



CACTUS DRILLING COMPANY, L.L.C.

REPORT OF PROOF OF APPARENT DEVIATION
NEW MEXICO

OPERATOR CIMAREX CO OF COLORADO

600 N. MARIENFELD ST
MIDLAND, TX 79701

FIELD NAME

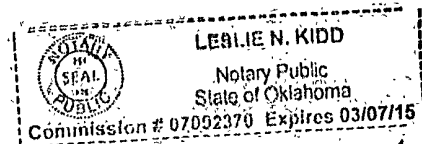
15-36601

COUNTY/PARISH EDDY

WELL NAME & NO. HAYDUKE 34 FED 1H

LEGAL SEC 34-25S-26E

MEASURED DEPTH (FT)	COURSE LENGTH (HUNDREDS OF FT)	ANGLE OF INCLINATION (DEGREES)	DISPLACEMENT PER HUNDRED FT (SINE OF ANGLE X 100)	COURSE DISPLACEMENT (FEET)	ACCUMULATIVE DISPLACEMENT (FEET)	REMARKS
200	2.00	5/7	1.2392	2.48	2.48	
380	1.80	2	3.4899	6.28	8.76	
515	1.35	1	1.7452	2.36	11.12	
760	2.45	1	1.7452	4.28	15.39	
1090	3.30	1	1.7452	5.76	21.15	
1382	2.92	1	1.7452	5.10	26.25	
1664	2.82	1	1.7452	4.92	31.17	
2105	4.41	1	1.7452	7.70	38.87	
2388	2.83	1	1.7452	4.94	43.80	
2671	2.83	1	1.7452	4.94	48.74	
2909	2.38	1	1.7452	4.15	52.90	
3192	2.83	1	1.7452	4.94	57.84	
3519	3.27	1	1.7452	5.71	63.54	
3802	2.83	1	1.7452	4.94	68.48	
4080	2.78	1	1.7452	4.85	73.33	
4364	2.84	1	1.7452	4.96	78.29	
4662	2.98	1	1.7452	5.20	83.49	
4943	2.81	1	1.7452	4.90	88.40	
5211	2.68	1	1.7452	4.68	93.07	
5489	2.78	1	1.7452	4.85	97.92	
5776	2.87	1	1.7452	5.01	102.93	
6070	2.94	1	1.7452	5.13	108.06	
6351	2.81	1	1.7452	4.90	112.97	
6621	2.70	1	1.7452	4.71	117.68	
6906	2.85	1	1.7452	4.97	122.65	
7205	2.99	1	1.7452	5.22	127.87	
7477	2.72	1	1.7452	4.75	132.62	
7766	2.89	1	1.7452	5.04	137.66	
8065	2.99	1	1.7452	5.22	142.88	
8351	2.86	1	1.7452	4.99	147.87	
8624	2.73	1	1.7452	4.76	152.64	
8906	2.82	1	1.7452	4.92	157.56	
9194	2.88	1	1.7452	5.03	162.59	
9761	5.67	1	1.7452	9.90	172.48	



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8/25/2011



INTEQ

End of Well Report

Cimarex Energy Co.

Eddy County, NM

Hayduke 34 Fed No. 1H

Cactus 122

Well Specifications

Well Name: Hayduke 34 Fed No. 1H
Start Date: 1/26/2011
Client: Cimarex Energy Co.
Rig Name: Cactus 122
County: Eddy County, NM
Field: (Hayduke) Section 34, T25S, R26E

Well Location:

NAD83 / TM New Mexico State Planes, Eastern Zone (3001)

Grid Coordinates

Easting: 559617.19'
Northing: 396971.50'

Geographical Coordinates

Latitude: 32°05'28.825"N
Longitude: 104°16'27.501"W

RT: 3,371' above M.S.L.

Date TD Reached: 2/12/2011

Final Depth MD: 13,433'

Final Depth TVD: 9,522.88'



Cimarex Energy Co.

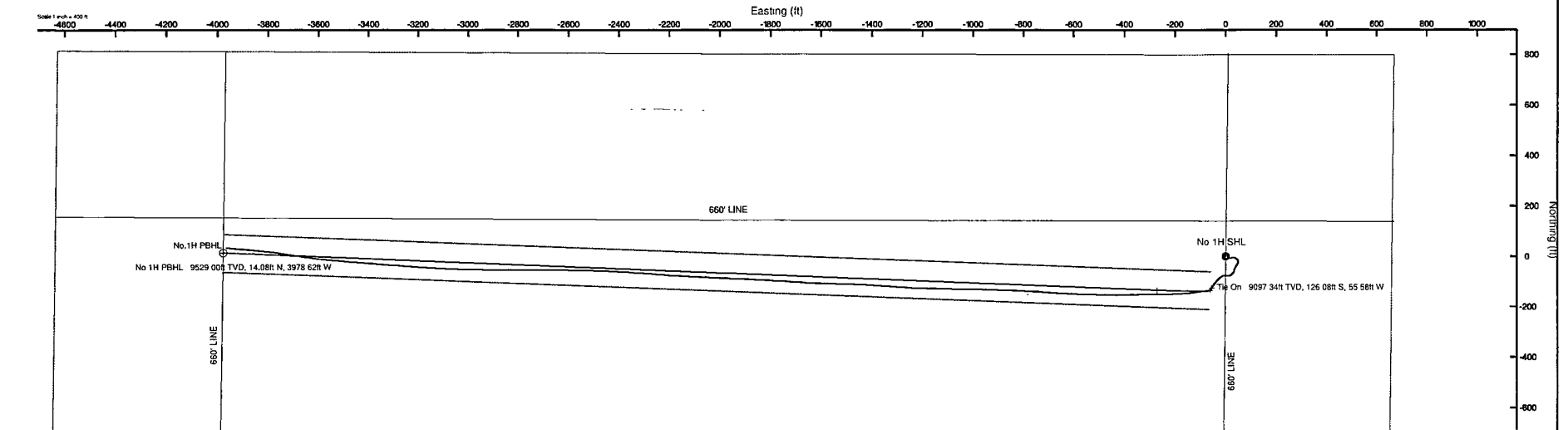
Location Eddy County, NM
Field (Hayduke) Section 34, T25S, R26E
Facility Hayduke 34 Federal No. 1H

