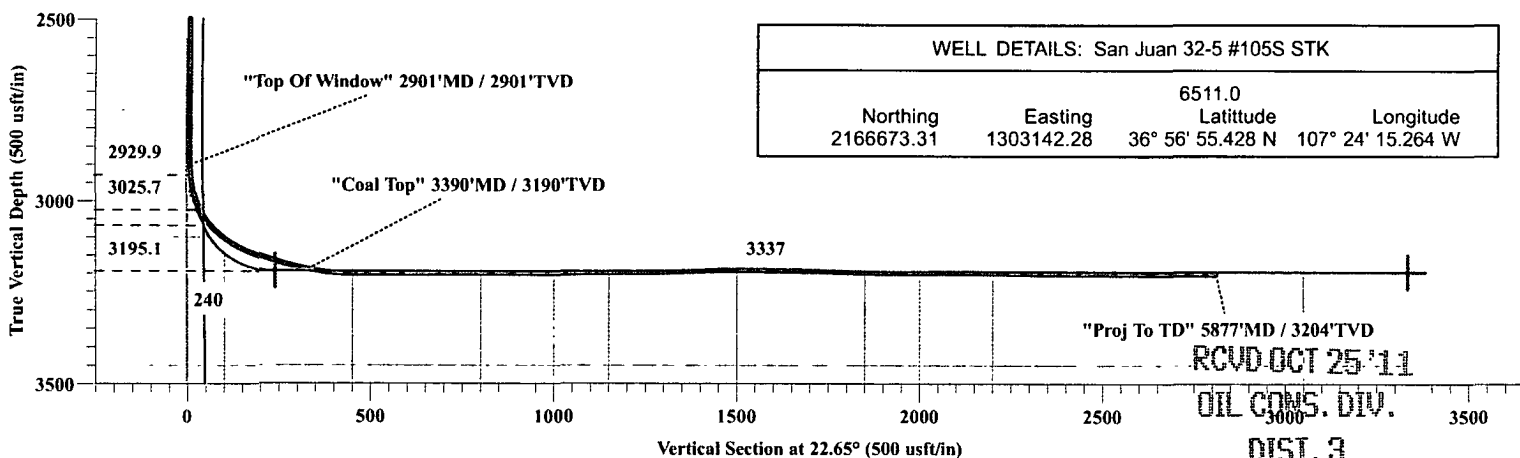
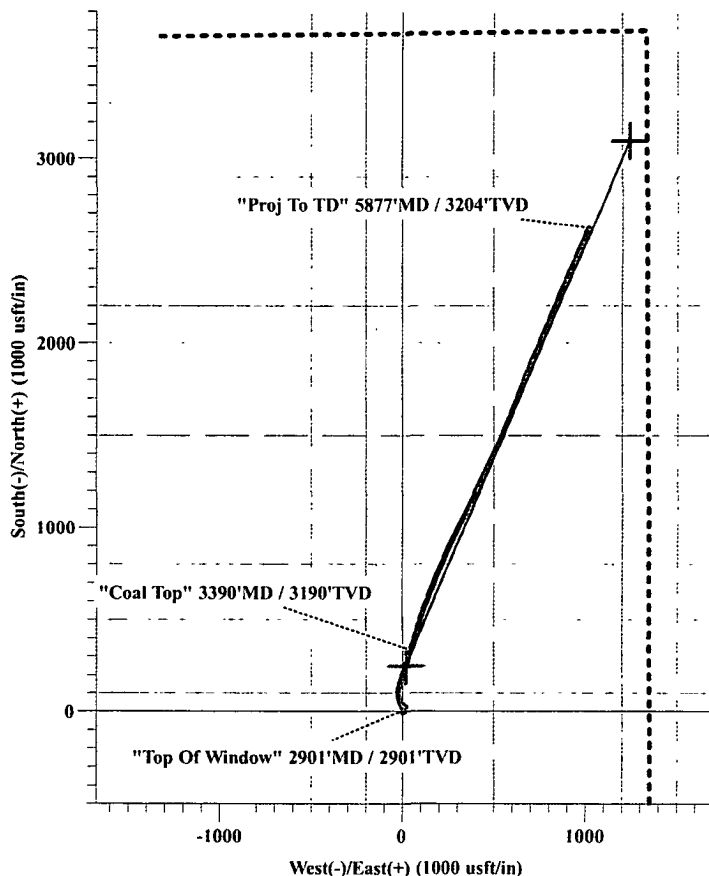
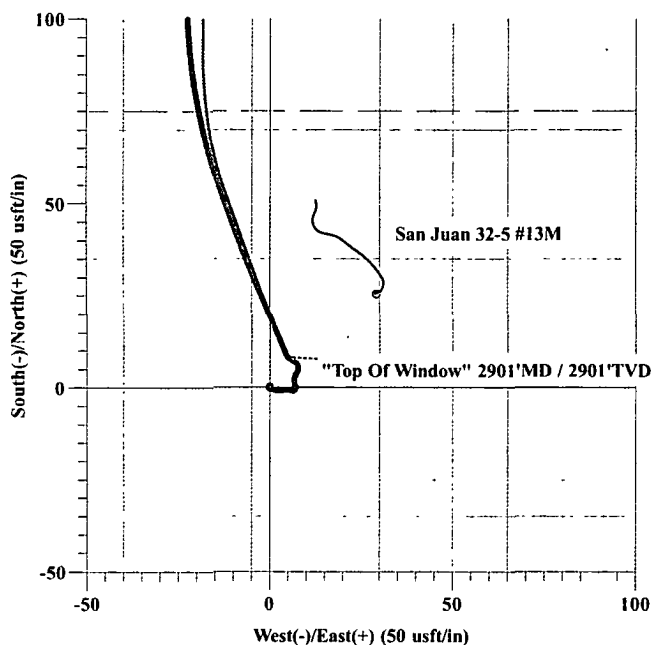


