

Results of Directional Survey

DD

API number:	30-025-40522			
OGRID:		Operator:	CONOCOPHILLIPS COMPANY	
		Property:	RUBY FEDERAL	# 11

surface	ULSTR:	N	18	T	17S	R	32E
				450	FSL	2650	FWL

BH Loc	ULSTR:	N	18	T	17S	R	32E
6946	MD	6923.0	TVD	386	FSL	2205	FWL

Top Perf/OH	ULSTR:	N	18	T	17S	R	32E
5355	MD	5339.6	TVD	409	FSL	2357	FWL

Bot Perf/OH	ULSTR:	N	18	T	17S	R	32E
6488	MD	6467.0	TVD	391	FSL	2247	FWL

	MD	N/S	E/W	VD
	5313	-39.97	-288.65	5297.78
TOP PERFS/OH	5355	-40.65	-292.97	5339.56
	5402	-41.42	-297.80	5386.31
	6478	-59.01	-402.09	6457.07
BOT PERFS/OH	6488	-59.13	-403.10	6467.02
	6567	-60.12	-411.10	6545.61

NEXT TO LAST	6902	-64.02	-441.73	6879.18
LAST READING	6946	-64.42	-445.16	6923.04
TD	6946	-64.42	-445.16	6923.04

Surface Location	450	FS	2650	FW
Projected BHL	386	FS	2205	FW
Location of				
Top Perfs/OH	409	FS	2357	FW
Bottom Perfs/OH	391	FS	2247	FW

SUMMARY of Subsurface Locations

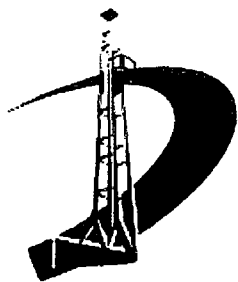
Surface Location	N-18-17S-32E	450	FS	2650	FW	Vert. Depth
Top Perfs/OH	N-18-17S-32E	409	FS	2357	FW	5339.56
Bottom Perfs/OH	N-18-17S-32E	391	FS	2247	FW	6467.02
Projected TD	N-18-17S-32E	386	FS	2205	FW	6923.04

DEC 02 2013

HOBBS OCD

JUL 29 2013

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PRODIRECTIONAL

P.O. Box 750, Conroe, TX 77305 Phone: 936-441-7266

ConocoPhillips

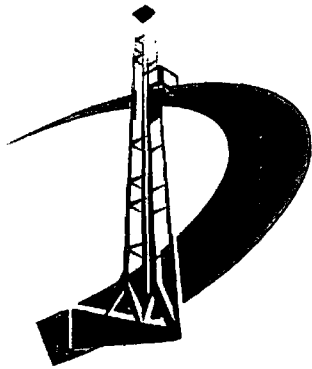
Ruby Federal No. 11
Lea County, NM

May 6, 2013

Job Number LNM 5103413

Survey Completion Report

(COPY)



PRODIRECTIONAL

P.O. Box 750, Conroe, TX 77305 Phone: 936-441-7266 Fax: 936-441-7268

May 6, 2013

HOBBS OCD

JUL 29 2013

ConocoPhillips

Ruby Federal No. 11
Lea County, NM

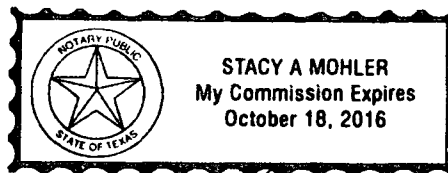
RECEIVED

This is to certify surveys from 757' MD to a depth of 6,946' MD are true and correct MWD surveys. These surveys were taken from 04/30/2013 through 05/05/2013.