Slot No 1H SHL
Well No 1H
Wellbore No 1H PWB

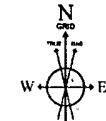
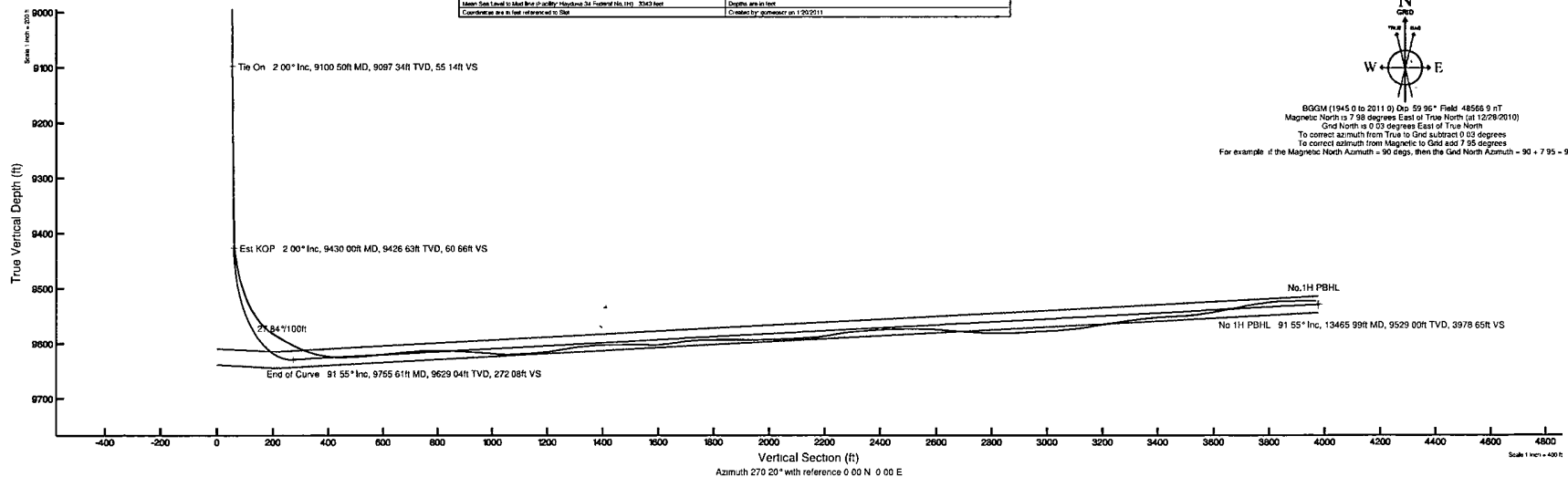


Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	9100.50	2.000	208.880	9097.34	-126.08	-55.58	0.00	55.14
Est KOP	9430.00	2.000	208.880	9426.63	-136.15	-61.14	0.00	60.66
End of Curve	9755.61	91.545	272.291	9629.04	-134.19	-272.55	27.84	272.08
No 1H PBHL	13465.99	91.545	272.291	9529.00	14.08	-3978.62	0.00	3978.65



File reference wellbore is Plan 01	Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (NAD83) U.S. feet
True vertical depths are referenced to the No 1H SHL (RTT)	North: Reference: Grid north
Measured depths are referenced to the No 1H SHL (RTT)	Scale: True distance
Log on No 1H (214-1011) is Meter Scale Log, 2011 Log	Depth: as in feet
Master Data Level is based on the Hayduke 34 Federal No. 1H 3143 Log	Created by: geosystems on 1/20/2011
Coordinates are in feet referenced to DAT	



BGGM (1945.0 to 2011.0) Dip 59.95° Field 48566.0 nT
Magnetic North is 7.58 degrees East of True North (at 12/28/2010)
Grid North is 0.03 degrees East of True North
To correct azimuth from True to Grid subtract 0.03 degrees
To correct azimuth from Magnetic to Grid add 7.55 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.55 = 97.55



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Hayduke) Section 34, T25S, R26E	Wellbore	No.1H AWB
Facility	Hayduke 34 Federal No.1H		

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Calhphik
Scale	0.999909	Report Generated	2/18/2011 at 8:07:25 AM
Convergence at slot	0.03° East	Database/Source file	WA_Midland/No.1H_AWB_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	559617.19	396971.50	32°05'28.825"N	104°16'27.501"W
Facility Reference Pt			559617.19	396971.50	32°05'28.825"N	104°16'27.501"W
Field Reference Pt			559617.80	396971.00	32°05'28.821"N	104°16'27.494"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No.1H SHL (RT) to Facility Vertical Datum	28.00ft
Horizontal Reference Pt	Slot	Rig on No.1H SHL (RT) to Mean Sea Level	3371.00ft
Vertical Reference Pt	Rig on No.1H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No.1H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	270.20°



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Facility	Hayduke 34 Federal No.1H		

