

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit one copy to appropriate
District Office

☐ AMENDED REPORT
☒ AS DRILLED

WELL LOCATION AND ACREAGE DEDICATION PLAT Lateral 4

1 API Number 30-039-29790		2 Pool Code 71629		3 Pool Name BASIN FRUITLAND COAL		
4 Property Code 35674		5 Property Name SAN JUAN 32-5 UNIT COM OIL CONS. DIV DIST. 3			6 Well Number 114	
7 GRID No. 282327		8 Operator Name SOUTHLAND ROYALTY CO., LLC			9 Elevation 6475'	

10 Surface Location

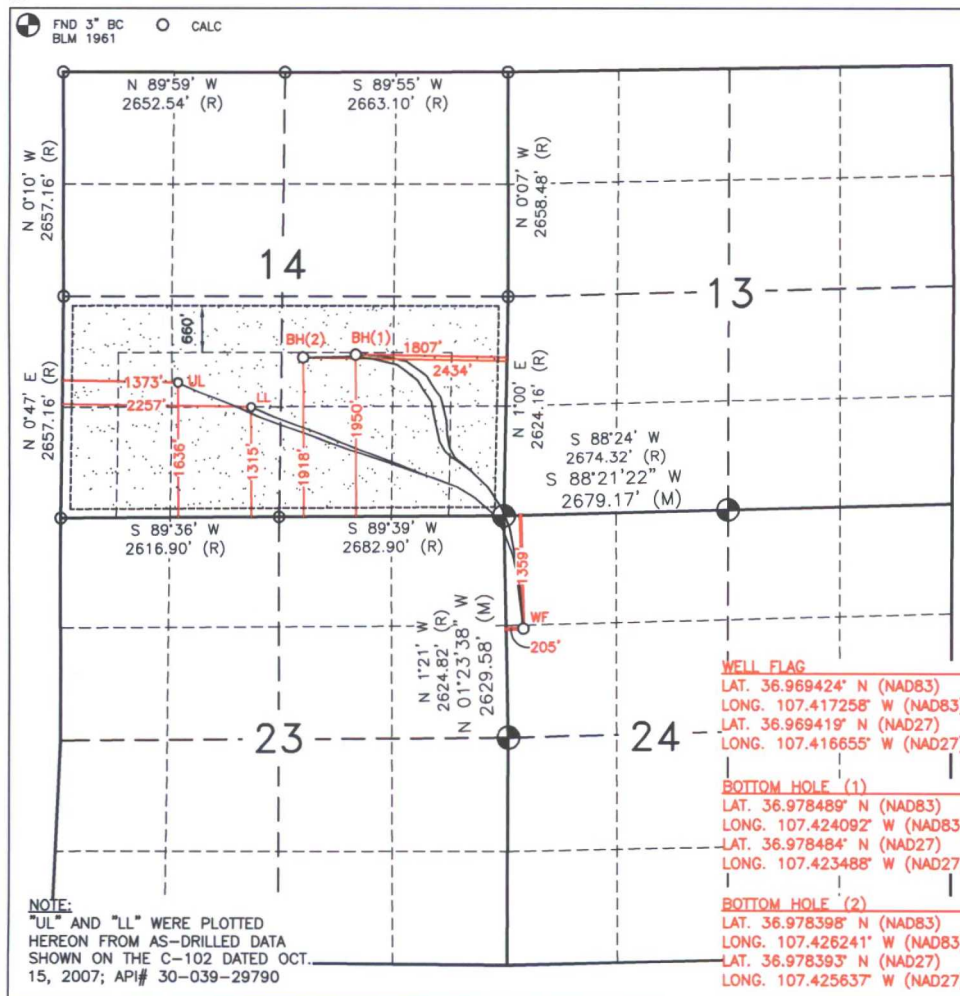
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	24	32N	6W		1359'	NORTH	205'	WEST	RIO ARRIBA

