

**Chevron
Skeen 2 State 3H
Eddy County, NM
Ensign 767
API# 30-015-41117**

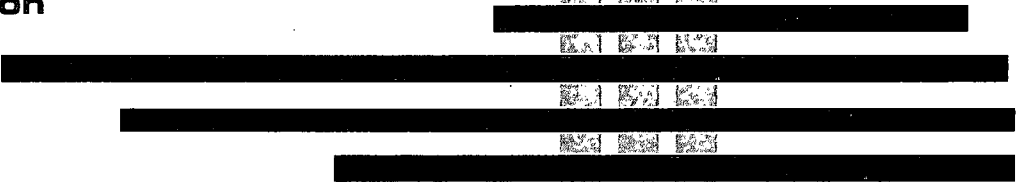
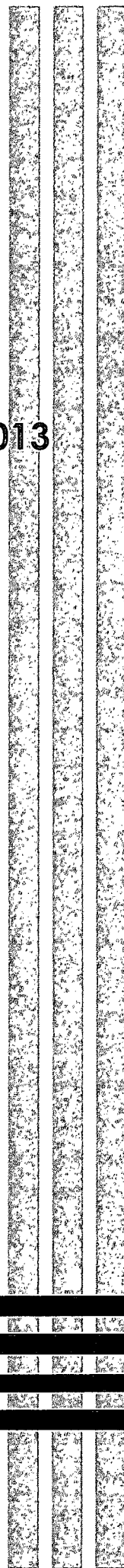
**December 7, 2013 – December 29, 2013
HD-XX-0900938544**

**Sperry Drilling
End of Well Report**

Submitted by Robert Martin
3950 Interwood South Parkway
Houston, TX 77032
Ph: 281.986.4400

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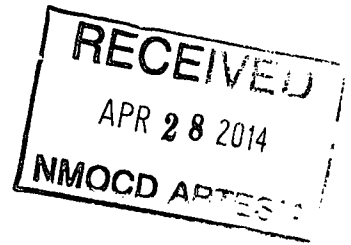
**Drilling and Formation
Evaluation**



HALLIBURTON

3950 Interwood South Parkway • Houston, TX 77032

PHONE 281.986.4400 • FAX 281.986.4499



State of New Mexico, Eddy County

I, Robert Martin, certify that I am employed by Halliburton Energy Services, Inc. (AKA Sperry Drilling) and that on the dates of December 7, 2013 through December 29, 2013, I did conduct or supervise the taking of MWD Directional surveys for the well Skeen 2 State 3H from 471' MD to 12490' MD. This data is true, correct, complete and within the limitations of the tools as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling). I am authorized and qualified to make this report, and these surveys were conducted at the request of Chevron for the Skeen 2 State 3H well, API No. 30-015-41117 in Eddy County, New Mexico. I have reviewed this report and find that it conforms to the principles and procedures as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling).

A handwritten signature in black ink, appearing to read "Robert Martin", written over a horizontal line.

Robert Martin
MWD Field Engineer



End of Well Report for Chevron

Rig : Ensign 767
Well Name : Skeen 2 State 3H
Field Name : Delaware River
Country : USA
Job Number : HD-XX-0900938544
Job Start Date : 07-Dec-13
API Number : 30-015-41117



TABLE OF CONTENTS

1. General Information
2. Operational Overview
3. Summary of MWD Runs
4. Bitrun Summary
5. Directional Survey Data
6. Service Interrupt Report



GENERAL INFORMATION

Company : Chevron
Rig : Ensign 767
Well : Skeen 2 State 3H
Field : Delaware River
Lease Name : Skeen 2 26 27 ST
State : New Mexico
County : Eddy
Country : USA
API Number : 30-015-41117
Sperry Drilling Job Number : HD-XX-0900938544
Job Start Date : 07-Dec-13
Job End Date : 29-Dec-13
North Reference : Grid
Total Correction (deg) : 7.561
Dip Angle (deg) : 59.871
Total Magnetic Field (nT) : 48193
Date of Magnetic Data : 08 December, 2013
Well Head coordinates N : 32 deg. 4 min 42.04 sec North
Well Head coordinates E : 104 deg. 9 min 29.84 sec West
Vertical section direction (deg) : 180.54
Unit Number : 11582465
MWD Engineers : Robert Martin, Alexis Vargas

Company Representatives : John Akin, Brad Osburn
Company Geologist: : Greg Minnery



OPERATIONAL OVERVIEW

SPERRY DRILLING/HALLIBURTON WAS CONTRACTED BY CHEVRON TO PROVIDE DIRECTIONAL DRILLING AND MWD SERVICES FOR THE WELL SKEEN 2 STATE 3H IN EDDY COUNTY, NM. TOOLS AND CREW ARRIVED ON LOCATION 07-DEC-2013 AND RIGGED UP ACCORDINGLY.

