

Chevron USA

Skeen 2 26 27 State 4H

Eddy County, New Mexico

Ensign 767

API# 30-015-41118-0000

June 15, 2014 – July 5, 2014

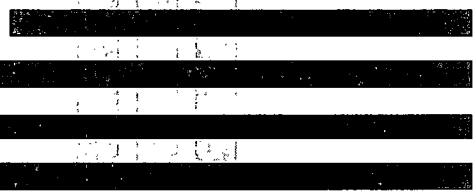
HD-MJ-0901422720

Sperry Drilling

End of Well Report

HALLIBURTON

**Drilling and Formation
Evaluation**



End of Well Report for Chevron USA, Inc.

Rig : Ensign 767
Well Name : Skeen 2 26 27 State 4H
Field Name : Delaware River
Country : USA
Job Number : HD-XX-0901422720
Job Start Date : 15-Jun-14
API Number : 30-015-41118

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GENERAL INFORMATION

Company	: Chevron USA, Inc.
Rig	: Ensign 767
Well	: Skeen 2 26 27 State 4H
Field	: Delaware River
State	: New Mexico
County	: Eddy
Country	: USA
API Number	: 30-015-41118
Sperry Drilling Job Number	: HD-XX-0901422720
Job Start Date	: 15-Jun-14
Job End Date	: 05-Jul-14
North Reference	: Grid
Total Correction (deg)	: 7.540
Dip Angle (deg)	: 59.865
Total Magnetic Field (nT)	: 48149
Date of Magnetic Data	: 15 June, 2014
Well Head coordinates N	: 32 deg. 4 min 42.01 sec North
Well Head coordinates E	: 104 deg. 9 min 11.47 sec West
Vertical section direction (deg)	: 180.54
Unit Number	: 11189941
MWD Engineers	: John Welton, Alan Smiley, Andy Frazier, Justin Waterman
Company Representatives	: Brad Osburn, John Akin
Company Geologist:	: Ryan Jensen, Terry Belchure

OPERATIONAL OVERVIEW

HALLIBURTON / SPERRY DRILLING WAS CONTRACTED BY CHEVRON USA TO PERFORM MWD SERVICES FOR THE SKEEN 2 26 27 STATE 4H WELL IN EDDY COUNTY, NEW MEXICO. EQUIPMENT AND PERSONNEL ARRIVED ON LOCATION ON 15-JUNE-14.

RUN 100 16-JUNE-14: DRILLED FROM 468' MD / 467' TVD TO 1529' MD / 1528' TVD. POOH FOR POOR ROP RATES. MOTOR BEND 1.83°. 100% MWD RUN.

RUN 200 18-JUNE-14: DRILLED FROM 1529' MD / 1528' TVD TO 2250' MD / 2249' TVD. POOH FOR INTERMEDIATE BHA. MOTOR BEND 1.83°. 100% MWD RUN.

RUN 300 20-JUNE-14: DRILLED FROM 2250' MD / 2249' TVD TO 5285' MD / 5282' TVD. POOH FOR MWD FAILURE. MOTOR BEND 1.75°. 80% MWD RUN.

RUN 400 23-JUNE-14: DRILLED FROM 5285' MD / 5282' TVD TO 6738' MD / 6732' TVD. POOH FOR LATERAL BHA. MOTOR BEND 1.75°. 100% MWD RUN.

RUN 500 25-JUNE-14: DRILLED FROM 6738' MD / 6732' TVD TO 7501' MD / 7492' TVD. POOH DUE TO FORMATION ISSUES. MOTOR BEND 1.95°. 100% MWD RUN.

RUN 600 27-JUNE-14: DRILLED FROM 7501' MD / 7492' TVD TO 7598' MD / 7582' TVD. POOH DUE POOR BUILD RATES. MOTOR BEND 1.83°. 100% MWD RUN.

RUN 700 28-JUNE-14: DRILLED FROM 7598' MD / 7582' TVD TO 8169' MD / 7843' TVD. POOH FOR LATERAL BHA. MOTOR BEND 2.38°. 100% MWD RUN.

RUN 800 29-JUNE-14: DRILLED FROM 8169' MD / 7843' TVD TO 12759' MD / 7787' TVD. POOH DUE TO TD OF WELL. MOTOR BEND 1.75°. 100% MWD RUN.

SUMMARY OF MWD RUNS

Run No.	Rig Run No.	Hole Size (in)	MWD Service	Start Depth (ft)	End Depth (ft)	Drill/Wipe Distance (ft)	Run Start Date Time	Run End Date Time	BRH Hrs	Oper. Hrs	Circ. Hrs	Max Temp (deg F)	Serv Int	Wip for MWD	Failure Type
100	0100	12.25	DWD	468.00	1529.00	1061.00	16-Jun-14 16:00	18-Jun-14 21:00	53.00	53.000	44.000	167.00	No	No	
200	0200	12.25	DWD	1529.00	2250.00	721.00	18-Jun-14 22:00	19-Jun-14 19:00	21.00	21.000	16.000	167.00	No	No	
300	0300	8.75	D/GWD	2250.00	5285.00	3035.00	20-Jun-14 18:30	23-Jun-14 14:30	68.00	68.000	34.000	133.00	Yes	Yes	Run MWD-1
400	0400	8.75	D/GWD	5285.00	6710.00	1425.00	23-Jun-14 15:00	25-Jun-14 20:00	53.00	53.000	39.000	135.45	No	No	
500	0500	8.5	D/GWD	6738.00	7501.00	763.00	25-Jun-14 22:00	27-Jun-14 10:00	36.00	36.000	20.000	133.20	No	No	
600	0600	8.5	D/GWD	7501.00	7598.00	97.00	27-Jun-14 11:00	28-Jun-14 05:00	18.00	18.000	9.000	126.52	No	No	
700	0700	8.5	D/GWD	7598.00	8169.00	571.00	28-Jun-14 06:00	29-Jun-14 19:00	37.00	37.000	25.000	130.96	No	No	
800	0800	8.5	D/GWD	8169.00	12759.00	4590.00	29-Jun-14 21:00	05-Jul-14 09:00	132.00	123.000	115.000	154.00	No	No	

BIT RUN SUMMARY

RUN TIME DATA

MWD Run : 100	Run Start : 16-Jun-14 16:00	BRT Hrs : 53.00	Circ. Hrs : 44.00
Rig Run No. : 0100	Run End : 18-Jun-14 21:00	Hole Size (in) : 12.25	Oper. Hrs : 53.00

