



Whiting Petroleum Corporation

Weld County

Sec 22 T11N-R57W

Twomile Creek 22-13H

Wellbore #1

Plan: Horizontal Plan for APD 10/12/2010

Standard Planning Report

12 October, 2010

Whiting Petroleum Corporation
Twomile Creek 22-13H
Weld County
Horizontal Plan for APD 10/12/2010



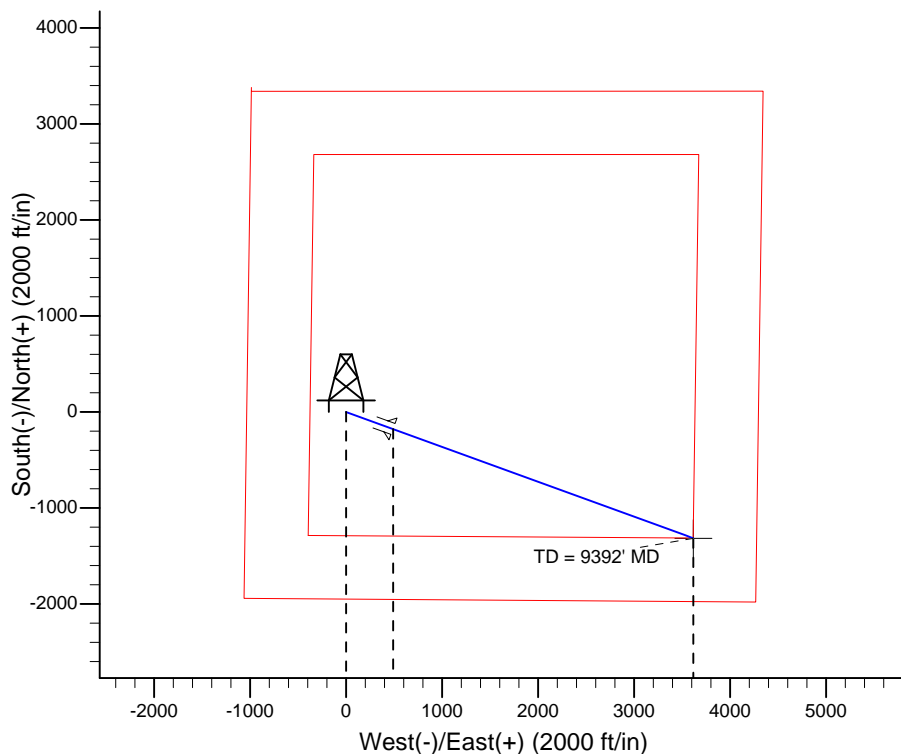
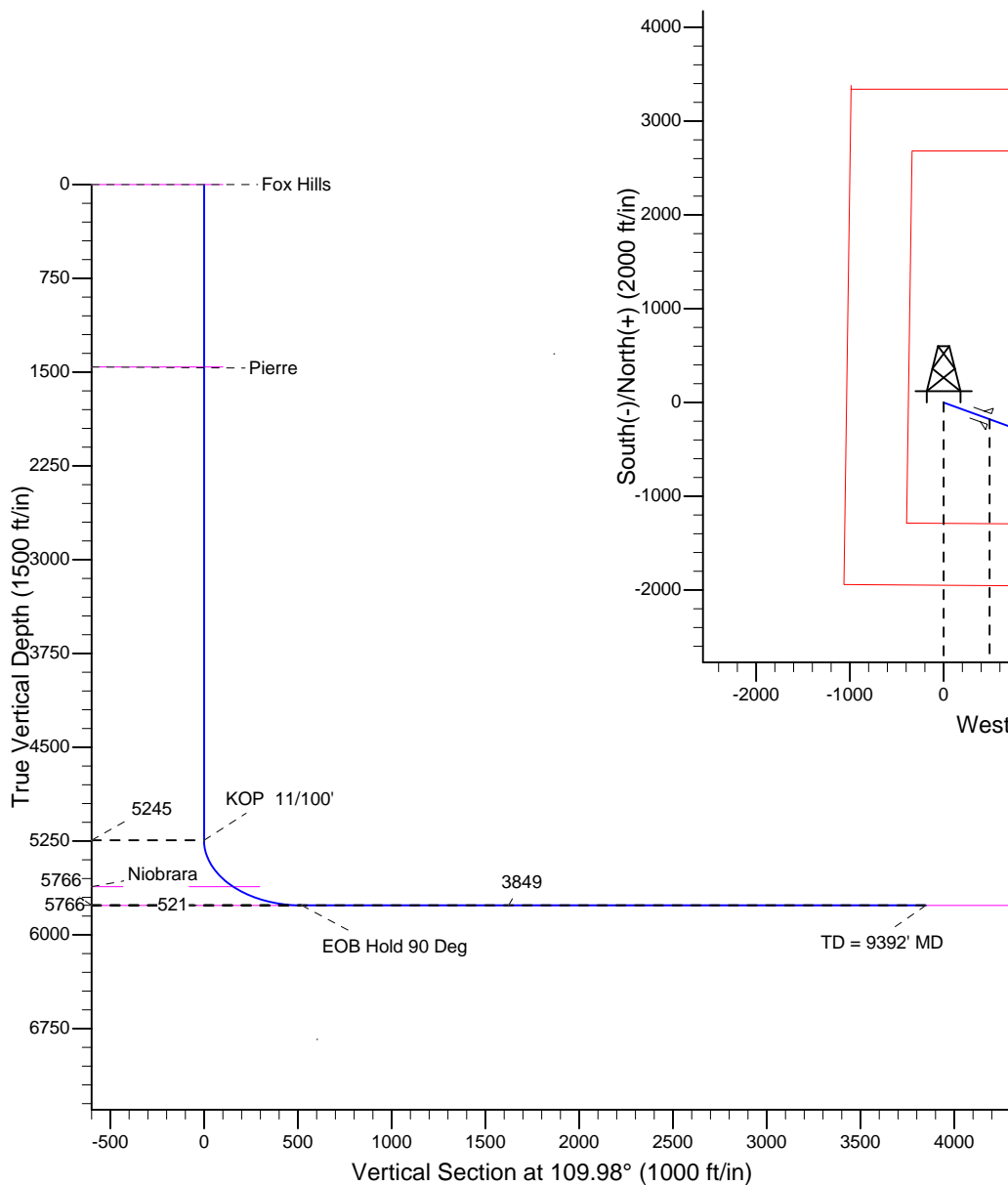
SECTION DETAILS