11 Bottom Hole Location If Different From Surface

UL or lot no. BH() & J UL & LL: K	Section	Township	Range	Lot Idn	Feet from the BH() UL: 1918 LL: 1918 UL: 1936	North/South line	Feet from the BH() UL: 1807 LL: 2434 UL: 2257 UL: 1373	East/West line	County
	14	32N	6W			SOUTH		EAST WEST WEST	SAN JUAN
12 Dedicated Acres 320 ACRES - S/2 SEC. 14		13 Joint or Infill		14 Consolidation Code		15 Order No.			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Robbie A. Grieg 9/18/17
Signature Date
Robbie A. Grieg
Printed Name
rgrieg@mspartners.com
E-mail Address

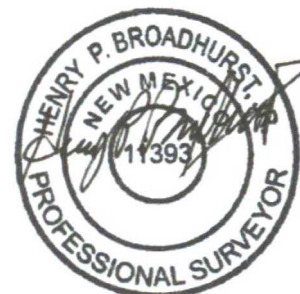
SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

SEPTEMBER 14, 2017

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number

11393



Job Number: NM17102
Company: Southland Royalty
Lease/Well: San Juan 32-5 Unit COM #114 ST3
Location: Eul Canyon
Rig Name: D&J #3
State/County: New Mexico/ Rio Arriba
Country: USA
API Number: 30-039-29790

Elev. GL: 6472.00 ft **RKB:** 6488.00 ft
System: US State Plane 1927 (Exact solution)
Group: New Mexico West 3003
Datum: CLARKE 1866
Mag. Decl.: 9.13° (C:\HawkEye\IGRF2015.MIF)
Grid Conv.: 0.25079 E
Date: Friday, August 18, 2017



Directional Drillers: Tom Allen / Jonathan Rice

Calculated by HawkEye Software
 Minimum Curvature Method
 Vertical Section Plane 303.91°

Northing (US ft): 2172400.80 Easting (US ft): 621817.87
 Latitude: 36°58'9.8870" N Longitude: -107°24'58.8190" W

Well Location: 1359.44 FNL, 322.68 FWL, Section 24, T32N, R6W, New Mexico Principal Meridian, Rio Arriba County, NM
 Direction Reference: True North

