



LWD MEMORY LOG 6.125" SECTION COMPOSITE

Annular Pressure

INTEQ

Scale:	Company: Anadarko		
1inch=30min.	Well:	Ralph 34C-19HZ	
	Field:	Weld County	
	Region:	Continental US	Country: United States
Status:	Final Print	Surface Location:	Other Services:
API Number:	05-123-36923	Latitude: 40° 2' 35.484" N Longitude: 104° 56' 17.470" W	Directional VSS
Permanent Datum (P.D.):	Ground Level	Elevation: 5116.00 ft.	Elevations: N/A
Log Measured From:	Rig Floor	17.00 ft.	Above P.D.
Depth Reference:	Driller's Depth		KB: 5133.00 ft. DF: 5116.00 ft. GL:

Interval Logged		Dates		Magnetic Field Reference	
Top:	7306.0 ft.	Date From:	16/Aug/13	Dip Angle:	66.63° Azi Reference North:
Bottom:	12396.0 ft.	Date To:	20/Aug/13	Total	Mag to Reference
		Spud Date:	09/Aug/13	Field Strength:	52650.2 nT North Correction:

Borehole Record			Casing Record		
Hole Size	From	To	Size	Weight	From
13.500 in.	Surface	921.0 ft.	9.625 in.	36.00 lb/ft	Surface
8.750 in.	921.0 ft.	8355.0 ft.	7.000 in.	26.00 lb/ft	Surface
6.125 in.	8355.0 ft.	12396.0 ft.			

Mud Record			Deviation Record		
Type	From	To	Hole Size	Interval	Inc / Az (Start)
Water Based	Surface	8355.0 ft.	13.500 in.	921.0 ft.	0.0° / 90.0°
			8.750 in.	7476.0 ft.	0.2° / 126.9°
					/
					/
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					/
					/
					/
Acquisition System Software Version Other					
Advantage	2.20U4	Rig / Contractor:	Xtreme 6	/ Xtreme Coil Services	
PAIS	6.4.1.34	Job No:	5460222	/ D & E	
		District / Unit:	RMD		

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Log Run Summary													
LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Length (in.)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Time (hrs.)
							Top	Bottom	From	To	Start	End	
							(m.)	(m.)	(m.)	(m.)			
1	1	2	8.750	PDC	0.750	Steerable	7306.0	8104.0	931.0	8152.0	09/Aug/2013 18:00	13/Aug/2013 03:30	55.6
2	2	3	8.750	PDC	0.750	Steerable	8104.0	8310.0	8152.0	8355.0	13/Aug/2013 05:30	14/Aug/2013 21:30	20.3
3	3	4	6.125	PDC	0.650	Steerable	8310.0	12351.0	8355.0	12396.0	16/Aug/2013 06:00	20/Aug/2013 05:00	64.1

Crew								
Name			Arrive	Depart	Name			Arrive
			Wellsite	Wellsite				Wellsite
Donald Delay			10/Aug/13	20/Aug/13	Matthew Delmore			01/Aug/13
Nathan Leopold			14/Aug/13	16/Aug/13				18/Aug/13
					Jeremiah Davidson			18/Aug/13
								20/Aug/2013

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (m.)	Mud Type	Density (sg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
16/Aug/2013 09:00	3	8355.0	Water Based	9.8	42	9.0	5.4	0 / 92	Active Mud Pit	250	0.0
16/Aug/2013 15:00	3	8355.0	Water Based	9.8	42	9.0	5.4	0 / 92	Active Mud Pit	250	0.0
16/Aug/2013 21:00	3	8355.0	Water Based	9.8	41	9.0	5.4	0 / 92	Active Mud Pit	250	0.0
17/Aug/2013 09:00	3	9233.0	Water Based	9.8	48	9.5	5.9	3 / 88	Active Mud Pit	300	0.0
17/Aug/2013 11:00	3	9655.0	Water Based	9.8	45	9.2	6.0	3 / 89	Active Mud Pit	300	0.0
17/Aug/2013 11:00	3	9926.0	Water Based	9.8	42	9.2	6.0	4 / 89	Active Mud Pit	300	0.0
18/Aug/2013 23:26	3	10616.0	Water Based	9.8	43	9.0	6.0	4 / 89	Active Mud Pit	300	0.0
18/Aug/2013 23:26	3	11113.0	Water Based	9.8	44	9.0	5.9	4 / 88	Active Mud Pit	500	0.0
18/Aug/2013 23:26	3	11625.0	Water Based	9.9	44	9.0	5.9	4 / 88	Active Mud Pit	500	0.0

Mud Resistivity Record

Date / Time		LWD	Measured	Surface	Rm	Rmf	Rmc	BHCT	Rm	Rmf	Rmc
		Run No.	Depth	Temp					@ BHCT	@ BHCT	@ BHCT
			(m.)	(deg C)	(ohm.m)	(ohm.m)	(ohm.m)	(deg C)	(ohm.m)	(ohm.m)	(ohm.m)
16/Aug/2013	12:36	3	8355.0	75	1.00	N/A	N/A	125	0.61	N/A	N/A
16/Aug/2013	23:22	3	8376.0	73	0.84	N/A	N/A	183	0.35	N/A	N/A
17/Aug/2013	03:21	3	8662.0	68	0.88	N/A	N/A	188	0.33	N/A	N/A
17/Aug/2013	14:33	3	9511.0	72	1.01	N/A	N/A	294	0.26	N/A	N/A
18/Aug/2013	03:15	3	10450.0	73	1.14	N/A	N/A	215	0.40	N/A	N/A
18/Aug/2013	14:01	3	11016.0	73	1.03	N/A	N/A	218	0.36	N/A	N/A
18/Aug/2013	23:14	3	11730.0	78	1.12	N/A	N/A	228	0.40	N/A	N/A

Mnemonics

Curve	Description	Units
ACTECDM	Actual ECD	ppg
BLOCKCOMP	Block/Top Drive Position Compensated	ft
PUMP	Pump Pressure – Standpipe	psi
MWIN	Mud Weight In	ppg
ACTECDR	Actual Flow Off ECD	ppg

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (m.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	11730418	Directional	46.98	6.750	2.750
1	SRIG	12722372	Gamma	43.60	6.750	2.750
2	DIR	11730418	Directional	43.67	6.750	2.750
2	SRIG	12722372	Gamma	40.30	6.750	2.750
3	CS	12187052	-	73.67	4.843	2.569

3	BCPM	11904944	Telemetry	62.66	4.843	2.569
3	STAB	11863323	-	59.34	5.625	2.569
3	OTK	11805184	Directional	54.83	4.843	2.569
3	OTK	11805184	Resistivity	48.86	4.843	2.569
3	OTK	11805184	Gamma	41.67	4.843	2.569
3	OTK	11805184	Pressure	44.30	4.843	2.569
3	CS	12202693	-	36.54	4.843	2.569

