HALLIBURTON

RESERVOIR MONITORING TOOL - i

FIELD COPY

Company	KINDER MORGAN		
Well	GOODMAN POINT 27		
Field	MCELMO		
County	MONTEZUMA	State	CO

Company KINDER MORGAN
Well GOODMAN POINT 27
Field MCELMO
County MONTEZUMA State CO

API No.: 05-088-306717-0000 Serv #: 903322915
Location: SURFACE HOLE LOCATION:
935' FSL & 2105' FEL

BOTTOM HOLE LOCATION:
2225' FNL & 1096' FWL

Sec: 18 Twp: 36N Rge: 17W

Other Services
NONE

Permanent Datum	GL	Elevation	7080'	Elevation
Log Measured From	KB	, 22.5 Ft. above perm. datum		K.B. 7102.5'
Drilling Measured From	KB			D.F. 7101.5' G.L. 7080'

Date @ Time Logged	01-JUNE-2016	Type Fluid in Hole	C02
Run No.	ONE	Density of Fluid	UNKNOWN
Depth - Driller	8125'	Fluid Level	N/A
Depth - Logger	7939'	Cement Top Est. Logged	N/A
Bottom - Logged Interval	7939'	Equipment / Location	11808537 / RKSP
Top - Log Interval	2900'	Recorded by	SULLIVAN
Max. Recorded Temp.	N/A	Witnessed by	BRYAN KOP

CEMENTING DATA	Surface String	Protection String	Production String	Liner
Date / Time Cemented				
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				Casing & Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	SURFACE	2920'	9.625"	36.0#	SURFACE	2920'
TWO	8.75"	2920'	7457'	7.0"	29 & 32#	SURFACE	7457'
THREE	6.0"	7457'	8050'	4.5"	12.60#	7380'	8050'
FOUR	3.75"	8050'	8125'				

<<< Fold Here >>>

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.

Comments

CORRELATED TO HES RMT-E DATED 08-OCT-2014
LOG INTERVAL AND SPEED PER CUSTOMER REQUEST
WELL WAS ON PRODUCTION WITH CO2 IN WELLBORE

Log Variables

Database D:\Warrior_data\gp_27.db
Dataset field/well/run1/r1/_vars_

Top - 5602.00 ft

BHTEMP_Src	BHSAL2	BHSAL1	POROS2	POROS1	CASEWGHT lb/ft	LTH	UHSGC
ITEMPX	0	1	0	1	29	Limestone	NONE
RHOCF	SO in	BORSAL kppm	CASED?	SRFTEMP degF	MudWgt lb/gal	CASETHCK in	CASEOD in
0.25	0	150	Yes	0	9.5	0	7
PERFS	TDEPTH ft	BOTTEMP degF	BITSIZE in				
0	0	100	10				

5602.00 ft - 7058.00 ft

BHTEMP_Src	BHSAL2	BHSAL1	POROS2	POROS1	**CASEWGHT lb/ft**	LTH	UHSGC
ITEMPX	0	1	0	1	**32**	Limestone	NONE
RHOCF	SO in	BORSAL kppm	CASED?	SRFTEMP degF	MudWgt lb/gal	CASETHCK in	CASEOD in
0.25	0	150	Yes	0	9.5	0	7
PERFS	TDEPTH ft	BOTTEMP degF	BITSIZE in				
0	0	100	10				

7058.00 ft - 7380.00 ft

BHTEMP_Src	BHSAL2	BHSAL1	POROS2	POROS1	**CASEWGHT lb/ft**	LTH	UHSGC
ITEMPX	0	1	0	1	**29**	Limestone	NONE
RHOCF	SO in	BORSAL kppm	CASED?	SRFTEMP degF	MudWgt lb/gal	CASETHCK in	CASEOD in
0.25	0	150	Yes	0	9.5	0	7
PERFS	TDEPTH ft	BOTTEMP degF	BITSIZE in				
0	0	100	10				

