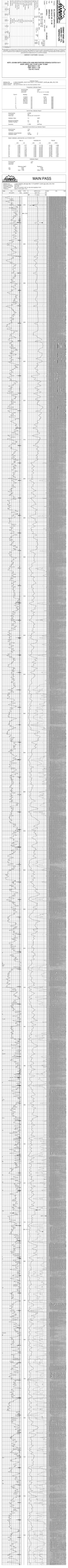

Schlumberger

NOTE: LOG WAS DEPTH CORRELATED OVER CASED SECTION BY OPERATOR TO OPEN HOLE GAMMA RAY LOG RUN NO. 1 DATED 10-Feb-2016

WELL TIED INTO 7" CASING AT 11,000 FT MD

CASING SHOE: 11,000 FT MD

CASING COLLAR LOCATOR (CCL)

Logging Date: 10-Feb-2016
Run Number: 2
Depth Driller: 11,000 ft MD
Schlumberger Depth: 11,000 ft MD
Bottom Logged Interval: 11,000 ft MD
Top Logged Interval: 10,000 ft MD
Casing Fluid Type: Water
Salinity: 10,000 ppm NaCl
Fluid Level: Full
Max Recorded Temperature: 210 degF
Max Recorded Pressure: 5,000 psi
Circulation Stopped: 10-Feb-2016 04:30
Logger On Bottom: 10-Feb-2016 06:15
Unit Number: 1
Location: Midland, TX
Recorded By: J. Martinez
Witnessed By: R. Thompson

Tool String (Top to Bottom)

Tool	Model	OD (in)	Length (ft)
CCL	CCL-1	3.375	4.2
Gamma Ray	GR-2	3.625	6.8
Neutron Porosity	NP-3	3.625	8.5
Density	DEN-4	3.625	9.1
Resistivity	RES-5	3.625	11.4
Sonic	SON-6	3.625	12.0

Run Summary

Run	Top (ft MD)	Base (ft MD)	Interval (ft)	Pass Type
1	10,000	11,000	1,000	Main Pass
2	10,000	11,000	1,000	Repeat
3	10,000	11,000	1,000	Main Pass

Calibration Information

Tool	Calibration Date	Calibration Type
GR-2	02-Feb-2016	Surface Check
NP-3	02-Feb-2016	Surface Check
DEN-4	02-Feb-2016	Surface Check
RES-5	02-Feb-2016	Surface Check
SON-6	02-Feb-2016	Surface Check

Environmental Corrections

Parameter	Value
Borehole Size	6.125 in
Mud Weight	9.2 ppg
Mud Viscosity	42 s/qt
Mud Resistivity	0.21 ohmm @ 68 degF
Mud Filtrate Resistivity	0.18 ohmm
Mud Cake Thickness	2/32 in
Standoff	0.5 in

Depth Control

Parameter	Value
Depth Reference	Kelly Bushing
Elevation above MSL	2,450 ft
Ground Level	2,435 ft
Depth Offset	0 ft

Repeatability Check

Curve	Mean Difference	Standard Deviation	Correlation Coefficient
GR	1.2 GAPI	3.8 GAPI	0.97
NPHI	0.004 dec	0.011 dec	0.96
RHOB	0.006 g/cm3	0.014 g/cm3	0.95
RT	0.08 ohmm	0.21 ohmm	0.94
DT	0.6 us/ft	1.4 us/ft	0.93

Operations Summary

Logging operations were conducted in accordance with the approved program. All tools functioned normally throughout the run. Repeat section was recorded from 10,000 ft MD to 11,000 ft MD. Main pass was recorded from 11,000 ft MD to 10,000 ft MD. Tool was pulled at a constant speed of 1,800 ft/hr. No anomalies were observed during the run. Data quality is good.

Remarks

Gamma ray data was depth shifted to match the cased hole GR log. Neutron porosity is corrected for borehole size and mud weight. Density is corrected for standoff. Resistivity is corrected for borehole and invasion. Sonic is corrected for borehole size.

Personnel on Location

Name	Company	Role
J. Martinez	Schlumberger	Logging Engineer
R. Thompson	Schlumberger	Field Engineer
T. Nguyen	Schlumberger	Wireline Operator
M. Garcia	Schlumberger	Wireline Operator
D. Williams	Operator	Company Representative
K. Brown	Operator	Company Representative

Equipment Used

Item	Serial Number	Condition
Wireline Truck	WL-1	Good
Logging Cable	7-conductor	Good
Cable Head	CH-7	Good
Weak Point	WP-1	Good
Centralizer	CEN-1	Good
Calibration Tank	CT-1	Good

Weather and Road Conditions

Parameter	Value
Weather	Clear
Temperature	68 degF
Wind	5 mph SW
Road Conditions	Good

Time Log

Time	Activity
04:30	Circulation stopped
05:00	Rig down mud pumps
05:30	Arrive on location
06:00	Rig up wireline
06:15	Logger on bottom
06:30	Begin main pass
07:45	End main pass
08:00	Begin repeat section
09:15	End repeat section
09:30	Rig down wireline
10:00	Depart location

Log Quality Control

Curve	Min	Max	Mean	Standard Deviation
GR	18 GAPI	142 GAPI	68 GAPI	22 GAPI
NPHI	0.02 dec	0.38 dec	0.14 dec	0.06 dec
RHOB	2.18 g/cm3	2.72 g/cm3	2.45 g/cm3	0.08 g/cm3
RT	0.9 ohmm	2,000 ohmm	18 ohmm	95 ohmm
DT	62 us/ft	118 us/ft	88 us/ft	12 us/ft

Data Delivery

Format	Media	Quantity
LAS 2.0	USB Drive	1
DLIS	USB Drive	1
PDF	USB Drive	1
Paper Print	Hard Copy	2

Acknowledgments

The crew would like to thank the operator for the opportunity to log this well. Special thanks to the rig crew for their assistance during rig up and rig down.