San Juan 32-5 #105S STK
Sec25 T32N-R6W - 105S
Rio Arriba Co. NM

GL: 6511' KB: 13'

EOW
No Hardline
Crossed



WELL DETAILS: San Juan 32-5 #105S STK				
Northing	Easting	Latitude	Longitude	
2166673.31	1303142.28	36° 56' 55.428 N	107° 24' 15.264 W	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
2930.0	0.83	312.70	2929.9	8.5	4.6	0.00	0.00	9.6	
3030.0	28.80	340.00	3025.7	32.1	-4.4	28.07	28.01	27.9	
3080.0	28.80	340.00	3069.5	54.7	-12.6	0.00	0.00	45.6	
3330.8	90.00	23.27	3195.1	251.4	20.4	27.70	47.05	239.8	
6428.3	90.00	23.27	3195.0	3097.0	1244.0	0.00	0.00	3337.2	TD-105

Plan: Design #5 (San Juan 32-5 #105S STK/STK)

Created By: Frank C. Scardino

Date: 9/19/2011

Energen Resources

Rio Arriba County

Sec25 T32N-R6W - 105S

San Juan 32-5 #105S STK

STK

Design: STK

Standard Survey Report

27 September, 2011

Survey Report

Company: Energen Resources	Local Co-ordinate Reference: Well San Juan 32-5 #105S STK
Project: Rio Arriba County	TVD Reference: WELL @ 6524.0usft (Original Well Elev)
Site: Sec25 T32N-R6W - 105S	MD Reference: WELL @ 6524.0usft (Original Well Elev)
Well: San Juan 32-5 #105S STK	North Reference: True
Wellbore: STK	Survey Calculation Method: Minimum Curvature
Design: STK	Database: EDM 5000.1 Single User Db

Project	Rio Arriba County	System Datum:	Mean Sea Level
Map System:	US State Plane 1983		
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site Sec25 T32N-R6W - 105S			
Site Position:		Northing: 2,166,673.30 usft	Latitude: 36° 56' 55.428 N
From: Lat/Long		Easting: 1,303,142.28 usft	Longitude: 107° 24' 15.264 W
Position Uncertainty: 0.0 usft		Slot Radius: 13-3/16 "	Grid Convergence: -0.69 °

Well San Juan 32-5 #105S STK			
Well Position	+N/-S 0.0 usft	Northing: 2,166,673.30 usft	Latitude: 36° 56' 55.428 N
	+E/-W 0.0 usft	Easting: 1,303,142.28 usft	Longitude: 107° 24' 15.264 W
Position Uncertainty 0.0 usft		Wellhead Elevation: usft	Ground Level: 6,511.0 usft

