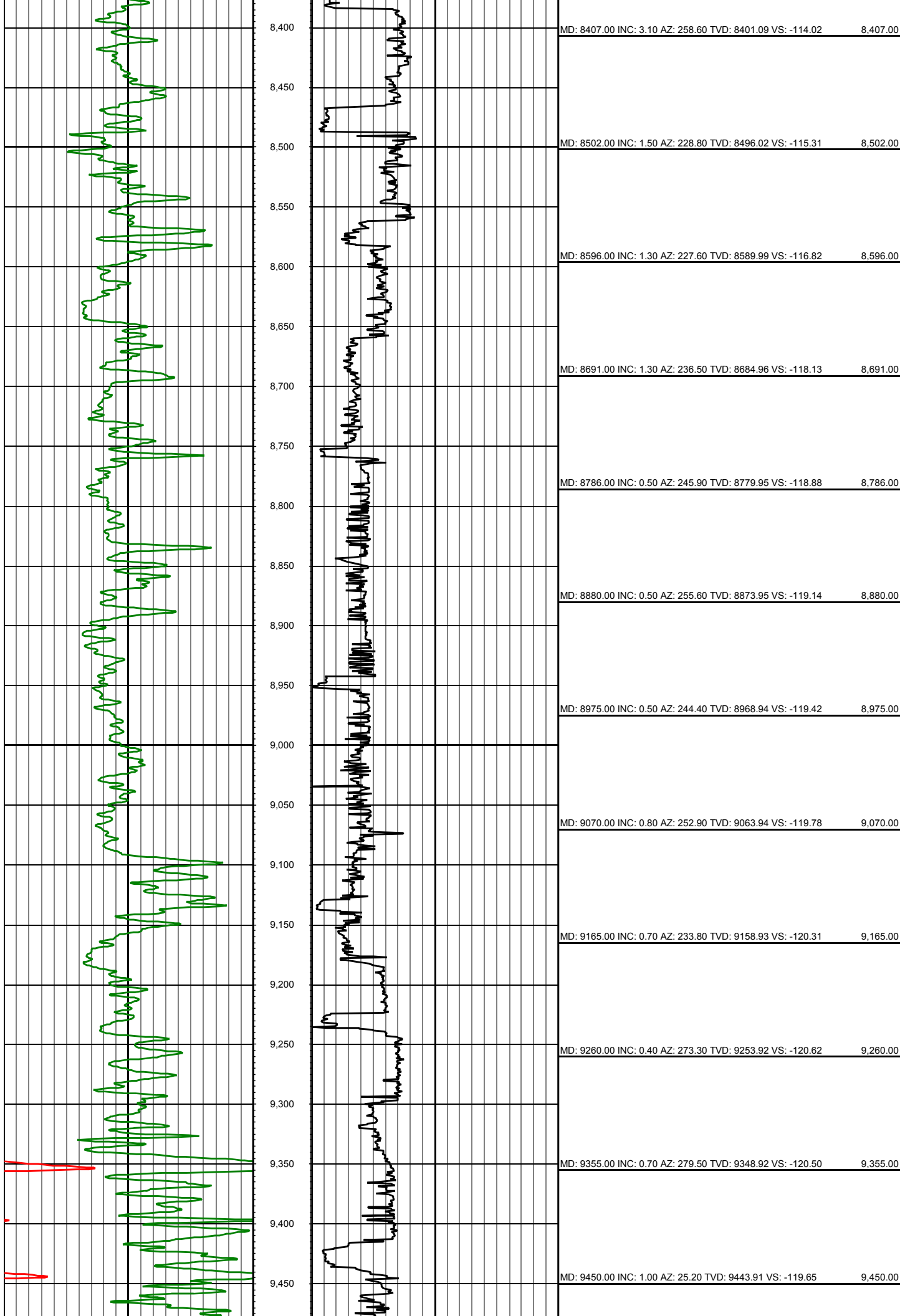
Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	3023	3023	3023	3081	3023
Bit Size	8 3/4	8 3/4	8 3/4	6 1/8	6 1/8
Cal Factor	4.463	4.463	4.463	2.808	2.808
Survey Offset	60.00	60.00	62.00	54.00	51.00
Gamma Offset	48.00	48.00	50.00	42.00	39.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	5450.00	9175.00	10373.00	11840.00	12435.00
StartDate	11/7/2017	11/10/2017	11/11/2017	11/17/2017	11/19/2017
StartTime	23:30	06:30	17:00	00:14	22:10
EndDepth	9175.00	10373.00	11840.00	12435.00	13566.00
EndDate	11/10/2017	11/11/2017	11/14/2017	11/19/2017	11/22/2017
EndTime	05:00	14:30	23:30	21:20	07:15
Mud Type	WBM	WBM	WBM	OBM	OBM
Mud Weight	9	9.2	9.23	12.3	12
Funnel Viscosity	27	26	31	62	70
Plastic Viscosity	1	2	2	37	26
Yield Point	1	1	2	17	11
Gel Strength	1/1	1/3	2/4	19/27	11/25
Solids Content	2.73	3.06	2.78	17.5	18.5
Sand Content	.5	.5	.25	.001	TR
Mud Alkalinity				1.1	2.3
Chlorides	34000	52000	58000	38000	39000
Temperature	131	136	147	149	176
Tool Run Data	Run #6	Run #7	Run #8	Run #9	Run #10
Tool S/N	3081	3081	3087	2573	3081
Bit Size	6 1/8	6 1/8	6 1/8	6 1/8	6 1/8
Cal Factor	2.808	2.808	2.808	2.808	2.808
Survey Offset	49.00	53.00	58.00	62.00	62.00
Gamma Offset	37.00	41.00	46.00	50.00	50.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	13242.00	13273.00	15440.00	16187.00	16187.00
StartDate	11/23/2017	11/25/2017	11/28/2017	11/30/2017	12/1/2017
StartTime	15:20	08:45	08:45	15:30	15:30
EndDepth	13273.00	15440.00	16187.00	16187.00	17275.00
EndDate	11/25/2017	11/28/2017	11/30/2017	12/1/2017	12/3/2017
EndTime	07:00	07:00	13:30	14:20	02:30
Mud Type	OBM	OBM	OBM	OBM	OBM
Mud Weight	12.4	12.0	12.4	12.4	12.6
Funnel Viscosity	88	64	88	88	86

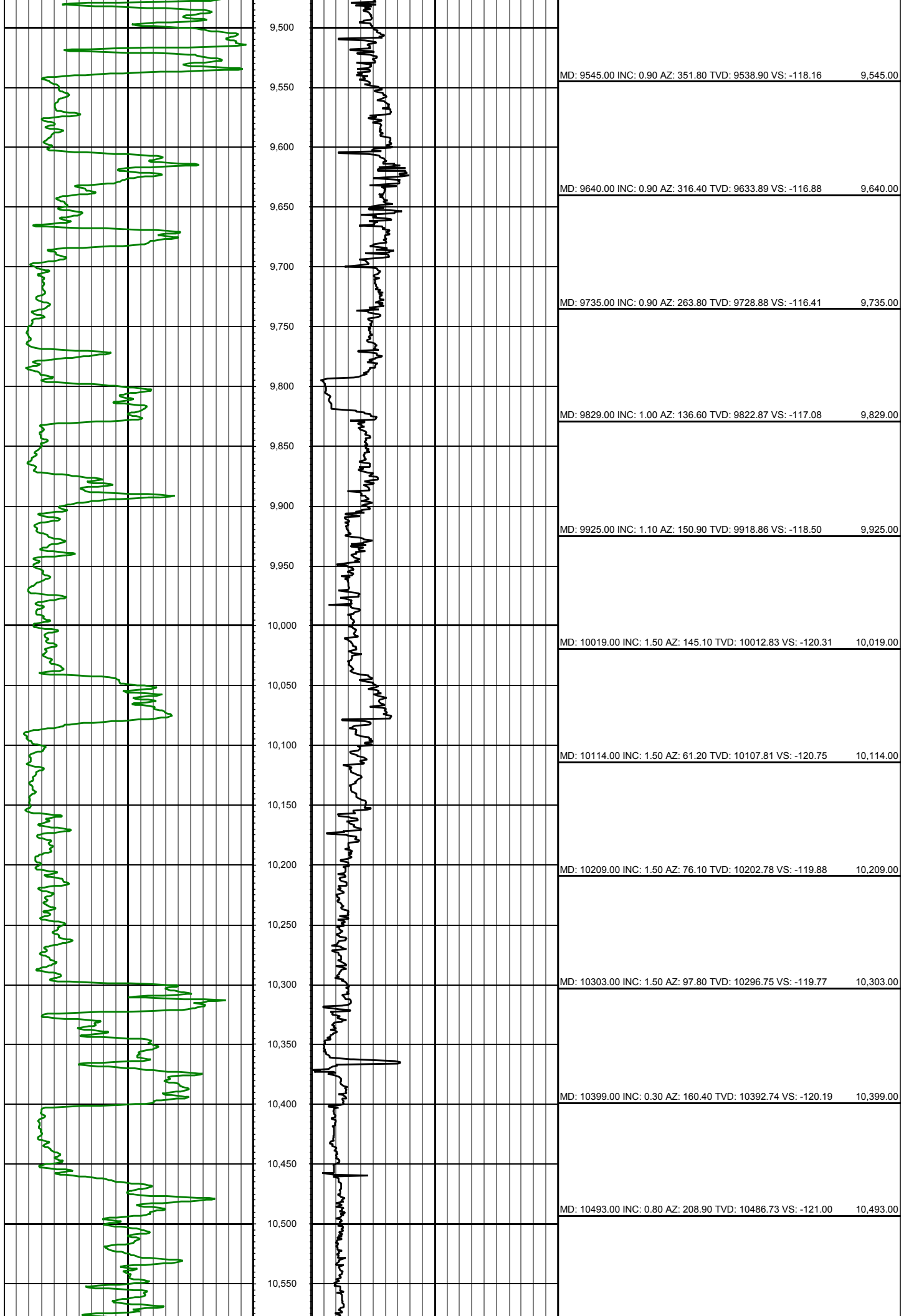
Plastic Viscosity	26	25	20	20	22
Yield Point	10	9	8	8	10
Gel Strength	11/23	9/21/24	12/20/24	12/20/24	13/20/24
Solids Content	18.43	19.52	21.31	21.31	21.70
Sand Content	TR	TR	TR	TR	TR
Mud Alkalinity	2.3	2.5	2.7	2.7	2.8
Chlorides	39000	38000	41000	41000	44000
Temperature	171	190	198	NA	196
Hole Data			Casing Data		
Size	From	To	Size	From	To
13 3/8	0.00	1106.00	13 3/8	0.00	1106.00
12 1/4	1106.00	5450.00	9 5/8	0.00	5440.00
8 3/4	5450.00	11840.00	7	0.00	11840.00
6 1/8	11840.00	17275.00			
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.					

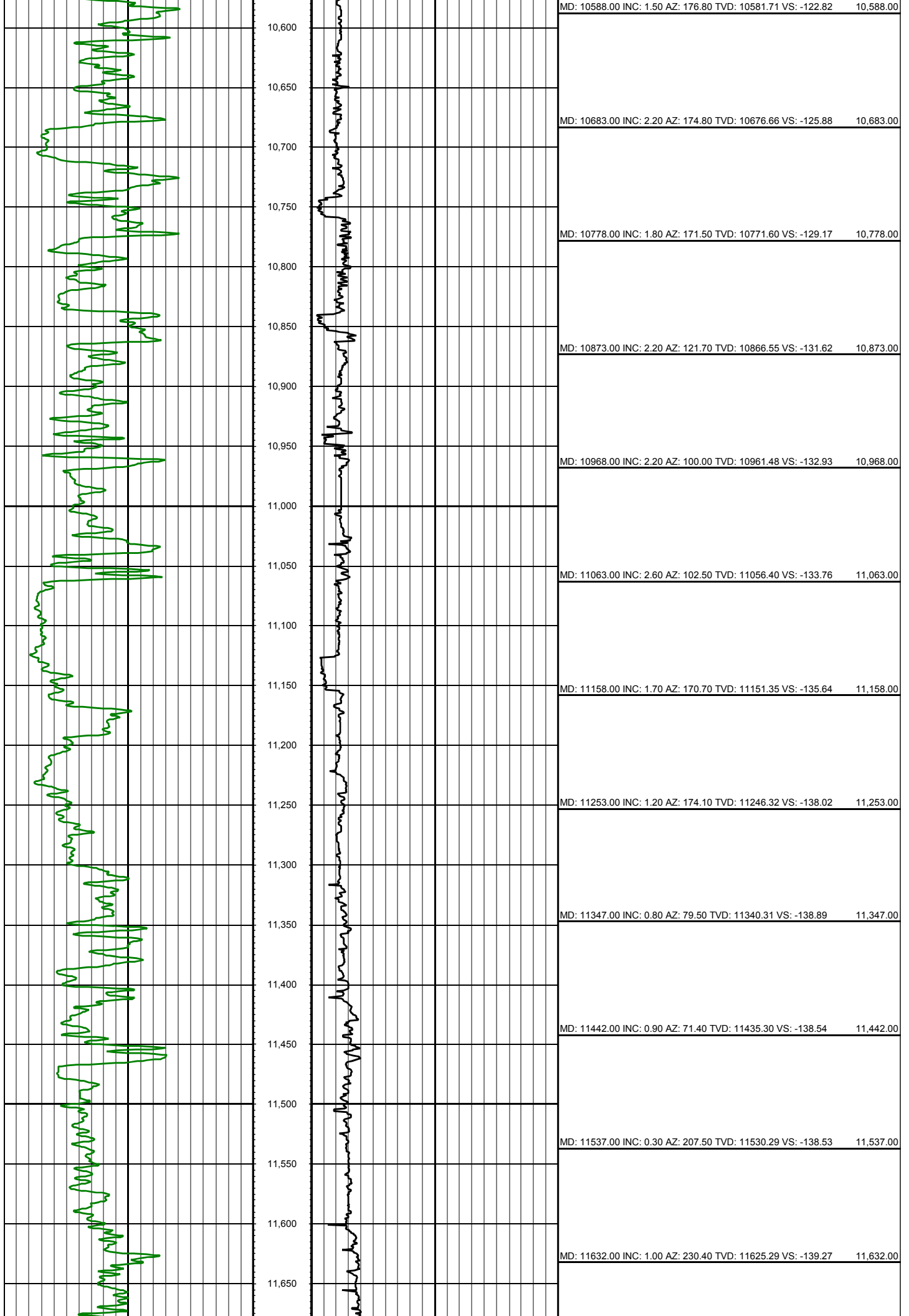


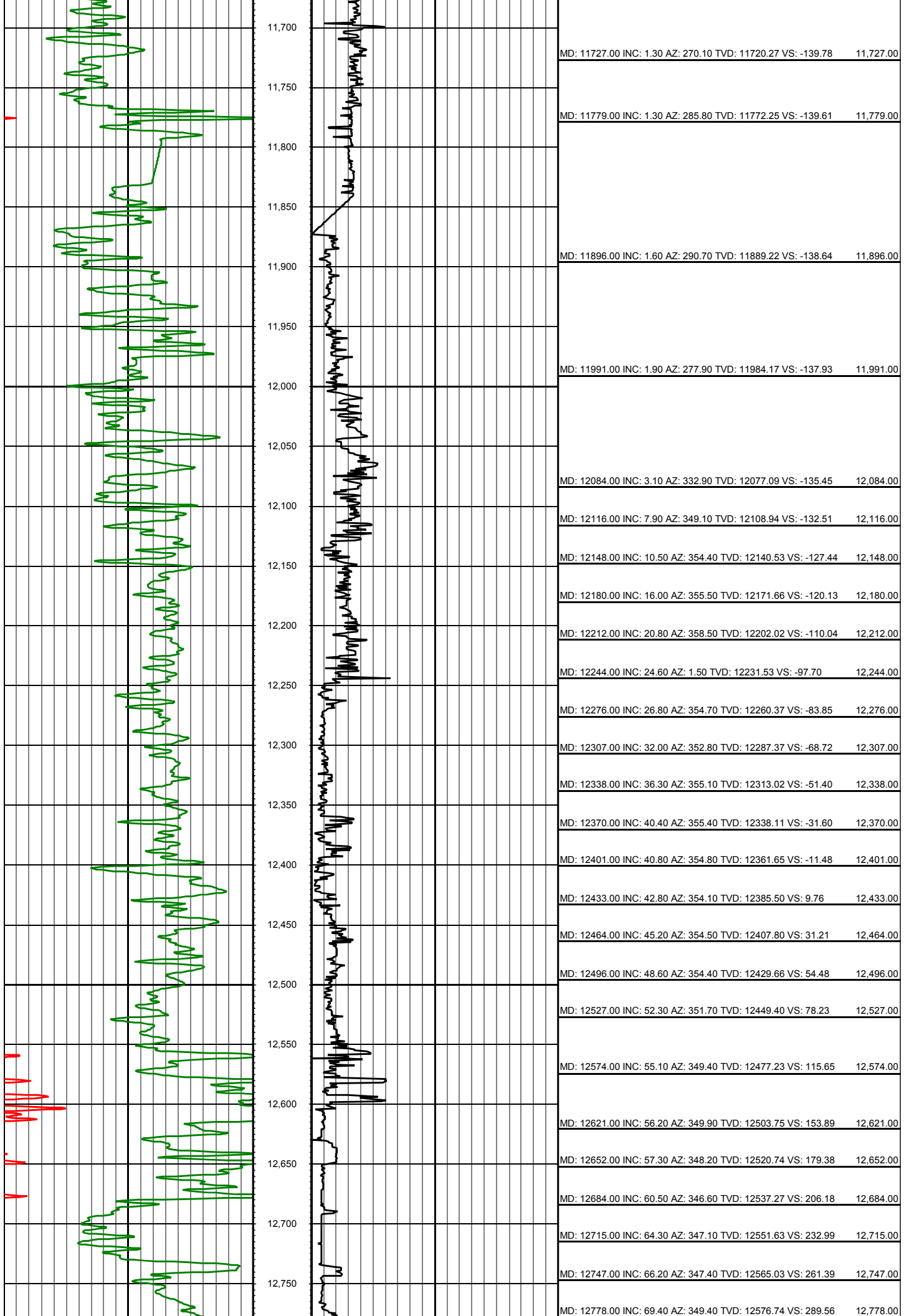


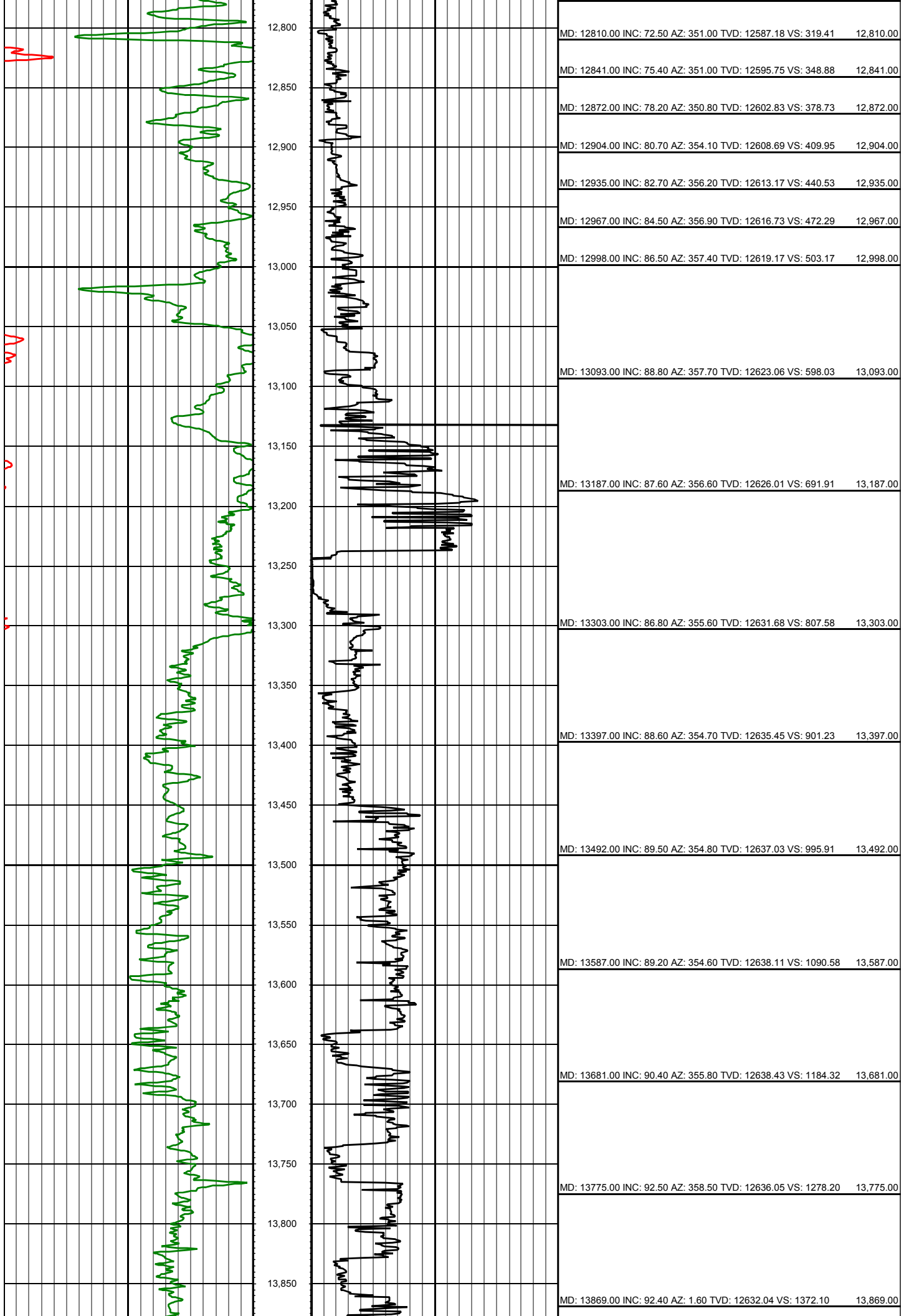


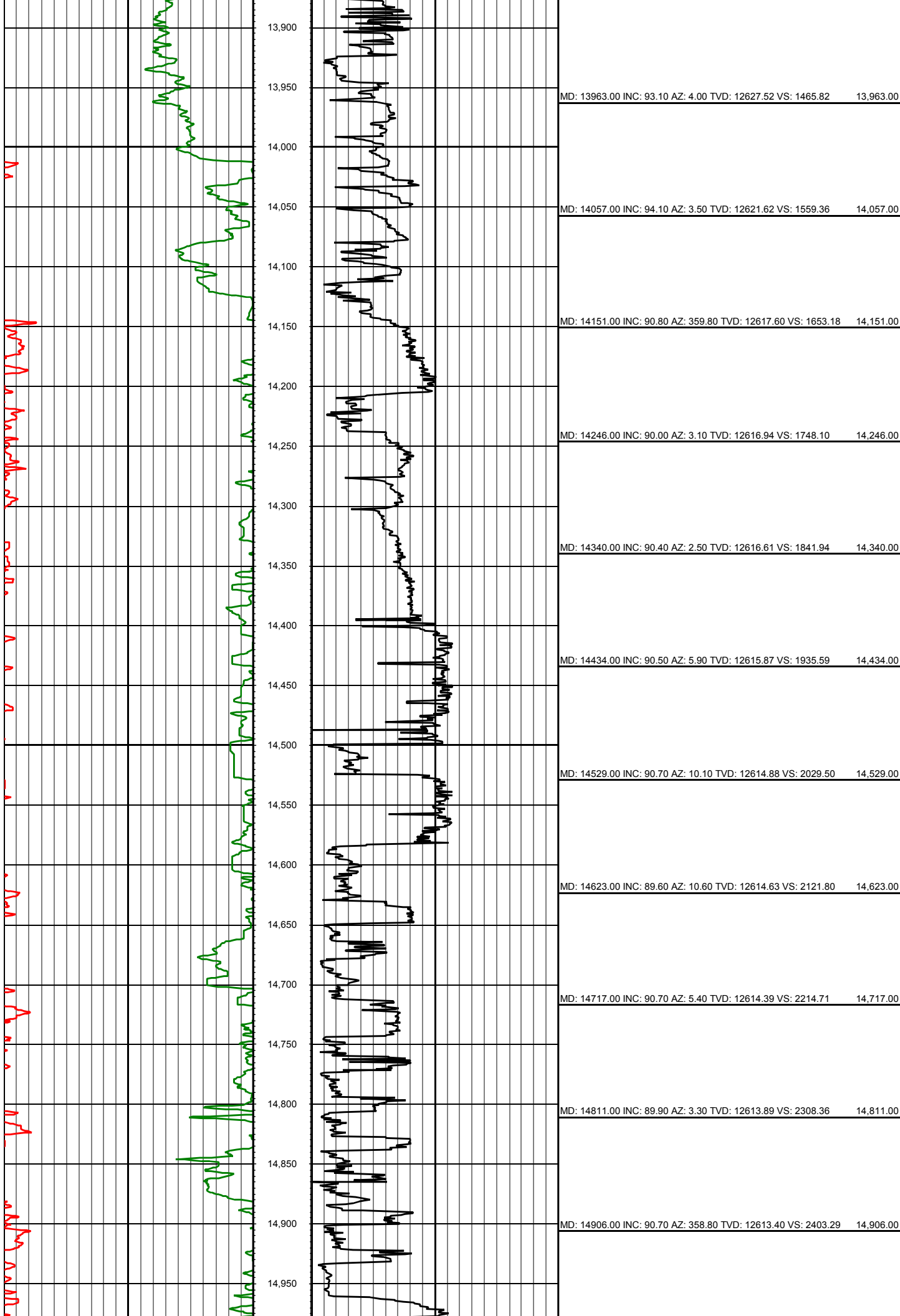


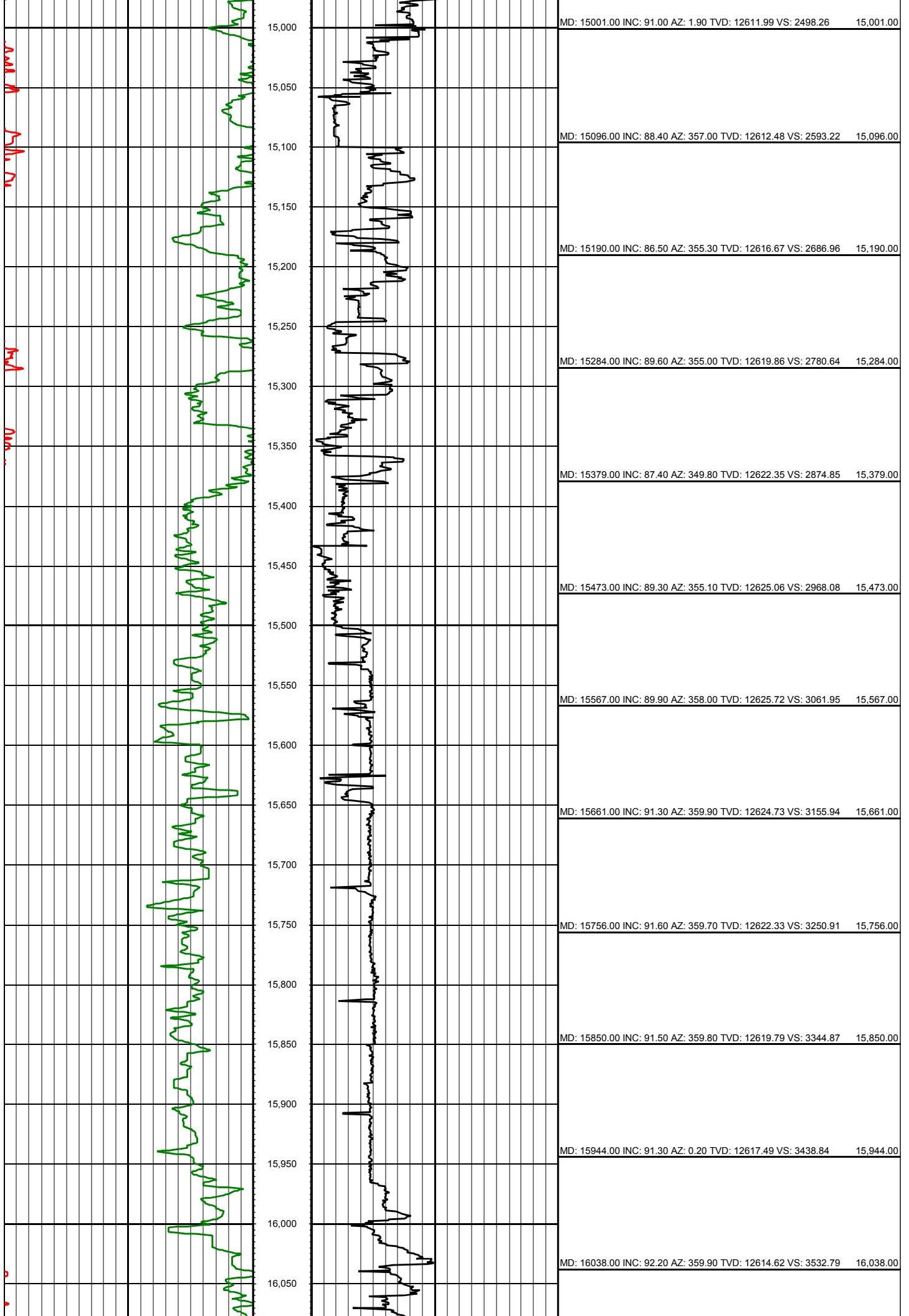


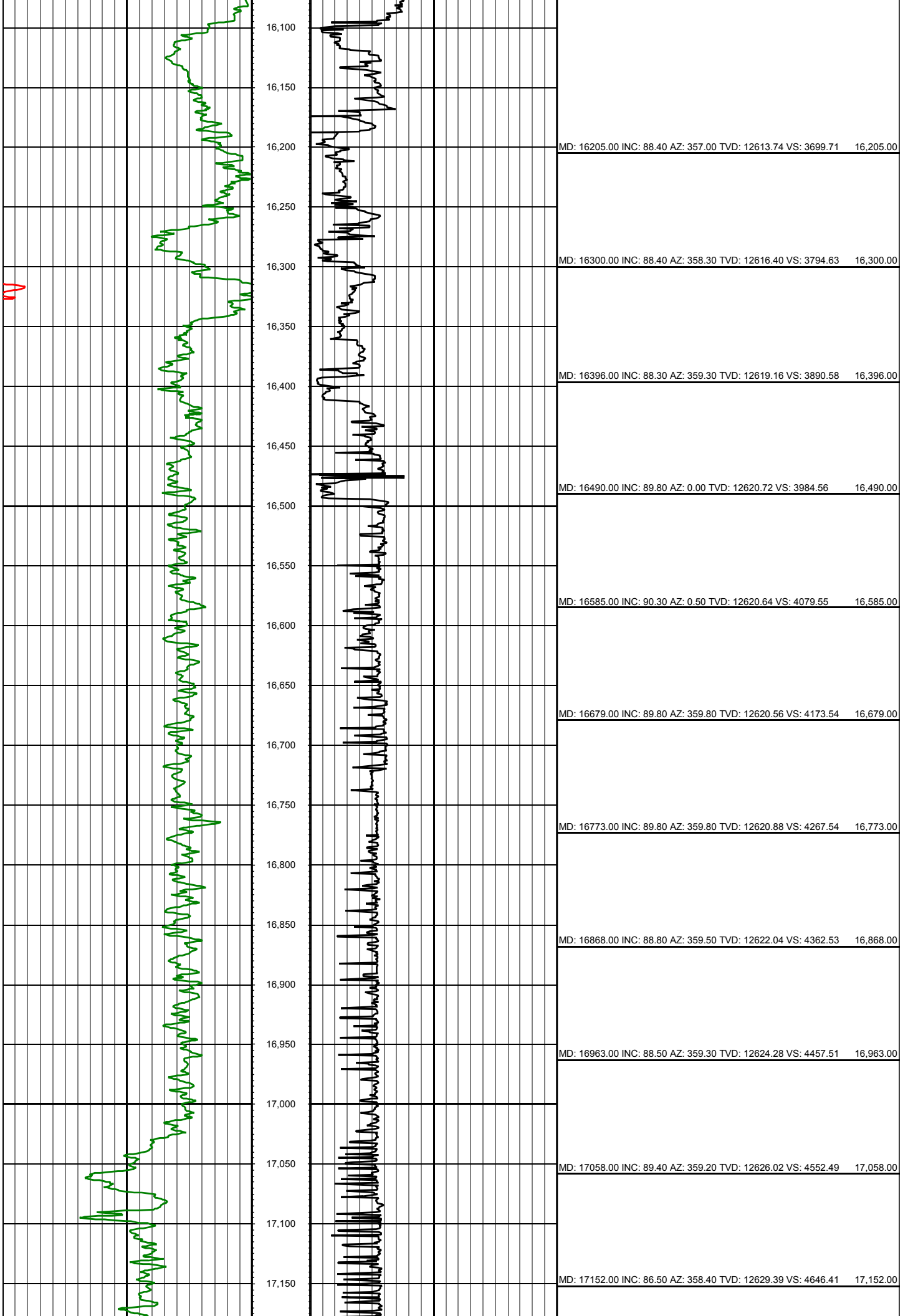


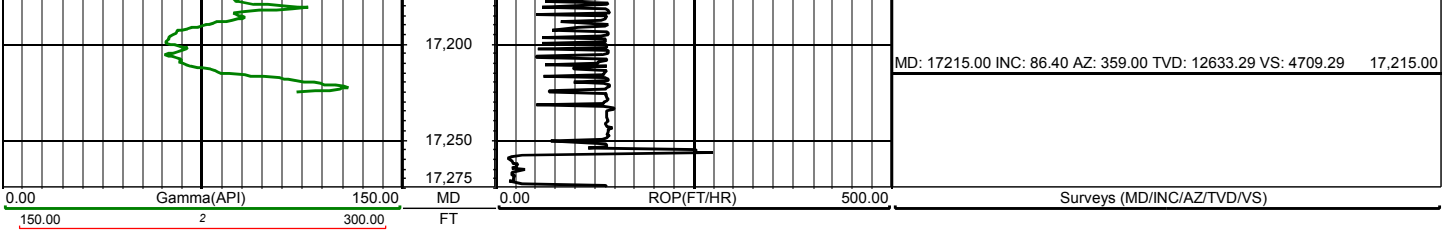








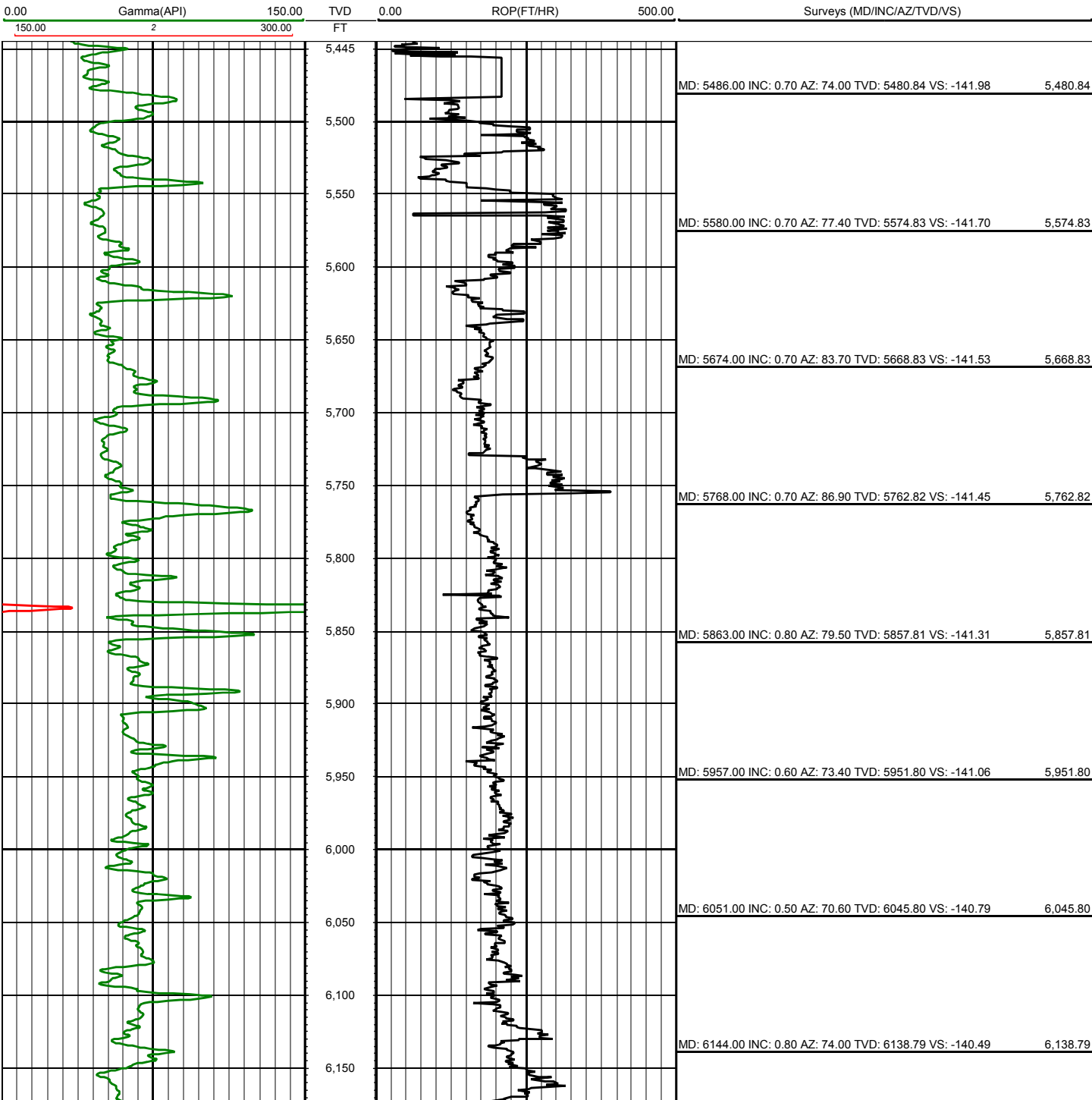


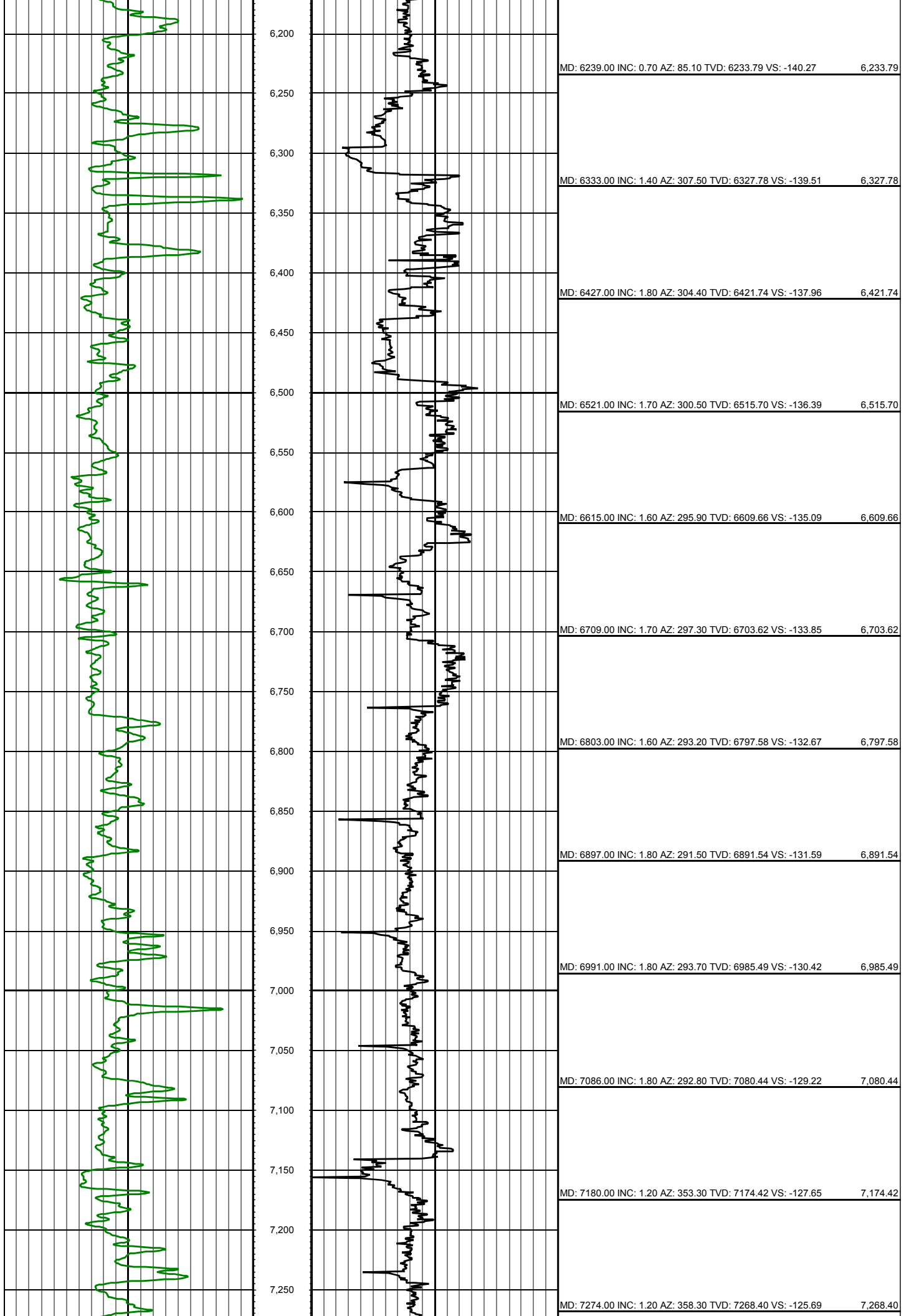


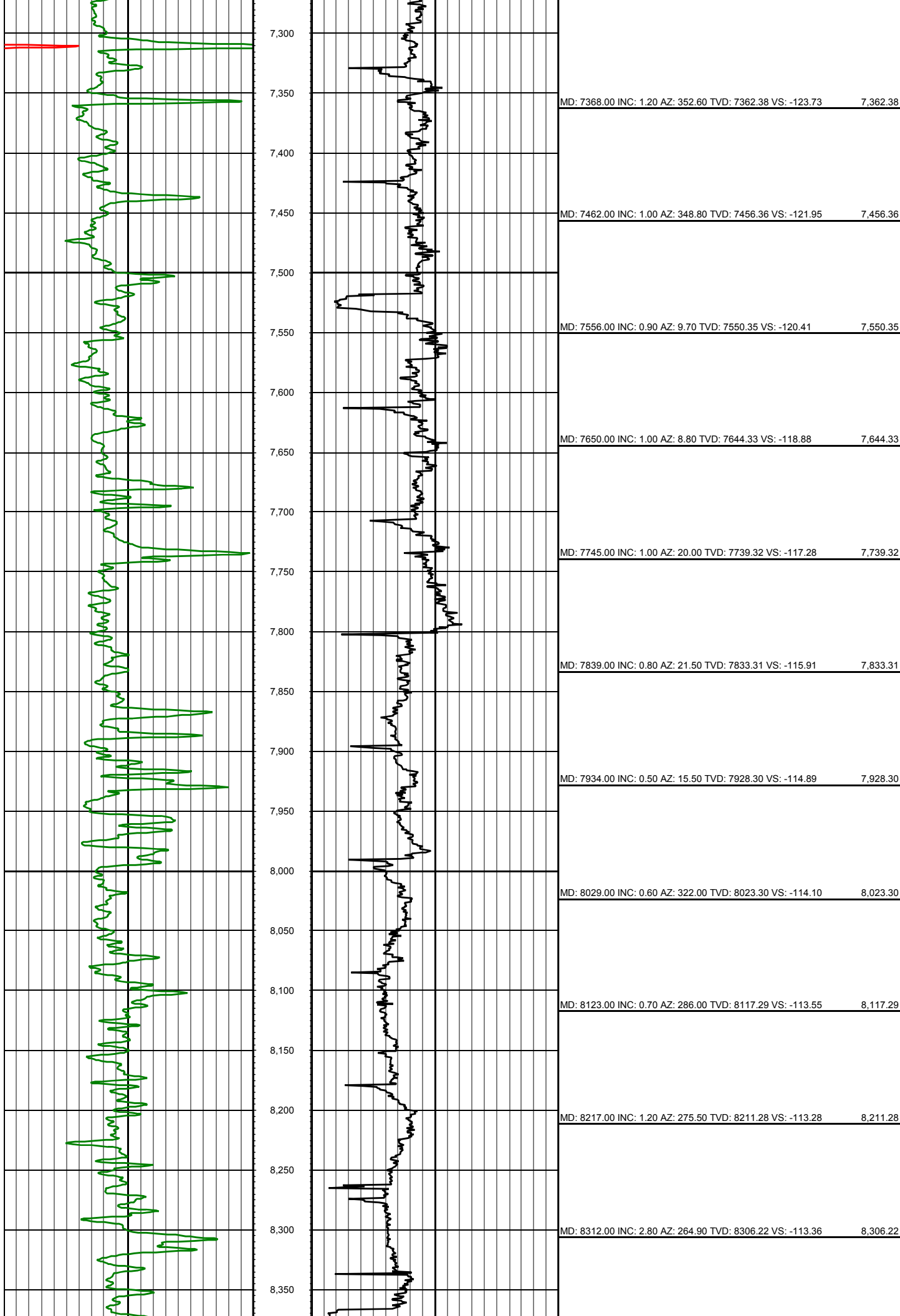
**Pro Directional**Pro Directional
850 Conroe Park West Drive
Conroe, Texas 77303**Cave Lion 5 Fededral WC 5H_ST 1****Scale 1":100' - TVD****12/3/2017 2:47 AM****Oper. Company:** Marathon Oil**Well:** Cave Lion 5 Fededral WC 5H_ST 1**Field:** WolfCamp**Rig:** H&P 423**Well ID:** 30-025-44102**Job Number:** LNM1336517**State:** New Mexcio**County:** Lea**Country:** USA**Location:** 7 Miles West of Jal, NM**Start Date:** 11/08/2017 08:50:00**End Date:** 12/03/2017 02:26:19**Latitude:** 32° 3' 55.7194 N**Longitude:** 103° 23' 47.3706 W**Elev GL:** 3270**Elev DF:** 25**Elev KB:** 3295**Operator 1:** Miles A. Compton IV**Operator 2:** Mike Remore**Notes:** NAD 1927 (NADCON CONUS), US State Plane 1927 (Exact Solution), New Mexico East 3001

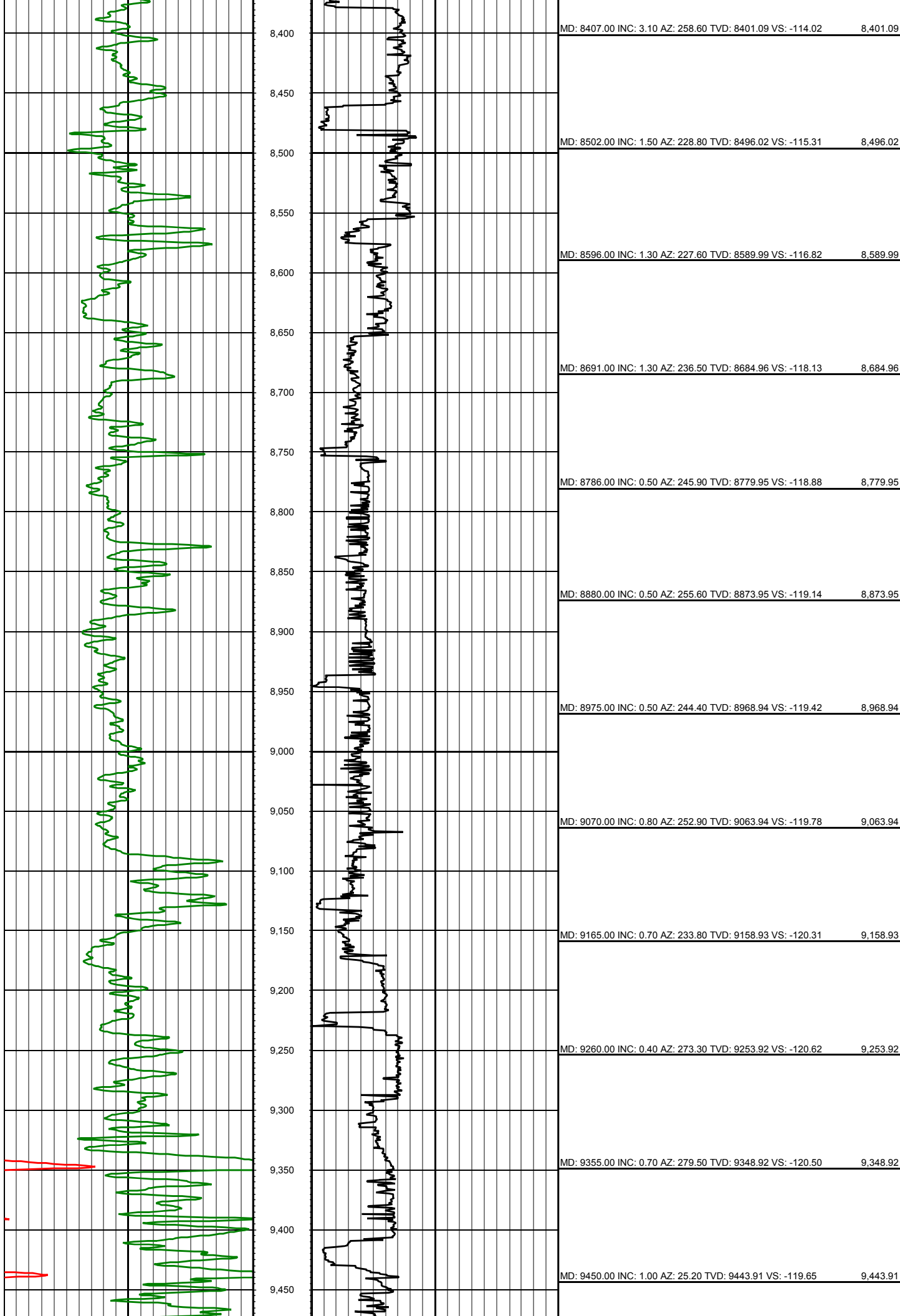
Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	3023	3023	3023	3081	3023
Bit Size	8 3/4	8 3/4	8 3/4	6 1/8	6 1/8
Cal Factor	4.463	4.463	4.463	2.808	2.808
Survey Offset	60.00	60.00	62.00	54.00	51.00
Gamma Offset	48.00	48.00	50.00	42.00	39.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	5450.00	9175.00	10373.00	11840.00	12435.00
StartDate	11/7/2017	11/10/2017	11/11/2017	11/17/2017	11/19/2017
StartTime	23:30	06:30	17:00	00:14	22:10
EndDepth	9175.00	10373.00	11840.00	12435.00	13566.00
EndDate	11/10/2017	11/11/2017	11/14/2017	11/19/2017	11/22/2017
EndTime	05:00	14:30	23:30	21:20	07:15
Mud Type	WBM	WBM	WBM	OBM	OBM
Mud Weight	9	9.2	9.23	12.3	12
Funnel Viscosity	27	26	31	62	70
Plastic Viscosity	1	2	2	37	26
Yield Point	1	1	2	17	11
Gel Strength	1/1	1/3	2/4	19/27	11/25
Solids Content	2.73	3.06	2.78	17.5	18.5
Sand Content	.5	.5	.25	.001	TR
Mud Alkalinity				1.1	2.3
Chlorides	34000	52000	58000	38000	39000
Temperature	131	136	147	149	176
Tool Run Data	Run #6	Run #7	Run #8	Run #9	Run #10
Tool S/N	3081	3081	3087	2573	3081
Bit Size	6 1/8	6 1/8	6 1/8	6 1/8	6 1/8
Cal Factor	2.808	2.808	2.808	2.808	2.808
Survey Offset	49.00	53.00	58.00	62.00	62.00
Gamma Offset	37.00	41.00	46.00	50.00	50.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	13242.00	13273.00	15440.00	16187.00	16187.00
StartDate	11/23/2017	11/25/2017	11/28/2017	11/30/2017	12/1/2017
StartTime	15:20	08:45	08:45	15:30	15:30
EndDepth	13273.00	15440.00	16187.00	16187.00	17275.00
EndDate	11/25/2017	11/28/2017	11/30/2017	12/1/2017	12/3/2017
EndTime	07:00	07:00	13:30	14:20	02:30
Mud Type	OBM	OBM	OBM	OBM	OBM
Mud Weight	12.4	12.0	12.4	12.4	12.6
Funnel Viscosity	88	64	88	88	86

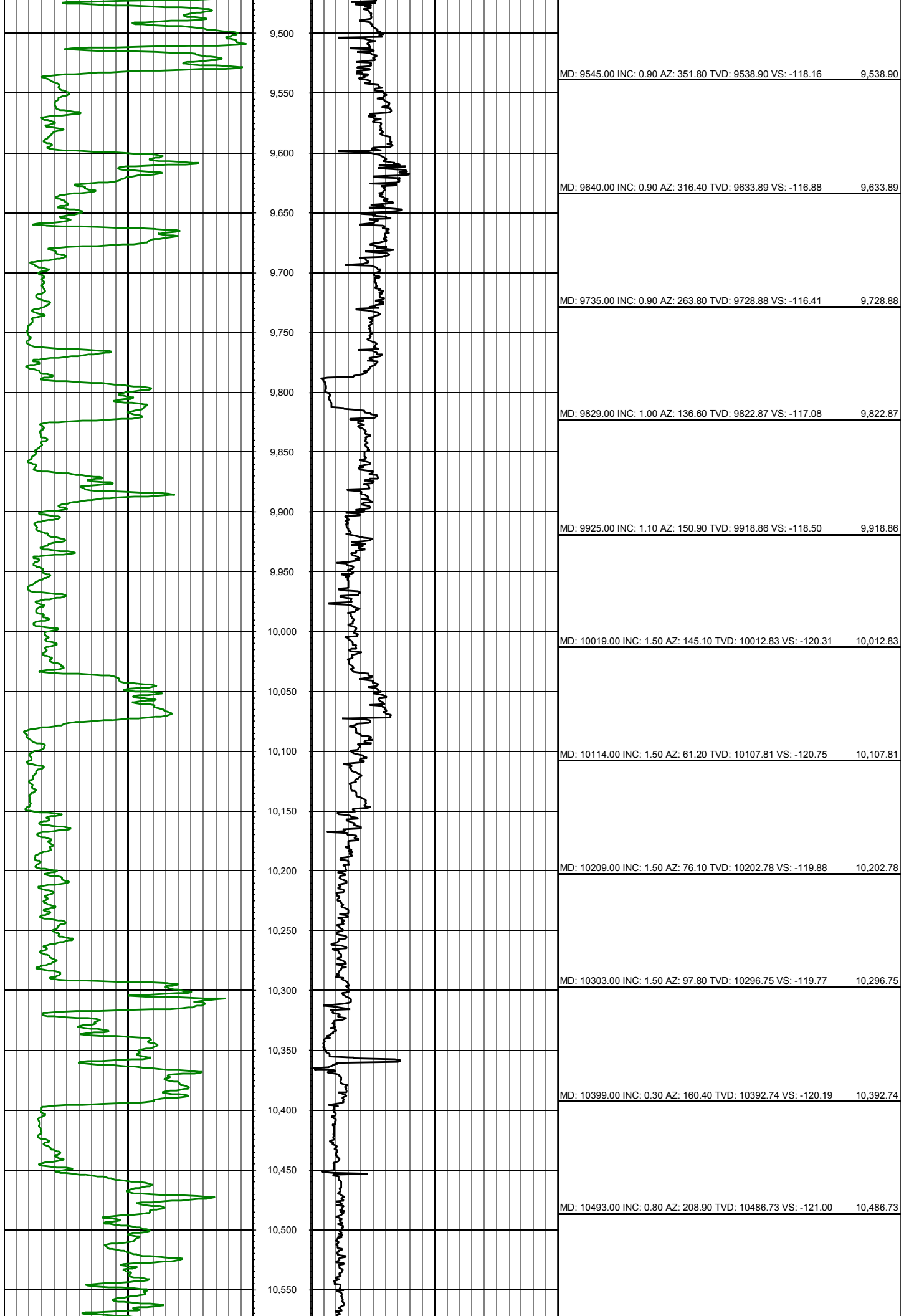
Plastic Viscosity	26	25	20	20	22
Yield Point	10	9	8	8	10
Gel Strength	11/23	9/21/24	12/20/24	12/20/24	13/20/24
Solids Content	18.43	19.52	21.31	21.31	21.70
Sand Content	TR	TR	TR	TR	TR
Mud Alkalinity	2.3	2.5	2.7	2.7	2.8
Chlorides	39000	38000	41000	41000	44000
Temperature	171	190	198	NA	196
Hole Data			Casing Data		
Size	From	To	Size	From	To
13 3/8	0.00	1106.00	13 3/8	0.00	1106.00
12 1/4	1106.00	5450.00	9 5/8	0.00	5440.00
8 3/4	5450.00	11840.00	7	0.00	11840.00
6 1/8	11840.00	17275.00			
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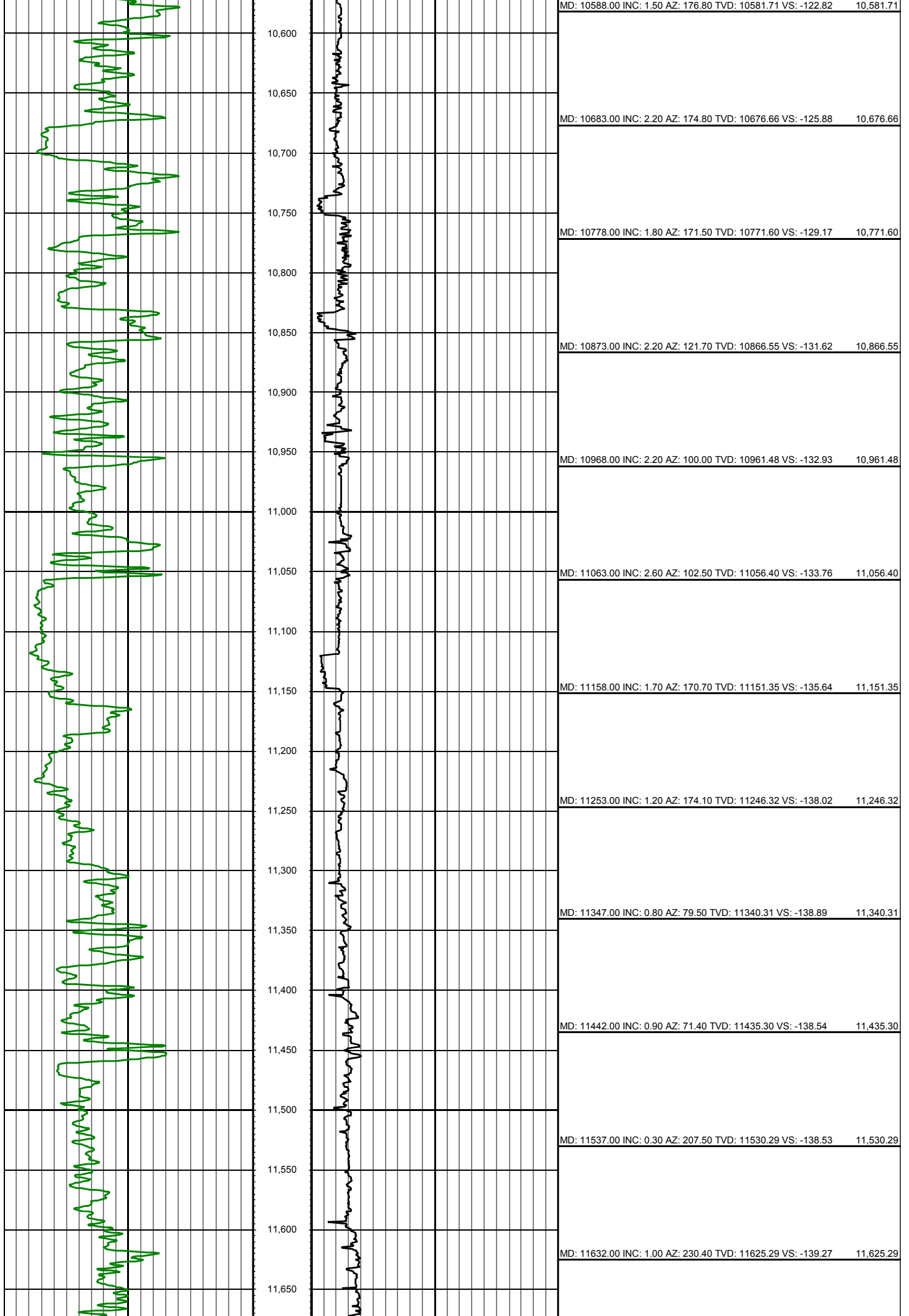