Signatures

Logging Engineer: J. Martinez
Company Representative: D. Williams
Date: 10-Feb-2016

Appendix

Additional plots and data are available upon request. Contact the logging engineer for more information.

Glossary

Term	Definition
GR	Gamma Ray
NPHI	Neutron Porosity
RHOB	Bulk Density
RT	True Resistivity
DT	Compressional Slowness
CCL	Casing Collar Locator
MD	Measured Depth
TVD	True Vertical Depth

Revision History

Version	Date	Author	Description
1.0	10-Feb-2016	J. Martinez	Initial release

Contact Information

Schlumberger
Midland, TX
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Email: jmartinez@slb.com

Disclaimer

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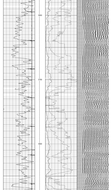
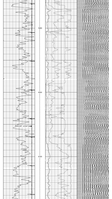
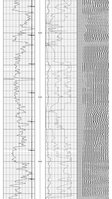
Midland, TX



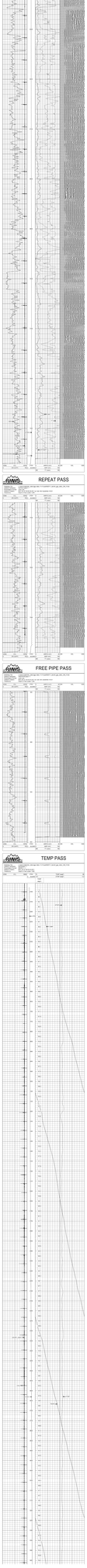
REPEAT PASS

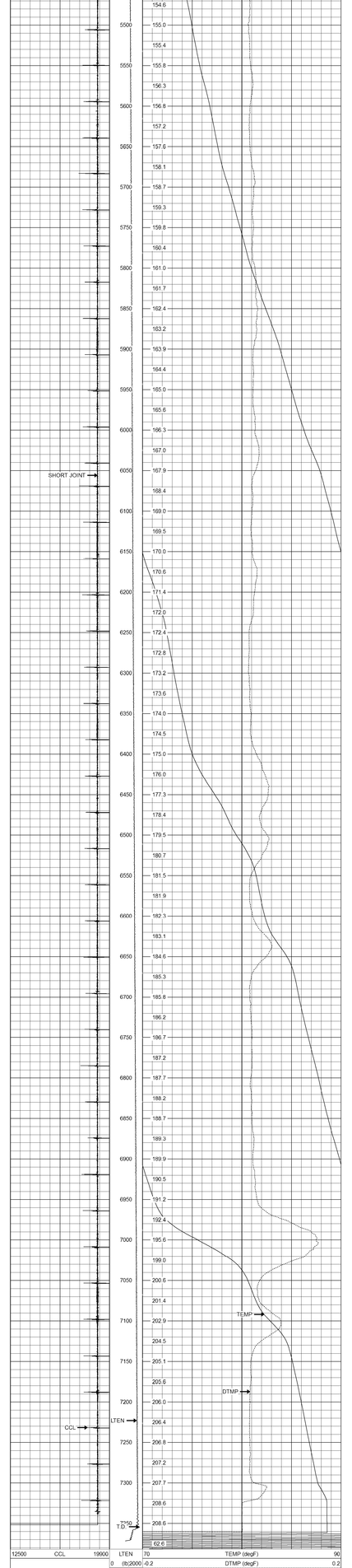


FREE PIPE PASS



TEMP PASS





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			CHD-AES (000001) Cable Head	1.04	1.69	2.00
			XTU-002 (216415) Crossover Ultrawire Toolbus To Ultralink	1.58	1.69	6.50
CCL	20.01		CCL-028 (1037) CCL UW 3 1/8" SONDEX	1.61	3.13	36.00
			SNDX 6 Arm PRC 022 W/ GO ADAPTORS	3.42	2.38	22.00
WVF3FT	11.74					
WVFS1	11.74		RBT-004 (1123) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
WVFS2	11.74					
WVFS3	11.74					
WVFS4	11.74					
WVFS5	11.74					
WVFS6	11.74					
WVFS7	11.74					
WVFS8	11.74					
CBLTEMP	11.74					
CBLROT	11.74					
WVF5FT	10.74					
			SNDX 6 Arm PRC 022 W/ GO ADAPTORS	3.42	2.38	22.00
GR	1.76		PGR-020 (217692) Production Gamma Ray	1.93	1.69	9.50
TEMP	0.37		PRT-016 (216611) Platinum Resistance Thermometer	1.04	1.69	6.00
TSTAMP	0.00					
ITEMPX	0.00		BUL-006 (212965) Bullnose Terminator	0.22	1.69	1.20
HVOLTX	0.00					

Dataset: 062511_barrett_ggu_daley_24d_19.db: field/well/MAIN/pass1.2
Total Length: 23.73 ft
Total Weight: 245.20 lb
O.D. 3.13 in

ROCKY MOUNTAIN WIRELINE SERVICE

Company	BILL BARRETT CORPORATION
Well	GGU DALEY 24D - 19 - 691
Field	GIBSON GULCH
County	GARFIELD
State	COLORADO