



RAILROAD COMMISSION OF TEXAS

Form W-2

1701 N. Congress  
P.O. Box 12967  
Austin, Texas 78701-2967

Status: Approved  
Date: 10/23/2019  
Tracking No.: 217230

OIL WELL POTENTIAL TEST, COMPLETION OR RECOMPLETION REPORT, AND LOG

OPERATOR INFORMATION

Operator Name: ENERGEN RESOURCES CORPORATION Operator No.: 252002  
Operator Address: 3510 N A ST BLDGS A AND B MIDLAND, TX 79705-0000

WELL INFORMATION

API No.: 42-475-35473 County: WARD  
Well No.: 4701 RRC District No.: 08  
Lease Name: UNIVERSITY 20 Field Name: TWO GEORGES (BONE SPRING)  
RRC Lease No.: 52311 Field No.: 92100050  
Location: Section: 47, Block: 20, Survey: UL, Abstract:  
  
Latitude: 31 Longitude: -103  
This well is located 12 miles in a NW  
direction from PYOTE,  
which is the nearest town in the county.

FILING INFORMATION

Purpose of filing: Well Record Only  
Type of completion: Other/Recompletion  
Well Type: Producing Completion or Recompletion Date: 04/22/2009  

Type of Permit	Date	Permit No.
Permit to Drill, Plug Back, or Deepen	07/02/2019	848736
Rule 37 Exception		
Fluid Injection Permit		
O&G Waste Disposal Permit		
Other:		

COMPLETION INFORMATION

Spud date: 10/28/2008	Date of first production after rig released: 04/22/2009
Date plug back, deepening, recompletion, or drilling operation commenced: 10/28/2008	Date plug back, deepening, recompletion, or drilling operation ended: 03/22/2009
Number of producing wells on this lease in this field (reservoir) including this well: 1	Distance to nearest well in lease & reservoir (ft.): 0.0
Total number of acres in lease: 640.00	Elevation (ft.): 2758 GL
Total depth TVD (ft.): 11420	Total depth MD (ft.): 13276
Plug back depth TVD (ft.):	Plug back depth MD (ft.):
Was directional survey made other than inclination (Form W-12)? Yes	Rotation time within surface casing (hours):
Recompletion or reclass? Yes	Is Cementing Affidavit (Form W-15) attached? No
Type(s) of electric or other log(s) run: Neutron/Density logs (combo of tools)	Multiple completion? No
Electric Log Other Description:	
Location of well, relative to nearest lease boundaries	Off Lease : No
of lease on which this well is located: 660.0 Feet from the SE Line and 660.0 Feet from the SW Line of the UNIVERSITY 20 Lease.	

FORMER FIELD (WITH RESERVOIR) & GAS ID OR OIL LEASE NO.

	Field & Reservoir	Gas ID or Oil Lease No.	Well No.	Prior Service Type
PACKET	WAR-WINK, S. (WOLFCAMP)	39471	4701	

W2:	N/A		
FOR NEW DRILL OR RE-ENTRY, SURFACE CASING DEPTH DETERMINED BY:			
GAU Groundwater Protection Determination	Depth (ft.):	300.0	Date: 10/05/2018
SWR 13 Exception	Depth (ft.):	1164.0	

INITIAL POTENTIAL TEST DATA FOR NEW COMPLETION OR RECOMPLETION	
Date of test:	Production method:
Number of hours tested: 24	Choke size:
Was swab used during this test? No	Oil produced prior to test:
PRODUCTION DURING TEST PERIOD:	
Oil (BBLs):	Gas (MCF):
Gas - Oil Ratio: 0	Flowing Tubing Pressure:
Water (BBLs):	
CALCULATED 24-HOUR RATE	
Oil (BBLs):	Gas (MCF):
Oil Gravity - API - 60.:	Casing Pressure:
Water (BBLs):	

CASING RECORD											
Row	Type of Casing	Casing Size (in.)	Hole Size (in.)	Setting Depth (ft.)	Multi - Stage Depth (ft.)	Multi - Shoe Depth (ft.)	Cement Class	Cement Amount (sacks)	Slurry Volume (cu. ft.)	Top of Cement (ft.)	TOC Determined By
1	Surface	13 3/8	17 1/2	1164			C	1090	1809.7	0	Circulated to Surface
2	Intermediate	9 5/8	12 1/4	5044			C	1950	4458.0	0	Circulated to Surface
3	Conventional Production	7	8 3/4	11786			H	1700	3433.0		SURF-Cement Evaluation Log CBL

