

HALLIBURTON

CEMENT BOND LOG

LARAMIE ENERGY											
HAWXHURST 19-13A											
BRUSH CREEK											
MESA											
CO											
COMPANY		LARAMIE ENERGY		WELL		HAWXHURST 19-13A		FIELD		BRUSH CREEK	
COUNTY		MESA		STATE		CO		COUNTY		MESA	
API No.		05077101660000		Other Services:							
Location		SHL SEC 24, 1349' FSL AND 602' FEL, T9S R96W BHL SEC 19, 1080' FSL AND 647' FWL, T9S R94W									
Permanent Datum		GL		Elev. 6354.0 ft		Elev. K.B.		6375.0 ft			
Log measured from		KB		21.0 ft above perm. Datum		D.F.		6375.0 ft			
Drilling measured from		KB				G.L.		6354.0 ft			
Date @ Time Logged		16-Oct-11		Type of fluid in hole		WBM					
Run No.		TWO		Density of Fluid		11.5000					
Depth - Driller		10625.00 ft		Fluid Level		FULL					
Depth - Logger		10630.0 ft		Cement Top Est. Location		1540.0					
Bottom - Logged Interval		6510.0 ft		Equipment / Location		11014853 /					
Top - Logged Interval		1540.0 ft		Recorded by		B. DRAKE					
Max. Rec. Temperature		240.0 degF		Witnessed by		K. CLAUSSEN					
CEMENTING DATA				Surface		Protection		Production		Liner	
Date/Time Cemented				String		String		String			
Primary/Squeeze											
Expected Compressive Strength				psi@ hrs		psi@ hrs		psi@ hrs		psi@ hrs	
Cement Volume											
Cement Type / Weight				/		/		/		/	
Formulation											
MUD type / MUD wgt.				/		/		/		/	
BOREHOLE RECORD				From		To		Size		Wgt.	
No.				6.250 in		0.00		10625.00 ft		7.000 in	
1										23.00 lbpf	
2											
3											
4											
5											

Fold here

Service Ticket No.: 8512723		API Serial No.: 05077101660000		PGM Version: WL INSITE R3.4.0 (Build 4)	
The Well Name, Location, Cementing Data & Borehole Description Furnished By Client					
CEMENTING DATA					
Cement Pumped		bbl/min @		psi	
Preceding Fluid		Volume &		bbl	
Returns (Full,Partial,None)?				Centralizers	
Pipe Rotated / Reciprocated				Scratchers	
During Pumping (Yes,No)?				/Joint From	
After Plug Down (Yes,No)?				To	
Plug Pumped (Yes,No)?				/Joint From	
Plug Landing Pressure		Psi		To	
Pressure Held		Psi		Hrs After Pumping	
EQUIPMENT DATA					
GAMMA		ACOUSTIC		CAST	
Run No.		TWO		Serial No.	
Serial No.		11602915		Scanner No.	
Model No.		GTET		Head Size	
Diameter		3.625"		Transducer Type	
Detector Model No.		102-A		Slot	
Type		SCINT.		Log Type	
Length		8"		Source Type	
Distance to Source		N/A		Serial No.	
LOGGING DATA					
GENERAL		GAMMA		NEUTRON	
Depth		Scale		Scale	
Run		No.		L	
From		to		R	
1540'		6510'		0	
2		3		4	
5		6		7	

DIRECTIONAL INFORMATION										
Maximum Deviation @						KOP @				
Remarks: CBL CALIBRATION PERFORMED AT LARGEST AMPLITUDE DUE TO LITTLE AVAILABLE FREE PIPE.										
TODAY'S CREW: J. FREW AND J. MARTIN										
*** THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, VERNAL, UT (435) 789-2550 ***										
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.										
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PARAMETERS REPORT

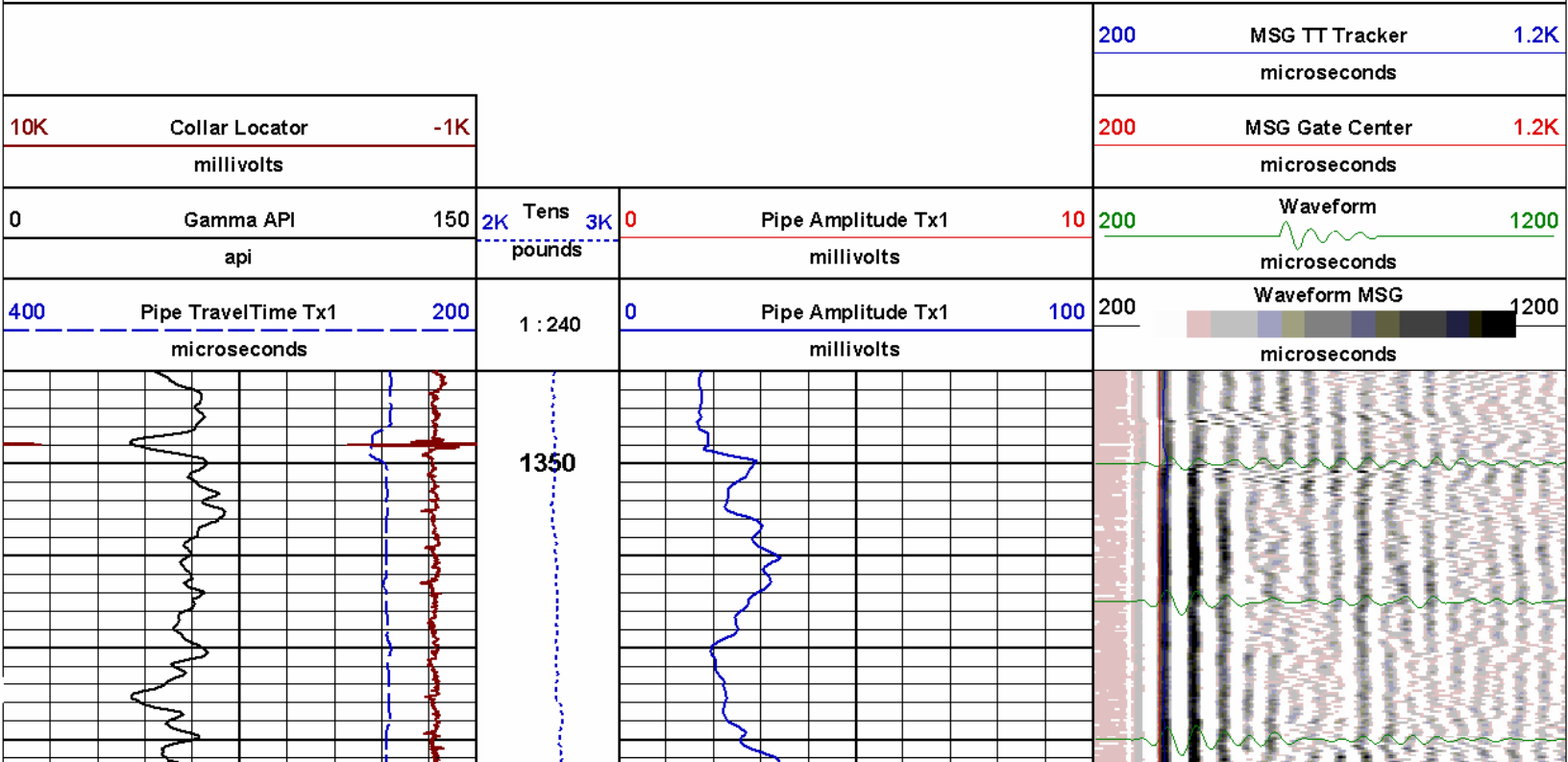
Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	8.750	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	11.500	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	Yes	
	SHARED	CSOD	Inner Casing OD size	7.000	in
	SHARED	CSWT	Casing Weight	23.00	lbpf
	SHARED	ISOC	Is Outer Casing Present?	No	
	SHARED	CSCM	Casing Cemented	Yes	
	SHARED	CMWT	Cement Weight	12.000	ppg
	SHARED	ST	Surface Temperature	50.0	degF
	SHARED	TD	Total Well Depth	10630.00	ft
	SHARED	BHT	Bottom Hole Temperature	240.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	

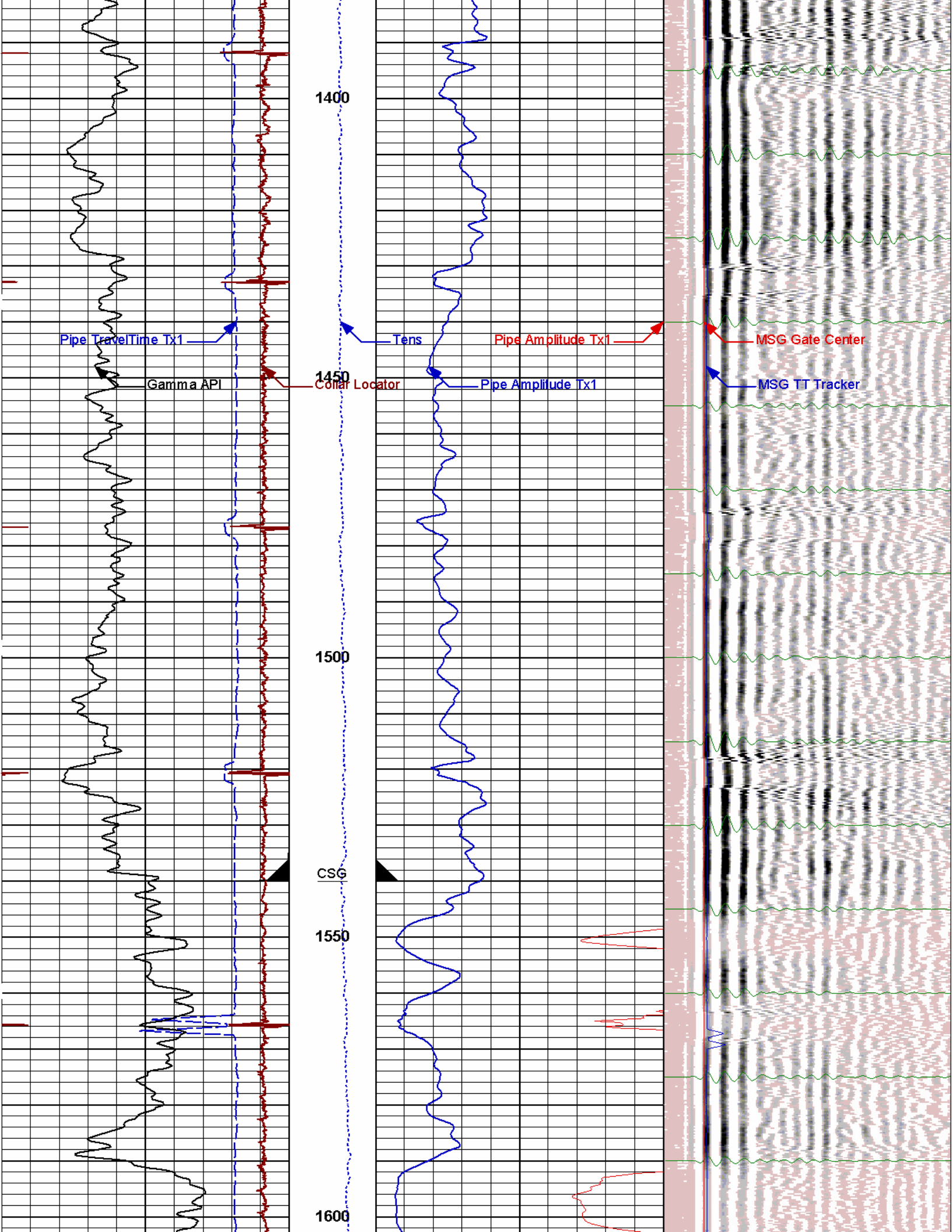
Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
CCL-D	CLOK	Process CCL?	Yes	
CCL-D	CCLS	CCL Processing Selection	Raw	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Centered	
CBL-BSAT	TTLV	Travel Time threshold.	5.0	mV
CBL-BSAT	TTOF	CBL Travel Time Offset from Calibration.	0	us
CBL-BSAT	ISFM	Is foam cement type?	No	
CBL-BSAT	CSTR	Compressive Strength	1000.00	psia
CBL-BSAT	BIOK	Calculate Bond Index?	Yes	
CBL-BSAT	ISMD	Is borehole fluid Mud?	No	

