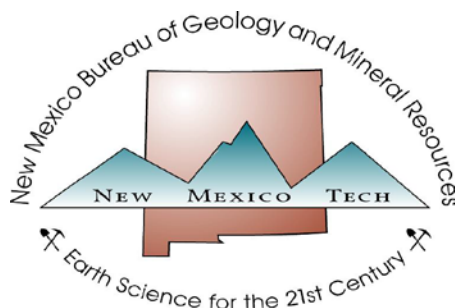


Geophysical Logs of Well RG-95474 near Llano Quemado, Taos County, New Mexico

Open-file Report 588

Paul W. Bauer

New Mexico Bureau Geology & Mineral Resources
New Mexico Institute of Mining & Technology
Socorro, New Mexico 87801



December 2016

Geophysical Logs of Well RG-95474 near Llano Quemado, Taos County, New Mexico

New Mexico Bureau of Geology & Mineral Resources
Open-file Report – 588
2016

Paul W. Bauer

In September of 2015, the Llano Quemado Mutual Domestic Water Consumers Association drilled a production water well 1.4 miles southwest of the village of Llano Quemado, just south of Taos (UTM-NAD83 coordinates: 443954 E, 4020825 N). The well is located on the high piedmont of the Picuris Mountains, in the southeast corner of the San Luis basin of the Rio Grande rift. The well penetrated thin surficial deposits and basin-fill deposits of the Santa Fe Group and Picuris Formation to a total depth of 1206 ft, and was cased to 1185 ft.

The well owner commissioned geophysical logging of the well. The purpose of this report is to make the geophysical logs available to the public.

Well Coordinates

UTM-NAD83 coordinates: 443954 E, 4020825 N
NAD83 lat/long: 36° 19' 51"N, 105° 37' 28" E

Contents (PDF Format)

- Overview (this page)
- Well record filed with the NM Office of the State Engineer
- Deviation log
- Sonic log
- Electric gamma log
- Gamma neutron caliper log

Recommended Citation

Bauer, P.W., 2016, Geophysical logs of well RG-95474 near Llano Quemado, Taos County, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Report 588, 29 p.

References

This well has also served as a data source for several recent reports on the geology, hydrogeology, and geophysics of the southern Taos Valley area and the Embudo fault zone (e.g., Bauer et al., 2016; Johnson et al., 2016; Grauch et al., 2017 – *see below*).

Bauer, P.W., Kelson, K.I., Grauch, V.J.S., Drenth, B.J., Johnson, P.S., Aby, S.B., and Felix, B., 2016, Geologic Map and Cross Sections of the Embudo Fault Zone in the Southern Taos Valley, Taos County, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Report 584, 28 p. plus two oversized plates.

Grauch, V.J.S., Bauer, P.W., Drenth, B.J., and Kelson, K.I., 2017, A shifting rift—Geophysical insights into the evolution of Rio Grande rift margins and the Embudo transfer zone near Taos, New Mexico: *Geosphere*, v. 13 (in press).

Johnson, P.S., Bauer, P.W., and Felix, B., 2016, Hydrogeologic investigation of the southern Taos Valley, Taos County, New Mexico: New Mexico Bureau of Geology and Mineral Resources Open-File Report 581, 95 p.



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

OFFICE OF STATE ENGINEER
SANTA FE, NEW MEXICO

2015 NOV -2 PM 12: 14

1. GENERAL AND WELL LOCATION	OSE POD NUMBER (WELL NUMBER)				OSE FILE NUMBER(S) RG 95474				
	WELL OWNER NAME(S) Andrew D. Chavez Llano Quemado MDWCA				PHONE (OPTIONAL)				
	WELL OWNER MAILING ADDRESS P.O. Box 638				CITY Ranchos de Taos		STATE NM	ZIP 87557	
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 36	MINUTES 19	SECONDS 51 N	* ACCURACY REQUIRED ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84				
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE									
2. DRILLING & CASING INFORMATION	LICENSE NUMBER WD-1472		NAME OF LICENSED DRILLER Bill W. Whaley			NAME OF WELL DRILLING COMPANY HydroGeologic Services, Inc.			
	DRILLING STARTED 9/22/2015		DRILLING ENDED 9/26/2015		DEPTH OF COMPLETED WELL (FT) 1185		BORE HOLE DEPTH (FT) 1206		
	DRILLING FLUID: <input type="radio"/> AIR <input checked="" type="radio"/> MUD		ADDITIVES - SPECIFY		DEPTH WATER FIRST ENCOUNTERED (FT) 760				
	COMPLETED WELL IS <input type="radio"/> ARTESIAN <input type="radio"/> DRY HOLE <input checked="" type="radio"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) 380				
	DRILLING METHOD: <input checked="" type="radio"/> ROTARY <input type="radio"/> HAMMER <input type="radio"/> CABLE TOOL <input type="radio"/> OTHER - SPECIFY								
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)	
	FROM	TO							
	0		998.5	10	Steel	Welded	6.065	.280	
	998.5		1039.5	10	Stainless Steel	Welded	6.065	.280	.035
	1039.5		1101.8	10	Steel	Welded	6.065	.280	
1101.8		1122.3	10	Stainless Steel	Welded	6.065	.280	.035	
1122.3		1164.5	10	Steel	Welded	6.065	.280		
1164.5		1175	10	Stainless Steel	Welded	6.065	.280	.035	
1175		1185	10	Steel	Welded	6.065	.280		
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT			
	FROM	TO							
	0		5	10	Open for Pitless				
	5		90	10	Cement	30	Tremie		
	90		100	10	3/8 Bentonite Chips	4	Tremie		
	100		950	10	3/8 Pea Gravel	300	Gravity		
	950		1206	10	8/16 Silica Sand	90	Gravity		

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)


FILE NUMBER **RG- 95474**

POD NUMBER

TRN NUMBER **572676**

LOCATION

PAGE 1 OF 2

	DEPTH (feet bgl)		THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER- BEARING ZONES (gpm)
	FROM	TO				
4. HYDROGEOLOGIC LOG OF WELL	0	113	113	Brown Clay, Sand, Gravel - Black/Orange	<input type="radio"/> Y <input checked="" type="radio"/> N	
	113	142	29	Gray/Green Clay	<input type="radio"/> Y <input checked="" type="radio"/> N	
	142	168	26	Hard Black/Green Layer Rock	<input type="radio"/> Y <input checked="" type="radio"/> N	
	168	172	4	Brown Clay	<input type="radio"/> Y <input checked="" type="radio"/> N	
	172	203	31	Black/Orange Coarse Sand	<input type="radio"/> Y <input checked="" type="radio"/> N	
	203	297	94	Brown Clay	<input type="radio"/> Y <input checked="" type="radio"/> N	
	297	405	108	Black/Orange Sand, Small Clay Brown Layers	<input type="radio"/> Y <input checked="" type="radio"/> N	
	405	510	105	Grey/Brown Clay + Silt	<input type="radio"/> Y <input checked="" type="radio"/> N	
	510	1008	498	Black/Purple Sands & Red Clays	<input checked="" type="radio"/> Y <input type="radio"/> N	5
	1008	1206	198	Coarse Black/Orange Sand & Silts	<input checked="" type="radio"/> Y <input type="radio"/> N	+30
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
	METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: <input type="radio"/> PUMP					TOTAL ESTIMATED WELL YIELD (gpm): +35
<input checked="" type="radio"/> AIR LIFT <input type="radio"/> BAILER <input type="radio"/> OTHER - SPECIFY:						
5. TEST; RIG SUPERVISION	WELL TEST TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.					
	MISCELLANEOUS INFORMATION:					
	PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Lee G. Aylmer					
6. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING.					
	 SIGNATURE OF DRILLER / PRINT SIGNEE NAME				10/14/2015 DATE	

FOR USE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER Rg-95474

POD NUMBER

TRN NUMBER

572676

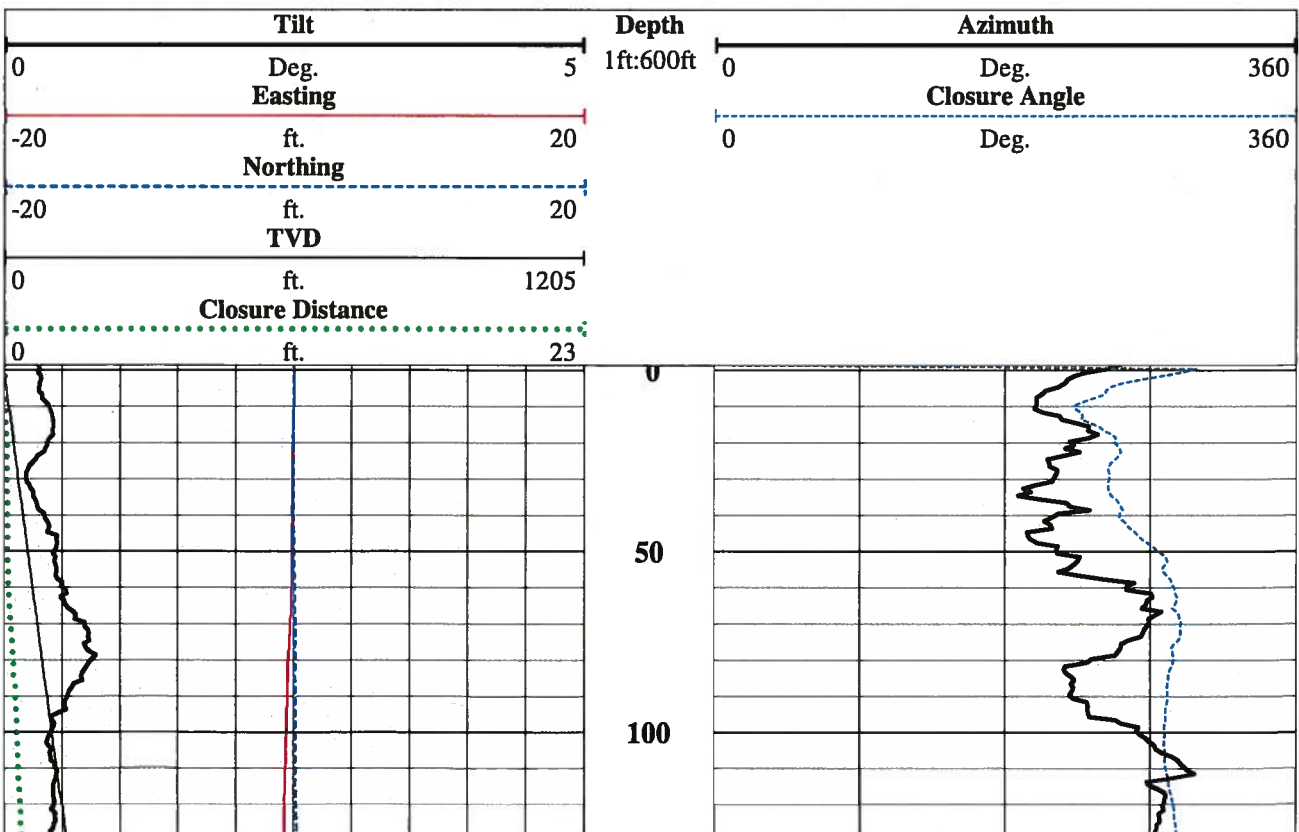
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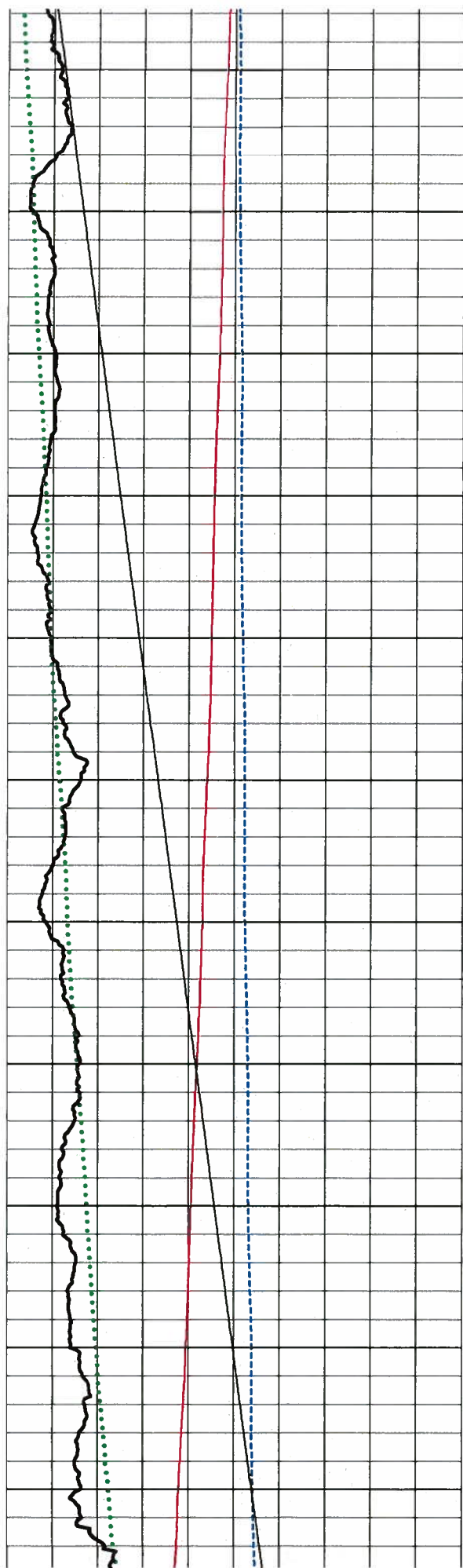
PAGE 2 OF 2

