MD: 10,812.00 ft TVD: 10,80 : 16-Jun-12    Borehole Record (MD)     Size From     12,250 in   102.00 ft     8,500 in   2,510.00 ft     8,500 in   6,364.00 ft     6,125 in   8,320.00 ft     6,125 in   8,348.00 ft     6,125 in   8,640.00 ft     6,125 in   8,676.00 ft     6,125 in   10,015.00 ft     6,125 in   10,03.00	Country: USA  Field: Exploration  Lat:: 69° 59' 26.11" North Long:: 148° 40' 40' 40' 99" West  Log Measured From: Alcor 1  Company: Great Bear Petroleum, LLC  Rig:: Nabors 105E  Latitude:: 69° 59' 26.11" North Long:: 148° 40' 40' 40' 99" West  Well:: Alcor 1  Company:: Great Bear Petroleum, LLC  Rig:: Nabors 105E  Log Measured From: Drill Floor  Depth Logged:: 102.00 ft To 10,812.00 ft  Date Logged:: 16-Jun-12 To 09-Aug-12	1:600 Company
Plot Type : Plot Date : Plot Date :  No ft 1300 No ft 1400 No ft Size No ft 16.000 i No ft 9.562 in No ft 7.000 in No ft 4.500 in	: : : : : : : : : : : : : : : : : : :	HALLIEU  : Great Bear  : Nabors 105
Size 6.125 in 6.125 in 6.125 in Weight 46.20 lbp 28.70 lbp 11.60 lbp	0026-00-00	HALLIEURTON Surface 2" MD G Great Bear Petroleum, Nabors 105E
of the control of the	Other Services  Elev. KB 0.00 ft  DF 186.00 ft  GL 163.70 ft  WD 0.00 ft	Dat la
To 10.812.00 ft 10.812.00 ft 10.812.00 ft To 80.00 ft 2.491.00 ft 10.750.00 ft	0.00 ft 186.00 ft 163.70 ft 0.00 ft	Sperry Drilling Ratio Log Ratio Log
Abbreviation	LEGEND s and Symbols	Lithology Symbols
Drilling Data	Mud Data	Sand Dolomite
BG Background Gas BHT Bottomhole Temp C Carbide Test CB Core Bit	CI- Chloride Ion Conc Rm Mud Resistivity FC Filter Cake Rmf Filtrate Resistivity FL Filtrate Loss S Solids Content G Gels Vis Funnel Viscosity	Sandstone Marl
CG Connection Gas CKF Check For Flow CO Circulate Out	pH Hydrogen Ion Content MW Mud Weight PV Plastic Viscosity YP Yield Point	Mudstone
DB Diamond Bit DC Depth Correction DS Direction Survey DST Drillstem Test FLT Flowline Temp.	Engineering Data  Core No.   DST No.   Salt Water	Clay Chalk
LAT Logged After Trip  NB New Bit  NR No Returns  PDC Polycrystalline Diamond	Casing Seat + Fresh Water  Side Wall Core + Hydrocarbons Smell	Claystone Chert Shale
Compound Bit PR Partial Returns	Gas Traces	Halite Halite