LINER RECORD									
Row	Liner Size (in.)	Hole Size (in.)	Liner Top (ft.)	Liner Bottom (ft.)	Cement Class	Cement Amount (sacks)	Slurry Volume (cu. ft.)	Top of Cement (ft.)	TOC Determined By
1	4	6 1/8	10716	13271	H	333	399.6	0	Circulated to Surface

TUBING RECORD			
Row	Size (in.)	Depth	Size (ft.)
1	2 7/8	10642	
			Packer Depth (ft.)/Type
			10642 /

PRODUCING/INJECTION/DISPOSAL INTERVAL			
Row	Open hole?	From (ft.)	To (ft.)
1	No	L1 11676	13033.0

ACID, FRACTURE, CEMENT SQUEEZE, CAST IRON BRIDGE PLUG, RETAINER, ETC.			
Was hydraulic fracturing treatment performed?	No		
Is well equipped with a downhole actuation sleeve?	No	If yes, actuation pressure (PSIG):	
Production casing test pressure (PSIG) prior to hydraulic fracturing treatment:		Actual maximum pressure (PSIG) during hydraulic fracturing:	
Has the hydraulic fracturing fluid disclosure been reported to FracFocus disclosure registry (SWR29)?	No		
Row	Type of Operation	Amount and Kind of Material Used	Depth Interval (ft.)

1	Fracture	FRAC TOE FROM 13270'-78' W/189000 GALS X-LINKED +89960# 18/40 VERSAPROP SD	13270	13278
2	Fracture	FRAC-193565 GAL X-LINKED GEL+240000# 18/40 VERSAPROP SD	12300	12914
3	Fracture	FRAC-195800 GAL X-LINKED GEL+160000# 18/40 VERSAPROP SD	11676	12002
4	Acid	PUMPED 67,000 GAL 15% XYLENE (NEW PERFS ADDED 8/7/14)	12450	13033

FORMATION RECORD

Formations	Encountered	Depth TVD (ft.)	Depth MD (ft.)	Is formation isolated?	Remarks
CHERRY CANYON	Yes	6018.0	6018.0	Yes	CMT'D BEHIND CSG
BRUSHY CANYON	Yes	7294.0	7294.0	Yes	CMT'D BEHIND CSG
3RD BONE SPRING	Yes	9472.0	9472.0	Yes	CMT'D BEHIND CSG
BONE SPRING	Yes	11072.0	11072.0	Yes	CMT'D BEHIND CSG
3RD BONE "B" SAND	Yes	11410.0	11410.0	Yes	CMT'D BEHIND CSG

Do the producing interval of this well produce H2S with a concentration in excess of 100 ppm (SWR 36)? No

Is the completion being downhole commingled (SWR 10)? No

REMARKS

DOCKET # 08-0315102, THE WAR-WINK, S. (WOLFCAMP) (95129600) FIELD TO THE TWO GEORGES (BONE SPRING) (92100050) FIELD. PRODUCTION GROUP WILL USE 12/1/18 FOR THE EFFECTIVE DATE.

RRC REMARKS

**PUBLIC COMMENTS:**

[RRC Staff 2019-08-20 10:16:42.887] PER DOCKET 08-0296473, CORRELATIVE INTERVAL REMAINS 8979-11600

**CASING RECORD :**

**TUBING RECORD:**

**PRODUCING/INJECTION/DISPOSAL INTERVAL :**

**ACID, FRACTURE, CEMENT SQUEEZE, CAST IRON BRIDGE PLUG, RETAINER, ETC. :**

**POTENTIAL TEST DATA:**

OPERATOR'S CERTIFICATION

Printed Name: Vonda Freeman Title: Regulatory Analyst

Telephone No.: (432) 684-3693 Date Certified: 08/21/2019



APPLICATION FOR ALTERNATE  
SURFACE CASING PROGRAM  
(Statewide Rule 13(b)(2)(G))

DATE 05 / 21 / 2009

RRC DISTRICT 08

OPERATOR Energen Resources Corporation FIELD War-Wink, S. (Wolfcamp)