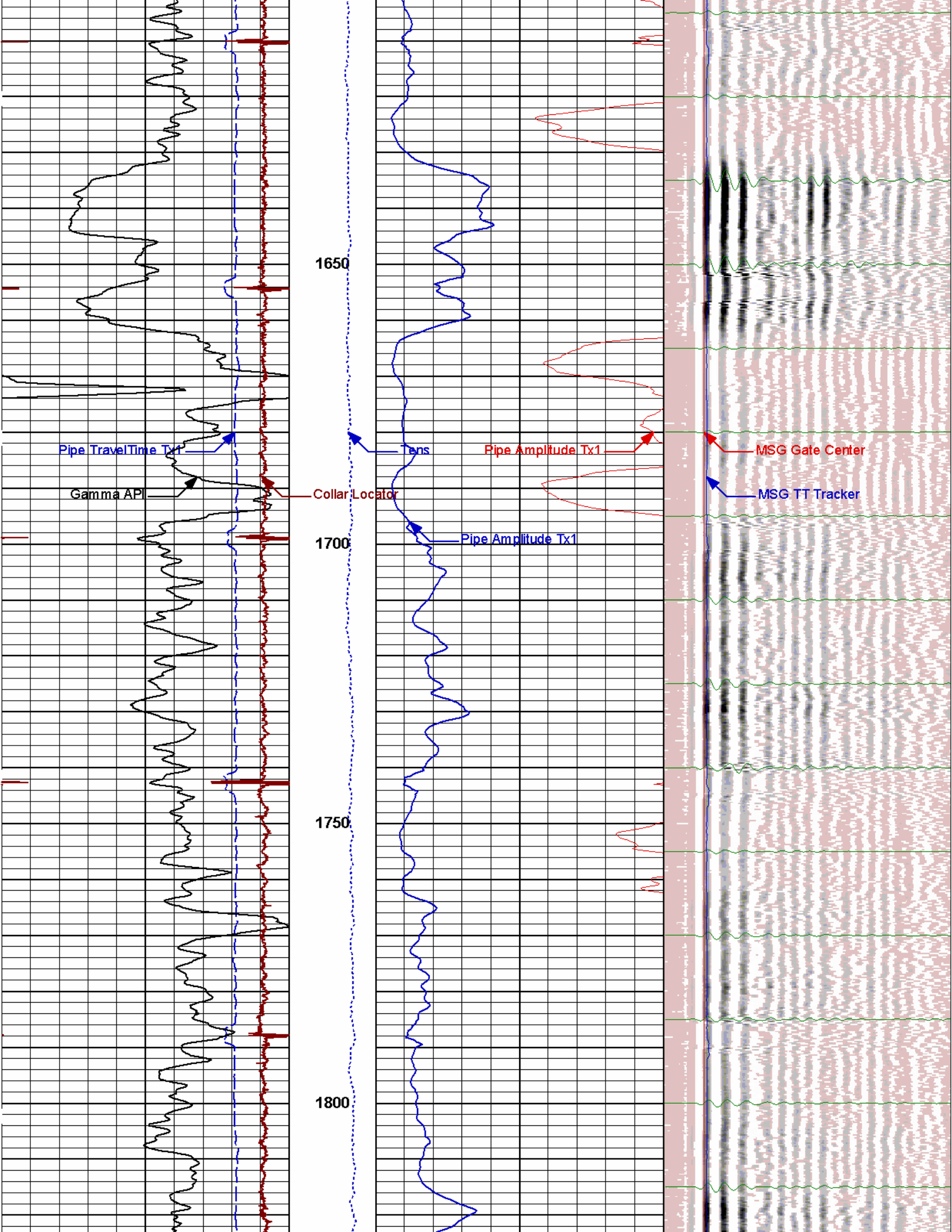
BOTTOM

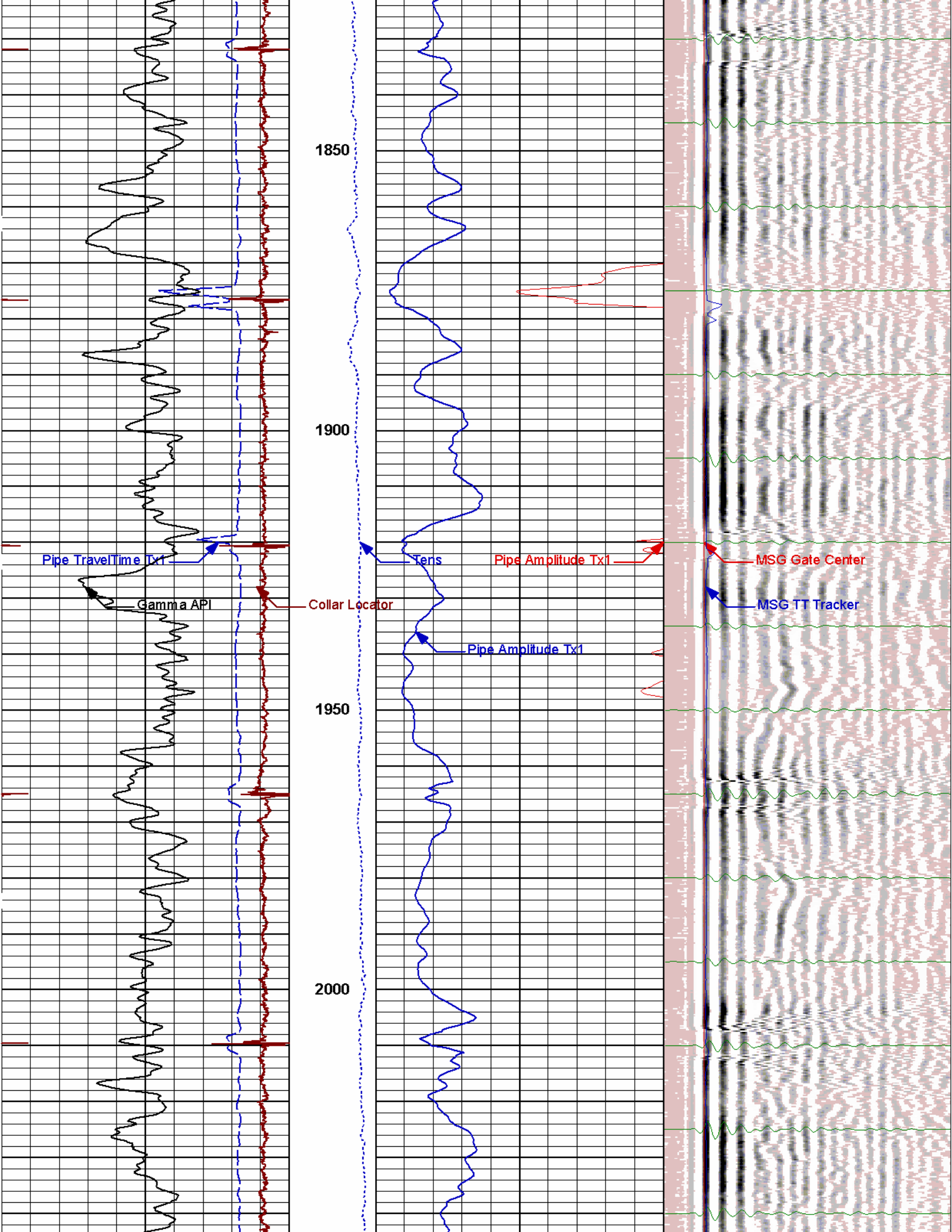
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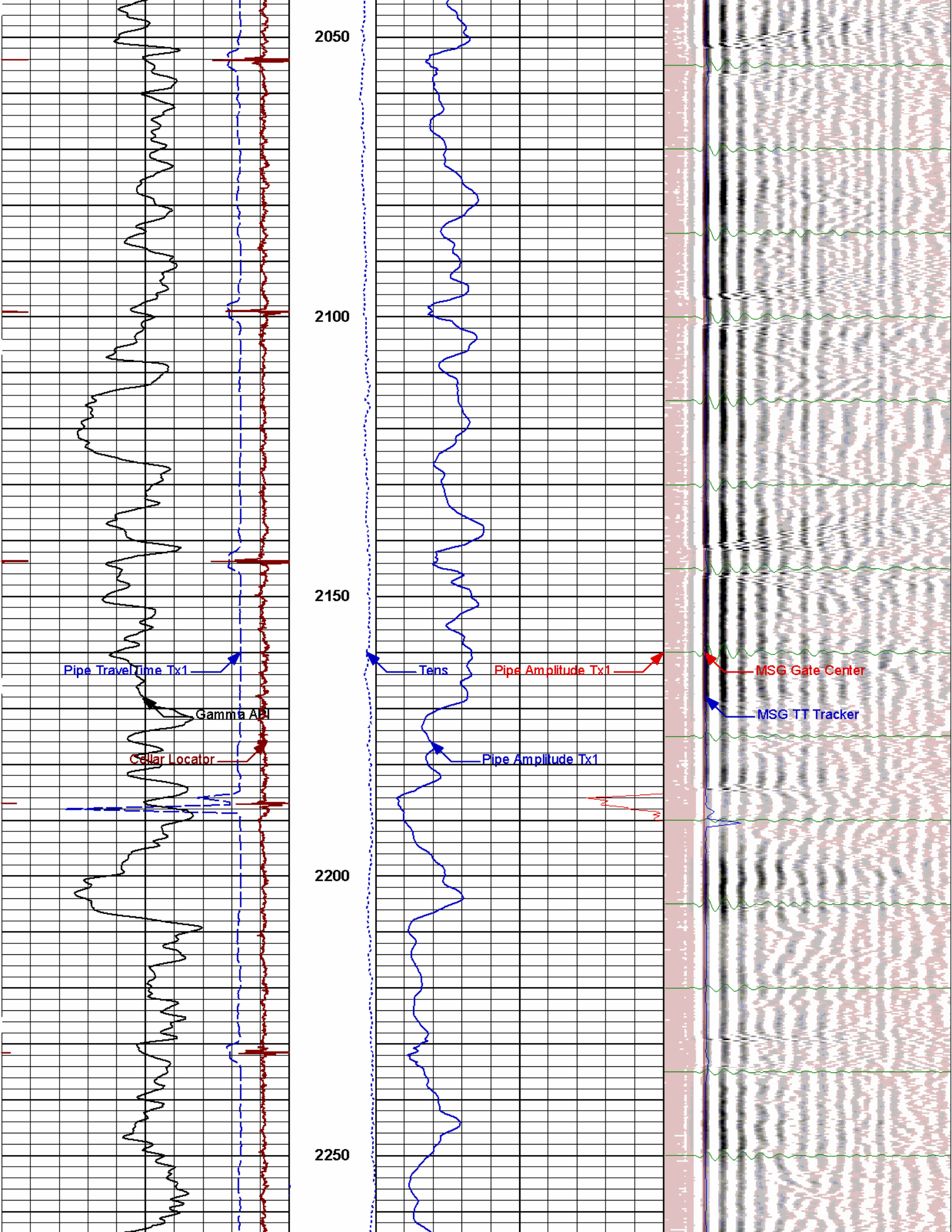
Plot Time: 17-Oct-11 14:23:41
 Plot Range: 1340 ft to 6544 ft
 Data: LARA_HAWX19_13A\Well Based\MAIN_CBL*
 Plot File: \CBL\BSAT CBL 1_240