RFT Interval Tester

E-LOG Wireline Log Run

LOT Leakoff Test

PIT

Pressure Integrity

Oil Traces

Bitumen

Lignite

Coal

Limestone

**Anhydrite** 

Gravel

**RPM** 

RRB

STG

ΤB

TG

U

WOB

Short Trip Gas

Rerun Bit

Turbo Drill

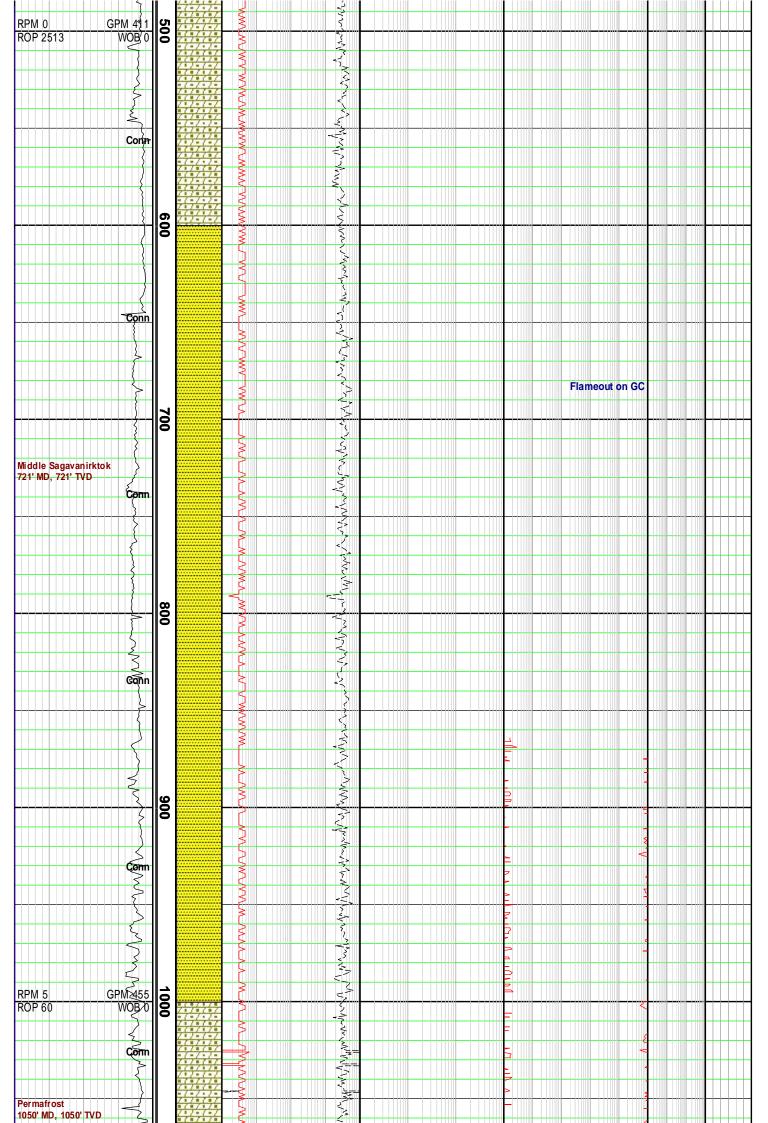
Trip Gas

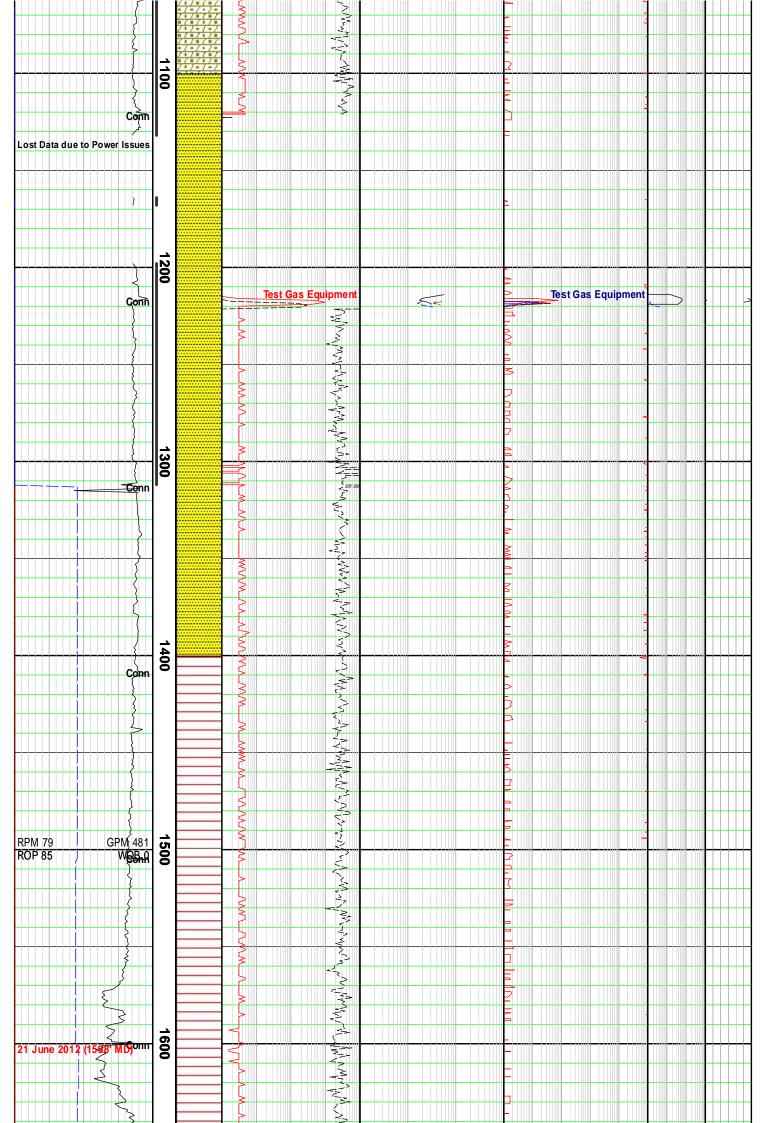
Gas Units

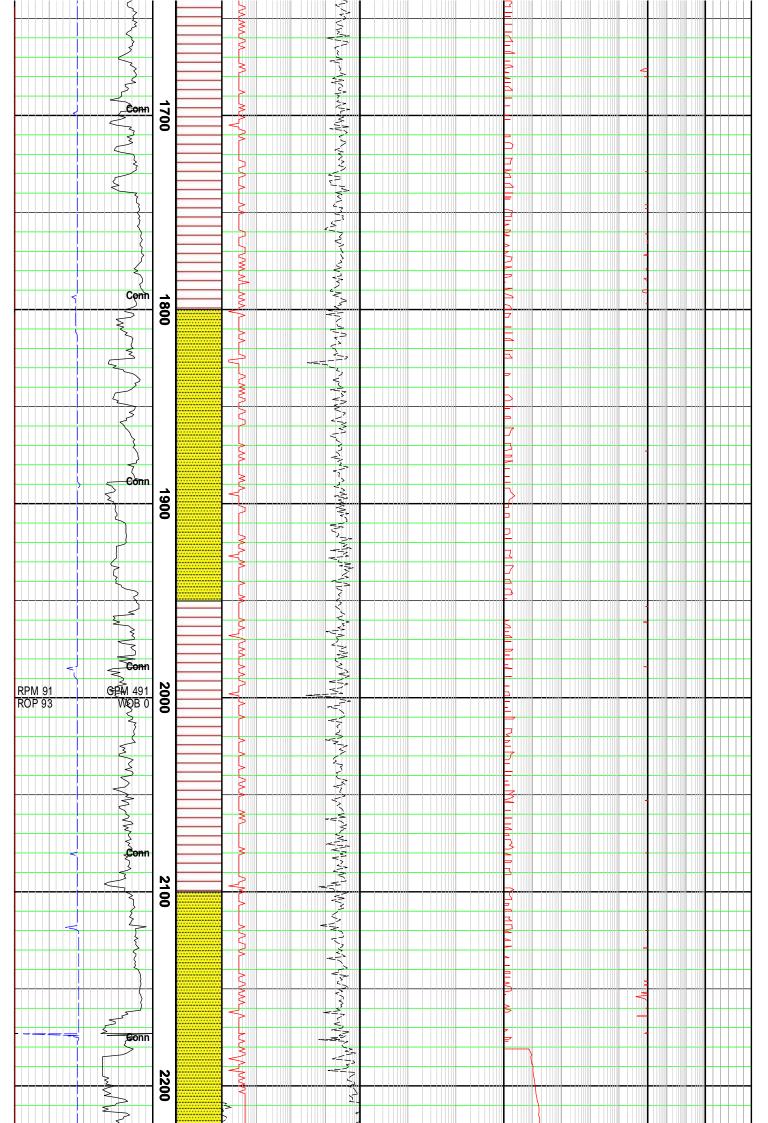
Weight On Bit

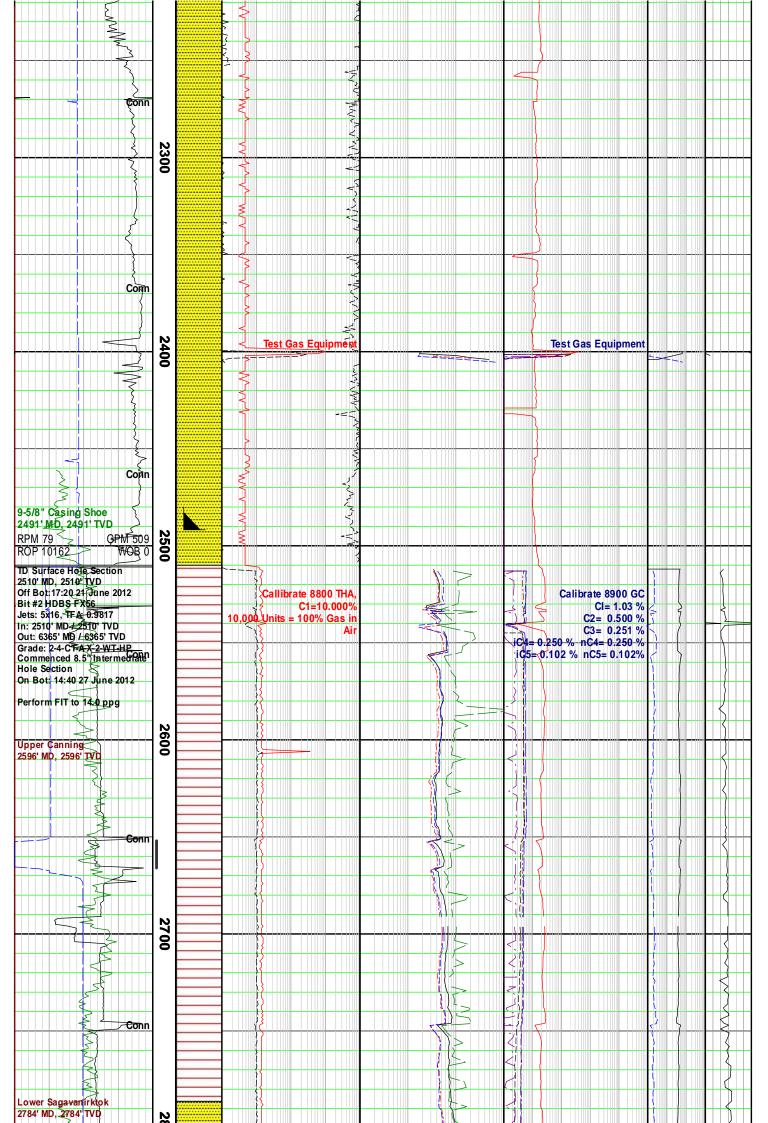
Revs Per Minute

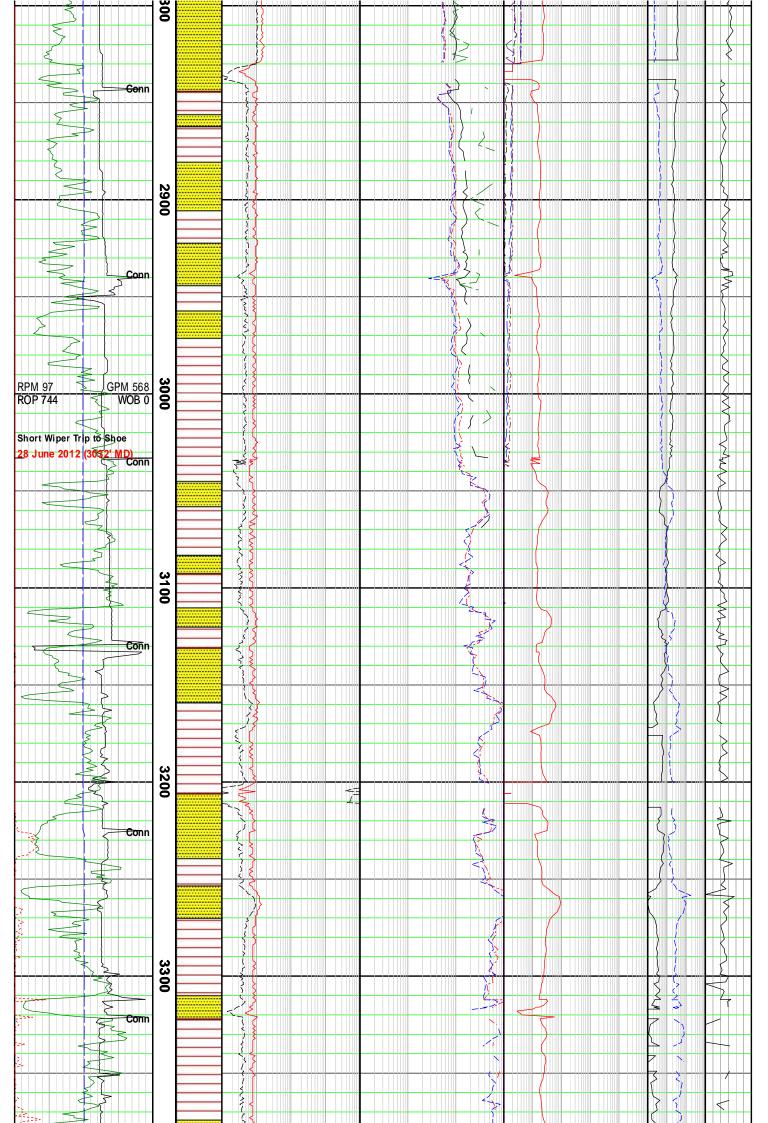
							ies	<b>D</b> L														
<b>ROP</b> 500 ft/hr 0	D	Inte	10	<b>Gas i</b> ,000 un	in <b>Air</b> nits = 10	0%		Pixler Plot Hydrocarbon Ratios Gas in Air		Gas Chromatograph Gas in Air Analysis					.:				CQ			
Gamma api 150	Depth	er pr				0.1	0.1 C1/C2 100			ppm					(GWR)		₹) 1K	5	ה ה			
WOB	M MD	Interpretative Lithology	4		Gas		0.1	1		C1/C3	100		ne							11	Cital actei	700
klbs 40  <b>RPM</b>	Slide	► 6 Density				10K 	0.1	1		C1/C4	100	Total						Ba	l <b>an</b> (LHR	ice	2	Ť
rpm 200	e	1 g/cc 3	0.1	oh	stivity mm	1K	0.1	1		C1/C5	100	10 10				100	K1M			1K	0	
Conn	)																					
							$\vdash$															
rill Floor 186' Above																						
ermanent Datum																						
Commenced Rig Up 15 June 2012 SDL Services Online																						
19 June 2012							H															
6" Conductor Casing D'MD, 80'TVD																						
ommenced 12.25" Surface	100			Callin	rate 88	ᄱᄺᄱ	L							Calli	brate	8900	) GC	<u> </u>				Ц
ole Section n Bot: 11:00 19 June 2012	0		10.000		C1=1 = 100%	0.000%								Calli	C	: 0900 :l= 1.0 : 0.50	3 %					
