SUPERIOR PRODUCTION LOGGING

RAT'S Survey

Company Merit Energy Co.
Well Tribal C-#32
Field Steamboat Butte
County Fremont
State Wyoming

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Well Tribal C-#32
Field Steamboat Butte
County Fremont State Wyoming

Location: API # : 49-013-21472

SW 1/4, Nw 1/4
1650' FSL & 330 FWL
SEC 32 TWP 4N RGE 1W

Other Services

Permanent Datum	Ground Level	Elevation	5717'
Log Measured From	Kelly Bushing	12'	
Drilling Measured From	Kelly Bushing		

Elevation
K.B. 5729'
D.F. 5728'
G.L. 5717'

Date	7-26-2021	Recorded By:	David Shier
Type Log	RAT'S Survey	Assisted By:	Jim Alexander
Depth Driller	7153'	Interpreted By:	Jim Alexander
P.B.T.D	N/A	Witnessed By:	
Depth Logger	6954'	Witnessed By:	
Top Log Interval	Surface		
Type Fluid In Hole	Water		
Meter Injection Rate	3820 B/D		
Casing Rate Logger			
Tubing Rate Logger	N/A		
Tubing Pressure	1045 PSI		
Annulus Rate			
Annulus Pressure			
Max. Recorded Temp.	142 Deg.		
Tool Size (O.D.)	1 3/8"		
Unit #	#118		

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
				2 3/8"	TBG	0'	5106'

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	13"		0'	1013'
Prot. String	5 1/2"	17#	0'	7151'
Production String	4"	11.6#	0'	6955'
Liner				

<<< Fold Here >>>

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, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Conclusion:

This log was run to identify the presence or absence of vertical fluid movement behind the casing near injection perforations.
It should be noted that the tool string was setup with two gamma ray detectors, one below and one above the ejector for better detection of any channeling.
The Velocity Profile shows 65% of the ejected fluid exiting the Nugget Perforations between 5164-5276'. Zero flow was found inside the casing at 6935'
The channel check performed at 5160' (bottom detector) and 5144' (top detector) show no indication of upward channeling.

Corelated to SPL 7/6/2020

Well shut in @ 7:00:00 7/27/2021
7/27/2021 @ 8:00:00 Run 1Hr Static Temperature; Tubing Pressure; Vac.
7/27/2021 @ 17:00:00 Run 10Hr Static Temperature; Tubing Pressure Vac.
7/28/2021 @ 7:00:00 Run 24Hr Static Temperature; Tubing Pressure Vac.
7/29/2021 @ 7:00:00 Run 48Hr Static Temperature; Tubing Pressure Vac.
7/31/2021 @ 5:00:00 Run 94 Hr Static Temperature; Tubing Pressure Vac.

Note: Cross flowing observed flowing from Nugget to Tensleep Formation during static Temperatures.

PERF'S: Nugget: 5164' 5230'; 5262'-5278'
Tensleep Perf's: 6744'-6780'; 6800'-6925';6946'-6966';
Open Hole: 6967'-7153'

PRODUCING WELL:

FLOWING ☐ ROD PUMP ☐ ESP ☐ Y tool? Yes ☐ No ☐

Tubing Pressure		Casing Pressure		Fluid Level (CSG)	

Metered Prod. Rate		BWPD		BOPD		Gas (MCF)
Downhole Rates		BWPD		BOPD		Gas (MCF)

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			13/8ropesocket-1 1 3/8 rope socket	1.00	1.38	1.00
DET#2	18.25		TRDET #2 -ProbePoss (Poss0704334)	3.83	1.38	10.00
			TREJCT-Probe (ProbeEjector)	2.63	1.38	9.00
CCL	11.52		CCL-Probe (001)	1.90	1.38	5.00
			Sinker-SIE1.38 Sinker Bar	5.00	1.38	25.00
			TRDET-Probe (neg070432)	3.83	1.38	10.00
DET	2.58					
			TEMP-4G (4G001) 4G TEMP	1.83	1.38	3.00
TEMP	0.25					

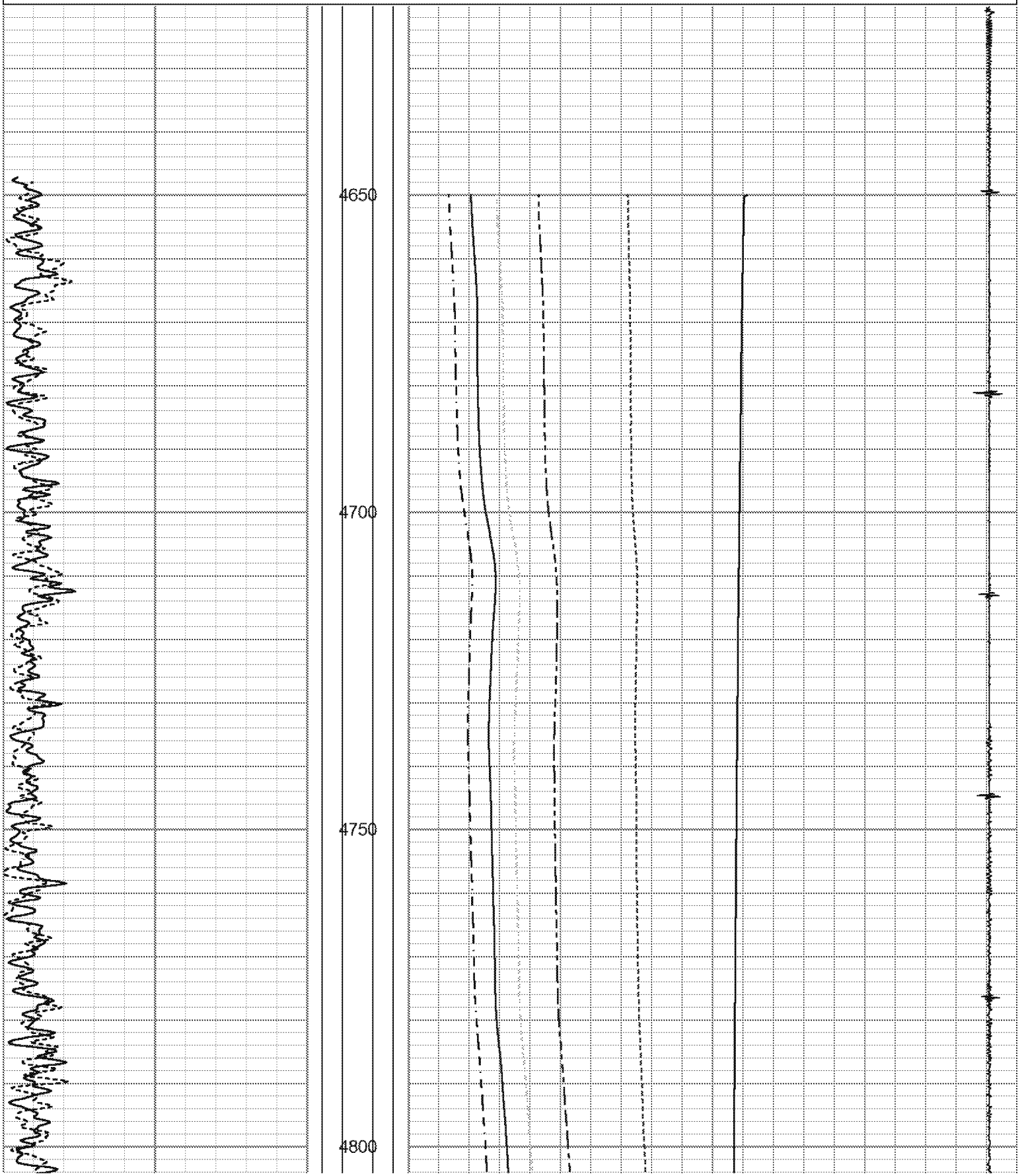
Dataset: final tribal c-#32 7-26-2021.db: field/well/run1/pass2
Total length: 20.02 ft
Total weight: 63.00 lb
O.D.: 1.38 in

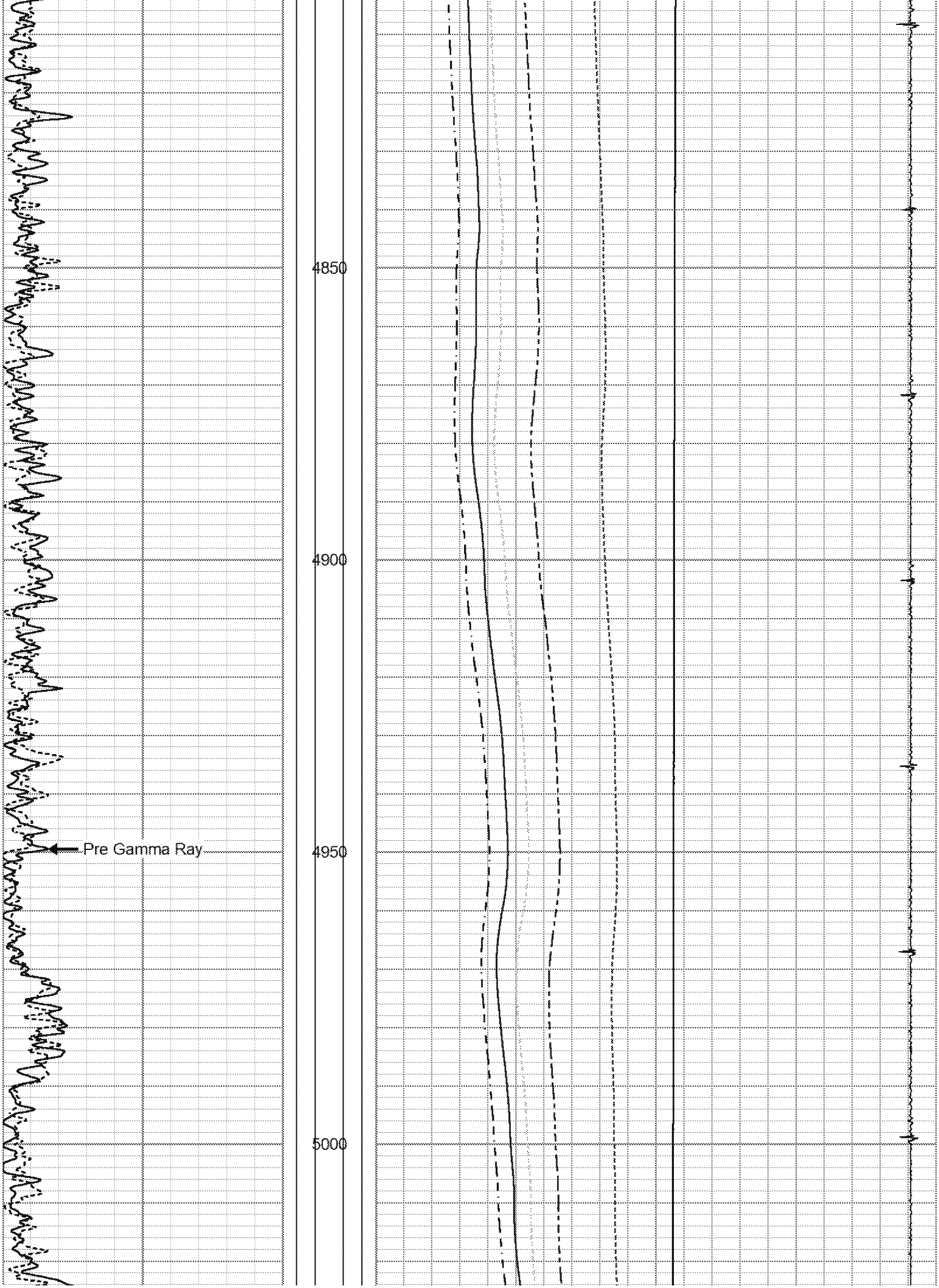
Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	merge2
Presentation Format	trccomp
Dataset Creation	Sat Jul 31 05:16:40 2021
Charted by	Depth in Feet scaled 1:240

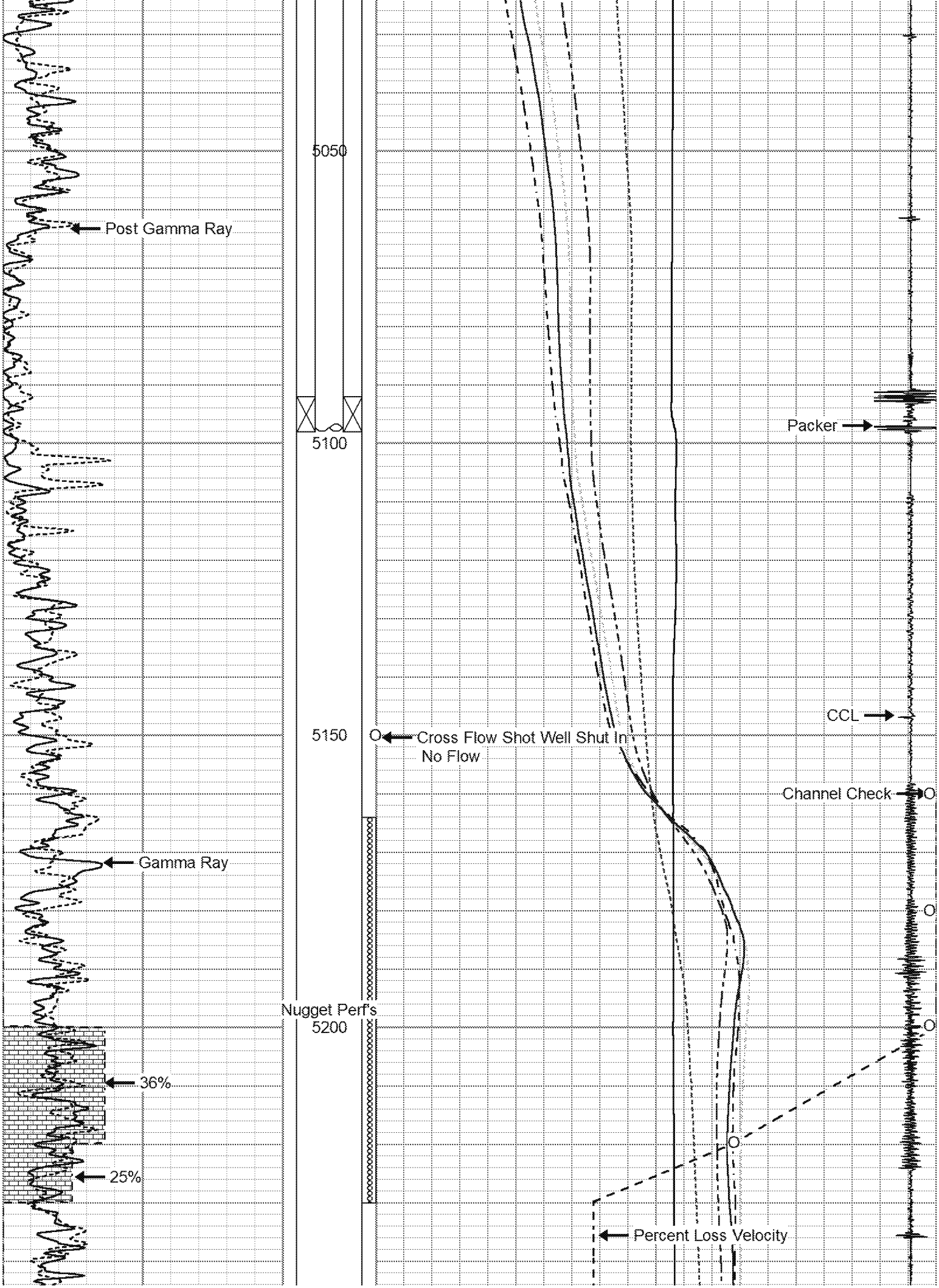
0	Percent Loss Velocity (%)	100		0	FLOWVEL (%)	100

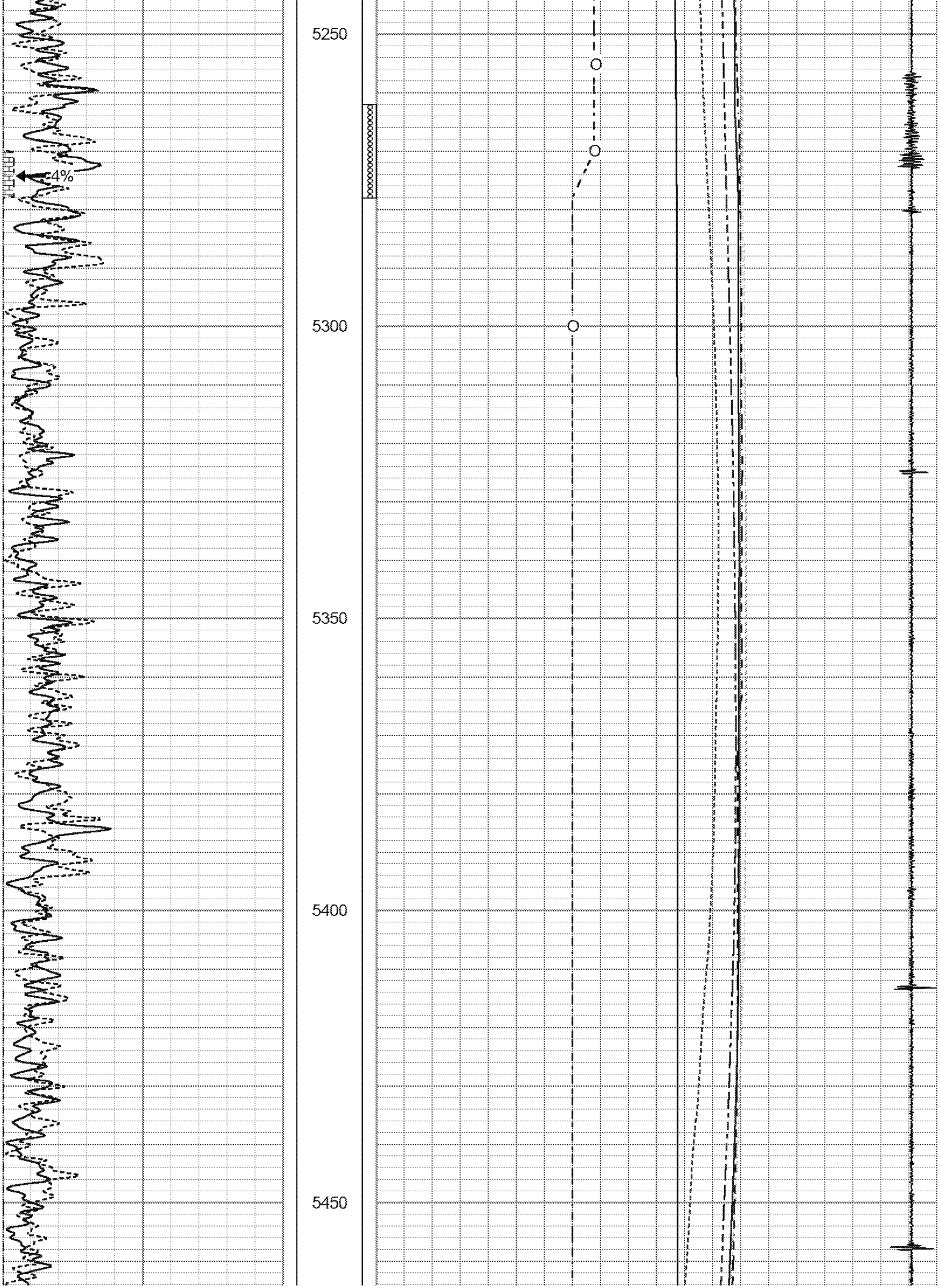
0	Pre Gamma Ray (GAPI)	30
0	Post Gamma Ray (GAPI)	30

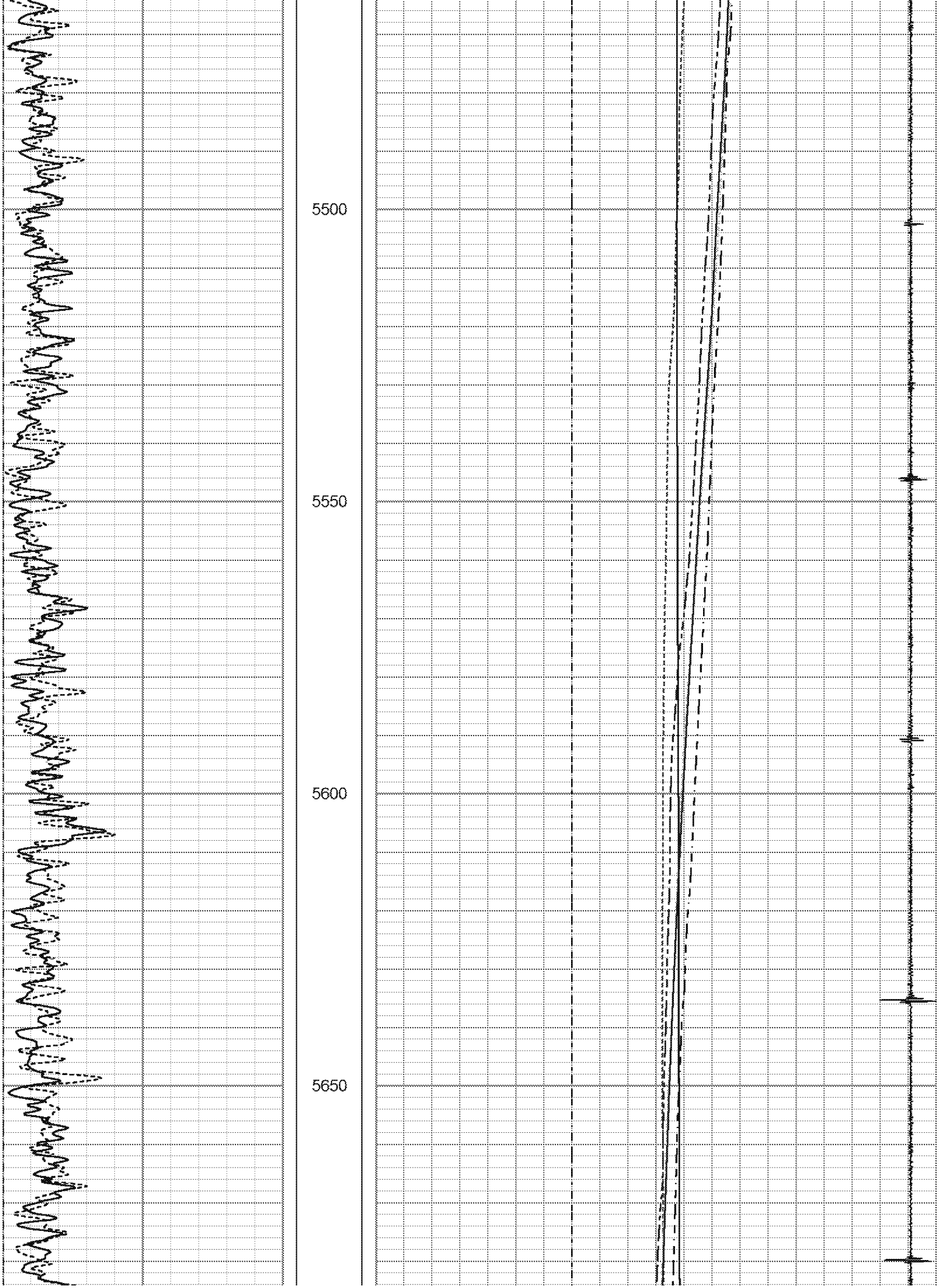
125	1 Hr Static Temperature (degF)	150
125	24 Hr Static Temperature (degF)	150
125	10 Hr Static Temperature (degF)	150
125	Dynamic Temperature. (degF)	150
125	94 Hr Static Temperature (degF)	150
125	48 Hr Static Temperature (degF)	150
70	CCL	-7