JET WEST

GEOPHYSICAL SERVICES, LLC.

NAD27		COMPANY		Llano Quemado Mutual Domestic Water Association	
Northing:		WELL ID		Llano Quemado #3-Deepen	
Easting:		FIELD		Llano Quemado	
		COUNTY		Taos	
		STATE		New Mexico	
		TYPE OF LOG:		Deviation Survey	
LOCATION		OTHER SERVICES		GR/Neutron Caliper Sonic Electric Log	
SEC	TWP	RGE	API No.		
PERMANENT DATUM		Ground Level	ELEVATION	K.B.	
LOG MEAS. FROM		Ground Level	ABOVE PERM. DATUM	T.O.C	
DRILLING MEAS. FROM		Ground Level		G.L.	
DATE	8-18-2015	TYPE FLUID IN HOLE	Fresh Mud		
RUN No.	four	SALINITY			
TYPE LOG	MSI Dev/GR	DENSITY			
DEPTH-DRILLER	1210 ft.	LEVEL	75 ft.		
DEPTH-LOGGER	1200 ft.	MAX. REG. TEMP			
BTM LOGGED INTERVAL	1206 ft.	DIGITIZE INTERVAL	0.2 ft.		
TOP LOGGED INTERVAL	Surface				
OPERATING RIG TIME					
RECORDED BY	A. Henderson				
WITNESSED BY	R. Burton-Burton Engineers				
RUN		BOREHOLE RECORD		CASING RECORD	
NO.	BIT	FROM	TO	SIZE	WGT.
1	12 in.	0 ft.	20 ft.	10 in.	Steel
2	9 7/8 in.	20 ft.	1010 ft.		
3					
REMARKS:					





150

200

250

300

350

400

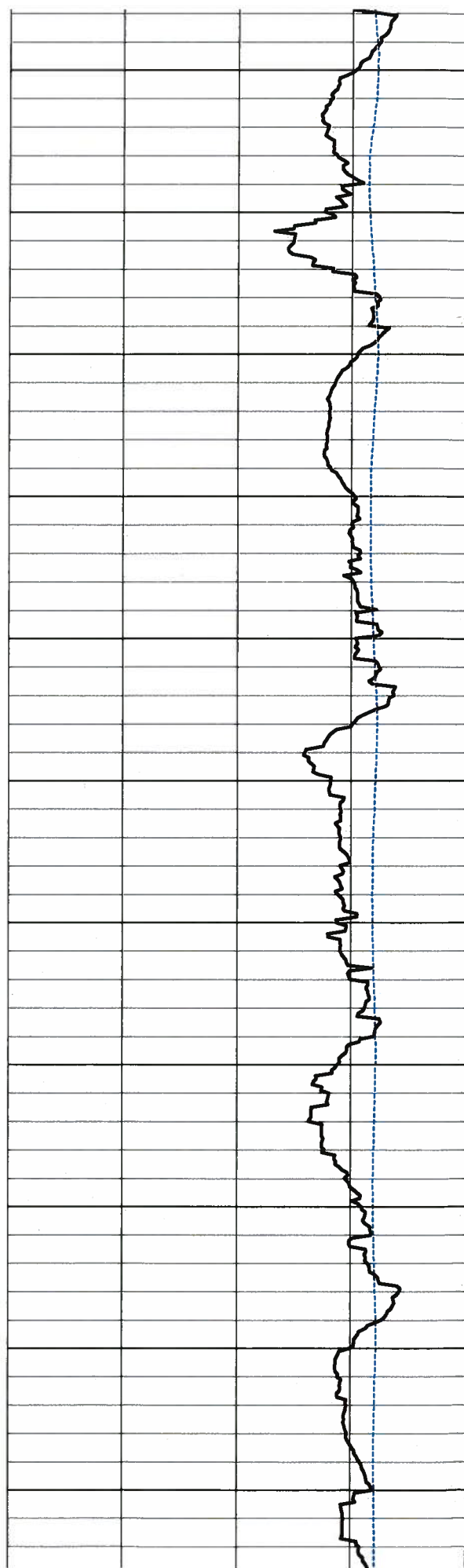
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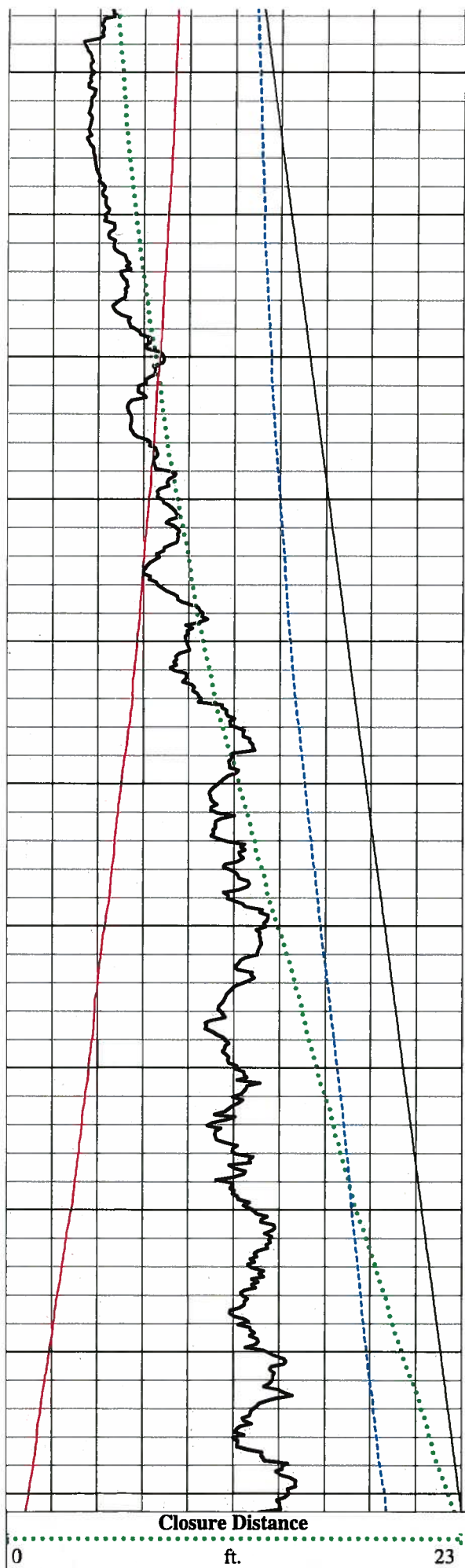
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550

