

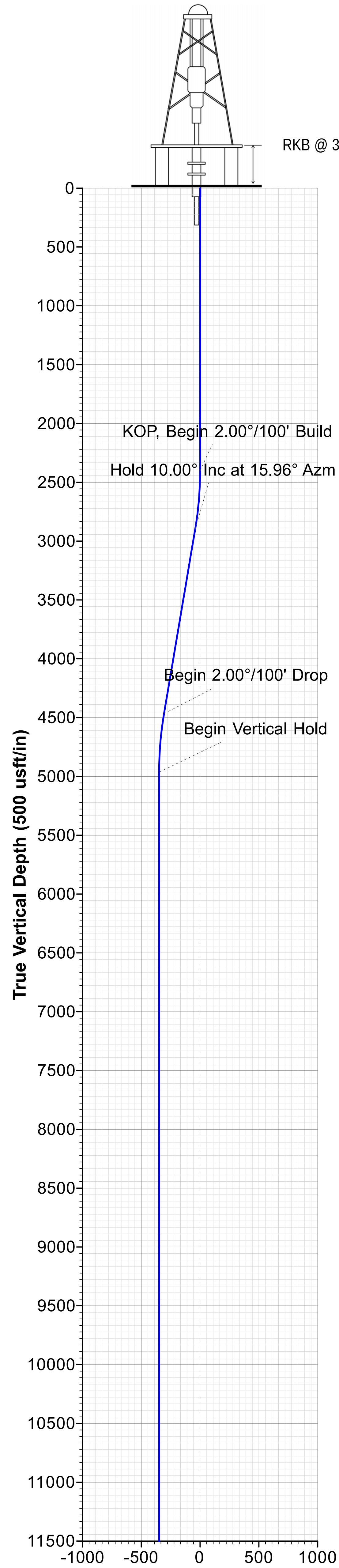
Kaiser-Francis Oil Company

Project: Lea County, NM (NAD27)
Site: Red Hill
Well: 401H
Wellbore: OH
Design: Plan 1 05-11-18
Rig: Cactus 171



Azimuths to Grid North
True North: -0.38°
Magnetic North: 6.37°

Magnetic Field
Strength: 47861.0snT
Dip Angle: 59.76°
Date: 6/11/2018
Model: MVHD



RKB @ 3328.40usft (Cactus 171)

3305.40

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - Red Hill 401H	12350.00	-7196.05	30.31	388496.70	721517.47	32° 3' 57.87101 N	103° 37' 5.67650 W

WELL DETAILS							
				3305.40			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
0.00	0.00	395692.75	721487.16	32° 5' 9.08399 N	103° 37' 5.47441 W		

SECTION DETAILS												
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation	
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		KOP, Begin 2.00°/100' Build	
2	2400.00	0.00	0.00	2400.00	0.00	0.00	0.00	0.00	0.00		Hold 10.00° Inc at 15.96° Azm	
3	2899.94	10.00	15.96	2897.40	41.83	11.96	2.00	15.96	-41.72		Begin 2.00°/100' Drop	
4	4493.33	10.00	15.96	4466.60	307.83	88.04	0.00	0.00	-306.95		Begin Vertical Hold	
5	4993.27	0.00	0.00	4964.00	349.66	100.00	2.00	180.00	-348.67		KOP2, Begin 9.00°/100' Build	
6	11742.65	0.00	0.00	11713.38	349.66	100.00	0.00	0.00	-348.67		LP, Hold 90.00° Inc, Begin 2.00°/100' Turn	
7	12742.65	90.00	188.90	12350.00	-279.29	1.51	9.00	188.90	279.30		Hold 179.44° Azm	
8	13215.72	90.00	179.44	12350.00	-750.58	-32.85	2.00	-90.00	750.22		TD at 19661.50	
9	19661.50	90.00	179.44	12350.00	-7196.05	30.31	0.00	0.00	7196.00	BHL - Red Hill 401H		

CASING DETAILS
No casing data is available

LEGEND

- 001H, OH, Plan 1 05-02-18 V0
- 101H, OH, Plan 2 05-11-18 V0
- 101H, OH, Plan 1 05-09-18 V0
- Plan 1 05-11-18