LEASE University "20" LOC. SEC. 47 BLK. 20 SUR. University Lands

WELL NO. 4701 DRILLING PERMIT NO. 673228 COUNTY Ward

DISTANCE AND DIRECTION FROM NEAREST TOWN 11 miles North from Pyote

PROPOSED TOTAL DEPTH MD=13276 TVD=11420.37 \*INJECTION OR DISPOSAL WELL YES ☐ NO ☐

DEPTH OF DEEPEST USABLE WATER & ANY SEPARATION DEPTHS AS PER TEXAS WATER COMMISSION LETTER

DATE 10/17 /08 S.C.# 6357  
(ATTACH COPY OF TWC LETTER)

DISTANCE & DIRECTION OF NEAREST WATER WELL WITHIN 1/4 MILE \_\_\_\_\_

DEPTH OF WATER WELL \_\_\_\_\_ TYPE OF WELL (House, City, Stock, etc.) \_\_\_\_\_

PROPOSED CASING & CEMENTING PROGRAM

[CHECK APPLICABLE BOXES] APPLICATION FOR: SHORT SURFACE STRING ☐

EXCESS SURFACE STRING ☒ NO SURFACE CASING ☐ MULTI-STAGE TOOL ☐

CIRCULATE FROM CASING SHOE: INTERMEDIATE ☐ PRODUCTION ☐

SURFACE CASING DEPTH 1164 FT. 5044 Int. MULTI-STAGE TOOL DEPTH \_\_\_\_\_ FT.

INTERMEDIATE OR PRODUCTION CASING DEPTH 11786 Prod. \_\_\_\_\_ FT.

CENTRALIZERS: GIVE NUMBER & PLACEMENT Int=26 Prod=38

CEMENT DATA (as appropriate) - APPLIES TO CEMENT FROM MULTI-STAGE TOOL OR INTERMEDIATE-  
PRODUCTION CASING SHOE TO GROUND SURFACE

	TYPE & ADDITIVES	WEIGHT & YIELD	DISPLACEMENT FEET	COMPRESSIVE STRENGTH
LEAD SLURRY	_____	_____	_____	(24 hr.)
TAIL SLURRY	_____	_____	_____	(72 hr.)

REASON FOR REQUEST We set the 13-3/8" surface string deeper than the water board indicated we needed to so that red beds to approx. 1000-1200' below GL would not interfere with our drilling of the intermediate section of the hole and to provide strength and support for the strings of pipe.

Mary Ann Martinez SIGNATURE Mary Ann Martinez-Regulatory Analyst NAME & TITLE 432/688-3323 PHONE NUMBER

ADDRESS 3300 N. 'A' St. Bldg 4 Ste 100 Midland, TX 79705

NOTICE

- \*1. If for injection or disposal well, be aware that for short surface strings there will be annual testing requirements and possible permit restrictions.
2. Centralizers must be used through all usable waters. Refer to Rule 13(b)(2)(F).
3. Notify District Office if cement does not circulate.
4. Notify District Office 8 hours prior to setting casing.

DISTRICT OFFICE APPROVAL

RECEIVED  
RRCOF TEXAS  
MAY 21 2009



Gyrodata Incorporated  
3811 S. Co. Rd. 1285  
Odessa, TX. 79765

432/561-8458  
Fax: 432/563-7982

Date: April 24, 2009

**Railroad Commission of Texas  
Oil & Gas Division  
P.O. Box 12967  
Capitol Station  
Austin, Texas 78711**

Attn: Ms. Pam Johns

**RE:  
Energen Resources Corporation  
University "20" Well No. 4701  
RRC Lease/Gas ID No. Not Assigned  
War-wink, S. (Wolfcamp)  
UL, Abstract not given  
Ward County, Texas  
API No. 42-475-35473  
CERTIFIED MAIL 70072560000336947591**


Ms. Johns,

Enclosed, please find the original and one copy of the survey performed on the referenced well by Gyrodata, Inc. (P-5 No. 339713). Other information required by your office is as follows:

Name & Title <u>Of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Steve Winther Surveyor	Original Hole	Surface - 11700'	12/23/2008	Rate Gyroscopic

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in the case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Sincerely,

  
Jena Tumlin  
Operations  
Enclosure

A Gyrodata Directional Survey

for

ENERGEN RESOURCES

Lease: University 20 Well: 4701, 7" Casing  
Location: Lariat Rig #31, Ward County, Texas

Job Number: MD1208GW465

Run Date: 23 Dec 2008

Surveyor: Oscar Velasquez; Junior Pena; Steve Winther; Phillip Stafford

Calculation Method: MINIMUM CURVATURE

Survey Latitude: 31.644903 deg. N Longitude: 103.275642 deg. W

Azimuth Correction:

Gyro: 1.52000 deg to Grid North

Vertical Section Calculated from Well Head Location

Closure Calculated from Well Head Location

Horizontal Coordinates Calculated from Well Head Location



# A Gyrodata Directional Survey

Energex Resources

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Job Number: MD1208GW465

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	VERTICAL SECTION feet	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
0.00	0.00	0.00	0.0	0.00	0.00	0.0 0.0	0.00 N 0.00 E
-----							
0 TO 11700 FT. RATE GYROSCOPIC MULTISHOT SURVEY RUN INSIDE 7" CASING							
ALL MEASURED DEPTHS AND COORDINATES REFERENCED TO LARIAT RIG #31 R.K.B.							
-----							
100.00	0.50	71.62	0.1	0.50	100.00	0.4 71.6	0.14 N 0.42 E
200.00	0.46	86.02	0.3	0.13	200.00	1.3 76.1	0.30 N 1.23 E
300.00	0.44	83.32	0.4	0.03	299.99	2.0 79.4	0.38 N 2.01 E
400.00	0.55	71.14	0.6	0.15	399.99	2.9 78.6	0.58 N 2.85 E
500.00	0.41	62.94	0.9	0.16	499.98	3.7 76.1	0.89 N 3.62 E
600.00	0.43	72.37	1.2	0.07	599.98	4.5 74.8	1.17 N 4.30 E
700.00	0.45	74.68	1.4	0.03	699.98	5.2 74.6	1.38 N 5.03 E
800.00	0.63	78.91	1.6	0.19	799.97	6.2 75.0	1.59 N 5.95 E
900.00	0.63	101.93	1.6	0.25	899.97	7.2 77.3	1.59 N 7.03 E
1000.00	0.68	113.46	1.2	0.14	999.96	8.2 81.3	1.24 N 8.11 E
1100.00	0.61	115.76	0.8	0.07	1099.96	9.2 85.2	0.77 N 9.13 E
1200.00	0.61	113.22	0.3	0.03	1199.95	10.1 88.1	0.33 N 10.10 E
1300.00	0.57	112.02	-0.1	0.04	1299.95	11.1 90.4	0.07 S 11.06 E
1400.00	0.52	112.55	-0.4	0.06	1399.94	12.0 92.1	0.43 S 11.94 E
1500.00	0.55	97.37	-0.7	0.15	1499.94	12.9 93.0	0.67 S 12.84 E
1600.00	0.77	71.55	-0.5	0.37	1599.93	14.0 92.1	0.52 S 13.96 E
1700.00	1.06	67.44	0.1	0.29	1699.92	15.5 89.8	0.05 N 15.45 E
1800.00	1.04	65.31	0.8	0.04	1799.90	17.1 87.4	0.79 N 17.13 E
1900.00	1.19	59.26	1.7	0.19	1899.88	18.9 84.8	1.70 N 18.85 E
2000.00	1.25	58.30	2.8	0.06	1999.86	20.9 82.3	2.81 N 20.68 E