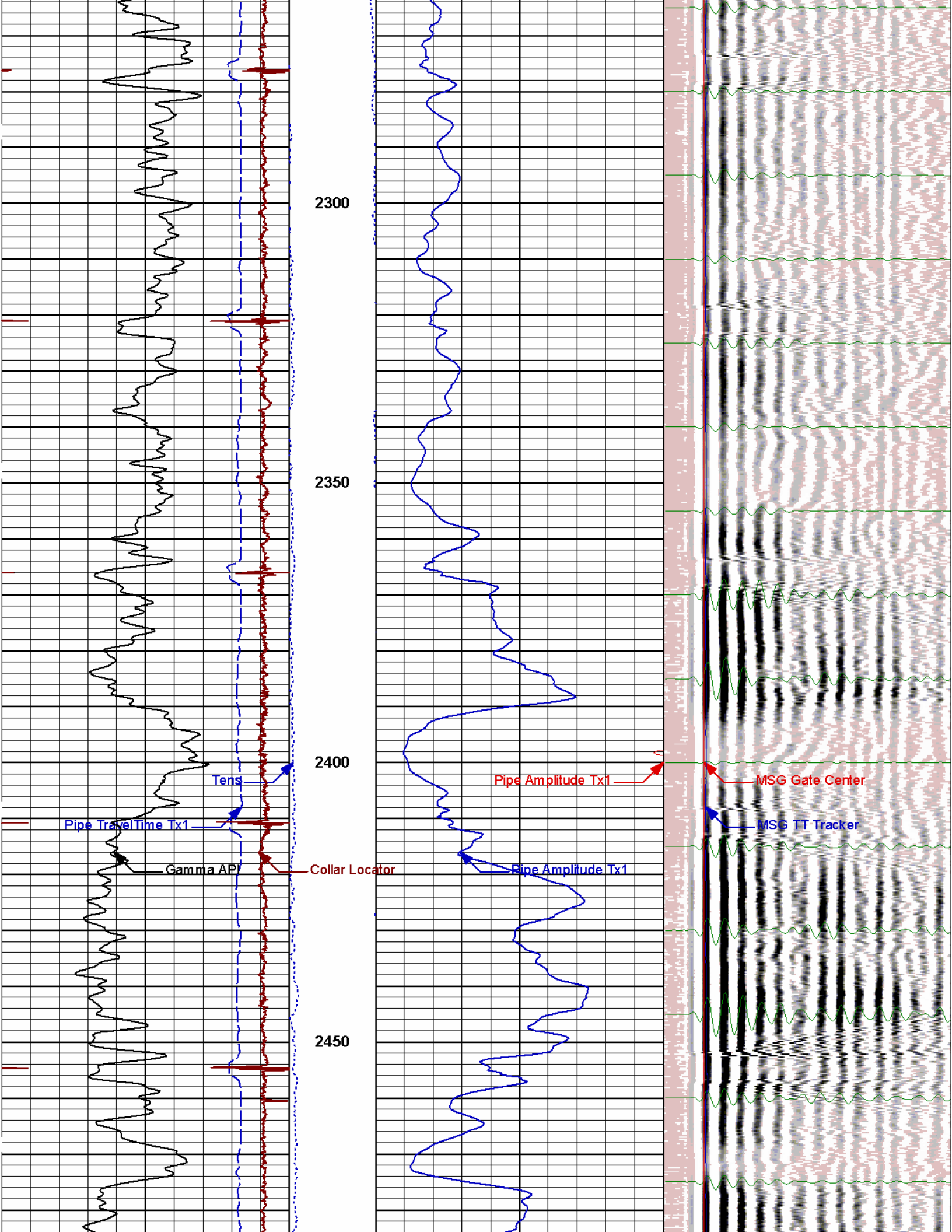


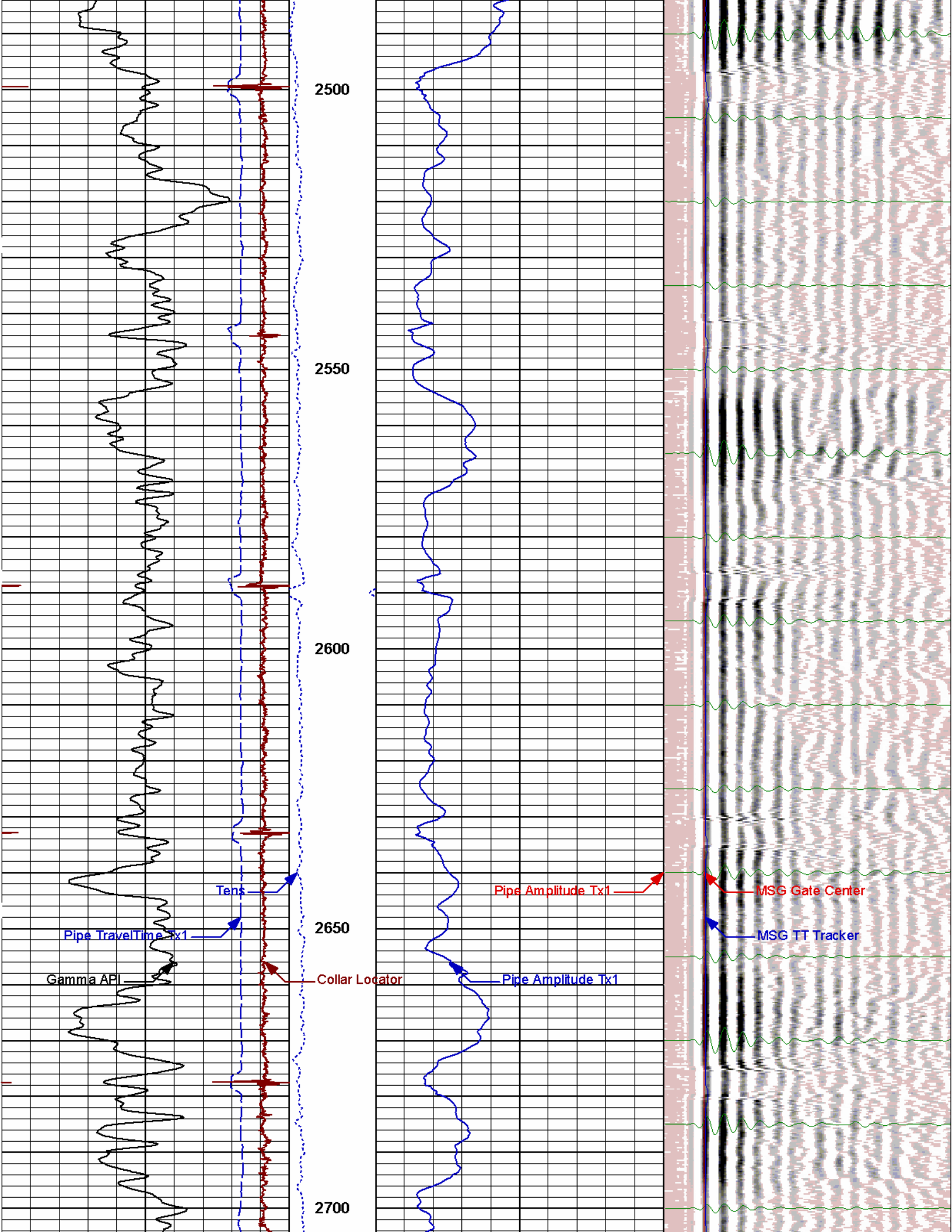


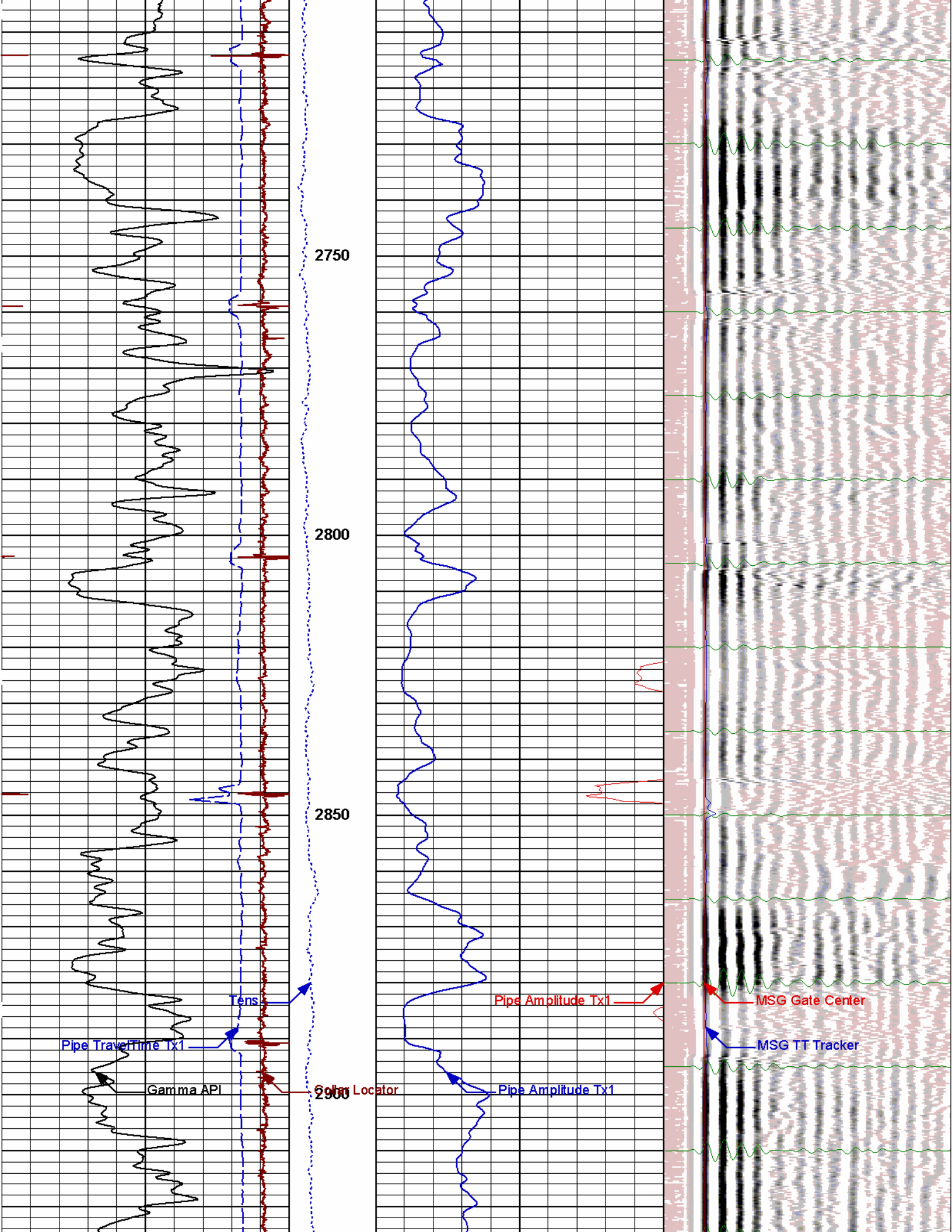


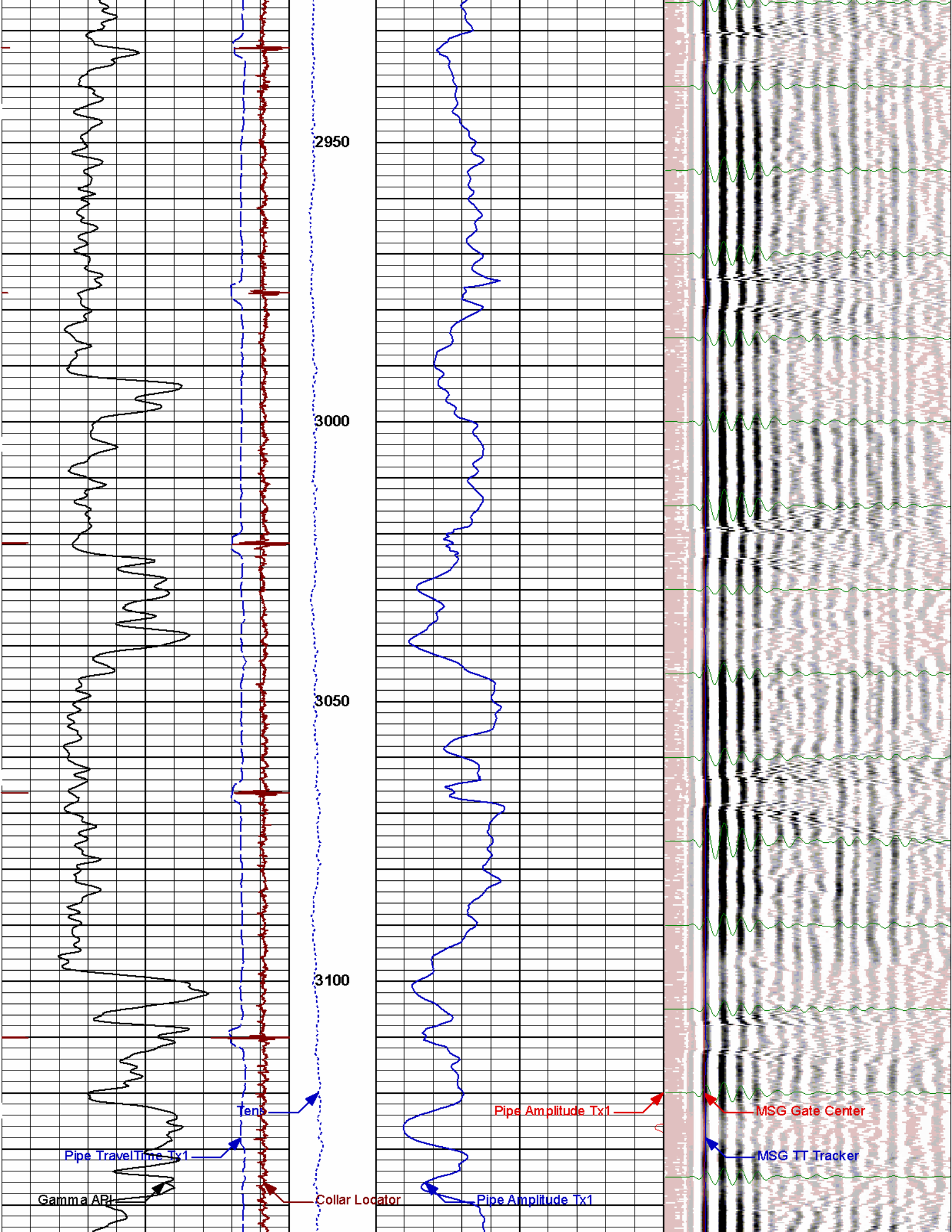


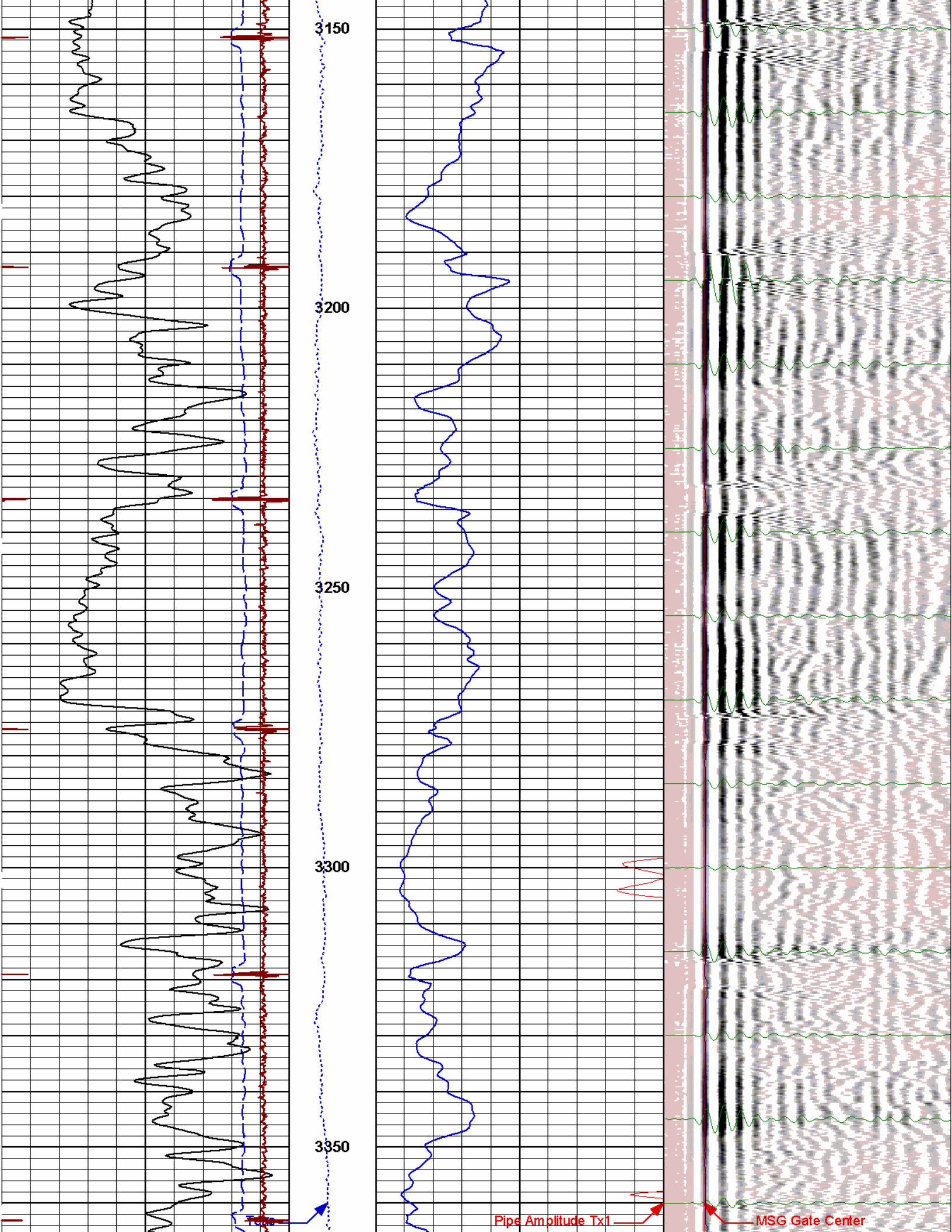


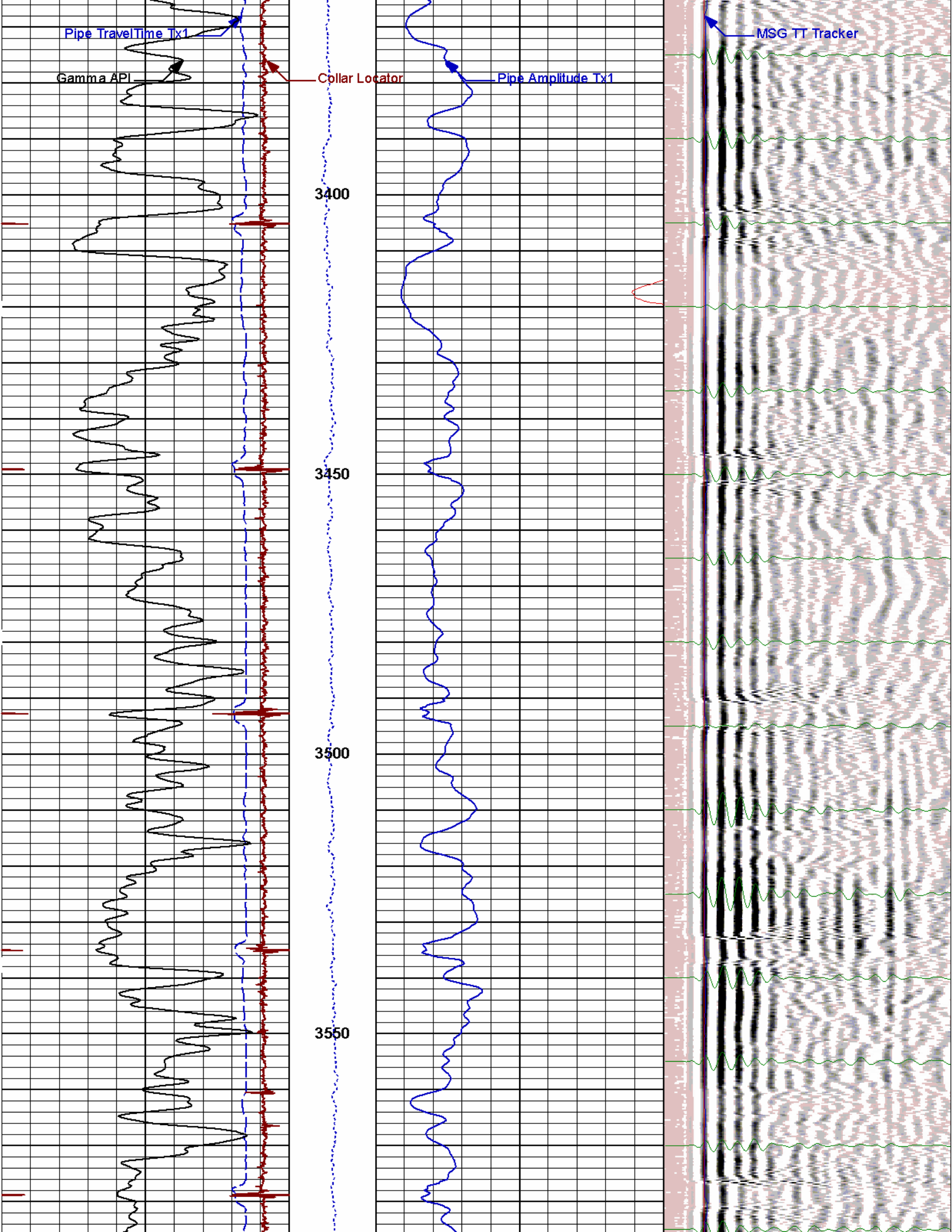


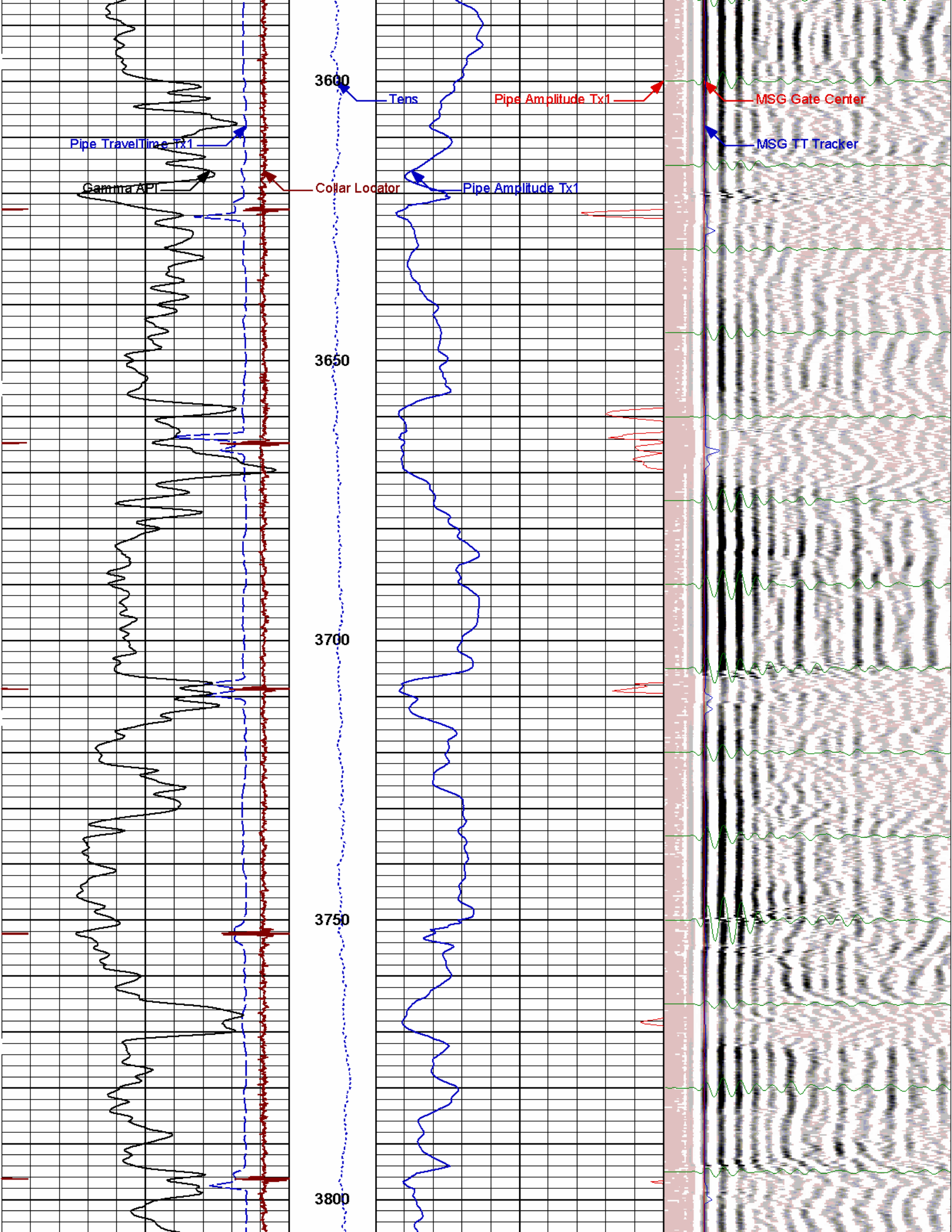


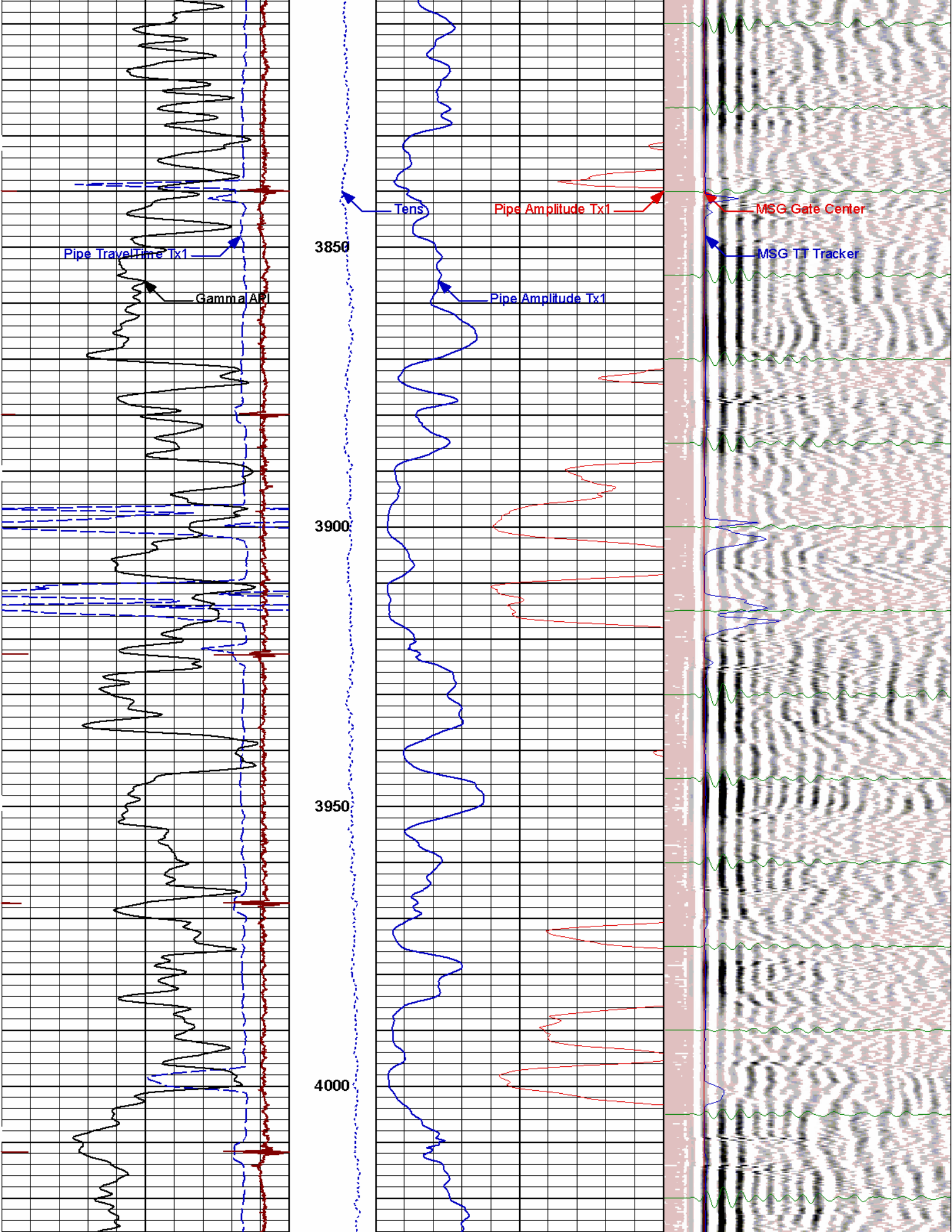


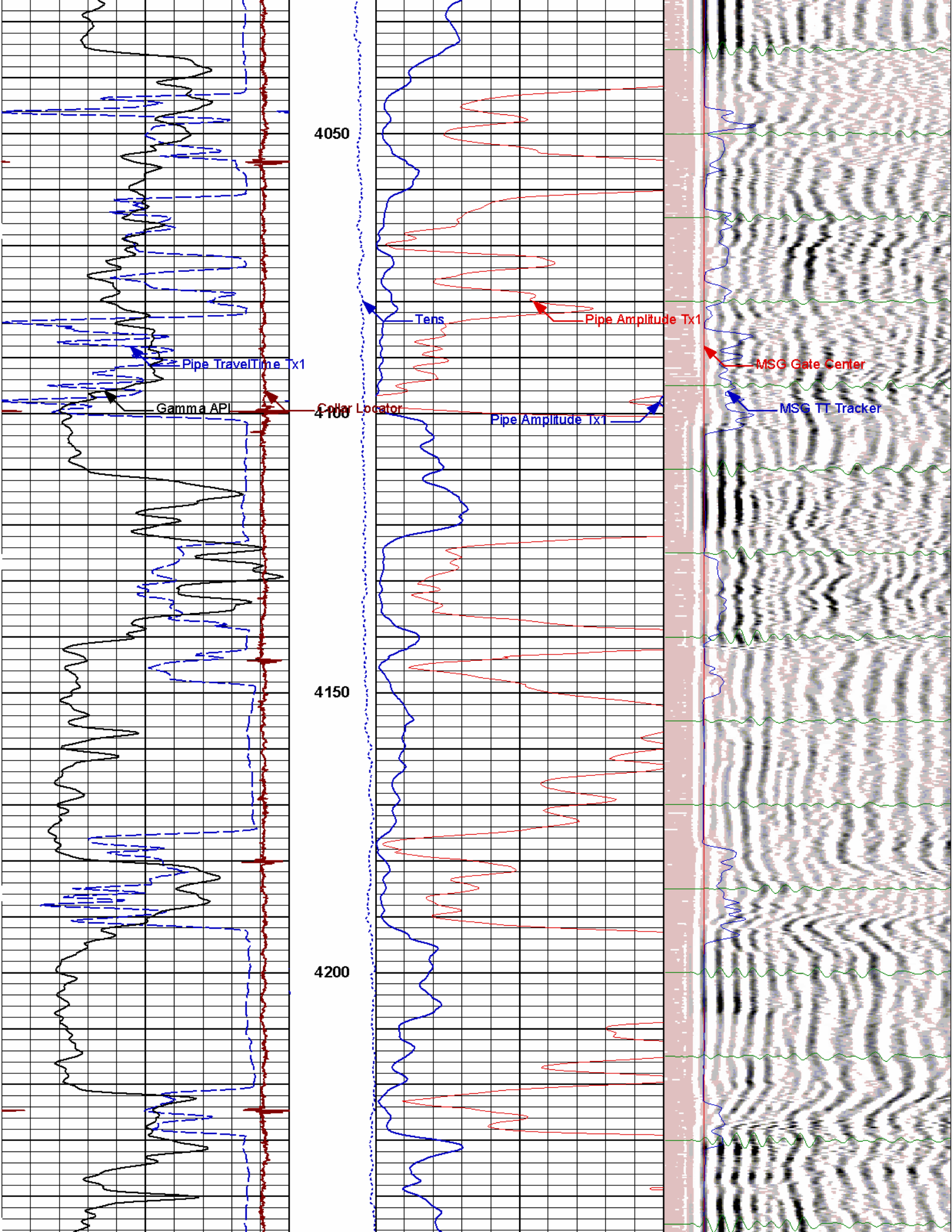


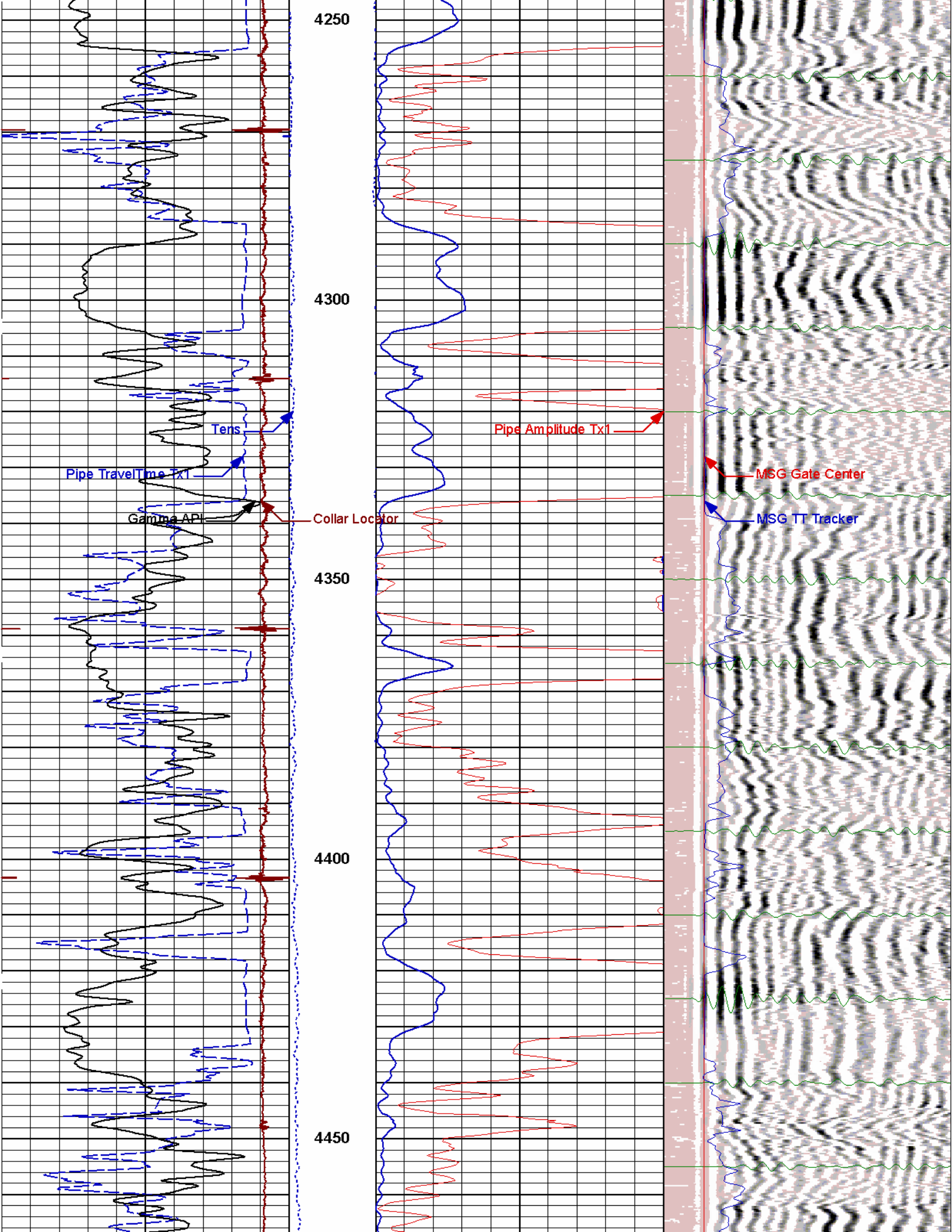


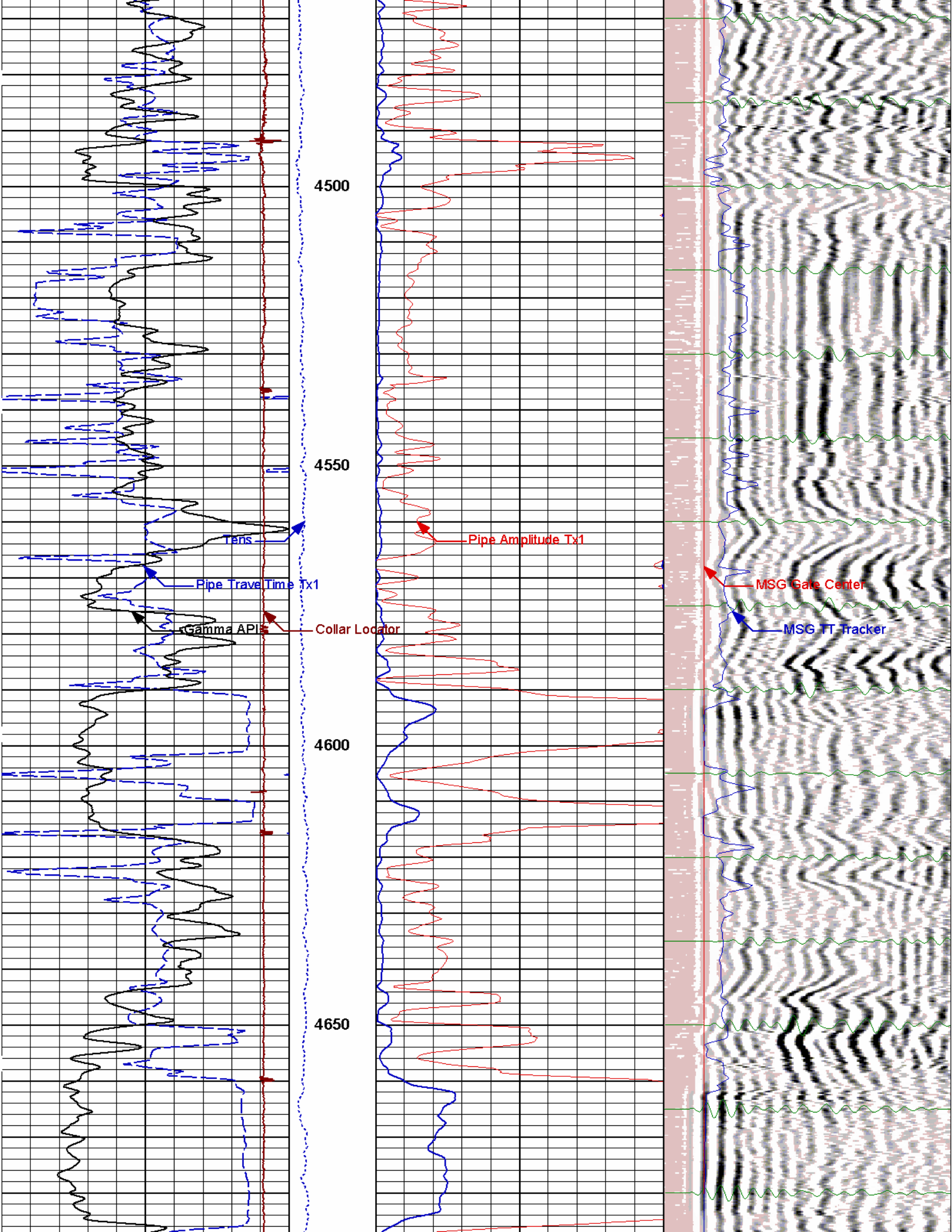


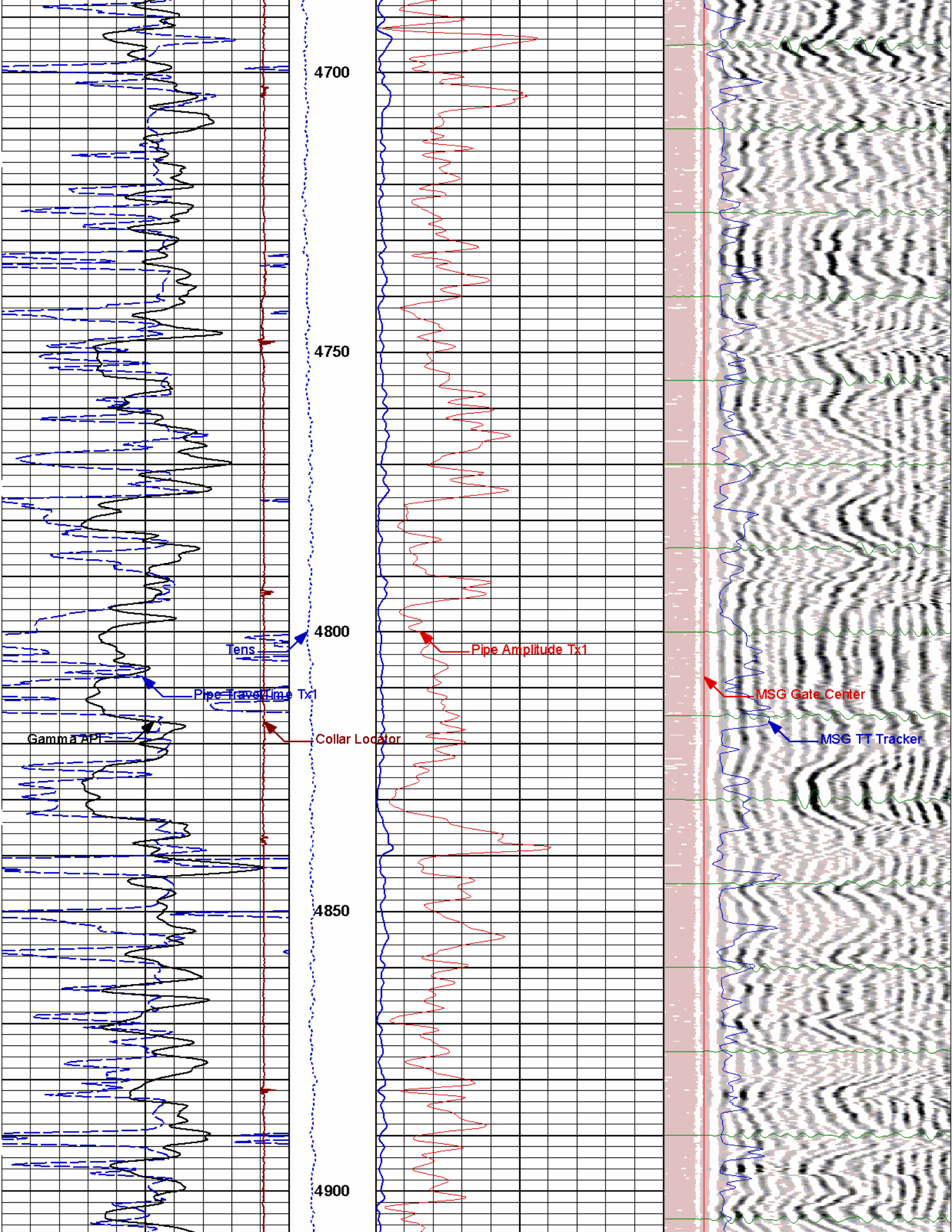


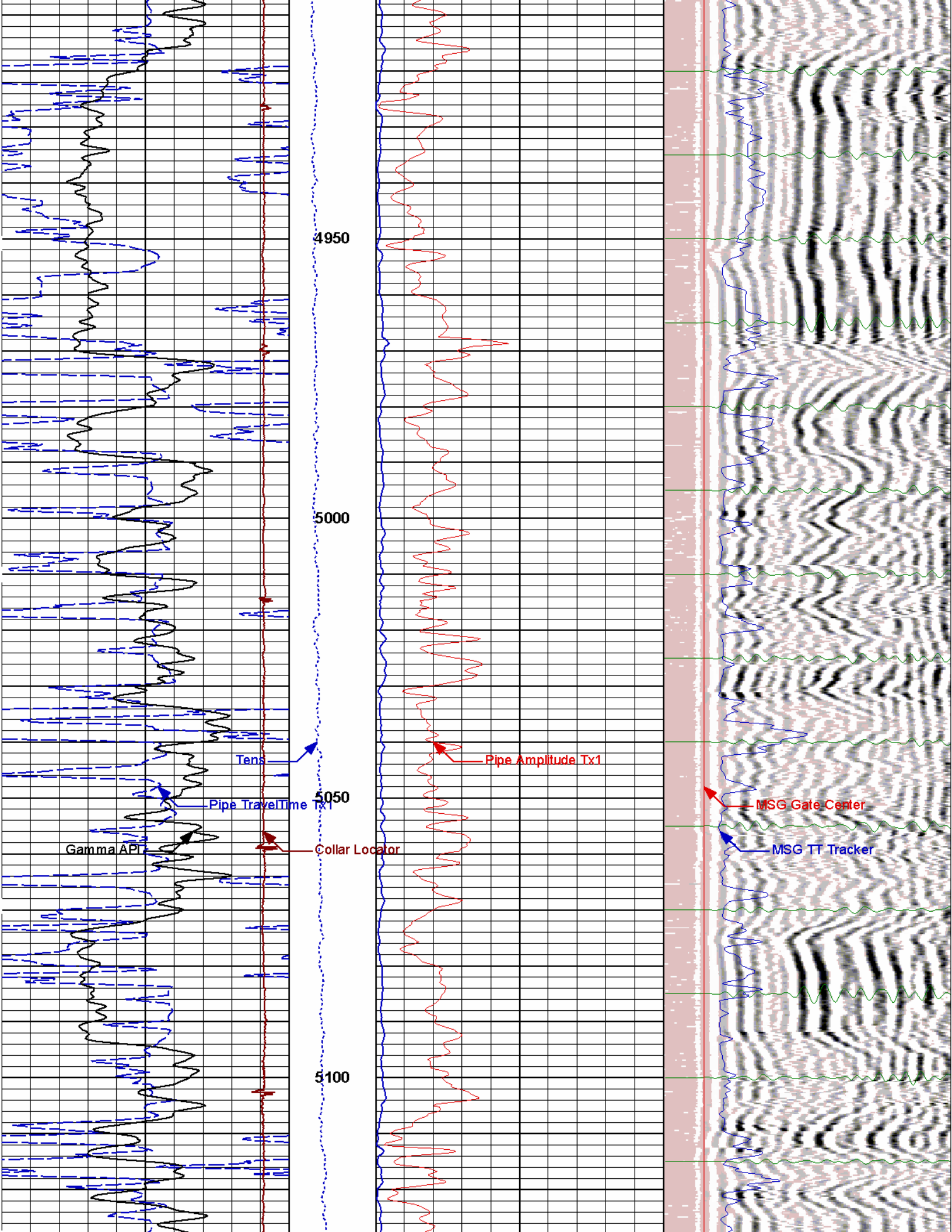


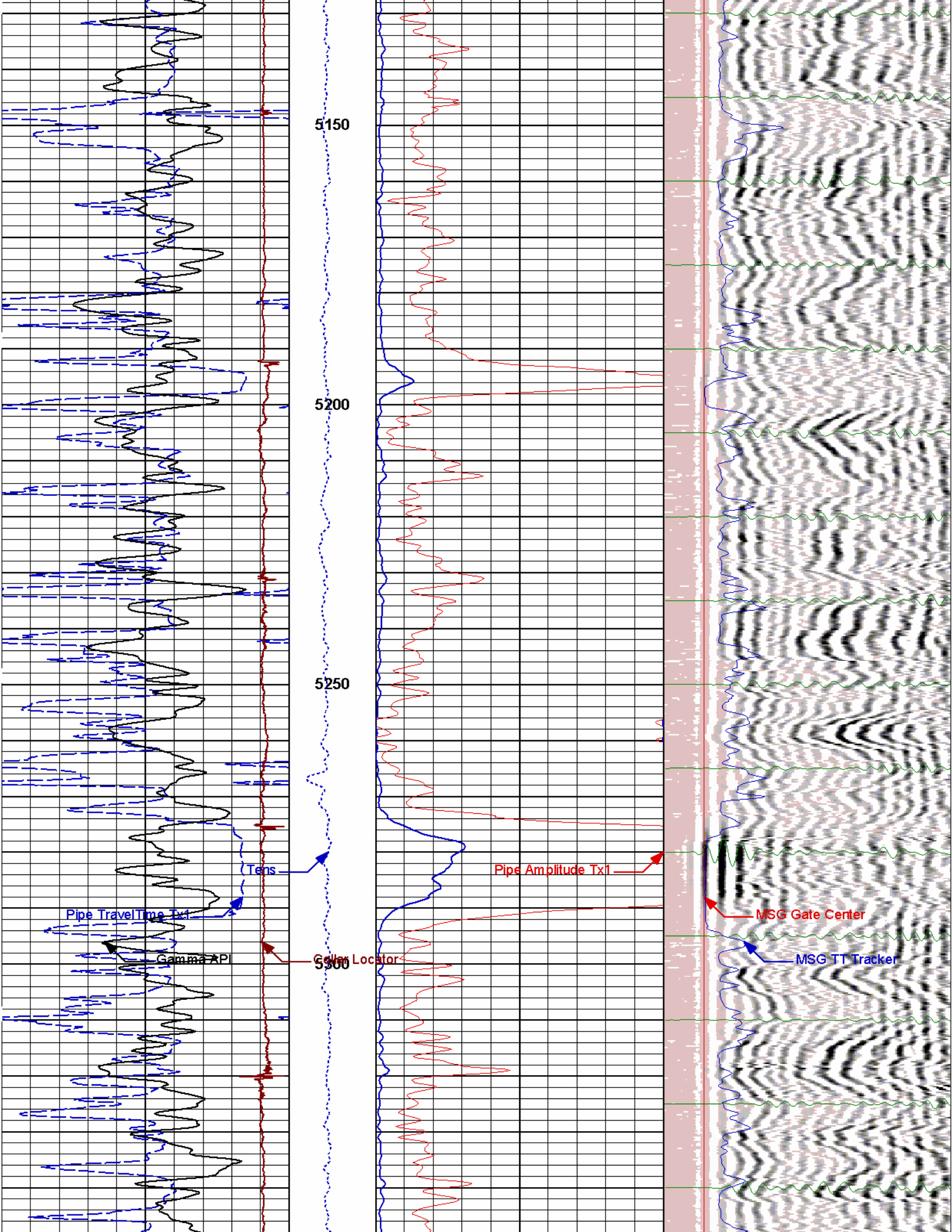


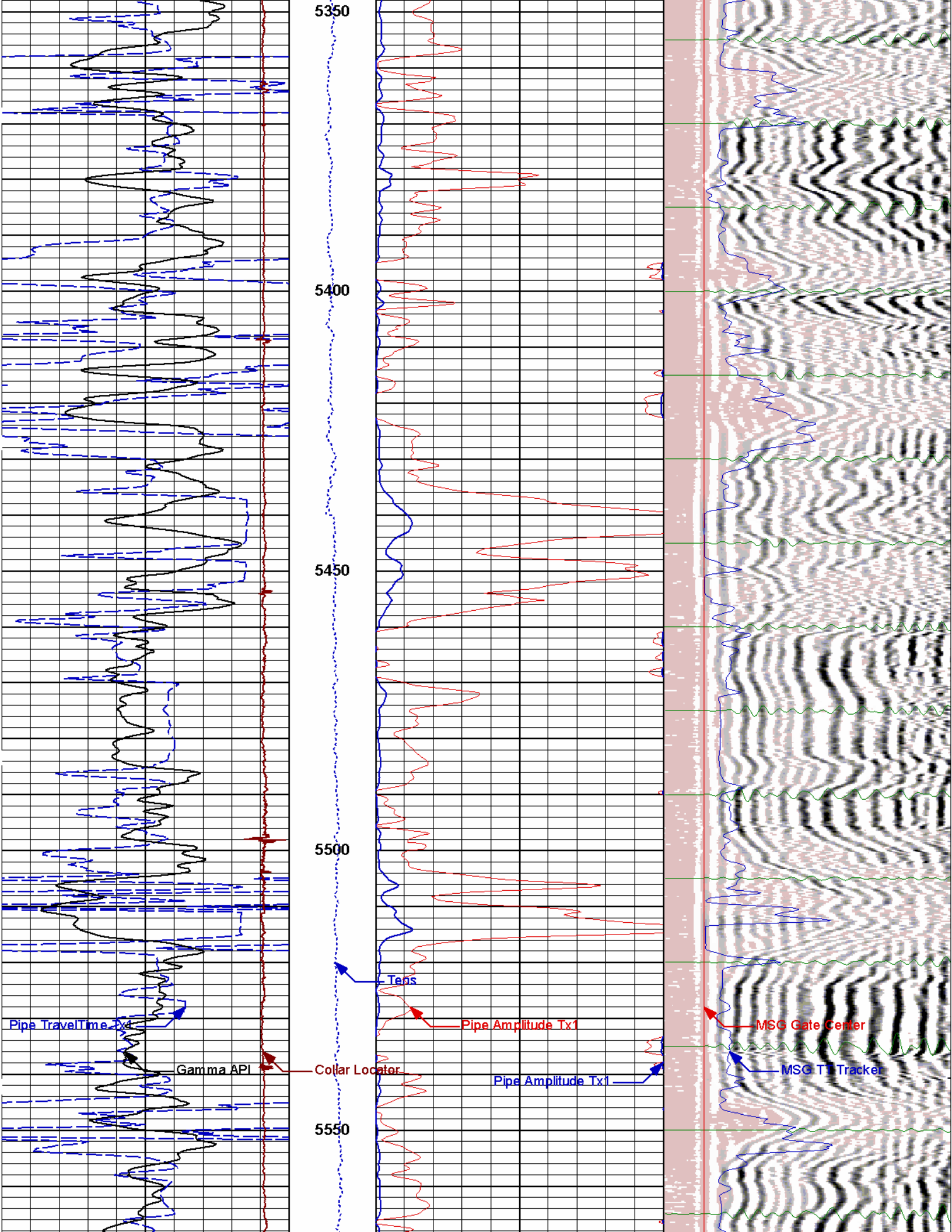


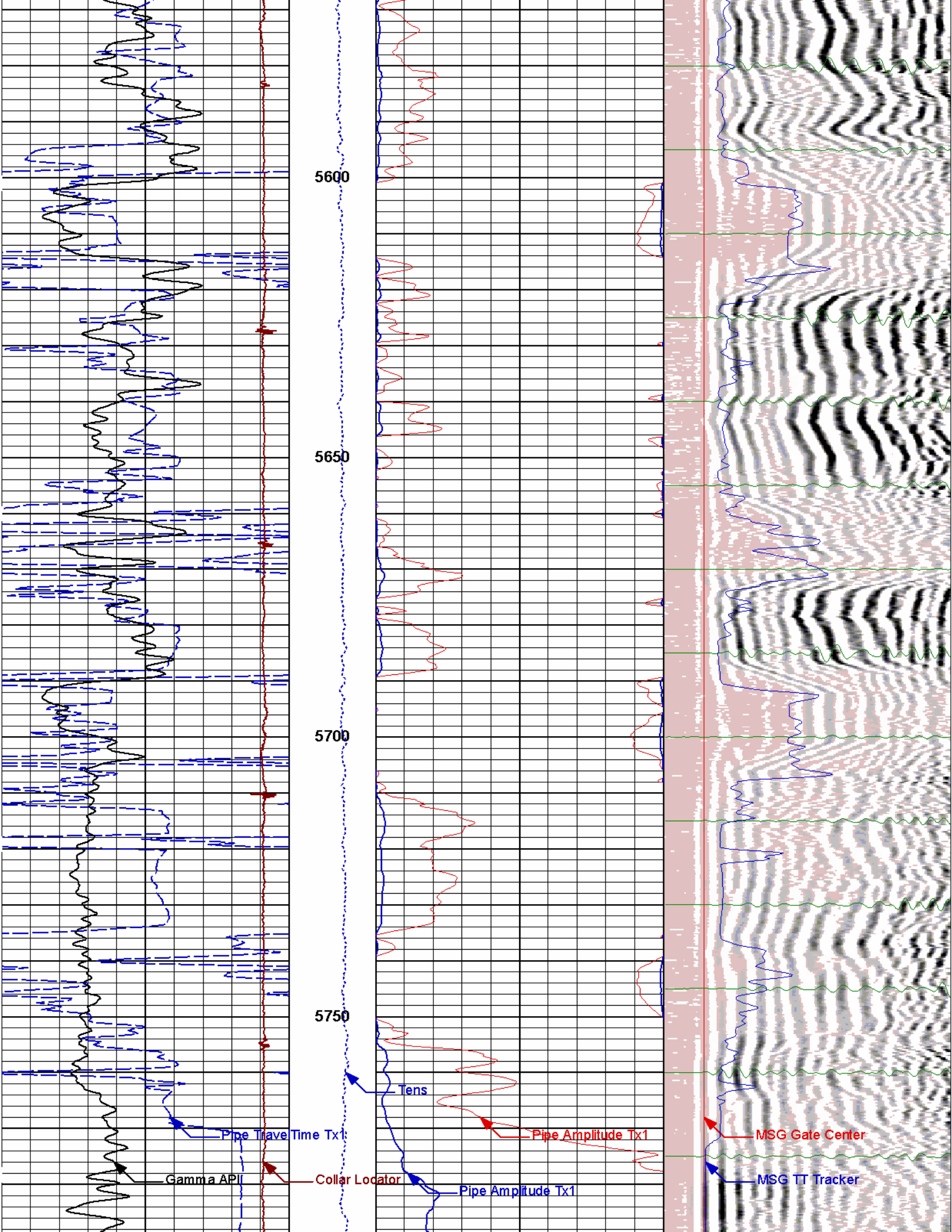


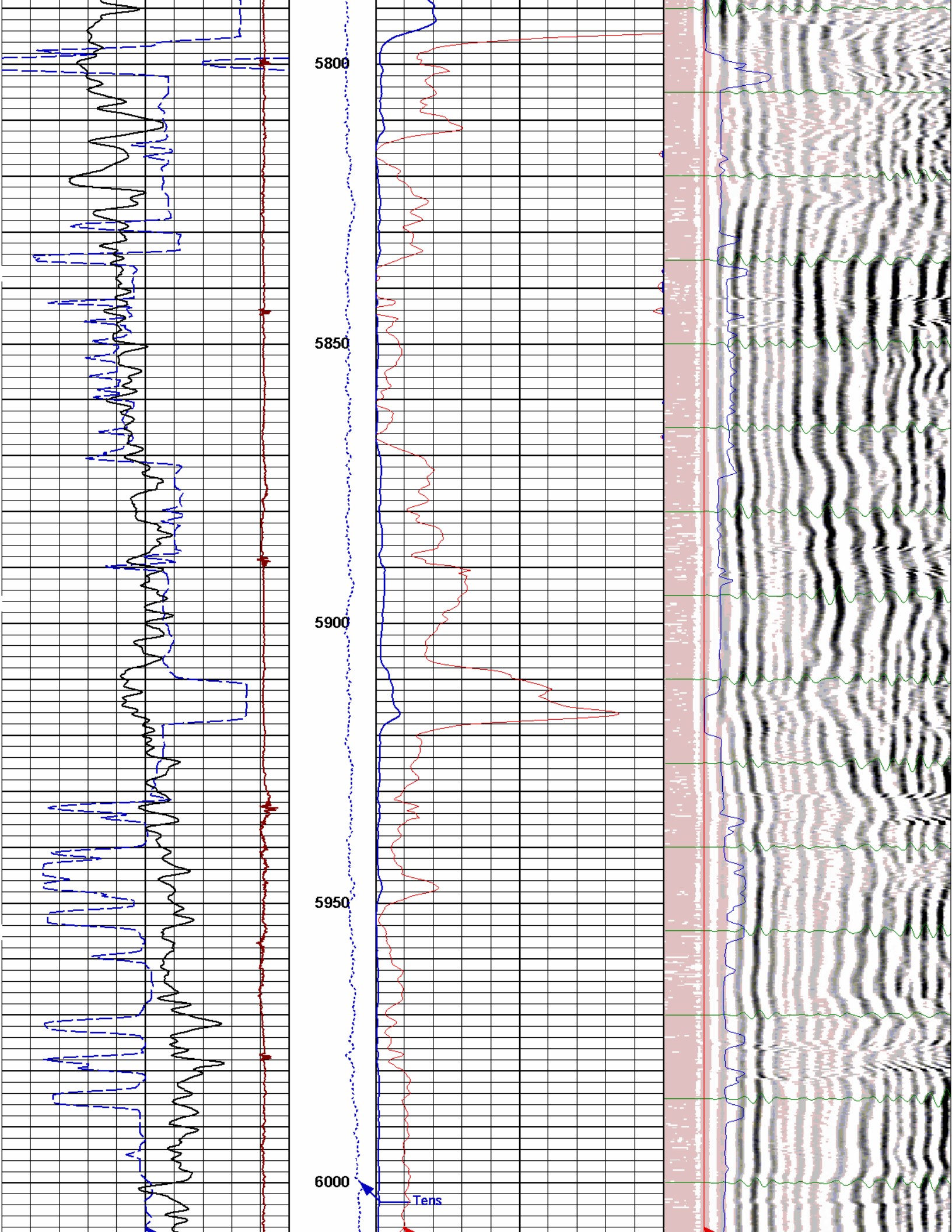


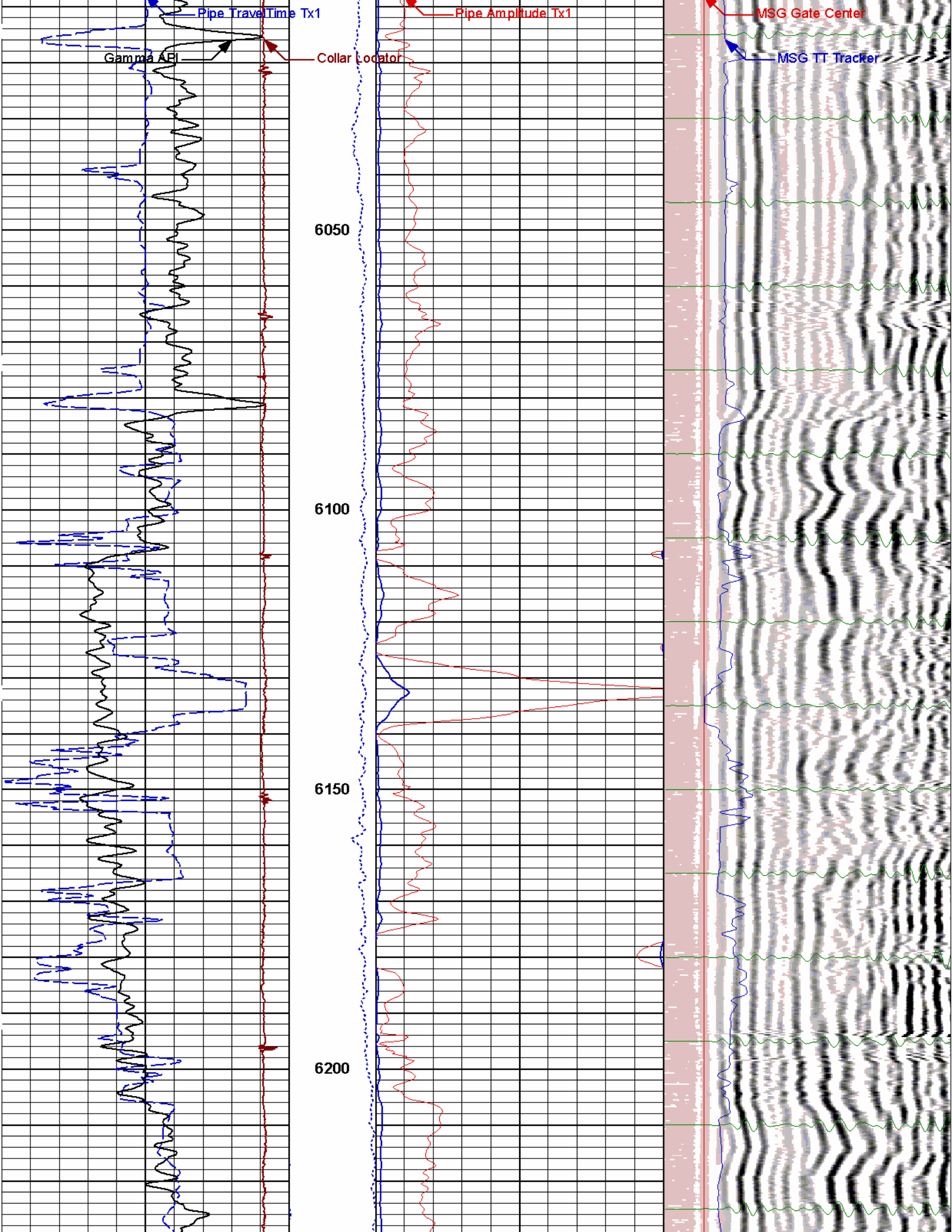


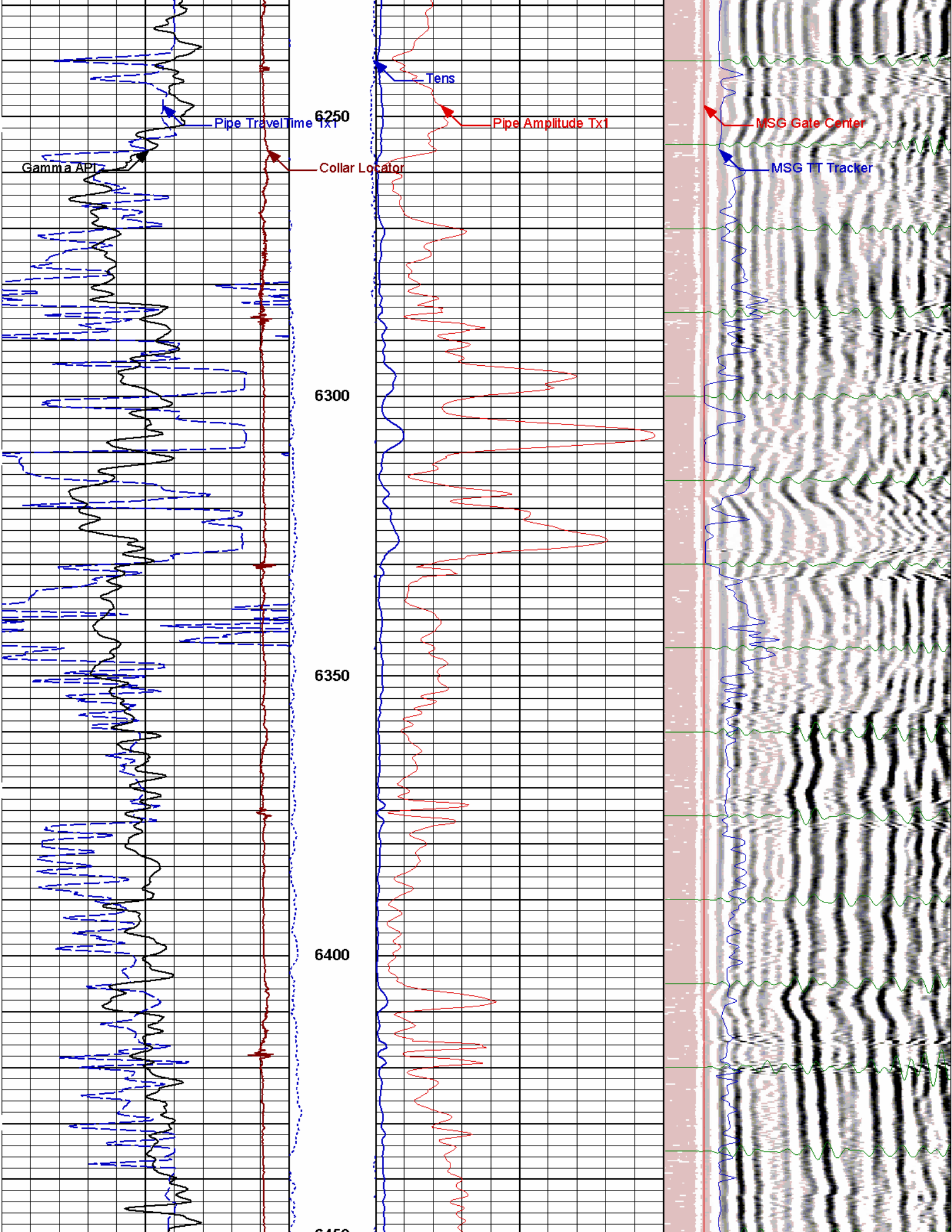


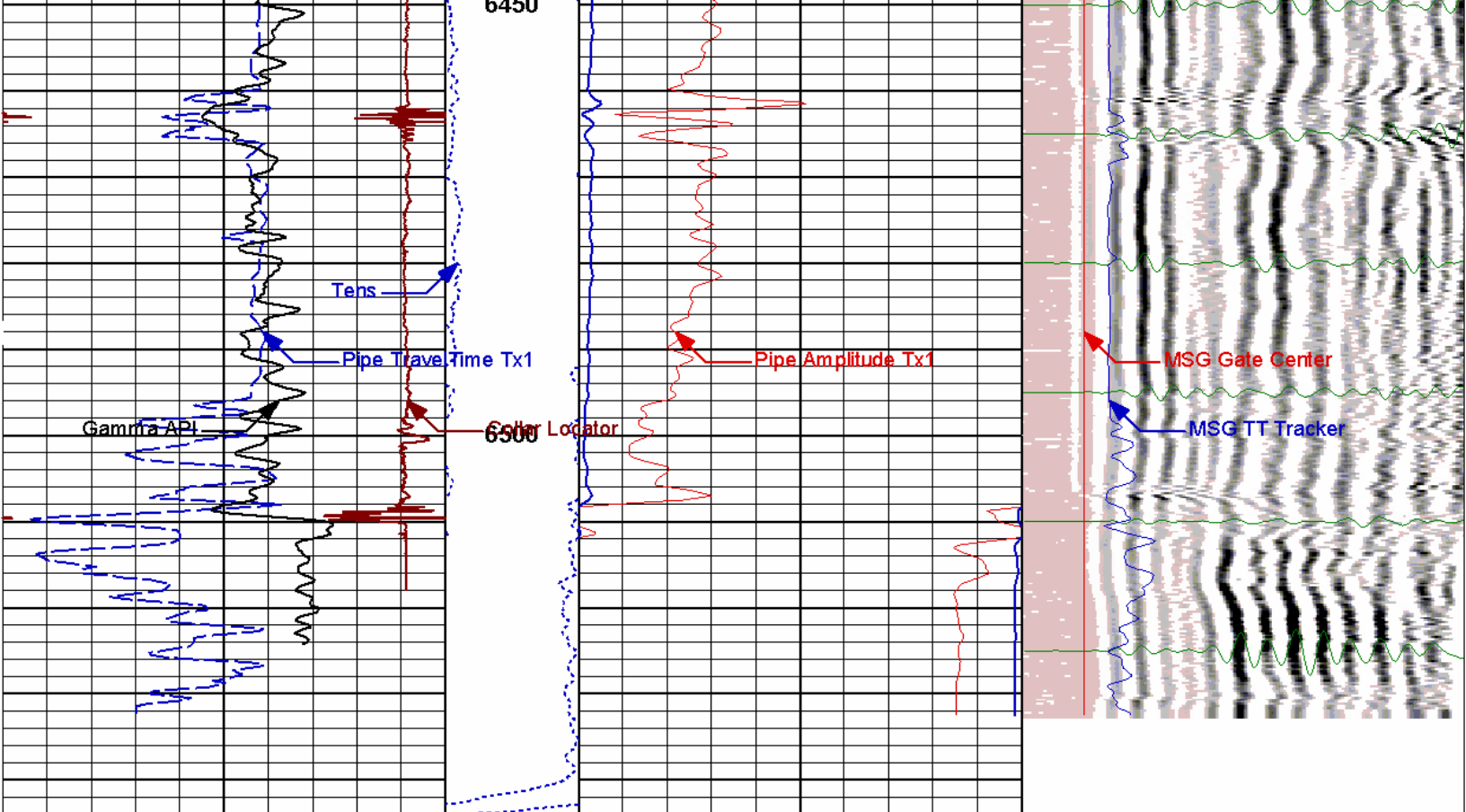












400	Pipe TravelTime Tx1	200	1 : 240	0	Pipe Amplitude Tx1	100	200	Waveform MSG	1200
	microseconds				millivolts			microseconds	
