



PIONEER

Pioneer Energy Services

**CEMENT 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
 API #: 05-075-09426-0000
 Permanent Datum **GL** Elevation **4557'**
 Log Measured From **KB** 10' Above Perm. Datum
 Drilling Measured From **KB** Elevation **4567.00**
 Other Services **D.F.: 4566.00**
G.L. 4557.00

Date of Service	10/20/2017			
Run Number	ONE			
Depth Driller or PBTD	5440.00			
Depth Logger	4272.00			
Bottom Log Interval	4271.00			
Top Log Interval	3770.00			
Open Hole Size	8.750			
Type Fluid	WATER			
Fluid Level	200.00			
Fluid Density	N/A			
Max. Recorded Temperature	N/A			
Max. Wellhead Pressure	0 PSI			
Wellhead Connection	NONE			
Estimated Cement Top	3970.00			
Unit Number	P-38			
Wireline Size	9/32"			
Location	FORT MORGAN CO			
Recorded By	PHIL LOPEZ			
Witnessed By	MR. GARY OLDHAM			
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

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: S RUSSELL		
Operator:		



Log Variables

DatabaseC:\ProgramData\Warrior\Data\ecgs no 6-21 wpdoo4-2_201720
 Dataset field/well/run1/pass19/_vars_


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 wpdoo4-2_20172010_scbl.db: field/well/run1/pass19
 Total length: 20.76 ft
 Total weight: 188.00 lb
 O.D.: 2.75 in