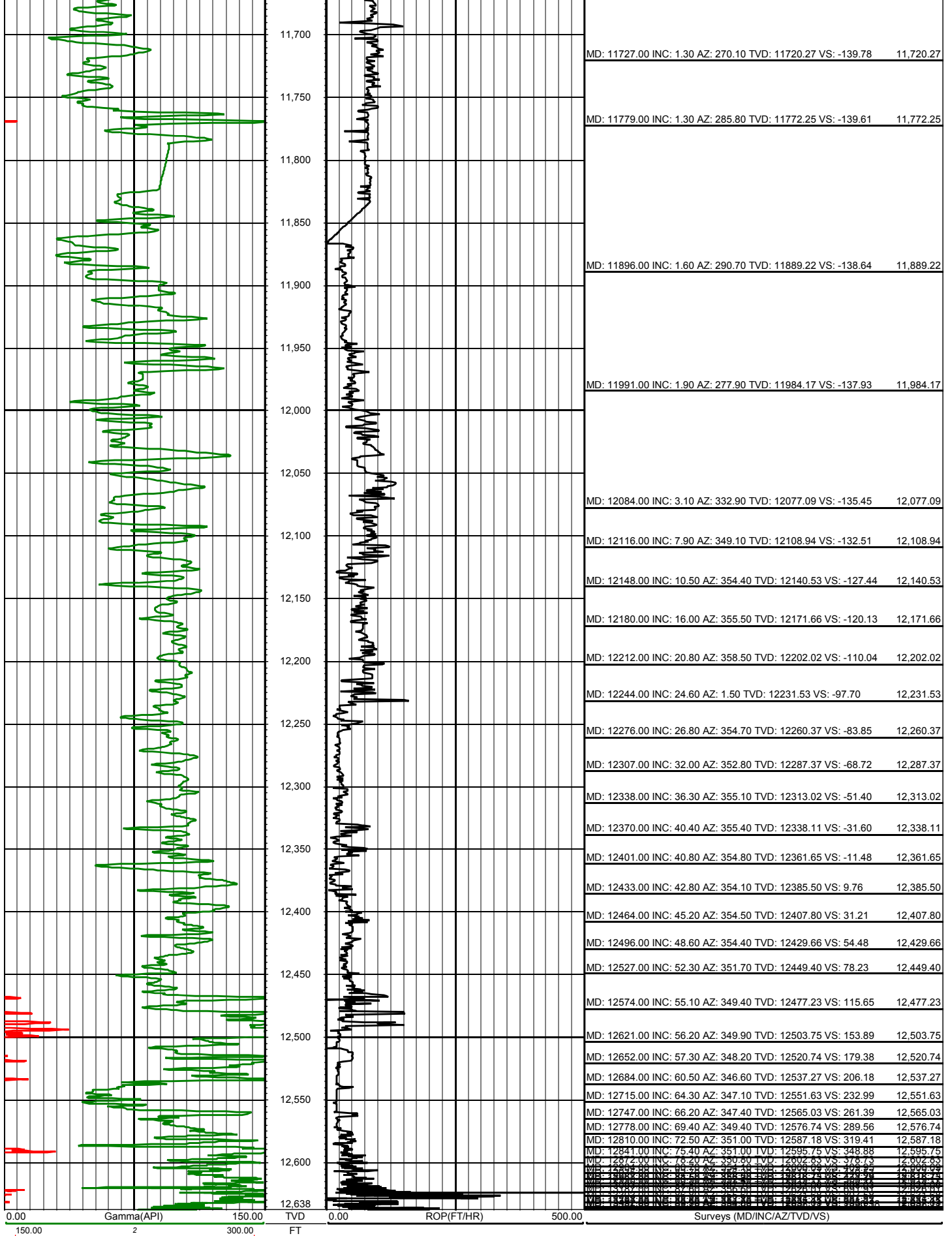








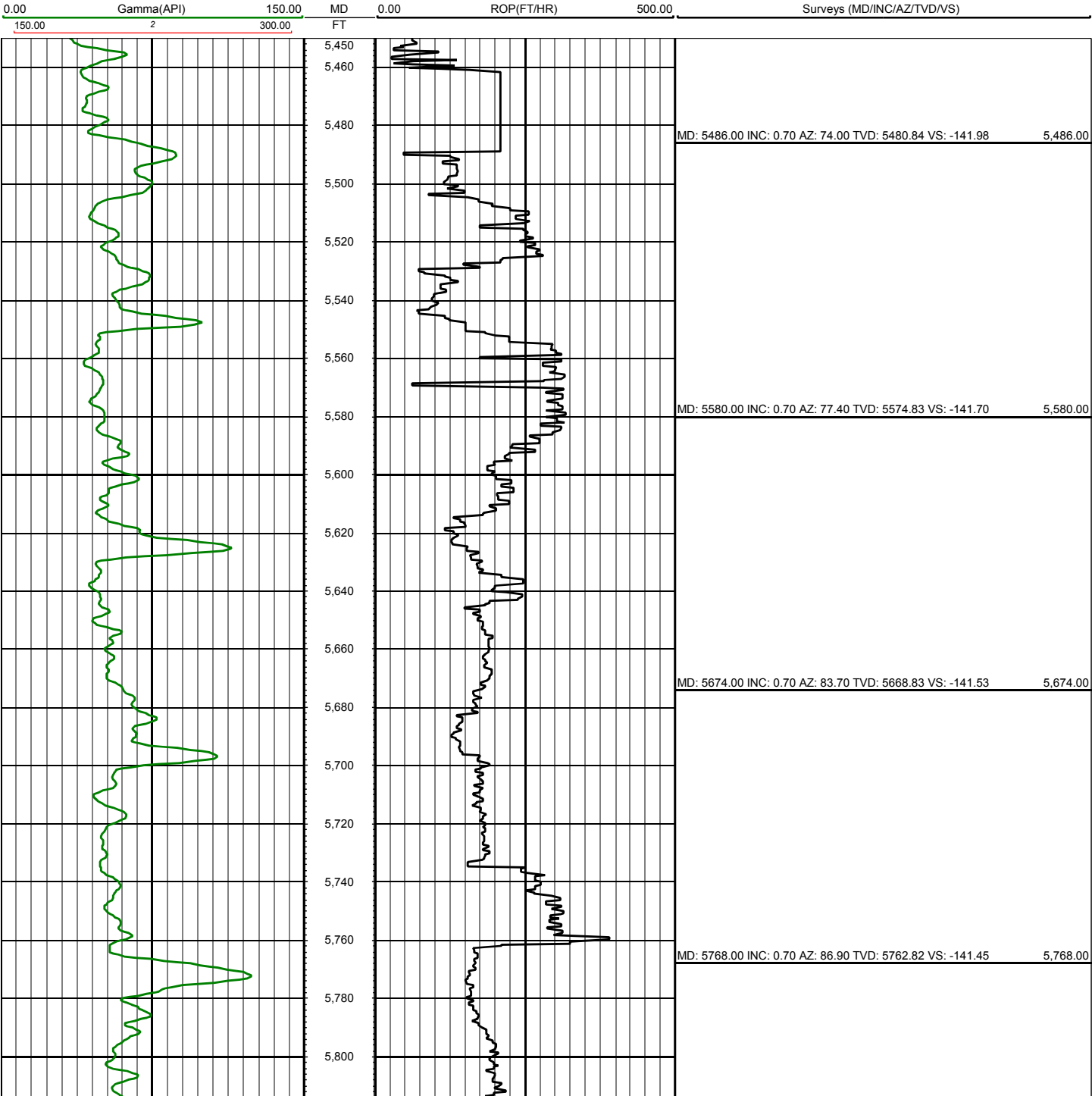


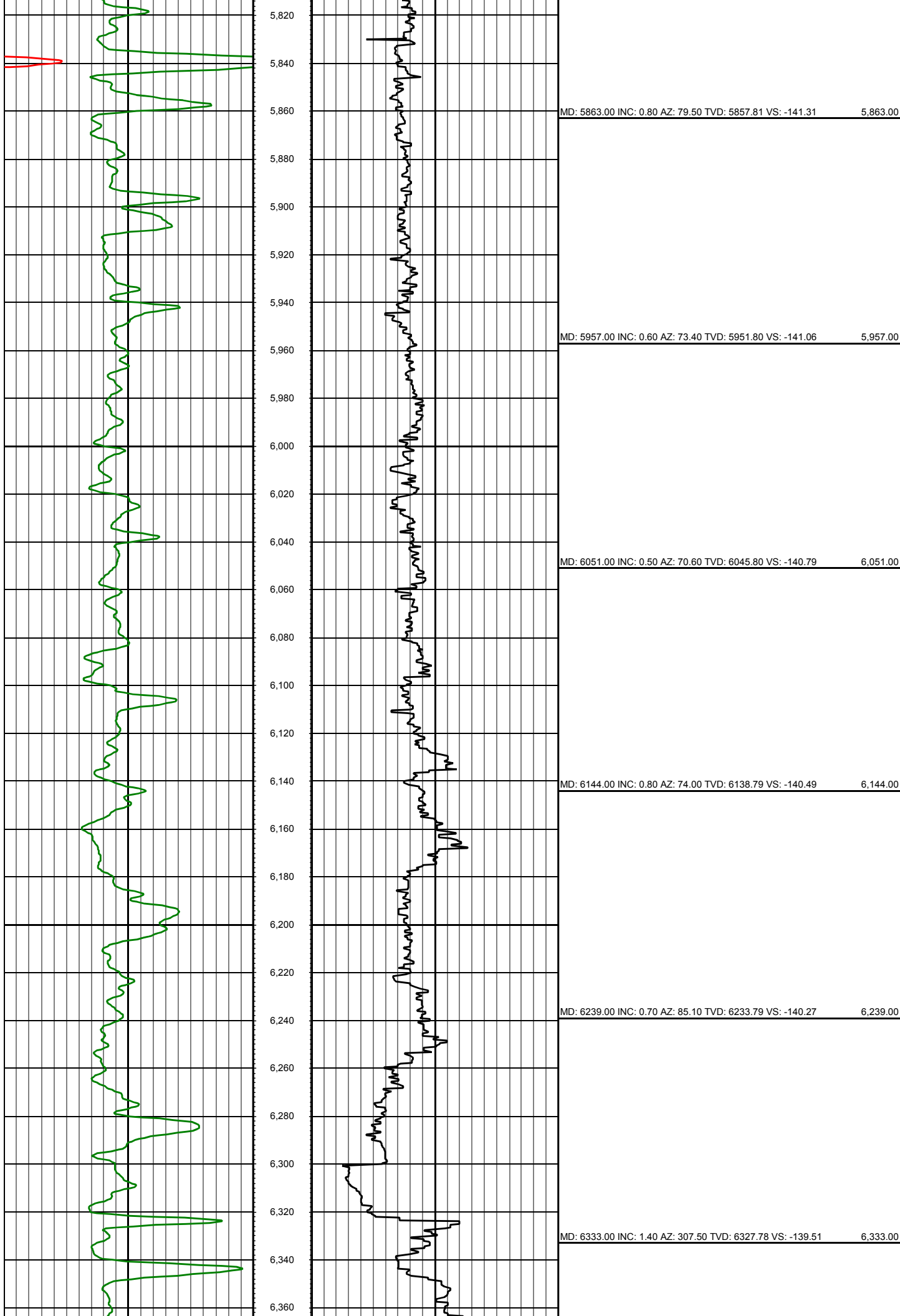


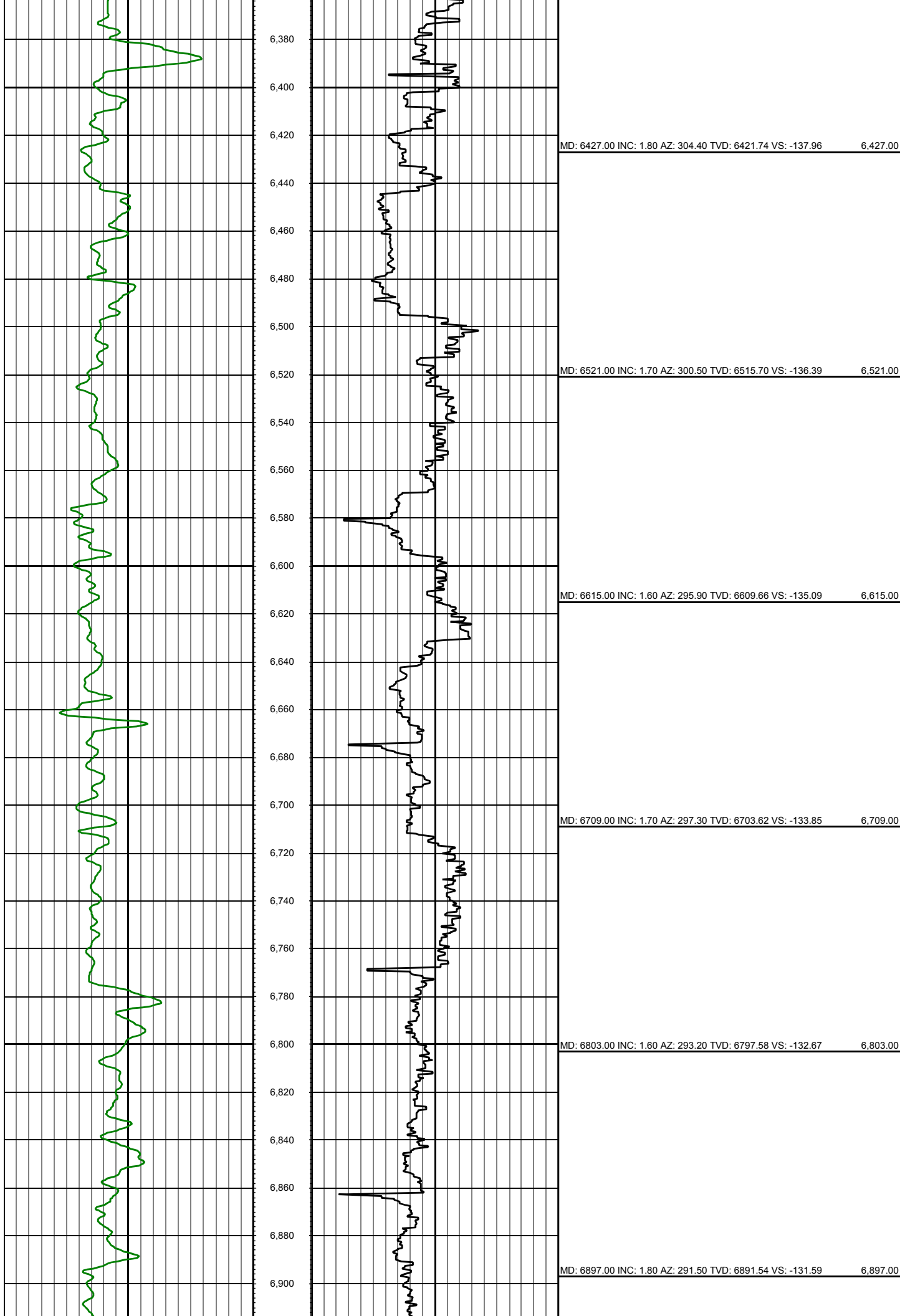
**Pro Directional**Pro Directional
850 Conroe Park West Drive
Conroe, Texas 77303**Cave Lion 5 Fededral WC 5H_ST 1****Scale 2":100' - MD****12/3/2017 2:44 AM****Oper. Company:** Marathon Oil**Well:** Cave Lion 5 Fededral WC 5H_ST 1**Field:** WolfCamp**Rig:** H&P 423**Well ID:** 30-025-44102**Job Number:** LNM1336517**State:** New Mexcio**County:** Lea**Country:** USA**Location:** 7 Miles West of Jal, NM**Start Date:** 11/08/2017 08:50:00**End Date:** 12/03/2017 02:26:19**Latitude:** 32° 3' 55.7194 N**Longitude:** 103° 23' 47.3706 W**Elev GL:** 3270**Elev DF:** 25**Elev KB:** 3295**Operator 1:** Miles A. Compton IV**Operator 2:** Mike Remore**Notes:** NAD 1927 (NADCON CONUS), US State Plane 1927 (Exact Solution), New Mexico East 3001

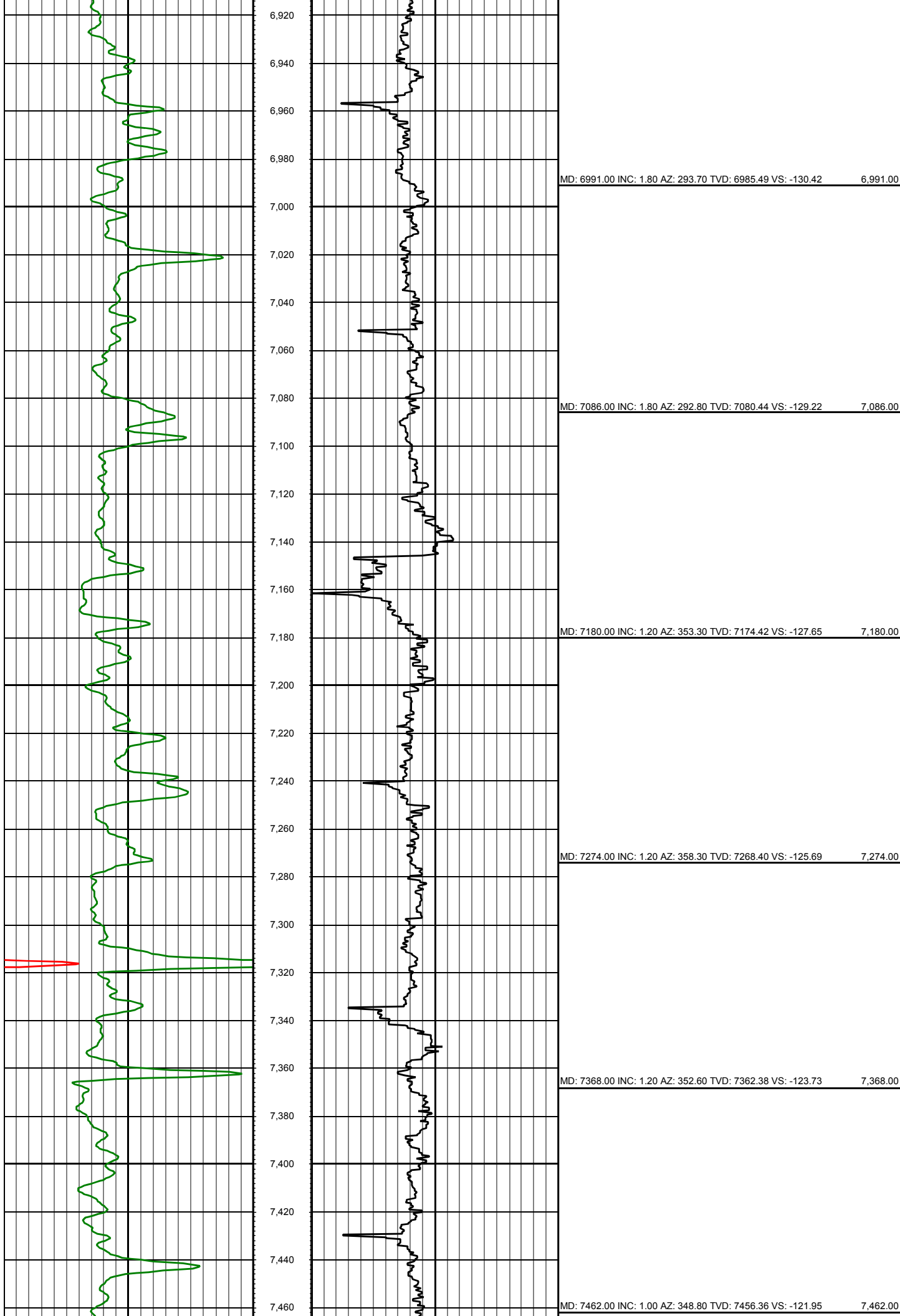
Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	3023	3023	3023	3081	3023
Bit Size	8 3/4	8 3/4	8 3/4	6 1/8	6 1/8
Cal Factor	4.463	4.463	4.463	2.808	2.808
Survey Offset	60.00	60.00	62.00	54.00	51.00
Gamma Offset	48.00	48.00	50.00	42.00	39.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	5450.00	9175.00	10373.00	11840.00	12435.00
StartDate	11/7/2017	11/10/2017	11/11/2017	11/17/2017	11/19/2017
StartTime	23:30	06:30	17:00	00:14	22:10
EndDepth	9175.00	10373.00	11840.00	12435.00	13566.00
EndDate	11/10/2017	11/11/2017	11/14/2017	11/19/2017	11/22/2017
EndTime	05:00	14:30	23:30	21:20	07:15
Mud Type	WBM	WBM	WBM	OBM	OBM
Mud Weight	9	9.2	9.23	12.3	12
Funnel Viscosity	27	26	31	62	70
Plastic Viscosity	1	2	2	37	26
Yield Point	1	1	2	17	11
Gel Strength	1/1	1/3	2/4	19/27	11/25
Solids Content	2.73	3.06	2.78	17.5	18.5
Sand Content	.5	.5	.25	.001	TR
Mud Alkalinity				1.1	2.3
Chlorides	34000	52000	58000	38000	39000
Temperature	131	136	147	149	176
Tool Run Data	Run #6	Run #7	Run #8	Run #9	Run #10
Tool S/N	3081	3081	3087	2573	3081
Bit Size	6 1/8	6 1/8	6 1/8	6 1/8	6 1/8
Cal Factor	2.808	2.808	2.808	2.808	2.808
Survey Offset	49.00	53.00	58.00	62.00	62.00
Gamma Offset	37.00	41.00	46.00	50.00	50.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	13242.00	13273.00	15440.00	16187.00	16187.00
StartDate	11/23/2017	11/25/2017	11/28/2017	11/30/2017	12/1/2017
StartTime	15:20	08:45	08:45	15:30	15:30
EndDepth	13273.00	15440.00	16187.00	16187.00	17275.00
EndDate	11/25/2017	11/28/2017	11/30/2017	12/1/2017	12/3/2017
EndTime	07:00	07:00	13:30	14:20	02:30
Mud Type	OBM	OBM	OBM	OBM	OBM
Mud Weight	12.4	12.0	12.4	12.4	12.6
Funnel Viscosity	88	64	88	88	86

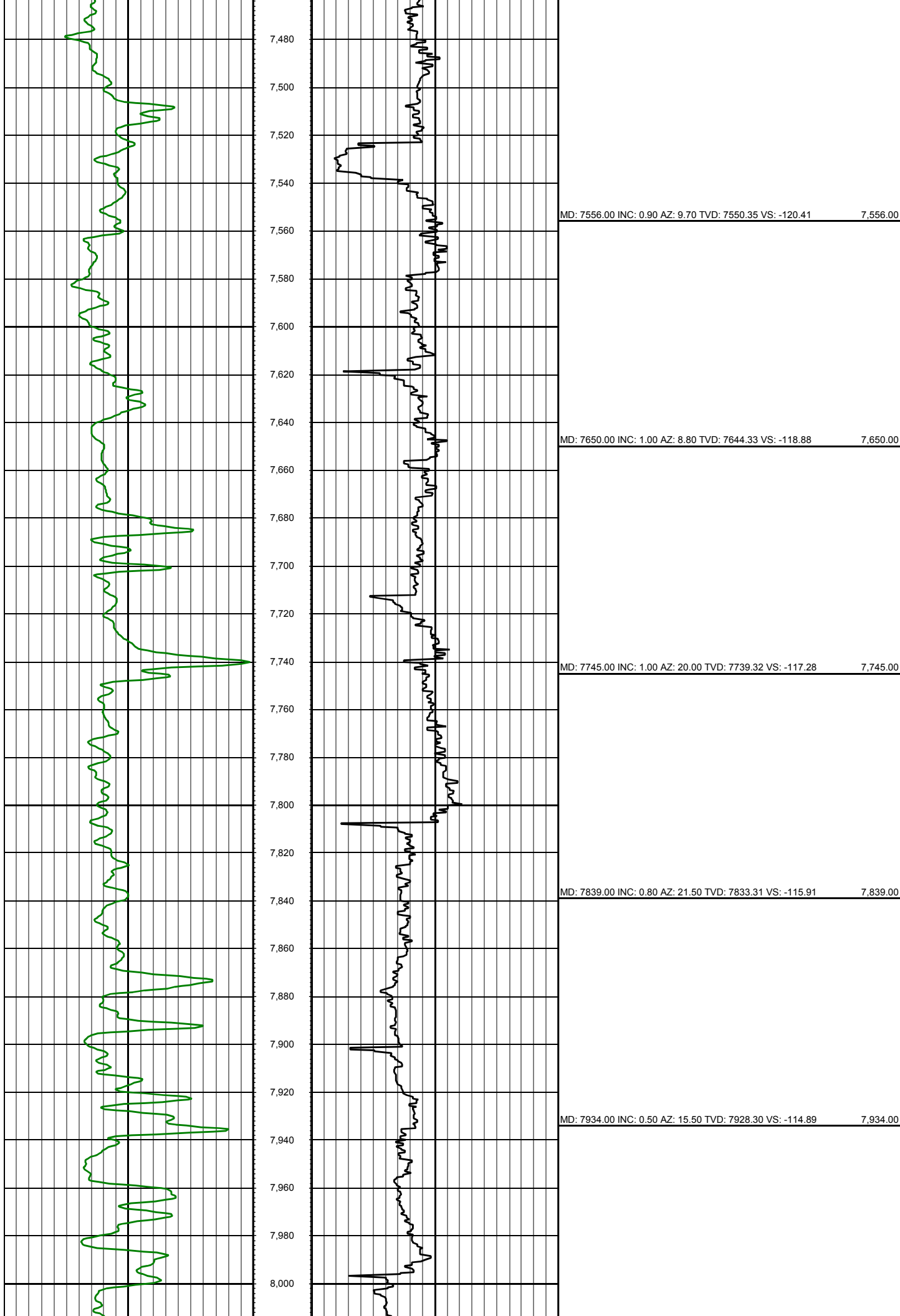
Plastic Viscosity	26	25	20	20	22
Yield Point	10	9	8	8	10
Gel Strength	11/23	9/21/24	12/20/24	12/20/24	13/20/24
Solids Content	18.43	19.52	21.31	21.31	21.70
Sand Content	TR	TR	TR	TR	TR
Mud Alkalinity	2.3	2.5	2.7	2.7	2.8
Chlorides	39000	38000	41000	41000	44000
Temperature	171	190	198	NA	196
Hole Data			Casing Data		
Size	From	To	Size	From	To
13 3/8	0.00	1106.00	13 3/8	0.00	1106.00
12 1/4	1106.00	5450.00	9 5/8	0.00	5440.00
8 3/4	5450.00	11840.00	7	0.00	11840.00
6 1/8	11840.00	17275.00			
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.					