DRILLING DATA

Start Depth (ft) : 468.00	Footage (ft) : 1061.00	Avg WOB (klb) : 32.0	Avg ROP (fph) : 20.00
End Depth (ft) : 1529.00	Avg Flow Rate(gpm) : 600	Avg TOB (ft-lb) : 5000	Avg SPP (psig) : 1900
Drilling Hrs (hr) : 38.000	Avg RPM (rpm) : 71	Avg Bend (ft-lb) : 1.83	

MUD DATA

Mud Type : Saturated Brines			
Weight (ppg) : 9.90	Viscosity (spqt) : 28.00	PV (cP) : 2	YP (lbf2) : 3.00
Chlorides (ppm) : 174000	Max Temp (degF) : 167.00	% Solids (%) : 0.30	% Sand (%) : 0.00
pH (pH) : 10.50	Fluid Loss(mptm) : NA	% Oil (%) : 0.00	O:W : 0

MWD PERFORMANCE

Tool OD (in) : 8.06	Type : DWD	Min. Inc. (deg): 0.54	Min. Inc. Depth (ft) : 1234.00
Final Az. (deg) : 50.56	Max Op. Press. (psig) 794	Max. Inc. (deg): 0.92	Max. Inc. Depth (ft) : 493.00
MWD Real Time % : 100		MWD Recorded % : 100	

COMMENTS

DRILLED FROM 468' MD / 467' TVD TO 1529' MD / 1528' TVD. POOH FOR POOR ROP RATES. MOTOR BEND 1.83°. 100% MWD RUN.

	Length (ft)	Cumulative Length (ft)		Length (ft)	Sensor Dist From Bit (ft)
(1) Drill Pipe 5.00 in OD / 3.00 in ID		1529.00			
(2) X-Over Sub 6.25 in OD / 2.75 in ID					
(3) 12x - 6 1/2" X 2.25" - 99.3# Drill Collar 6.50 in OD / 2.25 in ID	(1) 968.56				
(4) X-Over Sub 7.81 in OD / 2.75 in ID			Collar 8.06 in OD / 3.25 in ID SN : DR27325	30.76	
(5) 3x - 8" X 3" - 146.9# Drill Collar 8.00 in OD / 3.00 in ID					
(6) X-Over Sub 7.81 in OD / 2.81 in ID	(2) 1.85	560.44			
(7) MWD		558.59			
(8) Integral Blade 8.00 in OD / 2.81 in ID SN : TDT10915					
(9) Float Sub 8.06 in OD / 2.81 in ID SN : DR13847	(3) 360.01				
(10) 8" SperryDrill Lobe 6/7 - 4.0 stg 8.00 in OD / 5.25 in ID SN : 11689829			HOS 8.00 in OD / 3.38 in ID SN : 12127596 *Positive Pulser - SN : 10455198	6.46	
(11) PDC 8.00 in OD / 3.00 in ID SN : 25129	(4) 3.32	198.58			
		195.26			
	(5) 88.71				
			Collar 8.06 in OD / 3.25 in ID SN : DR27322 *PCD Sonde - SN : 11163006	30.80	64.20
	(6) 1.43	106.55			
		105.12			
	(7) 68.02				
	(8) 5.77	37.10			
	(9) 3.05	31.33			
	(10) 27.08	28.28			
	(11) 1.20	1.20			

BIT RUN SUMMARY
RUN TIME DATA

MWD Run : 200	Run Start : 18-Jun-14 22:00	BRT Hrs : 21.00	Circ. Hrs : 16.00
Rig Run No. : 0200	Run End : 19-Jun-14 19:00	Hole Size (in) : 12.25	Oper. Hrs : 21.00

DRILLING DATA

Start Depth (ft) : 1529.00	Footage (ft) : 721.00	Avg WOB (klb) : 25.0	Avg ROP (fph) : 60.00
End Depth (ft) : 2250.00	Avg Flow Rate(gpm) : 600	Avg TOB (ft-lb) : 6500	Avg SPP (psig) : 2100
Drilling Hrs (hr) : 10.000	Avg RPM (rpm) : 60	Avg Bend (ft-lb) : 1.83	

MUD DATA

Mud Type : Saturated Brines			
Weight (ppg) : 10.20	Viscosity (spqt) : 28.00	PV (cP) : 2	YP (lbf2) : 3.00
Chlorides (ppm) : 18700	Max Temp (degF) : 167.00	% Solids (%) : 0.20	% Sand (%) : 0.00
pH (pH) : 10.50	Fluid Loss(mptm) : 15.8	% Oil (%) : 0.00	O:W : 0

MWD PERFORMANCE

Tool OD (in) : 8	Type : DWD	Min. Inc. (deg): 0.74	Min. Inc. Depth (ft) : 1614.00
Final Az. (deg) : 59.51	Max Op. Press. (psig) 1204	Max. Inc. (deg): 2.87	Max. Inc. Depth (ft) : 1802.00
MWD Real Time % : 100		MWD Recorded % : 100	

COMMENTS

DRILLED FROM 1529' MD / 1528' TVD TO 2250' MD / 2249' TVD. POOH FOR LATERAL BHA. MOTOR BEND 1.83°. 100% MWD RUN.

	Length (ft)	Cumulative Length (ft)		Length (ft)	Sensor Dist From Bit (ft)
(1) Drill Pipe 5.00 in OD / 3.00 in ID		2250.00			
(2) 9x - 5" X 3" HWDP 5.00 in OD / 3.00 in ID					
(3) Jar 6.44 in OD / 2.81 in ID					
(4) 9x - 5" X 3" HWDP 5.00 in OD / 3.00 in ID	(1) 1236.90				
(5) X-Over Sub 6.25 in OD / 2.75 in ID			Collar 8.06 in OD / 3.25 in ID SN : DR27325	30.76	
(6) 12x - 6 1/2" X 2.25" - 99.3# Drill Collar 6.50 in OD / 2.25 in ID		1013.10			
(7) X-Over Sub 7.81 in OD / 2.75 in ID					
(8) 3x - 8" X 3" - 146.9# Drill Collar 8.00 in OD / 3.00 in ID	(2) 150.46				
(9) X-Over Sub 7.81 in OD / 2.81 in ID					
(10) MWD		862.64			
(11) Integral Blade 8.00 in OD / 2.81 in ID SN : TDT10915	(3) 32.52	830.12	HOS 8.00 in OD / 3.38 in ID SN : 12127596 *Positive Pulser - SN : 10455198	6.46	
(12) Float Sub 8.06 in OD / 2.81 in ID SN : DR13847					
(13) 8" SperryDrill Lobe 6/7 - 4.0 stg 8.00 in OD / 5.25 in ID SN : 11689829	(4) 269.68				
(14) PDC 8.00 in OD / 3.00 in ID SN : 25129		560.44			
	(5) 1.85	558.59	Collar 8.06 in OD / 3.25 in ID SN : DR27322 *PCD Sonde - SN : 11163006	30.80	64.20
	(6) 360.01				
	(7) 3.32	198.58			
		195.26			
	(8) 88.71				
	(9) 1.43	106.55			
		105.12			
	(10) 68.02				
	(11) 5.77	37.10			
	(12) 3.05	31.33			
	(13) 27.08	28.28			
	(14) 1.20	1.20			

