

Reservoir Development

Drilling & Measurements

4301 SW 44th St

Oklahoma City, Oklahoma 73119 USA

Phone: (405) 682-2284

Fax: (405) 682-3937

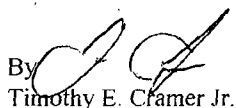
30-015-42976

Well Reference:

Sec 23, T26S, R26E, Eddy, NM

N 32.10903 W 104.19682

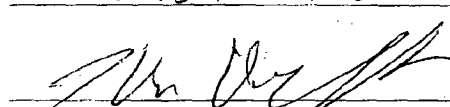
I, Timothy E. Cramer Jr. certify that; I am employed by PathFinder, a division of Schlumberger Technology Corporation; that I did on the day(s) of April 24, 2015 through May 12, 2013, conduct or supervise the taking of the HDS-1 surveys from a depth of 430.00 feet to a depth of 12223.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by PathFinder, 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 White City 21 25 27 Federal Com 6H Well (Original Hole) API No. 30-015-42976 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 
Timothy E. Cramer Jr.
MWD

Subscribed and Sworn to before me this 15 day of May (month) 2015 (yr)

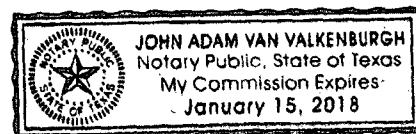
My Commission expires:

01/15/2018


Notary Public

(signature)

Bell County / TX
(County State)



 6/23/2015
Accepted for record
NMOCD

Reservoir Development

Drilling & Measurements (Anadrill)

4301 SW 44th St

Oklahoma City, Oklahoma 73119 USA

Phone: (405) 682-2284

Fax: (405) 682-3937

May 15, 2015

Cimarex

600 N MARIENFELD STREET SUITE 600

MIDLAND, TX 79701

Re:

Sec 23, T26S, R26E, Eddy, NM
N 32.10903 W 104.19682

CLIENT: Chevron USA INC.
WELL: White City 21 25 27 Federal Com 6H
FIELD: Hay Hollow; Bone Springs, N.
RIG: Nabors M51
COUNTY: Eddy
API NO: 30-015-42976
JOB NO: 15MLD2006

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>
Timothy E. Cramer Jr. MWD	White City 21 25 27 Federal Com 6H Original Hole	430.00 Ft to 12223.00 Ft	April 24, 2015 to May 12, 2013	HDS-1

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

Sincerely,



Timothy E. Cramer Jr.
Field Specialist I

PathFinder – a Schlumberger company

Survey Report

CHEVRON U.S.A INC.
WHITE CITY 21 25 27 FEDERAL COM #6H
HAY HOLLOW; BONE SPRING, N
API#: 30-015-424976 Rig: Nabors M51
PathFinder Office Supervisor: Qun Xu
PathFinder Field Engineers: T.Cramer

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.6325295 N LON:104.11485551 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 542268.0000 Y: 403417.0000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.50°EAST TO GRID
Vertical Section Plane: 358.91
Survey Vert. Reference: 22.00' Rotary Table To Ground
Altitude:3127.00' Ground To MSL