Sincerely,

John Jordan

Well Planning



Stacy A. Mohler
5/06/13



ConocoPhillips

Lea County, New Mexico

Ruby Federal

No. 11

OH

Survey: ProDirectional

Survey Completion Report

06 May, 2013

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Company: ConocoPhillips
Project: Lea County, New Mexico
Site: Ruby Federal
Well: Ruby Federal 11
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference: Well Ruby Federal 11
TVD Reference: RKB=3962+13 @ 3975.00usft (PD822)
MD Reference: RKB=3962+13 @ 3975.00usft (PD822)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.000	665,537.98	662,180.06
757.00	0.60	240.600	756.99	3.70	-1.95	-3.45	3.96	240.600	665,536.03	662,176.60
Professional Directional Ltd MWD surveys										
832.00	0.70	247.900	831.98	4.52	-2.31	-4.22	4.81	241.293	665,535.66	662,175.84
921.00	0.70	230.600	920.97	5.51	-2.86	-5.14	5.89	240.920	665,535.11	662,174.91
1,011.00	0.80	231.300	1,010.97	6.53	-3.60	-6.06	7.05	239.266	665,534.37	662,174.00
1,100.00	0.80	241.700	1,099.96	7.65	-4.29	-7.09	8.29	238.853	665,533.69	662,172.97
1,190.00	0.80	247.100	1,189.95	8.85	-4.83	-8.22	9.54	239.582	665,533.15	662,171.84
1,280.00	0.80	249.100	1,279.94	10.07	-5.30	-9.39	10.78	240.571	665,532.68	662,170.67
1,369.00	0.60	250.100	1,368.93	11.14	-5.68	-10.41	11.85	241.389	665,532.30	662,169.65
1,459.00	0.40	276.500	1,458.93	11.90	-5.80	-11.16	12.58	242.538	665,532.17	662,168.90
1,549.00	0.10	57.300	1,548.93	12.13	-5.72	-11.41	12.76	243.358	665,532.25	662,168.65
1,638.00	0.50	50.400	1,637.93	11.73	-5.43	-11.04	12.31	243.801	665,532.54	662,169.01
1,728.00	0.60	50.900	1,727.92	10.99	-4.89	-10.38	11.47	244.781	665,533.09	662,169.68
1,818.00	0.90	54.500	1,817.92	9.95	-4.18	-9.43	10.32	246.110	665,533.80	662,170.62
1,908.00	0.90	44.000	1,907.91	8.76	-3.26	-8.37	8.98	248.716	665,534.72	662,171.69
1,997.00	0.90	57.800	1,996.89	7.56	-2.38	-7.29	7.67	251.889	665,535.59	662,172.77
2,087.00	1.00	75.500	2,086.88	6.14	-1.81	-5.93	6.20	253.021	665,536.16	662,174.13
2,176.00	0.80	83.700	2,175.87	4.74	-1.55	-4.56	4.82	251.253	665,536.43	662,175.50
2,266.00	0.80	102.900	2,265.86	3.53	-1.62	-3.33	3.70	244.031	665,536.36	662,176.73
2,356.00	0.70	132.100	2,355.86	2.60	-2.13	-2.31	3.14	227.283	665,535.85	662,177.75
2,445.00	1.50	250.400	2,444.85	3.40	-2.88	-3.00	4.16	226.125	665,535.09	662,177.06
2,535.00	2.60	250.300	2,534.79	6.56	-3.97	-6.03	7.22	236.663	665,534.01	662,174.03
2,624.00	3.70	262.800	2,623.65	11.41	-5.01	-10.78	11.89	245.085	665,532.97	662,169.28
2,714.00	4.80	270.200	2,713.40	18.03	-5.36	-17.43	18.23	252.908	665,532.62	662,162.63
2,803.00	5.10	273.000	2,802.07	25.59	-5.14	-25.10	25.62	258.431	665,532.84	662,154.96
2,893.00	5.60	262.100	2,891.68	33.90	-5.53	-33.45	33.90	260.607	665,532.44	662,146.61

Company: ConocoPhillips
 Project: Lea County, New Mexico
 Site: Ruby Federal
 Well: Ruby Federal 11
 Wellbore: Original Hole
 Design: Surveys Original Hole