0	Gamma API	150	2K Tens 3K	0	Pipe Amplitude Tx1	10	200	Waveform	1200
	api		pounds		millivolts			microseconds	
10K	Collar Locator	-1K					200	MSG Gate Center	1.2K
	millivolts							microseconds	
							200	MSG TT Tracker	1.2K
								microseconds	

HALLIBURTON Plot Time: 17-Oct-11 14:23:45
 Plot Range: 1340 ft to 6544 ft
 Data: LARA_HAWX19_13A\Well Based\MAIN_CBL*
 Plot File: \CBL\BSAT CBL 1_240

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11602915	Reference Calibration Date:	03-Aug-11 12:55:22
Engineer:	C. BRUNTZ	Calibration Date:	02-Sep-11 10:42:37
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Calibrator Source S/N: TB-775
 Calibrator API Reference: 212.00 api

Calibrator API Reference:212.00 api

Equivalent Calibrator API Reference:215.7 api

Measurement	Measured	Calibrated	Units
Background	30.6	30.0	api
Background + Calibrator	250.5	245.8	api
Calibrator	215.1	215.7	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION**Tool Name:** GTET - 11602915**Reference Calibration Date:** 02-Sep-11 10:42:37**Engineer:** B. DRAKE**Calibration Date:** 16-Oct-11 03:15:06**Software Version:** WL INSITE R3.4.0 (Build 4)**Calibration Version:** 1

Calibrator Source S/N: TB-775

Calibrator API Reference:212.00 api

Equivalent Calibrator API Reference:215.7 api

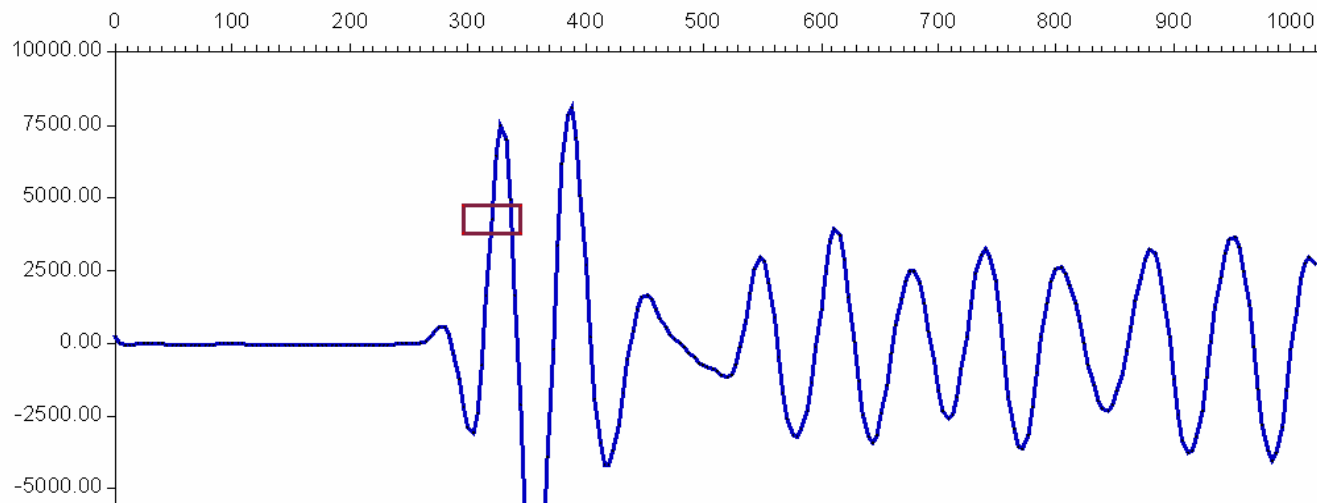
Field Verification	Shop	Field	Units
Background	30.0	30.0	api
Background + Calibrator	245.8	244.4	api
Calibrator	215.7	214.4	api

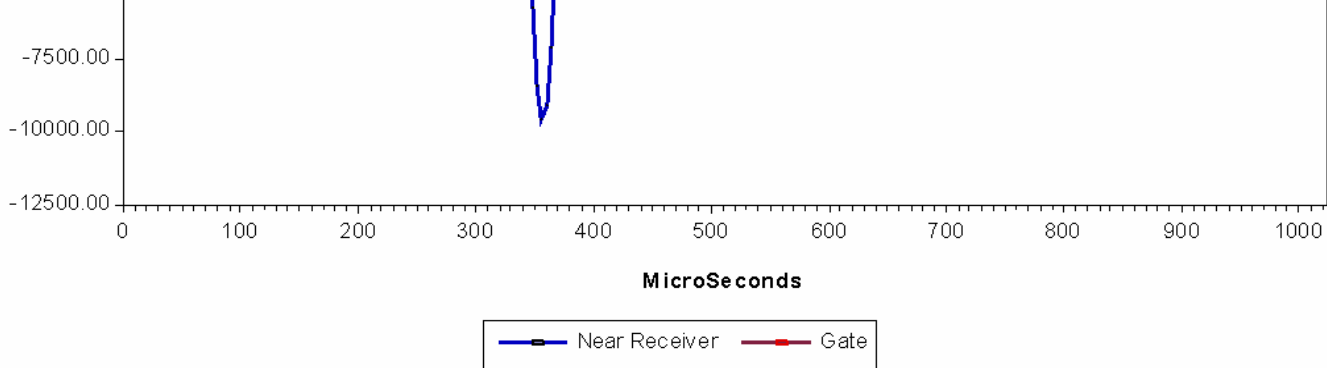
Shop	Field	Difference	Tolerance
215.7	214.4	1.3	+/- 9.00

CBL-BSAT SHOP CALIBRATION**Tool Name:** CBL-BSAT - 10939053**Reference Calibration Date:** 01-Jan-70 00:00:00**Engineer:** B. DRAKE**Calibration Date:** 17-Oct-11 01:01:51**Software Version:** WL INSITE R3.4.0 (Build 4)**Calibration Version:** 1**Calibration Type:** Well @ 1440.11 ft**Calibration Depth:** 1440.11 ft**Casing Weight:** 23.00 lbpf**Casing OD:** 7.000 in

