



Whiting Petroleum Corporation

Weld County

Sec 16-T9N-R59W

Wild Horse 16-13H

Wellbore #1


Plan: Preliminary Plan for APD

Standard Planning Report

23 September, 2010

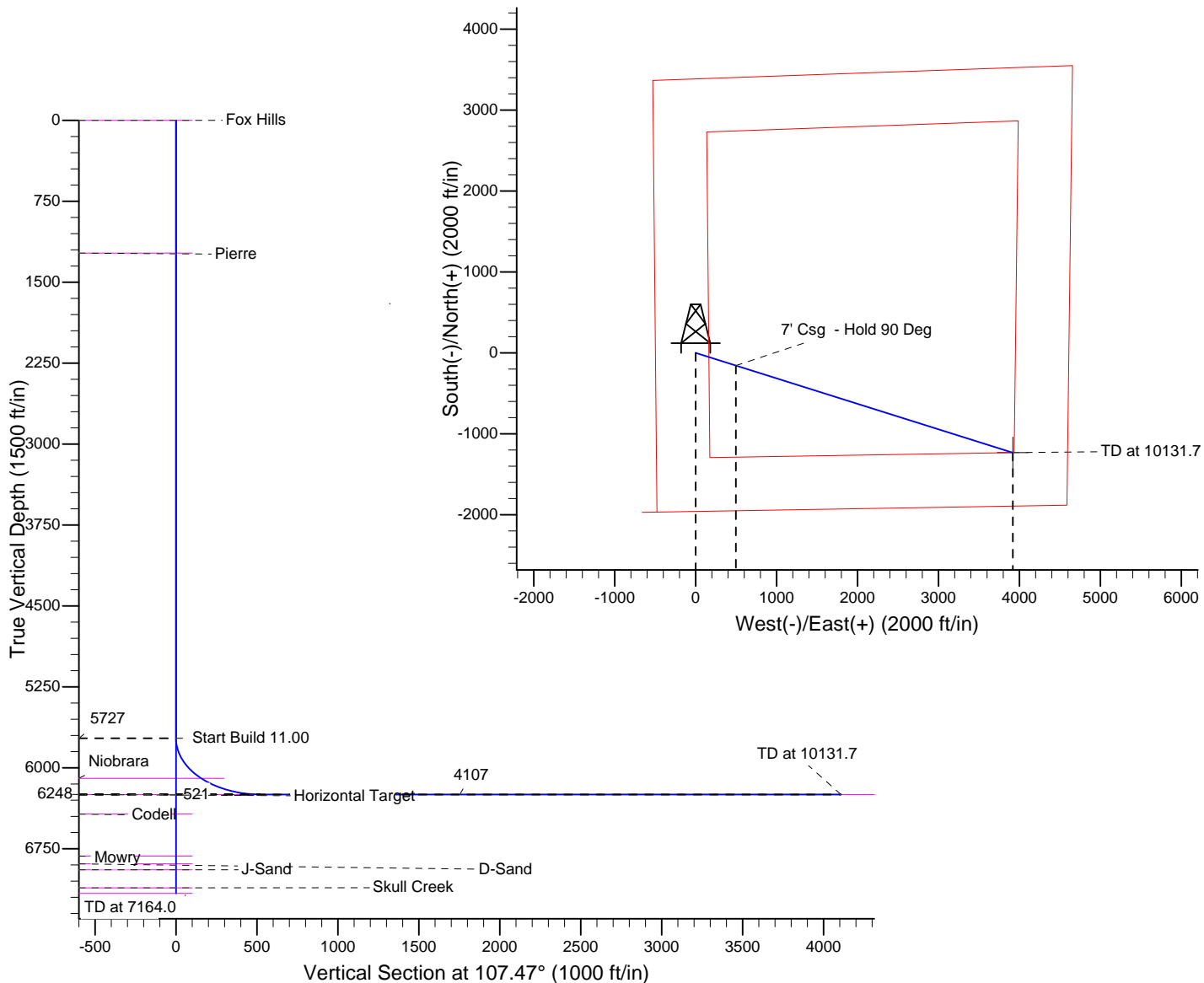
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
5727.1	0.00	0.00	5727.1	0.0	0.0	0.00	0.00	0.0
6545.3	90.00	107.47	6248.0	-156.3	496.9	11.00	107.47	520.9
10131.7	90.00	107.47	6248.0	-1232.8	3917.9	0.00	0.00	4107.3



