



**PIONEER**

Pioneer Energy Services

**RADIAL BOND LOG  
WITH GAMMA RAY**

**Company EAST CHEYENNE GAS STORAGE LLC**  
**Well ECGS No 6-21 WPD004-2**  
**Field WEST PEETZ**  
**County LOGAN** State **COLORADO**

Comp. EAST CHEYENNE GAS STORAGE LLC  
 Well ECGS No 6-21 WPD004-2  
 Field WEST PEETZ  
 Co. LOGAN  
 State COLORADO

Location: SHL: 1440' FSL & 2297' FWL  
 LAT: 40.953098  
 LONG: -103.220703  
 SEC 6 TWP 11N RGE 52W  
 Permanent Datum GL Elevation 4557'  
 Log Measured From KB 10' Above Perm. Datum  
 Drilling Measured From KB  
 Other Services  
 K.B. 4567.00  
 D.F. 4566.00  
 G.L. 4557.00

Date of Service	10/23/2017			
Run Number	ONE			
Depth Driller or PBTD	5440.00			
Depth Logger	4272.00			
Bottom Log Interval	4271.00			
Top Log Interval	3800.00			
Open Hole Size	8.750			
Type Fluid	WATER			
Fluid Level	N/A			
Fluid Density	N/A			
Max. Recorded Temperature	N/A			
Max. Wellhead Pressure	0 PSI			
Wellhead Connection	NONE			
Estimated Cement Top				
Unit Number	P-38			
Wireline Size	9/32"			
Location	FORT MORGAN CO			
Recorded By	PHIL LOPEZ			
Witnessed By	MR. GARY OHLMAN			
Tubing Record	Size	WFt	Top	Bottom
Surface Casing				
Production Casing	7.00	26.00	SURFACE	5293.00
Liner Record				

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.  
 DEPTH REFERENCE TO WEATHERFORD SECTOR BOND LOG DATED 13-OCT-2017  
 UPON COMPANY MAN REQUEST NO FREE PIPE OR REPEAT PASS REQUIRED


THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew	Tool Data - Services	Serial Number
Engineer: PHIL LOPEZ	RBL-D	130433
Operator: J REYES	GAMMA RAY CCL	110246 TD8220
Operator: G DAVIS		
Operator:		


Top - Bottom

BHTEMP_Src TEMP	PPT usec 0	CASEWGHT lb/ft 26	MAXAMPL mV 0	MINAMPL mV 1	MINATTN db/ft 0.08	SRFTEMP degF 0	CASETHCK in 0
CASEOD in 7	PERFS 0	TDEPTH ft 0	BOTTEMP degF 100	BOREID in 7.875			

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
			Cable Head-Titan 143 1 7/16" Titan Cable Head	1.03	1.43	2.00	
			Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00	
TEMP	14.17						
WVFS8	11.94			SCBL-275 Probe w Temp New Mod (141169.17 Probe Radii Bond Tool with Temperature	1169.17	2.75	95.00
WVFS7	11.94						
WVFS6	11.94						
WVFS5	11.94						
WVFS4	11.94						
WVFS3	11.94						
WVFS2	11.94						
WVFS1	11.94						
WVFCAL	11.94						
WVF3FT	11.94						
WVF5FT	10.94						
HEADVOLT	7.69						
			Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00	
CCL	3.91						

GR	1.17		GR_CCL-275 Probe GR-CCL Corrosion (F4.54:12-242.75 Probe 2 3/4" Gamma Ray / CCL Corrosion Digital	60.00
			Bullnose-Titan GO Pin Pressure Cap	0.27 1.38 1.00

Dataset: east cheyenne gas storage llc\_ecgs no 6-21 wpd004-2\_20171023\_scbl.db: field/well/run1/pass9  
 Total length: 20.76 ft  
 Total weight: 188.00 lb  
 O.D.: 2.75 in