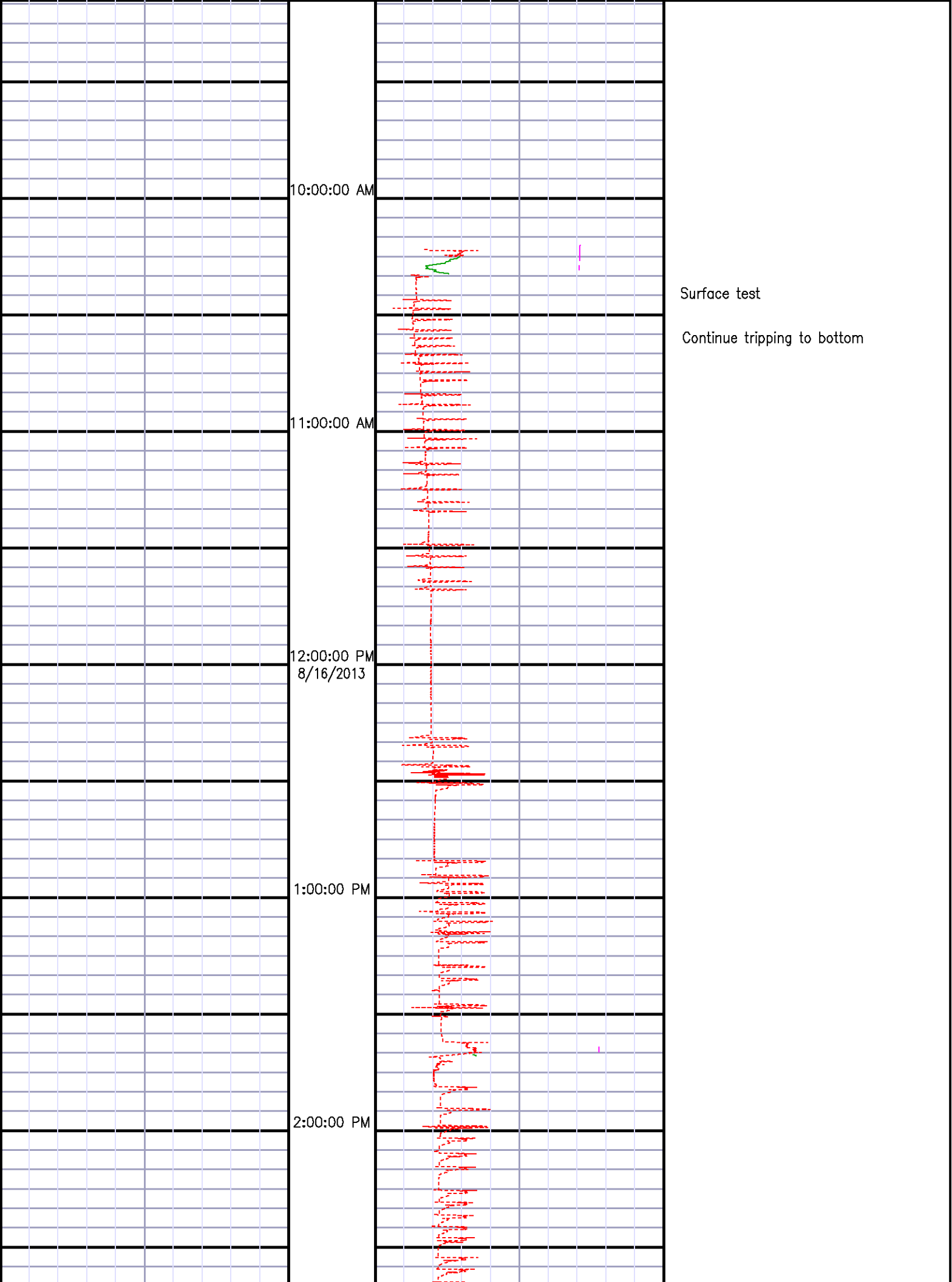
Service and Tool Mnemonics

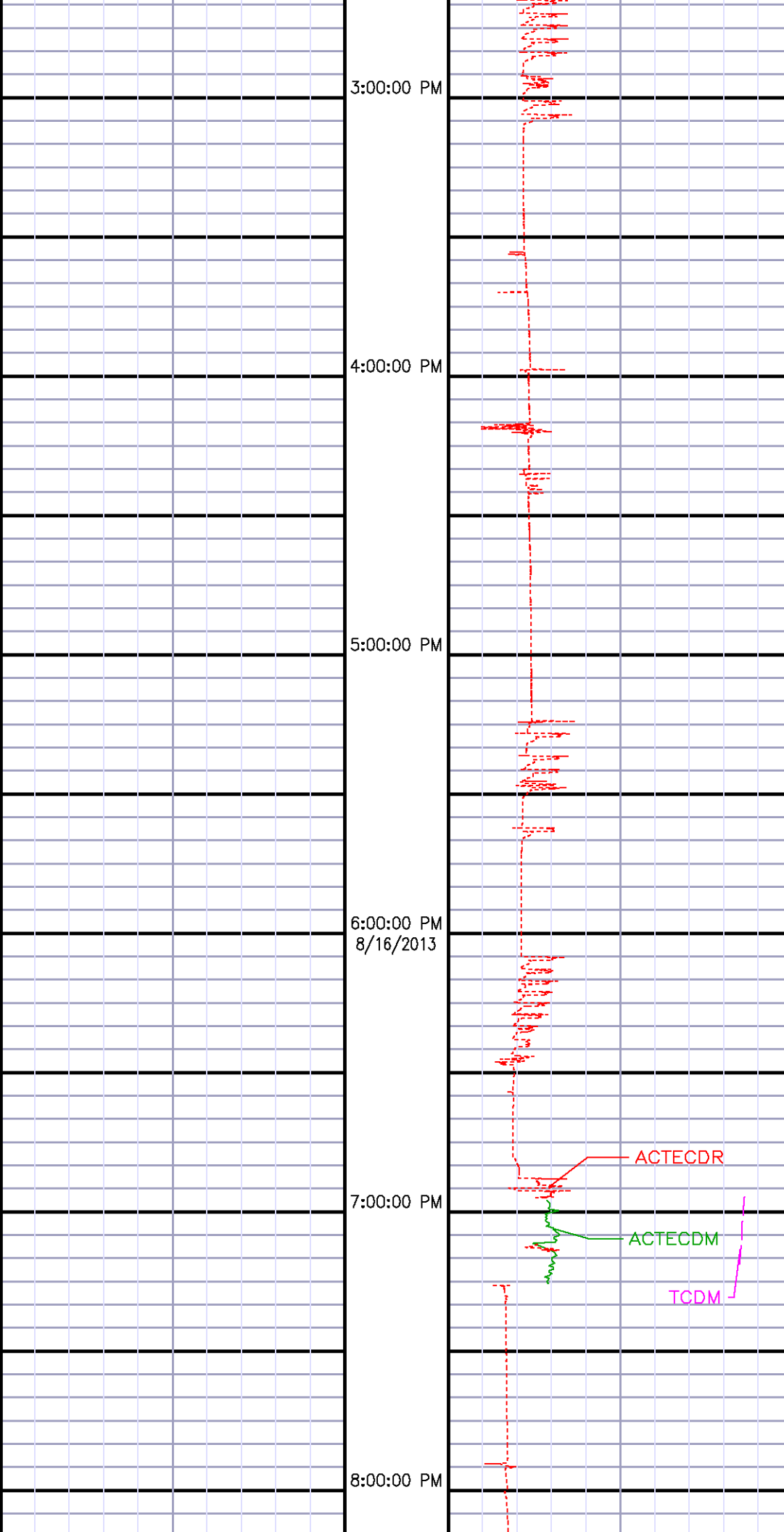
Mnemonic	Name	Description
BCPM	BCPM	Mud pulse telemetry and downhole tool power module
DIR	Directional	Wellbore directional survey
OTK	OnTrak	Propagation resistivity, propagation conductivity, gamma ray, directional, annular pressure, system memory and VSS
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module
STAB	Stabilizer	Stabilizer assembly
CS	Closure Sub	BHA power ring isolator allowing insertion of inert sub into electrically powered BHA
AP	Annular Pressure	Annular Pressure, Equivalent Circulating Density