Wellbore	STK				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	09/06/11	9.74	63.70	50,879

Design	STK				
Audit Notes:					
Version: 1.0	Phase: ACTUAL	Tie On Depth:	0.0		
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	22.65	

Survey Program	Date 09/27/11			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	5,877.0	Survey #1 (STK)	MWD	MWD - Standard

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
100.0	0.37	119.78	100.0	-0.2	0.3	0.0	0.37	0.37	0.00
200.0	0.41	115.06	200.0	-0.5	0.9	-0.1	0.05	0.04	-4.72
300.0	0.36	113.46	300.0	-0.7	1.5	-0.1	0.05	-0.05	-1.60
400.0	0.39	93.65	400.0	-0.9	2.1	0.0	0.13	0.03	-19.81
500.0	0.46	81.13	500.0	-0.9	2.9	0.3	0.12	0.07	-12.52
600.0	0.60	79.57	600.0	-0.7	3.8	0.8	0.14	0.14	-1.56
700.0	0.53	90.37	700.0	-0.6	4.7	1.3	0.13	-0.07	10.80
800.0	0.31	91.53	800.0	-0.6	5.5	1.5	0.22	-0.22	1.16
900.0	0.22	116.33	900.0	-0.7	5.9	1.6	0.14	-0.09	24.80

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Sec25 T32N-R6W - 105S
 Well: San Juan 32-5 #105S STK
 Wellbore: STK
 Design: STK

Local Co-ordinate Reference: Well San Juan 32-5 #105S STK
 TVD Reference: WELL @ 6524.0usft (Original Well Elev)
 MD Reference: WELL @ 6524.0usft (Original Well Elev)
 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)
1,000.0	0.22	141.98	1,000.0	-0.9	6.2	1.5	0.10	0.00	25.65
1,100.0	0.16	47.85	1,100.0	-1.0	6.4	1.6	0.28	-0.06	-94.13
1,200.0	0.28	71.24	1,200.0	-0.8	6.8	1.8	0.15	0.12	23.39
1,300.0	0.36	28.94	1,300.0	-0.5	7.2	2.3	0.24	0.08	-42.30
1,400.0	0.39	343.93	1,400.0	0.1	7.2	2.9	0.29	0.03	-45.01
1,500.0	0.36	318.73	1,500.0	0.7	6.9	3.3	0.17	-0.03	-25.20
1,600.0	0.37	12.73	1,600.0	1.2	6.8	3.8	0.33	0.01	54.00
1,700.0	0.25	359.33	1,700.0	1.8	6.8	4.3	0.14	-0.12	-13.40
1,800.0	0.07	309.91	1,800.0	2.0	6.8	4.5	0.21	-0.18	-49.42
1,900.0	0.14	351.29	1,900.0	2.2	6.7	4.6	0.10	0.07	41.38
2,000.0	0.29	31.68	2,000.0	2.5	6.8	5.0	0.20	0.15	40.39