OIL CONS. DIV DIST. 3
 SEP 19 2017

#	Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	Closure (Ft)	Closure Dir Deg	DLS %/100 Ft	Build Rate %/100 Ft	Walk Rate %/100 Ft
Tie In to Motherbore												
1	4156.00	61.47	297.96	2920.40	2026.70	-821.60	1812.53	2186.90	337.93	0.00	0.00	0.00
Payzone MWD Surveys												
2	4226.00	63.52	308.67	2952.80	2060.77	-873.34	1874.49	2238.20	337.03	13.88	2.93	15.30
3	4258.00	63.65	313.68	2967.04	2079.63	-894.91	1902.90	2264.01	336.72	14.03	0.41	15.66
4	4289.00	64.13	317.55	2980.69	2099.52	-914.37	1930.15	2289.99	336.47	11.32	1.55	12.48
5	4320.00	64.92	321.06	2994.03	2120.74	-932.61	1957.13	2316.74	336.26	10.53	2.55	11.32
6	4352.00	67.25	325.02	3007.00	2144.11	-950.19	1984.75	2345.22	336.10	13.45	7.28	12.37
7	4383.00	70.77	328.45	3018.11	2168.31	-966.05	2011.42	2373.78	335.99	15.35	11.35	11.06
8	4414.00	73.67	331.26	3027.58	2193.83	-980.86	2037.95	2403.12	335.91	12.73	9.35	9.06
9	4445.00	75.78	334.77	3035.74	2220.48	-994.43	2064.07	2432.98	335.88	12.87	6.81	11.32
10	4476.00	77.54	337.94	3042.90	2248.11	-1006.52	2089.52	2463.14	335.88	11.46	5.68	10.23
11	4507.00	79.43	341.72	3049.09	2276.61	-1016.99	2114.11	2493.44	335.93	13.41	6.10	12.19
12	4538.00	80.57	345.41	3054.47	2305.89	-1025.62	2137.61	2523.69	336.02	12.29	3.68	11.90
13	4569.00	83.08	348.22	3058.88	2335.76	-1032.62	2160.08	2553.84	336.15	12.09	8.10	9.06
14	4600.00	86.46	350.86	3061.71	2366.11	-1038.22	2181.66	2583.87	336.31	13.81	10.90	8.52
Begin Terrapin EM MWD Surveys												
15	4658.00	91.32	354.64	3062.83	2423.61	-1045.53	2219.81	2639.51	336.66	10.61	8.38	6.52
16	4719.00	91.19	354.73	3061.50	2484.33	-1051.18	2258.38	2697.57	337.07	0.26	-0.21	0.15
17	4781.00	92.59	352.35	3059.45	2545.90	-1058.15	2298.51	2757.04	337.43	4.45	2.26	-3.84
18	4842.00	95.27	346.99	3055.27	2605.74	-1069.05	2340.94	2816.52	337.69	9.80	4.39	-8.79
19	4903.00	94.04	341.54	3050.31	2664.24	-1085.54	2387.26	2876.90	337.83	9.13	-2.02	-8.93
20	4965.00	92.77	338.11	3046.63	2722.32	-1106.88	2437.37	2938.75	337.87	5.89	-2.05	-5.53
21	5026.00	90.97	333.46	3044.64	2777.91	-1131.88	2489.13	2999.65	337.83	8.17	-2.95	-7.62
22	5088.00	89.60	330.56	3044.33	2832.65	-1160.97	2543.82	3061.33	337.71	5.17	-2.21	-4.68
23	5149.00	88.73	327.56	3045.22	2884.96	-1192.33	2599.02	3121.64	337.55	5.12	-1.43	-4.92
24	5211.00	86.88	323.88	3047.59	2936.14	-1227.22	2656.53	3182.29	337.32	6.64	-2.98	-5.94
25	5272.00	86.79	319.39	3050.96	2983.88	-1265.01	2714.53	3240.96	337.03	7.35	-0.15	-7.36
26	5335.00	89.60	314.12	3052.95	3029.73	-1308.13	2775.89	3300.07	336.65	9.48	4.46	-8.37
27	5395.00	90.70	308.14	3052.79	3069.17	-1353.30	2835.39	3354.29	336.21	10.13	1.83	-9.97
28	5457.00	91.36	304.72	3051.68	3105.98	-1403.17	2897.31	3408.23	335.69	5.62	1.06	-5.52
29	5518.00	91.10	301.73	3050.37	3139.39	-1454.18	2958.28	3459.83	335.15	4.92	-0.43	-4.90
30	5589.00	91.14	296.02	3048.98	3173.66	-1516.32	3028.97	3517.29	334.46	8.04	0.06	-8.04
31	5651.00	91.10	289.77	3047.77	3197.76	-1573.40	3089.78	3563.88	333.80	10.08	-0.06	-10.08
32	5712.00	91.71	284.85	3046.27	3215.90	-1631.60	3148.21	3606.12	333.10	8.12	1.00	-8.07
33	5773.00	91.01	279.67	3044.82	3228.85	-1691.17	3204.87	3644.93	332.36	8.57	-1.15	-8.49
34	5835.00	91.05	278.35	3043.71	3238.55	-1752.39	3261.09	3682.27	331.58	2.13	0.06	-2.13
35	5896.00	87.58	275.45	3044.43	3245.88	-1812.93	3315.42	3717.86	330.82	7.41	-5.69	-4.75
36	5958.00	88.55	276.46	3046.53	3252.31	-1874.56	3370.16	3753.86	330.04	2.26	1.56	1.63
37	6019.00	88.99	276.42	3047.84	3259.15	-1935.16	3424.26	3790.37	329.30	0.72	0.72	-0.07
38	6081.00	88.95	274.57	3048.95	3265.09	-1996.86	3478.78	3827.30	328.55	2.98	-0.06	-2.98
39	6142.00	89.12	272.20	3049.98	3268.69	-2057.74	3531.32	3862.46	327.81	3.89	0.28	-3.89

