

Results of Directional Survey

DD

API number:	30-025-40941		
OGRID:		Operator:	FASKEN OIL & RANCH LTD
		Property:	QUAIL 16 STATE # 6

surface	ULSTR:	O	16	T	20S	R	34E
				200	FSL	1500	FEL

BH Loc	ULSTR:	O	16	T	20S	R	34E
8459 MD		8440.6	TVD	201	FSL	1707	FEL

Top Perf/OH	ULSTR:						

Bot Perf/OH	ULSTR:						

	MD	N/S	E/W	VD
TOP PERFS/OH				
BOT PERFS/OH				

NEXT TO LAST	8357	0.60	-193.10	8339.40
LAST READING	8407	0.60	-200.10	8389.00
TD	8459	0.60	-207.38	8440.58

Surface Location	200	FS	1500	FE
Projected BHL	201	FS	1707	FE
Location of				
Top Perfs/OH	200	FS	1500	FE
Bottom Perfs/OH	200	FS	1500	FE

SUMMARY of Subsurface Locations

Surface Location	O-16-20S-34E	200	FS	1500	FE	Vert. Depth
Top Perfs/OH						
Bottom Perfs/OH						
Projected TD	O-16-20S-34E	201	FS	1707	FE	8440.58

AUG 28 2013

HOBBS OCD

AUG 26 2013

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Fasken Oil & Ranch, Ltd.-WT

Lea County

Sec 16, T20S, R34E

Quail State 16 #6H

Wellbore #1

Design: Wellbore #1

DDC Survey Report

23 July, 2013



DDC Survey Report



Company: Fasken Oil & Ranch, Ltd.-WT
Project: Lea County
Site: Sec 16, T20S, R34E
Well: Quail State 16 #6H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Quail State 16 #6H
TVD Reference: WELL @ 3664.0usft (Basic #43)
MD Reference: WELL @ 3664.0usft (Basic #43)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Lea County
Map System:	US State Plane 1983
Geo Datum:	North American Datum 1983
Map Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

Site		Sec 16, T20S, R34E			
Site Position:		Northing:	570,652.94 usft	Latitude:	32° 33' 59.232 N
From:	Map	Easting:	776,959.15 usft	Longitude:	103° 34' 6.616 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.41 °

Well	Quail State 16 #6H					
Well Position	+N/-S	0.0 usft	Northing:	570,709.96 usft	Latitude:	32° 33' 59.643 N
	+E/-W	0.0 usft	Easting:	779,107.83 usft	Longitude:	103° 33' 41.504 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,639.0 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/19/2013	7.36	60.46	48,621

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	269.66	

Survey Program		Date	7/23/2013	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	6,407.0	GYRO (Wellbore #1)	MWD default	MWD - Standard
6,458.0	8,407.0	MWD (Wellbore #1)	MWD default	MWD - Standard

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn	
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate	
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.46	215.59	100.0	-0.3	-0.2	0.2	0.46	0.46	0.00	
200.0	0.43	208.77	200.0	-1.0	-0.6	0.7	0.06	-0.03	-6.82	
300.0	0.44	196.24	300.0	-1.7	-0.9	0.9	0.10	0.01	-12.53	
400.0	0.38	173.59	400.0	-2.4	-1.0	1.0	0.17	-0.06	-22.65	
500.0	0.25	171.05	500.0	-2.9	-0.9	1.0	0.13	-0.13	-2.54	
600.0	0.33	168.43	600.0	-3.4	-0.8	0.9	0.08	0.08	-2.62	
700.0	0.22	201.91	700.0	-3.9	-0.9	0.9	0.19	-0.11	33.48	
800.0	0.24	199.40	800.0	-4.3	-1.0	1.0	0.02	0.02	-2.51	
900.0	0.34	198.12	900.0	-4.7	-1.2	1.2	0.10	0.10	-1.28	

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Database: EDM 5000.1 Single User Db