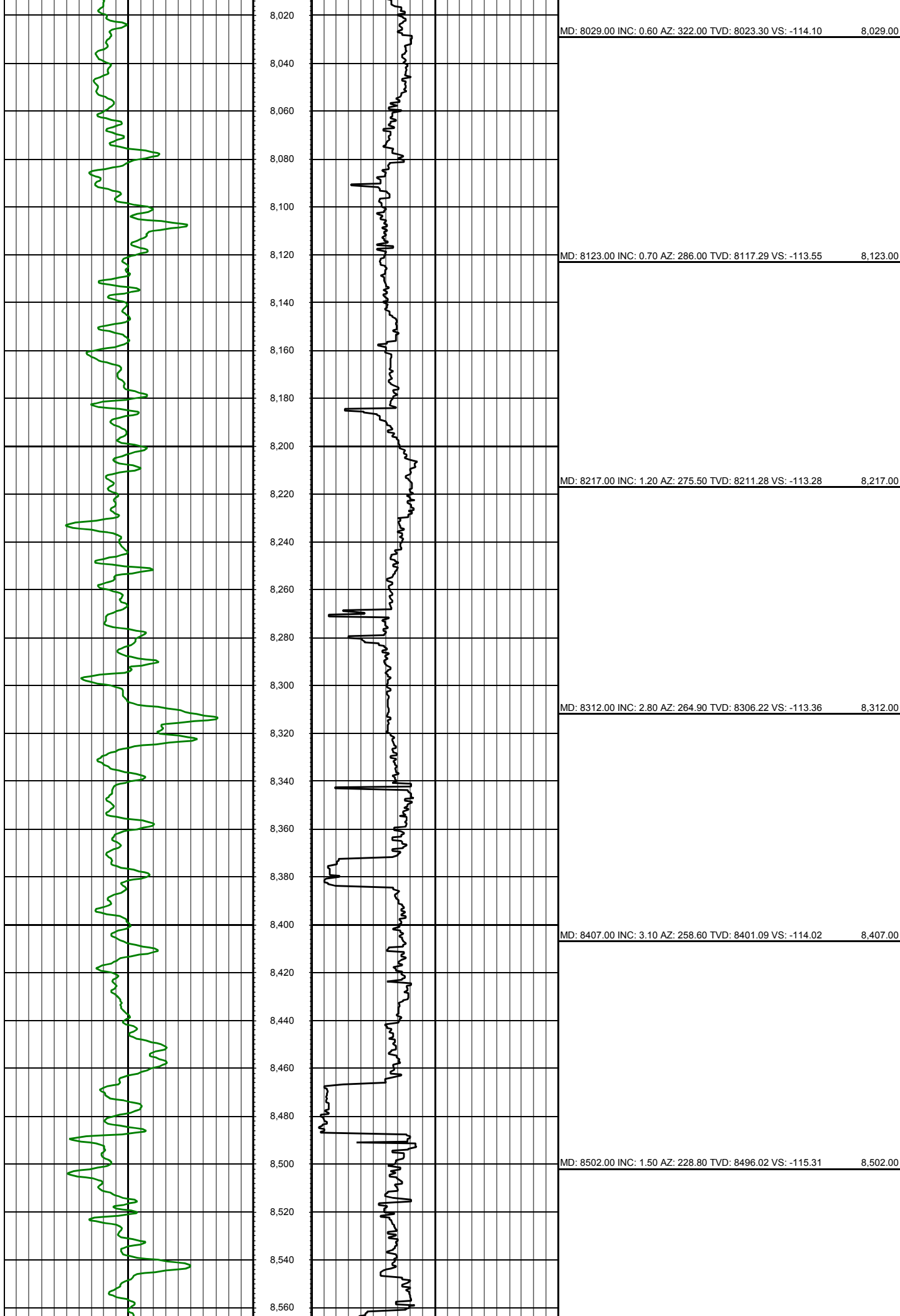


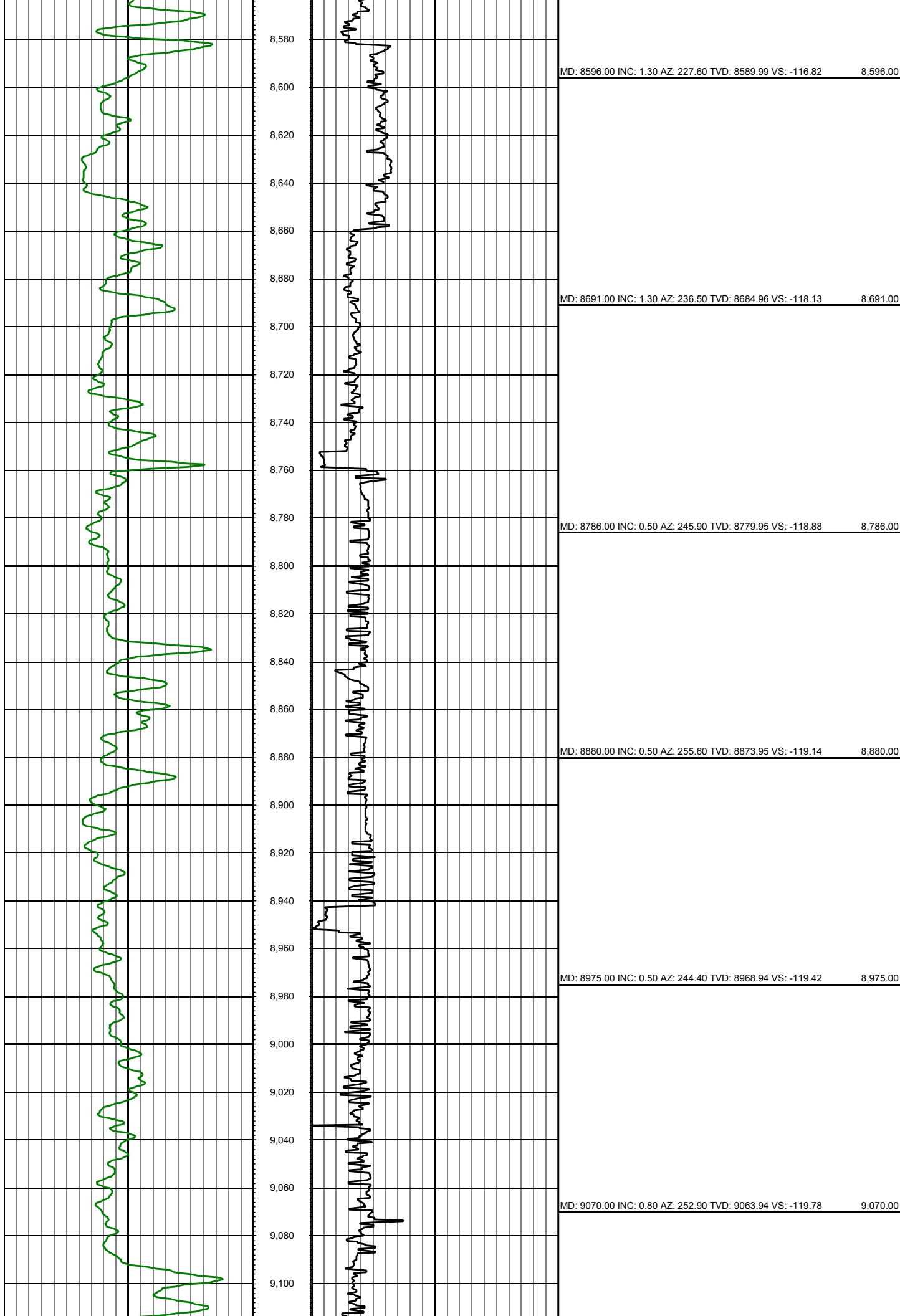


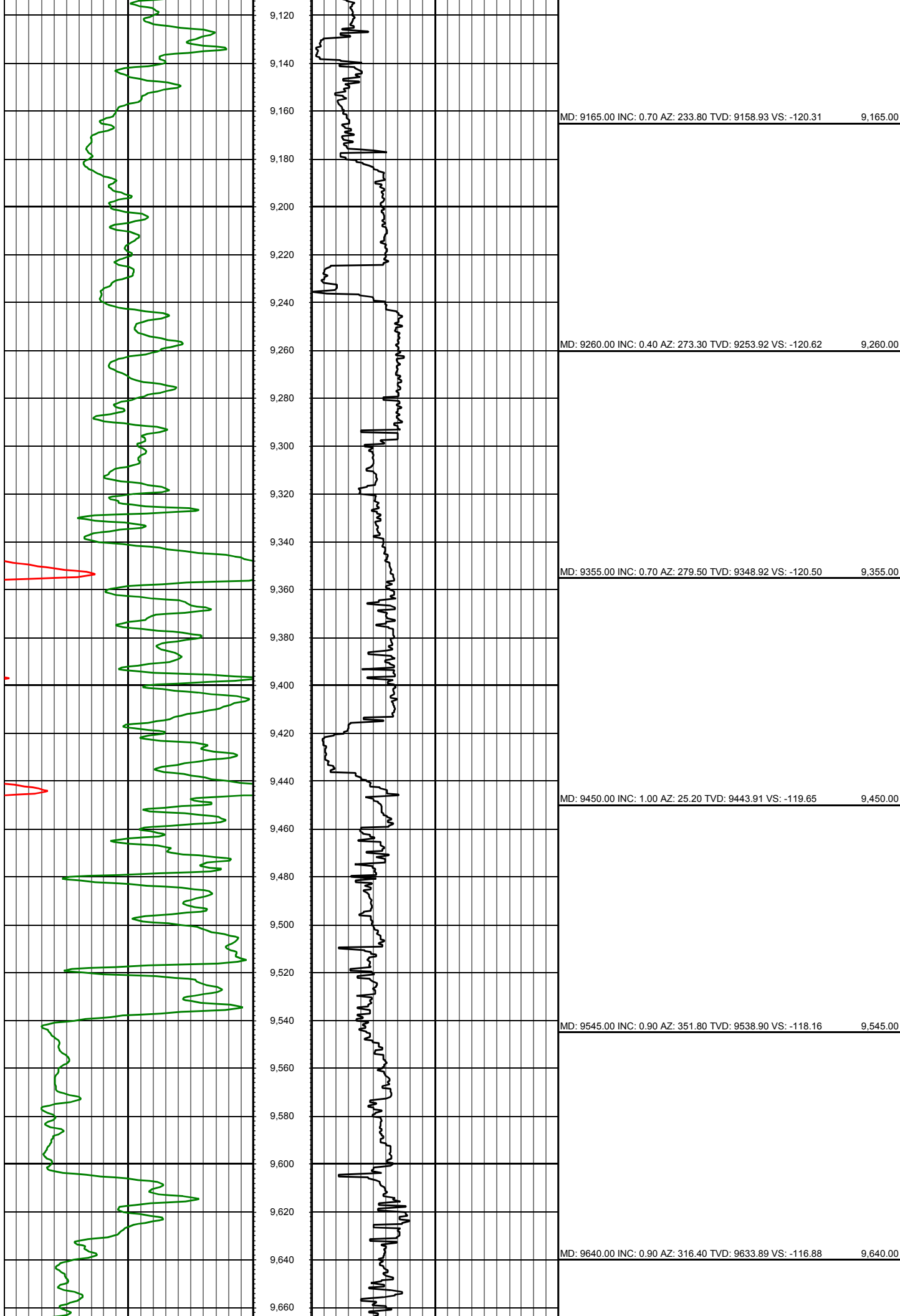


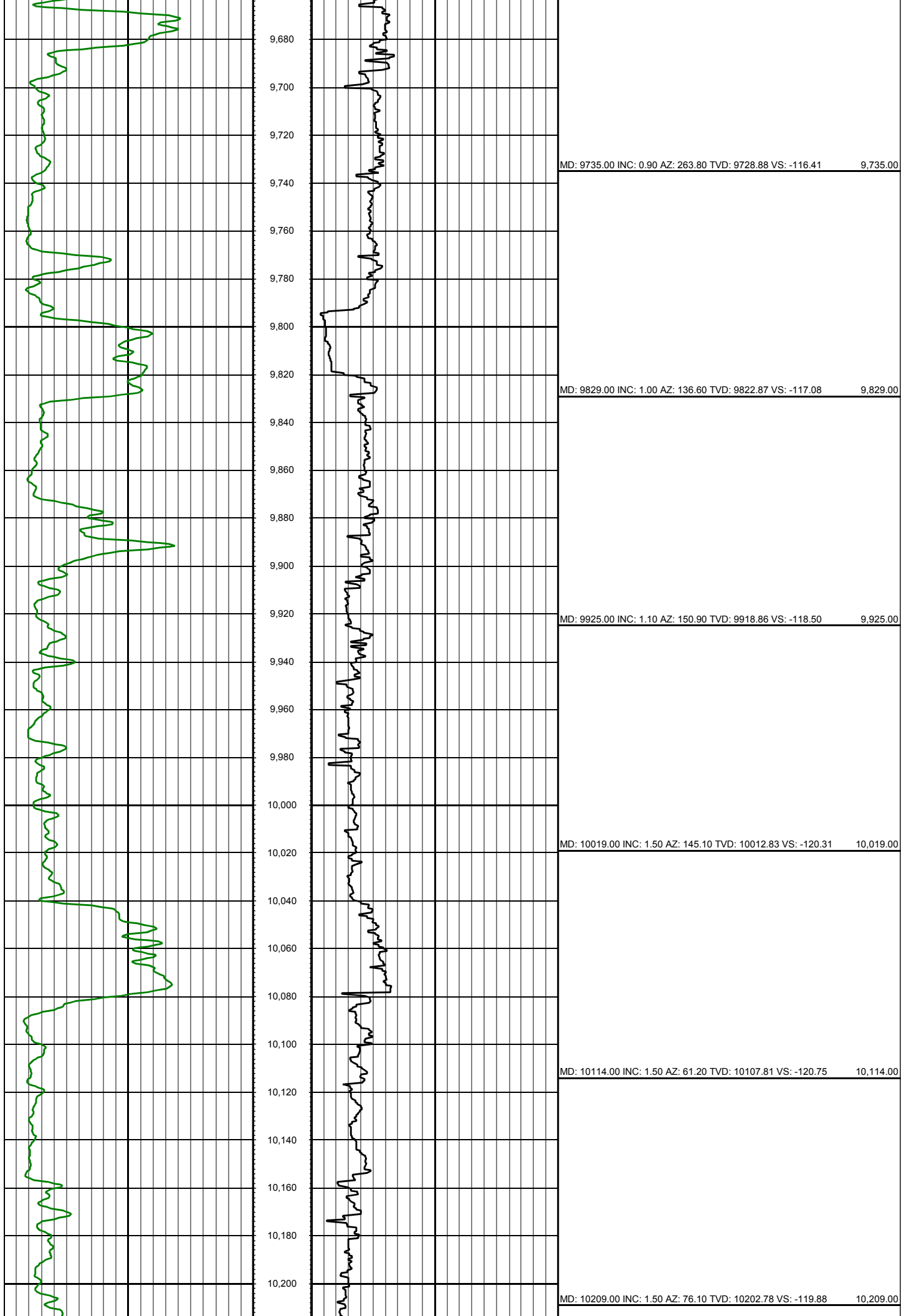


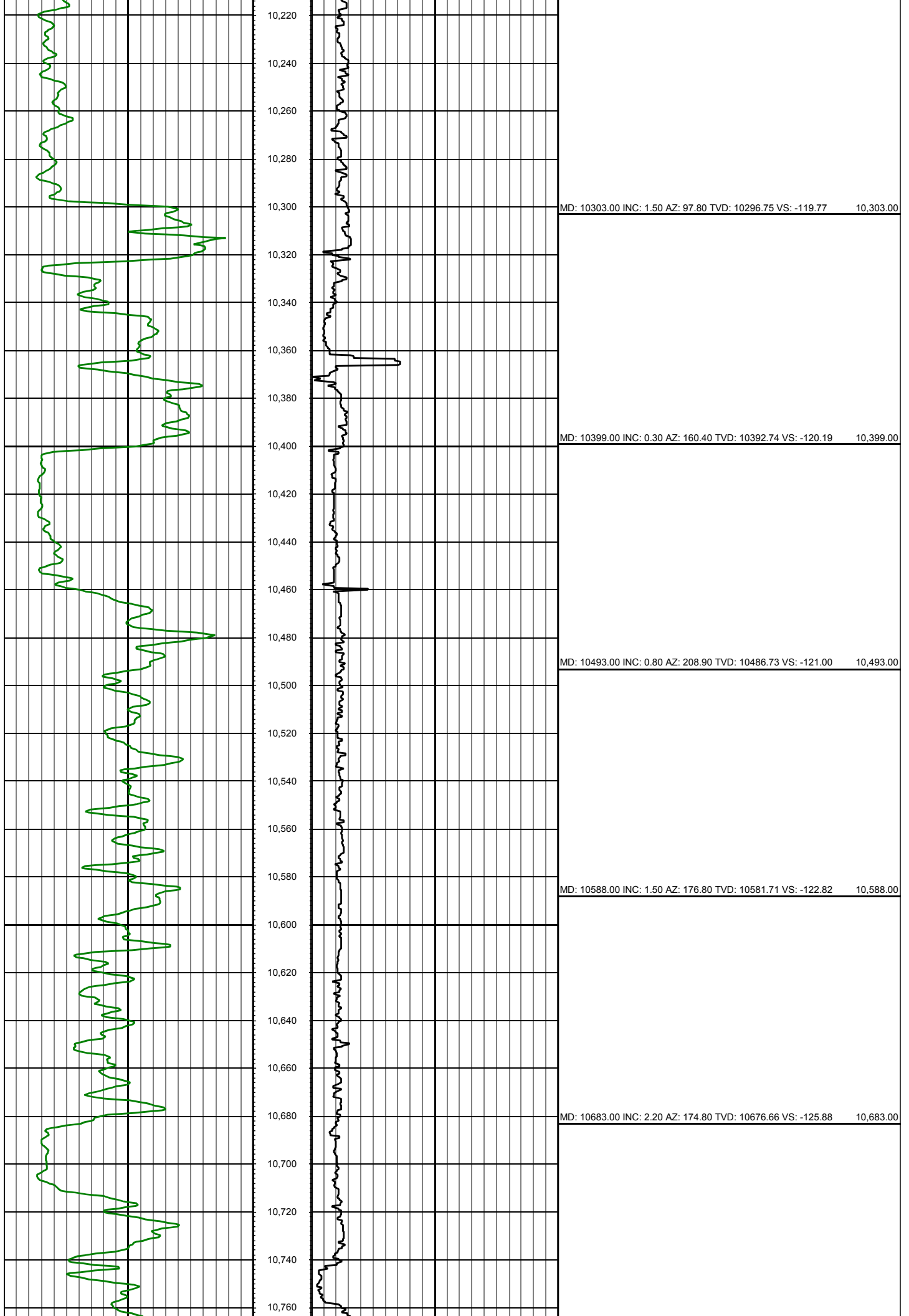


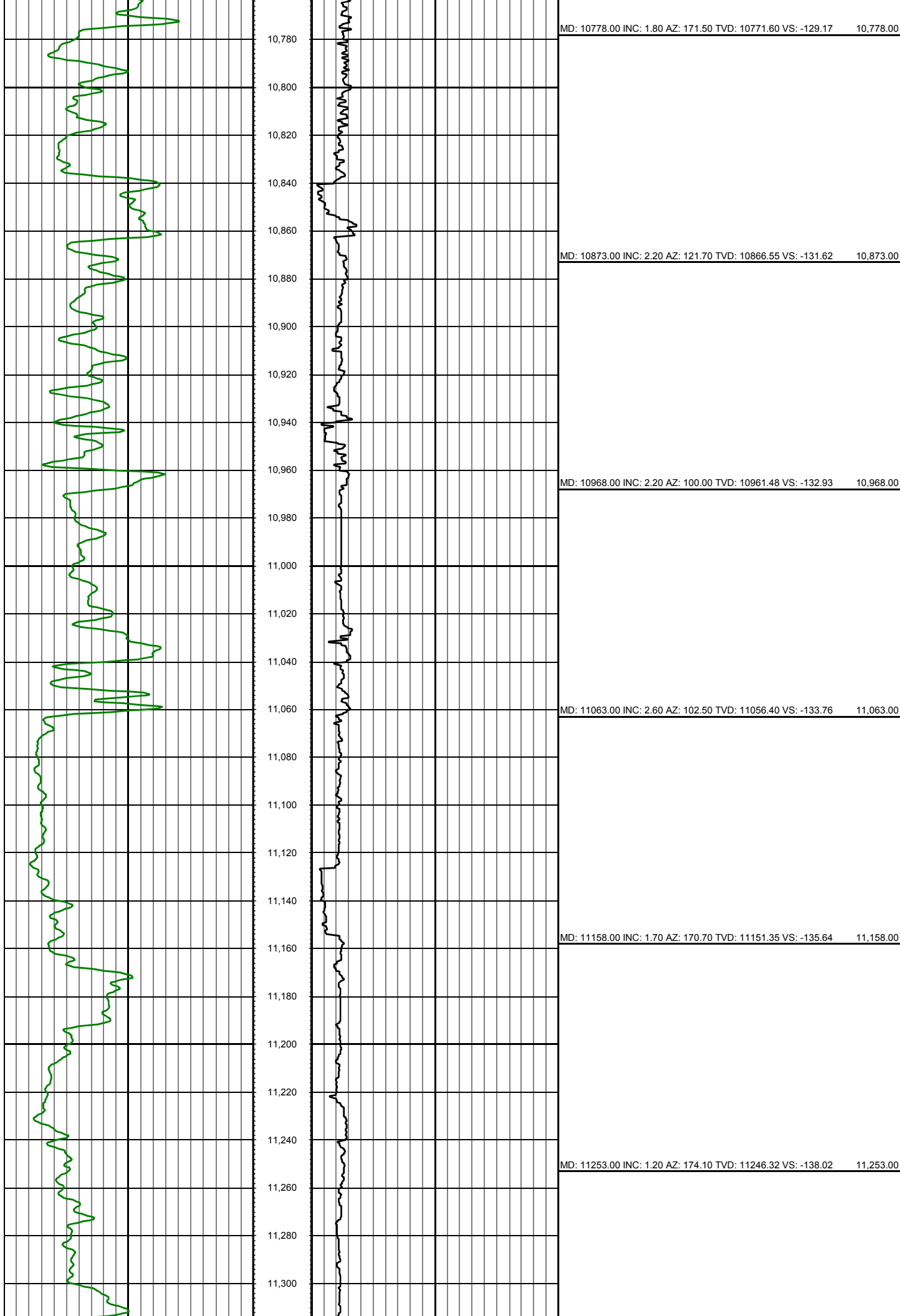


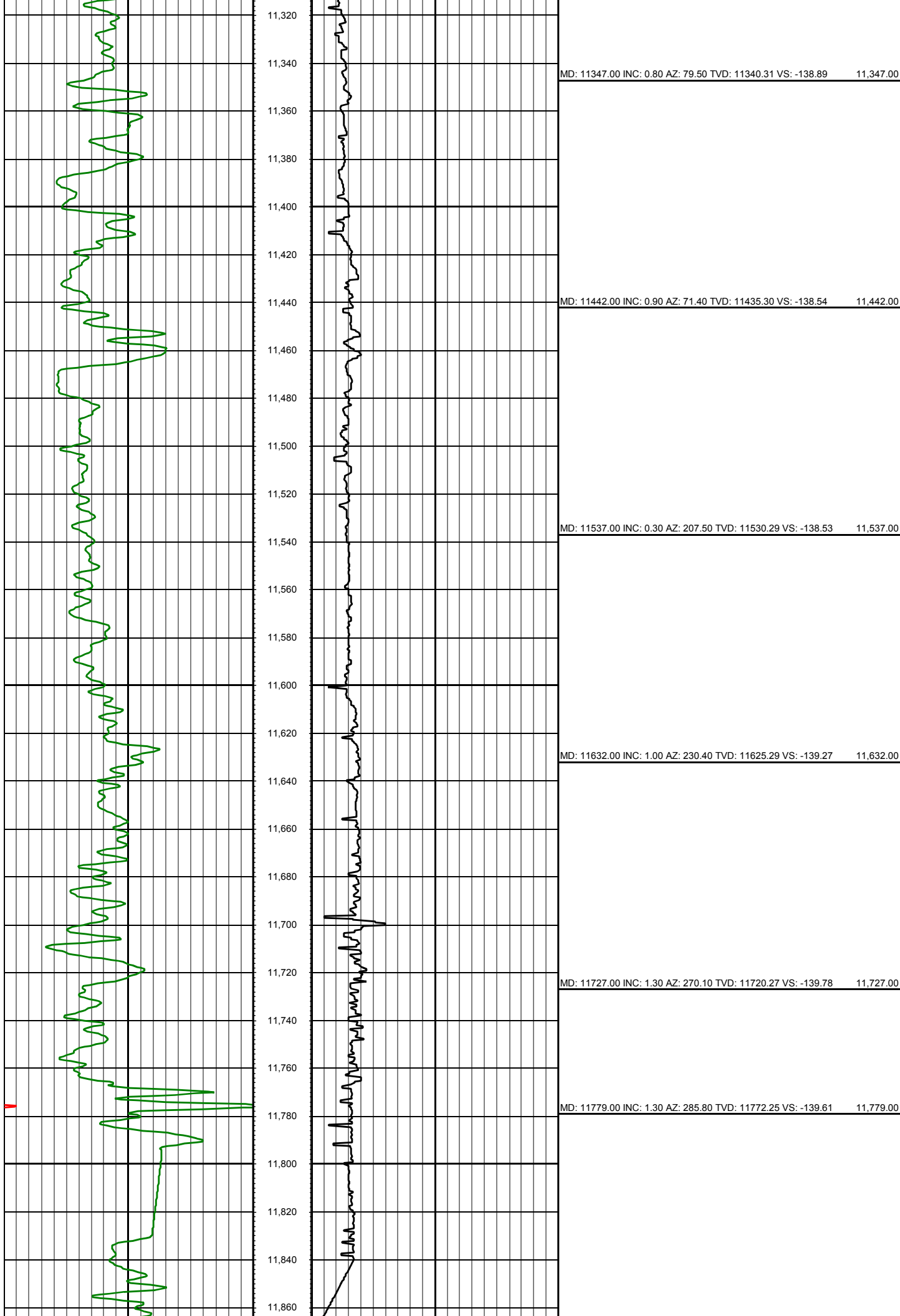


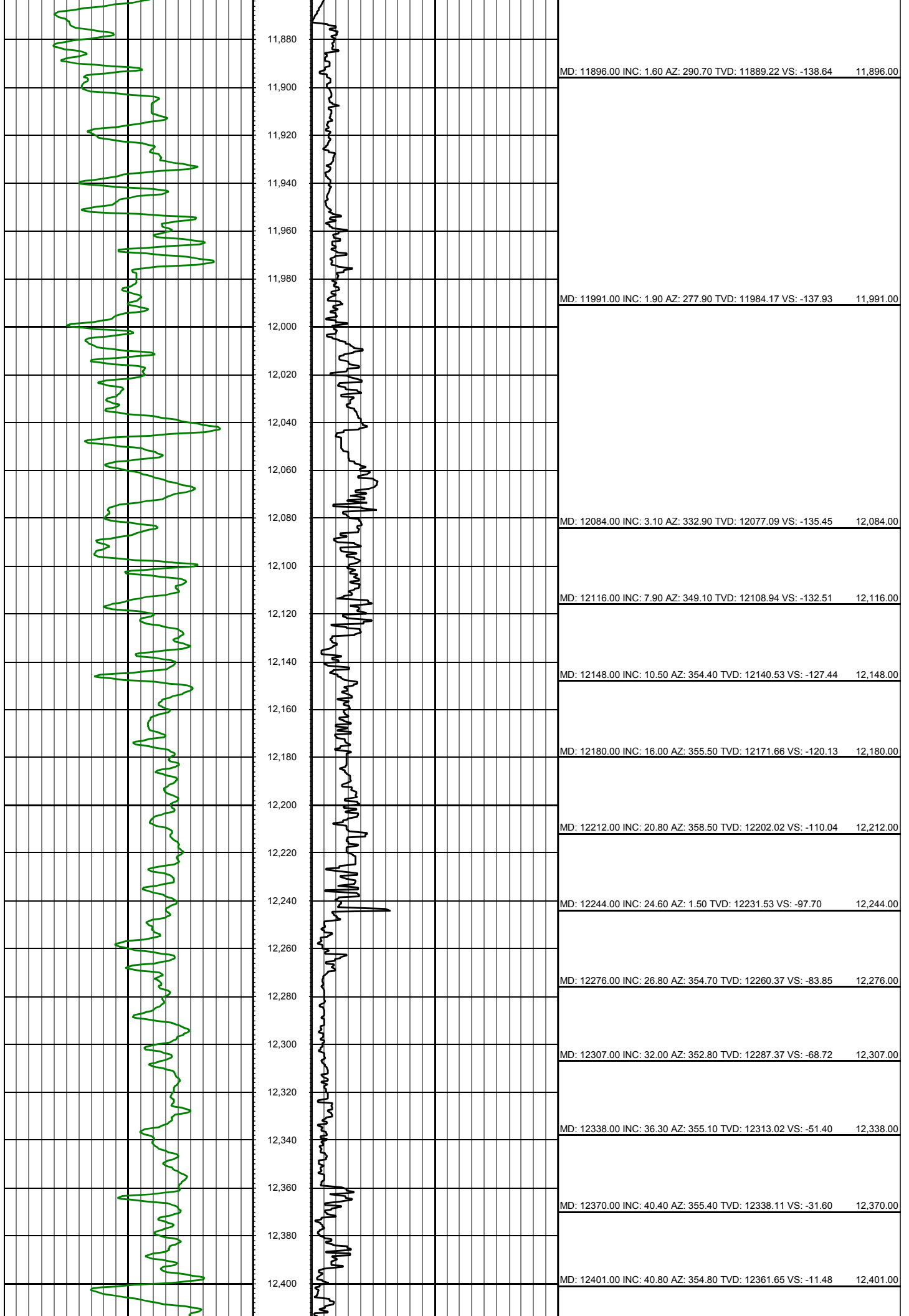


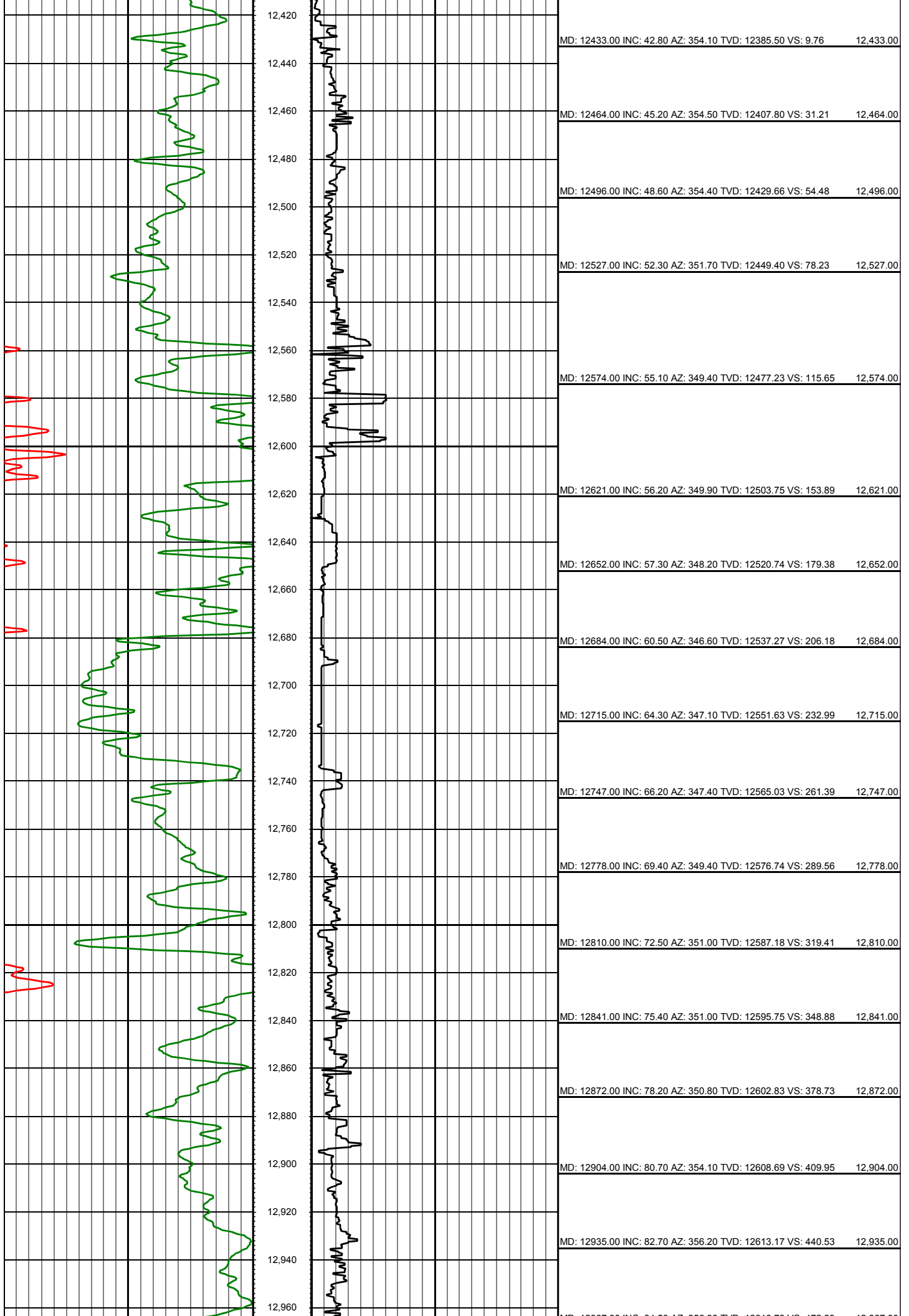


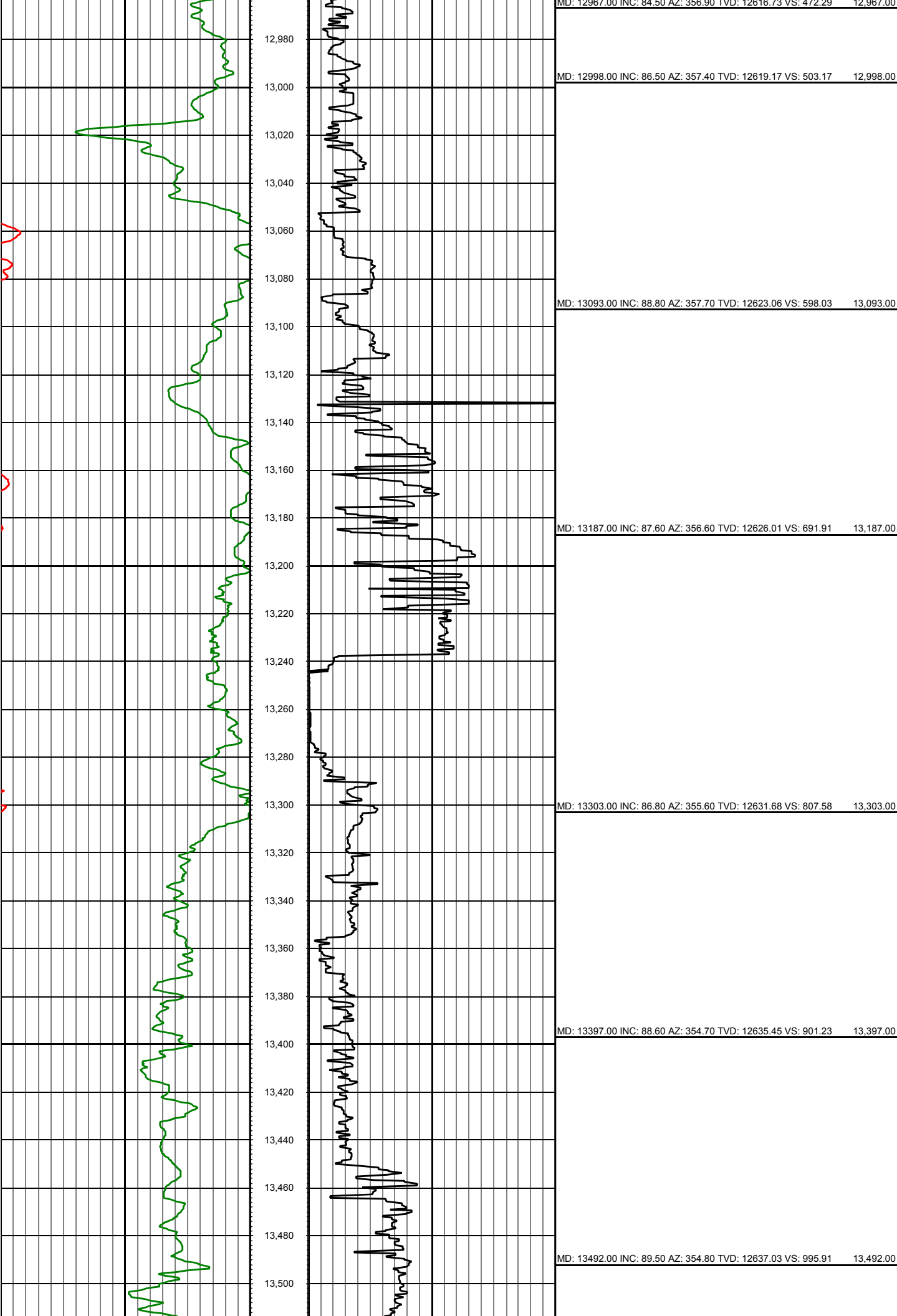


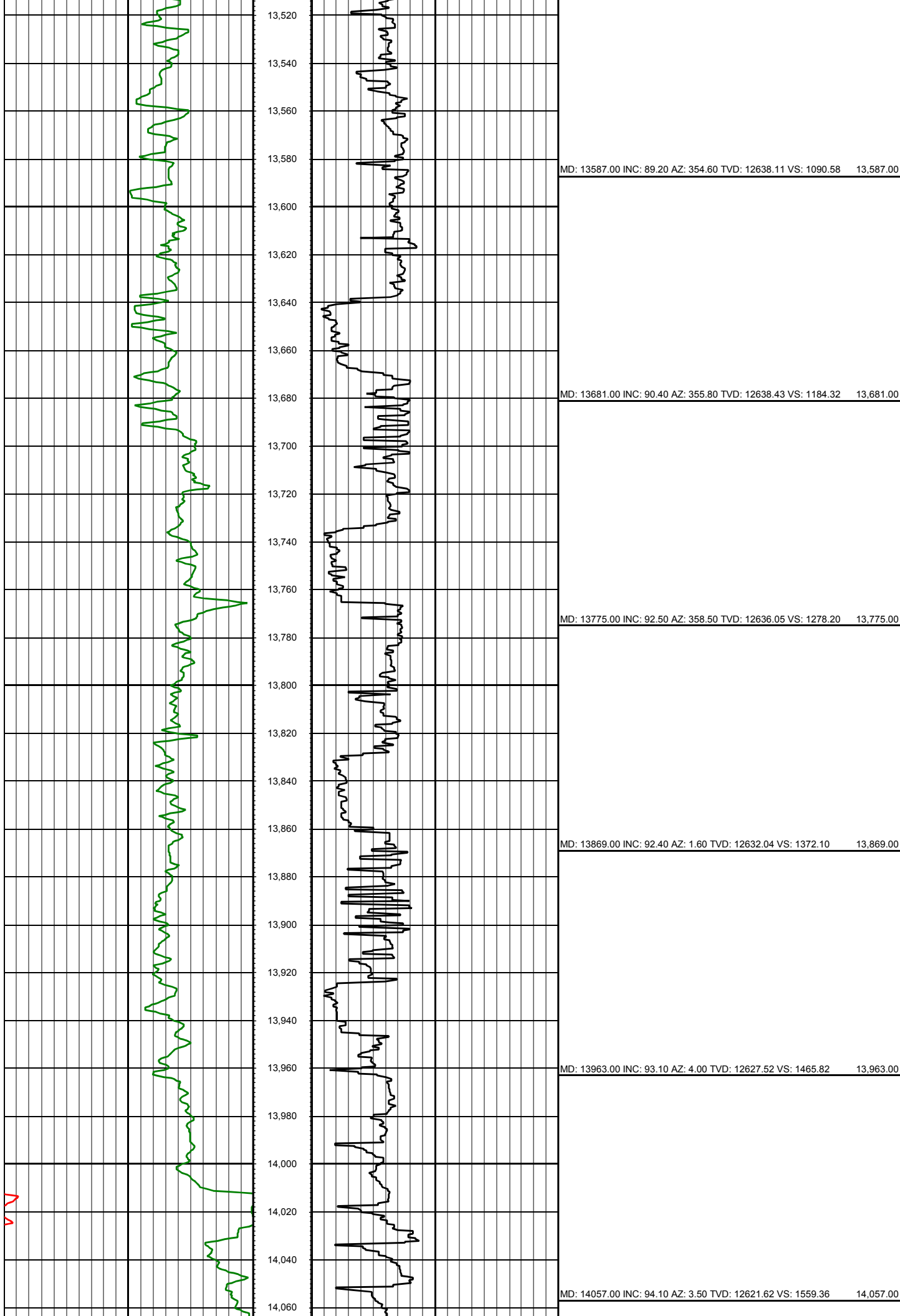


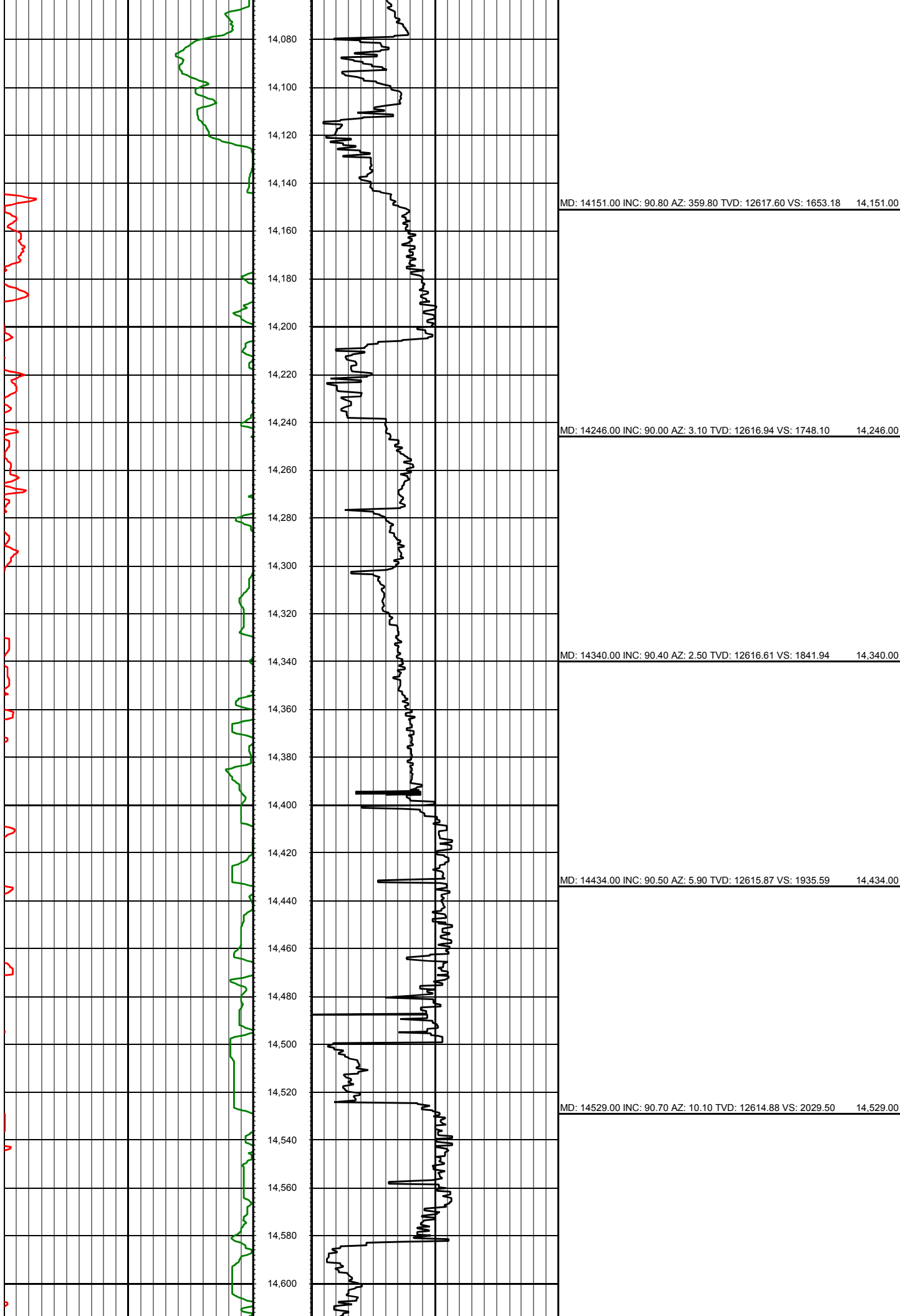


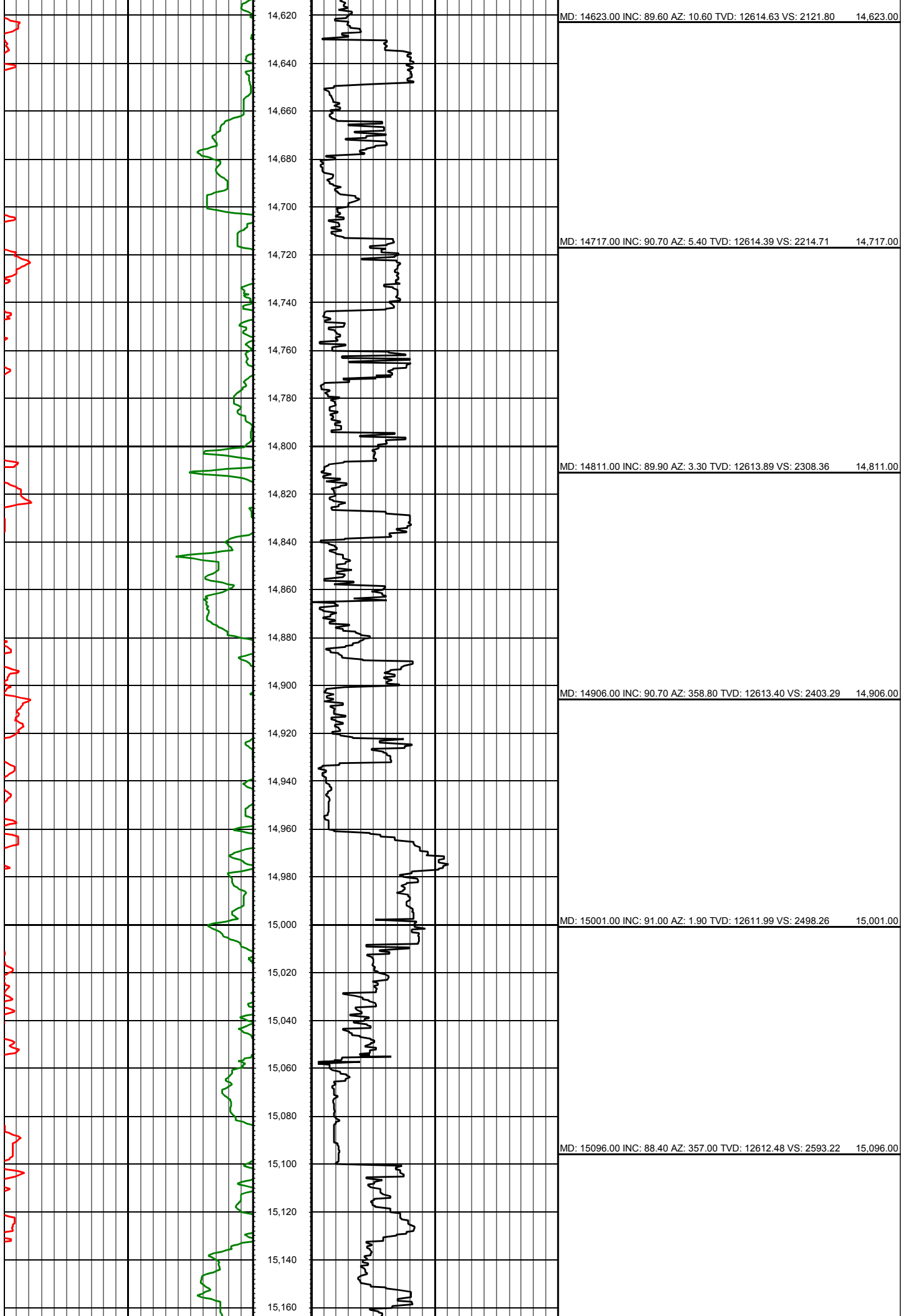


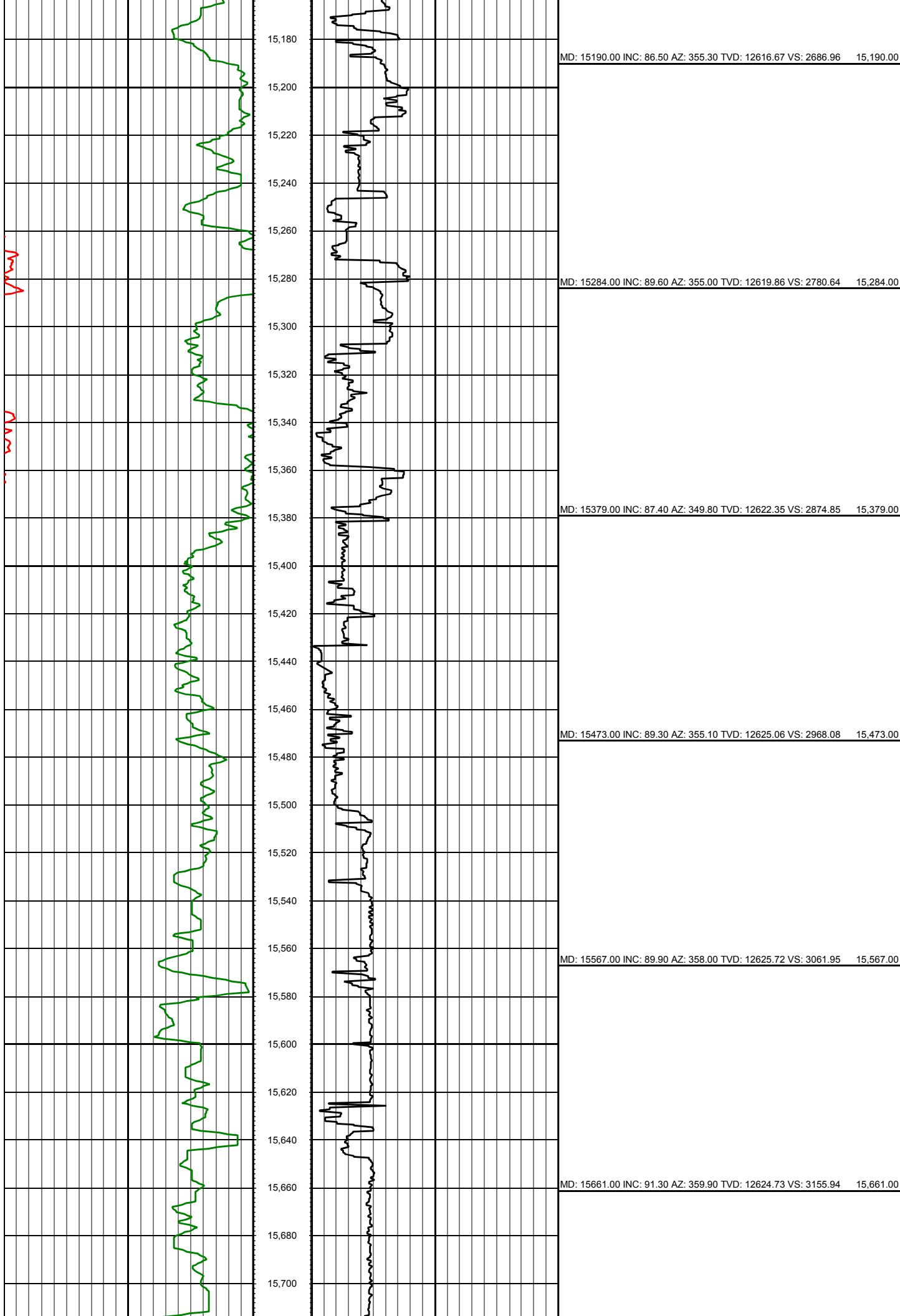


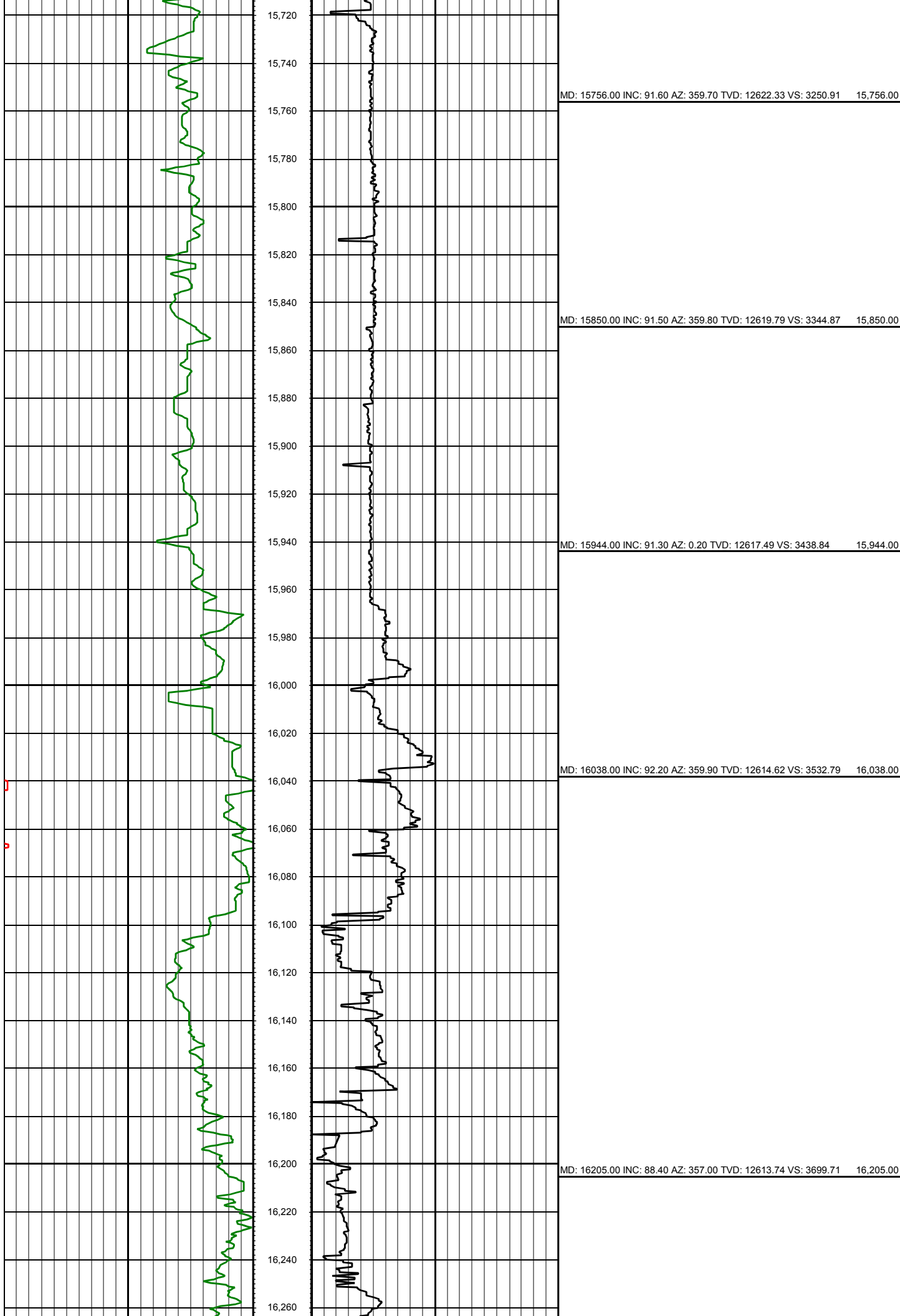


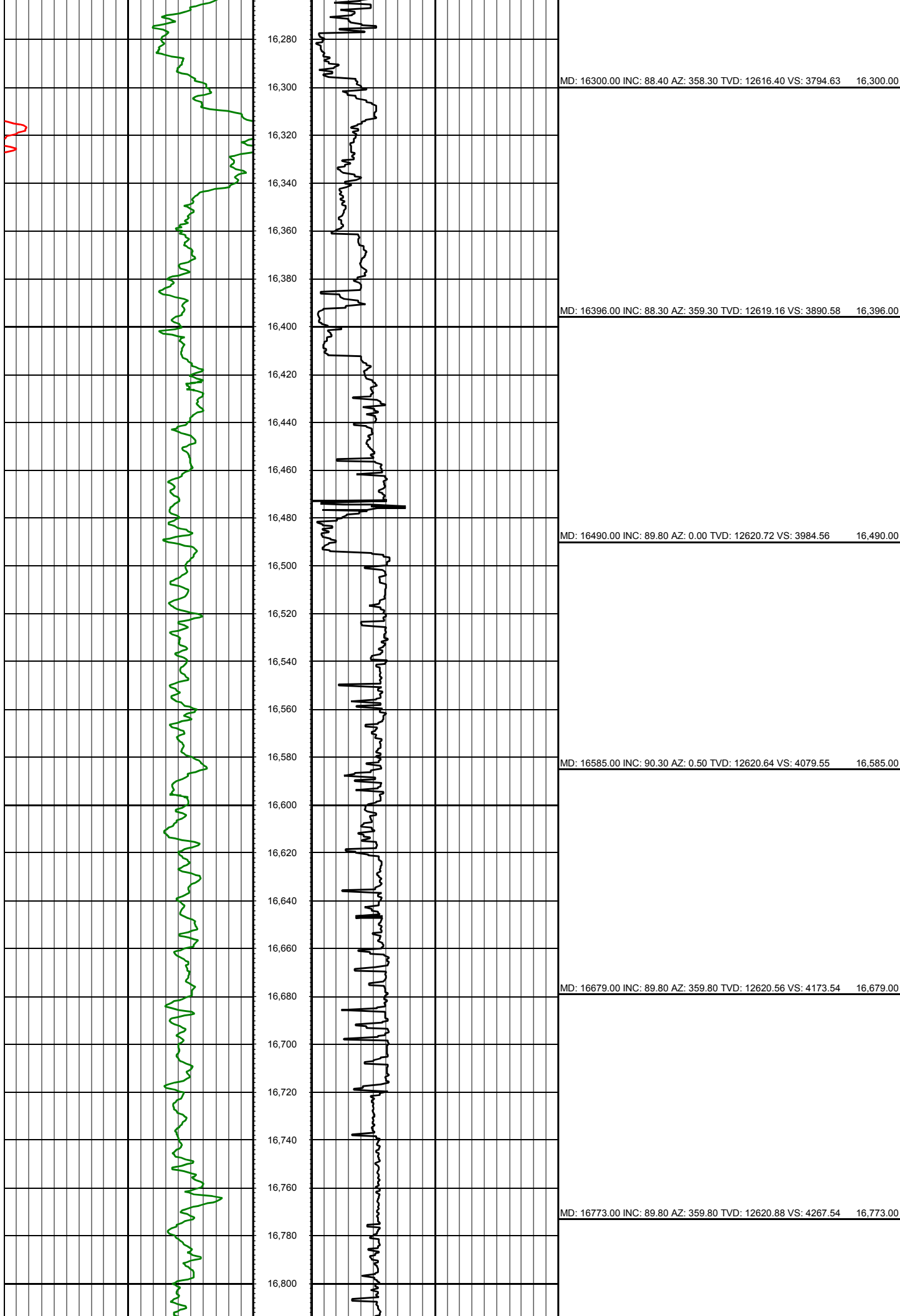


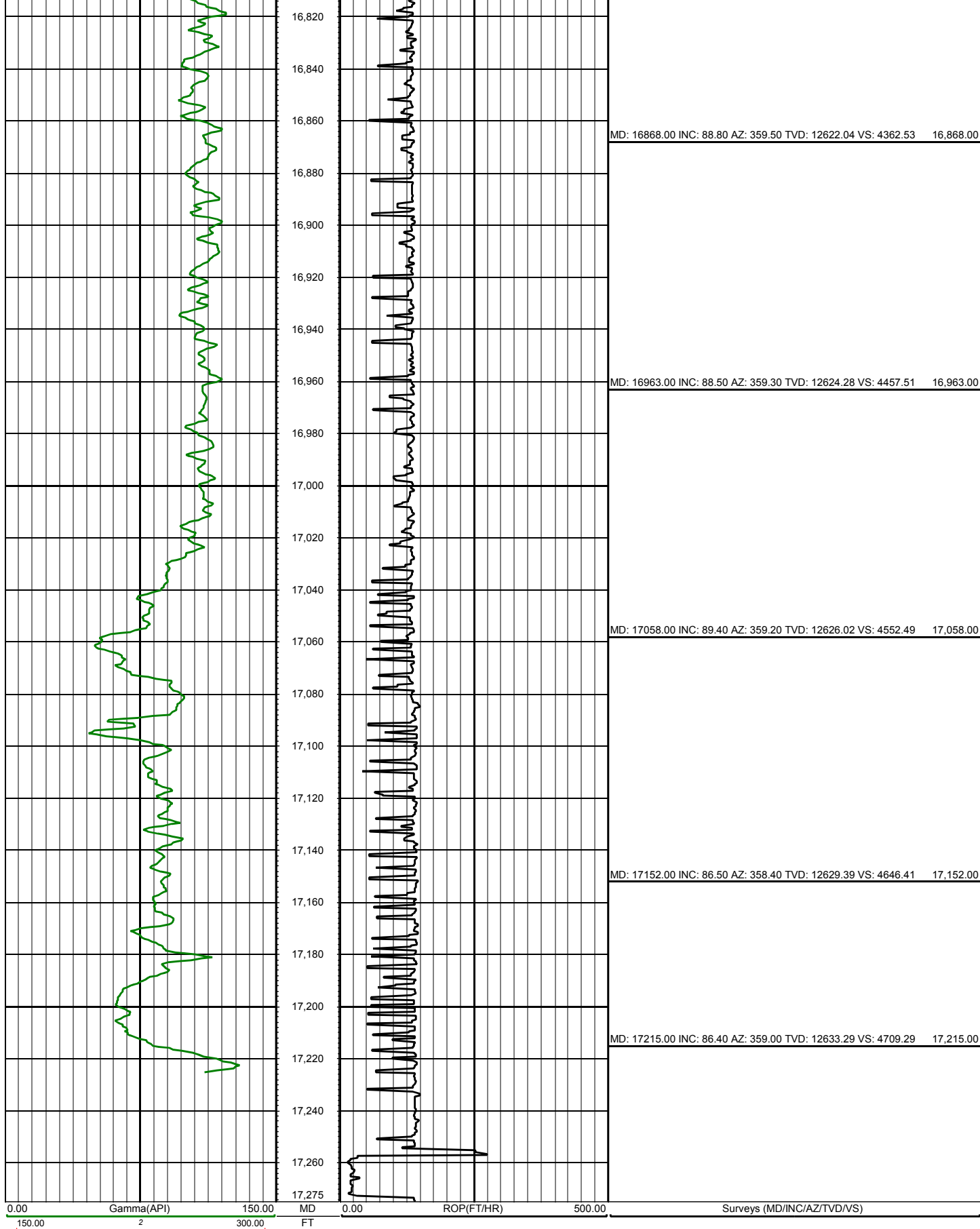












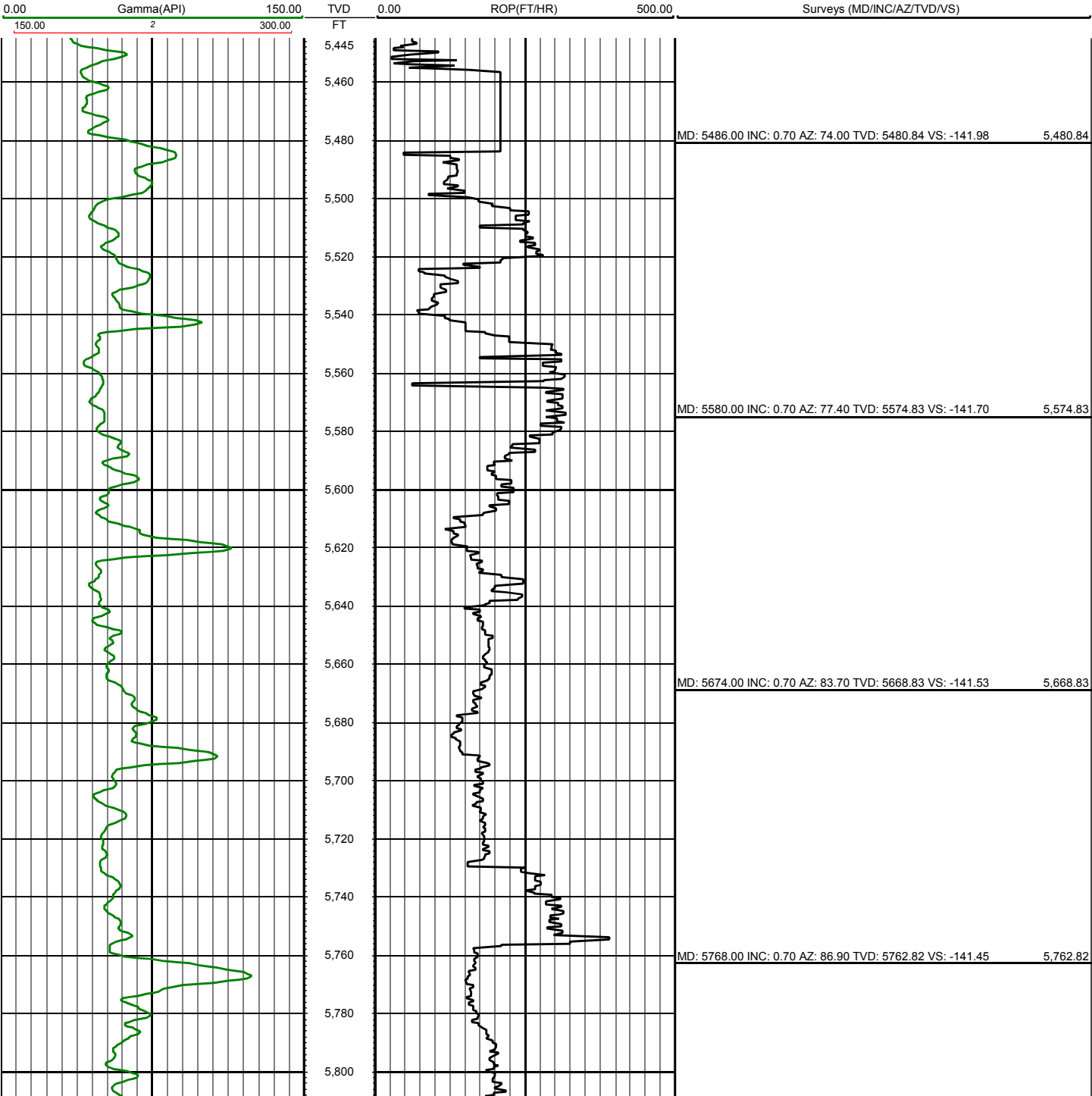
**Pro Directional**

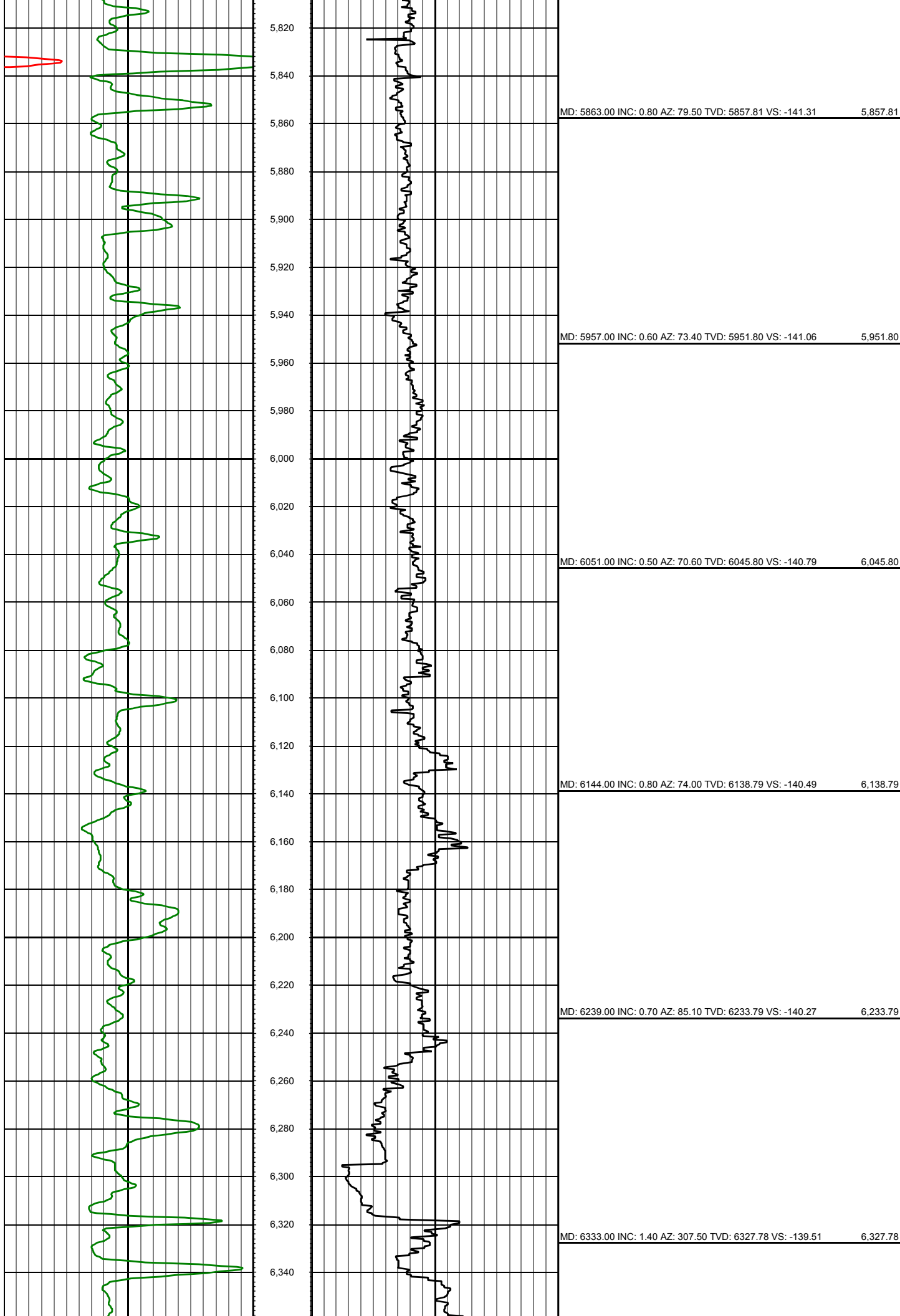
Pro Directional
850 Conroe Park West Drive
Conroe, Texas 77303

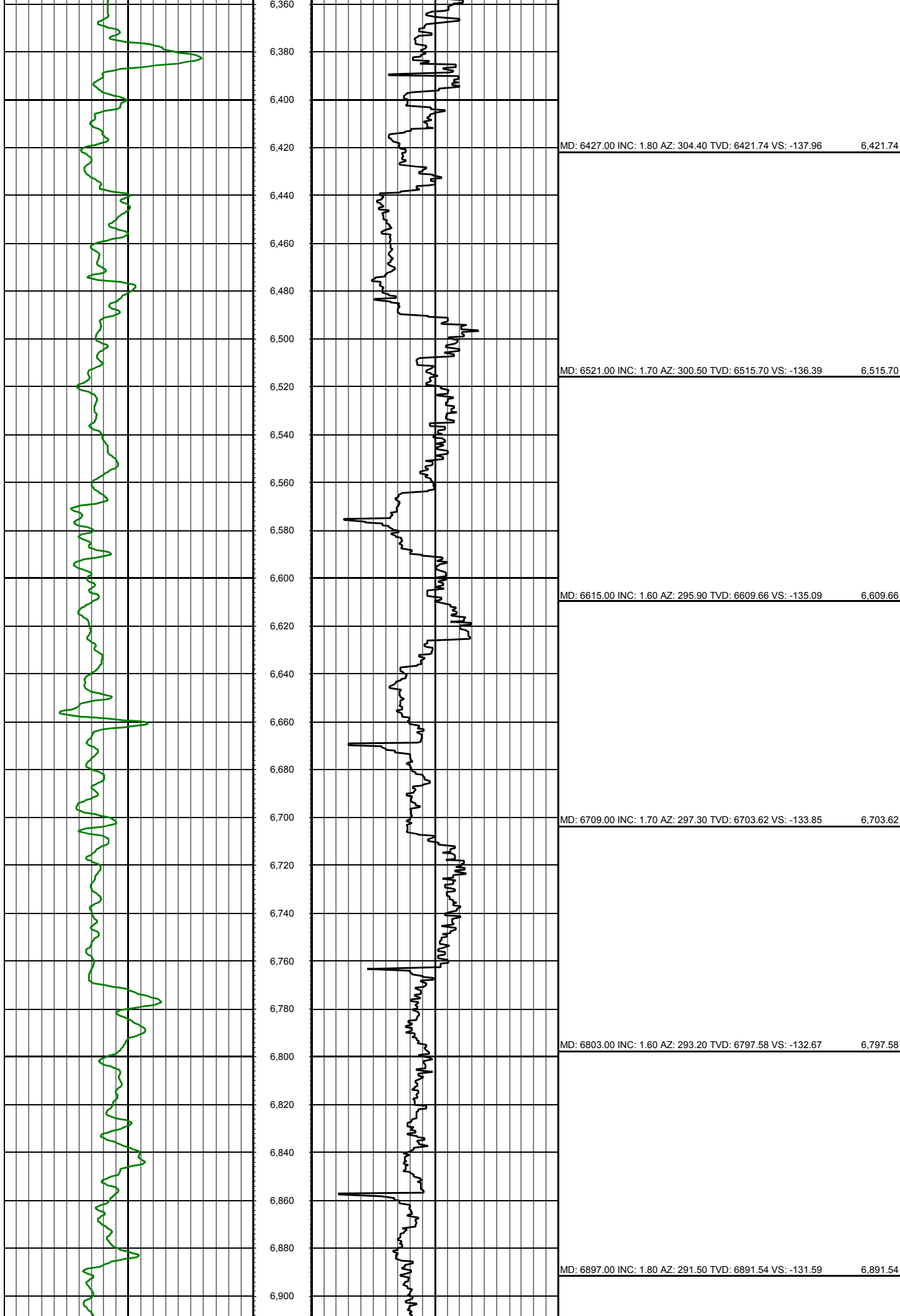
Cave Lion 5 Fededral WC 5H_ST 1**Scale 2":100' - TVD****12/3/2017 2:48 AM****Oper. Company:** Marathon Oil**Well:** Cave Lion 5 Fededral WC 5H_ST 1**Field:** WolfCamp**Rig:** H&P 423**Well ID:** 30-025-44102**Job Number:** LNM1336517**State:** New Mexcio**County:** Lea**Country:** USA**Location:** 7 Miles West of Jal, NM**Start Date:** 11/08/2017 08:50:00**End Date:** 12/03/2017 02:26:19**Latitude:** 32° 3' 55.7194 N**Longitude:** 103° 23' 47.3706 W**Elev GL:** 3270**Elev DF:** 25**Elev KB:** 3295**Operator 1:** Miles A. Compton IV**Operator 2:** Mike Remore**Notes:** NAD 1927 (NADCON CONUS), US State Plane 1927 (Exact Solution), New Mexico East 3001

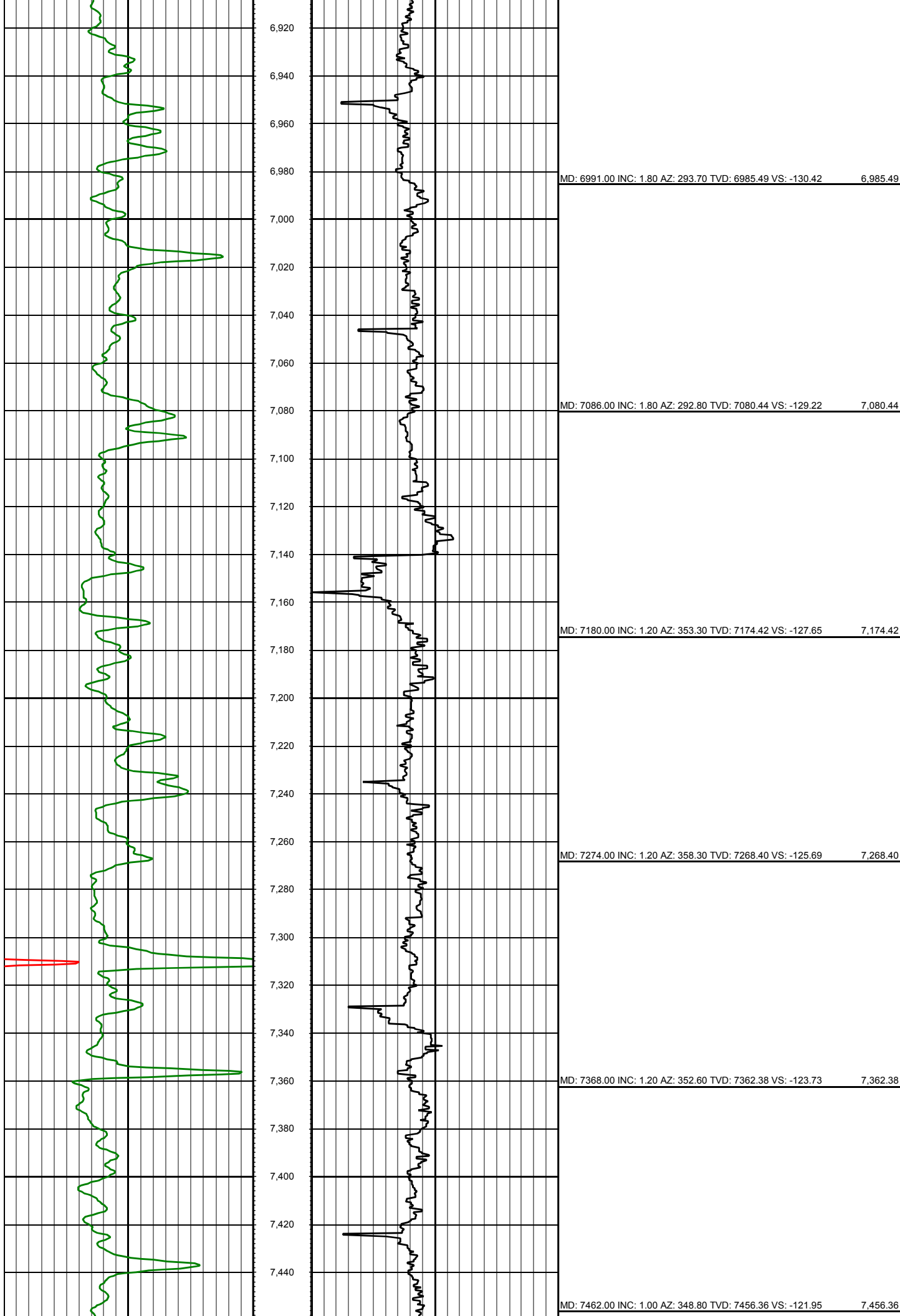
Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	3023	3023	3023	3081	3023
Bit Size	8 3/4	8 3/4	8 3/4	6 1/8	6 1/8
Cal Factor	4.463	4.463	4.463	2.808	2.808
Survey Offset	60.00	60.00	62.00	54.00	51.00
Gamma Offset	48.00	48.00	50.00	42.00	39.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	5450.00	9175.00	10373.00	11840.00	12435.00
StartDate	11/7/2017	11/10/2017	11/11/2017	11/17/2017	11/19/2017
StartTime	23:30	06:30	17:00	00:14	22:10
EndDepth	9175.00	10373.00	11840.00	12435.00	13566.00
EndDate	11/10/2017	11/11/2017	11/14/2017	11/19/2017	11/22/2017
EndTime	05:00	14:30	23:30	21:20	07:15
Mud Type	WBM	WBM	WBM	OBM	OBM
Mud Weight	9	9.2	9.23	12.3	12
Funnel Viscosity	27	26	31	62	70
Plastic Viscosity	1	2	2	37	26
Yield Point	1	1	2	17	11
Gel Strength	1/1	1/3	2/4	19/27	11/25
Solids Content	2.73	3.06	2.78	17.5	18.5
Sand Content	.5	.5	.25	.001	TR
Mud Alkalinity				1.1	2.3
Chlorides	34000	52000	58000	38000	39000
Temperature	131	136	147	149	176
Tool Run Data	Run #6	Run #7	Run #8	Run #9	Run #10
Tool S/N	3081	3081	3087	2573	3081
Bit Size	6 1/8	6 1/8	6 1/8	6 1/8	6 1/8
Cal Factor	2.808	2.808	2.808	2.808	2.808
Survey Offset	49.00	53.00	58.00	62.00	62.00
Gamma Offset	37.00	41.00	46.00	50.00	50.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	13242.00	13273.00	15440.00	16187.00	16187.00
StartDate	11/23/2017	11/25/2017	11/28/2017	11/30/2017	12/1/2017
StartTime	15:20	08:45	08:45	15:30	15:30
EndDepth	13273.00	15440.00	16187.00	16187.00	17275.00
EndDate	11/25/2017	11/28/2017	11/30/2017	12/1/2017	12/3/2017
EndTime	07:00	07:00	13:30	14:20	02:30
Mud Type	OBM	OBM	OBM	OBM	OBM
Mud Weight	12.4	12.0	12.4	12.4	12.6
Funnel Viscosity	88	64	88	88	86

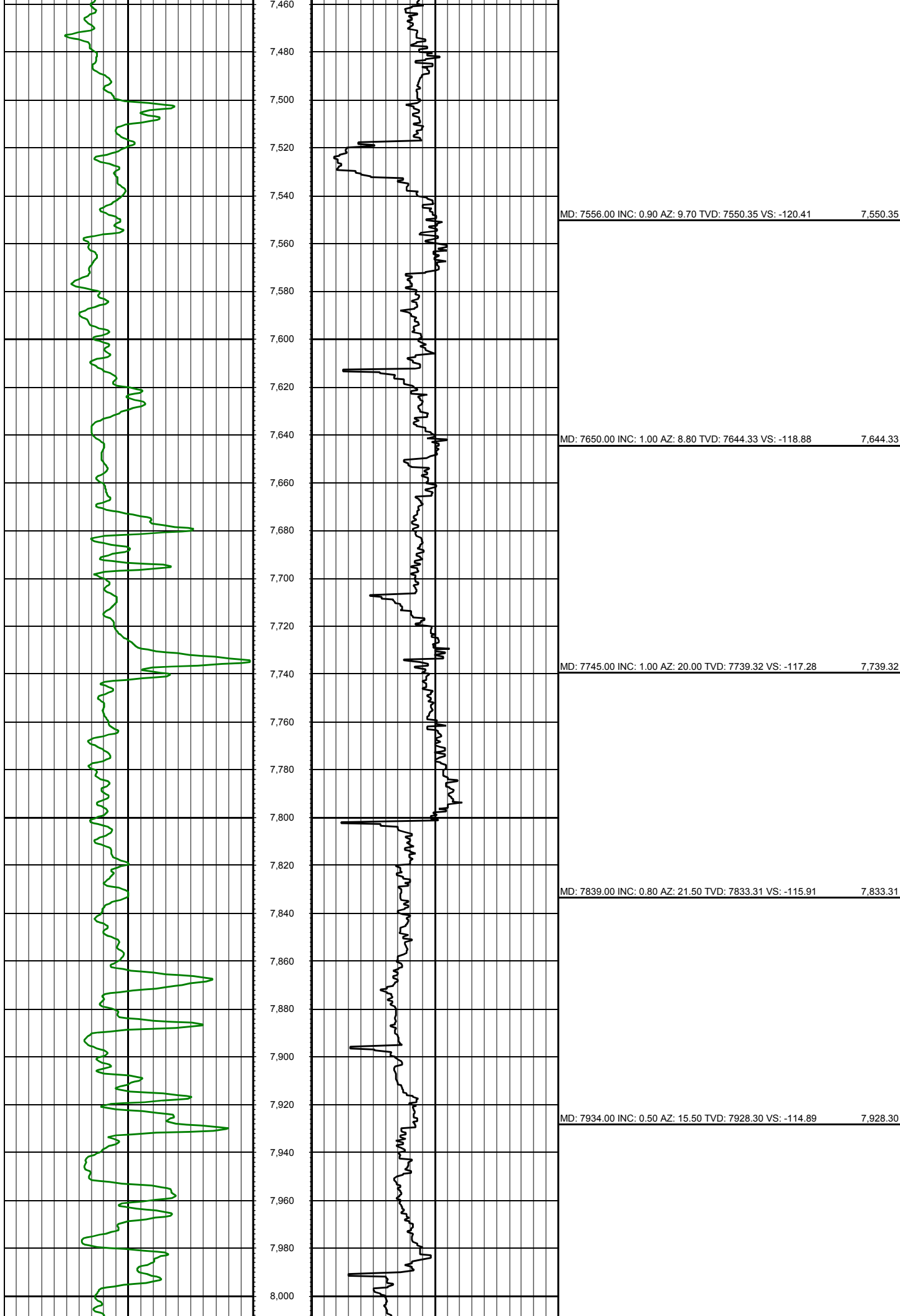
Plastic Viscosity	26	25	20	20	22
Yield Point	10	9	8	8	10
Gel Strength	11/23	9/21/24	12/20/24	12/20/24	13/20/24
Solids Content	18.43	19.52	21.31	21.31	21.70
Sand Content	TR	TR	TR	TR	TR
Mud Alkalinity	2.3	2.5	2.7	2.7	2.8
Chlorides	39000	38000	41000	41000	44000
Temperature	171	190	198	NA	196
Hole Data			Casing Data		
Size	From	To	Size	From	To
13 3/8	0.00	1106.00	13 3/8	0.00	1106.00
12 1/4	1106.00	5450.00	9 5/8	0.00	5440.00
8 3/4	5450.00	11840.00	7	0.00	11840.00
6 1/8	11840.00	17275.00			
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.					