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

Local Origin: Well 401H, Grid North

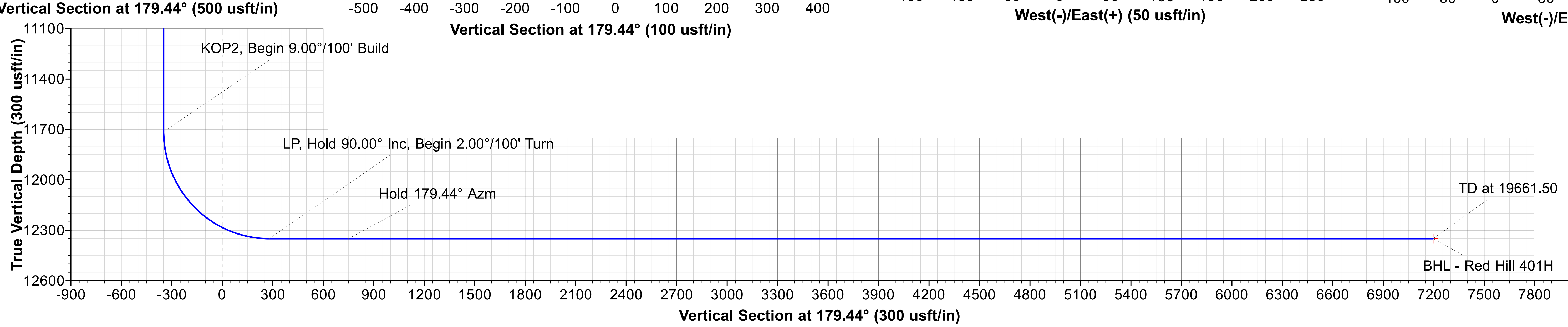