2,100.0	0.28	355.58	2,100.0	3.0	7.0	5.4	0.18	-0.01	-36.10
2,200.0	0.44	26.04	2,200.0	3.6	7.1	6.0	0.24	0.16	30.46
2,300.0	0.21	62.28	2,300.0	4.0	7.4	6.6	0.30	-0.23	36.24
2,400.0	0.44	14.06	2,400.0	4.5	7.7	7.1	0.34	0.23	-48.22
2,500.0	0.48	13.37	2,500.0	5.2	7.9	7.9	0.04	0.04	-0.69
2,600.0	0.42	336.52	2,600.0	6.0	7.8	8.5	0.29	-0.06	-36.85
2,700.0	0.58	311.28	2,699.9	6.7	7.3	9.0	0.27	0.16	-25.24
2,800.0	0.92	294.61	2,799.9	7.3	6.2	9.1	0.40	0.34	-16.67
2,900.0	0.87	312.00	2,899.9	8.2	4.9	9.4	0.28	-0.05	17.39
2,901.0	0.87	312.02	2,900.9	8.2	4.9	9.4	0.03	0.00	2.00
"Top Of Window" 2901'MD / 2901'TVD									
2,960.8	13.98	338.55	2,960.2	15.2	1.9	14.8	22.07	21.90	44.33
2,992.7	22.51	336.37	2,990.4	24.4	-2.0	21.8	26.86	26.78	-6.84
3,024.5	30.95	338.07	3,018.7	37.6	-7.5	31.8	26.68	26.57	5.35
3,056.3	39.66	340.76	3,044.7	54.8	-13.9	45.2	27.78	27.36	8.45
3,088.1	46.34	348.36	3,067.9	75.7	-19.5	62.3	26.56	21.01	23.90
3,119.9	51.53	357.58	3,088.8	99.4	-22.4	83.2	27.25	16.32	28.99
3,151.7	54.96	7.29	3,107.9	124.9	-21.3	107.1	26.68	10.77	30.50
3,183.6	59.62	15.67	3,125.2	151.1	-15.9	133.3	26.50	14.62	26.29
3,212.1	65.95	17.71	3,138.2	175.3	-8.6	158.5	23.13	22.23	7.17
3,244.0	69.56	18.17	3,150.3	203.4	0.5	187.9	11.39	11.31	1.44
3,276.0	71.67	18.26	3,160.9	232.1	9.9	218.0	6.60	6.59	0.28
3,307.0	73.60	18.46	3,170.1	260.2	19.2	247.5	6.26	6.23	0.65
3,339.0	75.36	18.72	3,178.7	289.4	29.1	278.3	5.56	5.50	0.81
3,371.0	77.12	18.91	3,186.3	318.8	39.1	309.3	5.53	5.50	0.59
3,390.0	78.69	18.73	3,190.3	336.4	45.1	327.8	8.30	8.25	-0.94
"Coal Top" 3390'MD / 3190'TVD									
3,403.0	79.76	18.61	3,192.7	348.5	49.2	340.6	8.30	8.25	-0.93
3,434.0	82.66	18.58	3,197.5	377.5	58.9	371.1	9.36	9.35	-0.10
3,464.0	85.12	18.64	3,200.6	405.8	68.5	400.9	8.20	8.20	0.20
3,494.0	87.67	18.05	3,202.5	434.2	77.9	430.7	8.72	8.50	-1.97
3,525.0	89.43	17.70	3,203.3	463.7	87.4	461.6	5.79	5.68	-1.13
3,556.0	90.66	18.07	3,203.3	493.2	96.9	492.5	4.14	3.97	1.19