7380.00 ft - Bottom

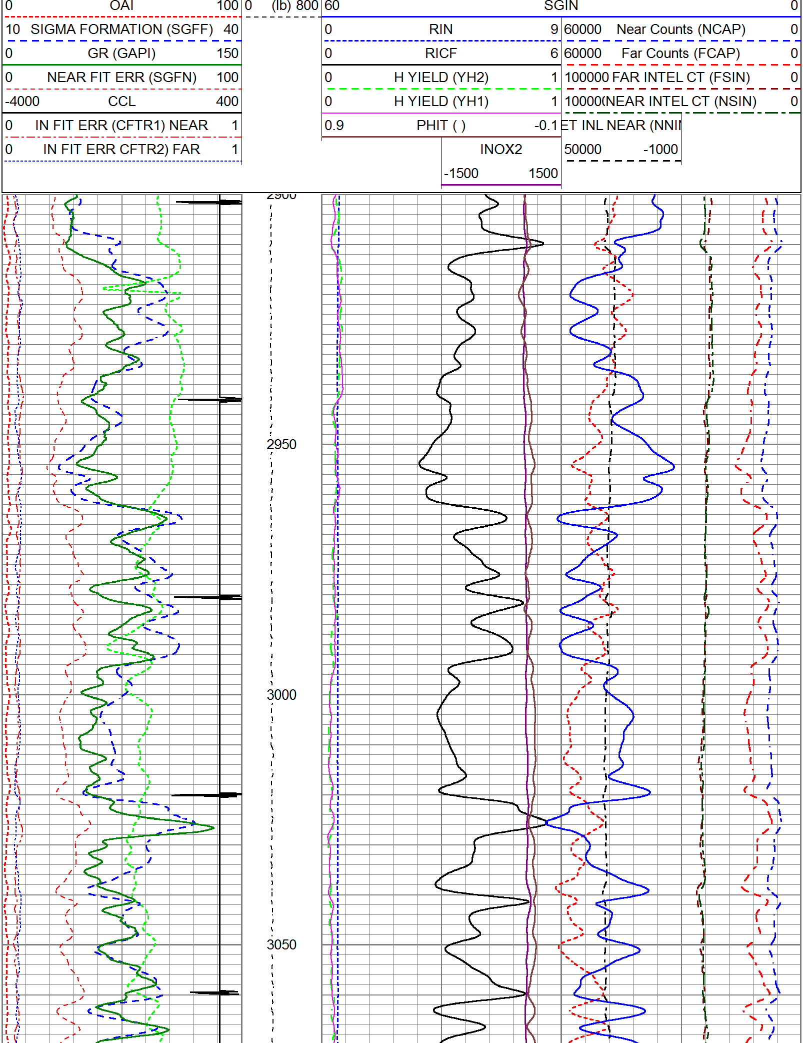
BHTEMP_Src	BHSAL2	BHSAL1	POROS2	POROS1	**CASEWGHT lb/ft**	LTH	UHSGC
ITEMPX	0	1	0	1	**12.75**	Limestone	NONE
RHOCF	SO in	BORSAL kppm	CASED?	SRFTEMP degF	MudWgt lb/gal	CASETHCK in	**CASEOD in**
0.25	0	150	Yes	0	9.5	0	**4.5**
PERFS	TDEPTH ft	BOTTEMP degF	BITSIZE in				
0	0	100	10				

