Reservoir Development
Drilling & Measurements
4301 SW 44th St
Oklahoma City, Oklahoma 73119 USA
Phone: (405) 682-2284
Fax: (405) 682-3937

PATHFINDER
A Schlumberger Company

July 8, 2014

HOBBSOCD

FEB 10 2015

RECEIVED

Cimarex
600 N MARIENFELD STREET SUITE 600

MIDLAND ,TX 79701

Re:

CLIENT: Cimarex Energy Co.
WELL: Hallertau 4 Federal #2H
FIELD: Jennings, Upper Bone Springs Shale
RIG: Cactus 104
COUNTY: Lea
API NO: 30-025-41119
JOB NO: 14MLD0372

S4-T26S-R32E 330 FNL 1650 FWL
N 32.07873 W 103.68335

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.

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
Rene Ortiz MWD	Hallertau 4 Federal #2H Original Hole	8740.00 Ft 13728.00 Ft	to	June 23, 2014 July 3, 2014	to	SlimPulse

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

Joseph Hogan
Field Service Manager

MAR 10 2015

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Well Reference:
S4-T26S-R32E 330 FNL 1650 FWL
N 32.07873 W 103.68335

I, Rene Ortiz certify that; I am employed by PathFinder, a division of Schlumberger Technology Corporation; that I did on the day(s) of June 23, 2014 through July 03, 2014, conduct or supervise the taking of the SlimPulse surveys from a depth of 8740.00 feet to a depth of 13728.00 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 Cimarex Energy Co. for the Hallertau 4 Federal #2H Well (Original Hole) API No. 30-025-41119 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
Rene Ortiz
MWD

DJ for Rene Ortiz

Subscribed and Sworn to before me this 23rd day of July (month) 2014 (yr)

My Commission expires:
Aug 23 2014

Sue Smith
Notary Public (Signature)

SUE SMITH
Notary Public, State of Texas
My Commission Expires
August 23, 2014

Midland Texas
(County State)

Schlumberger Survey Report

Thursday July 03 2014 8:0(Report by MaxWell

----------General Information ----------
Client : Cimarex Energy Co. Well name : Hallertau 4 Federal #2H
Field Jennings, Upper Bone Spring Shale

----------Survey Calculation Methods----------
Method for positions : Minimum Curvature Method

----------Job Location & Elevation----------
Latitude : 32.0787 degrees Longitude : -103.6833degrees
Permanent Datum : MSL Log Measured From : DF
Elevation of LMF from MSL : 3334.00 ft Elevation of TIP from MSL: 3334.00 ft
Depth Source :

----------Vertical Section Origin----------
Latitude (+N/S-) : 0.00 ft Departure (+E/W-) : 0.00 ft
Target Azimuth : 181.5800 degrees

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

-----Run1-----
Geomag Model: : BGGM 2013 Calculation Date: : 24-Jun-2014
Location G : 998.81 mgn Tolerance G : 2.50 mgn
Location B (Override): 48185.38 nT Tolerance B : 300.00 nT
Magnetic Dip (Override): 59.95 degrees Tolerance Dip : 0.45 degrees

-----Run2-----
Geomag Model: : BGGM 2013 Calculation Date: : 26-Jun-2014
Location G : 998.81 mgn Tolerance G : 2.50 mgn
Location B (Override): 48185.39 nT Tolerance B : 300.00 nT
Magnetic Dip (Override): 59.95 degrees Tolerance Dip : 0.45 degrees

-----Run3-----
Geomag Model: : BGGM 2013 Calculation Date: : 27-Jun-2014
Location G : 998.81 mgn Tolerance G : 2.50 mgn
Location B (Override): 48185.39 nT Tolerance B : 300.00 nT
Magnetic Dip (Override): 59.95 degrees Tolerance Dip : 0.45 degrees

-----Run4-----
Geomag Model: : BGGM 2013 Calculation Date: : 28-Jun-2014
Location G : 998.81 mgn Tolerance G : 2.50 mgn
Location B (Override): 48185.39 nT Tolerance B : 300.00 nT
Magnetic Dip (Override): 59.95 degrees Tolerance Dip : 0.45 degrees

-----Run5-----
Geomag Model: : BGGM 2013 Calculation Date: : 30-Jun-2014
Location G : 998.81 mgn Tolerance G : 2.50 mgn
Location B (Override): 48185.00 nT Tolerance B : 300.00 nT
Magnetic Dip (Override): 59.95 degrees Tolerance Dip : 0.45 degrees

----------MWD Survey Azimuth Correction----------

-----Run1-----
Magnetic dec (+E/W-) : 7.3694 degrees
Grid convergence (+E/W-) : 0.3452 degrees
GTotal az corr (+E/W-) : 7.0242 degrees

-----Run2-----
Magnetic dec (+E/W-) : 7.3688 degrees
Grid convergence (+E/W-) : 0.3452 degrees
GTotal az corr (+E/W-) : 7.0236 degrees

