

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Carlsbad Field Office

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		7. If Unit or CA/Agreement, Name and/or No. NMNM71019A	
2. Name of Operator CIMAREX ENERGY		8. Well Name and No. RED HILLS UNIT 4	
3a. Address 202 S CHEYENNE AVE 1000 TULSA, OK 74103		9. API Well No. 30-025-34626	
3b. Phone No. (include area code) Ph: 918-560-7081		10. Field and Pool or Exploratory Area RED HILLS; DEVONIAN	
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 32 T25S R33E 454FSL 1500FWL		11. County or Parish, State LEA COUNTY, NM	

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Manual liquids unloading operations were performed at the Red Hills Unit No. 4 on 4-17-2017. Other methods were deemed too costly, this serves as the notice required under 43 CFR Subpart 3179.204(e).

14. I hereby certify that the foregoing is true and correct. Electronic Submission #379608 verified by the BLM Well Information System For CIMAREX ENERGY, sent to the Hobbs Committed to AFMSS for processing by DEBORAH MCKINNEY on 07/17/2017 ()	
Name (Printed/Typed) KIMBERLEIGH RHODES	Title REGULATORY TECHNICIAN
Signature (Electronic Submission)	Date 06/22/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____	Title _____	Date _____
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		
Office _____	/s/ Jonathon Shepard	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowing and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****



Cimarex Energy Company

Hines Federal 1H 0235X (Plan 16_01_1780FEL)

Hines Federal 1H 0235X

Grady County, OK (Cimarex Energy Company) NAD27 / Grid

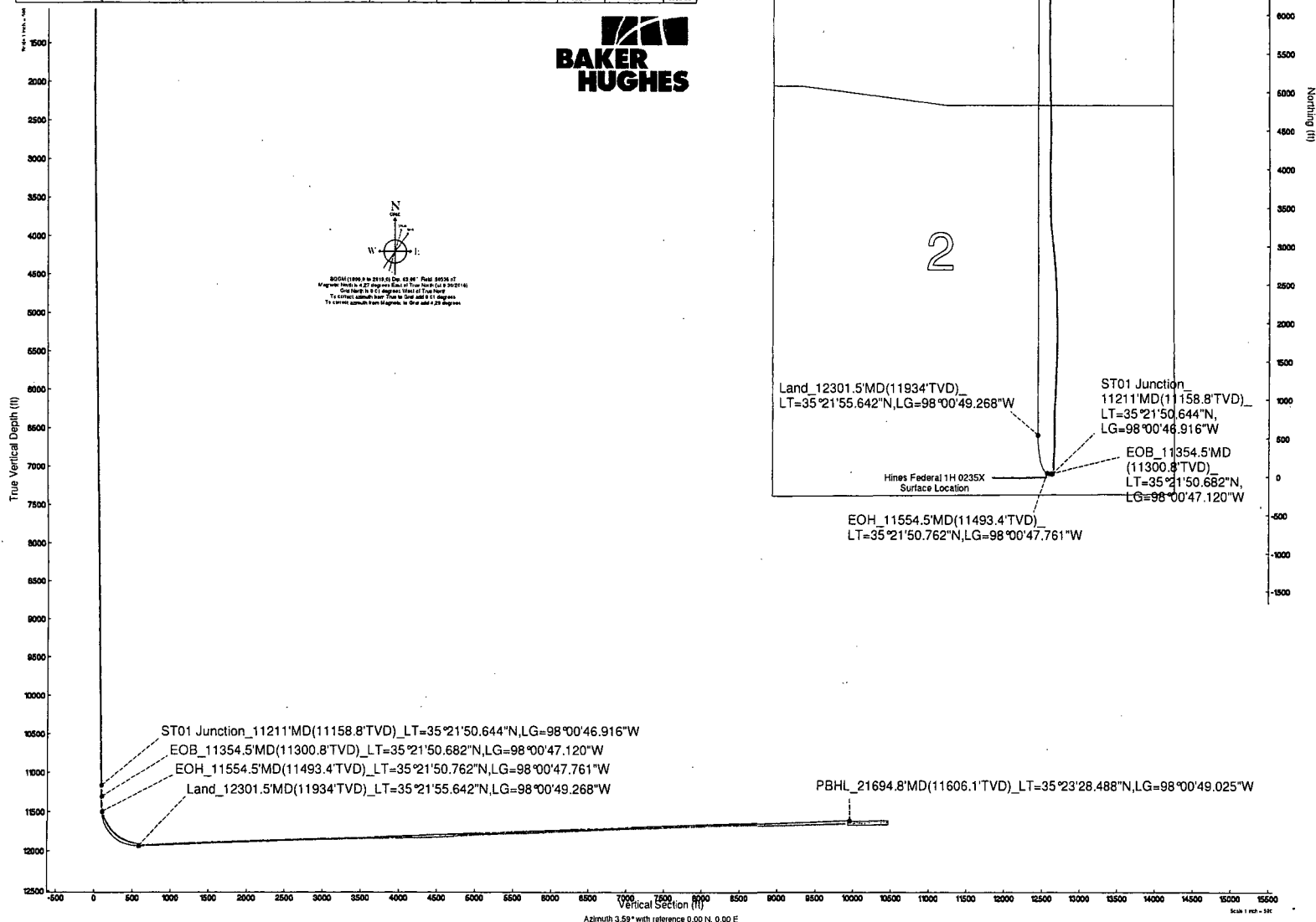
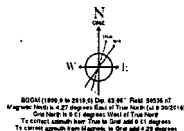
True vertical depths are referenced to Rig on Hines Federal 1H 0235X (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to Rig on Hines Federal 1H 0235X (RKB)	North Reference: Grid north
Rig on Hines Federal 1H 0235X (RKB) to Mean Sea Level: 1302 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Hines Federal 1H 0235X): -1277 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: dehamard on 2017-05-31
	Database: Cnc

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Hines Federal 1H 0235X Section 2 10N 8W			1995317.000	738996.000	35°21'50.213"N	98°00'56.538"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Hines Federal 1H 0235X	0.00	0.00	1995317.000	738996.000	35°21'50.213"N	98°00'56.538"W
Rig on Hines Federal 1H 0235X (RKB) to Mud line (At Slot: Hines Federal 1H 0235X)					25ft	
Mean Sea Level to Mud line (At Slot: Hines Federal 1H 0235X)					-1277ft	
Rig on Hines Federal 1H 0235X (RKB) to Mean Sea Level					1302ft	

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Alt (°)	TVD (ft)	Local N (ft)	Local E (ft)	CLS (ft/100ft)	VS (ft)
ST01 Junction 11211'MD(1158.8'TVD)_LT=35°21'50.644"N, LG=98°00'46.916"W	11211.00	1.813	67.795	1158.82	43.43	796.99	C 20	83.26
EOB_11354.5'MD(11300.8'TVD)_LT=35°21'50.682"N, LG=98°00'47.120"W	11354.58	16.581	278.684	11300.80	47.37	780.04	12.00	86.04
EOH_11554.5'MD(11493.4'TVD)_LT=35°21'50.762"N, LG=98°00'47.761"W	11554.58	15.581	278.684	11493.46	55.37	727.01	0.00	100.80
Land_12301.5'MD(11934'TVD)_LT=35°21'55.642"N, LG=98°00'49.268"W	12301.50	92.050	0.130	11934.00	548.79	652.26	12.00	585.43
PBHL_21694.8'MD(11606.1'TVD)_LT=35°23'28.488"N, LG=98°00'49.025"W	21694.80	92.050	0.130	11606.18	928.34	823.59	C 00	8955.69