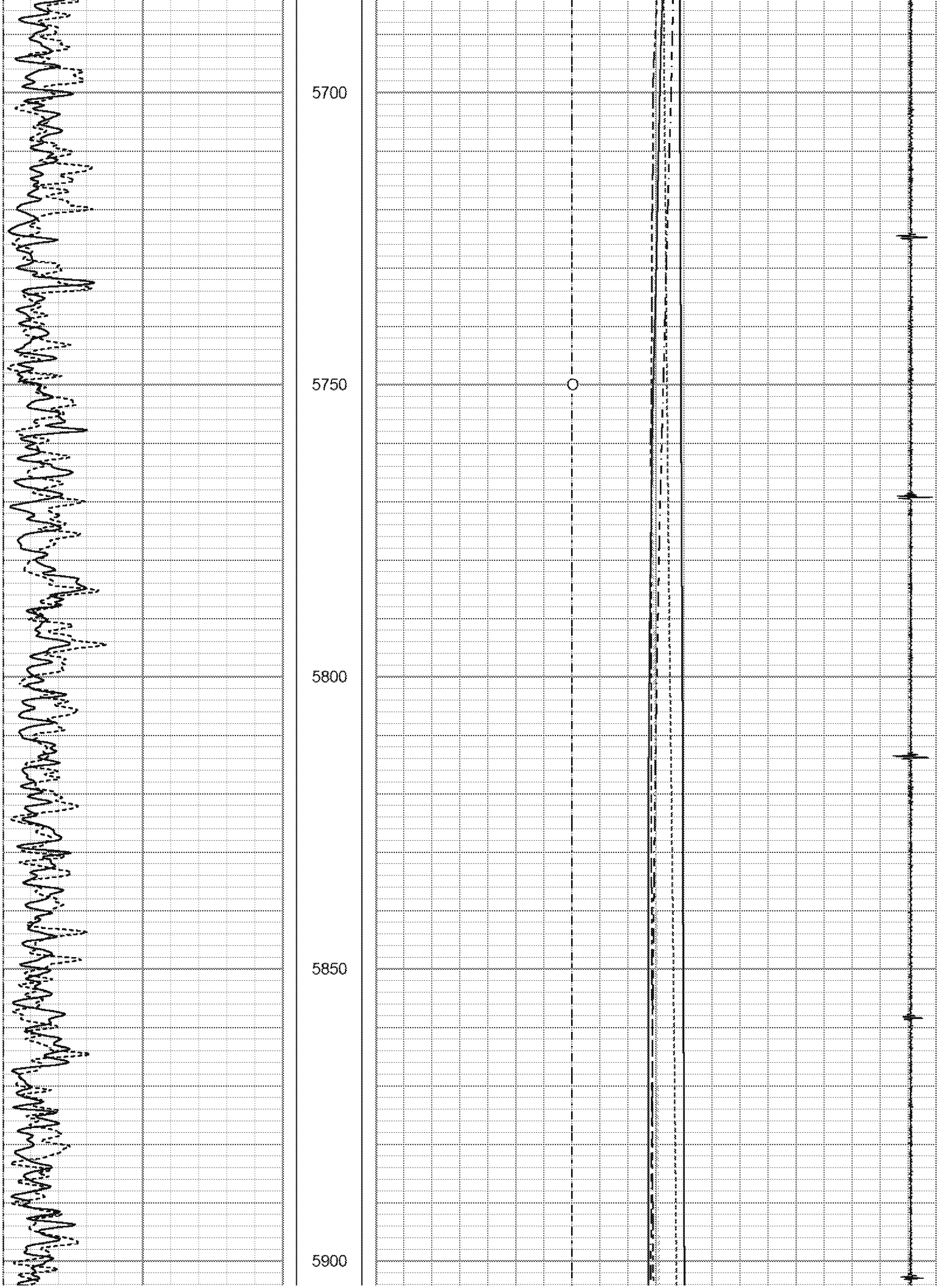


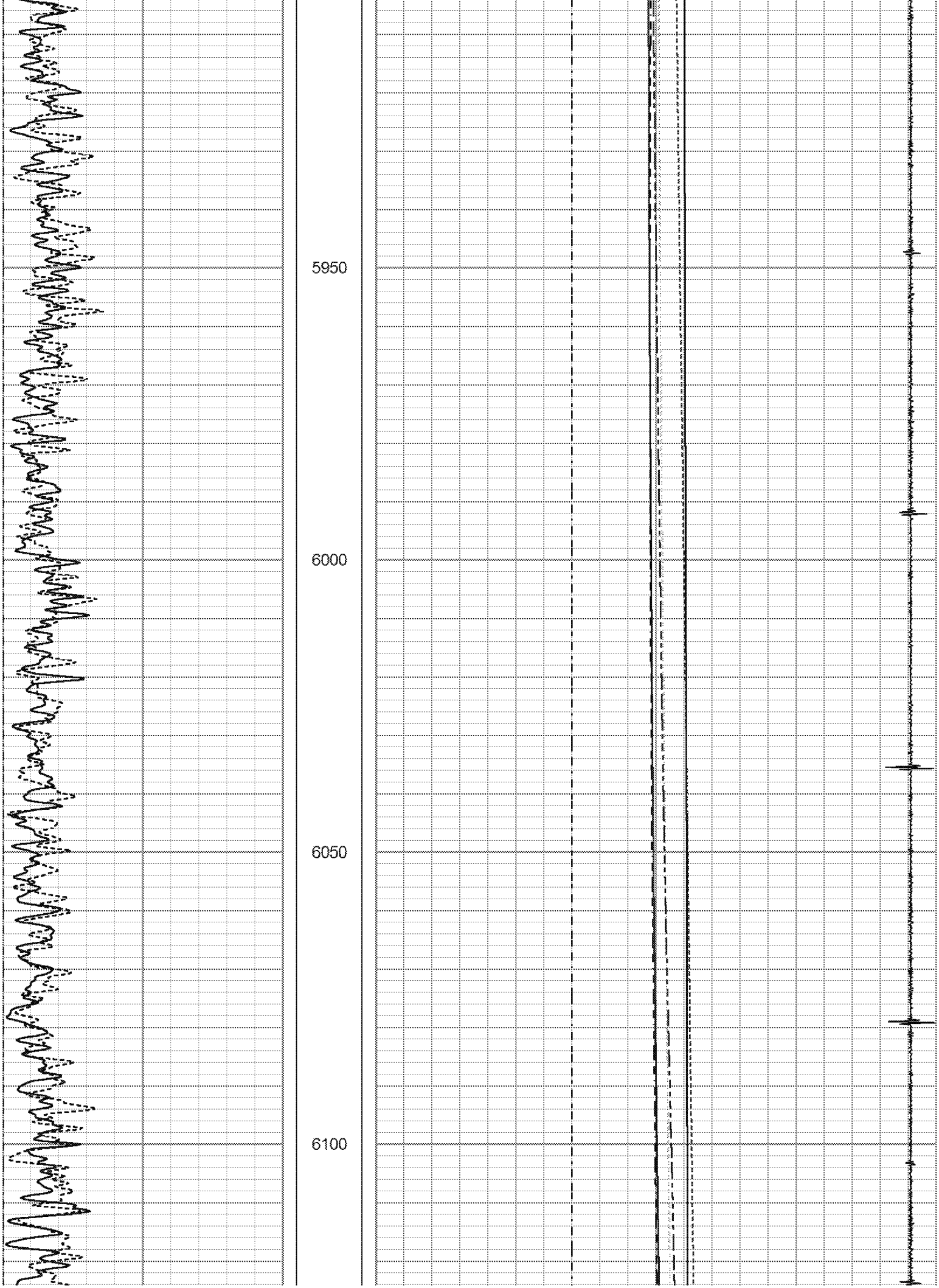

Pre Gamma Ray
4850
4900
4950
5000

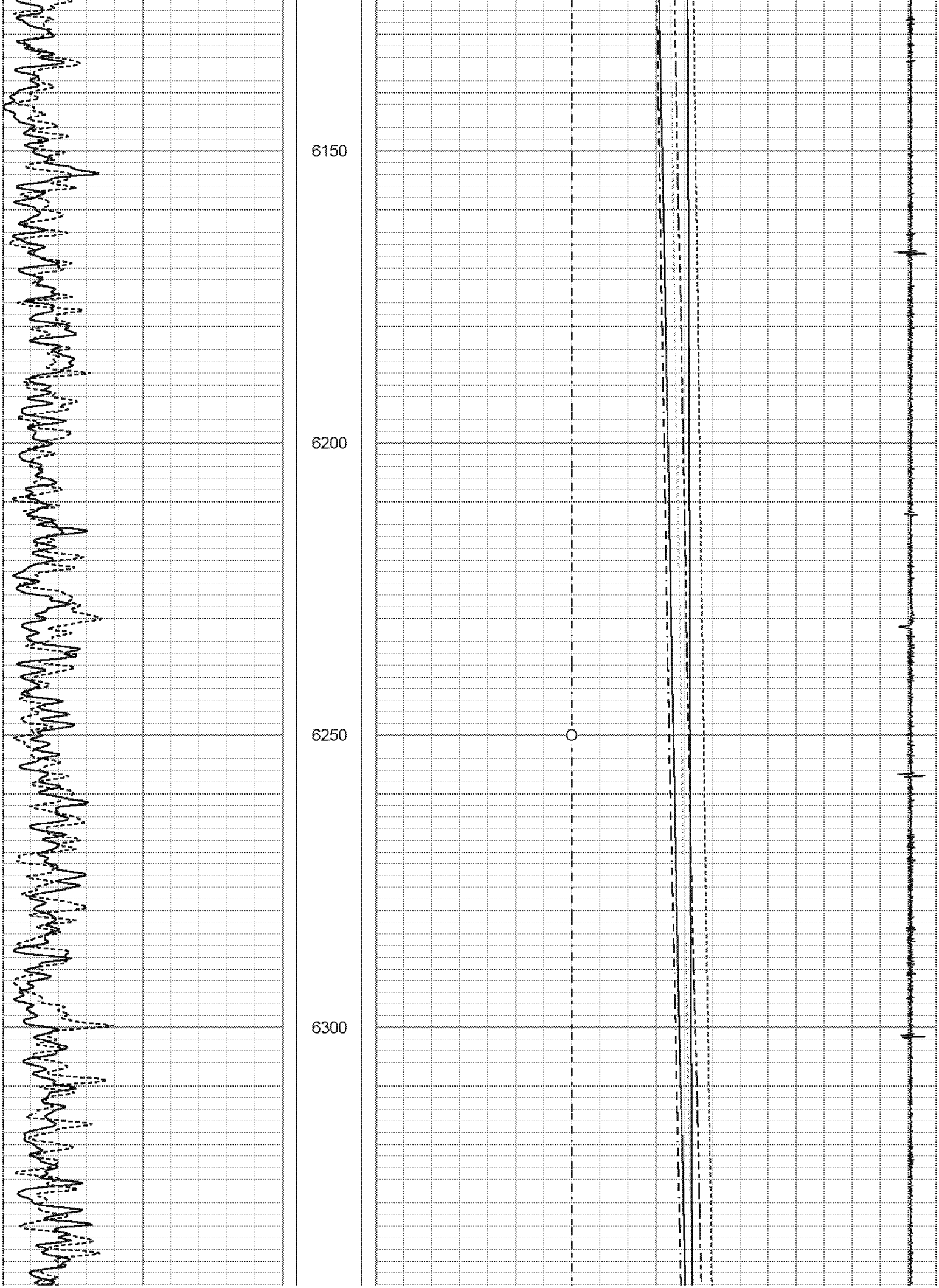

5050
Post Gamma Ray
Packer
5100
CCL
5150
Cross Flow Shot Well Shut In
No Flow
Channel Check
Gamma Ray
Nugget Perf's
5200
36%
25%
Percent Loss Velocity