Comments

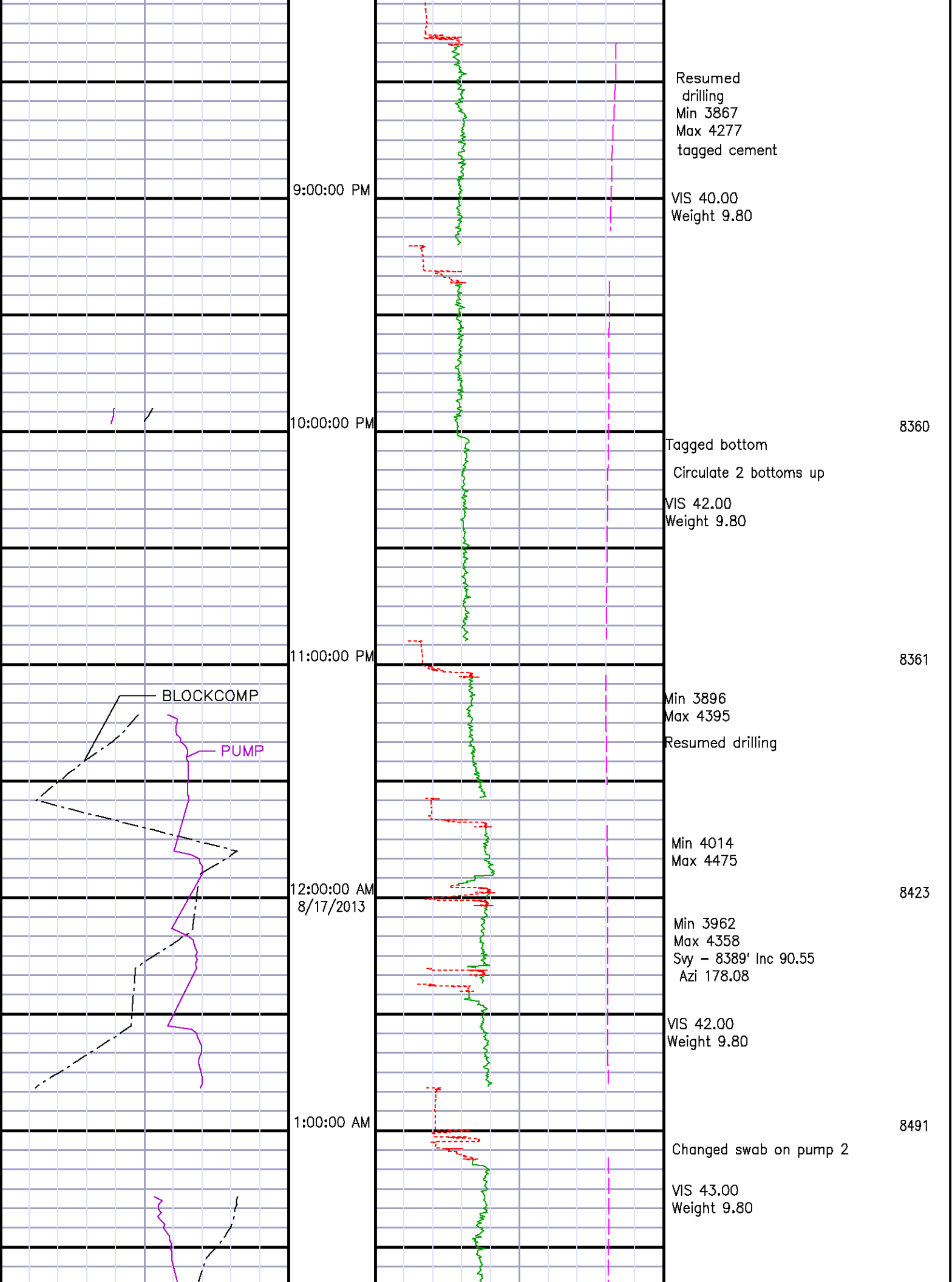
<p>1. Baker Hughes INTEQ run 1 utilized 6 3/4 inch NaviTrak and NaviGamma Services. Navitrak Services (VSS, Directional) were provided behind an 8 3/4 inch bit and steerable assembly from 931 to 7356 feet MD (930.91 to 7217.56 feet TVD.). NaviGamma Services (VSS, Directional, Gamma Ray) were provided behind an 8 3/4 inch bit and steerable assembly from 7356 to 8152 feet MD (7217.56 to 7795.72 feet TVD).</p> <p>2. Baker Hughes INTEQ run 2 utilized 6 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) behind an 8 3/4 inch bit and steerable assembly from 8152 to 8355 feet MD (7795.72 to 7830.52 feet TVD).</p> <p>3. Baker Hughes INTEQ run 3 utilized 4 3/4 inch Ontrak Services (VSS, Directional, Gamma Ray, Multiple Propagation Resistivity) behind a 6 1/8 inch bit and steerable assembly from 8355 to 12396 feet MD (7830.52 to 7867.20 feet TVD).</p> <p>4. Depth Measurements were obtained from a depth tracking system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes LWD logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to present logging data.</p>
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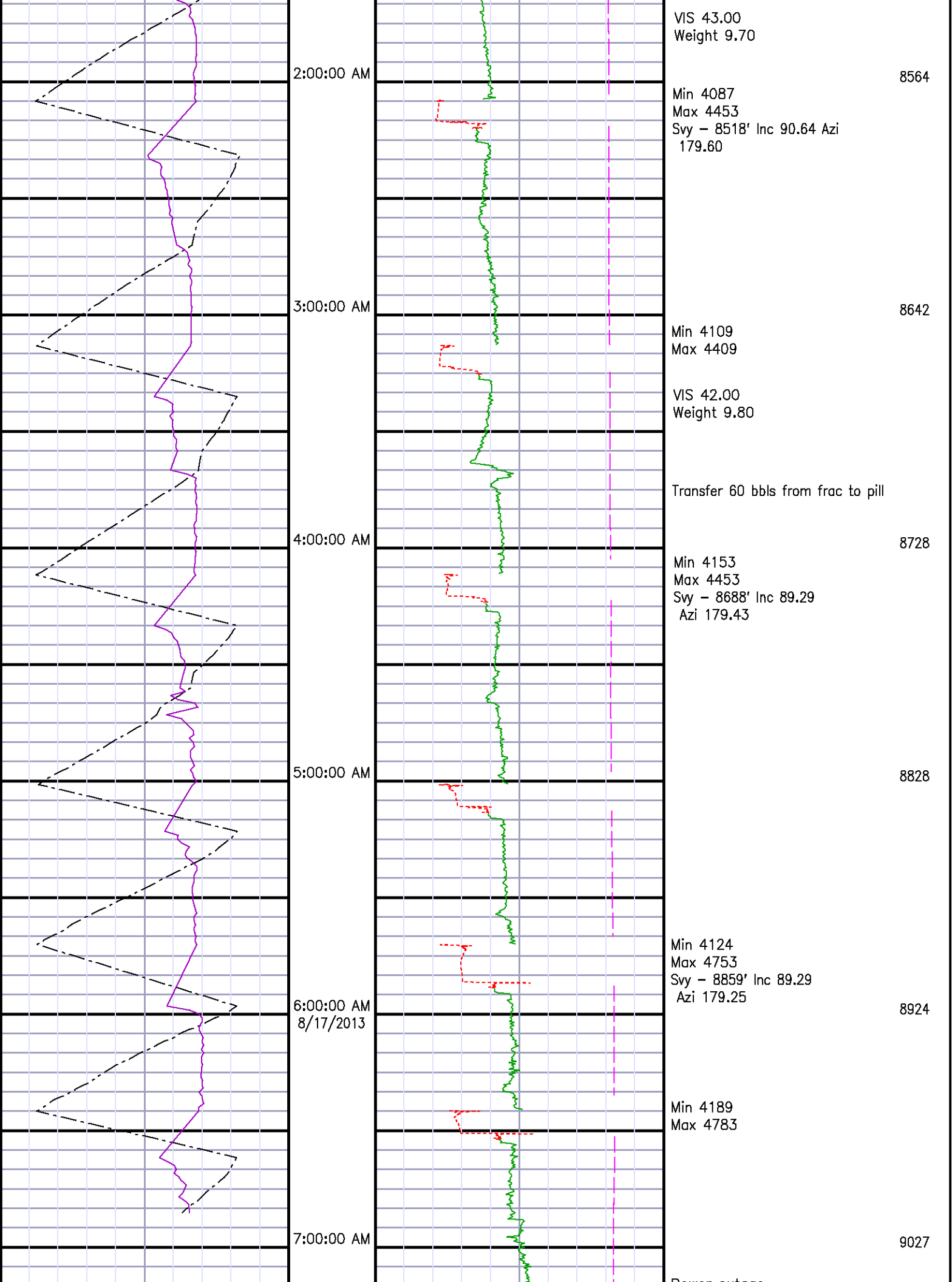
<div><div><div><div></div><div></div><div></div></div><div><div>BAKER</div><div>HUGHES</div></div></div><div>INTEQ</div></div>		<div>Company : Anadarko</div> <div>Well : Ralph 34C-19HZ</div> <div>Interval : 8/16/2013 9:09:00 AM to 8/20/2013 12:09:49 AM</div> <div>Created : 8/20/2013 7:35:29 AM</div>		<div><div>ADVANTAGE</div><div>SYSTEM</div><div><div>LOG</div><div>DATA</div><div>HUGHES</div></div></div>	
<div><div><div>-10</div><div>Block Height BLOCKCOMP</div><div>110</div></div><div>ft</div><div><div>0</div><div>Pump Pressure PUMP</div><div>5000</div></div><div>psi</div></div>		<div>Time seconds 1:1800</div>	<div><div>9</div><div>Actual ECD ACTECDM</div><div>14</div></div> <div>ppg</div> <div><div>9</div><div>Actual Flow Off ECD ACTECDR</div><div>14</div></div> <div>ppg</div> <div><div>9</div><div>Mud Weight In MWIN</div><div>14</div></div> <div>USgl/min</div> <div><div>Temperature TCDM</div><div><div>0</div><div>degF</div><div>300</div></div></div>		<div>Bit Depth</div>