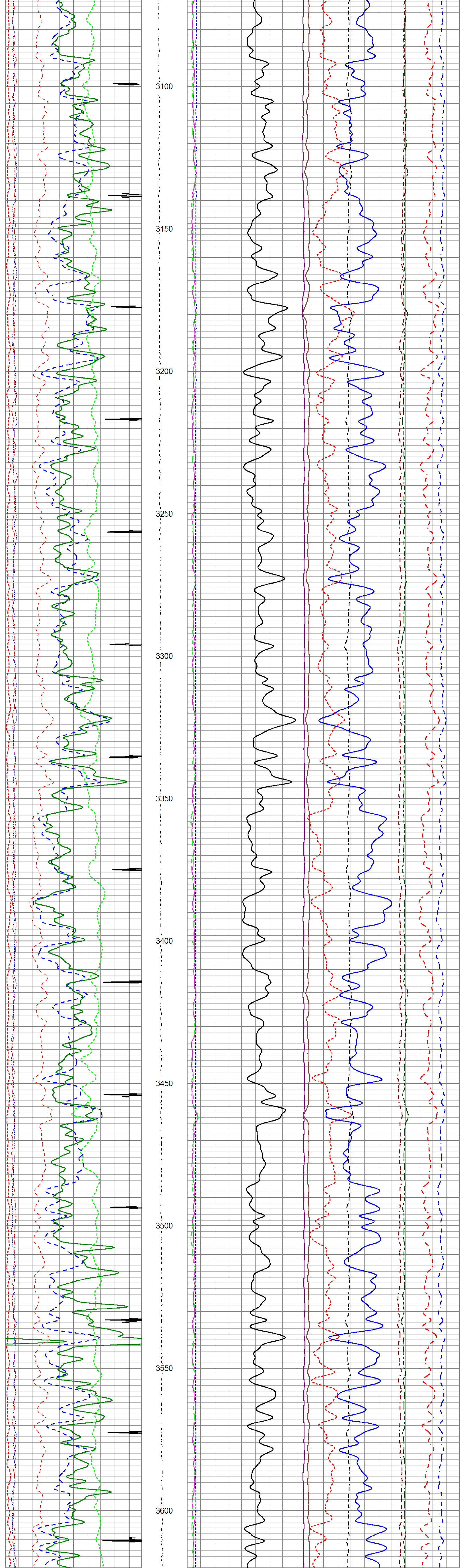
HALLIBURTON

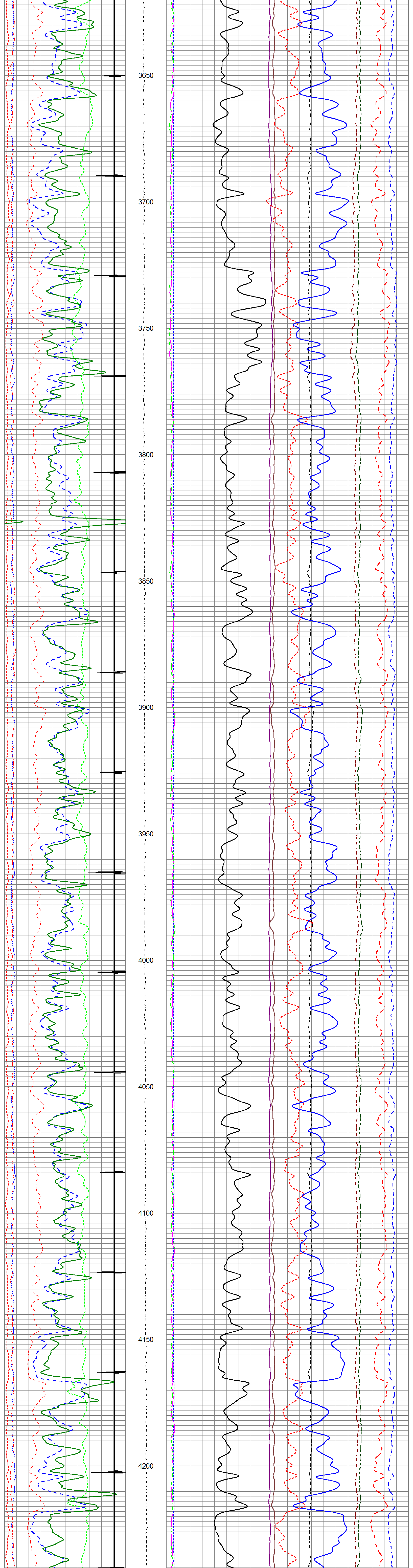
MAIN LOG

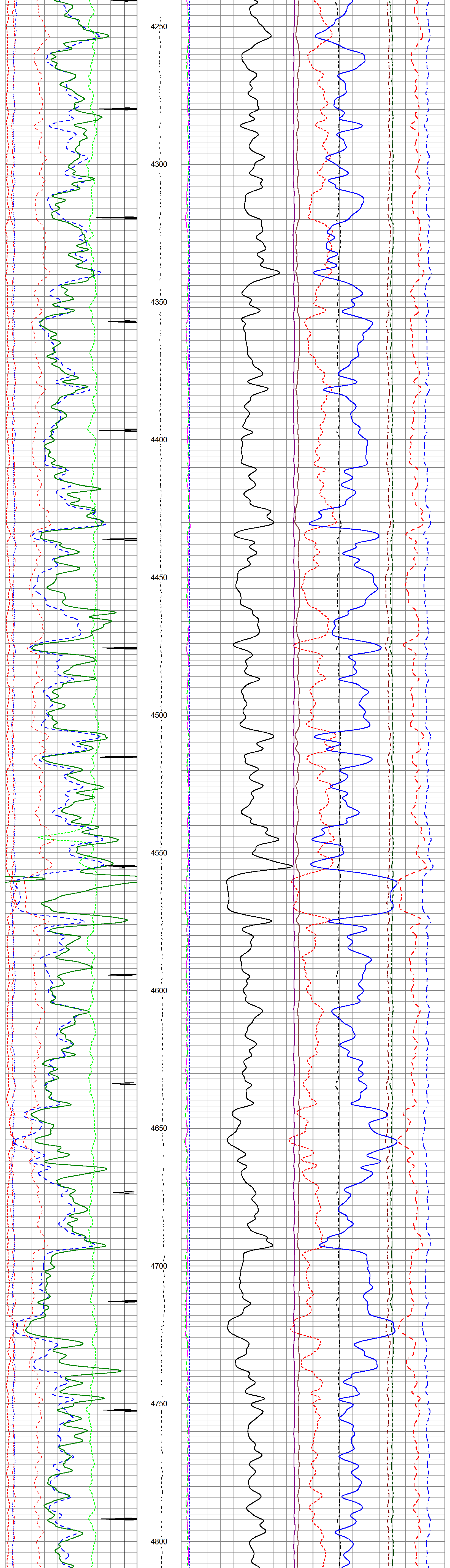
5" = 100'