Survey Calculations by RX4 using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Subsea Depth (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
ORIGIN OF WELL AT SURFACE.											
0.00	0.00	0.00	0.00	-22.00	0.00	0.00	0.00	0.00@	0.00	0.00	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.											
430.00	0.88	160.41	429.98	407.98	-3.13	3.11 S	1.11 E	3.30@	160.41	0.20	82.95
619.00	0.97	163.48	618.96	596.96	-6.05	6.01 S	2.05 E	6.35@	161.18	0.05	97.41
803.00	1.06	160.84	802.93	780.93	-9.17	9.11 S	3.05 E	9.61@	161.49	0.06	111.87
989.00	1.14	162.72	988.90	966.90	-12.58	12.50 S	4.16 E	13.18@	161.58	0.05	119.09
1179.00	1.14	170.30	1178.86	1156.86	-16.27	16.17 S	5.04 E	16.94@	162.68	0.08	122.71
1370.00	1.23	184.69	1369.82	1347.82	-20.18	20.09 S	5.20 E	20.75@	165.50	0.16	111.87
1560.00	1.85	170.97	1559.75	1537.75	-25.25	25.15 S	5.51 E	25.75@	167.64	0.38	104.64
1656.00	0.18	269.81	1655.73	1633.73	-26.78	26.68 S	5.60 E	27.26@	168.14	1.96	108.25
1847.00	0.26	23.58	1846.73	1824.73	-26.38	26.28 S	5.48 E	26.85@	168.23	0.19	108.25
2037.00	0.35	42.69	2036.73	2014.73	-25.57	25.46 S	6.04 E	26.17@	166.65	0.07	111.87
2233.00	0.26	31.01	2232.73	2210.73	-24.76	24.64 S	6.68 E	25.53@	164.84	0.06	82.95
2424.00	0.26	46.88	2423.72	2401.72	-24.11	23.97 S	7.22 E	25.04@	163.25	0.04	90.18
2615.00	0.26	76.22	2614.72	2592.72	-23.72	23.57 S	7.95 E	24.88@	161.35	0.07	93.80
2806.00	0.09	357.16	2805.72	2783.72	-23.48	23.32 S	8.37 E	24.78@	160.26	0.13	97.41
2996.00	0.18	335.16	2995.72	2973.72	-23.05	22.90 S	8.24 E	24.34@	160.22	0.05	101.02
3187.00	0.18	329.96	3186.72	3164.72	-22.52	22.37 S	7.96 E	23.74@	160.41	0.01	104.64
3377.00	0.09	344.49	3376.72	3354.72	-22.11	21.97 S	7.77 E	23.30@	160.52	0.05	104.64
3568.00	0.09	198.10	3567.72	3545.72	-22.11	21.97 S	7.68 E	23.27@	160.72	0.09	108.25
3758.00	0.09	257.84	3757.72	3735.72	-22.28	22.14 S	7.49 E	23.37@	161.31	0.05	108.25
3949.00	0.18	219.34	3948.72	3926.72	-22.53	22.40 S	7.15 E	23.52@	162.29	0.06	108.25
4139.00	0.26	234.74	4138.72	4116.72	-23.00	22.88 S	6.61 E	23.82@	163.88	0.05	108.25
4330.00	0.26	228.11	4329.71	4307.71	-23.53	23.42 S	5.94 E	24.16@	165.78	0.02	111.87
4521.00	0.18	236.60	4520.71	4498.71	-23.97	23.88 S	5.36 E	24.47@	167.34	0.05	111.87