RUN 100

11-DEC-13 PICKED UP 8" DWD TOOLS AND MUD MOTOR (1.83° BEND). TIH. DRILLED FROM 464' MD - 2275' MD.

14-DEC-13 POOH DUE TO TD OF WELL SECTION. LAID DOWN BHA. 100% MWD RUN.

RUN 200

15-DEC-13 PICKED UP 6.75" DGWD TOOLS AND MUD MOTOR (1.83° BEND). TIH. DRILLED FROM 2275' MD - 7325' MD.

20-DEC-13 POOH DUE TO TD OF WELL SECTION. CHANGED MOTOR, BIT, AND MWD TOOL. 100% MWD RUN.

RUN 300

20-DEC-13 PICKED UP 6.75" DGWD TOOLS AND MUD MOTOR (2.38° BEND). TIH. DRILLED FROM 7325' MD - 8203' MD.

24-DEC-13 POOH AS THE CURVE WAS COMPLETE, AND WE NEEDED TO PICK UP A LATERAL ASSEMBLY. CHANGED MOTOR, BIT, AND MWD TOOL. 100% MWD RUN.

RUN 400

24-DEC-13 PICKED UP 6.75" DGWD TOOLS AND MUD MOTOR (1.83° BEND). TIH. DRILLED FROM 8203' MD - 12556' MD.

29-DEC-13 POOH DUE TO TD OF WELL. LAID DOWN TOOLS. 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	BRIT Hrs	Oper. Hrs	Circ. Hrs	Max Temp (degF)	Serv Int.	Trip for MWD	Failure Type
100	1	12.25	DWD	464.00	2275.00	1811.00	11-Dec-13 19:00	14-Dec-13 04:15	57.25	57.250	38.500	116.60	No	No	
200	2	8.75	D/GWD	2275.00	7325.00	5050.00	15-Dec-13 14:30	20-Dec-13 01:00	106.50	106.500	89.000	141.80	No	No	
300	3	8.75	D/GWD	7325.00	8203.00	878.00	20-Dec-13 03:45	24-Dec-13 02:15	94.50	94.500	56.500	131.00	Yes	No	TM, GM
400	4	8.75	D/GWD	8203.00	12556.00	4353.00	24-Dec-13 04:30	29-Dec-13 05:30	121.00	121.000	91.000	149.00	No	No	

BIT RUN SUMMARY

RUN TIME DATA

MWD Run : 100	Run Start : 11-Dec-13 19:00	BRT Hrs : 57.25	Circ. Hrs : 38.50
Rig Run No. : 1	Run End : 14-Dec-13 04:15	Hole Size (in) : 12.25	Oper. Hrs : 57.25

DRILLING DATA

Start Depth (ft) : 464.00	Footage (ft) : 1811.00	Avg WOB (klb) : 13.5	Avg ROP (fph) : 80.50
End Depth (ft) : 2275.00	Avg Flow Rate(gpm) : 675	Avg TOB (ft-lb) : 5860	Avg SPP (psig) : 1970
Drilling Hrs (hr) : 33.000	Avg RPM (rpm) : 57	Avg Bend (ft-lb) : NA	

MUD DATA

Mud Type : Saturated Brines			
Weight (ppg) : 10.15	Viscosity (spqt) : 27.00	PV (cP) : 2	YP (lbf2) : 3.00
Chlorides (ppm) : 189000	Max Temp (degF) : 116.60	% Solids(%) : 1.15	% Sand (%) : 0.00
pH (pH) : 10.00	Fluid Loss(mptm) : 90	% Oil (%) : 0.00	O:W : N/A

MWD PERFORMANCE

Tool OD (in) : 8	Type : DWD	Min. Inc. (deg): 0.51	Min. Inc. Depth (ft) : 1304.00
Final Az. (deg) : 42.84	Max Op. Press. (psig) 1220	Max. Inc. (deg): 2.60	Max. Inc. Depth (ft) : 2065.00
MWD Real Time % : 99		MWD Recorded % : 100	

COMMENTS

11-DEC-13 PICKED UP 8" DWD TOOLS AND MUD MOTOR (1.83° BEND). TIH. DRILLED FROM 464' MD - 2275' MD.
14-DEC-13 POOH DUE TO TD OF WELL SECTION. LAID DOWN BHA. 100% MWD RUN.