#	Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	Closure (Ft)	Closure Dir Deg	DLS */100 Ft	Build Rate */100 Ft	Walk Rate */100 Ft
40	6202.00	89.25	269.30	3050.83	3269.47	-2117.72	3581.54	3895.41	327.07	4.84	0.22	-4.83
41	6263.00	90.05	268.68	3051.21	3268.40	-2178.71	3631.55	3928.00	326.31	1.65	1.30	-1.02
42	6324.00	90.97	267.80	3050.67	3266.52	-2239.68	3681.11	3960.60	325.56	2.09	1.52	-1.44
43	6385.00	91.41	266.66	3049.40	3263.58	-2300.60	3730.01	3992.95	324.82	2.00	0.72	-1.87
44	6447.00	92.11	267.98	3047.50	3260.68	-2362.50	3779.77	4026.59	324.08	2.41	1.13	2.13
45	6509.00	92.77	270.09	3044.86	3259.64	-2424.43	3830.59	4062.40	323.36	3.56	1.06	3.40
46	6571.00	92.33	269.12	3042.10	3259.21	-2486.36	3881.75	4099.32	322.66	1.72	-0.71	-1.56
47	6632.00	92.11	268.59	3039.74	3257.99	-2547.31	3931.65	4135.61	321.98	0.94	-0.36	-0.87
Straight Line Projection to TD @ 6723' MD												
48	6723.00	92.11	268.59	3036.39	3255.75	-2638.22	4005.85	4190.48	320.98	0.00	0.00	0.00

Southland Royalty

Rio Arriba County

Fruitland Coal Prospect

San Juan 32-5 Unit COM #114

ST 4

Design: Actual

Standard Survey Report

29 August, 2017



Payzone Directional

Survey Report



Company:	Southland Royalty	Local Co-ordinate Reference:	Well San Juan 32-5 Unit COM #114
Project:	Rio Arriba County	TVD Reference:	San Juan 32-5 Unit COM #114 @ 6488.0usft (RKB)
Site:	Fruitland Coal Prospect	MD Reference:	San Juan 32-5 Unit COM #114 @ 6488.0usft (RKB)
Well:	San Juan 32-5 Unit COM #114	North Reference:	True
Wellbore:	ST 4	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000.1 Single User Db

Project	Rio Arriba County		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site		Fruitland Coal Prospect			
Site Position:		Northing:		2,172,400.40 usft	
From:		Easting:		621,736.70 usft	
Position Uncertainty:		Slot Radius:		Grid Convergence:	
Map		0.0 usft		13-3/16 "	
				36° 58' 9.887 N	
				107° 24' 59.819 W	
				0.25 °	

Well	San Juan 32-5 Unit COM #114, SHL: X= 621736.7 Y= 2172400.4					
Well Position	+N/-S	0.0 usft	Northing:	2,172,400.40 usft	Latitude:	36° 58' 9.887 N
	+E/-W	0.0 usft	Easting:	621,736.70 usft	Longitude:	107° 24' 59.819 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	6,488.0 usft	Ground Level:	6,472.0 usft

Wellbore	ST 4				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/23/2017	9.12	63.59	50,188

Design	Actual				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	4,030.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	344.69	