600

650





700

750

800

850

900

950

1000

1050

1100

1150

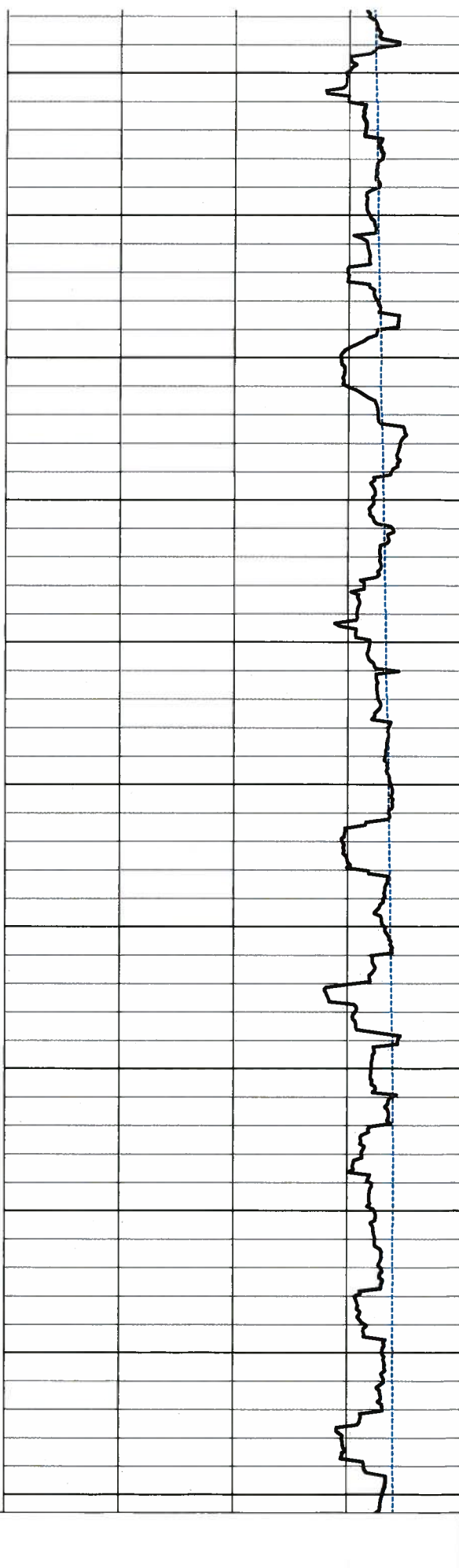
1200

Closure Distance

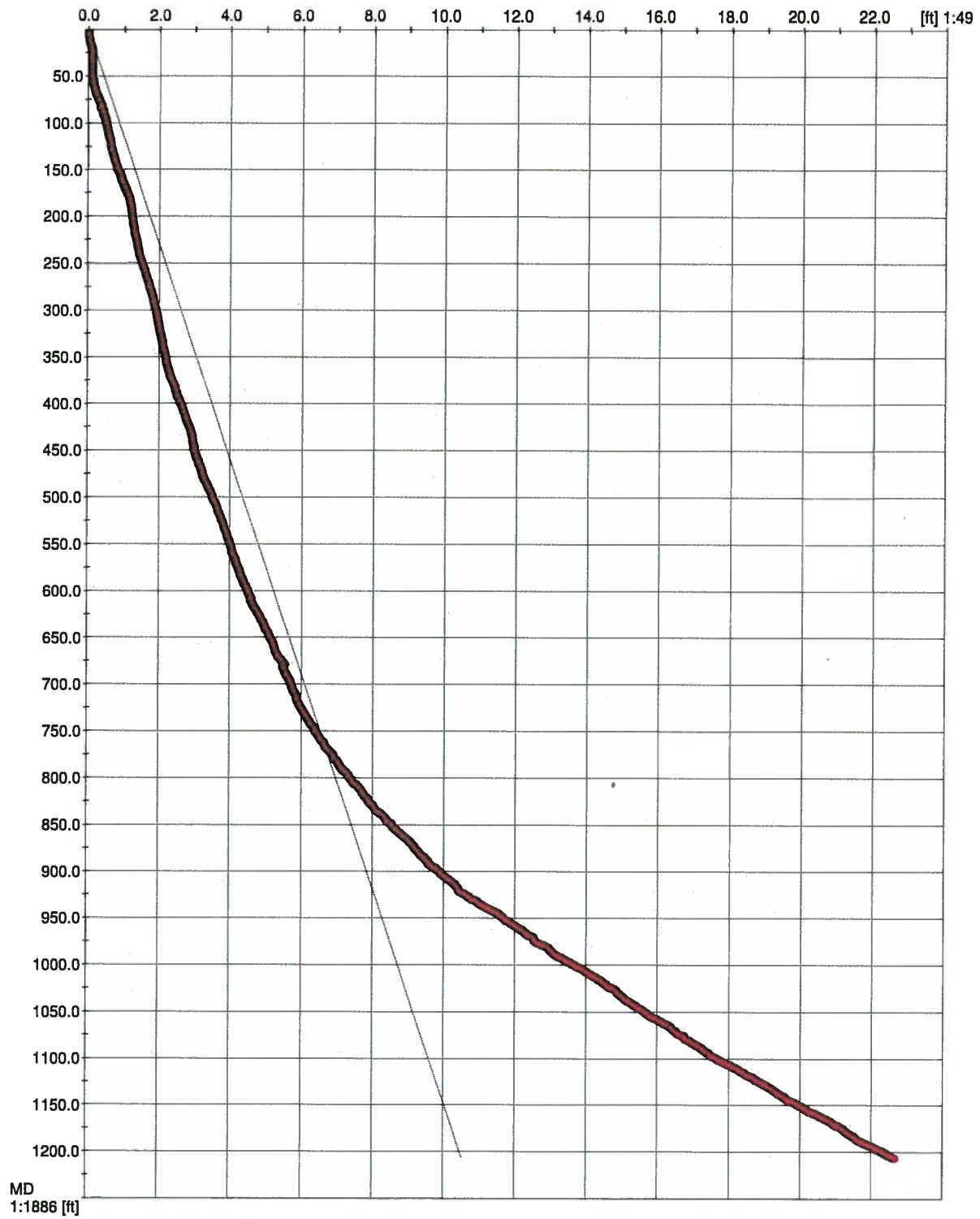
0

ft.

23



TVD					
0	ft.	1205			
Northing					
-20	ft.	20			
Easting			Closure Angle		
-20	ft.	20	0	Deg.	360
Tilt			Azimuth		
0	Deg.	5			
			Depth		
			1ft:600ft		
			0	Deg.	360



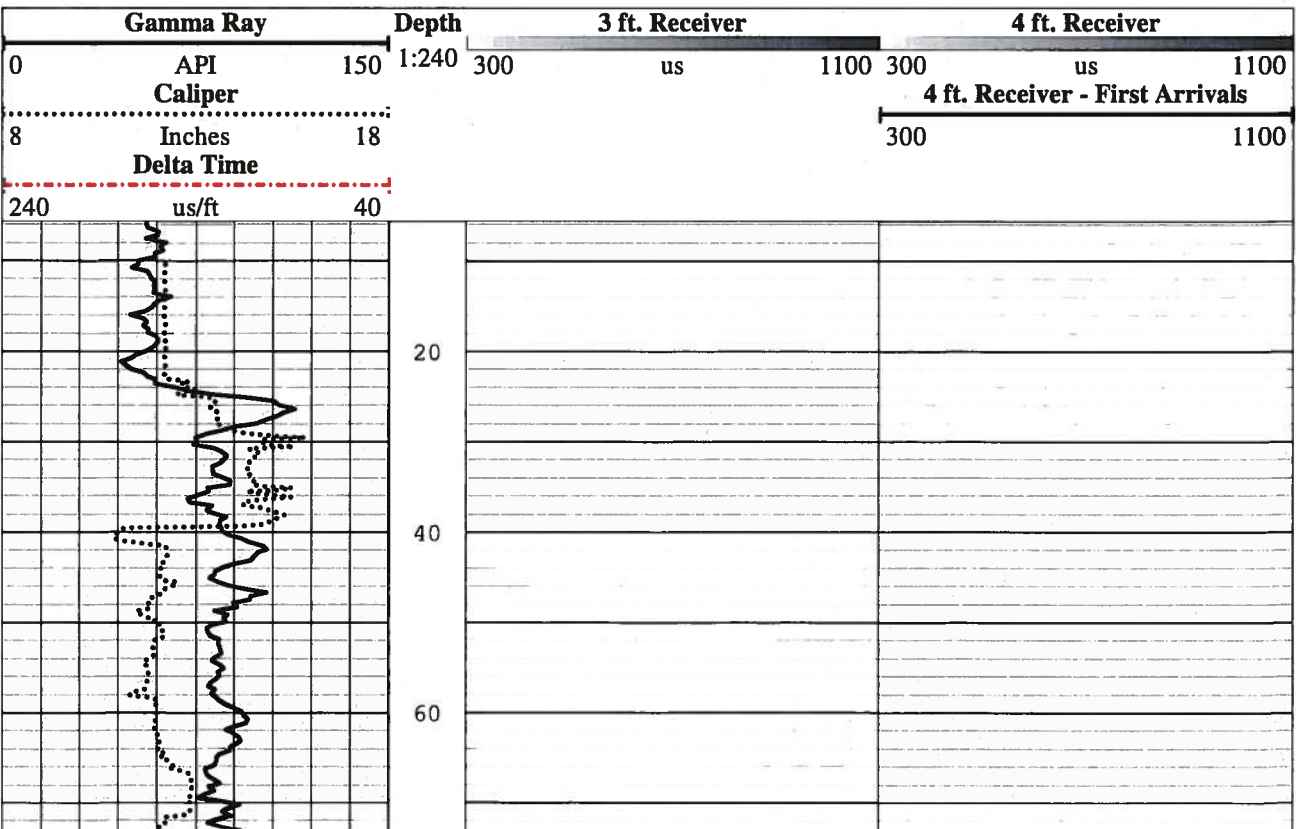
JET WEST

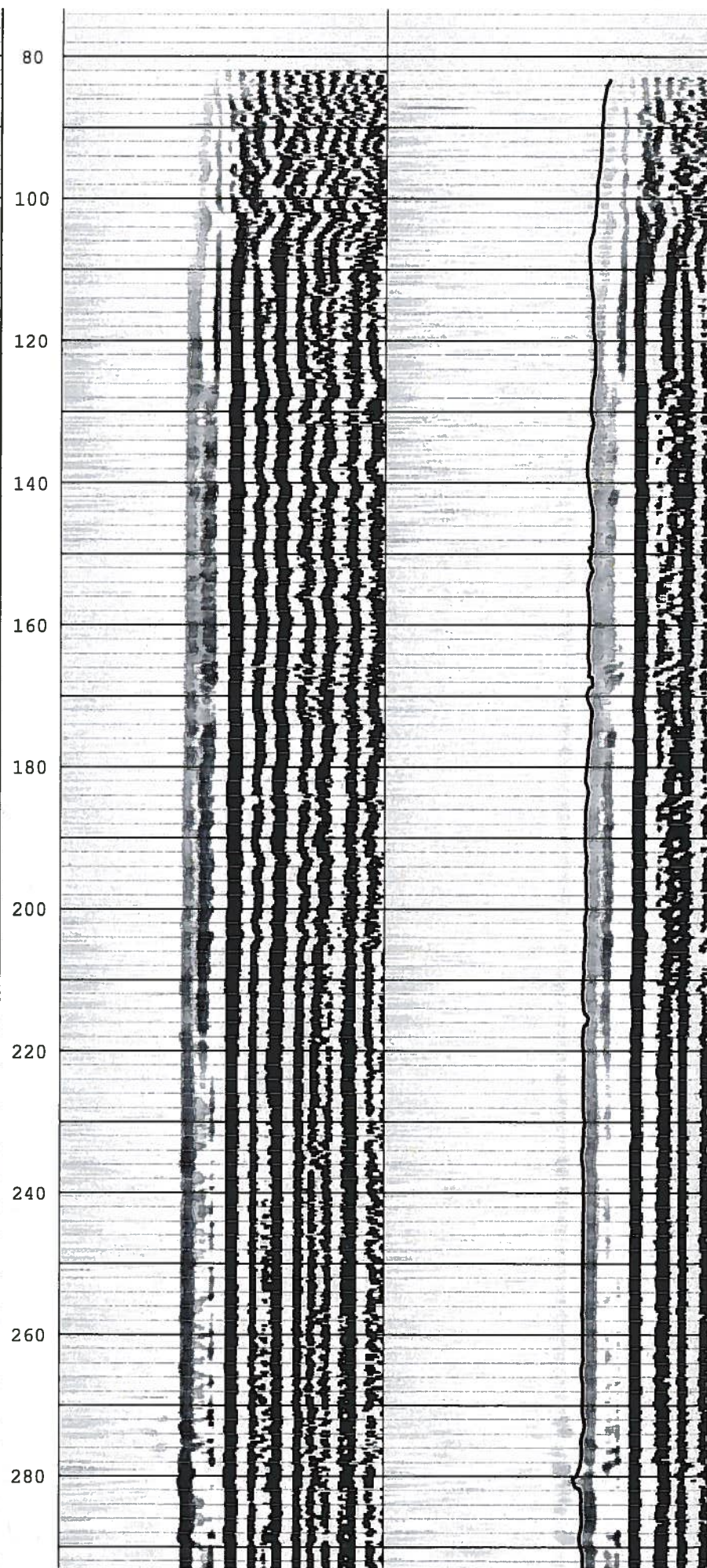
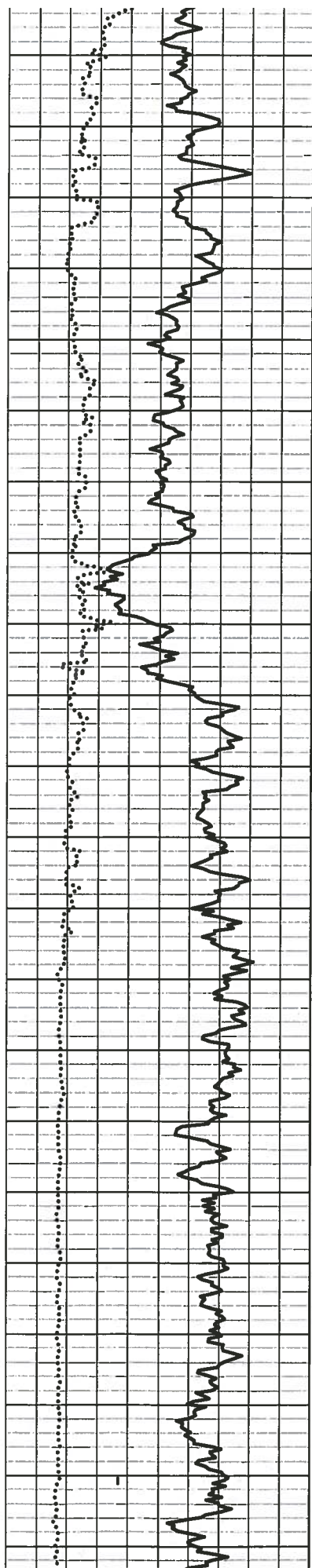
GEOPHYSICAL SERVICES, LLC.