(1) (5) 5" X 3" HWDP #49.3 - NC50
(IF)
5.00 in OD / 3.00 in ID

(2) Jar
6.75 in OD / 2.00 in ID

(3) (9) 5" X 3" HWDP #49.3
5.00 in OD / 3.00 in ID

(4) X-Over Sub
6.75 in OD / 2.25 in ID

(5) (12) 6 1/2" X 3.5" - 80.1# Drill
Collar
6.50 in OD / 3.50 in ID

(6) X-Over Sub
7.00 in OD / 2.25 in ID

(7) (3) 8" X 2.5" - 154.2# Drill Collar
8.00 in OD / 2.50 in ID

(8) X-Over Sub
8.00 in OD / 2.25 in ID
SN: 23751

(9) MWD

(10) Integral Blade
8.00 in OD / 3.19 in ID
SN: 50197

(11) Float Sub
8.06 in OD / 2.81 in ID
SN: 1430

(12) 8" SperryDrill Lobe 6/7 - 4.0
stg
8.00 in OD / 5.25 in ID
SN: 11111893

(13) PDC
12.25 in OD / 3.00 in ID
SN: 22525

Length
(ft)

Cumulative
Length (ft)

(1) 150.25

(2) 32.54

(3) 271.50

(4) 1.90

(5) 363.10

(6) 3.95

(7) 91.28

(8) 2.48

(9) 34.17

(10) 5.21

(11) 3.07

(12) 27.06

(13) 1.00

987.51

837.26

804.72

533.22

531.32

168.22

164.27

72.99

70.51

36.34

31.13

28.06

1.00

Length
(ft)

Sensor Dist
From Bit
(ft)

[3] 58.95

6.67

27.50

HOS

8.06 in OD / 3.31 in ID

SN: 12126368

*[1]Positive Pulser - SN: 11504180

*[2]TM Sonde 175C - SN: 11367273

*[3]DM Sonde - SN: 12319549

NMDC

7.88 in OD / 3.25 in ID

SN: 15411

BIT RUN SUMMARY

RUN TIME DATA

MWD Run : 200	Run Start : 15-Dec-13 14:30	BRT Hrs : 106.50	Circ. Hrs : 89.00
Rig Run No. : 2	Run End : 20-Dec-13 01:00	Hole Size (in) : 8.75	Oper. Hrs : 106.50

DRILLING DATA

Start Depth (ft) : 2275.00	Footage (ft) : 5050.00	Avg WOB (klb) : 18.0	Avg ROP (fph) : 95.00
End Depth (ft) : 7325.00	Avg Flow Rate(gpm) : 575	Avg TOB (ft-lb) : 8700	Avg SPP (psig) : 2620
Drilling Hrs (hr) : 76.000	Avg RPM (rpm) : 76	Avg Bend (ft-lb) : NA	

MUD DATA

Mud Type : Other			
Weight (ppg) : 9.20	Viscosity (spqt) : 27.00	PV (cP) : 2	YP (lbf2) : 3.00
Chlorides (ppm) : 86500	Max Temp (degF) : 141.80	% Solids (%) : 0.60	% Sand (%) : 0.00
pH (pH) : 11.00	Fluid Loss(mptm) : 90	% Oil (%) : 0.00	O:W : N/A

MWD PERFORMANCE

Tool OD (in) : 6.75	Type : D/GWD	Min. Inc. (deg): 0.55	Min. Inc. Depth (ft) : 2923.00
Final Az. (deg) : 190.00	Max Op. Press. (psig) 3500	Max. Inc. (deg): 3.78	Max. Inc. Depth (ft) : 6913.00
MWD Real Time % : 97		MWD Recorded % : 100	

COMMENTS

15-DEC-13 PICKED UP 6.75" DGWD TOOLS AND MUD MOTOR (1.83° BEND). TIH. DRILLED FROM 2275' MD - 7325' MD.
 20-DEC-13 POOH DUE TO TD OF WELL SECTION. CHANGED MOTOR, BIT, AND MWD TOOL. 100% MWD RUN.

