

Reservoir Development
PathFinder, a Schlumberger Company
9200 West Reno Avenue
Oklahoma City, Oklahoma 73127 USA
Phone: (405) 789-1515
Fax: (405) 789-1519



NM OIL CONSERVATION
ARTESIA DISTRICT

May 12, 2014

JAN 30 2015

Chevron USA, Inc.
15 Smith Road

RECEIVED

Midland, TX 79705

Re:

CLIENT: Chevron USA, Inc.
WELL: HAYHURST 16 25 27 STATE 2H St01
FIELD: Bone Spring
RIG: Ensign 767
COUNTY: Eddy
API NO: 30-015-41121-01
JOB NO: 13MLD0657

Sec 16, T25S, R27E Eddy NM
N 32.13680 W 104.19187

Enclosed, please find the original copy of the survey performed on the referenced well by PathFinder, a division of Schlumberger Technology Corporation.

Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Daniel Roberts MWD	HAYHURST 16 25 27 STATE 2H St01 Side Track	6201.00 Ft to 11481.00 Ft	April 28, 2014 to May 10, 2014	SlimPulse

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Jasem Alharer
Field Service Manager

APD 2/3/15
Accepted for record
NMDCD

Reservoir Development

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Oklahoma City, Oklahoma 73127 USA
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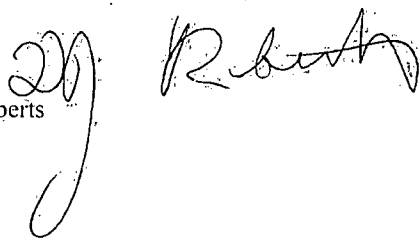
PATHFINDER
A Schlumberger Company

Well Reference:

Sec 16, T25S, R27E Eddy NM
N 32.13680 W 104.19187

I, Daniel Roberts certify that; I am employed by PathFinder, a division of Schlumberger Technology Corporation; that I did on the day(s) of April 28, 2014 through May 10, 2014, conduct or supervise the taking of the SlimPulse surveys from a depth of 6201.00 feet to a depth of 11481.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Chevron USA, Inc. for the HAYHURST 16 25 27 STATE 2H St01 Well (Side Track) API No. 30-015-41121-01 and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By
Daniel Roberts
MWD



Subscribed and Sworn to before me this 08 day of January (month) 2015 (yr)

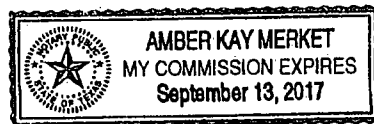
My Commission expires:

September 13, 2017

Amber Kay Merket
Notary Public

(signature)

Midland County, Texas
(County State)



SCHLUMBERGER
Survey Report

12-May-2014

Client.....: Chevron USA, Inc.
Field.....: Bone Spring

Well.....: HAYHURST 16 25 27 STATE 2H St01
API number.....: 30-015-41121-01
Engineer.....: Daniel Roberts

Spud date.....: 24-Mar-14
Last survey date.....: 10-May-14
Total accepted surveys...: 74
MD of first survey.....: 6201.00 ft
MD of last survey.....: 11481.00 ft

County.....: Eddy
State.....: New Mexico
Rig.....: Ensign 767

Latitude.....: 32° 8' 12.465" N
Longitude.....: 104° 11' 30.74" W

----- Survey calculation methods-----

Method for positions...: Minimum curvature
Method for DLS.....: Lubinski

----- Depth reference -----

Permanent datum.....: MSL
Depth reference.....: Driller's Depth
GL above permanent.....: 3200.00
KB above permanent.....: 3231.00
DF above permanent.....: 3231.00

----- Vertical section origin-----

Latitude (+N/S-).....: 0.00 ft
Departure (+E/W-).....: 0.00 ft

----- Grid Coordinates -----

NAD27 Texas State Plane, Central Zone, US Feet
X.....: 543787.00 ft
Y.....: 413517.00 ft

Azimuth from Vsect Origin to target: 179.73 degrees

-----MWD Survey Reference Criteria-----

-----Run1-----

Geomag Model:	: BGGM 2013	Calculation Date:	: 25-Apr-2014
Location G	: 998.82 mgn	Tolerance G	: 2.50 mgn
Location B	: 48180.64 nT	Tolerance B	: 300.00 nT
Magnetic Dip	: 59.91 degrees	Tolerance Dip	: 0.45 degrees