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2100.00	1.22	58.27	3.9	0.03	2099.83	22.9 80.1	3.94 N 22.51 E
2200.00	1.43	50.36	5.3	0.28	2199.81	25.0 77.7	5.30 N 24.38 E
2300.00	2.34	45.00	7.5	0.93	2299.75	27.8 74.3	7.54 N 26.79 E
2400.00	2.74	45.90	10.7	0.41	2399.65	31.8 70.4	10.65 N 29.95 E
2500.00	3.20	46.07	14.3	0.46	2499.52	36.6 67.1	14.25 N 33.68 E
2600.00	3.31	45.79	18.2	0.11	2599.36	41.9 64.3	18.20 N 37.76 E
2700.00	3.53	43.86	22.4	0.24	2699.18	47.6 61.9	22.43 N 41.96 E
2800.00	3.50	41.70	26.9	0.14	2798.99	53.4 59.7	26.93 N 46.12 E
2900.00	3.68	42.86	31.6	0.19	2898.80	59.4 57.9	31.55 N 50.33 E
3000.00	3.57	43.86	36.1	0.12	2998.60	65.5 56.5	36.15 N 54.67 E
3100.00	3.34	44.70	40.5	0.23	3098.41	71.4 55.5	40.47 N 58.88 E
3200.00	3.47	44.92	44.7	0.13	3198.24	77.3 54.7	44.68 N 63.07 E
3300.00	3.22	50.28	48.6	0.40	3298.07	83.1 54.2	48.62 N 67.36 E
3400.00	3.14	56.28	51.9	0.34	3397.91	88.6 54.1	51.94 N 71.80 E
3500.00	2.52	62.73	54.5	0.70	3497.79	93.5 54.4	54.46 N 76.03 E
3600.00	2.31	66.76	56.3	0.27	3597.70	97.7 54.8	56.26 N 79.83 E
3700.00	2.27	66.81	57.8	0.04	3697.62	101.6 55.3	57.84 N 83.30 E
3800.00	2.81	72.30	59.4	0.60	3797.52	105.9 55.9	59.36 N 87.66 E
3900.00	3.08	72.02	60.9	0.27	3897.39	110.8 56.6	60.94 N 92.35 E
4000.00	3.31	73.73	62.6	0.24	3997.24	116.2 57.4	62.58 N 97.88 E
4100.00	3.27	77.80	64.0	0.24	4097.07	121.6 58.3	63.99 N 103.43 E
4200.00	3.05	81.62	65.0	0.31	4196.92	126.8 59.2	64.98 N 108.85 E
4300.00	3.00	83.78	65.7	0.12	4296.78	131.6 60.1	65.65 N 114.08 E
4400.00	2.93	84.67	66.2	0.08	4396.65	136.4 61.0	66.17 N 119.23 E

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4500.00	2.99	82.71	66.7	0.12	4496.51	141.1 61.8	66.74 N 124.37 E
4600.00	2.58	85.49	67.3	0.43	4596.40	145.6 62.5	67.25 N 129.20 E
4700.00	2.52	81.38	67.8	0.19	4696.30	149.8 63.1	67.75 N 133.61 E
4800.00	2.69	81.11	68.4	0.17	4796.19	154.1 63.6	68.44 N 138.10 E
4900.00	2.15	89.03	68.8	0.63	4896.10	158.1 64.2	68.84 N 142.30 E
5000.00	1.83	92.95	68.8	0.35	4996.04	161.2 64.7	68.79 N 145.77 E
5100.00	1.62	97.23	68.5	0.25	5096.00	163.8 65.3	68.53 N 148.77 E
5200.00	1.65	96.59	68.2	0.03	5195.96	166.2 65.8	68.18 N 151.61 E
5300.00	1.73	95.65	67.9	0.08	5295.91	168.8 66.3	67.87 N 154.54 E
5400.00	1.52	95.40	67.6	0.21	5395.87	171.3 66.8	67.60 N 157.37 E
5500.00	1.32	99.81	67.3	0.23	5495.84	173.4 67.2	67.27 N 159.83 E
5600.00	1.14	101.41	66.9	0.19	5595.82	175.2 67.6	66.88 N 161.93 E
5700.00	1.07	104.50	66.5	0.09	5695.80	176.8 67.9	66.45 N 163.81 E
5800.00	1.07	101.36	66.0	0.06	5795.78	178.3 68.3	66.03 N 165.63 E
5900.00	0.76	118.23	65.5	0.41	5895.77	179.5 68.6	65.54 N 167.13 E
6000.00	0.67	125.59	64.9	0.12	5995.76	180.3 68.9	64.88 N 168.19 E
6100.00	0.60	138.28	64.2	0.16	6095.76	180.8 69.2	64.15 N 169.02 E
6200.00	0.53	139.51	63.4	0.08	6195.75	181.1 69.5	63.41 N 169.66 E
6300.00	0.19	174.50	62.9	0.38	6295.75	181.2 69.7	62.89 N 169.98 E
6400.00	0.17	159.71	62.6	0.05	6395.75	181.2 69.8	62.58 N 170.05 E
6500.00	0.15	146.91	62.3	0.04	6495.75	181.2 69.9	62.33 N 170.17 E
6600.00	0.23	87.16	62.2	0.20	6595.75	181.4 69.9	62.23 N 170.44 E
6700.00	0.18	101.26	62.2	0.07	6695.75	181.8 70.0	62.21 N 170.80 E
6800.00	0.18	91.48	62.2	0.03	6795.75	182.1 70.0	62.18 N 171.12 E