Azimuths to True North
Magnetic North: 8.57°

Magnetic Field
Strength: 53469.8snT
Dip Angle: 67.48°
Date: 09/23/2010
Model: IGRF2010





Crescent Directional Drilling, LP

Planning Report

Database: EDM 2003.16 Single User Db	Local Co-ordinate Reference: Well Wild Horse 16-13H
Company: Whiting Petroleum Corporation	TVD Reference: WELL @ 5069.0ft (Original Well Elev)
Project: Weld County	MD Reference: WELL @ 5069.0ft (Original Well Elev)
Site: Sec 16-T9N-R59W	North Reference: True
Well: Wild Horse 16-13H	Survey Calculation Method: Minimum Curvature
Wellbore: Wellbore #1	
Design: Preliminary Plan for APD	

Project Weld County			
Map System: US State Plane 1983	System Datum: Mean Sea Level		
Geo Datum: North American Datum 1983			
Map Zone: Colorado Northern Zone			

Site Sec 16-T9N-R59W			
Site Position:	Northing: 1,519,110.22ft	Latitude: 40° 44' 54.852 N	
From: Lat/Long	Easting: 3,418,312.58ft	Longitude: 103° 59' 24.720 W	
Position Uncertainty: 0.0 ft	Slot Radius: "	Grid Convergence: 0.98 °	

Well Wild Horse 16-13H			
Well Position	+N/-S 0.0 ft	Northing: 1,519,110.22 ft	Latitude: 40° 44' 54.852 N
	+E/-W 0.0 ft	Easting: 3,418,312.58 ft	Longitude: 103° 59' 24.720 W
Position Uncertainty	0.0 ft	Wellhead Elevation: 5,069.0 ft	Ground Level: 5,056.0 ft

Wellbore Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	09/23/10	8.57	67.49	53,470

Design Preliminary Plan for APD				
Audit Notes:				
Version:	Phase: PROTOTYPE	Tie On Depth: 0.0		
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	107.47

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,727.1	0.00	0.00	5,727.1	0.0	0.0	0.00	0.00	0.00	0.00	
6,545.3	90.00	107.47	6,248.0	-156.3	496.9	11.00	11.00	0.00	107.47	
10,131.7	90.00	107.47	6,248.0	-1,232.8	3,917.9	0.00	0.00	0.00	0.00	Wild Horse



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Well:	Wild Horse 16-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Preliminary Plan for APD		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
Fox Hills									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,231.0	0.00	0.00	1,231.0	0.0	0.0	0.0	0.00	0.00	0.00
Pierre									
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00