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)
1,000.0	0.42	209.02	1,000.0	-5.3	-1.4	1.5	0.11	0.08	10.90
1,100.0	0.58	223.52	1,100.0	-6.0	-2.0	2.0	0.20	0.16	14.50
1,200.0	0.61	215.70	1,200.0	-6.8	-2.6	2.7	0.09	0.03	-7.82
1,300.0	0.61	206.97	1,300.0	-7.7	-3.2	3.2	0.09	0.00	-8.73
1,400.0	0.58	201.11	1,400.0	-8.7	-3.6	3.6	0.07	-0.03	-5.86
1,500.0	0.59	207.70	1,500.0	-9.6	-4.0	4.1	0.07	0.01	6.59
1,600.0	0.39	205.85	1,600.0	-10.4	-4.4	4.5	0.20	-0.20	-1.85
1,700.0	0.27	118.50	1,700.0	-10.8	-4.3	4.4	0.46	-0.12	-87.35
1,800.0	0.37	116.46	1,800.0	-11.0	-3.8	3.9	0.10	0.10	-2.04
1,900.0	0.45	152.60	1,899.9	-11.5	-3.4	3.4	0.27	0.08	36.14
2,000.0	0.44	147.14	1,999.9	-12.2	-3.0	3.1	0.04	-0.01	-5.46
2,100.0	0.38	141.23	2,099.9	-12.8	-2.6	2.6	0.07	-0.06	-5.91
2,200.0	0.33	130.14	2,199.9	-13.2	-2.1	2.2	0.08	-0.05	-11.09
2,300.0	0.46	129.62	2,299.9	-13.7	-1.6	1.7	0.13	0.13	-0.52
2,400.0	0.34	113.94	2,399.9	-14.1	-1.0	1.1	0.16	-0.12	-15.68
2,500.0	0.58	106.46	2,499.9	-14.3	-0.3	0.4	0.25	0.24	-7.48
2,600.0	0.69	87.28	2,599.9	-14.4	0.8	-0.7	0.24	0.11	-19.18
2,700.0	1.33	77.25	2,699.9	-14.1	2.5	-2.5	0.66	0.64	-10.03
2,800.0	2.44	67.45	2,799.9	-13.1	5.6	-5.6	1.15	1.11	-9.80
2,900.0	2.76	70.49	2,899.8	-11.5	9.9	-9.8	0.35	0.32	3.04
3,000.0	2.82	70.05	2,999.6	-9.8	14.5	-14.4	0.06	0.06	-0.44
3,100.0	2.84	70.32	3,099.5	-8.1	19.1	-19.1	0.02	0.02	0.27
3,200.0	2.93	70.47	3,199.4	-6.4	23.8	-23.8	0.09	0.09	0.15
3,300.0	2.80	70.92	3,299.3	-4.8	28.6	-28.5	0.13	-0.13	0.45
3,400.0	2.22	78.62	3,399.2	-3.6	32.8	-32.7	0.67	-0.58	7.70
3,500.0	1.74	85.37	3,499.1	-3.1	36.2	-36.2	0.53	-0.48	6.75
3,600.0	1.29	112.40	3,599.1	-3.4	38.7	-38.7	0.83	-0.45	27.03
3,700.0	0.96	143.88	3,699.1	-4.5	40.3	-40.2	0.69	-0.33	31.48
3,800.0	1.11	176.23	3,799.0	-6.2	40.8	-40.8	0.59	0.15	32.35
3,900.0	1.12	176.46	3,899.0	-8.1	41.0	-40.9	0.01	0.01	0.23
4,000.0	0.95	160.13	3,999.0	-9.9	41.3	-41.2	0.34	-0.17	-16.33
4,100.0	1.02	158.84	4,099.0	-11.5	41.9	-41.8	0.07	0.07	-1.29
4,200.0	0.95	171.02	4,199.0	-13.1	42.3	-42.3	0.22	-0.07	12.18
4,300.0	0.95	166.03	4,299.0	-14.7	42.7	-42.6	0.08	0.00	-4.99
4,400.0	0.73	166.97	4,398.9	-16.2	43.0	-42.9	0.22	-0.22	0.94
4,500.0	0.58	175.86	4,498.9	-17.3	43.2	-43.1	0.18	-0.15	8.89
4,600.0	0.30	131.40	4,598.9	-18.0	43.4	-43.3	0.42	-0.28	-44.46
4,700.0	0.16	117.62	4,698.9	-18.2	43.8	-43.6	0.15	-0.14	-13.78
4,800.0	0.24	318.26	4,798.9	-18.1	43.7	-43.6	0.39	0.08	-159.36
4,900.0	0.39	320.57	4,898.9	-17.7	43.4	-43.3	0.15	0.15	2.31
5,000.0	0.42	309.03	4,998.9	-17.2	42.9	-42.8	0.09	0.03	-11.54
5,100.0	0.51	321.08	5,098.9	-16.6	42.3	-42.2	0.13	0.09	12.05
5,200.0	0.59	347.72	5,198.9	-15.8	41.9	-41.8	0.27	0.08	26.64