(1) (5) 5" X 3" HWDP #49.3 - NC50

(IF)

5.00 in OD / 3.00 in ID

(2) Jar

6.75 in OD / 2.00 in ID

(3) (9) 5" X 3" HWDP #49.3

5.00 in OD / 3.00 in ID

(4) X-Over Sub

6.75 in OD / 2.25 in ID

(5) (15) 6 1/2" X 3.5" - 80.1# Drill
Collar

6.50 in OD / 3.50 in ID

(6) X-Over Sub

6.56 in OD / 2.81 in ID

SN: 10623

(7) MWD

(8) X-Over Sub

6.50 in OD / 2.81 in ID

(9) Integral Blade

6.50 in OD / 2.88 in ID

SN: 12659

(10) Float Sub

6.81 in OD / 2.75 in ID

SN: 22246

(11) 6 3/4" Sperry Drill Lobe 6/7 -
5.0 stg

6.75 in OD / 4.50 in ID

SN: 11111747

(12) PDC

6.75 in OD / 1.81 in ID

SN: 23106

Length
(ft)Cumulative
Length (ft)

(1) 150.25

(2) 32.54

(3) 271.50

(4) 1.90

(5) 453.72

(6) 4.12

(7) 36.49

(8) 2.58

(9) 5.80

(10) 3.51

(11) 25.20

(12) 1.00

988.61

838.36

805.82

534.32

532.42

78.70

74.58

38.09

35.51

29.71

26.20

1.00

Length
(ft)Sensor Dist
From Bit
(ft)

5.89

30.60

HOS

6.63 in OD / 3.13 in ID

SN: 11341318

*[1]Positive Pulser - SN: 11548238

*[2]TM Sonde 175C - SN: 11367273

*[3]GM Sonde 175C - SN:

11758950

*[4]DM Sonde 2.0" - SN: 12319549

NMDC

6.75 in OD / 2.88 in ID

SN: 11801569

[3] 63.48

[4] 57.48

BIT RUN SUMMARY

RUN TIME DATA

MWD Run : 300	Run Start : 20-Dec-13 03:45	BRT Hrs : 94.50	Circ. Hrs : 56.50
Rig Run No. : 3	Run End : 24-Dec-13 02:15	Hole Size (in) : 8.75	Oper. Hrs : 94.50

DRILLING DATA

Start Depth (ft) : 7325.00	Footage (ft) : 878.00	Avg WOB (klb) : 11.0	Avg ROP (fph) : 46.00
End Depth (ft) : 8203.00	Avg Flow Rate (gpm) : 550	Avg TOB (ft-lb) : 4175	Avg SPP (psig) : 1690
Drilling Hrs (hr) : 40.000	Avg RPM (rpm) : 14	Avg Bend (ft-lb) : NA	

MUD DATA

Mud Type : Other			
Weight (ppg) : 9.20	Viscosity (spqt) : 28.00	PV (cP) : 2	YP (lbf/ft ²) : 3.00
Chlorides (ppm) : 86500	Max Temp (degF) : 131.00	% Solids (%) : 0.60	% Sand (%) : 0.00
pH (pH) : 11.00	Fluid Loss (mptm) : 90	% Oil (%) : 0.00	O:W : N/A

MWD PERFORMANCE

Tool OD (in) : 6.75	Type : D/GWD	Min. Inc. (deg) : 9.02	Min. Inc. Depth (ft) : 7360.00
Final Az. (deg) : 180.55	Max Op. Press. (psig) : 3740	Max. Inc. (deg) : 88.34	Max. Inc. Depth (ft) : 8152.00
MWD Real Time % : 100		MWD Recorded % : 50	

COMMENTS

20-DEC-13 PICKED UP 6.75" DGWD TOOLS AND MUD MOTOR (2.38° BEND). TIH. DRILLED FROM 7325' MD - 8203' MD.
 24-DEC-13 POOH AS THE CURVE WAS COMPLETE, AND WE NEEDED TO PICK UP A LATERAL ASSEMBLY. CHANGED MOTOR, BIT, AND MWD TOOL. 100% MWD RUN.

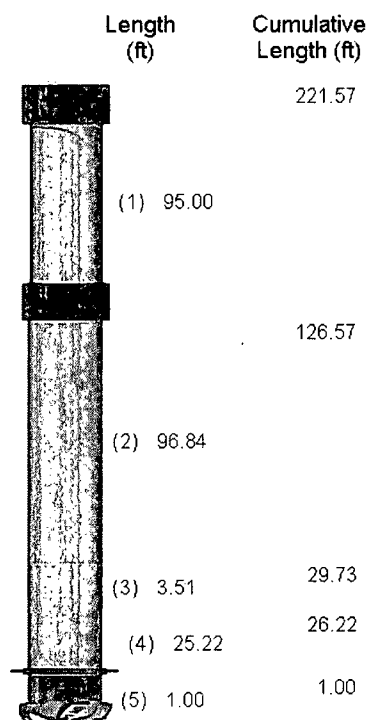
(1) 5" Drill Pipe
5.00 in OD / 3.30 in ID