-----Run3-----
Magnetic dec (+E/W-) : 7.3685 degrees
Grid convergence (+E/W-) : 0.3452 degrees
GTotal az corr (+E/W-) : 7.0233 degrees

-----Run4-----
Magnetic dec (+E/W-) : 7.3682 degrees
Grid convergence (+E/W-) : 0.3452 degrees
GTotal az corr (+E/W-) : 7.0230 degrees

-----Run5-----
Magnetic dec (+E/W-) : 7.3676 degrees
Grid convergence (+E/W-) : 0.3452 degrees
GTotal az corr (+E/W-) : 7.0224 degrees

----------Survey Quality Index Description----------

7658.9	0.79	244.86	7657.33	36.79	-38.29	54.08	0.1	1 Other	9	0	0
7754.44	0.79	234.49	7752.86	37.48	-38.96	52.95	0.15	1 Other	9	0	0
7848.29	0.79	237.26	7846.7	38.24	-39.68	51.88	0.04	1 Other	9	0	0
7943.06	1.19	233.78	7941.45	39.21	-40.62	50.54	0.43	1 Other	9	0	0
8038.57	1.1	227.85	8036.95	40.45	-41.82	49.06	0.16	1 Other	9	0	0
8135.05	0.62	223.85	8133.41	41.47	-42.81	48.01	0.5	1 Other	9	0	0
8229.94	0.62	262.17	8228.3	41.94	-43.25	47.14	0.43	1 Other	9	0	0
8324.52	0.4	265.56	8322.88	42.06	-43.35	46.31	0.23	1 Other	9	0	0
8419.62	0.62	286.08	8417.97	41.96	-43.23	45.48	0.3	1 Other	9	0	0
8514.23	0.62	273.16	8512.58	41.82	-43.06	44.48	0.15	1 Other	9	0	0
8606.93	0.88	278.96	8605.27	41.72	-42.92	43.28	0.29	1 Other	9	0	0
8663	0.88	288.06	8661.33	41.54	-42.72	42.44	0.25	1 Other	9	0	0
8740	4.02	236.66	8738.26	42.92	-44.03	39.62	4.6	2 SlimPulse	0	0	0
8771	7.78	231.06	8769.09	44.9	-45.94	37.08	12.27	2 SlimPulse	2	0	0
8803	10.77	222.47	8800.67	48.57	-49.51	33.38	10.26	2 SlimPulse	0	0	0
8835	11.92	206.61	8832.05	53.83	-54.67	29.88	10.36	2 SlimPulse	0	0	0
8867	14.96	200.83	8863.17	60.73	-61.49	26.93	10.39	2 SlimPulse	0	0	0
8899	18.86	201.12	8893.78	69.51	-70.18	23.59	12.18	3 SlimPulse	2	0	0
8930	21.84	196.48	8922.84	79.8	-80.39	20.15	10.9	3 SlimPulse	0	0	0
8962	23.91	199.86	8952.33	91.71	-92.2	16.26	7.66	3 SlimPulse	0	0	0
8994	24.09	200.8	8981.56	104.04	-104.4	11.74	1.33	3 SlimPulse	2	0	0
9025	24.84	198.63	9009.78	116.23	-116.48	7.41	3.79	3 SlimPulse	2	0	0
9057	24.92	195.2	9038.81	129.21	-129.36	3.5	4.52	3 SlimPulse	0	0	0
9079	24.75	194.04	9058.78	138.21	-138.3	1.16	2.34	4 SlimPulse	0	0	0
9110	26.1	195.05	9086.77	151.18	-151.18	-2.18	4.58	4 SlimPulse	0	0	0
9142	27.48	197.97	9115.34	165.11	-165	-6.29	5.94	4 SlimPulse	0	0	0
9174	29.96	201.62	9143.4	179.71	-179.46	-11.51	9.5	4 SlimPulse	0	0	0
9206	33.87	204.55	9170.56	195.43	-195.01	-18.16	13.13	4 SlimPulse	2	0	0
9237	37.47	205.13	9195.74	212.04	-211.41	-25.76	11.68	4 SlimPulse	2	0	0
9269	42.91	206.41	9220.17	230.86	-229.99	-34.75	17.18	4 SlimPulse	2	0	0
9300	47.24	207.06	9242.06	250.72	-249.59	-44.62	14.06	4 SlimPulse	2	0	0
9332	50.19	206.59	9263.17	272.47	-271.04	-55.47	9.27	4 SlimPulse	2	0	0
9364	53.03	205.63	9283.04	295.29	-293.56	-66.5	9.18	4 SlimPulse	2	0	0
9396	56.41	204.71	9301.52	319.22	-317.21	-77.61	10.83	4 SlimPulse	2	0	0
9427	59.6	203.54	9317.94	343.51	-341.2	-88.35	10.78	4 SlimPulse	2	0	0
9459	64.37	201.73	9332.97	369.86	-367.27	-99.21	15.7	4 SlimPulse	2	0	0
9491	67.94	200.15	9345.9	397.47	-394.6	-109.66	12.06	4 SlimPulse	2	0	0
9523	70.82	198.02	9357.17	426.03	-422.9	-119.45	10.92	4 SlimPulse	2	0	0
9555	72.03	195.21	9367.37	455.32	-451.96	-128.12	9.17	4 SlimPulse	2	0	0
9587	74.35	193.11	9376.62	485.22	-481.66	-135.61	9.59	4 SlimPulse	2	0	0
9613	76.37	192.95	9383.19	509.87	-506.17	-141.28	7.77	5 SlimPulse	0	0	0
9644	79.11	192.18	9389.78	539.61	-535.73	-147.87	9.19	5 SlimPulse	0	0	0