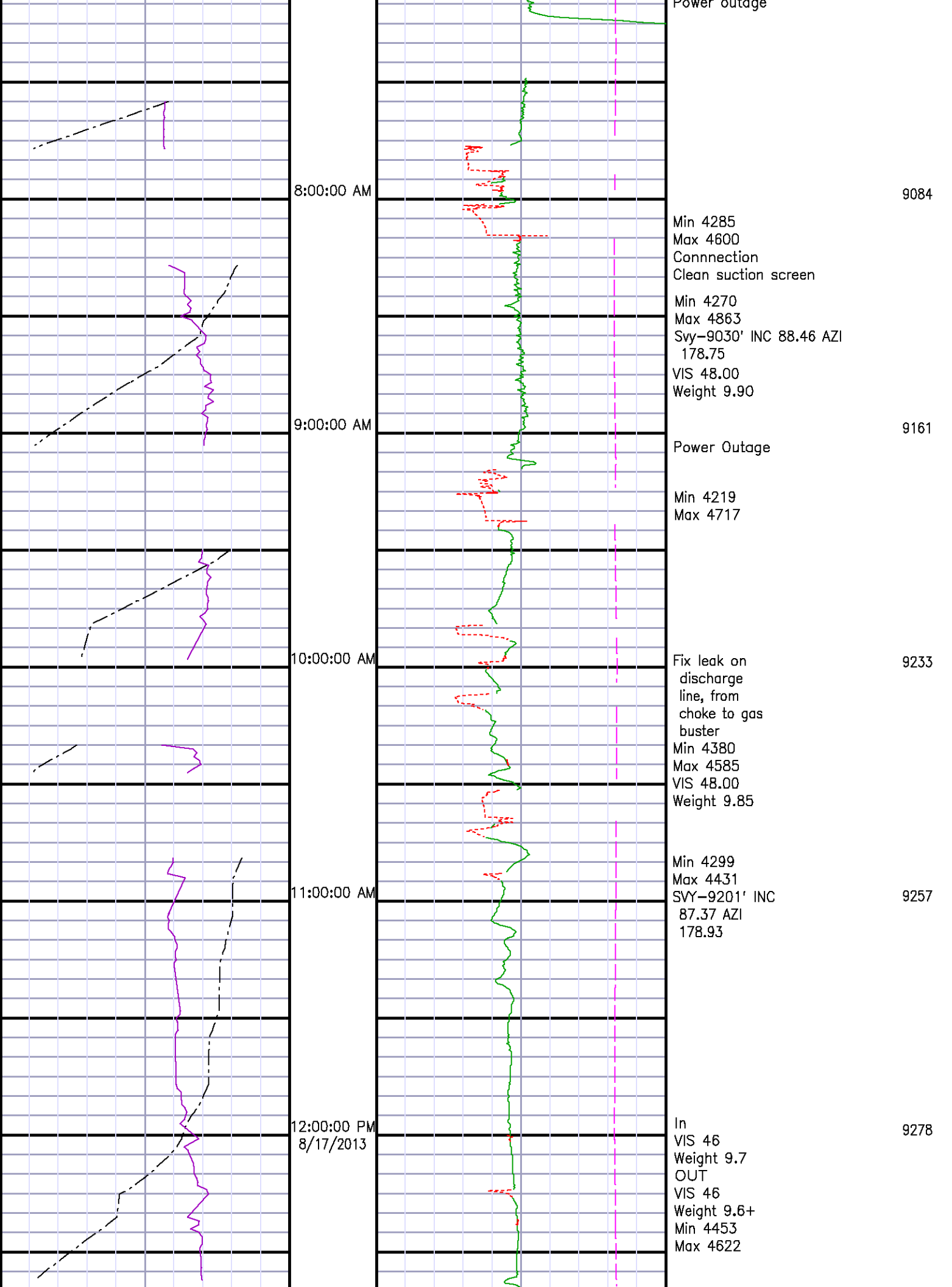


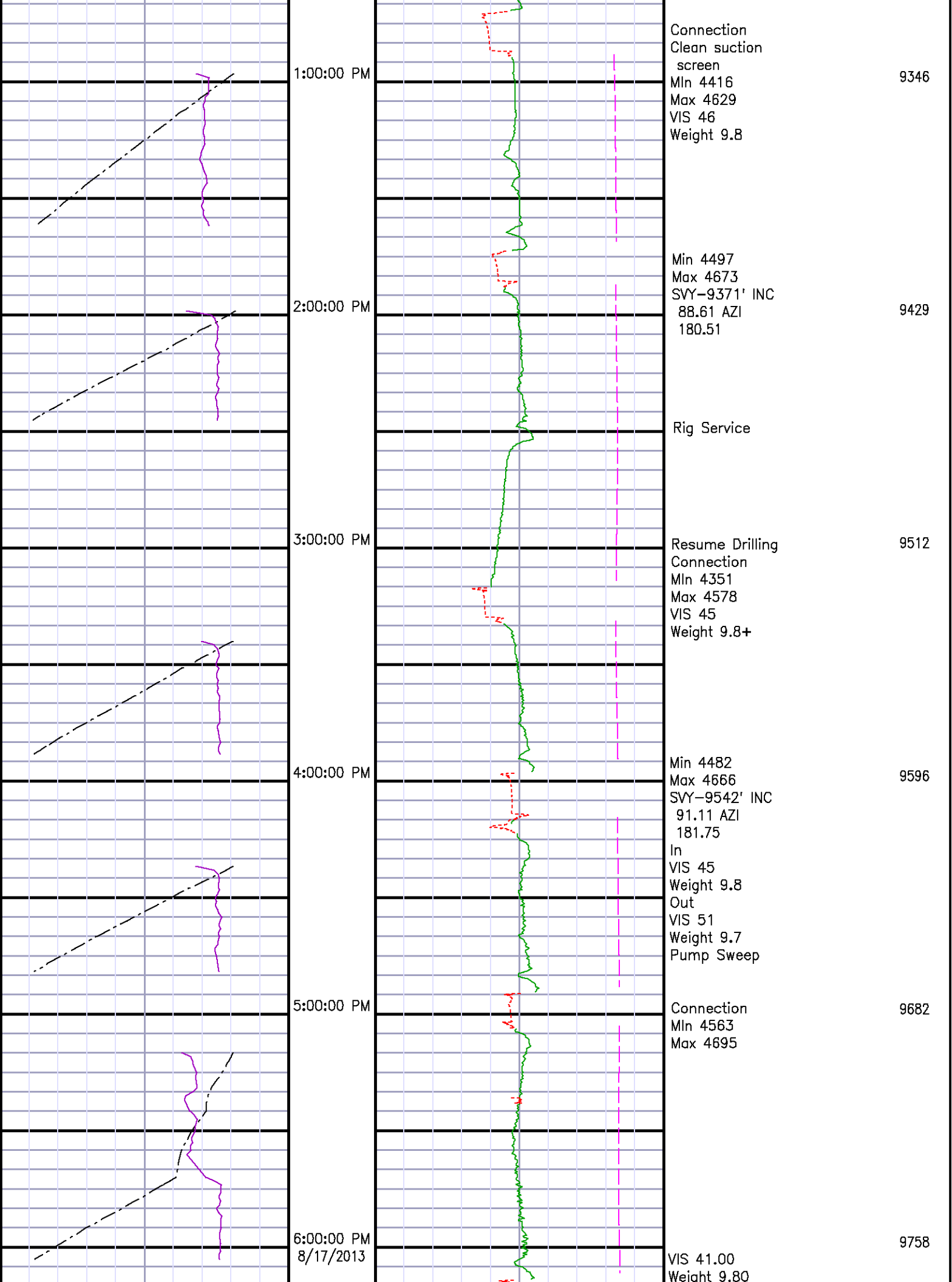


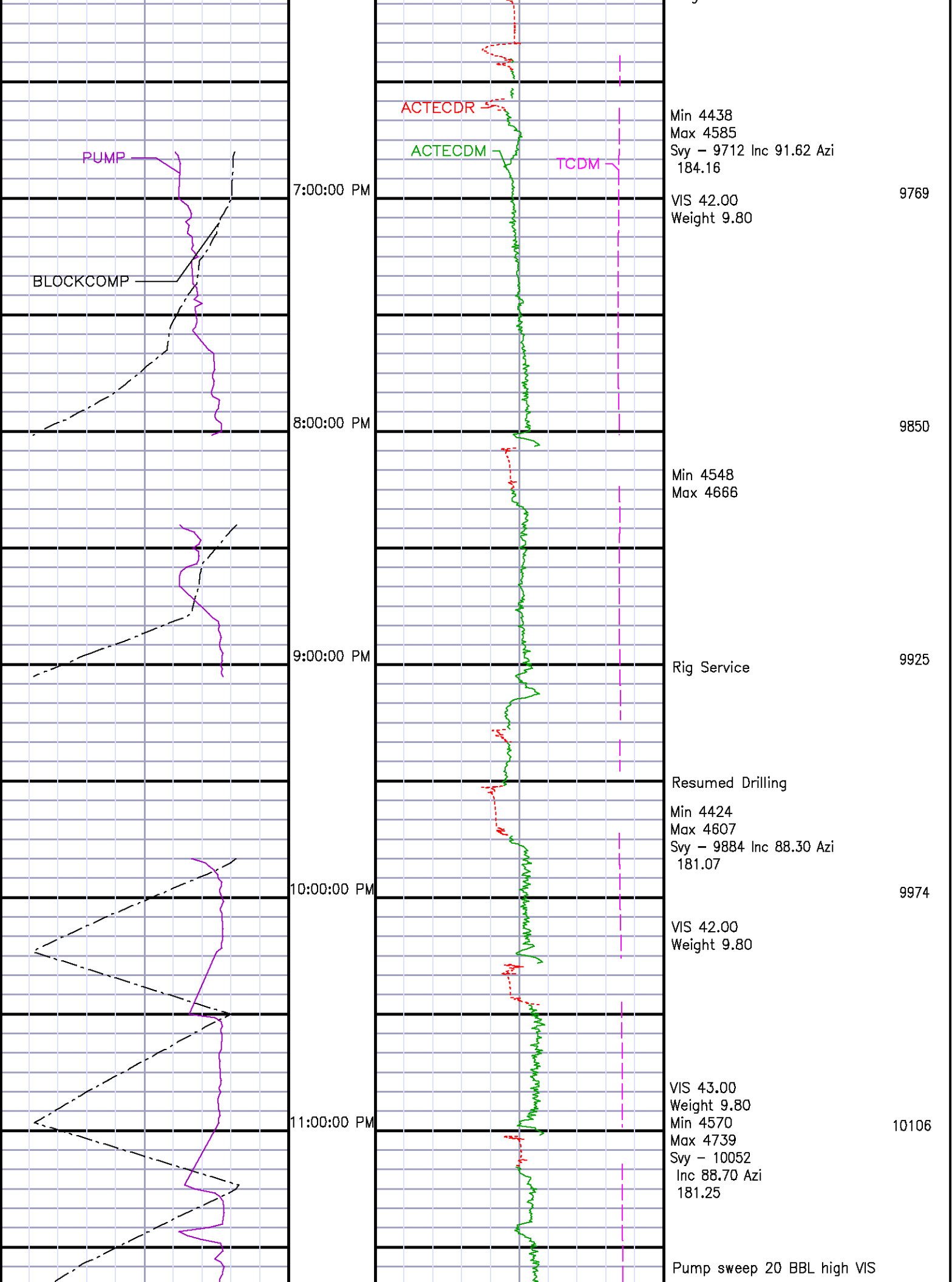
Rig Service
Drilling cement
Min 4102
Max 4204
Wash to
bottom