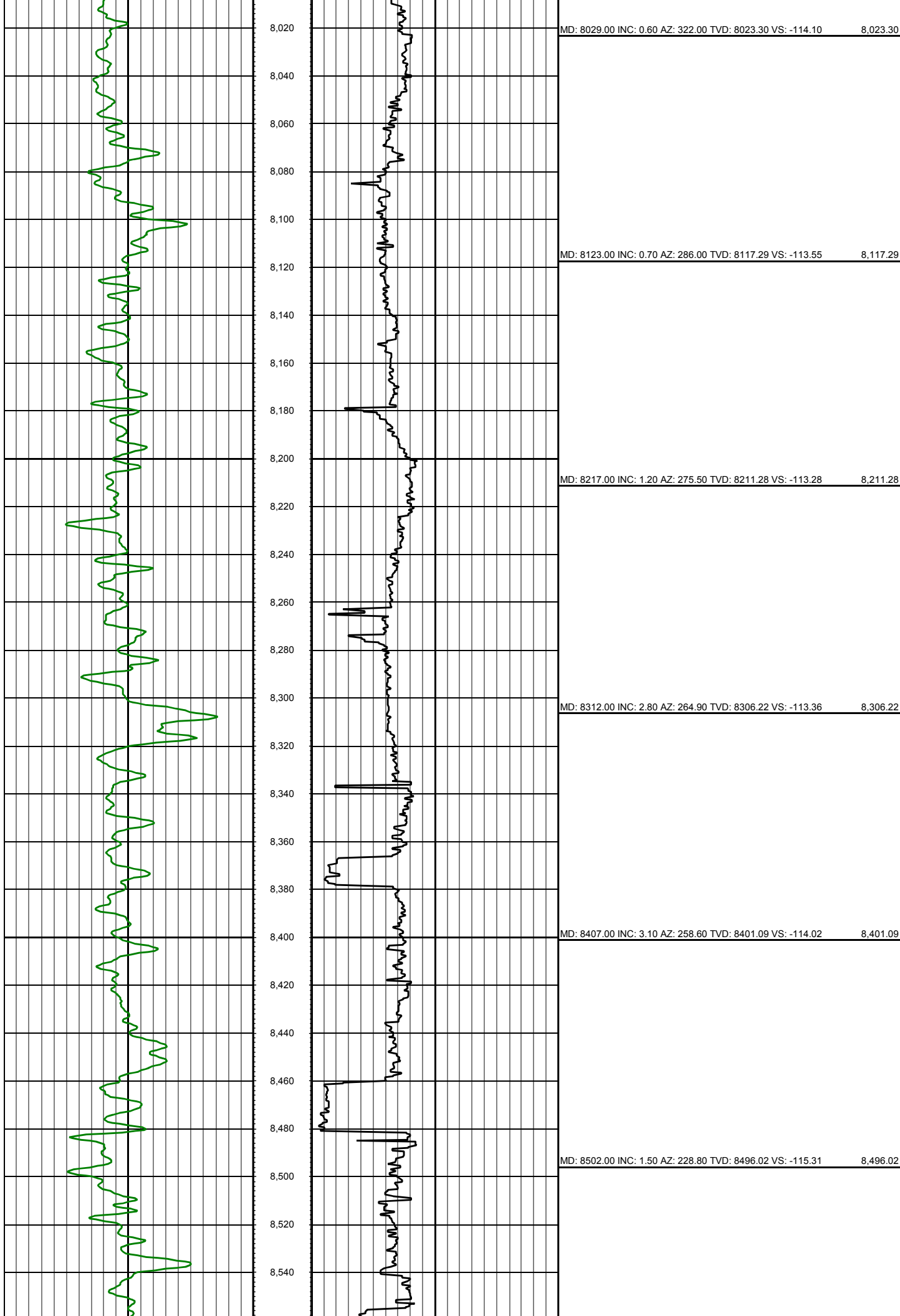


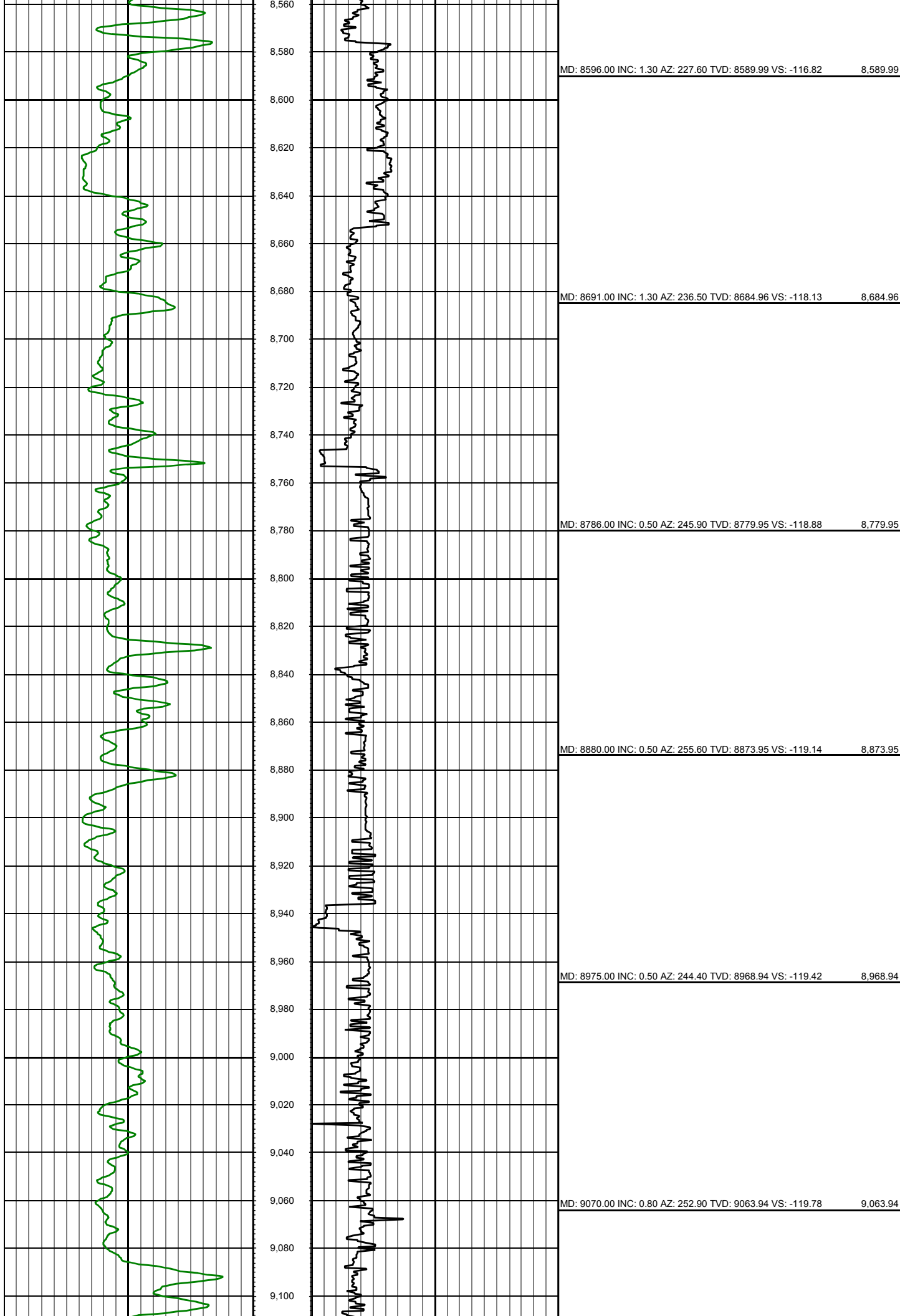


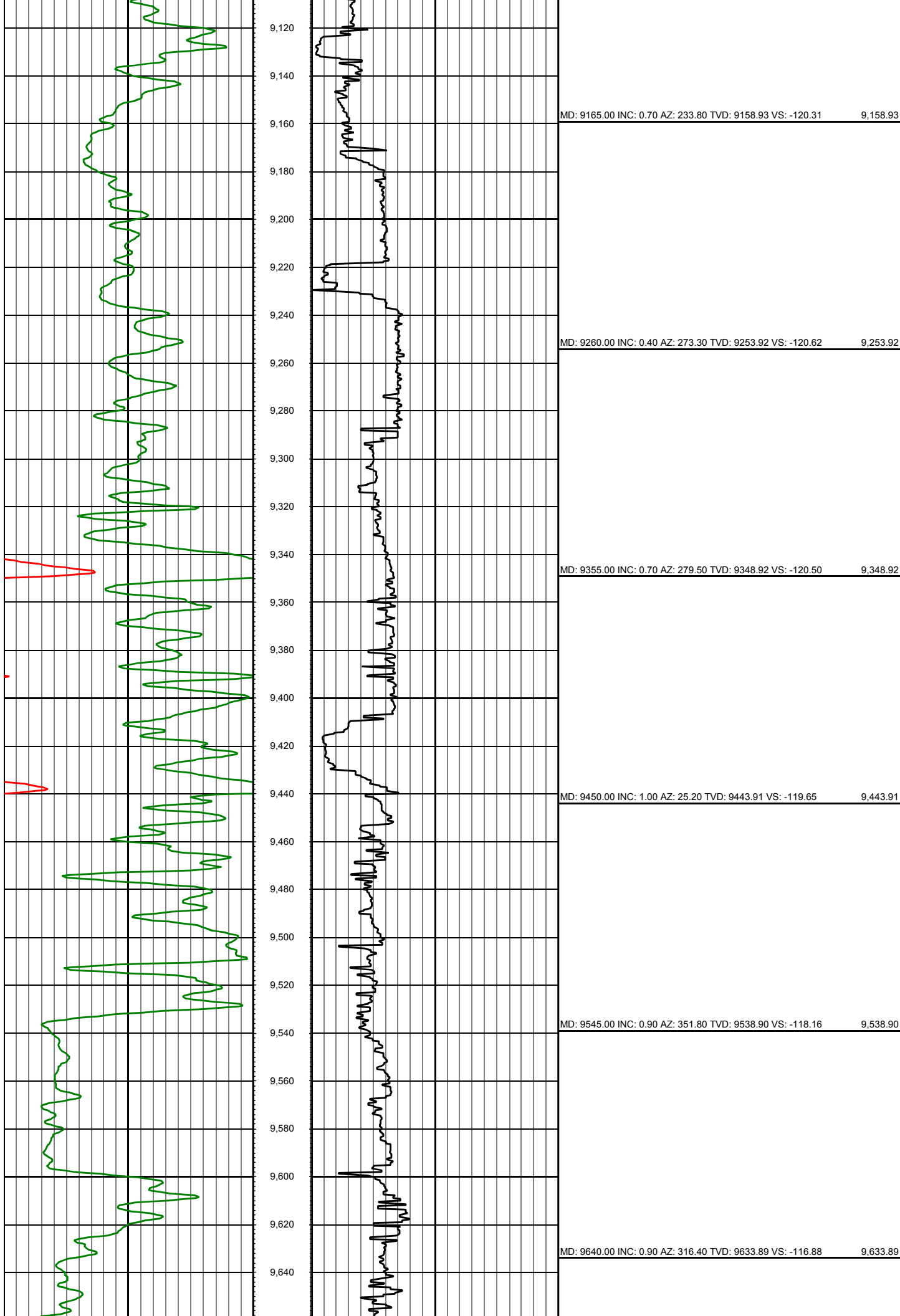


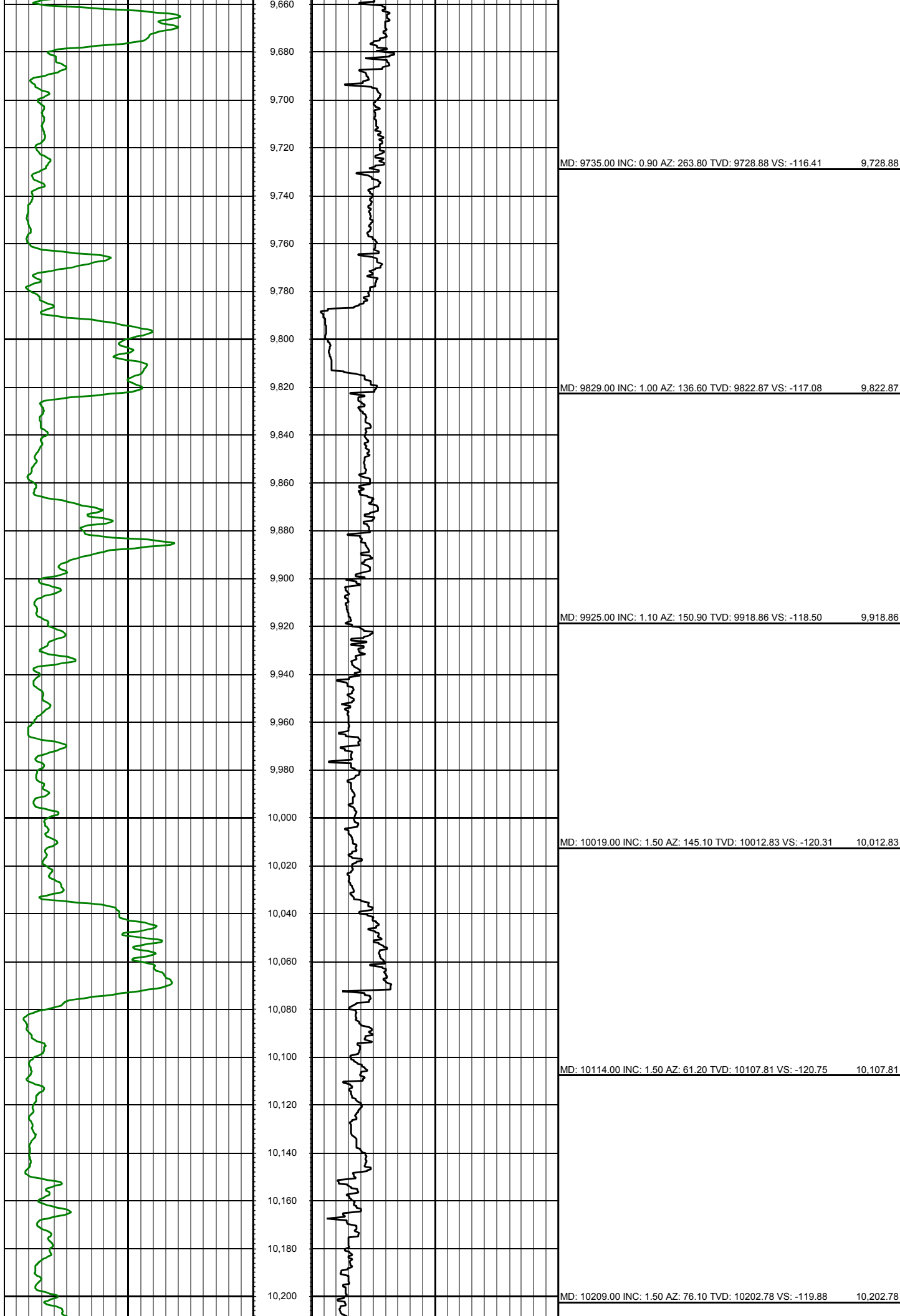


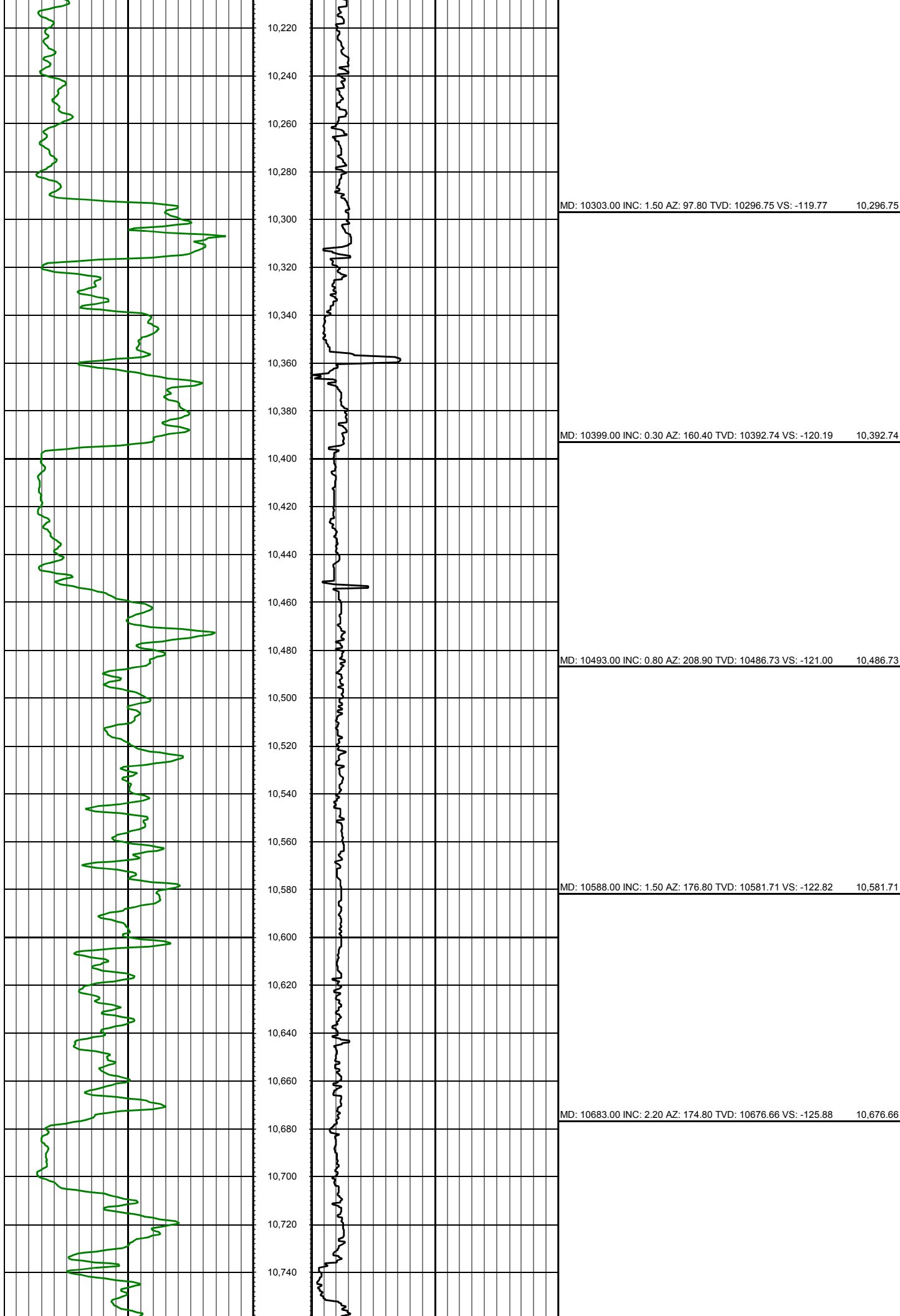


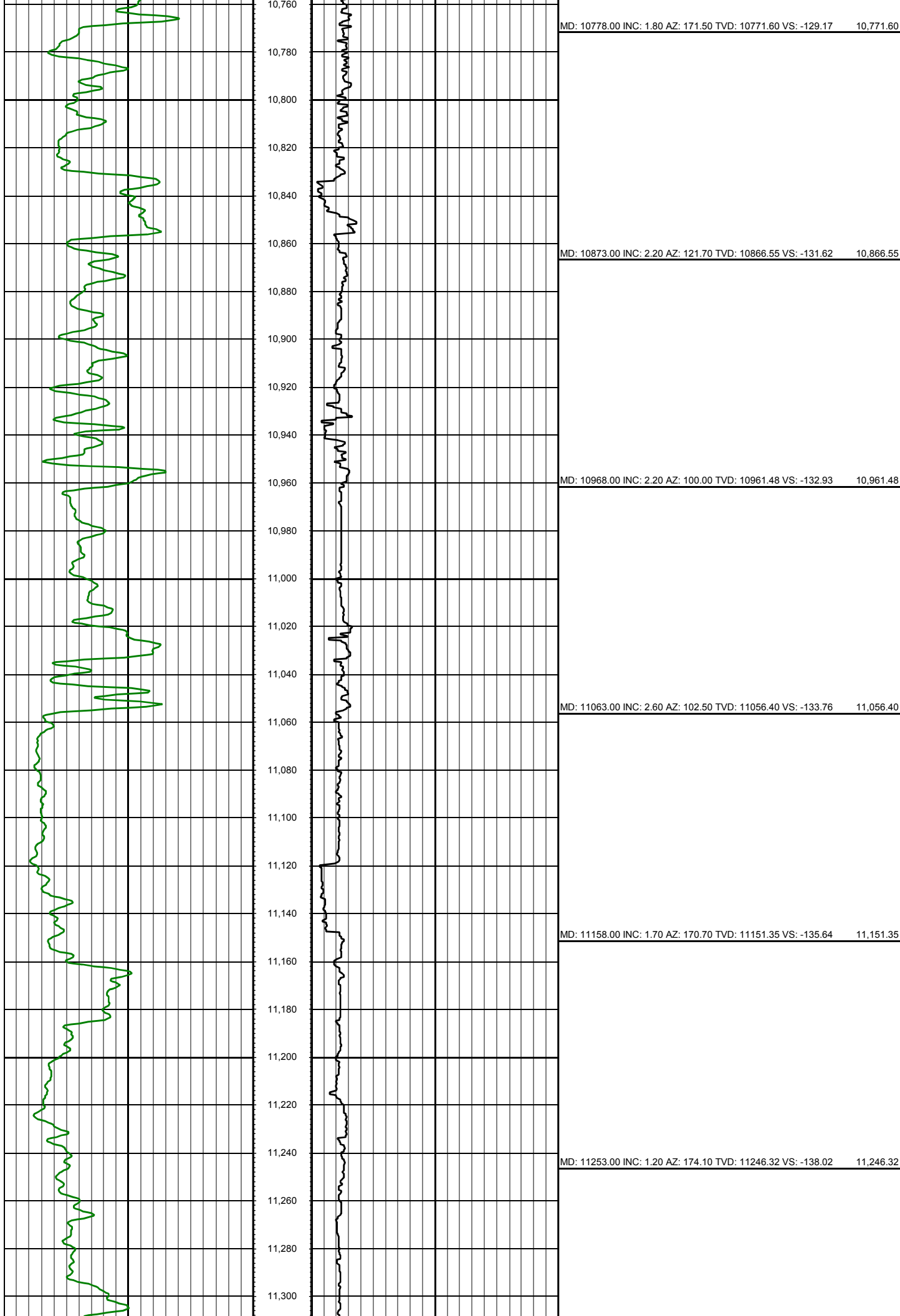


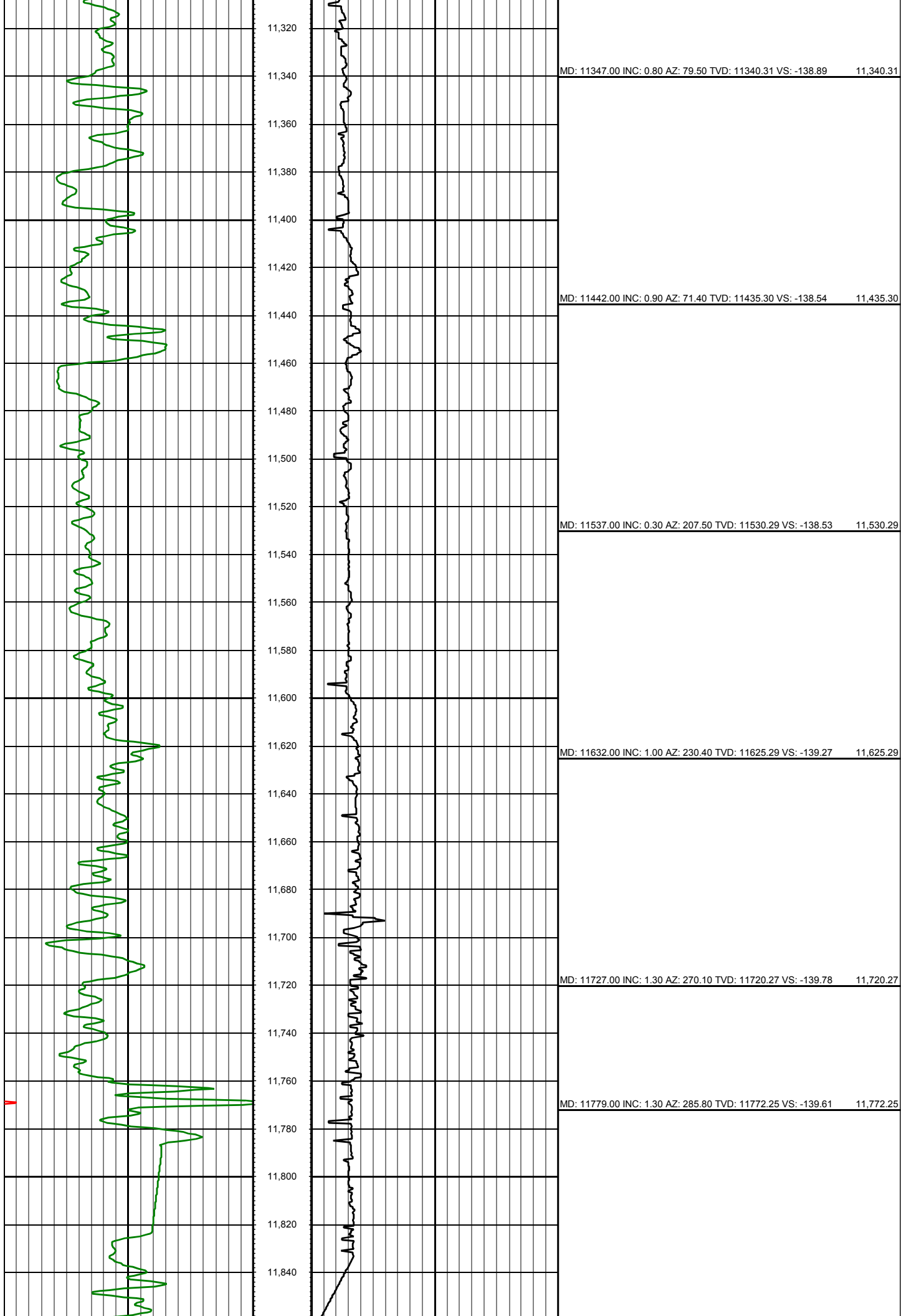


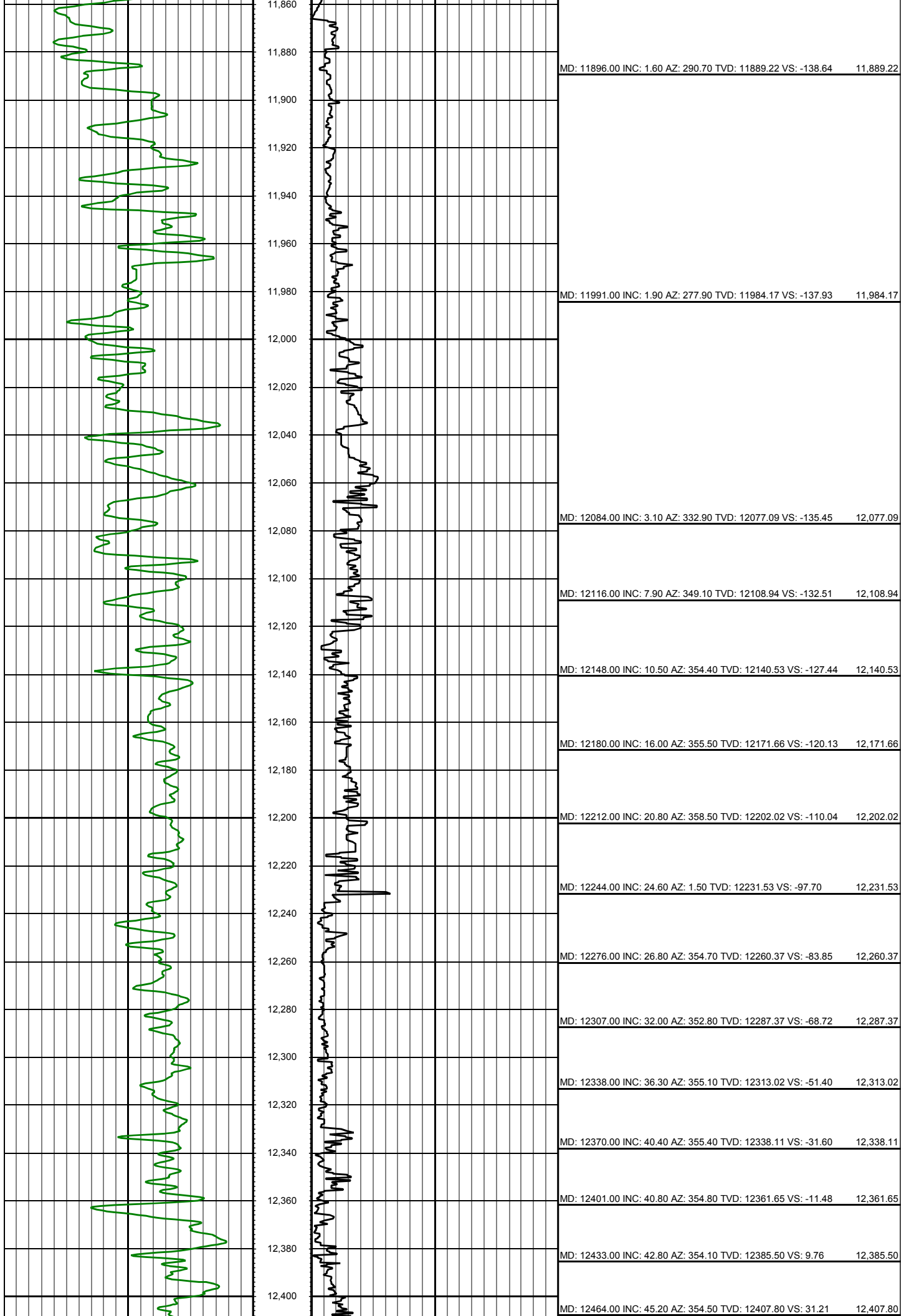


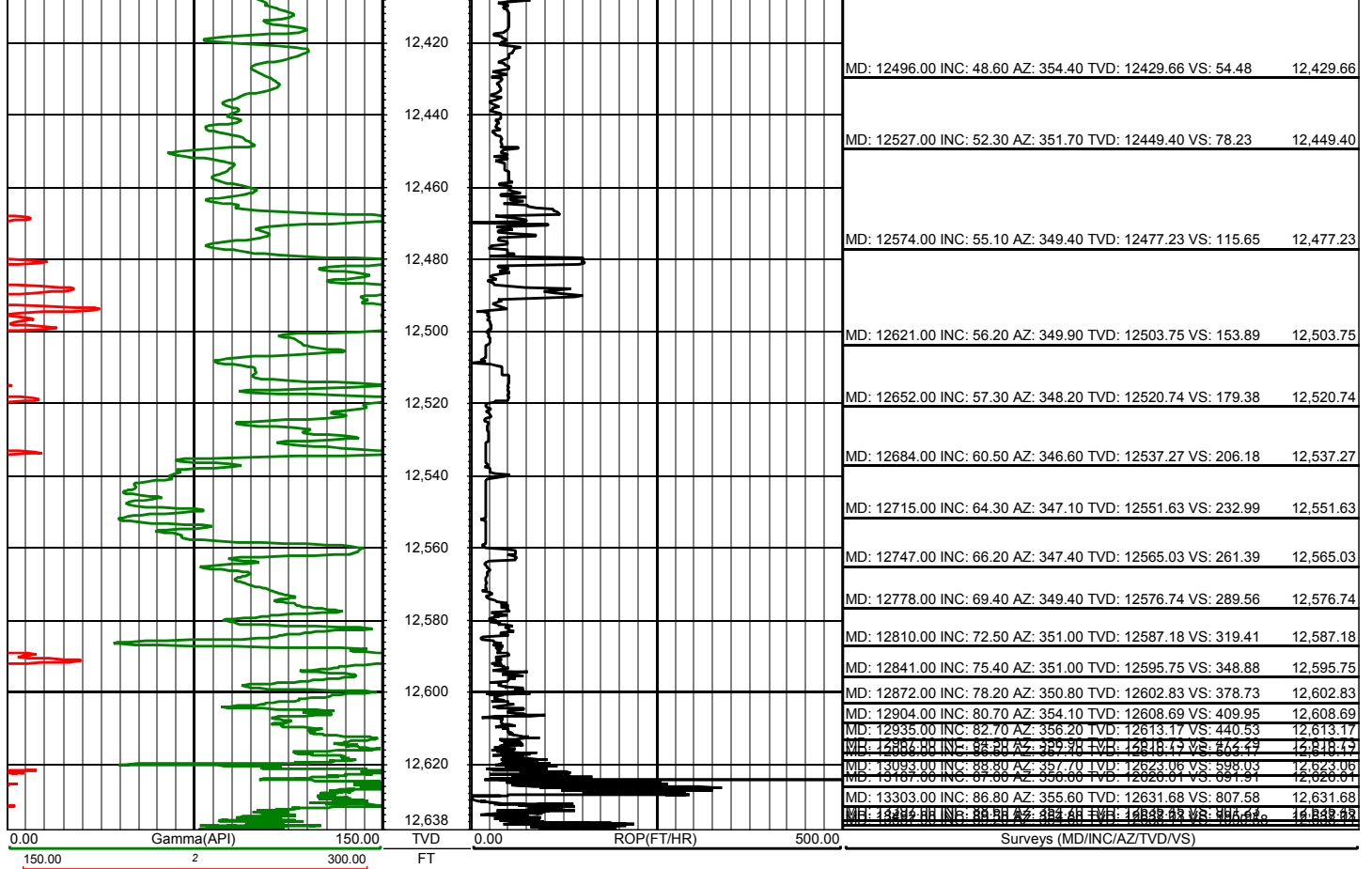








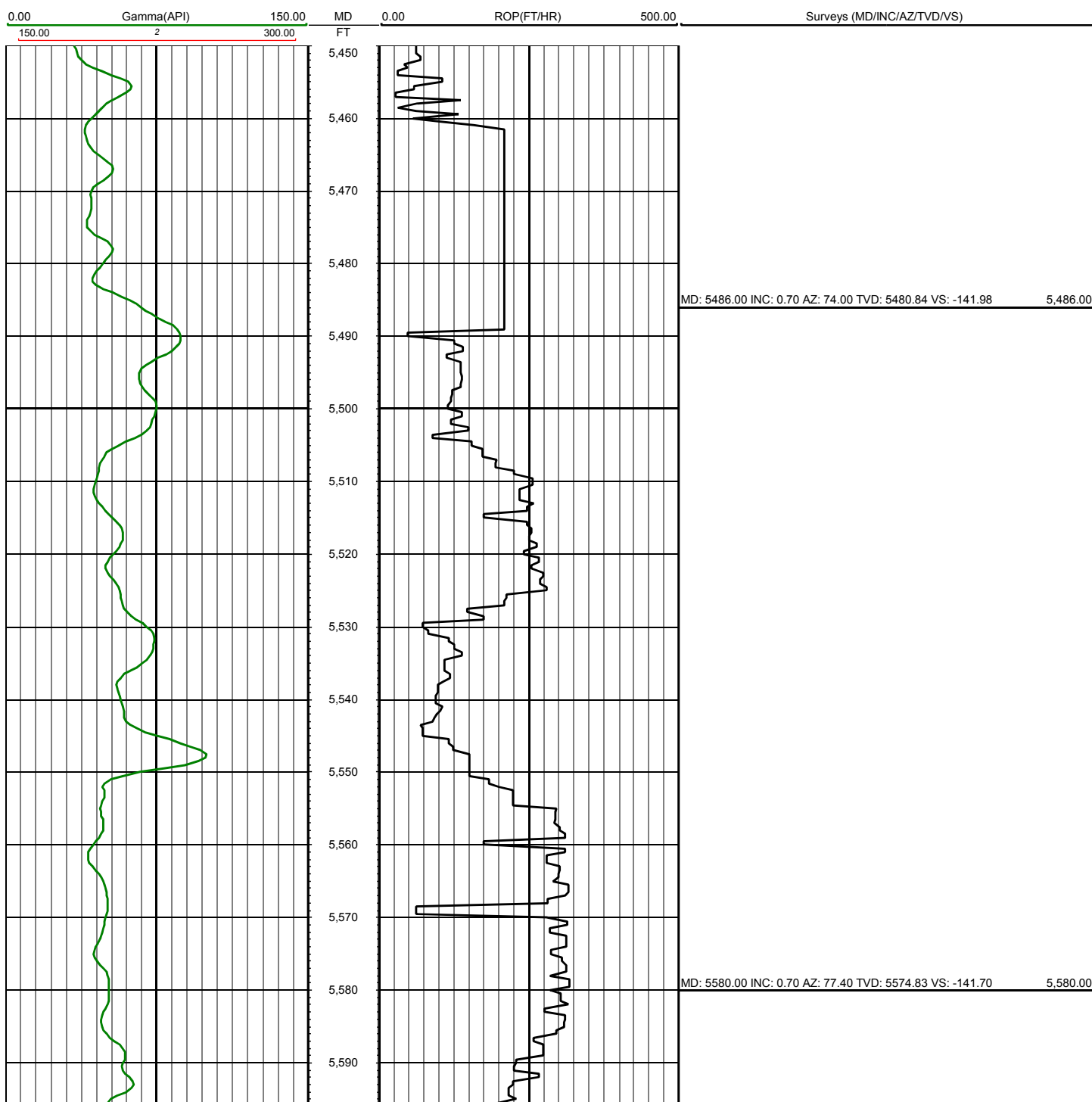


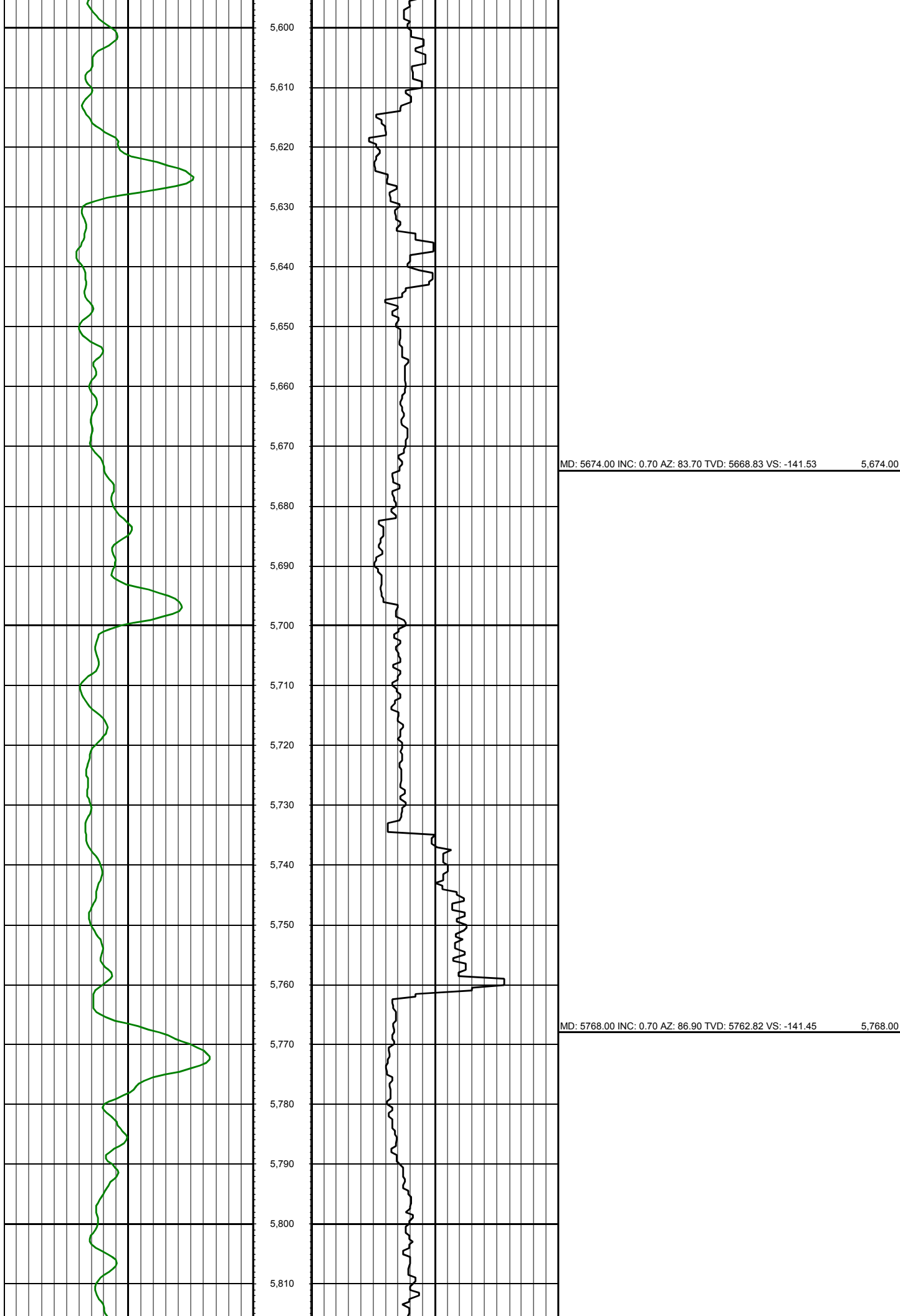


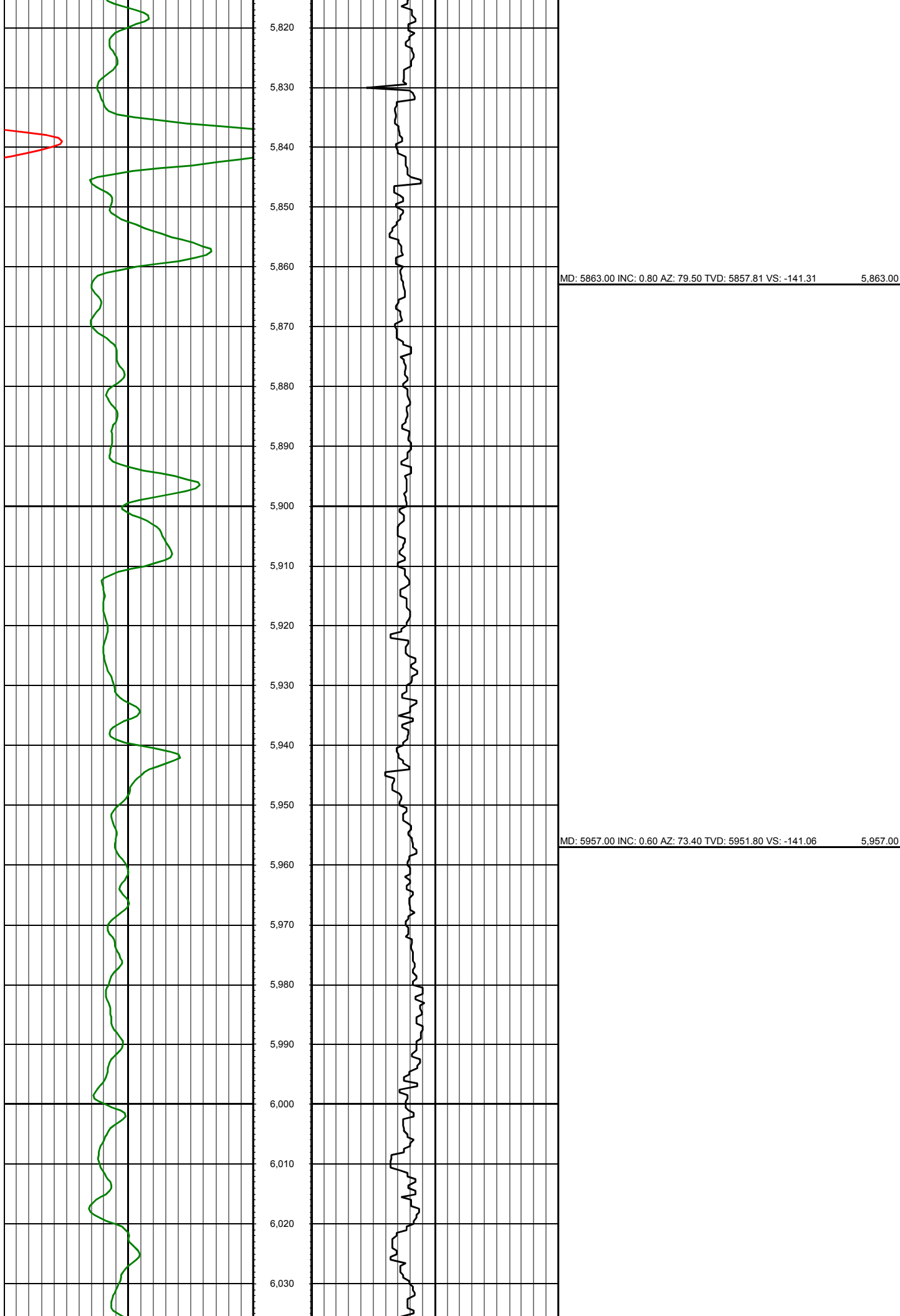
**Pro Directional**Pro Directional
850 Conroe Park West Drive
Conroe, Texas 77303**Cave Lion 5 Fededral WC 5H_ST 1****Scale 5":100' - MD****12/3/2017 2:40 AM****Oper. Company:** Marathon Oil**Well:** Cave Lion 5 Fededral WC 5H_ST 1**Field:** WolfCamp**Rig:** H&P 423**Well ID:** 30-025-44102**Job Number:** LNM1336517**State:** New Mexcio**County:** Lea**Country:** USA**Location:** 7 Miles West of Jal, NM**Start Date:** 11/08/2017 08:50:00**End Date:** 12/03/2017 02:26:19**Latitude:** 32° 3' 55.7194 N**Longitude:** 103° 23' 47.3706 W**Elev GL:** 3270**Elev DF:** 25**Elev KB:** 3295**Operator 1:** Miles A. Compton IV**Operator 2:** Mike Remore**Notes:** NAD 1927 (NADCON CONUS), US State Plane 1927 (Exact Solution), New Mexico East 3001

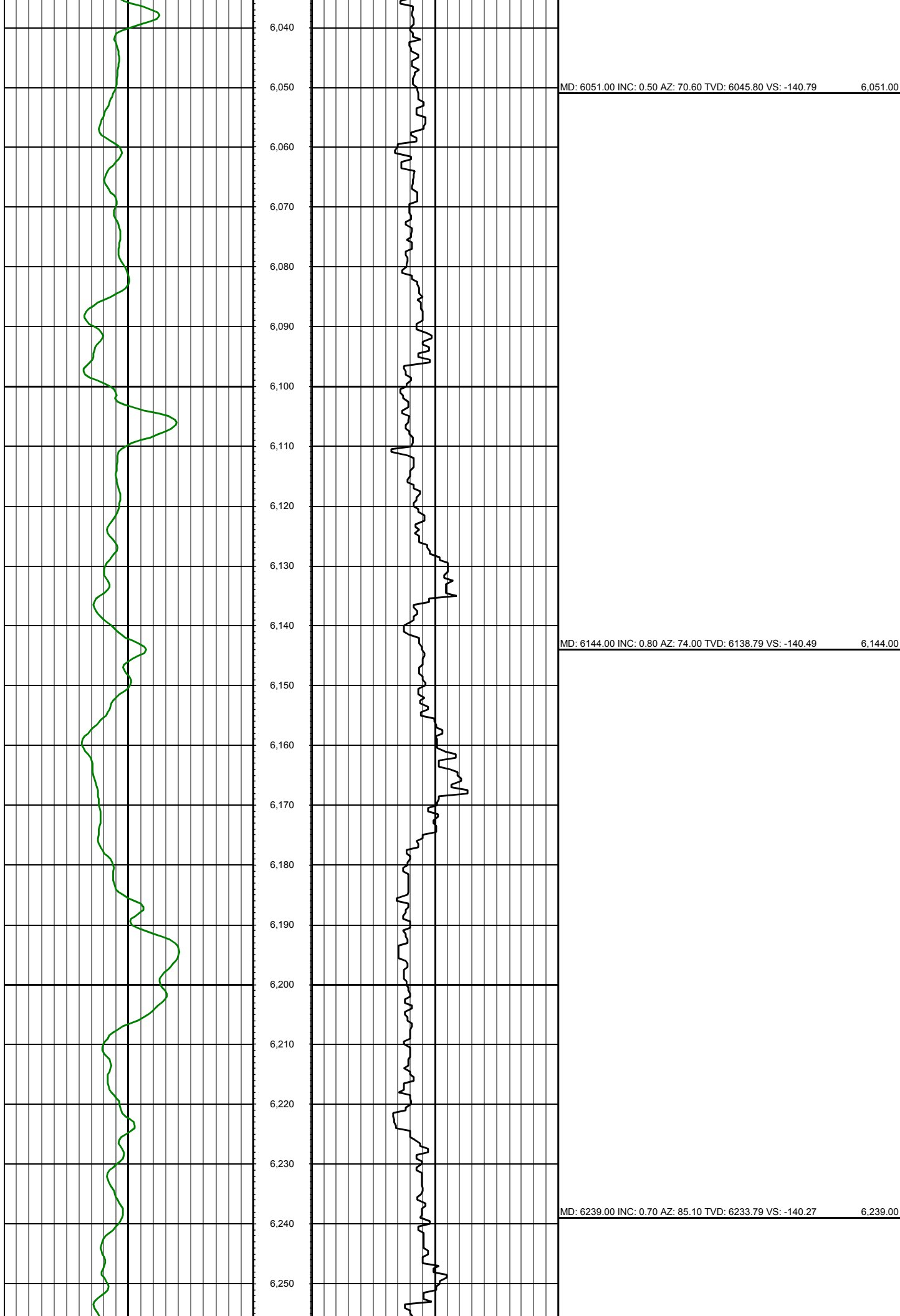
Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	3023	3023	3023	3081	3023
Bit Size	8 3/4	8 3/4	8 3/4	6 1/8	6 1/8
Cal Factor	4.463	4.463	4.463	2.808	2.808
Survey Offset	60.00	60.00	62.00	54.00	51.00
Gamma Offset	48.00	48.00	50.00	42.00	39.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	5450.00	9175.00	10373.00	11840.00	12435.00
StartDate	11/7/2017	11/10/2017	11/11/2017	11/17/2017	11/19/2017
StartTime	23:30	06:30	17:00	00:14	22:10
EndDepth	9175.00	10373.00	11840.00	12435.00	13566.00
EndDate	11/10/2017	11/11/2017	11/14/2017	11/19/2017	11/22/2017
EndTime	05:00	14:30	23:30	21:20	07:15
Mud Type	WBM	WBM	WBM	OBM	OBM
Mud Weight	9	9.2	9.23	12.3	12
Funnel Viscosity	27	26	31	62	70
Plastic Viscosity	1	2	2	37	26
Yield Point	1	1	2	17	11
Gel Strength	1/1	1/3	2/4	19/27	11/25
Solids Content	2.73	3.06	2.78	17.5	18.5
Sand Content	.5	.5	.25	.001	TR
Mud Alkalinity				1.1	2.3
Chlorides	34000	52000	58000	38000	39000
Temperature	131	136	147	149	176
Tool Run Data	Run #6	Run #7	Run #8	Run #9	Run #10
Tool S/N	3081	3081	3087	2573	3081
Bit Size	6 1/8	6 1/8	6 1/8	6 1/8	6 1/8
Cal Factor	2.808	2.808	2.808	2.808	2.808
Survey Offset	49.00	53.00	58.00	62.00	62.00
Gamma Offset	37.00	41.00	46.00	50.00	50.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	13242.00	13273.00	15440.00	16187.00	16187.00
StartDate	11/23/2017	11/25/2017	11/28/2017	11/30/2017	12/1/2017
StartTime	15:20	08:45	08:45	15:30	15:30
EndDepth	13273.00	15440.00	16187.00	16187.00	17275.00
EndDate	11/25/2017	11/28/2017	11/30/2017	12/1/2017	12/3/2017
EndTime	07:00	07:00	13:30	14:20	02:30
Mud Type	OBM	OBM	OBM	OBM	OBM
Mud Weight	12.4	12.0	12.4	12.4	12.6
Funnel Viscosity	88	64	88	88	86

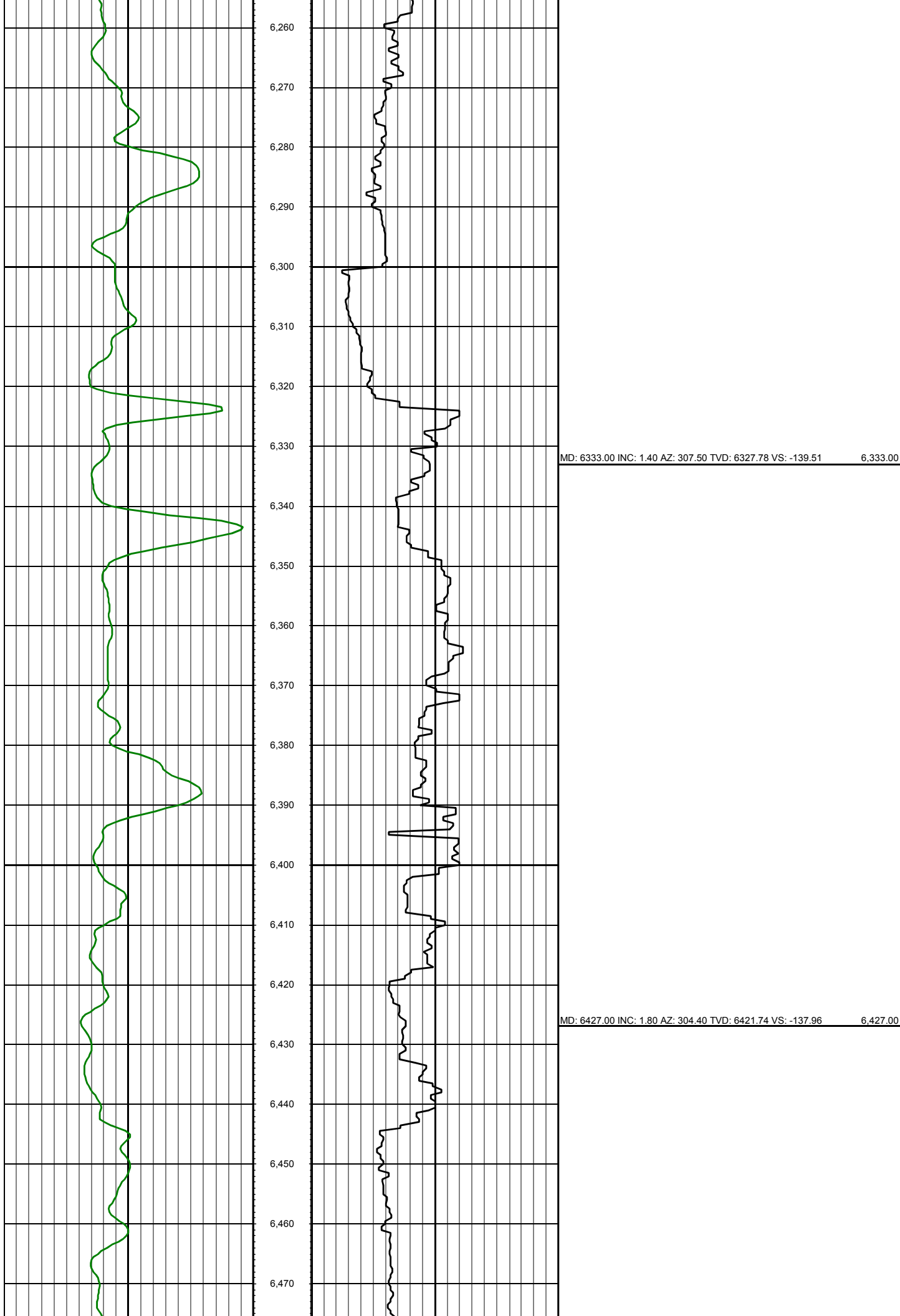
Plastic Viscosity	26	25	20	20	22
Yield Point	10	9	8	8	10
Gel Strength	11/23	9/21/24	12/20/24	12/20/24	13/20/24
Solids Content	18.43	19.52	21.31	21.31	21.70
Sand Content	TR	TR	TR	TR	TR
Mud Alkalinity	2.3	2.5	2.7	2.7	2.8
Chlorides	39000	38000	41000	41000	44000
Temperature	171	190	198	NA	196
Hole Data			Casing Data		
Size	From	To	Size	From	To
13 3/8	0.00	1106.00	13 3/8	0.00	1106.00
12 1/4	1106.00	5450.00	9 5/8	0.00	5440.00
8 3/4	5450.00	11840.00	7	0.00	11840.00
6 1/8	11840.00	17275.00			
<i>All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.</i>					