			10,000	, UIIIIS	- 100%	Air		H				iC4-	0.25	0 %	C3=	: 0.30 : 0.25 = 0.25	1 %					
t #1 HDBS QHC1GRC ets: 3x18, 1x14, TFA: 0.8958								Ш								= 0.23 5= 0.10						
: 96' MD / 96' TVD ut: 2510' MD / 2510' TVD rade: 8-8-LT-A-E-I-BT-TD							$\perp$	Ш													$\square$	
raue: 0-0-11-A-11-151-15								H														
	•							+														H
irectional Only Tools for Connurface Hole Section								Ш					Ш									
urface Hole Section	200						L	H													H	Ц
	$\  \tilde{\ } \ $							H													H	
								Н													$\mathbb{H}$	
ubik								H														
48' MD, 448' TVD																						
Conn			V		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	<b>,</b> T <i>e</i> -E-E-E		Щ				Ę	$\prod$								П	
	300		// //V			<u></u>	$\vdash$	Н				<u> </u>									H	Ц
			WVV			<del>-</del>						5										
>			W/\/		- 1 ·	<del>-</del>		Ш														
						,T																
						My						<u> </u>									H	
<u> </u>						₩ <u></u>						E										
Com			\$			}											γ,					
						~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		H				<u> </u>										
	400	/ / / / /	<u> </u>			<b>,</b>	$\vdash$	H				<u> </u>						<b></b>			H	
}			_{			4)						E										
\$			5					Ш				2										
}			WV_C			W 11/1						<u> </u>										
		1/1/1/	\ -\ -\			(~~\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\															H	
Conn						7 / N / N / N / N / N / N / N / N / N /						:		Fl	ame	out on	ı GC					
0 June 2012 (471' MD)						√√, √√, √,		Ш					Щ									