-----Run2-----

Geomag Model:	: BGGM 2013	Calculation Date:	: 29-Apr-2014
Location G	: 998.82 mgn	Tolerance G	: 2.50 mgn
Location B	: 48179.38 nT	Tolerance B	: 300.00 nT
Magnetic Dip	: 59.91 degrees	Tolerance Dip	: 0.45 degrees

-----Run4-----

Geomag Model:	: BGGM 2013	Calculation Date:	: 04-May-2014
Location G	: 998.82 mgn	Tolerance G	: 2.50 mgn
Location B	: 48177.79 nT	Tolerance B	: 300.00 nT
Magnetic Dip	: 59.91 degrees	Tolerance Dip	: 0.45 degrees

-----Run5-----

Geomag Model:	: BGGM 2013	Calculation Date:	: 07-May-2014
Location G	: 998.82 mgn	Tolerance G	: 2.50 mgn
Location B	: 48176.84 nT	Tolerance B	: 300.00 nT
Magnetic Dip	: 59.91 degrees	Tolerance Dip	: 0.45 degrees

BGGM Model: 2013

-----Run1-----

Magnetic dec (+E/W-) : 7.6460 degrees(Override)
Grid convergence (+E/W-) : 0.0752 degrees
GTotal az corr (+E/W-) : 7.5708 degrees

-----Run2-----

Magnetic dec (+E/W-) : 7.6312 degrees
Grid convergence (+E/W-) : 0.0752 degrees
GTotal az corr (+E/W-) : 7.5559 degrees

-----Run4-----

Magnetic dec (+E/W-) : 7.6297 degrees

Grid convergence (+E/W-) : 0.0752 degrees
GTotal az corr (+E/W-) : 7.5544 degrees

-----Run5-----

Magnetic dec (+E/W-) : 7.6288 degrees
Grid convergence (+E/W-) : 0.0752 degrees
GTotal az corr (+E/W-) : 7.5535 degrees