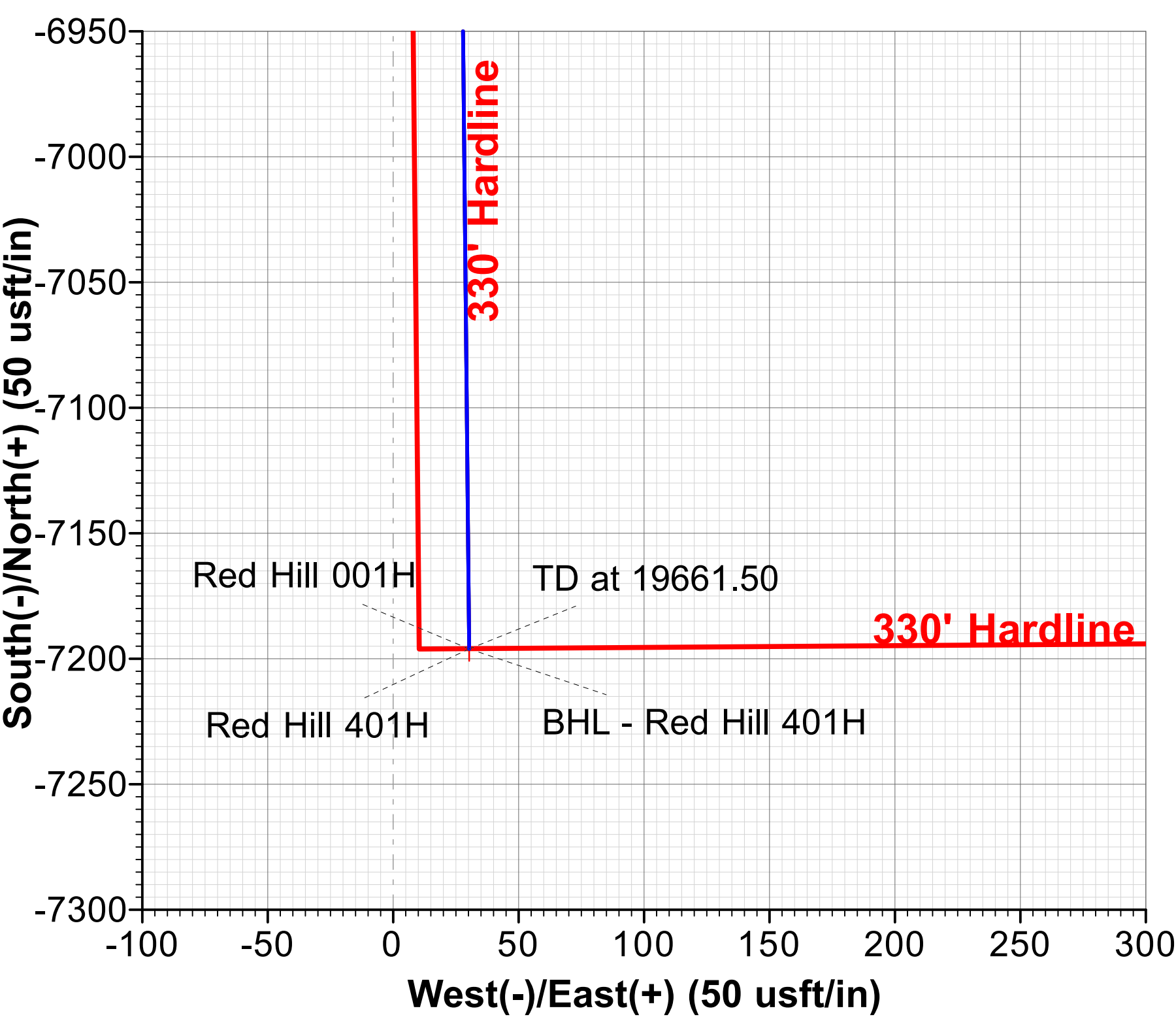
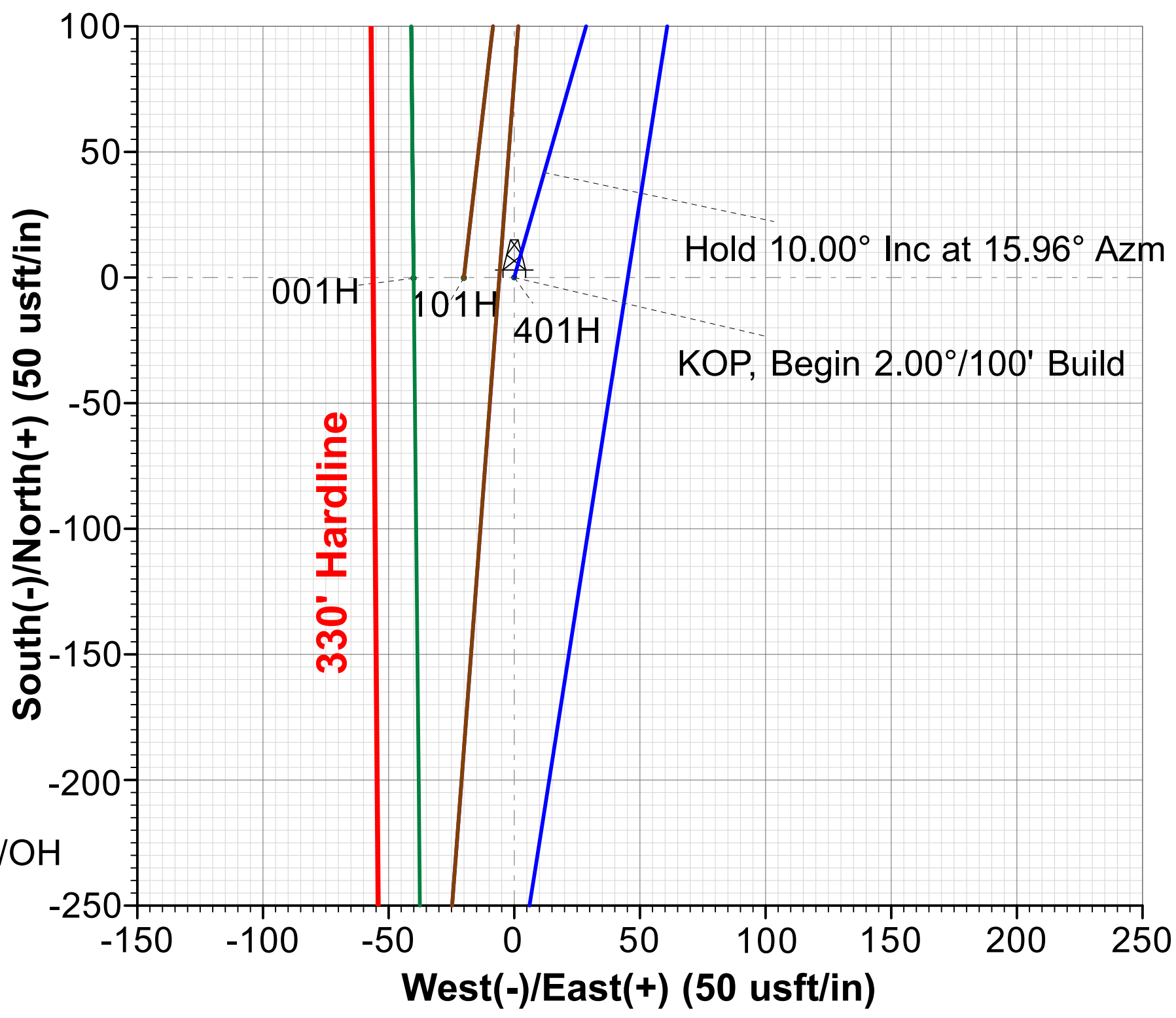
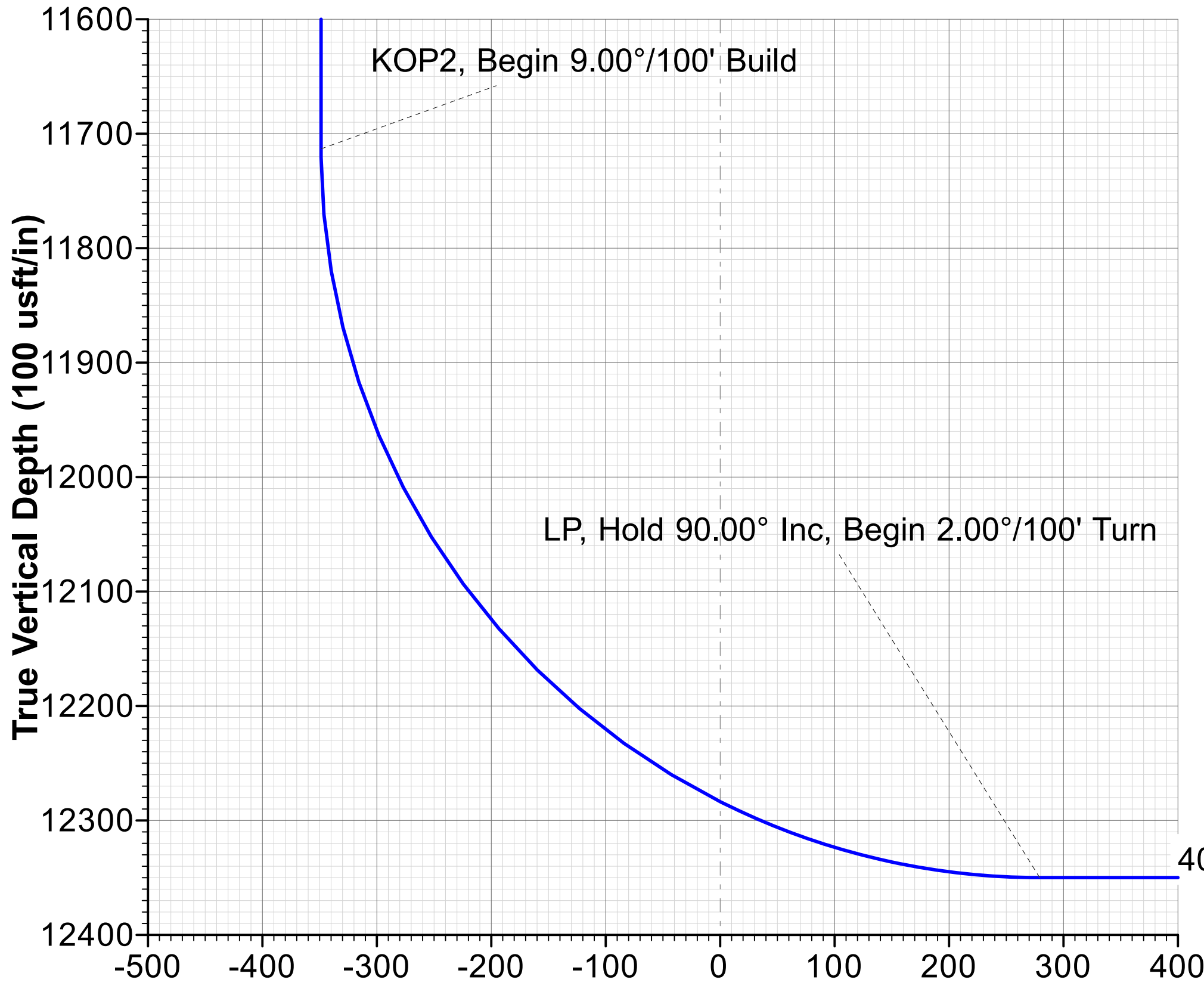