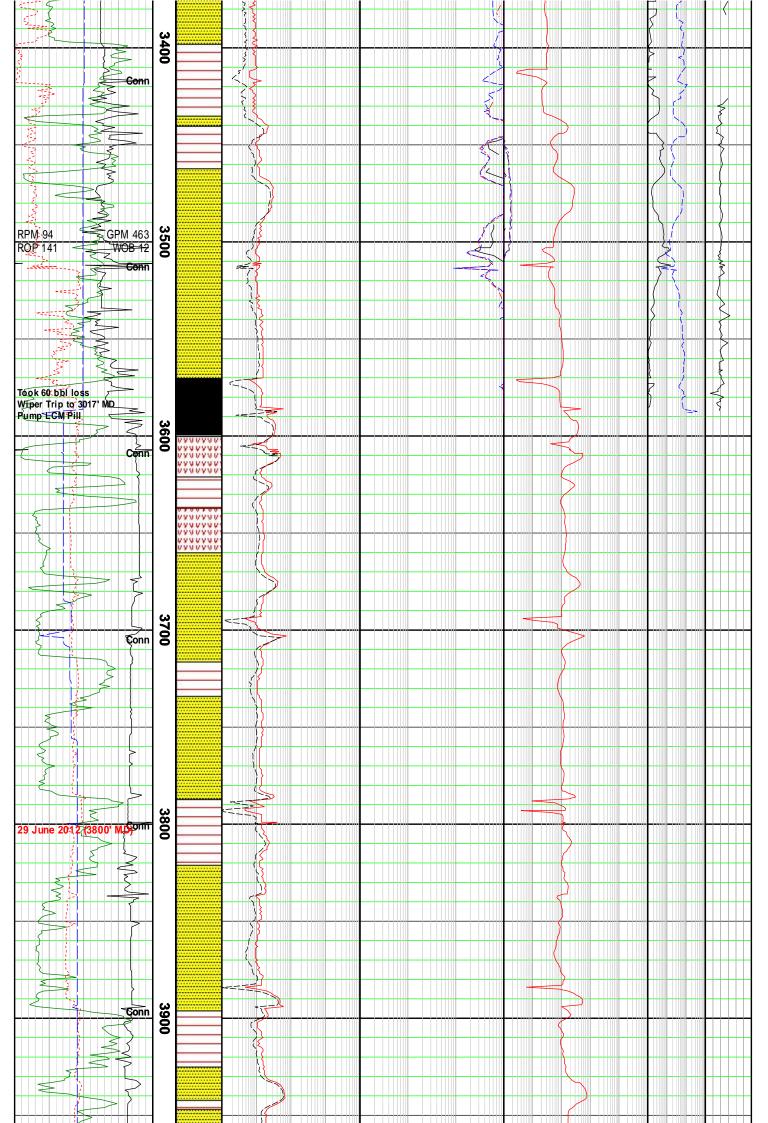


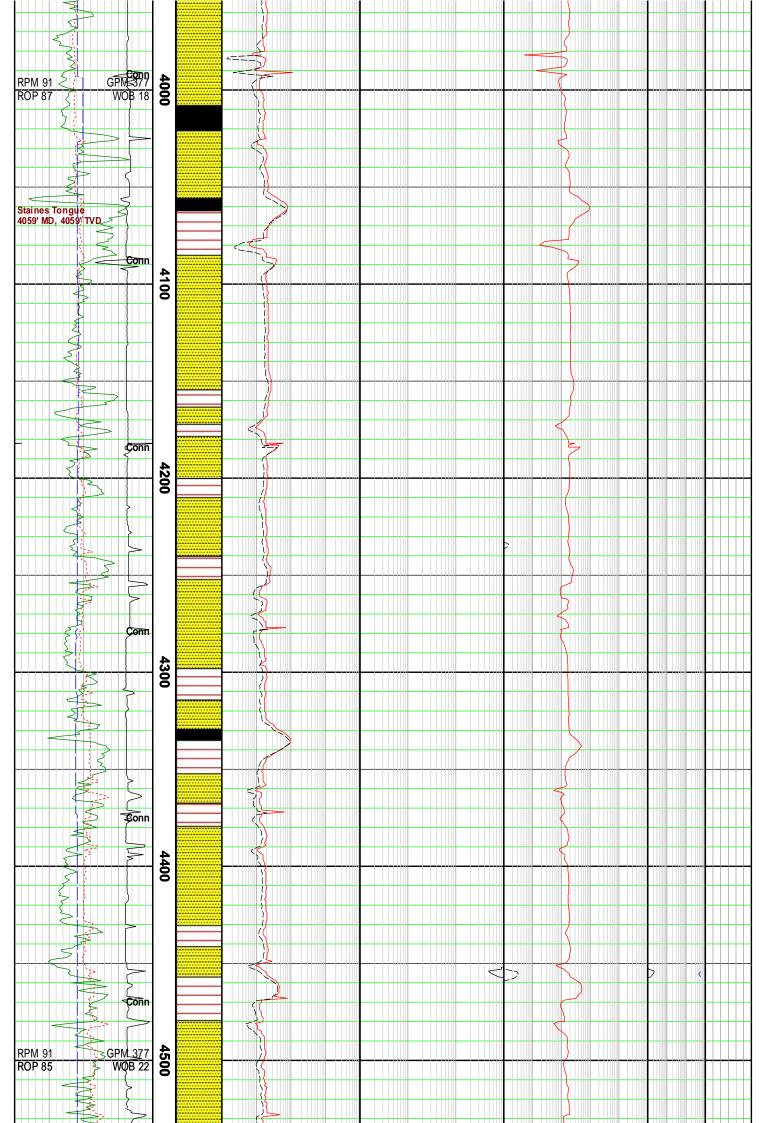


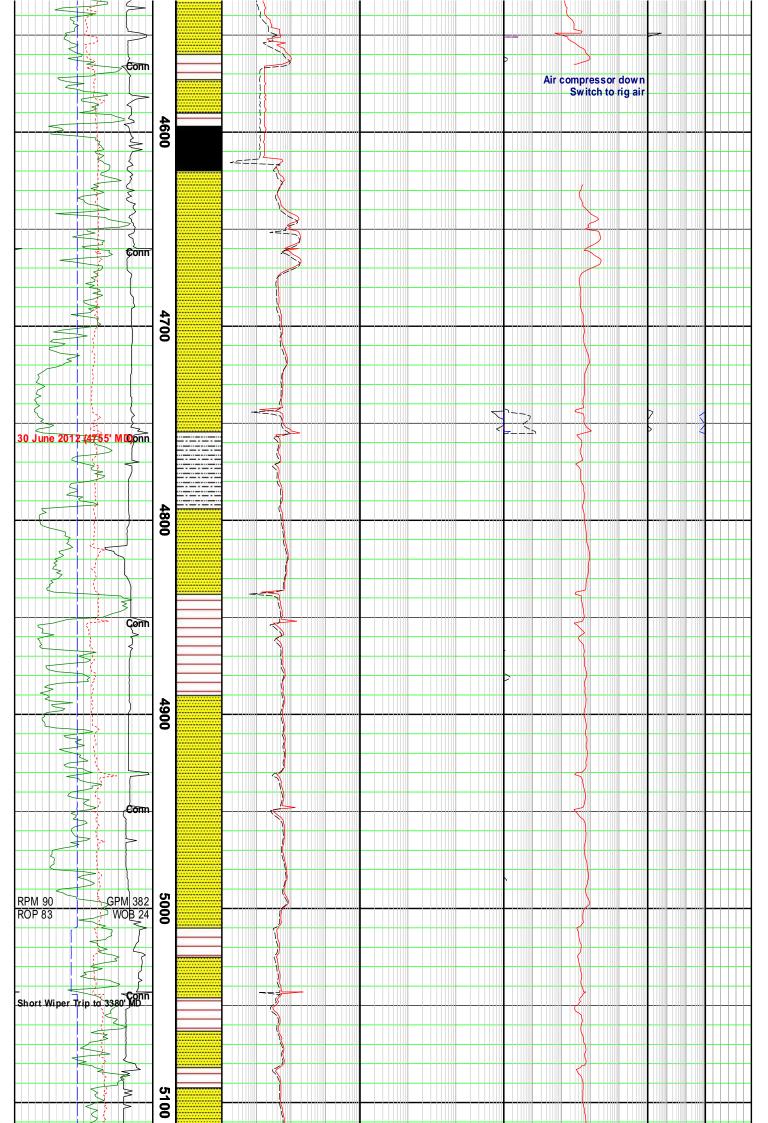


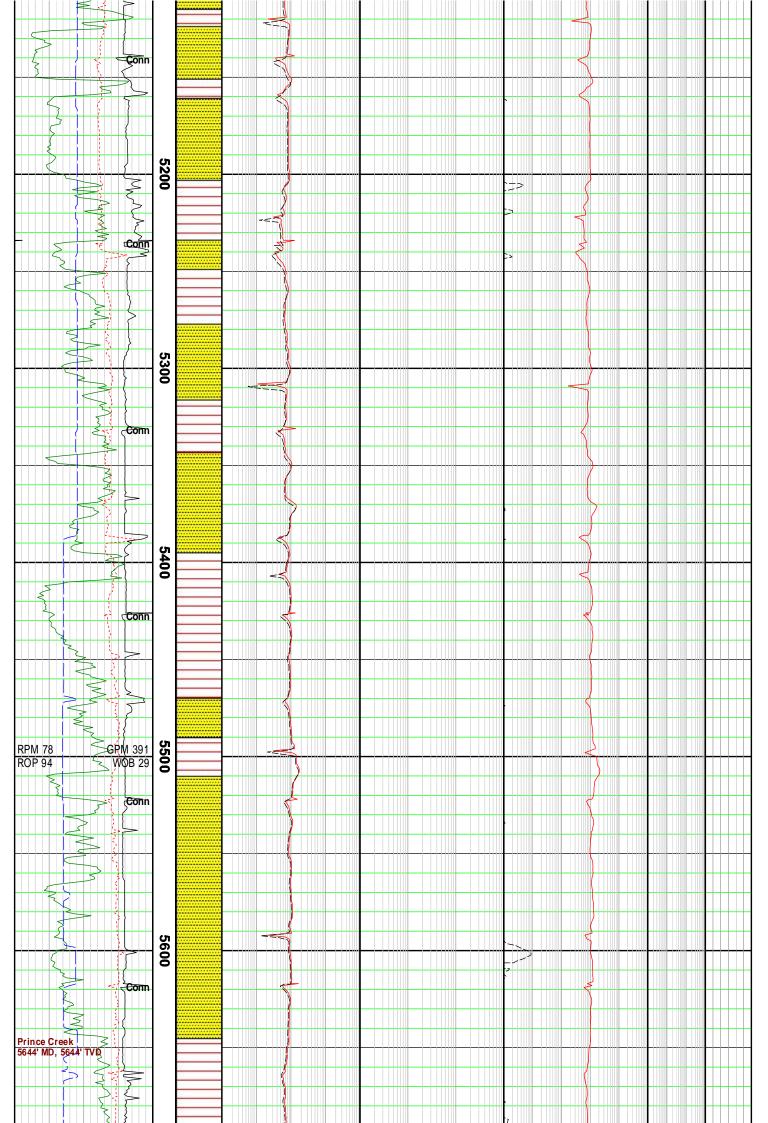


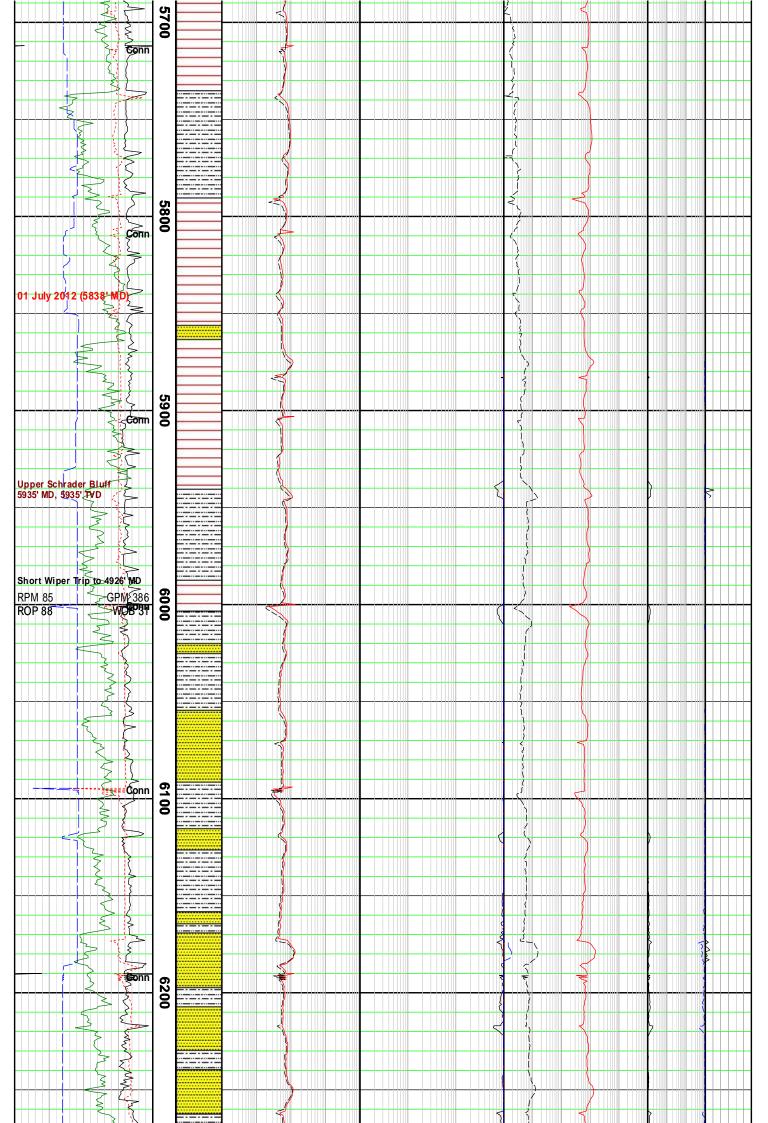


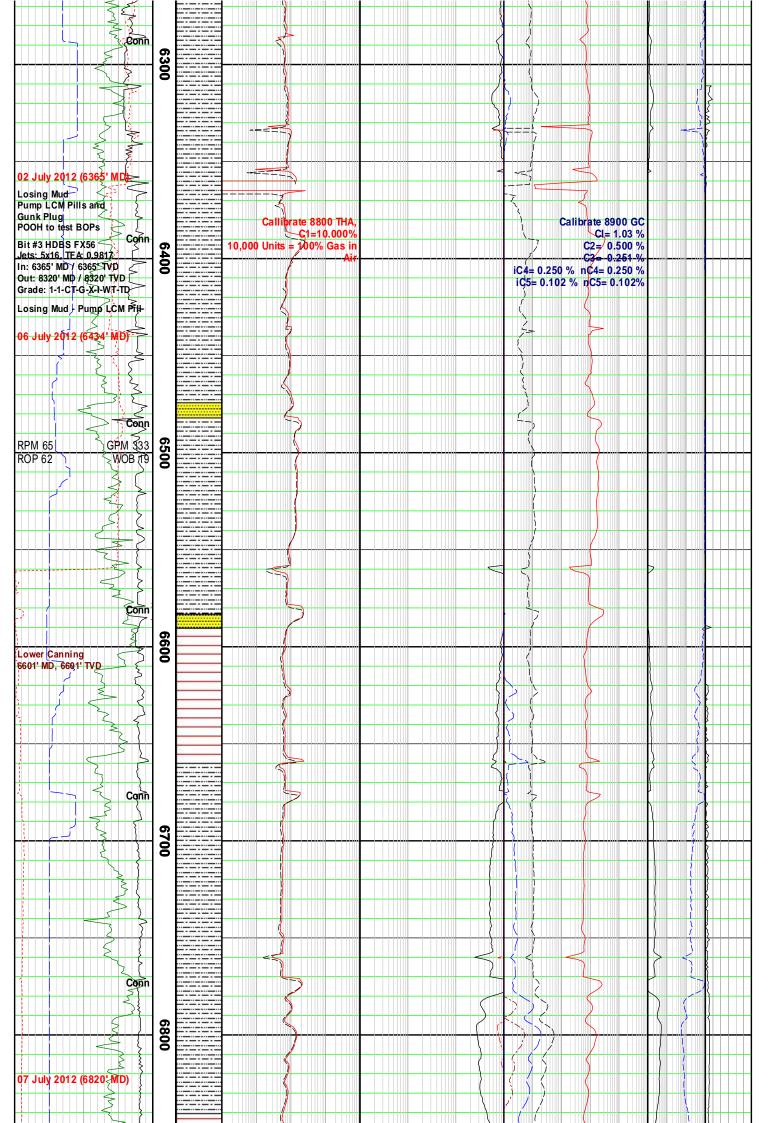


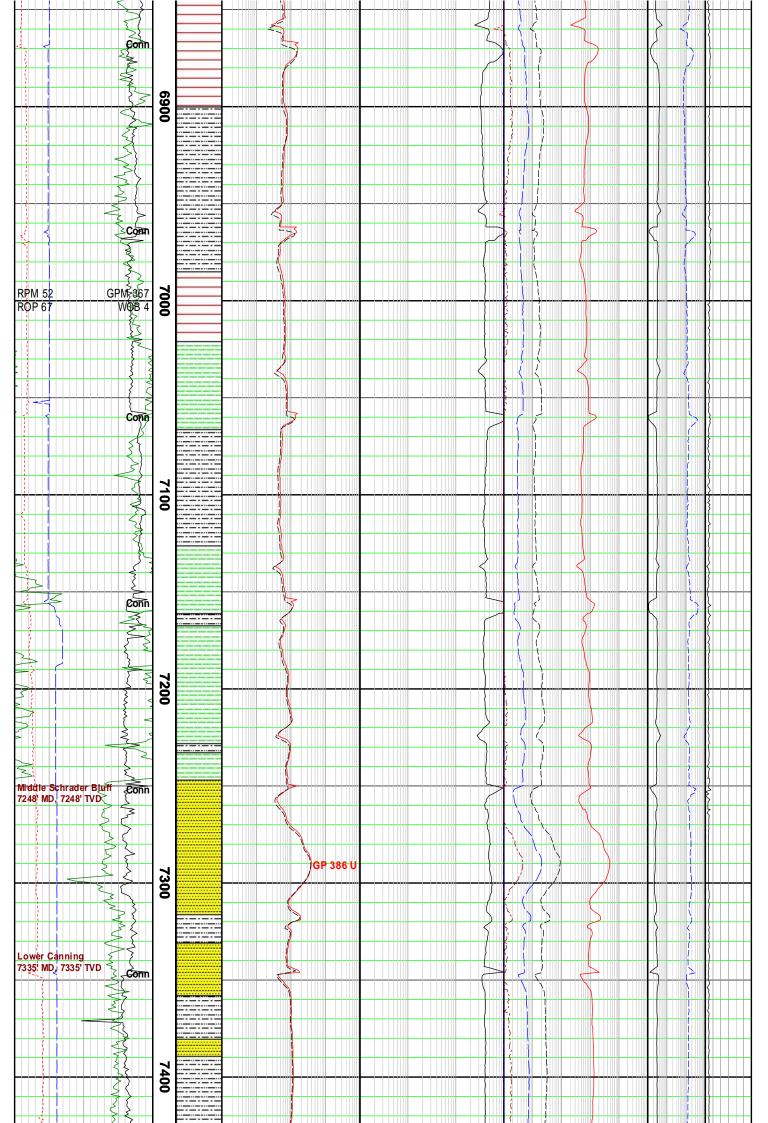


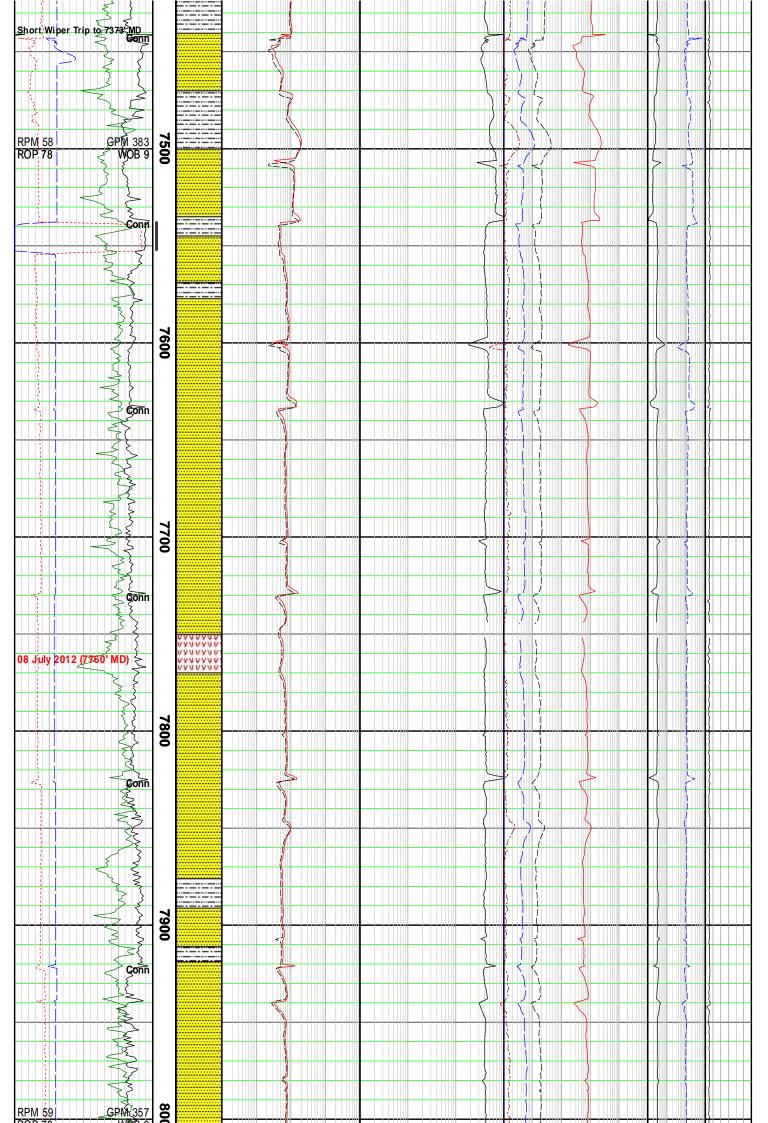


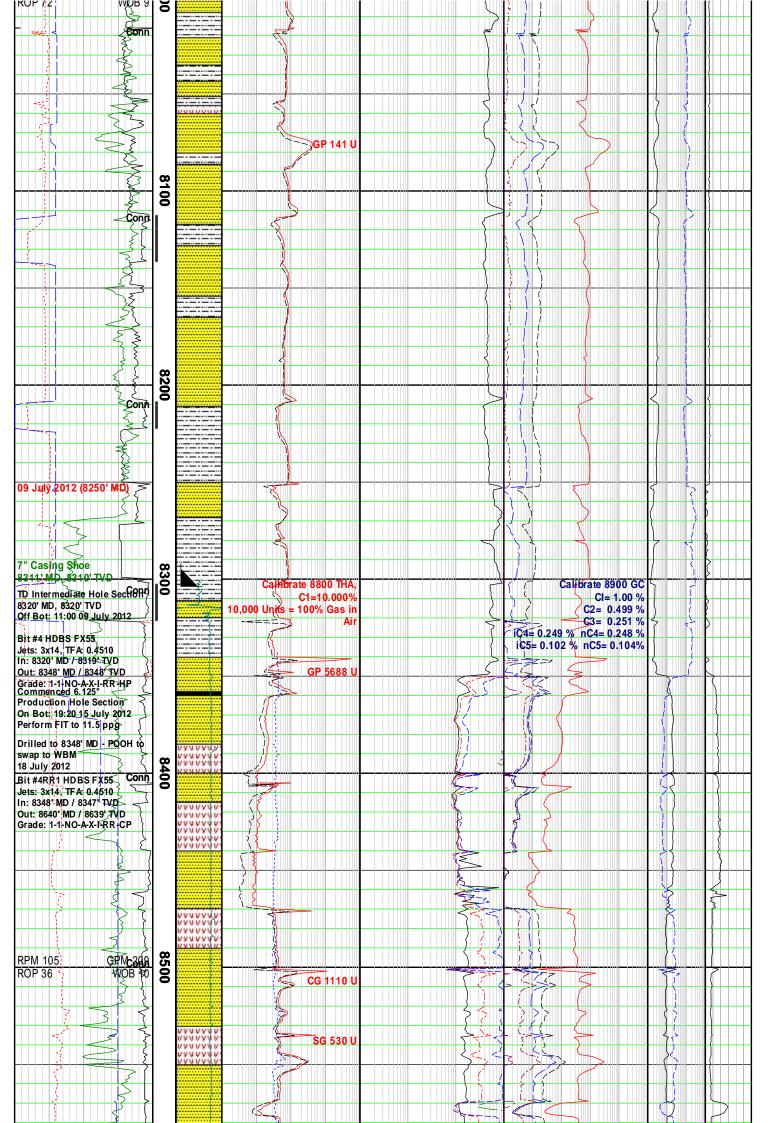


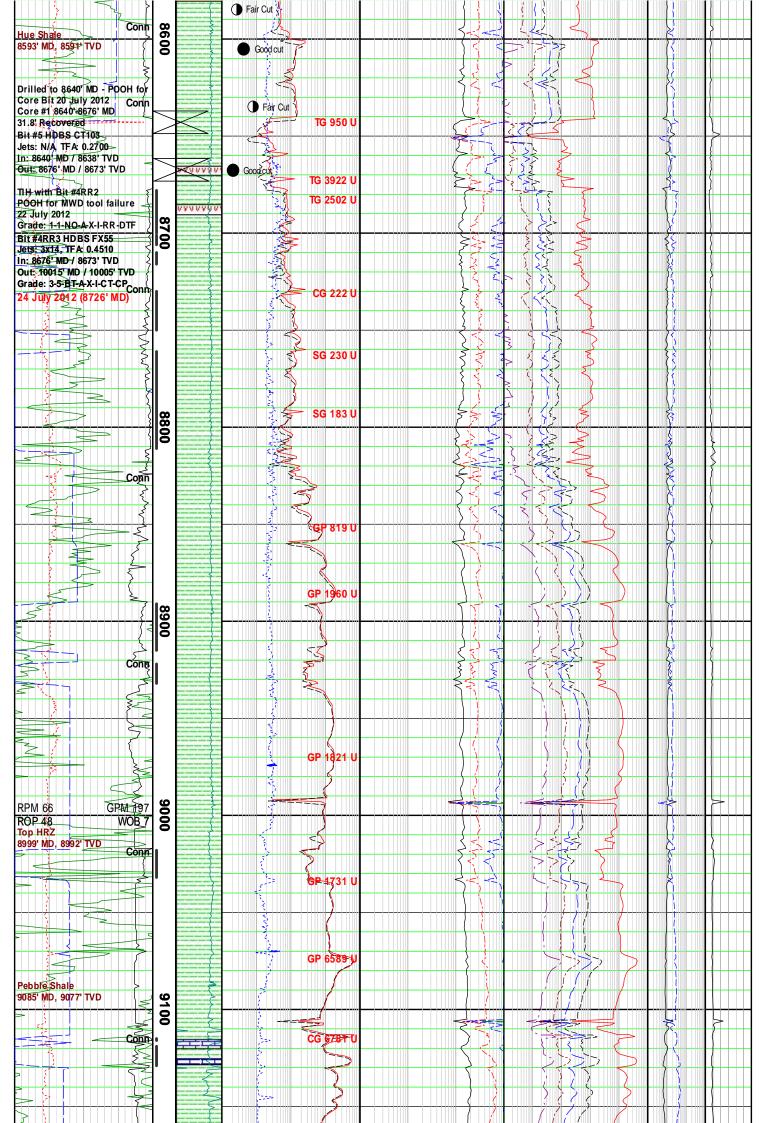


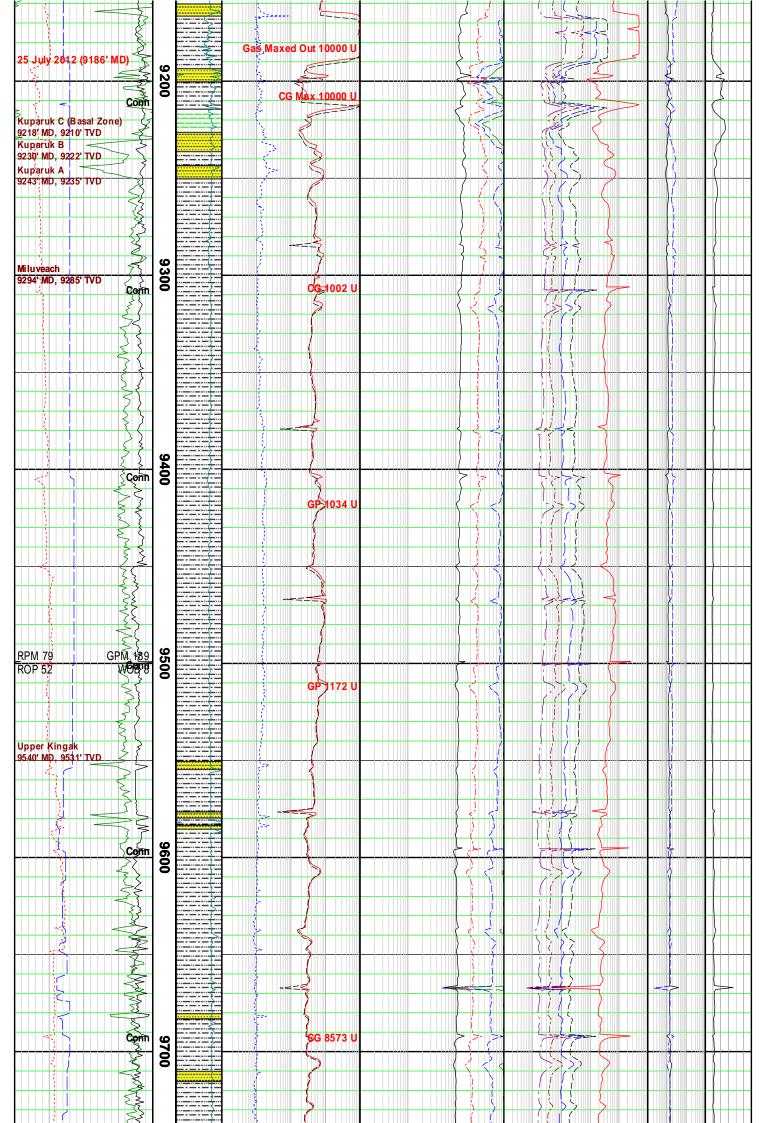


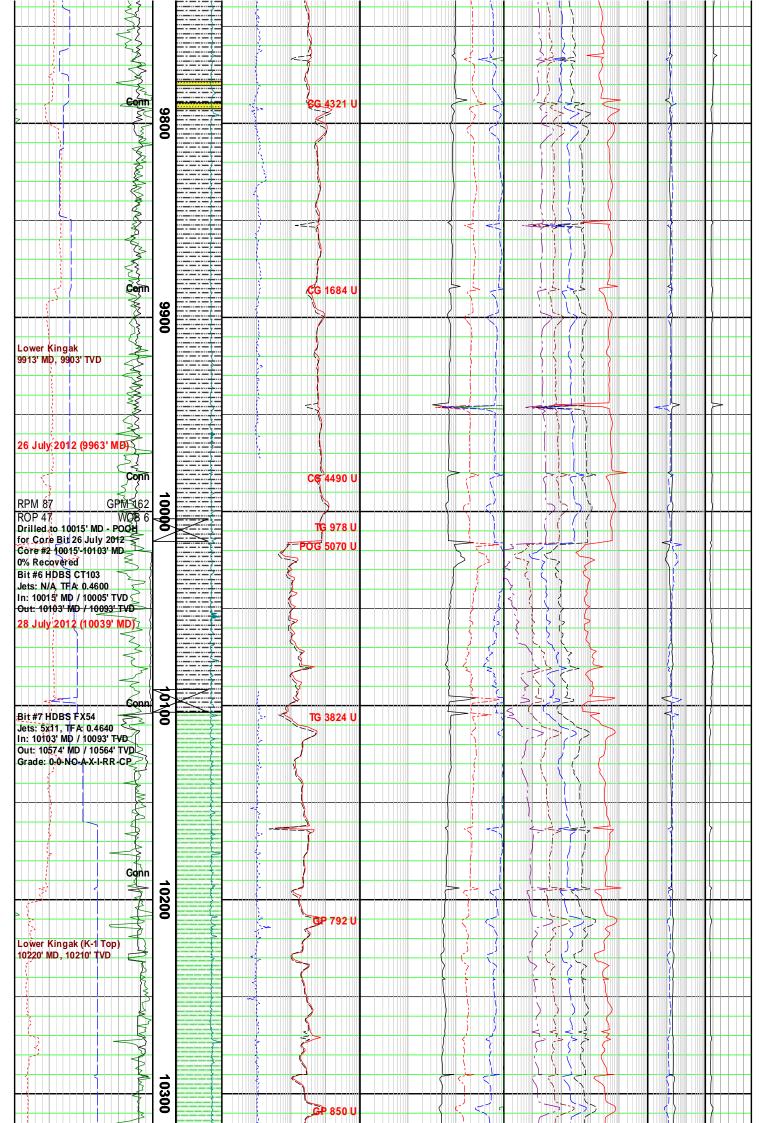


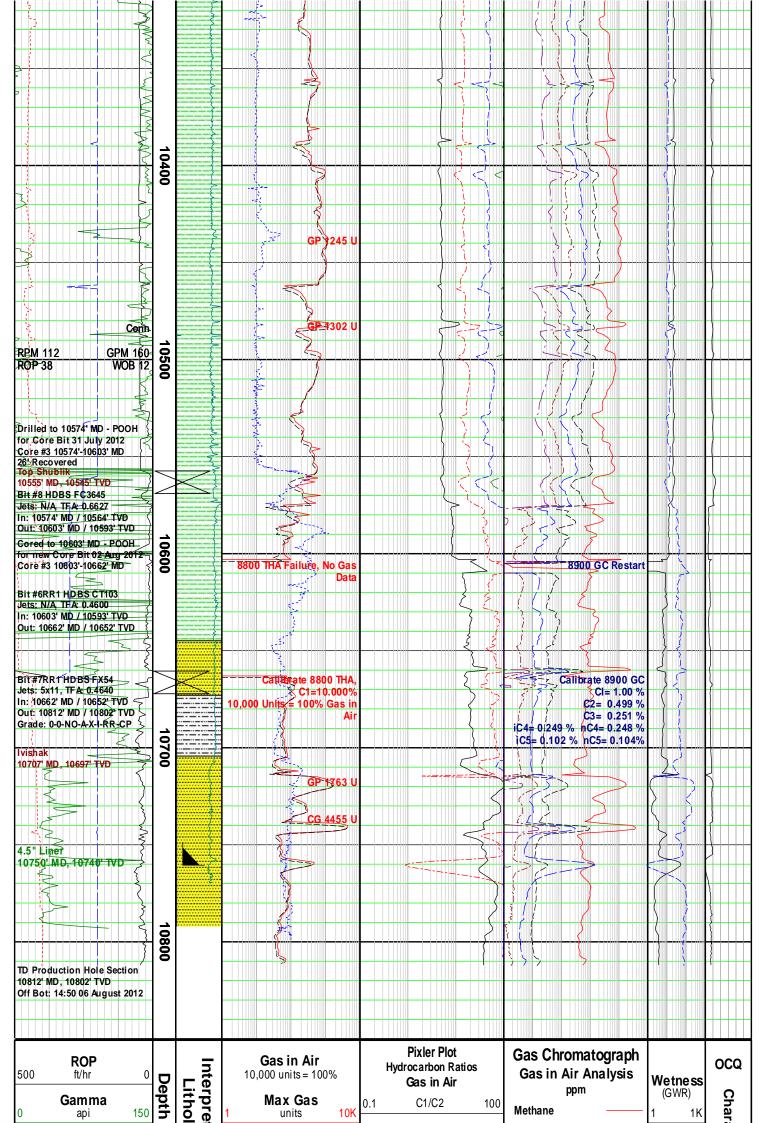












	WOB	MD	tati og:		Avg Gas		0.	1 C1/C3 100	0	Ethane Propane				3	acte
	klbs 40	Sii	ve	1 	units 	10K	0.	1 C1/C4 100	0	Total Butane			Balance (LHR)		9
0	<b>RPM</b> pm 200	l e	Density 1 g/cc 3	0.1	Resistivity ohmm	1K	0.	1 C1/C5 100	0 ′	Total Pentane	10K	100K1M	, ,	0	3

WARRANTY: Halliburton Energy Services, Inc. will use its best efforts to furnish customers with accurate information and interpretations that are part of, and incident to, the services provided. However, Halliburton Energy Services, Inc. cannot and does not warrant the accuracy or correctness of such information