Local Co-ordinate Reference: Well Ruby Federal 11
 TVD Reference: RKB=3962+13 @ 3975.00usft (PD822)
 MD Reference: RKB=3962+13 @ 3975.00usft (PD822)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
2,982.00	5.00	261.100	2,980.30	42.12	-6.73	-41.58	42.12	260.806	665,531.25	662,138.48
3,072.00	5.90	262.800	3,069.89	50.66	-7.92	-50.04	50.67	261.011	665,530.06	662,130.01
3,161.00	7.30	267.600	3,158.30	60.86	-8.73	-60.23	60.86	261.756	665,529.25	662,119.83
3,251.00	6.40	263.500	3,247.66	71.56	-9.53	-70.93	71.57	262.345	665,528.44	662,109.13
3,341.00	5.70	262.800	3,337.16	81.04	-10.66	-80.35	81.05	262.441	665,527.31	662,099.71
3,430.00	6.00	261.900	3,425.69	90.11	-11.87	-89.34	90.12	262.431	665,526.10	662,090.72
3,520.00	7.20	261.800	3,515.10	100.45	-13.34	-99.58	100.47	262.371	665,524.64	662,080.48
3,609.00	7.60	262.800	3,603.35	111.91	-14.87	-110.94	111.93	262.365	665,523.10	662,069.12
3,699.00	7.30	260.900	3,692.59	123.58	-16.52	-122.49	123.60	262.318	665,521.45	662,057.57
3,789.00	6.50	261.300	3,781.94	134.39	-18.20	-133.17	134.41	262.219	665,519.78	662,046.89
3,878.00	6.00	263.400	3,870.41	144.08	-19.49	-142.77	144.09	262.225	665,518.48	662,037.29
3,968.00	5.90	262.000	3,959.93	153.41	-20.68	-152.02	153.42	262.254	665,517.30	662,028.04
4,058.00	5.70	261.300	4,049.47	162.50	-22.00	-161.02	162.52	262.221	665,515.98	662,019.04
4,147.00	5.80	260.800	4,138.02	171.42	-23.39	-169.83	171.43	262.160	665,514.59	662,010.23
4,237.00	5.70	260.800	4,227.57	180.43	-24.83	-178.73	180.45	262.092	665,513.15	662,001.33
4,327.00	5.50	262.800	4,317.14	189.21	-26.08	-187.42	189.23	262.077	665,511.89	661,992.64
4,416.00	5.50	262.200	4,405.73	197.74	-27.20	-195.88	197.76	262.096	665,510.78	661,984.18
4,506.00	5.20	261.600	4,495.34	206.13	-28.38	-204.19	206.15	262.088	665,509.60	661,975.87
4,596.00	6.00	256.700	4,584.91	214.90	-30.05	-212.80	214.91	261.961	665,507.92	661,967.26
4,685.00	6.20	256.300	4,673.40	224.32	-32.26	-221.99	224.33	261.731	665,505.71	661,958.06
4,775.00	6.10	254.600	4,762.88	233.91	-34.68	-231.33	233.91	261.473	665,503.29	661,948.73
4,864.00	6.40	261.200	4,851.36	243.57	-36.70	-240.79	243.57	261.334	665,501.28	661,939.27
4,954.00	6.40	264.600	4,940.79	253.59	-37.94	-250.74	253.59	261.396	665,500.04	661,929.32
5,044.00	6.30	268.000	5,030.24	263.51	-38.58	-260.67	263.51	261.581	665,499.39	661,919.39
5,133.00	6.10	266.600	5,118.72	273.07	-39.03	-270.27	273.07	261.782	665,498.94	661,909.79
5,223.00	5.80	269.500	5,208.24	282.33	-39.36	-279.59	282.34	261.987	665,498.62	661,900.47
5,313.00	5.80	262.700	5,297.78	291.38	-39.97	-288.65	291.40	262.115	665,498.00	661,891.41

Company: ConocoPhillips
 Project: Lea County, New Mexico
 Site: Ruby Federal
 Well: Ruby Federal 11
 Wellbore: Original Hole
 Design: Surveys Original Hole

Local Co-ordinate Reference: Well Ruby Federal 11
 TVD Reference: RKB=3962+13 @ 3975.00usft (PD822)
 MD Reference: RKB=3962+13 @ 3975.00usft (PD822)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
5,402.00	5.90	259.000	5,386.31	300.45	-41.42	-297.60	300.47	262.077	665,496.56	661,882.46
5,492.00	5.80	260.500	5,475.85	309.61	-43.05	-306.62	309.63	262.008	665,494.92	661,873.43
5,581.00	5.80	260.500	5,564.39	318.61	-44.54	-315.49	318.62	261.965	665,493.44	661,864.56
5,671.00	5.80	259.500	5,653.93	327.70	-46.11	-324.45	327.71	261.911	665,491.86	661,855.61
5,761.00	6.00	260.300	5,743.45	336.95	-47.74	-333.56	336.96	261.856	665,490.24	661,846.50
5,850.00	5.60	259.900	5,832.00	345.94	-49.28	-342.42	345.95	261.810	665,488.69	661,837.64
5,940.00	5.50	258.300	5,921.58	354.64	-50.93	-350.97	354.64	261.744	665,487.05	661,829.09
6,030.00	5.50	258.600	6,011.16	363.25	-52.65	-359.42	363.25	261.666	665,485.32	661,820.64
6,119.00	5.50	259.600	6,099.75	371.77	-54.27	-367.79	371.77	261.607	665,483.71	661,812.27
6,209.00	5.50	260.600	6,189.34	380.40	-55.75	-376.29	380.40	261.573	665,482.23	661,803.77
6,299.00	5.20	262.100	6,278.94	388.79	-57.01	-384.58	388.79	261.567	665,480.96	661,795.47
6,388.00	5.80	264.100	6,367.53	397.31	-58.03	-393.05	397.31	261.601	665,479.94	661,787.01
6,478.00	5.80	263.500	6,457.07	406.40	-59.01	-402.09	406.40	261.651	665,478.96	661,777.96
6,567.00	5.90	262.500	6,545.61	415.47	-60.12	-411.10	415.47	261.680	665,477.86	661,768.96
6,657.00	5.60	261.000	6,635.16	424.48	-61.41	-420.02	424.49	261.682	665,476.57	661,760.04
6,747.00	5.30	263.900	6,724.75	433.03	-62.54	-428.49	433.03	261.696	665,475.44	661,751.57
6,836.00	4.90	263.600	6,813.40	440.93	-63.40	-436.36	440.94	261.733	665,474.58	661,743.70
6,902.00	4.50	263.300	6,879.18	446.34	-64.02	-441.73	446.34	261.754	665,473.96	661,738.33
6,946.00	4.50	263.300	6,923.04	449.79	-64.42	-445.16	449.79	261.766	665,473.56	661,734.90