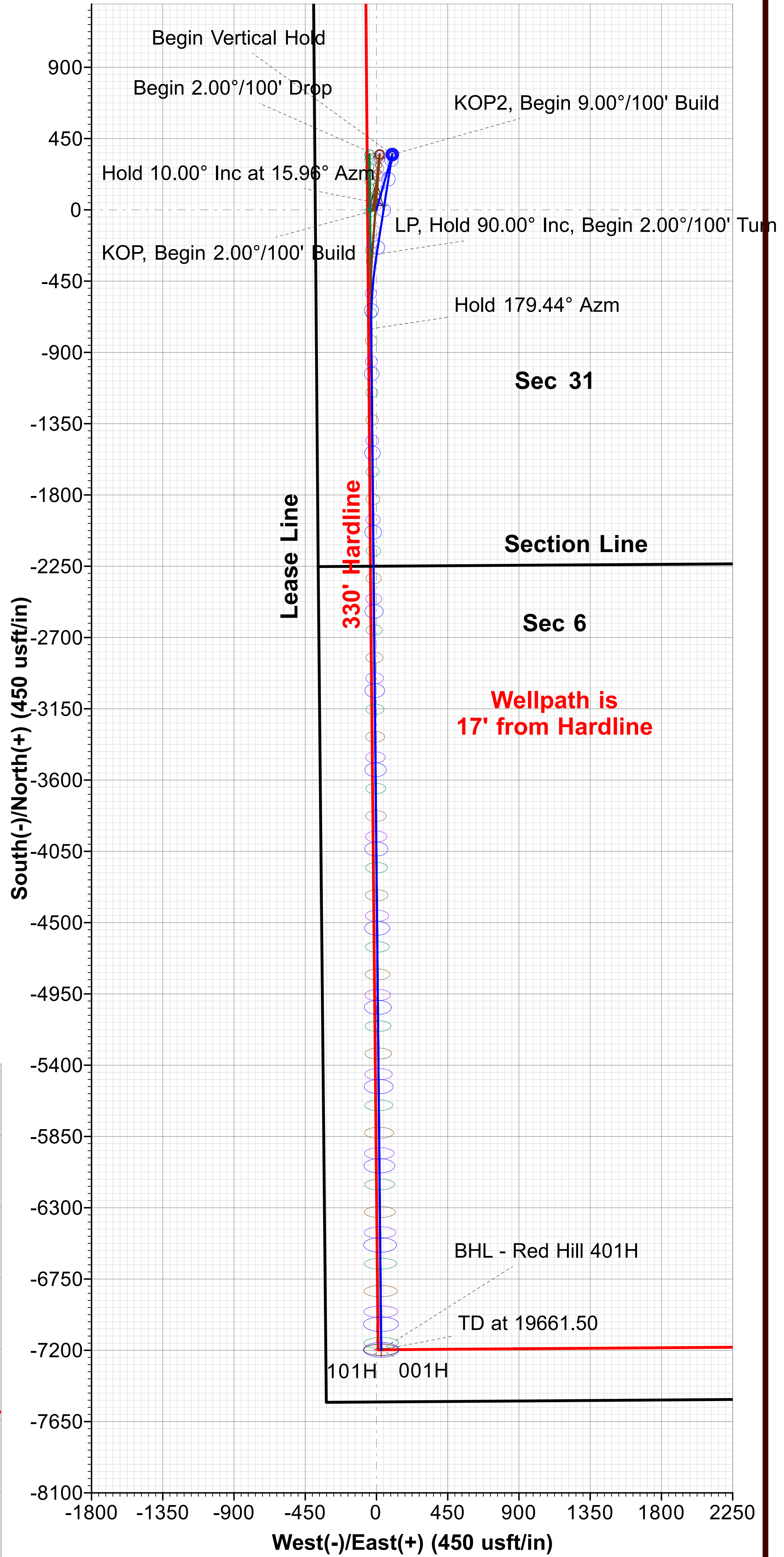
Latitude: 32° 5' 9.08399 N
Longitude: 103° 37' 5.47441 W