DDC Survey Report



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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)
5,300.0	0.62	3.29	5,298.9	-14.7	41.8	-41.8	0.17	0.03	15.57
5,400.0	0.65	26.56	5,398.9	-13.7	42.1	-42.1	0.26	0.03	23.27
5,500.0	0.73	29.61	5,498.9	-12.6	42.7	-42.6	0.09	0.08	3.05
5,600.0	0.80	18.60	5,598.9	-11.4	43.2	-43.2	0.16	0.07	-11.01
5,700.0	0.73	17.01	5,698.9	-10.1	43.6	-43.6	0.07	-0.07	-1.59
5,800.0	0.67	12.95	5,798.9	-9.0	44.0	-43.9	0.08	-0.06	-4.06
5,900.0	0.43	25.49	5,898.9	-8.1	44.3	-44.2	0.27	-0.24	12.54
6,000.0	0.11	354.81	5,998.9	-7.6	44.4	-44.4	0.34	-0.32	-30.68
6,100.0	0.09	83.18	6,098.9	-7.5	44.5	-44.4	0.14	-0.02	88.37
6,200.0	0.10	167.38	6,198.9	-7.6	44.6	-44.5	0.13	0.01	84.20
6,300.0	0.25	154.50	6,298.9	-7.9	44.7	-44.6	0.15	0.15	-12.88
6,400.0	0.51	140.43	6,398.9	-8.4	45.1	-45.0	0.27	0.26	-14.07
TIE IN @ 6407' MD / 6405.9' TVD									
6,407.0	0.51	145.64	6,405.9	-8.5	45.1	-45.1	0.66	0.00	74.43
6,458.0	0.60	150.40	6,456.9	-8.9	45.4	-45.3	0.20	0.18	9.33
6,553.0	1.70	248.60	6,551.9	-9.8	44.3	-44.2	1.98	1.16	103.37
6,648.0	4.00	259.00	6,646.7	-11.0	39.7	-39.7	2.47	2.42	10.95
6,743.0	6.30	257.10	6,741.3	-12.8	31.4	-31.3	2.43	2.42	-2.00
6,838.0	7.70	263.40	6,835.6	-14.7	20.0	-19.9	1.68	1.47	6.63
6,933.0	8.90	276.20	6,929.6	-14.6	6.4	-6.3	2.31	1.26	13.47
7,028.0	8.90	276.20	7,023.5	-13.0	-8.2	8.3	0.00	0.00	0.00
7,123.0	8.20	278.40	7,117.4	-11.2	-22.3	22.3	0.81	-0.74	2.32
7,218.0	7.80	274.50	7,211.5	-9.7	-35.4	35.4	0.71	-0.42	-4.11
7,313.0	7.60	273.60	7,305.7	-8.8	-48.1	48.1	0.25	-0.21	-0.95
7,409.0	7.50	275.00	7,400.8	-7.9	-60.7	60.7	0.22	-0.10	1.46
7,503.0	7.50	275.00	7,494.0	-6.8	-72.9	72.9	0.00	0.00	0.00
7,598.0	6.80	266.90	7,588.3	-6.6	-84.7	84.7	1.29	-0.74	-8.53
7,693.0	8.80	275.50	7,682.4	-6.2	-97.5	97.6	2.43	2.11	9.05
7,788.0	8.60	276.10	7,776.3	-4.7	-111.8	111.8	0.23	-0.21	0.63
7,882.0	8.40	276.20	7,869.3	-3.3	-125.6	125.7	0.21	-0.21	0.11
7,977.0	8.40	274.60	7,963.3	-1.9	-139.4	139.5	0.25	0.00	-1.68
8,072.0	8.10	274.80	8,057.3	-0.8	-153.0	153.0	0.32	-0.32	0.21
8,167.0	7.70	274.10	8,151.4	0.2	-166.1	166.0	0.43	-0.42	-0.74
8,262.0	8.50	269.90	8,245.4	0.6	-179.4	179.4	1.05	0.84	-4.42
8,357.0	8.00	270.10	8,339.4	0.6	-193.1	193.0	0.53	-0.53	0.21
LAST MWD SURVEY @ 8407' MD / 8389' TVD									
8,407.0	8.10	270.10	8,389.0	0.6	-200.1	200.0	0.20	0.20	0.00