-----Survey Correction Index Description-----

0 = Uncorrected 1 = Sag Corrected
2 = DMAG Corrected 3 = Sag + DMAG Corrected

Survey List												Tool	Correction
Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/S (ft)	E/W (ft)	Closure (ft)	at Azi (deg)	DLS (deg/100ft)		
1	0.00	0.00	0.00	-999.25	0.00	0.00	0.00	0.00	0	90.00	0.00	TIP	0
2	462.00	0.10	0.00	462.00	462.00	-0.40	0.40	0.00	0.39	360.00	0.02	Other	9
3	561.00	0.10	149.00	99.00	561.00	-0.42	0.42	0.04	0.43	6.11	0.19	Other	9
4	738.00	0.10	183.00	177.00	738.00	-0.13	0.13	0.12	0.16	41.98	0.03	Other	9
5	927.00	0.50	287.00	189.00	927.00	-0.21	0.21	-0.68	0.72	286.77	0.28	Other	9
6	1115.00	0.80	26.00	188.00	1114.99	-1.63	1.62	-0.89	1.84	331.28	0.54	Other	9
7	1308.00	0.70	116.00	193.00	1307.98	-2.32	2.32	0.76	2.43	18.14	0.55	Other	9
8	1688.00	0.50	320.00	380.00	1687.97	-2.56	2.57	1.78	3.12	34.70	0.31	Other	9
9	1878.00	0.90	40.00	190.00	1877.96	-4.34	4.35	2.21	4.89	26.90	0.50	Other	9
10	2065.00	0.70	169.00	187.00	2064.95	-4.34	4.35	3.37	5.51	37.73	0.77	Other	9
11	2445.00	0.60	53.00	380.00	2444.94	-3.25	3.27	5.40	6.3	58.79	0.29	Other	9
12	2635.00	0.50	140.00	190.00	2634.93	-3.20	3.24	6.73	7.48	64.32	0.40	Other	9
13	2825.00	0.30	261.00	190.00	2824.93	-2.49	2.52	6.77	7.22	69.56	0.37	Other	9
14	3019.00	0.50	328.00	194.00	3018.93	-3.13	3.16	5.82	6.63	61.49	0.24	Other	9
15	3397.00	0.70	211.00	378.00	3396.91	-2.56	2.58	3.76	4.56	55.51	0.27	Other	9
16	3587.00	0.70	316.00	190.00	3586.91	-2.41	2.42	2.35	3.38	44.18	0.58	Other	9
17	3778.00	0.40	51.00	191.00	3777.90	-3.67	3.68	2.06	4.23	29.24	0.44	Other	9
18	3964.00	0.60	139.00	186.00	3963.89	-3.34	3.35	3.20	4.63	43.69	0.38	Other	9
19	4155.00	0.70	232.00	191.00	4154.89	-1.87	1.88	2.94	3.48	57.40	0.50	Other	9
20	4345.00	0.30	32.00	190.00	4344.88	-1.58	1.59	2.29	2.79	55.26	0.52	Other	9
21	4535.00	0.40	148.00	190.00	4534.88	-1.43	1.45	2.90	3.25	63.52	0.31	Other	9
22	4920.00	0.50	113.00	385.00	4919.87	0.37	-0.35	5.16	5.18	93.87	0.07	Other	9
23	5110.00	0.30	285.00	190.00	5109.87	0.57	-0.54	5.45	5.48	95.71	0.42	Other	9
24	5295.00	0.60	60.00	185.00	5294.86	-0.04	0.07	5.82	5.81	89.36	0.45	Other	9
25	5377.00	0.50	332.00	82.00	5376.86	-0.04	0.07	6.02	6.04	84.35	0.94	Other	9
26	5687.00	0.60	248.00	310.00	5686.85	-1.16	1.18	3.88	4.07	73.06	0.24	Other	9
27	5771.00	0.50	233.60	84.00	5770.85	-0.78	0.80	3.18	3.28	75.87	0.20	Other	9
28	5898.00	0.90	197.90	127.00	5897.84	0.49	-0.48	2.42	2.46	101.15	0.45	Other	9
29	6087.00	1.70	242.10	189.00	6086.79	3.20	-3.20	-0.51	3.25	189.03	0.65	Other	9
30	6201.00	1.56	302.23	114.00	6359.41	6.63	-6.69	-12.10	13.81	241.06	3.52	SlimPulse	2
31	6360.00	6.05	236.09	159.00	6359.41	3.15	-3.17	-3.31	-19.47	239.10	8.28	SlimPulse	2
32	6391.00	7.89	236.30	31.00	6390.18	8.71	-8.78	-15.23	17.59	240.02	5.96	SlimPulse	2
33	6423.00	10.54	235.62	32.00	6421.76	11.56	-11.66	-24.80	29.17	238.24	7.21	SlimPulse	2