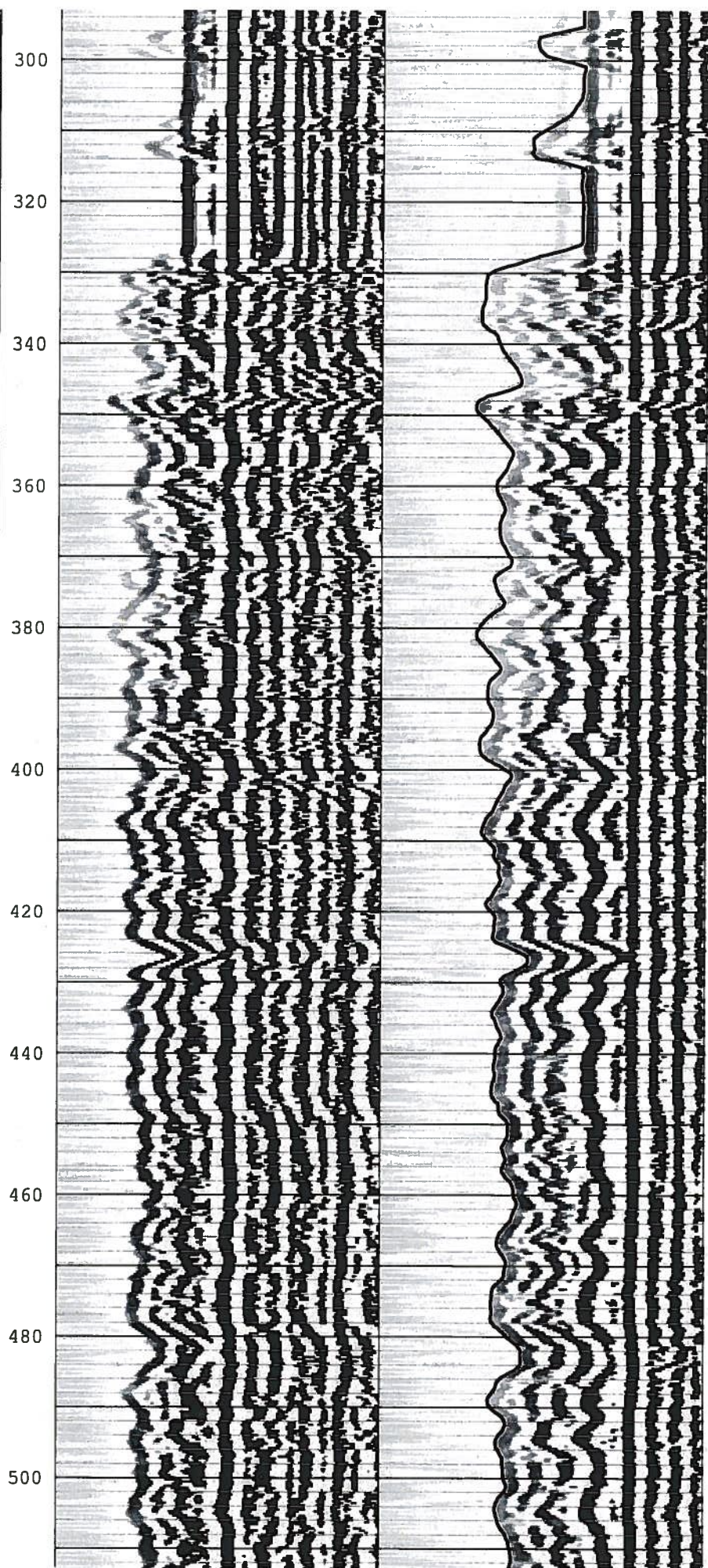
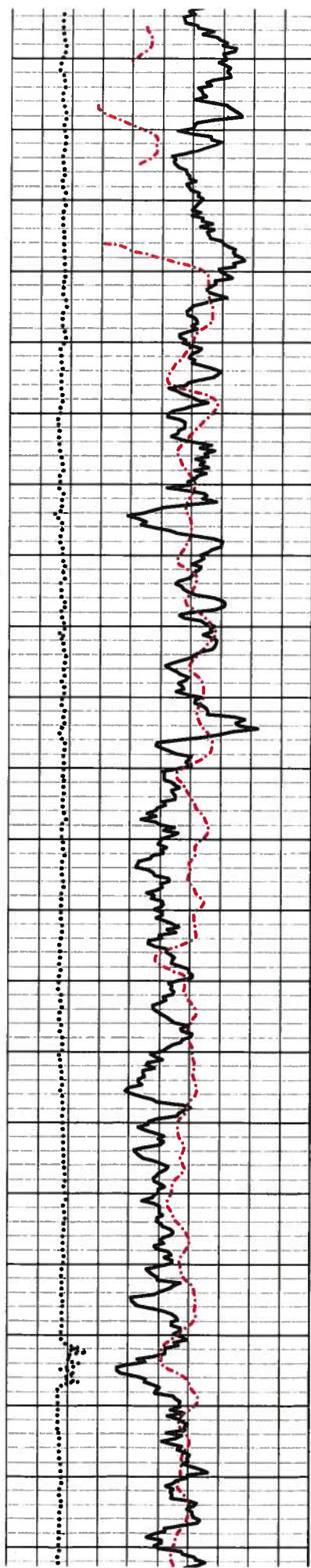
NAD27 Northing: Easting:		COMPANY Llano Quemado Mutual Domestic Water Association WELL ID Llano Quemado #3-Deepen FIELD Llano Quemado COUNTY Taos STATE New Mexico TYPE OF LOG: Full Wave Sonic LOCATION SEC TWP RGE OTHER SERVICES GR/Neutron Caliper Deviation Electric Log	
PERMANENT DATUM	Ground Level	ELEVATION	K.B.
LOG MEAS. FROM	Ground Level	ABOVE PERM. DATUM	T.O.C
DRILLING MEAS. FROM	Ground Level		G.L.
DATE	8-18-2015	TYPE FLUID IN HOLE	Fresh Mud
RUN No.	three	SALINITY	
TYPE LOG	3 R Sonic	DENSITY	
DEPTH-DRILLER	1210 ft.	LEVEL	75 ft.
DEPTH-LOGGER	1200 ft.	MAX. REG. TEMP	
BTM LOGGED INTERVAL	1206 ft.	DIGITIZE INTERVAL	0.2 ft.
TOP LOGGED INTERVAL	Surface		
OPERATING RIG TIME			
RECORDED BY	A. Henderson		
WITNESSED BY	R. Burton-Burton Engineers		

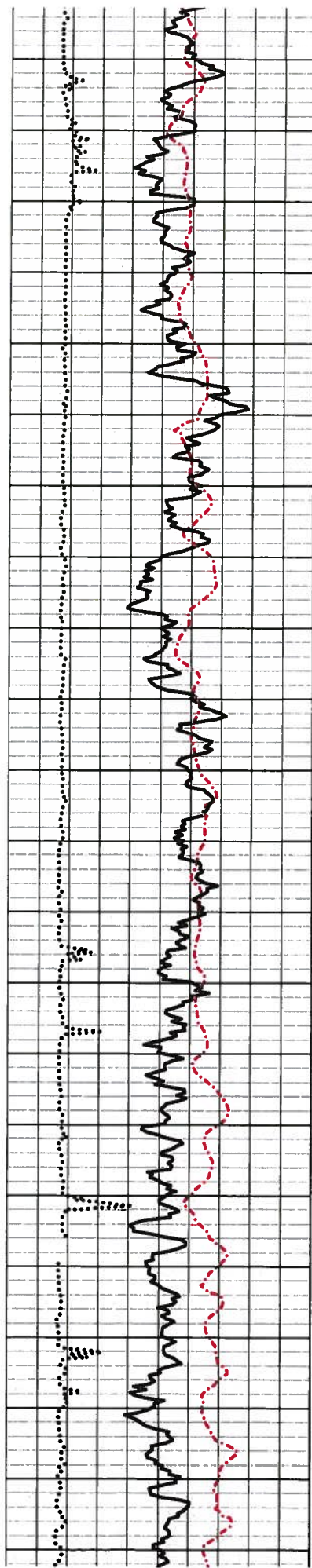
RUN NO.	BOREHOLE RECORD	CASING RECORD	TO	FROM	TO
1	BIT 12 in.	FROM 0 ft.	TO 20 ft.	SIZE 10 in.	WGT. Steel
2	9 7/8 in.	20 ft.	1010 ft.		
3					

REMARKS:

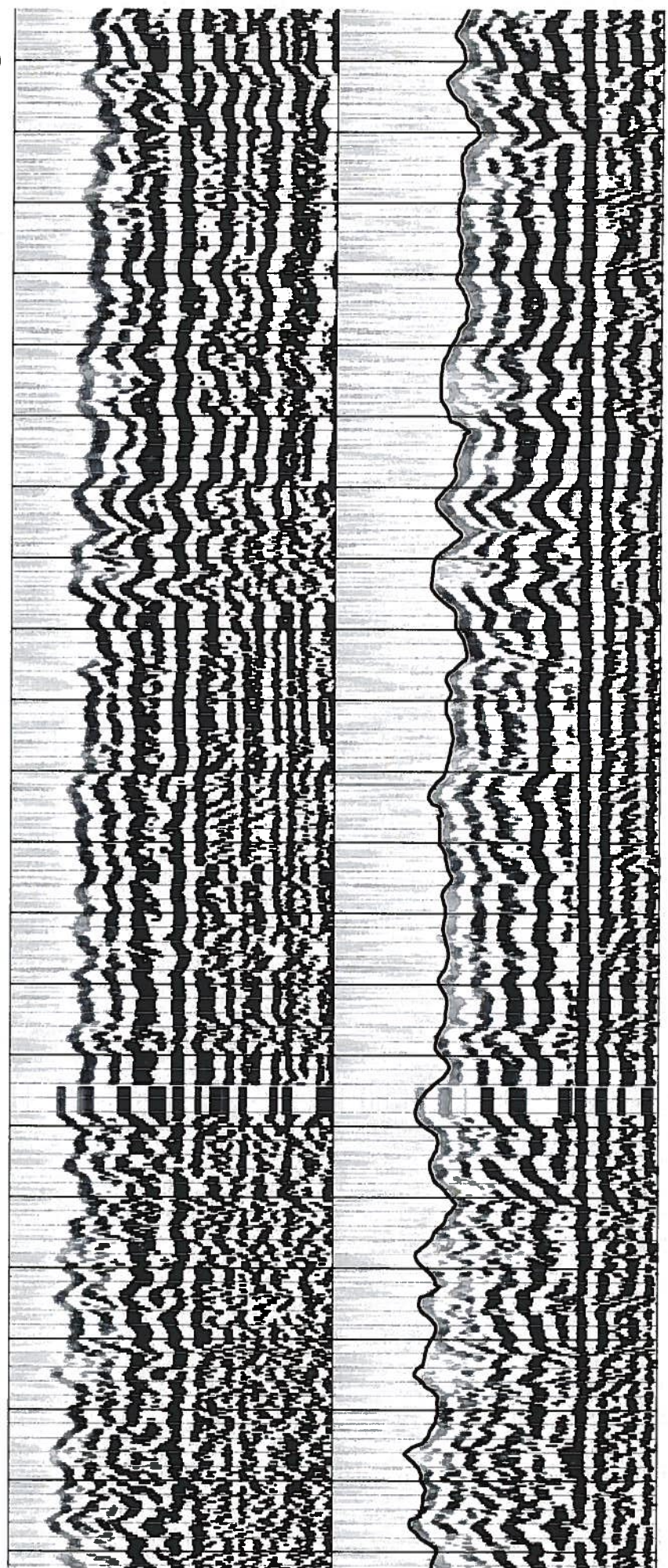


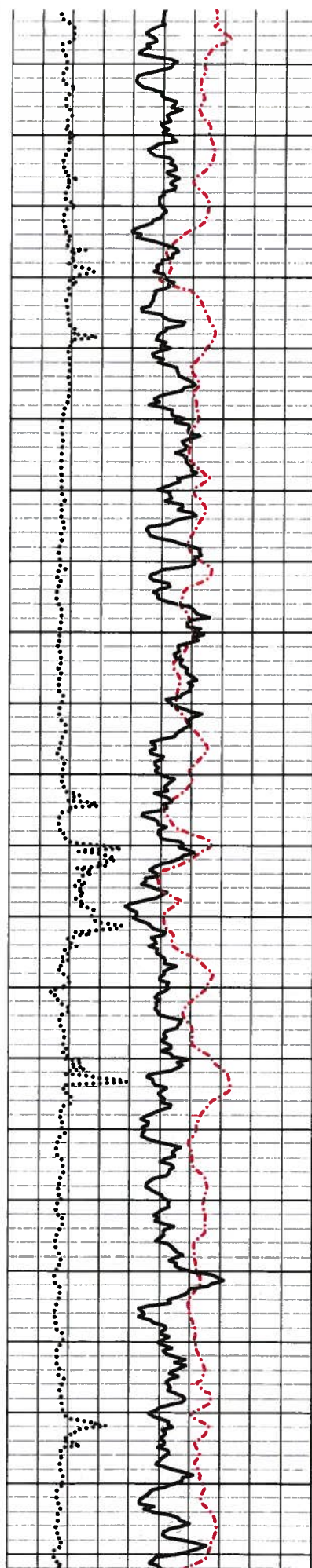




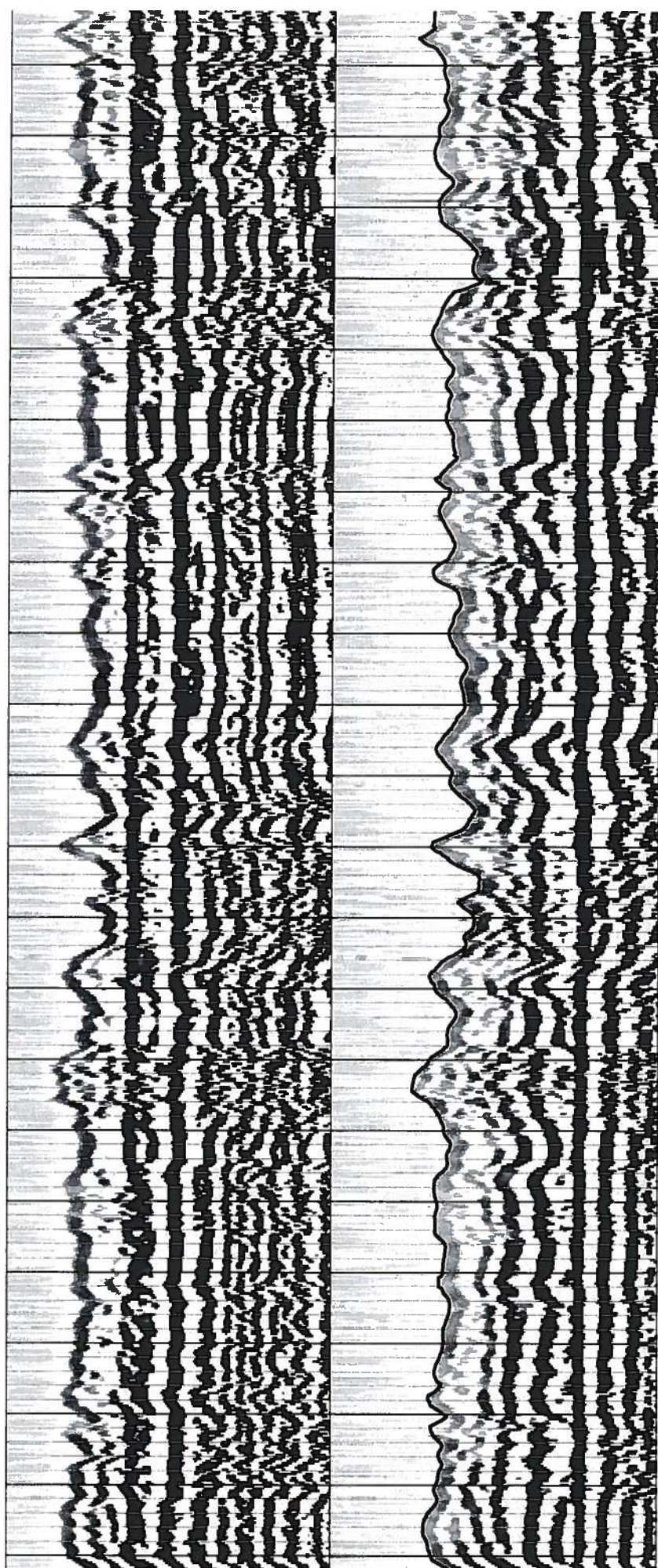


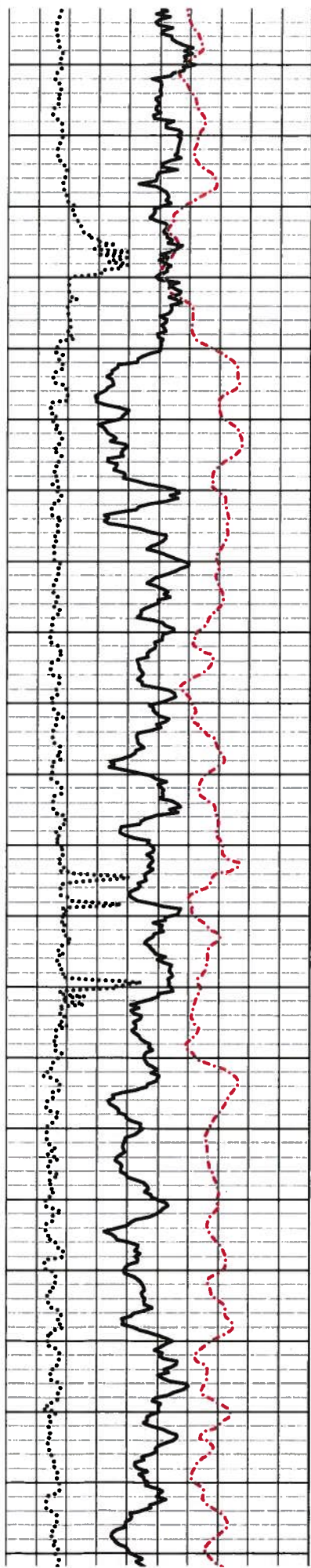
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540
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580
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620
640
660
680
700
720