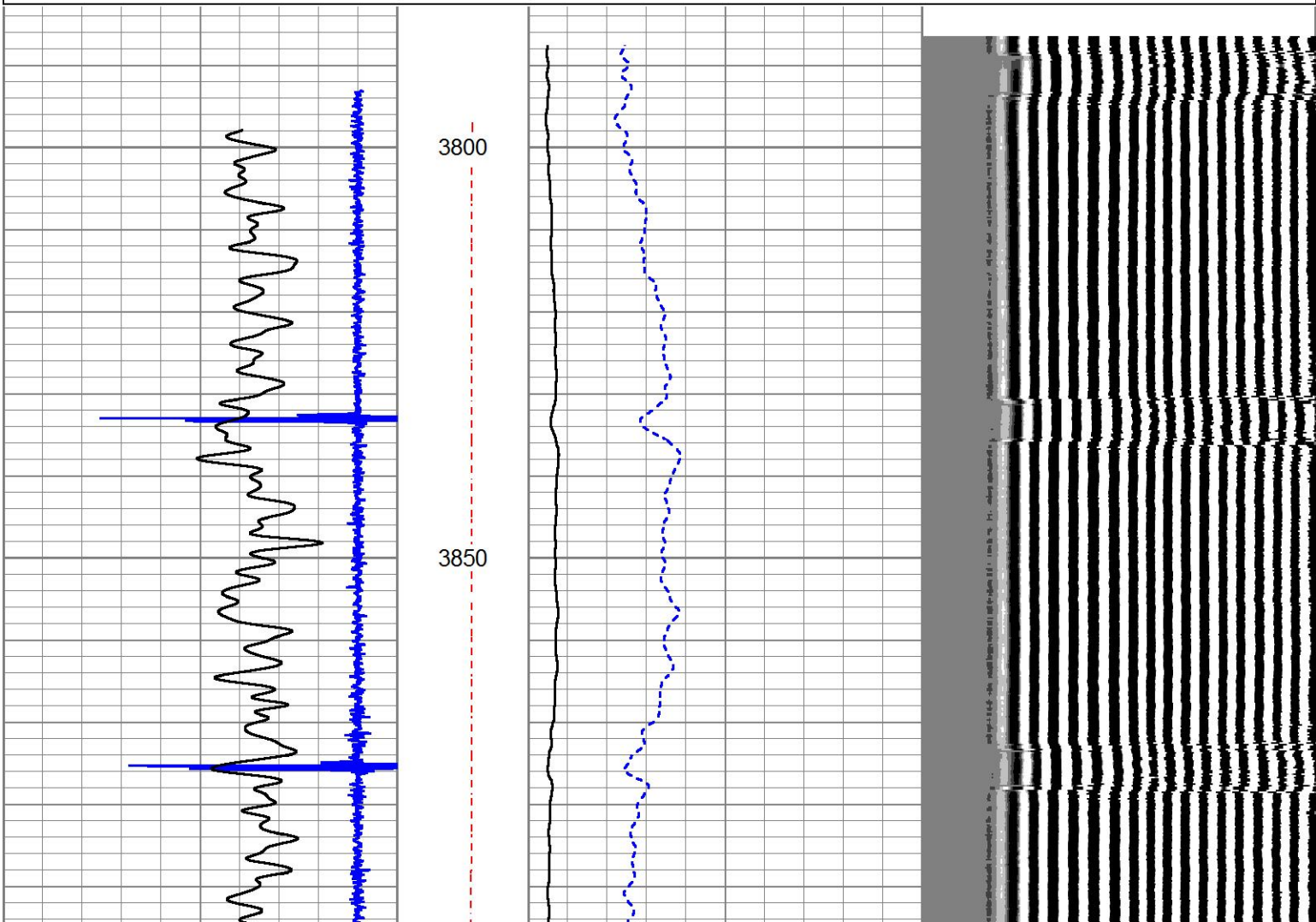
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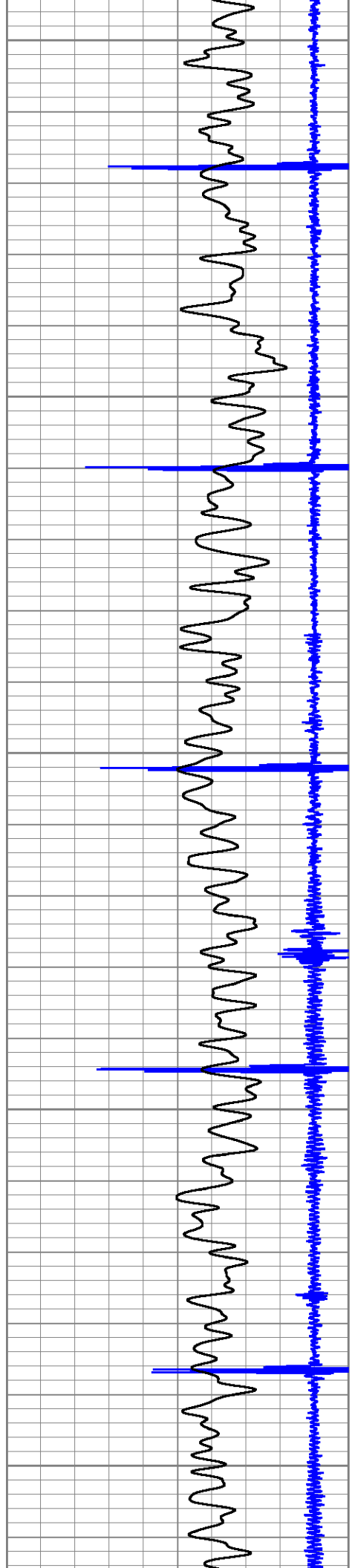
# MAIN LOG