Survey Program	Date	8/29/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
325.0	4,030.0	UL (Upper lateral)	MWD	MWD v3:standard declination	
4,030.0	6,180.0	Actual (ST 4)	MWD	MWD v3:standard declination	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
325.0	0.97	217.50	325.0	-2.2	-1.7	-1.7	0.30	0.30	0.00	
386.0	0.62	236.33	386.0	-2.8	-2.3	-2.1	0.71	-0.57	30.87	
446.0	0.62	234.37	446.0	-3.1	-2.8	-2.3	0.04	0.00	-3.27	
506.0	0.88	245.80	506.0	-3.5	-3.5	-2.5	0.50	0.43	19.05	
566.0	0.79	246.59	566.0	-3.9	-4.3	-2.6	0.15	-0.15	1.32	
627.0	1.93	284.64	626.9	-3.8	-5.7	-2.2	2.29	1.87	62.38	
687.0	3.34	329.73	686.9	-2.0	-7.5	0.0	4.01	2.35	75.15	

Payzone Directional Survey Report



Company:	Southland Royalty	Local Co-ordinate Reference:	Well San Juan 32-5 Unit COM #114
Project:	Rio Arriba County	TVD Reference:	San Juan 32-5 Unit COM #114 @ 6488.0usft (RKB)
Site:	Fruitland Coal Prospect	MD Reference:	San Juan 32-5 Unit COM #114 @ 6488.0usft (RKB)
Well:	San Juan 32-5 Unit COM #114	North Reference:	True
Wellbore:	ST 4	Survey Calculation Method:	Minimum Curvature
Design:	Actual	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)
749.0	3.87	353.46	748.8	1.6	-8.7	3.9	2.53	0.85	38.27
808.0	4.31	7.35	807.6	5.8	-8.6	7.9	1.83	0.75	23.54
868.0	4.31	8.76	867.4	10.3	-8.0	12.0	0.18	0.00	2.35
929.0	4.13	6.12	928.3	14.7	-7.4	16.1	0.43	-0.30	-4.33
959.0	4.40	5.42	958.2	16.9	-7.2	18.2	0.92	0.90	-2.33
1,019.0	5.36	3.13	1,018.0	22.0	-6.8	23.0	1.63	1.60	-3.82
1,080.0	6.33	358.21	1,078.7	28.2	-6.8	29.0	1.79	1.59	-8.07
1,141.0	8.00	356.89	1,139.2	35.8	-7.1	36.4	2.75	2.74	-2.16
1,202.0	9.94	0.56	1,199.4	45.3	-7.3	45.6	3.31	3.18	6.02
1,263.0	12.13	0.85	1,259.3	57.0	-7.1	56.9	3.59	3.59	0.48
1,323.0	14.25	359.44	1,317.7	70.7	-7.1	70.1	3.57	3.53	-2.35
1,385.0	17.41	353.99	1,377.4	87.6	-8.1	86.6	5.63	5.10	-8.79
1,445.0	20.58	352.23	1,434.1	106.9	-10.5	105.9	5.37	5.28	-2.93