DDC
Survey Report



Company: Fasken Oil & Ranch, Ltd.-WT
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Design: Wellbore #1

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Database: EDM 5000.1 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,407.0	6,405.9	-8.5	45.1	TIE IN @ 6407' MD / 6405.9' TVD
8,407.0	8,389.0	0.6	-200.1	LAST MWD SURVEY @ 8407' MD / 8389' TVD

Checked By: _____ Approved By: _____ Date: _____

Company Name: Fasken Oil & Ranch, Ltd.-WT
 Quail State 16 #6H
 Lea County
 Rig: Patterson #187
 Created By: TIFFANI MIZELL
 Date: 7/23/2013

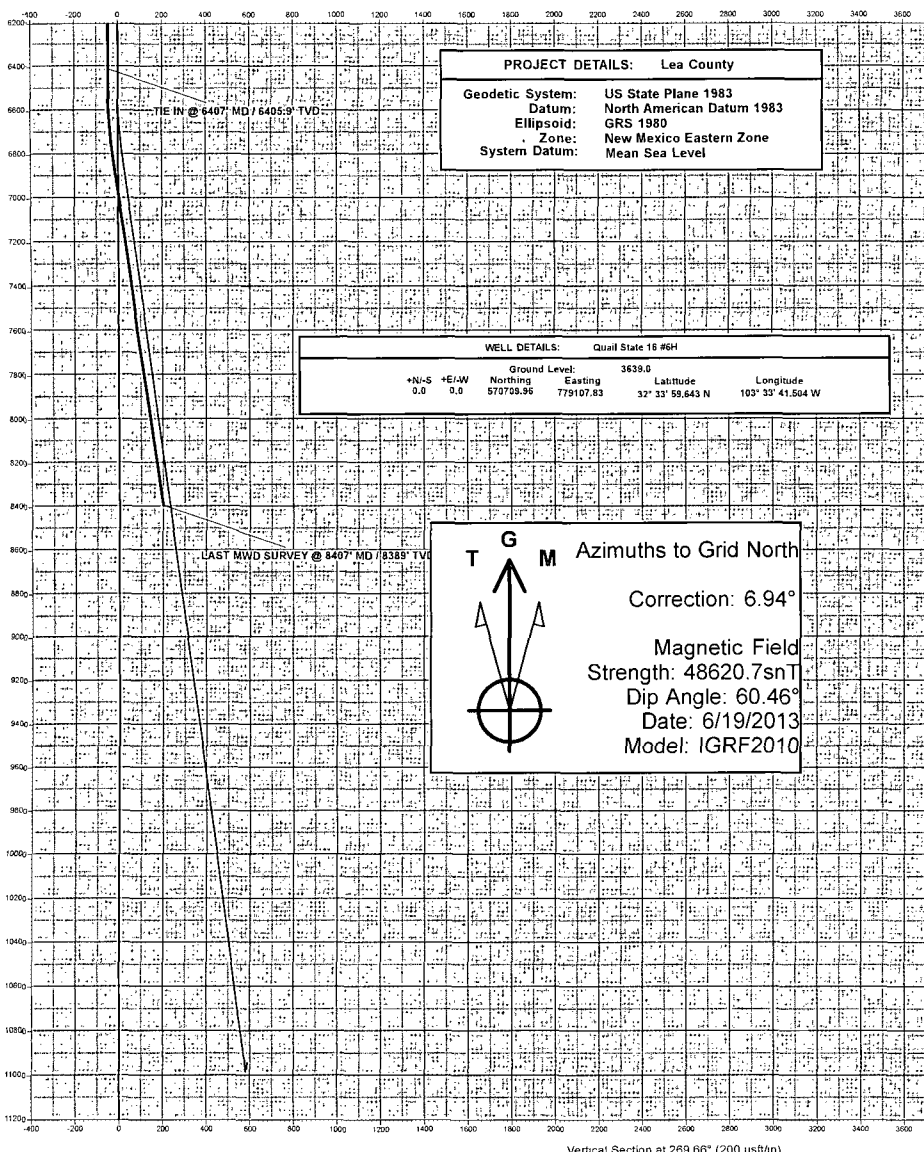
Quail State 16 #6H
 Lea County
 Q130541 & WT-13506
 Design #2