Planned Wellpath Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780°FEL
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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert Oklahoma SP, Southern Zone (3502), US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Dehamard
Scale	1.000028	Report Generated	5/31/2017 at 5:01:34 PM
Convergence at slot	0.01° West	Database/Source file	Okc/C:/Users/dehamard/AppData/Roaming/Well Explorer/temp/Cimarex Hines Federal 1H 0235X (Plan 16_01_1780°FEL).xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1995317.00	738996.00	35°21'50.213"N	98°00'56.538"W
Facility Reference Pt			1995317.00	738996.00	35°21'50.213"N	98°00'56.538"W
Field Reference Pt			609601.22	0.00	33°14'50.100"N	102°32'53.015"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on Hines Federal 1H 0235X (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Rig on Hines Federal 1H 0235X (RKB) to Mean Sea Level	1302.00ft
Vertical Reference Pt	Rig on Hines Federal 1H 0235X (RKB)	Rig on Hines Federal 1H 0235X (RKB) to Mud Line at Slot (Hines Federal 1H 0235X)	25.00ft
MD Reference Pt	Rig on Hines Federal 1H 0235X (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	3.59°



Planned Wellpath Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

WELLPATH DATA (231 stations) † = Interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	53.280	0.00	0.00	0.00	0.00	0.00	
25.00	0.000	53.280	25.00	0.00	0.00	0.00	0.00	
126.80	0.170	53.280	126.80	0.10	0.09	0.12	0.17	
219.60	0.390	63.650	219.60	0.34	0.31	0.51	0.24	
311.40	0.450	64.620	311.40	0.67	0.61	1.12	0.07	
381.00	0.610	89.790	380.99	0.83	0.72	1.74	0.40	
473.10	0.650	87.460	473.09	0.92	0.75	2.75	0.05	
565.60	0.810	86.090	565.58	1.06	0.82	3.93	0.17	
657.30	0.890	93.290	657.27	1.15	0.82	5.28	0.15	
749.50	1.010	99.150	749.46	1.07	0.65	6.80	0.17	
841.90	1.000	97.060	841.84	0.95	0.42	8.41	0.04	
934.50	1.050	94.850	934.43	0.88	0.25	10.05	0.07	
1026.20	1.240	93.860	1026.11	0.86	0.11	11.88	0.21	
1087.20	1.210	92.650	1087.10	0.86	0.04	13.18	0.06	
1116.90	1.280	93.710	1116.79	0.87	0.00	13.83	0.25	
1208.70	1.300	93.910	1208.57	0.86	-0.13	15.89	0.02	
1303.20	1.250	96.570	1303.04	0.80	-0.33	17.98	0.08	
1397.60	1.280	96.910	1397.42	0.69	-0.57	20.05	0.03	
1492.40	1.280	99.970	1492.20	0.51	-0.88	22.14	0.07	
1586.80	1.260	105.810	1586.57	0.17	-1.35	24.18	0.14	
1681.30	1.360	107.560	1681.05	-0.32	-1.97	26.25	0.11	
1775.80	1.180	106.070	1775.52	-0.80	-2.58	28.26	0.19	
1870.30	1.150	106.100	1870.01	-1.22	-3.11	30.10	0.03	
1964.20	1.170	104.340	1963.89	-1.60	-3.61	31.94	0.04	
2059.00	1.650	92.610	2058.66	-1.76	-3.91	34.24	0.59	
2153.60	3.720	83.120	2153.15	-1.18	-3.60	38.64	2.23	
2248.10	6.200	88.490	2247.29	-0.16	-3.10	46.79	2.67	
2342.30	7.640	91.520	2340.80	0.51	-3.13	58.14	1.58	
2436.70	8.710	91.670	2434.24	0.98	-3.51	71.55	1.13	
2531.20	9.350	89.040	2527.57	1.83	-3.59	86.38	0.81	
2625.50	9.500	88.420	2620.59	3.14	-3.24	101.82	0.19	
2719.90	8.250	87.850	2713.86	4.52	-2.78	116.38	1.33	
2814.50	7.770	87.300	2807.54	5.90	-2.22	129.55	0.51	
2909.20	8.910	89.210	2901.24	7.16	-1.82	143.27	1.24	
3003.70	10.070	90.730	2994.44	8.13	-1.82	158.85	1.26	
3098.30	10.270	91.130	3087.56	8.91	-2.09	175.55	0.22	
3192.90	9.170	90.170	3180.80	9.72	-2.28	191.52	1.18	
3287.50	8.210	89.960	3274.31	10.60	-2.30	205.82	1.02	
3381.80	8.370	89.870	3367.62	11.47	-2.28	219.41	0.17	
3476.50	8.960	89.440	3461.24	12.45	-2.19	233.68	0.63	
3570.90	8.930	88.840	3554.49	13.59	-1.97	248.36	0.10	
3665.10	9.420	89.160	3647.49	14.79	-1.71	263.37	0.52	
3759.70	10.080	92.320	3740.72	15.57	-1.93	279.39	0.90	
3854.30	10.070	93.190	3833.86	15.81	-2.73	295.92	0.16	
3948.70	10.260	92.590	3926.78	16.02	-3.57	312.55	0.23	



Planned Wellpath Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL
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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

WELLPATH DATA (231 stations)