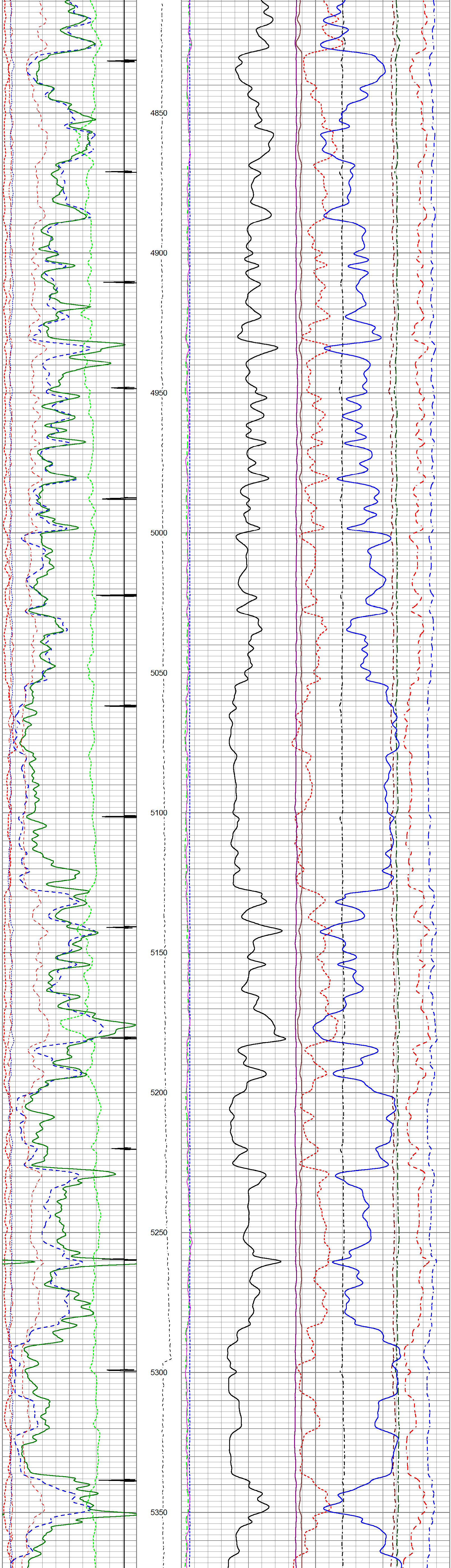
Database File	gp_27.db
Dataset Pathname	r2
Presentation Format	rmte_main
Dataset Creation	Wed Jun 01 11:40:00 2016
Charted by	Depth in Feet scaled 1:240