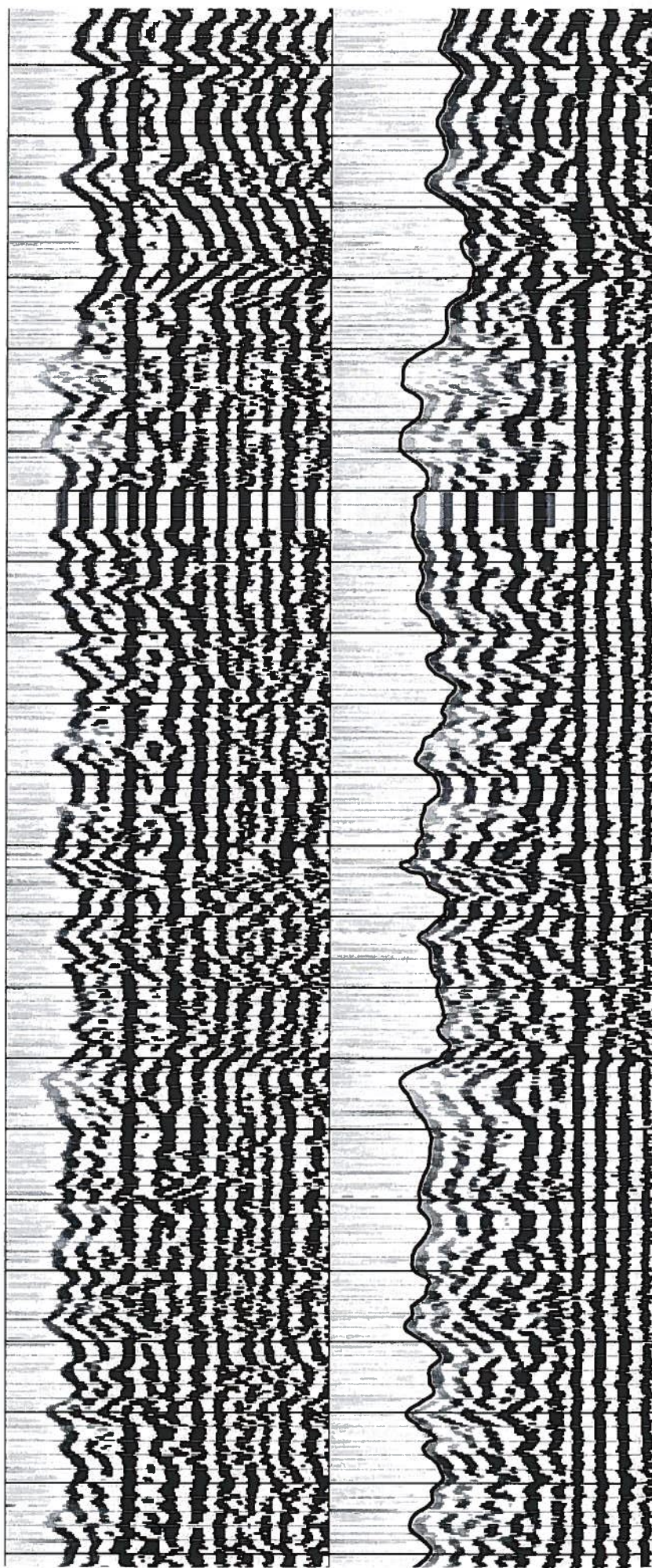


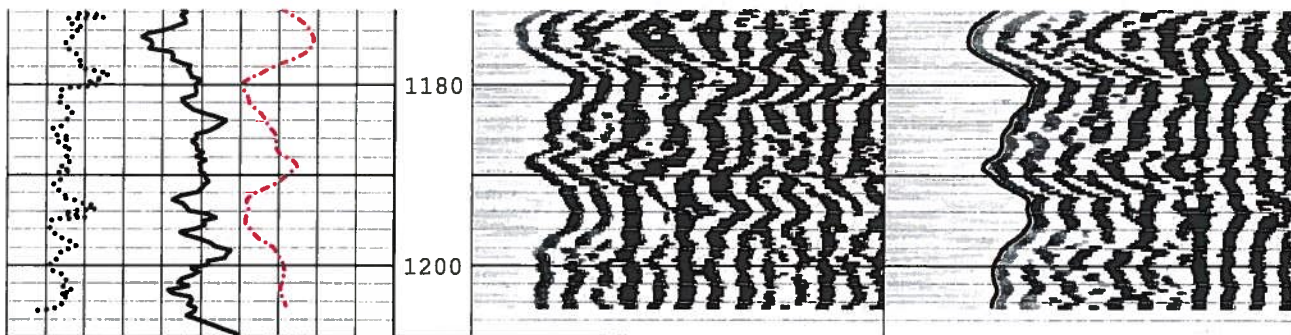
740
760
780
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820
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940





960
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1020
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1060
1080
1100
1120
1140
1160

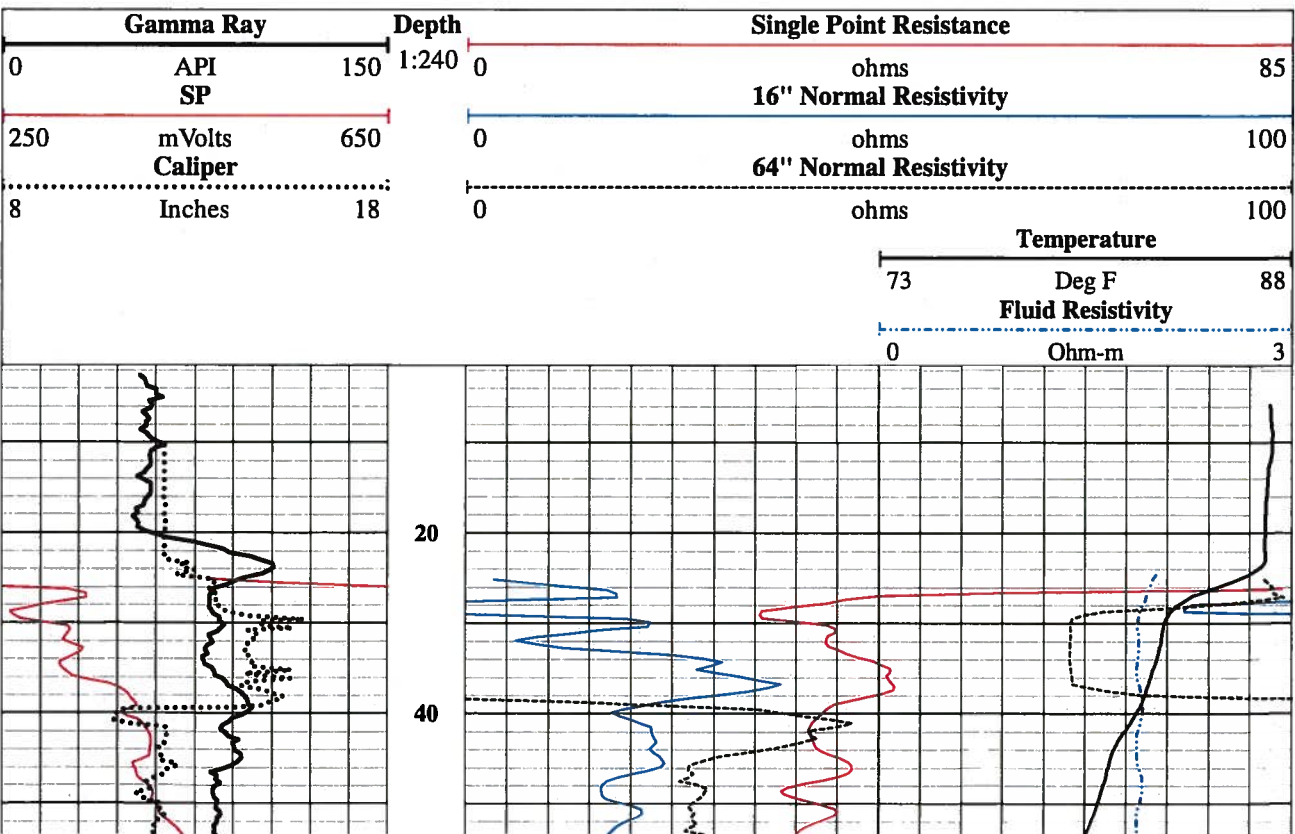


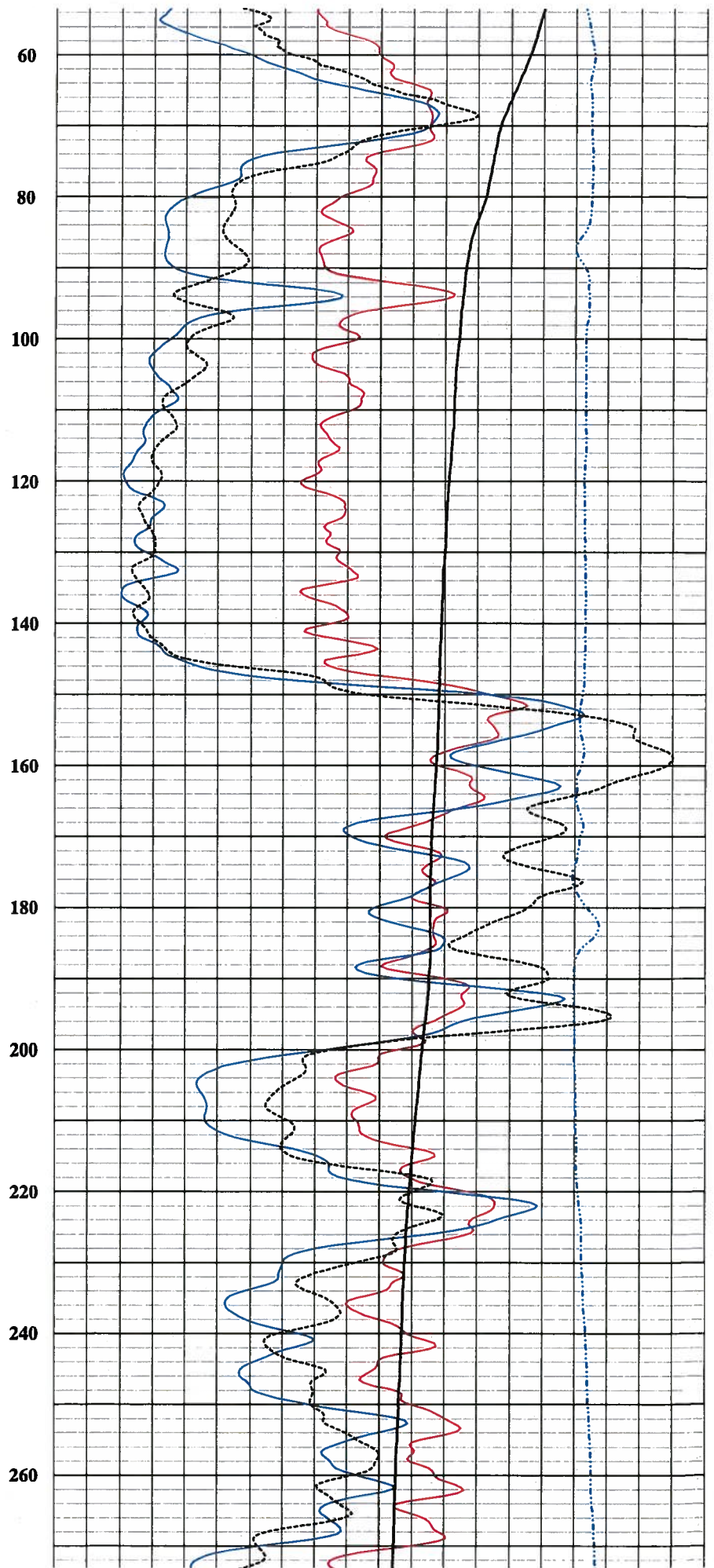
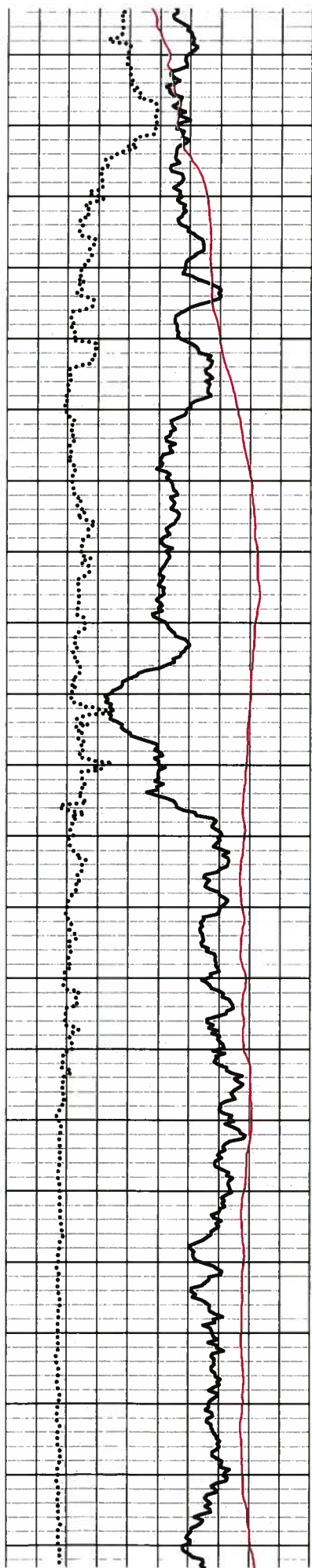