1,504.0	24.18	351.88	1,488.6	129.2	-13.6	128.2	6.11	6.10	-0.59
1,565.0	27.26	352.14	1,543.6	155.4	-17.3	154.4	5.05	5.05	0.43
1,628.0	30.42	351.97	1,598.8	185.5	-21.5	184.6	5.02	5.02	-0.27
1,691.0	32.89	351.62	1,652.4	218.2	-26.2	217.4	3.93	3.92	-0.56
1,753.0	35.79	351.79	1,703.6	252.8	-31.3	252.1	4.68	4.68	0.27
1,816.0	38.34	351.79	1,753.8	290.4	-36.7	289.8	4.05	4.05	0.00
1,877.0	40.89	351.88	1,800.8	328.9	-42.2	328.4	4.18	4.18	0.15
1,939.0	42.30	352.58	1,847.2	369.7	-47.8	369.2	2.39	2.27	1.13
2,002.0	43.88	352.50	1,893.2	412.3	-53.4	411.8	2.51	2.51	-0.13
2,065.0	45.55	353.29	1,938.0	456.3	-58.8	455.7	2.79	2.65	1.25
2,128.0	47.40	352.35	1,981.4	501.6	-64.5	500.9	3.13	2.94	-1.49
2,190.0	48.98	352.45	2,022.7	547.4	-70.7	546.7	2.55	2.55	0.16
2,254.0	50.30	352.75	2,064.1	595.8	-76.9	595.0	2.09	2.06	0.47
2,314.0	51.70	353.26	2,101.9	642.1	-82.6	641.1	2.43	2.33	0.85
2,376.0	54.17	353.24	2,139.3	691.2	-88.4	690.0	3.98	3.98	-0.03
2,439.0	56.81	353.55	2,174.9	742.8	-94.4	741.3	4.21	4.19	0.49
2,502.0	58.48	353.80	2,208.7	795.7	-100.3	793.9	2.67	2.65	0.40
2,564.0	61.20	354.57	2,239.8	849.0	-105.7	846.8	4.52	4.39	1.24
2,626.0	63.05	353.32	2,268.8	903.5	-111.5	900.9	3.48	2.98	-2.02
2,688.0	64.46	354.15	2,296.2	958.8	-117.5	955.8	2.57	2.27	1.34
2,751.0	64.63	350.81	2,323.3	1,015.2	-125.0	1,012.1	4.79	0.27	-5.30
2,844.0	65.25	347.78	2,362.7	1,097.9	-140.6	1,096.1	3.03	0.67	-3.26
2,907.0	64.81	345.95	2,389.3	1,153.5	-153.6	1,153.2	2.72	-0.70	-2.90
2,969.0	64.72	344.50	2,415.7	1,207.8	-167.9	1,209.2	2.12	-0.15	-2.34
3,031.0	64.90	341.28	2,442.1	1,261.4	-184.4	1,265.3	4.71	0.29	-5.19
3,092.0	64.90	338.92	2,468.0	1,313.3	-203.2	1,320.4	3.50	0.00	-3.87
3,154.0	65.42	335.58	2,494.1	1,365.2	-225.0	1,376.1	4.96	0.84	-5.39
3,216.0	66.13	331.69	2,519.5	1,415.8	-250.1	1,431.6	5.83	1.15	-6.27
3,279.0	66.39	331.84	2,544.9	1,466.6	-277.4	1,487.8	0.47	0.41	0.24