and interpretations. Under no circumstances should any such information or interpretation be relied upon as the sole basis for any drilling, completion, production, or financial decision or any procedure involving any risk to the safety of any drilling venture, drilling rig or its crew or any other third party. The Customer has full responsibility for all drilling, completion and production operation. Halliburton Energy Services, Inc. makes no representations or warranties, either expressed or implied, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose, with respect to the services rendered. In no event will Halliburton Energy Services, Inc. be liable for failure to obtain any particular results or for any damages, including, but not limited to, indirect, special or consequential damages, resulting from the use of any information or interpretation provided by Halliburton Energy Services, Inc.

## **HALLIBURTON**

## DIRECTIONAL SURVEY REPORT

Great Bear Petroleum, LLC
Alcor 1
Exploration
North Slope Borough Alaska
USA
AK-XX-0009285348
All depths reference the driller's pipe tally.

Measured			Vertical			Vertical	
Depth	Inclination	Direction	Depth	Latitude	Departure	Section	Dogleg
(feet)	(degrees)	(degrees)	(feet)	(feet)	(feet)	(feet)	(deg/100ft)
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN
139.03	0.37	207.79	139.03	0.40 S	0.21 W	0.24	0.27
231.15	0.19	271.35	231.15	0.66 S	0.50 W	0.32	0.36
322.39	0.46	261.45	322.39	0.71 S	1.01 W	0.11	0.30
416.62	0.80	219.77	416.61	1.27 S	1.81 W	0.19	0.58
503.87	1.11	201.58	503.85	2.52 S	2.51 W	0.93	0.49
592.94	1.04	196.68	592.90	4.10 S	3.06 W	2.02	0.13
685.39	0.95	186.77	685.34	5.66 S	3.39 W	3.21	0.21
780.20	0.94	208.49	780.14	7.13 S	3.85 W	4.25	0.38
877.37	0.65	225.85	877.30	8.21 S	4.63 W	4.80	0.38
011.31	0.05	223.03	077.30	0.21 3	4.03 W	4.00	0.30
976.87	0.55	217.66	976.79	8.98 S	5.33 W	5.12	0.13
1070.52	0.84	233.02	1070.44	9.75 S	6.15 W	5.37	0.37
1161.77	0.84	184.97	1161.68	10.82 S	6.74 W	6.00	0.75
1259.04	0.65	208.98	1258.94	12.01 S	7.07 W	6.87	0.37
1355.56	0.78	205.42	1355.45	13.09 S	7.62 W	7.53	0.14
1000100	00	2001 12	1000110	10100 0			<b>V</b>
1451.70	0.70	209.13	1451.58	14.19 S	8.18 W	8.20	0.10
1547.61	0.87	214.97	1547.48	15.30 S	8.89 W	8.81	0.20
1642.98	0.86	205.66	1642.84	16.54 S	9.61 W	9.52	0.15