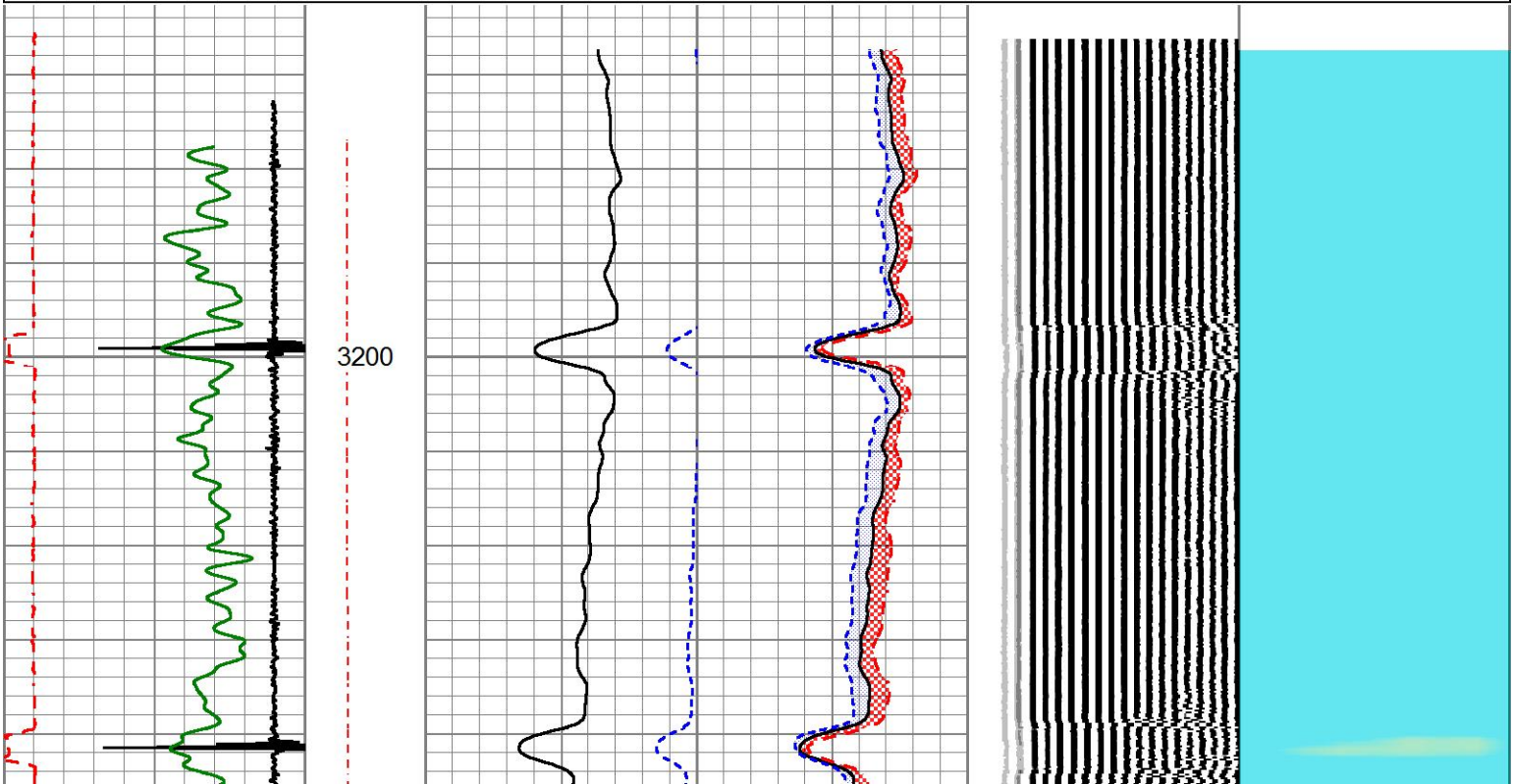


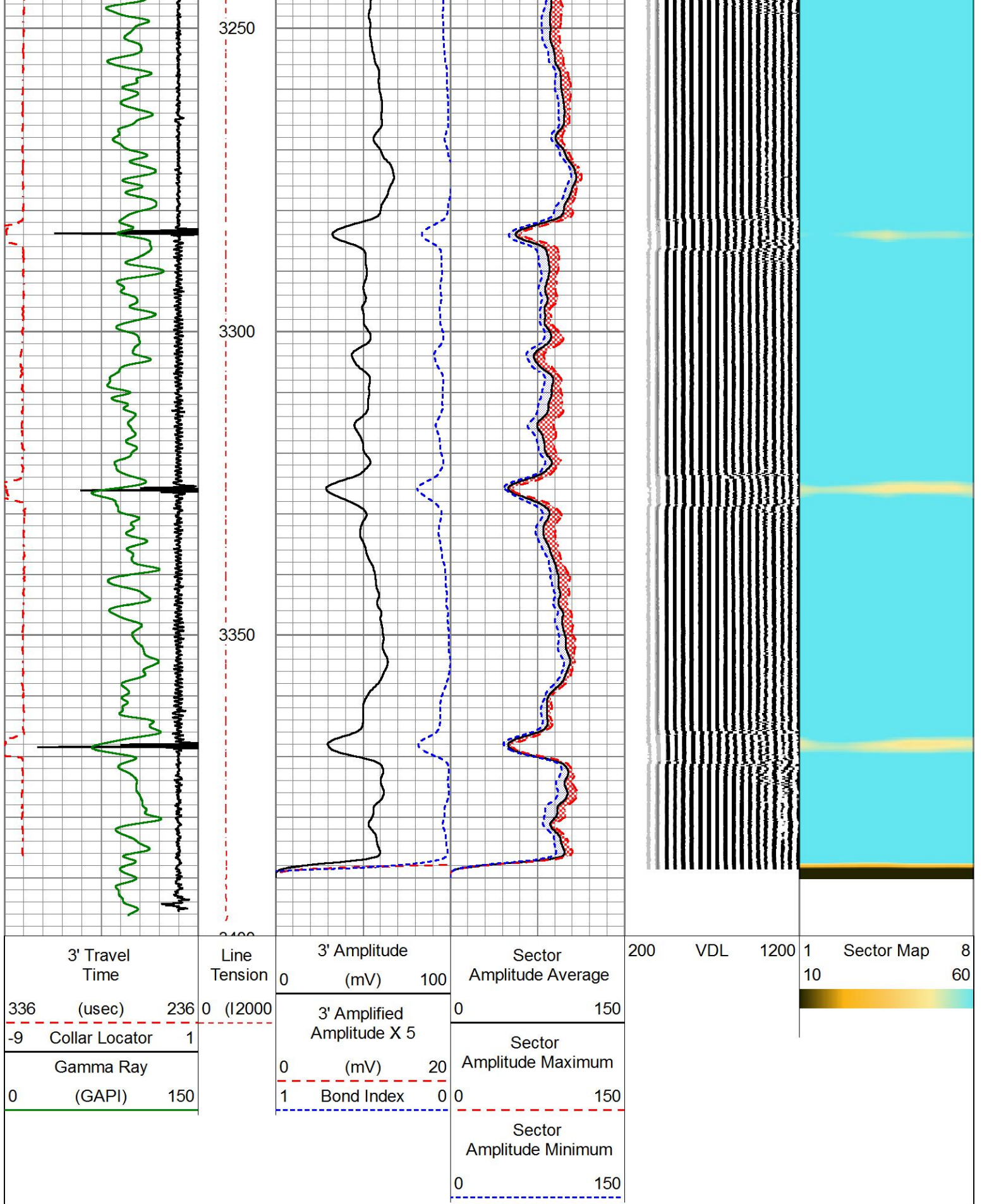
FREE PIPE SECTION

ZERO PSI APPLIED AT SURFACE

Database File: east cheyenne gas storage llc_ecgs no 6-21 wpdoo4-2_20172010_scbl.db
 Dataset Pathname: pass17