Payzone Directional

Survey Report



Company: Southland Royalty
Project: Rio Arriba County
Site: Fruitland Coal Prospect
Well: San Juan 32-5 Unit COM #114
Wellbore: ST 4
Design: Actual

Local Co-ordinate Reference: Well San Juan 32-5 Unit COM #114
TVD Reference: San Juan 32-5 Unit COM #114 @ 6488.0usft (RKB)
MD Reference: San Juan 32-5 Unit COM #114 @ 6488.0usft (RKB)
North Reference: True
Survey Calculation Method: Minimum Curvature
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)
3,341.0	66.04	330.20	2,569.9	1,516.3	-304.9	1,542.9	2.49	-0.56	-2.65
3,405.0	65.95	328.25	2,595.9	1,566.5	-334.8	1,599.3	2.79	-0.14	-3.05
3,468.0	66.65	325.54	2,621.2	1,614.8	-366.3	1,654.2	4.09	1.11	-4.30
3,530.0	66.04	321.91	2,646.1	1,660.6	-399.9	1,707.2	5.45	-0.98	-5.85
3,593.0	65.51	319.85	2,672.0	1,705.2	-436.1	1,759.8	3.10	-0.84	-3.27
3,656.0	64.72	318.15	2,698.5	1,748.3	-473.6	1,811.3	2.75	-1.25	-2.70
3,718.0	64.89	315.48	2,724.9	1,789.2	-512.0	1,860.9	3.91	0.27	-4.31
3,782.0	64.81	313.55	2,752.1	1,829.8	-553.3	1,911.0	2.73	-0.13	-3.02
3,844.0	64.46	311.58	2,778.6	1,867.7	-594.5	1,958.4	2.93	-0.56	-3.18
3,906.0	63.40	308.82	2,805.9	1,903.6	-637.1	2,004.3	4.35	-1.71	-4.45
3,969.0	63.05	306.73	2,834.3	1,938.1	-681.5	2,049.3	3.01	-0.56	-3.32
4,030.0	63.05	303.80	2,861.9	1,969.5	-725.9	2,091.3	4.28	0.00	-4.80
4,122.0	64.16	314.20	2,902.9	2,021.3	-789.8	2,158.1	10.19	1.21	11.30
4,153.0	63.76	318.08	2,916.5	2,041.3	-809.1	2,182.5	11.32	-1.29	12.52
4,183.0	63.59	321.06	2,929.8	2,061.8	-826.5	2,206.9	8.92	-0.57	9.93
4,214.0	63.54	326.16	2,943.6	2,084.1	-843.0	2,232.8	14.73	-0.16	16.45
4,245.0	64.03	329.50	2,957.3	2,107.7	-857.8	2,259.4	9.79	1.58	10.77
4,275.0	65.92	334.25	2,970.0	2,131.6	-870.6	2,285.9	15.67	6.30	15.83
4,306.0	67.54	338.47	2,982.3	2,157.7	-882.0	2,314.0	13.55	5.23	13.61
4,337.0	69.26	343.12	2,993.7	2,184.9	-891.5	2,342.8	15.01	5.55	15.00
4,367.0	70.58	346.02	3,004.0	2,212.1	-899.0	2,371.0	10.09	4.40	9.67
4,398.0	71.85	348.66	3,014.0	2,240.7	-905.4	2,400.3	9.04	4.10	8.52
4,428.0	73.70	352.27	3,022.9	2,269.0	-910.2	2,428.8	13.04	6.17	12.03
4,459.0	75.72	355.96	3,031.1	2,298.7	-913.2	2,458.3	13.20	6.52	11.90
4,490.0	76.77	358.77	3,038.4	2,328.8	-914.6	2,487.6	9.43	3.39	9.06
4,521.0	80.51	357.98	3,044.5	2,359.2	-915.5	2,517.2	12.32	12.06	-2.55
4,551.0	83.45	356.92	3,048.7	2,388.8	-916.8	2,546.1	10.41	9.80	-3.53
4,581.0	83.14	356.75	3,052.2	2,418.6	-918.4	2,575.3	1.18	-1.03	-0.57
4,612.0	84.02	356.04	3,055.7	2,449.3	-920.4	2,605.4	3.64	2.84	-2.29
4,648.0	89.34	354.99	3,057.8	2,485.2	-923.2	2,640.7	15.06	14.78	-2.92
4,709.0	91.19	351.21	3,057.5	2,545.7	-930.5	2,701.0	6.90	3.03	-6.20
4,771.0	90.97	348.49	3,056.3	2,606.7	-941.4	2,762.8	4.40	-0.35	-4.39
4,832.0	92.77	344.88	3,054.3	2,666.0	-955.5	2,823.7	6.61	2.95	-5.92
4,894.0	93.56	341.02	3,050.9	2,725.2	-973.6	2,885.6	6.35	1.27	-6.23
4,955.0	93.21	336.80	3,047.3	2,782.0	-995.5	2,946.1	6.93	-0.57	-6.92
5,017.0	92.81	333.54	3,044.0	2,838.2	-1,021.5	3,007.2	5.29	-0.65	-5.26
5,077.0	92.29	330.12	3,041.4	2,891.0	-1,049.8	3,065.6	5.76	-0.87	-5.70
5,137.0	91.45	326.07	3,039.4	2,941.9	-1,081.5	3,123.1	6.89	-1.40	-6.75
5,199.0	90.88	321.42	3,038.2	2,991.9	-1,118.1	3,180.9	7.55	-0.92	-7.50
5,260.0	89.47	316.58	3,038.0	3,037.9	-1,158.1	3,235.9	8.26	-2.31	-7.93
5,321.0	88.64	312.19	3,039.0	3,080.6	-1,201.7	3,288.5	7.32	-1.36	-7.20
5,383.0	88.77	307.27	3,040.4	3,120.2	-1,249.4	3,339.3	7.94	0.21	-7.94