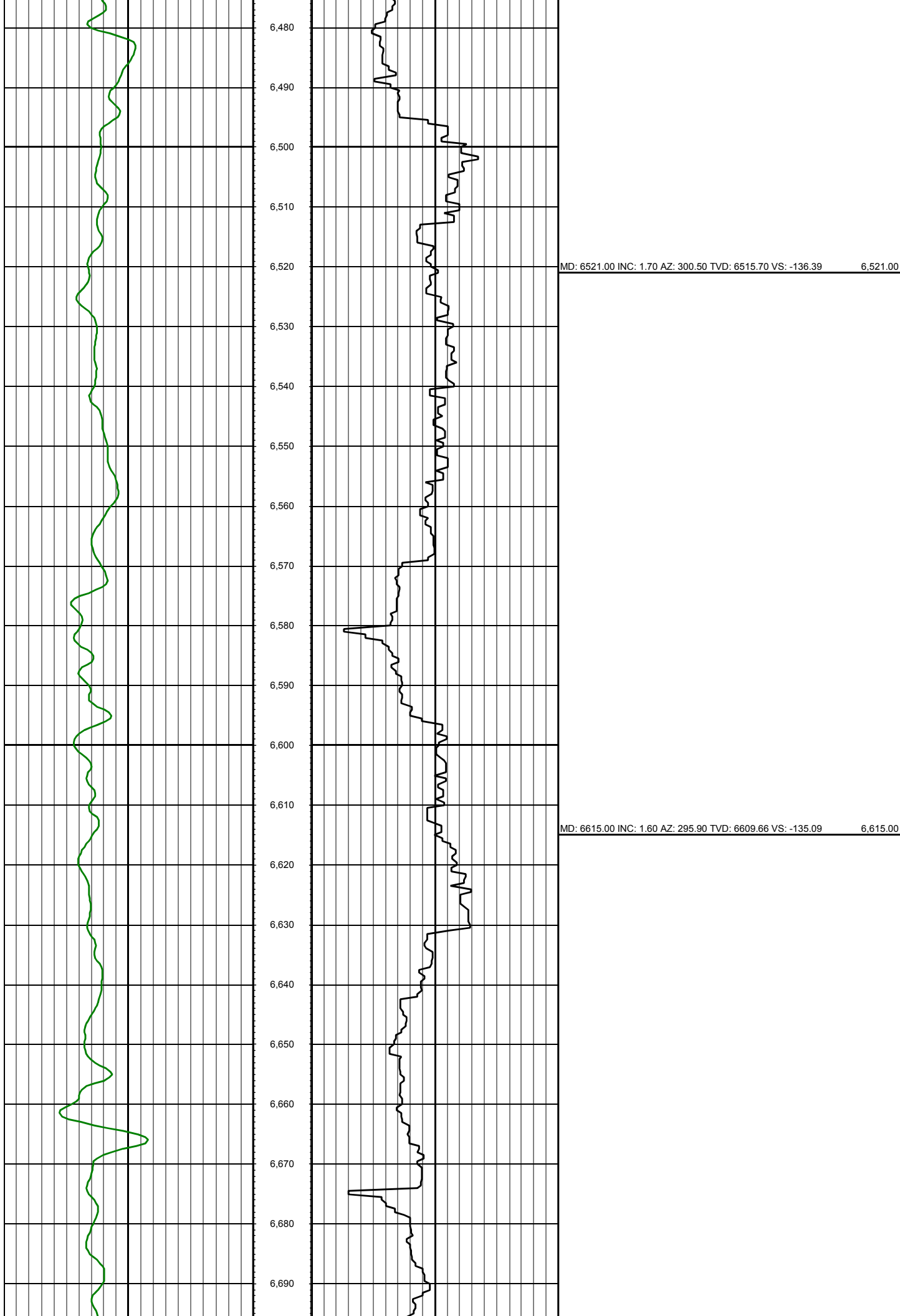


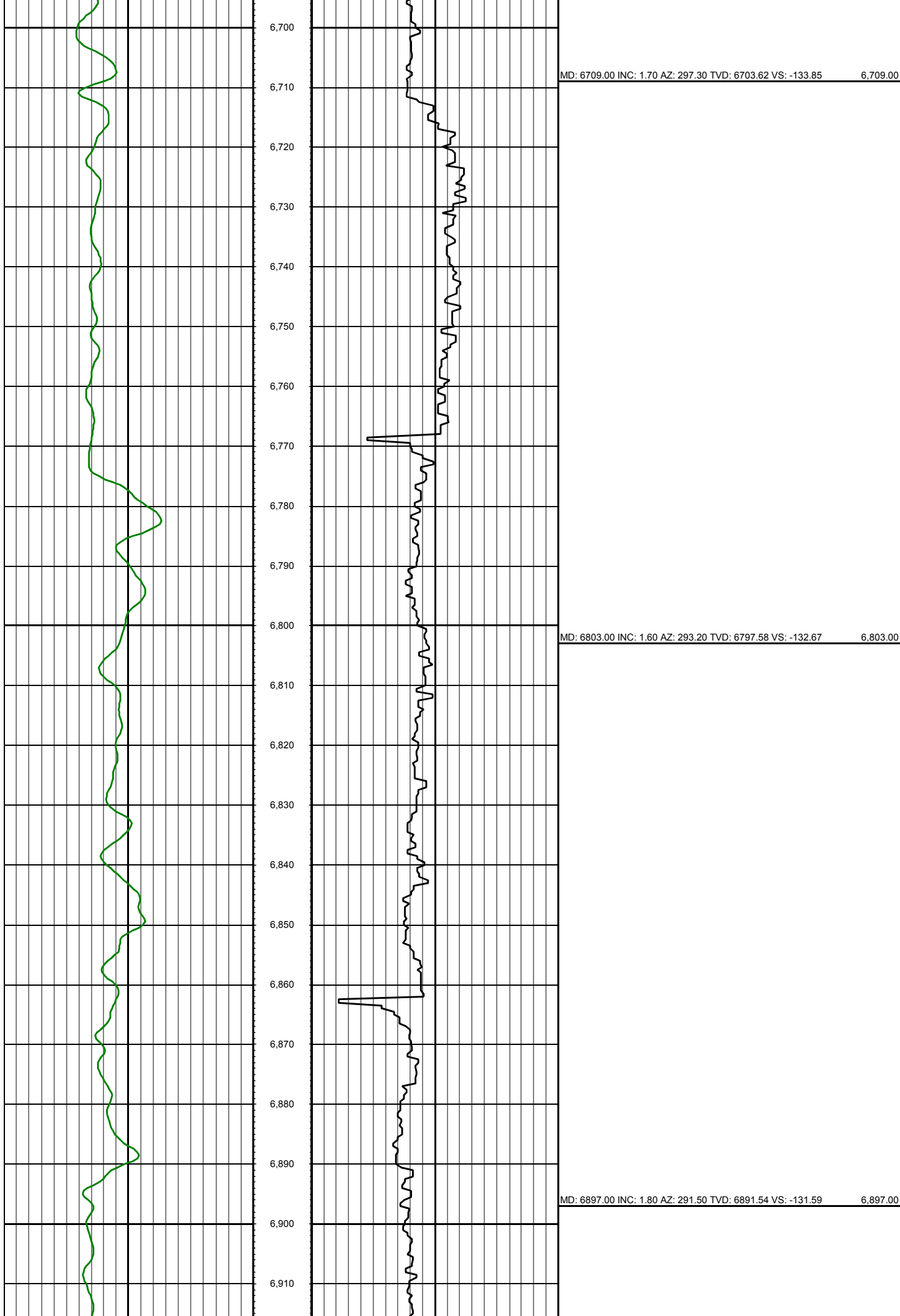


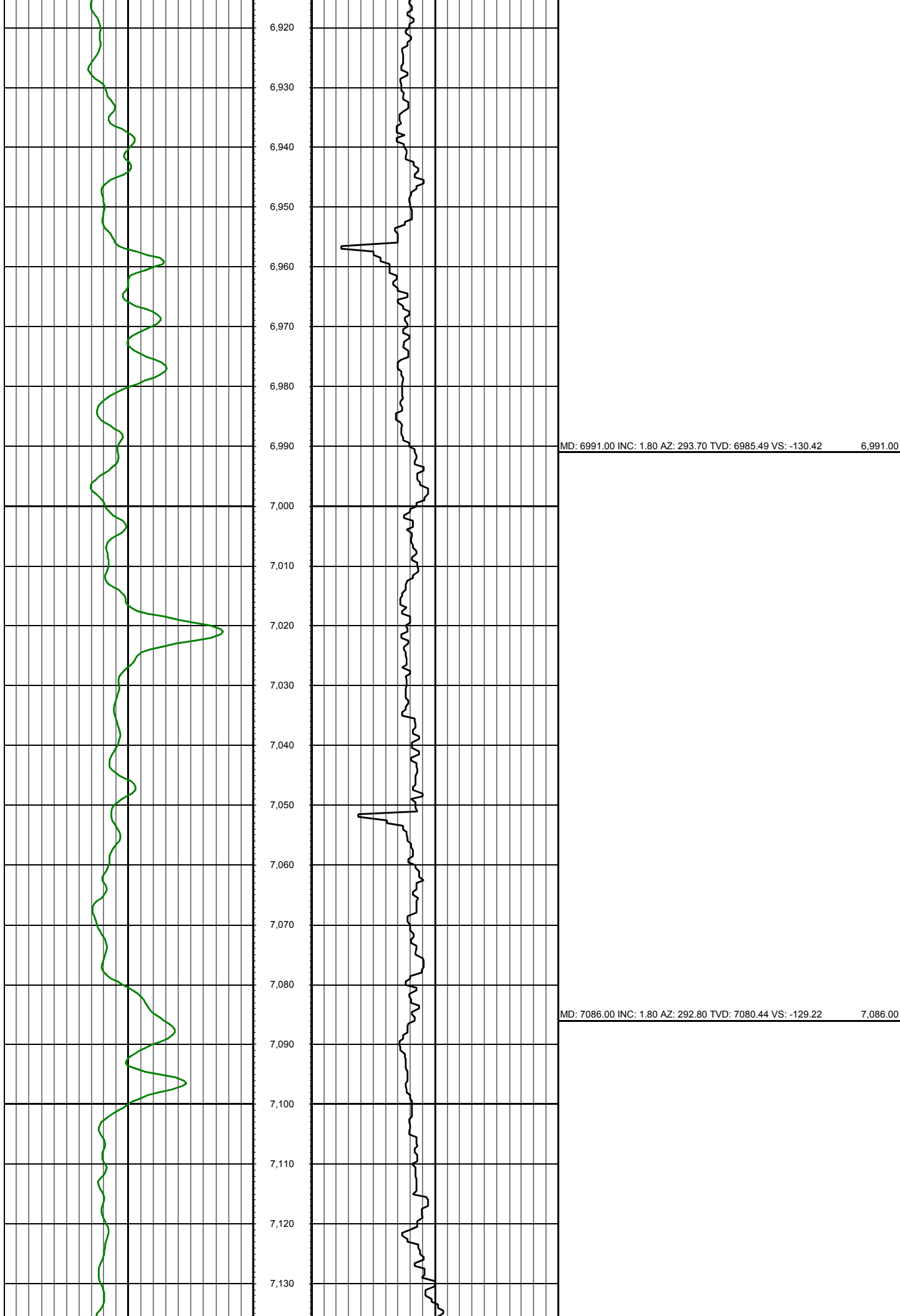


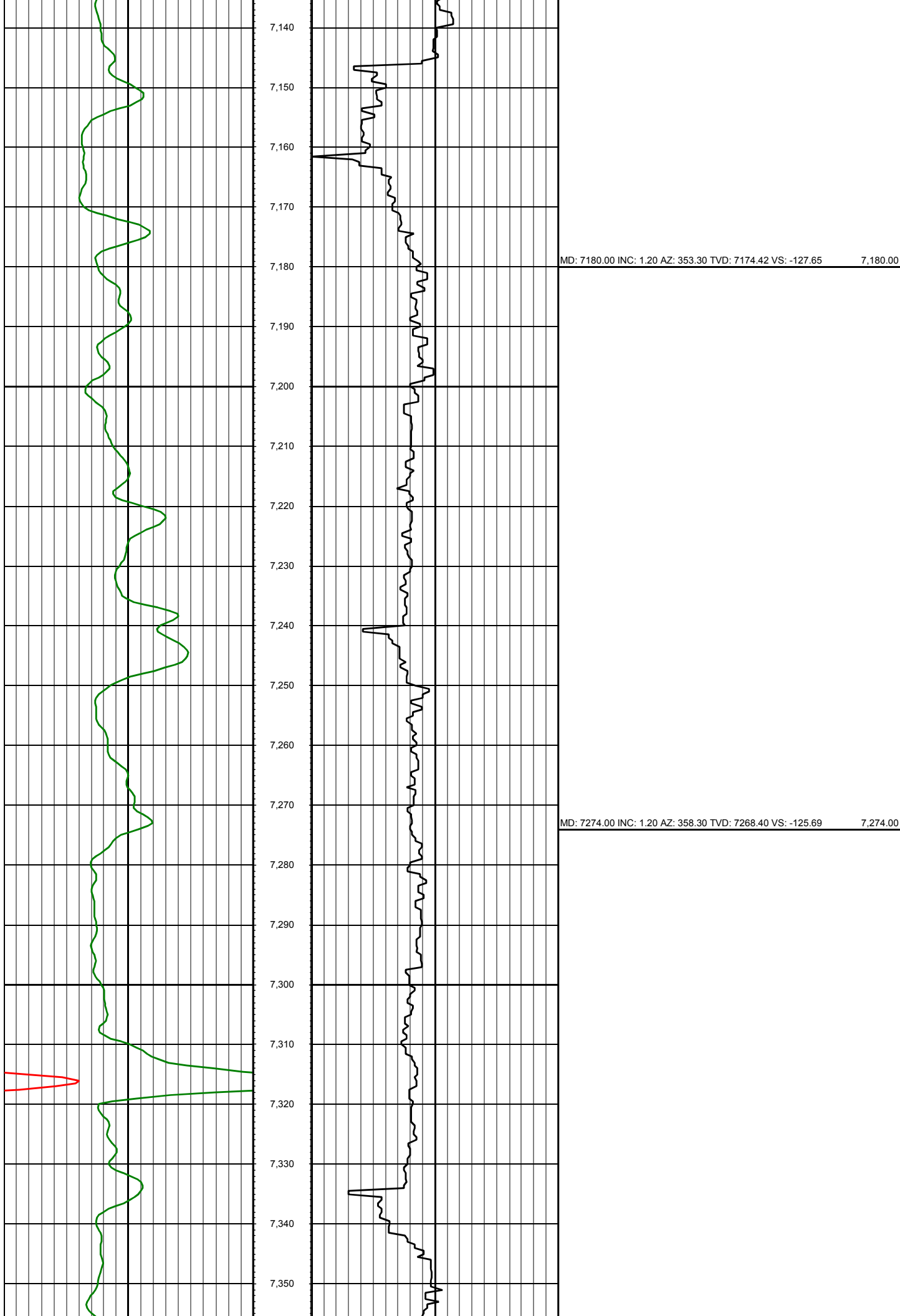


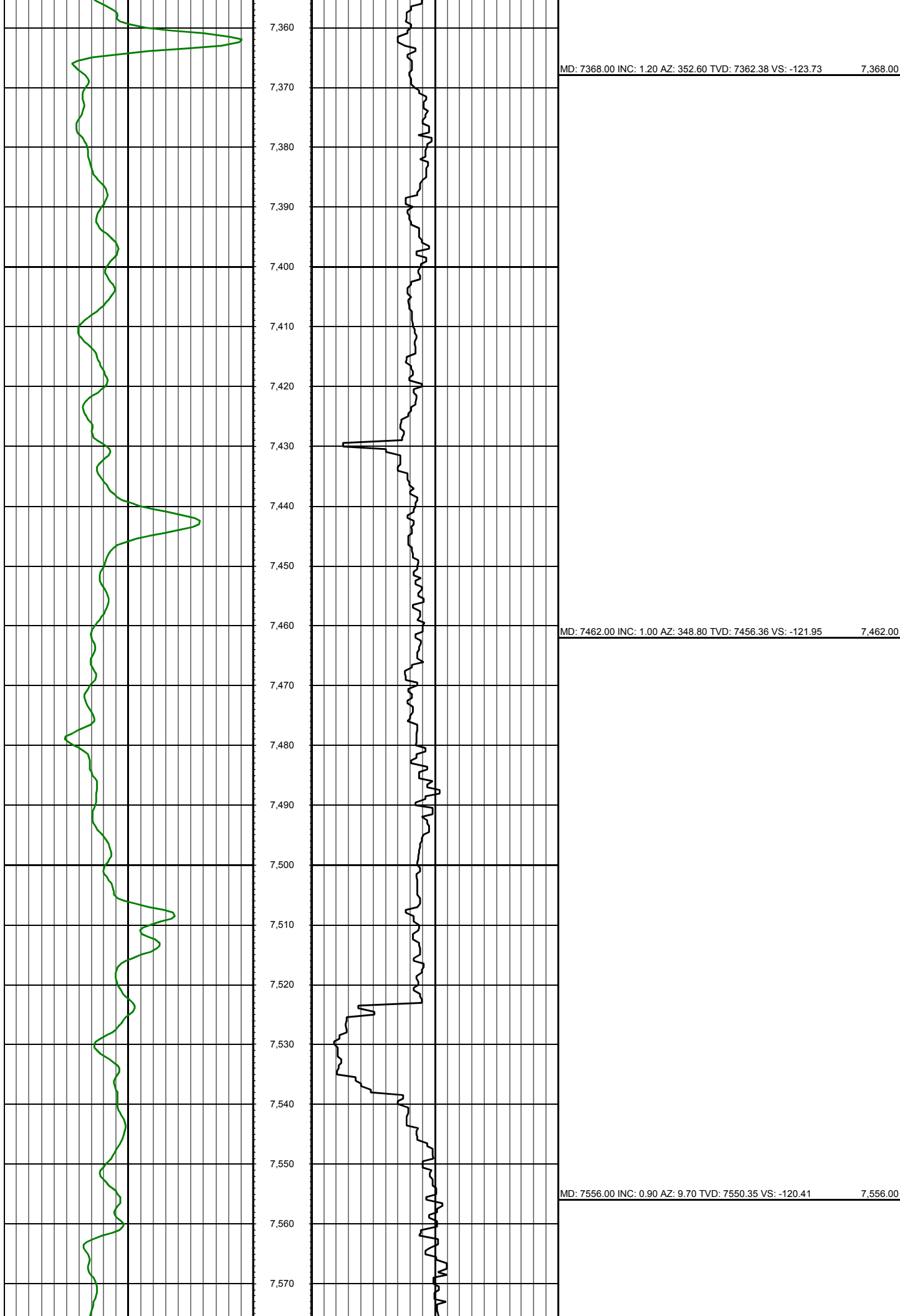


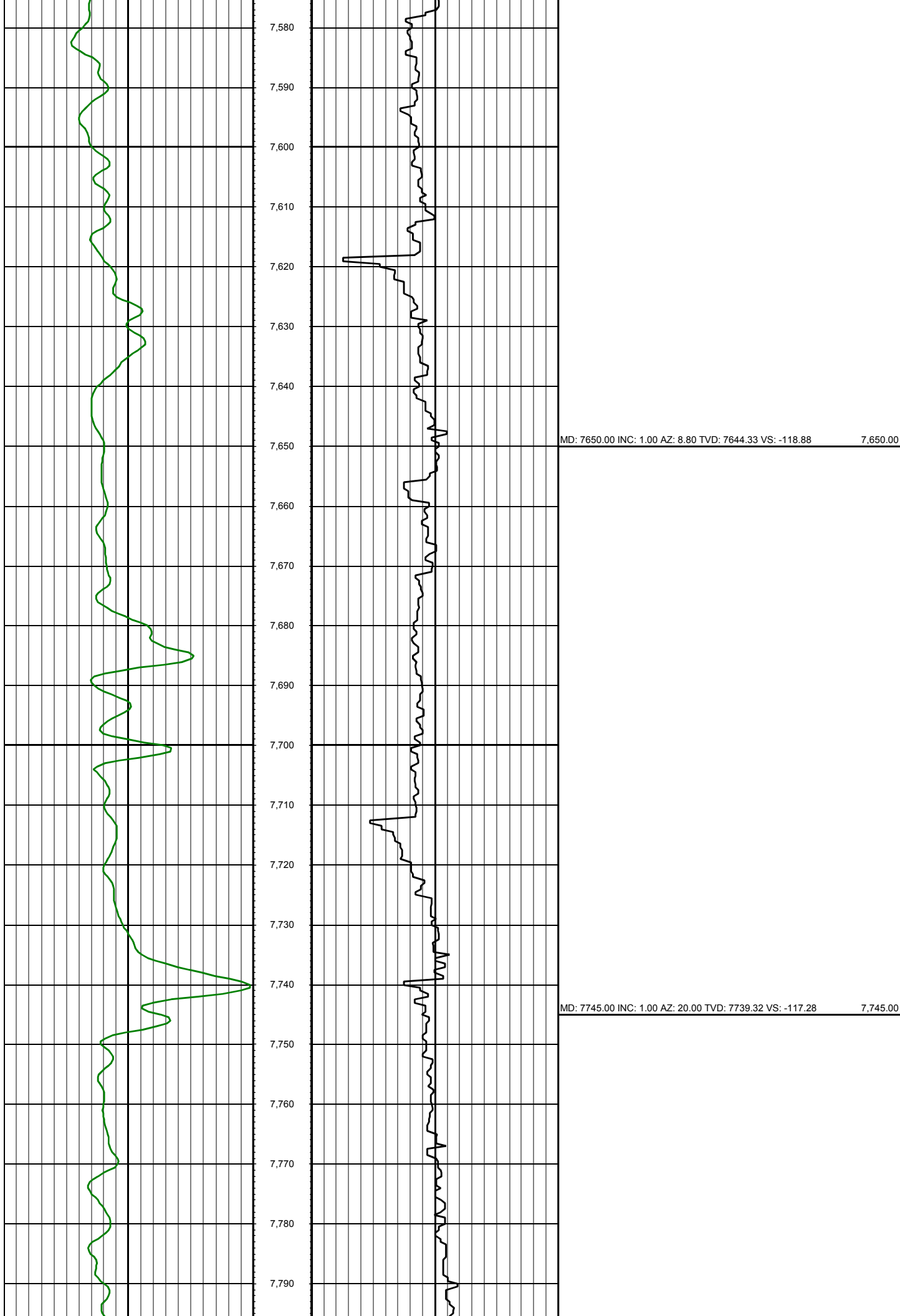


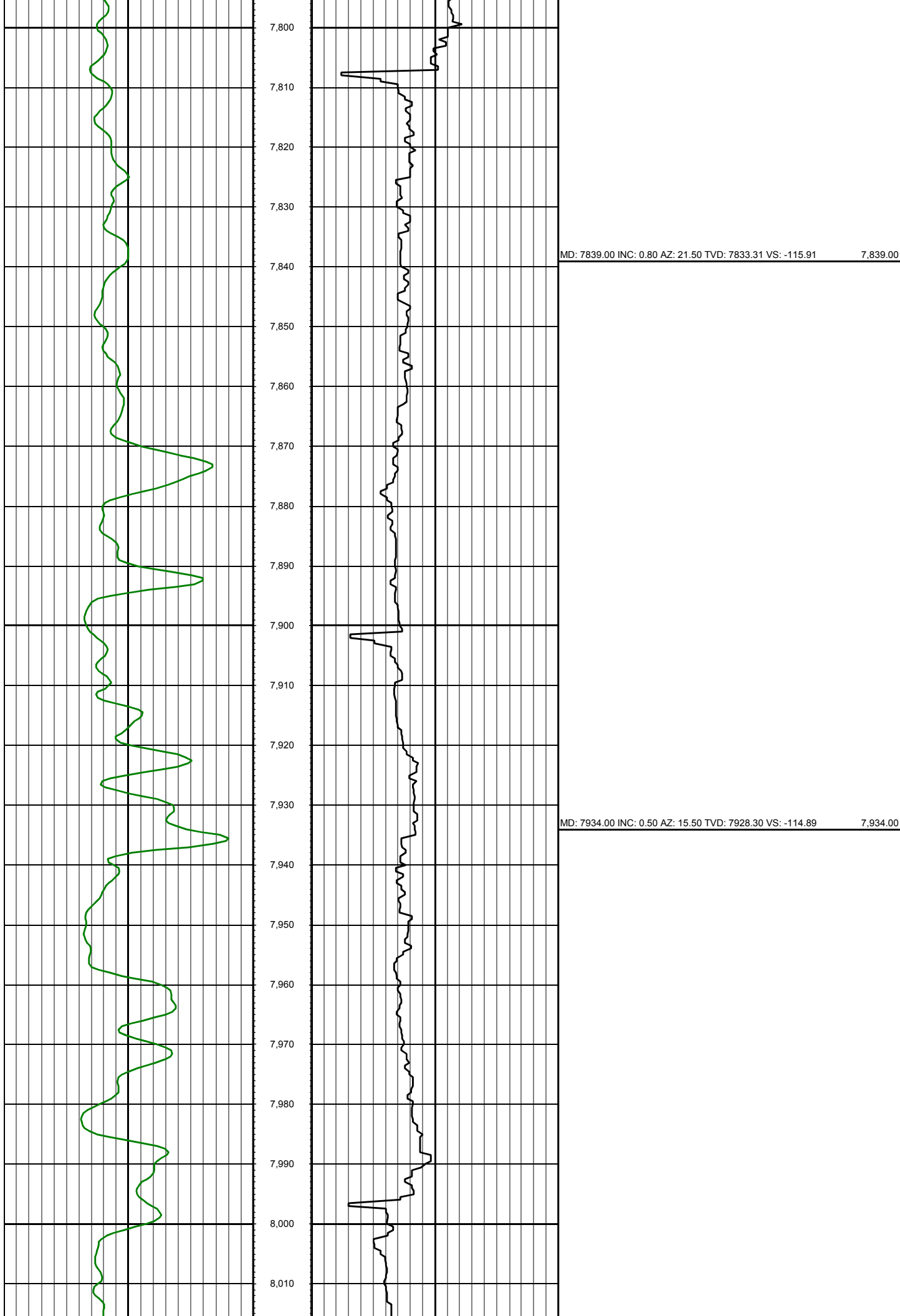


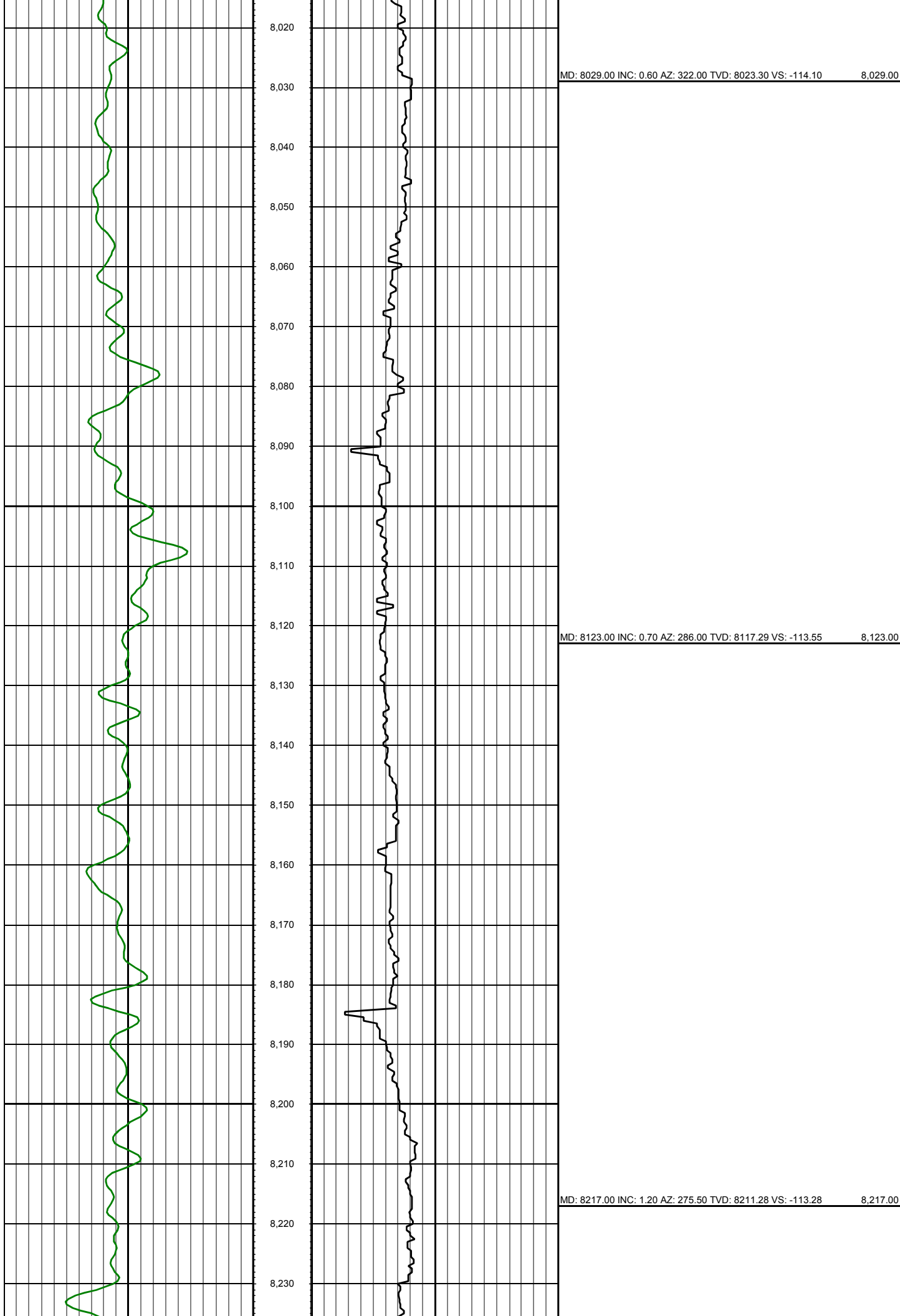


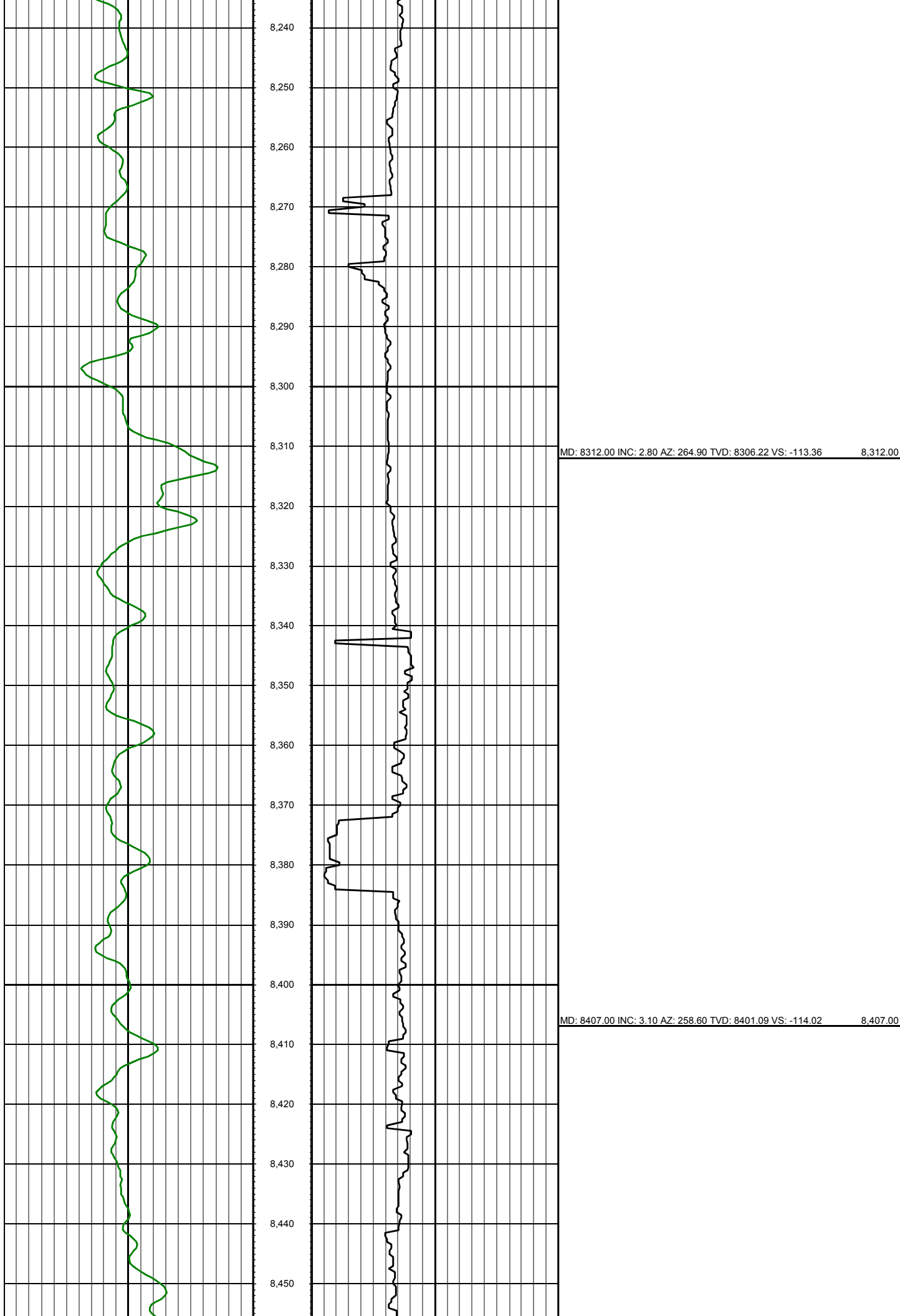


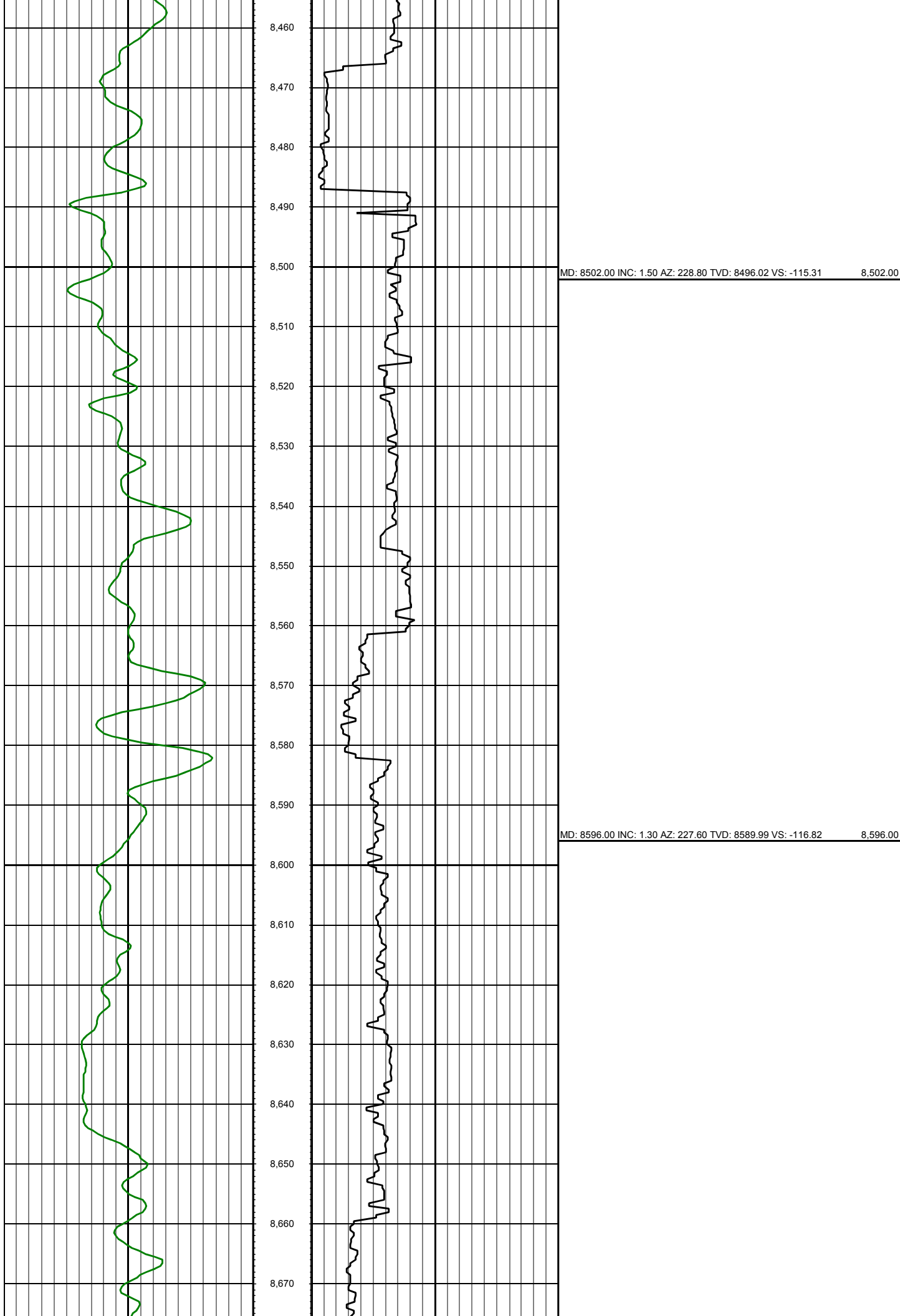


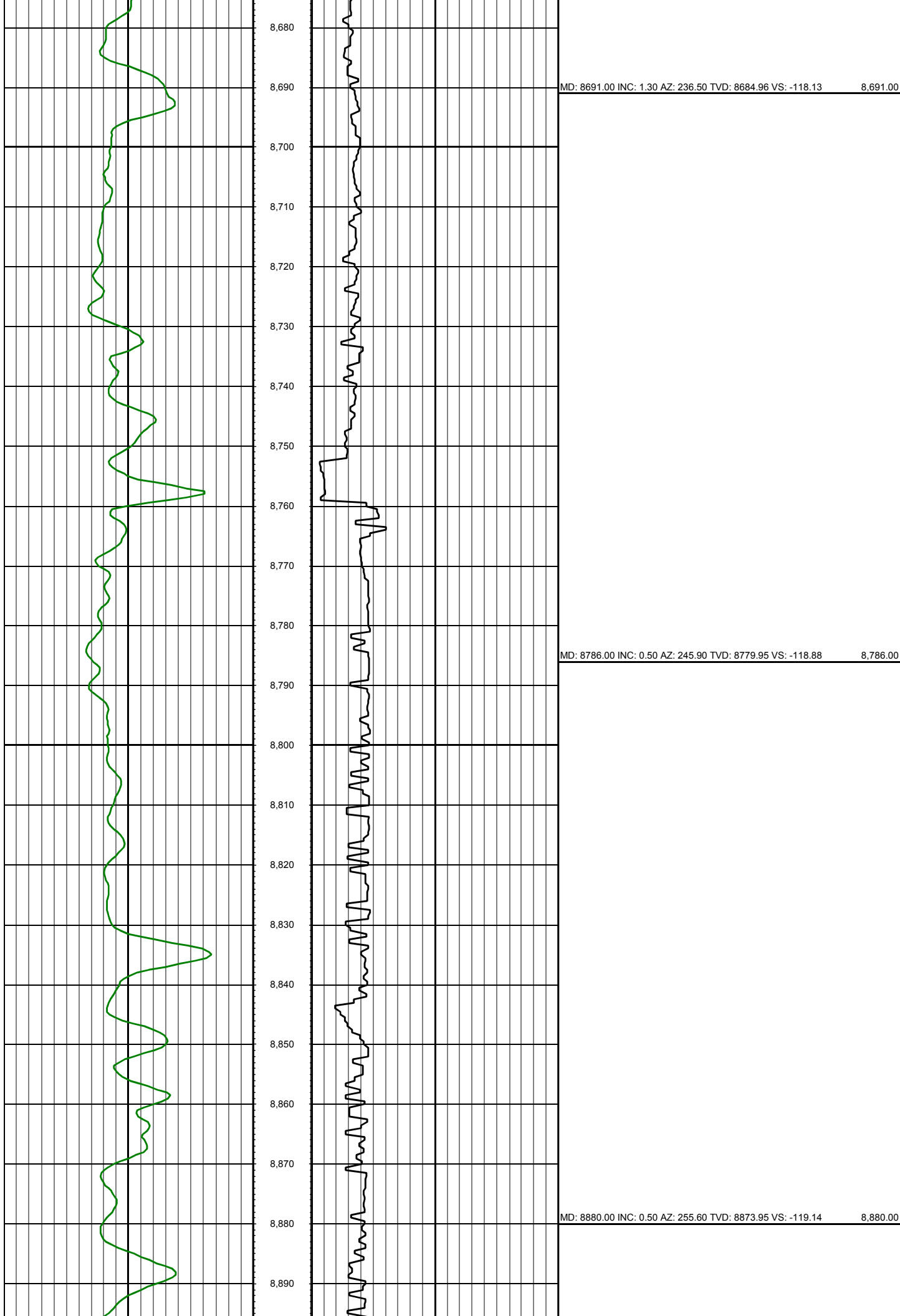


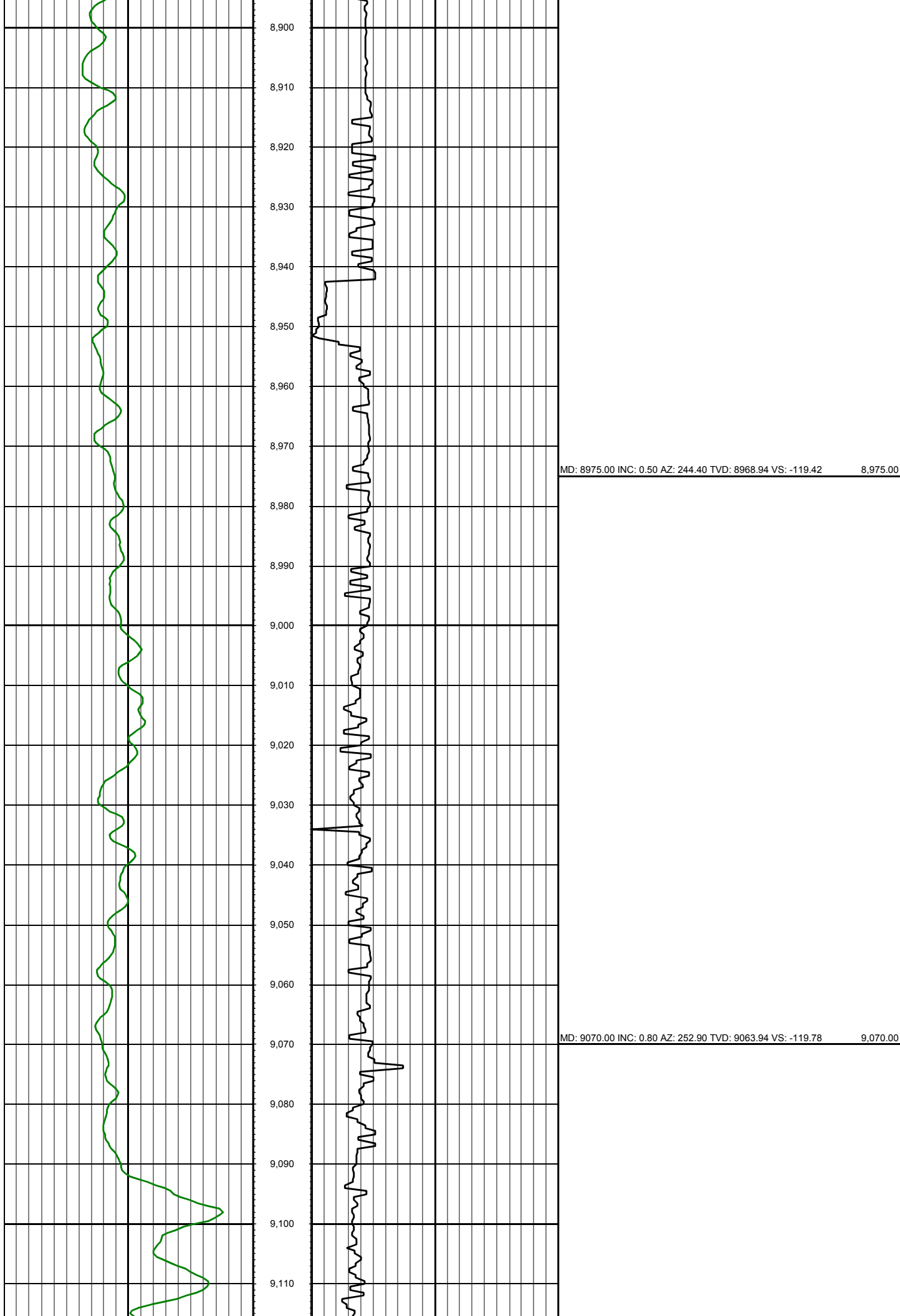


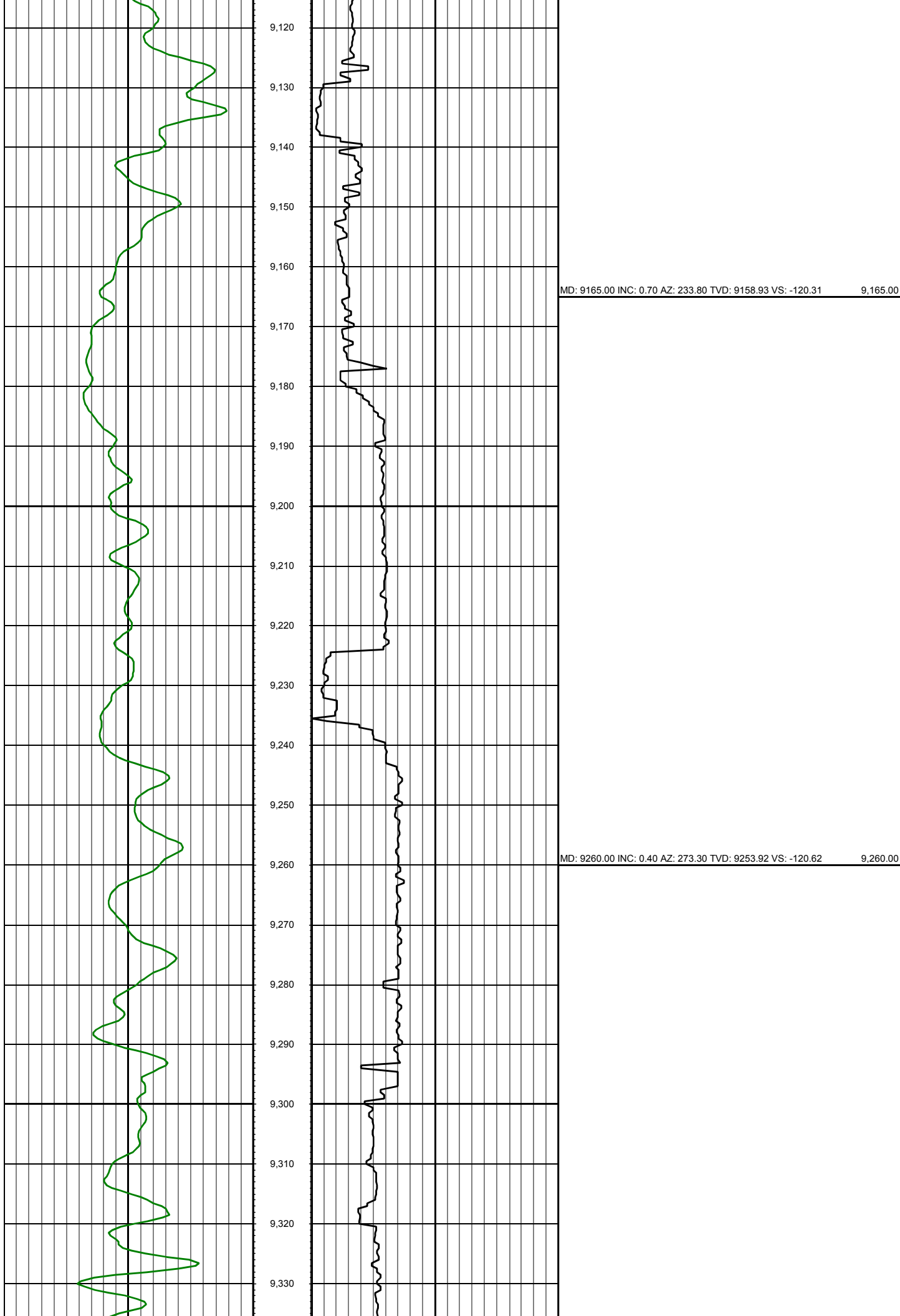


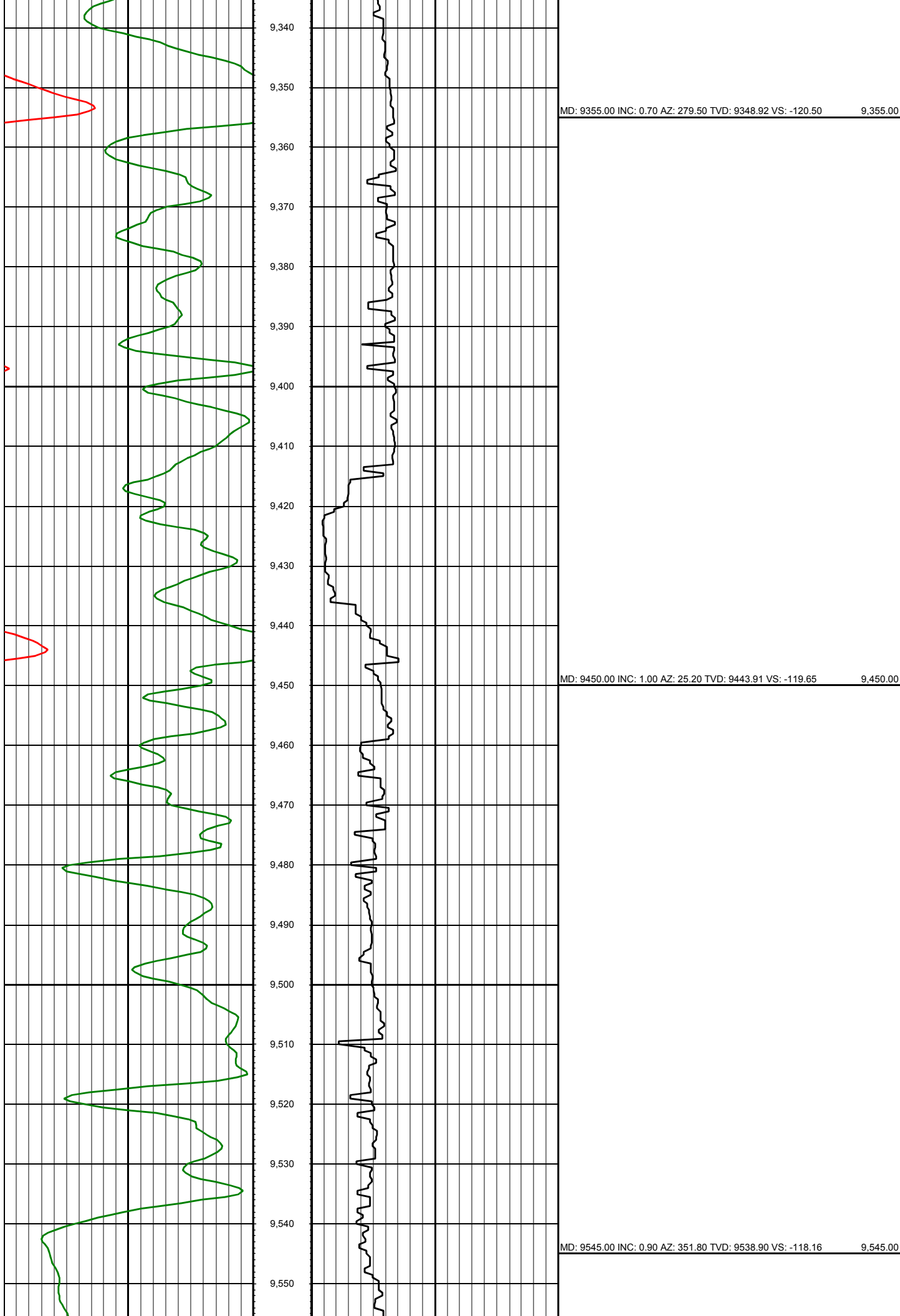


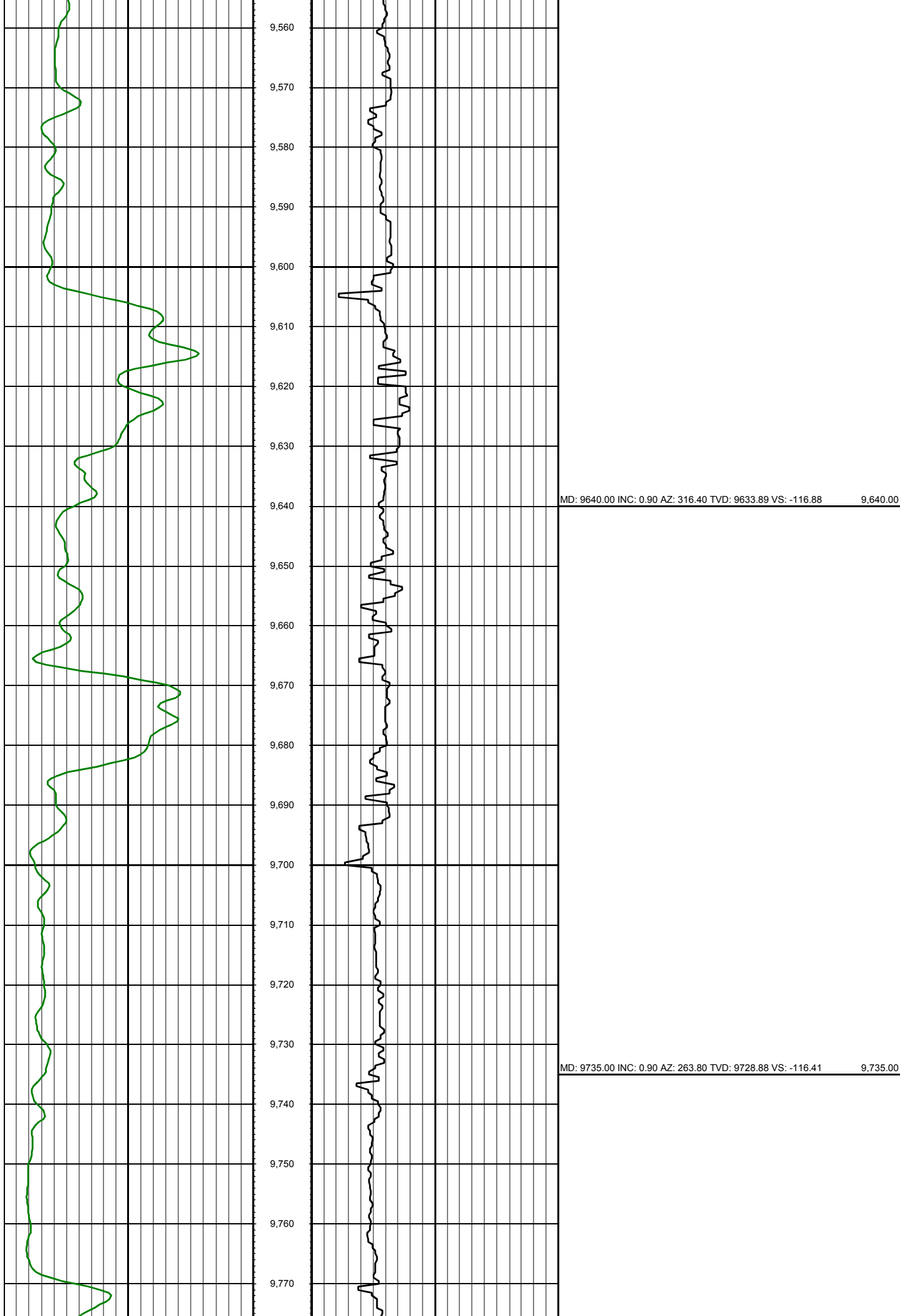


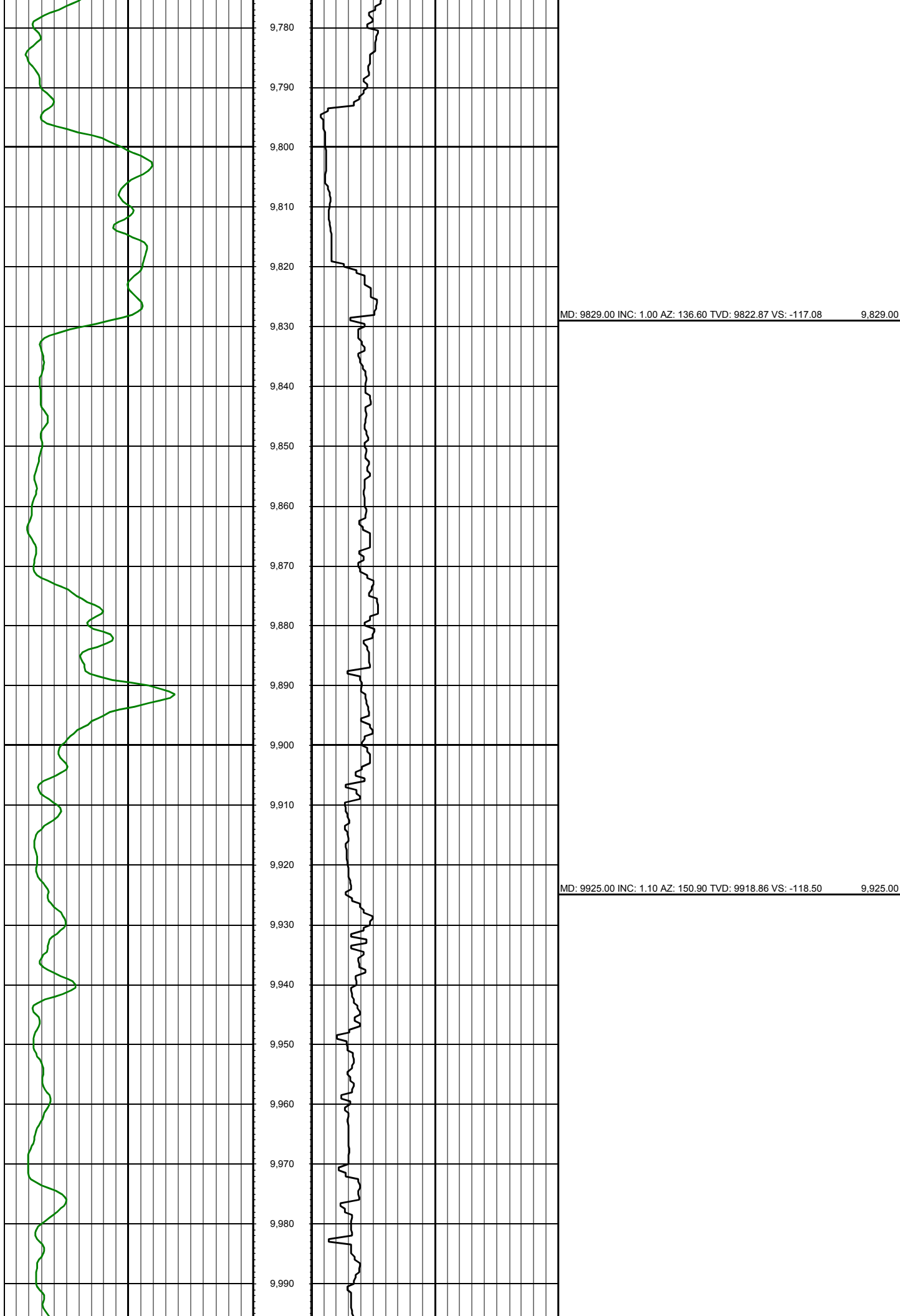


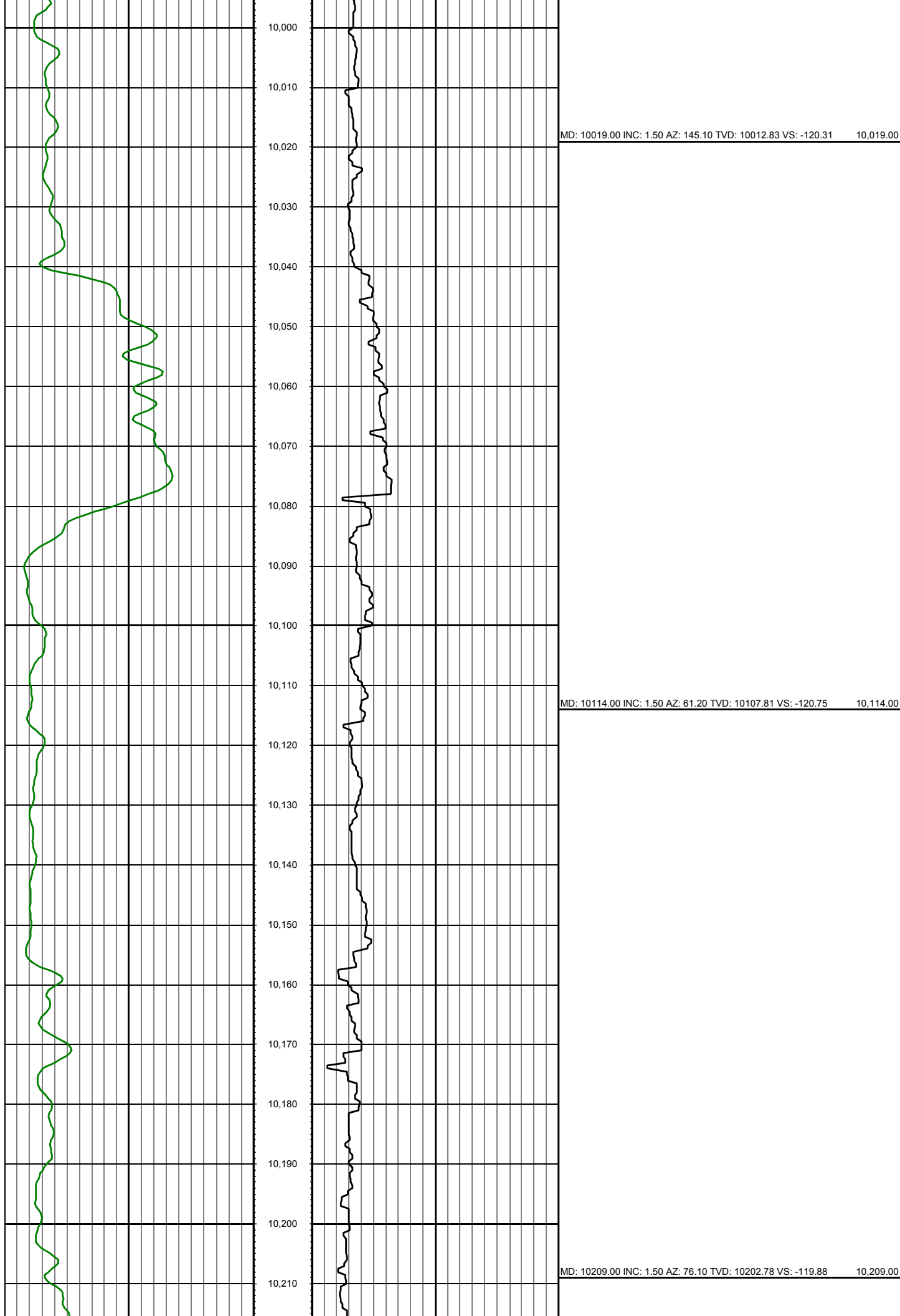


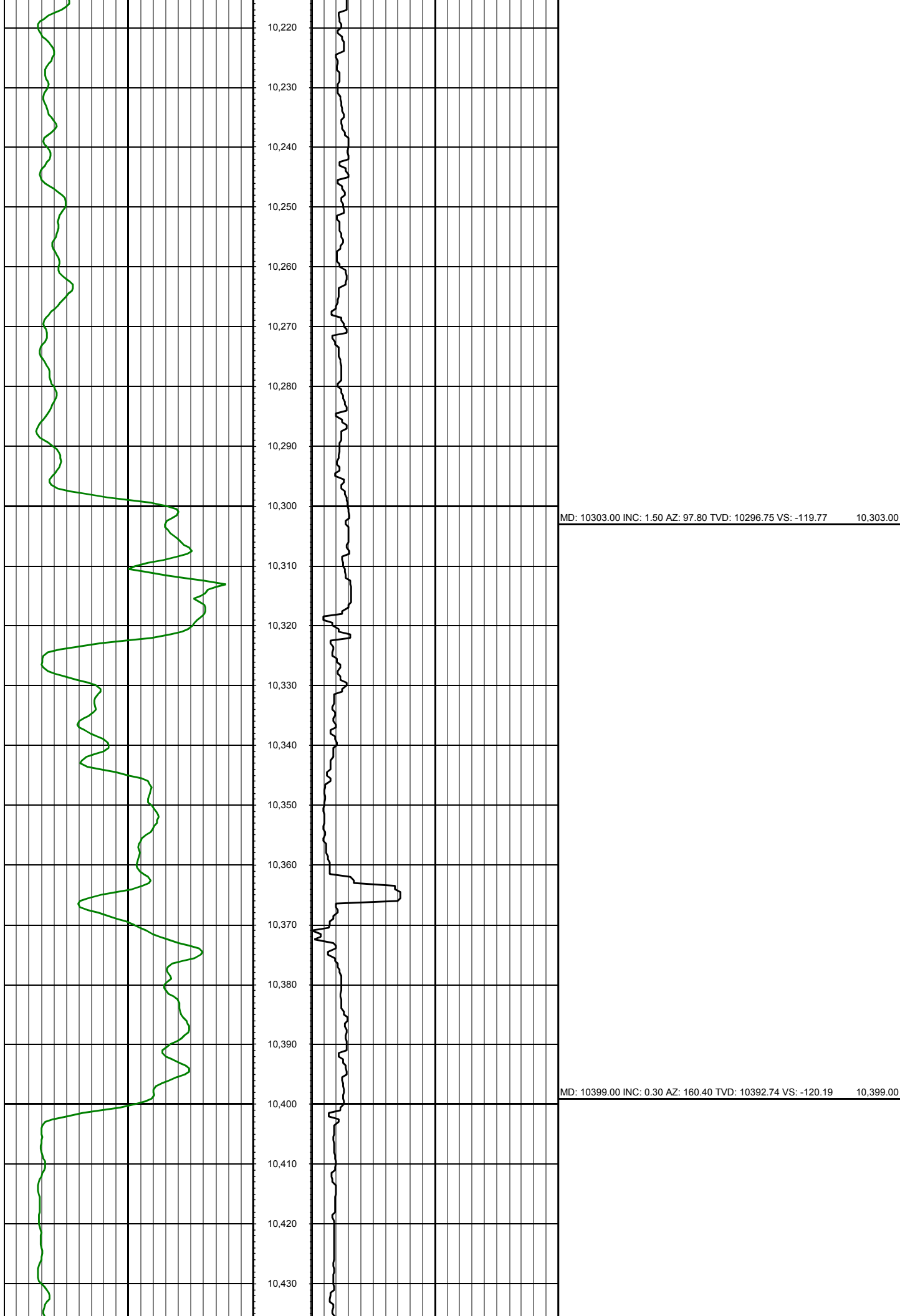


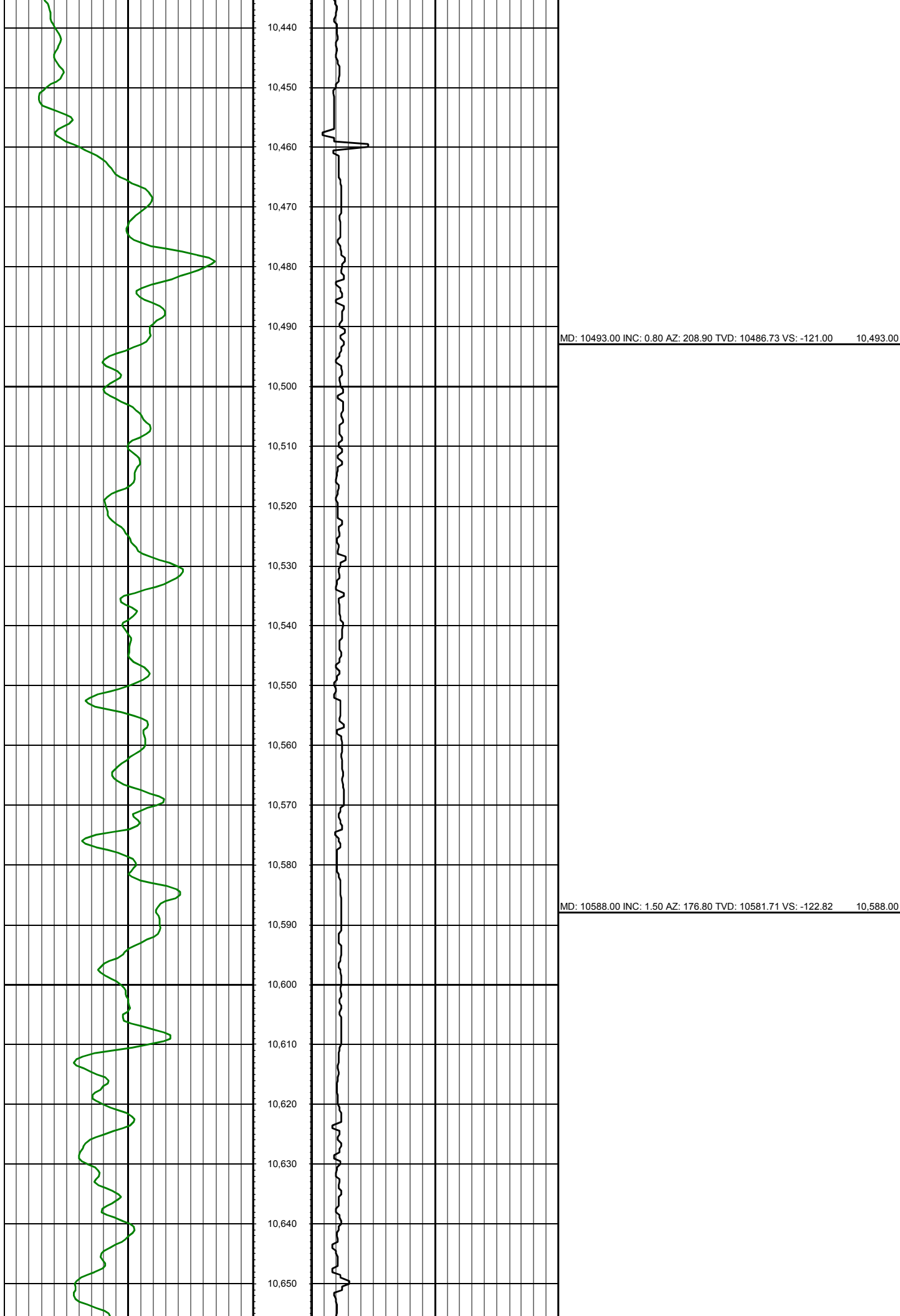


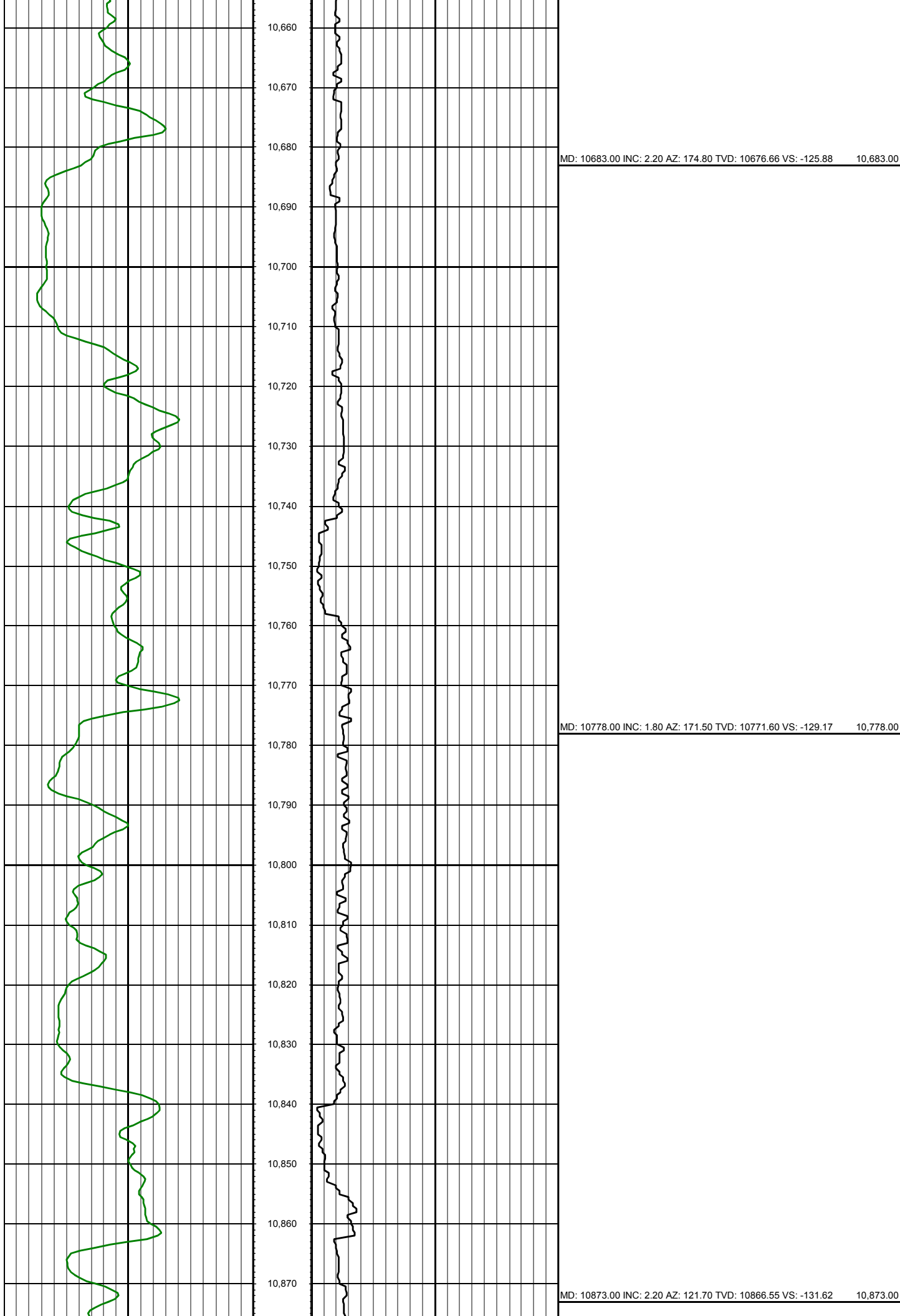


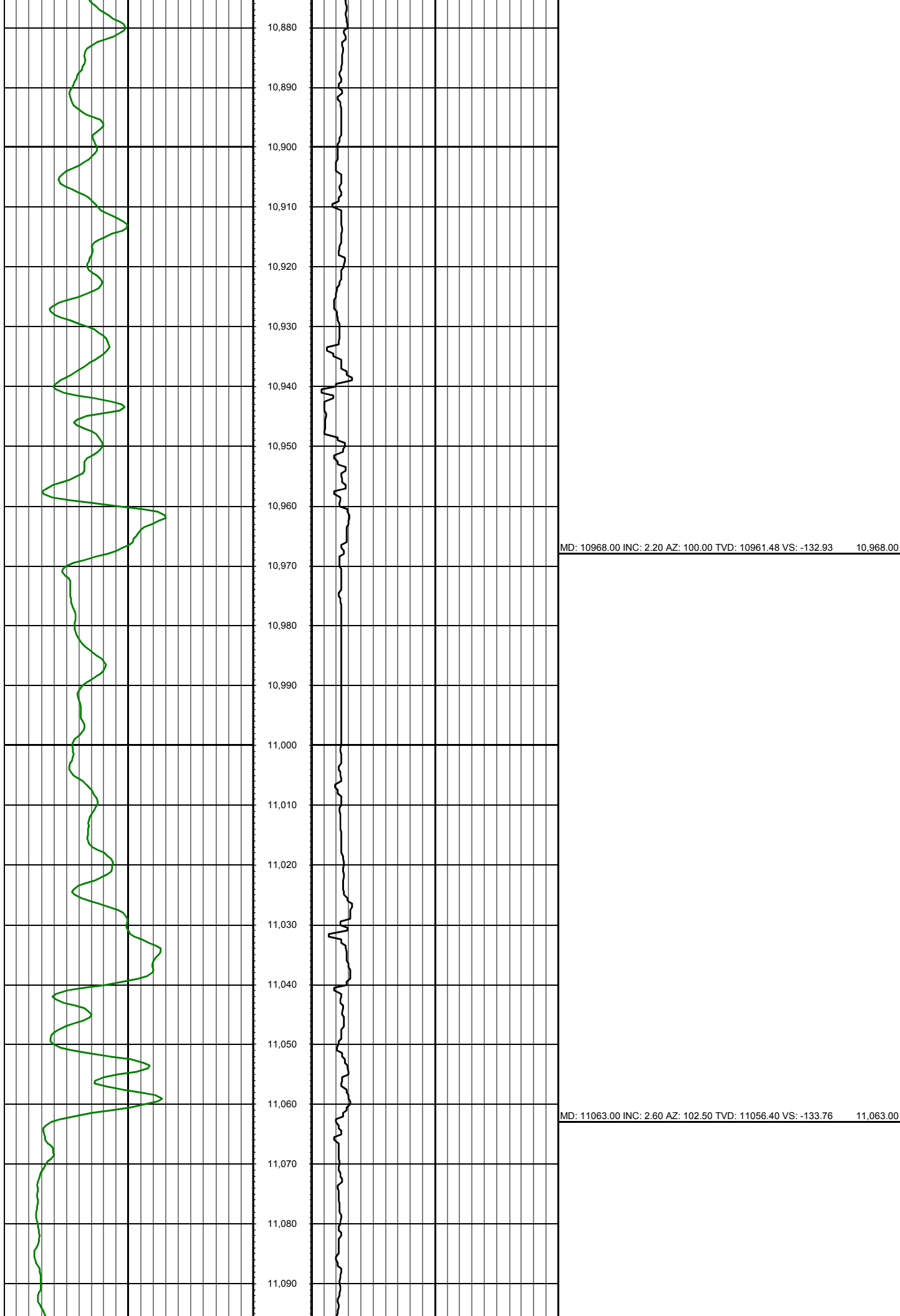


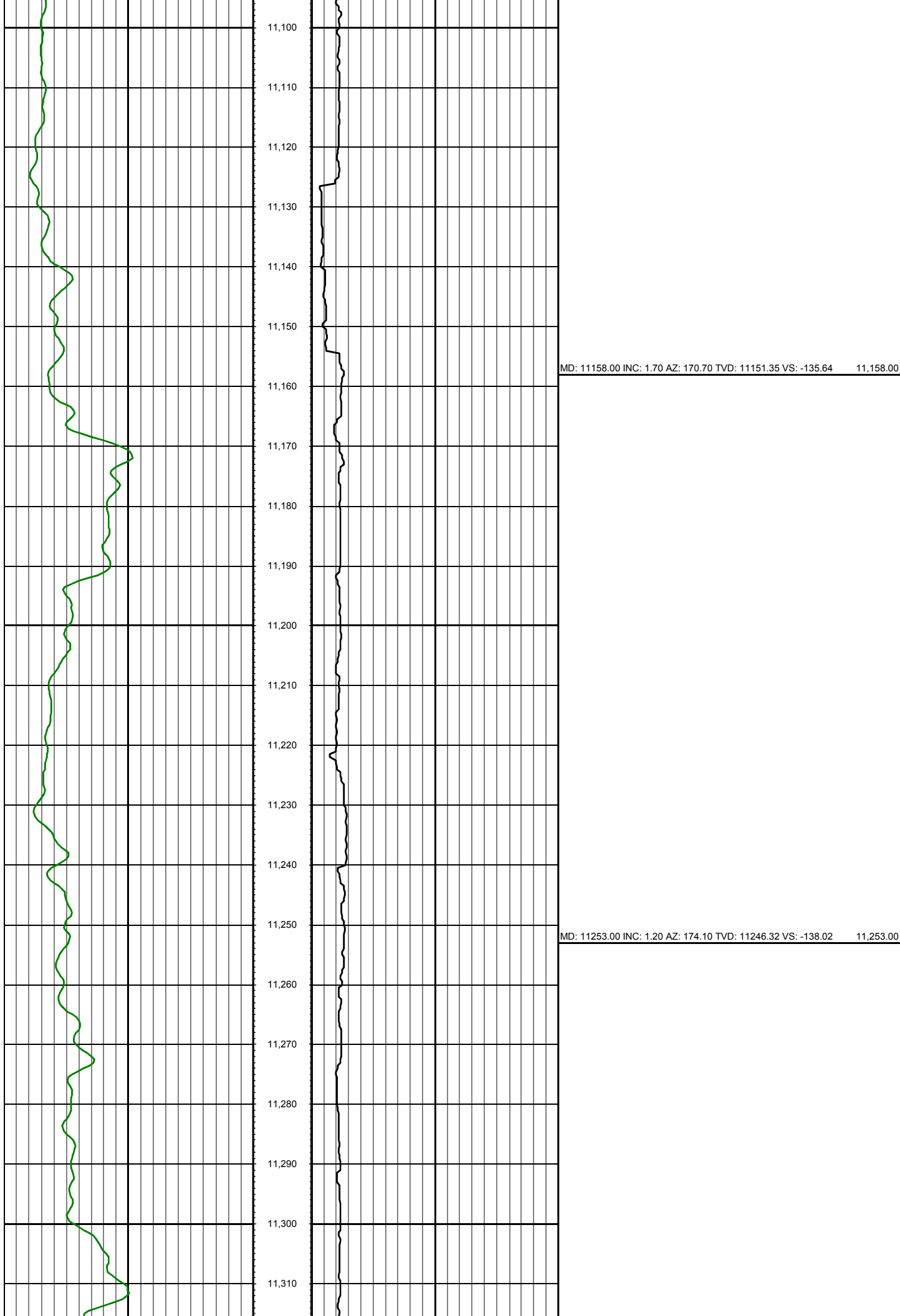


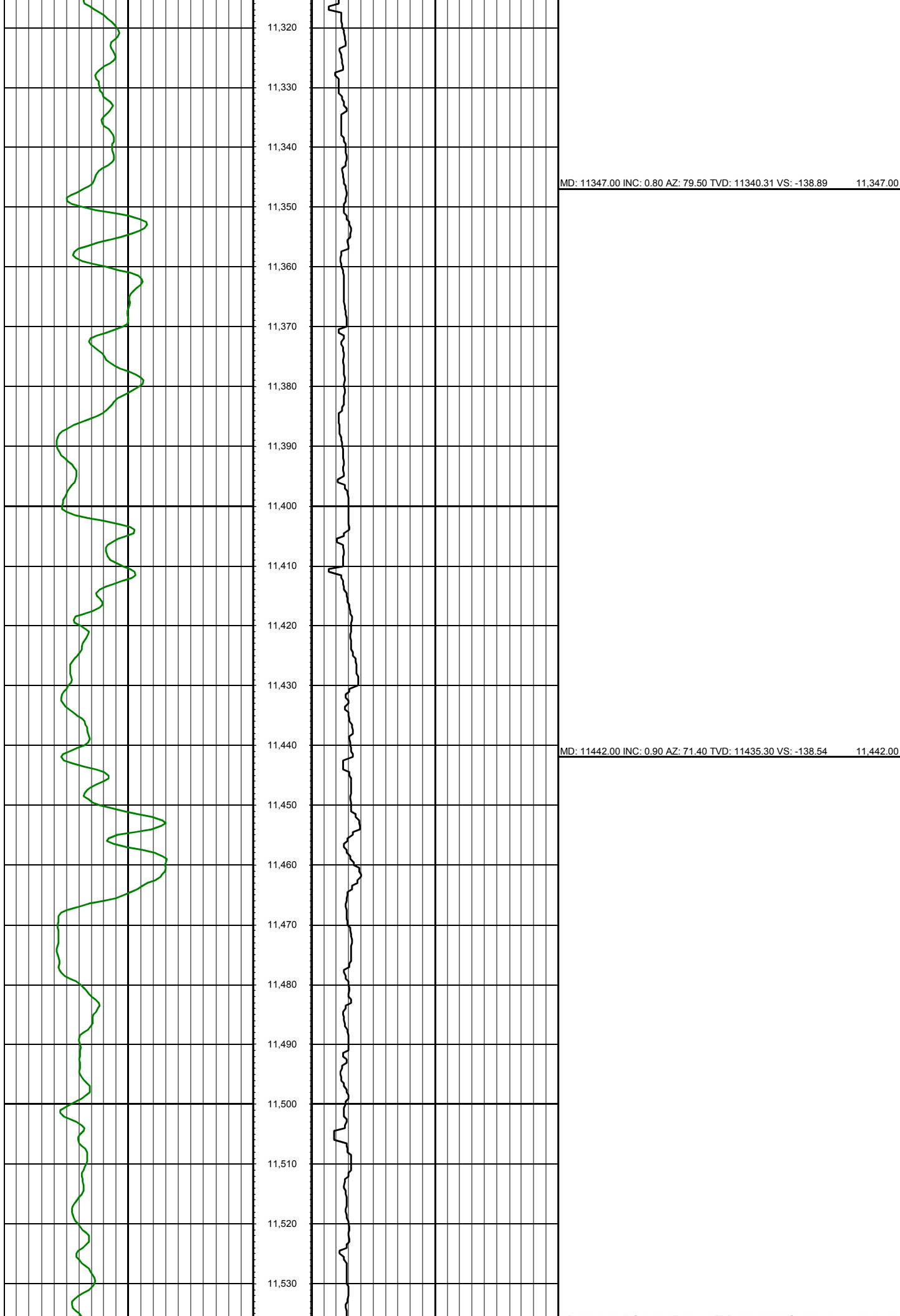


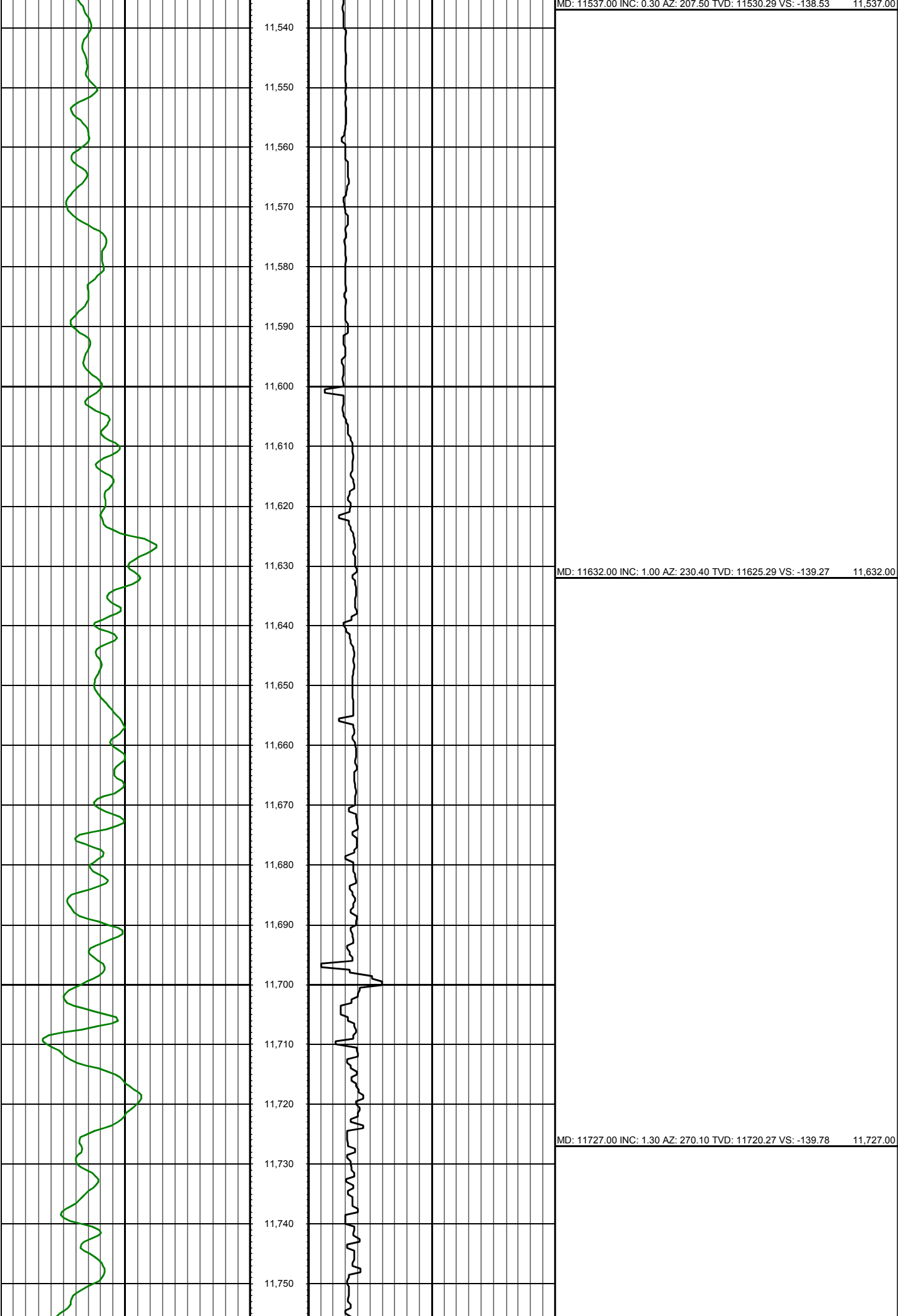


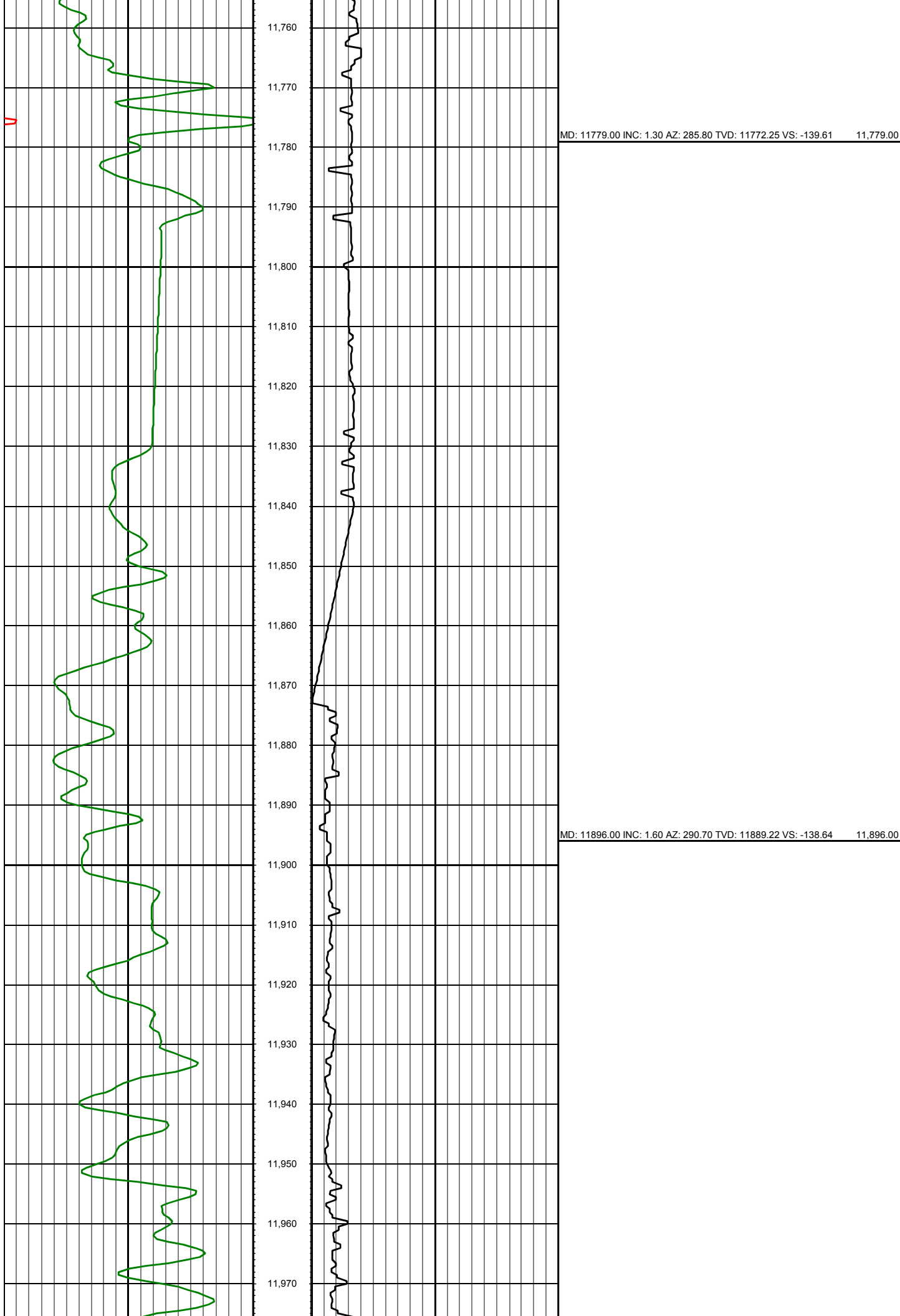


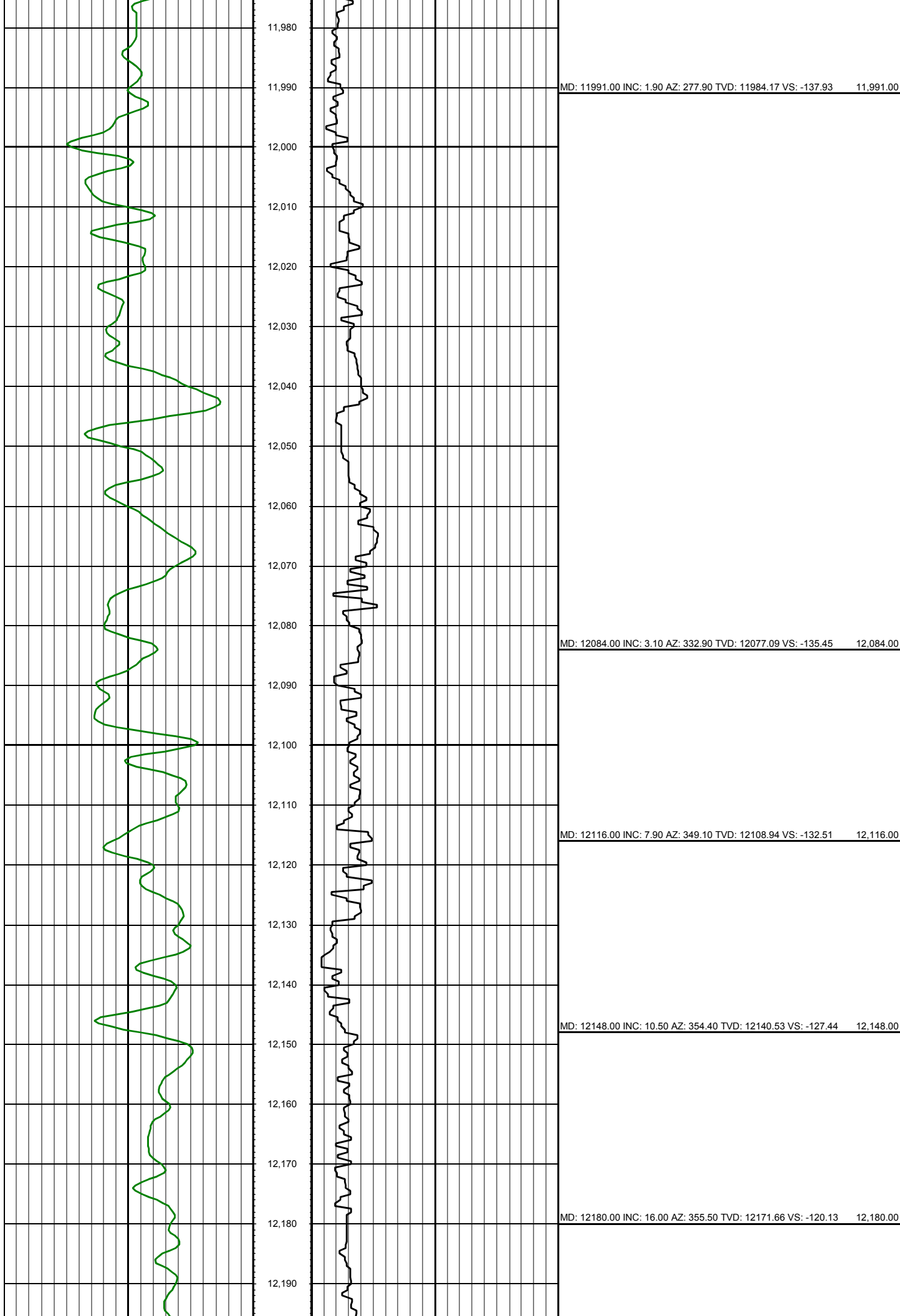


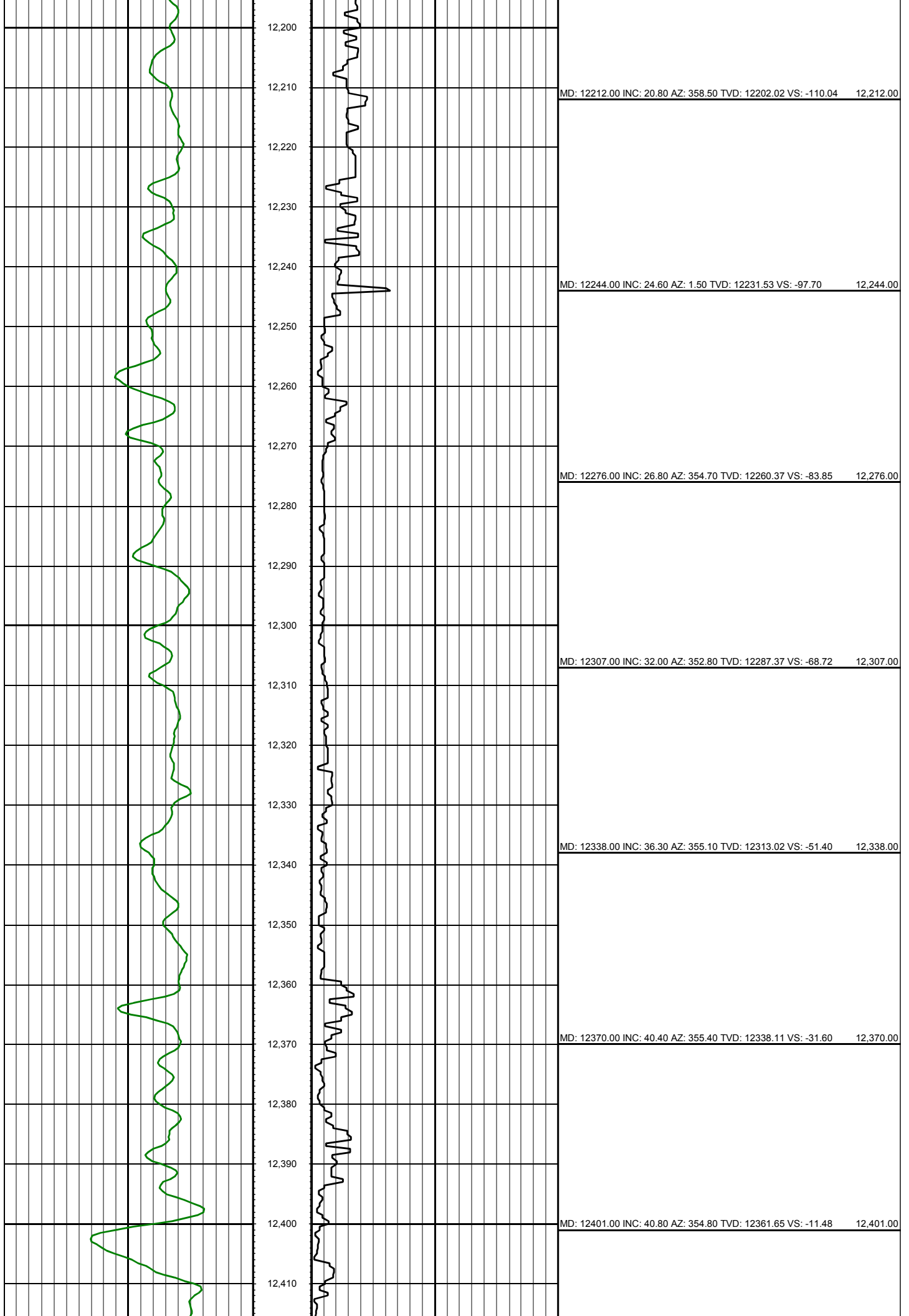


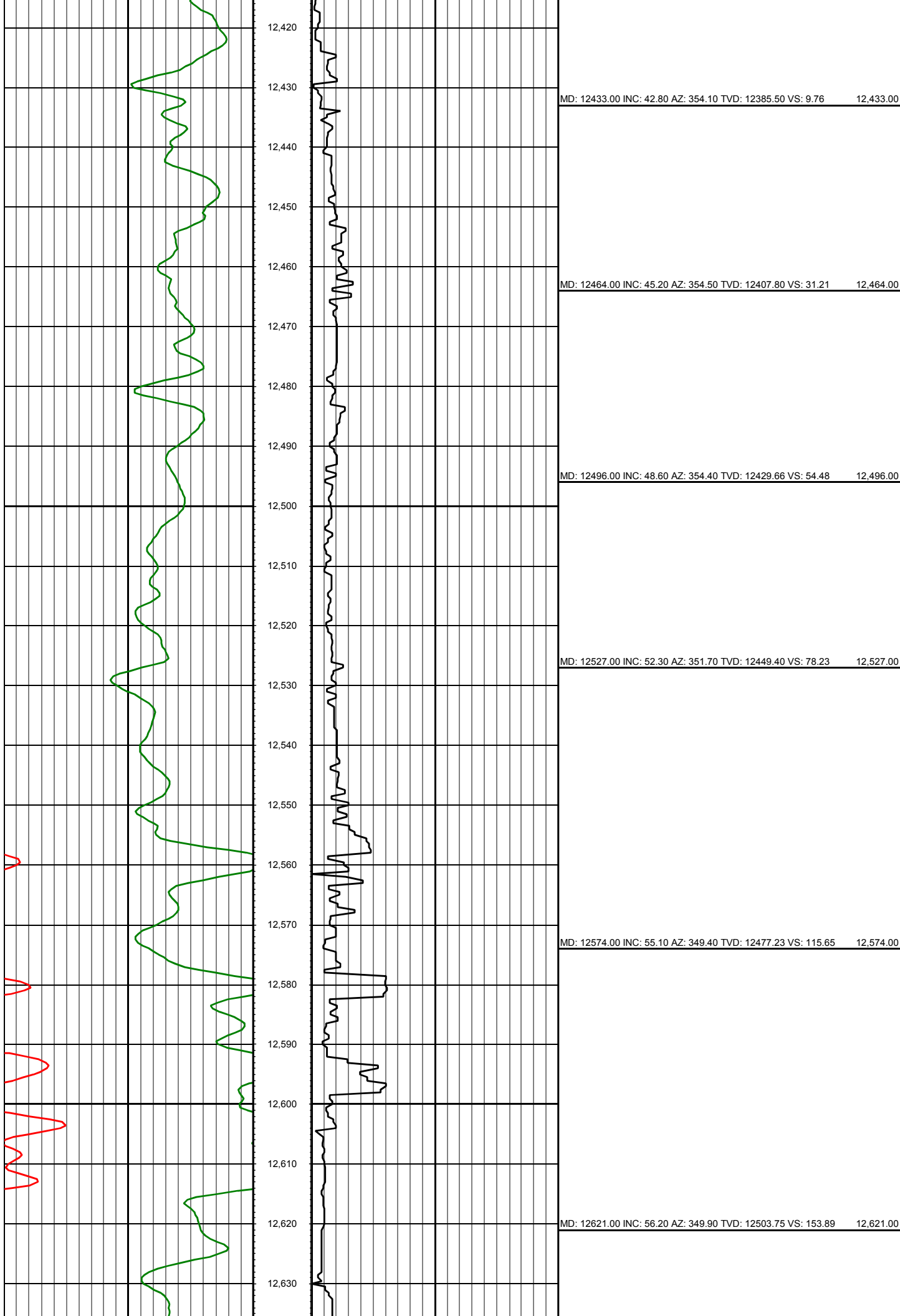


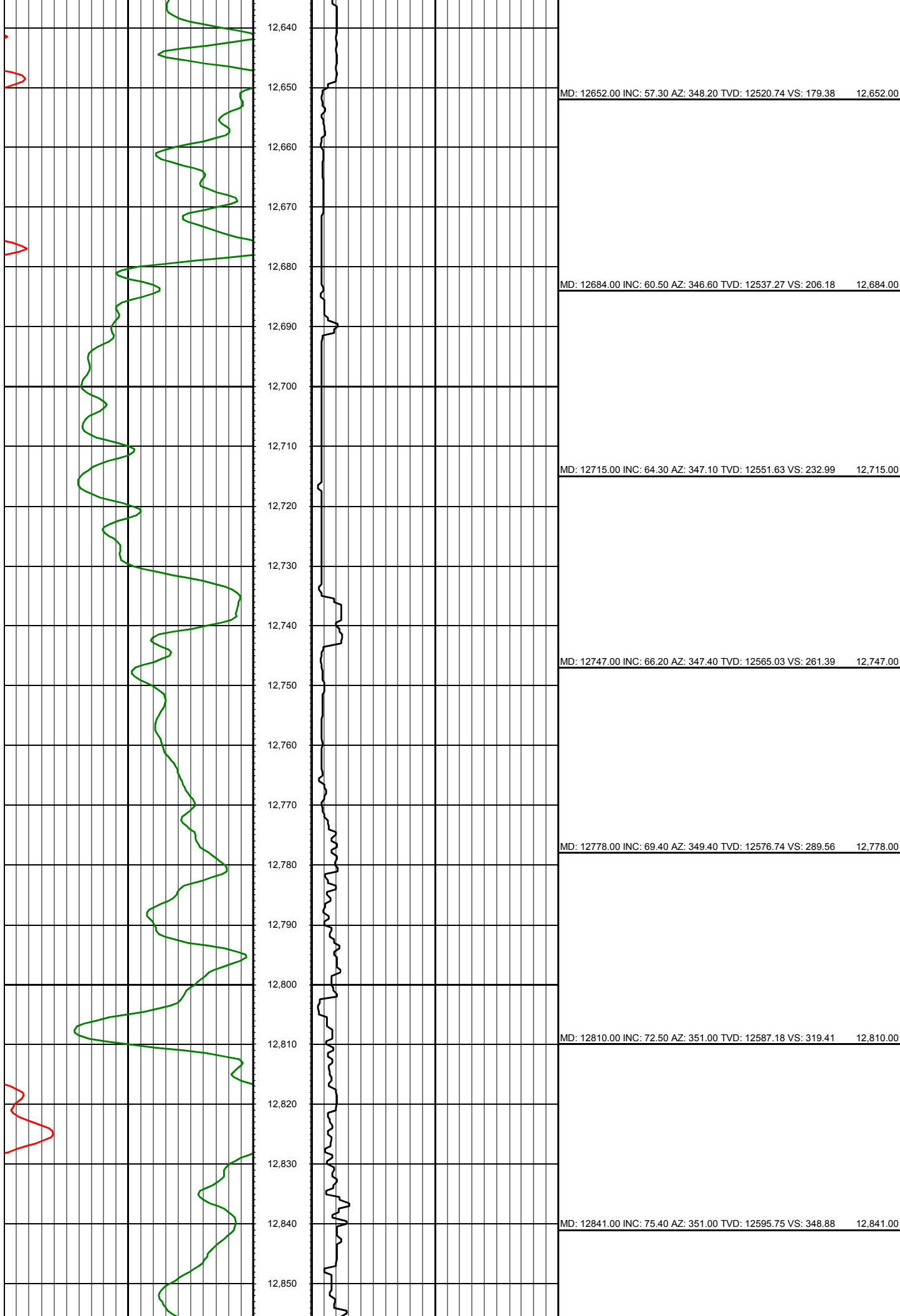


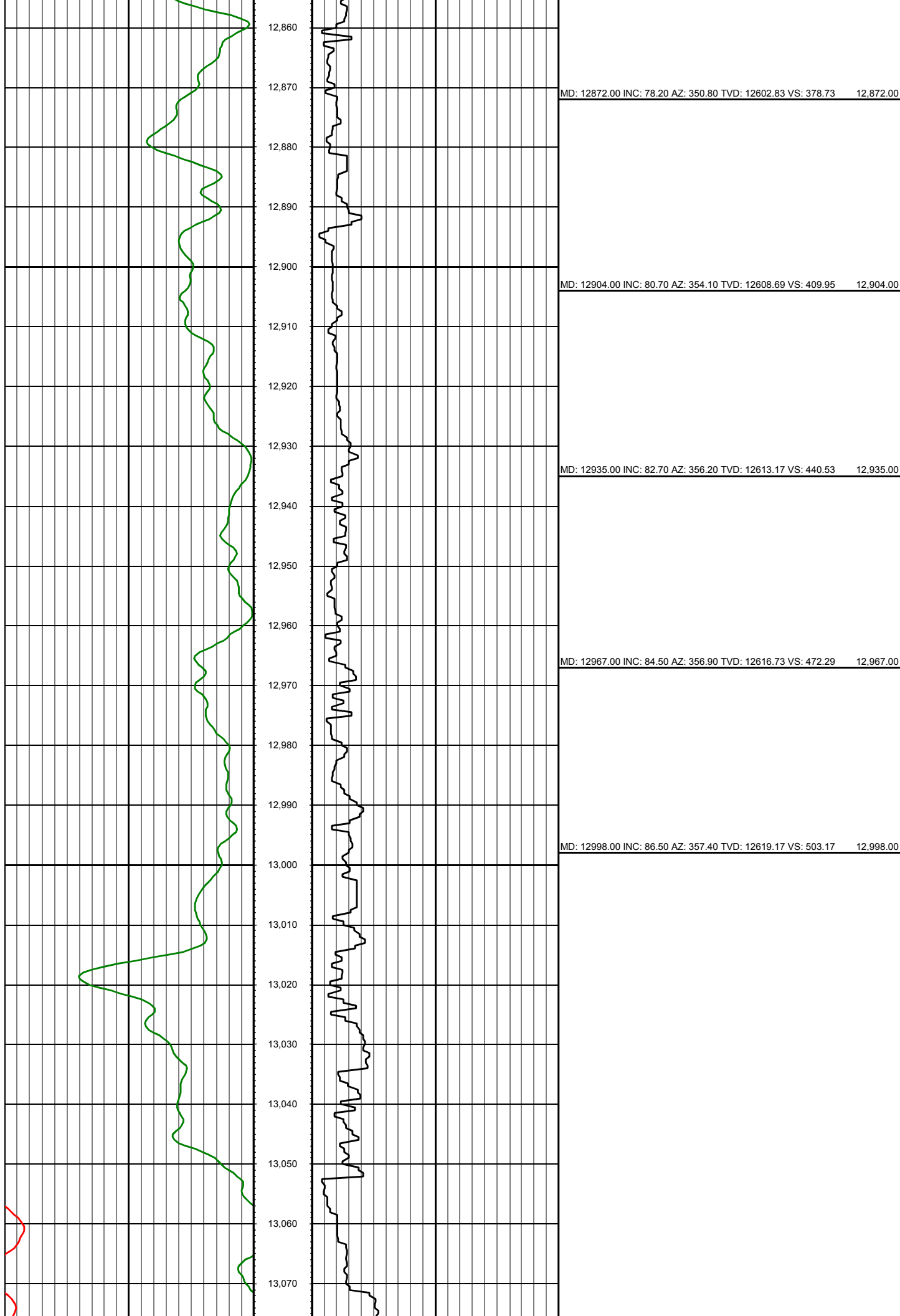


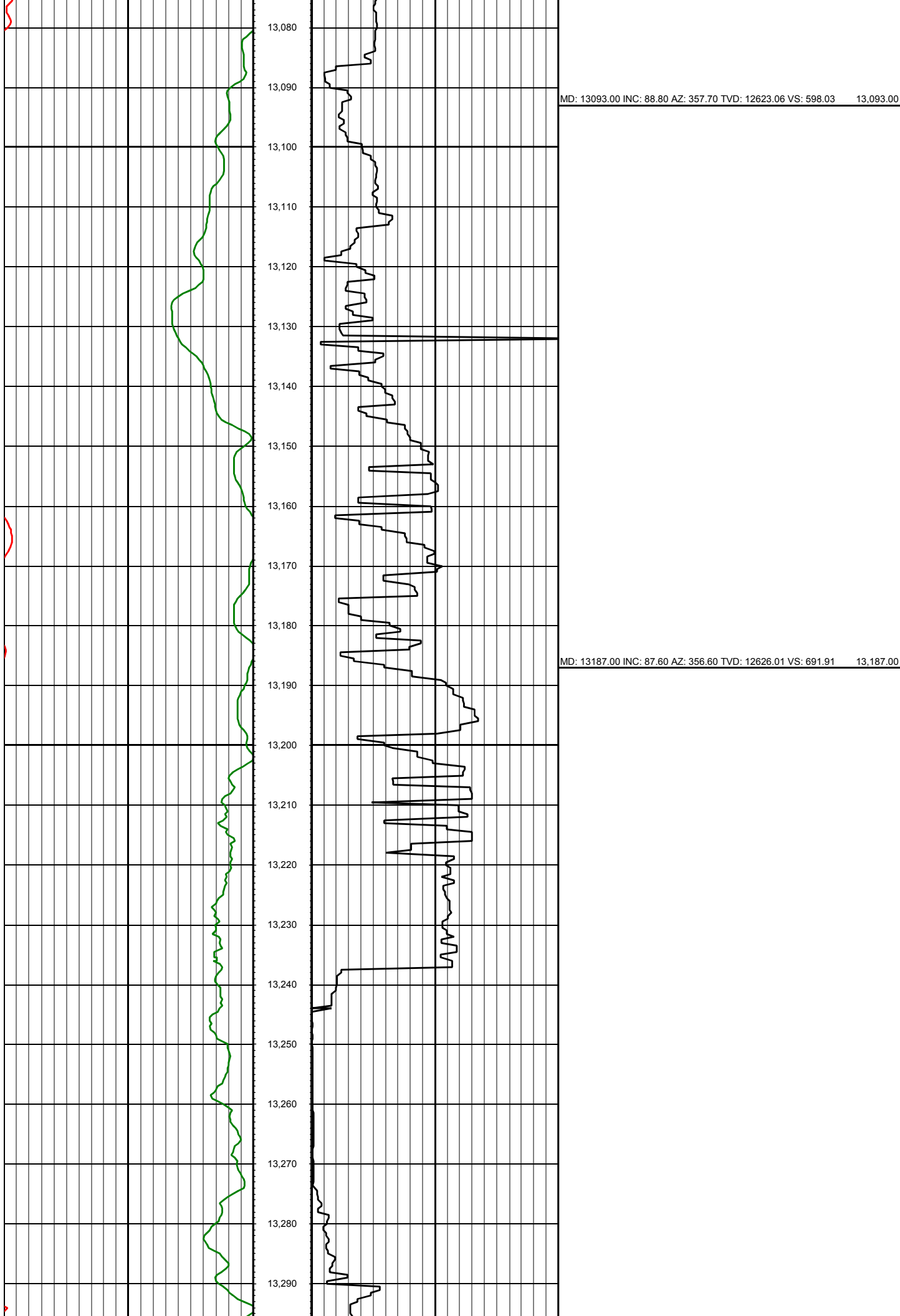


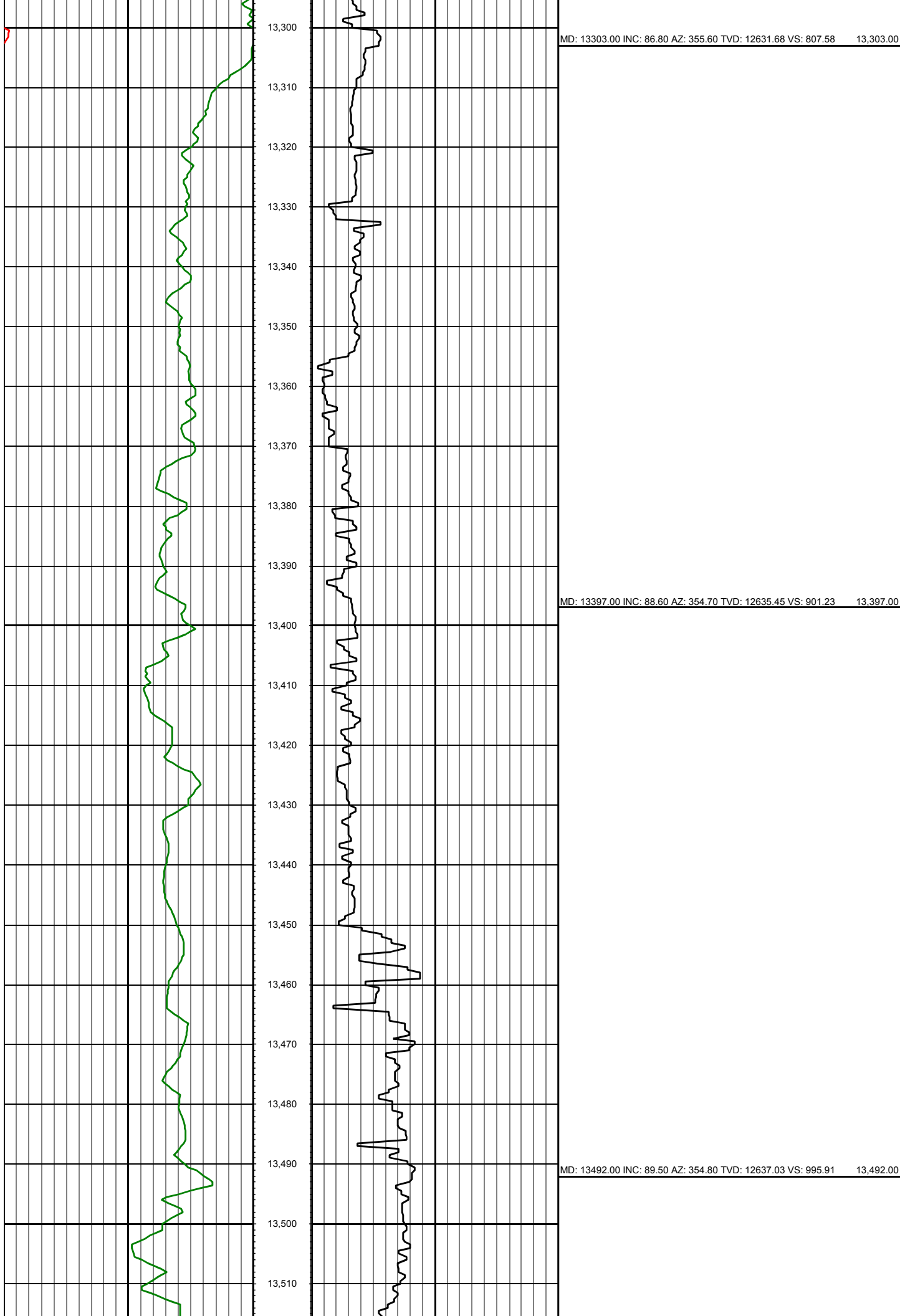


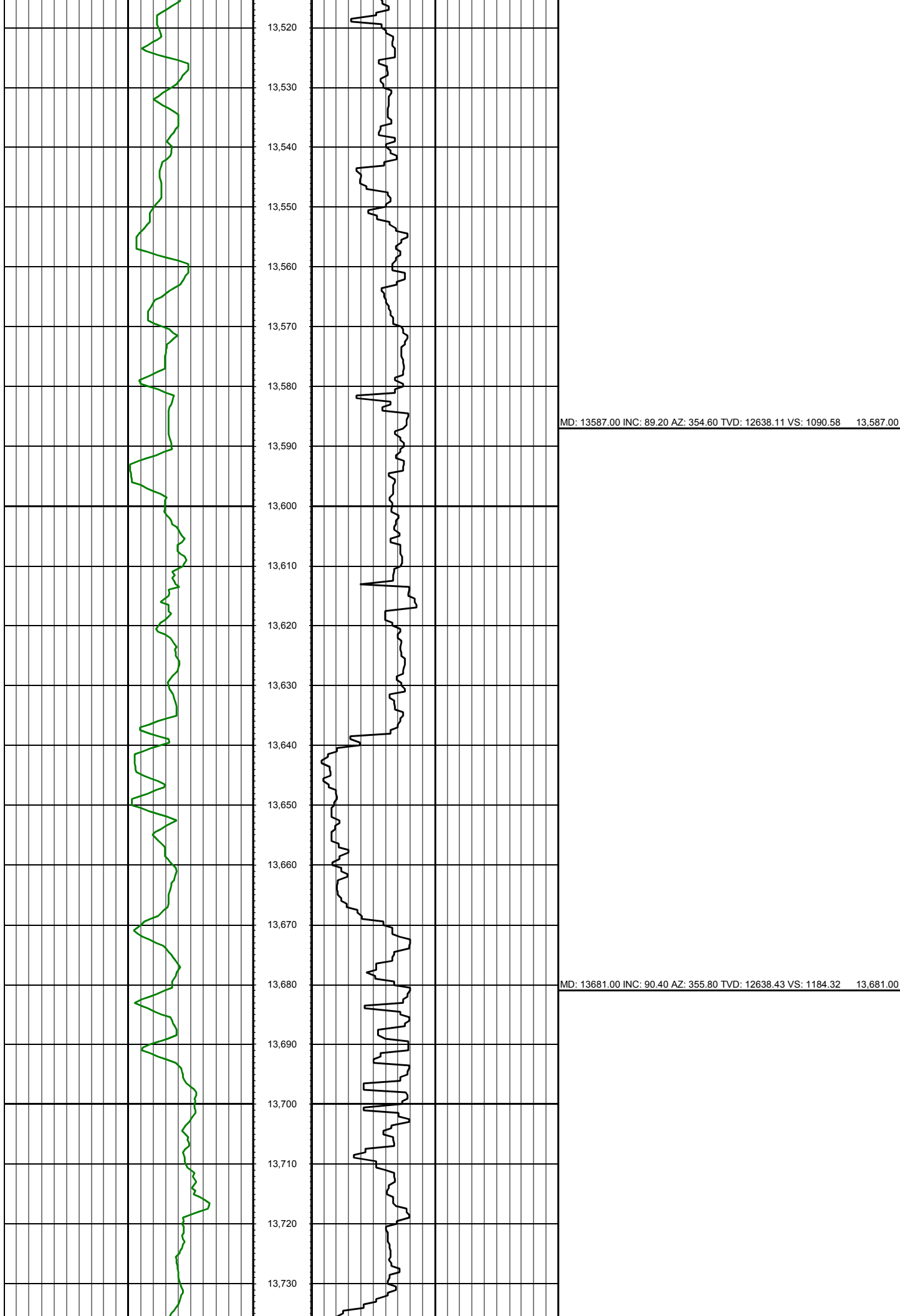


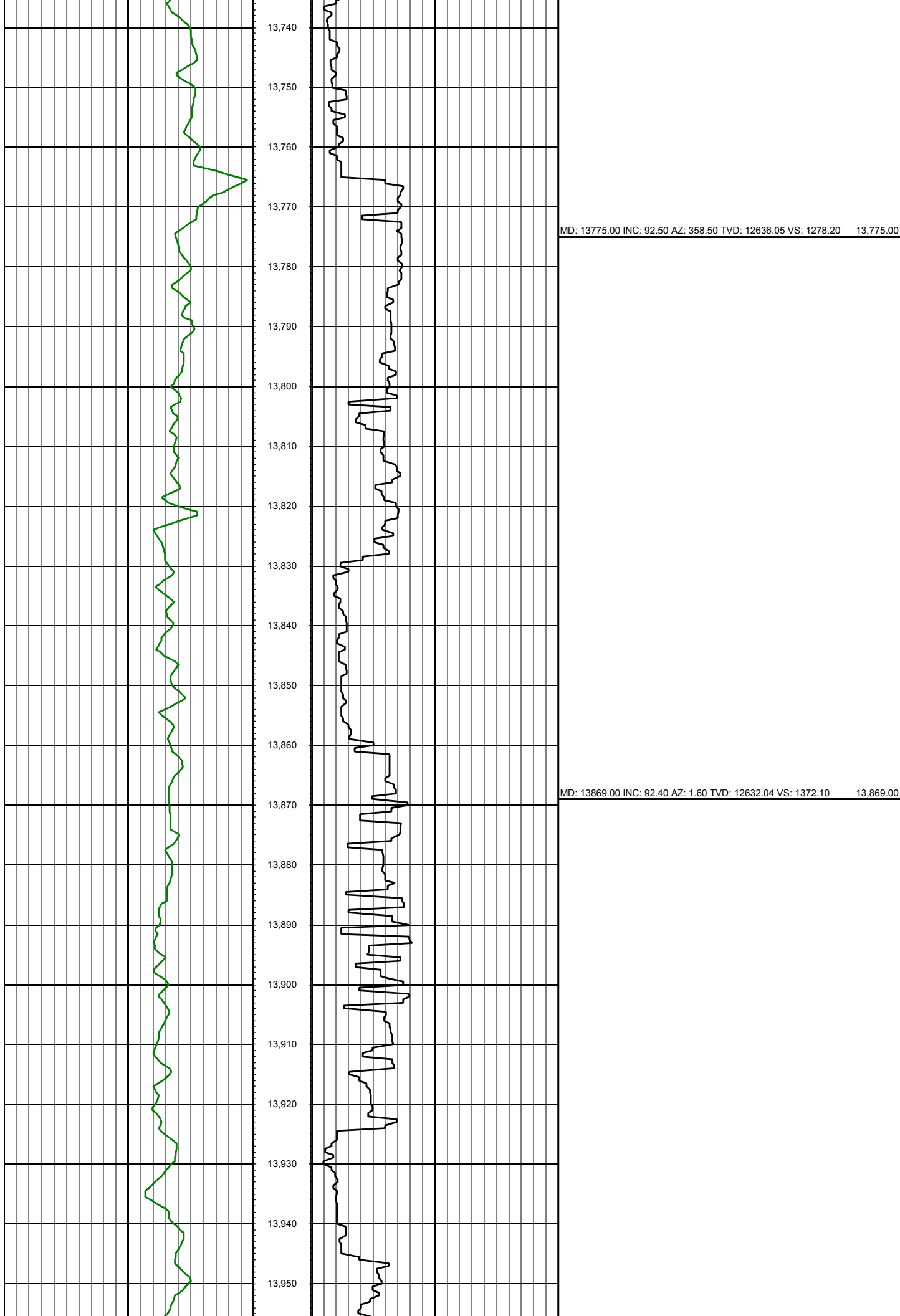


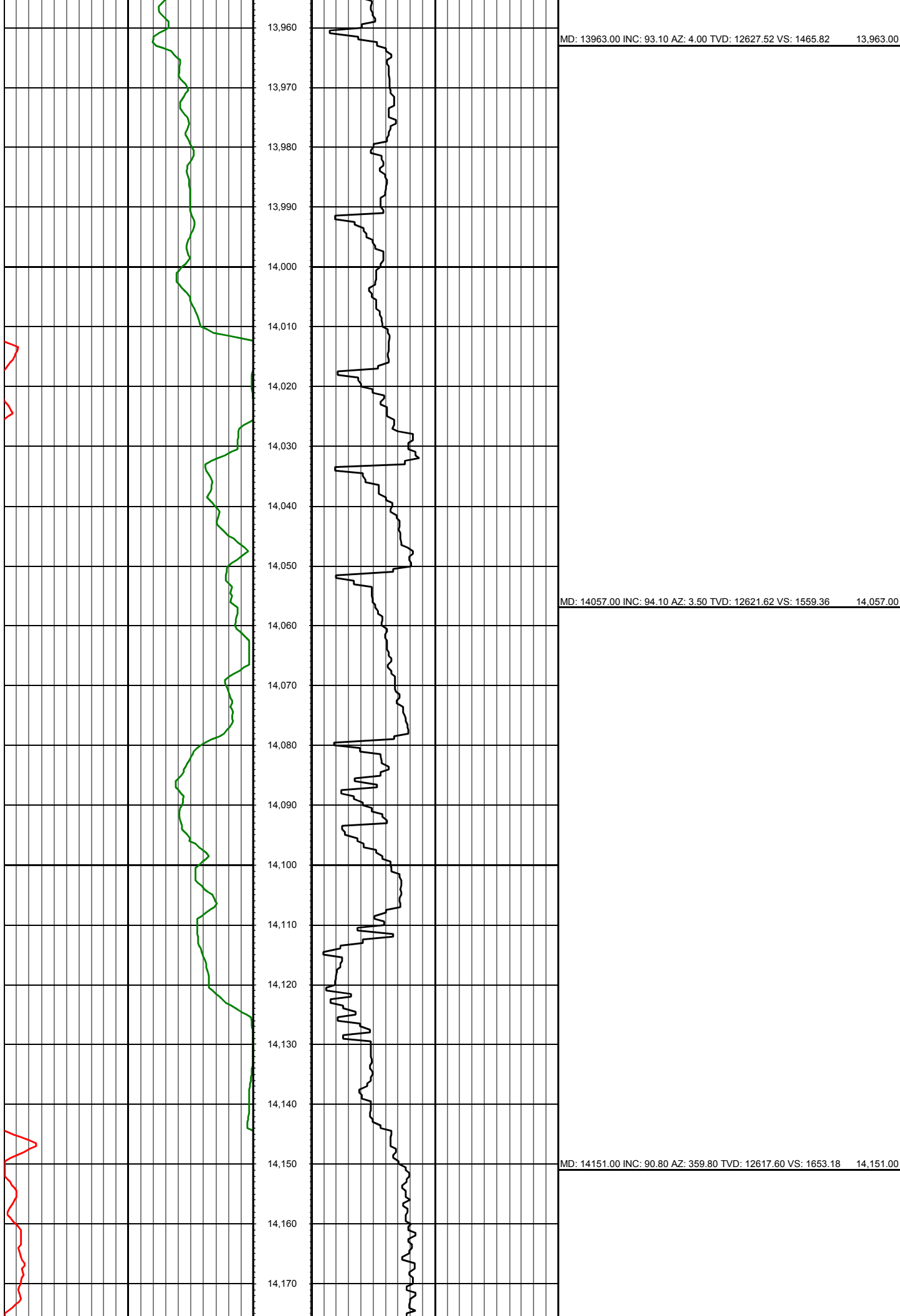


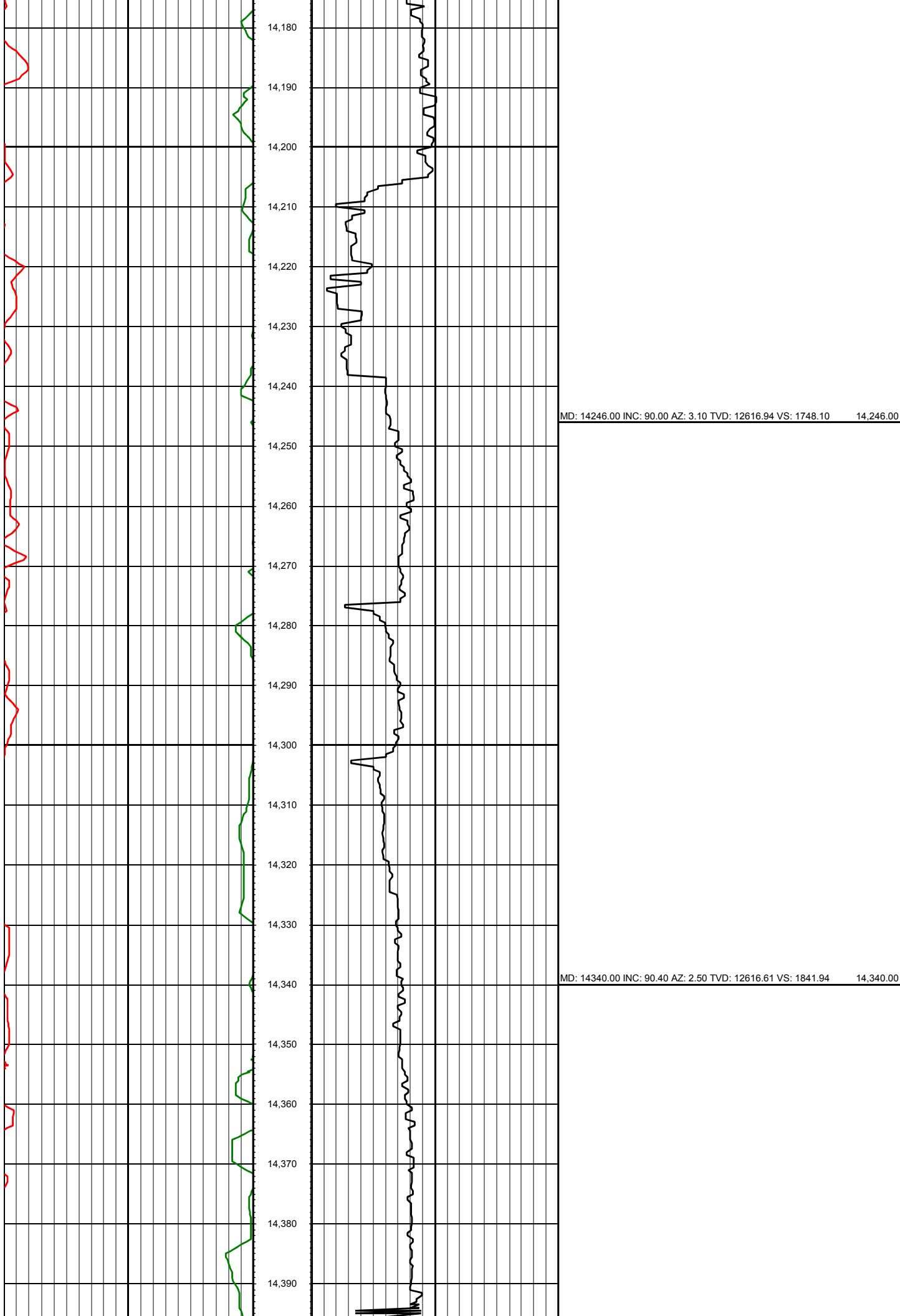


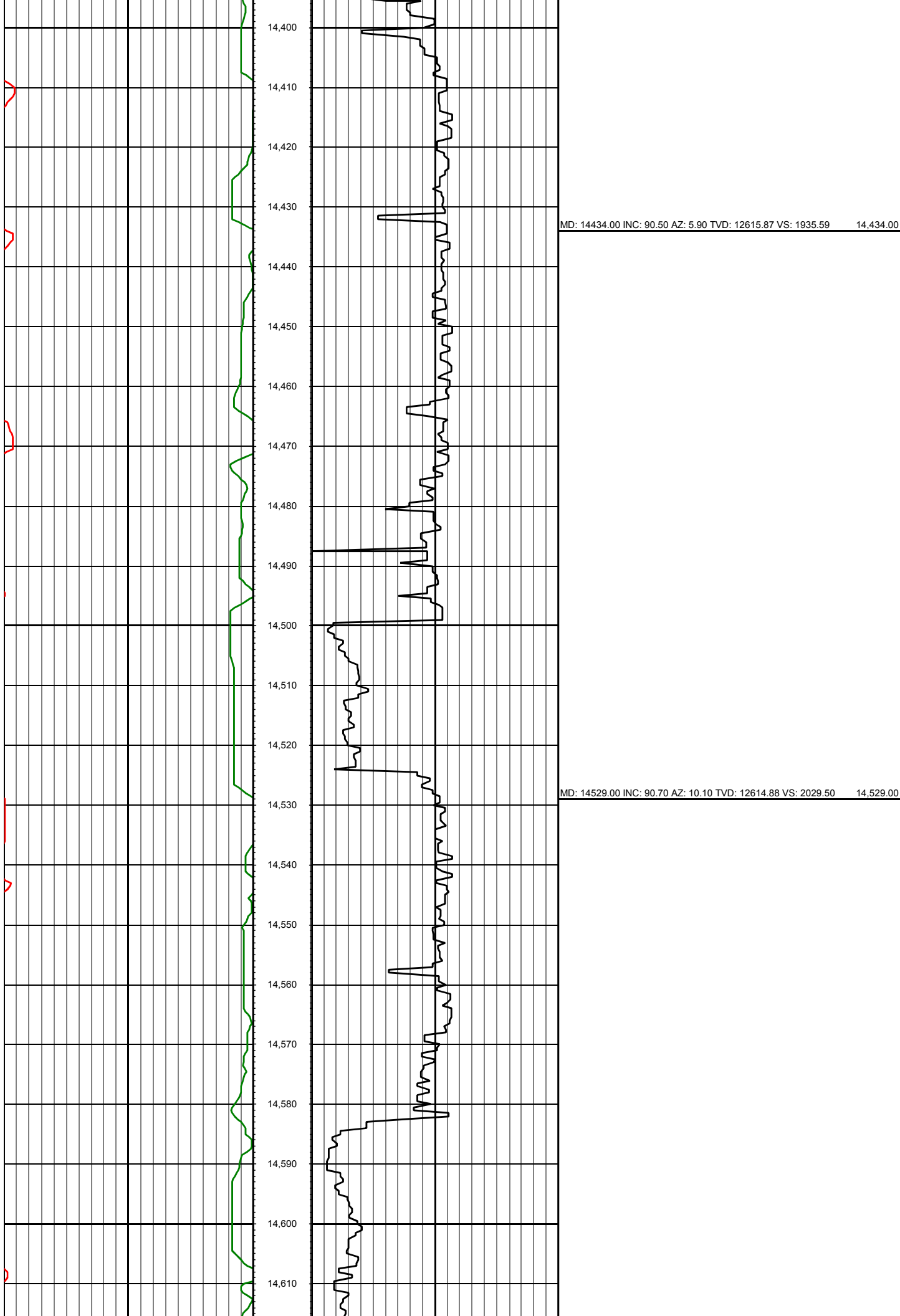


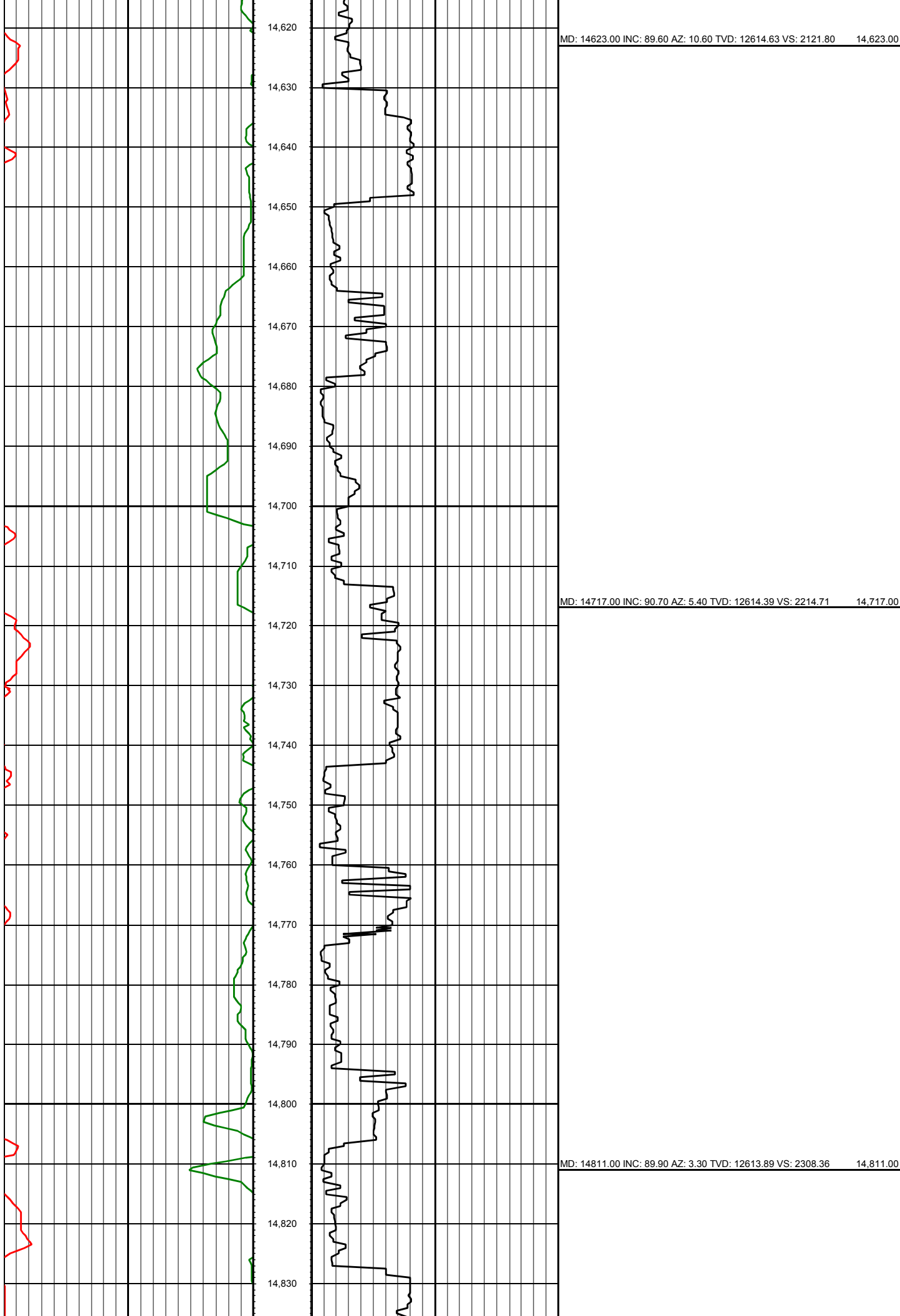


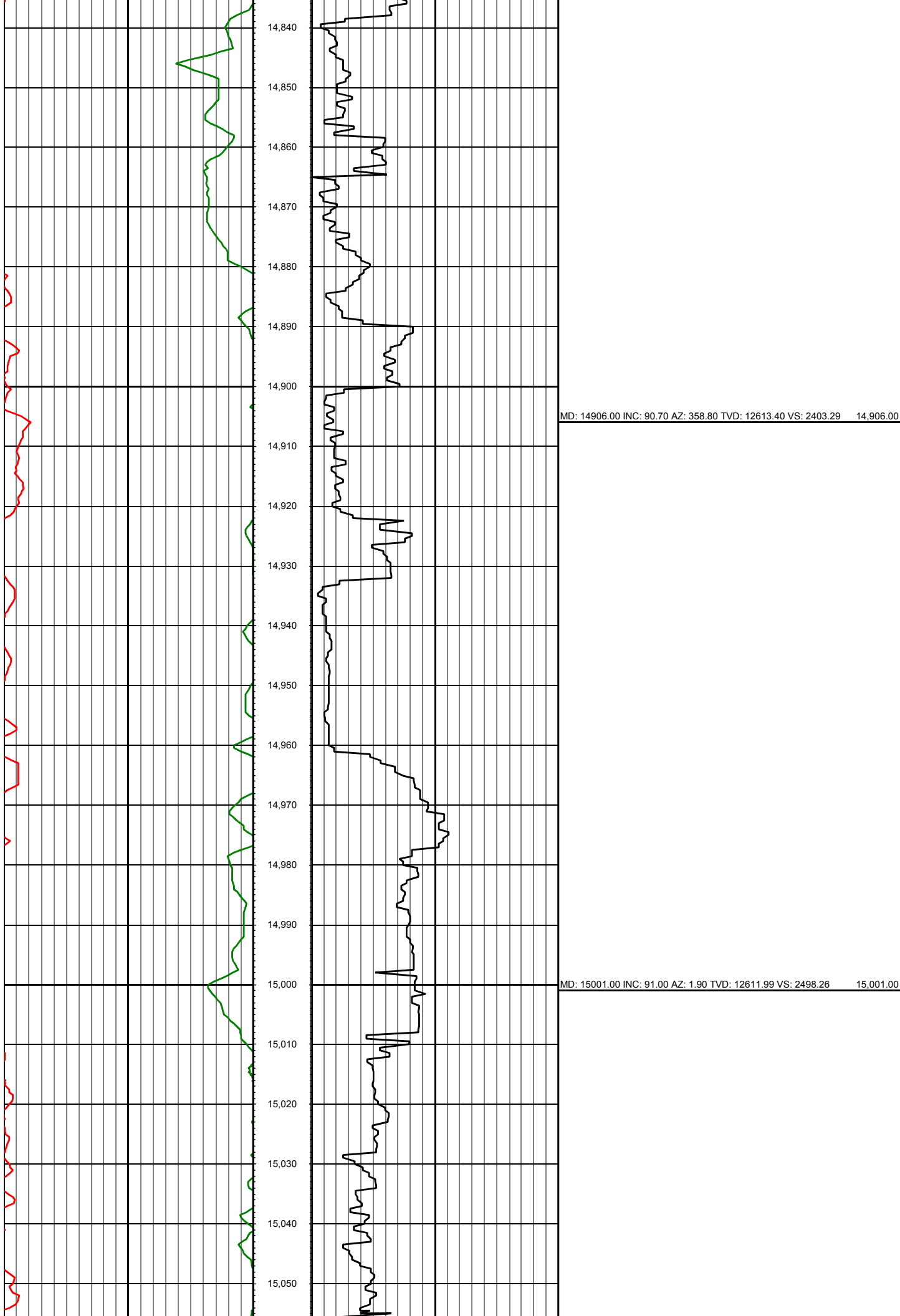


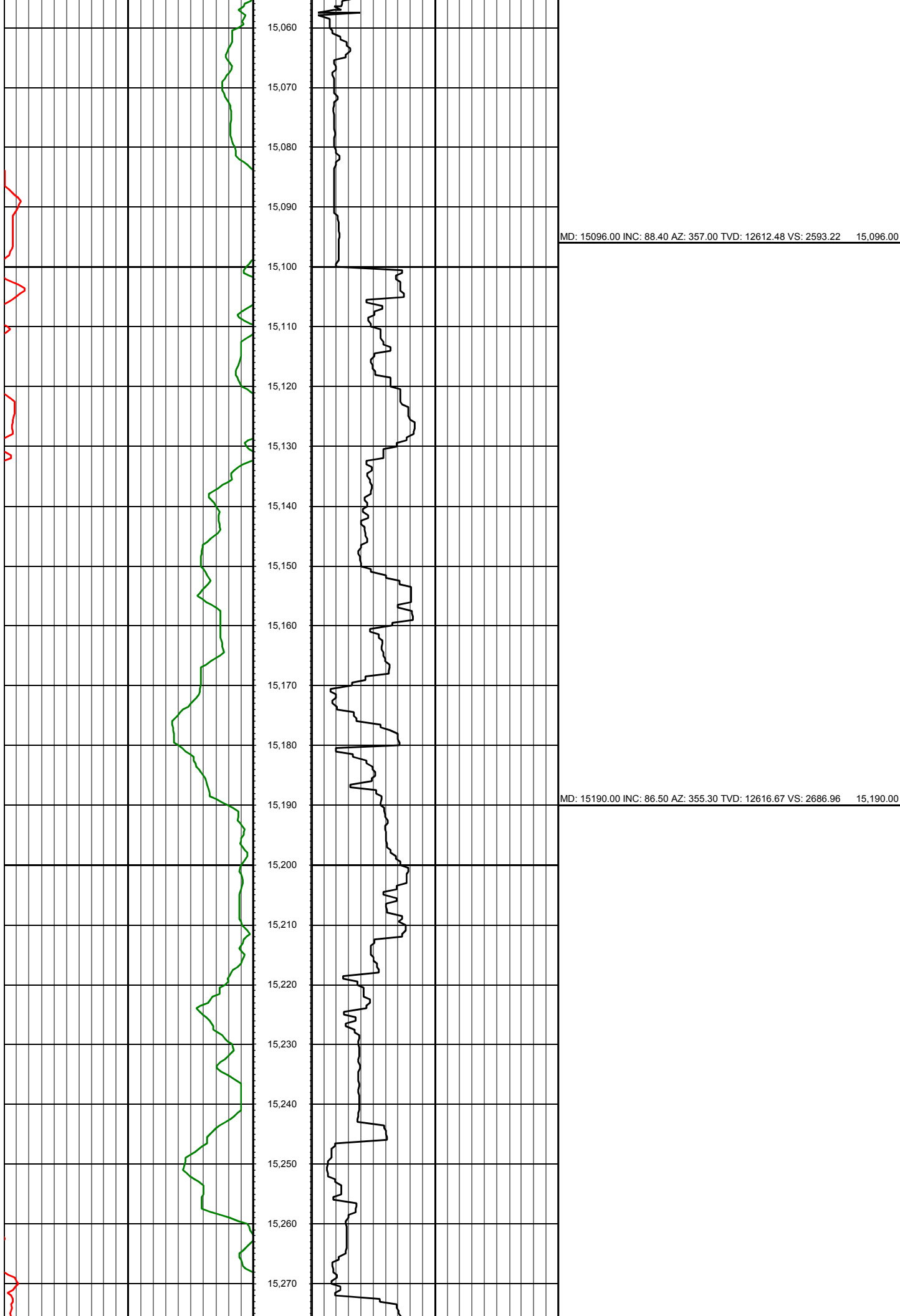


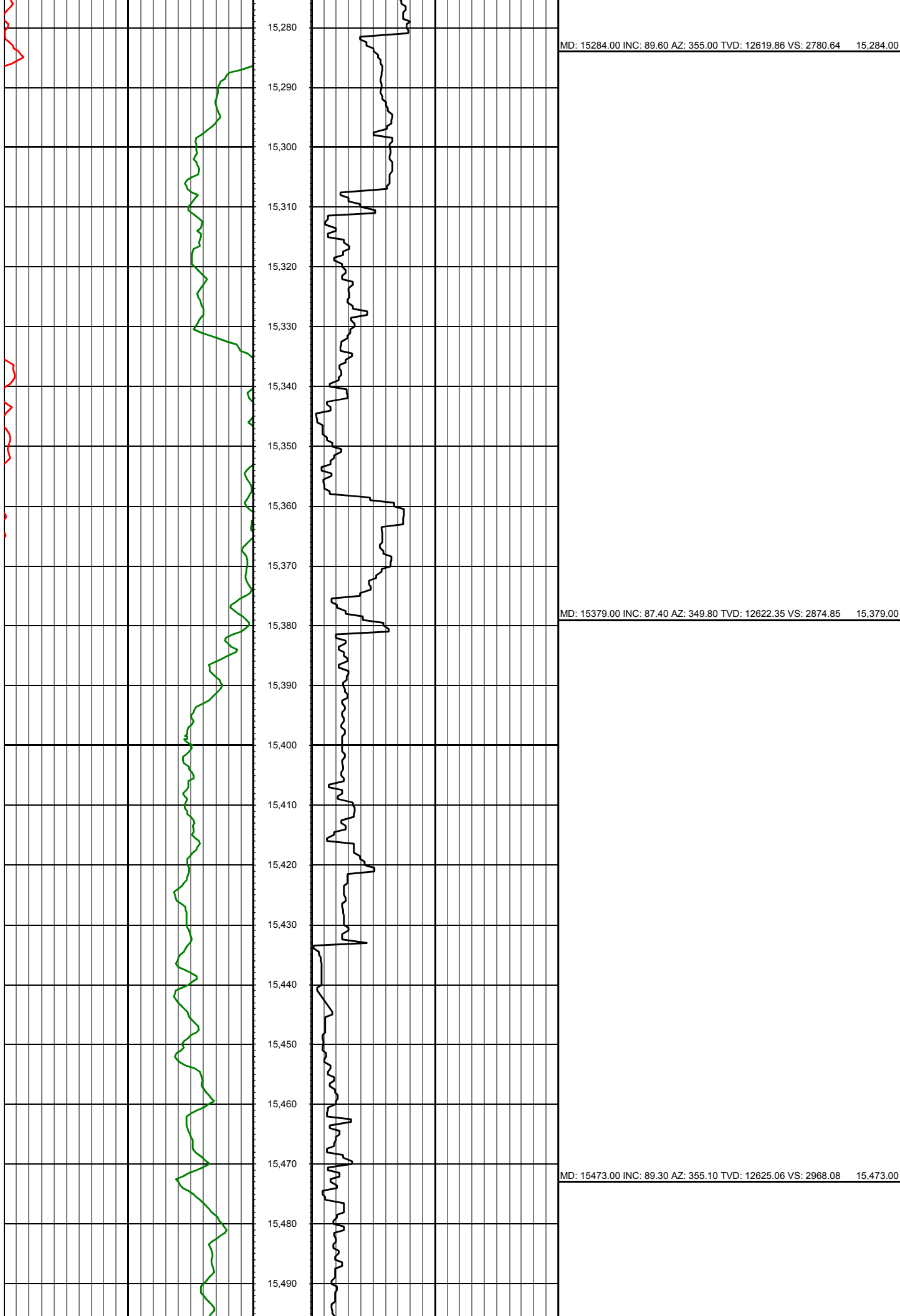