## ZERO PSI APPLIED AT SURFACE

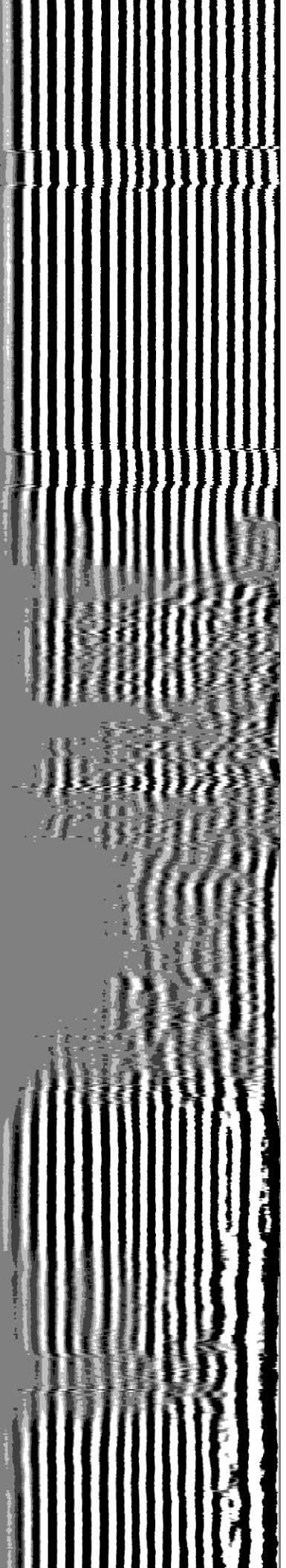
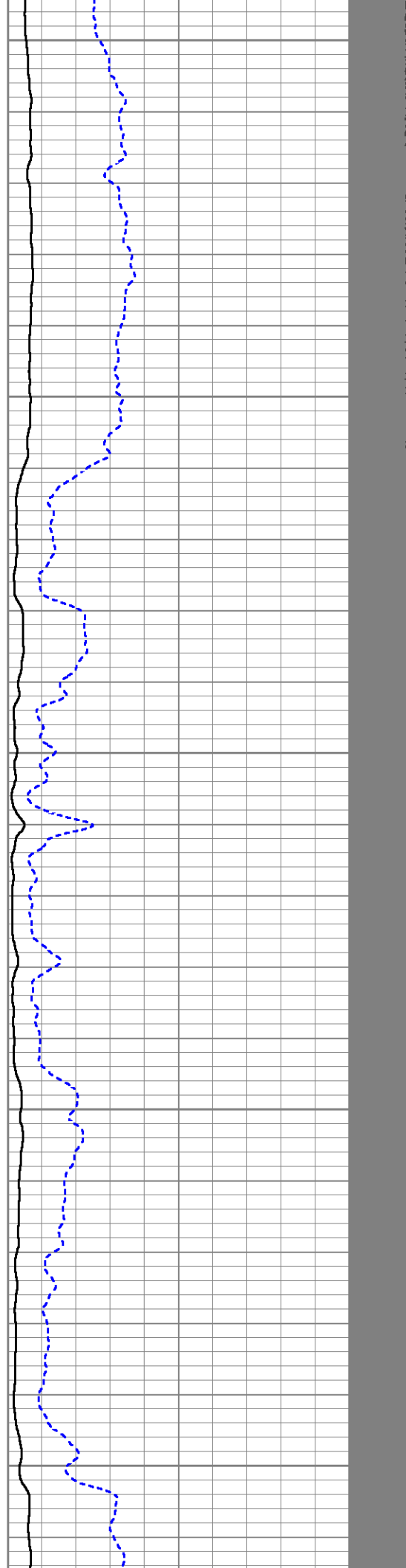
Database File east cheyenne gas storage llc\_ecgs no 6-21 wpd004-2\_20171023\_scbl.db  
 Dataset Pathname pass9  
 Presentation Format cblnewmo  
 Dataset Creation Mon Oct 23 18:00:15 2017  
 Charted by Depth in Feet scaled 1:240