 Presentation Format: pinr_scbl
 Dataset Creation: Fri Oct 20 17:24:24 2017
 Charted by: Depth in Feet scaled 1:240

3' Travel Time 336 (usec) -9 Collar Locator Gamma Ray 0 (GAPI) 150	Line Tension 0 (12000)	3' Amplitude (mV) 0 100 3' Amplified Amplitude X 5 0 (mV) 20 1 Bond Index 0	Sector Amplitude Average 0 150 Sector Amplitude Maximum 0 150 Sector Amplitude Minimum 0 150	200 VDL 1200 1	Sector Map 10 8 60
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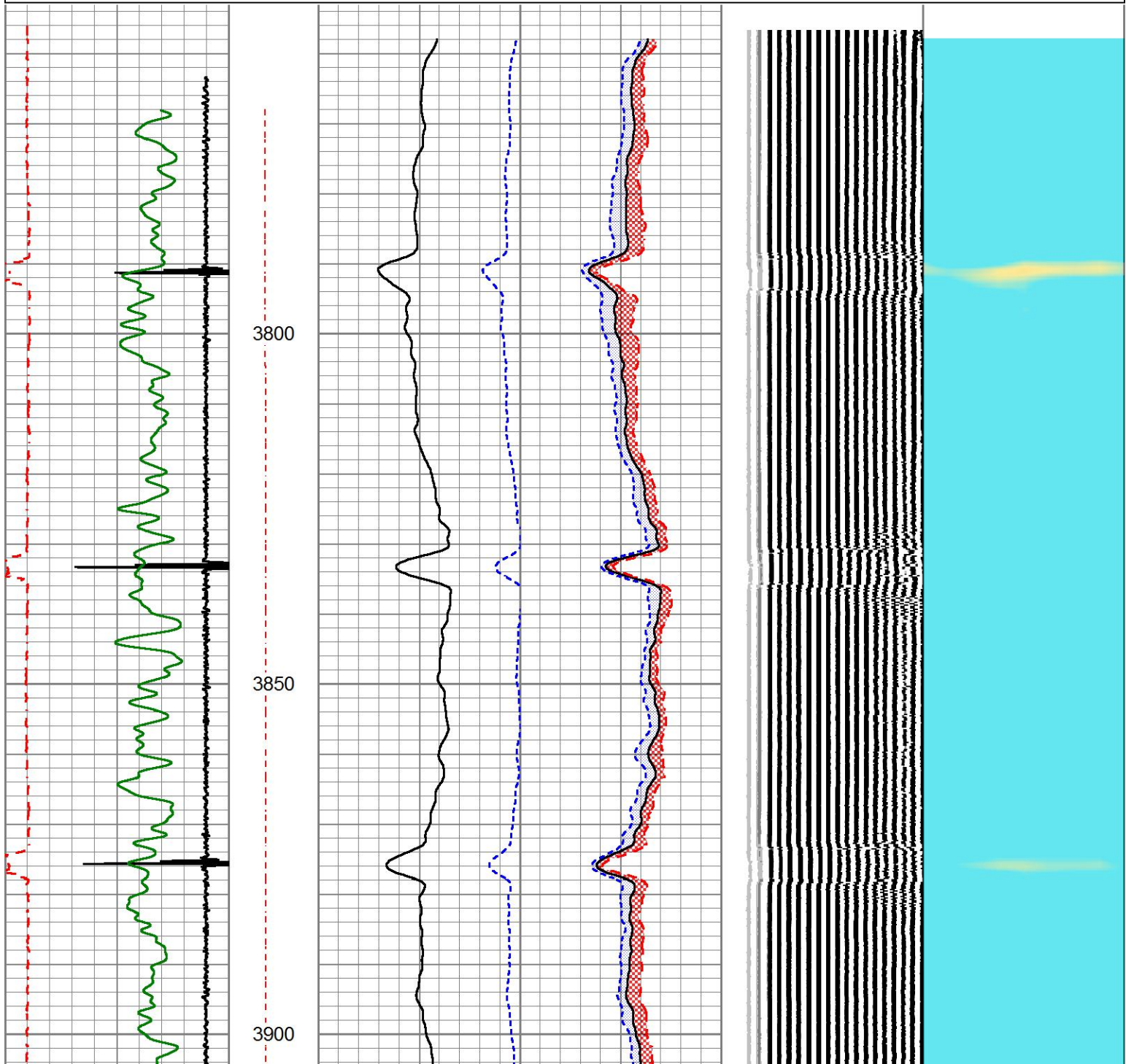