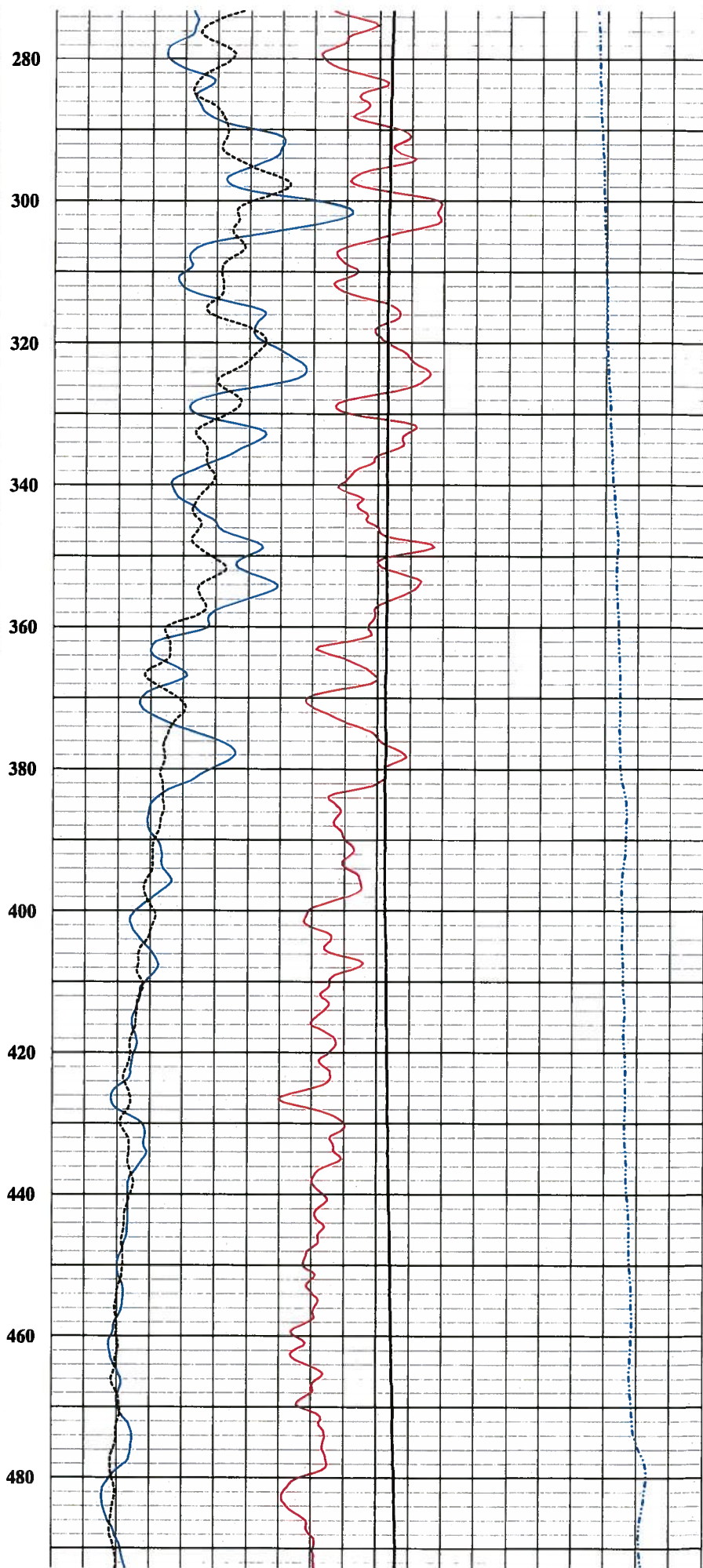
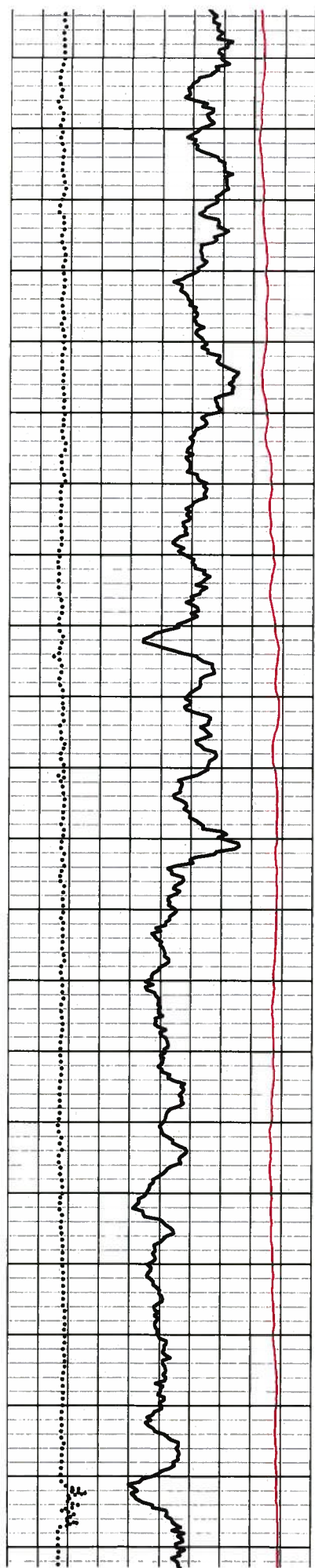
Delta Time											
240	us/ft	40									
Caliper											
8		Inches	18								
Gamma Ray											

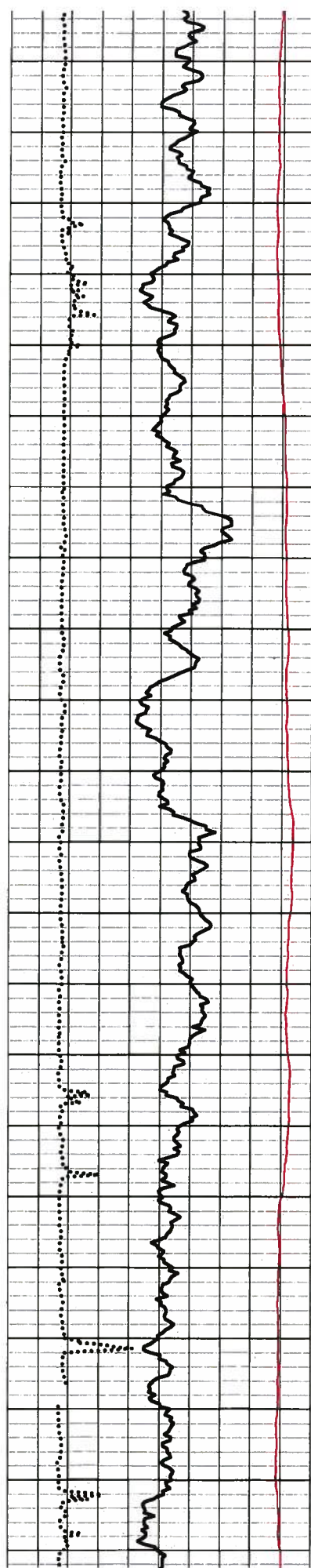
JET WEST GEOPHYSICAL SERVICES, LLC.

NAD27		COMPANY		Llano Quemado Mutual Domestic Water Association	
Northing:		WELL ID		Llano Quemado #3-Deepen	
Easting:		FIELD		Llano Quemado	
		COUNTY		Taos	
		STATE		New Mexico	
		TYPE OF LOG:		Electric Log / Gamma Ray	
LOCATION		OTHER SERVICES		GR/Neutron Caliper Deviation Sonic	
SEC	TWP	RGE	API No.		
PERMANENT DATUM		Ground Level	ELEVATION	K.B.	
LOG MEAS. FROM		Ground Level	ABOVE PERM. DATUM	T.O.C	
DRILLING MEAS. FROM		Ground Level		G.L.	
DATE	8-18-2015	TYPE FLUID IN HOLE	Fresh Mud		
RUN No.	One	SALINITY			
TYPE LOG	MSI Poly 3983	DENSITY			
DEPTH-DRILLER	1210 ft.	LEVEL	25 ft.		
DEPTH-LOGGER	1208 ft.	MAX. REG. TEMP	79.9° F		
BTM LOGGED INTERVAL	1207 ft.	DIGITIZE INTERVAL	0.2 ft.		
TOP LOGGED INTERVAL	Surface				
OPERATING RIG TIME					
RECORDED BY	A. Henderson				
WITNESSED BY	R. Burton-Burton Engineers				
RUN		BOREHOLE RECORD		CASING RECORD	
NO.	BIT	FROM	TO	SIZE	WG.T.
1	12 in.	0 ft.	20 ft.	10 in.	Steel
2	9 7/8 in.	20 ft.	1010 ft.		
3					
REMARKS:					