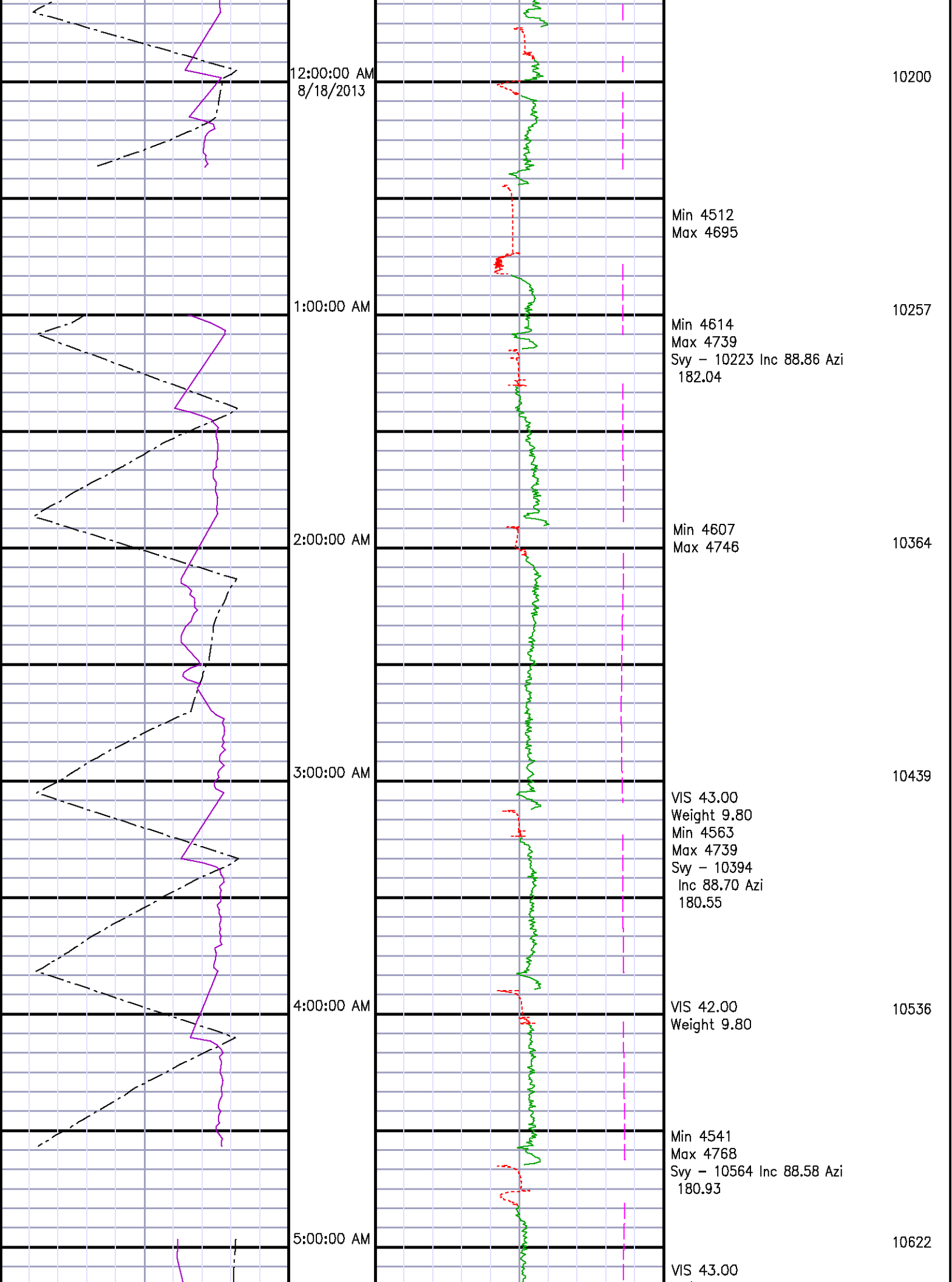


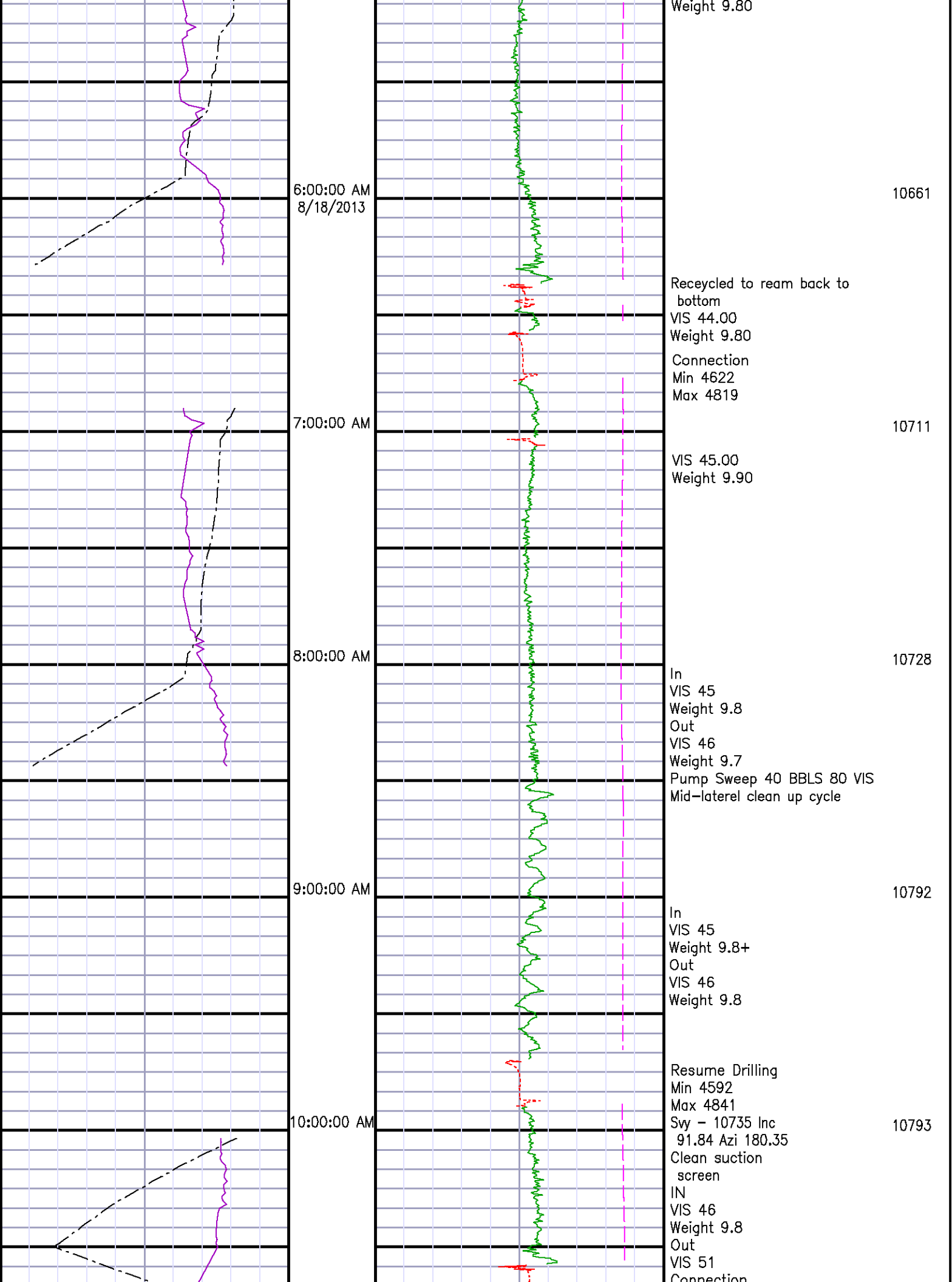