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Wellbore:	Wellbore #1		
Design:	Preliminary Plan for APD		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,717.1	0.00	0.00	5,717.1	0.0	0.0	0.0	0.00	0.00	0.00
KOP 11/100'									
5,727.1	0.00	0.00	5,727.1	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	8.02	107.47	5,799.8	-1.5	4.9	5.1	11.00	11.00	0.00
5,900.0	19.02	107.47	5,896.8	-8.5	27.1	28.4	11.00	11.00	0.00
6,000.0	30.02	107.47	5,987.7	-21.0	66.6	69.9	11.00	11.00	0.00
6,100.0	41.02	107.47	6,069.0	-38.4	122.0	127.9	11.00	11.00	0.00
6,139.9	45.40	107.47	6,098.0	-46.6	148.0	155.2	11.00	11.00	0.00
Niobrara									
6,200.0	52.02	107.47	6,137.7	-60.1	191.1	200.3	11.00	11.00	0.00
6,300.0	63.02	107.47	6,191.3	-85.4	271.4	284.6	11.00	11.00	0.00
6,400.0	74.02	107.47	6,227.8	-113.3	360.1	377.5	11.00	11.00	0.00
6,500.0	85.02	107.47	6,246.0	-142.8	453.7	475.6	11.00	11.00	0.00
6,535.3	88.90	107.47	6,247.9	-153.3	487.3	510.9	11.00	11.00	0.00
EOB Hold 90 Deg									
6,545.3	90.00	107.47	6,248.0	-156.3	496.9	520.9	11.00	11.00	0.00
Horizontal Target - 7"									
6,600.0	90.00	107.47	6,248.0	-172.8	549.0	575.6	0.00	0.00	0.00
6,700.0	90.00	107.47	6,248.0	-202.8	644.4	675.6	0.00	0.00	0.00
6,800.0	90.00	107.47	6,248.0	-232.8	739.8	775.6	0.00	0.00	0.00
6,900.0	90.00	107.47	6,248.0	-262.8	835.2	875.6	0.00	0.00	0.00
7,000.0	90.00	107.47	6,248.0	-292.8	930.6	975.6	0.00	0.00	0.00
7,100.0	90.00	107.47	6,248.0	-322.8	1,026.0	1,075.6	0.00	0.00	0.00
7,200.0	90.00	107.47	6,248.0	-352.9	1,121.4	1,175.6	0.00	0.00	0.00
7,300.0	90.00	107.47	6,248.0	-382.9	1,216.8	1,275.6	0.00	0.00	0.00
7,400.0	90.00	107.47	6,248.0	-412.9	1,312.2	1,375.6	0.00	0.00	0.00
7,500.0	90.00	107.47	6,248.0	-442.9	1,407.6	1,475.6	0.00	0.00	0.00
7,600.0	90.00	107.47	6,248.0	-472.9	1,502.9	1,575.6	0.00	0.00	0.00
7,700.0	90.00	107.47	6,248.0	-502.9	1,598.3	1,675.6	0.00	0.00	0.00
7,800.0	90.00	107.47	6,248.0	-532.9	1,693.7	1,775.6	0.00	0.00	0.00
7,900.0	90.00	107.47	6,248.0	-563.0	1,789.1	1,875.6	0.00	0.00	0.00
8,000.0	90.00	107.47	6,248.0	-593.0	1,884.5	1,975.6	0.00	0.00	0.00
8,100.0	90.00	107.47	6,248.0	-623.0	1,979.9	2,075.6	0.00	0.00	0.00
8,200.0	90.00	107.47	6,248.0	-653.0	2,075.3	2,175.6	0.00	0.00	0.00
8,300.0	90.00	107.47	6,248.0	-683.0	2,170.7	2,275.6	0.00	0.00	0.00
8,400.0	90.00	107.47	6,248.0	-713.0	2,266.1	2,375.6	0.00	0.00	0.00
8,500.0	90.00	107.47	6,248.0	-743.1	2,361.4	2,475.6	0.00	0.00	0.00
8,600.0	90.00	107.47	6,248.0	-773.1	2,456.8	2,575.6	0.00	0.00	0.00
8,700.0	90.00	107.47	6,248.0	-803.1	2,552.2	2,675.6	0.00	0.00	0.00
8,800.0	90.00	107.47	6,248.0	-833.1	2,647.6	2,775.6	0.00	0.00	0.00
8,900.0	90.00	107.47	6,248.0	-863.1	2,743.0	2,875.6	0.00	0.00	0.00
9,000.0	90.00	107.47	6,248.0	-893.1	2,838.4	2,975.6	0.00	0.00	0.00
9,100.0	90.00	107.47	6,248.0	-923.1	2,933.8	3,075.6	0.00	0.00	0.00
9,200.0	90.00	107.47	6,248.0	-953.2	3,029.2	3,175.6	0.00	0.00	0.00