(2) MWD

(3) Float Sub
6.81 in OD / 2.75 in ID
SN : 22246

(4) 6 3/4" SperryDrill Lobe 6/7 -
5.0 stg
6.75 in OD / 4.50 in ID
SN : 10437707

(5) PDC
6.75 in OD / 1.81 in ID
SN : 21780



Non Mag Flex Collar
6.75 in OD / 3.25 in ID
SN : 18802

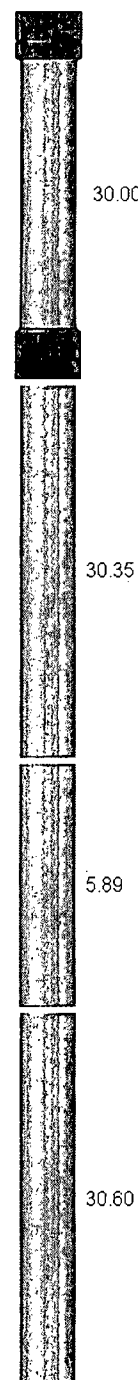
NMDC
6.75 in OD / 3.25 in ID
SN : 11801576

HOS
6.63 in OD / 3.13 in ID
SN : 11341318
*[1]Positive Pulser - SN : 10977721
*[2]TM Sonde 175C - SN : 10718706
*[3]GM Sonde 175C - SN : 10455403
*[4]DM Sonde 2.0" - SN : 12279734

NMDC
6.75 in OD / 2.88 in ID
SN : 11801569

Length (ft)

Sensor Dist From Bit (ft)



BIT RUN SUMMARY

RUN TIME DATA

MWD Run : 400	Run Start : 24-Dec-13 04:30	BRT Hrs : 121.00	Circ. Hrs : 91.00
Rig Run No. : 4	Run End : 29-Dec-13 05:30	Hole Size (in) : 8.75	Oper. Hrs : 121.00

DRILLING DATA

Start Depth (ft) : 8203.00	Footage (ft) : 4353.00	Avg WOB (klb) : 17.0	Avg ROP (fph) : 68.00
End Depth (ft) : 12556.00	Avg Flow Rate (gpm) : 548	Avg TOB (ft-lb) : 11200	Avg SPP (psig) : 2180
Drilling Hrs (hr) : 75.000	Avg RPM (rpm) : 56	Avg Bend (ft-lb) : NA	

MUD DATA

Mud Type : Other			
Weight (ppg) : 9.20	Viscosity (spqt) : 28.00	PV (cP) : 2	YP (lbf/ft ²) : 3.00
Chlorides (ppm) : 84000	Max Temp (degF) : 149.00	% Solids (%) : 0.80	% Sand (%) : 0.00
pH (pH) : 11.10	Fluid Loss (mptm) : 90	% Oil (%) : 0.00	O:W : N/A

MWD PERFORMANCE

Tool OD (in) : 6.75	Type : D/GWD	Min. Inc. (deg) : 88.83	Min. Inc. Depth (ft) : 11572.00
Final Az. (deg) : 179.32	Max Op. Press. (psig) : 3740	Max. Inc. (deg) : 93.15	Max. Inc. Depth (ft) : 12142.00
MWD Real Time % : 99		MWD Recorded % : 100	

COMMENTS

24-DEC-13 PICKED UP 6.75" DGWD TOOLS AND MUD MOTOR (1.83° BEND). TIH. DRILLED FROM 8203' MD - 12556' MD.
 29-DEC-13 POOH DUE TO TD OF WELL. LAID DOWN TOOLS. 100% MWD RUN.

(1) 5" Drill Pipe
5.00 in OD / 3.30 in ID

(2) MWD

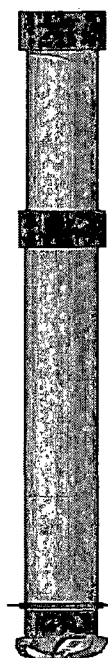
(3) Float Sub
6.81 in OD / 2.75 in ID
SN : 22246

(4) 6 3/4" SperryDrill Lobe 6/7 -
5.0 stg
6.75 in OD / 4.50 in ID
SN : 110742581

(5) PDC
6.75 in OD / 1.81 in ID
SN : 22002

Length
(ft)

Cumulative
Length (ft)