9676	80.81	191.26	9395.35	570.62	-566.59	-154.27	6.02	5 SlimPulse	2	0	0
9708	81.79	190.56	9400.19	601.84	-597.65	-160.25	3.75	5 SlimPulse	0	0	0
9739	83.08	189.65	9404.27	632.23	-627.9	-165.64	5.07	5 SlimPulse	2	0	0
9834	86.97	187.07	9412.51	726.18	-721.51	-179.39	4.91	5 SlimPulse	2	0	0
9929	89.07	184.78	9415.79	820.84	-815.93	-189.19	3.27	5 SlimPulse	0	0	0
10024	88.93	181.38	9417.44	915.78	-910.77	-194.29	3.59	5 SlimPulse	0	0	0
10119	90.27	179.5	9418.1	1010.75	-1005.76	-195.02	2.43	5 SlimPulse	0	0	0
10214	90.58	178.41	9417.39	1105.65	-1100.74	-193.28	1.2	5 SlimPulse	2	0	0
10309	90.34	177.06	9416.62	1200.43	-1195.66	-189.53	1.43	5 SlimPulse	2	0	0
10404	90.34	176.48	9416.05	1295.09	-1290.5	-184.18	0.62	5 SlimPulse	2	0	0
10498	90.14	175.77	9415.65	1388.67	-1384.29	-177.82	0.78	5 SlimPulse	0	0	0
10594	90.93	176.25	9414.76	1484.21	-1480.05	-171.14	0.96	5 SlimPulse	0	0	0
10689	90.38	176.63	9413.68	1578.82	-1574.86	-165.24	0.7	5 SlimPulse	0	0	0
10784	89.97	175.79	9413.39	1673.4	-1669.65	-158.96	0.98	5 SlimPulse	0	0	0
10878	90.03	176.35	9413.39	1766.96	-1763.43	-152.51	0.61	5 SlimPulse	0	0	0
10973	95.03	184.48	9409.19	1861.74	-1858.22	-153.19	10.03	5 SlimPulse	0	0	0
11069	92.82	183.16	9402.62	1957.44	-1953.78	-159.56	2.68	5 SlimPulse	0	0	0
11164	91.65	182.59	9398.92	2052.34	-2048.59	-164.32	1.37	5 SlimPulse	0	0	0
11259	90.07	183.26	9397.49	2147.3	-2143.45	-169.17	1.81	5 SlimPulse	0	0	0
11354	89.86	182.41	9397.55	2242.27	-2238.33	-173.87	0.92	5 SlimPulse	2	0	0
11449	89.76	182.09	9397.86	2337.27	-2333.26	-177.6	0.35	5 SlimPulse	0	0	0
11544	89.66	180.57	9398.35	2432.26	-2428.23	-179.81	1.61	5 SlimPulse	0	0	0
11639	90.07	179.65	9398.57	2527.23	-2523.22	-179.99	1.05	5 SlimPulse	2	0	0
11734	90.31	179.14	9398.26	2622.16	-2618.22	-178.99	0.59	5 SlimPulse	2	0	0
11828	89.45	177.92	9398.46	2716.02	-2712.18	-176.59	1.59	5 SlimPulse	2	0	0
11923	89.45	177.1	9399.37	2810.78	-2807.09	-172.46	0.87	5 SlimPulse	0	0	0
12018	89.52	176.22	9400.22	2905.42	-2901.92	-166.92	0.93	5 SlimPulse	0	0	0
12113	89.38	176.12	9401.14	2999.99	-2996.71	-160.57	0.17	5 SlimPulse	0	0	0
12207	89.45	176.69	9402.1	3093.61	-3090.52	-154.68	0.6	5 SlimPulse	2	0	0
12302	89.55	178.51	9402.92	3188.37	-3185.43	-150.7	1.93	5 SlimPulse	0	0	0
12397	89.35	177.97	9403.84	3283.2	-3280.38	-147.79	0.61	5 SlimPulse	2	0	0
12493	89.86	180.24	9404.5	3379.11	-3376.36	-146.28	2.42	5 SlimPulse	2	0	0
12588	89.04	180.62	9405.41	3474.08	-3471.35	-147	0.96	5 SlimPulse	0	0	0
12683	89.42	180.47	9406.69	3569.06	-3566.33	-147.9	0.43	5 SlimPulse	0	0	0
12778	89.35	180.79	9407.72	3664.04	-3661.32	-148.95	0.35	5 SlimPulse	2	0	0
12873	90.07	180.29	9408.2	3759.02	-3756.32	-149.85	0.93	5 SlimPulse	2	0	0
12968	90.21	179.89	9407.97	3853.99	-3851.32	-149.99	0.44	5 SlimPulse	0	0	0
13063	90.17	178.95	9407.66	3948.92	-3946.31	-149.03	0.99	5 SlimPulse	2	0	0
13158	90.03	177.41	9407.49	4043.75	-4041.26	-146.01	1.63	5 SlimPulse	0	0	0
13253	90	177.57	9407.46	4138.51	-4136.17	-141.85	0.18	5 SlimPulse	2	0	0
13349	90	176.41	9407.46	4234.2	-4232.03	-136.82	1.21	5 SlimPulse	0	0	0
13443	89.9	176.27	9407.55	4327.8	-4325.84	-130.81	0.19	5 SlimPulse	0	0	0
13539	89.66	176.58	9407.92	4423.41	-4421.65	-124.83	0.41	5 SlimPulse	0	0	0
13633	90.72	178.55	9407.61	4517.18	-4515.56	-120.84	2.38	5 SlimPulse	2	0	0
13728	89.42	179.49	9407.5	4612.08	-4610.55	-119.21	1.7	5 SlimPulse	0	0	0
13794	89.42	179.49	9408.17	4678.03	-4676.54	-118.63	0.01	5 Other	9	0	7