Grid East: 721487.16
Grid North: 395692.75
Scale Factor: 1.000

Geomagnetic Model: MVHD
Sample Date: 11-Jun-18
Magnetic Declination: 6.75°
Dip Angle from Horizontal: 59.76°
Magnetic Field Strength: 47861.03460686nT

To convert a Magnetic Direction to a Grid Direction, Add 6.37°
To convert a Magnetic Direction to a True Direction, Add 6.75° East
To convert a True Direction to a Grid Direction, Subtract 0.38°

FORMATION TOP DETAILS
No formation data is available



Kaiser-Francis Oil Company

Lea County, NM (NAD27)

Red Hill

401H

OH

Plan: Plan 1 05-11-18

Standard Planning Report

11 May, 2018



Planning Report



Database:	USA Compass	Local Co-ordinate Reference:	Well 401H
Company:	Kaiser-Francis Oil Company	TVD Reference:	RKB @ 3328.40usft (Cactus 171)
Project:	Lea County, NM (NAD27)	MD Reference:	RKB @ 3328.40usft (Cactus 171)
Site:	Red Hill	North Reference:	Grid
Well:	401H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 05-11-18		

Project	Lea County, NM (NAD27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site		Red Hill			
Site Position:		Northing:	395,692.47 usft	Latitude:	32° 5' 9.08384 N
From:	Map	Easting:	721,447.16 usft	Longitude:	103° 37' 5.93936 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.38 °

Well	401H					
Well Position	+N/-S	0.28 usft	Northing:	395,692.75 usft	Latitude:	32° 5' 9.08399 N
	+E/-W	40.00 usft	Easting:	721,487.16 usft	Longitude:	103° 37' 5.47442 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,305.40 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	6/11/2018	6.75	59.76	47,861.03460686

Design	Plan 1 05-11-18			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.44

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,899.94	10.00	15.96	2,897.40	41.83	11.96	2.00	2.00	0.00	15.96	
4,493.33	10.00	15.96	4,466.60	307.83	88.04	0.00	0.00	0.00	0.00	
4,993.27	0.00	0.00	4,964.00	349.66	100.00	2.00	-2.00	0.00	180.00	
11,742.65	0.00	0.00	11,713.38	349.66	100.00	0.00	0.00	0.00	0.00	
12,742.65	90.00	188.90	12,350.00	-279.29	1.51	9.00	9.00	0.00	188.90	
13,215.72	90.00	179.44	12,350.00	-750.58	-32.85	2.00	0.00	-2.00	-90.00	
19,661.50	90.00	179.44	12,350.00	-7,196.05	30.31	0.00	0.00	0.00	0.00	0.00 BHL - Red Hill 401H