WELLPATH DATA (165 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	154.620	0.00	0.00	0.00	0.00	559617.19	396971.50	32°05'28.825"N	104°16'27.501"W	0.00	
100.00	0.360	154.620	100.00	-0.14	-0.28	0.13	559617.33	396971.22	32°05'28.823"N	104°16'27.499"W	0.36	
200.00	0.360	167.180	200.00	-0.34	-0.87	0.34	559617.53	396970.63	32°05'28.817"N	104°16'27.497"W	0.08	
300.00	0.380	171.560	300.00	-0.46	-1.51	0.46	559617.65	396969.99	32°05'28.811"N	104°16'27.495"W	0.03	
400.00	0.420	156.820	399.99	-0.66	-2.17	-0.65	559617.84	396969.33	32°05'28.804"N	104°16'27.493"W	0.11	
500.00	0.820	117.880	499.99	-1.44	-2.84	1.43	559618.62	396968.66	32°05'28.797"N	104°16'27.484"W	0.56	
600.00	1.230	103.150	599.97	-3.12	-3.42	3.10	559620.30	396968.08	32°05'28.792"N	104°16'27.465"W	0.48	
700.00	1.280	101.600	699.95	-5.26	-3.89	5.24	559622.44	396967.61	32°05'28.787"N	104°16'27.440"W	0.06	
800.00	1.100	102.900	799.93	-7.29	-4.33	7.27	559624.47	396967.17	32°05'28.783"N	104°16'27.416"W	0.18	
900.00	0.490	136.900	899.92	-8.52	-4.86	8.50	559625.69	396966.64	32°05'28.777"N	104°16'27.402"W	0.75	
1000.00	0.330	178.370	999.91	-8.82	-5.46	8.80	559625.99	396966.04	32°05'28.771"N	104°16'27.398"W	0.33	
1100.00	0.510	108.590	1099.91	-9.25	-5.89	9.23	559626.42	396965.61	32°05'28.767"N	104°16'27.393"W	0.50	
1200.00	1.090	96.030	1199.90	-10.62	-6.13	10.60	559627.79	396965.37	32°05'28.765"N	104°16'27.377"W	0.60	
1300.00	1.290	92.070	1299.88	-12.69	-6.27	12.67	559629.86	396965.23	32°05'28.763"N	104°16'27.353"W	0.22	
1400.00	1.820	84.870	1399.84	-15.40	-6.17	15.38	559632.57	396965.33	32°05'28.764"N	104°16'27.322"W	-0.56	
1500.00	2.390	83.990	1499.77	-19.05	-5.81	19.03	559636.22	396965.69	32°05'28.768"N	104°16'27.279"W	0.57	
1600.00	2.900	82.250	1599.67	-23.63	-5.25	23.61	559640.80	396966.25	32°05'28.773"N	104°16'27.226"W	0.52	
1700.00	2.780	86.830	1699.55	-28.56	-4.77	28.54	559645.73	396966.73	32°05'28.778"N	104°16'27.169"W	0.26	
1800.00	1.780	96.120	1799.47	-32.52	-4.81	32.51	559649.70	396966.70	32°05'28.778"N	104°16'27.123"W	1.06	
1900.00	1.390	116.900	1899.43	-35.15	-5.52	35.13	559652.32	396965.98	32°05'28.771"N	104°16'27.092"W	0.69	
2000.00	1.360	119.970	1999.40	-37.27	-6.66	37.24	559654.43	396964.84	32°05'28.759"N	104°16'27.068"W	0.08	
2100.00	1.340	121.650	2099.37	-39.29	-7.87	39.27	559656.45	396963.63	32°05'28.747"N	104°16'27.044"W	0.04	
2200.00	1.170	125.250	2199.35	-41.13	-9.07	41.09	559658.28	396962.43	32°05'28.736"N	104°16'27.023"W	0.19	
2300.00	1.140	125.630	2299.33	-42.77	-10.24	42.74	559659.92	396961.26	32°05'28.724"N	104°16'27.004"W	0.03	
2400.00	1.180	132.350	2399.31	-44.35	-11.51	44.31	559661.49	396959.99	32°05'28.711"N	104°16'26.986"W	-0.14	
2500.00	1.150	140.560	2499.29	-45.75	-12.98	45.70	559662.89	396958.52	32°05'28.697"N	104°16'26.969"W	0.17	
2600.00	1.120	144.270	2599.27	-46.96	-14.55	46.91	559664.10	396956.95	32°05'28.681"N	104°16'26.955"W	0.08	
2700.00	0.950	151.840	2699.25	-47.93	-16.07	47.87	559665.06	396955.43	32°05'28.666"N	104°16'26.944"W	0.22	
2800.00	0.900	166.110	2799.24	-48.52	-17.57	48.45	559665.64	396953.94	32°05'28.651"N	104°16'26.938"W	0.24	
2900.00	0.840	177.530	2899.23	-48.74	-19.06	48.67	559665.86	396952.44	32°05'28.637"N	104°16'26.935"W	0.18	



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Hayduke) Section 34, T25S, R26E	Wellbore	No.1H AWB
Facility	Hayduke 34 Federal No.1H		