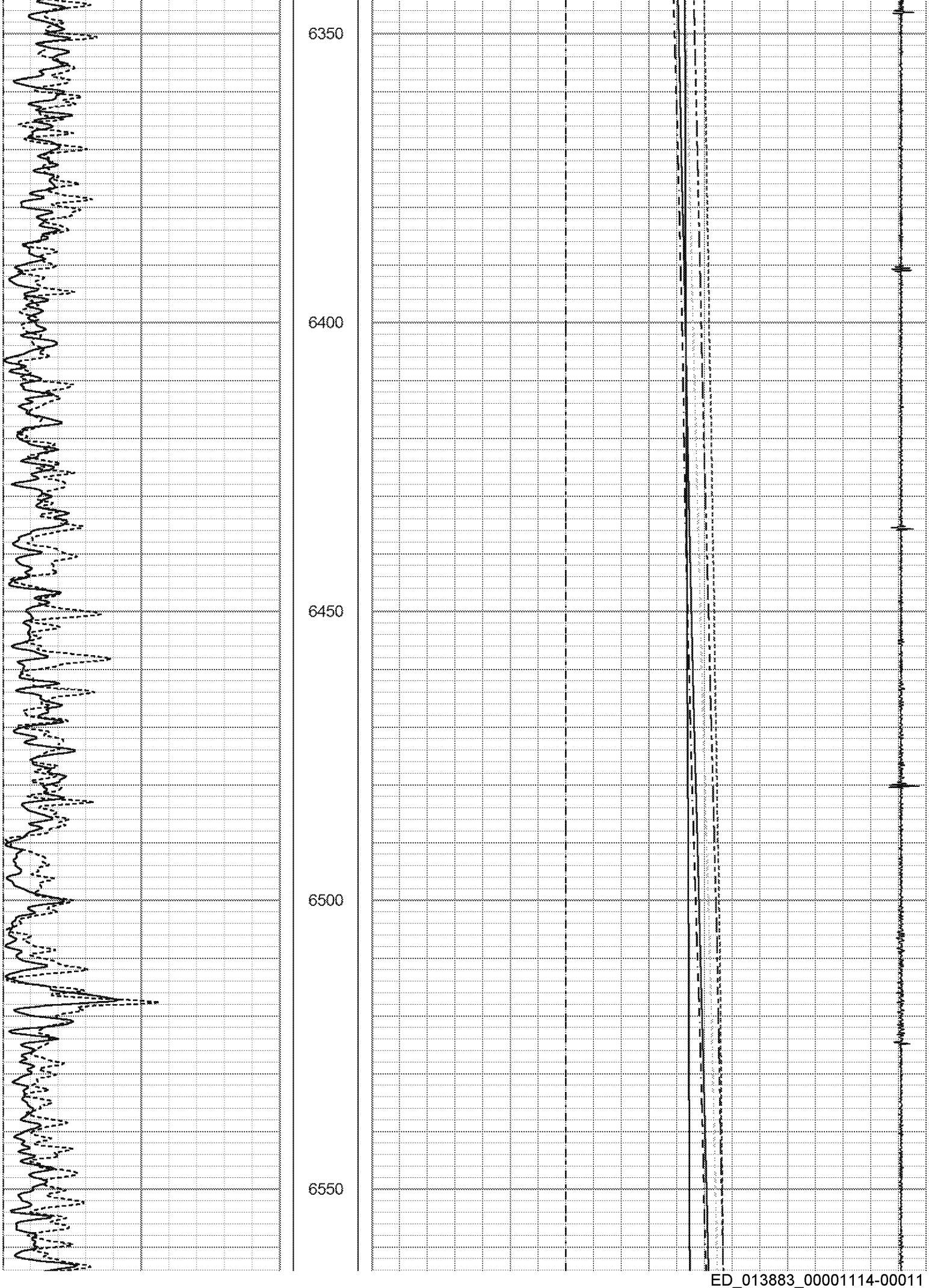

4%
5250
5300
5350
5400
5450

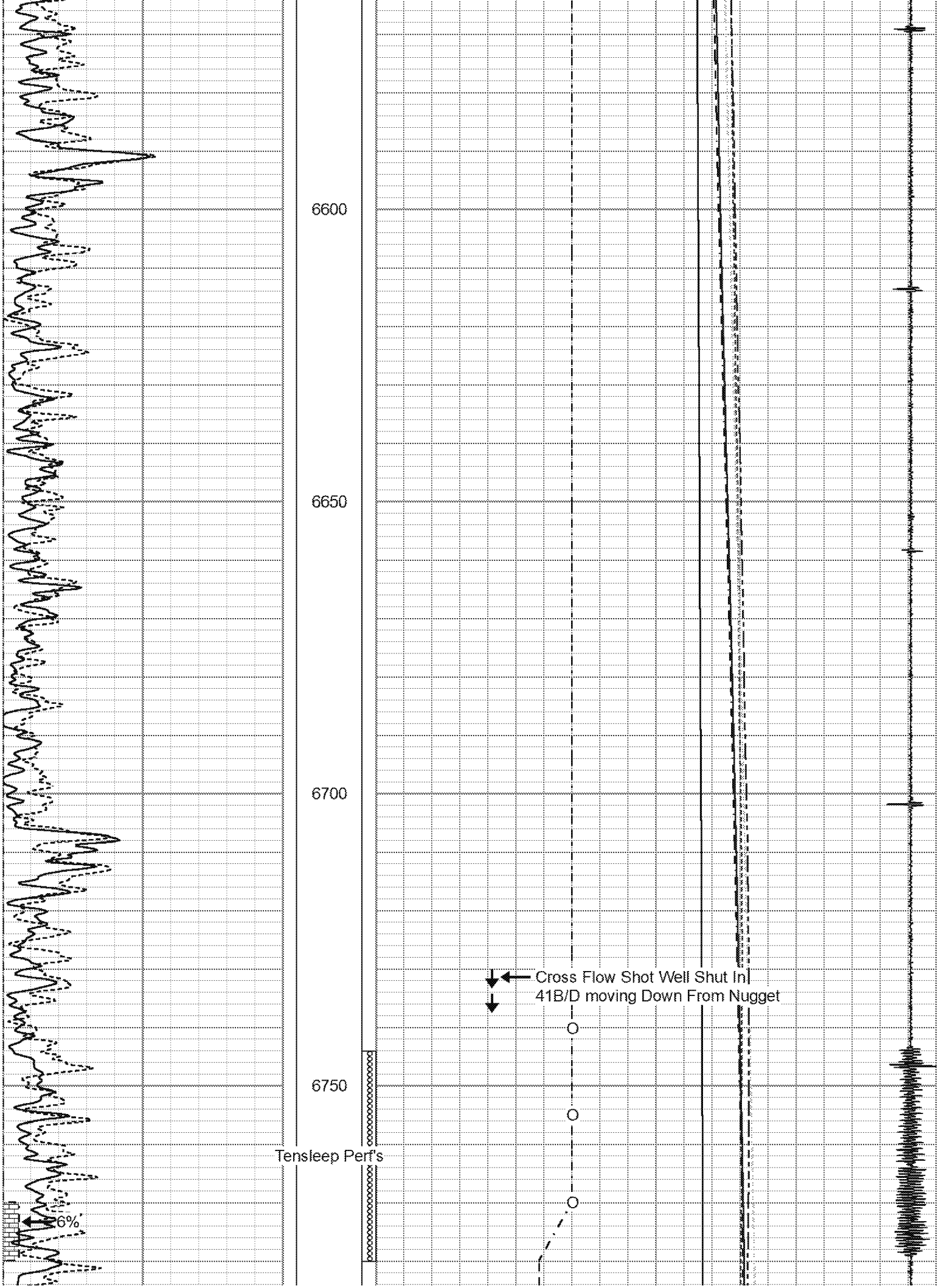

5500
5550
5600
5650

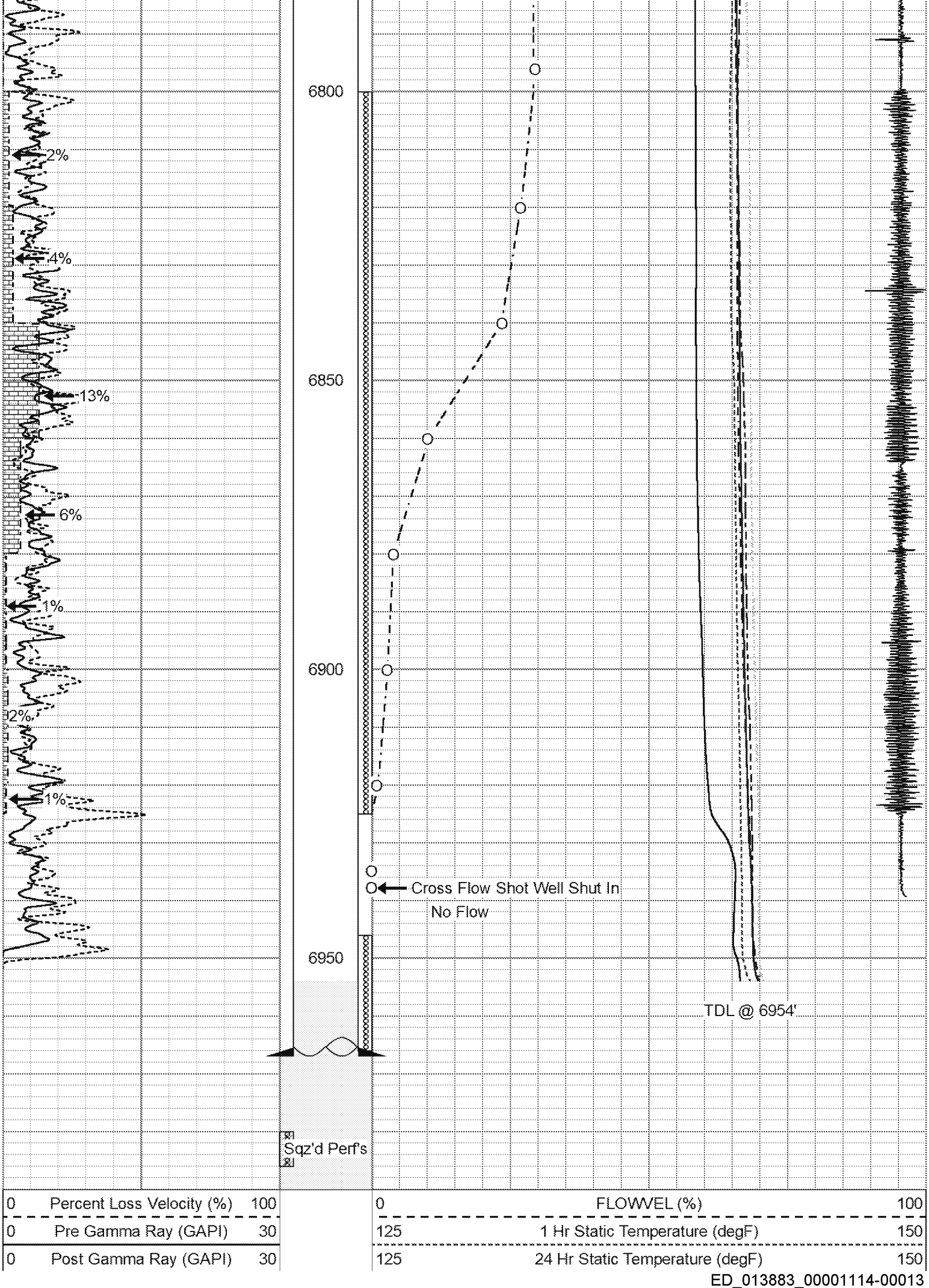

5700
5750
5800
5850
5900


5950
6000
6050
6100


6150
6200
6250
6300


6350
6400
6450
6500
6550

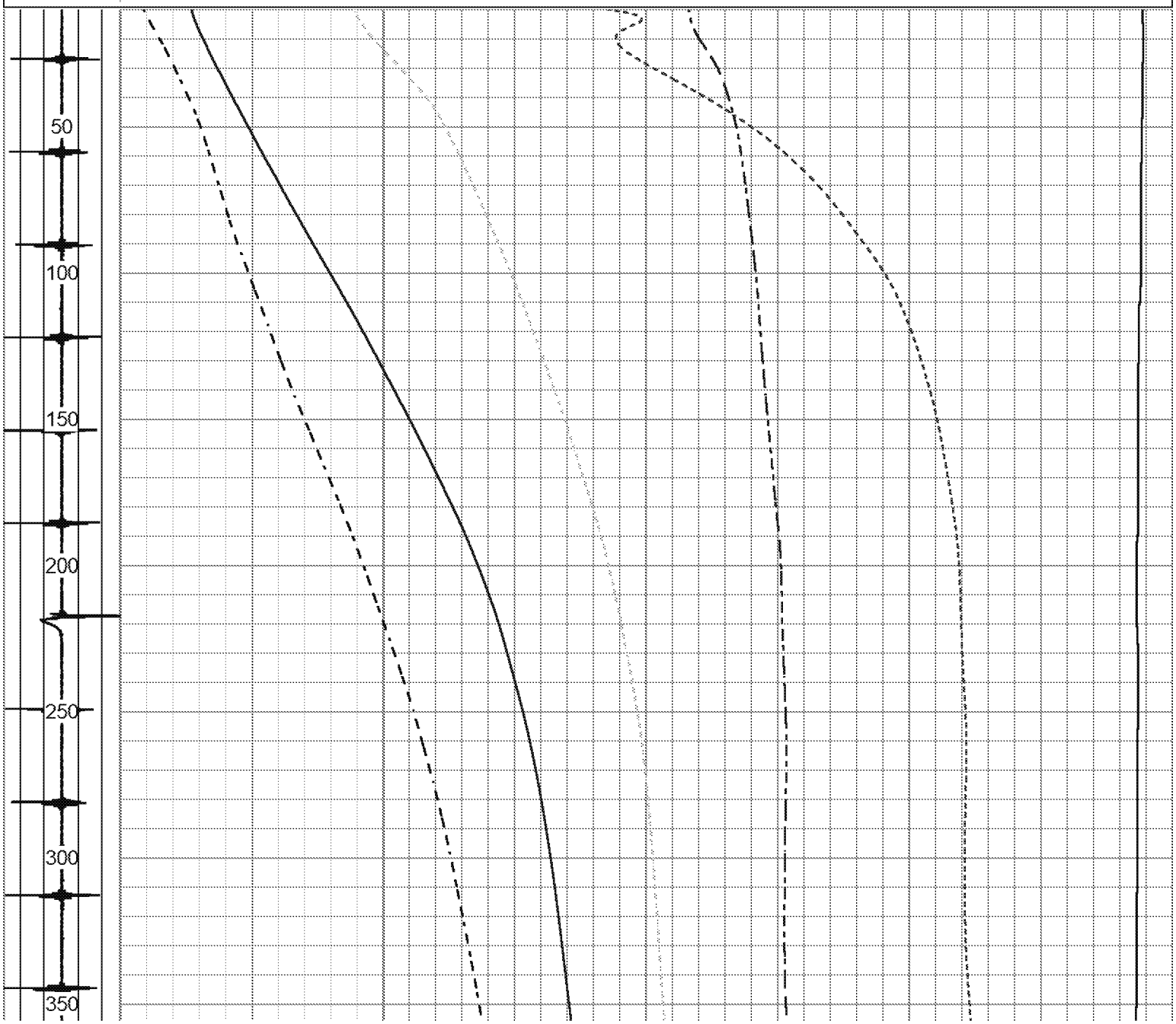

6600
6650
6700
6750
Cross Flow Shot Well Shut In
41B/D moving Down From Nugget
Tensleep Perf's
6%

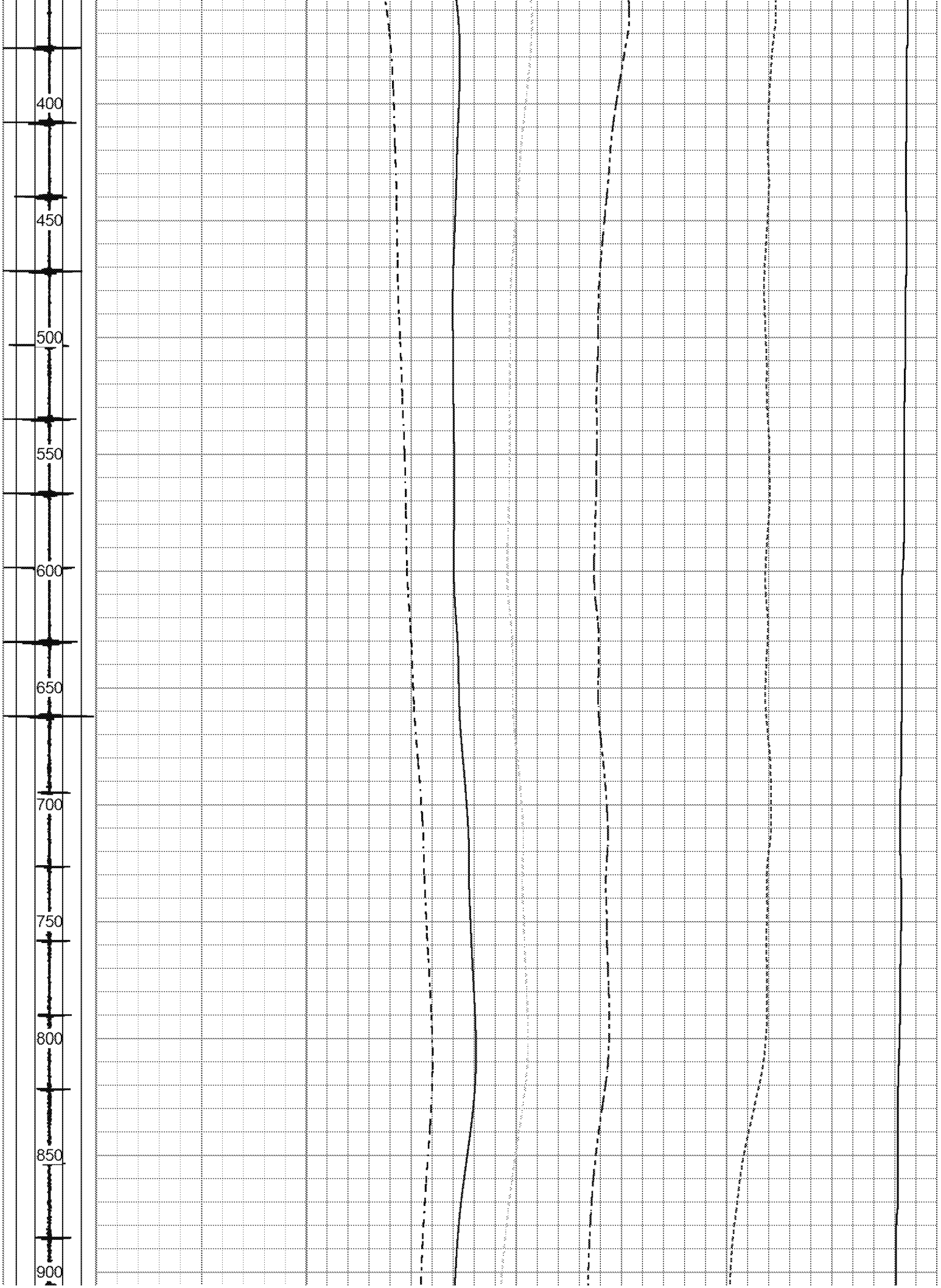

6800
6850
6900
6950
2%
4%
13%
6%
1%
2%
1%
Cross Flow Shot Well Shut In
No Flow
TDL @ 6954'
Sqz'd Perf's
0 Percent Loss Velocity (%) 100
0 Pre Gamma Ray (GAPI) 30
0 Post Gamma Ray (GAPI) 30
0 FLOWVEL (%) 100
125 1 Hr Static Temperature (degF) 150
125 24 Hr Static Temperature (degF) 150

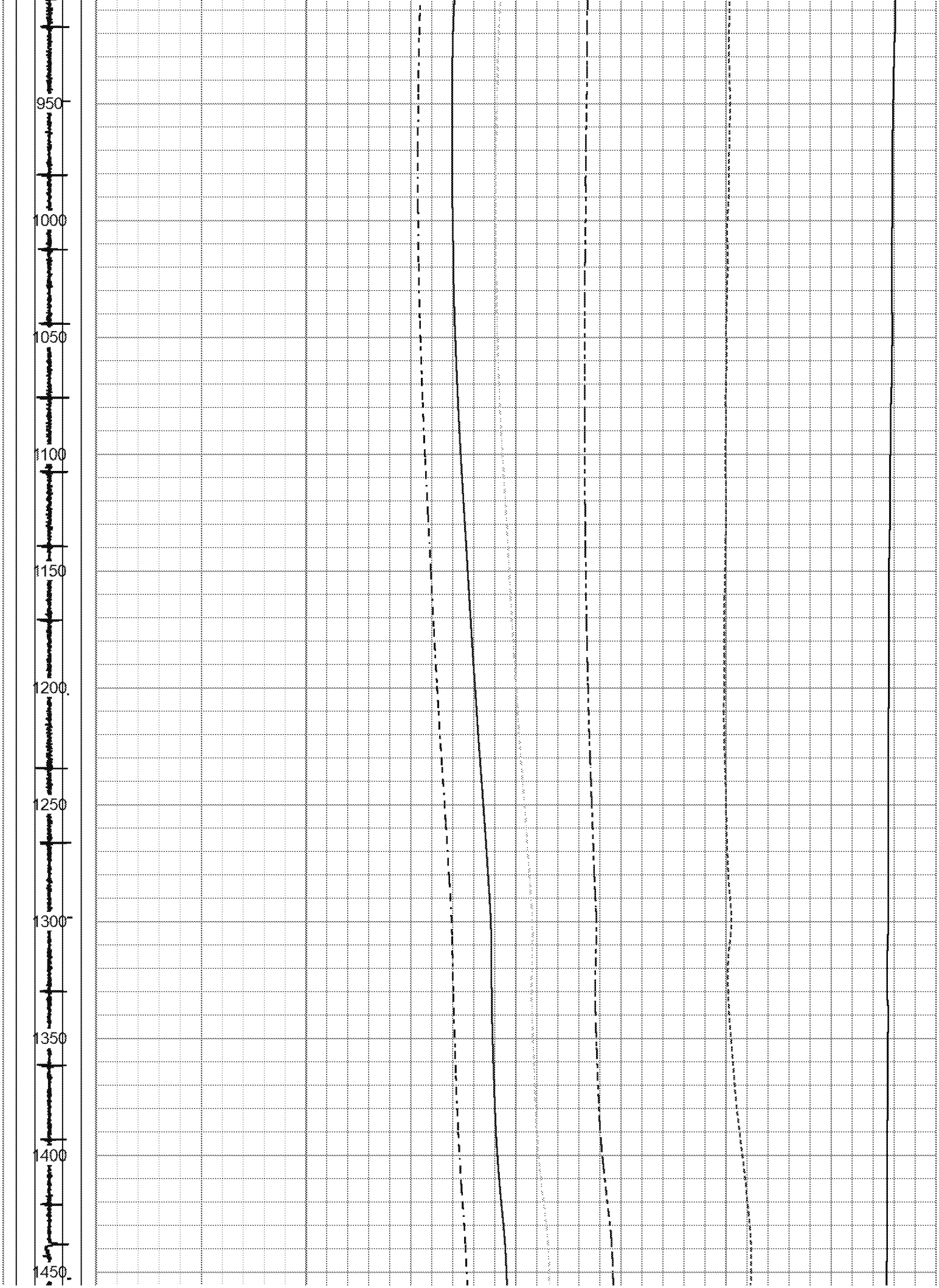
125	10 Hr Static Temperature (degF)	150
125	Dynamic Temperature. (degF)	150
125	94 Hr Static Temperature (degF)	150
125	48 Hr Static Temperature (degF)	150
70	CCL	-7

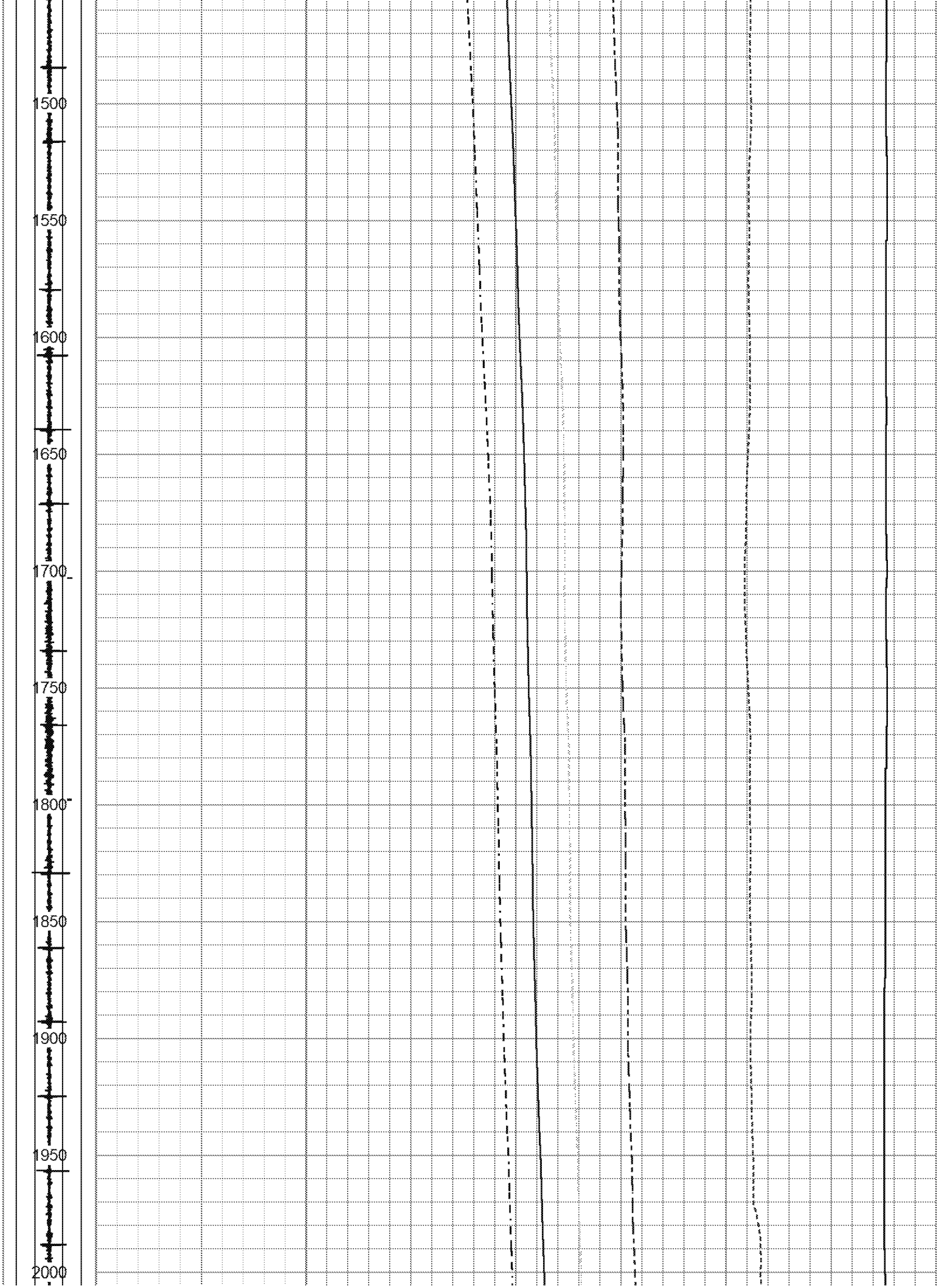
Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	merge3
Presentation Format	temp4
Dataset Creation	Sat Jul 31 05:43:38 2021
Charted by	Depth in Feet scaled 1:600

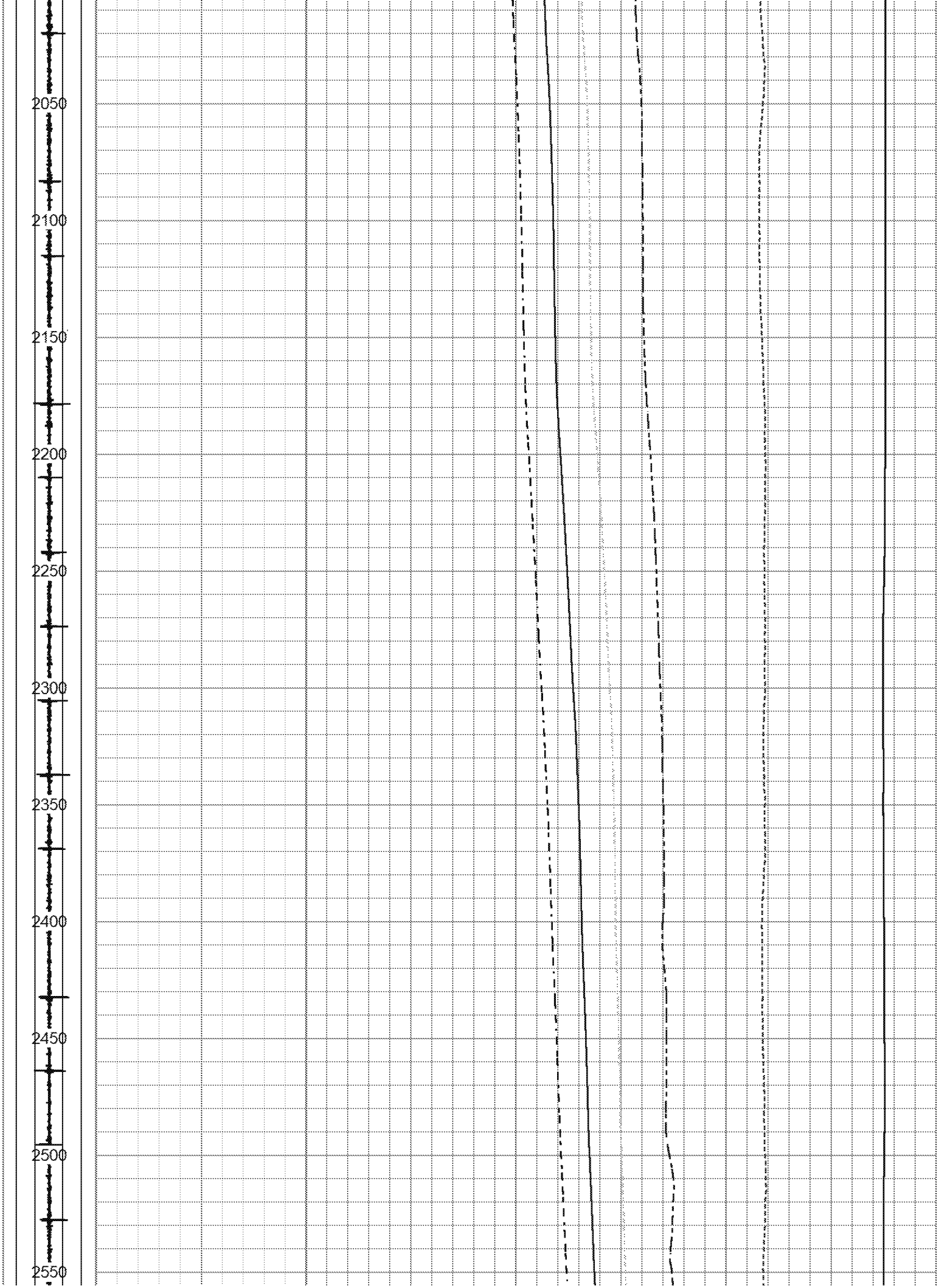
-9 CCL 9	58 Dynamic Temperature (degF)	148
	58 1 Hr Static Temperature (degF)	148
	58 10 Hr Static Temperature (degF)	148
	58 24 Hr Static Temperature (degF)	148
	58 48 Hr Static Temperature (degF)	148
	58 94 Hr Static Temperature (degF)	148