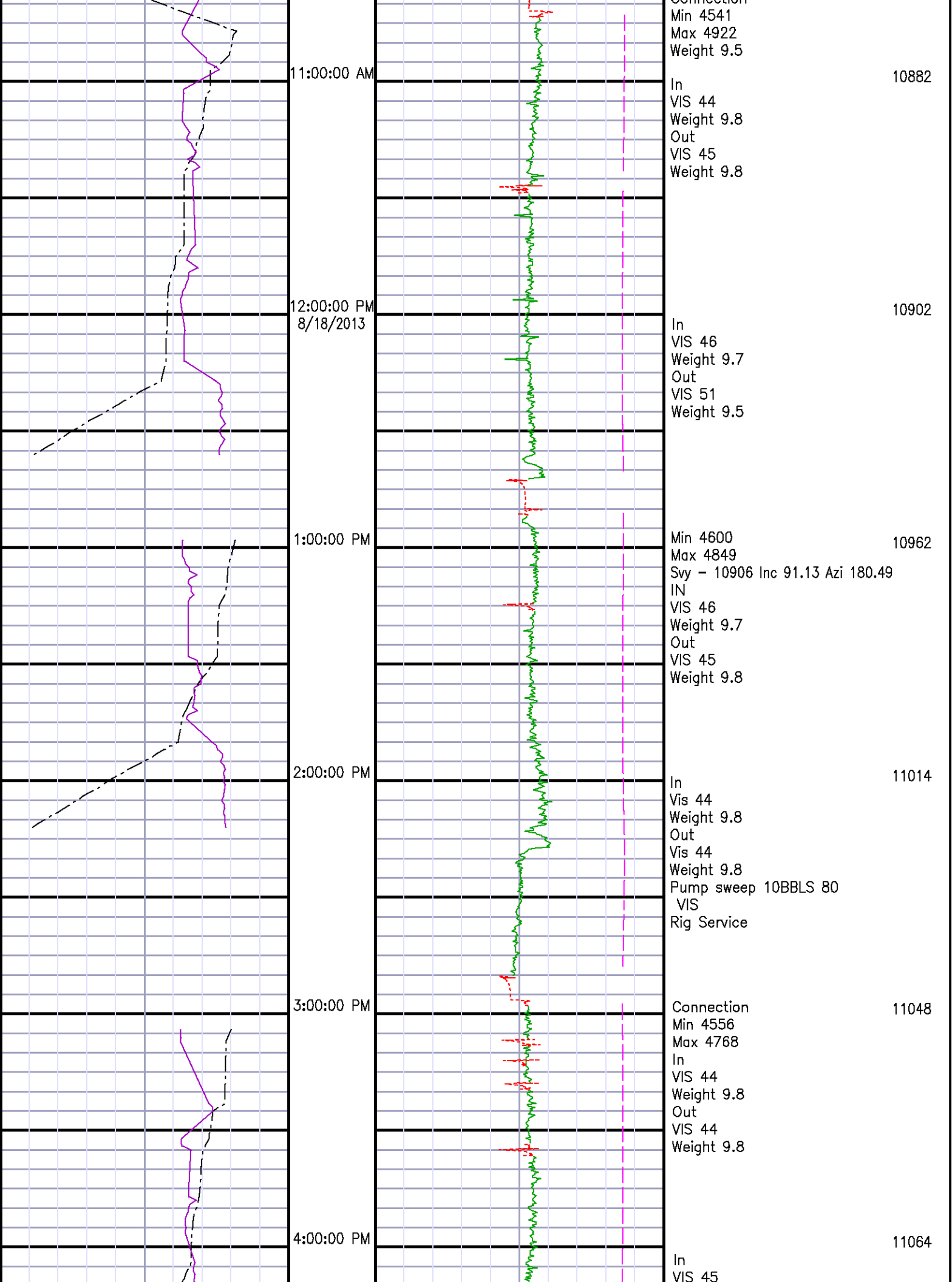


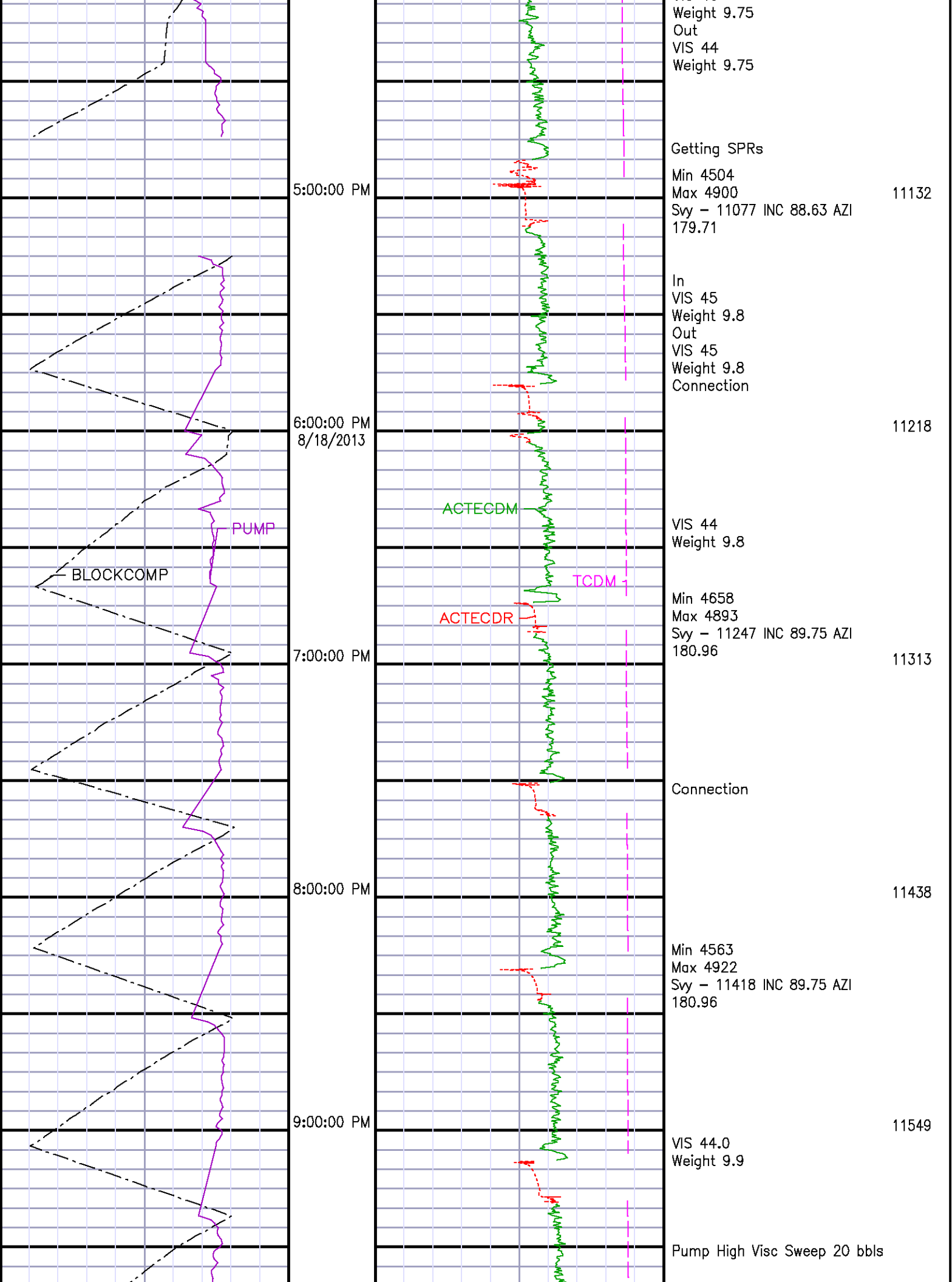


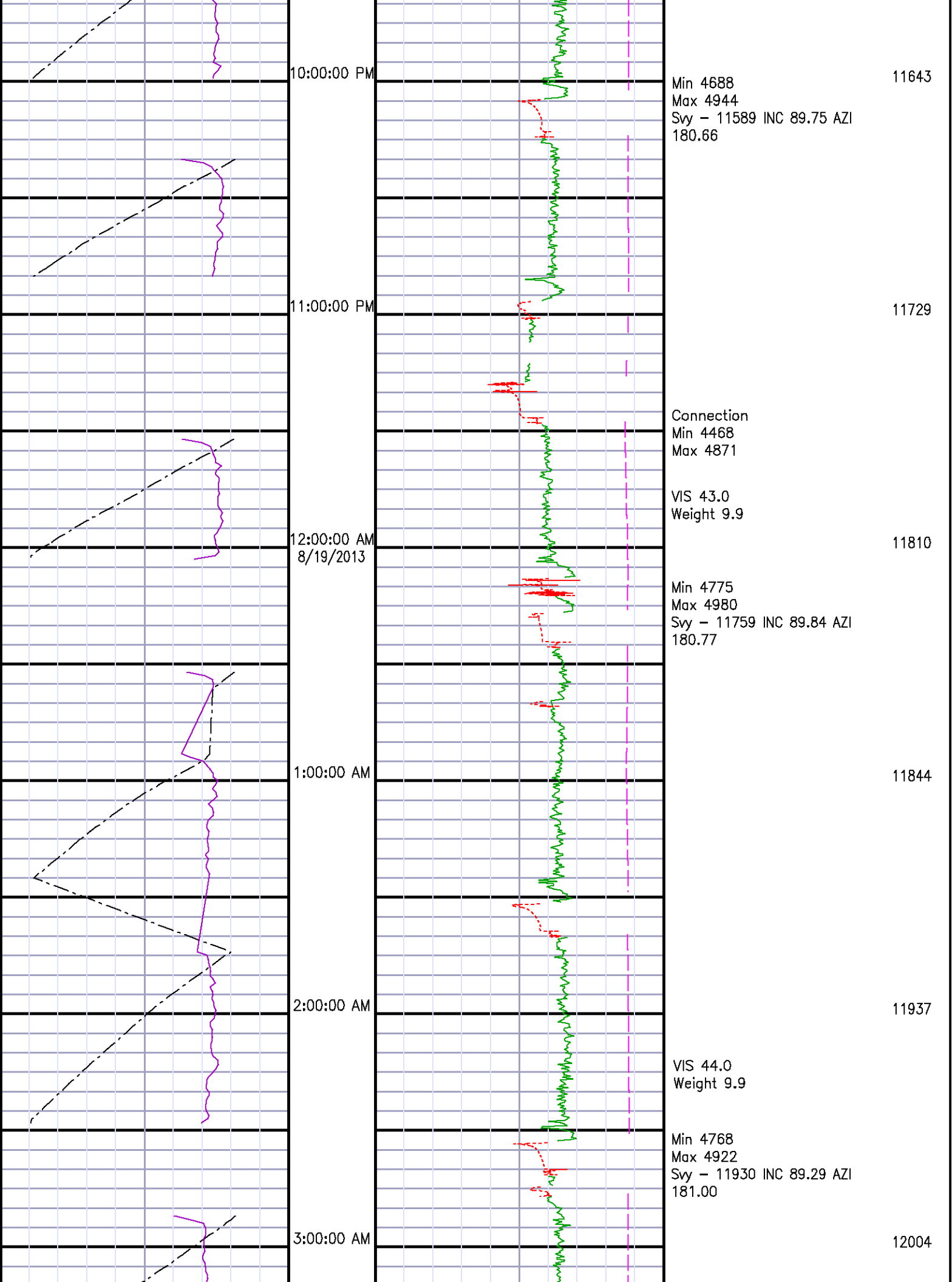