WELLPATH DATA (165 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
3000.00	0.820	182.620	2999.21	-48.75	-20.51	48.67	559665.86	396950.99	32°05'28.622"N	104°16'26.935"W	0.08	
3100.00	0.880	187.160	3099.20	-48.62	-21.99	48.55	559665.73	396949.52	32°05'28.608"N	104°16'26.936"W	0.09	
3200.00	0.920	197.500	3199.19	-48.29	-23.51	48.21	559665.40	396947.99	32°05'28.593"N	104°16'26.940"W	0.17	
3300.00	0.960	204.640	3299.18	-47.71	-25.04	47.62	559664.80	396946.46	32°05'28.577"N	104°16'26.947"W	0.12	
3400.00	1.000	204.400	3399.16	-47.00	-26.60	46.91	559664.10	396944.91	32°05'28.562"N	104°16'26.956"W	0.04	
3500.00	1.040	204.640	3499.15	-46.27	-28.22	46.17	559663.36	396943.29	32°05'28.546"N	104°16'26.964"W	0.04	
3600.00	1.040	208.280	3599.13	-45.47	-29.84	45.36	559662.55	396941.66	32°05'28.530"N	104°16'26.974"W	0.07	
3700.00	1.010	209.740	3699.12	-44.60	-31.40	44.49	559661.68	396940.10	32°05'28.514"N	104°16'26.984"W	0.04	
3800.00	1.090	209.230	3799.10	-43.71	-33.00	43.59	559660.78	396938.50	32°05'28.499"N	104°16'26.994"W	0.08	
3900.00	1.140	209.020	3899.08	-42.77	-34.70	42.64	559659.83	396936.80	32°05'28.482"N	104°16'27.005"W	0.05	
4000.00	1.100	209.270	3999.06	-41.82	-36.41	41.69	559658.88	396935.10	32°05'28.465"N	104°16'27.016"W	0.04	
4100.00	1.160	207.460	4099.04	-40.89	-38.14	40.76	559657.94	396933.36	32°05'28.448"N	104°16'27.027"W	0.07	
4200.00	1.210	208.160	4199.02	-39.93	-39.97	39.79	559656.98	396931.53	32°05'28.430"N	104°16'27.038"W	0.05	
4300.00	1.320	210.860	4299.00	-38.85	-41.89	38.70	559655.89	396929.61	32°05'28.411"N	104°16'27.051"W	0.13	
4400.00	1.330	212.440	4398.97	-37.64	-43.86	37.49	559654.68	396927.65	32°05'28.391"N	104°16'27.065"W	0.04	
4500.00	1.320	213.070	4498.94	-36.40	-45.80	36.24	559653.43	396925.70	32°05'28.372"N	104°16'27.080"W	0.02	
4600.00	1.140	207.040	4598.92	-35.33	-47.65	35.16	559652.35	396923.85	32°05'28.354"N	104°16'27.092"W	0.22	
4700.00	1.190	204.050	4698.90	-34.46	-49.49	34.28	559651.47	396922.02	32°05'28.336"N	104°16'27.102"W	0.08	
4800.00	1.200	193.310	4798.88	-33.80	-51.46	33.62	559650.81	396920.05	32°05'28.316"N	104°16'27.110"W	0.22	
4900.00	1.250	193.030	4898.85	-33.32	-53.54	33.13	559650.32	396917.97	32°05'28.296"N	104°16'27.116"W	0.05	
5000.00	1.280	183.700	4998.83	-33.01	-55.72	32.81	559650.00	396915.79	32°05'28.274"N	104°16'27.120"W	0.21	
5100.00	1.230	185.650	5098.81	-32.84	-57.90	32.63	559649.82	396913.61	32°05'28.252"N	104°16'27.122"W	0.07	
5200.00	1.170	191.090	5198.78	-32.54	-59.97	32.33	559649.52	396911.54	32°05'28.232"N	104°16'27.125"W	0.13	
5300.00	1.310	210.290	5298.76	-31.78	-61.96	31.56	559648.75	396909.55	32°05'28.212"N	104°16'27.134"W	0.44	
5400.00	1.100	218.540	5398.74	-30.61	-63.69	30.39	559647.57	396907.81	32°05'28.195"N	104°16'27.148"W	0.27	
5500.00	0.640	214.460	5498.73	-29.70	-64.91	29.47	559646.66	396906.60	32°05'28.183"N	104°16'27.158"W	0.46	
5600.00	0.680	213.290	5598.72	-29.06	-65.86	28.83	559646.02	396905.64	32°05'28.174"N	104°16'27.166"W	0.04	
5700.00	1.010	230.040	5698.71	-28.06	-66.92	27.83	559645.02	396904.58	32°05'28.163"N	104°16'27.178"W	0.41	
5800.00	1.310	235.820	5798.69	-26.45	-68.13	26.21	559643.40	396903.37	32°05'28.151"N	104°16'27.196"W	0.32	
5900.00	2.730	225.050	5898.62	-23.82	-70.46	23.58	559640.77	396901.05	32°05'28.128"N	104°16'27.227"W	1.46	



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Hayduke) Section 34, T25S, R26E	Wellbore	No.1H AWB
Facility	Hayduke 34 Federal No.1H		

