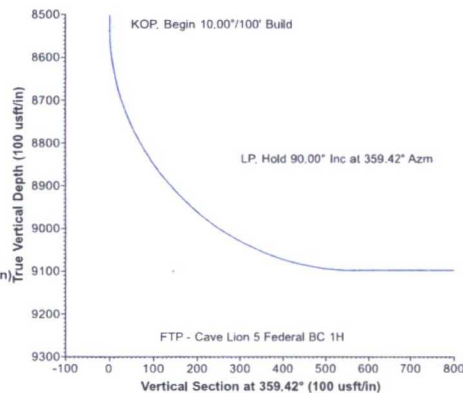
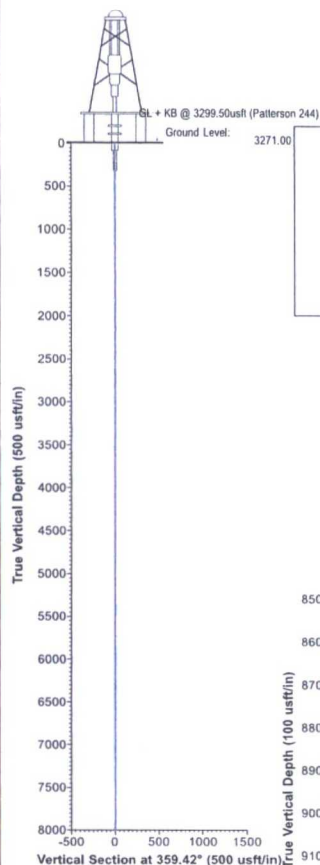


WELL DETAILS							
+N-S	+E-W	North	East	Latitude	Longitude	Ground Level	
0.00	0.00	388805.07	790215.00	32° 3' 55.71944 N	103° 23' 47.37063 W	3271.00	

SECTION DETAILS										
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSec	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
8527.04	0.00	0.00	8527.04	0.00	0.00	0.00	0.00	0.00		KOP, Begin 10.00°/100' Build
9427.04	90.00	359.42	9100.00	572.93	-5.81	10.00	359.42	572.96		LP, Hold 90.00° Inc at 359.42° Azm
13623.37	90.00	359.42	9100.00	4769.04	-48.37	0.00	0.00	4769.29		BHL - Cave Lion 5 Federal BC 1H TD at 13623.37

DESIGN TARGET DETAILS							
Name	TVD	+N-S	+E-W	North	East	Latitude	Longitude
BHL - Cave Lion 5 Federal BC 1H	9100.00	4769.04	-48.37	393574.11	790166.63	32° 4' 42.91466 N	103° 23' 47.45152 W
FTP - Cave Lion 5 Federal BC 1H	9100.00	144.97	-1.41	388950.04	790213.59	32° 3' 57.15408 N	103° 23' 47.37239 W