MD (ft)	Inclination [°]	Azimuth [°]	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	DLS [°/100ft]	Comments
4043.30	10.150	91.240	4019.89	16.51	-4.13	329.30	0.28	
4138.00	9.350	90.740	4113.22	17.23	-4.41	345.34	0.85	
4232.50	9.170	90.310	4206.49	18.04	-4.55	360.54	0.20	
4327.10	8.520	89.140	4299.96	19.02	-4.48	375.09	0.71	
4421.80	8.720	89.850	4393.59	20.03	-4.36	389.28	0.24	
4516.50	9.340	89.450	4487.12	21.06	-4.27	404.15	0.66	
4611.00	8.560	88.410	4580.46	22.24	-4.00	418.84	0.84	
4705.60	8.330	87.550	4674.04	23.60	-3.51	432.73	0.28	
4800.30	9.300	85.460	4767.62	25.41	-2.61	447.21	1.08	
4894.90	10.030	84.390	4860.88	27.80	-1.20	463.03	0.79	
4989.30	9.370	83.920	4953.93	30.41	0.42	478.85	0.70	
5083.90	9.330	90.020	5047.27	32.18	1.23	494.18	1.05	
5178.50	9.550	94.100	5140.59	32.59	0.67	509.67	0.74	
5272.90	9.060	92.820	5233.75	32.62	-0.26	524.91	0.56	
5367.30	8.710	86.530	5327.02	33.60	-0.19	539.47	1.09	
5461.50	7.960	86.400	5420.22	35.29	0.65	553.10	0.80	
5555.90	8.930	88.140	5513.60	36.81	1.30	566.94	1.06	
5650.50	8.870	88.170	5607.06	38.19	1.77	581.57	0.06	
5745.30	8.310	89.270	5700.80	39.40	2.09	595.73	0.62	
5839.90	8.560	89.610	5794.37	40.40	2.22	609.60	0.27	
5934.40	8.080	89.560	5887.88	41.36	2.32	623.28	0.51	
6028.90	7.710	88.820	5981.48	42.35	2.50	636.25	0.41	
6123.30	7.260	88.430	6075.08	43.42	2.80	648.55	0.48	
6217.80	6.760	87.830	6168.87	44.51	3.17	660.07	0.53	
6312.20	6.040	87.490	6262.68	45.60	3.60	670.59	0.76	
6406.90	5.440	87.080	6356.91	46.63	4.05	680.05	0.64	
6501.40	5.050	85.440	6451.01	47.73	4.61	688.67	0.44	
6596.10	4.120	84.810	6545.41	48.84	5.25	696.21	0.98	
6690.70	3.250	81.150	6639.81	49.94	5.97	702.25	0.95	
6785.30	2.770	77.250	6734.28	51.16	6.88	707.12	0.55	
6880.20	1.970	75.760	6829.10	52.30	7.79	710.94	0.85	
6974.70	1.850	74.420	6923.54	53.30	8.60	713.99	0.14	
7069.30	1.660	73.590	7018.10	54.27	9.40	716.77	0.20	
7163.90	1.500	80.050	7112.66	55.03	10.00	719.31	0.25	
7258.70	1.500	69.960	7207.43	55.82	10.64	721.69	0.28	
7353.60	0.890	77.610	7302.31	56.52	11.22	723.58	0.66	
7448.00	0.940	78.760	7396.70	56.92	11.53	725.06	0.06	
7542.90	0.990	95.770	7491.59	57.09	11.60	726.63	0.31	
7637.40	1.180	85.690	7586.07	57.19	11.59	728.42	0.28	
7731.90	1.160	89.960	7680.55	57.39	11.66	730.34	0.09	
7826.60	0.730	67.440	7775.24	57.71	11.90	731.86	0.59	
7921.10	1.240	82.920	7869.72	58.17	12.25	733.43	0.60	
8015.60	1.310	80.640	7964.20	58.60	12.55	735.51	0.09	
8110.10	1.020	57.330	8058.68	59.34	13.18	737.28	0.58	
8204.50	1.160	67.250	8153.06	60.26	14.01	738.87	0.25	



Planned Wellpath Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL
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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

WELLPATH DATA (231 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
8299.10	1.150	64.640	8247.64	61.14	14.78	740.61	0.06	
8393.60	1.040	70.510	8342.13	61.94	15.48	742.28	0.17	
8487.90	0.920	71.160	8436.41	62.56	16.01	743.80	0.13	
8582.40	0.960	65.670	8530.90	63.22	16.58	745.24	0.10	
8677.10	1.080	65.310	8625.58	64.02	17.28	746.78	0.13	
8772.00	1.160	64.520	8720.47	64.91	18.06	748.46	0.09	
8866.30	1.210	65.350	8814.75	65.84	18.89	750.22	0.06	
8960.70	1.130	77.630	8909.13	66.57	19.50	752.04	0.28	
9055.30	1.200	76.070	9003.71	67.13	19.94	753.91	0.08	
9149.80	1.230	69.820	9098.19	67.83	20.53	755.82	0.14	
9244.20	1.170	64.050	9192.57	68.72	21.30	757.64	0.14	
9338.70	1.080	62.490	9287.05	69.65	22.14	759.30	0.10	
9433.20	1.210	61.150	9381.53	70.65	23.03	760.96	0.14	
9527.70	1.550	67.390	9476.00	71.75	24.00	763.01	0.39	
9622.30	1.480	60.960	9570.57	72.97	25.09	765.26	0.19	
9716.80	1.670	45.260	9665.03	74.66	26.65	767.31	0.50	
9811.30	1.620	41.640	9759.49	76.74	28.62	769.17	0.12	
9905.50	1.480	43.820	9853.66	78.71	30.49	770.90	0.16	
10000.10	1.320	56.960	9948.23	80.30	31.96	772.66	0.38	
10094.80	1.090	49.650	10042.91	81.57	33.14	774.26	0.29	
10189.40	1.140	54.380	10137.49	82.79	34.27	775.71	0.11	
10283.90	1.250	67.280	10231.97	83.84	35.22	777.43	0.31	
10378.80	1.410	68.910	10326.85	84.79	36.04	779.47	0.17	
10473.60	1.420	67.720	10421.62	85.79	36.90	781.65	0.03	
10568.10	1.210	69.570	10516.09	86.71	37.70	783.67	0.23	
10662.60	0.990	58.730	10610.58	87.58	38.47	785.30	0.32	
10757.10	0.910	74.010	10705.06	88.30	39.10	786.72	0.28	
10851.70	1.130	73.840	10799.65	88.86	39.56	788.34	0.23	
10946.30	1.340	63.520	10894.23	89.73	40.32	790.22	0.32	
11041.00	1.490	84.100	10988.90	90.89	41.35	792.32	0.16	
11135.60	1.770	66.050	11083.46	92.18	42.48	794.76	0.30	
11200.00†	1.892	67.557	11147.83	93.10	43.29	796.65	0.20	
11211.00	1.913	67.795	11158.82	93.26	43.43	796.99	0.20	ST01 Junction 11211' MD(11158.8'TVD) LT=35°21'50.644"N, LG=98°00'46.916"W
11300.00†	9.030	281.094	11247.50	94.82	45.34	791.50	12.00	
11354.58	15.561	278.684	11300.80	96.04	47.27	780.04	12.00	EOB 11354.5' MD(11300.8'TVD) LT=35°21'50.682"N, LG=98°00'47.120"W
11400.00†	15.561	278.684	11344.55	97.12	49.11	768.00	0.00	
11500.00†	15.561	278.684	11440.89	99.50	53.16	741.48	0.00	
11554.58	15.561	278.684	11493.46	100.80	55.37	727.01	0.00	EOH 11554.5' MD(11493.4'TVD) LT=35°21'50.762"N, LG=98°00'47.761"W
11600.00†	17.234	297.157	11537.07	104.03	59.36	714.99	12.00	
11700.00†	24.942	323.336	11630.50	126.13	83.13	689.12	12.00	
11800.00†	35.042	336.496	11717.09	167.93	126.53	664.99	12.00	
11900.00†	45.976	344.168	11793.06	227.61	187.66	643.66	12.00	
12000.00†	57.262	349.397	11855.07	302.57	263.87	626.05	12.00	
12100.00†	68.714	353.430	11900.43	389.52	351.82	612.93	12.00	
12200.00†	80.249	356.872	11927.14	484.66	447.65	604.88	12.00	