PathFinder – a Schlumberger company

Survey Report

CHEVRON U.S.A INC.
 WHITE CITY 21 25 27 FEDERAL COM #6H
 HAY HOLLOW; BONE SPRING, N
 API#: 30-015-424976 Rig: Nabors M51

Page 02/05

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Subsea Depth (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
4711.00	0.26	235.86	4710.71	4688.71	-24.37	24.28 S	4.76 E	24.74@	168.91	0.04	111.87
4902.00	0.09	327.37	4901.71	4879.71	-24.48	24.40 S	4.32 E	24.78@	169.96	0.14	111.87
4997.00	0.09	48.91	4996.71	4974.71	-24.37	24.29 S	4.33 E	24.67@	169.88	0.12	111.87
5093.00	2.64	168.95	5092.68	5070.68	-26.50	26.41 S	4.81 E	26.84@	169.67	2.80	111.87
5188.00	5.80	170.17	5187.41	5165.41	-33.40	33.29 S	6.05 E	33.83@	169.69	3.33	111.87
5283.00	5.80	170.48	5281.92	5259.92	-42.89	42.75 S	7.67 E	43.43@	169.83	0.03	115.48
5378.00	5.72	172.92	5376.44	5354.44	-52.35	52.18 S	9.04 E	52.96@	170.17	0.27	115.48
5474.00	5.54	173.31	5471.98	5449.98	-61.72	61.53 S	10.17 E	62.37@	170.61	0.19	111.87
5569.00	5.36	174.69	5566.55	5544.55	-70.70	70.51 S	11.12 E	71.38@	171.04	0.23	115.48
5664.00	5.36	175.21	5661.13	5639.13	-79.56	79.35 S	11.90 E	80.23@	171.47	0.05	115.48
5760.00	5.01	172.89	5756.74	5734.74	-88.20	87.97 S	12.79 E	88.90@	171.73	0.42	115.48
5855.00	4.31	175.14	5851.43	5829.43	-95.89	95.65 S	13.61 E	96.61@	171.90	0.76	119.09
5951.00	3.78	172.47	5947.19	5925.19	-102.63	102.38 S	14.33 E	103.38@	172.03	0.59	119.09
6046.00	4.66	179.93	6041.93	6019.93	-109.60	109.34 S	14.74 E	110.33@	172.32	1.09	119.09
6141.00	4.04	176.24	6136.66	6114.66	-116.80	116.54 S	14.97 E	117.50@	172.68	0.72	119.09
6237.00	3.34	182.08	6232.46	6210.46	-122.97	122.71 S	15.09 E	123.63@	172.99	0.83	119.09
6332.00	4.31	179.52	6327.24	6305.24	-129.31	129.04 S	15.02 E	129.92@	173.36	1.04	119.09
6427.00	3.08	181.35	6422.04	6400.04	-135.43	135.17 S	14.99 E	135.99@	173.67	1.30	115.48
6522.00	3.52	181.36	6516.89	6494.89	-140.89	140.63 S	14.86 E	141.42@	173.97	0.46	119.09
6618.00	3.08	173.06	6612.73	6590.73	-146.40	146.14 S	15.10 E	146.92@	174.10	0.68	119.09
6713.00	2.90	174.59	6707.60	6685.60	-151.34	151.07 S	15.64 E	151.87@	174.09	0.21	122.71
6808.00	2.37	174.16	6802.50	6780.50	-155.69	155.41 S	16.06 E	156.24@	174.10	0.56	122.71
6903.00	0.79	209.66	6897.46	6875.46	-158.21	157.94 S	15.94 E	158.74@	174.24	1.88	126.32
6990.00	0.70	222.08	6984.45	6962.45	-159.11	158.85 S	15.28 E	159.58@	174.50	0.21	111.87
7022.00	1.93	336.49	7016.45	6994.45	-158.76	158.50 S	14.94 E	159.20@	174.62	7.22	111.87
7054.00	5.28	344.72	7048.38	7026.38	-156.83	156.59 S	14.34 E	157.24@	174.77	10.57	115.48
7086.00	9.15	355.36	7080.12	7058.12	-152.86	152.63 S	13.74 E	153.25@	174.86	12.74	115.48
7117.00	13.19	356.56	7110.53	7088.53	-146.87	146.64 S	13.33 E	147.24@	174.81	13.05	115.48

PathFinder – a Schlumberger company

Survey Report

CHEVRON U.S.A INC.
 WHITE CITY 21 25 27 FEDERAL COM #6H
 HAY HOLLOW; BONE SPRING, N
 API#: 30-015-424976 Rig: Nabors M51

Page 03/05

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Subsea Depth (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
7149.00	17.41	355.53	7141.39	7119.39	-138.44	138.22 S	12.74 E	138.80@	174.73	13.21	115.48
7181.00	20.49	355.36	7171.65	7149.65	-128.06	127.86 S	11.91 E	128.41@	174.68	9.63	119.09
7213.00	24.36	355.84	7201.22	7179.22	-115.88	115.69 S	10.98 E	116.21@	174.58	12.11	119.09
7245.00	27.44	356.25	7230.01	7208.01	-101.92	101.75 S	10.02 E	102.24@	174.38	9.64	119.09
7276.00	30.25	356.99	7257.16	7235.16	-86.98	86.82 S	9.14 E	87.30@	173.99	9.14	119.09
7308.00	33.50	357.01	7284.33	7262.33	-70.09	69.95 S	8.26 E	70.43@	173.27	10.16	119.09
7340.00	37.02	357.00	7310.45	7288.45	-51.63	51.50 S	7.29 E	52.02@	171.94	11.00	119.09
7372.00	40.45	356.78	7335.41	7313.41	-31.62	31.51 S	6.20 E	32.12@	168.86	10.73	119.09
7404.00	43.88	356.53	7359.13	7337.13	-10.16	10.07 S	4.95 E	11.22@	153.83	10.73	119.09
7435.00	47.22	356.63	7380.83	7358.83	11.94	12.02 N	3.63 E	12.55@	16.81	10.78	122.71
7467.00	50.56	357.09	7401.87	7379.87	36.04	36.09 N	2.31 E	36.16@	3.66	10.49	122.71
7499.00	54.08	357.45	7421.43	7399.43	61.35	61.38 N	1.11 E	61.39@	1.03	11.04	122.71
7531.00	57.68	358.17	7439.37	7417.37	87.83	87.85 N	0.10 E	87.85@	0.06	11.40	122.71
7562.00	61.11	358.97	7455.15	7433.15	114.51	114.52 N	0.56 W	114.52@	359.72	11.29	122.71
7594.00	64.90	359.28	7469.68	7447.68	143.01	143.02 N	1.00 W	143.02@	359.60	11.88	122.71
7626.00	67.97	359.67	7482.47	7460.47	172.34	172.35 N	1.27 W	172.35@	359.58	9.66	122.71
7657.00	70.52	358.76	7493.45	7471.45	201.33	201.33 N	1.66 W	201.34@	359.53	8.67	122.71
7689.00	73.51	357.33	7503.33	7481.33	231.75	231.74 N	2.71 W	231.76@	359.33	10.27	122.71
7721.00	77.12	357.03	7511.44	7489.44	262.69	262.66 N	4.23 W	262.69@	359.08	11.32	122.71
7753.00	81.60	357.77	7517.35	7495.35	294.12	294.07 N	5.65 W	294.12@	358.90	14.18	126.32
7784.00	85.30	358.43	7520.89	7498.89	324.91	324.84 N	6.67 W	324.91@	358.82	12.12	122.71
7816.00	89.60	358.99	7522.31	7500.31	356.87	356.79 N	7.39 W	356.87@	358.81	13.55	126.32
7848.00	91.80	359.55	7521.92	7499.92	388.86	388.79 N	7.80 W	388.86@	358.85	7.09	126.32
7935.00	94.09	359.38	7517.45	7495.45	475.74	475.66 N	8.61 W	475.74@	358.96	2.64	122.71
8030.00	92.95	359.65	7511.62	7489.62	570.55	570.48 N	9.41 W	570.56@	359.05	1.23	126.32
8126.00	91.71	359.53	7507.71	7485.71	666.47	666.39 N	10.10 W	666.47@	359.13	1.30	126.32
8221.00	88.20	359.44	7507.79	7485.79	761.45	761.38 N	10.96 W	761.45@	359.18	3.70	126.32
8317.00	90.40	359.47	7508.96	7486.96	857.43	857.36 N	11.87 W	857.44@	359.21	2.29	129.94