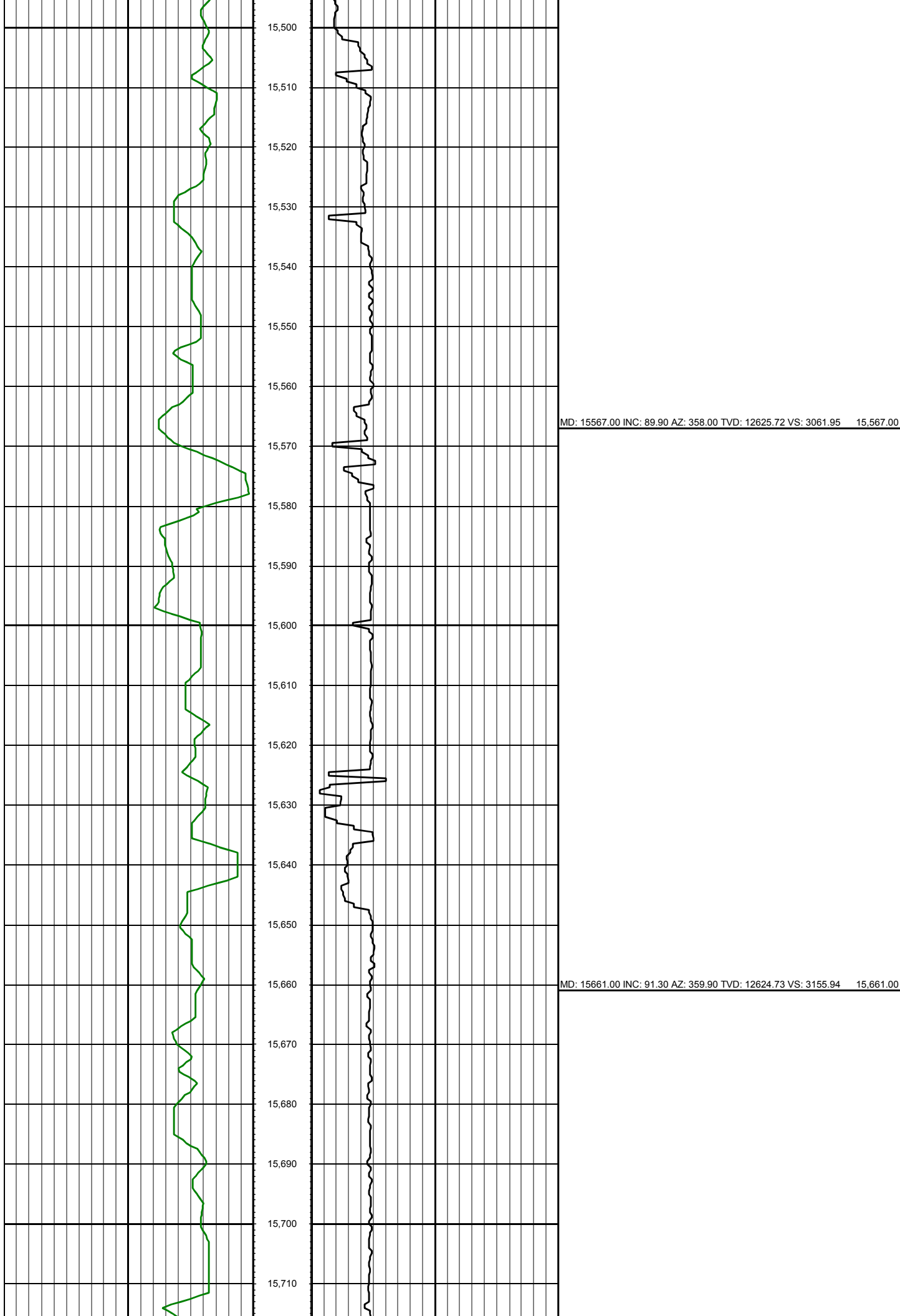


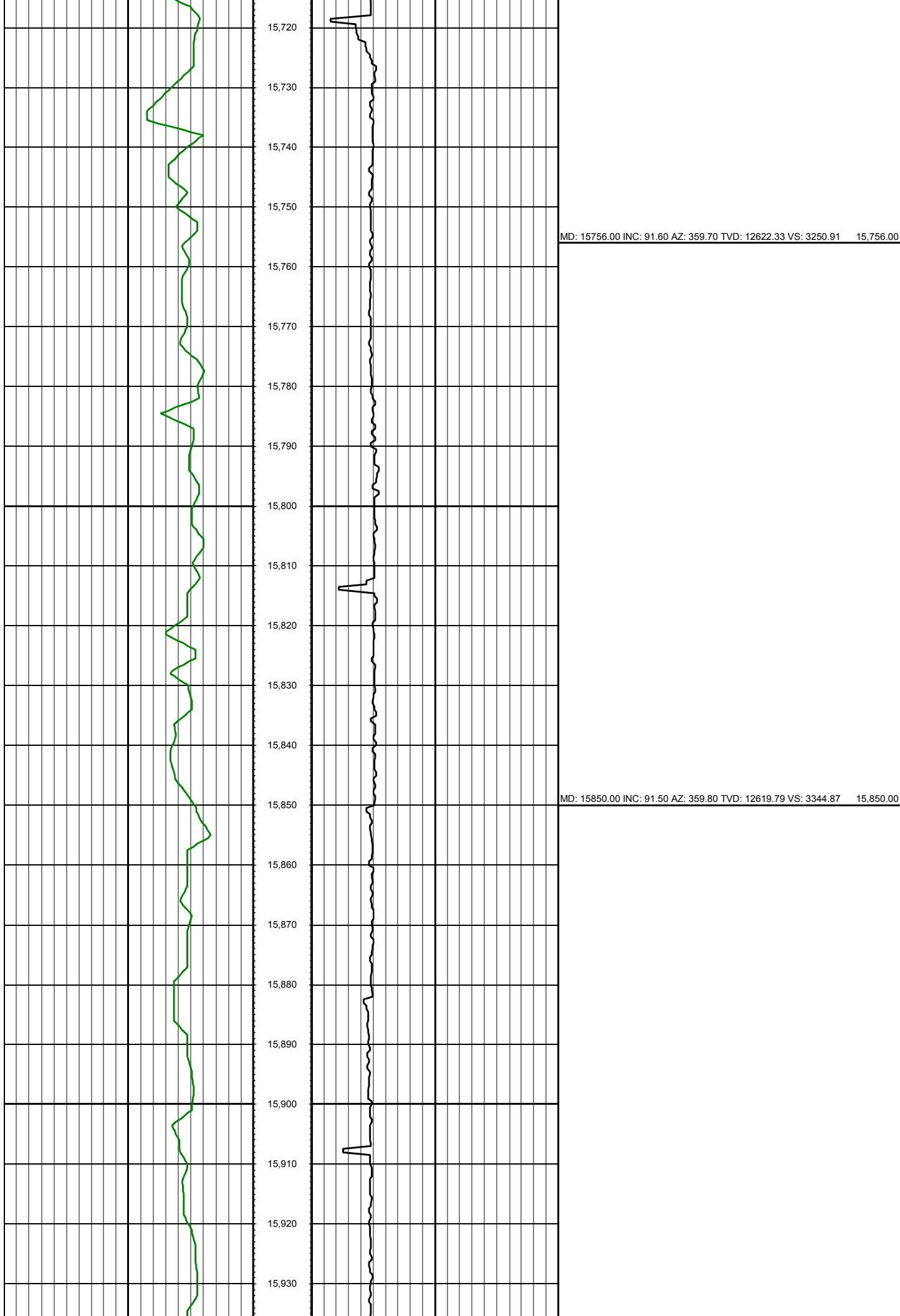


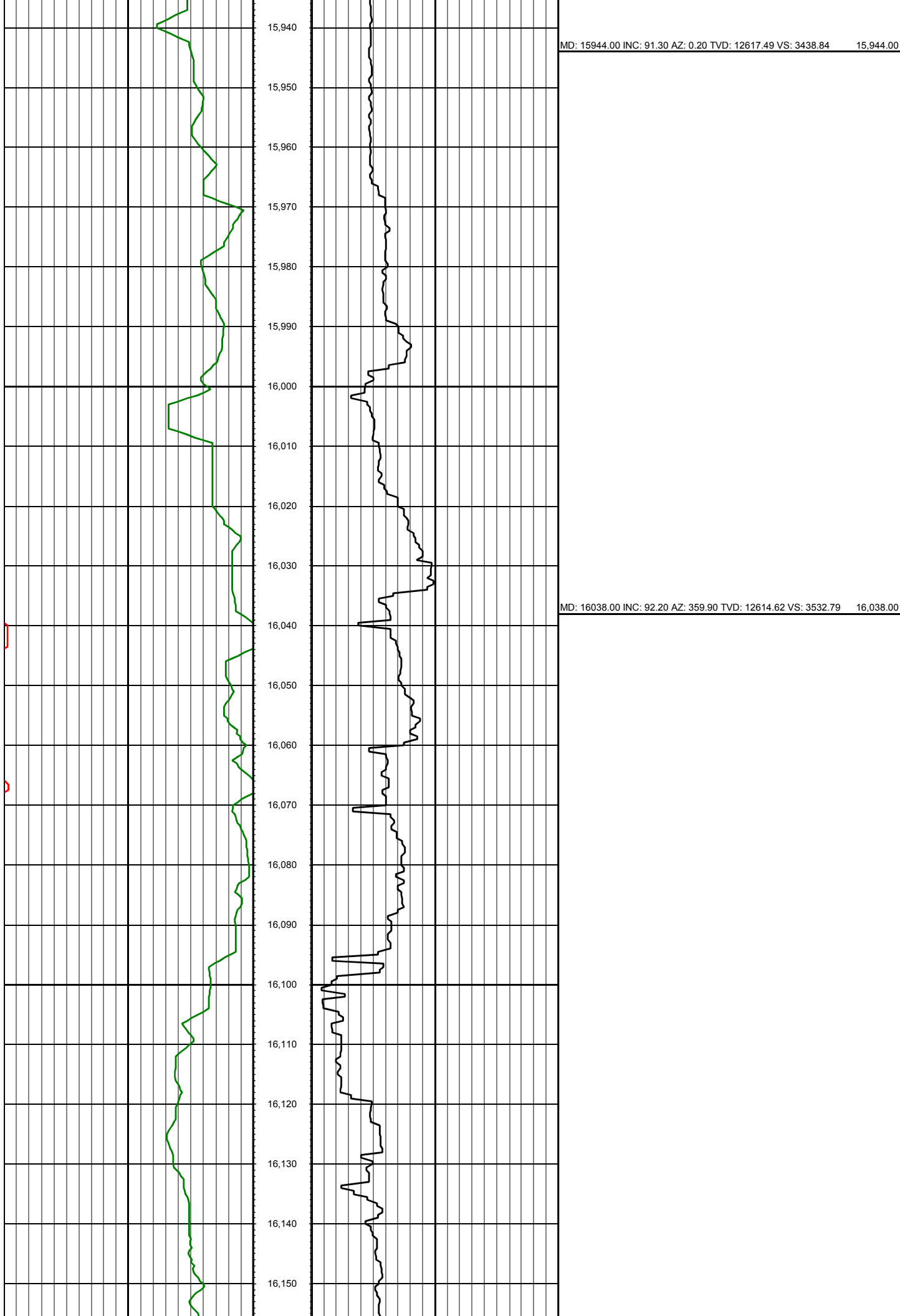


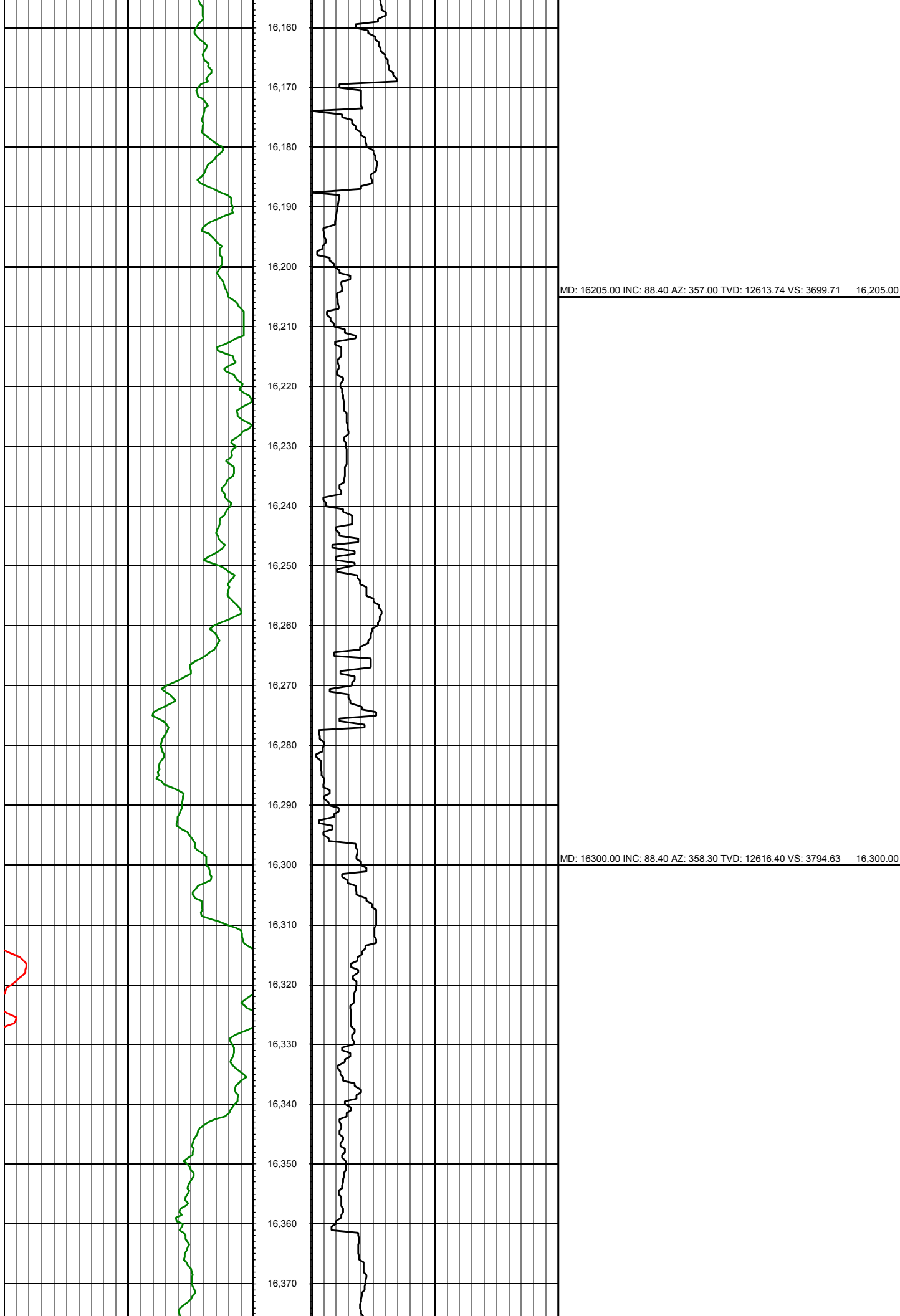


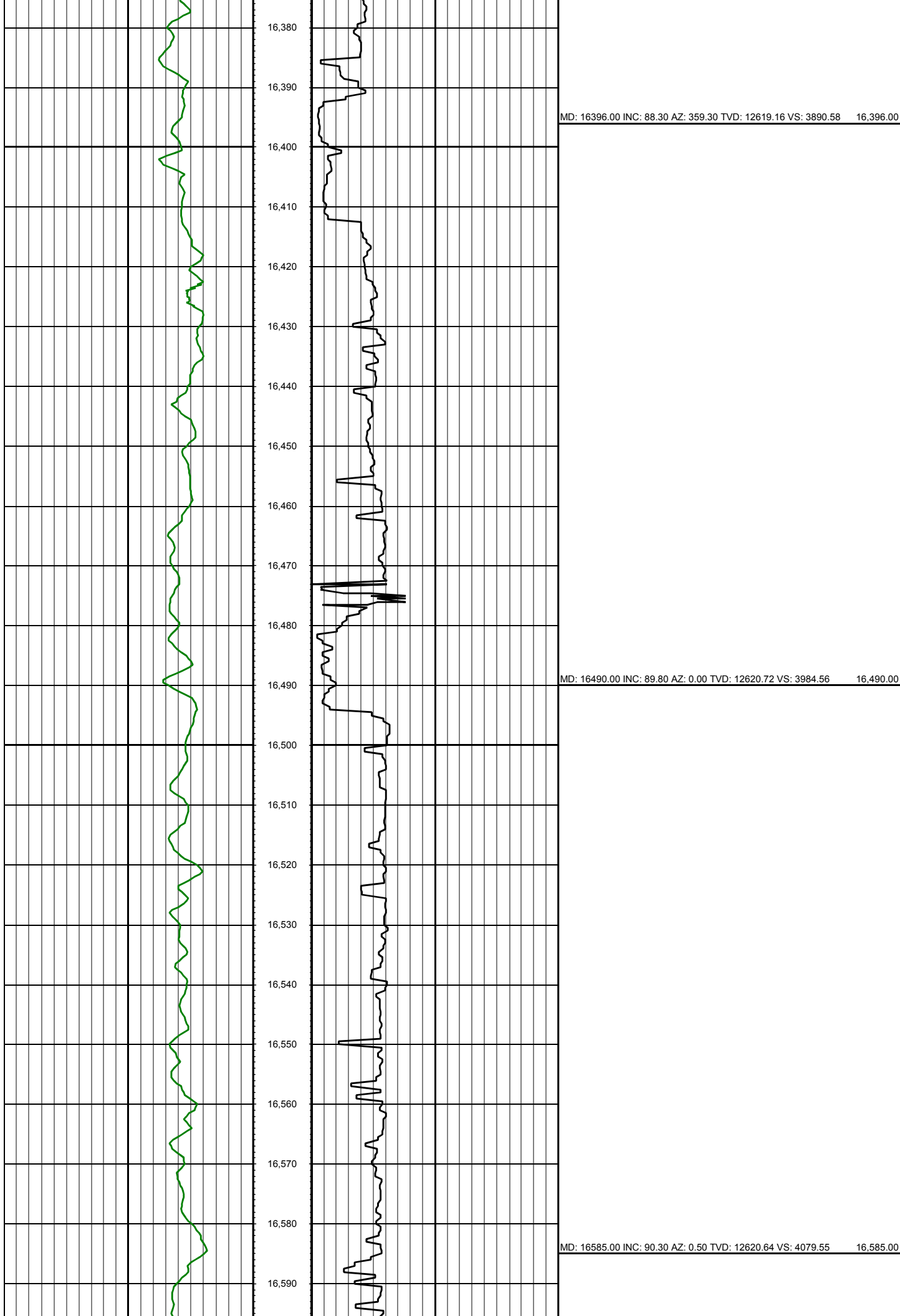


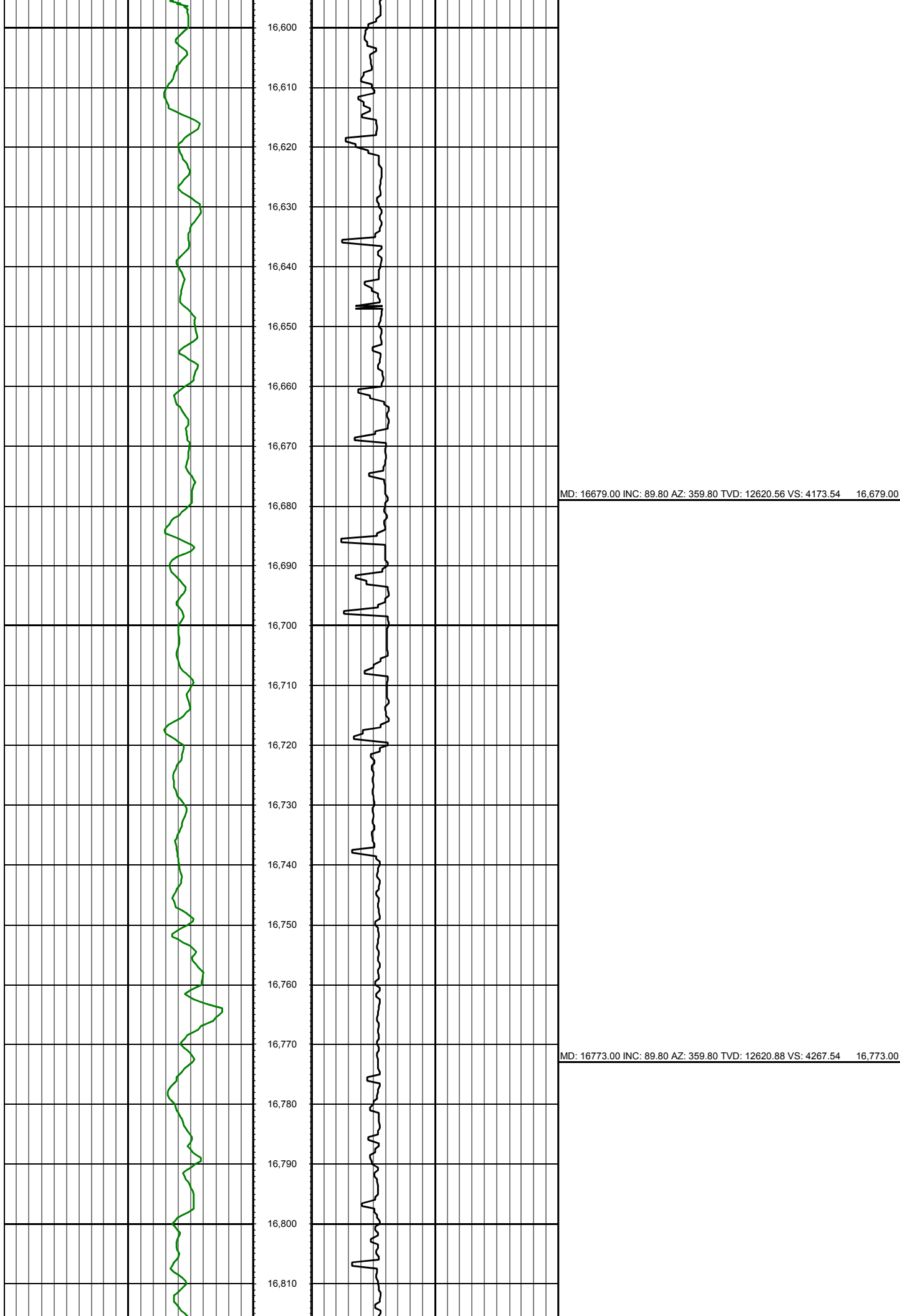


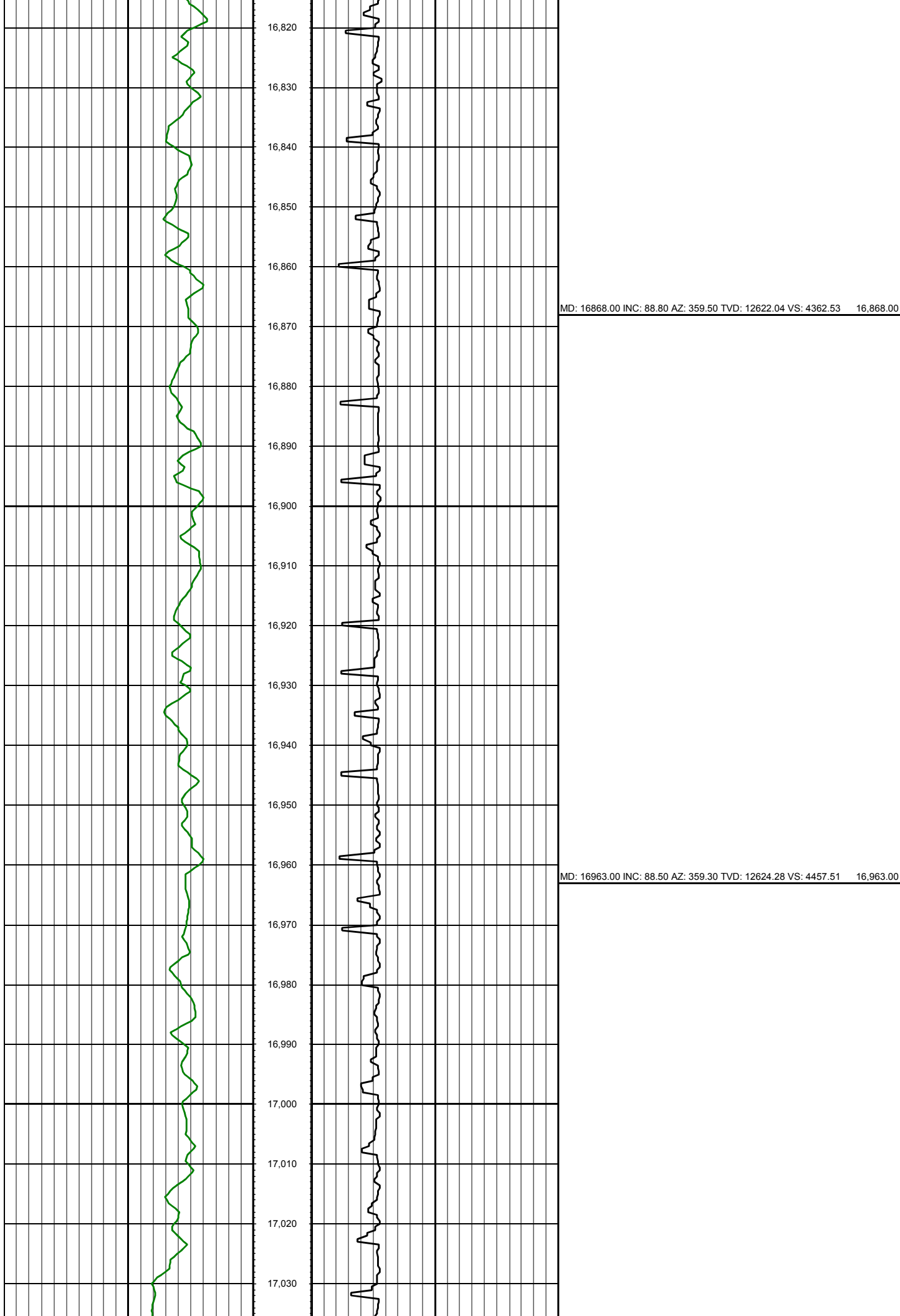


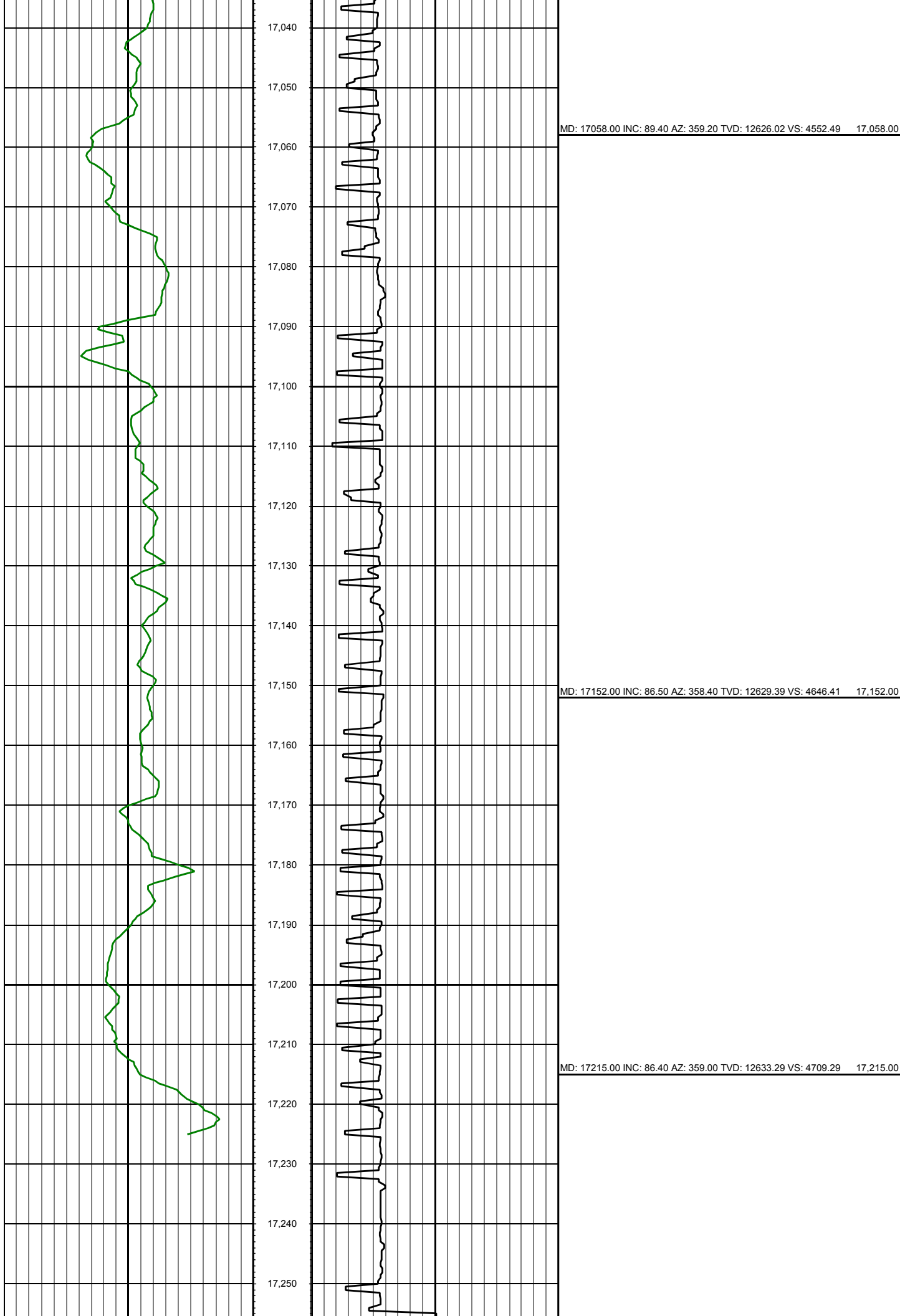


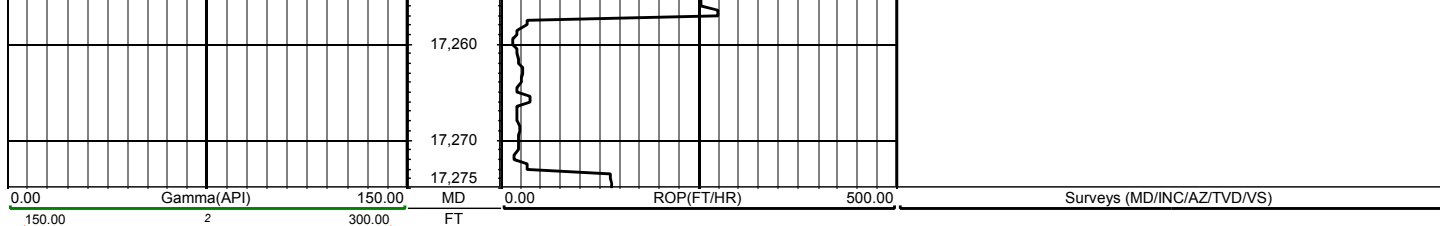








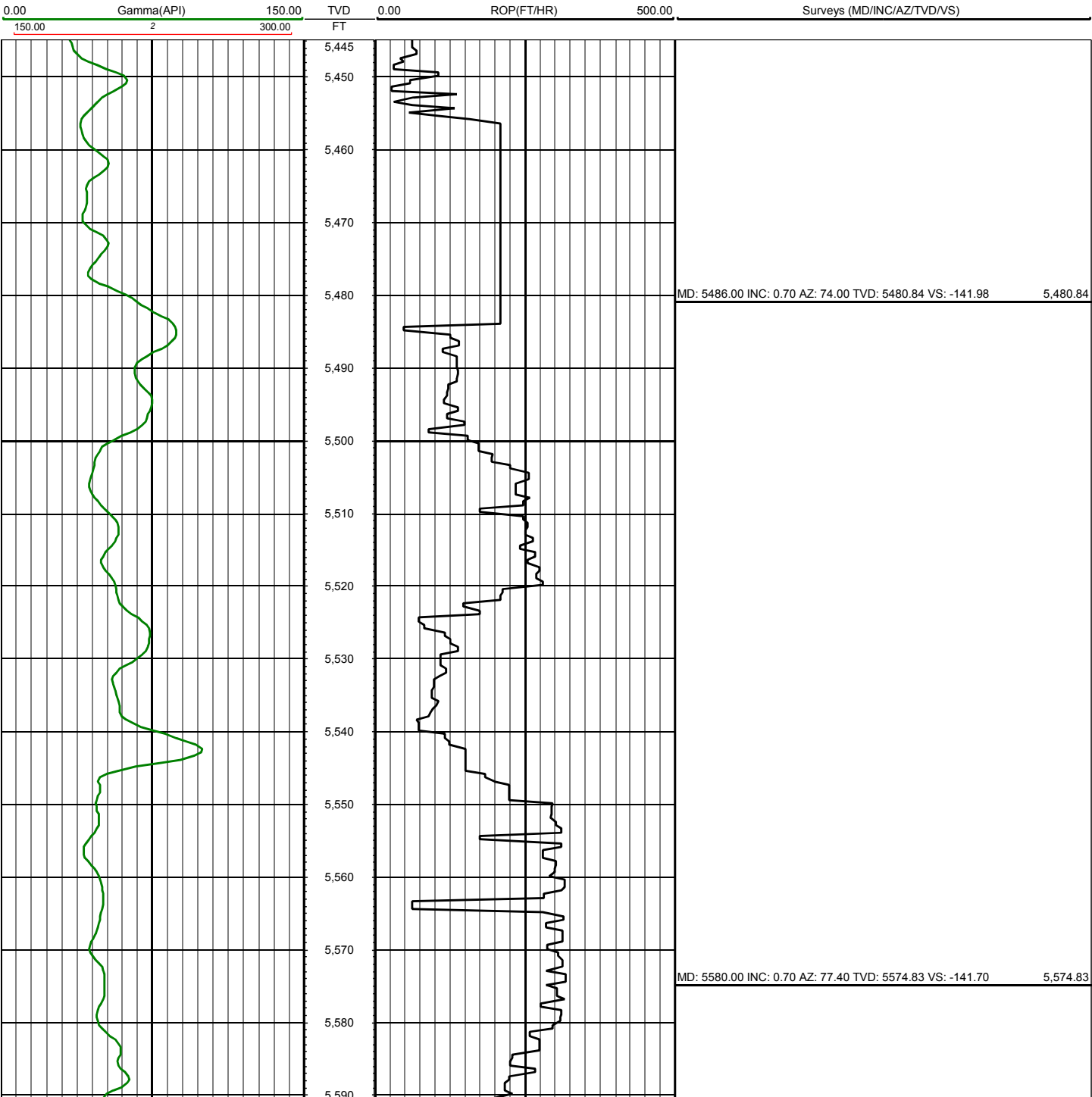


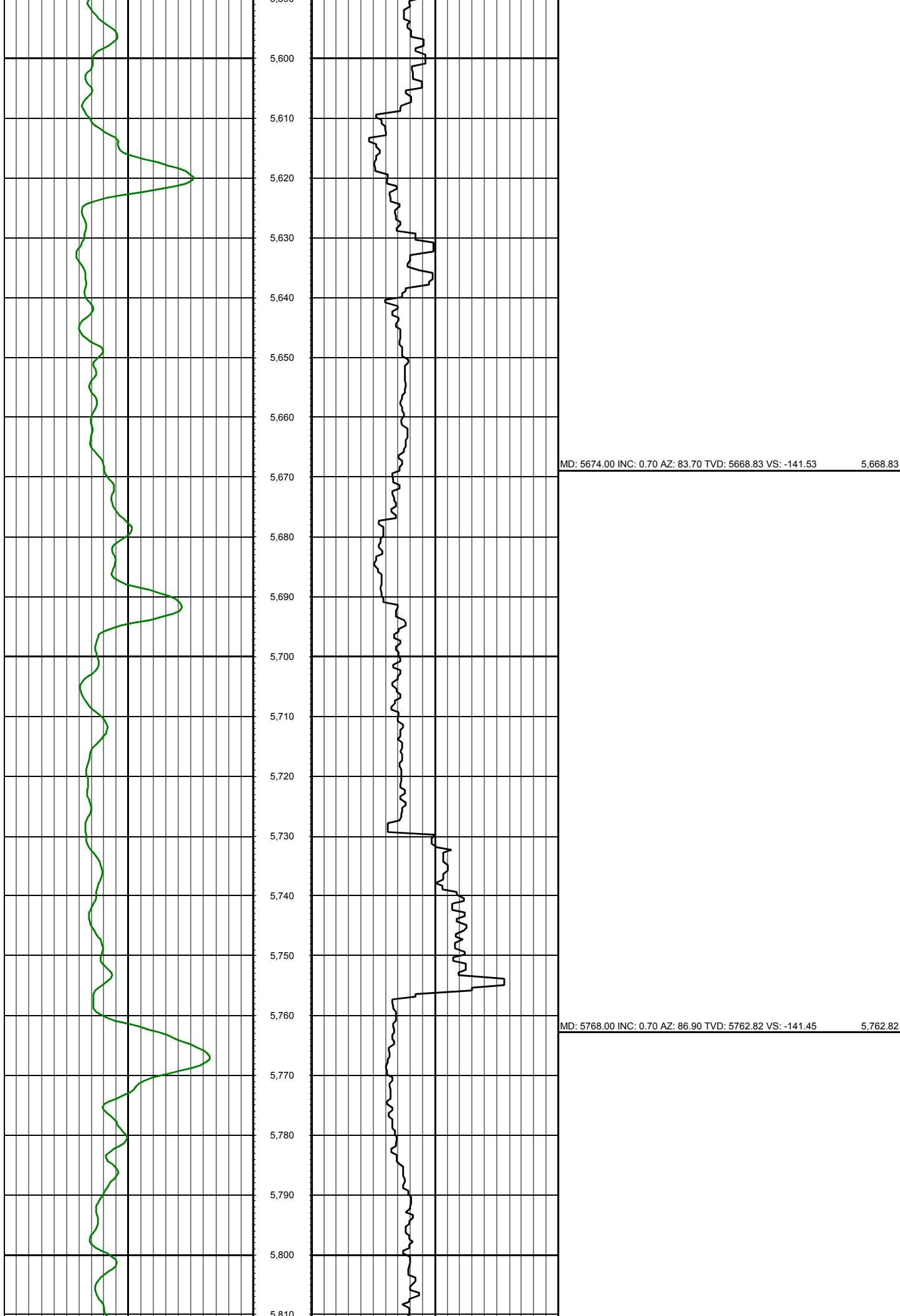


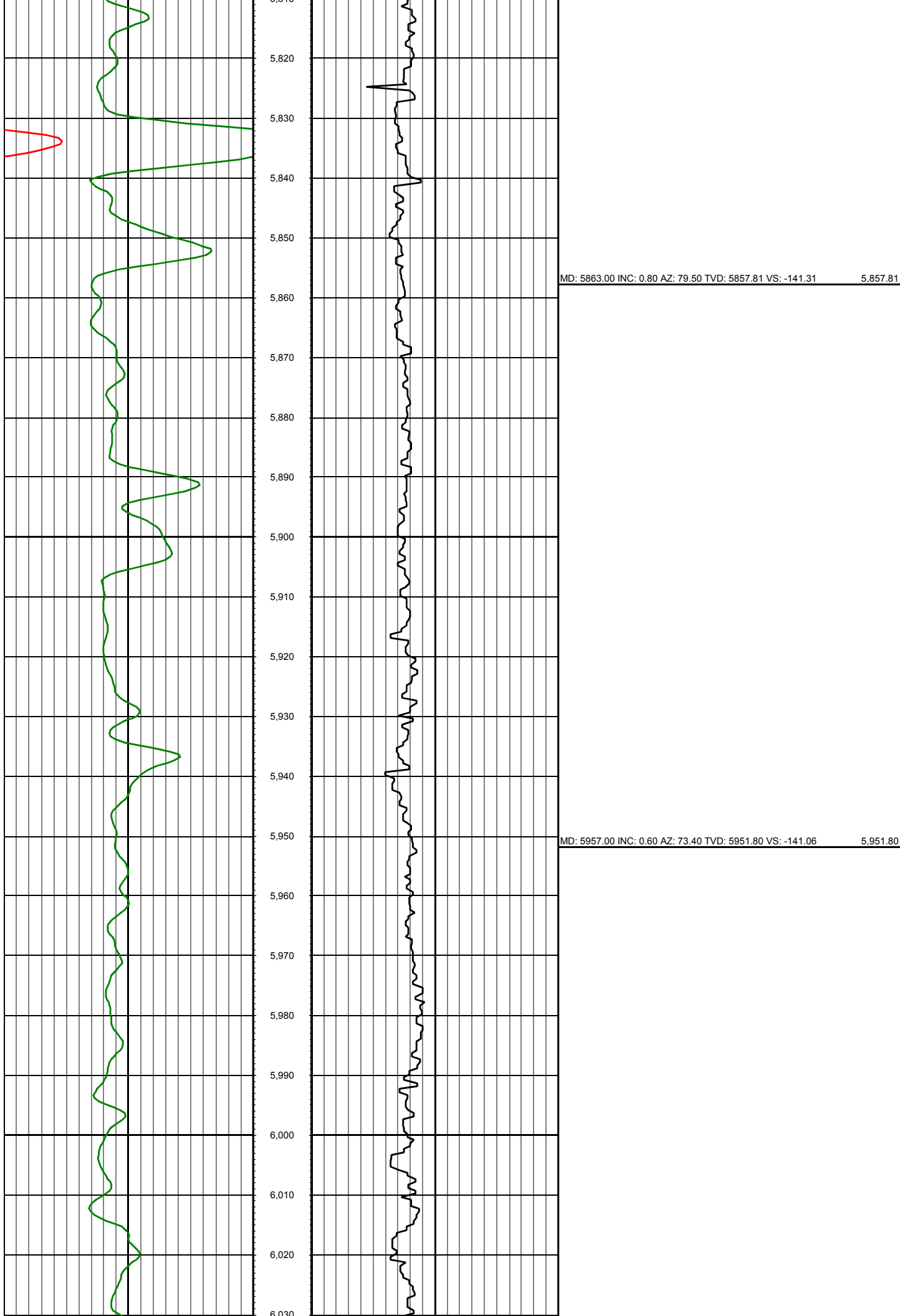
**Pro Directional**Pro Directional
850 Conroe Park West Drive
Conroe, Texas 77303**Cave Lion 5 Fededral WC 5H_ST 1****Scale 5":100' - TVD****12/3/2017 2:48 AM****Oper. Company:** Marathon Oil**Well:** Cave Lion 5 Fededral WC 5H_ST 1**Field:** WolfCamp**Rig:** H&P 423**Well ID:** 30-025-44102**Job Number:** LNM1336517**State:** New Mexcio**County:** Lea**Country:** USA**Location:** 7 Miles West of Jal, NM**Start Date:** 11/08/2017 08:50:00**End Date:** 12/03/2017 02:26:19**Latitude:** 32° 3' 55.7194 N**Longitude:** 103° 23' 47.3706 W**Elev GL:** 3270**Elev DF:** 25**Elev KB:** 3295**Operator 1:** Miles A. Compton IV**Operator 2:** Mike Remore**Notes:** NAD 1927 (NADCON CONUS), US State Plane 1927 (Exact Solution), New Mexico East 3001

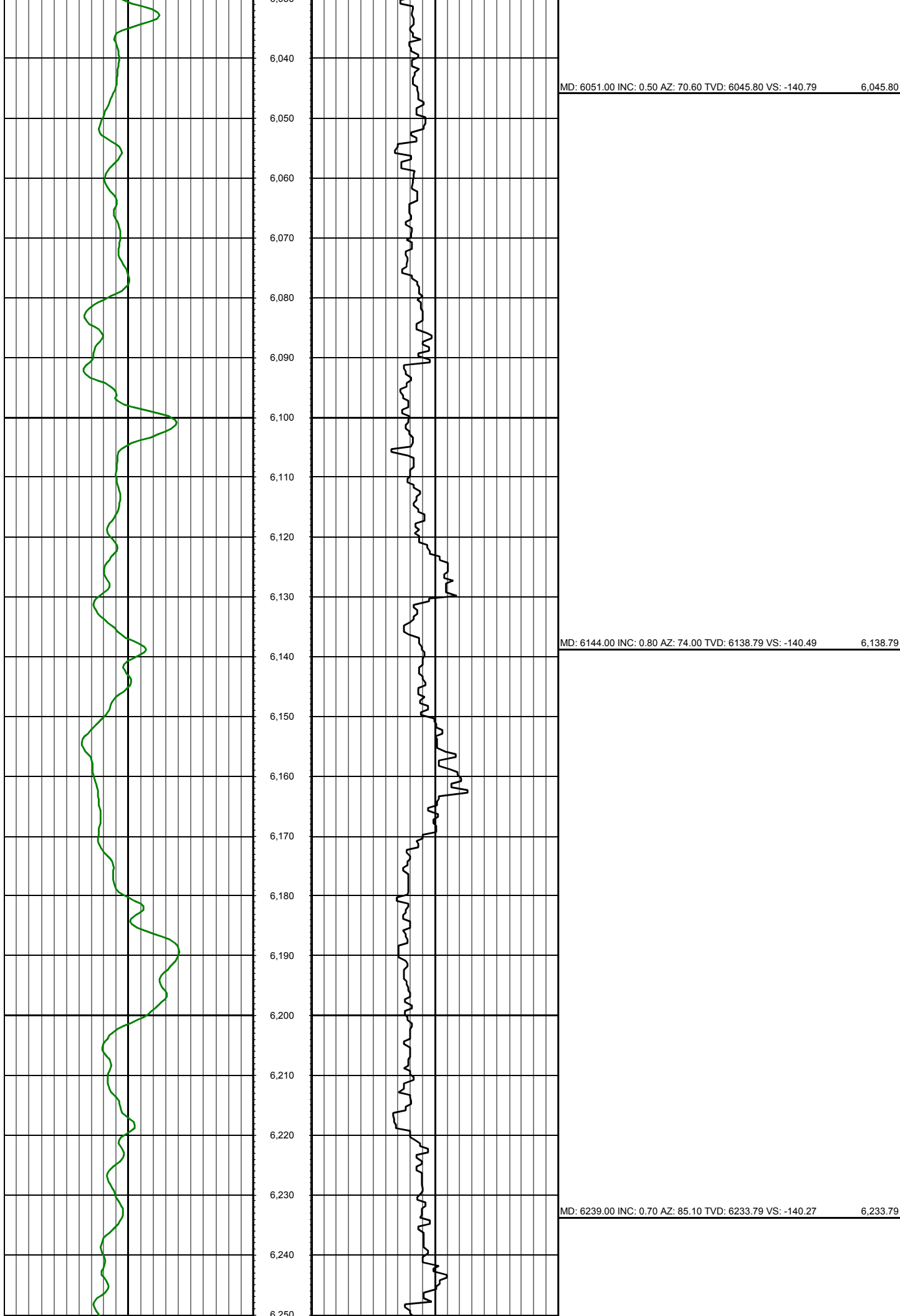
Tool Run Data	Run #1	Run #2	Run #3	Run #4	Run #5
Tool S/N	3023	3023	3023	3081	3023
Bit Size	8 3/4	8 3/4	8 3/4	6 1/8	6 1/8
Cal Factor	4.463	4.463	4.463	2.808	2.808
Survey Offset	60.00	60.00	62.00	54.00	51.00
Gamma Offset	48.00	48.00	50.00	42.00	39.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	5450.00	9175.00	10373.00	11840.00	12435.00
StartDate	11/7/2017	11/10/2017	11/11/2017	11/17/2017	11/19/2017
StartTime	23:30	06:30	17:00	00:14	22:10
EndDepth	9175.00	10373.00	11840.00	12435.00	13566.00