WELLPATH DATA (165 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
6000.00	2.630	232.650	5998.51	-20.33	-73.53	20.07	559637.26	396897.97	32°05'28.098"N	104°16'27.268"W	0.37	
6100.00	2.250	256.570	6098.43	-16.60	-75.38	16.33	559633.52	396896.13	32°05'28.079"N	104°16'27.311"W	1.08	
6200.00	2.020	252.820	6198.36	-13.01	-76.36	12.74	559629.93	396895.15	32°05'28.070"N	104°16'27.353"W	0.27	
6300.00	2.310	263.470	6298.29	-9.33	-77.11	9.05	559626.25	396894.40	32°05'28.062"N	104°16'27.396"W	0.49	
6400.00	2.330	278.970	6398.21	-5.32	-77.02	5.04	559622.24	396894.49	32°05'28.063"N	104°16'27.442"W	0.63	
6500.00	2.330	279.660	6498.12	-1.30	-76.36	1.03	559618.22	396895.15	32°05'28.070"N	104°16'27.489"W	0.03	
6600.00	2.320	278.540	6598.04	2.71	-75.72	-2.97	559614.22	396895.79	32°05'28.076"N	104°16'27.536"W	0.05	
6700.00	2.260	274.320	6697.96	6.67	-75.27	-6.94	559610.25	396896.24	32°05'28.081"N	104°16'27.582"W	0.18	
6800.00	2.130	247.290	6797.89	10.35	-75.84	-10.62	559606.57	396895.67	32°05'28.075"N	104°16'27.625"W	1.03	
6900.00	1.940	225.740	6897.83	13.27	-77.74	-13.55	559603.65	396893.77	32°05'28.056"N	104°16'27.659"W	0.78	
7000.00	1.660	238.730	6997.78	15.72	-79.67	-16.00	559601.20	396891.84	32°05'28.037"N	104°16'27.687"W	0.49	
7100.00	1.530	237.000	7097.74	18.07	-81.15	-18.36	559598.84	396890.36	32°05'28.023"N	104°16'27.715"W	0.14	
7200.00	1.610	233.780	7197.70	20.32	-82.71	-20.61	559596.58	396888.80	32°05'28.007"N	104°16'27.741"W	0.12	
7300.00	1.760	224.870	7297.66	22.53	-84.63	-22.83	559594.37	396886.88	32°05'27.988"N	104°16'27.766"W	0.30	
7400.00	1.990	228.840	7397.61	24.91	-86.86	-25.22	559591.98	396884.65	32°05'27.966"N	104°16'27.794"W	0.26	
7500.00	2.320	225.360	7497.54	27.65	-89.42	-27.96	559589.23	396882.09	32°05'27.941"N	104°16'27.826"W	0.35	
7600.00	2.030	228.040	7597.46	30.40	-92.03	-30.72	559586.47	396879.48	32°05'27.915"N	104°16'27.858"W	0.31	
7700.00	1.860	236.540	7697.41	33.06	-94.11	-33.39	559583.80	396877.40	32°05'27.894"N	104°16'27.889"W	0.33	
7800.00	0.930	229.030	7797.37	35.02	-95.53	-35.36	559581.84	396875.98	32°05'27.880"N	104°16'27.912"W	0.95	
7900.00	1.350	201.760	7897.36	36.06	-97.16	-36.41	559580.79	396874.35	32°05'27.864"N	104°16'27.924"W	0.67	
8000.00	1.530	210.980	7997.32	37.18	-99.40	-37.53	559579.66	396872.11	32°05'27.842"N	104°16'27.938"W	0.29	
8100.00	1.980	218.990	8097.28	38.95	-101.89	-39.31	559577.89	396869.62	32°05'27.818"N	104°16'27.958"W	0.51	
8200.00	1.860	218.540	8197.22	41.03	-104.50	-41.40	559575.79	396867.01	32°05'27.792"N	104°16'27.983"W	0.12	
8300.00	1.600	224.840	8297.18	43.02	-106.76	-43.40	559573.80	396864.75	32°05'27.769"N	104°16'28.006"W	0.32	
8400.00	1.300	232.260	8397.14	44.90	-108.44	-45.28	559571.91	396863.07	32°05'27.753"N	104°16'28.028"W	0.35	
8500.00	1.330	201.030	8497.12	46.20	-110.22	-46.59	559570.60	396861.29	32°05'27.735"N	104°16'28.043"W	0.71	
8600.00	1.410	215.690	8597.09	47.33	-112.30	-47.73	559569.47	396859.21	32°05'27.714"N	104°16'28.056"W	0.36	
8700.00	1.720	216.440	8697.05	48.93	-114.51	-49.34	559567.86	396857.00	32°05'27.693"N	104°16'28.075"W	0.31	
8800.00	1.750	210.110	8797.01	50.58	-117.04	-51.00	559566.20	396854.47	32°05'27.668"N	104°16'28.094"W	0.19	
8900.00	1.940	204.830	8896.95	52.05	-119.89	-52.47	559564.72	396851.62	32°05'27.639"N	104°16'28.111"W	0.25	



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Hayduke) Section 34, T25S, R26E	Wellbore	No.1H AWB
Facility	Hayduke 34 Federal No.1H		