0 : Long Survey passed all criteria 2 : Long Survey failed mag criteria
9 : Manual 28 : Tie-In Point

----------Survey Correction Index Description----------
0 : No Correction

----------Survey Description Index Description----------
0 : Not Flagged Survey 7 : Projection to Bit

========== Survey List ==========

MD (ft)	Incl (deg)	Azim (deg)	TVD (ft)	V Sec (ft)	N/-S (ft)	E/-W (ft)	DLS (deg /100ft)	Run	Tool	QI	CI	ID	
0	0	0	0	0	0	0	0	-	Other	28	0	0	
145.37	0.7	82.02	145.37	-0.15	0.12	0.88	0.48	1	Other	9	0	0	
236.49	1.01	62.49	236.48	-0.63	0.57	2.14	0.46	1	Other	9	0	0	
355.4	1.01	47.68	355.37	-1.87	1.76	3.85	0.22	1	Other	9	0	0	
473.36	1.01	64.77	473.31	-3.06	2.9	5.56	0.25	1	Other	9	0	0	
593.8	1.1	73.08	593.73	-3.9	3.69	7.62	0.15	1	Other	9	0	0	
742.23	1.32	93.07	742.13	-4.31	4.02	10.69	0.32	1	Other	9	0	0	
833.62	1.41	102.08	833.49	-4.08	3.72	12.84	0.25	1	Other	9	0	0	
924.7	1.41	104.58	924.54	-3.62	3.21	15.02	0.07	1	Other	9	0	0	
1016.08	1.8	100.67	1015.89	-3.14	2.66	17.52	0.44	1	Other	9	0	0	
1110.54	1.49	91.88	1110.31	-2.9	2.34	20.21	0.42	1	Other	9	0	0	
1204.01	1.49	8.87	1203.76	-4.1	3.51	21.61	2.11	1	Other	9	0	0	
1296.32	1.49	90.57	1296.04	-5.31	4.68	23	2.11	1	Other	9	0	0	
1387.79	1.71	88.59	1387.48	-5.4	4.7	25.55	0.25	1	Other	9	0	0	
1482.98	1.58	88.76	1482.63	-5.54	4.76	28.28	0.14	1	Other	9	0	0	
1578.1	1.71	92.68	1577.71	-5.58	4.73	31.01	0.18	1	Other	9	0	0	
1671.3	1.89	92.06	1670.86	-5.54	4.61	33.93	0.19	1	Other	9	0	0	
1766.98	1.89	95.36	1766.49	-5.42	4.4	37.08	0.11	1	Other	9	0	0	
1861.95	1.1	83.58	1861.43	-5.45	4.36	39.55	0.89	1	Other	9	0	0	
1957.71	0.62	82.79	1957.18	-5.65	4.53	40.97	0.5	1	Other	9	0	0	
2053.39	0.62	75.76	2052.85	-5.87	4.72	41.99	0.08	1	Other	9	0	0	
2148.09	0.62	82.96	2147.55	-6.09	4.91	42.99	0.08	1	Other	9	0	0	
2242.54	0.4	65.65	2241.99	-6.31	5.11	43.8	0.28	1	Other	9	0	0	
2337.56	0.4	61.17	2337.01	-6.62	5.4	44.4	0.03	1	Other	9	0	0	
2432.75	0.22	93.95	2432.2	-6.78	5.55	44.87	0.26	1	Other	9	0	0	
2528.51	0.22	14.45	2527.96	-6.96	5.71	45.1	0.29	1	Other	9	0	0	
2623.06	0.09	151.78	2622.51	-7.07	5.83	45.18	0.31	1	Other	9	0	0	
2718.32	0.31	170.15	2717.77	-6.75	5.51	45.26	0.24	1	Other	9	0	0	
2813.17	0.4	146.68	2812.62	-6.23	4.98	45.48	0.18	1	Other	9	0	0	
2909.25	0.22	183.47	2908.69	-5.77	4.51	45.66	0.27	1	Other	9	0	0	
3004.14	0.62	168.09	3003.58	-5.09	3.83	45.75	0.43	1	Other	9	0	0	
3099.72	0.48	161.67	3099.16	-4.21	2.94	45.98	0.16	1	Other	9	0	0	
3194.07	0.62	165.67	3193.5	-3.35	2.07	46.23	0.15	1	Other	9	0	0	
3289.02	0.7	162.46	3288.45	-2.3	1.02	46.54	0.09	1	Other	9	0	0	
3384.23	0.7	149.85	3383.65	-1.26	-0.04	47	0.16	1	Other	9	0	0	
3479.05	0.7	121.86	3478.46	-0.47	-0.84	47.79	0.36	1	Other	9	0	0	
3574.89	0.7	122.78	3574.3	0.12	-1.47	48.78	0.01	1	Other	9	0	0	