Survey projected to 6946 MD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
757.00	756.99	-1.95	-3.45	Professional Directional Ltd MWD surveys
6,946.00	6,923.04	-64.42	-445.16	Survey projected to 6946 MD

Company: ConocoPhillips
Project: Lea County, New Mexico
Site: Ruby Federal
Well: Ruby Federal 11
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference: Well Ruby Federal 11
TVD Reference: RKB=3962+13 @ 3975.00usft (PD822)
MD Reference: RKB=3962+13 @ 3975.00usft (PD822)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Checked By: <u>Mike Coats</u>	Approved By: <u>[Signature]</u>	Date: <u>5-6-2013</u>
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Company: ConocoPhillips
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 Site: Ruby Federal
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Project	Lea County, New Mexico		
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	Ruby Federal		
Site Position:	Northings:	665,437.81 usft	Latitude: 32° 49' 41.500374 N
From: Map	Easting:	666,996.38 usft	Longitude: 103° 47' 22.870781 W
Position Uncertainty: 0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.29 °

Well	Ruby Federal 11		
Well Position	+N/-S	0.00 usft	Northings: 665,537.97 usft
	+E/-W	0.00 usft	Easting: 662,180.06 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
			Latitude: 32° 49' 42.733124 N
			Longitude: 103° 48' 19.308136 W
			Ground Level: 3,962.00 usft

Wellbore	Original Hole		
Magnetics	Model Name	Sample Date	Declination
	User Defined	4/21/2013	(°) 7.63
			Dip Angle (°) 60.62
			Field Strength (nT) 48,799

Design	Surveys Original Hole		
Audit Notes:			
Version: 1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°) 261.430

