

ENERGEN

R E S O U R C E S

Energen Resources Corp.
2010 Afton Place
Farmington, NM 87401
(505) 325 6800

August 9, 2011

The deviation/directional survey on the attached report performed by Mesa West Directional Technologies USA, LLC on the Jicarilla 67 #21 is correct to the best of my knowledge.

Sincerely,



Andrew Soto
Drilling Engineer
Energen Resources



THE STATE OF NEW MEXICO }

COUNTY OF SAN JUAN }

Before me, a notary public in and for said County and State, on this 9th day of August, 2011, personally appeared Andrew Soto, and acknowledged to me that he executed the within and foregoing instrument as his free and voluntary act and deed for the uses and purposes therein set forth.



Gillian Black Gillian Black
Notary Public in and for the State of New Mexico

My Commission Expires: October 2, 2011

AV

END OF WELL REPORT



Client: Energen Resources Corp
Well Name: Jicarilla 67 #21
Location: Sec 19-T25N-R5W
Job Number: 1101
Start Date: 11-May-11 **End Date:** 20-May-11

PERSONAL

Operator Personnel

Company Man:
 Ken Dennington
Geologist:

Directional Personnel

Peter Leskosek
 David Westbrook

Survey Personnel

Dallas Rigler

WELL SUMMARY

KOP: 307	TD: 7222	FEET DRLG.: 6915	TOTAL DRLG. HRS.: 84.75	AVG. ROP:
# DAYS: 10	# BITS: 2	# BHA'S: 2	NO. OF MOTORS: 1	81.6

Well Parameters

INTERMEDIATE CASING	TOTAL DEPTH	
	LEG 1	LEG 2
HOLE SIZE:	HOLE SIZE: 8 3/4 / 7 7/8	HOLE SIZE: N/A
WHIPSTOCK SETTING:		
Coordinates: MD:	Coordinates: MD: 7222	Coordinates: MD:
TVD:	TVD: 7221.37	TVD:
INC:	INC: 0.5	INC:
DIRECTION:	DIRECTION: 199.4 °	DIRECTION:
VERTICAL SECTION:	VERTICAL SECTION: -13.16	VERTICAL SECTION:
N / S:	N / S: -13.16	N / S:
E / W:	E / W: -27.06	E / W:

RE-ENTRY DATA: N/A

TOP OF WINDOW:
 BOTTOM OF WINDOW:

DIRECTION:
 RAT HOLE:

DIRECTIONAL COMMENTS

BHA 1 - Drilled 5777ft in 66.75 hrs - 87 ft/hr

Bit - Reed E1100 with 6"12's jets. Motor is a National 6 1/4", 7/8 lobe, 2.9 stage, 0.17 rev / gal

BHA 2 - Drilled 1138ft in 18.00 hrs - 63 ft/hr

Bit - Reed FX65M with 6"12's jets. Motor is a National 6 1/4", 7/8 lobe, 2.9 stage, 0.17 rev / gal

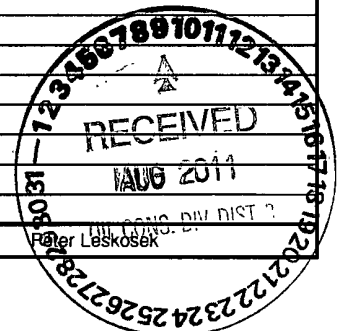
Actual well bore is 13.16 South and 27.06 West of proposed wellbore

RECOMMENDATIONS

Next well a centrifuge from the start of the well would help out a lot with the weight as well as getting the de-silter working correctly.

Brakes on the rig need to be repaired. They allow the auto-digger to dump too much weight. This will help with sliding and will improve the ROP.