(1) 95.00

(2) 111.01

(3) 3.51

(4) 24.93

(5) 1.00

235.45

140.45

29.44

25.93

1.00

Non Mag Flex Collar
6.75 in OD / 3.25 in ID
SN : 18802

NMDC
6.75 in OD / 3.25 in ID
SN : 11801576

HOS
6.63 in OD / 3.13 in ID
SN : 11341318
*[1]Positive Pulser - SN: 11324788
*[2]TM Sonde 175C - SN: 11367273
*[3]GM Sonde 175C - SN:
10948176
*[4]DM Sonde 2.0" - SN: 11865837

NMDC
6.75 in OD / 2.88 in ID
SN : 11801569

Pony Collar
6.69 in OD / 2.88 in ID
SN : 7203

Length
(ft)

Sensor Dist
From Bit
(ft)



29.74

30.35

5.89

30.60

14.43

[3] 69.26

[4] 63.26



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')
471.00	2.39	96.71	470.86	1.15 S	9.76 E	1.06	0.51
561.00	1.90	100.53	560.80	1.64 S	13.09 E	1.52	0.57
742.00	1.31	95.34	741.73	2.38 S	18.10 E	2.21	0.33
925.00	1.22	113.94	924.68	3.37 S	21.97 E	3.16	0.23
1113.00	0.55	126.90	1,112.66	4.73 S	24.53 E	4.49	0.37
1304.00	0.51	122.11	1,303.65	5.73 S	25.99 E	5.49	0.03
1494.00	0.58	265.67	1,493.65	6.26 S	25.76 E	6.02	0.55
1685.00	1.36	46.45	1,684.63	4.77 S	26.45 E	4.52	0.97
1875.00	2.26	53.81	1,874.54	1.00 S	31.10 E	0.71	0.48
2065.00	2.60	81.81	2,064.37	1.82 N	38.38 E	-2.18	0.64
2213.00	1.46	42.84	2,212.29	3.67 N	42.98 E	-4.08	1.17
2353.00	1.11	47.77	2,352.25	5.89 N	45.19 E	-6.32	0.26
2543.00	1.35	37.58	2,542.21	8.90 N	47.92 E	-9.36	0.17
2733.00	0.85	7.67	2,732.17	12.07 N	49.47 E	-12.54	0.39
2923.00	0.55	334.07	2,922.16	14.29 N	49.26 E	-14.75	0.26
3114.00	1.16	314.57	3,113.14	16.47 N	47.49 E	-16.91	0.35
3304.00	0.57	328.05	3,303.11	18.61 N	45.62 E	-19.04	0.33
3494.00	1.02	307.47	3,493.10	20.44 N	43.78 E	-20.85	0.28
3684.00	1.35	308.83	3,683.05	22.88 N	40.69 E	-23.26	0.17
3875.00	1.12	301.19	3,874.01	25.26 N	37.34 E	-25.61	0.15
4062.00	1.12	296.72	4,060.98	27.02 N	34.15 E	-27.34	0.05
4253.00	1.19	289.11	4,251.94	28.51 N	30.61 E	-28.79	0.09
4442.00	1.65	281.54	4,440.88	29.69 N	26.09 E	-29.94	0.26
4631.00	0.72	268.83	4,629.84	30.21 N	22.24 E	-30.42	0.51
4821.00	1.19	238.66	4,819.81	29.16 N	19.36 E	-29.34	0.35
5012.00	1.45	238.09	5,010.76	26.86 N	15.62 E	-27.00	0.14
5202.00	1.73	216.98	5,200.69	23.30 N	11.86 E	-23.41	0.34
5392.00	1.40	216.66	5,390.62	19.15 N	8.75 E	-19.23	0.18
5583.00	1.92	214.56	5,581.54	14.64 N	5.54 E	-14.69	0.28
5773.00	2.16	224.44	5,771.42	9.46 N	1.22 E	-9.47	0.22
5963.00	2.04	209.68	5,961.29	3.95 N	2.97 W	-3.92	0.29
6151.00	0.65	221.25	6,149.23	0.23 N	5.34 W	-0.18	0.75
6341.00	0.75	198.52	6,339.22	1.76 S	6.44 W	1.82	0.15
6532.00	0.56	213.50	6,530.21	3.71 S	7.35 W	3.78	0.13
6722.00	1.03	206.75	6,720.19	6.01 S	8.63 W	6.09	0.25
6913.00	3.78	216.99	6,911.00	12.57 S	13.19 W	12.69	1.45
7102.00	1.88	236.82	7,099.77	19.24 S	19.53 W	19.42	1.12
7261.00	3.04	190.00	7,258.63	24.81 S	22.45 W	25.02	1.40
7360.00	9.02	194.34	7,357.04	34.92 S	24.82 W	35.15	6.05
7392.00	13.08	197.19	7,388.44	40.81 S	26.52 W	41.06	12.82
7424.00	16.78	198.34	7,419.36	48.66 S	29.04 W	48.93	11.59



DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (%/100')
7455.00	19.72	196.85	7,448.79	57.92 S	31.97 W	58.21	9.59
7487.00	22.01	197.33	7,478.69	68.81 S	35.32 W	69.14	7.18
7519.00	24.06	197.47	7,508.14	80.75 S	39.06 W	81.12	6.40
7551.00	27.28	195.32	7,536.98	94.05 S	42.96 W	94.45	10.49
7582.00	30.44	190.75	7,564.13	108.62 S	46.30 W	109.06	12.43
7614.00	33.99	184.77	7,591.20	125.51 S	48.56 W	125.97	14.90
7645.00	38.65	182.34	7,616.18	143.83 S	49.68 W	144.29	15.71
7677.00	42.71	178.43	7,640.44	164.68 S	49.79 W	165.14	14.99
7709.00	45.45	178.88	7,663.43	186.93 S	49.27 W	187.39	8.61
7741.00	47.50	178.90	7,685.46	210.13 S	48.82 W	210.58	6.41
7772.00	50.99	178.53	7,705.70	233.60 S	48.29 W	234.05	11.29
7804.00	54.70	179.36	7,725.02	259.10 S	47.82 W	259.54	11.76
7836.00	58.77	177.79	7,742.57	285.84 S	47.15 W	286.27	13.37
7867.00	61.06	180.51	7,758.11	312.65 S	46.76 W	313.08	10.60
7899.00	64.17	180.09	7,772.83	341.06 S	46.91 W	341.49	9.78
7931.00	67.57	180.40	7,785.91	370.26 S	47.03 W	370.69	10.69
7963.00	71.99	181.70	7,796.97	400.28 S	47.59 W	400.71	14.32
7994.00	76.95	181.89	7,805.27	430.12 S	48.52 W	430.56	15.99
8025.00	81.23	181.18	7,811.13	460.54 S	49.34 W	460.99	14.00
8057.00	85.21	180.44	7,814.91	492.31 S	49.79 W	492.76	12.67
8152.00	88.34	180.55	7,820.25	587.14 S	50.61 W	587.59	3.29
8247.00	89.88	179.72	7,821.74	682.13 S	50.84 W	682.58	1.84
8342.00	90.59	179.15	7,821.35	777.12 S	49.90 W	777.56	0.96
8438.00	90.93	178.48	7,820.08	873.09 S	47.91 W	873.50	0.78
8533.00	91.51	177.24	7,818.06	968.00 S	44.36 W	968.38	1.44
8628.00	90.71	178.14	7,816.22	1,062.90 S	40.53 W	1063.24	1.27
8723.00	90.83	178.61	7,814.94	1,157.86 S	37.84 W	1158.16	0.51
8818.00	91.61	177.75	7,812.92	1,252.79 S	34.83 W	1253.06	1.22
8913.00	91.14	179.21	7,810.64	1,347.72 S	32.30 W	1347.97	1.61
9008.00	91.73	179.57	7,808.26	1,442.69 S	31.29 W	1442.92	0.73
9103.00	90.77	179.33	7,806.19	1,537.66 S	30.38 W	1537.88	1.04
9199.00	90.59	178.64	7,805.05	1,633.64 S	28.68 W	1633.83	0.74
9294.00	91.17	178.77	7,803.58	1,728.60 S	26.54 W	1728.77	0.63
9389.00	89.88	179.85	7,802.71	1,823.59 S	25.39 W	1823.74	1.78
9484.00	91.02	179.98	7,801.97	1,918.58 S	25.25 W	1918.73	1.21
9580.00	92.41	179.55	7,799.10	2,014.53 S	24.86 W	2014.68	1.51
9675.00	90.00	180.12	7,797.10	2,109.51 S	24.59 W	2109.64	2.60
9770.00	90.40	179.86	7,796.77	2,204.51 S	24.58 W	2204.64	0.51
9865.00	91.05	179.73	7,795.57	2,299.50 S	24.24 W	2299.62	0.70
9959.00	89.26	180.34	7,795.32	2,393.49 S	24.29 W	2393.62	2.01
10054.00	89.57	180.03	7,796.29	2,488.49 S	24.59 W	2488.61	0.46
10150.00	90.65	179.59	7,796.11	2,584.48 S	24.27 W	2584.60	1.22
10245.00	89.91	180.66	7,795.65	2,679.48 S	24.47 W	2679.59	1.37
10340.00	90.25	180.96	7,795.52	2,774.47 S	25.81 W	2774.59	0.48
10434.00	91.39	180.66	7,794.18	2,868.45 S	27.14 W	2868.58	1.26



DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
10528.00	89.72	180.47	7,793.26	2,962.44 S	28.06 W	2962.57	1.78
10623.00	89.66	180.72	7,793.78	3,057.43 S	29.05 W	3057.57	0.28
10718.00	90.77	180.04	7,793.42	3,152.43 S	29.68 W	3152.57	1.37
10813.00	88.98	180.97	7,793.62	3,247.42 S	30.52 W	3247.56	2.12
10908.00	89.41	179.78	7,794.95	3,342.40 S	31.14 W	3342.55	1.33
11003.00	90.40	180.01	7,795.11	3,437.40 S	30.96 W	3437.54	1.07
11098.00	91.05	178.91	7,793.90	3,532.39 S	30.06 W	3532.52	1.34
11193.00	92.04	178.89	7,791.35	3,627.34 S	28.24 W	3627.44	1.04
11287.00	90.31	180.37	7,789.42	3,721.31 S	27.63 W	3721.40	2.42
11383.00	90.31	179.78	7,788.90	3,817.31 S	27.75 W	3817.40	0.62
11477.00	89.51	180.34	7,789.06	3,911.30 S	27.85 W	3911.39	1.04
11572.00	88.83	181.32	7,790.44	4,006.28 S	29.22 W	4006.38	1.25
11667.00	89.23	180.62	7,792.05	4,101.25 S	30.83 W	4101.36	0.85
11761.00	89.85	180.71	7,792.81	4,195.25 S	31.92 W	4195.36	0.66
11856.00	90.46	179.54	7,792.56	4,290.24 S	32.13 W	4290.35	1.39
11951.00	91.14	179.18	7,791.23	4,385.23 S	31.07 W	4385.33	0.81
12046.00	92.13	178.88	7,788.52	4,480.17 S	29.46 W	4480.25	1.09
12142.00	93.15	178.69	7,784.10	4,576.05 S	27.43 W	4576.10	1.08
12237.00	91.67	179.26	7,780.10	4,670.95 S	25.72 W	4670.98	1.68
12332.00	91.57	179.08	7,777.42	4,765.90 S	24.35 W	4765.92	0.21
12426.00	92.47	179.45	7,774.10	4,859.83 S	23.15 W	4859.83	1.03
12490.00	92.90	179.32	7,771.10	4,923.76 S	22.47 W	4923.75	0.71
12556.00	92.90	179.32	7,767.76	4,989.67 S	21.69 W	4989.65	0.00

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 7.56 deg from Magnetic north to Grid north has been applied
- Horizontal displacement is relative to the well head.
- Horizontal displacement (closure) at 12,556.00 feet is 4,989.71 feet along 180.25 degrees (Grid)

Surveys calculated using the Short Collar Method.

Tie-on survey assumed vertical at surface.

Surveys stations as per Chevron.

Surveys from 471' MD to 12490' MD provided by Sperry Drilling.

Survey at 12490' MD has been projected to TD at 12556' MD.

Sperry Drilling Engineers: Robert Martin, Alexis Vargas

**WARRANTY**

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SERVICE INTERRUPT REPORT

MWD Run Number	:300	Time / Date of Failure	:24-Dec-13 03:00
Rig Bit Number	:3	Depth at Time of Failure (ft)	:0
MWD Run Start Time / Date	:20-Dec-13 03:45	Lost Rig Hours	:0
MWD Run End Time / Date	:24-Dec-13 02:15		

RIG ACTIVITY

I read the tool after Run 300. The rig was picking up BHA for Run 400.

DESCRIPTION OF FAILURE

I read the tool, and the recorded gamma data was not lining up with the realtime data. It was off by various amounts of feet in different places throughout the gamma curve.

ACTION TAKEN

I fixed the time stamp which showed a large time error between the tool and the computer. I then reprocessed the TM image file. This didn't fix the problem. I also read the TM separately. That didn't fix the problem either.

OPERATION IMPACT

We lost approximately 900 feet of recorded gamma data but were able to fill it in with realtime data.

REASON FOR FAILURE

To be determined



SPERRY DRILLING / HALLIBURTON
3950 INTERWOOD SOUTH PARKWAY
HOUSTON, TEXAS 77032-3346

PHONE: 281-986-4400
FAX: 281-986-4498