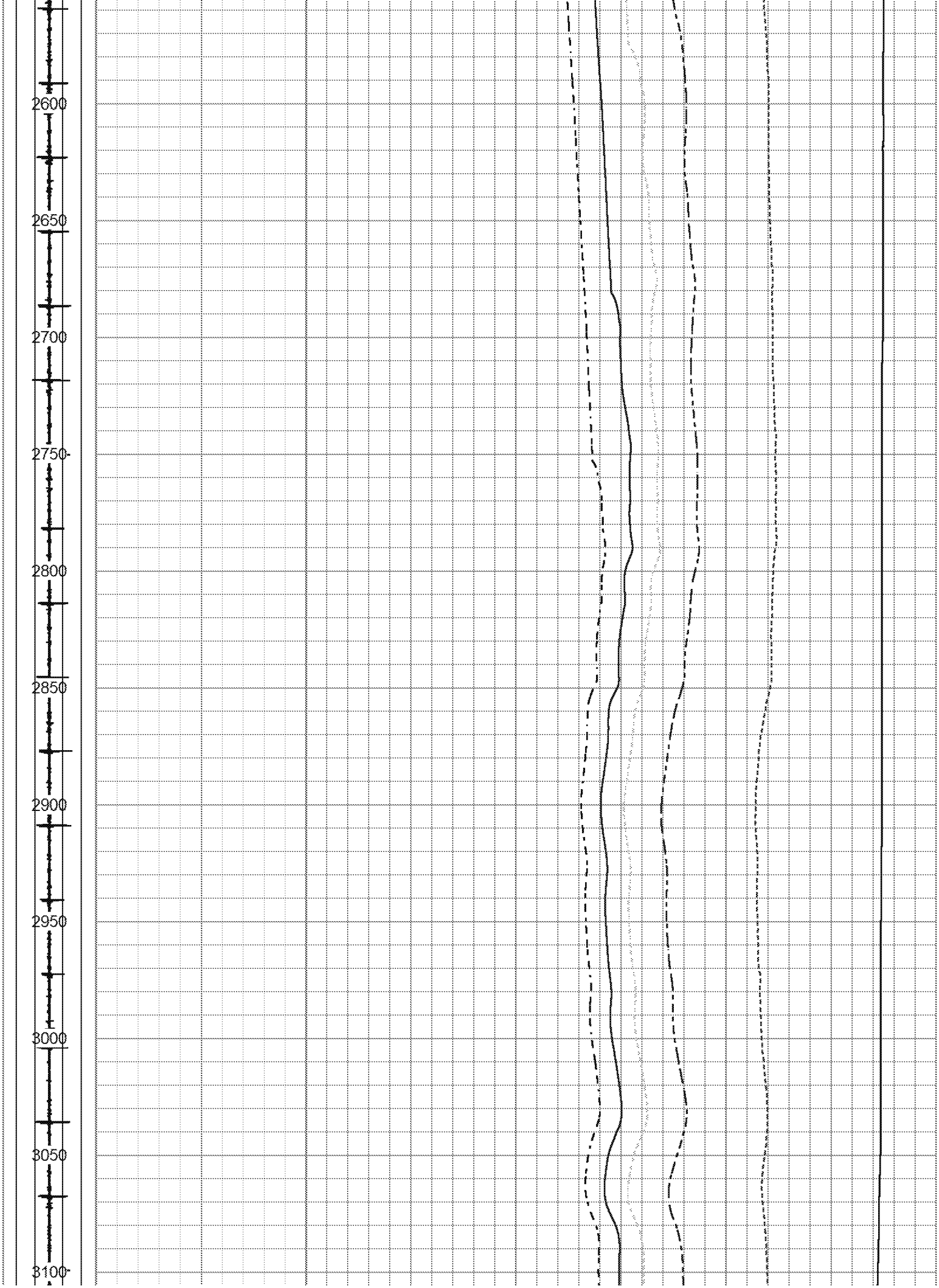


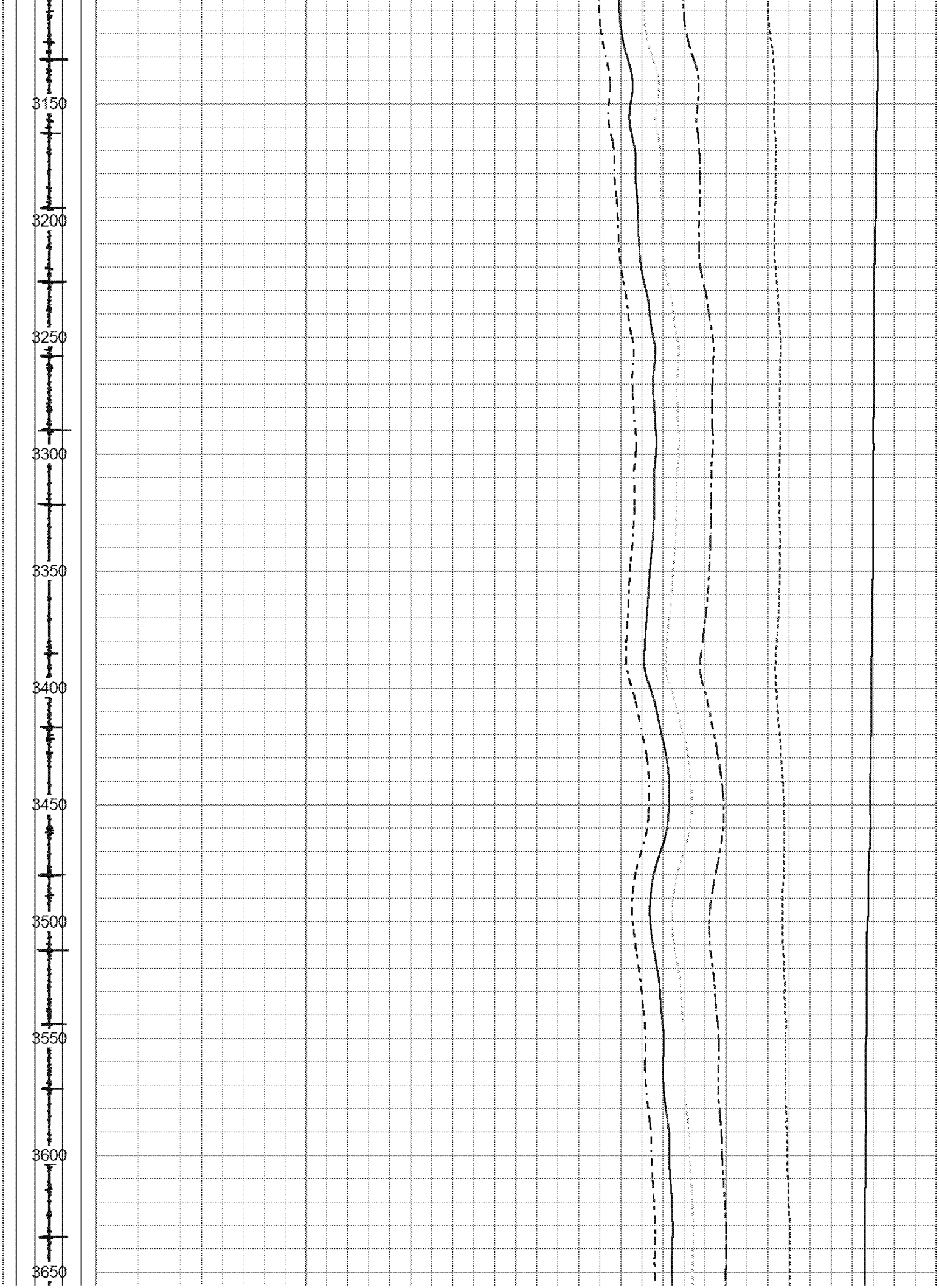

400
450
500
550
600
650
700
750
800
850
900

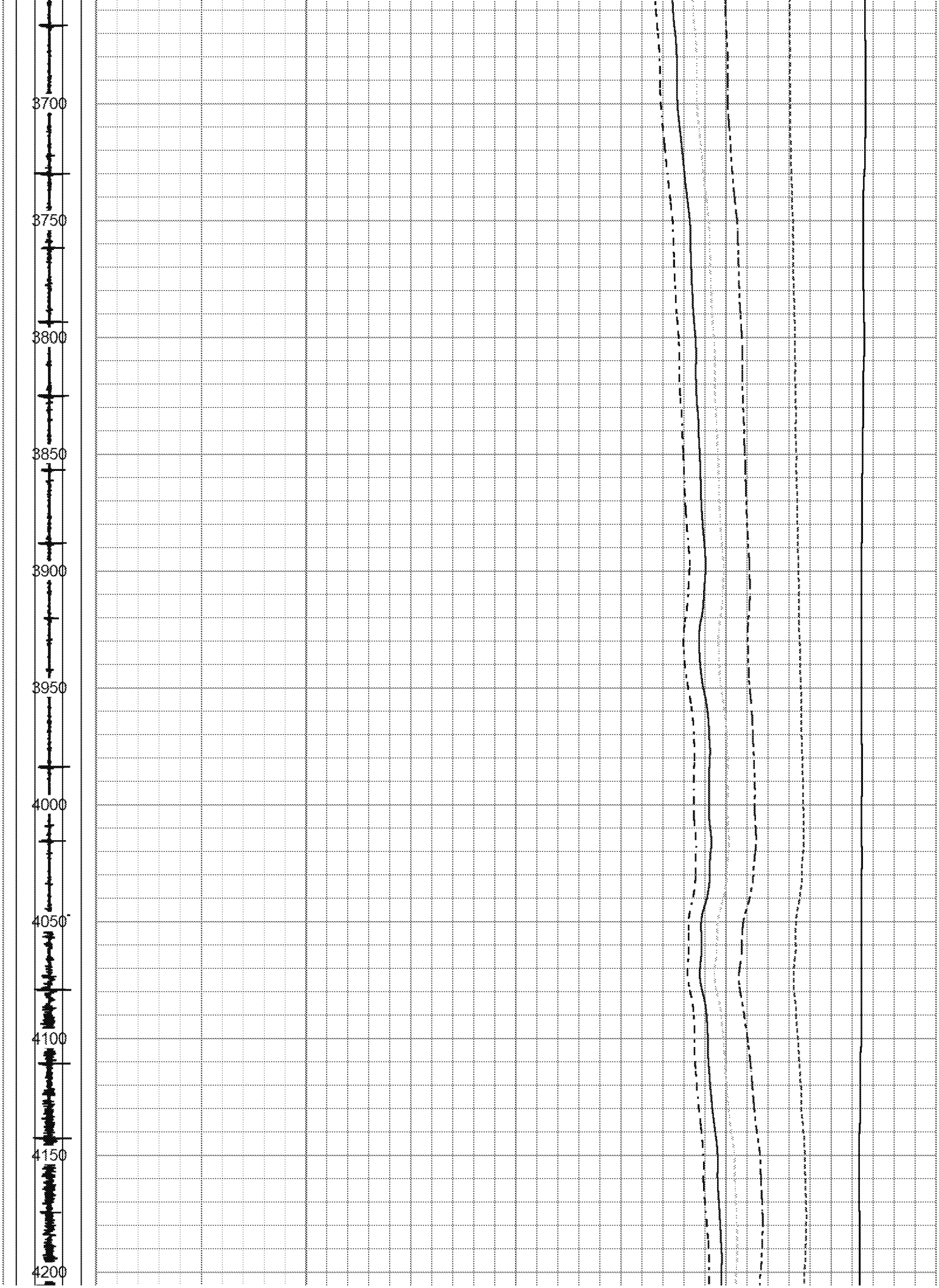

950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450

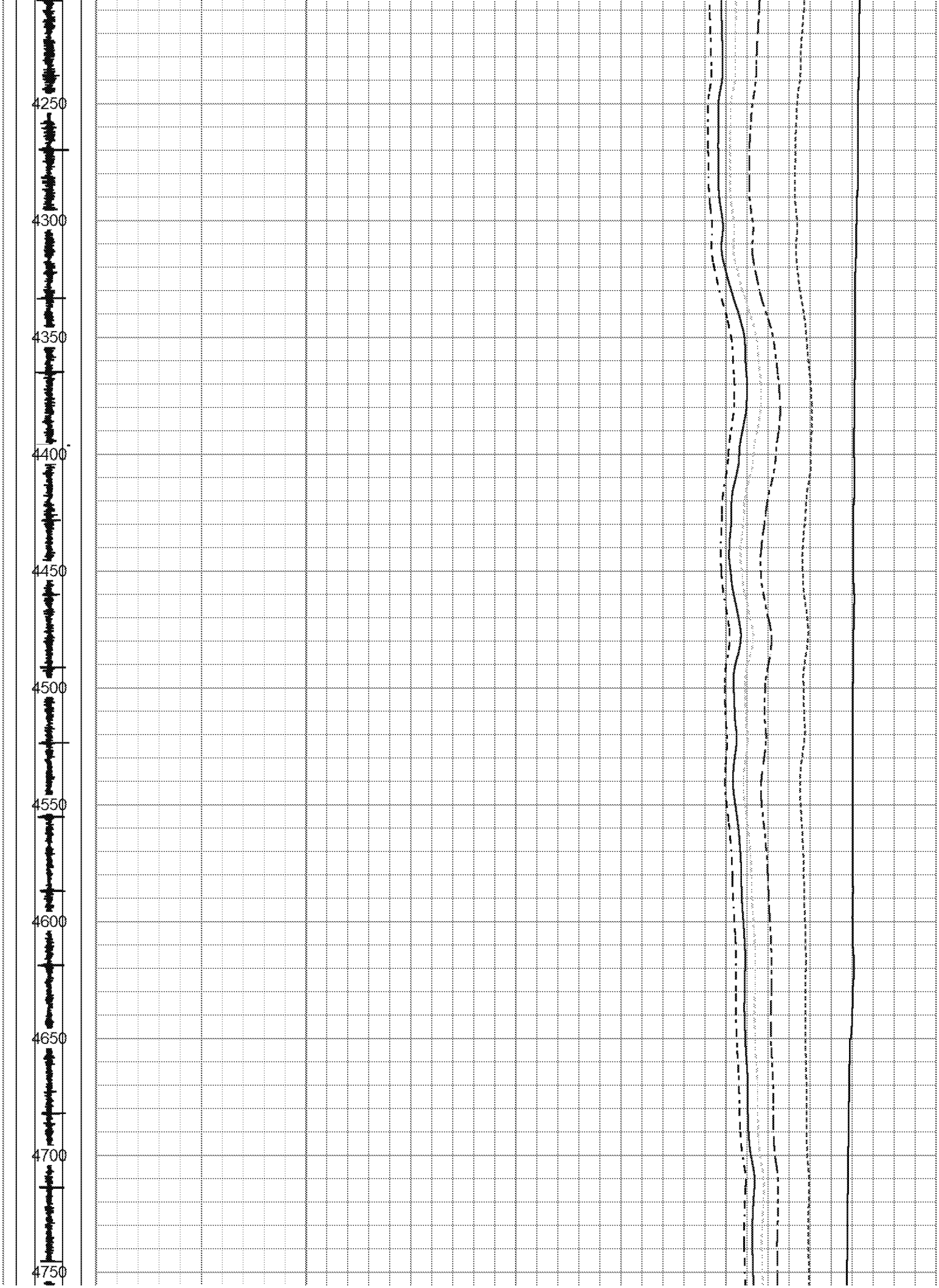

1500
1550
1600
1650
1700
1750
1800
1850
1900
1950
2000

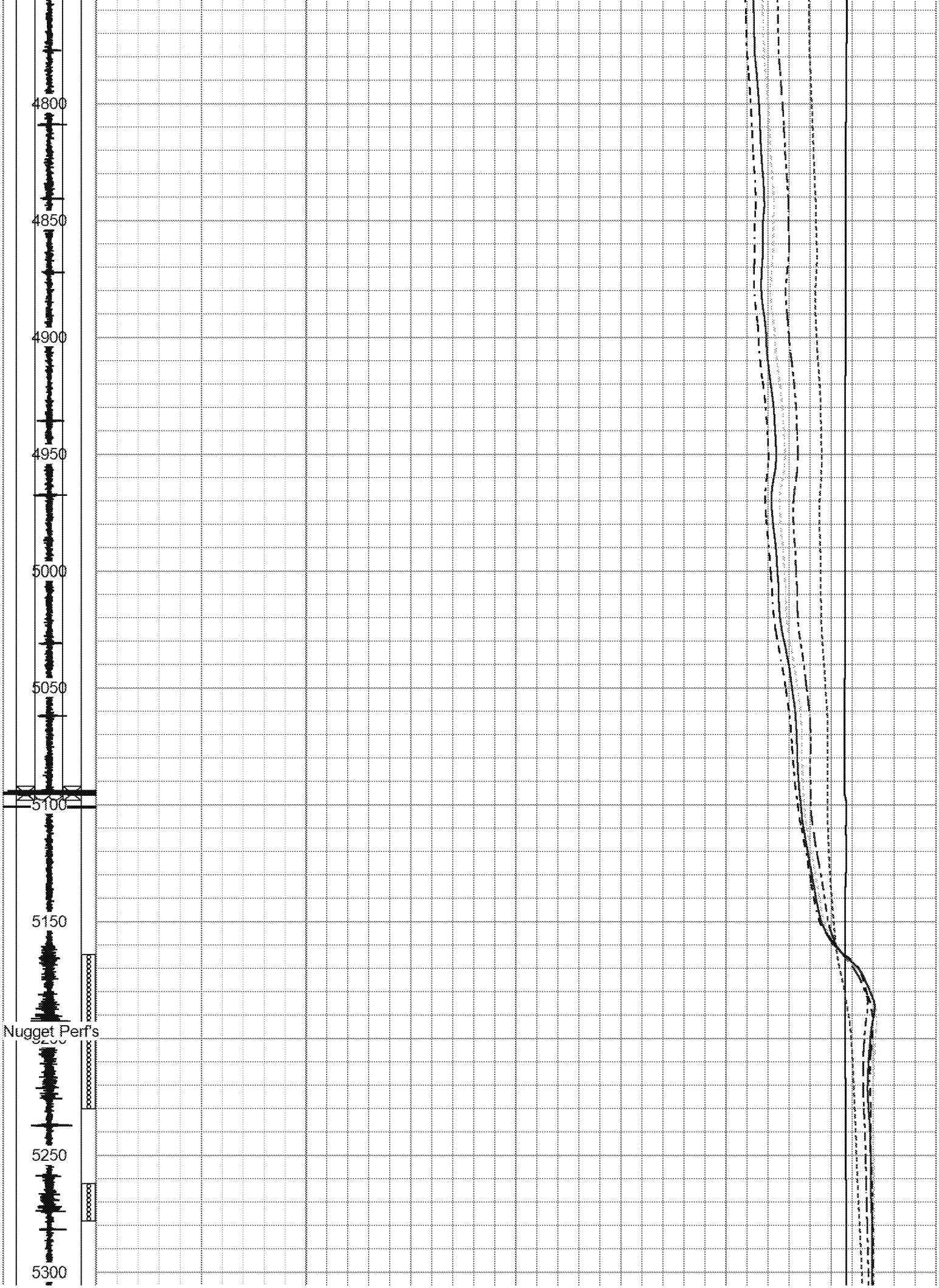

2050
2100
2150
2200
2250
2300
2350
2400
2450
2500
2550

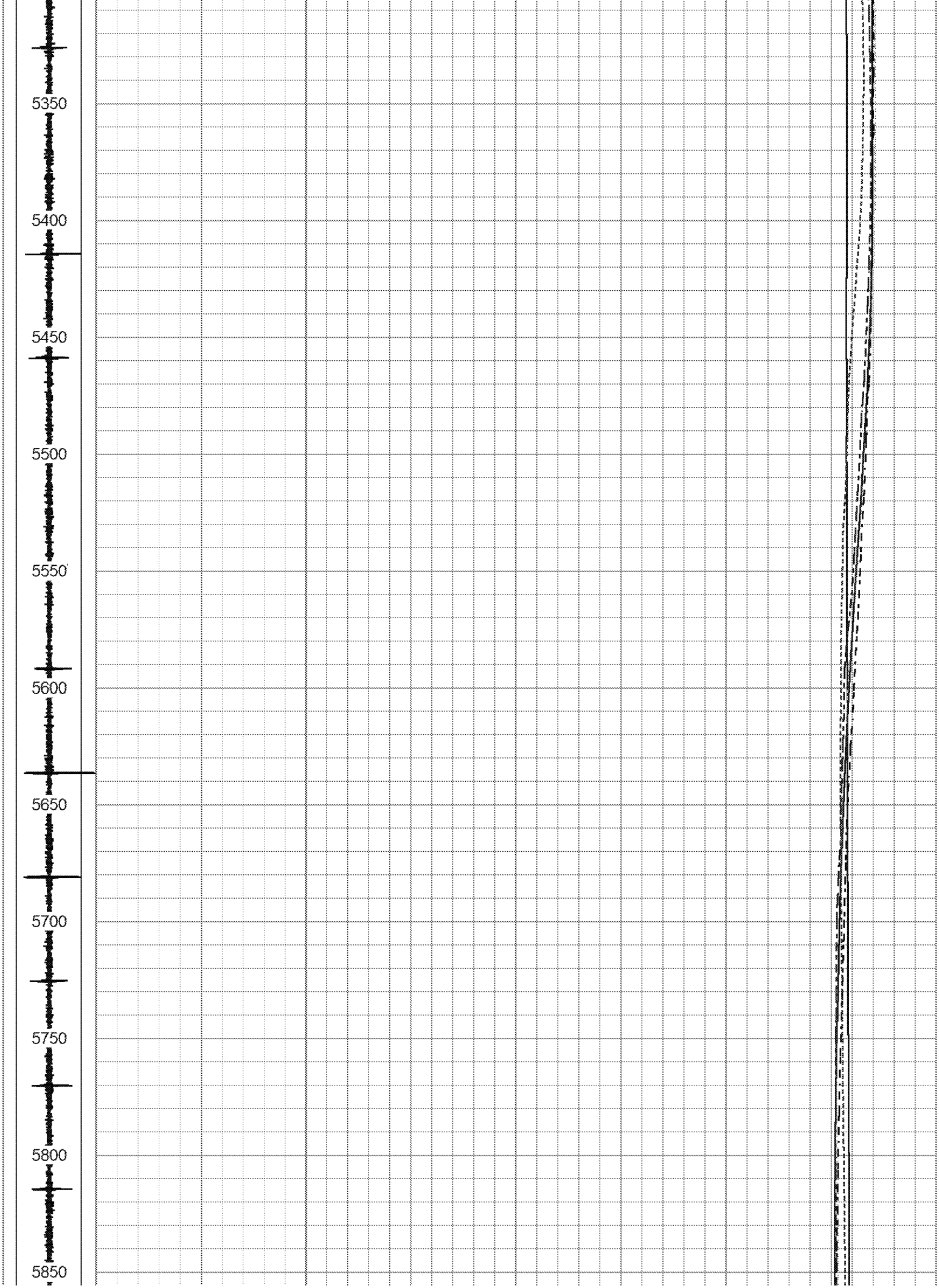

2600
2650
2700
2750
2800
2850
2900
2950
3000
3050
3100

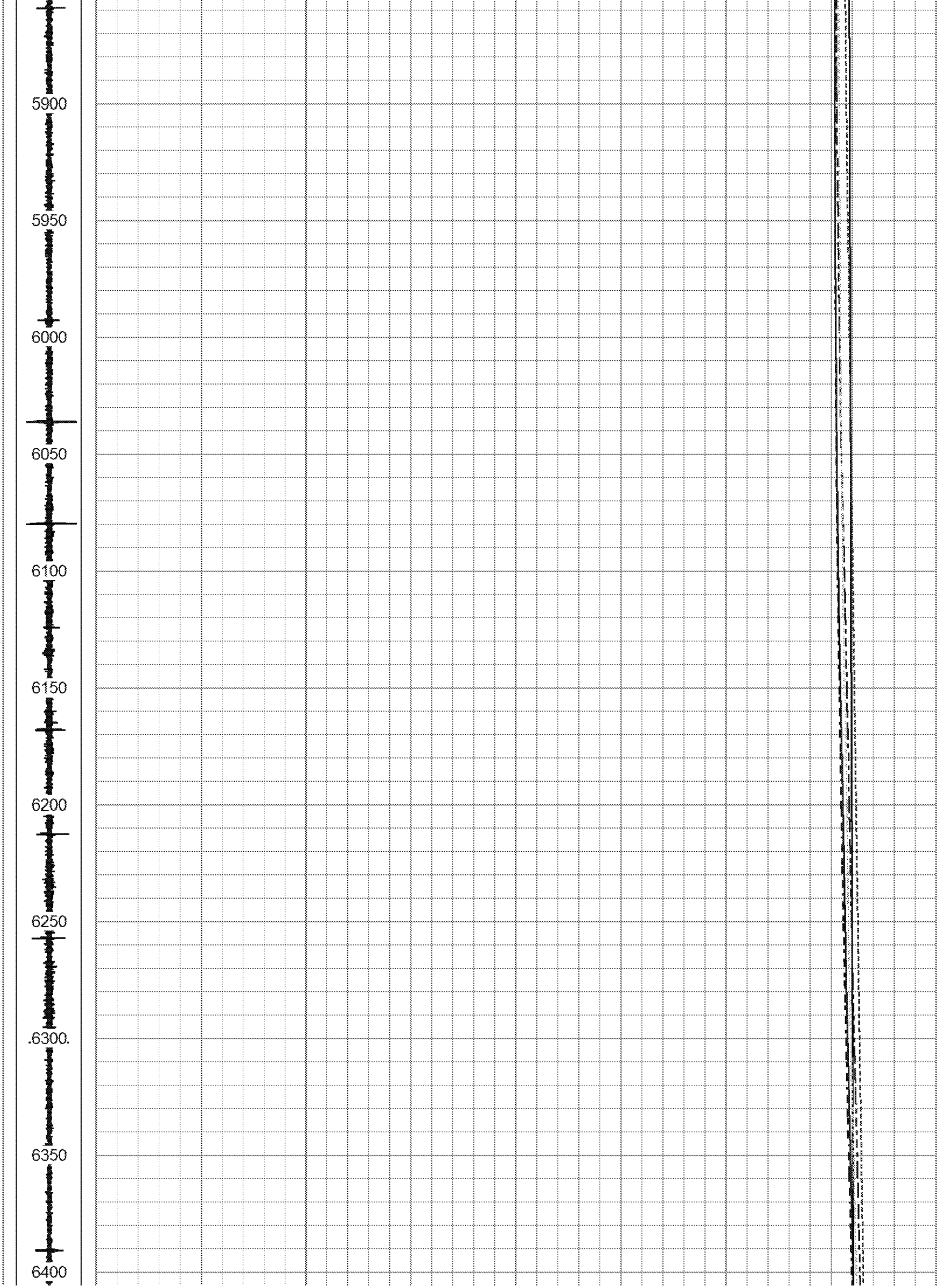

3150
3200
3250
3300
3350
3400
3450
3500
3550
3600
3650

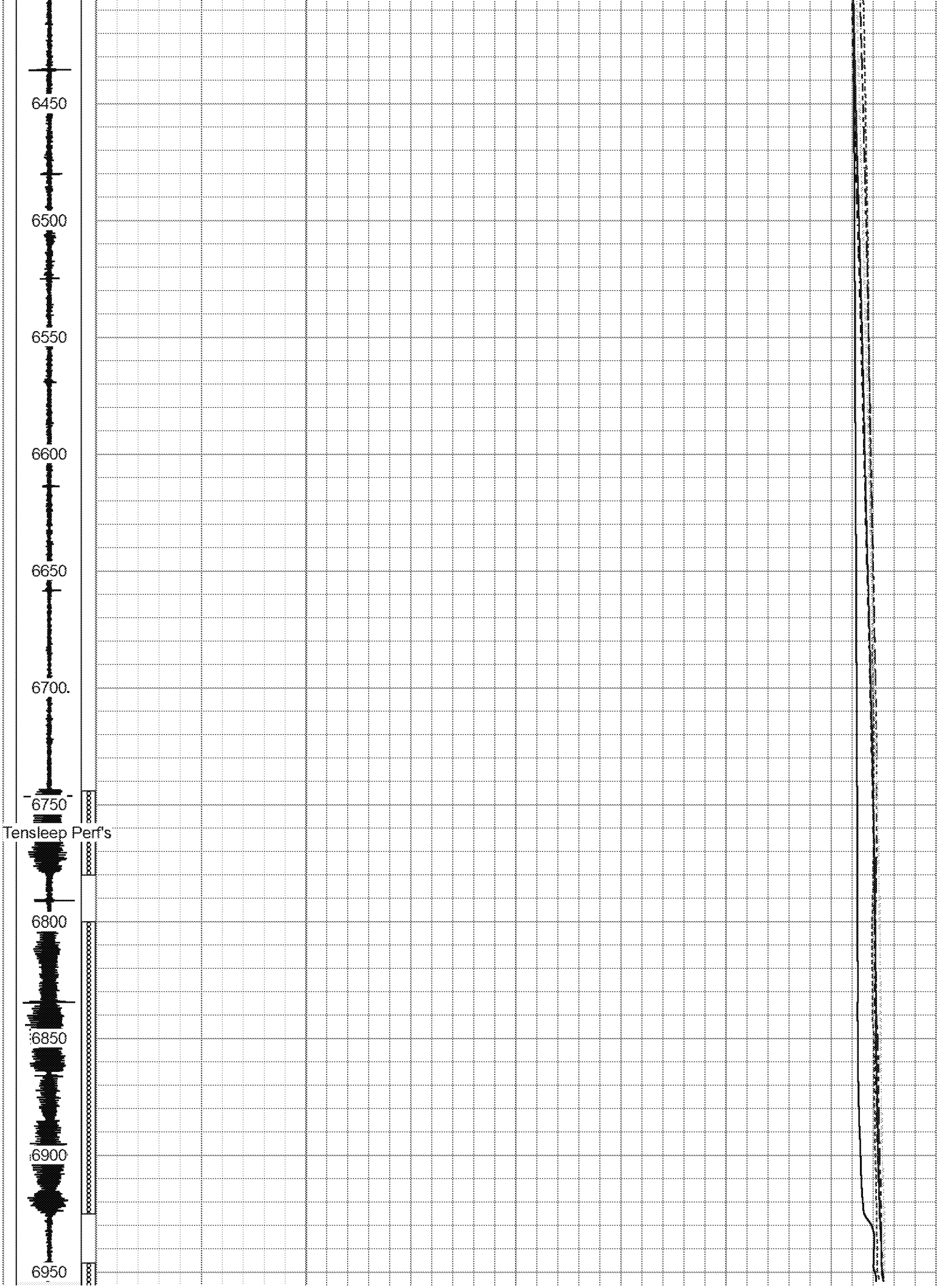

3700
3750
3800
3850
3900
3950
4000
4050
4100
4150
4200


4250
4300
4350
4400
4450
4500
4550
4600
4650
4700
4750


4800
4850
4900
4950
5000
5050
5100
5150
Nugget Perf's
5250
5300


5350
5400
5450
5500
5550
5600
5650
5700
5750
5800
5850


5900
5950
6000
6050
6100
6150
6200
6250
.6300.
6350
6400


6450
6500
6550
6600
6650
6700.
6750
Tensleep Perf's
6800
6850
6900
6950

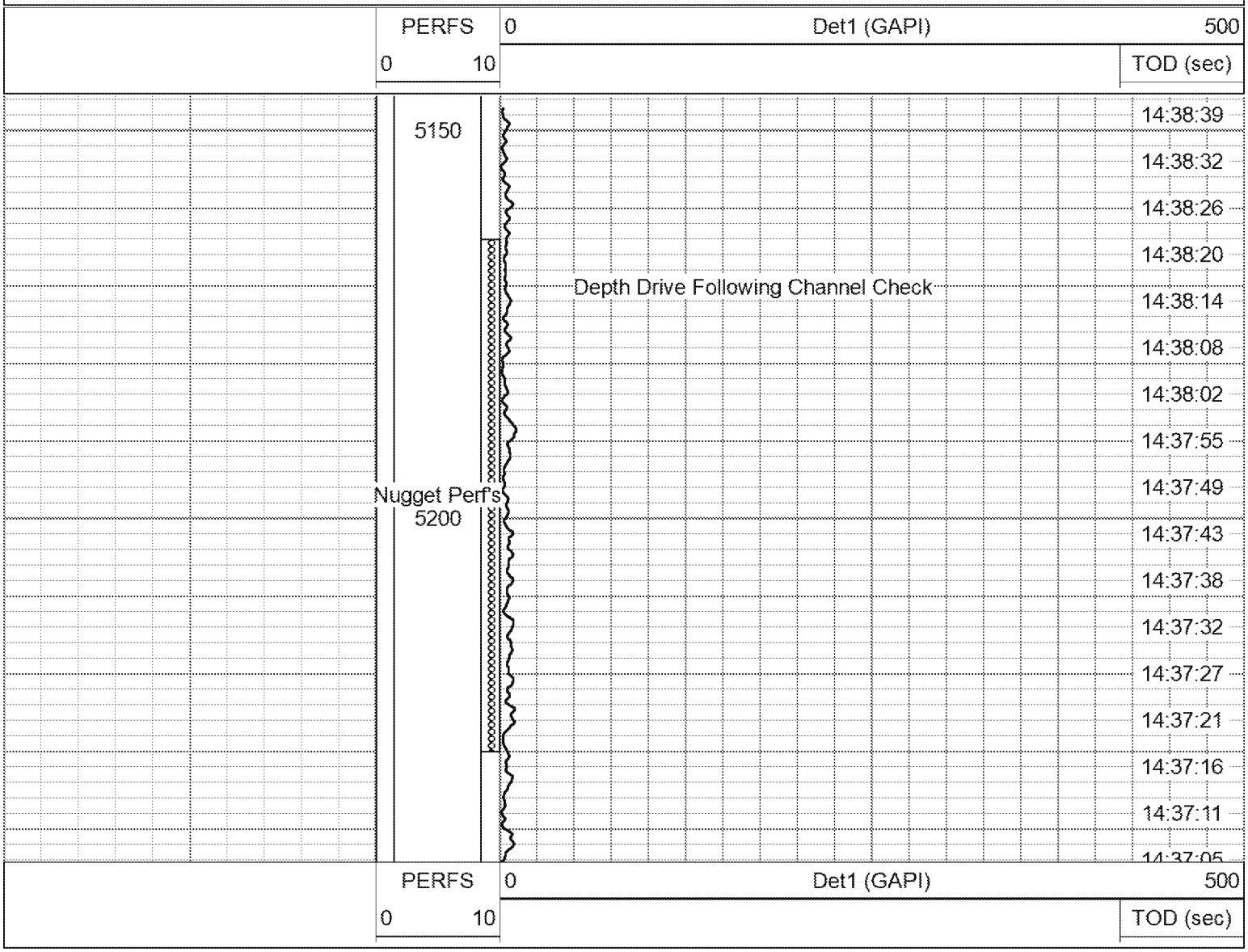
-9 CCL 9	58	Dynamic Temperature (degF)	148
	58	1 Hr Static Temperature (degF)	148
	58	10 Hr Static Temperature (degF)	148
	58	24 Hr Static Temperature (degF)	148
	58	48 Hr Static Temperature (degF)	148
	58	94 Hr Static Temperature (degF)	148

Velocity Shot Data

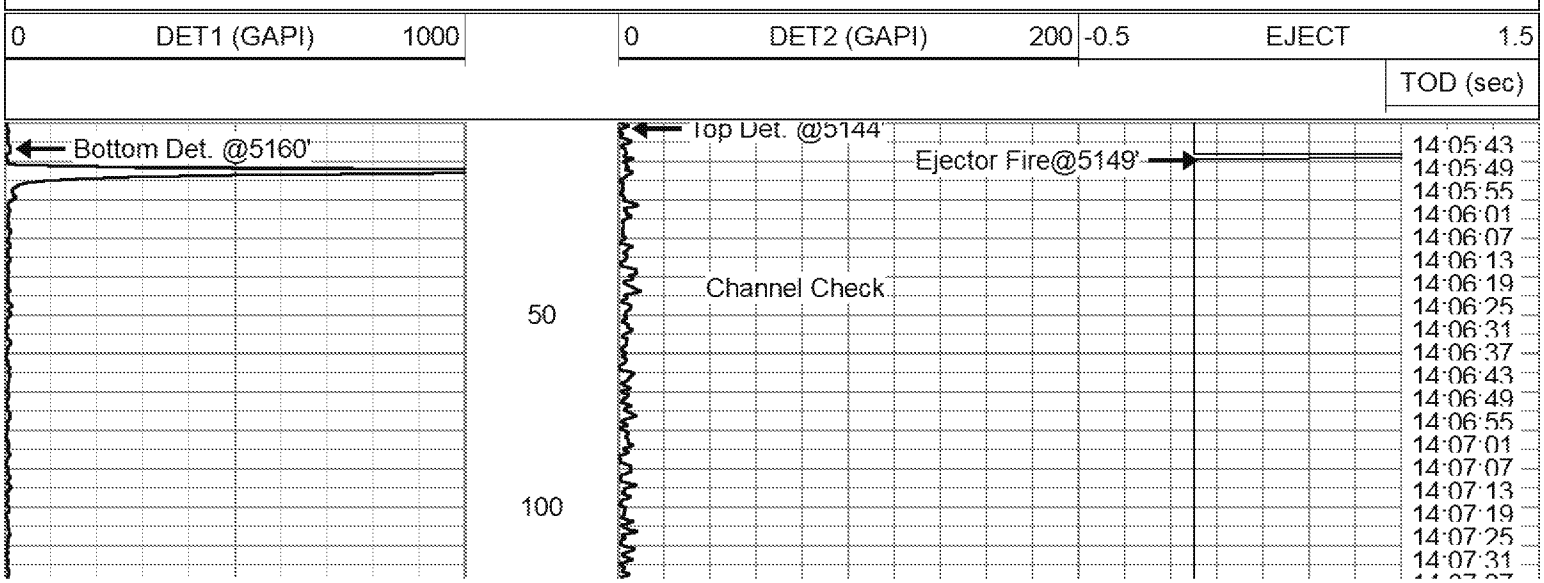
Pass No	Depth	FT.Traveled	Sec.	Rate B/D	Per. Flow	Comments
4	6600'					Statistical Check
6	6920'	11'	312 Sec.	28 B/D	1%	Single Detector Velocity
7	6900'	11'	124 Sec.	71 B/D	3%	Single Detector Velocity
8	6880'	11'	90 Sec.	98 B/D	4%	Single Detector Velocity