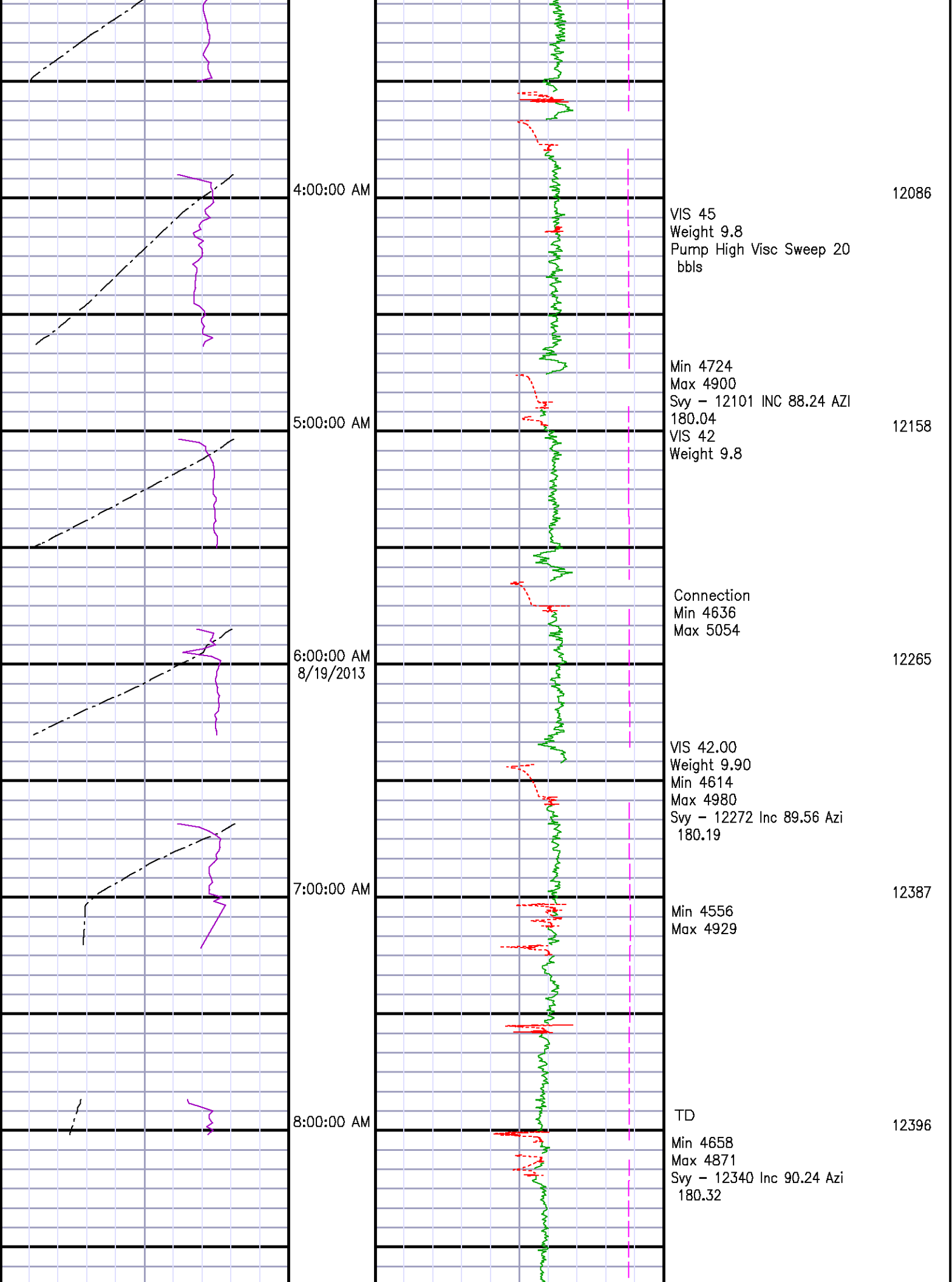


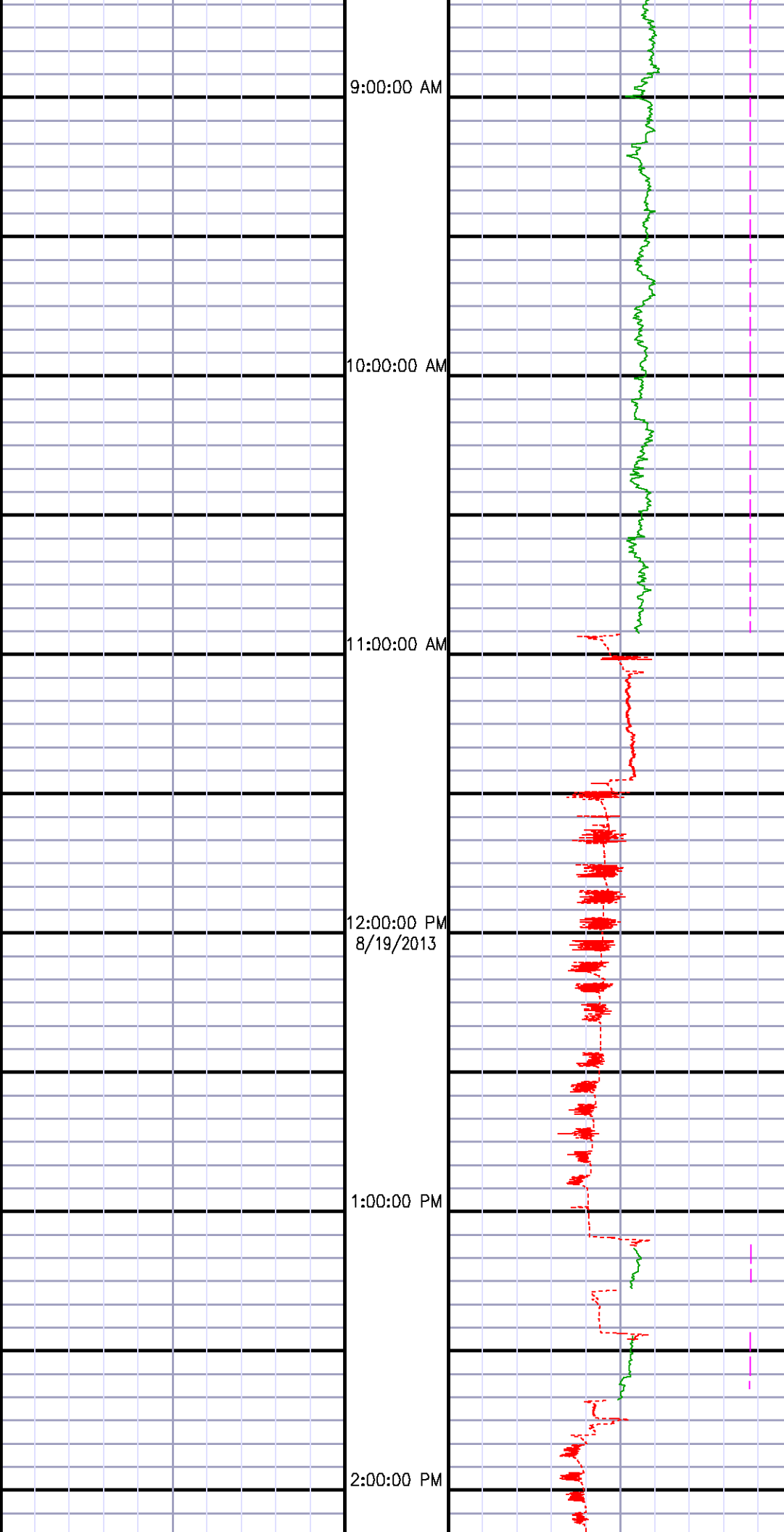