BIT RUN SUMMARY

RUN TIME DATA

MWD Run : 300	Run Start : 20-Jun-14 18:30	BRT Hrs : 68.00	Circ. Hrs : 34.00
Rig Run No. : 0300	Run End : 23-Jun-14 14:30	Hole Size (in) : 8.75	Oper. Hrs : 68.00

DRILLING DATA

Start Depth (ft) : 2250.00	Footage (ft) : 3035.00	Avg WOB (klb) : 22.0	Avg ROP (fph) : 60.00
End Depth (ft) : 5285.00	Avg Flow Rate(gpm) : 550	Avg TOB (ft-lb) : 9000	Avg SPP (psig) : 2500
Drilling Hrs (hr) : 24.000	Avg RPM (rpm) : 60	Avg Bend (ft-lb) : 1.75	

MUD DATA

Mud Type : Saturated Brines			
Weight (ppg) : 9.75	Viscosity (spqt) : 28.00	PV (cP) : 2	YP (lbf2) : 3.00
Chlorides (ppm) : 15500	Max Temp (degF) : 133.00	% Solids (%) : 0.40	% Sand (%) : 0.00
pH (pH) : 11.00	Fluid Loss(mptm) : 10	% Oil (%) : 0.00	O:W : 0

MWD PERFORMANCE

Tool OD (in) : 6.81	Type : D/GWD	Min. Inc. (deg): 0.65	Min. Inc. Depth (ft) : 5032.00
Final Az. (deg) : 6.73	Max Op. Press. (psig) 2555	Max. Inc. (deg): 3.94	Max. Inc. Depth (ft) : 2561.00
MWD Real Time % : 80		MWD Recorded % : 80	

COMMENTS

DRILLED FROM 2250' MD / 2249' TVD TO 5285' MD / 5282' TVD. POOH DUE TO MWD FAILURE. MOTOR BEND 1.75°. 80% MWD RUN.

	Length (ft)	Cumulative Length (ft)		Length (ft)	Sensor Dist From Bit (ft)
(1) Drill Pipe 5.00 in OD / 3.00 in ID		5285.00			
(2) 5x 5" X 3" HWDP 5.00 in OD / 3.00 in ID					
(3) Jar 6.44 in OD / 2.81 in ID					
(4) 9x 5" X 3" HWDP 5.00 in OD / 3.00 in ID	(1) 4270.60				
(5) X-Over Sub 6.25 in OD / 2.75 in ID			NMDC 6.75 in OD / 2.81 in ID SN : DR19879	30.18	
(6) 15x 6 1/2" X 2.25" Drill Collar 6.50 in OD / 2.25 in ID		1014.40			
(7) X-Over Sub 6.44 in OD / 2.81 in ID SN : DR19514					
(8) MWD					
(9) Integral Blade 6.75 in OD / 2.75 in ID SN : STI50337	(2) 150.46				
(10) Float Sub 6.63 in OD / 2.81 in ID SN : DR22246			HOS 6.75 in OD / 2.86 in ID SN : 11672179 *Positive Pulser - SN : 11050312	6.24	
(11) 6 3/4" SperryDrill Lobe 6/7 - 5.0 stg 6.75 in OD / 4.50 in ID SN : 11990480	(3) 32.52	863.94			
(12) PDC 6.00 in OD / 2.25 in ID SN : 25488		831.42			
	(4) 269.68				[1] 71.74
			NMDC 6.81 in OD / 2.81 in ID SN : DR26837 *[1]PCM Sonde - SN : 11680889 *[2]PCG Sonde - SN : 11681084 *[3]PCD Sonde - SN : 11902068	30.81	[2] 65.44
	(5) 1.85	561.74			
		559.89			
	(6) 448.73				
	(7) 3.48	111.16			
		107.68			
	(8) 67.23				
	(9) 5.87	40.45			
	(10) 3.49	34.58			
		31.09			
	(11) 30.29				
	(12) 0.80	0.80			

BIT RUN SUMMARY

RUN TIME DATA

MWD Run : 400	Run Start : 23-Jun-14 15:00	BRT Hrs : 53.00	Circ. Hrs : 39.00
Rig Run No. : 0400	Run End : 25-Jun-14 20:00	Hole Size (in) : 8.75	Oper. Hrs : 53.00

DRILLING DATA

Start Depth (ft) : 5285.00	Footage (ft) : 1425.00	Avg WOB (klb) : 34.0	Avg ROP (fph) : 35.00
End Depth (ft) : 6710.00	Avg Flow Rate(gpm) : 550	Avg TOB (ft-lb) : 6000	Avg SPP (psig) : 1800
Drilling Hrs (hr) : 35.000	Avg RPM (rpm) : 60	Avg Bend (ft-lb) : 1.75	

MUD DATA

Mud Type : Saturated Brines			
Weight (ppg) : 9.20	Viscosity (spqt) : 28.00	PV (cP) : 2	YP (lbf/ft ²) : 3.00
Chlorides (ppm) : 76000	Max Temp (degF) : 135.45	% Solids (%) : 1.30	% Sand (%) : 0.00
pH (pH) : 10.80	Fluid Loss(mptm) : 20	% Oil (%) : 0.00	O:W : 0

MWD PERFORMANCE

Tool OD (in) : 6.75	Type : D/GWD	Min. Inc. (deg): 2.53	Min. Inc. Depth (ft) : 6174.00
Final Az. (deg) : 333.84	Max Op. Press. (psig) 3220	Max. Inc. (deg): 5.41	Max. Inc. Depth (ft) : 5414.00
MWD Real Time % : 100		MWD Recorded % : 100	

COMMENTS

DRILLED FROM 5285' MD / 5282' TVD TO 6738' MD / 6732' TVD. POOH FOR LATERAL BHA. MOTOR BEND 1.75°. 100% MWD RUN.