9	6860'	11'	34 Sc.	259 B/D	10%	Single Detector Velocity
10	6840'	11'	15 Sec.	586 B/D	23%	Single Detector Velocity
11	6820'	11'	13 Sec.	677 B/D	27%	Single Detector Velocity
12	6796'	11'	12 Sec.	733 B/D	29%	Single Detector Velocity
13	6770'	11'	10 Sec.	880 B/D	35%	Single Detector Velocity
14	6755'	11'	10 Sec.	880 B/D	35%	Single Detector Velocity
15	6740'	11'	10 Sec.	880 B/D	35%	Single Detector Velocity
16	6250'	11'	10 Sec.	880 B/D	35%	Single Detector Velocity
17	5750'	11'	10 Sec.	880 B/D	35%	Single Detector Velocity
18	5300'	11'	10 Sec.	880 B/D	35%	Single Detector Velocity
19	5270'	11'	9 Sec.	977 B/D	39%	Single Detector Velocity
20	5255'	11'	9 Sec.	977 B/D	39%	Single Detector Velocity
21	5220'	11'	5.5 Sec.	1599 B/D	64%	Single Detector Velocity
22	5200'	11'	3.5 Sec.	2513 B/D	100%	Single Detector Velocity
23	5180'	11'	3.5 Sec.	2513 B/D	100%	Single Detector Velocity
24	5160'	11'	3.5 Sec.	2513 B/D	100%	Single Detector Velocity
25	5160'					Channel Check
29-31	6935'-6935'	0'	301 Sec.	0 B/D	0%	Shot Loged On Depth (Profile #2)
36-37	6938'-6938'	0'	123 Sec.	0 B/D		Well Shut In Cross Flow Shots (Profile #3)
41-42	6731'-6737'	6'	121 Sec.	41 B/D		Well Shut In Cross Flow Shots (Profil #4)
43-44	5150'-5150'	0'	125 Sec.	0 B/D		Well Shut In Cross Flow Shots (Profile #5)

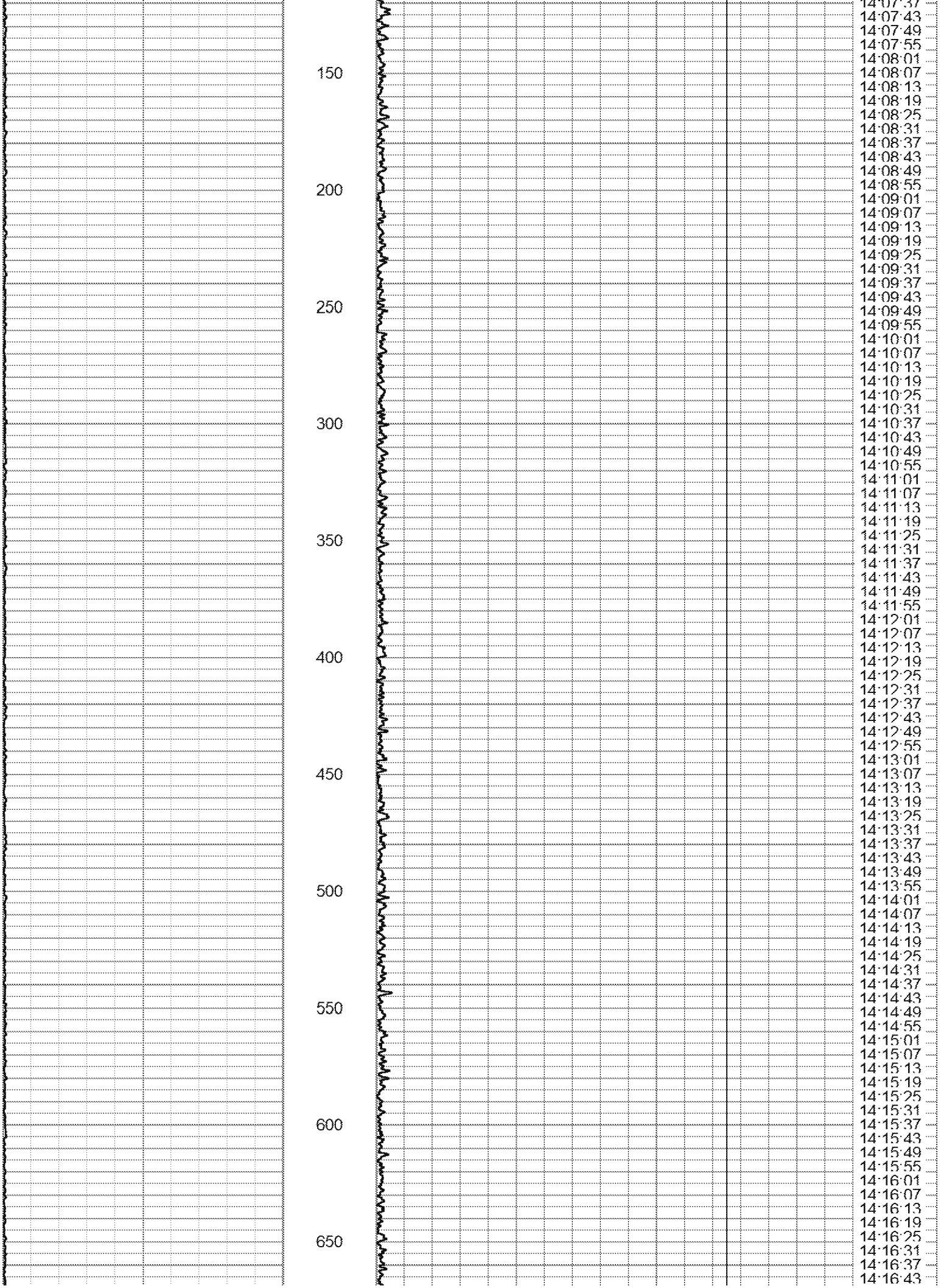
Database File c:\warrior\data\final tribal c-#32 7-26-2021.db

Dataset Pathname pass26
Presentation Format spldrag
Dataset Creation Mon Jul 26 15:09:36 2021
Charted by Depth in Feet scaled 1:240



Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass25
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:34 2021
Charted by Time scaled 72/hour