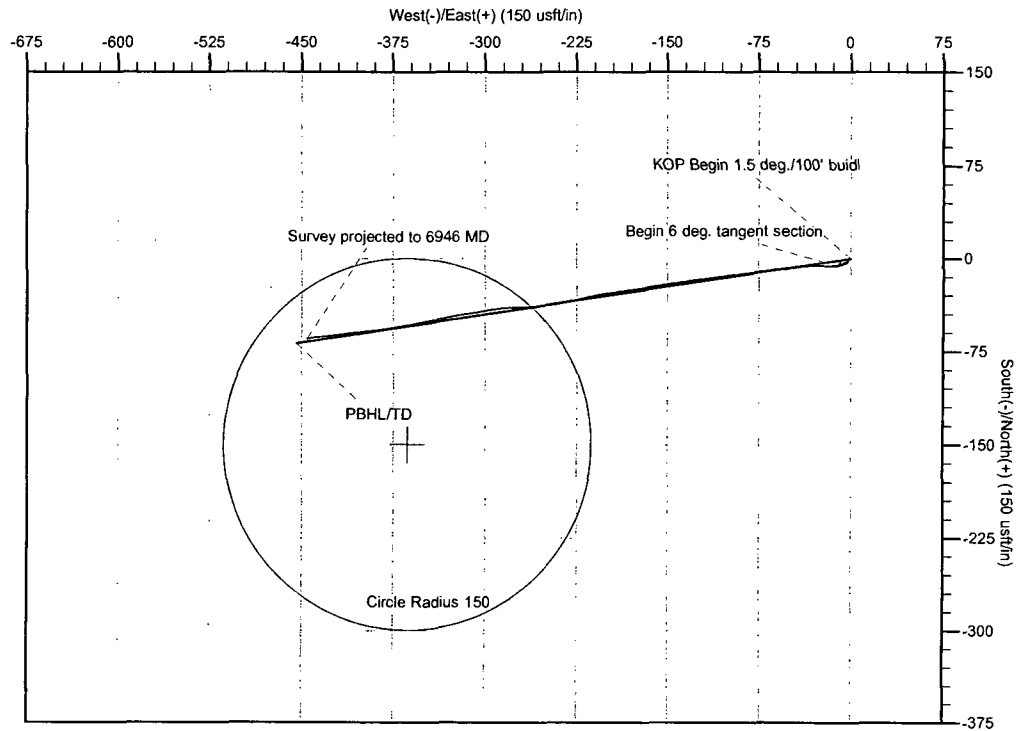
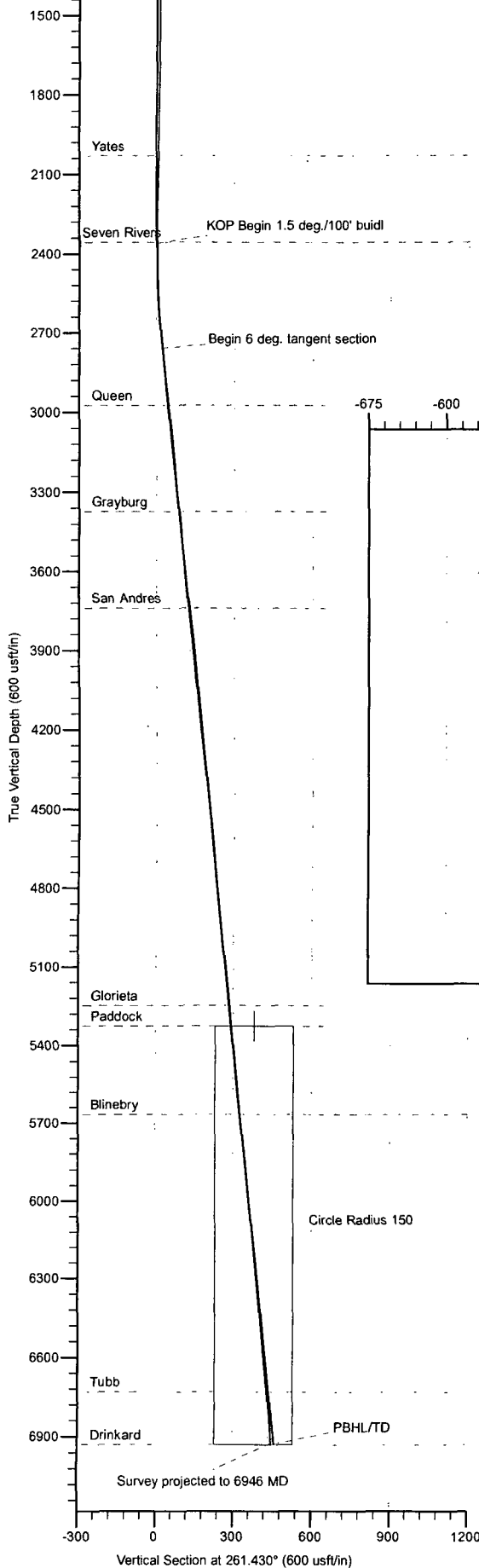
Survey Program	Date 5/5/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
757.00	6,946.00	MWD (Original Hole)	MWD
			Description
			MWD - Standard



ConocoPhillips
Lea County, New Mexico
Ruby Federal
Ruby Federal 11
rev0
PD822

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Annotation
1	0.00	0.00	0.000	0.00	0.00	0.00	0.000	
2	2360.00	0.00	0.000	2360.00	0.00	0.00	0.000	KOP Begin 1.5 deg./100' buidl
3	2759.86	6.00	261.430	2759.13	-3.12	-20.68	1.500	Begin 6 deg. tangent section
4	6952.68	6.00	261.430	6929.00	-68.40	-453.90	0.000	PBHL/TD



RKB Elevation: RKB=3962+13 @ 3975.00usf (PD822)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	665537.97	662180.06	32° 49' 42.733124 N	103° 48' 19.308136 W

US State Plane 1927 (Exact solution)
NAD 1927 (NADCON CONUS)
Clarke 1886
New Mexico East 3001
Mean Sea Level

TGM
Azimuths to Grid North
True North: -0.29°
Magnetic North: 7.34°
Magnetic Field
Strength: 48799.0nT
Dip Angle: 60.62°
Date: 4/21/2013
Model: USER DEFINED BGGM