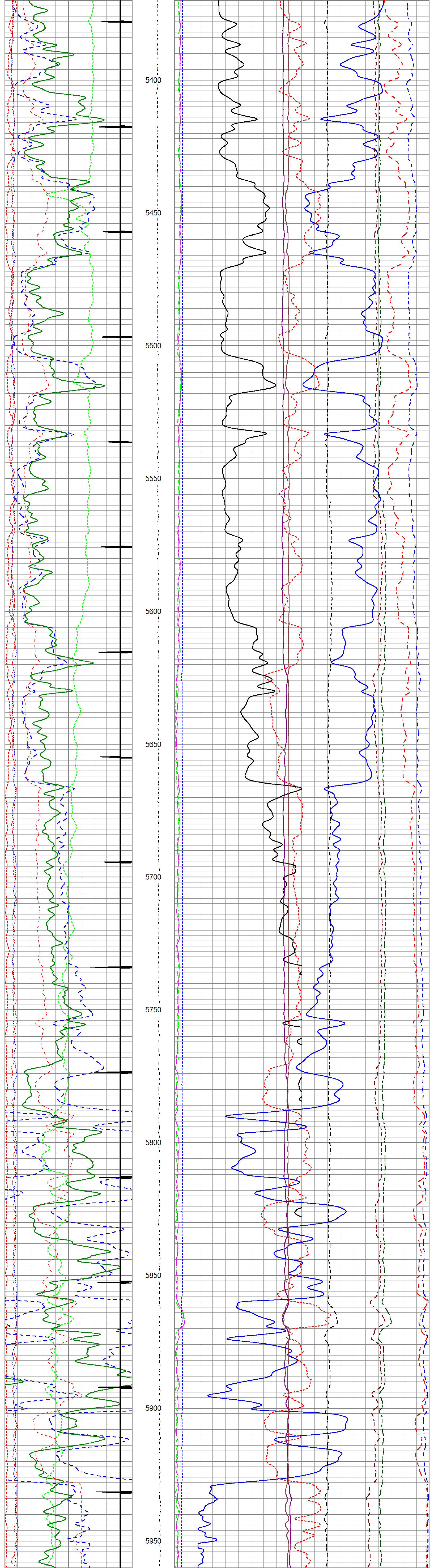


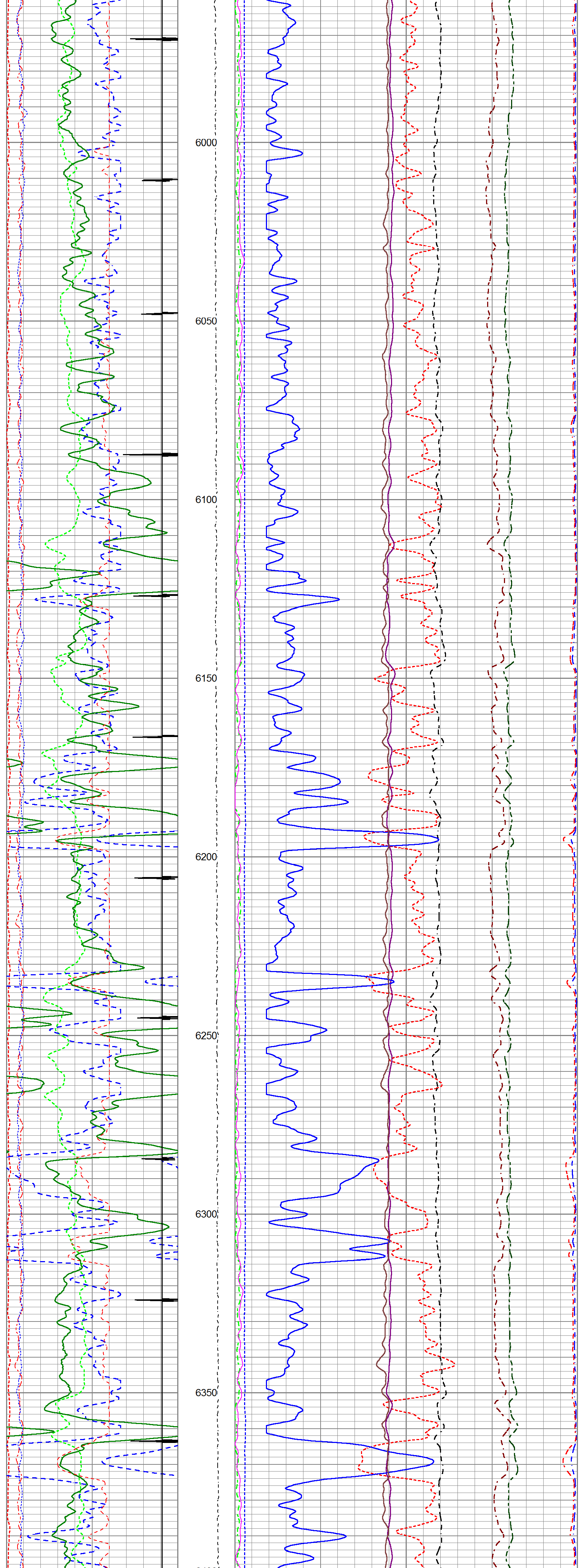


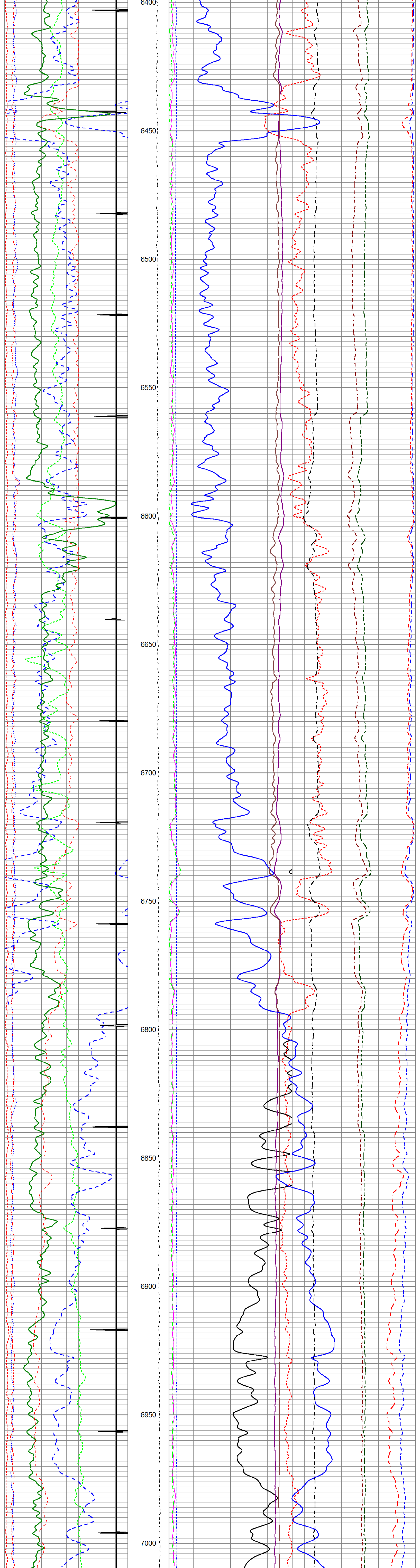


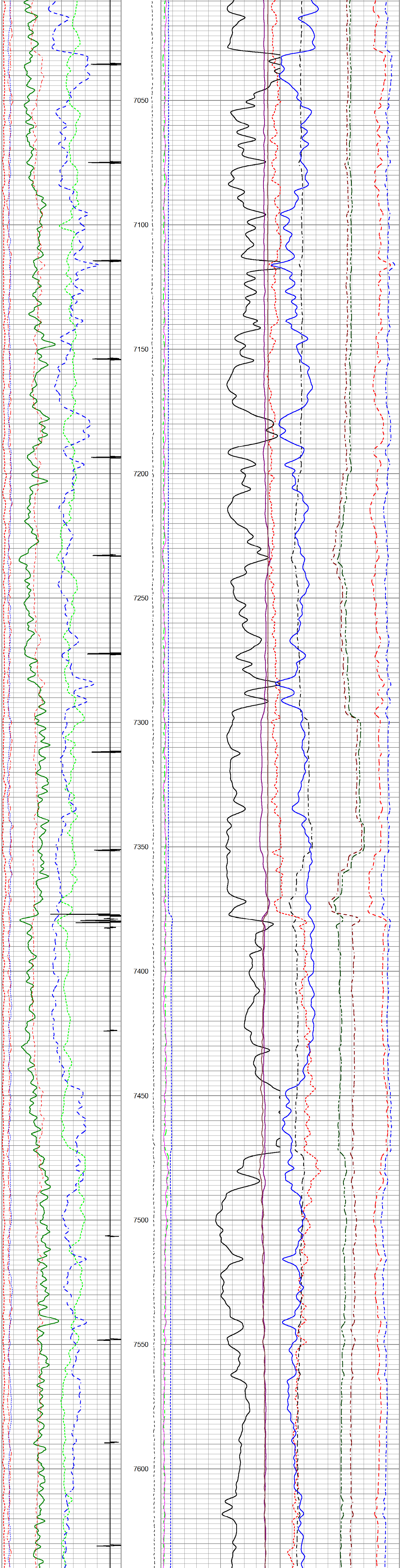


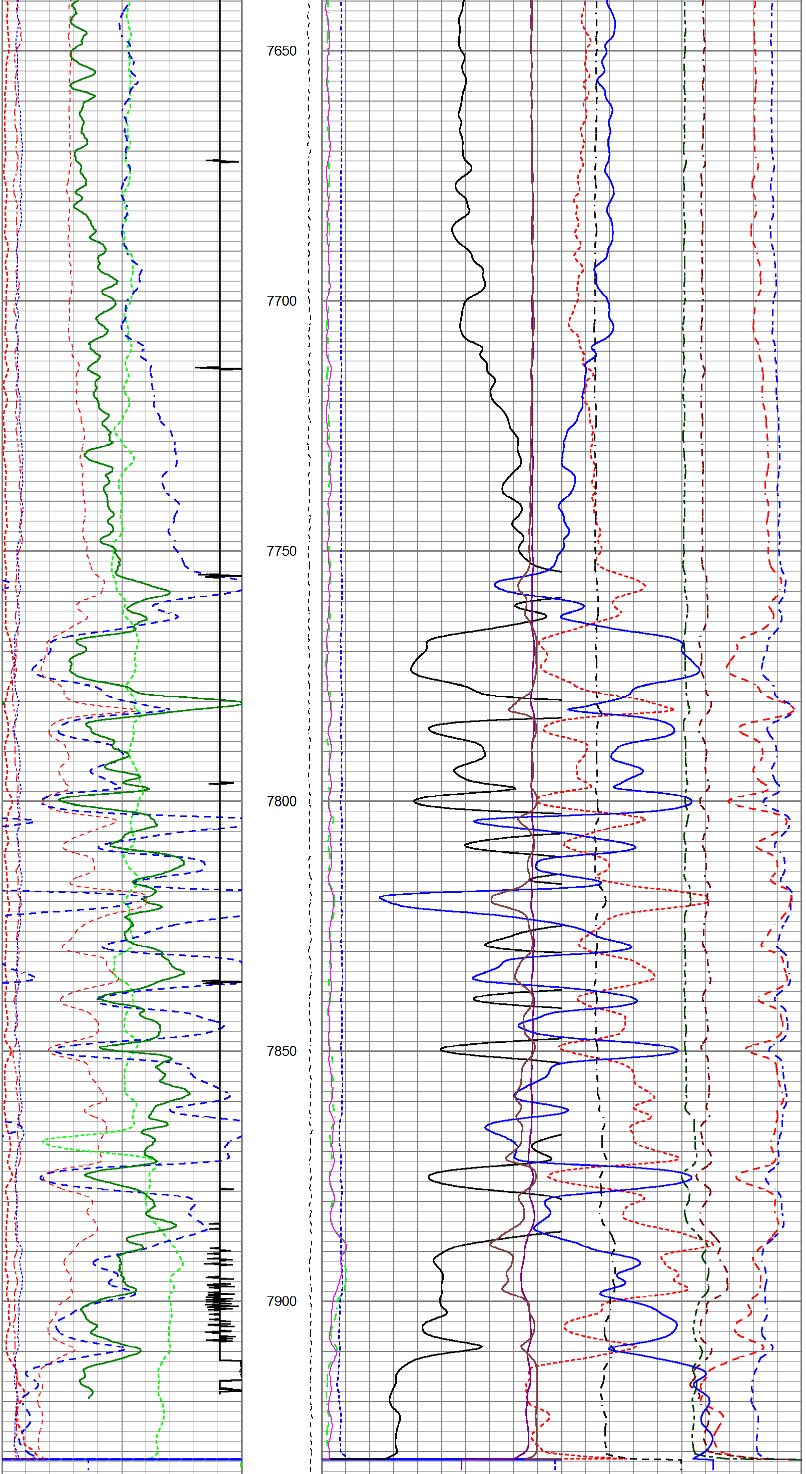












200 Near Bore Si (SGBN) 0
0 OAI 100
10 SIGMA FORMATION (SGFF) 40
0 GR (GAPI) 150
0 NEAR FIT ERR (SGFN) 100
-4000 CCL 400
0 IN FIT ERR (CFTR1) NEAR 1
0 IN FIT ERR CFTR2) FAR 1