REPORT PREPARED BY:



Job Number: 1101
 Company: ENERGEN RESOURCES CORP
 Lease/Well: JICARILLA 67 #21
 Location: SEC 19-T25N-R5W
 Rig Name: AZTEC 545
 RKB: 6635
 G.L. or M.S.L.: 6623

State/Country: NM/USA
 Declination: 9.86
 Grid: ☐
 File name: C:\WINSERVE\1101.SVY
 Date/Time: 19-May-11 / 18:31
 Curve Name: ☐



WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
275.00	.00	.00	275.00	.00	.00	.00	.00	.00	.00
322.00	.60	55.20	322.00	.14	.20	.14	.25	55.20	1.28
411.00	.50	75.80	411.00	.50	.96	.50	1.08	62.44	.25
503.00	.60	70.70	502.99	.76	1.80	.76	1.96	67.18	.12
598.00	.70	84.90	597.98	.98	2.85	.98	3.01	71.12	.20
694.00	.70	90.90	693.98	1.02	4.02	1.02	4.15	75.80	.08
789.00	.80	86.00	788.97	1.06	5.26	1.06	5.37	78.66	.12
885.00	.70	113.60	884.96	.87	6.47	.87	6.53	82.37	.39
1013.00	.80	124.80	1012.95	.04	7.92	.04	7.92	89.68	.14
1172.00	.60	125.70	1171.94	-1.07	9.51	-1.07	9.57	96.45	.13
1331.00	.90	126.90	1330.92	-2.31	11.18	-2.31	11.42	101.67	.19
1490.00	.70	142.20	1489.91	-3.83	12.78	-3.83	13.34	106.68	.18
1647.00	.50	140.30	1646.90	-5.11	13.80	-5.11	14.72	110.33	.13
1806.00	.10	186.30	1805.90	-5.78	14.23	-5.78	15.36	112.12	.27

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1967.00	.00	293.90	1966.90	-5.92	14.21	-5.92	15.40	112.62	.06
2126.00	.10	19.90	2125.90	-5.79	14.26	-5.79	15.39	112.11	.06
2284.00	.40	26.20	2283.90	-5.17	14.55	-5.17	15.44	109.55	.19
2443.00	.60	10.70	2442.89	-3.85	14.95	-3.85	15.44	104.45	.15
2601.00	.80	7.70	2600.88	-1.95	15.25	-1.95	15.38	97.27	.13
2760.00	.90	17.80	2759.86	.34	15.78	.34	15.79	88.76	.11
2919.00	.60	41.00	2918.85	2.16	16.71	2.16	16.85	82.64	.26
3078.00	.40	30.60	3077.84	3.27	17.54	3.27	17.84	79.45	.14
3236.00	.30	25.90	3235.84	4.11	18.00	4.11	18.47	77.13	.07
3396.00	.20	50.30	3395.84	4.67	18.40	4.67	18.98	75.77	.09
3554.00	.20	184.20	3553.84	4.57	18.59	4.57	19.14	76.19	.23
3711.00	.20	244.20	3710.84	4.18	18.33	4.18	18.79	77.16	.13
3870.00	.60	240.30	3869.83	3.64	17.35	3.64	17.73	78.14	.25
4029.00	.60	238.20	4028.82	2.79	15.92	2.79	16.16	80.06	.01
4188.00	.80	243.50	4187.81	1.86	14.22	1.86	14.34	82.56	.13
4346.00	.70	248.00	4345.80	1.00	12.34	1.00	12.38	85.35	.07
4504.00	.90	261.00	4503.78	.45	10.22	.45	10.23	87.49	.17
4663.00	1.50	256.10	4662.75	-.25	6.96	-.25	6.97	92.03	.38
4726.00	1.20	249.80	4725.73	-.67	5.54	-.67	5.59	96.92	.53
4822.00	.90	255.40	4821.71	-1.21	3.87	-1.21	4.06	107.36	.33
4979.00	.90	254.40	4978.69	-1.85	1.49	-1.85	2.38	141.17	.01
5138.00	.90	239.80	5137.67	-2.82	-.79	-2.82	2.93	195.68	.14
5298.00	1.00	247.30	5297.65	-3.99	-3.16	-3.99	5.09	218.44	.10
5361.00	.90	245.10	5360.64	-4.41	-4.12	-4.41	6.03	223.07	.17
5520.00	.90	248.80	5519.62	-5.39	-6.42	-5.39	8.38	230.00	.04
5679.00	1.00	242.80	5678.60	-6.47	-8.82	-6.47	10.94	233.72	.09
5742.00	1.00	248.60	5741.59	-6.92	-9.82	-6.92	12.01	234.81	.16
5806.00	1.00	261.40	5805.58	-7.21	-10.89	-7.21	13.06	236.49	.35
5869.00	.60	275.80	5868.58	-7.26	-11.76	-7.26	13.82	238.32	.71
6028.00	.60	260.50	6027.57	-7.31	-13.41	-7.31	15.27	241.40	.10
6187.00	.60	268.10	6186.56	-7.48	-15.06	-7.48	16.82	243.60	.05
6346.00	.60	276.50	6345.55	-7.41	-16.72	-7.41	18.29	246.10	.06
6505.00	.70	314.00	6504.54	-6.64	-18.25	-6.64	19.42	250.00	.27
6663.00	1.40	308.90	6662.51	-4.76	-20.44	-4.76	20.99	256.90	.45