PathFinder – a Schlumberger company

Survey Report

CHEVRON U.S.A INC.
 WHITE CITY 21 25 27 FEDERAL COM #6H
 HAY HOLLOW; BONE SPRING, N
 API#: 30-015-424976 Rig: Nabors M51

Page 04/05

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Subsea Depth (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)	TEMP (F)
8412.00	88.81	359.42	7509.62	7487.62	952.42	952.35 N	12.79 W	952.43@	359.23	1.67	126.32
8507.00	91.54	359.27	7509.33	7487.33	1047.41	1047.33 N	13.87 W	1047.42@	359.24	2.88	129.94
8602.00	90.75	359.74	7507.43	7485.43	1142.38	1142.31 N	14.69 W	1142.40@	359.26	0.97	129.94
8697.00	92.07	359.70	7505.09	7483.09	1237.34	1237.28 N	15.16 W	1237.37@	359.30	1.39	133.55
8792.00	91.63	359.37	7502.02	7480.02	1332.29	1332.22 N	15.93 W	1332.32@	359.31	0.58	129.94
8888.00	89.60	359.37	7500.99	7478.99	1428.27	1428.21 N	16.98 W	1428.31@	359.32	2.11	129.94
8983.00	89.78	359.08	7501.51	7479.51	1523.27	1523.20 N	18.27 W	1523.31@	359.31	0.36	133.55
9079.00	88.11	358.47	7503.27	7481.27	1619.25	1619.16 N	20.32 W	1619.28@	359.28	1.85	133.55
9174.00	88.81	358.40	7505.83	7483.83	1714.21	1714.09 N	22.92 W	1714.24@	359.23	0.74	137.17
9269.00	88.20	358.00	7508.31	7486.31	1809.17	1809.01 N	25.90 W	1809.19@	359.18	0.77	137.17
9365.00	90.13	358.05	7509.70	7487.70	1905.14	1904.93 N	29.21 W	1905.16@	359.12	2.01	137.17
9460.00	89.78	358.86	7509.78	7487.78	2000.14	1999.90 N	31.77 W	2000.15@	359.09	0.93	137.17
9555.00	89.87	358.92	7510.07	7488.07	2095.14	2094.88 N	33.61 W	2095.15@	359.08	0.11	137.17
9651.00	89.60	359.27	7510.51	7488.51	2191.14	2190.87 N	35.12 W	2191.15@	359.08	0.46	140.78
9746.00	89.34	359.84	7511.39	7489.39	2286.13	2285.86 N	35.86 W	2286.14@	359.10	0.66	140.78
9841.00	89.78	359.40	7512.12	7490.12	2381.12	2380.85 N	36.49 W	2381.13@	359.12	0.65	140.78
9936.00	92.51	359.17	7510.22	7488.22	2476.09	2475.82 N	37.68 W	2476.10@	359.13	2.88	144.39
10031.00	92.51	358.56	7506.06	7484.06	2571.00	2570.71 N	39.56 W	2571.01@	359.12	0.64	144.39
10127.00	93.21	358.81	7501.27	7479.27	2666.87	2666.56 N	41.76 W	2666.89@	359.10	0.77	140.78
10222.00	91.80	359.17	7497.12	7475.12	2761.78	2761.45 N	43.43 W	2761.80@	359.10	1.53	140.78
10317.00	90.31	359.47	7495.37	7473.37	2856.76	2856.43 N	44.56 W	2856.78@	359.11	1.60	140.78
10412.00	89.87	359.12	7495.22	7473.22	2951.76	2951.42 N	45.73 W	2951.78@	359.11	0.59	144.39
10508.00	90.22	359.67	7495.15	7473.15	3047.75	3047.42 N	46.74 W	3047.77@	359.12	0.68	144.39
10603.00	90.48	359.74	7494.57	7472.57	3142.74	3142.41 N	47.23 W	3142.77@	359.14	0.28	144.39
10699.00	91.28	359.88	7493.09	7471.09	3238.72	3238.40 N	47.55 W	3238.75@	359.16	0.85	144.39
10794.00	92.59	359.45	7489.89	7467.89	3333.65	3333.34 N	48.10 W	3333.69@	359.17	1.45	144.39
10889.00	95.06	358.89	7483.55	7461.55	3428.43	3428.11 N	49.47 W	3428.47@	359.17	2.66	148.01
10985.00	94.79	359.19	7475.31	7453.31	3524.08	3523.74 N	51.08 W	3524.11@	359.17	0.42	144.39