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Sec25 T32N-R6W - 105S
 Well: San Juan 32-5 #105S STK
 Wellbore: STK
 Design: STK

Local Co-ordinate Reference: Well San Juan 32-5 #105S STK
 TVD Reference: WELL @ 6524.0usft (Original Well Elev)
 MD Reference: WELL @ 6524.0usft (Original Well Elev)
 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)
3,587.0	90.75	18.37	3,202.9	522.7	106.6	523.4	1.01	0.29	0.97
3,617.0	90.40	19.07	3,202.6	551.1	116.2	553.3	2.61	-1.17	2.33
3,648.0	90.40	19.34	3,202.4	580.4	126.4	584.3	0.87	0.00	0.87
3,678.0	90.31	20.59	3,202.2	608.6	136.7	614.3	4.18	-0.30	4.17
3,709.0	90.40	21.33	3,202.0	637.5	147.8	645.2	2.40	0.29	2.39
3,740.0	90.40	22.63	3,201.8	666.2	159.4	676.2	4.19	0.00	4.19
3,771.0	90.31	23.26	3,201.6	694.8	171.5	707.2	2.05	-0.29	2.03
3,832.0	90.22	23.21	3,201.3	750.8	195.5	768.2	0.17	-0.15	-0.08
3,894.0	89.96	24.78	3,201.2	807.5	220.7	830.2	2.57	-0.42	2.53
3,955.0	89.78	23.52	3,201.4	863.1	245.7	891.2	2.09	-0.30	-2.07
4,016.0	89.87	23.84	3,201.6	919.0	270.2	952.2	0.54	0.15	0.52
4,077.0	90.13	24.78	3,201.6	974.6	295.3	1,013.2	1.60	0.43	1.54
4,138.0	91.45	25.88	3,200.7	1,029.7	321.4	1,074.1	2.82	2.16	1.80
4,200.0	90.92	26.56	3,199.4	1,085.3	348.8	1,135.9	1.39	-0.85	1.10
4,261.0	89.96	26.71	3,199.0	1,139.9	376.1	1,196.8	1.59	-1.57	0.25
4,322.0	90.66	26.23	3,198.6	1,194.5	403.3	1,257.7	1.39	1.15	-0.79
4,383.0	91.28	26.03	3,197.6	1,249.2	430.2	1,318.5	1.07	1.02	-0.33
4,444.0	92.15	26.03	3,195.8	1,304.0	456.9	1,379.4	1.43	1.43	0.00
4,505.0	91.10	25.68	3,194.0	1,358.9	483.5	1,440.3	1.81	-1.72	-0.57
4,566.0	89.96	25.15	3,193.5	1,414.0	509.7	1,501.2	2.06	-1.87	-0.87
4,628.0	89.34	23.20	3,193.9	1,470.5	535.1	1,563.2	3.30	-1.00	-3.15
4,689.0	89.16	23.01	3,194.7	1,526.6	559.0	1,624.2	0.43	-0.30	-0.31
4,750.0	89.25	22.67	3,195.5	1,582.8	582.7	1,685.2	0.58	0.15	-0.56
4,811.0	88.99	22.39	3,196.4	1,639.2	606.1	1,746.2	0.63	-0.43	-0.46
4,873.0	88.46	21.82	3,197.8	1,696.6	629.4	1,808.1	1.26	-0.85	-0.92
4,935.0	89.16	21.42	3,199.1	1,754.2	652.2	1,870.1	1.30	1.13	-0.65
4,996.0	88.46	20.60	3,200.4	1,811.2	674.1	1,931.1	1.77	-1.15	-1.34
5,057.0	91.80	22.35	3,200.2	1,867.9	696.4	1,992.1	6.18	5.48	2.87
5,119.0	90.66	24.09	3,198.9	1,924.9	720.9	2,054.0	3.35	-1.84	2.81
5,180.0	89.43	24.00	3,198.9	1,980.6	745.7	2,115.0	2.02	-2.02	-0.15
5,242.0	89.52	22.80	3,199.4	2,037.5	770.3	2,177.0	1.94	0.15	-1.94
5,306.0	89.08	22.67	3,200.2	2,096.5	795.1	2,241.0	0.72	-0.69	-0.20
5,369.0	89.34	23.08	3,201.1	2,154.5	819.6	2,304.0	0.77	0.41	0.65
5,433.0	89.87	22.78	3,201.5	2,213.5	844.5	2,368.0	0.95	0.83	-0.47
5,496.0	89.87	22.88	3,201.7	2,271.6	868.9	2,431.0	0.16	0.00	0.16
5,560.0	89.78	22.90	3,201.9	2,330.5	893.8	2,495.0	0.14	-0.14	0.03
5,623.0	89.78	22.66	3,202.1	2,388.6	918.2	2,558.0	0.38	0.00	-0.38
5,686.0	90.31	23.84	3,202.0	2,446.5	943.1	2,621.0	2.05	0.84	1.87
5,750.0	89.69	22.94	3,202.0	2,505.2	968.5	2,685.0	1.71	-0.97	-1.41
5,814.0	88.99	22.31	3,202.8	2,564.3	993.1	2,749.0	1.47	-1.09	-0.98
5,877.0	88.99	22.31	3,203.9	2,622.6	1,017.0	2,812.0	0.00	0.00	0.00

"Proj To TD" 5877' MD / 3204' TVD

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Sec25 T32N-R6W - 105S
Well: San Juan 32-5 #105S STK
Wellbore: STK
Design: STK

Local Co-ordinate Reference: Well San Juan 32-5 #105S STK
TVD Reference: WELL @ 6524.0usft (Original Well Elev)
MD Reference: WELL @ 6524.0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,901.0	2,900.9	8.2	4.9	"Top Of Window" 2901'MD / 2901'TVD
3,390.0	3,190.3	336.4	45.1	"Coal Top" 3390'MD / 3190'TVD
5,877.0	3,203.9	2,622.6	1,017.0	"Proj To TD" 5877'MD / 3204'TVD

Checked By: _____	Approved By: _____	Date: _____
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