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
6759.00	1.50	212.20	6758.49	-5.09	-22.03	-5.09	22.61	257.00	2.26
6854.00	2.10	217.30	6853.45	-7.52	-23.74	-7.52	24.91	252.42	.65
6918.00	1.80	212.00	6917.41	-9.31	-24.99	-9.31	26.67	249.57	.55
7013.00	.80	210.80	7012.38	-11.14	-26.12	-11.14	28.40	246.89	1.05
7172.00	.50	199.40	7171.37	-12.75	-26.92	-12.75	29.78	244.65	.20
Projection to Bit									
7222.00	.50	199.40	7221.37	-13.16	-27.06	-13.16	30.09	244.06	.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
4313.00	82.31	270.47	3951.23	-9.52	-731.97	732.03	732.03	269.25	1.39
4345.00	81.95	270.03	3955.61	-9.38	-763.67	763.72	763.73	269.30	1.77
Interpolated Point for Coal Entry at 4356' MD									
4356.00	82.61	269.91	3957.09	-9.39	-774.57	774.62	774.63	269.31	6.12
4380.00	84.06	269.65	3959.88	-9.48	-798.41	798.45	798.46	269.32	6.12
Interpolated Point for 7 Casing at 4453' MD									
4453.00	88.47	270.03	3964.63	-9.69	-871.23	871.27	871.29	269.36	6.06
4485.00	90.40	270.19	3964.95	-9.63	-903.23	903.27	903.28	269.39	6.06
4517.00	90.04	269.96	3964.83	-9.58	-935.23	935.26	935.28	269.41	1.33
4549.00	90.04	269.73	3964.80	-9.67	-967.23	967.26	967.28	269.43	.72
4580.00	90.57	271.67	3964.64	-9.29	-998.23	998.24	998.27	269.47	6.49
4612.00	90.84	274.77	3964.24	-7.50	-1030.17	1030.15	1030.20	269.58	9.72
4644.00	91.28	275.18	3963.65	-4.72	-1062.04	1061.97	1062.05	269.75	1.88
4676.00	91.01	274.22	3963.01	-2.10	-1093.93	1093.81	1093.93	269.89	3.12
4707.00	91.28	272.78	3962.39	-.21	-1124.86	1124.71	1124.86	269.99	4.73
4739.00	90.66	271.62	3961.85	1.02	-1156.83	1156.66	1156.83	270.05	4.11
4771.00	90.13	269.72	3961.63	1.40	-1188.83	1188.64	1188.83	270.07	6.16
4803.00	90.13	268.94	3961.56	1.02	-1220.83	1220.64	1220.83	270.05	2.44
4835.00	90.22	269.09	3961.46	.47	-1252.82	1252.64	1252.82	270.02	.55
4866.00	89.52	268.70	3961.53	-.13	-1283.82	1283.64	1283.82	269.99	2.58
4898.00	90.13	269.10	3961.63	-.74	-1315.81	1315.64	1315.81	269.97	2.28
4930.00	90.04	269.74	3961.58	-1.07	-1347.81	1347.64	1347.81	269.95	2.02
4962.00	89.78	268.94	3961.63	-1.43	-1379.81	1379.64	1379.81	269.94	2.63
4994.00	89.52	268.08	3961.83	-2.27	-1411.79	1411.64	1411.80	269.91	2.81
5025.00	90.04	267.69	3961.95	-3.41	-1442.77	1442.63	1442.78	269.86	2.10

1.) turn in rotation

2.) @ btm - need to get @ 3°