34	6455.00	12.85	234.95	32.00	6453.10	15.23	-15.35	-30.93	36.75	237.35	8.60	SlimPulse	2
35	6486.00	15.47	233.09	31.00	6483.15	19.67	-19.81	-37.88	45.9	235.65	10.96	SlimPulse	2
36	6518.00	18.15	225.22	32.00	6513.79	25.71	-25.89	-65.59	128.15	210.79	11.38	SlimPulse	2
37	6550.00	21.14	215.90	32.00	6543.93	33.87	-34.08	-66.76	147.38	206.93	12.07	SlimPulse	2
38	6582.00	23.86	206.12	32.00	6573.50	44.33	-44.57	-51.04	67.75	228.87	14.44	SlimPulse	2
39	6614.00	28.04	198.16	32.00	6602.27	57.27	-57.54	-56.24	80.45	224.35	16.97	SlimPulse	2
40	6646.00	32.84	191.76	32.00	6629.86	72.91	-73.19	-60.36	94.88	219.51	18.09	SlimPulse	2
41	6677.00	37.38	188.02	31.00	6655.22	90.45	-90.75	-63.39	110.7	214.93	16.20	SlimPulse	2
42	6708.00	40.38	185.05	31.00	6679.35	109.77	-110.08	-65.59	128.15	210.79	11.38	SlimPulse	2
43	6740.00	43.34	181.34	32.00	6703.19	131.07	-131.39	-66.76	147.38	206.93	12.07	SlimPulse	2
44	6772.00	46.20	178.87	32.00	6725.90	153.60	-153.92	-66.79	167.78	203.46	10.45	SlimPulse	2
45	6802.00	49.27	177.05	30.00	6746.08	175.79	-176.10	-65.99	188.06	200.54	11.17	SlimPulse	2
46	6834.00	52.89	175.48	32.00	6766.18	200.63	-200.94	-64.36	210.99	197.76	11.96	SlimPulse	2
47	6866.00	56.48	173.61	32.00	6784.68	226.63	-226.92	-61.87	235.2	195.25	12.18	SlimPulse	2
48	6897.00	59.47	172.77	31.00	6801.11	252.74	-253.02	-58.75	259.74	193.07	9.93	SlimPulse	2
49	6929.00	62.05	171.58	32.00	6816.74	280.42	-280.68	-54.94	285.99	191.08	8.69	SlimPulse	2
50	6961.00	64.96	170.99	32.00	6831.01	308.74	-308.98	-50.60	313.09	189.30	9.24	SlimPulse	2
51	6992.00	68.85	170.55	31.00	6843.17	336.90	-337.13	-46.03	340.26	187.77	12.60	SlimPulse	0
52	7023.00	72.43	171.59	31.00	6853.45	365.81	-366.01	-41.49	368.37	186.47	11.97	SlimPulse	0
53	7055.00	75.61	172.74	32.00	6862.26	396.30	-396.48	-37.30	398.23	185.37	10.53	SlimPulse	0
54	7086.00	78.58	173.59	31.00	6869.18	426.32	-426.48	-33.71	427.82	184.52	9.94	SlimPulse	0
55	7117.00	81.26	174.16	31.00	6874.60	456.68	-456.83	-30.46	457.84	183.81	8.85	SlimPulse	0
56	7149.00	83.35	174.39	32.00	6878.89	488.25	-488.38	-27.29	489.14	183.20	6.55	SlimPulse	0
57	7180.00	84.32	174.33	31.00	6882.22	518.93	-519.05	-24.26	519.62	182.68	3.13	SlimPulse	0
58	7241.00	89.48	173.88	61.00	6885.51	579.62	-579.62	-18.01	579.89	181.78	8.50	SlimPulse	2
59	7335.00	91.38	174.15	94.00	6884.81	673.05	-673.10	-8.21	673.16	180.70	2.03	SlimPulse	2
60	7430.00	91.65	174.85	95.00	6882.30	767.63	-767.63	0.89	767.62	179.93	0.79	SlimPulse	2
61	7525.00	89.62	174.51	95.00	6881.24	862.25	-862.21	9.70	862.27	179.36	2.17	SlimPulse	2
62	7620.00	90.24	174.57	95.00	6881.36	956.85	-956.78	18.74	956.96	178.88	0.66	SlimPulse	2
63	7713.00	91.82	176.76	93.00	6879.68	1049.60	-1049.49	25.77	1049.8	178.59	2.90	SlimPulse	2
64	7808.00	89.62	179.60	95.00	6878.48	1144.54	-1144.42	28.79	1144.78	178.56	3.78	SlimPulse	2
65	7903.00	91.07	180.63	95.00	6877.91	1239.53	-1239.41	28.61	1239.73	178.68	1.87	SlimPulse	2