Crescent Directional Drilling, LP

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Well:	Wild Horse 16-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Preliminary Plan for APD		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,300.0	90.00	107.47	6,248.0	-983.2	3,124.6	3,275.6	0.00	0.00	0.00
9,400.0	90.00	107.47	6,248.0	-1,013.2	3,219.9	3,375.6	0.00	0.00	0.00
9,500.0	90.00	107.47	6,248.0	-1,043.2	3,315.3	3,475.6	0.00	0.00	0.00
9,600.0	90.00	107.47	6,248.0	-1,073.2	3,410.7	3,575.6	0.00	0.00	0.00
9,700.0	90.00	107.47	6,248.0	-1,103.2	3,506.1	3,675.6	0.00	0.00	0.00
9,800.0	90.00	107.47	6,248.0	-1,133.2	3,601.5	3,775.6	0.00	0.00	0.00
9,900.0	90.00	107.47	6,248.0	-1,163.3	3,696.9	3,875.6	0.00	0.00	0.00
10,000.0	90.00	107.47	6,248.0	-1,193.3	3,792.3	3,975.6	0.00	0.00	0.00
10,100.0	90.00	107.47	6,248.0	-1,223.3	3,887.7	4,075.6	0.00	0.00	0.00
10,121.6	90.00	107.47	6,248.0	-1,229.8	3,908.3	4,097.2	0.00	0.00	0.00
TD = 10122' MD									
10,131.7	90.00	107.47	6,248.0	-1,232.8	3,917.9	4,107.3	0.00	0.00	0.00
Wild Horse									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Wild Horse - hit/miss target - Shape - Point	0.00	0.00	6,248.0	-1,232.8	3,917.9	1,517,944.30	3,422,250.88	40° 44' 42.667 N	103° 58' 33.819 W
- plan hits target center									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,545.3	6,248.0	7"	7	8-3/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
	6,818.0	Mowry		0.00		
1,231.0	1,231.0	Pierre		0.00		
	7,164.0	TD = 7164' MD		0.00		
	6,945.0	J-Sand		0.00		
	7,114.0	Skull Creek		0.00		
	6,430.0	Codell		0.00		
	1.0	Fox Hills		0.00		
6,139.9	6,098.0	Niobrara		0.00		
6,545.3	6,248.0	Horizontal Target		0.00		
	6,892.0	D-Sand		0.00		