	Length (ft)	Cumulative Length (ft)		Length (ft)	Sensor Dist From Bit (ft)
(1) Drill Pipe 5.00 in OD / 3.00 in ID		6738.00			
(2) 5x5" X 3" HWDP 5.00 in OD / 3.00 in ID					
(3) Jar 6.44 in OD / 2.81 in ID					
(4) 9x5" X 3" HWDP 5.00 in OD / 3.00 in ID	(1) 5723.60		NMDC 6.75 in OD / 2.81 in ID SN : DR19879	30.18	
(5) X-Over Sub 6.25 in OD / 2.75 in ID		1014.40			
(6) 15x 6 1/2" X 2.25" Drill Collar 6.50 in OD / 2.25 in ID					
(7) X-Over Sub 6.44 in OD / 2.81 in ID SN : DR19514					
(8) MWD					
(9) Integral Blade 6.75 in OD / 2.75 in ID SN : STI50337	(2) 150.46				
(10) Float Sub 6.63 in OD / 2.81 in ID SN : DR22246			HOS 6.75 in OD / 2.86 in ID SN : 11672179 *Positive Pulser - SN : 11050359	6.24	
(11) 6 3/4" SperryDrill Lobe 6/7 - 5.0 stg 6.75 in OD / 4.50 in ID SN : 11990480	(3) 32.52	863.94			
(12) PDC 6.00 in OD / 2.25 in ID SN : 25729		831.42			
	(4) 269.68				[1] 71.74
			NMDC 6.81 in OD / 2.81 in ID SN : DR26837 *[1]PCM Sonde - SN : 11400971 *[2]PCG Sonde - SN : 11681086 *[3]PCD Sonde - SN : 12174356	30.81	[2] 65.44
	(5) 1.85	561.74			
		559.89			
	(6) 448.73				
	(7) 3.48	111.16			
		107.68			
	(8) 67.23				
	(9) 5.87	40.45			
	(10) 3.49	34.58			
		31.09			
	(11) 30.29				
	(12) 0.80	0.80			

BIT RUN SUMMARY

RUN TIME DATA

MWD Run	: 500	Run Start	: 25-Jun-14 22:00	BRT Hrs	: 36.00	Circ. Hrs	: 20.00
Rig Run No.	: 0500	Run End	: 27-Jun-14 10:00	Hole Size (in)	: 8.5	Oper. Hrs	: 36.00

DRILLING DATA

Start Depth (ft)	: 6738.00	Footage (ft)	: 763.00	Avg WOB (klb)	: 10.0	Avg ROP (fph)	: 60.00
End Depth (ft)	: 7501.00	Avg Flow Rate(gpm)	: 550	Avg TOB (ft-lb)	: 5000	Avg SPP (psig)	: 2200
Drilling Hrs (hr)	: 18.000	Avg RPM (rpm)	: 45	Avg Bend (ft-lb)	: 1.95		

MUD DATA

Mud Type	: Saturated Brines						
Weight (ppg)	: 9.35	Viscosity (spqt)	: 28.00	PV (cP)	: 2	YP (lbf2)	: 3.00
Chlorides (ppm)	: 101000	Max Temp (degF)	: 133.20	% Solids (%)	: 0.80	% Sand (%)	: 0.00
pH (pH)	: 11.00	Fluid Loss(mptm)	: 12	% Oil (%)	: 0.00	O:W	: 0

MWD PERFORMANCE

Tool OD (in)	: 6.75	Type	: D/GWD	Min. Inc. (deg)	: 0.97	Min. Inc. Depth (ft)	: 7168.00
Final Az. (deg)	: 187.64	Max Op. Press. (psig)	: 3623	Max. Inc. (deg)	: 9.32	Max. Inc. Depth (ft)	: 7421.00
MWD Real Time %	: 100	MWD Recorded %	: 100				

COMMENTS

DRILLED FROM 6738' MD / 6732' TVD TO 7501' MD / 7492' TVD. POOH DUE TO FORMATION ISSUES. MOTOR BEND 1.95°. 100% MWD RUN.

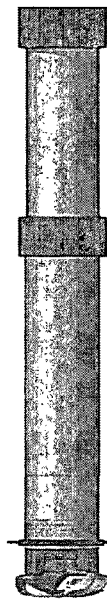
(1) Drill Pipe
5.00 in OD / 3.00 in ID

(2) MWD

(3) Float Sub
6.63 in OD / 2.81 in ID
SN : DR22246

(4) 6 3/4" SperryDrill Lobe 6/7 -
5.0 stg
6.75 in OD / 4.50 in ID
SN : 11841923

(5) PDC
6.00 in OD / 2.25 in ID
SN : 24488



Length
(ft)

Cumulative
Length (ft)

(1) 7400.71

7501.00

(2) 67.23

100.29

(3) 3.49

33.06

(4) 28.82

29.57

(5) 0.75

0.75

NMDC
6.75 in OD / 2.81 in ID
SN : DR19879

HOS
6.75 in OD / 2.86 in ID
SN : 11672179
*Positive Pulser - SN : 10493951

NMDC
6.81 in OD / 2.81 in ID
SN : DR26837
*[1]PCM Sonde - SN : 11680889
*[2]PCG Sonde - SN : 11681084
*[3]PCD Sonde - SN : 11902068

Length
(ft)

Sensor Dist
From Bit
(ft)

30.18

6.24

30.81

[1] 64.43

[2] 58.13

BIT RUN SUMMARY
RUN TIME DATA

MWD Run : 600	Run Start : 27-Jun-14 11:00	BRT Hrs : 18.00	Circ. Hrs : 9.00
Rig Run No. : 0600	Run End : 28-Jun-14 05:00	Hole Size (in) : 8.5	Oper. Hrs : 18.00

DRILLING DATA

Start Depth (ft) : 7501.00	Footage (ft) : 97.00	Avg WOB (klb) : 13.0	Avg ROP (fph) : 10.00
End Depth (ft) : 7598.00	Avg Flow Rate(gpm) : 500	Avg TOB (ft-lb) : 2300	Avg SPP (psig) : 2200
Drilling Hrs (hr) : 4.000	Avg RPM (rpm) : 0	Avg Bend (ft-lb) : 1.83	