Planned Wellpath Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL
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WELLPATH IDENTIFICATION

Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Oklaoma	Well	Hines Federal 1H 0235X ST01
Ady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

WELLPATH DATA (231 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
12300.00†	91.816	0.080	11934.05	583.85	547.20	602.25	12.00	
12301.59	92.000	0.130	11934.00†	585.43	548.79	602.26	12.00	Land 12301.5' MD (11934' TVD) LT=35°21'55.642"N, LG=98°00'49.268"W
12400.00†	92.000	0.130	11930.57	683.60	647.14	602.48	0.00	
12500.00†	92.000	0.130	11927.08	783.36	747.08	602.71	0.00	
12600.00†	92.000	0.130	11923.59	883.12	847.01	602.93	0.00	
12700.00†	92.000	0.130	11920.10	982.87	946.95	603.16	0.00	
12800.00†	92.000	0.130	11916.61	1082.63	1046.89	603.39	0.00	
12900.00†	92.000	0.130	11913.12	1182.39	1146.83	603.62	0.00	
13000.00†	92.000	0.130	11909.63	1282.14	1246.77	603.84	0.00	
13100.00†	92.000	0.130	11906.14	1381.90	1346.71	604.07	0.00	
13200.00†	92.000	0.130	11902.65	1481.66	1446.65	604.30	0.00	
13300.00†	92.000	0.130	11899.16	1581.41	1546.59	604.52	0.00	
13400.00†	92.000	0.130	11895.67	1681.17	1646.52	604.75	0.00	
13500.00†	92.000	0.130	11892.18	1780.93	1746.46	604.98	0.00	
13600.00†	92.000	0.130	11888.69	1880.68	1846.40	605.21	0.00	
13700.00†	92.000	0.130	11885.20	1980.44	1946.34	605.43	0.00	
13800.00†	92.000	0.130	11881.71	2080.20	2046.28	605.66	0.00	
13900.00†	92.000	0.130	11878.22	2179.95	2146.22	605.89	0.00	
14000.00†	92.000	0.130	11874.73	2279.71	2246.16	606.11	0.00	
14100.00†	92.000	0.130	11871.24	2379.47	2346.10	606.34	0.00	
14200.00†	92.000	0.130	11867.75	2479.22	2446.04	606.57	0.00	
14300.00†	92.000	0.130	11864.26	2578.98	2545.97	606.80	0.00	
14400.00†	92.000	0.130	11860.77	2678.74	2645.91	607.02	0.00	
14500.00†	92.000	0.130	11857.28	2778.50	2745.85	607.25	0.00	
14600.00†	92.000	0.130	11853.79	2878.25	2845.79	607.48	0.00	
14700.00†	92.000	0.130	11850.30	2978.01	2945.73	607.70	0.00	
14800.00†	92.000	0.130	11846.81	3077.77	3045.67	607.93	0.00	
14900.00†	92.000	0.130	11843.32	3177.52	3145.61	608.16	0.00	
15000.00†	92.000	0.130	11839.83	3277.28	3245.55	608.39	0.00	
15100.00†	92.000	0.130	11836.34	3377.04	3345.48	608.61	0.00	
15200.00†	92.000	0.130	11832.85	3476.79	3445.42	608.84	0.00	
15300.00†	92.000	0.130	11829.36	3576.55	3545.36	609.07	0.00	
15400.00†	92.000	0.130	11825.87	3676.31	3645.30	609.29	0.00	
15500.00†	92.000	0.130	11822.38	3776.06	3745.24	609.52	0.00	
15600.00†	92.000	0.130	11818.89	3875.82	3845.18	609.75	0.00	
15700.00†	92.000	0.130	11815.40	3975.58	3945.12	609.98	0.00	
15800.00†	92.000	0.130	11811.91	4075.33	4045.06	610.20	0.00	
15900.00†	92.000	0.130	11808.42	4175.09	4145.00	610.43	0.00	
16000.00†	92.000	0.130	11804.93	4274.85	4244.93	610.66	0.00	
16100.00†	92.000	0.130	11801.44	4374.60	4344.87	610.88	0.00	
16200.00†	92.000	0.130	11797.95	4474.36	4444.81	611.11	0.00	
16300.00†	92.000	0.130	11794.46	4574.12	4544.75	611.34	0.00	
16400.00†	92.000	0.130	11790.97	4673.87	4644.69	611.56	0.00	
16500.00†	92.000	0.130	11787.48	4773.63	4744.63	611.79	0.00	
16600.00†	92.000	0.130	11783.99	4873.39	4844.57	612.02	0.00	



Planned Wellpath Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL
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WELLPATH IDENTIFICATION

Company	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Location	Thoma	Well	Hines Federal 1H 0235X ST01
County, OK (Cimarex Energy Company) NAD27 / Grid		Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

WELLPATH DATA (231 stations) † = Interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
16700.00†	92.000	0.130	11780.50	4973.15	4944.51	612.25	0.00	
16800.00†	92.000	0.130	11777.01	5072.90	5044.44	612.47	0.00	
16900.00†	92.000	0.130	11773.52	5172.66	5144.38	612.70	0.00	
17000.00†	92.000	0.130	11770.03	5272.42	5244.32	612.93	0.00	
17100.00†	92.000	0.130	11766.54	5372.17	5344.26	613.15	0.00	
17200.00†	92.000	0.130	11763.05	5471.93	5444.20	613.38	0.00	
17300.00†	92.000	0.130	11759.56	5571.69	5544.14	613.61	0.00	
17400.00†	92.000	0.130	11756.07	5671.44	5644.08	613.84	0.00	
17500.00†	92.000	0.130	11752.58	5771.20	5744.02	614.06	0.00	
17600.00†	92.000	0.130	11749.09	5870.96	5843.96	614.29	0.00	
17700.00†	92.000	0.130	11745.60	5970.71	5943.89	614.52	0.00	
17800.00†	92.000	0.130	11742.11	6070.47	6043.83	614.74	0.00	
17900.00†	92.000	0.130	11738.62	6170.23	6143.77	614.97	0.00	
18000.00†	92.000	0.130	11735.13	6269.98	6243.71	615.20	0.00	
18100.00†	92.000	0.130	11731.64	6369.74	6343.65	615.43	0.00	
18200.00†	92.000	0.130	11728.15	6469.50	6443.59	615.65	0.00	
18300.00†	92.000	0.130	11724.66	6569.25	6543.53	615.88	0.00	
18400.00†	92.000	0.130	11721.17	6669.01	6643.47	616.11	0.00	
18500.00†	92.000	0.130	11717.68	6768.77	6743.40	616.33	0.00	
18600.00†	92.000	0.130	11714.19	6868.52	6843.34	616.56	0.00	
18700.00†	92.000	0.130	11710.70	6968.28	6943.28	616.79	0.00	
18800.00†	92.000	0.130	11707.21	7068.04	7043.22	617.02	0.00	
18900.00†	92.000	0.130	11703.72	7167.80	7143.16	617.24	0.00	
19000.00†	92.000	0.130	11700.23	7267.55	7243.10	617.47	0.00	
19100.00†	92.000	0.130	11696.74	7367.31	7343.04	617.70	0.00	
19200.00†	92.000	0.130	11693.25	7467.07	7442.98	617.92	0.00	
19300.00†	92.000	0.130	11689.76	7566.82	7542.92	618.15	0.00	
19400.00†	92.000	0.130	11686.27	7666.58	7642.85	618.38	0.00	
19500.00†	92.000	0.130	11682.78	7766.34	7742.79	618.61	0.00	
19600.00†	92.000	0.130	11679.29	7866.09	7842.73	618.83	0.00	
19700.00†	92.000	0.130	11675.80	7965.85	7942.67	619.06	0.00	
19800.00†	92.000	0.130	11672.31	8065.61	8042.61	619.29	0.00	
19900.00†	92.000	0.130	11668.82	8165.36	8142.55	619.51	0.00	
20000.00†	92.000	0.130	11665.33	8265.12	8242.49	619.74	0.00	
20100.00†	92.000	0.130	11661.84	8364.88	8342.43	619.97	0.00	
20200.00†	92.000	0.130	11658.35	8464.63	8442.36	620.20	0.00	
20300.00†	92.000	0.130	11654.86	8564.39	8542.30	620.42	0.00	
20400.00†	92.000	0.130	11651.37	8664.15	8642.24	620.65	0.00	
20500.00†	92.000	0.130	11647.88	8763.90	8742.18	620.88	0.00	
20600.00†	92.000	0.130	11644.39	8863.66	8842.12	621.10	0.00	
20700.00†	92.000	0.130	11640.90	8963.42	8942.06	621.33	0.00	
20800.00†	92.000	0.130	11637.41	9063.17	9042.00	621.56	0.00	
20900.00†	92.000	0.130	11633.92	9162.93	9141.94	621.79	0.00	
21000.00†	92.000	0.130	11630.43	9262.69	9241.88	622.01	0.00	
21100.00†	92.000	0.130	11626.94	9362.45	9341.81	622.24	0.00	