EndDate	11/10/2017	11/11/2017	11/14/2017	11/19/2017	11/22/2017
EndTime	05:00	14:30	23:30	21:20	07:15
Mud Type	WBM	WBM	WBM	OBM	OBM
Mud Weight	9	9.2	9.23	12.3	12
Funnel Viscosity	27	26	31	62	70
Plastic Viscosity	1	2	2	37	26
Yield Point	1	1	2	17	11
Gel Strength	1/1	1/3	2/4	19/27	11/25
Solids Content	2.73	3.06	2.78	17.5	18.5
Sand Content	.5	.5	.25	.001	TR
Mud Alkalinity				1.1	2.3
Chlorides	34000	52000	58000	38000	39000
Temperature	131	136	147	149	176
Tool Run Data	Run #6	Run #7	Run #8	Run #9	Run #10
Tool S/N	3081	3081	3087	2573	3081
Bit Size	6 1/8	6 1/8	6 1/8	6 1/8	6 1/8
Cal Factor	2.808	2.808	2.808	2.808	2.808
Survey Offset	49.00	53.00	58.00	62.00	62.00
Gamma Offset	37.00	41.00	46.00	50.00	50.00
Resisitivity Offset	0.00	0.00	0.00	0.00	0.00
Start Depth	13242.00	13273.00	15440.00	16187.00	16187.00
StartDate	11/23/2017	11/25/2017	11/28/2017	11/30/2017	12/1/2017
StartTime	15:20	08:45	08:45	15:30	15:30
EndDepth	13273.00	15440.00	16187.00	16187.00	17275.00
EndDate	11/25/2017	11/28/2017	11/30/2017	12/1/2017	12/3/2017
EndTime	07:00	07:00	13:30	14:20	02:30
Mud Type	OBM	OBM	OBM	OBM	OBM
Mud Weight	12.4	12.0	12.4	12.4	12.6
Funnel Viscosity	88	64	88	88	86

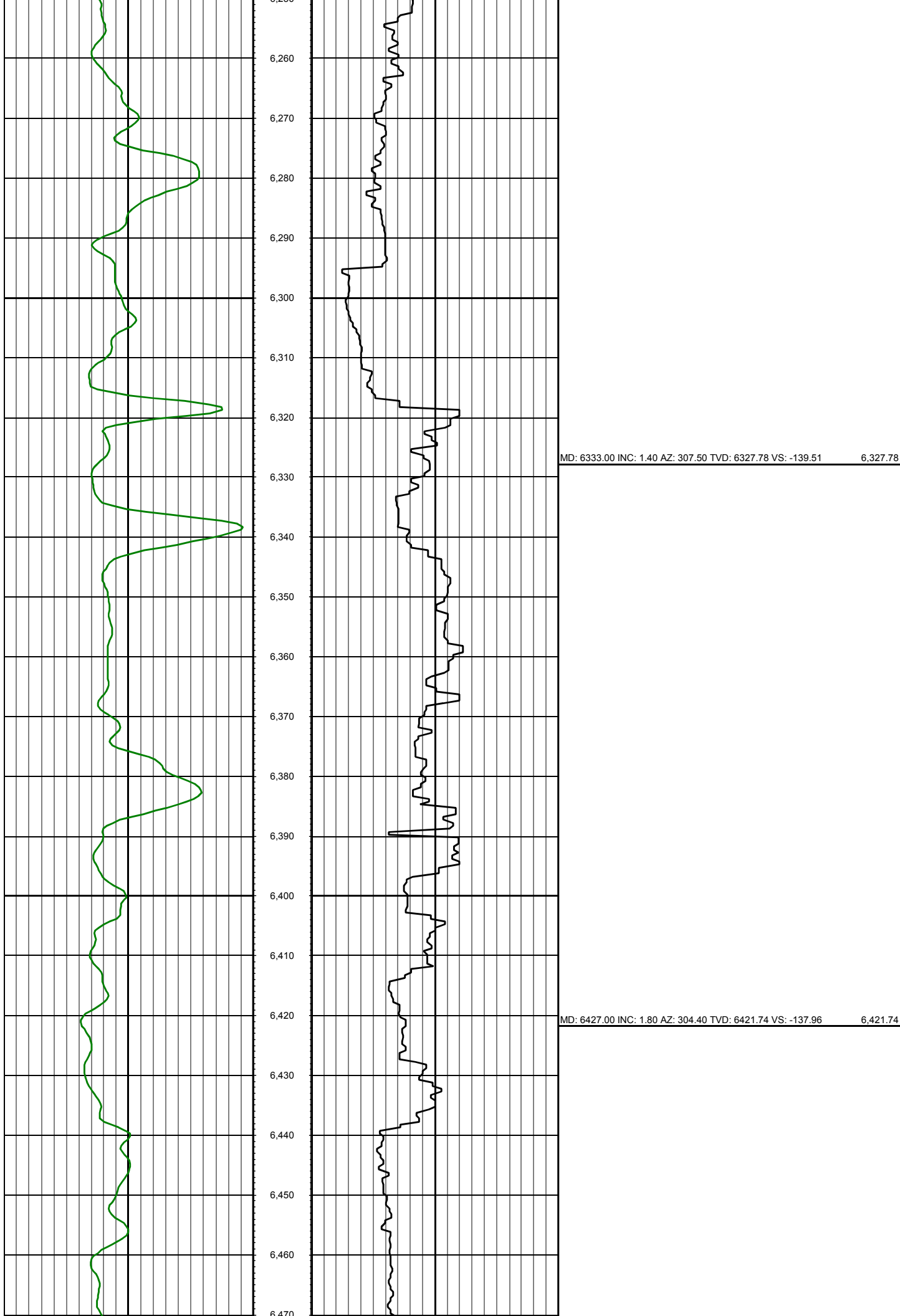
Plastic Viscosity	26	25	20	20	22
Yield Point	10	9	8	8	10
Gel Strength	11/23	9/21/24	12/20/24	12/20/24	13/20/24
Solids Content	18.43	19.52	21.31	21.31	21.70
Sand Content	TR	TR	TR	TR	TR
Mud Alkalinity	2.3	2.5	2.7	2.7	2.8
Chlorides	39000	38000	41000	41000	44000
Temperature	171	190	198	NA	196
Hole Data			Casing Data		
Size	From	To	Size	From	To
13 3/8	0.00	1106.00	13 3/8	0.00	1106.00
12 1/4	1106.00	5450.00	9 5/8	0.00	5440.00
8 3/4	5450.00	11840.00	7	0.00	11840.00
6 1/8	11840.00	17275.00			
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.					