LEGEND

Plan 1 01-26-17

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

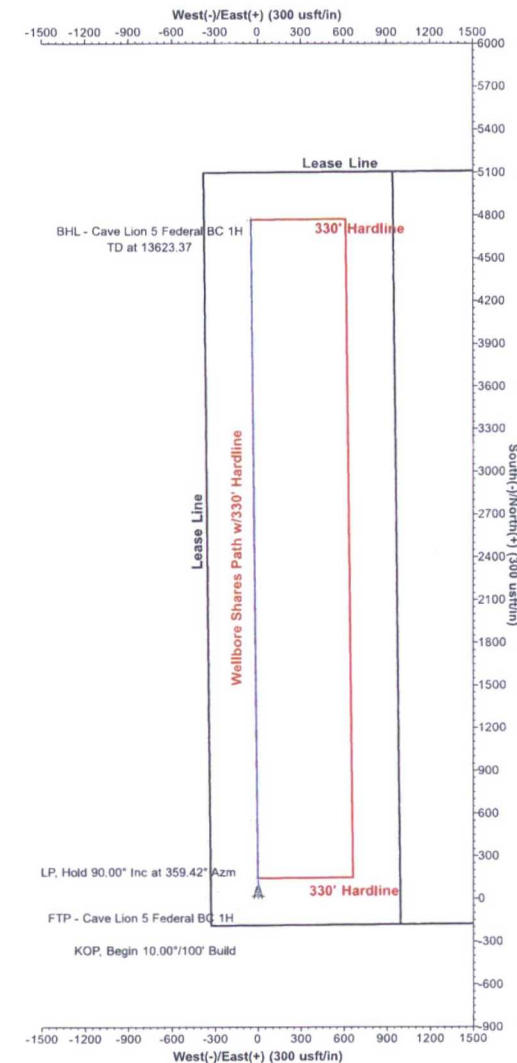
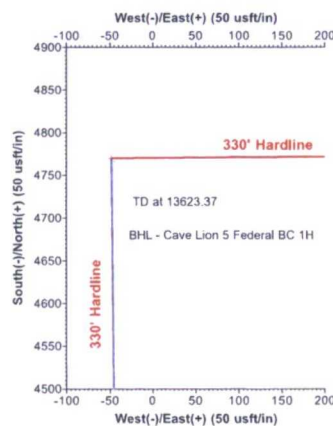
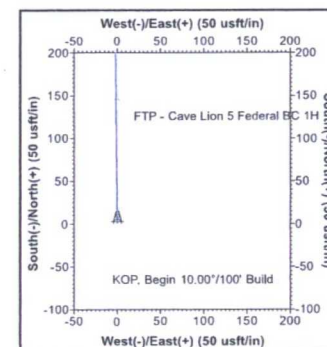
Local Origin: Well 1H, Grid North

Latitude: 32° 3' 55.71944 N
 Longitude: 103° 23' 47.37063 W

Grid East: 790215.00
 Grid North: 388805.07
 Scale Factor: 1.000

Geomagnetic Model: HDGM
 Sample Date: 26-Jan-17
 Magnetic Declination: 6.80°
 Dip Angle from Horizontal: 59.80°
 Magnetic Field Strength: 47970

To convert a Magnetic Direction to a Grid Direction, Add 6.30°
 To convert a Magnetic Direction to a True Direction, Add 6.80° East
 To convert a True Direction to a Grid Direction, Subtract 0.50°





BC Operating, Inc.

Lea County, NM (NAD27 NME)
Cave Lion 5 Federal BC
1H

OH

Plan: Plan 1 01-26-17

HOBBS OCD
AUG 08 2017
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Standard Planning Report

26 January, 2017



Database: Compass 5000 GCR
Company: BC Operating, Inc.
Project: Lea County, NM (NAD27 NME)
Site: Cave Lion 5 Federal BC
Well: 1H
Wellbore: OH
Design: Plan 1 01-26-17

Local Co-ordinate Reference: Well 1H
TVD Reference: GL + KB @ 3299.50usft (Patterson 244)
MD Reference: GL + KB @ 3299.50usft (Patterson 244)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Lea County, NM (NAD27 NME)		
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 Cave Lion 5 Federal BC

Site Position:		Northing:	388,805.07 usft	Latitude:	32° 3' 55.71944 N
From:	Map	Easting:	790,215.00 usft	Longitude:	103° 23' 47.37063 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.50 °

Well	1H					
Well Position	+N/-S	0.00 usft	Northing:	388,805.07 usft	Latitude:	32° 3' 55.71944 N
	+E/-W	0.00 usft	Easting:	790,215.00 usft	Longitude:	103° 23' 47.37063 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,271.00 usft	

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/26/2017	6.80	59.80	47,970

Design Plan 1 01-26-17

Audit Notes:

Version: Phase: PROTOTYPE Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.42

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	
8,527.04	0.00	0.00	8,527.04	0.00	0.00	0.00	0.00	0.00	0.00	
9,427.04	90.00	359.42	9,100.00	572.93	-5.81	10.00	10.00	0.00	359.42	
13,623.37	90.00	359.42	9,100.00	4,769.04	-48.37	0.00	0.00	0.00	0.00	BHL - Cave Lion 5 I

Database: Compass 5000 GCR
Company: BC Operating, Inc.
Project: Lea County, NM (NAD27 NME)
Site: Cave Lion 5 Federal BC
Well: 1H
Wellbore: OH
Design: Plan 1 01-26-17