Planned Wellpath Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL
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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

WELLPATH DATA (231 stations) † = Interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
21200.00†	92.000	0.130	11623.45	9462.20	9441.75	622.47	0.00	
21300.00†	92.000	0.130	11619.96	9561.96	9541.69	622.69	0.00	
21400.00†	92.000	0.130	11616.47	9661.72	9641.63	622.92	0.00	
21500.00†	92.000	0.130	11612.98	9761.47	9741.57	623.15	0.00	
21600.00†	92.000	0.130	11609.49	9861.23	9841.51	623.38	0.00	
21694.89	92.000	0.130	11606.18	9955.89	9936.34	623.59	0.00	PBHL_21694.8' MD(11606.1'TVD)_LT=35°23'28.488"N, LG=98°00'49.025"W

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
2) Hines Federal 1H 0235X PBHL 1780'FEL	21694.89	11606.18	9936.34	623.59	1995940.61	748932.61	35°23'28.488"N	98°00'49.025"W	point
Hines Federal 1H 0235X PBHL 1830'FEL		11609.18	9936.19	573.59	1995890.61	748932.46	35°23'28.486"N	98°00'49.629"W	point
Hines Federal 1H 0235X PBHL 1930'FEL		11613.19	9935.89	473.59	1995790.61	748932.15	35°23'28.483"N	98°00'50.837"W	point
Hines Federal 1H 0235X PBHL 2030'FEL		11616.20	9935.59	373.60	1995690.61	748931.85	35°23'28.480"N	98°00'52.045"W	point
1) Hines Federal 1H 0235X Land 1780'FEL	12301.59	11934.00	548.79	602.26	1995919.27	739544.80	35°21'55.642"N	98°00'49.268"W	point
Hines Federal 1H 0235X Land 1830'FEL		11937.00	548.79	552.26	1995869.27	739544.80	35°21'55.642"N	98°00'49.871"W	point
Hines Federal 1H 0235X Land 1930'FEL		11941.00	548.79	452.26	1995769.27	739544.80	35°21'55.641"N	98°00'51.079"W	point
Hines Federal 1H 0235X Land 2030'FEL		11944.00	548.79	352.26	1995669.27	739544.80	35°21'55.641"N	98°00'52.286"W	point

SURVEY PROGRAM - Ref Wellbore: Hines Federal 1H 0235X ST01 Ref Wellpath: Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	1087.20	BHI Generic gyro - northseeking (Standard)		Hines Federal 1H 0235X Actual
1087.20	11211.00	BHI Generic gyro - northseeking (Standard)		Hines Federal 1H 0235X Actual
11211.00	9999999.00	BHI AutoTrak Curve (Standard)		Hines Federal 1H 0235X ST01



Clearance Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL
Closest Approach
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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert Oklahoma SP, Southern Zone (3502), US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Dehamard
Scale	1.000028	Report Generated	5/31/2017 at 5:14:29 PM
Convergence at slot	0.01° West	Database/Source file	OKc/C:/Users/dehamard/AppData/Roaming/Well Explorer/temp/Cimarex Hines Federal 1H 0235X (Plan 16_01_1780'FEL) Clearance.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1995317.00	738996.00	35°21'50.213"N	98°00'56.538"W
Facility Reference Pt			1995317.00	738996.00	35°21'50.213"N	98°00'56.538"W
Field Reference Pt			609601.22	0.00	33°14'50.100"N	102°32'53.015"W

WELLPATH DATUM

Calculation method	Minimum Curvature	Rig on Hines Federal 1H 0235X (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Rig on Hines Federal 1H 0235X (RKB) to Mean Sea Level	1302.00ft
Vertical Reference Pt	Rig on Hines Federal 1H 0235X (RKB)	Rig on Hines Federal 1H 0235X (RKB) to Mud Line at Slot (Hines Federal 1H 0235X)	25.00ft
MD Reference Pt	Rig on Hines Federal 1H 0235X (RKB)		
Field Vertical Reference	Mean Sea Level		

POSITIONAL UNCERTAINTY CALCULATION SETTINGS

Ellipse Confidence Limit	3.00 Std Dev	Ellipse Start MD	25.00ft	Surface Position Uncertainty	Included
Declination	4.27° East of TN	Dip Angle	63.66°	Mag Field Strength	50536 nT
Slot Surface Uncertainty @1SD		Horizontal	0.000ft	Vertical	0.000ft
Facility Surface Uncertainty @1SD		Horizontal	3.300ft	Vertical	3.000ft
Positional Uncertainty values in the WELLPATH DATA table are the projection of the ellipsoid of uncertainty onto the vertical and horizontal planes					

ANTI-COLLISION RULE

Rule Name	Baker Hughes Stop Drilling (offset is HSE risk)	Rule Based On	Ratio
Plane of Rule	Closest Approach	Threshold Value	1.00
Include Casing & Hole Size	yes	Apply Cone of Safety	no



Clearance Report
Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL
Closest Approach
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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