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Job Number: MD1208GW465

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6900.00	0.11	119.37	62.1	0.10	6895.75	182.3 70.1	62.13 N 171.36 E
7000.00	0.05	355.51	62.1	0.15	6995.75	182.3 70.1	62.13 N 171.44 E
7100.00	0.05	333.72	62.2	0.02	7095.75	182.4 70.1	62.21 N 171.42 E
7200.00	0.12	173.61	62.1	0.17	7195.75	182.3 70.1	62.15 N 171.41 E
7300.00	0.24	192.25	61.8	0.13	7295.75	182.2 70.2	61.83 N 171.38 E
7400.00	0.69	347.70	62.2	0.91	7395.74	182.2 70.0	62.21 N 171.20 E
7500.00	0.63	324.07	63.2	0.28	7495.74	182.1 69.7	63.24 N 170.75 E
7600.00	0.68	270.04	63.7	0.59	7595.73	181.4 69.4	63.68 N 169.84 E
7700.00	1.04	251.53	63.4	0.45	7695.72	179.9 69.4	63.40 N 168.39 E
7800.00	2.09	244.32	62.3	1.07	7795.68	177.2 69.4	62.32 N 165.88 E
7900.00	0.73	331.53	62.1	2.18	7895.66	175.3 69.3	62.08 N 163.03 E
8000.00	1.21	191.55	61.6	1.83	7995.65	174.6 69.3	61.60 N 163.42 E
8100.00	0.11	52.86	60.6	1.30	8095.64	174.2 69.6	60.62 N 163.28 E
8200.00	0.70	209.85	60.1	0.80	8195.64	173.8 69.8	60.15 N 163.06 E
8300.00	0.67	204.98	59.1	0.06	8295.63	172.9 70.0	59.10 N 162.51 E
8400.00	0.56	205.66	58.1	0.11	8395.63	172.2 70.3	58.13 N 162.05 E
8500.00	0.95	189.32	56.9	0.44	8495.62	171.4 70.6	56.88 N 161.71 E
8600.00	1.29	189.97	55.0	0.35	8595.60	170.5 71.2	54.96 N 161.38 E
8700.00	1.25	182.20	52.8	0.18	8695.58	169.6 71.9	52.76 N 161.14 E
8800.00	1.37	183.33	50.5	0.13	8795.55	168.8 72.6	50.47 N 161.03 E
8900.00	1.18	179.51	48.2	0.21	8895.53	168.0 73.3	48.24 N 160.97 E
9000.00	1.10	151.10	46.4	0.57	8995.51	168.0 74.0	46.37 N 161.44 E
9100.00	0.46	175.32	45.1	0.70	9095.50	168.1 74.4	45.14 N 161.94 E
9200.00	0.53	247.92	44.6	0.59	9195.49	167.6 74.6	44.56 N 161.54 E



# A Gyrodata Directional Survey

Energien Resources

Lease: University 20 Well: 4701, 7" Casing

Location: Lariat Rig #31, Ward County, Texas

Job Number: MD1208GW465

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	VERTICAL SECTION feet	DOGLEG SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
9300.00	0.74	267.77	44.4	0.31	9295.49	166.5 74.5	44.36 N 160.46 E
9400.00	1.09	205.83	43.5	0.99	9395.48	165.2 74.7	43.48 N 159.40 E
9500.00	1.34	197.03	41.5	0.31	9495.45	164.0 75.3	41.50 N 158.64 E
9600.00	1.55	197.00	39.1	0.21	9595.42	162.7 76.1	39.09 N 157.90 E
9700.00	1.58	204.19	36.5	0.20	9695.39	161.1 76.9	36.54 N 156.94 E
9800.00	1.17	216.24	34.5	0.50	9795.36	159.5 77.5	34.45 N 155.77 E
9900.00	0.95	236.72	33.2	0.44	9895.34	158.0 77.9	33.17 N 154.47 E
10000.00	0.82	236.65	32.3	0.13	9995.33	156.6 78.1	32.33 N 153.19 E
10100.00	0.55	221.49	31.6	0.32	10095.32	155.5 78.3	31.57 N 152.27 E
10200.00	0.62	230.03	30.9	0.11	10195.32	154.6 78.5	30.86 N 151.54 E
10300.00	0.92	233.75	30.0	0.31	10295.31	153.4 78.7	30.04 N 150.47 E
10400.00	0.96	191.84	28.7	0.68	10395.29	152.4 79.1	28.74 N 149.65 E
10500.00	0.79	181.30	27.2	0.24	10495.28	151.9 79.7	27.23 N 149.46 E
10600.00	0.87	178.33	25.8	0.09	10595.27	151.7 80.2	25.78 N 149.47 E
10700.00	0.93	175.91	24.2	0.07	10695.26	151.5 80.8	24.22 N 149.55 E
10800.00	1.31	115.68	22.9	1.17	10795.24	152.4 81.3	22.92 N 150.64 E
10900.00	2.01	137.74	21.1	0.94	10895.20	154.3 82.1	21.13 N 152.84 E
11000.00	2.19	136.97	18.4	0.18	10995.13	156.4 83.2	18.43 N 155.33 E
11100.00	3.38	151.67	14.4	1.38	11095.02	158.7 84.8	14.44 N 158.03 E
11200.00	3.02	148.13	9.6	0.41	11194.86	161.1 86.6	9.60 N 160.82 E
11300.00	2.77	149.32	5.3	0.26	11294.73	163.5 88.1	5.29 N 163.44 E
11400.00	2.58	151.58	1.2	0.22	11394.62	165.8 89.6	1.23 N 165.75 E
11500.00	2.36	154.28	-2.6	0.25	11494.53	167.7 90.9	2.60 S 167.71 E
11600.00	2.15	139.04	-5.9	0.63	11594.45	169.9 92.0	5.87 S 169.83 E