1739.38	0.64	193.71	1739.23	17.71 S	10.05 W	10.31	0.28
1836.78	0.69	209.38	1836.63	18.75 S	10.47 W	11.01	0.19
4004.00	0.74	475.00	4004 44	40.04.0	40.70 111	44.00	0.40
1931.60	0.71	175.26	1931.44	19.84 S	10.70 W	11.83	0.43
2028.33	0.48	183.94	2028.17	20.84 S	10.68 W	12.71	0.25
2123.91	0.46	205.20	2123.74	21.58 S	10.87 W	13.26	0.18
2217.21	0.50	180.79	2217.04	22.33 S	11.04 W	13.82	0.22
2312.62	0.53	181.16	2312.45	23.19 S	11.05 W	14.56	0.03
2409.08	0.22	169.25	2408.90	23.82 S	11.02 W	15.11	0.33
2463.32	0.57	179.55	2463.14	24.19 S	11.00 W	15.45	0.66
2510.66	0.67	119.99	2510.48	24.56 S	10.76 W	15.89	1.31
2606.45	1.05	112.70	2606.26	25.18 S	9.47 W	17.07	0.41
2700.00	0.12	96.30	2699.80	25.52 S	8.58 W	17.81	1.00
2799.23	0.18	69.63	2799.03	25.48 S	8.33 W	17.90	0.09
2894.32	0.50	111.12	2894.12	25.58 S	7.80 W	18.25	0.40
2990.67	0.53	133.19	2990.47	26.03 S	7.08 W	19.00	0.21
3084.68	0.88	117.17	3084.47	26.66 S	6.13 W	20.03	0.42
3180.11	0.85	116.51	3179.89	27.31 S	4.84 W	21.23	0.03
3275.33	0.61	141.14	3275.10	28.02 S	3.89 W	22.32	0.41
3372.36	0.83	141.77	3372.12	28.97 S	3.13 W	23.53	0.41
3312.30	0.00	171.//	3312.12	20.37	J. 13 W	20.00	0.23