SURVEY PROGRAM - Ref Wellbore: Hines Federal 1H 0235X ST01 Ref Wellpath: Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	1087.20	BHI Generic gyro - northseeking (Standard)		Hines Federal 1H 0235X Actual
1087.20	11211.00	BHI Generic gyro - northseeking (Standard)		Hines Federal 1H 0235X Actual
11211.00	9999999.00	BHI AutoTrak Curve (Standard)		Hines Federal 1H 0235X ST01

CALCULATION RANGE & CUTOFF		
From: 25.00ft MD	To: 21694.89ft MD	C-C Cutoff: (none)

OFFSET WELL CLEARANCE SUMMARY (1 Offset Wellpath selected) Ratios are calculated in Closest Approach plane											
Offset Facility	Offset Slot	Offset Well	Offset Wellbore	Offset Wellpath	C-C Clearance Distance			ACR Separation Ratio			
					Ref MD [ft]	Min C-C Clear Dist [ft]	Diverging from MD [ft]	Ref MD of Min Ratio [ft]	Min Ratio	Min Ratio Dvrg from [ft]	ACR Status
Hines Federal 1H 0235X Section 2 10N 8W	Hines Federal 1H 0235X	Subject	Hines Federal 1H 0235X Actual	AWP	11211.00	0.00	21669.89	11225.00	0.05	21625.00	FAIL



Clearance Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780°FEL
Closest Approach
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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

CLEARANCE DATA - Offset Wellbore: Hines Federal 1H 0235X Actual Offset Wellpath: AWP

Facility: Hines Federal 1H 0235X Section 2 10N 8W Slot: Hines Federal 1H 0235X Well: Subject Threshold Value=1.00 † = Interpolated/extrapolated station													
Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Horiz Bearing [°]	C-C Clear Dist [ft]	ACR MASD [ft]	Sep Ratio	ACR Status	
11211.00	11158.82	43.43	796.99	11211.00	11158.82	43.43	796.99	0.00	0.00	0.00	N/A	N/A	
11286.00†	11233.64	44.93	793.45	11285.67	11233.44	44.35	799.42	95.60	6.00	3.90	1.54	PASS	
11354.58	11300.80	47.27	780.04	11352.28	11300.00	45.10	801.83	95.70	21.91	7.95	2.76	PASS	
11386.00†	11331.07	48.54	771.71	11382.16	11329.87	45.38	802.99	95.77	31.46	8.39	3.75	PASS	
11486.00†	11427.40	52.58	745.19	11477.80	11425.17	48.10	806.86	94.17	61.87	9.16	6.75	PASS	
11554.58	11493.46	55.37	727.01	11543.76	11490.54	57.57	809.27	88.47	82.34	10.78	7.64	PASS	
11586.00†	11523.67	57.68	718.68	11572.98	11518.89	64.61	810.11	85.66	91.81	11.89	7.72	PASS	
11686.00†	11617.74	78.58	692.66	11668.69	11608.24	98.44	812.39	80.58	121.73	14.93	8.15	PASS	
11786.00†	11705.53	119.33	668.23	11764.87	11690.63	147.73	809.31	78.62	144.68	19.20	7.54	PASS	
11886.00†	11783.18	178.13	646.44	11846.00	11752.76	199.72	809.82	82.47	187.58	24.17	6.93	PASS	
11986.00†	11847.34	252.41	628.26	11935.76	11809.72	268.80	813.67	84.95	189.90	27.56	6.89	PASS	
12086.00†	11895.16	338.94	614.47	12027.20	11855.35	347.83	817.73	87.49	207.31	30.66	6.78	PASS	
12186.00†	11924.58	433.92	605.69	12123.92	11889.44	438.15	821.30	88.88	218.50	34.08	6.41	PASS	
12286.00†	11934.30	533.20	602.29	12224.15	11910.16	536.14	822.46	89.24	221.51	38.05	5.82	PASS	
12301.59	11834.00	548.79	602.26	12239.65	11912.21	551.50	822.48	89.29	221.31	38.45	5.78	PASS	
12386.00†	11931.05	633.14	602.45	12326.57	11919.26	638.12	821.54	88.70	219.47	43.01	5.10	PASS	
12486.00†	11927.56	733.08	602.67	12420.87	11920.37	732.35	820.31	90.19	217.75	48.07	4.53	PASS	
12586.00†	11924.07	833.02	602.90	12515.36	11915.65	826.71	821.58	91.65	218.93	53.51	4.09	PASS	
12686.00†	11920.58	932.96	603.13	12611.83	11910.76	922.99	825.25	92.57	222.56	59.26	3.78	PASS	
12786.00†	11917.09	1032.90	603.36	12710.08	11906.00	1021.02	829.73	93.01	228.86	65.22	3.48	PASS	
12886.00†	11913.60	1132.84	603.58	12809.98	11901.30	1120.67	834.91	93.01	231.97	71.33	3.25	PASS	
12986.00†	11910.11	1232.78	603.81	12912.00	11896.46	1222.47	839.59	92.50	236.40	77.64	3.04	PASS	
13086.00†	11906.62	1332.72	604.04	13013.64	11892.91	1323.97	843.42	92.09	239.94	83.97	2.86	PASS	
13186.00†	11903.13	1432.66	604.26	13112.69	11889.56	1422.91	846.95	92.30	243.26	89.90	2.71	PASS	
13286.00†	11899.64	1532.58	604.48	13216.29	11886.16	1526.39	850.27	91.45	246.23	96.34	2.56	PASS	
13386.00†	11896.15	1632.53	604.72	13318.17	11883.01	1628.20	852.24	91.00	247.91	102.61	2.42	PASS	
13486.00†	11892.66	1732.47	604.95	13418.19	11880.47	1728.18	853.88	90.99	249.27	108.75	2.29	PASS	
13586.00†	11889.17	1832.41	605.17	13519.53	11877.14	1829.46	855.17	90.68	250.30	114.98	2.18	PASS	
13686.00†	11885.68	1932.35	605.40	13621.46	11873.82	1931.33	856.00	90.23	250.88	121.26	2.07	PASS	
13786.00†	11882.18	2032.29	605.63	13726.22	11869.90	2036.01	855.07	89.15	249.78	127.69	1.96	PASS	
13886.00†	11878.70	2132.23	605.85	13827.00	11866.15	2136.69	853.07	88.97	247.57	133.88	1.85	PASS	
13986.00†	11875.21	2232.17	606.08	13926.86	11863.50	2236.50	851.27	88.99	245.50	140.03	1.75	PASS	
14086.00†	11871.72	2332.10	606.31	14027.26	11862.38	2336.87	849.28	88.88	243.20	146.24	1.66	PASS	
14186.00†	11868.23	2432.04	606.54	14133.34	11860.49	2442.90	846.35	87.41	240.18	152.68	1.57	PASS	
14286.00†	11864.74	2531.98	606.76	14237.38	11857.09	2546.70	840.22	86.39	234.04	158.98	1.47	PASS	
14386.00†	11861.26	2631.92	606.99	14333.83	11854.64	2642.95	834.54	87.23	227.91	165.06	1.38	PASS	
14486.00†	11857.77	2731.86	607.22	14441.03	11852.04	2749.92	828.07	85.33	221.67	171.38	1.29	PASS	
14586.00†	11854.28	2831.80	607.44	14543.28	11849.83	2851.73	818.94	84.62	212.47	177.56	1.20	PASS	
14686.00†	11850.79	2931.74	607.67	14643.90	11848.24	2951.86	809.15	84.30	202.50	183.72	1.10	PASS	
14786.00†	11847.30	3031.68	607.90	14742.27	11846.83	3049.76	799.71	84.81	192.86	189.88	1.01	PASS	
14886.00†	11843.81	3131.62	608.13	14842.56	11845.02	3149.56	789.90	84.36	182.66	196.03	0.93	FAIL	
14986.00†	11840.32	3231.55	608.35	14937.96	11842.97	3244.56	781.44	85.70	173.60	202.22	0.86	FAIL	
15086.00†	11836.83	3331.49	608.58	15029.96	11840.89	3336.41	776.84	88.33	168.38	208.18	0.81	FAIL	
15186.00†	11833.34	3431.43	608.81	15126.23	11839.32	3432.65	775.28	89.58	166.58	214.08	0.78	FAIL	
15286.00†	11829.85	3531.37	609.03	15226.59	11837.80	3532.99	774.65	89.44	165.81	220.20	0.75	FAIL	