150
200
250
300
350
400
450
500
550
600
650
14:07:37
14:07:43
14:07:49
14:07:55
14:08:01
14:08:07
14:08:13
14:08:19
14:08:25
14:08:31
14:08:37
14:08:43
14:08:49
14:08:55
14:09:01
14:09:07
14:09:13
14:09:19
14:09:25
14:09:31
14:09:37
14:09:43
14:09:49
14:09:55
14:10:01
14:10:07
14:10:13
14:10:19
14:10:25
14:10:31
14:10:37
14:10:43
14:10:49
14:10:55
14:11:01
14:11:07
14:11:13
14:11:19
14:11:25
14:11:31
14:11:37
14:11:43
14:11:49
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14:12:25
14:12:31
14:12:37
14:12:43
14:12:49
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14:13:07
14:13:13
14:13:19
14:13:25
14:13:31
14:13:37
14:13:43
14:13:49
14:13:55
14:14:01
14:14:07
14:14:13
14:14:19
14:14:25
14:14:31
14:14:37
14:14:43
14:14:49
14:14:55
14:15:01
14:15:07
14:15:13
14:15:19
14:15:25
14:15:31
14:15:37
14:15:43
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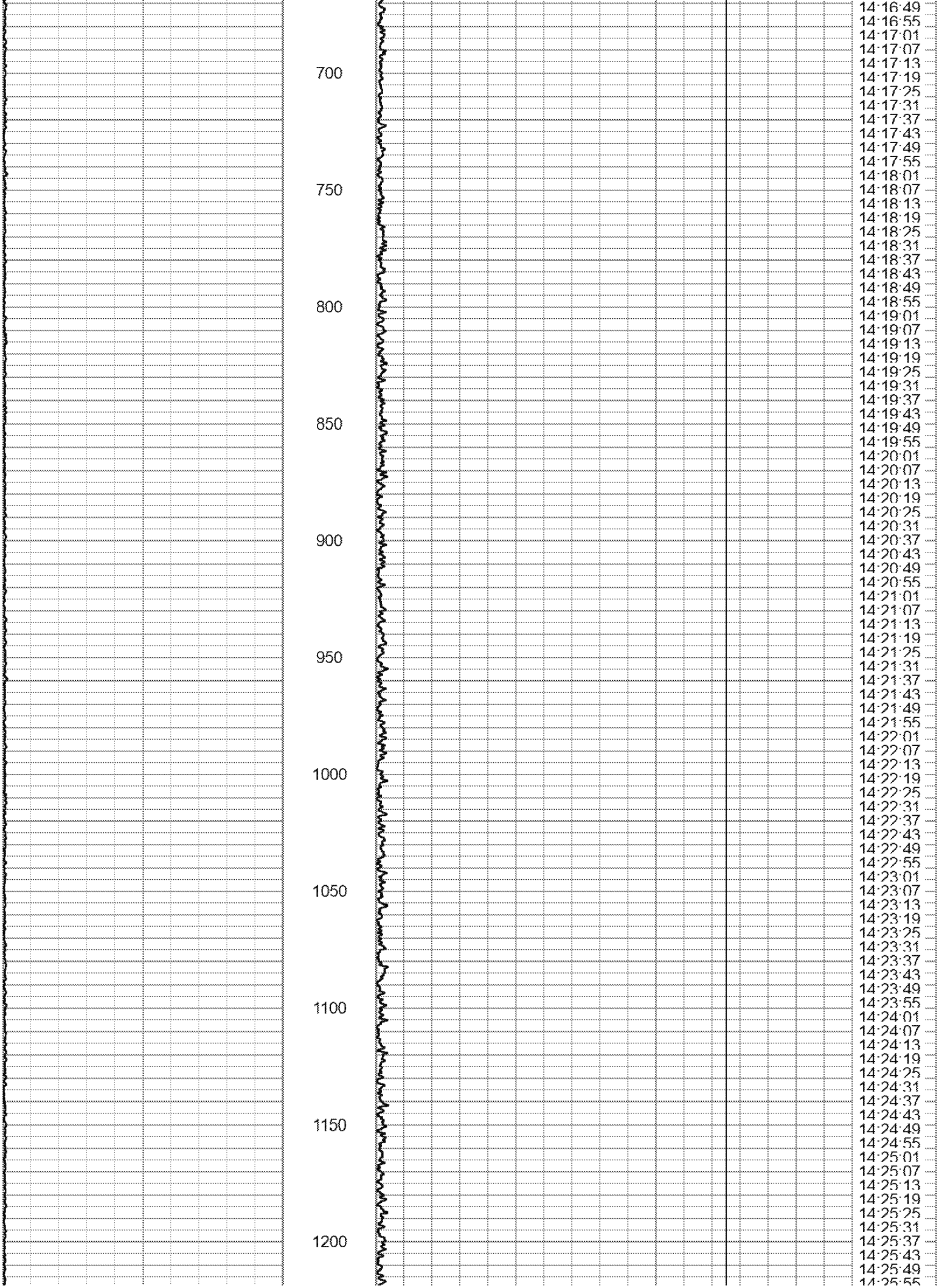
14:16:37
14:16:43


700
750
800
850
900
950
1000
1050
1100
1150
1200
14:16:49
14:16:55
14:17:01
14:17:07
14:17:13
14:17:19
14:17:25
14:17:31
14:17:37
14:17:43
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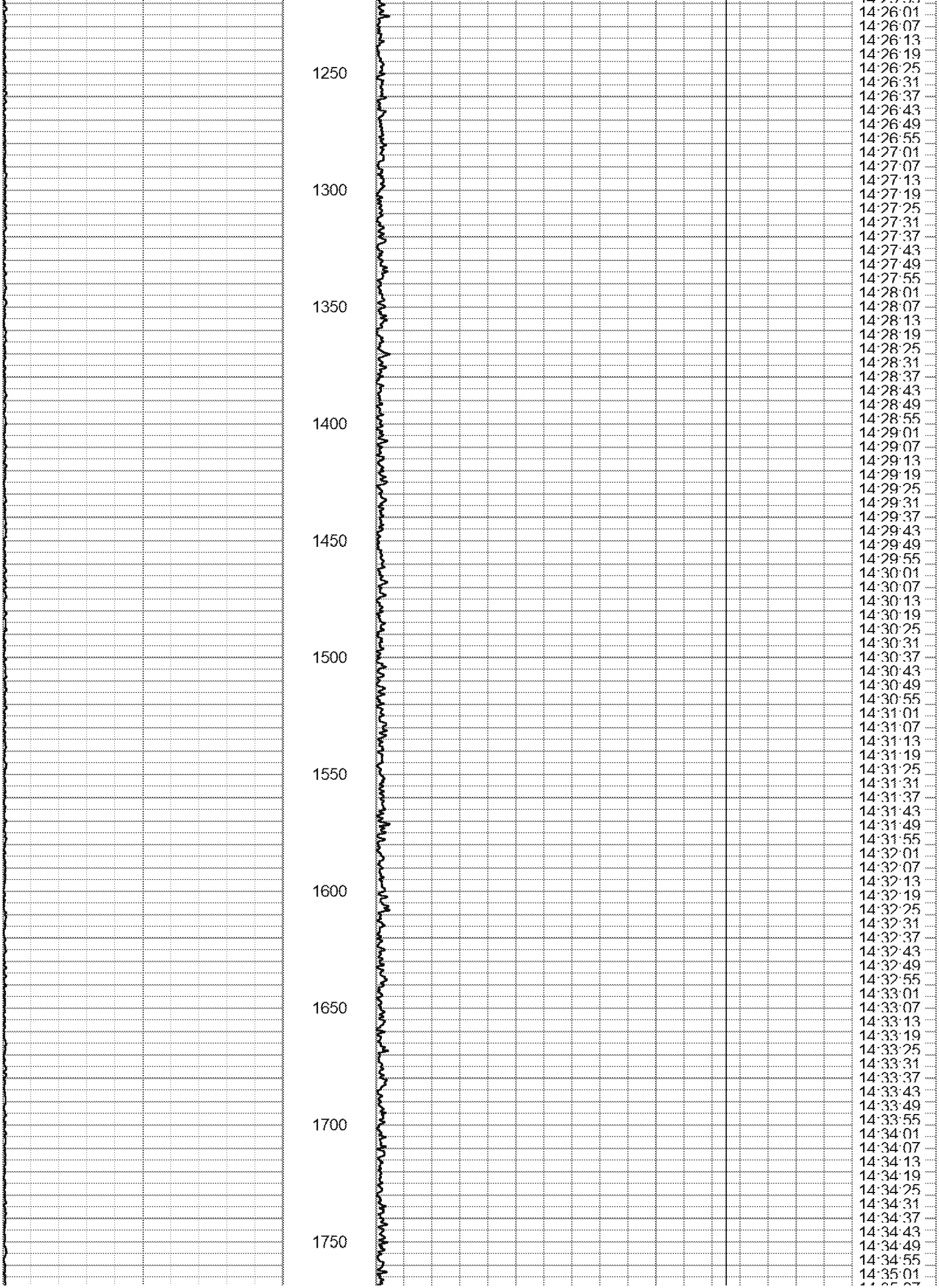
1250
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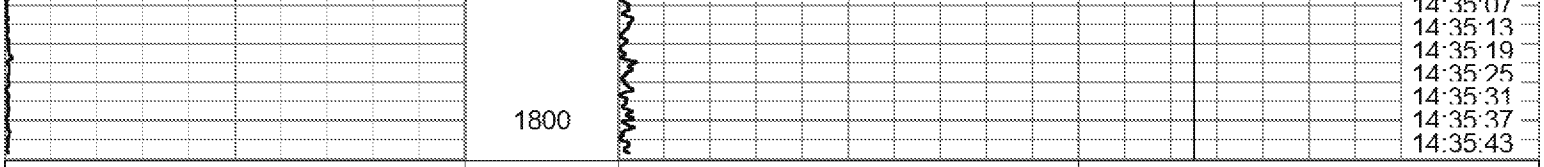
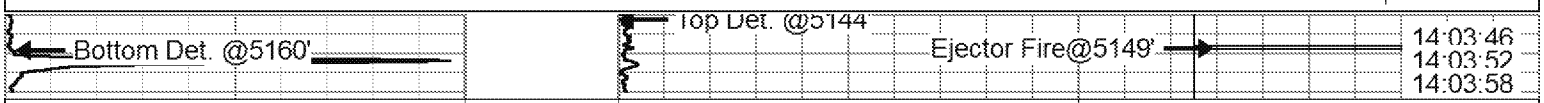


0	DET1 (GAPI)	1000	0	DET2 (GAPI)	200	-0.5	EJECT	1.5
								TOD (sec)

Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	pass24
Presentation Format	tracer
Dataset Creation	Mon Jul 26 15:09:34 2021
Charted by	Time scaled 72/hour

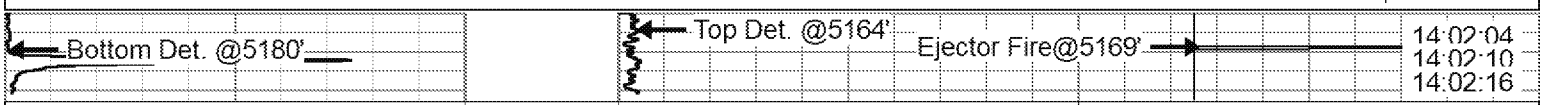
0	DET1 (GAPI)	500	0	DET2 (GAPI)	200	-0.5	EJECT	1.5
								TOD (sec)



0	DET1 (GAPI)	500	0	DET2 (GAPI)	200	-0.5	EJECT	1.5
								TOD (sec)

Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	pass23
Presentation Format	tracer
Dataset Creation	Mon Jul 26 15:09:34 2021
Charted by	Time scaled 72/hour

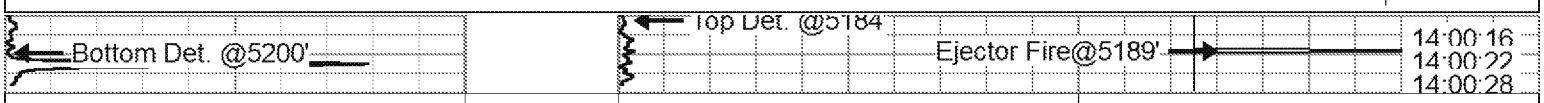
0	DET1 (GAPI)	500	0	DET2 (GAPI)	200	-0.5	EJECT	1.5
								TOD (sec)



0	DET1 (GAPI)	500	0	DET2 (GAPI)	200	-0.5	EJECT	1.5
								TOD (sec)

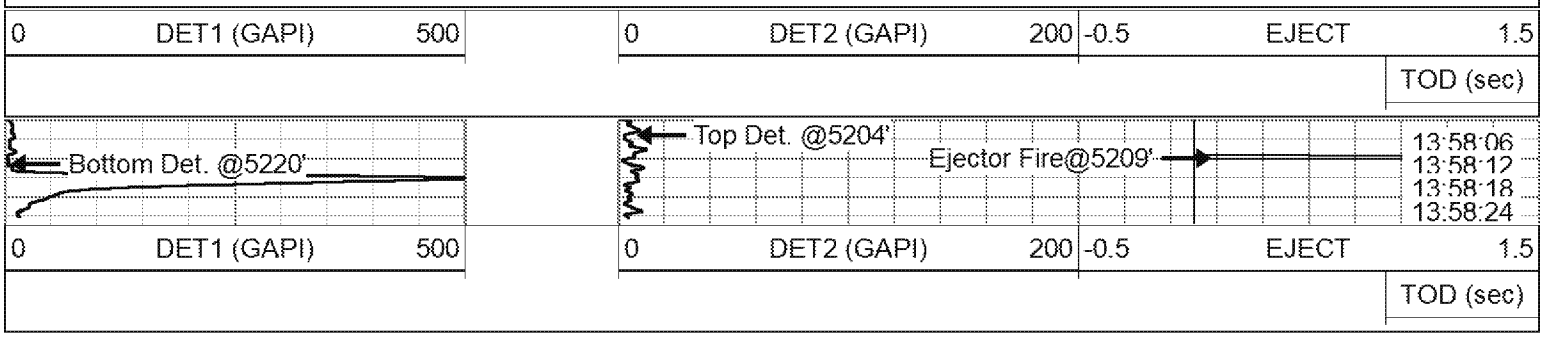
Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	pass22
Presentation Format	tracer
Dataset Creation	Mon Jul 26 15:09:34 2021
Charted by	Time scaled 72/hour

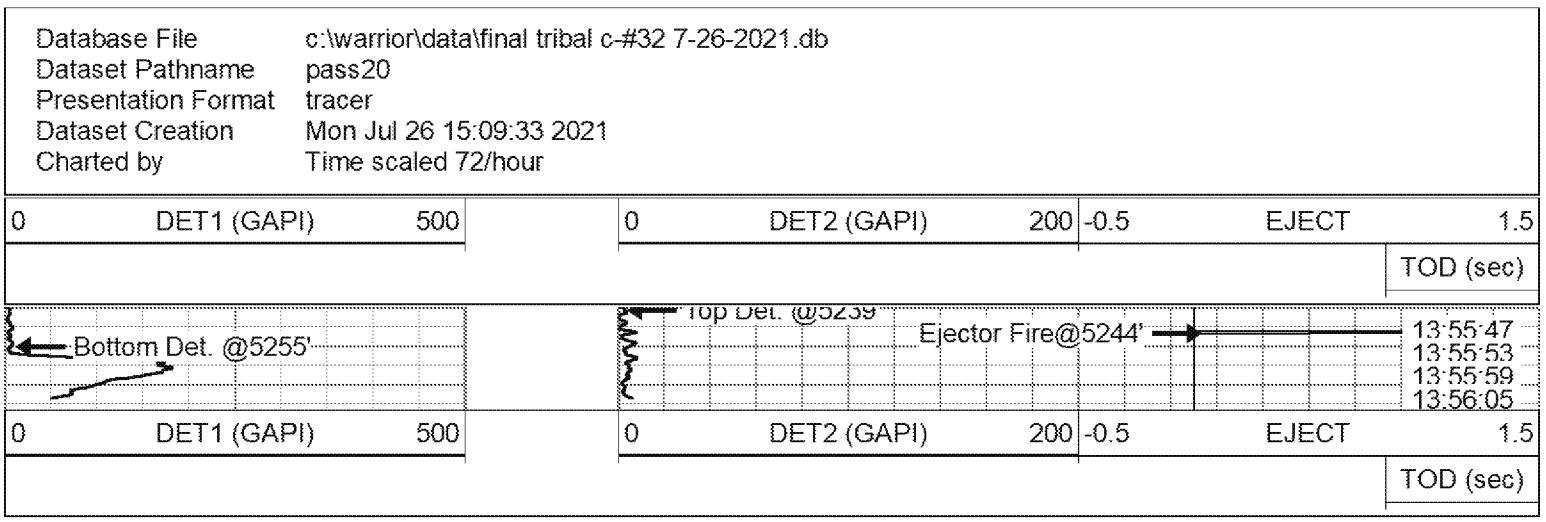
0	DET1 (GAPI)	500	0	DET2 (GAPI)	200	-0.5	EJECT	1.5
								TOD (sec)

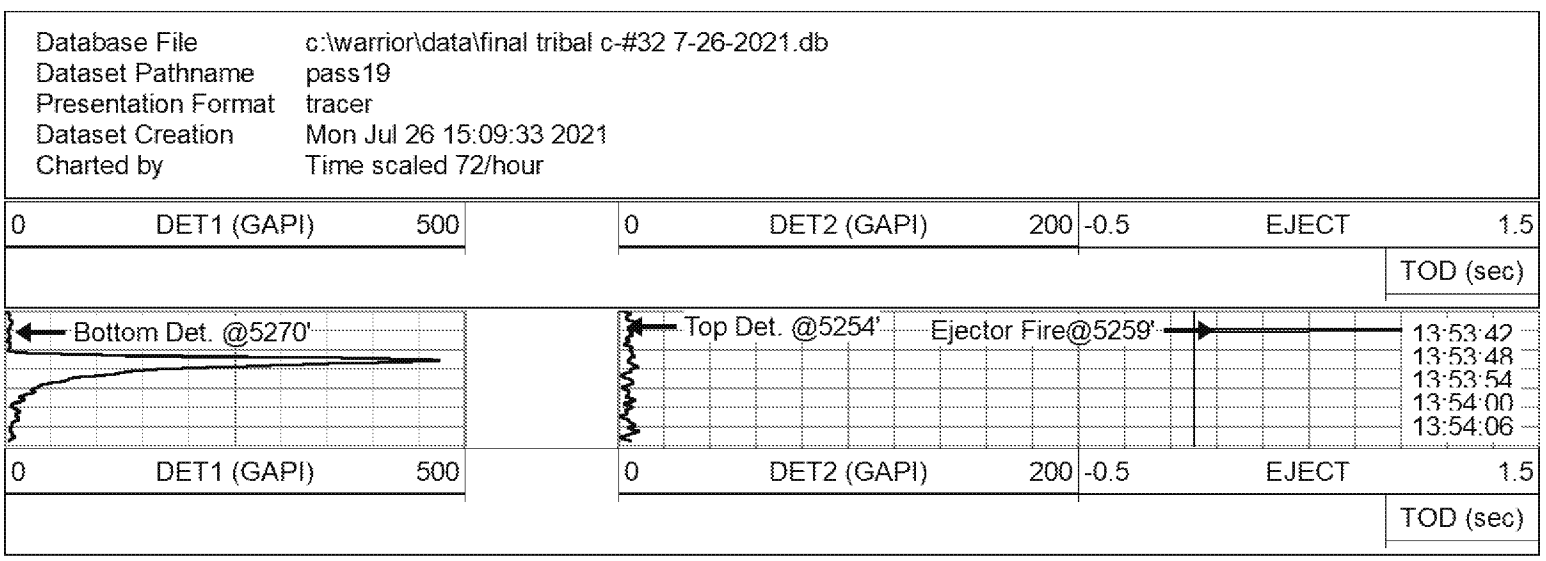


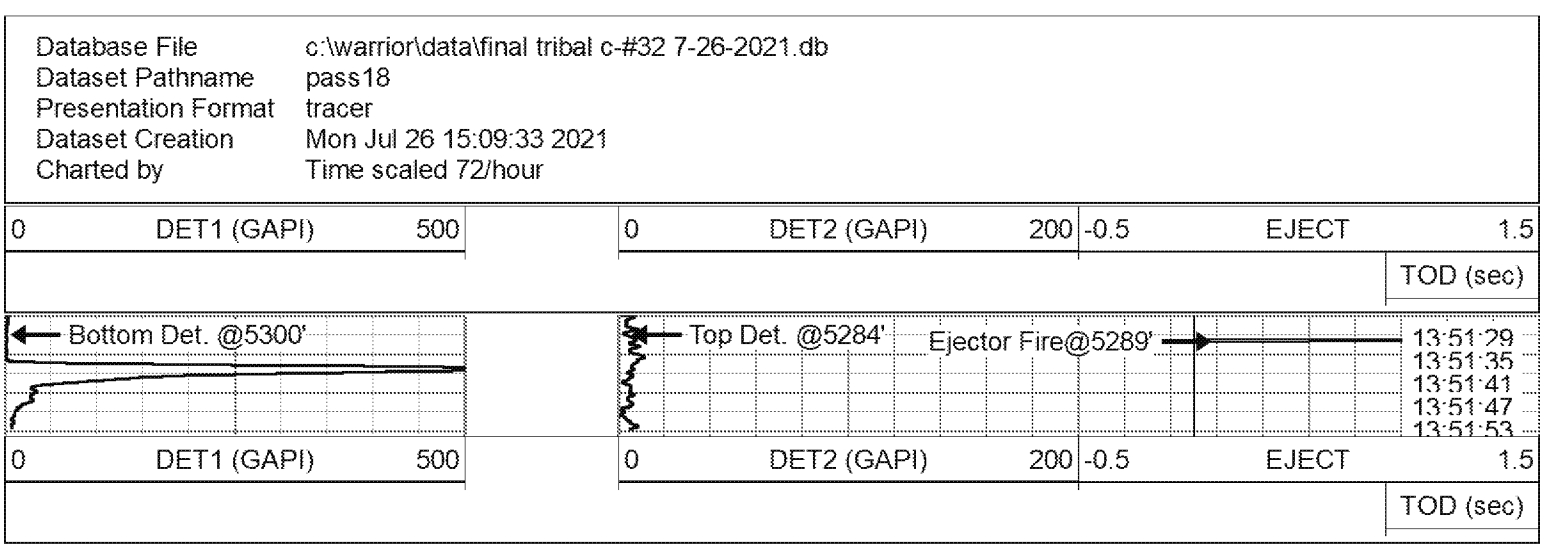
0	DET1 (GAPI)	500	0	DET2 (GAPI)	200	-0.5	EJECT	1.5
								TOD (sec)

Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	pass21
Presentation Format	tracer
Dataset Creation	Mon Jul 26 15:09:34 2021
Charted by	Time scaled 72/hour