Database:	USA Compass	Local Co-ordinate Reference:	Well 401H
Company:	Kaiser-Francis Oil Company	TVD Reference:	RKB @ 3328.40usft (Cactus 171)
Project:	Lea County, NM (NAD27)	MD Reference:	RKB @ 3328.40usft (Cactus 171)
Site:	Red Hill	North Reference:	Grid
Well:	401H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 05-11-18		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100' Build									
2,500.00	2.00	15.96	2,499.98	1.68	0.48	-1.67	2.00	2.00	0.00
2,600.00	4.00	15.96	2,599.84	6.71	1.92	-6.69	2.00	2.00	0.00
2,700.00	6.00	15.96	2,699.45	15.09	4.32	-15.05	2.00	2.00	0.00
2,800.00	8.00	15.96	2,798.70	26.81	7.67	-26.73	2.00	2.00	0.00
2,899.94	10.00	15.96	2,897.40	41.83	11.96	-41.72	2.00	2.00	0.00
Hold 10.00° Inc at 15.96° Azm									
2,900.00	10.00	15.96	2,897.47	41.84	11.97	-41.73	0.00	0.00	0.00
3,000.00	10.00	15.96	2,995.95	58.54	16.74	-58.37	0.00	0.00	0.00
3,100.00	10.00	15.96	3,094.43	75.23	21.52	-75.02	0.00	0.00	0.00
3,200.00	10.00	15.96	3,192.91	91.93	26.29	-91.66	0.00	0.00	0.00
3,300.00	10.00	15.96	3,291.39	108.62	31.06	-108.31	0.00	0.00	0.00
3,400.00	10.00	15.96	3,389.87	125.31	35.84	-124.96	0.00	0.00	0.00
3,500.00	10.00	15.96	3,488.35	142.01	40.61	-141.60	0.00	0.00	0.00
3,600.00	10.00	15.96	3,586.83	158.70	45.39	-158.25	0.00	0.00	0.00
3,700.00	10.00	15.96	3,685.31	175.39	50.16	-174.89	0.00	0.00	0.00
3,800.00	10.00	15.96	3,783.80	192.09	54.93	-191.54	0.00	0.00	0.00
3,900.00	10.00	15.96	3,882.28	208.78	59.71	-208.19	0.00	0.00	0.00
4,000.00	10.00	15.96	3,980.76	225.47	64.48	-224.83	0.00	0.00	0.00
4,100.00	10.00	15.96	4,079.24	242.17	69.26	-241.48	0.00	0.00	0.00
4,200.00	10.00	15.96	4,177.72	258.86	74.03	-258.12	0.00	0.00	0.00
4,300.00	10.00	15.96	4,276.20	275.55	78.81	-274.77	0.00	0.00	0.00
4,400.00	10.00	15.96	4,374.68	292.25	83.58	-291.41	0.00	0.00	0.00
4,493.33	10.00	15.96	4,466.60	307.83	88.04	-306.95	0.00	0.00	0.00
Begin 2.00°/100' Drop									
4,500.00	9.87	15.96	4,473.17	308.93	88.35	-308.05	2.00	-2.00	0.00
4,600.00	7.87	15.96	4,571.97	323.75	92.59	-322.83	2.00	-2.00	0.00
4,700.00	5.87	15.96	4,671.24	335.24	95.88	-334.29	2.00	-2.00	0.00
4,800.00	3.87	15.96	4,770.88	343.39	98.21	-342.42	2.00	-2.00	0.00
4,900.00	1.87	15.96	4,870.75	348.20	99.58	-347.21	2.00	-2.00	0.00
4,993.27	0.00	0.00	4,964.00	349.66	100.00	-348.67	2.00	-2.00	0.00
Begin Vertical Hold									
11,742.65	0.00	0.00	11,713.38	349.66	100.00	-348.67	0.00	0.00	0.00
KOP2, Begin 9.00°/100' Build									
11,800.00	5.16	188.90	11,770.65	347.11	99.60	-346.12	9.00	9.00	0.00
11,900.00	14.16	188.90	11,869.13	330.55	97.01	-329.58	9.00	9.00	0.00
12,000.00	23.16	188.90	11,963.78	298.97	92.06	-298.05	9.00	9.00	0.00
12,100.00	32.16	188.90	12,052.26	253.15	84.89	-252.31	9.00	9.00	0.00
12,200.00	41.16	188.90	12,132.39	194.22	75.66	-193.47	9.00	9.00	0.00
12,300.00	50.16	188.90	12,202.21	123.63	64.60	-122.99	9.00	9.00	0.00
12,400.00	59.16	188.90	12,259.99	43.12	52.00	-42.61	9.00	9.00	0.00
12,500.00	68.16	188.90	12,304.31	-45.33	38.15	45.70	9.00	9.00	0.00
12,600.00	77.16	188.90	12,334.09	-139.54	23.39	139.76	9.00	9.00	0.00
12,700.00	86.16	188.90	12,348.57	-237.19	8.10	237.26	9.00	9.00	0.00
12,742.65	90.00	188.90	12,350.00	-279.29	1.51	279.30	9.00	9.00	0.00
LP, Hold 90.00° Inc, Begin 2.00°/100' Turn									
12,800.00	90.00	187.75	12,350.00	-336.04	-6.80	335.96	2.00	0.00	-2.00
12,900.00	90.00	185.75	12,350.00	-435.34	-18.56	435.14	2.00	0.00	-2.00
13,000.00	90.00	183.75	12,350.00	-534.99	-26.84	534.71	2.00	0.00	-2.00
13,100.00	90.00	181.75	12,350.00	-634.87	-31.64	634.53	2.00	0.00	-2.00
13,200.00	90.00	179.75	12,350.00	-734.86	-32.96	734.50	2.00	0.00	-2.00