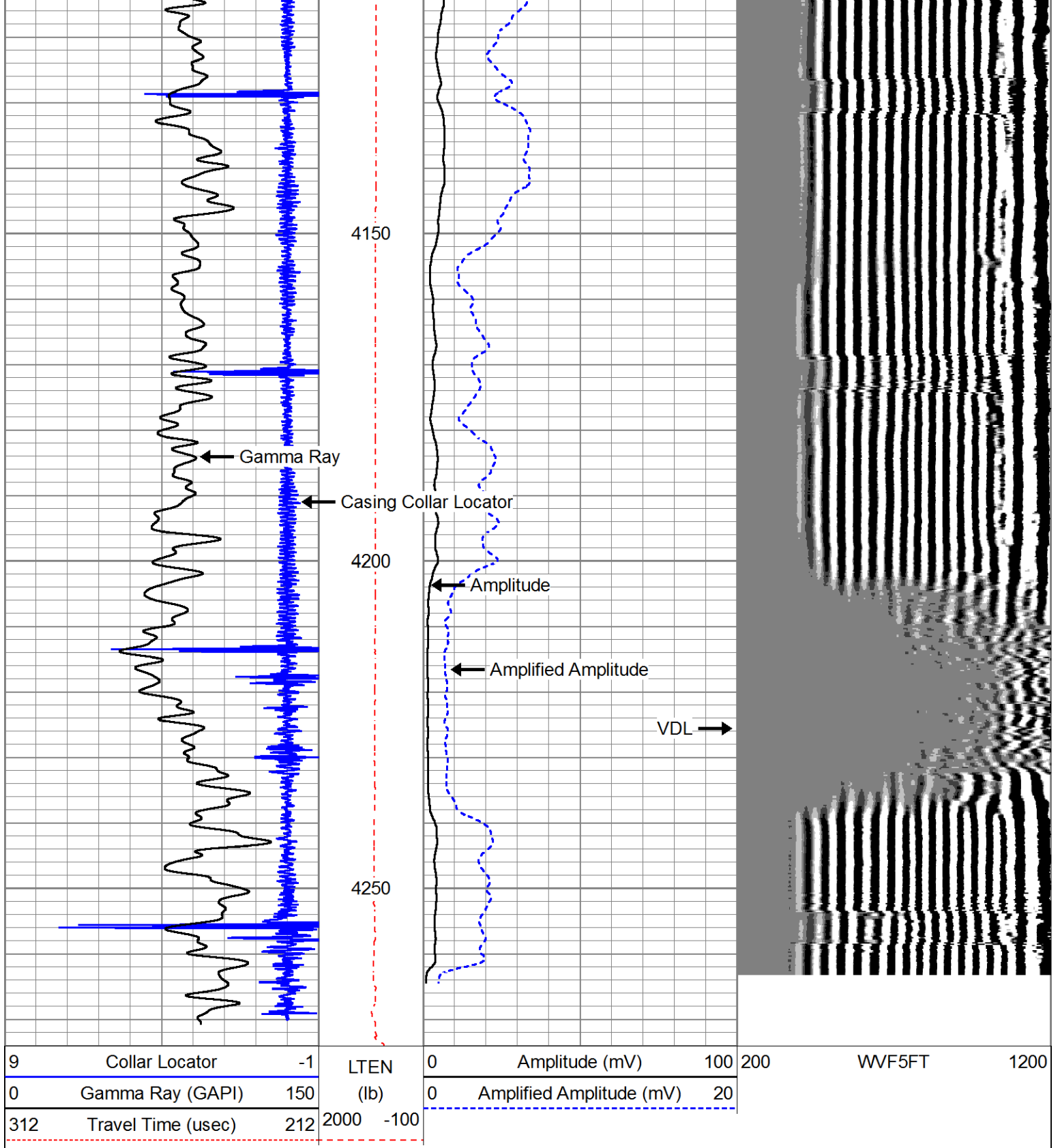
9	Collar Locator	-1	LTEN	0	Amplitude (mV)	100	200	WVF5FT	1200
0	Gamma Ray (GAPI)	150	(lb)	0	Amplified Amplitude (mV)	20			
312	Travel Time (usec)	212	2000 -100						