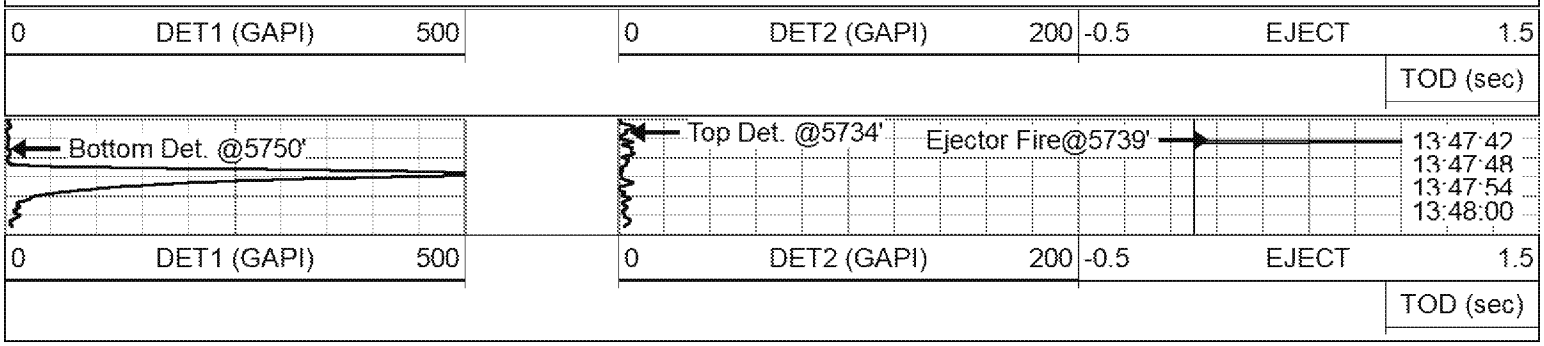

0 DET1 (GAPI) 500
0 DET2 (GAPI) 200
-0.5 EJECT 1.5
TOD (sec)
Bottom Det. @5220'
Top Det. @5204'
Ejector Fire@5209'
13:58:06
13:58:12
13:58:18
13:58:24
0 DET1 (GAPI) 500
0 DET2 (GAPI) 200
-0.5 EJECT 1.5
TOD (sec)


Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass20
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:33 2021
Charted by Time scaled 72/hour
0 DET1 (GAPI) 500
0 DET2 (GAPI) 200
-0.5 EJECT 1.5
TOD (sec)
Bottom Det. @5255'
Ejector Fire@5244'
13:55:47
13:55:53
13:55:59
13:56:05
0 DET1 (GAPI) 500
0 DET2 (GAPI) 200
-0.5 EJECT 1.5
TOD (sec)

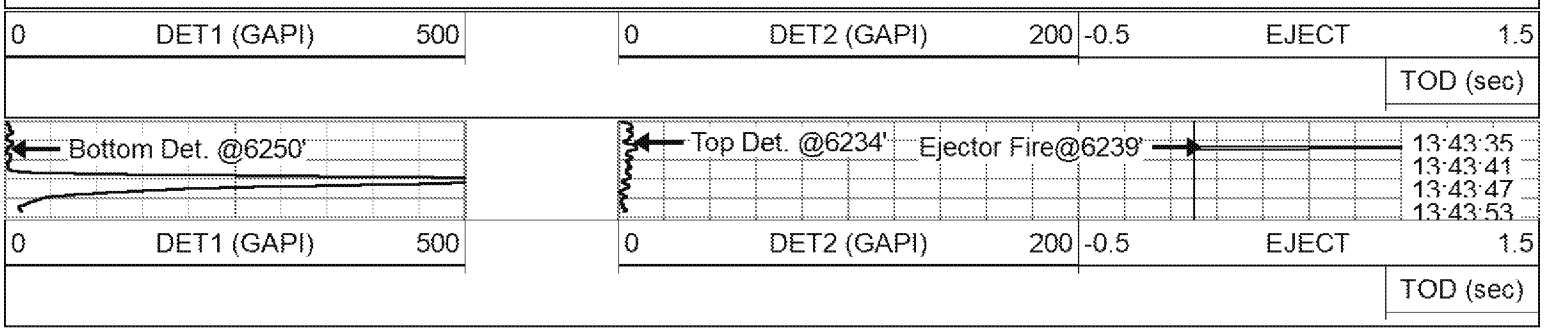

Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass19
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:33 2021
Charted by Time scaled 72/hour
0 DET1 (GAPI) 500
0 DET2 (GAPI) 200
-0.5 EJECT 1.5
TOD (sec)
Bottom Det. @5270'
Top Det. @5254'
Ejector Fire@5259'
13:53:42
13:53:48
13:53:54
13:54:00
13:54:06
0 DET1 (GAPI) 500
0 DET2 (GAPI) 200
-0.5 EJECT 1.5
TOD (sec)


Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass18
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:33 2021
Charted by Time scaled 72/hour
0 DET1 (GAPI) 500
0 DET2 (GAPI) 200
-0.5 EJECT 1.5
TOD (sec)
Bottom Det. @5300'
Top Det. @5284'
Ejector Fire@5289'
13:51:29
13:51:35
13:51:41
13:51:47
13:51:53
0 DET1 (GAPI) 500
0 DET2 (GAPI) 200
-0.5 EJECT 1.5
TOD (sec)

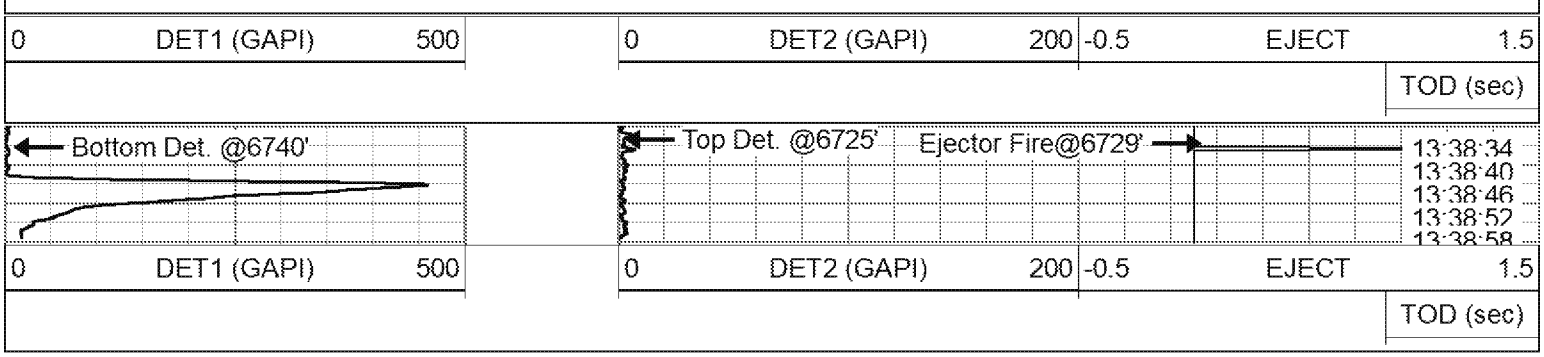
Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass17
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:33 2021
Charted by Time scaled 72/hour



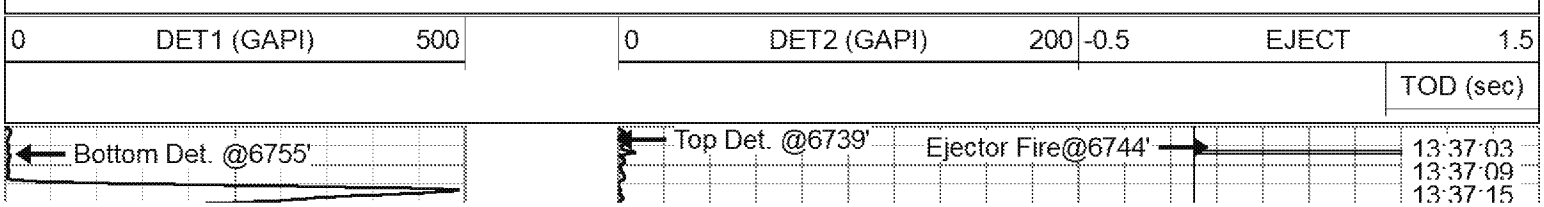
Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass16
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:33 2021
Charted by Time scaled 72/hour

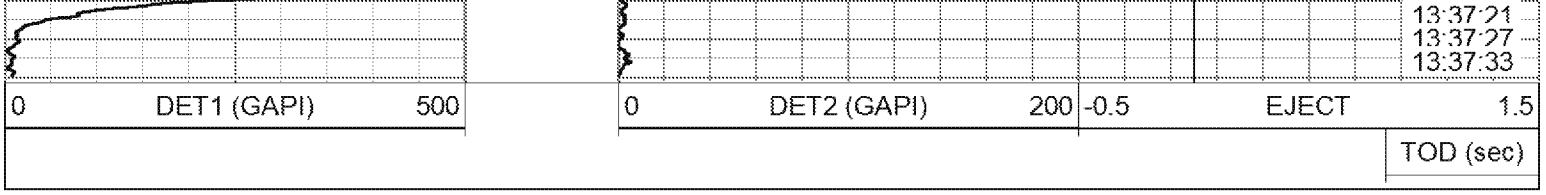


Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass15
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:33 2021
Charted by Time scaled 72/hour

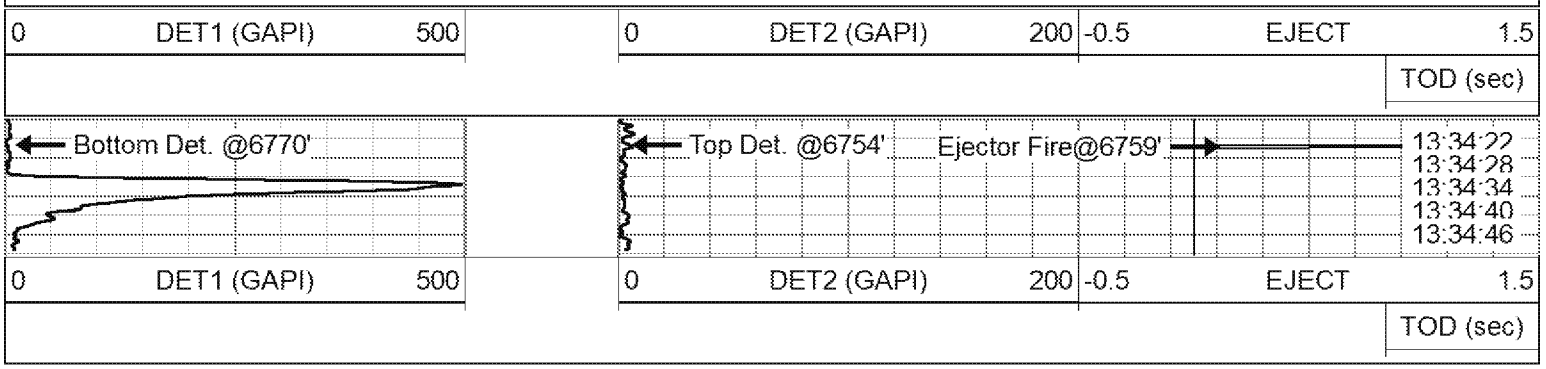


Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass14
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:32 2021
Charted by Time scaled 72/hour

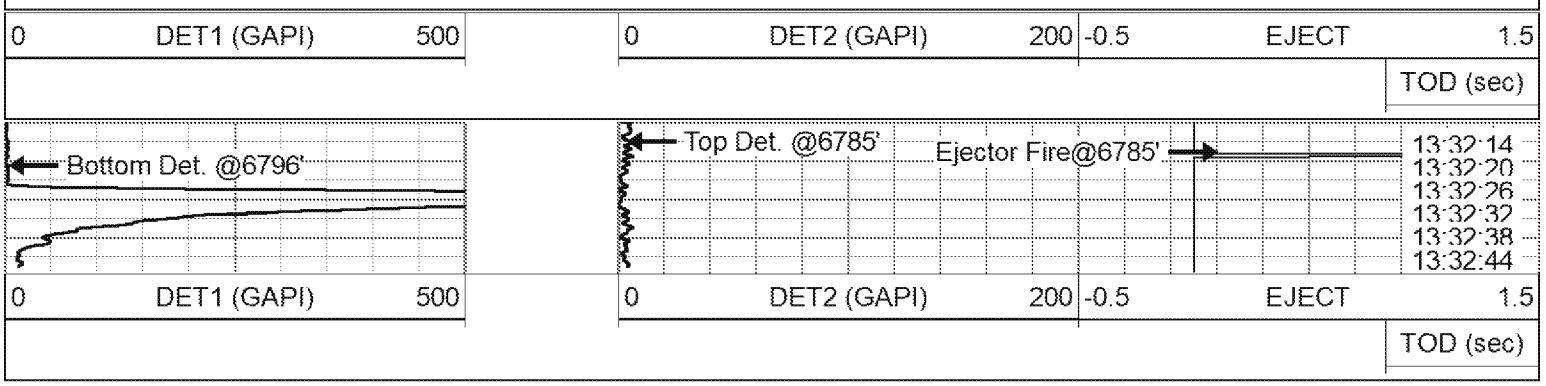




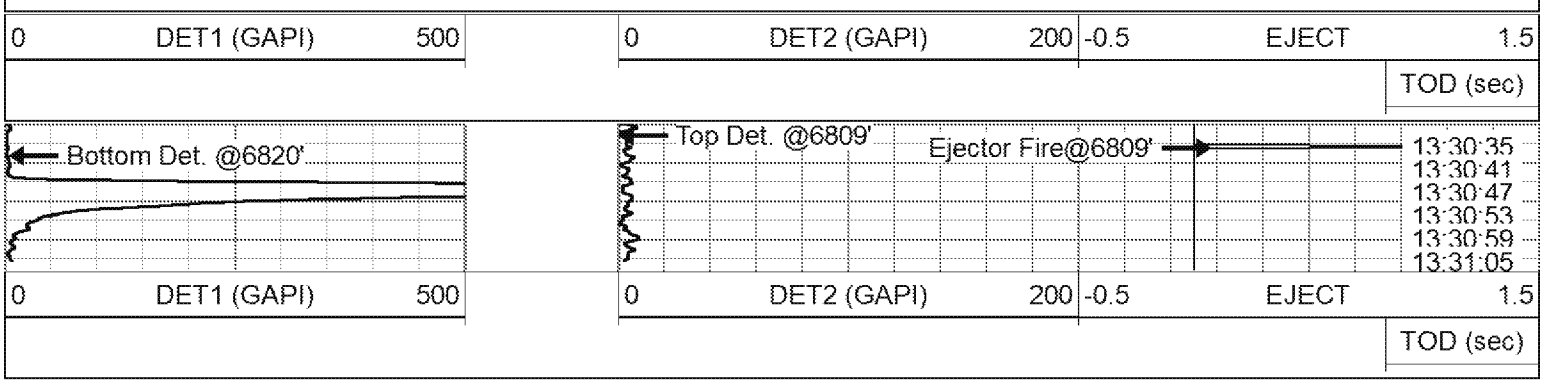
Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass13
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:32 2021
Charted by Time scaled 72/hour



Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass12
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:32 2021
Charted by Time scaled 72/hour

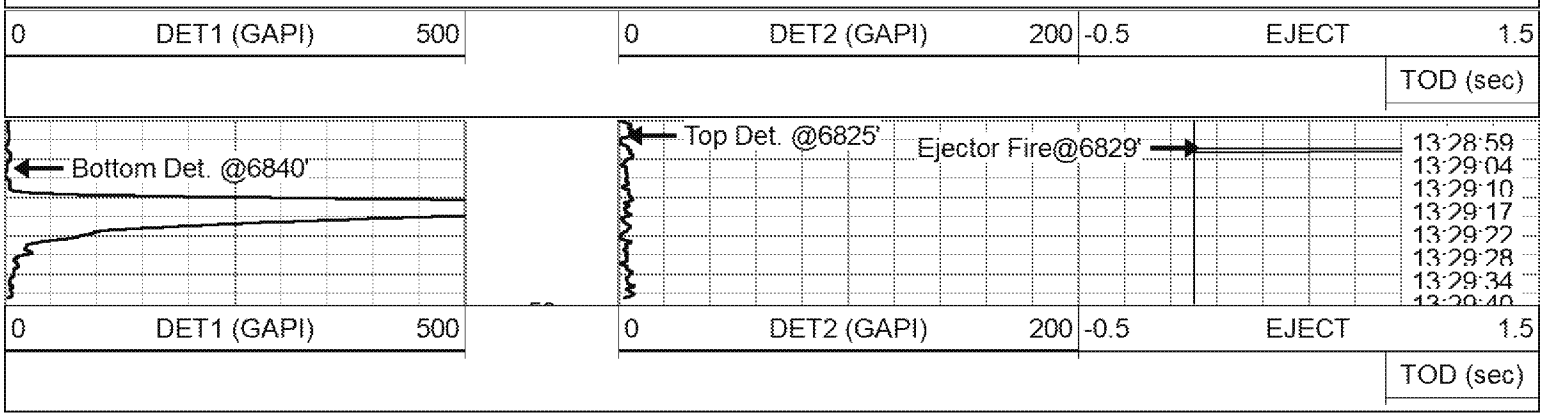


Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass11
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:32 2021
Charted by Time scaled 72/hour

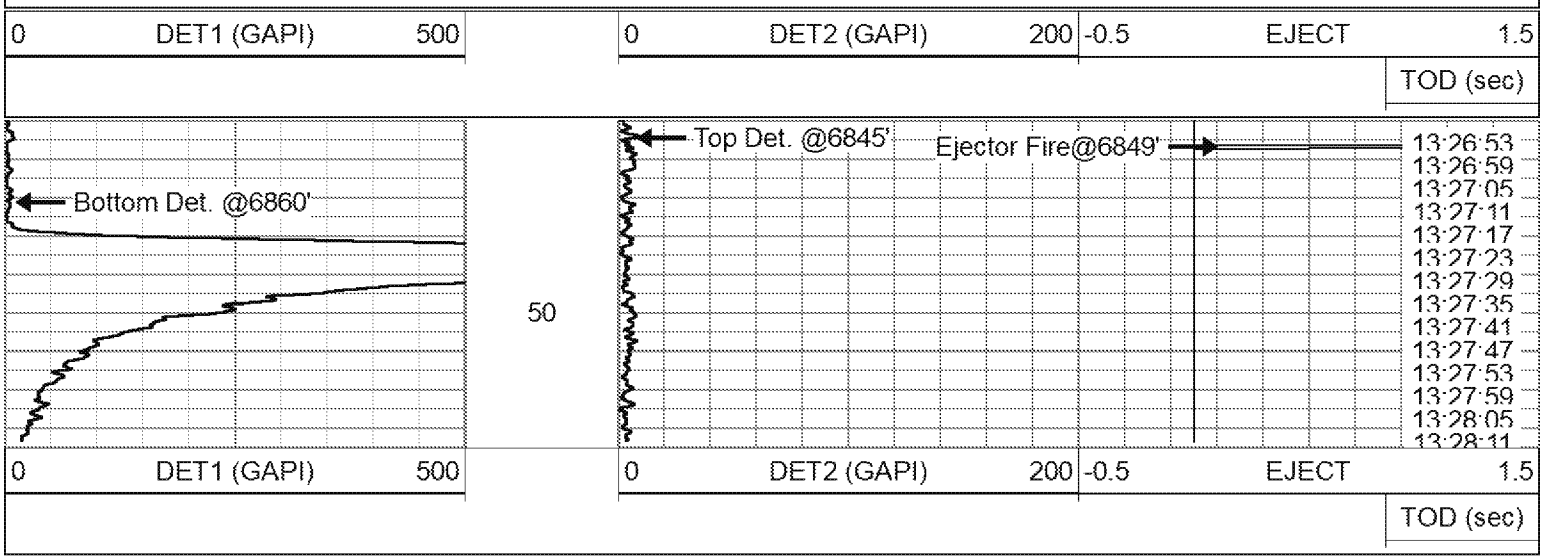


Database File c:\warrior\data\final tribal c-#32 7-26-2021.db

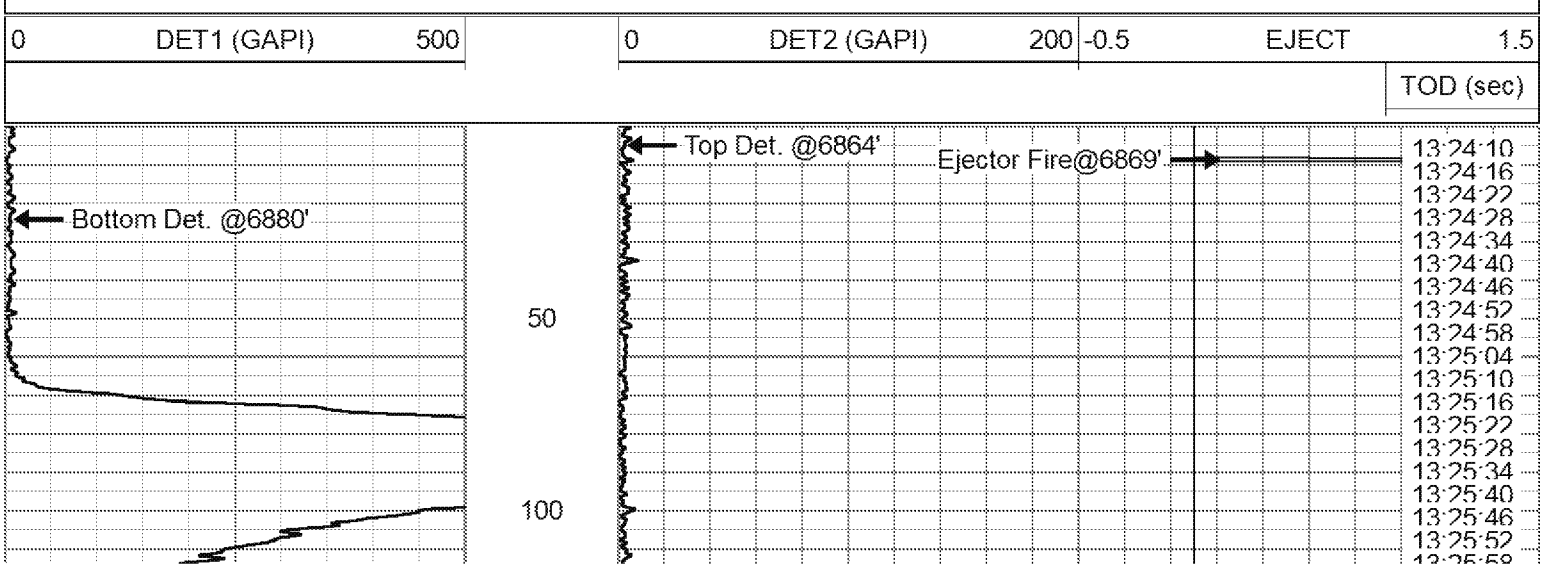
Dataset Pathname pass10
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:32 2021
Charted by Time scaled 72/hour