Local Co-ordinate Reference: Well 1H
TVD Reference: GL + KB @ 3299.50usft (Patterson 244)
MD Reference: GL + KB @ 3299.50usft (Patterson 244)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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
8,527.04	0.00	0.00	8,527.04	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 10.00°/100' Build									
8,600.00	7.30	359.42	8,599.80	4.64	-0.05	4.64	10.00	10.00	0.00
8,700.00	17.30	359.42	8,697.39	25.91	-0.26	25.91	10.00	10.00	0.00
8,800.00	27.30	359.42	8,789.79	63.79	-0.65	63.80	10.00	10.00	0.00
8,900.00	37.30	359.42	8,874.21	117.15	-1.19	117.16	10.00	10.00	0.00
9,000.00	47.30	359.42	8,948.09	184.36	-1.87	184.37	10.00	10.00	0.00
9,100.00	57.30	359.42	9,009.17	263.37	-2.67	263.39	10.00	10.00	0.00
9,200.00	67.30	359.42	9,055.60	351.79	-3.57	351.81	10.00	10.00	0.00
9,300.00	77.30	359.42	9,085.97	446.93	-4.53	446.95	10.00	10.00	0.00
9,400.00	87.30	359.42	9,099.36	545.90	-5.54	545.93	10.00	10.00	0.00
9,427.04	90.00	359.42	9,100.00	572.93	-5.81	572.96	10.00	10.00	0.00
LP, Hold 90.00° Inc at 359.42° Azm									
9,500.00	90.00	359.42	9,100.00	645.88	-6.55	645.92	0.00	0.00	0.00
9,600.00	90.00	359.42	9,100.00	745.88	-7.57	745.92	0.00	0.00	0.00
9,700.00	90.00	359.42	9,100.00	845.87	-8.58	845.92	0.00	0.00	0.00
9,800.00	90.00	359.42	9,100.00	945.87	-9.59	945.92	0.00	0.00	0.00
9,900.00	90.00	359.42	9,100.00	1,045.86	-10.61	1,045.92	0.00	0.00	0.00
10,000.00	90.00	359.42	9,100.00	1,145.86	-11.62	1,145.92	0.00	0.00	0.00
10,100.00	90.00	359.42	9,100.00	1,245.85	-12.64	1,245.92	0.00	0.00	0.00
10,200.00	90.00	359.42	9,100.00	1,345.85	-13.65	1,345.92	0.00	0.00	0.00
10,300.00	90.00	359.42	9,100.00	1,445.84	-14.66	1,445.92	0.00	0.00	0.00
10,400.00	90.00	359.42	9,100.00	1,545.84	-15.68	1,545.92	0.00	0.00	0.00
10,500.00	90.00	359.42	9,100.00	1,645.83	-16.69	1,645.92	0.00	0.00	0.00
10,600.00	90.00	359.42	9,100.00	1,745.83	-17.71	1,745.92	0.00	0.00	0.00
10,700.00	90.00	359.42	9,100.00	1,845.82	-18.72	1,845.92	0.00	0.00	0.00
10,800.00	90.00	359.42	9,100.00	1,945.82	-19.74	1,945.92	0.00	0.00	0.00
10,900.00	90.00	359.42	9,100.00	2,045.81	-20.75	2,045.92	0.00	0.00	0.00
11,000.00	90.00	359.42	9,100.00	2,145.81	-21.76	2,145.92	0.00	0.00	0.00
11,100.00	90.00	359.42	9,100.00	2,245.80	-22.78	2,245.92	0.00	0.00	0.00
11,200.00	90.00	359.42	9,100.00	2,345.79	-23.79	2,345.92	0.00	0.00	0.00
11,300.00	90.00	359.42	9,100.00	2,445.79	-24.81	2,445.92	0.00	0.00	0.00
11,400.00	90.00	359.42	9,100.00	2,545.78	-25.82	2,545.92	0.00	0.00	0.00
11,500.00	90.00	359.42	9,100.00	2,645.78	-26.83	2,645.92	0.00	0.00	0.00
11,600.00	90.00	359.42	9,100.00	2,745.77	-27.85	2,745.92	0.00	0.00	0.00
11,700.00	90.00	359.42	9,100.00	2,845.77	-28.86	2,845.92	0.00	0.00	0.00
11,800.00	90.00	359.42	9,100.00	2,945.76	-29.88	2,945.92	0.00	0.00	0.00
11,900.00	90.00	359.42	9,100.00	3,045.76	-30.89	3,045.92	0.00	0.00	0.00
12,000.00	90.00	359.42	9,100.00	3,145.75	-31.91	3,145.92	0.00	0.00	0.00
12,100.00	90.00	359.42	9,100.00	3,245.75	-32.92	3,245.92	0.00	0.00	0.00
12,200.00	90.00	359.42	9,100.00	3,345.74	-33.93	3,345.92	0.00	0.00	0.00
12,300.00	90.00	359.42	9,100.00	3,445.74	-34.95	3,445.92	0.00	0.00	0.00
12,400.00	90.00	359.42	9,100.00	3,545.73	-35.96	3,545.92	0.00	0.00	0.00
12,500.00	90.00	359.42	9,100.00	3,645.73	-36.98	3,645.92	0.00	0.00	0.00
12,600.00	90.00	359.42	9,100.00	3,745.72	-37.99	3,745.92	0.00	0.00	0.00
12,700.00	90.00	359.42	9,100.00	3,845.72	-39.01	3,845.92	0.00	0.00	0.00
12,800.00	90.00	359.42	9,100.00	3,945.71	-40.02	3,945.92	0.00	0.00	0.00
12,900.00	90.00	359.42	9,100.00	4,045.71	-41.03	4,045.92	0.00	0.00	0.00
13,000.00	90.00	359.42	9,100.00	4,145.70	-42.05	4,145.92	0.00	0.00	0.00
13,100.00	90.00	359.42	9,100.00	4,245.70	-43.06	4,245.92	0.00	0.00	0.00
13,200.00	90.00	359.42	9,100.00	4,345.69	-44.08	4,345.92	0.00	0.00	0.00
13,300.00	90.00	359.42	9,100.00	4,445.69	-45.09	4,445.92	0.00	0.00	0.00
13,400.00	90.00	359.42	9,100.00	4,545.68	-46.10	4,545.92	0.00	0.00	0.00