MUD DATA

Mud Type : Saturated Brines			
Weight (ppg) : 9.30	Viscosity (spqt) : 28.00	PV (cP) : 2	YP (lbf2) : 3.00
Chlorides (ppm) : 103000	Max Temp (degF) : 126.52	% Solids (%) : 0.30	% Sand (%) : 0.00
pH (pH) : 10.90	Fluid Loss(mptm) : 7	% Oil (%) : 0.00	O:W : 0

MWD PERFORMANCE

Tool OD (in) : 6.75	Type : D/GWD	Min. Inc. (deg): 13.51	Min. Inc. Depth (ft) : 7451.00
Final Az. (deg) : 192.33	Max Op. Press. (psig) 3666	Max. Inc. (deg): 20.67	Max. Inc. Depth (ft) : 7546.00
MWD Real Time % : 100		MWD Recorded % : 100	

COMMENTS

DRILLED FROM 7501' MD / 7492' TVD TO 7598' MD / 7582' TVD. POOH DUE TO POOR BUILD RATES. MOTOR BEND 1.83°. 100% MWD RUN.

(1) Drill Pipe
5.00 in OD / 3.00 in ID

(2) MWD

(3) Float Sub
6.63 in OD / 2.81 in ID
SN : DR22246

(4) 6 3/4" SperryDrill Lobe 6/7 -
5.0 stg

6.75 in OD / 4.50 in ID
SN : 12067768

(5) HDBS 8.5" 5 Blade
6.00 in OD / 2.25 in ID
SN : 12191464

Length
(ft)

Cumulative
Length (ft)

7598.00

(1) 7500.13

NMDC

6.75 in OD / 2.81 in ID
SN : DR19879

Length
(ft)

Sensor Dist
From Bit
(ft)

30.18

97.87

(2) 67.23

HOS

6.75 in OD / 2.86 in ID
SN : 11672179

6.24

(3) 3.49

30.64

(4) 26.40

27.15

*Positive Pulser - SN : 11050359

(5) 0.75

0.75

[1] 62.01

NMDC

6.81 in OD / 2.81 in ID
SN : DR26837

30.81

[2] 55.71

*[1]PCM Sonde - SN : 11400971

*[2]PCG Sonde - SN : 11681086

*[3]PCD Sonde - SN : 12174356

BIT RUN SUMMARY

RUN TIME DATA

MWD Run : 700	Run Start : 28-Jun-14 06:00	BRT Hrs : 37.00	Circ. Hrs : 25.00
Rig Run No. : 0700	Run End : 29-Jun-14 19:00	Hole Size (in) : 8.5	Oper. Hrs : 37.00

DRILLING DATA

Start Depth (ft) : 7598.00	Footage (ft) : 571.00	Avg WOB (klb) : 25.0	Avg ROP (fph) : 60.00
End Depth (ft) : 8169.00	Avg Flow Rate(gpm) : 475	Avg TOB (ft-lb) : 1200	Avg SPP (psig) : 2200
Drilling Hrs (hr) : 22.000	Avg RPM (rpm) : 0	Avg Bend (ft-lb) : 2.38	

MUD DATA

Mud Type : Saturated Brines			
Weight (ppg) : 9.30	Viscosity (spqt) : 30.00	PV (cP) : 3	YP (lbf2) : 4.00
Chlorides (ppm) : 115000	Max Temp (degF) : 130.96	% Solids (%) : 0.00	% Sand (%) : 0.40
pH (pH) : 10.70	Fluid Loss(mptm) : 17	% Oil (%) : 0.00	O:W : 0

MWD PERFORMANCE

Tool OD (in) : 6.75	Type : D/GWD	Min. Inc. (deg): 22.96	Min. Inc. Depth (ft) : 7577.00
Final Az. (deg) : 179.84	Max Op. Press. (psig) 3792	Max. Inc. (deg): 88.92	Max. Inc. Depth (ft) : 8117.00
MWD Real Time % : 100		MWD Recorded % : 100	

COMMENTS

DRILLED FROM 7598' MD / 7582' TVD TO 8169' MD / 7843' TVD. POOH FOR LATERAL BHA. MOTOR BEND 2.38°. 100% MWD RUN.

(1) Drill Pipe
5.00 in OD / 3.00 in ID

(2) MWD

(3) Float Sub

6.63 in OD / 2.81 in ID

SN : DR22246

(4) 6 3/4" SperryDrill Lobe 6/7 -
5.0 stg

6.75 in OD / 4.50 in ID

SN : 12067768

(5) HDBS 8.5" 5 Blade

6.00 in OD / 2.25 in ID

SN : 12191464

Length
(ft)

Cumulative
Length (ft)



(1) 8071.13

(2) 67.23

(3) 3.49

(4) 26.40

(5) 0.75

8169.00

97.87

30.64

27.15

0.75

NMDC

6.75 in OD / 2.81 in ID

SN : DR19879

HOS

6.75 in OD / 2.86 in ID

SN : 11672179

*Positive Pulser - SN : 10493951

NMDC

6.81 in OD / 2.81 in ID

SN : DR26837

*[1]PCM Sonde - SN : 11680889

*[2]PCG Sonde - SN : 11681084

*[3]PCD-Sonde - SN : 11902068

Length
(ft)

Sensor Dist
From Bit
(ft)



30.18

6.24

30.81

[1] 62.01

[2] 55.71

BIT RUN SUMMARY

RUN TIME DATA

MWD Run	: 800	Run Start	: 29-Jun-14 21:00	BRT Hrs	: 132.00	Circ. Hrs	: 115.00
Rig Run No.	: 0800	Run End	: 05-Jul-14 09:00	Hole Size (in)	: 8.5	Oper. Hrs	: 123.00

DRILLING DATA

Start Depth (ft)	: 8169.00	Footage (ft)	: 4590.00	Avg WOB (klb)	: 25.0	Avg ROP (fph)	: 60.00
End Depth (ft)	: 12759.00	Avg Flow Rate(gpm)	: 550	Avg TOB (ft-lb)	: 1800	Avg SPP (psig)	: 2200
Drilling Hrs (hr)	: 100.000	Avg RPM (rpm)	: 60	Avg Bend (ft-lb)	: 1.75		

MUD DATA

Mud Type	: Saturated Brines						
Weight (ppg)	: 9.30	Viscosity (spqt)	: 28.00	PV (cP)	: 3	YP (lbf2)	: 3.00
Chlorides (ppm)	: 105000	Max Temp (degF)	: 154.00	% Solids (%)	: 0.40	% Sand (%)	: 0.00
pH (pH)	: 11.00	Fluid Loss(mptm)	: 20	% Oil (%)	: 0.00	O:W	: 0

MWD PERFORMANCE

Tool OD (in)	: 6.81	Type	: D/GWD	Min. Inc. (deg)	: 87.41	Min. Inc. Depth (ft)	: 12485.00
Final Az. (deg)	: 180.62	Max Op. Press. (psig)	: 3875	Max. Inc. (deg)	: 94.31	Max. Inc. Depth (ft)	: 11821.00
MWD Real Time %	: 100	MWD Recorded %	: 100				

COMMENTS

DRILLED FROM 8169' MD / 7843' TVD TO 12759' MD / 7787' TVD. POOH DUE TO TD OF WELL. MOTOR BEND 1.75°. 100% MWD RUN.