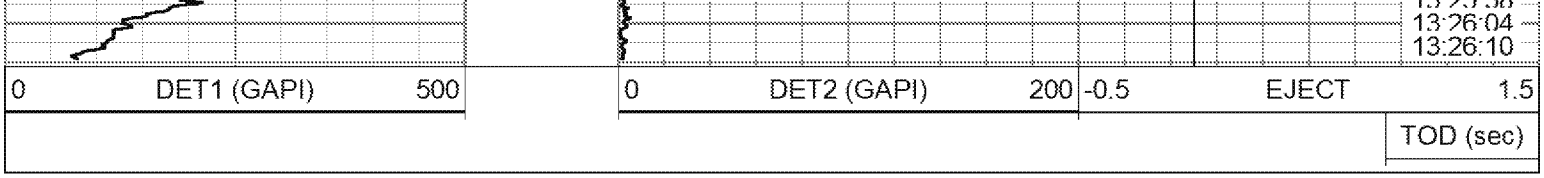


Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass9
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:38 2021
Charted by Time scaled 72/hour

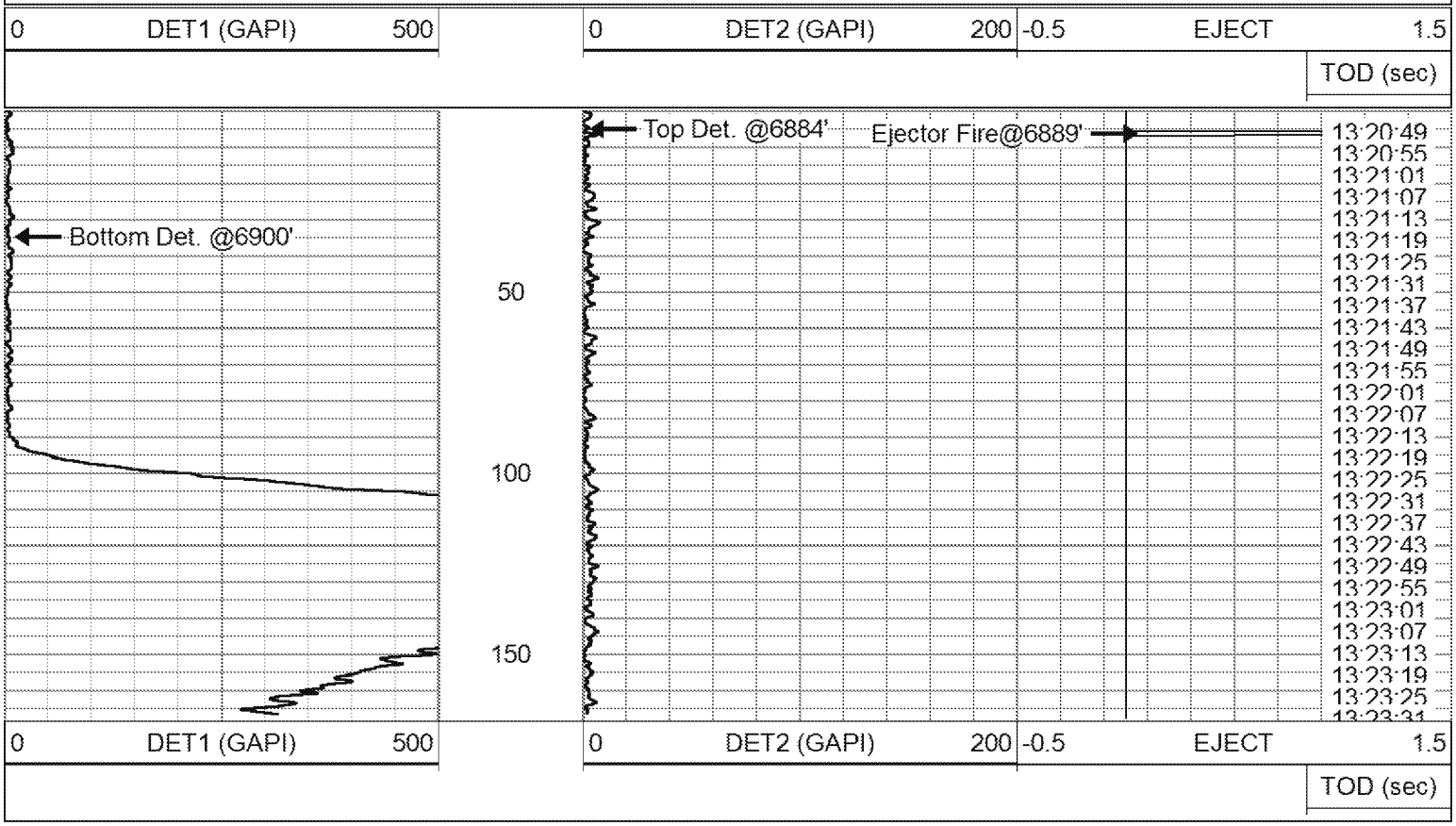


Database File c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname pass8
Presentation Format tracer
Dataset Creation Mon Jul 26 15:09:38 2021
Charted by Time scaled 72/hour

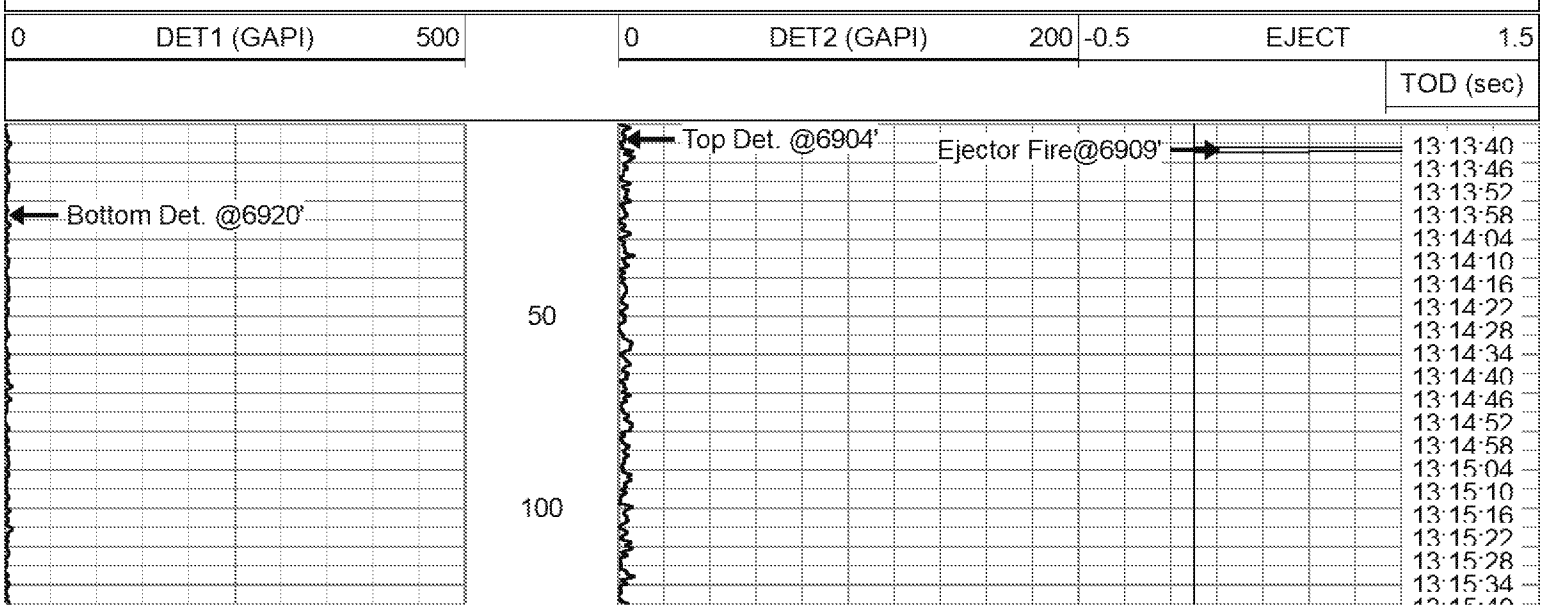


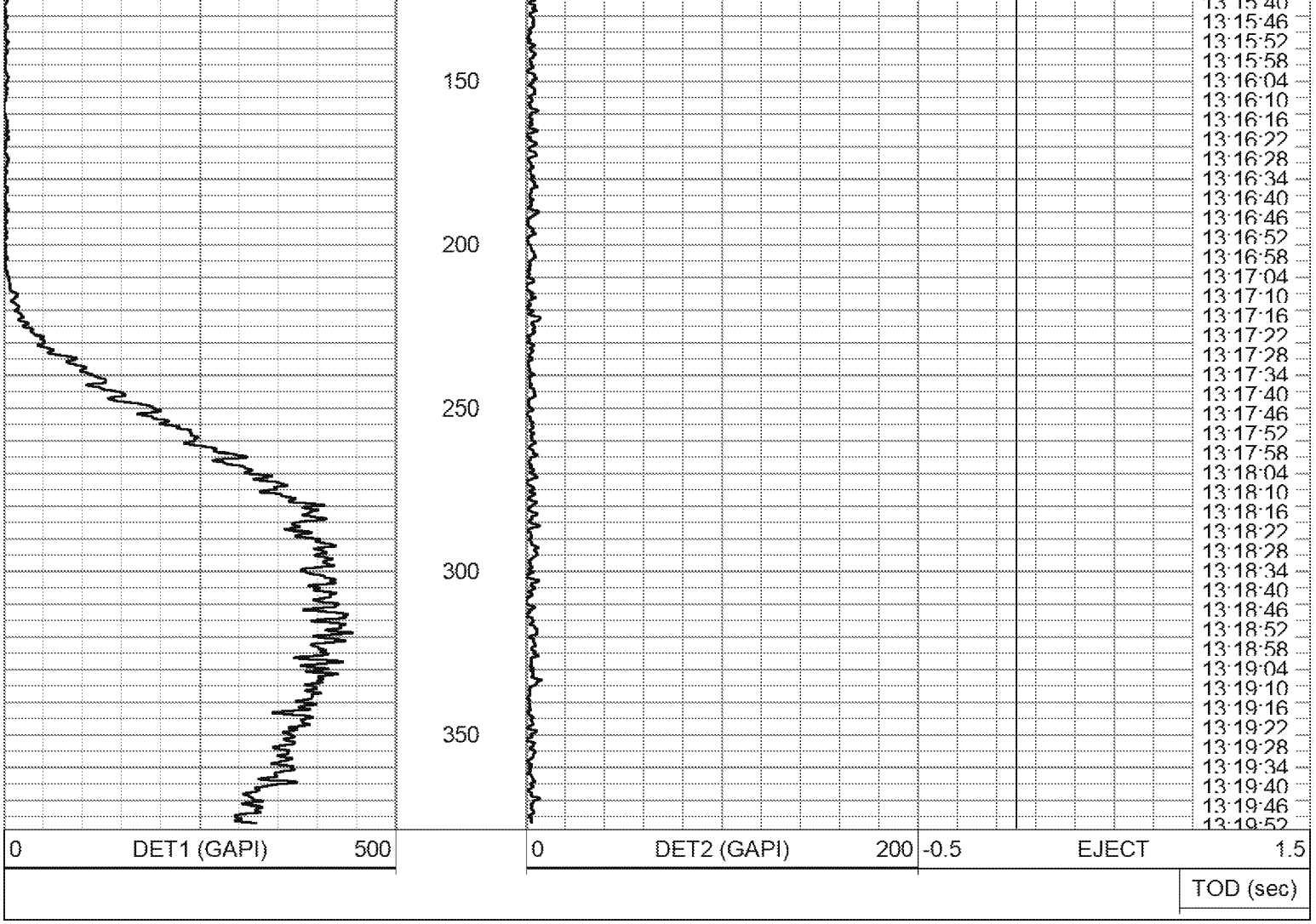


Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	pass7
Presentation Format	tracer
Dataset Creation	Mon Jul 26 15:09:38 2021
Charted by	Time scaled 72/hour

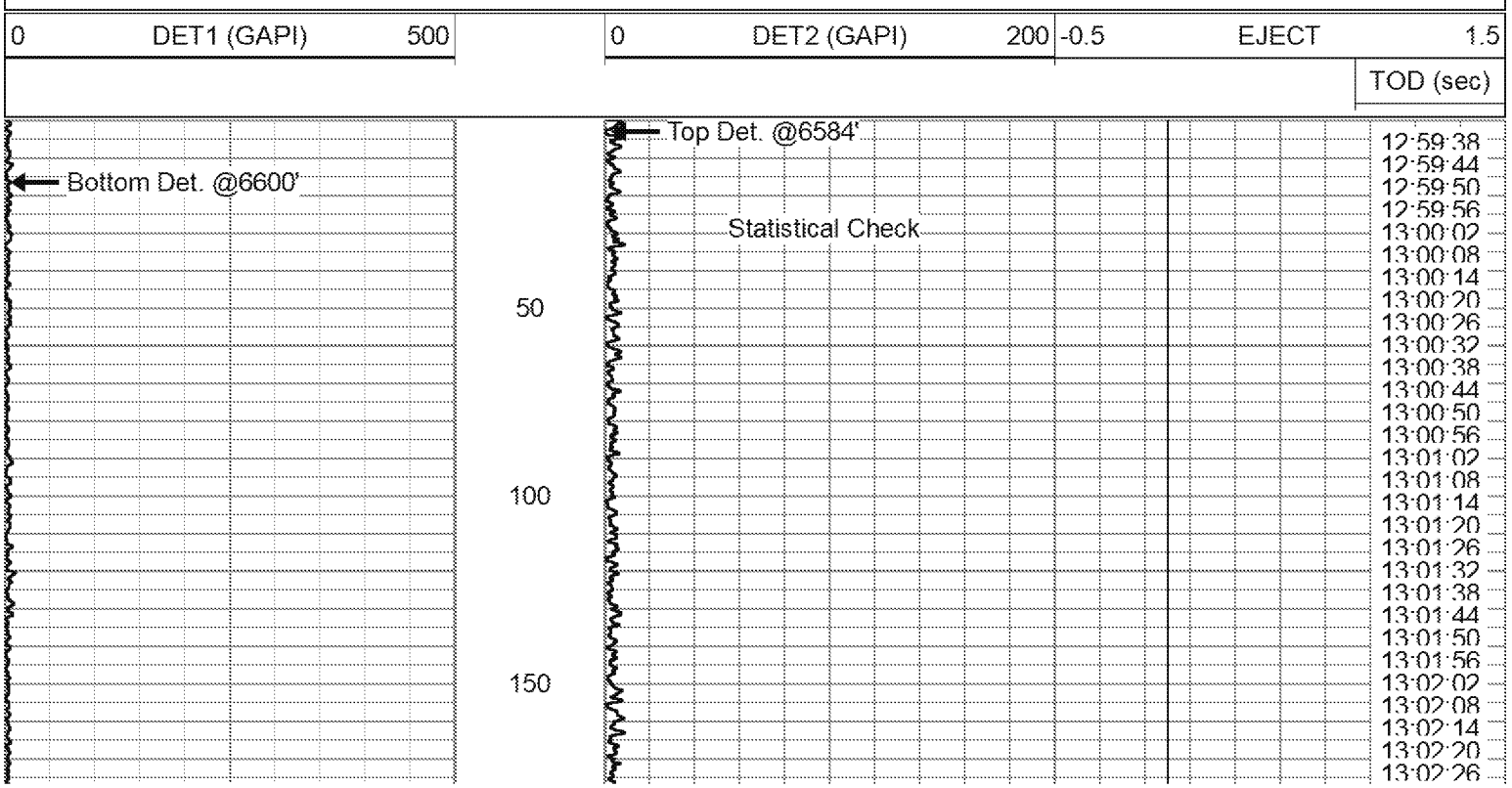


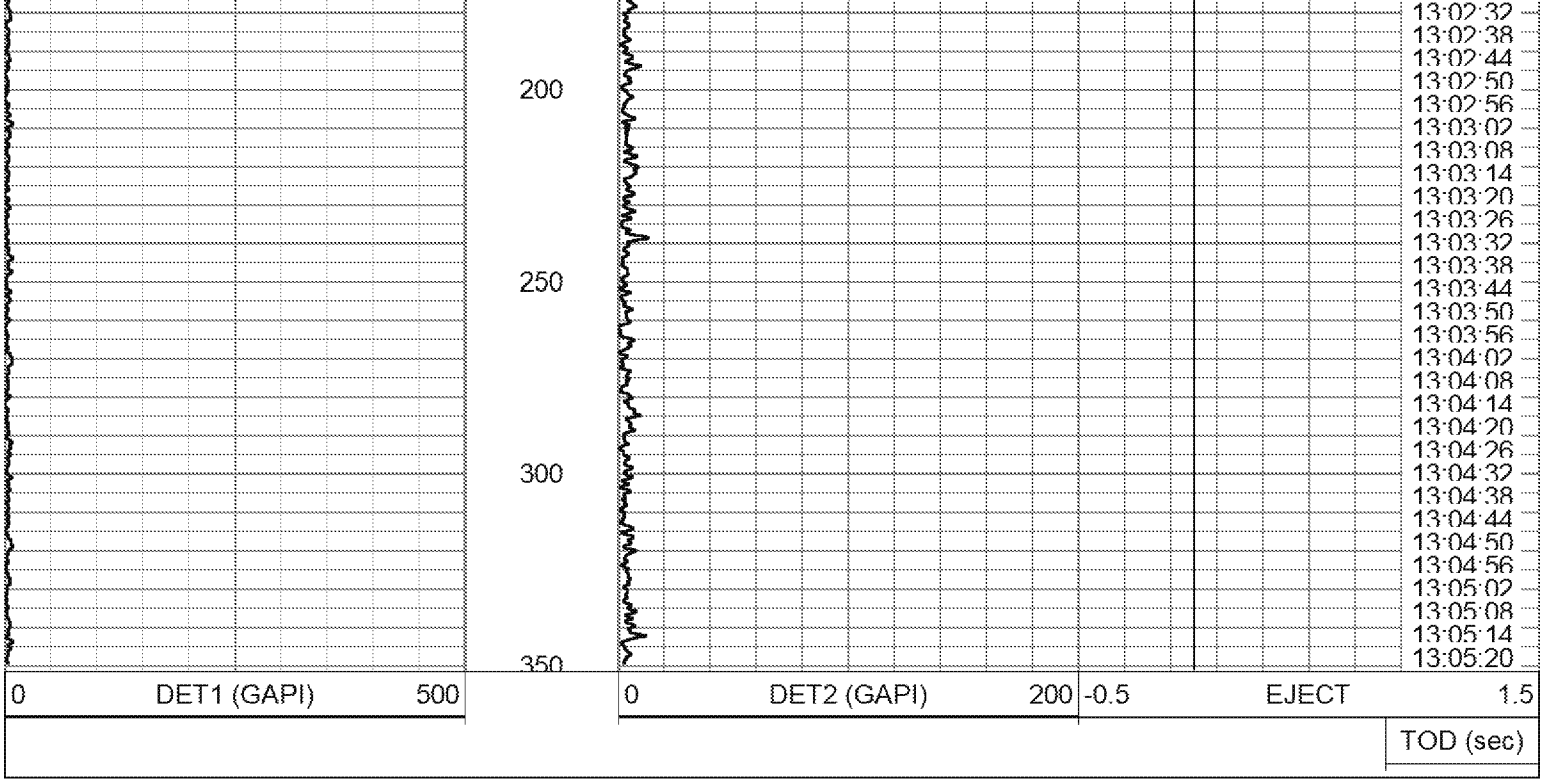
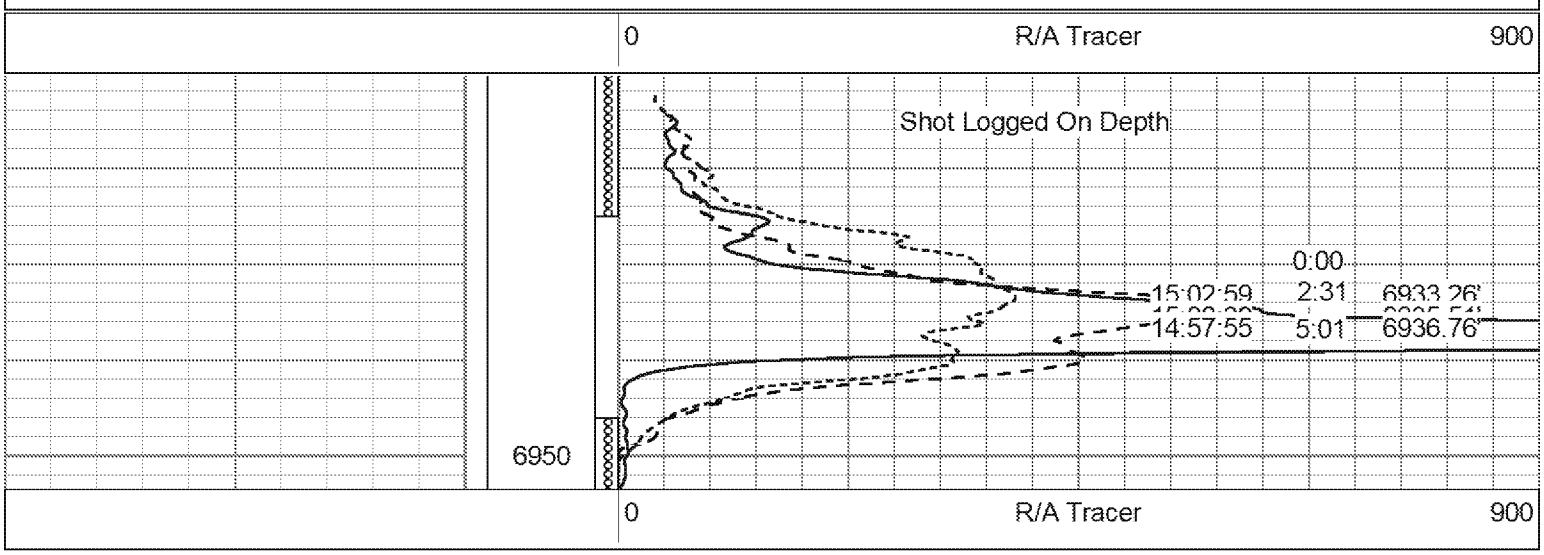
Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	pass6
Presentation Format	tracer
Dataset Creation	Mon Jul 26 15:09:37 2021
Charted by	Time scaled 72/hour





Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	pass4
Presentation Format	tracer
Dataset Creation	Mon Jul 26 15:09:37 2021
Charted by	Time scaled 72/hour





Database File	c:\warrior\data\final tribal c-#32 7-26-2021.db
Dataset Pathname	_profile2_
Presentation Format	spldrag
Dataset Creation	Mon Jul 26 15:09:32 2021
Charted by	Depth in Feet scaled 1:240