Planning Report



Database:	USA Compass	Local Co-ordinate Reference:	Well 401H
Company:	Kaiser-Francis Oil Company	TVD Reference:	RKB @ 3328.40usft (Cactus 171)
Project:	Lea County, NM (NAD27)	MD Reference:	RKB @ 3328.40usft (Cactus 171)
Site:	Red Hill	North Reference:	Grid
Well:	401H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 05-11-18		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,215.72	90.00	179.44	12,350.00	-750.58	-32.85	750.22	2.00	0.00	-2.00
Hold 179.44° Azm									
13,300.00	90.00	179.44	12,350.00	-834.85	-32.02	834.50	0.00	0.00	0.00
13,400.00	90.00	179.44	12,350.00	-934.85	-31.04	934.50	0.00	0.00	0.00
13,500.00	90.00	179.44	12,350.00	-1,034.84	-30.06	1,034.50	0.00	0.00	0.00
13,600.00	90.00	179.44	12,350.00	-1,134.84	-29.08	1,134.50	0.00	0.00	0.00
13,700.00	90.00	179.44	12,350.00	-1,234.84	-28.10	1,234.50	0.00	0.00	0.00
13,800.00	90.00	179.44	12,350.00	-1,334.83	-27.12	1,334.50	0.00	0.00	0.00
13,900.00	90.00	179.44	12,350.00	-1,434.83	-26.14	1,434.50	0.00	0.00	0.00
14,000.00	90.00	179.44	12,350.00	-1,534.82	-25.16	1,534.50	0.00	0.00	0.00
14,100.00	90.00	179.44	12,350.00	-1,634.82	-24.18	1,634.50	0.00	0.00	0.00
14,200.00	90.00	179.44	12,350.00	-1,734.81	-23.20	1,734.50	0.00	0.00	0.00
14,300.00	90.00	179.44	12,350.00	-1,834.81	-22.22	1,834.50	0.00	0.00	0.00
14,400.00	90.00	179.44	12,350.00	-1,934.80	-21.24	1,934.50	0.00	0.00	0.00
14,500.00	90.00	179.44	12,350.00	-2,034.80	-20.26	2,034.50	0.00	0.00	0.00
14,600.00	90.00	179.44	12,350.00	-2,134.79	-19.28	2,134.50	0.00	0.00	0.00
14,700.00	90.00	179.44	12,350.00	-2,234.79	-18.30	2,234.50	0.00	0.00	0.00
14,800.00	90.00	179.44	12,350.00	-2,334.78	-17.32	2,334.50	0.00	0.00	0.00
14,900.00	90.00	179.44	12,350.00	-2,434.78	-16.34	2,434.50	0.00	0.00	0.00
15,000.00	90.00	179.44	12,350.00	-2,534.77	-15.36	2,534.50	0.00	0.00	0.00
15,100.00	90.00	179.44	12,350.00	-2,634.77	-14.38	2,634.50	0.00	0.00	0.00
15,200.00	90.00	179.44	12,350.00	-2,734.76	-13.40	2,734.50	0.00	0.00	0.00
15,300.00	90.00	179.44	12,350.00	-2,834.76	-12.42	2,834.50	0.00	0.00	0.00
15,400.00	90.00	179.44	12,350.00	-2,934.75	-11.44	2,934.50	0.00	0.00	0.00
15,500.00	90.00	179.44	12,350.00	-3,034.75	-10.46	3,034.50	0.00	0.00	0.00
15,600.00	90.00	179.44	12,350.00	-3,134.74	-9.49	3,134.50	0.00	0.00	0.00
15,700.00	90.00	179.44	12,350.00	-3,234.74	-8.51	3,234.50	0.00	0.00	0.00
15,800.00	90.00	179.44	12,350.00	-3,334.73	-7.53	3,334.50	0.00	0.00	0.00
15,900.00	90.00	179.44	12,350.00	-3,434.73	-6.55	3,434.50	0.00	0.00	0.00
16,000.00	90.00	179.44	12,350.00	-3,534.72	-5.57	3,534.50	0.00	0.00	0.00
16,100.00	90.00	179.44	12,350.00	-3,634.72	-4.59	3,634.50	0.00	0.00	0.00
16,200.00	90.00	179.44	12,350.00	-3,734.72	-3.61	3,734.50	0.00	0.00	0.00
16,300.00	90.00	179.44	12,350.00	-3,834.71	-2.63	3,834.50	0.00	0.00	0.00
16,400.00	90.00	179.44	12,350.00	-3,934.71	-1.65	3,934.50	0.00	0.00	0.00
16,500.00	90.00	179.44	12,350.00	-4,034.70	-0.67	4,034.50	0.00	0.00	0.00
16,600.00	90.00	179.44	12,350.00	-4,134.70	0.31	4,134.50	0.00	0.00	0.00
16,700.00	90.00	179.44	12,350.00	-4,234.69	1.29	4,234.50	0.00	0.00	0.00
16,800.00	90.00	179.44	12,350.00	-4,334.69	2.27	4,334.50	0.00	0.00	0.00
16,900.00	90.00	179.44	12,350.00	-4,434.68	3.25	4,434.50	0.00	0.00	0.00
17,000.00	90.00	179.44	12,350.00	-4,534.68	4.23	4,534.50	0.00	0.00	0.00
17,100.00	90.00	179.44	12,350.00	-4,634.67	5.21	4,634.50	0.00	0.00	0.00
17,200.00	90.00	179.44	12,350.00	-4,734.67	6.19	4,734.50	0.00	0.00	0.00
17,300.00	90.00	179.44	12,350.00	-4,834.66	7.17	4,834.50	0.00	0.00	0.00
17,400.00	90.00	179.44	12,350.00	-4,934.66	8.15	4,934.50	0.00	0.00	0.00
17,500.00	90.00	179.44	12,350.00	-5,034.65	9.13	5,034.50	0.00	0.00	0.00
17,600.00	90.00	179.44	12,350.00	-5,134.65	10.11	5,134.50	0.00	0.00	0.00
17,700.00	90.00	179.44	12,350.00	-5,234.64	11.09	5,234.50	0.00	0.00	0.00
17,800.00	90.00	179.44	12,350.00	-5,334.64	12.07	5,334.50	0.00	0.00	0.00
17,900.00	90.00	179.44	12,350.00	-5,434.63	13.05	5,434.50	0.00	0.00	0.00
18,000.00	90.00	179.44	12,350.00	-5,534.63	14.03	5,534.50	0.00	0.00	0.00
18,100.00	90.00	179.44	12,350.00	-5,634.62	15.01	5,634.50	0.00	0.00	0.00
18,200.00	90.00	179.44	12,350.00	-5,734.62	15.99	5,734.50	0.00	0.00	0.00
18,300.00	90.00	179.44	12,350.00	-5,834.61	16.97	5,834.50	0.00	0.00	0.00
18,400.00	90.00	179.44	12,350.00	-5,934.61	17.95	5,934.50	0.00	0.00	0.00