(1) Drill Pipe
5.00 in OD / 3.00 in ID

(2) MWD

(3) Float Sub

6.63 in OD / 2.81 in ID

SN : DR22246

(4) 6 3/4" SperryDrill Lobe 6/7 -
5.0 stg

6.75 in OD / 4.50 in ID

SN : 11841941

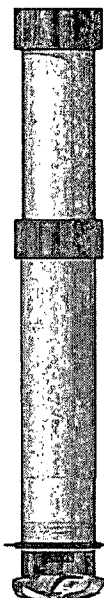
(5) HDBS 8.5" 5 Blade

6.00 in OD / 2.25 in ID

SN : 12191464

Length
(ft)

Cumulative
Length (ft)



(1) 12658.31

(2) 67.23

(3) 3.49

(4) 29.22

(5) 0.75

12759.00

100.69

33.46

29.97

0.75

NMDC

6.75 in OD / 2.81 in ID

SN : DR19879

HOS

6.75 in OD / 2.86 in ID

SN : 11672179

*Positive Pulser - SN : 11050359

NMDC

6.81 in OD / 2.81 in ID

SN : DR26837

*[1]PCM Sonde - SN : 11400971

*[2]PCG Sonde - SN : 11681086

*[3]PCD Sonde - SN : 12174356

Length
(ft)

Sensor Dist
From Bit
(ft)



30.18

6.24

30.81

[1] 64.83

[2] 58.53

DIRECTIONAL SURVEY DATA

Tie-in

0.00

0.00

0.00

0.00

0.00 N

0.00 E

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
493.00	0.92	17.25	492.98	3.79 N	1.18 E	-3.80	0.19
675.00	0.77	31.75	674.96	6.23 N	2.26 E	-6.25	0.14
861.00	0.65	20.19	860.94	8.29 N	3.28 E	-8.32	0.10
1042.00	0.62	36.08	1,041.93	10.05 N	4.21 E	-10.09	0.10
1234.00	0.54	41.31	1,233.92	11.57 N	5.42 E	-11.62	0.05
1421.00	0.79	50.56	1,420.91	13.05 N	7.00 E	-13.11	0.14
1614.00	0.74	43.00	1,613.89	14.81 N	8.87 E	-14.89	0.06
1708.00	2.12	67.92	1,707.86	15.90 N	10.90 E	-16.00	1.57
1802.00	2.87	74.60	1,801.77	17.18 N	14.77 E	-17.32	0.86
1899.00	1.80	68.09	1,898.69	18.39 N	18.53 E	-18.57	1.14
1995.00	1.89	69.36	1,994.64	19.51 N	21.41 E	-19.71	0.11
2090.00	2.42	70.31	2,089.58	20.74 N	24.76 E	-20.97	0.55
2185.00	1.72	59.51	2,184.51	22.14 N	27.88 E	-22.40	0.83
2279.00	1.45	48.34	2,278.48	23.65 N	29.99 E	-23.93	0.44
2371.00	1.42	59.01	2,370.45	25.01 N	31.84 E	-25.31	0.29
2466.00	1.87	296.69	2,465.43	26.31 N	31.46 E	-26.61	3.04
2561.00	3.95	276.96	2,560.30	27.40 N	26.83 E	-27.65	2.40
2656.00	2.05	272.99	2,655.17	27.89 N	21.89 E	-28.09	2.01
2751.00	1.79	270.89	2,750.12	28.00 N	18.71 E	-28.17	0.28
2847.00	1.71	273.66	2,846.07	28.11 N	15.78 E	-28.26	0.12
2941.00	1.79	274.47	2,940.03	28.32 N	12.92 E	-28.44	0.08
3036.00	1.58	271.49	3,034.99	28.47 N	10.13 E	-28.56	0.24
3131.00	1.76	268.15	3,129.95	28.45 N	7.37 E	-28.52	0.21
3227.00	1.94	266.32	3,225.90	28.30 N	4.27 E	-28.34	0.20
3321.00	1.01	199.44	3,319.87	27.42 N	2.41 E	-27.44	1.91
3415.00	1.20	174.42	3,413.85	25.66 N	2.23 E	-25.68	0.55
3511.00	1.36	178.84	3,509.83	23.52 N	2.36 E	-23.55	0.19
3605.00	1.10	184.72	3,603.81	21.51 N	2.30 E	-21.53	0.30
3700.00	1.14	183.90	3,698.79	19.65 N	2.16 E	-19.67	0.05
3795.00	1.18	190.83	3,793.77	17.75 N	1.92 E	-17.77	0.15
3890.00	1.27	196.39	3,888.75	15.78 N	1.44 E	-15.79	0.16
3985.00	1.35	195.12	3,983.72	13.69 N	0.85 E	-13.70	0.09
4081.00	0.93	197.95	4,079.70	11.86 N	0.31 E	-11.86	0.45
4175.00	1.05	197.15	4,173.69	10.32 N	0.17 W	-10.31	0.13
4270.00	1.28	201.03	4,268.67	8.50 N	0.81 W	-8.49	0.25
4366.00	1.27	190.79	4,364.65	6.45 N	1.40 W	-6.44	0.24
4461.00	1.52	190.01	4,459.62	4.17 N	1.81 W	-4.16	0.27
4556.00	1.58	189.44	4,554.58	1.63 N	2.25 W	-1.61	0.07
4651.00	1.56	191.69	4,649.55	0.93 S	2.73 W	0.96	0.07
4747.00	1.35	189.64	4,745.52	3.33 S	3.18 W	3.36	0.23
4842.00	1.39	186.62	4,840.49	5.58 S	3.50 W	5.61	0.08

DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (%/100')
4937.00	1.35	194.62	4,935.46	7.80 S	3.91 W	7.83	0.21
5032.00	0.66	310.38	5,030.45	8.52 S	4.61 W	8.57	1.83
5127.00	2.55	347.50	5,125.41	6.11 S	5.49 W	6.16	2.17
5223.00	3.24	6.73	5,221.29	1.33 S	5.63 W	1.39	1.23
5318.00	5.15	9.28	5,316.03	5.54 N	4.63 W	-5.50	2.03
5414.00	5.41	12.22	5,411.63	14.22 N	2.98 W	-14.19	0.39
5509.00	5.29	10.73	5,506.21	22.90 N	1.21 W	-22.89	0.20
5604.00	4.98	12.48	5,600.83	31.23 N	0.49 E	-31.23	0.36
5699.00	4.63	12.12	5,695.50	39.00 N	2.19 E	-39.02	0.38
5794.00	3.86	7.82	5,790.24	45.92 N	3.43 E	-45.95	0.88
5888.00	3.41	11.37	5,884.05	51.79 N	4.41 E	-51.83	0.54
5984.00	4.51	4.75	5,979.82	58.34 N	5.29 E	-58.39	1.24
6079.00	4.20	1.69	6,074.54	65.55 N	5.70 E	-65.60	0.41
6174.00	2.53	1.35	6,169.38	71.13 N	5.85 E	-71.18	1.76
6268.00	2.93	348.48	6,263.27	75.56 N	5.42 E	-75.61	0.77
6363.00	3.31	351.72	6,358.13	80.65 N	4.54 E	-80.69	0.44
6458.00	3.68	343.28	6,452.95	86.28 N	3.27 E	-86.31	0.67
6553.00	4.50	345.60	6,547.71	92.81 N	1.46 E	-92.82	0.88
6648.00	2.72	333.84	6,642.52	98.45 N	0.46 W	-98.44	2.02
6694.00	2.53	338.95	6,688.47	100.38 N	1.31 W	-100.36	0.66
6789.00	2.87	348.80	6,783.36	104.66 N	2.52 W	-104.63	0.60
6884.00	2.87	347.36	6,878.25	109.31 N	3.50 W	-109.27	0.08
6979.00	2.91	342.84	6,973.13	113.93 N	4.73 W	-113.88	0.24
7073.00	2.84	342.22	7,067.01	118.42 N	6.14 W	-118.36	0.08
7168.00	0.98	333.15	7,161.95	121.39 N	7.23 W	-121.31	1.98
7262.00	1.03	293.16	7,255.94	122.43 N	8.37 W	-122.35	0.73
7358.00	1.97	205.21	7,351.91	121.28 N	9.86 W	-121.19	2.28
7389.00	5.46	189.66	7,382.84	119.35 N	10.33 W	-119.25	11.63
7421.00	9.33	187.64	7,414.57	115.28 N	10.93 W	-115.17	12.11
7451.00	13.51	195.06	7,443.97	109.48 N	12.17 W	-109.36	14.76
7483.00	17.08	195.51	7,474.83	101.34 N	14.40 W	-101.20	11.14
7515.00	19.25	196.50	7,505.24	91.75 N	17.15 W	-91.59	6.85
7546.00	20.67	192.33	7,534.38	81.51 N	19.77 W	-81.32	6.49
7577.00	22.96	188.67	7,563.16	70.18 N	21.85 W	-69.97	8.60
7609.00	26.35	186.02	7,592.24	56.95 N	23.54 W	-56.72	11.13
7641.00	31.15	183.21	7,620.28	41.61 N	24.75 W	-41.37	15.59
7673.00	36.00	184.14	7,646.94	23.95 N	25.89 W	-23.71	15.22
7704.00	39.57	182.10	7,671.44	5.00 N	26.91 W	-4.74	12.20
7736.00	43.98	181.48	7,695.29	16.31 S	27.58 W	16.56	13.85
7768.00	49.29	181.03	7,717.26	39.55 S	28.08 W	39.82	16.64
7799.00	53.53	180.96	7,736.59	63.78 S	28.50 W	64.04	13.66
7831.00	56.77	179.78	7,754.88	90.03 S	28.66 W	90.30	10.58
7863.00	59.27	180.35	7,771.82	117.17 S	28.70 W	117.44	7.96
7895.00	60.79	179.68	7,787.81	144.89 S	28.70 W	145.16	5.08
7927.00	64.95	179.63	7,802.40	173.37 S	28.53 W	173.63	13.00

DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (%/100)
7958.00	68.80	178.38	7,814.57	201.87 S	28.03 W	202.12	12.95
7990.00	72.27	176.67	7,825.23	232.00 S	26.72 W	232.24	11.96
8022.00	76.59	176.15	7,833.82	262.76 S	24.79 W	262.98	13.60
8054.00	81.21	177.34	7,839.98	294.10 S	23.01 W	294.31	14.88
8085.00	85.43	178.90	7,843.58	324.87 S	22.01 W	325.06	14.49
8117.00	88.92	179.84	7,845.16	356.82 S	21.65 W	357.01	11.31
8212.00	89.88	179.38	7,846.15	451.81 S	21.00 W	451.99	1.11
8307.00	92.16	179.31	7,844.46	546.78 S	19.91 W	546.95	2.40
8402.00	90.71	178.03	7,842.09	641.72 S	17.70 W	641.86	2.03
8497.00	88.71	178.81	7,842.57	736.68 S	15.09 W	736.79	2.26
8592.00	90.74	179.05	7,843.03	831.66 S	13.31 W	831.75	2.15
8687.00	93.51	179.39	7,839.51	926.58 S	12.02 W	926.65	2.94
8783.00	91.11	179.08	7,835.64	1,022.48 S	10.74 W	1022.54	2.53
8878.00	92.99	178.98	7,832.24	1,117.40 S	9.13 W	1117.44	1.98
8972.00	90.49	180.54	7,829.39	1,211.35 S	8.75 W	1211.38	3.13
9068.00	89.23	180.96	7,829.62	1,307.34 S	10.01 W	1307.37	1.39
9163.00	91.42	180.83	7,829.08	1,402.32 S	11.49 W	1402.37	2.31
9258.00	90.37	180.92	7,827.59	1,497.29 S	12.94 W	1497.35	1.11
9353.00	91.97	180.72	7,825.65	1,592.26 S	14.30 W	1592.33	1.70
9448.00	90.77	181.17	7,823.38	1,687.22 S	15.86 W	1687.29	1.35
9543.00	89.91	180.60	7,822.81	1,782.21 S	17.32 W	1782.29	1.09
9638.00	91.93	180.51	7,821.29	1,877.18 S	18.24 W	1877.27	2.13
9733.00	90.71	180.82	7,819.10	1,972.15 S	19.35 W	1972.25	1.33
9828.00	89.91	182.40	7,818.59	2,067.11 S	22.01 W	2067.22	1.86
9923.00	89.51	183.00	7,819.07	2,162.00 S	26.49 W	2162.15	0.77
10019.00	91.54	183.29	7,818.19	2,257.85 S	31.76 W	2258.05	2.14
10113.00	91.60	181.30	7,815.62	2,351.73 S	35.52 W	2351.96	2.11
10208.00	89.66	181.43	7,814.57	2,446.69 S	37.78 W	2446.94	2.05
10303.00	92.15	181.41	7,813.07	2,541.65 S	40.14 W	2541.91	2.62
10397.00	92.03	182.16	7,809.63	2,635.54 S	43.06 W	2635.83	0.80
10492.00	90.34	183.63	7,807.66	2,730.39 S	47.86 W	2730.72	2.37
10587.00	88.37	182.72	7,808.74	2,825.23 S	53.13 W	2825.61	2.29
10682.00	89.57	180.48	7,810.45	2,920.17 S	55.78 W	2920.57	2.68
10778.00	91.48	179.60	7,809.57	3,016.16 S	55.85 W	3016.55	2.19
10872.00	90.37	179.24	7,808.06	3,110.14 S	54.90 W	3110.52	1.24
10967.00	89.48	179.89	7,808.18	3,205.14 S	54.18 W	3205.51	1.16
11062.00	91.57	180.11	7,807.32	3,300.13 S	54.18 W	3300.49	2.22
11156.00	90.34	179.39	7,805.75	3,394.11 S	53.77 W	3394.47	1.52
11250.00	88.03	179.84	7,807.09	3,488.09 S	53.14 W	3488.44	2.51
11346.00	89.82	180.06	7,808.90	3,584.07 S	53.06 W	3584.41	1.88
11441.00	92.84	180.12	7,806.70	3,679.04 S	53.21 W	3679.38	3.18
11536.00	90.92	180.21	7,803.58	3,773.98 S	53.49 W	3774.32	2.02
11631.00	88.74	180.67	7,803.87	3,868.97 S	54.22 W	3869.31	2.35
11725.00	91.29	180.87	7,803.84	3,962.95 S	55.48 W	3963.30	2.73
11821.00	94.31	180.95	7,799.15	4,058.82 S	57.01 W	4059.17	3.15

DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
11916.00	93.46	180.67	7,792.71	4,153.59 S	58.35 W	4153.95	0.95
12011.00	92.25	179.03	7,787.98	4,248.46 S	58.10 W	4248.82	2.15
12106.00	89.38	179.01	7,786.62	4,343.43 S	56.48 W	4343.77	3.02
12201.00	90.99	179.53	7,786.32	4,438.42 S	55.27 W	4438.74	1.77
12296.00	89.66	179.46	7,785.78	4,533.41 S	54.43 W	4533.72	1.40
12390.00	90.62	179.30	7,785.55	4,627.41 S	53.42 W	4627.70	1.03
12485.00	87.41	180.33	7,787.19	4,722.38 S	53.11 W	4722.67	3.54
12581.00	88.74	180.54	7,790.41	4,818.32 S	53.84 W	4818.61	1.40
12676.00	90.95	180.68	7,790.66	4,913.31 S	54.85 W	4913.61	2.34
12702.00	91.54	180.62	7,790.10	4,939.30 S	55.14 W	4939.60	2.27
12759.00	91.54	180.62	7,788.56	4,996.27 S	55.76 W	4996.58	0.00

SURVEY FOOTER

SURVEYS CALCULATED USING SHORT COLLAR METHOD
 TIE-ON SURVEY ASSUMED VERTICAL AT SURFACE
 SURVEYS FROM 0.00' MD TO 12702.00' MD ARE PROVIDED BY SPERRY DRILLING MWD
 SURVEY AT 12702' MD HAS BEEN PROJECTED TO TD AT 12759' MD
 SPERRY ENGINEERS: JOHN WELTON, ALAN SMILEY, ANDY FRAIZER, JUSTIN WATERMAN

DIRECTIONAL SURVEY DATA NOTES

- 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 180.54 degrees (Grid)
- A total correction of 7.54 deg from Magnetic north to Grid north has been applied
- Horizontal displacement is relative to the well head.
- Horizontal displacement (closure) at 12,759.00 feet is 4,996.59 feet along 180.64 degrees (Grid)

WARRANTY

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SERVICE INTERRUPT REPORT

MWD Run Number	:300	Time / Date of Failure	:23-Jun-14 04:41
Rig Bit Number	:0300	Depth at Time of Failure (ft)	:5285
MWD Run Start Time / Date	:20-Jun-14 06:30	Lost Rig Hours	:
MWD Run End Time / Date	:23-Jun-14 02:30		

RIG ACTIVITY

Drilling in vertical down to KOP 30+ hours circulating prior to failure.

DESCRIPTION OF FAILURE

HD-XX-0901422720r300: Pulses down hole were sporadic during last 200 ft of the run, Had to recycle pumps and tool would switch data rates mid flow. Pulser finally flatlined at 8285' MD
Upon inspection of the tool on surface the flowtube was over torqued due to a miscalculation in compression ratio causing the flow tube to buckle at the bottom internally. Could not retrieve Pulser due to this.
Tested PCM - PCG - PCD on red test box for one hour and nine minutes and could not replicate down hole pulser failure. Failed the Pulser due to over Torque.

ACTION TAKEN

19:00 - Connection and pumps up tool flatlines shortly after
19:40 - Tool flatlines while drilling ahead
19:45 - Tool came back to life - Tool did this two more times
20:15 - Picked up off bottom to switch data rates. - Tool switched data rates mid flow after prior successful data rate change
20:30 - Connection - Tool came up in .8 while previously in .5.
22:30 - Raised flow to high end of flow
22:50 - Called failure
6-23-14
14:00 - Found cause of failure due to flowtube.

OPERATION IMPACT**REASON FOR FAILURE**

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