FASKEN OIL AND RANCH, LTD.

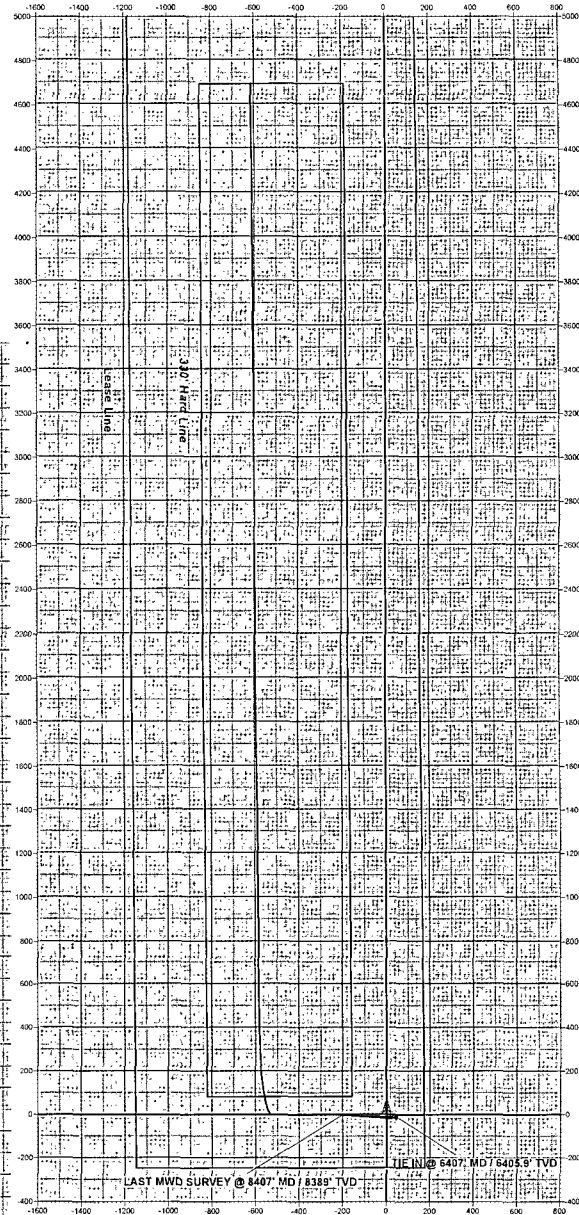
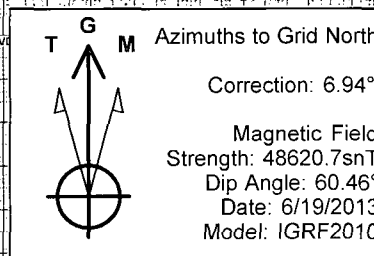
DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL Quail State 16 #6H Design #2 - plan hits target center	10944.0	4692.4	-615.0	575462.35	778492.86	32° 34' 46.116 N	103° 33' 48.293 W

ANNOTATIONS							
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure
6407.0	0.51	145.64	6405.9	-9.5	45.1	88.6	TIE IN @ 6407' MD / 6405.9' TVD
8407.0	8.10	270.10	8389.0	0.6	-200.1	200.0	LAST MWD SURVEY @ 8407' MD / 8389' TVD



PROJECT DETAILS: Lea County
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level

WELL DETAILS: Quail State 16 #6H					
Ground Level: 3639.5					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	570709.95	779107.83	32° 33' 59.643 N	103° 33' 41.504 W



Vertical Section at 269.66° (200 usft/in)