TENSION
0 (lb) 800

0 RATIO (RNF) 1.1
60 SGIN 0
0 RIN 9
0 RICF 6
0 H YIELD (YH2) 1
0 H YIELD (YH1) 1
0.9 PHIT ( ) -0.1
INOX2
-1500 1500

60000 Near Counts (NCAP) 0
60000 Far Counts (FCAP) 0
100000 FAR INTEL CT (FSIN) 0
10000(NEAR INTEL CT (NSIN) 0
ET INL NEAR (NNI
50000 -1000

HALLIBURTON

MAIN LOG

5" = 100'

HALLIBURTON

REPEAT PASS

5" = 100'

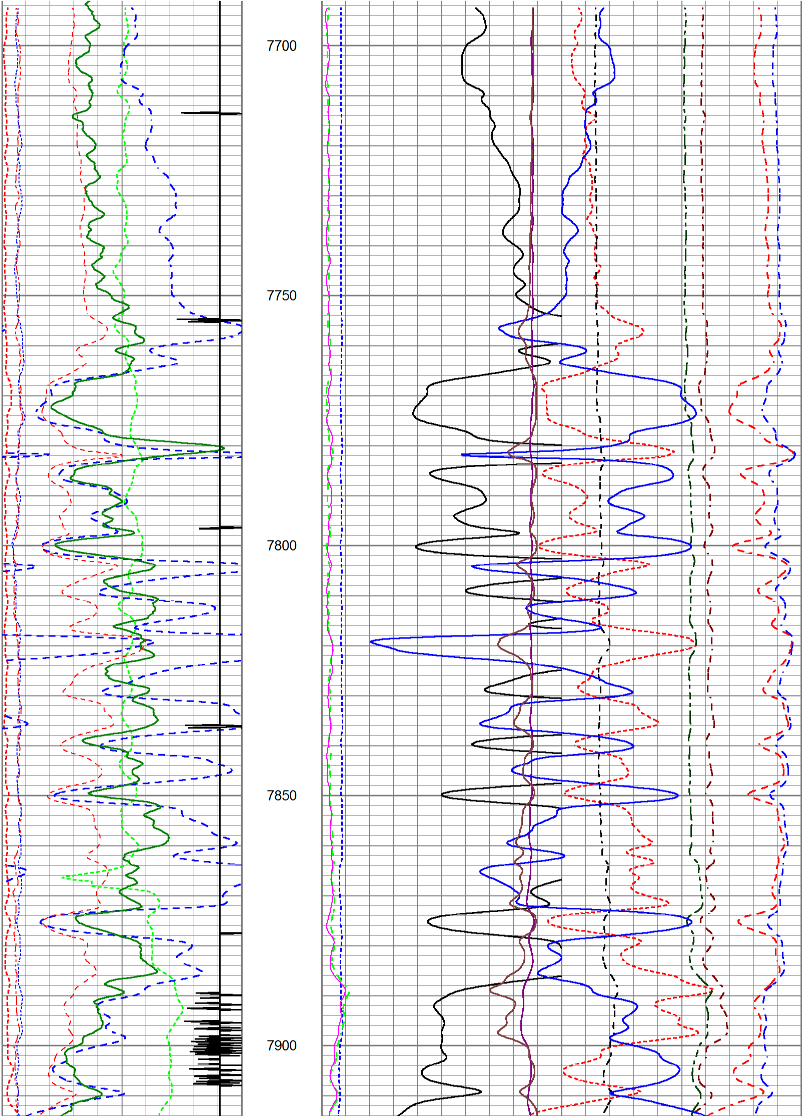
Database File	gp_27.db
Dataset Pathname	r1
Presentation Format	rmte_main
Dataset Creation	Wed Jun 01 11:26:31 2016
Charted by	Depth in Feet scaled 1:240

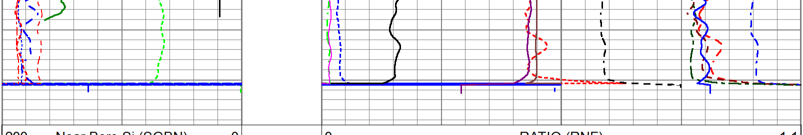
200 Near Bore Si (SGBN) 0
0 OAI 100
10 SIGMA FORMATION (SGFF) 40
0 GR (GAPI) 150
0 NEAR FIT ERR (SGFN) 100
-2000 CCL 200
0 IN FIT ERR (CFTR1) NEAR 1
0 IN FIT ERR CFTR2) FAR 1

TENSION
(lb)
800 1900

0 RATIO (RNF) 1.1
60 SGIN 0
0 RIN 9
0 RICF 6
0 H YIELD (YH2) 1
0 H YIELD (YH1) 1
0.9 PHIT ( ) -0.1
INOX2
-1500 1500

60000 Near Counts (NCAP) 0
60000 Far Counts (FCAP) 0
100000 FAR INTEL CT (FSIN) 0
10000(NEAR INTEL CT (NSIN) 0
ET INL NEAR (NNI
50000 -1000