WELLPATH DATA (165 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
9000.00	1.990	206.450	8996.90	53.52	-122.98	-53.96	559563.24	396848.53	32°05'27.609"N	104°16'28.129"W	0.07	
9100.00	2.000	209.010	9096.84	55.13	-126.06	-55.58	559561.62	396845.45	32°05'27.578"N	104°16'28.147"W	0.09	
9100.50	2.000	208.880	9097.34	55.14	-126.08	-55.58	559561.61	396845.43	32°05'27.578"N	104°16'28.148"W	0.91	
9395.00	1.500	205.100	9391.70	59.23	-134.07	-59.70	559557.50	396837.44	32°05'27.499"N	104°16'28.195"W	0.17	
9426.00	9.200	258.200	9422.55	61.83	-134.95	-62.30	559554.89	396836.57	32°05'27.490"N	104°16'28.226"W	27.05	
9458.00	18.200	262.400	9453.61	69.30	-136.13	-69.78	559547.42	396835.38	32°05'27.479"N	104°16'28.313"W	28.28	
9490.00	27.900	260.400	9483.02	81.65	-138.05	-82.14	559535.06	396833.47	32°05'27.460"N	104°16'28.456"W	30.41	
9521.00	35.900	262.600	9509.31	97.84	-140.43	-98.33	559518.87	396831.08	32°05'27.436"N	104°16'28.645"W	26.07	
9553.00	44.800	262.800	9533.68	118.36	-143.06	-118.86	559498.34	396828.46	32°05'27.411"N	104°16'28.883"W	27.82	
9585.00	54.900	263.800	9554.28	142.61	-145.89	-143.13	559474.08	396825.62	32°05'27.383"N	104°16'29.165"W	31.65	
9617.00	63.300	266.800	9570.70	169.94	-148.11	-170.47	559446.74	396823.41	32°05'27.361"N	104°16'29.483"W	27.45	
9648.00	72.200	269.000	9582.43	198.58	-149.14	-199.11	559418.10	396822.37	32°05'27.351"N	104°16'29.816"W	29.45	
9680.00	73.800	269.300	9591.79	229.17	-149.59	-229.70	559387.51	396821.92	32°05'27.346"N	104°16'30.172"W	5.08	
9711.00	75.400	268.500	9600.02	259.05	-150.17	-259.59	559357.63	396821.35	32°05'27.341"N	104°16'30.519"W	5.73	
9743.00	76.300	268.700	9607.84	290.07	-150.93	-290.60	559326.61	396820.59	32°05'27.334"N	104°16'30.879"W	2.88	
9774.00	79.700	268.800	9614.29	320.38	-151.59	-320.92	559296.31	396819.93	32°05'27.327"N	104°16'31.232"W	10.97	
9806.00	82.500	268.800	9619.24	351.98	-152.25	-352.52	559264.70	396819.26	32°05'27.321"N	104°16'31.599"W	8.75	
9838.00	85.500	269.600	9622.58	383.80	-152.69	-384.34	559232.89	396818.82	32°05'27.317"N	104°16'31.969"W	9.70	
9900.00	89.700	270.300	9625.18	445.73	-152.75	-446.27	559170.96	396818.77	32°05'27.316"N	104°16'32.689"W	6.87	
9964.00	91.600	271.000	9624.45	509.72	-152.02	-510.26	559106.98	396819.49	32°05'27.324"N	104°16'33.433"W	3.16	
10027.00	93.500	272.600	9621.65	572.62	-150.04	-573.16	559044.09	396821.47	32°05'27.344"N	104°16'34.164"W	3.94	
10091.00	92.600	272.800	9618.24	636.47	-147.03	-637.00	558980.25	396824.48	32°05'27.374"N	104°16'34.906"W	1.44	
10154.00	92.900	274.000	9615.22	699.30	-143.30	-699.81	558917.44	396828.21	32°05'27.411"N	104°16'35.636"W	1.96	
10217.00	90.900	273.300	9613.13	762.15	-139.29	-762.65	558854.62	396832.22	32°05'27.451"N	104°16'36.366"W	3.36	
10281.00	88.800	272.100	9613.30	826.08	-136.28	-826.57	558790.70	396835.23	32°05'27.481"N	104°16'37.109"W	3.78	
10344.00	88.900	272.100	9614.56	889.04	-133.97	-889.52	558727.76	396837.54	32°05'27.505"N	104°16'37.841"W	0.16	
10408.00	87.300	272.100	9616.69	952.96	-131.63	-953.44	558663.84	396839.88	32°05'27.528"N	104°16'38.584"W	2.50	
10471.00	87.700	271.000	9619.43	1015.89	-129.93	-1016.35	558600.93	396841.59	32°05'27.545"N	104°16'39.315"W	1.86	
10534.00	91.200	270.900	9620.04	1078.87	-128.88	-1079.33	558537.96	396842.63	32°05'27.556"N	104°16'40.047"W	5.56	
10598.00	92.100	271.000	9618.20	1142.83	-127.82	-1143.29	558474.00	396843.69	32°05'27.567"N	104°16'40.791"W	1.41	



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Hayduke) Section 34, T25S, R26E	Wellbore	No.1H AWB
Facility	Hayduke 34 Federal No.1H		

WELLPATH DATA (165 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
10661.00	93.900	272.000	9614.90	1205.73	-126.17	-1206.18	558411.12	396845.34	32°05'27.583"N	104°16'41.522"W	3.27	
10725.00	95.100	273.200	9609.88	1269.47	-123.28	-1269.92	558347.39	396848.23	32°05'27.612"N	104°16'42.263"W	2.65	
10788.00	93.200	274.100	9605.32	1332.19	-119.28	-1332.62	558284.69	396852.23	32°05'27.652"N	104°16'42.991"W	3.34	
10852.00	91.300	274.000	9602.81	1395.99	-114.76	-1396.41	558220.91	396856.75	32°05'27.697"N	104°16'43.733"W	2.97	
10915.00	89.700	272.200	9602.26	1458.91	-111.36	-1459.31	558158.02	396860.15	32°05'27.731"N	104°16'44.464"W	3.82	
10978.00	90.000	272.400	9602.42	1521.86	-108.83	-1522.26	558095.07	396862.68	32°05'27.756"N	104°16'45.196"W	0.57	
11042.00	89.600	270.900	9602.64	1585.84	-106.99	-1586.23	558031.11	396864.52	32°05'27.775"N	104°16'45.939"W	2.43	
11105.00	94.900	273.100	9600.17	1648.74	-104.79	-1649.12	557968.23	396866.72	32°05'27.797"N	104°16'46.670"W	9.11	
11169.00	92.800	273.900	9595.87	1712.48	-100.89	-1712.85	557904.50	396870.62	32°05'27.836"N	104°16'47.411"W	3.51	
11232.00	90.700	273.300	9593.95	1775.34	-96.94	-1775.69	557841.66	396874.57	32°05'27.875"N	104°16'48.141"W	3.47	
11296.00	90.000	272.900	9593.56	1839.25	-93.48	-1839.60	557777.77	396878.03	32°05'27.910"N	104°16'48.884"W	1.26	
11359.00	90.000	272.900	9593.56	1902.18	-90.29	-1902.52	557714.85	396881.22	32°05'27.942"N	104°16'49.616"W	0.00	
11422.00	90.300	272.900	9593.39	1965.11	-87.10	-1965.43	557651.94	396884.40	32°05'27.974"N	104°16'50.347"W	0.48	
11486.00	91.000	272.800	9592.67	2029.04	-83.92	-2029.35	557588.03	396887.59	32°05'28.005"N	104°16'51.090"W	1.10	
11549.00	91.500	272.600	9591.29	2091.97	-80.96	-2092.27	557525.12	396890.55	32°05'28.035"N	104°16'51.821"W	0.85	
11611.00	91.700	272.500	9589.56	2153.89	-78.20	-2154.18	557463.21	396893.31	32°05'28.063"N	104°16'52.541"W	0.36	
11675.00	95.400	275.000	9585.60	2217.63	-74.02	-2217.90	557399.49	396897.48	32°05'28.104"N	104°16'53.282"W	6.97	
11739.00	94.100	274.400	9580.30	2281.21	-68.80	-2281.47	557335.93	396902.71	32°05'28.156"N	104°16'54.020"W	2.24	
11801.00	91.500	273.300	9577.27	2343.01	-64.64	-2343.25	557274.16	396906.86	32°05'28.198"N	104°16'54.738"W	4.55	
11864.00	92.100	273.300	9575.29	2405.88	-61.02	-2406.11	557211.30	396910.49	32°05'28.234"N	104°16'55.469"W	0.95	
11928.00	90.900	272.000	9573.62	2469.80	-58.06	-2470.02	557147.40	396913.45	32°05'28.263"N	104°16'56.212"W	2.76	
11991.00	89.400	271.600	9573.45	2532.77	-56.08	-2532.99	557084.44	396915.42	32°05'28.283"N	104°16'56.944"W	2.46	
12055.00	87.700	271.000	9575.07	2596.74	-54.63	-2596.95	557020.48	396916.88	32°05'28.298"N	104°16'57.687"W	2.82	
12118.00	87.800	270.400	9577.55	2659.69	-53.86	-2659.89	556957.54	396917.65	32°05'28.306"N	104°16'58.419"W	0.96	
12182.00	88.400	270.500	9579.67	2723.65	-53.36	-2723.86	556893.59	396918.15	32°05'28.311"N	104°16'59.162"W	0.95	
12245.00	89.400	270.300	9580.88	2786.64	-52.92	-2786.84	556830.61	396918.59	32°05'28.316"N	104°16'59.895"W	1.62	
12309.00	89.700	269.900	9581.38	2850.64	-52.81	-2850.84	556766.62	396918.70	32°05'28.317"N	104°17'00.639"W	0.78	
12372.00	92.400	270.200	9580.23	2913.62	-52.75	-2913.82	556703.64	396918.75	32°05'28.318"N	104°17'01.371"W	4.31	
12435.00	91.500	270.900	9578.08	2976.58	-52.15	-2976.78	556640.68	396919.36	32°05'28.324"N	104°17'02.102"W	1.81	
12499.00	91.800	271.400	9576.24	3040.54	-50.86	-3040.74	556576.73	396920.64	32°05'28.337"N	104°17'02.846"W	0.91	