Sensor	Measured	Calibrated	Difference	Units
Amplitude Tx1	62.20	62.20	0.00	mV
Amplitude Tx2	62.20	62.20	0.00	mV
Pipe Reference TT	----	237.00	----	us

Sensor	Raw Value	Units
Amplitude Tx1	7,272.60	mV
Amplitude Tx2	10,370.50	mV
Pipe TT from Tx1	329.00	us
Pipe TT from Tx2	330.00	us

Calibration - CBL Waveform



CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11602915						
Gamma Ray Calibrator	215.7	214.4	-----	1.3	+/- 9.00	api

Data: LARA_HAWX19_13A10004 CBL_BSATH006 17-Oct-11 01:28 Up @6552.3f Date: 17-Oct-11 02:52:32

HALLIBURTON

CUSTOMER EVENT LOG

Event Type	Time & Date	Depth (ft)	Event Description
	16-Oct-11 23:56:04	1537.00	Logging 001 16-Oct-11 23:56 Dn @1537.0f
	17-Oct-11 00:03:17	2010.03	Halting 001 16-Oct-11 23:56 Dn @1537.0f
	17-Oct-11 00:06:41	1631.75	Logging 002 17-Oct-11 00:06 Up @1631.8f
	17-Oct-11 00:10:52	1440.49	Halting 002 17-Oct-11 00:06 Up @1631.8f
	17-Oct-11 00:24:34	1369.50	Logging 003 17-Oct-11 00:24 Dn @1369.5f
	17-Oct-11 00:28:34	1643.43	Halting 003 17-Oct-11 00:24 Dn @1369.5f