3468.66	0.65	129.82	3468.42	29.87 S	2.28 W	24.73	0.25
3560.34	1.00	128.73	3560.09	30.71 S	1.26 W	25.96	0.38
3656.27	0.94	157.86	3656.00	31.96 S	0.31 W	27.52	0.51
3755.14	0.94	121.17	3754.86	33.13 S	0.69 E	29.04	0.60
3851.82	0.94	107.39	3851.53	33.78 S	2.13 E	30.32	0.23
3948.95	0.63	109.99	3948.65	34.20 S	3.39 E	31.31	0.32
4043.92	0.19	103.09	4043.62	34.41 S	4.03 E	31.82	0.47
4140.04	0.15	126.06	4139.74	34.52 S	4.29 E	32.04	0.08
4236.56	0.32	102.08	4236.26	34.65 S	4.66 E	32.34	0.20
4331.54	0.29	159.75	4331.23	34.93 S	5.00 E	32.75	0.31
4425.85	0.62	116.22	4425.54	35.38 S	5.54 E	33.41	0.48
4523.07	0.27	149.90	4522.76	35.81 S	6.13 E	34.08	0.43
4618.45	0.53	131.14	4618.14	36.30 S	6.57 E	34.72	0.30
4710.67	0.31	184.86	4710.35	36.83 S	6.87 E	35.33	0.46
4808.64	0.68	180.96	4808.32	37.67 S	6.84 E	36.05	0.38
4903.55	0.33	180.86	4903.23	38.51 S	6.83 E	36.76	0.37
4999.95	0.55	168.26	4999.62	39.24 S	6.92 E	37.44	0.25
5095.22	0.47	204.56	5094.89	40.04 S	6.85 E	38.10	0.34
5190.87	0.69	179.59	5190.53	40.98 S	6.69 E	38.83	0.35
5286.20	0.26	183.07	5285.86	41.77 S	6.68 E	39.51	0.45
5382.80	0.32	212.82	5382.46	42.21 S	6.52 E	39.82	0.17
5476.87	0.51	208.96	5476.53	42.80 S	6.18 E	40.15	0.20
5573.78	0.60	174.46	5573.43	43.68 S	6.02 E	40.84	0.35
5669.61	0.39	169.03	5669.26	44.50 S	6.13 E	41.60	0.22
5764.88	0.46	176.14	5764.53	45.20 S	6.22 E	42.25	0.09
5860.77	0.50	196.81	5860.41	45.98 S	6.12 E	42.88	0.18
5956.68	0.61	212.35	5956.32	46.82 S	5.73 E	43.41	0.19
6054.74	0.58	217.79	6054.37	47.65 S	5.14 E	43.84	0.07
6149.17	0.43	229.35	6148.80	48.26 S	4.58 E	44.08	0.19
6241.53	0.53	187.93	6241.16	48.91 S	4.26 E	44.48	0.38
6336.73	0.44	156.77	6336.35	49.68 S	4.34 E	45.19	0.29
6388.96	0.51	174.23	6388.58	50.09 S	4.44 E	45.61	0.31
6437.33	0.65	159.50	6436.95	50.57 S	4.56 E	46.07	0.42
6534.86	0.49	172.94	6534.48	51.50 S	4.81 E	47.00	0.21
6630.89	0.45	184.45	6630.50	52.28 S	4.83 E	47.69	0.11
6726.83	0.44	180.68	6726.44	53.03 S	4.79 E	48.32	0.03
6822.44	0.40	162.88	6822.05	53.71 S	4.89 E	48.96	0.14
6918.13	0.56	174.04	6917.73	54.50 S	5.04 E	49.71	0.19
7011.46	0.32	185.63	7011.06	55.21 S	5.06 E	50.34	0.27
7109.41	0.54	204.95	7109.01	55.90 S	4.84 E	50.83	0.27
7205.30	0.45	211.55	7204.89	56.63 S	4.45 E	51.27	0.11
7301.43	0.57	216.27	7301.02	57.34 S	3.97 E	51.64	0.13
7394.03	0.88	237.89	7393.61	58.09 S	3.09 E	51.85	0.44
7492.35	1.06	248.06	7491.92	58.83 S	1.61 E	51.75	0.25
7589.06	0.64	283.13	7588.62	59.04 S	0.25 E	51.26	0.67
7684.78	0.72	280.36	7684.33	58.81 S	0.86 W	50.50	0.09
7779.85	0.64	297.13	7779.40	58.46 S	1.92 W	49.67	0.22
7877.15	0.79	282.23	7876.69	58.07 S	3.06 W	48.76	0.24
7973.13	0.91	268.39	7972.66	57.95 S	4.47 W	47.95	0.25
8066.71	1.07	262.34	8066.22	58.09 S	6.07 W	47.27	0.20
8163.21	1.06	183.52	8162.71	59.10 S	7.02 W	47.67	1.40
8256.61	2.03	187.48	8256.08	61.60 S	7.29 W	49.70	1.04
8276.71	2.22	188.14	8276.16	62.34 S	7.39 W	50.29	0.95
8360.29	3.67	182.39	8359.63	66.62 S	7.73 W	53.82	1.77
8396.65	4.99	183.01	8395.88	69.36 S	7.86 W	56.13	3.63
8428.91	5.96	184.13	8428.00	72.43 S	8.06 W	58.70	3.02
8457.38	6.62	184.77	8456.30	75.54 S	8.30 W	61.27	2.33
8491.89	7.22	186.53	8490.55	79.68 S	8.71 W	64.64	1.84
8525.32	8.06	186.68	8523.69	84.09 S	9.23 W	68.21	2.51
8554.46	8.67	185.91	8552.52	88.30 S	9.69 W	71.63	2.13
8598.25	9.50	184.77	8595.76	95.19 S	10.33 W	77.27	1.94
8659.65	10.12	183.80	8656.26	105.62 S	11.11 W	85.92	1.04
8693.51	9.83	182.61	8689.61	111.48 S	11.44 W	90.82	1.05
8723.57	9.80	181.00	8719.23	116.60 S	11.60 W	95.18	0.92
8756.25	9.65	180.09	8751.44	122.12 S	11.65 W	99.93	0.66
8790.22	8.91	178.99	8784.96	127.60 S	11.61 W	104.70	2.24
8825.57	8.56	177.37	8819.90	132.96 S	11.44 W	109.43	1.21
8850.66	8.67	176.28	8844.71	136.71 S	11.23 W	112.78	0.78
8950.92	7.22	181.35	8944.01	150.55 S	10.89 W	124.94	1.60
9046.40	6.24	171.45	9038.83	161.68 S	10.26 W	134.89	1.59
9143.03	4.89	174.66	9135.00	170.98 S	9.10 W	143.52	1.43
9240.11	4.61	172.51	9231.75	178.97 S	8.20 W	150.89	0.34
9335.90	4.22	173.94	9327.25	186.29 S	7.33 W	157.66	0.42
9431.91	3.88	174.51	9423.03	193.03 S	6.64 W	163.85	0.36
9527.21	3.48	174.68	9518.13	199.12 S	6.07 W	169.41	0.42
9622 34	3.07	176.04	9613.10	204 54 S	5.62 W	174.32	0.44

UULL: UT	0.01	110.07	00 10. 10	207.07 0	0.02 11	117.02	V. TT
9719.33	3.05	174.83	9709.96	209.70 S	5.21 W	179.00	0.07
9815.52	2.76	177.03	9806.02	214.56 S	4.86 W	183.38	0.32
9912.28	2.50	181.36	9902.68	219.00 S	4.79 W	187.26	0.34
10064.19	2.23	194.12	10054.46	225.18 S	5.59 W	192.21	0.39
10157.05	1.66	203.99	10147.27	228.16 S	6.58 W	194.30	0.71
10254.18	1.66	200.62	10244.36	230.76 S	7.65 W	196.02	0.10
10349.19	1.60	196.87	10339.33	233.32 S	8.52 W	197.80	0.13
10447.17	1.59	196.11	10437.27	235.93 S	9.29 W	199.68	0.02
10539.87	1.20	196.93	10529.94	238.09 S	9.93 W	201.23	0.42
10731.66	0.57	144.06	10721.71	240.79 S	9.95 W	203.55	0.51
10778.66	0.52	224.28	10768.71	241.13 S	9.97 W	203.84	1.50
10812.00	0.52	224.28	10802.05	241.35 S	10.18 W	203.92	0.00

## CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 150.00 DEGREES (TRUE)
A TOTAL CORRECTION OF 20.87 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD. HORIZONTAL DISPLACEMENT(CLOSURE) AT 10812.00 FEET IS 241.56 FEET ALONG 182.41 DEGREES (TRUE)

Date Printed: 28 August 2012