3670.13	0.7	124.36	3669.53	0.74	-2.11	49.75	0.02	1	Other	9	0	0	
3765.4	0.48	135.79	3764.79	1.33	-2.73	50.5	0.26	1	Other	9	0	0	
3859.85	0.88	118.95	3859.24	1.94	-3.36	51.41	0.47	1	Other	9	0	0	
3952.57	1.01	119.66	3951.94	2.65	-4.11	52.75	0.14	1	Other	9	0	0	
4048.5	1.1	122.95	4047.86	3.53	-5.03	54.26	0.11	1	Other	9	0	0	
4141.8	1.32	119.79	4141.14	4.51	-6.05	55.94	0.25	1	Other	9	0	0	
4238	1.58	120.05	4237.31	5.66	-7.27	58.05	0.27	1	Other	9	0	0	
4333.71	1.71	120.05	4332.98	6.97	-8.64	60.43	0.14	1	Other	9	0	0	
4426.15	1.71	120.05	4425.38	8.29	-10.02	62.82	0	1	Other	9	0	0	
4507	2.11	121.59	4506.18	9.61	-11.41	65.13	0.5	1	Other	9	0	0	
4601.09	2.2	122.95	4600.2	11.41	-13.3	68.12	0.11	1	Other	9	0	0	
4696.15	2.29	157.36	4695.2	14.09	-16.04	70.38	1.4	1	Other	9	0	0	
4790.85	3.3	190.28	4789.79	18.51	-20.47	70.62	1.96	1	Other	9	0	0	
4907	3.78	175.78	4905.72	25.63	-27.58	70.31	0.87	1	Other	9	0	0	
5002.02	2.5	174.85	5000.59	30.8	-32.77	70.72	1.35	1	Other	9	0	0	
5097.23	0.79	205.66	5095.76	33.46	-35.43	70.63	1.96	1	Other	9	0	0	
5191.9	0.4	226.97	5190.43	34.29	-36.24	70.1	0.47	1	Other	9	0	0	
5285.24	0.31	229.96	5283.76	34.69	-36.62	69.67	0.1	1	Other	9	0	0	
5380.68	0.31	166.68	5379.2	35.11	-37.04	69.53	0.34	1	Other	9	0	0	
5476.46	0.09	186.19	5474.98	35.44	-37.37	69.58	0.24	1	Other	9	0	0	
5570.99	0.4	209.17	5569.51	35.8	-37.73	69.41	0.34	1	Other	9	0	0	
5666.5	0.22	229.87	5665.02	36.22	-38.14	69.11	0.22	1	Other	9	0	0	
5760.42	0.4	209.57	5758.94	36.63	-38.54	68.81	0.22	1	Other	9	0	0	
5855.51	0.22	174.99	5854.03	37.1	-39.01	68.66	0.26	1	Other	9	0	0	
5950.92	0.22	239.76	5949.44	37.38	-39.29	68.52	0.25	1	Other	9	0	0	
6046.95	0	7.03	6045.47	37.48	-39.38	68.36	0.23	1	Other	9	0	0	
6141.48	0.09	328.27	6140	37.42	-39.32	68.32	0.1	1	Other	9	0	0	
6237.09	0.22	264.15	6235.61	37.38	-39.27	68.1	0.21	1	Other	9	0	0	
6332.95	0.31	41.08	6331.47	37.2	-39.09	68.09	0.52	1	Other	9	0	0	
6427.79	0.48	257.07	6426.31	37.1	-38.99	67.87	0.79	1	Other	9	0	0	
6520.37	0.4	277.77	6518.88	37.17	-39.03	67.17	0.19	1	Other	9	0	0	
6617.75	0.31	311.65	6616.26	36.96	-38.81	66.64	0.23	1	Other	9	0	0	
6712.71	0.48	288.28	6711.22	36.68	-38.52	66.07	0.24	1	Other	9	0	0	
6807.36	0.62	292.67	6805.86	36.38	-38.19	65.22	0.15	1	Other	9	0	0	
6902.07	0.7	274.17	6900.57	36.17	-37.95	64.17	0.24	1	Other	9	0	0	
6997.06	0.79	285.86	6995.55	35.98	-37.73	62.96	0.19	1	Other	9	0	0	
7091.59	0.79	284.58	7090.07	35.68	-37.39	61.7	0.02	1	Other	9	0	0	
7186.29	0.79	267.49	7184.76	35.58	-37.26	60.42	0.25	1	Other	9	0	0	
7281.16	0.7	273.77	7279.62	35.6	-37.25	59.19	0.13	1	Other	9	0	0	
7374.39	0.88	265.07	7372.85	35.66	-37.27	57.91	0.23	1	Other	9	0	0	
7468.84	0.88	260.68	7467.28	35.88	-37.45	56.47	0.07	1	Other	9	0	0	
7563.46	0.7	247.45	7561.9	36.25	-37.79	55.22	0.27	1	Other	9	0	0	