Clearance Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL
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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

CLEARANCE DATA - Offset Wellbore: Hines Federal 1H 0235X Actual Offset Wellpath: AWP

Facility: Hines Federal 1H 0235X Section 2 10N 8W Slot: Hines Federal 1H 0235X Well: Subject Threshold Value=1.00 † = interpolated/extrapolated station													
Ref MD [ft]	Ref TVD [ft]	Ref North [ft]	Ref East [ft]	Offset MD [ft]	Offset TVD [ft]	Offset North [ft]	Offset East [ft]	Horiz Bearing [°]	C-C Clear Dist [ft]	ACR MASD [ft]	Sep Ratio	ACR Status	
15386.00†	11826.36	3631.31	609.26	15328.61	11836.21	3634.99	772.89	88.71	163.97	226.39	0.72	FAIL	
15486.00†	11822.87	3731.25	609.49	15427.66	11834.28	3734.00	770.92	89.02	161.86	232.39	0.70	FAIL	
15586.00†	11819.38	3831.19	609.72	15525.90	11832.30	3832.22	770.00	89.63	160.81	238.29	0.67	FAIL	
15686.00†	11815.89	3931.13	609.94	15624.31	11830.42	3930.61	769.91	90.19	160.62	244.15	0.66	FAIL	
15786.00†	11812.40	4031.06	610.17	15723.14	11828.79	4029.42	770.93	90.59	161.80	249.98	0.65	FAIL	
15886.00†	11808.91	4131.00	610.40	15822.42	11827.27	4128.67	772.17	90.83	162.82	255.81	0.64	FAIL	
15986.00†	11805.42	4230.94	610.62	15921.25	11825.66	4227.48	774.19	91.21	164.85	261.58	0.63	FAIL	
16086.00†	11801.93	4330.88	610.85	16020.68	11824.06	4326.86	776.67	91.39	167.34	267.39	0.63	FAIL	
16186.00†	11798.44	4430.82	611.08	16122.35	11821.52	4428.46	779.19	90.80	169.70	273.60	0.62	FAIL	
16286.00†	11794.95	4530.76	611.31	16226.67	11816.56	4532.66	780.11	89.36	170.19	280.37	0.61	FAIL	
16386.00†	11791.46	4630.70	611.53	16328.09	11811.30	4633.94	779.03	88.89	168.70	286.85	0.59	FAIL	
16486.00†	11787.97	4730.64	611.76	16428.38	11805.76	4734.07	777.63	88.82	166.86	293.30	0.57	FAIL	
16586.00†	11784.48	4830.58	611.99	16527.70	11800.32	4833.22	776.35	89.08	165.14	299.67	0.55	FAIL	
16686.00†	11780.99	4930.51	612.21	16630.26	11794.76	4935.62	774.38	88.20	162.83	306.19	0.53	FAIL	
16786.00†	11777.50	5030.45	612.44	16729.83	11789.99	5035.04	771.66	88.35	159.78	312.47	0.51	FAIL	
16886.00†	11774.01	5130.39	612.67	16827.36	11786.15	5132.47	770.04	89.24	157.86	318.55	0.50	FAIL	
16986.00†	11770.52	5230.33	612.90	16927.99	11782.43	5233.03	768.99	89.01	156.57	324.77	0.48	FAIL	
17086.00†	11767.03	5330.27	613.12	17031.43	11778.68	5336.36	766.30	87.72	153.74	331.05	0.46	FAIL	
17186.00†	11763.54	5430.21	613.35	17131.06	11775.16	5435.84	762.00	87.83	149.21	337.18	0.44	FAIL	
17286.00†	11760.05	5530.15	613.58	17226.70	11773.32	5531.44	760.27	89.50	147.30	342.86	0.43	FAIL	
17386.00†	11756.56	5630.09	613.80	17324.88	11771.23	5629.60	760.15	90.19	147.08	348.64	0.42	FAIL	
17486.00†	11753.07	5730.02	614.03	17423.19	11767.81	5727.83	761.48	90.85	148.20	354.61	0.42	FAIL	
17586.00†	11749.58	5829.96	614.26	17524.73	11764.09	5829.29	763.29	90.26	149.73	361.01	0.41	FAIL	
17686.00†	11746.09	5929.90	614.49	17628.80	11760.26	5933.29	762.66	88.69	148.89	367.51	0.41	FAIL	
17786.00†	11742.60	6029.84	614.71	17728.32	11756.50	6032.71	760.43	88.87	146.41	373.66	0.39	FAIL	
17886.00†	11739.11	6129.78	614.94	17821.19	11753.06	6125.51	760.73	91.68	146.51	379.06	0.39	FAIL	
17986.00†	11735.62	6229.72	615.17	17921.92	11749.00	6226.06	764.95	91.40	150.43	385.53	0.39	FAIL	
18086.00†	11732.13	6329.66	615.39	18028.29	11743.73	6332.29	765.79	89.00	150.87	392.64	0.38	FAIL	
18186.00†	11728.64	6429.60	615.62	18130.39	11739.38	6434.27	763.44	88.19	148.28	398.98	0.37	FAIL	
18286.00†	11725.15	6529.54	615.85	18232.53	11735.60	6536.26	759.71	87.32	144.40	405.12	0.36	FAIL	
18386.00†	11721.66	6629.47	616.08	18331.67	11732.14	6635.26	755.62	87.62	140.06	411.26	0.34	FAIL	
18486.00†	11718.17	6729.41	616.30	18431.29	11728.84	6734.75	751.70	87.74	135.92	417.34	0.33	FAIL	
18586.00†	11714.68	6829.35	616.53	18527.98	11725.71	6831.36	749.36	89.14	133.30	423.34	0.31	FAIL	
18686.00†	11711.19	6929.29	616.76	18625.84	11722.50	6929.16	749.06	90.06	132.79	429.27	0.31	FAIL	
18786.00†	11707.70	7029.23	616.98	18725.18	11719.26	7028.45	749.60	90.34	133.12	435.31	0.31	FAIL	
18886.00†	11704.21	7129.17	617.21	18823.93	11716.00	7127.14	751.02	90.87	134.35	441.27	0.30	FAIL	
18986.00†	11700.72	7229.11	617.44	18924.54	11712.64	7227.67	752.84	90.61	135.93	447.52	0.30	FAIL	
19086.00†	11697.23	7329.05	617.67	19026.37	11709.17	7329.44	753.39	89.83	136.25	453.88	0.30	FAIL	
19186.00†	11693.74	7428.98	617.89	19125.22	11705.86	7428.24	753.41	90.32	136.06	459.88	0.30	FAIL	
19286.00†	11690.25	7528.92	618.12	19223.31	11702.59	7528.26	755.24	91.11	137.70	465.76	0.30	FAIL	
19386.00†	11686.76	7628.86	618.35	19326.89	11698.85	7629.75	756.88	89.63	139.06	472.43	0.29	FAIL	
19486.00†	11683.27	7728.80	618.57	19431.72	11694.13	7734.44	754.52	87.62	136.49	478.91	0.29	FAIL	
19586.00†	11679.78	7828.74	618.80	19532.62	11690.69	7835.18	749.97	87.19	131.78	484.92	0.27	FAIL	
19686.00†	11676.29	7928.68	619.03	19629.52	11687.53	7931.96	746.37	88.53	127.88	491.02	0.26	FAIL	
19786.00†	11672.80	8028.62	619.26	19726.11	11684.31	8028.49	745.50	90.06	126.77	496.85	0.26	FAIL	