3900  
3950  
4000  
4050  
4100





Calibration Report

Database File east cheyenne gas storage llc\_ecgs no 6-21 wpd004-2\_20171023\_scbl.db  
 Dataset Pathname pass9  
 Dataset Creation Mon Oct 23 18:00:15 2017

Gamma Ray Calibration Report

Serial Number: FW1212-24  
 Tool Model: 275 Probe GR-CCL Corrosion  
 Performed: Tue Aug 01 09:28:50 2017

Calibrator Value: 320.0 GAPI

Calibrator Value:	320.0	GAPI
Background Reading:	14.0	cps
Calibrator Reading:	1153.0	cps
Sensitivity:	1.0000	GAPI/cps

**Segmented Cement Bond Log Calibration Report**

Serial Number:	141166	
Tool Model:	275 Probe w Temp New Mod	
Calibration Casing Diameter:	7.000	in
Calibration Depth:	1337.283	ft

Master Calibration, performed Mon Oct 23 17:45:25 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	1.235	1.000	62.165	49.537	1.000
CAL	0.000	1.811				
5'	0.000	1.176	1.000	62.165	52.022	1.000
SUM						
S1	0.000	1.005	0.000	100.000	99.506	0.000
S2	0.000	1.049	0.000	100.000	95.333	0.000
S3	0.000	1.207	0.000	100.000	82.871	0.000
S4	0.000	1.470	0.000	100.000	68.017	0.000
S5	0.000	1.607	0.000	100.000	62.223	0.000
S6	0.000	1.485	0.000	100.000	67.338	0.000
S7	0.000	1.223	0.000	100.000	81.742	0.000
S8	0.000	1.041	0.000	100.000	96.105	0.000

**Temperature Calibration Report**

Serial Number:	141166
Tool Model:	275 Probe w Temp New Mod
Performed:	Thu Jun 15 11:45:18 2017

	Reference	Reading
Low Reference:	35.00 degF	0.25 degF
High Reference:	210.00 degF	1.31 degF

Gain:	0.79
Offset:	6.00
Delta Spacing	1



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Well	ECGS No 6-21 WPD004-2
Field	WEST PEETZ
County	LOGAN
State	COLORADO