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Hayduke) Section 34, T25S, R26E	Wellbore	No.1H AWB
Facility	Hayduke 34 Federal No.1H		

WELLPATH DATA (165 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12562.00	93.300	273.300	9573.44	3103.43	-48.28	-3103.62	556513.86	396923.22	32°05'28.363"N	104°17'03.577"W	3.84	
12626.00	94.900	274.000	9568.86	3167.15	-44.22	-3167.33	556450.16	396927.28	32°05'28.404"N	104°17'04.317"W	2.73	
12689.00	94.300	274.000	9563.81	3229.81	-39.84	-3229.97	556387.52	396931.66	32°05'28.447"N	104°17'05.045"W	0.95	
12753.00	94.200	273.500	9559.06	3293.51	-35.66	-3293.66	556323.84	396935.84	32°05'28.489"N	104°17'05.786"W	0.79	
12816.00	93.300	274.300	9554.94	3356.25	-31.39	-3356.38	556261.13	396940.11	32°05'28.531"N	104°17'06.515"W	1.91	
12880.00	92.100	275.100	9551.93	3419.98	-26.15	-3420.09	556197.42	396945.35	32°05'28.584"N	104°17'07.255"W	2.25	
12943.00	90.700	274.400	9550.39	3482.76	-20.94	-3482.85	556134.66	396950.57	32°05'28.635"N	104°17'07.985"W	2.48	
13007.00	94.200	275.000	9547.65	3546.49	-15.70	-3546.57	556070.95	396955.80	32°05'28.688"N	104°17'08.725"W	5.55	
13070.00	95.200	277.000	9542.49	3608.95	-9.14	-3609.01	556008.52	396962.37	32°05'28.753"N	104°17'09.451"W	3.54	
13134.00	95.500	278.800	9536.52	3672.10	-0.38	-3672.12	555945.41	396971.12	32°05'28.840"N	104°17'10.185"W	2.84	
13197.00	95.200	278.500	9530.65	3734.14	9.06	-3734.13	555883.40	396980.56	32°05'28.933"N	104°17'10.905"W	0.67	
13260.00	93.800	277.300	9525.71	3796.38	17.69	-3796.34	555821.20	396989.19	32°05'29.019"N	104°17'11.628"W	2.92	
13324.00	90.400	275.200	9523.36	3859.97	24.65	-3859.91	555757.64	396996.15	32°05'29.088"N	104°17'12.367"W	6.24	
13381.00	90.200	274.700	9523.06	3916.77	29.57	-3916.69	555700.86	397001.06	32°05'29.137"N	104°17'13.027"W	0.94	
13433.00	90.200	274.700	9522.88	3968.61	33.83	-3968.52	555649.04	397005.32	32°05'29.179"N	104°17'13.630"W	0.00	Proj to Bit



Actual Wellpath Report

No.1H AWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.1H SHL
Area	Eddy County, NM	Well	No.1H
Field	(Hayduke) Section 34, T25S, R26E	Wellbore	No.1H AWB
Facility	Hayduke 34 Federal No.1H		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No.1H PBHL		9529.00	14.08	-3978.62	555638.94	396985.57	32°05'28.984"N	104°17'13.747"W	point