	17-Oct-11 00:46:03	1516.50	Logging 004 17-Oct-11 00:46 Dn @1516.5f
	17-Oct-11 00:50:04	2114.63	Halting 004 17-Oct-11 00:46 Dn @1516.5f
	17-Oct-11 01:01:58	1407.25	Logging 005 17-Oct-11 01:01 Dn @1407.3f
	17-Oct-11 01:28:42	6542.58	Halting 005 17-Oct-11 01:01 Dn @1407.3f
	17-Oct-11 01:28:55	6552.25	Logging 006 17-Oct-11 01:28 Up @6552.3f

Data: LARA_HAWX19_13A10004 CBL_BSATHW11254 Date: 17-Oct-11 02:52:54

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TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-10895163 135.00 lbs		Ø 3.625 in →		← Load Cell @ 29.44 ft ← BH Temperature @ 28.88 ft	6.25 ft	33.13 ft
CCL-D-CCLD 60.00 lbs		Ø 3.625 in →		← CCL @ 26.17 ft	2.00 ft	26.88 ft

GTET-11602915
165.00 lbs

Ø 3.625 in →

8.52 ft

← GammaRay @ 18.81 ft

Centralizer 25-CENT1
8.00 lbs

Ø 4.000 in →

16.35 ft

CBL-BSAT -
10939053
300.00 lbs

Ø 3.625 in →

15.77 ft

← Tx1 Amp & TT @ 10.34 ft

← Tx1 MSG @ 9.34 ft

← Tx2 MSG @ 6.34 ft