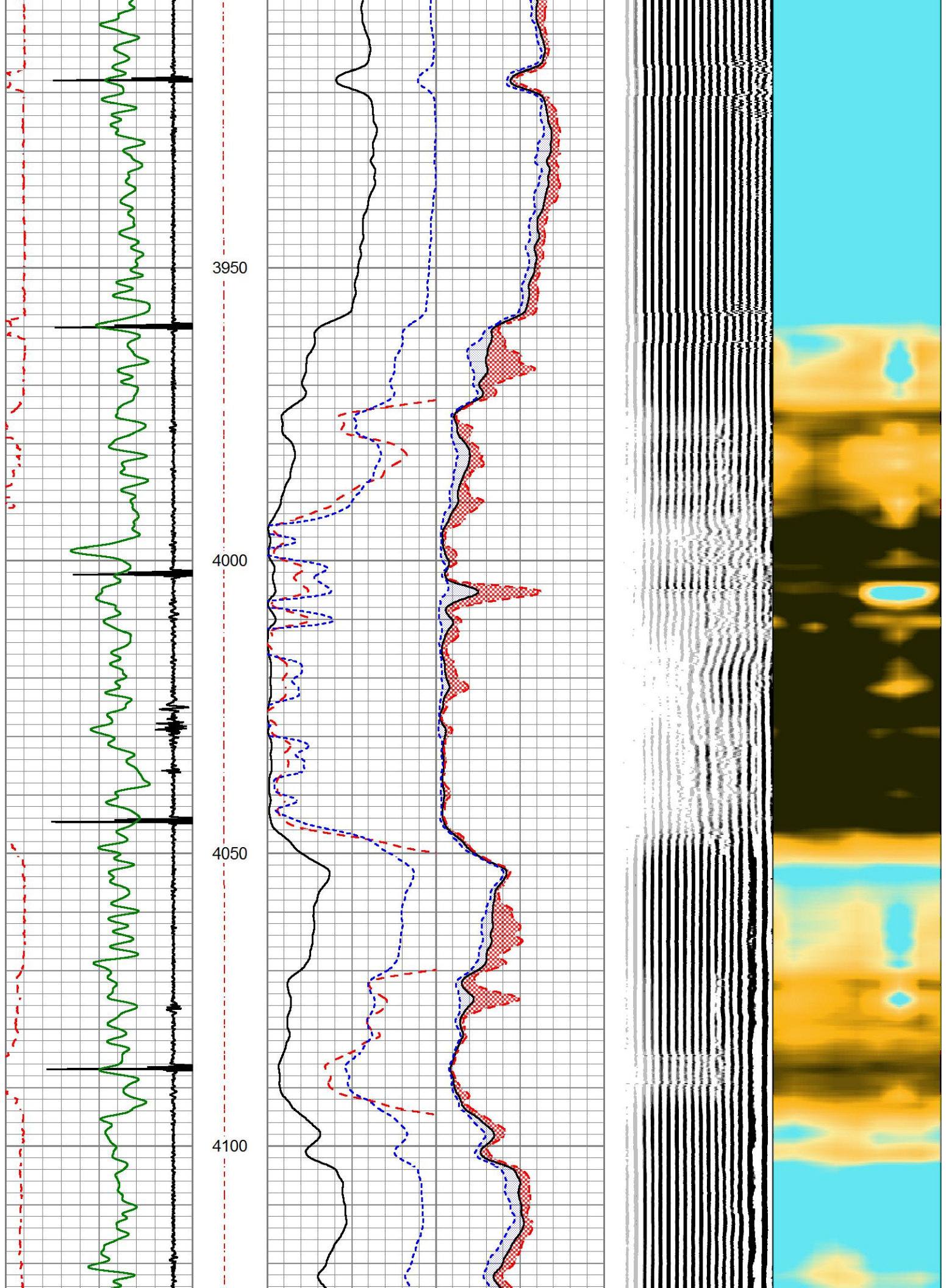
MAIN LOG

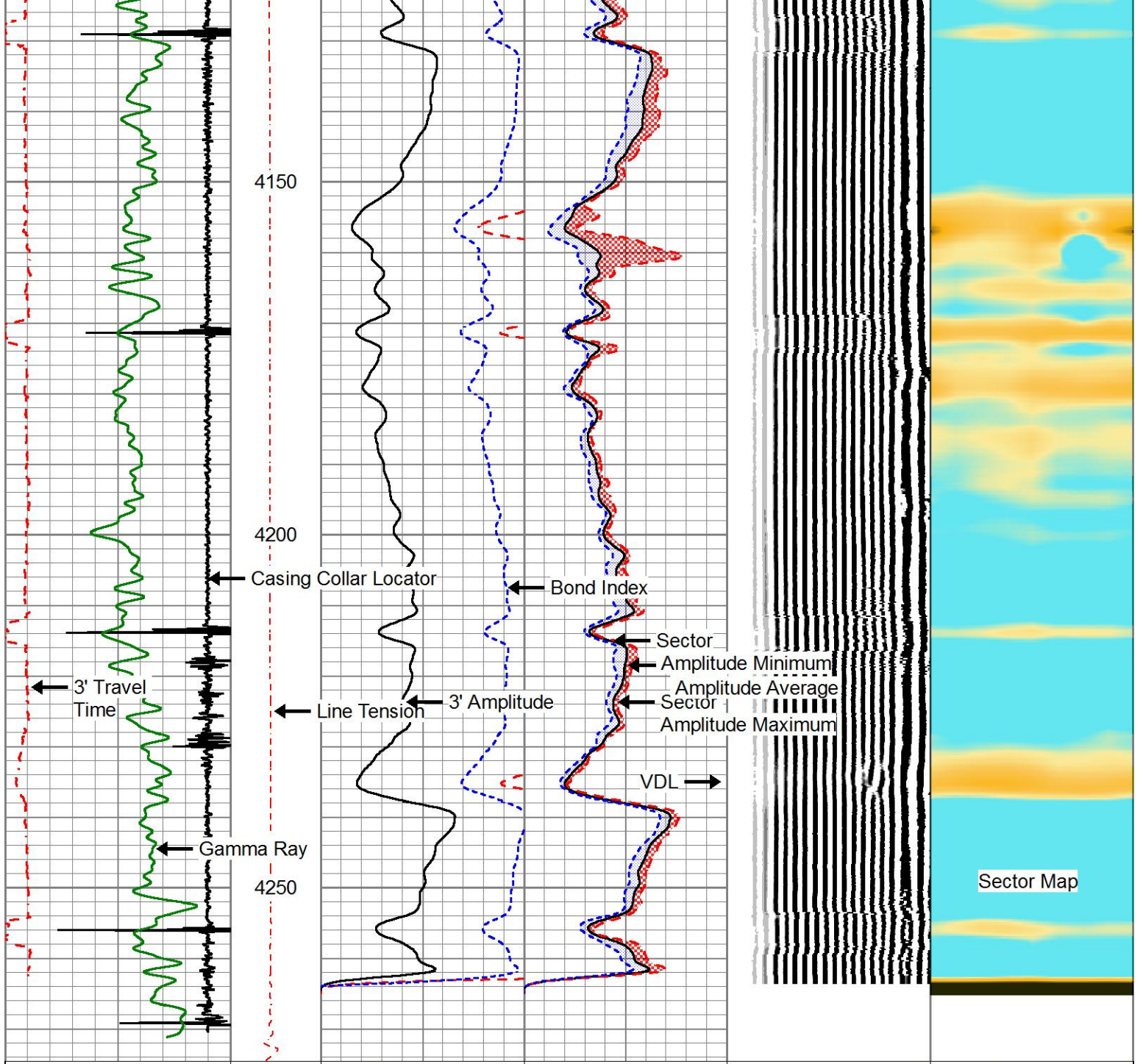
ZERO PSI APPLIED AT SURFACE

Database File east cheyenne gas storage llc_ecgs no 6-21 wpdoo4-2_20172010_scbl.db
 Dataset Pathname pass19
 Presentation Format pinr_scbl
 Dataset Creation Fri Oct 20 17:34:01 2017
 Charted by Depth in Feet scaled 1:240

3' Travel Time 336 (usec) 236	Line Tension 0 (12000)	3' Amplitude (mV) 0 100	Sector Amplitude Average 0 150	200	VDL	1200	1	Sector Map	8
-9 Collar Locator 1		3' Amplified Amplitude X 5 (mV) 0 20	Sector Amplitude Maximum 0 150				10		60
Gamma Ray (GAPI) 0 150		1 Bond Index 0	Sector Amplitude Minimum 0 150						







3' Travel Time	Line Tension	3' Amplitude (mV)	Sector Amplitude Average	200	VDL	1200	1	Sector Map	8
336 (usec)	0 (12000)	0 100	0 150				10		60
-9 Collar Locator		3' Amplified Amplitude X 5 (mV)	Sector Amplitude Maximum						
0 Gamma Ray (GAPI)		0 20	0 150						
		1 Bond Index	0 150						
			Sector Amplitude Minimum						
			0 150						

Calibration Report

Database File east cheyenne gas storage llc_ecgs no 6-21 wpdoo4-2_20172010_sdbl.db
 Dataset Pathname pass19
 Dataset Creation Fri Oct 20 17:34:01 2017

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

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: 3277.800 ft

Master Calibration, performed Fri Oct 20 17:22:46 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.000	0.392	0.000	62.165	158.741	0.000
CAL	0.000	2.061				
5'	0.000	0.426	0.000	62.165	145.906	0.000
SUM						
S1	0.000	0.311	0.000	100.000	321.066	0.000
S2	0.000	0.522	0.000	100.000	191.541	0.000
S3	0.000	0.678	0.000	100.000	147.465	0.000
S4	0.000	0.641	0.000	100.000	155.940	0.000
S5	0.000	0.416	0.000	100.000	240.178	0.000
S6	0.000	0.313	0.000	100.000	319.788	0.000
S7	0.000	0.302	0.000	100.000	330.763	0.000
S8	0.000	0.311	0.000	100.000	321.267	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