WELLPATH COMPOSITION

Ref Wellbore: No.1H AWB

Ref Wellpath: No.1H AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	13433.00	Generic gyro - northseeking (Standard)	Gyro	No.1H AWB



Cimarex Energy Company

8/24/2011
mkk

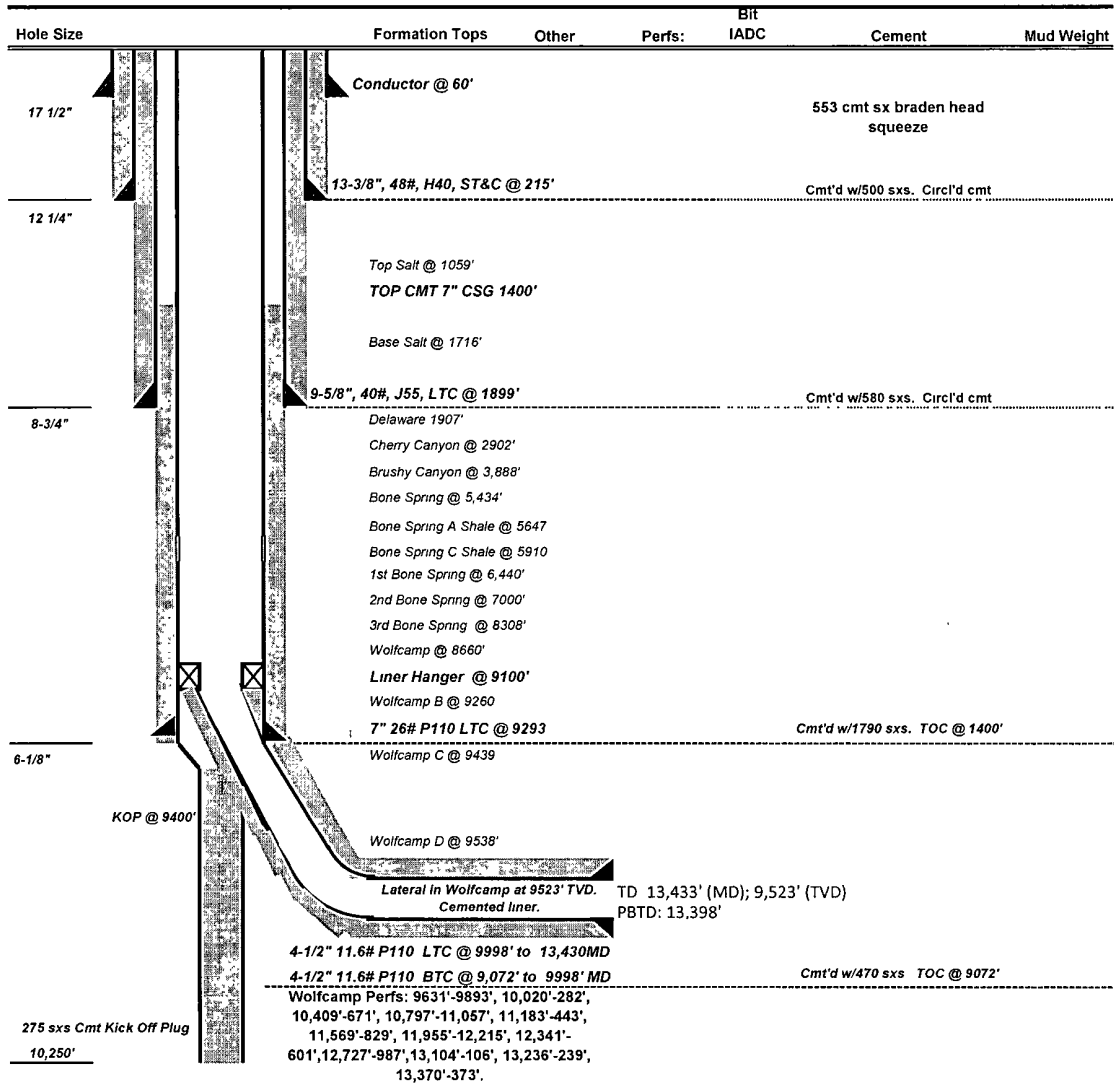
Well: Hayduke 34 Fed 1H
Location: Sec 34, 25S-26E
County, State: Eddy Co, NM
Surface Location: 800' FNL 660' FEL
Bottomhole Loc: 660' FNL 660' FWL

E-Mail:
Wellhead: Sec A: 13 5/8" 3M BY 13 3/8" SOW
Sec B 11" 5M BY 13 5/8" 3m
Sec C 7 1/16" 10M BY 11" 5M

Xmas Tree
Tubing: 2 7/8"
Superintendent:
Engineer:

Co. Well ID: 309588-340
AFE No.: 250073
API No.: 30-015-36601

Field: Carlsbad South
Objective: Wolfcamp
TVD/MD: 13,433' / 9523'
Cementing:
Mud:
Motors:
OH Logs
Rig:
Offset Wells:



Quantity	Description	Length	Setting Depth
	KB	28	28
1	2-7/8" L80 8rd Tbg	32 50	60 50
1	2-7/8" X 4' Sub	4 05	64 55
1	2-7/8" X 6' Sub	6 10	70 65
1	2-7/8" X 8' Sub	8 05	78 70
1	2-7/8" X 10' Sub	10 05	88 75
275	2-7/8" L80 8rd Tbg	8913 72	9002 47
1	2-7/8" On/Off Tool w/2 31 XN Profile	1 50	9003 97
1	2-7/8" As1-X Packer	7 90	9011 87
1	2-7/8" X 4' Sub	4 10	9015 97
1	2-7/8" XN 2 31 No/Go Landing Nipple	1 35	9017 32
1	2-7/8" Wireline Entry Guide	1 35	9018 67