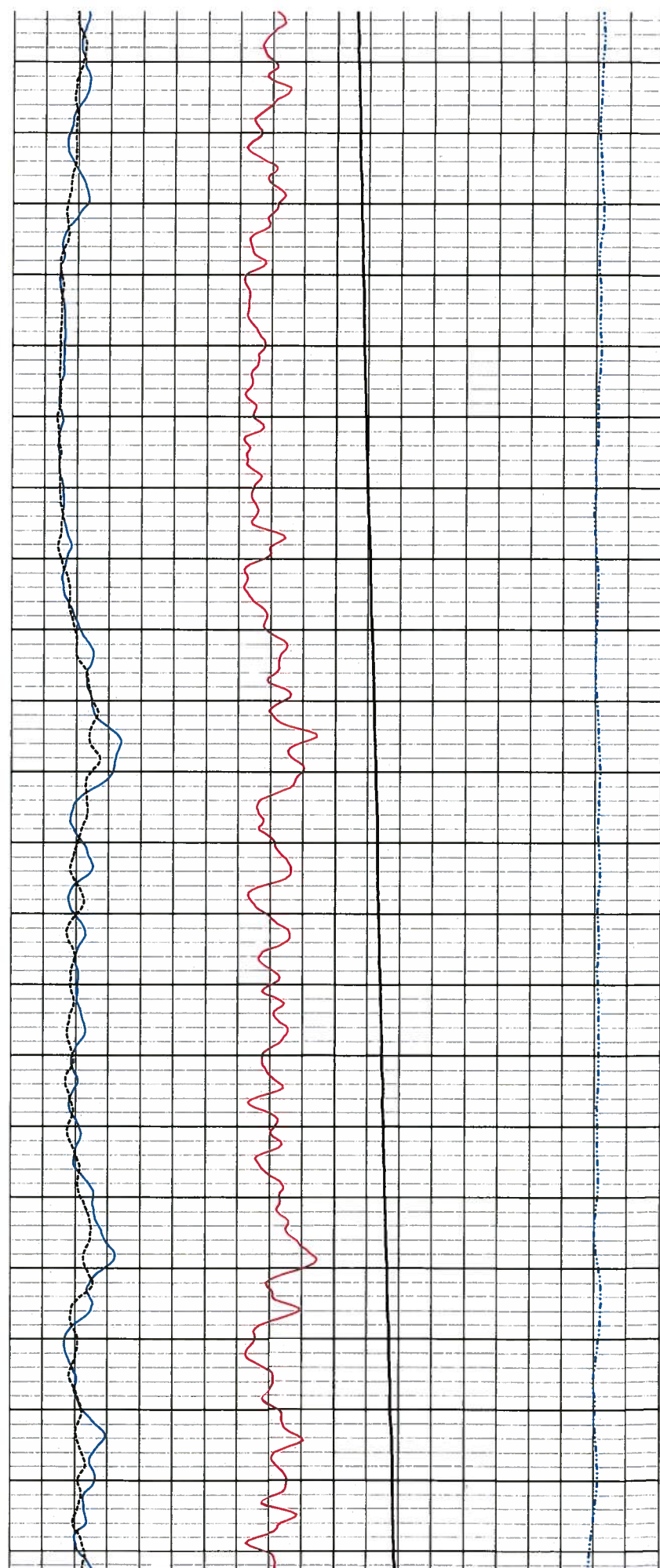


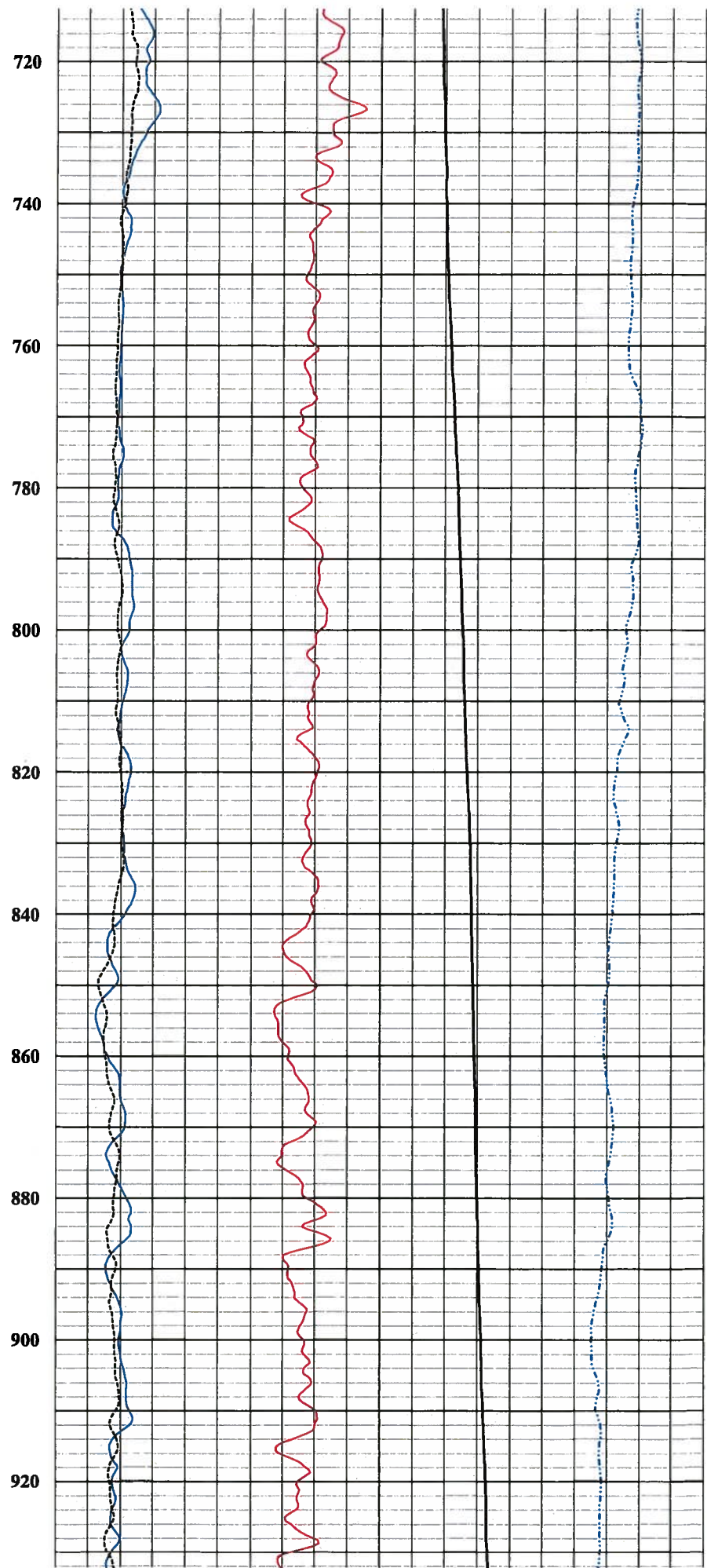


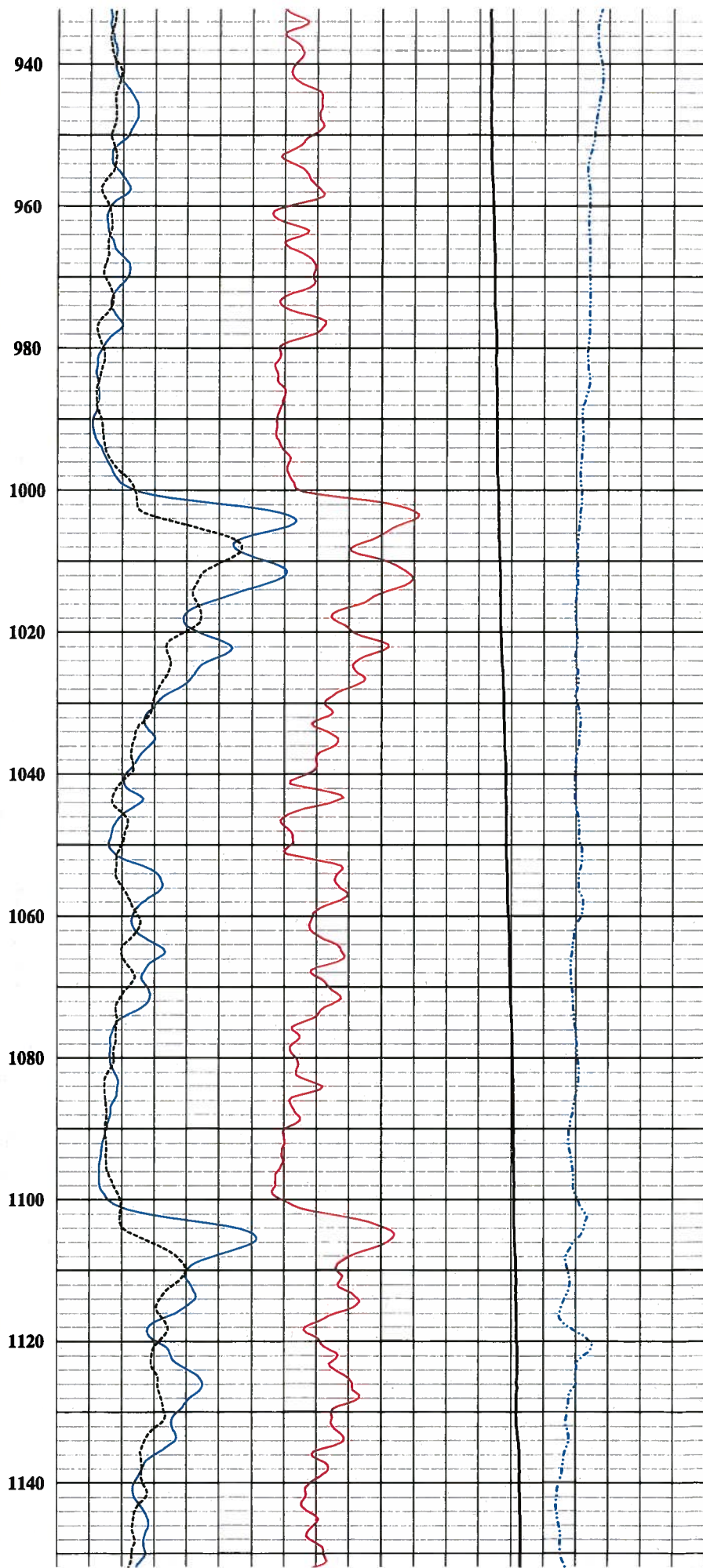


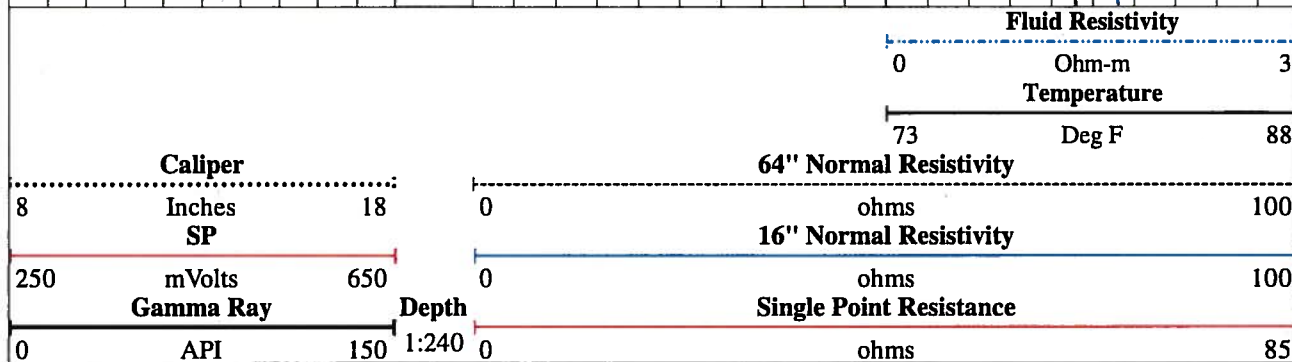


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680
700









JET WEST

GEOPHYSICAL SERVICES, LLC.

NAD27		COMPANY		Llano Quemado Mutual Domestic Water Association	
Northing:		WELL ID		Llano Quemado #3-Deepen	
Easting:		FIELD		Llano Quemado	
		COUNTY		Taos	
		STATE		New Mexico	
		TYPE OF LOG:		Gamma Ray, Neutron, Caliper	
LOCATION		SEC		TWP	
		RGE		API No.	
PERMANENT DATUM		Ground Level		ELEVATION	
LOG MEAS. FROM		Ground Level		ABOVE PERM. DATUM	
DRILLING MEAS. FROM		Ground Level		G.L.	
DATE		8-18-2015		TYPE FLUID IN HOLE	
RUN No.		Two		SALINITY	
TYPE LOG		NUX-NB730		DENSITY	
DEPTH-DRILLER		1210 ft.		LEVEL	
DEPTH-LOGGER		1208 ft.		MAX. REG. TEMP	
BTM LOGGED INTERVAL		1207 ft.		DIGITIZE INTERVAL	
TOP LOGGED INTERVAL		Surface		0.2 ft.	
OPERATING RIG TIME					
RECORDED BY		A. Henderson			
WITNESSED BY		R. Burton-Burton Engineers			
RUN		BOREHOLE RECORD		CASING RECORD	
NO.		BIT		FROM	
1		12 in.		0 ft.	
2		9 7/8 in.		20 ft.	
3				1010 ft.	
REMARKS:					