66	7997.00	91.03	181.05	94.00	6876.19	1333.50	-1333.38	27.23	1333.66	178.83	0.45	SlimPulse	2
67	8092.00	88.35	180.09	95.00	6876.71	1428.48	-1428.37	26.29	1428.61	178.95	3.00	SlimPulse	2
68	8187.00	88.93	182.09	95.00	6878.96	1523.42	-1523.32	24.49	1523.52	179.08	2.19	SlimPulse	2
69	8282.00	88.00	181.66	95.00	6881.50	1618.32	-1618.23	21.38	1618.37	179.24	1.08	SlimPulse	2
70	8378.00	88.97	181.90	96.00	6884.03	1714.22	-1714.15	18.41	1714.24	179.38	1.03	SlimPulse	2
71	8472.00	90.10	182.98	94.00	6884.79	1808.11	-1808.06	14.40	1808.1	179.54	1.67	SlimPulse	2
72	8567.00	89.62	182.66	95.00	6885.02	1902.97	-1902.95	9.73	1902.99	179.71	0.61	SlimPulse	2
73	8662.00	89.38	182.28	95.00	6885.85	1997.86	-1997.85	5.63	1997.87	179.84	0.47	SlimPulse	2
74	8757.00	89.52	181.48	95.00	6886.76	2092.79	-2092.80	2.52	2092.81	179.93	0.86	SlimPulse	2
75	8853.00	89.52	181.23	96.00	6887.57	2188.74	-2188.77	0.25	2188.78	179.99	0.26	SlimPulse	2
76	8948.00	89.38	180.33	95.00	6888.48	2283.72	-2283.75	-1.04	2283.76	180.03	0.95	SlimPulse	2
77	9043.00	91.65	181.10	95.00	6887.63	2378.70	-2378.73	-2.23	2378.74	180.05	2.52	SlimPulse	2
78	9138.00	89.62	180.78	95.00	6886.57	2473.67	-2473.71	-3.79	2473.72	180.09	2.16	SlimPulse	2
79	9233.00	89.72	179.60	95.00	6887.12	2568.66	-2568.71	-4.10	2568.7	180.09	1.24	SlimPulse	2
80	9331.00	91.00	180.06	96.00	6886.50	2666.65	-2666.70	-3.82	2666.7	180.06	1.38	SlimPulse	2
81	9425.00	89.45	178.77	94.00	6886.13	2760.65	-2760.69	-2.86	2760.7	180.06	2.15	SlimPulse	0
82	9520.00	90.89	178.52	95.00	6885.85	2855.63	-2855.66	-0.61	2855.68	180.01	1.54	SlimPulse	0
83	9615.00	89.45	179.27	95.00	6885.56	2950.61	-2950.64	1.22	2950.66	179.98	1.72	SlimPulse	0
84	9711.00	89.97	179.28	96.00	6886.05	3046.61	-3046.63	2.43	3046.62	179.93	0.54	SlimPulse	0
85	9806.00	89.97	179.29	95.00	6886.11	3141.61	-3141.62	3.61	3141.63	179.93	0.01	SlimPulse	0
86	9901.00	91.38	179.23	95.00	6885.00	3236.59	-3236.61	4.84	3236.61	179.91	1.49	SlimPulse	0
87	9996.00	89.62	179.18	95.00	6884.17	3331.58	-3331.59	6.16	3331.59	179.89	1.85	SlimPulse	0
88	10091.00	90.03	180.22	95.00	6884.45	3426.58	-3426.59	6.66	3426.61	179.89	1.18	SlimPulse	0
89	10185.00	89.38	178.71	94.00	6884.93	3520.58	-3520.58	7.53	3520.6	179.88	1.76	SlimPulse	0
90	10281.00	89.83	178.94	95.00	6885.60	3616.56	-3616.56	9.51	3616.57	179.85	0.53	SlimPulse	0
91	10376.00	91.89	179.06	95.00	6884.17	3711.54	-3711.53	11.17	3711.55	179.83	2.18	SlimPulse	0
92	10472.00	91.20	177.03	96.00	6881.58	3807.46	-3807.43	14.45	3807.45	179.78	2.23	SlimPulse	0
93	10567.00	89.83	177.16	95.00	6880.72	3902.35	-3902.30	19.26	3902.36	179.72	1.45	SlimPulse	0
94	10662.00	92.13	177.88	95.00	6879.10	3997.26	-3997.19	23.38	3997.24	179.66	2.54	SlimPulse	0
95	10757.00	90.86	179.72	95.00	6876.62	4092.21	-4092.13	25.37	4092.22	179.64	2.35	SlimPulse	0
96	10852.00	89.24	179.62	95.00	6876.53	4187.20	-4187.13	25.92	4187.2	179.65	1.71	SlimPulse	0
97	10947.00	88.80	178.70	95.00	6878.16	4282.18	-4282.10	27.31	4282.19	179.63	1.07	SlimPulse	0
98	11042.00	88.90	177.82	95.00	6880.07	4377.13	-4377.04	30.20	4377.13	179.60	0.94	SlimPulse	0
99	11137.00	89.21	177.02	95.00	6881.64	4472.04	-4471.93	34.48	4472.05	179.56	0.90	SlimPulse	0
100	11231.00	89.72	176.91	94.00	6882.51	4565.93	-4565.79	39.46	4565.98	179.50	0.56	SlimPulse	0
101	11326.00	90.52	176.95	95.00	6882.31	4660.81	-4660.65	44.54	4660.86	179.45	0.83	SlimPulse	0
102	11421.00	89.79	175.80	95.00	6882.05	4755.65	-4755.46	50.55	4755.74	179.39	1.42	SlimPulse	0
103	11481.00	90.21	175.65	60.00	6882.05	4815.50	-4815.29	55.02	4815.62	179.35	0.73	SlimPulse	0
104	11535.00	90.21	175.65	54.00	6881.89	4869.28	-4869.14	E 59.07	4869.49	179.30	0.00	PTB	7