Payzone Directional

Survey Report



Company: Southland Royalty
Project: Rio Arriba County
Site: Fruitland Coal Prospect
Well: San Juan 32-5 Unit COM #114
Wellbore: ST 4
Design: Actual

Local Co-ordinate Reference: Well San Juan 32-5 Unit COM #114
TVD Reference: San Juan 32-5 Unit COM #114 @ 6488.0usft (RKB)
MD Reference: San Juan 32-5 Unit COM #114 @ 6488.0usft (RKB)
North Reference: True
Survey Calculation Method: Minimum Curvature
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)
5,445.0	88.68	303.49	3,041.8	3,156.1	-1,299.9	3,387.3	6.10	-0.15	-6.10
5,506.0	89.52	299.27	3,042.7	3,187.8	-1,352.0	3,431.6	7.05	1.38	-6.92
5,568.0	90.22	293.64	3,042.9	3,215.4	-1,407.5	3,472.9	9.15	1.13	-9.08
5,630.0	89.96	288.81	3,042.8	3,237.9	-1,465.2	3,509.8	7.80	-0.42	-7.79
5,692.0	89.30	284.06	3,043.2	3,255.4	-1,524.7	3,542.4	7.73	-1.06	-7.66
5,753.0	88.90	277.65	3,044.1	3,266.9	-1,584.5	3,569.3	10.53	-0.66	-10.51
5,814.0	88.73	273.87	3,045.4	3,273.0	-1,645.2	3,591.2	6.20	-0.28	-6.20
5,875.0	88.02	273.34	3,047.1	3,276.8	-1,706.1	3,611.0	1.45	-1.16	-0.87
5,936.0	88.59	273.34	3,048.9	3,280.4	-1,766.9	3,630.5	0.93	0.93	0.00
5,998.0	88.77	272.28	3,050.3	3,283.4	-1,828.8	3,649.8	1.73	0.29	-1.71
6,059.0	89.82	272.72	3,051.1	3,286.1	-1,889.8	3,668.4	1.87	1.72	0.72
6,120.0	90.13	272.55	3,051.1	3,288.9	-1,950.7	3,687.2	0.58	0.51	-0.28
Last PZD Survey									
6,180.0	90.13	272.55	3,051.0	3,291.5	-2,010.7	3,705.6	0.00	0.00	0.00
Straightline Projection to TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,120.0	3,051.1	3,288.9	-1,950.7	Last PZD Survey
6,180.0	3,051.0	3,291.5	-2,010.7	Straightline Projection to TD

Checked By: _____ Approved By: _____ Date: _____

Southland Royalty

Well Name: San Juan 32-5 Unit COM #114
 Surface Location: Fruitland Coal Prospect
 US State Plane 1927 (Exact solution) , New Mexico West 3003
 Ground Elevation: 6472.0
 NAD 1927 (NADCON CONUS)
 +N/-S 0.0 +E/-W 0.0 Northing 2172400.40 Easting 621736.70 Latitude 36° 58' 9.887 N Longitude 107° 24' 59.819 W Slot
 RKB San Juan 32-5 Unit COM #114 @ 6488.0usft (RKB)



Azimuths to True North
 Magnetic North: 9.12°
 Magnetic Field
 Strength: 50188.3snT
 Dip Angle: 63.59°
 Date: 8/23/2017
 Model: IGRF2015

Fruitland Coal Prospect
 San Juan 32-5 Unit COM #114
 Actual
 9:11, August 29 2017