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
5245.1	0.00	0.00	5245.1	0.0	0.0	0.00	0.00	0.0
6063.3	90.00	109.98	5766.0	-178.0	489.5	11.00	109.98	520.9
9392.0	90.00	109.98	5766.0	-1315.4	3617.9	0.00	0.00	3849.6



Azimuths to True North
Magnetic North: 8.43°

Magnetic Field
Strength: 53573.7snT
Dip Angle: 67.65°
Date: 10/12/2010
Model: IGRF2010





Crescent Directional Drilling, LP

Planning Report

Database:	EDM 2003.16 Single User Db	Local Co-ordinate Reference:	Well Twomile Creek 22-13H
Company:	Whiting Petroleum Corporation	TVD Reference:	WELL @ 4963.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	WELL @ 4963.0ft (Original Well Elev)
Site:	Sec 22 T11N-R57W	North Reference:	True
Well:	Twomile Creek 22-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Horizontal Plan for APD 10/12/2010		

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 22 T11N-R57W				
Site Position:		Northing:	1,579,295.85ft	Latitude:	40° 54' 37.188 N	
From:	Lat/Long	Easting:	3,485,613.20ft	Longitude:	103° 44' 34.980 W	
Position Uncertainty:		0.0 ft	Slot Radius:	"	Grid Convergence:	1.14 °

Well	Twomile Creek 22-13H					
Well Position	+N/-S	0.0 ft	Northing:	1,579,295.85 ft	Latitude:	40° 54' 37.188 N
	+E/-W	0.0 ft	Easting:	3,485,613.20 ft	Longitude:	103° 44' 34.980 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	4,963.0 ft	Ground Level:	4,950.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/12/10	8.43	67.65	53,574

Design	Horizontal Plan for APD 10/12/2010			
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	109.98

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	
5,245.1	0.00	0.00	5,245.1	0.0	0.0	0.00	0.00	0.00	0.00	
6,063.3	90.00	109.98	5,766.0	-178.0	489.5	11.00	11.00	0.00	109.98	
9,392.0	90.00	109.98	5,766.0	-1,315.4	3,617.9	0.00	0.00	0.00	0.00	TMC 22-13 PBHL



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Project:	Weld County	MD Reference:	WELL @ 4963.0ft (Original Well Elev)
Site:	Sec 22 T11N-R57W	North Reference:	True
Well:	Twomile Creek 22-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Horizontal Plan for APD 10/12/2010		

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
1,300.0	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
1,460.0	0.00	0.00	1,460.0	0.0	0.0	0.0	0.00	0.00	0.00
Pierre									
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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Well:	Twomile Creek 22-13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Horizontal Plan for APD 10/12/2010		