7658.9	0.79	244.86	7657.33	36.79	-38.29	54.08	0.1	1 Other	9	0	0
7754.44	0.79	234.49	7752.86	37.48	-38.96	52.95	0.15	1 Other	9	0	0
7848.29	0.79	237.26	7846.7	38.24	-39.68	51.88	0.04	1 Other	9	0	0
7943.06	1.19	233.78	7941.45	39.21	-40.62	50.54	0.43	1 Other	9	0	0
8038.57	1.1	227.85	8036.95	40.45	-41.82	49.06	0.16	1 Other	9	0	0
8135.05	0.62	223.85	8133.41	41.47	-42.81	48.01	0.5	1 Other	9	0	0
8229.94	0.62	262.17	8228.3	41.94	-43.25	47.14	0.43	1 Other	9	0	0
8324.52	0.4	265.56	8322.88	42.06	-43.35	46.31	0.23	1 Other	9	0	0
8419.62	0.62	286.08	8417.97	41.96	-43.23	45.48	0.3	1 Other	9	0	0
8514.23	0.62	273.16	8512.58	41.82	-43.06	44.48	0.15	1 Other	9	0	0
8606.93	0.88	278.96	8605.27	41.72	-42.92	43.28	0.29	1 Other	9	0	0
8663	0.88	288.06	8661.33	41.54	-42.72	42.44	0.25	1 Other	9	0	0
8740	4.02	236.66	8738.26	42.92	-44.03	39.62	4.6	2 SlimPulse	0	0	0
8771	7.78	231.06	8769.09	44.9	-45.94	37.08	12.27	2 SlimPulse	2	0	0
8803	10.77	222.47	8800.67	48.57	-49.51	33.38	10.26	2 SlimPulse	0	0	0
8835	11.92	206.61	8832.05	53.83	-54.67	29.88	10.36	2 SlimPulse	0	0	0
8867	14.96	200.83	8863.17	60.73	-61.49	26.93	10.39	2 SlimPulse	0	0	0
8899	18.86	201.12	8893.78	69.51	-70.18	23.59	12.18	3 SlimPulse	2	0	0
8930	21.84	196.48	8922.84	79.8	-80.39	20.15	10.9	3 SlimPulse	0	0	0
8962	23.91	199.86	8952.33	91.71	-92.2	16.26	7.66	3 SlimPulse	0	0	0
8994	24.09	200.8	8981.56	104.04	-104.4	11.74	1.33	3 SlimPulse	2	0	0
9025	24.84	198.63	9009.78	116.23	-116.48	7.41	3.79	3 SlimPulse	2	0	0
9057	24.92	195.2	9038.81	129.21	-129.36	3.5	4.52	3 SlimPulse	0	0	0
9079	24.75	194.04	9058.78	138.21	-138.3	1.16	2.34	4 SlimPulse	0	0	0
9110	26.1	195.05	9086.77	151.18	-151.18	-2.18	4.58	4 SlimPulse	0	0	0
9142	27.48	197.97	9115.34	165.11	-165	-6.29	5.94	4 SlimPulse	0	0	0
9174	29.96	201.62	9143.4	179.71	-179.46	-11.51	9.5	4 SlimPulse	0	0	0
9206	33.87	204.55	9170.56	195.43	-195.01	-18.16	13.13	4 SlimPulse	2	0	0
9237	37.47	205.13	9195.74	212.04	-211.41	-25.76	11.68	4 SlimPulse	2	0	0
9269	42.91	206.41	9220.17	230.86	-229.99	-34.75	17.18	4 SlimPulse	2	0	0
9300	47.24	207.06	9242.06	250.72	-249.59	-44.62	14.06	4 SlimPulse	2	0	0
9332	50.19	206.59	9263.17	272.47	-271.04	-55.47	9.27	4 SlimPulse	2	0	0
9364	53.03	205.63	9283.04	295.29	-293.56	-66.5	9.18	4 SlimPulse	2	0	0
9396	56.41	204.71	9301.52	319.22	-317.21	-77.61	10.83	4 SlimPulse	2	0	0
9427	59.6	203.54	9317.94	343.51	-341.2	-88.35	10.78	4 SlimPulse	2	0	0
9459	64.37	201.73	9332.97	369.86	-367.27	-99.21	15.7	4 SlimPulse	2	0	0
9491	67.94	200.15	9345.9	397.47	-394.6	-109.66	12.06	4 SlimPulse	2	0	0
9523	70.82	198.02	9357.17	426.03	-422.9	-119.45	10.92	4 SlimPulse	2	0	0
9555	72.03	195.21	9367.37	455.32	-451.96	-128.12	9.17	4 SlimPulse	2	0	0
9587	74.35	193.11	9376.62	485.22	-481.66	-135.61	9.59	4 SlimPulse	2	0	0
9613	76.37	192.95	9383.19	509.87	-506.17	-141.28	7.77	5 SlimPulse	0	0	0
9644	79.11	192.18	9389.78	539.61	-535.73	-147.87	9.19	5 SlimPulse	0	0	0
9676	80.81	191.26	9395.35	570.62	-566.59	-154.27	6.02	5 SlimPulse	2	0	0
9708	81.79	190.56	9400.19	601.84	-597.65	-160.25	3.75	5 SlimPulse	0	0	0
9739	83.08	189.65	9404.27	632.23	-627.9	-165.64	5.07	5 SlimPulse	2	0	0
9834	86.97	187.07	9412.51	726.18	-721.51	-179.39	4.91	5 SlimPulse	2	0	0