Clearance Report

Hines Federal 1H 0235X ST01 Plan 16_01_1780'FEL
Closest Approach
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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Company	Slot	Hines Federal 1H 0235X
Area	Oklahoma	Well	Hines Federal 1H 0235X ST01
Field	Grady County, OK (Cimarex Energy Company) NAD27 / Grid	Wellbore	Hines Federal 1H 0235X ST01
Facility	Hines Federal 1H 0235X Section 2 10N 8W	Sidetrack from	AWP at 11211.00 MD

CLEARANCE DATA - Offset Wellbore: Hines Federal 1H 0235X Actual Offset Wellpath: AWP

Facility: Hines Federal 1H 0235X Section 2 10N 8W Slot: Hines Federal 1H 0235X Well: Subject Threshold Value=1.00 † = Interpolated/extrapolated station												
Ref MD (ft)	Ref TVD (ft)	Ref North (ft)	Ref East (ft)	Offset MD (ft)	Offset TVD (ft)	Offset North (ft)	Offset East (ft)	Horiz Bearing (°)	C-C Clear Dist (ft)	ACR MASD (ft)	Sep Ratio	ACR Status
19886.00†	11669.31	8128.56	619.48	19825.42	11681.30	8127.75	746.31	90.36	127.40	502.85	0.25	FAIL
19986.00†	11665.82	8228.50	619.71	19925.95	11679.14	8228.26	746.97	90.11	127.96	508.65	0.25	FAIL
20086.00†	11662.33	8328.43	619.94	20027.36	11677.56	8329.65	746.77	89.45	127.75	514.20	0.25	FAIL
20186.00†	11658.84	8428.37	620.16	20128.35	11675.88	8430.61	745.52	88.98	126.52	519.54	0.24	FAIL
20286.00†	11655.35	8528.31	620.39	20227.37	11674.15	8529.62	744.55	89.40	125.58	524.68	0.24	FAIL
20386.00†	11651.86	8628.25	620.62	20320.27	11672.36	8632.48	742.48	88.01	123.64	529.69	0.23	FAIL
20486.00†	11648.37	8728.19	620.85	20431.44	11670.53	8733.54	738.39	87.39	119.74	534.17	0.22	FAIL
20586.00†	11644.88	8828.13	621.07	20530.16	11668.21	8832.18	735.02	87.96	116.38	538.96	0.22	FAIL
20686.00†	11641.39	8928.07	621.30	20629.92	11665.70	8931.86	732.02	88.04	113.42	543.69	0.21	FAIL
20786.00†	11637.90	9028.01	621.53	20729.12	11663.31	9031.00	729.42	88.41	110.88	548.19	0.20	FAIL
20886.00†	11634.41	9127.94	621.75	20828.14	11660.81	9129.98	727.73	88.90	109.24	552.79	0.20	FAIL
20986.00†	11630.92	9227.88	621.98	20927.48	11658.18	9229.28	726.82	89.24	108.34	557.58	0.19	FAIL
21086.00†	11627.43	9327.82	622.21	21026.29	11655.60	9328.05	726.60	89.88	108.13	562.34	0.19	FAIL
21186.00†	11623.94	9427.76	622.44	21125.11	11652.99	9426.83	727.74	90.51	109.25	567.45	0.19	FAIL
21286.00†	11620.45	9527.70	622.66	21225.87	11650.30	9527.55	729.28	90.08	110.72	573.05	0.19	FAIL
21386.00†	11616.96	9627.64	622.89	21326.67	11647.64	9628.31	729.68	89.84	111.11	578.21	0.19	FAIL
21486.00†	11613.47	9727.58	623.12	21427.18	11644.96	9728.78	729.58	89.35	111.03	583.13	0.19	FAIL
21586.00†	11609.98	9827.52	623.34	21526.73	11642.27	9828.29	729.39	89.58	110.86	587.88	0.19	FAIL
21669.89†	11607.05	9911.36	623.53	21604.00	11640.22	9905.53	729.06	93.16	110.76	589.88	0.19	FAIL
21694.89	11606.16	9936.34	623.59	21604.00	11640.22	9905.53	729.06	108.28	115.02	566.25	0.20	FAIL

POSITIONAL UNCERTAINTY - Offset Wellbore: Hines Federal 1H 0235X Actual Offset Wellpath: AWP

Slot Surface Uncertainty @1SD	Horizontal	0.000ft	Vertical	0.000ft
Facility Surface Uncertainty @1SD	Horizontal	3.300ft	Vertical	3.000ft

WELLPATH COMPOSITION - Offset Wellbore: Hines Federal 1H 0235X Actual Offset Wellpath: AWP

Start MD (ft)	End MD (ft)	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	1087.20	BHI Generic gyro - northseeking (Standard)	Gyros	Hines Federal 1H 0235X Actual
1087.20	11414.00	BHI Generic gyro - northseeking (Standard)	Gyro 5-14-2017	Hines Federal 1H 0235X Actual
11414.00	21604.00	BHI AutoTrak Curve (Standard)	BHI ATC	Hines Federal 1H 0235X Actual

OFFSET WELLPATH REFERENCE - Offset Wellbore: Hines Federal 1H 0235X Actual Offset Wellpath: AWP

MD Reference: Rig on Hines Federal 1H 0235X (RKB)	Offset TVD & local coordinates use Reference Wellpath settings (See WELLPATH DATUM on page 1 of this report)
Ellipse Start MD	11211.00ft