200 Near Bore Si (SGBN) 0	TENSION	0 RATIO (RNF) 1.1	
0 OAI 100	(lb)	60 SGIN 0	
10 SIGMA FORMATION (SGFF) 40	800 1900	0 RIN 9	60000 Near Counts (NCAP) 0
0 GR (GAPI) 150		0 RICF 6	60000 Far Counts (FCAP) 0
0 NEAR FIT ERR (SGFN) 100		0 H YIELD (YH2) 1	100000 FAR INTEL CT (FSIN) 0
-2000 CCL 200		0 H YIELD (YH1) 1	10000(NEAR INTEL CT (NSIN) 0
0 IN FIT ERR (CFTR1) NEAR 1		0.9 PHIT ( ) -0.1	ET INL NEAR (NNI
0 IN FIT ERR CFTR2) FAR 1		INOX2 -1500 1500	50000 -1000

HALLIBURTON

REPEAT PASS

5" = 100'

Calibration Report

Database File gp_27.db
Dataset Pathname r1
Dataset Creation Wed Jun 01 11:26:31 2016

Reservoir Monitor Tool I Calibration Report

Serial-Model: 11680605-A

Shop Calibration Performed: Mon May 23 14:11:34 2016

Carbon/Oxygen Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	94.00	80.00	14.00	+/-15.00	V
ITCR2	3055	3250	-195	+/-250	cps

Near Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0248	5.54	<6.00
Fe	207	206 +/-2	0.0936	-----	-----
NGAIN = 0.995	NZOFF = 0.5				

Far Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0388	5.08	<6.50
Fe	210	208 +/-2	0.0906	-----	-----
FGAIN = 0.990	FZOFF = 0.3				

Flask Temperature 73.1 degF

Result	Logged	Expected Value	Diff.	Tol.	Units
COIR2	0.44	0.45	-0.01	+/-0.02	
LIRI2	1.37	1.36	0.00	+/-0.05	
TCCR2	5114	5000	114	+/-1000	cps
ITCR2	3041	3200	-159	+/-250	cps

Sigma Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	92.00	80.00	12.00	+/-15.00	V
FCAP	9902	10000	-98	+/-500	cps

Horizontal Water Tank

Result	Logged	Expected Value	Diff.	Tol.	Units
N/F Normalizer	0.95	0.95	-0.00		
N/F Inel Norm	0.62	0.61	0.01		
RNF	1.06	1.07	-0.01	+/-0.12	
RINC	1.62	1.64	-0.02	+/-0.18	
SGFN	24.08	24.00	0.08	+/-0.50	cu
SGFF	22.97	22.85	0.12	+/-0.50	cu
FSIN	23532	24000	-468	+/-2000	cps
FCAP	9952	10000	-48	+/-1000	cps
NFTR	0.86			<5.00	
FFTR	0.88			<5.00	
NBKG	125			<500	cps
FBKG	100			<500	cps
RTN	0.41	0.40	0.01	+/-0.10	usec
RTF	0.43	0.40	0.03	+/-0.10	usec

Calibration Software Modules

HRMTI Module 2015.5.4.0
RMTI Module 2015.5.15.1

Log Data Acquisition Software Modules

HRMTI Module 2015.5.4.0
RMTI Module 2015.5.15.1

Gamma Ray Calibration Report

Type / Serial: 002 / 11224502

SHOP CALIBRATION Fri May 20 09:53:16 2016

	Counts/Sec.	Gain	Offset	Jig	Units
Background	29.8				cps
Calibrator	304.9				cps
		1.3378			GAPI/cps

PRIMARY VERIFICATION

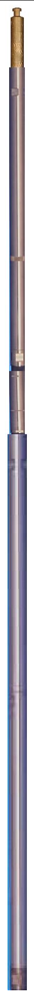
Background	39.9		cps
Calibrator	406.9		cps
Difference		367.0	GAPI

BEFORE SURVEY VERIFICATION

Background	0.0		cps
Calibrator	0.0		cps
Difference		0.0	GAPI

AFTER SURVEY VERIFICATION

Background	0.0		cps
Calibrator	0.0		cps
Difference		0.0	GAPI

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00
CCL	21.16					
GR	18.91		TTTCU-002 (11224502) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00
			XHU-003 (11983708) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
RmtTFGT	8.25					
RmtTNGT	7.75					
			RMTI-A (11680605) Halliburton RMTI Tool	14.00	2.13	77.00
RmtFP5V	0.00					
RmtNFwvMcsPh	0.00					
RmtCommFWar	0.00					
LLMTEN	0.00					

Dataset: gp_27.db: field/well/run1/r1
Total length: 24.73 ft
Total weight: 185.00 lb
O.D.: 2.13 in

Company	KINDER MORGAN
Well	GOODMAN POINT 27
Field	MCELMO
County	MONTEZUMA
State	CO

HALLIBURTON

RESERVOIR MONITORING
TOOL - i
FIELD COPY