Database:	USA Compass	Local Co-ordinate Reference:	Well 401H
Company:	Kaiser-Francis Oil Company	TVD Reference:	RKB @ 3328.40usft (Cactus 171)
Project:	Lea County, NM (NAD27)	MD Reference:	RKB @ 3328.40usft (Cactus 171)
Site:	Red Hill	North Reference:	Grid
Well:	401H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 05-11-18		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,500.00	90.00	179.44	12,350.00	-6,034.60	18.93	6,034.50	0.00	0.00	0.00
18,600.00	90.00	179.44	12,350.00	-6,134.60	19.91	6,134.50	0.00	0.00	0.00
18,700.00	90.00	179.44	12,350.00	-6,234.60	20.89	6,234.50	0.00	0.00	0.00
18,800.00	90.00	179.44	12,350.00	-6,334.59	21.87	6,334.50	0.00	0.00	0.00
18,900.00	90.00	179.44	12,350.00	-6,434.59	22.85	6,434.50	0.00	0.00	0.00
19,000.00	90.00	179.44	12,350.00	-6,534.58	23.83	6,534.50	0.00	0.00	0.00
19,100.00	90.00	179.44	12,350.00	-6,634.58	24.81	6,634.50	0.00	0.00	0.00
19,200.00	90.00	179.44	12,350.00	-6,734.57	25.79	6,734.50	0.00	0.00	0.00
19,300.00	90.00	179.44	12,350.00	-6,834.57	26.77	6,834.50	0.00	0.00	0.00
19,400.00	90.00	179.44	12,350.00	-6,934.56	27.75	6,934.50	0.00	0.00	0.00
19,500.00	90.00	179.44	12,350.00	-7,034.56	28.73	7,034.50	0.00	0.00	0.00
19,600.00	90.00	179.44	12,350.00	-7,134.55	29.71	7,134.50	0.00	0.00	0.00
19,661.50	90.00	179.44	12,350.00	-7,196.05	30.31	7,196.00	0.00	0.00	0.00
TD at 19661.50									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL - Red Hill 401H	0.00	0.00	12,350.00	-7,196.05	30.31	388,496.70	721,517.47	32° 3' 57.87101 N	103° 37' 5.67650 W
- plan hits target center									
- Point									
VT - Red Hill 401H	0.00	0.00	12,350.00	349.66	-43.40	396,042.41	721,443.76	32° 5' 12.54701 N	103° 37' 5.95191 W
- plan misses target center by 285.75usft at 12255.48usft MD (12172.52 TVD, 156.39 N, 69.74 E)									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
2,400.00	2,400.00	0.00	0.00	KOP, Begin 2.00°/100' Build
2,899.94	2,897.40	41.83	11.96	Hold 10.00° Inc at 15.96° Azm
4,493.33	4,466.60	307.83	88.04	Begin 2.00°/100' Drop
4,993.27	4,964.00	349.66	100.00	Begin Vertical Hold
11,742.65	11,713.38	349.66	100.00	KOP2, Begin 9.00°/100' Build
12,742.65	12,350.00	-279.29	1.51	LP, Hold 90.00° Inc, Begin 2.00°/100' Turn
13,215.72	12,350.00	-750.58	-32.85	Hold 179.44° Azm
19,661.50	12,350.00	-7,196.05	30.31	TD at 19661.50