← Tx2 Amp & TT @ 5.34 ft

Centralizer 25-CENT2
8.00 lbs

Ø 4.000 in →

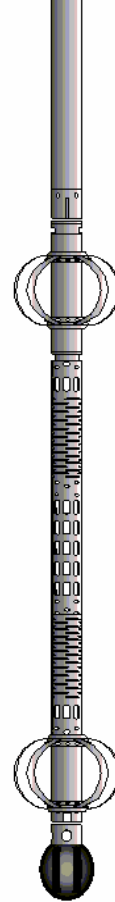
0.58 ft

Cabbage Head-CH
10.00 lbs

Ø 3.625 in →
Ø 6.000 in →

0.58 ft

0.00 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH		Releasable Wireline Cable Head	10895163	135.00	6.25	26.88	300.00
CCL		Casing Collar Locator - Digital Source	CCLD	60.00	2.00	24.88	300.00
GTET		Gamma Telemetry Tool	11602915	165.00	8.52	16.35	60.00
CBL-BSAT		Borehole Sonic Array Tool - CBL	10939053	300.00	15.77	0.58	60.00
OBCEN		Centralizer - 25 in. Overbody	CENT2	8.00	2.08	*	0.87
OBCEN		Centralizer - 25 in. Overbody	CENT1	8.00	2.08	*	13.49
CBHD		Cabbage Head	CH	10.00	0.58	0.00	300.00
Total				686.00	33.13		
* Not included in Total Length and Length Accumulation.							
Data: LARA_HAWX19_13A\0004 CBL_BSAT\006 17-Oct-11 01:28 Up @6552.3f							Date: 17-Oct-11 02:51:40

COMPANY	LARAMIE ENERGY		
WELL	HAWXHURST 19-13A		
FIELD	BRUSH CREEK		
COUNTY	MESA	STATE	CO
HALLIBURTON		CEMENT BOND LOG	