PathFinder – a Schlumberger company

Survey Report

CHEVRON U.S.A INC.
 WHITE CITY 21 25 27 FEDERAL COM #6H
 HAY HOLLOW; BONE SPRING, N
 API#: 30-015-424976 Rig: Nabors M51

Page 05/05

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Subsea Depth (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)	TEMP (F)
						(ft)	(ft)	(ft)	(deg)		
11080.00	92.33	359.08	7469.41	7447.41	3618.89	3618.54 N	52.51 W	3618.92@	359.17	2.59	144.39
11176.00	90.57	358.49	7466.98	7444.98	3714.85	3714.49 N	54.54 W	3714.89@	359.16	1.93	144.39
11271.00	90.75	357.92	7465.88	7443.88	3809.84	3809.43 N	57.52 W	3809.87@	359.13	0.63	144.39
11366.00	90.57	358.50	7464.79	7442.79	3904.82	3904.38 N	60.49 W	3904.85@	359.11	0.64	144.39
11461.00	91.36	358.89	7463.19	7441.19	3999.81	3999.34 N	62.65 W	3999.83@	359.10	0.93	148.01
11557.00	90.57	358.27	7461.57	7439.57	4095.79	4095.30 N	65.03 W	4095.81@	359.09	1.05	144.39
11652.00	90.31	357.96	7460.84	7438.84	4190.78	4190.24 N	68.15 W	4190.80@	359.07	0.43	148.01
11747.00	89.16	357.86	7461.28	7439.28	4285.76	4285.18 N	71.62 W	4285.78@	359.04	1.22	148.01
11842.00	89.96	357.93	7462.01	7440.01	4380.75	4380.11 N	75.11 W	4380.75@	359.02	0.85	148.01
11938.00	90.40	358.47	7461.71	7439.71	4476.74	4476.06 N	78.12 W	4476.74@	359.00	0.72	148.01
12033.00	90.13	358.65	7461.27	7439.27	4571.73	4571.03 N	80.51 W	4571.74@	358.99	0.34	148.01
12128.00	89.87	359.34	7461.27	7439.27	4666.73	4666.01 N	82.18 W	4666.74@	358.99	0.78	148.01
12223.00	92.15	359.60	7459.60	7437.60	4761.71	4760.99 N	83.05 W	4761.71@	359.00	2.42	148.01
STRAIGHT LINE PROJECTION TO BIT AT 12275'MD											
12275.00	92.15	359.60	7457.65	7435.65	4813.67	4812.95 N	83.42 W	4813.67@	359.01	0.00	0.00