9929	89.07	184.78	9415.79	820.84	-815.93	-189.19	3.27	5 SlimPulse	0	0	0
10024	88.93	181.38	9417.44	915.78	-910.77	-194.29	3.59	5 SlimPulse	0	0	0
10119	90.27	179.5	9418.1	1010.75	-1005.76	-195.02	2.43	5 SlimPulse	0	0	0
10214	90.58	178.41	9417.39	1105.65	-1100.74	-193.28	1.2	5 SlimPulse	2	0	0
10309	90.34	177.06	9416.62	1200.43	-1195.66	-189.53	1.43	5 SlimPulse	2	0	0
10404	90.34	176.48	9416.05	1295.09	-1290.5	-184.18	0.62	5 SlimPulse	2	0	0
10498	90.14	175.77	9415.65	1388.67	-1384.29	-177.82	0.78	5 SlimPulse	0	0	0
10594	90.93	176.25	9414.76	1484.21	-1480.05	-171.14	0.96	5 SlimPulse	0	0	0
10689	90.38	176.63	9413.68	1578.82	-1574.86	-165.24	0.7	5 SlimPulse	0	0	0
10784	89.97	175.79	9413.39	1673.4	-1669.65	-158.96	0.98	5 SlimPulse	0	0	0
10878	90.03	176.35	9413.39	1766.96	-1763.43	-152.51	0.61	5 SlimPulse	0	0	0
10973	95.03	184.48	9409.19	1861.74	-1858.22	-153.19	10.03	5 SlimPulse	0	0	0
11069	92.82	183.16	9402.62	1957.44	-1953.78	-159.56	2.68	5 SlimPulse	0	0	0
11164	91.65	182.59	9398.92	2052.34	-2048.59	-164.32	1.37	5 SlimPulse	0	0	0
11259	90.07	183.26	9397.49	2147.3	-2143.45	-169.17	1.81	5 SlimPulse	0	0	0
11354	89.86	182.41	9397.55	2242.27	-2238.33	-173.87	0.92	5 SlimPulse	2	0	0
11449	89.76	182.09	9397.86	2337.27	-2333.26	-177.6	0.35	5 SlimPulse	0	0	0
11544	89.66	180.57	9398.35	2432.26	-2428.23	-179.81	1.61	5 SlimPulse	0	0	0
11639	90.07	179.65	9398.57	2527.23	-2523.22	-179.99	1.05	5 SlimPulse	2	0	0
11734	90.31	179.14	9398.26	2622.16	-2618.22	-178.99	0.59	5 SlimPulse	2	0	0
11828	89.45	177.92	9398.46	2716.02	-2712.18	-176.59	1.59	5 SlimPulse	2	0	0
11923	89.45	177.1	9399.37	2810.78	-2807.09	-172.46	0.87	5 SlimPulse	0	0	0
12018	89.52	176.22	9400.22	2905.42	-2901.92	-166.92	0.93	5 SlimPulse	0	0	0
12113	89.38	176.12	9401.14	2999.99	-2996.71	-160.57	0.17	5 SlimPulse	0	0	0
12207	89.45	176.69	9402.1	3093.61	-3090.52	-154.68	0.6	5 SlimPulse	2	0	0
12302	89.55	178.51	9402.92	3188.37	-3185.43	-150.7	1.93	5 SlimPulse	0	0	0
12397	89.35	177.97	9403.84	3283.2	-3280.38	-147.79	0.61	5 SlimPulse	2	0	0
12493	89.86	180.24	9404.5	3379.11	-3376.36	-146.28	2.42	5 SlimPulse	2	0	0
12588	89.04	180.62	9405.41	3474.08	-3471.35	-147	0.96	5 SlimPulse	0	0	0
12683	89.42	180.47	9406.69	3569.06	-3566.33	-147.9	0.43	5 SlimPulse	0	0	0
12778	89.35	180.79	9407.72	3664.04	-3661.32	-148.95	0.35	5 SlimPulse	2	0	0
12873	90.07	180.29	9408.2	3759.02	-3756.32	-149.85	0.93	5 SlimPulse	2	0	0
12968	90.21	179.89	9407.97	3853.99	-3851.32	-149.99	0.44	5 SlimPulse	0	0	0
13063	90.17	178.95	9407.66	3948.92	-3946.31	-149.03	0.99	5 SlimPulse	2	0	0
13158	90.03	177.41	9407.49	4043.75	-4041.26	-146.01	1.63	5 SlimPulse	0	0	0
13253	90	177.57	9407.46	4138.51	-4136.17	-141.85	0.18	5 SlimPulse	2	0	0
13349	90	176.41	9407.46	4234.2	-4232.03	-136.82	1.21	5 SlimPulse	0	0	0
13443	89.9	176.27	9407.55	4327.8	-4325.84	-130.81	0.19	5 SlimPulse	0	0	0
13539	89.66	176.58	9407.92	4423.41	-4421.65	-124.83	0.41	5 SlimPulse	0	0	0
13633	90.72	178.55	9407.61	4517.18	-4515.56	-120.84	2.38	5 SlimPulse	2	0	0
13728	89.42	179.49	9407.5	4612.08	-4610.55	-119.21	1.7	5 SlimPulse	0	0	0
13794	89.42	179.49	9408.17	4678.03	-4676.54	-118.63	0.01	5 Other	9	0	7