Crescent Directional Drilling, LP

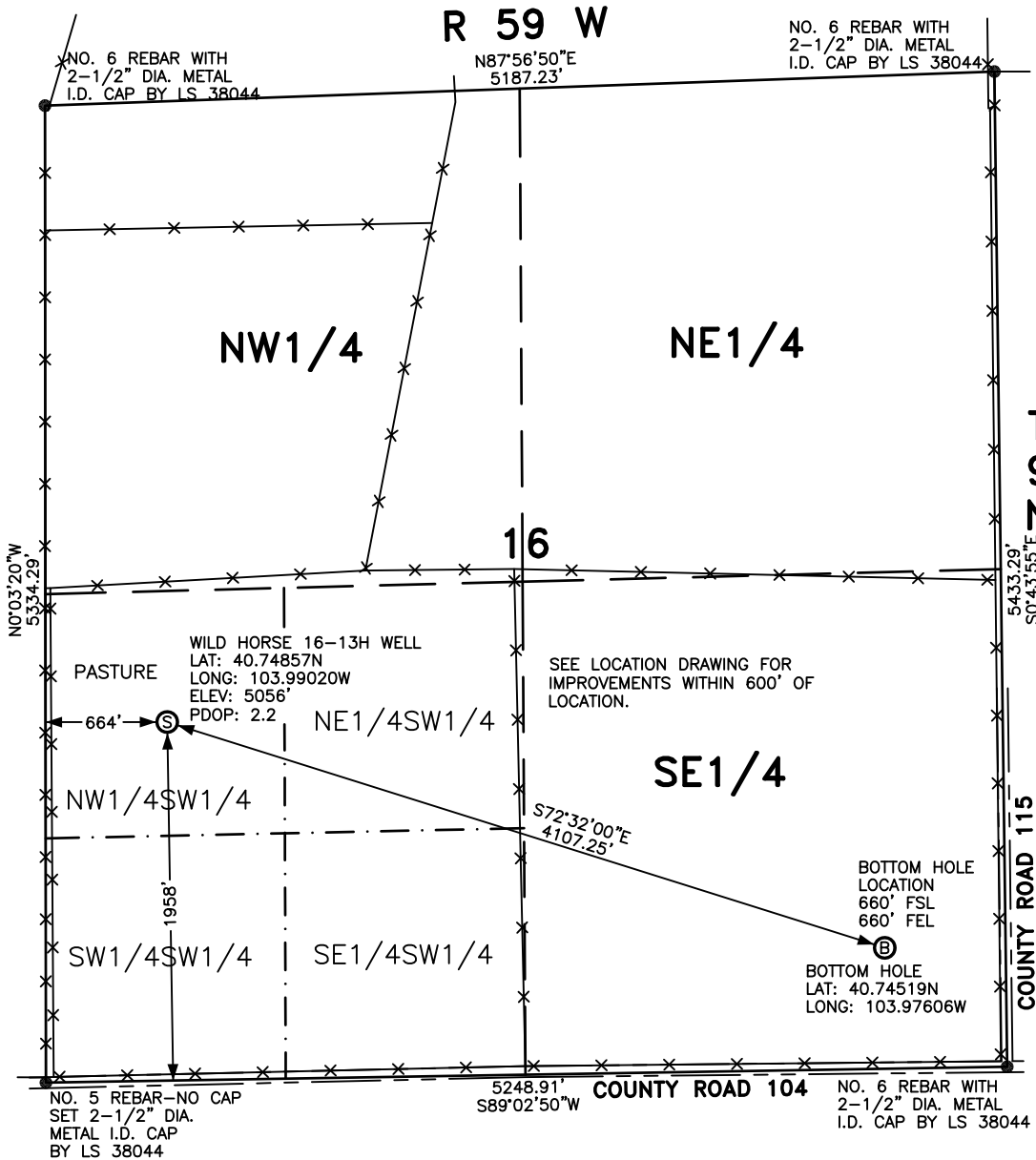
Planning Report

Database:	EDM 2003.16 Single User Db	Local Co-ordinate Reference:	Well Wild Horse 16-13H
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 5069.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	WELL @ 5069.0ft (Original Well Elev)
Site:	Sec 16-T9N-R59W	North Reference:	True
Well:	Wild Horse 16-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Preliminary Plan for APD		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,717.1	5,717.1	0.0	0.0	KOP 11/100'
6,535.3	6,247.9	-153.3	487.3	EOB Hold 90 Deg
10,121.6	6,248.0	-1,229.8	3,908.3	TD = 10122' MD

WELL LOCATION FOR WHITING OIL AND GAS CORPORATION

WILD HORSE 16-13H



NOTES

BEARINGS SHOWN HEREON ARE BASED UPON RTK GPS OBSERVATIONS

SEE LOCATION DRAWING FOR IMPROVEMENTS WITHIN 600' OF LOCATION.

USGS QUAD MAP:
RAYMER NW, COLO.

LAT/LONG VALUES ARE NAD83

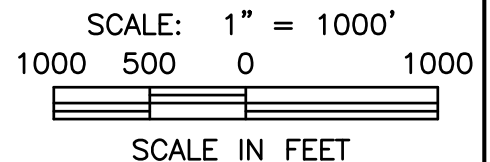
ELEVATIONS BASED UPON NGS OPUS SOLUTION NAVD 88 DATUM

ALL DISTANCES TO SECTION LINES ARE MEASURED PERPENDICULAR TO AND ARE AT RIGHT ANGLES TO SAID SECTION LINES.

LEGEND

- ⊙ FIELD SURVEYED WELL LOCATION
- ⊙ FIELD SURVEYED BOTTOM HOLE LOCATION

- == == == ROAD
- x-x- FENCE



THIS WELL LOCATION PLAT HAS BEEN PREPARED FOR WHITING OIL AND GAS CORPORATION, TO LOCATE THE WILD HORSE 16-13H WELL BEING 664 FEET FROM THE WEST LINE AND 1958 FEET FROM THE SOUTH LINE IN THE NW1/4SW1/4 OF SECTION 16, TOWNSHIP 9 NORTH, RANGE 59 WEST OF THE 6TH P.M., WELD COUNTY, COLORADO. THE SURFACE ELEVATION AT THIS POINT IS 5056 FEET. THIS IS NOT A LAND SURVEY PLAT.



LEIBERT-McATEE & ASSOCIATES, INC.

P.O. BOX 442 615 SOUTH TENTH AVENUE
STERLING, CO 80751 970-522-1960

FIELD DATE: 9-13-10	DWG DATE: 9-16-10	GPS OPERATOR: DARREN VEAL
WILD HORSE 16-13H	DWG NO. 1110-10	SHEET 1 OF 1