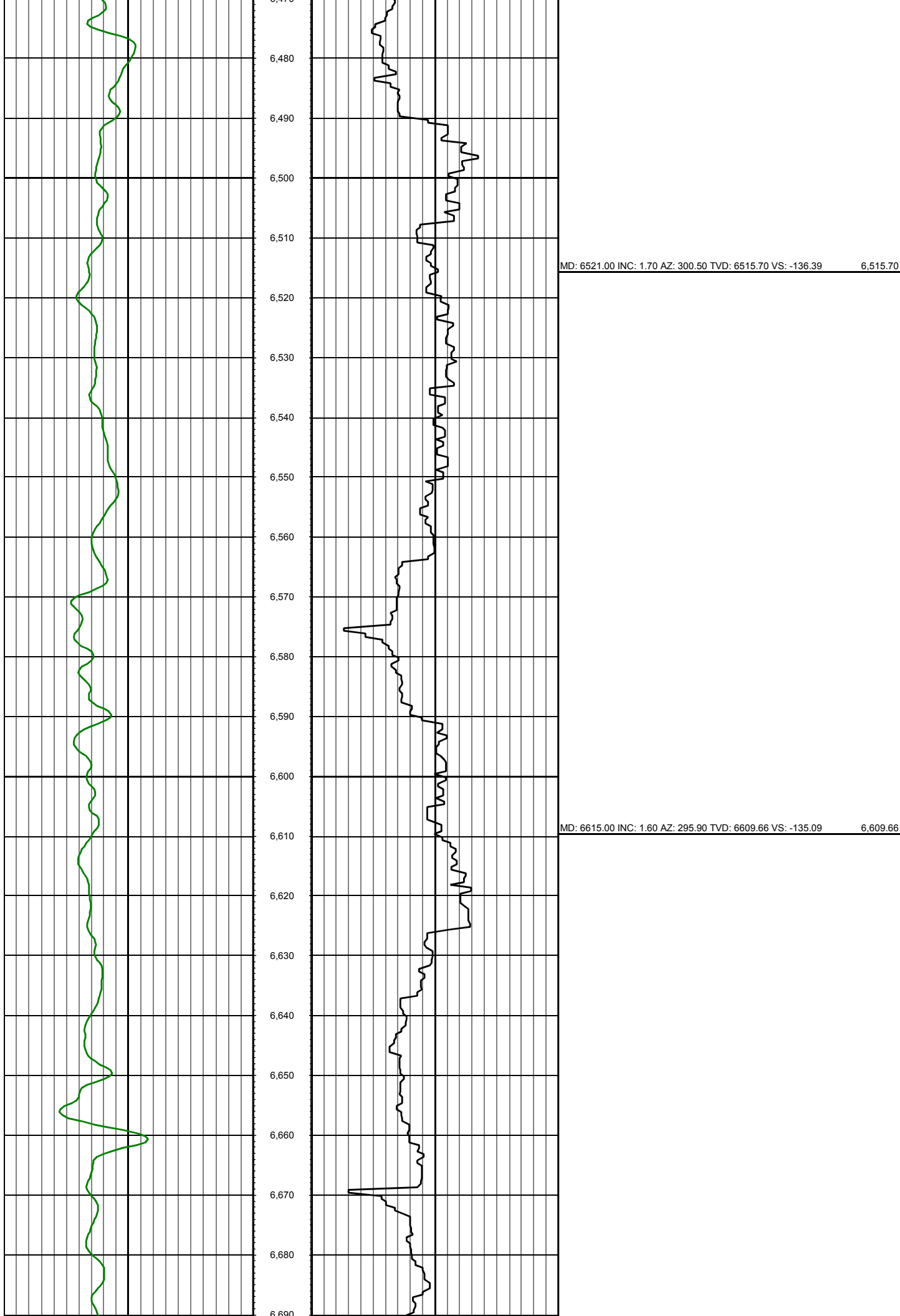


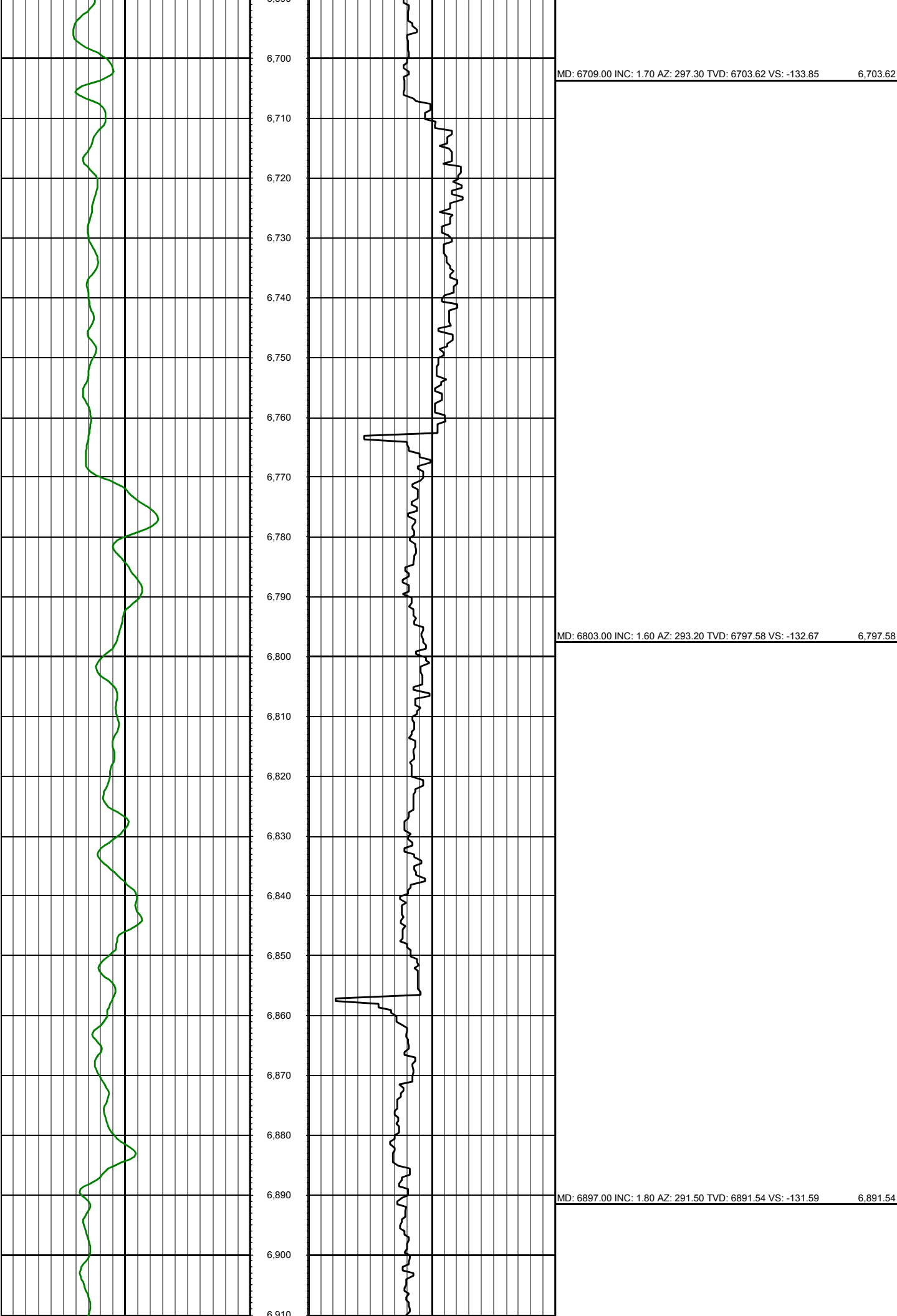


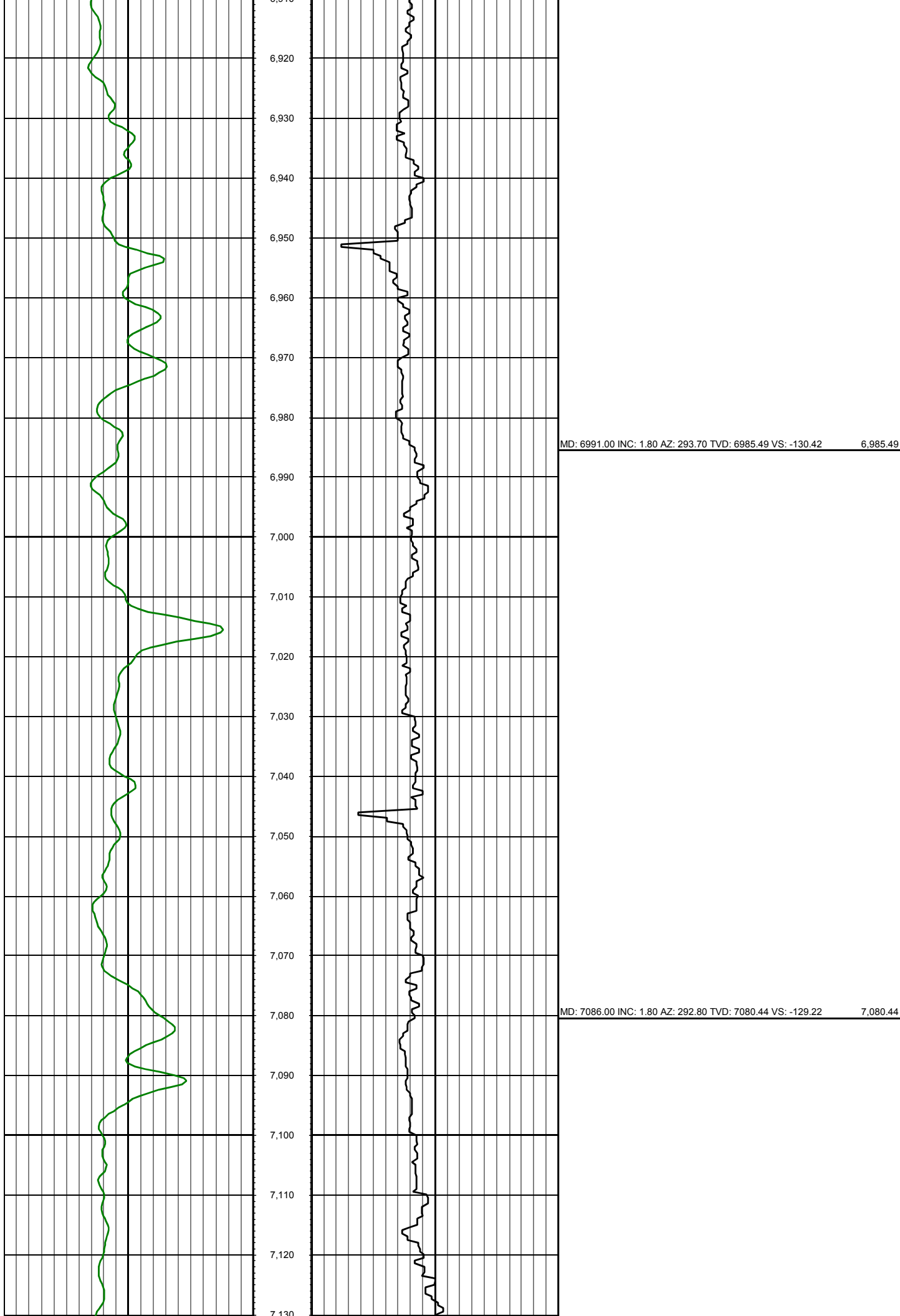


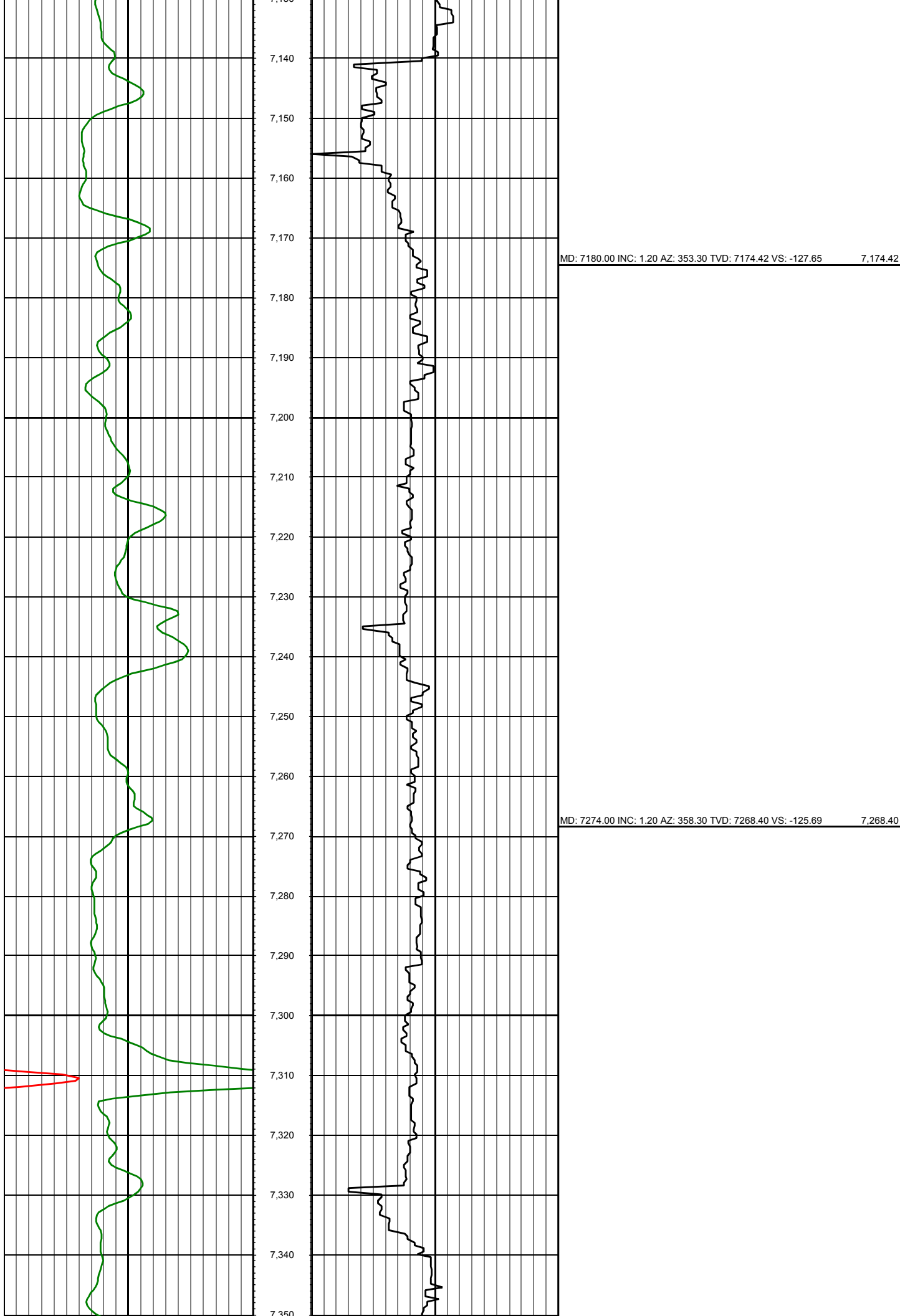


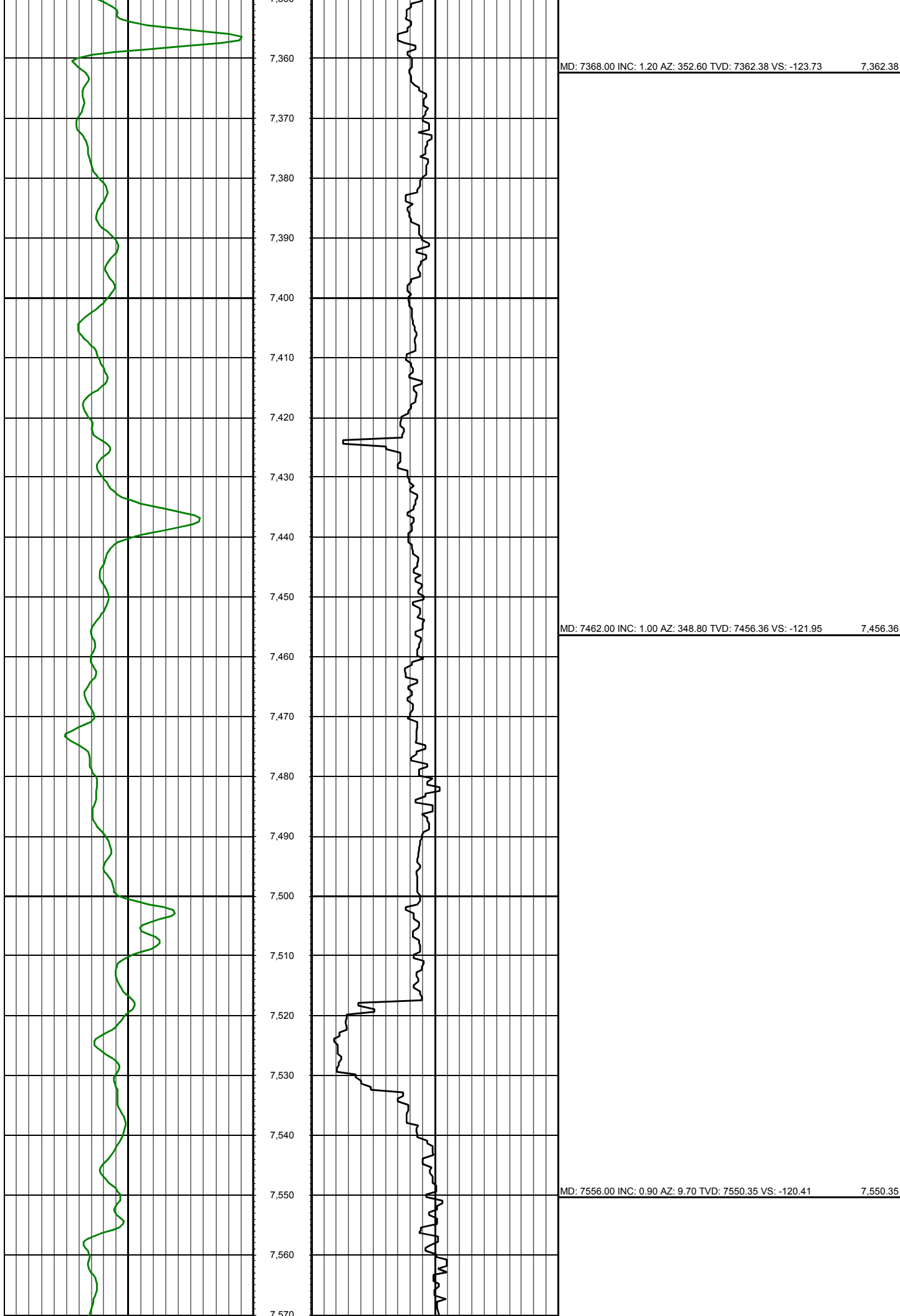


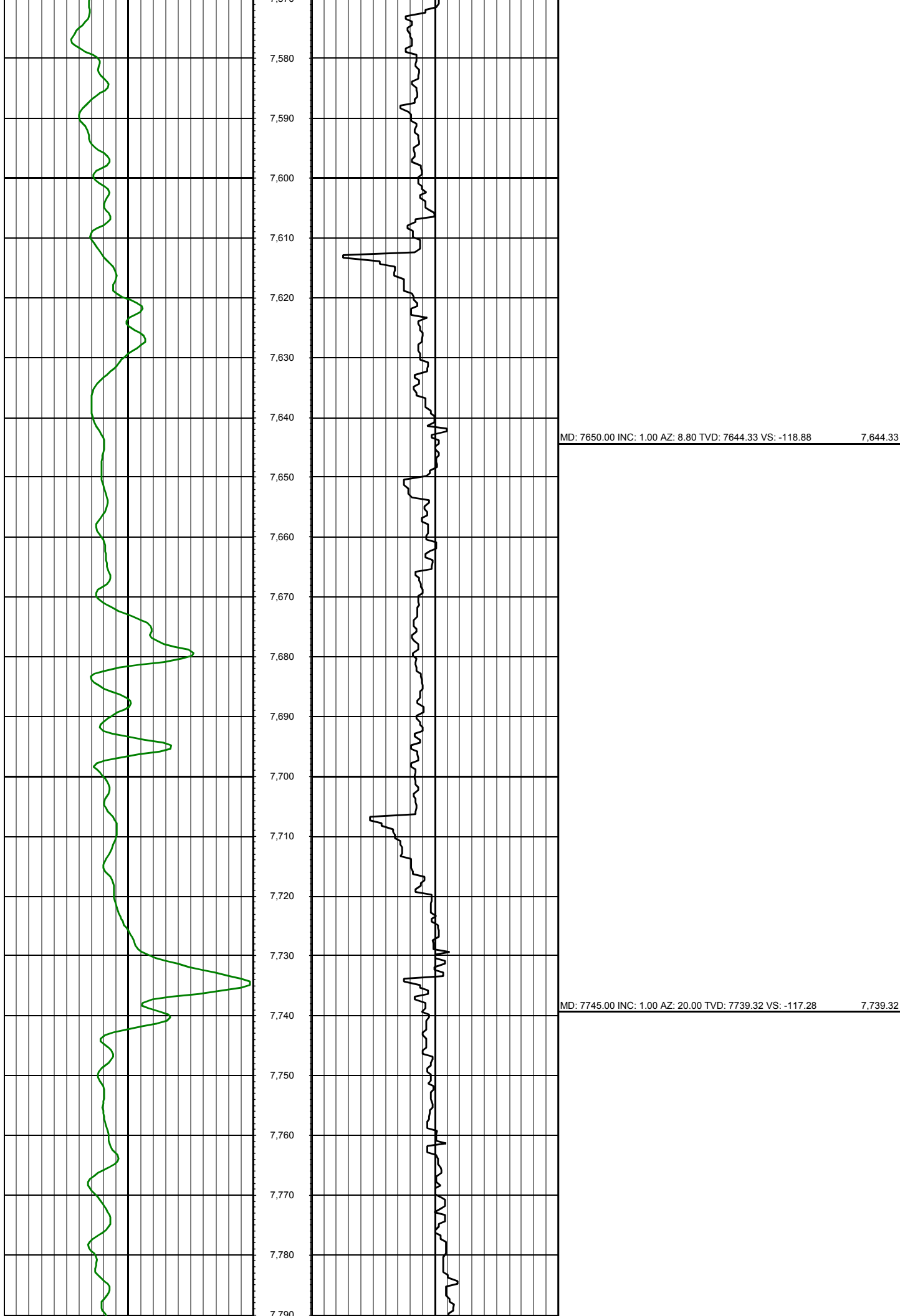


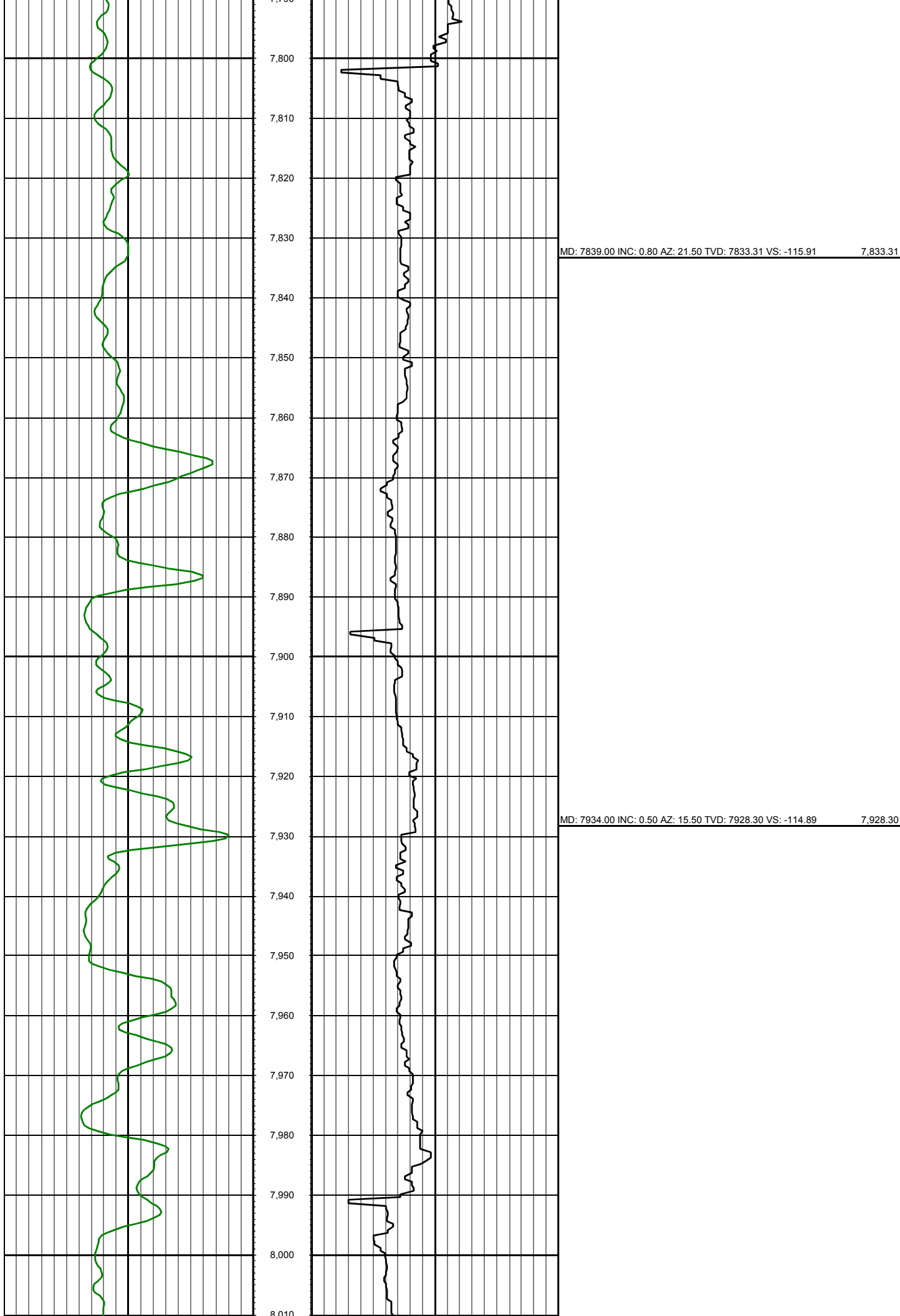


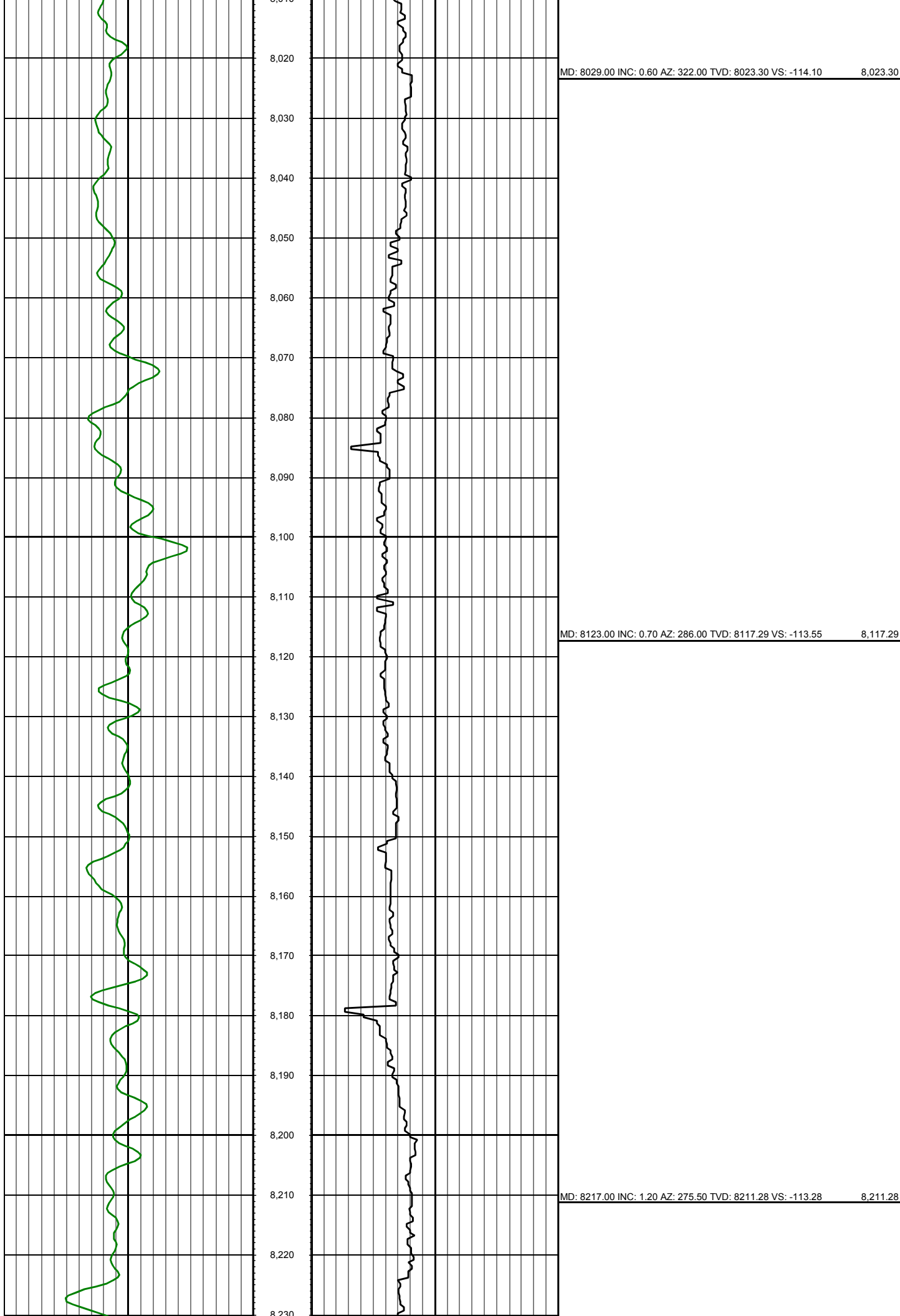


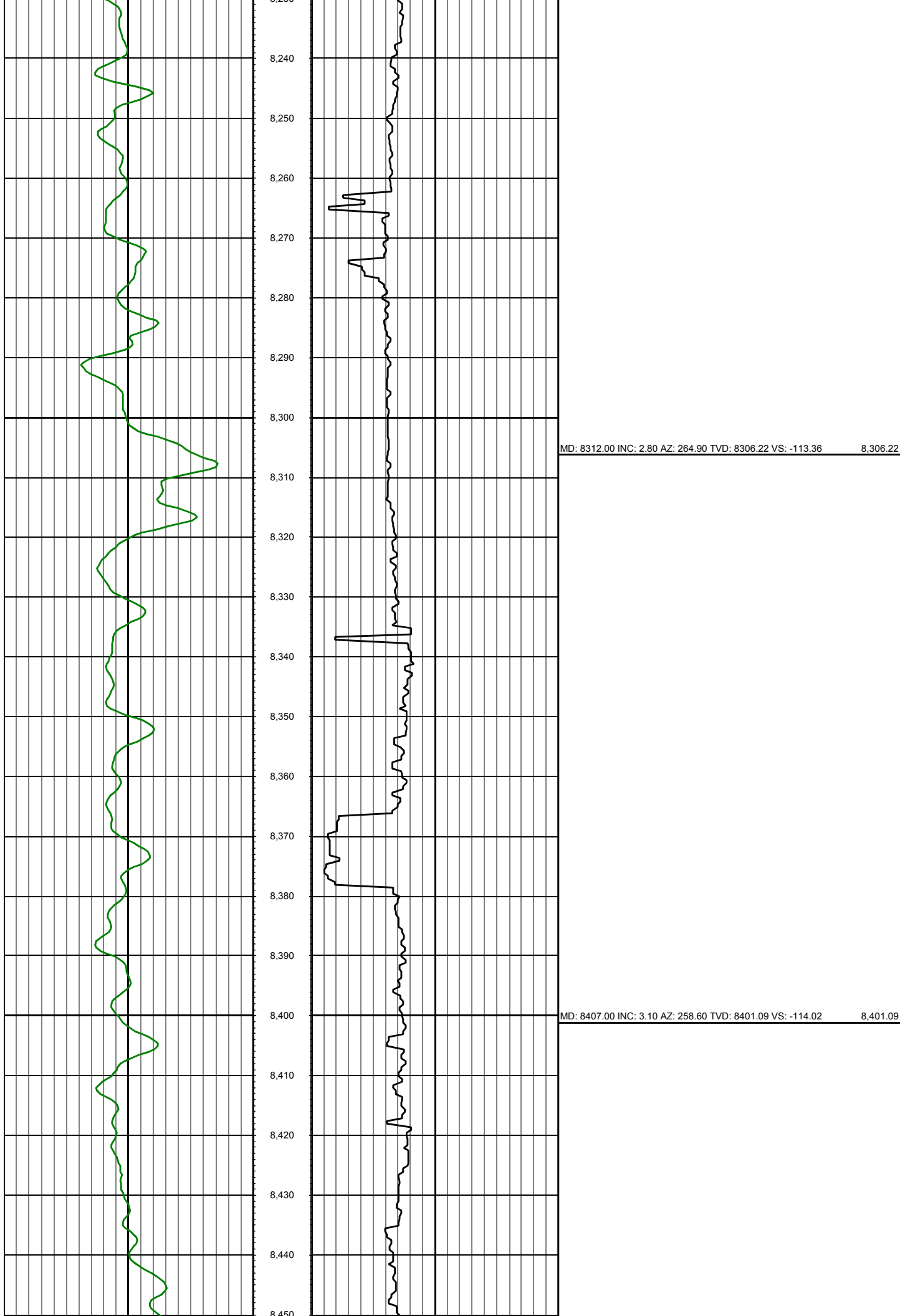


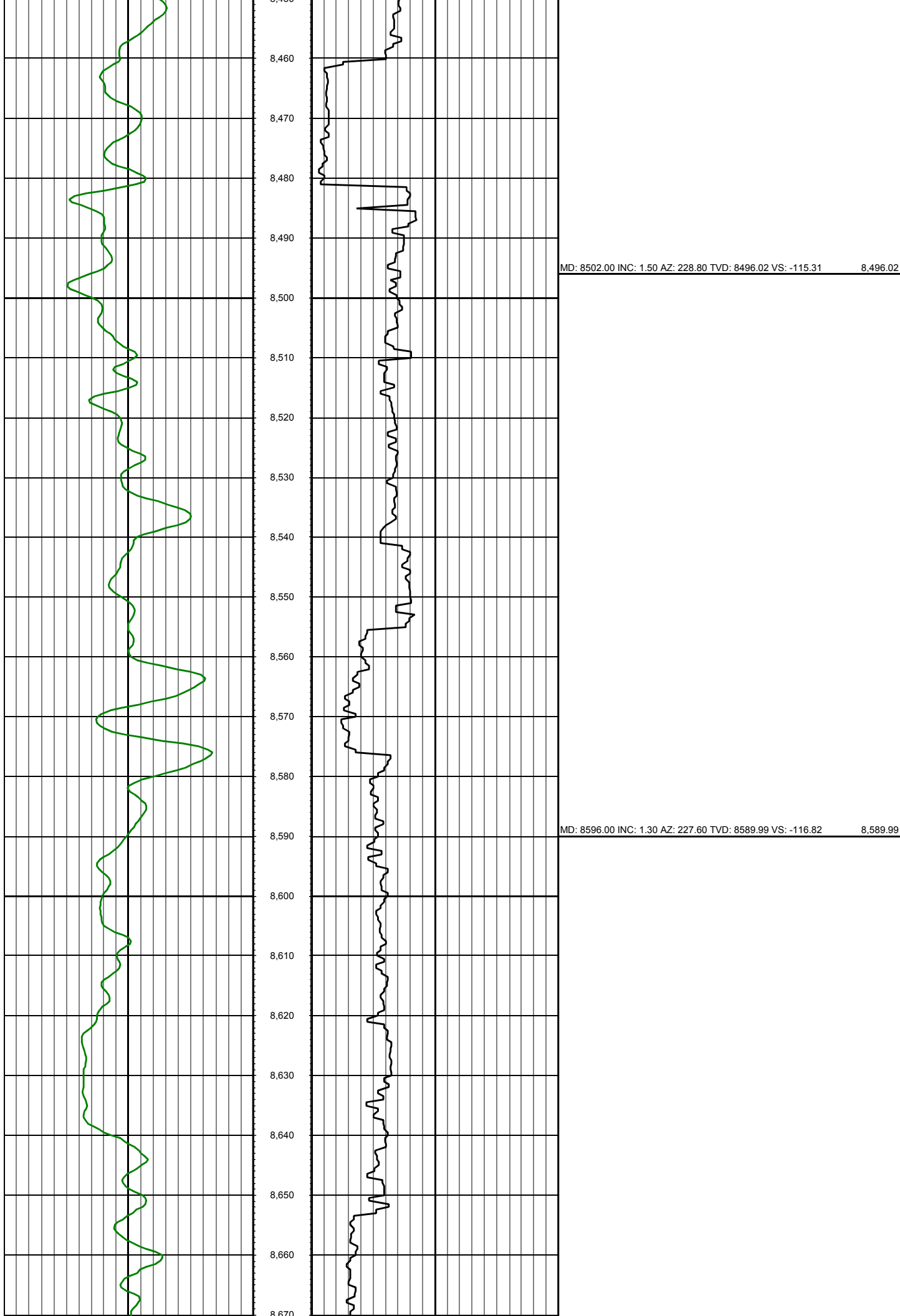


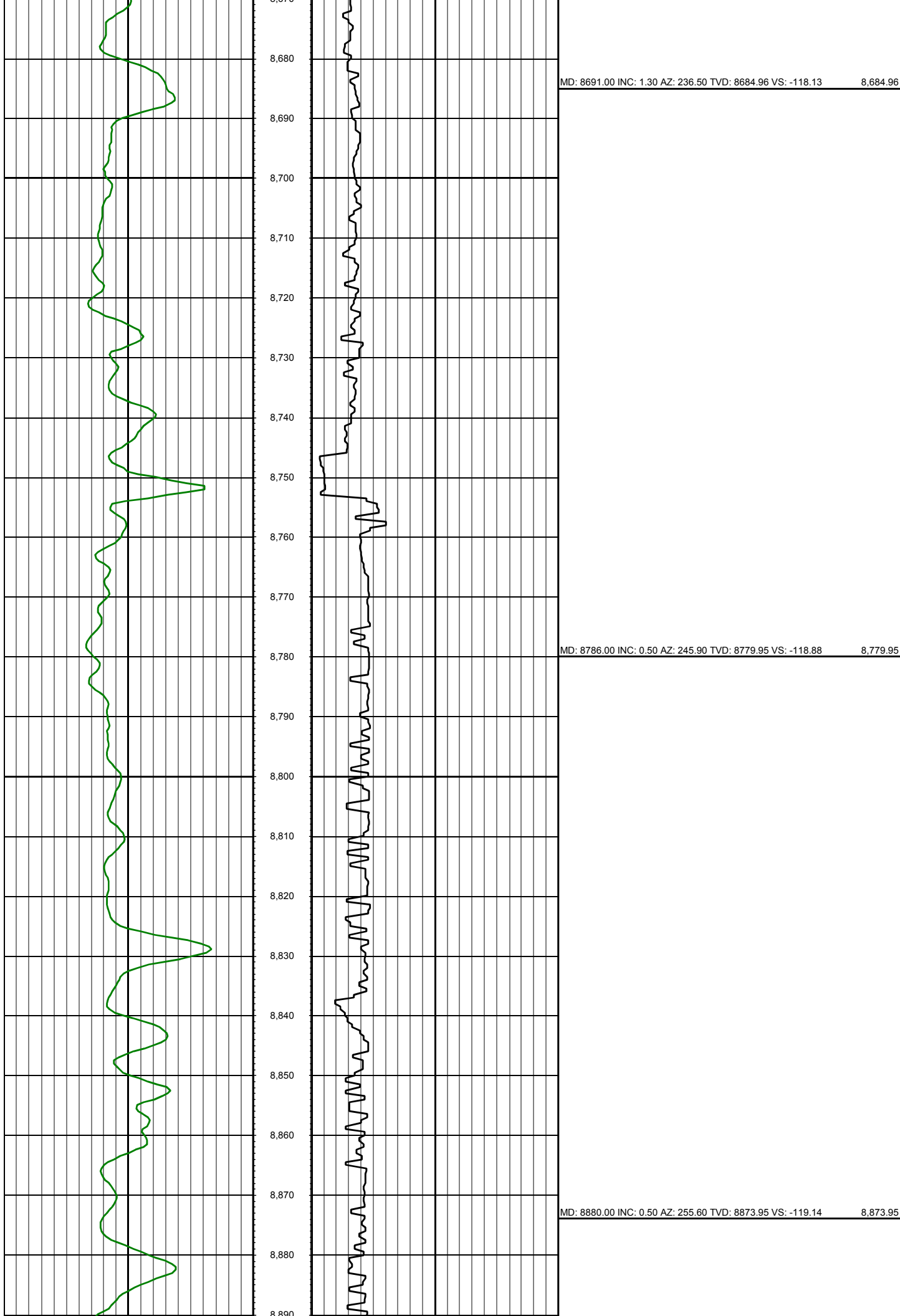


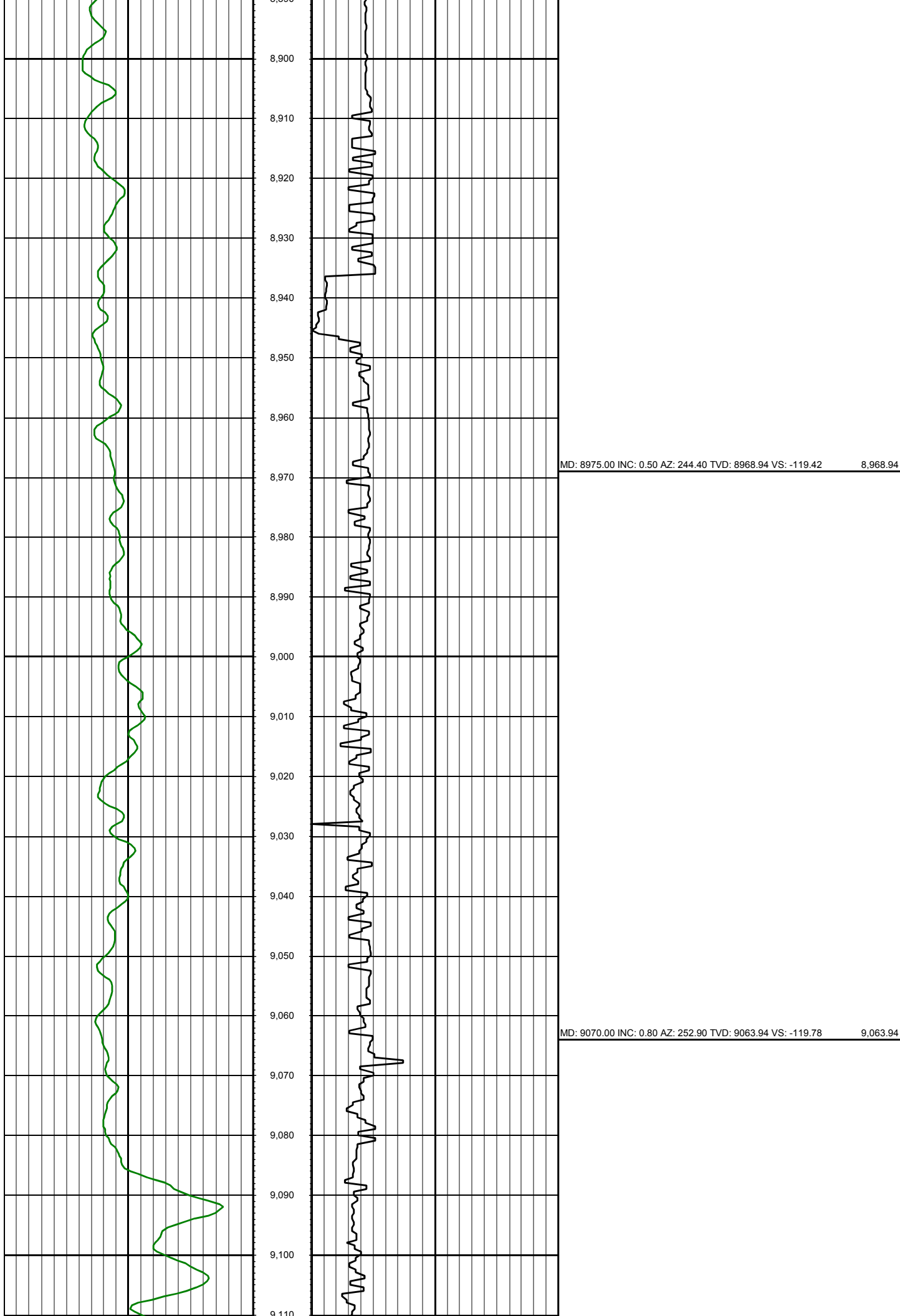


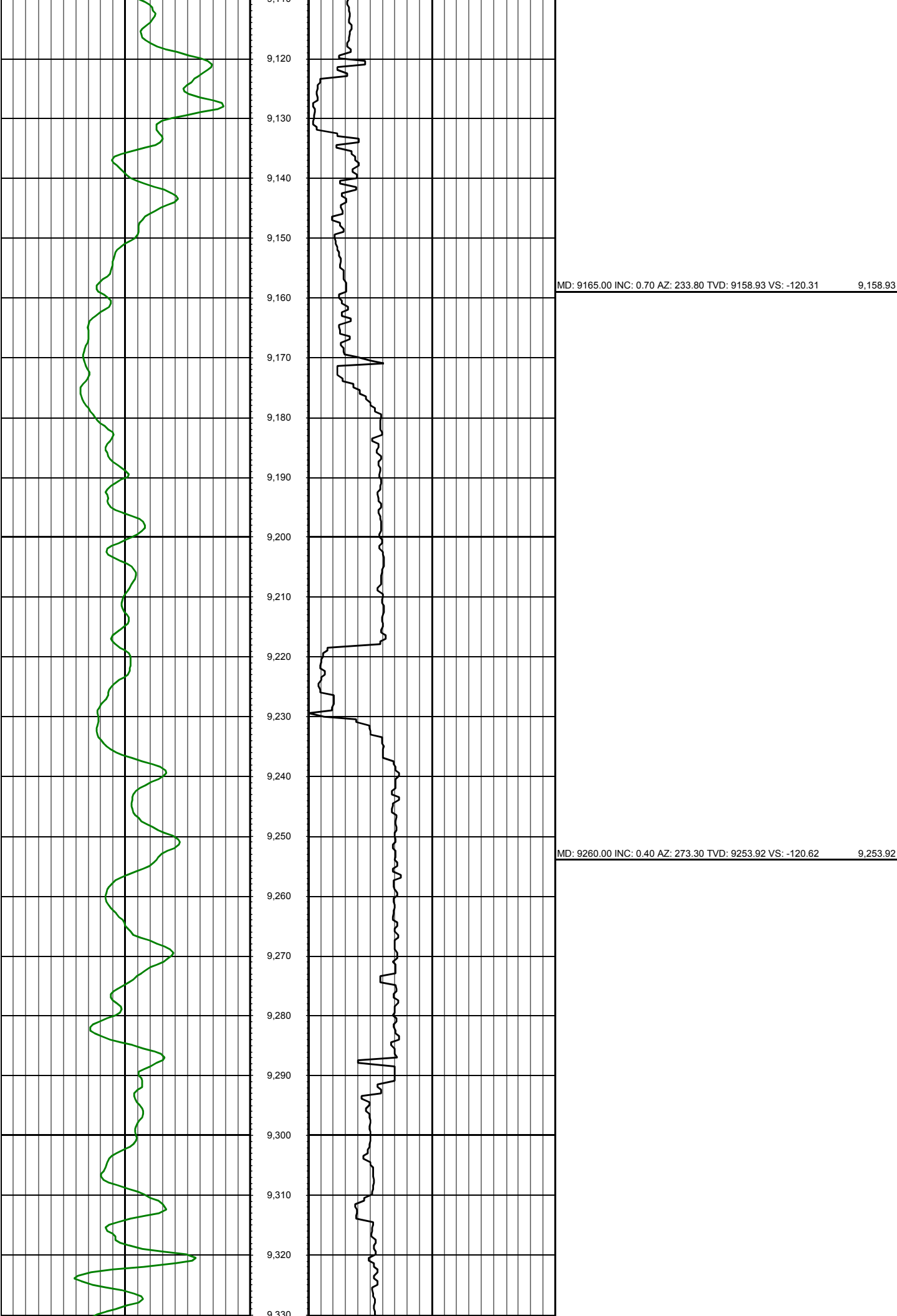


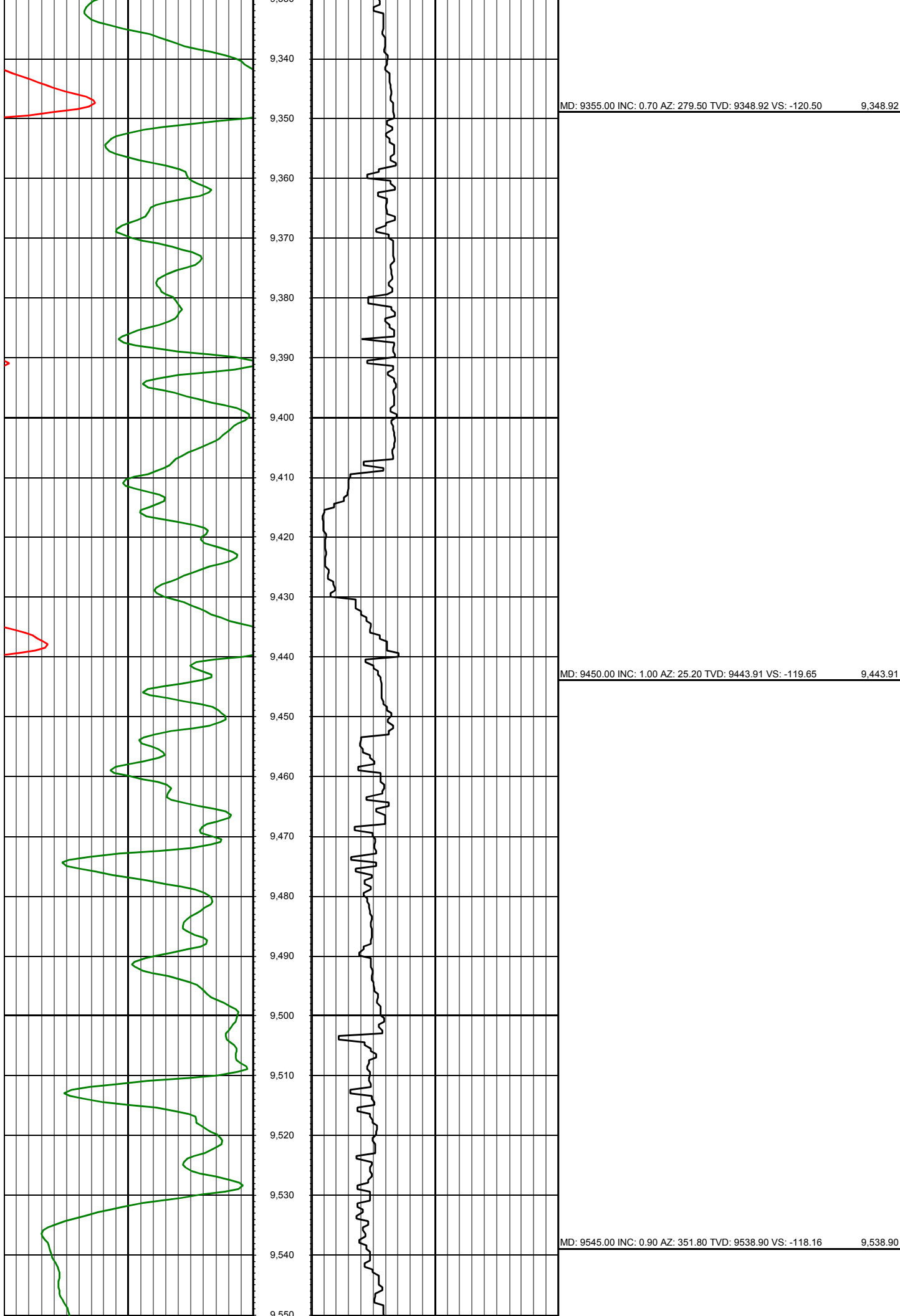


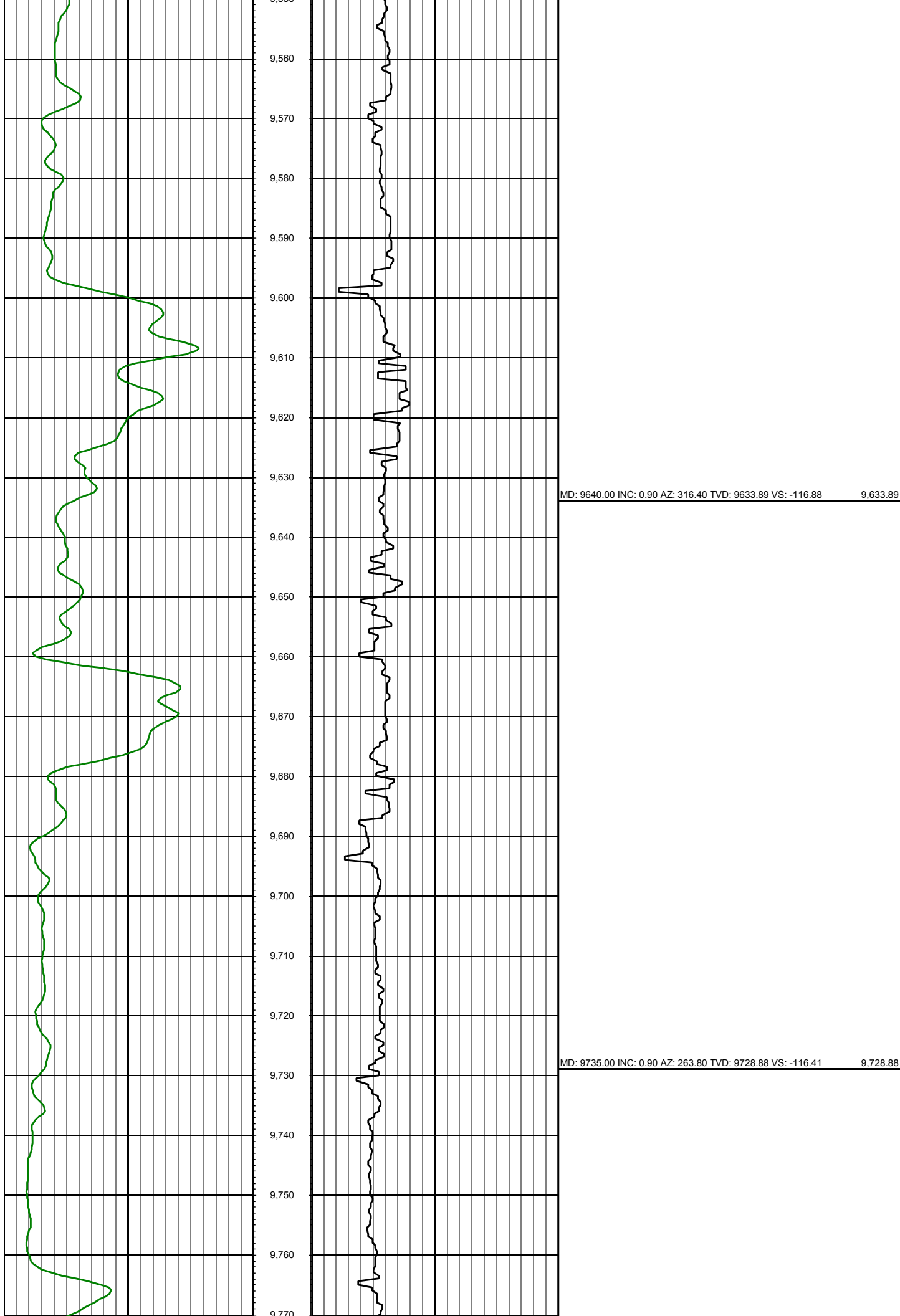


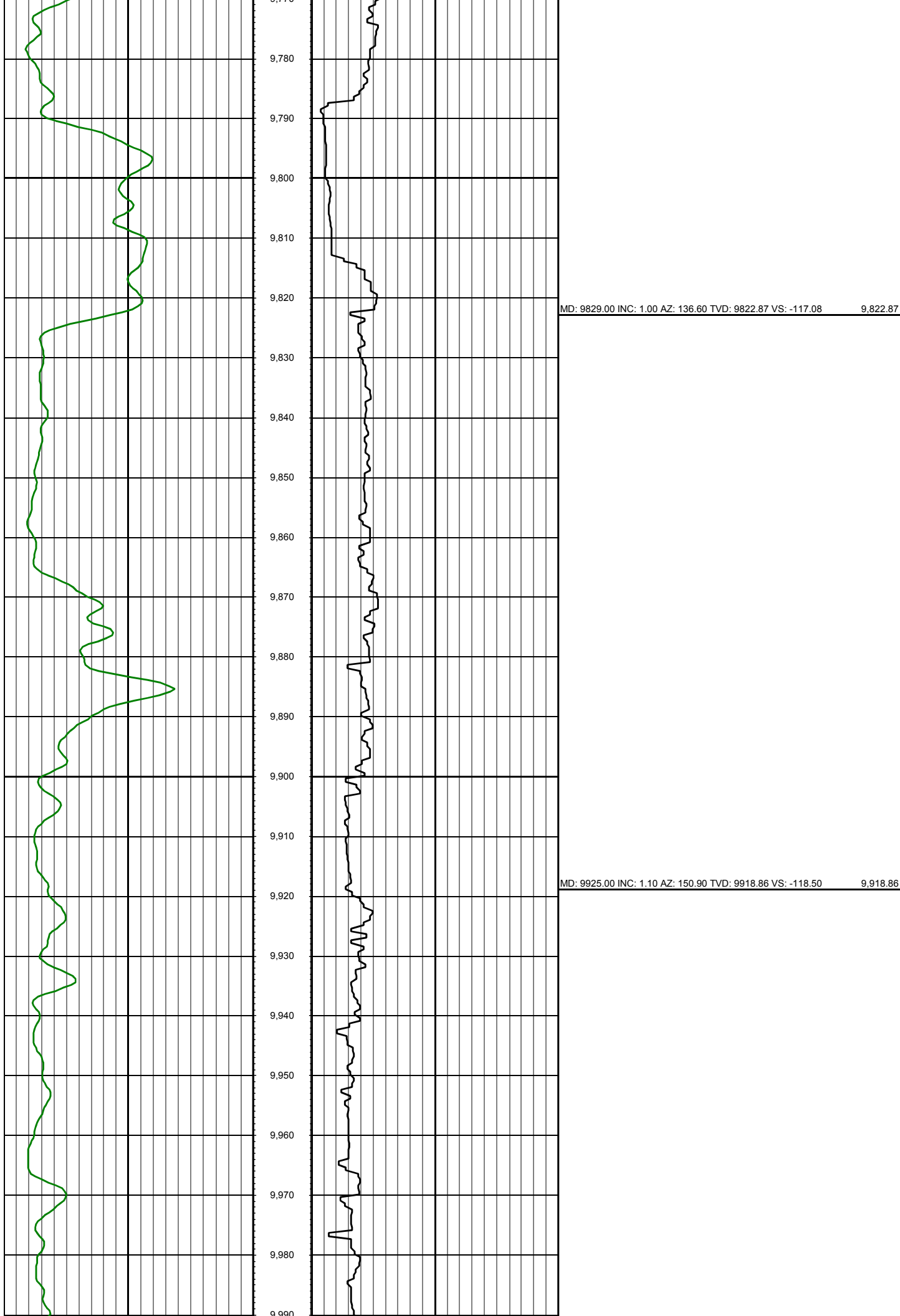


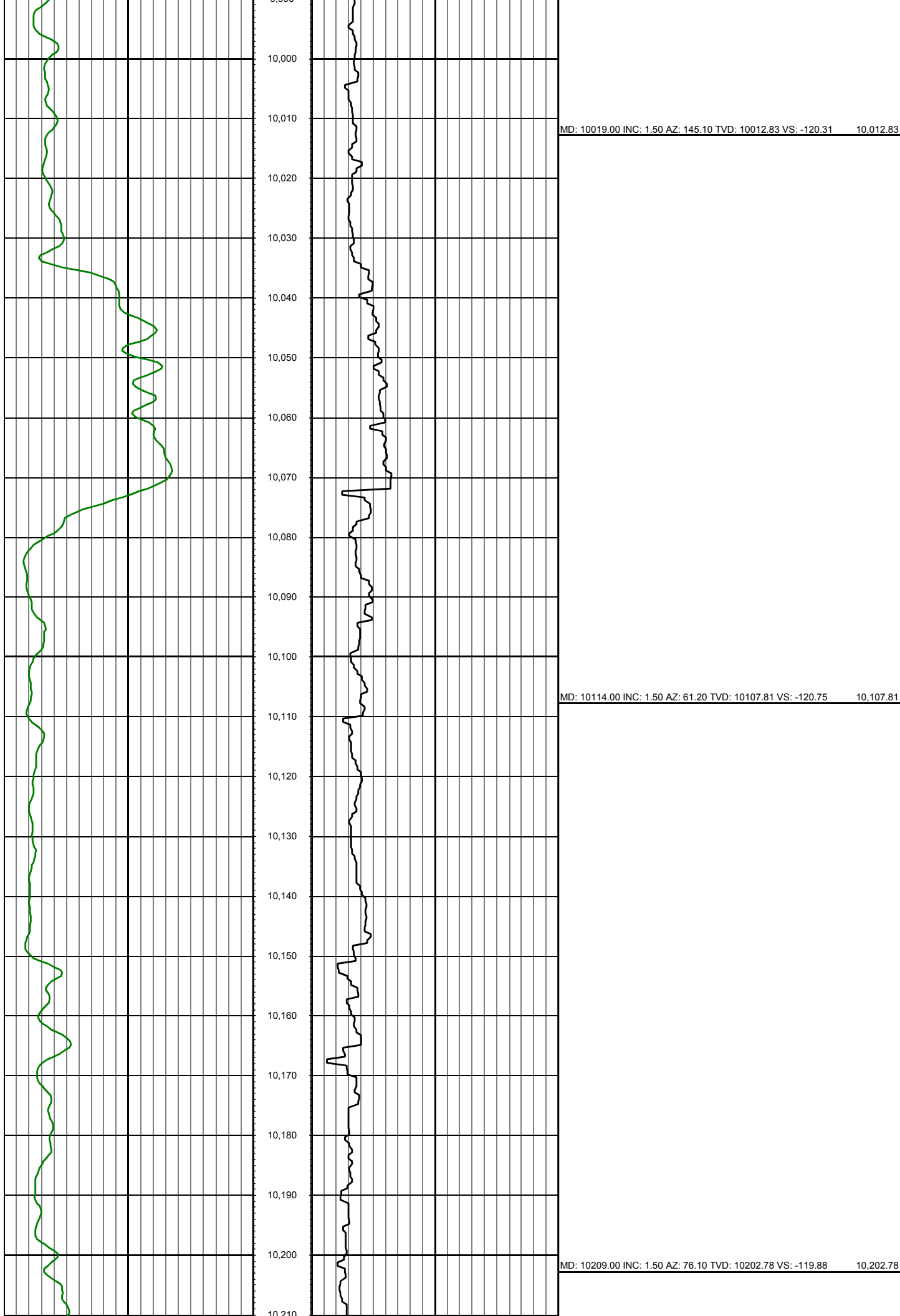


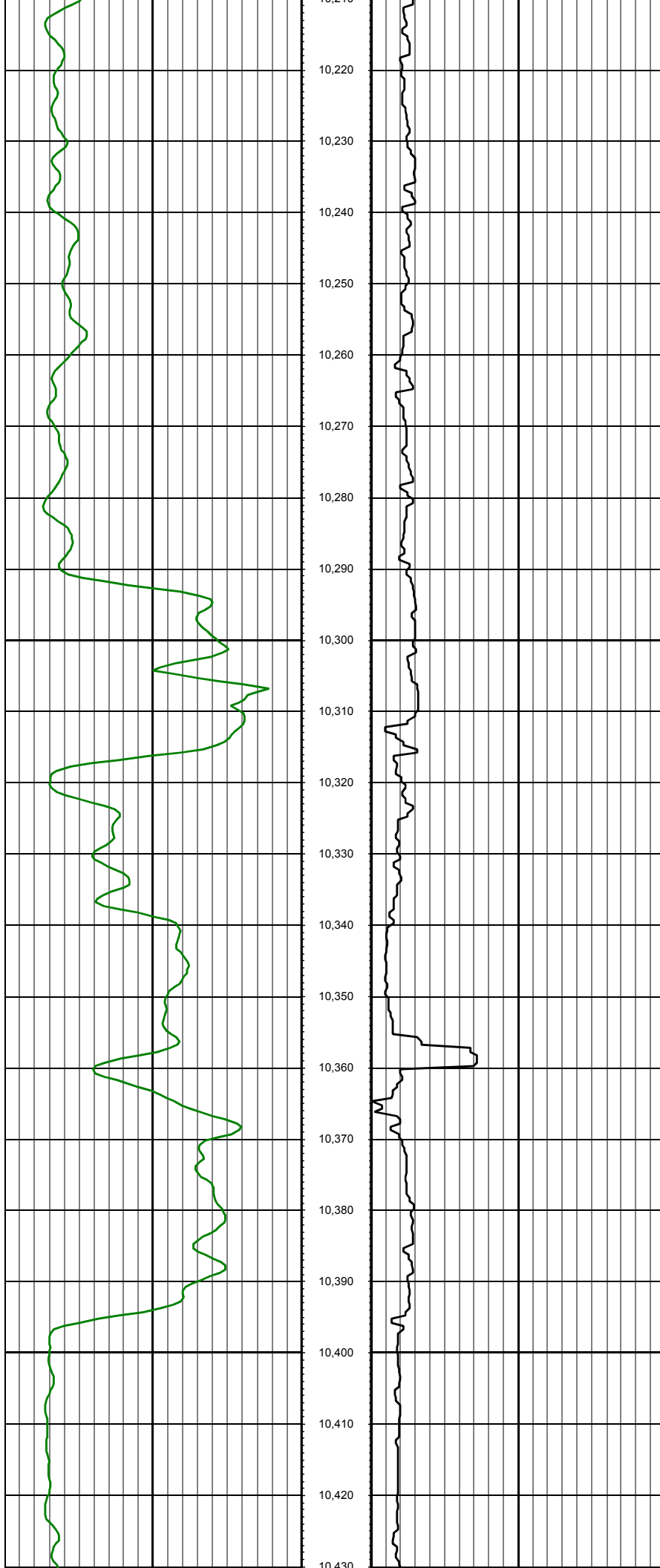






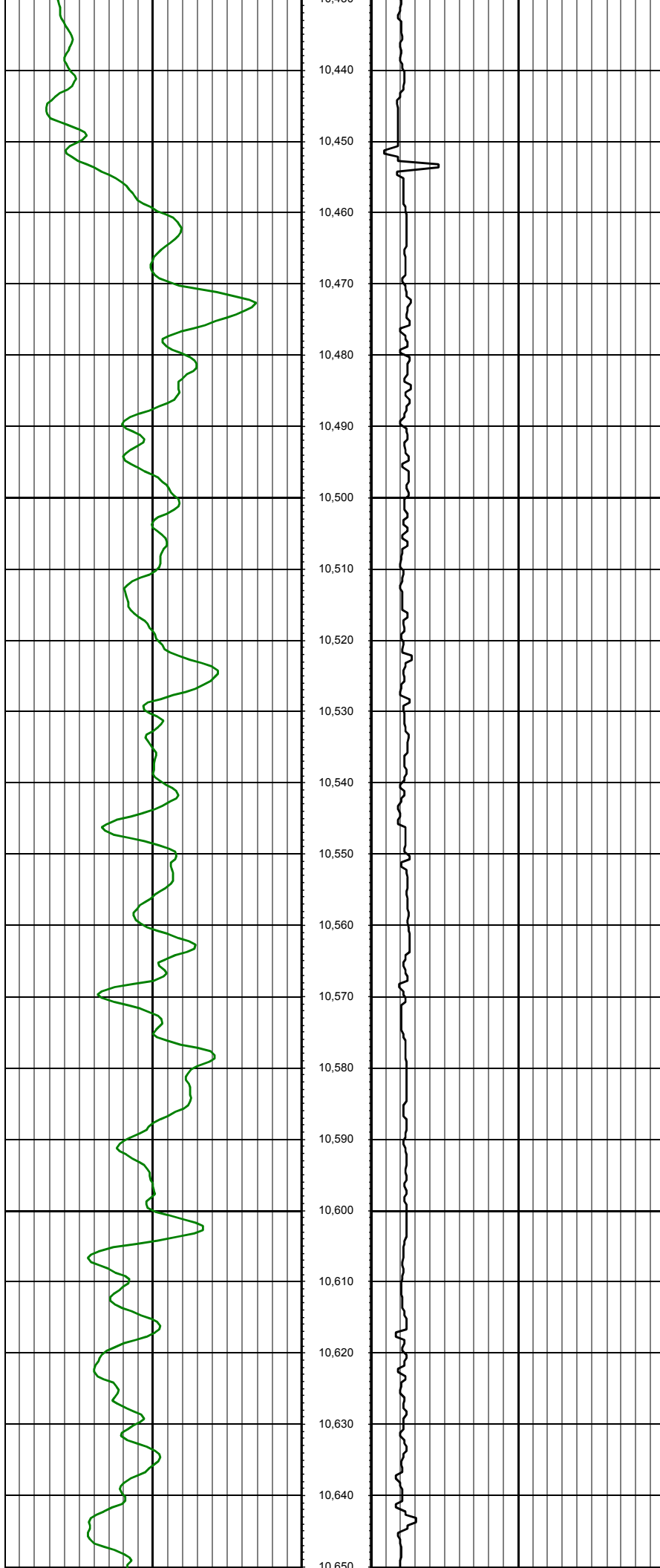






MD: 10303.00 INC: 1.50 AZ: 97.80 TVD: 10296.75 VS: -119.77 10,296.75

MD: 10399.00 INC: 0.30 AZ: 160.40 TVD: 10392.74 VS: -120.19 10,392.74



MD: 10493.00 INC: 0.80 AZ: 208.90 TVD: 10486.73 VS: -121.00 10,486.73

MD: 10588.00 INC: 1.50 AZ: 176.80 TVD: 10581.71 VS: -122.82 10,581.71