CIMAREX

Scandrill Eagle

Cimarex Energy

FINAL PvA

PATHFINDER
A Schlumberger Company

Borehole:	Well:	Field:	Structure:
Original Borehole	Perry 22 Federal 1H	Lea County, NM	Scandrill Eagle

Gravity & Magnetic Parameters						Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model:	BGGM 2014	Dip:	59.425°	Date:	03-Aug-2014	Lat:	N 32 33 53.89	Northing:	570175.70US	Grid Conv:	0.4267°	Slot:	Perry 22 Federal 1H	TVD Ref:	RKB(3840ft above MSL)
Mag Dec:	7.371°	FS:	48474.297nT	Gravity FS:	998.03mgn (9.80665 Based)	Lon:	W 103 33 36.19	Easting:	785565.38US	Scale Fact:	0.9990774	Plan:	XEM+MWD Survey 0ft - 15368ft MD		

Critical Points

Comments	Survey MD	Inc	Azim	TVD	SSTVD	VS	NS	EW	Longitude		Latitude		Easting	Northing	DLS	Tool Face
SHL	0.00	0.00	183.61	0.00	-3680.00	0.00	0.00	0.00	W 103 32 26.120	N	32 33 53.887		785563.30	570175.70		45.56
Tie-In	13090.00	90.28	185.35	11052.62	7372.62	2340.78	-2334.27	-176.89	W 103 32 28.390	N	32 33 30.804		785386.41	567841.48	0.54	-105.88
Hold	13223.46	89.55	182.78	11052.63	7372.63	2474.23	-2467.39	-186.36	W 103 32 28.512	N	32 33 29.487		785376.95	567708.37	2.00	-41.86
PBHL	15368.51	89.55	182.78	11070.00	7390.00	4638.98	-4629.81	-291.51	W 103 32 29.929	N	32 33	8.099	785271.80	565546.00	0.00