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
5,245.1	0.00	0.00	5,245.1	0.0	0.0	0.0	0.00	0.00	0.00
KOP 11/100'									
5,300.0	6.04	109.98	5,299.9	-1.0	2.7	2.9	11.00	11.00	0.00
5,400.0	17.04	109.98	5,397.7	-7.8	21.5	22.9	11.00	11.00	0.00
5,500.0	28.04	109.98	5,489.9	-20.9	57.5	61.1	11.00	11.00	0.00
5,600.0	39.04	109.98	5,573.2	-39.7	109.3	116.3	11.00	11.00	0.00
5,657.9	45.40	109.98	5,616.0	-53.0	145.8	155.2	11.00	11.00	0.00
Niobrara									
5,700.0	50.04	109.98	5,644.3	-63.7	175.1	186.3	11.00	11.00	0.00
5,800.0	61.04	109.98	5,700.8	-91.8	252.5	268.7	11.00	11.00	0.00
5,900.0	72.04	109.98	5,740.6	-123.1	338.6	360.3	11.00	11.00	0.00
6,000.0	83.04	109.98	5,762.1	-156.4	430.2	457.7	11.00	11.00	0.00
6,063.3	90.00	109.98	5,766.0	-178.0	489.5	520.9	11.00	11.00	0.00
EOB Hold 90 Deg - Horizontal Target - 7"									
6,100.0	90.00	109.98	5,766.0	-190.5	524.0	557.6	0.00	0.00	0.00
6,200.0	90.00	109.98	5,766.0	-224.7	618.0	657.6	0.00	0.00	0.00
6,300.0	90.00	109.98	5,766.0	-258.9	712.0	757.6	0.00	0.00	0.00
6,400.0	90.00	109.98	5,766.0	-293.0	806.0	857.6	0.00	0.00	0.00
6,500.0	90.00	109.98	5,766.0	-327.2	900.0	957.6	0.00	0.00	0.00
6,600.0	90.00	109.98	5,766.0	-361.4	993.9	1,057.6	0.00	0.00	0.00
6,700.0	90.00	109.98	5,766.0	-395.6	1,087.9	1,157.6	0.00	0.00	0.00
6,800.0	90.00	109.98	5,766.0	-429.7	1,181.9	1,257.6	0.00	0.00	0.00
6,900.0	90.00	109.98	5,766.0	-463.9	1,275.9	1,357.6	0.00	0.00	0.00
7,000.0	90.00	109.98	5,766.0	-498.1	1,369.9	1,457.6	0.00	0.00	0.00
7,100.0	90.00	109.98	5,766.0	-532.2	1,463.8	1,557.6	0.00	0.00	0.00
7,200.0	90.00	109.98	5,766.0	-566.4	1,557.8	1,657.6	0.00	0.00	0.00
7,300.0	90.00	109.98	5,766.0	-600.6	1,651.8	1,757.6	0.00	0.00	0.00
7,400.0	90.00	109.98	5,766.0	-634.7	1,745.8	1,857.6	0.00	0.00	0.00
7,500.0	90.00	109.98	5,766.0	-668.9	1,839.8	1,957.6	0.00	0.00	0.00
7,600.0	90.00	109.98	5,766.0	-703.1	1,933.7	2,057.6	0.00	0.00	0.00
7,700.0	90.00	109.98	5,766.0	-737.3	2,027.7	2,157.6	0.00	0.00	0.00
7,800.0	90.00	109.98	5,766.0	-771.4	2,121.7	2,257.6	0.00	0.00	0.00
7,900.0	90.00	109.98	5,766.0	-805.6	2,215.7	2,357.6	0.00	0.00	0.00
8,000.0	90.00	109.98	5,766.0	-839.8	2,309.7	2,457.6	0.00	0.00	0.00
8,100.0	90.00	109.98	5,766.0	-873.9	2,403.6	2,557.6	0.00	0.00	0.00
8,200.0	90.00	109.98	5,766.0	-908.1	2,497.6	2,657.6	0.00	0.00	0.00
8,300.0	90.00	109.98	5,766.0	-942.3	2,591.6	2,757.6	0.00	0.00	0.00
8,400.0	90.00	109.98	5,766.0	-976.4	2,685.6	2,857.6	0.00	0.00	0.00
8,500.0	90.00	109.98	5,766.0	-1,010.6	2,779.6	2,957.6	0.00	0.00	0.00
8,600.0	90.00	109.98	5,766.0	-1,044.8	2,873.5	3,057.6	0.00	0.00	0.00
8,700.0	90.00	109.98	5,766.0	-1,079.0	2,967.5	3,157.6	0.00	0.00	0.00
8,800.0	90.00	109.98	5,766.0	-1,113.1	3,061.5	3,257.6	0.00	0.00	0.00
8,900.0	90.00	109.98	5,766.0	-1,147.3	3,155.5	3,357.6	0.00	0.00	0.00
9,000.0	90.00	109.98	5,766.0	-1,181.5	3,249.5	3,457.6	0.00	0.00	0.00
9,100.0	90.00	109.98	5,766.0	-1,215.6	3,343.5	3,557.6	0.00	0.00	0.00
9,200.0	90.00	109.98	5,766.0	-1,249.8	3,437.4	3,657.6	0.00	0.00	0.00
9,300.0	90.00	109.98	5,766.0	-1,284.0	3,531.4	3,757.6	0.00	0.00	0.00
9,391.9	90.00	109.98	5,766.0	-1,315.4	3,617.8	3,849.5	0.00	0.00	0.00
TD = 9392' MD									