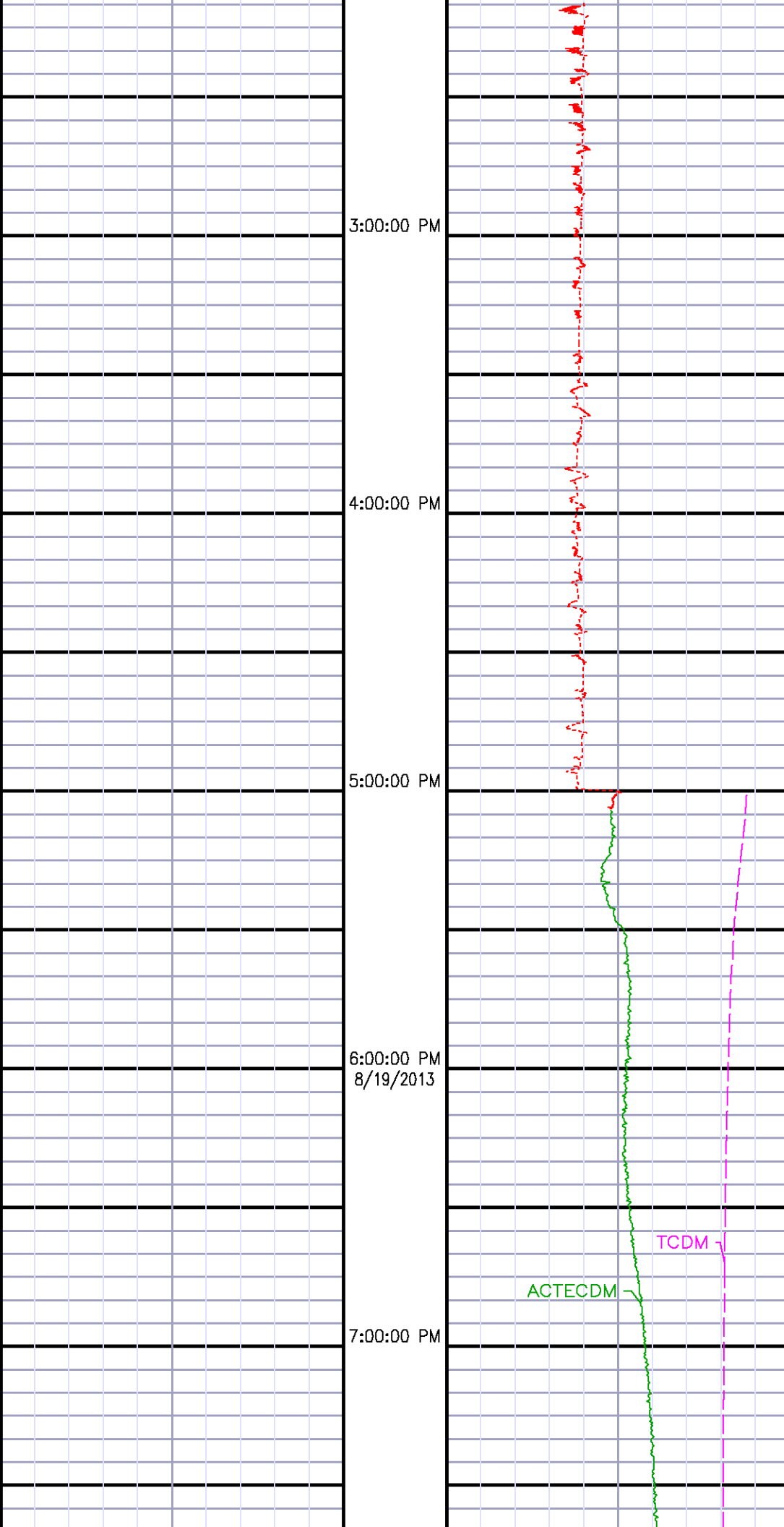












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