Database: Compass 5000 GCR
Company: BC Operating, Inc.
Project: Lea County, NM (NAD27 NME)
Site: Cave Lion 5 Federal BC
Well: 1H
Wellbore: OH
Design: Plan 1 01-26-17

Local Co-ordinate Reference: Well 1H
TVD Reference: GL + KB @ 3299.50usft (Patterson 244)
MD Reference: GL + KB @ 3299.50usft (Patterson 244)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
13,500.00	90.00	359.42	9,100.00	4,645.68	-47.12	4,645.92	0.00	0.00	0.00
13,600.00	90.00	359.42	9,100.00	4,745.67	-48.13	4,745.92	0.00	0.00	0.00
13,623.37	90.00	359.42	9,100.00	4,769.04	-48.37	4,769.29	0.00	0.00	0.00

TD at 13623.37

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 - Cave Lion 5 Fe	0.00	0.00	9,100.00	4,769.04	-48.37	393,574.11	790,166.63	32° 4' 42.91466 N	03° 23' 47.45152 W
- plan hits target center									
- Point									
FTP - Cave Lion 5 Fe	0.00	0.00	9,100.00	144.97	-1.41	388,950.04	790,213.59	32° 3' 57.15408 N	03° 23' 47.37239 W
- plan misses target center by 142.22usft at 9061.82usft MD (8987.49 TVD, 231.96 N, -2.35 E)									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	Comment
+N/-S (usft)	+E/-W (usft)		
8,527.04	8,527.04	0.00	0.00
9,427.04	9,100.00	572.93	-5.81
13,623.37	9,100.00	4,769.04	-48.37

KOP, Begin 10.00°/100' Build
 LP, Hold 90.00° Inc at 359.42° Azm
 TD at 13623.37