Crescent Directional Drilling, LP

Planning Report

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Wellbore:	Wellbore #1		
Design:	Horizontal Plan for APD 10/12/2010		

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)
9,392.0	90.00	109.98	5,766.0	-1,315.4	3,617.9	3,849.6	0.00	0.00	0.00
TMC 22-13 PBHL									

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
TMC 22-13 PBHL	0.00	0.00	5,766.0	-1,315.4	3,617.9	1,578,052.38	3,489,256.41	40° 54' 24.188 N	103° 43' 47.864 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,063.3	5,766.0	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,460.0	1,460.0	Pierre		0.00	
5,657.9	5,616.0	Niobrara		0.00	
6,063.3	5,766.0	Horizontal Target		0.00	
1.0	1.0	Fox Hills		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
5,245.1	5,245.1	0.0	0.0	KOP 11/100'
6,063.3	5,766.0	-178.0	489.5	EOB Hold 90 Deg
9,391.9	5,766.0	-1,315.4	3,617.8	TD = 9392' MD

TWO MILE CREEK 22-13H

N89°59'20"E
2664.86'

NO. 6 REBAR
WITH 2-1/2" DIA.
METAL I.D. CAP
BY LS 38019

NO. 6 REBAR
WITH 2-1/2" DIA.
METAL I.D. CAP
BY LS 38019

NO. 6 REBAR
WITH 2-1/2" DIA.
METAL I.D. CAP
BY LS 38019

NO. 6 REBAR
WITH 2-1/2" DIA.
METAL I.D. CAP
BY LS 38019

NO. 6 REBAR
WITH 2-1/2" DIA.
METAL I.D. CAP
BY LS 38019

NW1/4SW1/4
PASTURE

TWOMILE CREEK 22-13H WELL
LAT: 40.91033N
LONG: 103.74305W
ELEV: 4950'
PDOP: 2.1

22

NE1/4

NW1/4

NW1/4SW1/4
PASTURE

~~NE1/4SW1/4~~

SEE LOCATION DRAWING FOR
IMPROVEMENTS WITHIN 600' OF
LOCATION.

SE1/4

BOTTOM HOLE
LOCATION
660' FSL
660' FEL

BOTTOM HOLE
LAT: 40.90671N
LONG: 103.72997W

NO. 6 REBAR
WITH 2-1/2" DIA.
METAL I.D. CAP
BY LS 38019

2664.91'
N89°34'25"W

NO. 6 REBAR
WITH 2-1/2" DIA.
METAL I.D. CAP
BY LS 38019

2664.74'
N89°34'35"W

NO. 6 REBAR
WITH 2-1/2" DIA.
METAL I.D. CAP
BY LS 38019

THIS WELL LOCATION PLAT HAS BEEN PREPARED FOR WHITING OIL AND GAS CORPORATION, TO LOCATE THE TWOMILE CREEK 22-13H WELL BEING 1033 FEET FROM THE WEST LINE AND 1949 FEET FROM THE SOUTH LINE IN THE NW1/4SW1/4 OF SECTION 22, TOWNSHIP 11 NORTH, RANGE 57 WEST OF THE 6TH P.M., WELD COUNTY, COLORADO. THE SURFACE ELEVATION AT THIS POINT IS 4950 FEET. THIS IS NOT A LAND SURVEY PLAT.

BEARINGS SHOWN HEREON ARE
BASED UPON RTK GPS
OBSERVATIONS

SEE LOCATION DRAWING FOR
IMPROVEMENTS WITHIN 600' OF
LOCATION.

USGS QUAD MAP:
BATTLE CANYON, 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.

CALCULATED DIMENSIONS
ARE IN PARENTHESES

(S) FIELD SURVEYED
 WELL LOCATION
 (B) FIELD SURVEYED
 BOTTOM HOLE LOCATION

ROAD

FENCE



SCALE: 1" = 1000'

SCALE IN FEET



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

FIELD DATE: 9-17-10

DWG DATE: 10-8-10

**GPS OPERATOR:
DARREN VEAL**

TWOMILE CREEK 22-13H

	DWG NO. 1130-10
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SHEET 1 OF 1