# A Gyrodata Directional Survey

Energex Resources

Lease: University 20 Well: 4701, 7" Casing

Location: Lariat Rig #31, Ward County, Texas

Job Number: MD1208GW465

MEASURED DEPTH feet	INCL deg.	AZIMUTH deg.	VERTICAL SECTION feet	DOGLE SEVERITY deg./ 100 ft.	VERTICAL DEPTH feet	CLOSURE DIST. AZIMUTH feet deg.	HORIZONTAL COORDINATES feet
11700.00	1.92	138.29	-8.5	0.23	11694.39	172.4 92.8	8.54 S 172.18 E

Final Station Closure: Distance: 172.39 ft Az: 92.84 deg.



**Gyrodata Incorporated**

3811 S. Co. Rd. 1285


Odessa, TX. 79765

432/561-8458

Fax: 432/563-7982

State of Texas  
County of Travis

I, Jena Tumlin, certify that; I am employed by Gyrodata Inc.; that I am authorized and qualified to review the Rate Gyroscopic Multishot survey from a depth of 0 feet to a depth of 11700 feet conducted on the day(s) of 12/23/08 through 12/23/08; that this survey was conducted at the request of Energen Resources Corporation for the University "20" Well No. 4701 API No. 42-475-35473 in Ward County, Texas; that the data is true, correct, complete, and within the limitations of the tool as set forth by Gyrodata Inc; that I am authorized and qualified to make this report; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Gyrodata Inc.

  
\_\_\_\_\_  
Jena Tumlin  
Operations

Oilfield Services, U.S. Land West

**Reservoir Development**

Drilling & Measurements (Anadrill)

500 West Texas Avenue, Suite 500

Midland, Texas

79701, USA

Phone: (432)-571-4718

Fax: (432)-571-4795

**Schlumberger**

20-Mar-09

War-Wink, S. (Wolfcamp)

Railroad Commission of Texas

Oil and Gas Division

PO Box 12967

Capital Station

Austin, Texas 78711

Attention: Cathy Garrison

Re:

Energen Resources

University 20 #4701 ST01

Ward/Winkler County

Lariat 31

Ward County, TX

42-475-35473

JSO# 40018427

39471

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation (P-5 No. 754900). Other information required by your office is as follows.

<u>Name &amp; Title of Surveyor</u>	<u>Drain Hole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Mike Eckert MWD 2	Side Track #03	11,076.00 ft to 13,276.00 ft	February 4, 2009 to March 20, 2009	ShortPulse

A certified plat on the bottom hole located is oriented both to the surface location and to the lease lines (or until line in case of pooling) is attached to survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Sincerely,

Rob Lacy

CC: Energen Resources

Enclosures: [2]

Certified RRC: 7007 0220 0002 4966 4920

State of Texas

County of Midland

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**Oilfield Services, U.S. Land West**

**Reservoir Development**

**Drilling & Measurements (Anadrill)**

**500 West Texas Avenue, Suite 500**

**Midland, Texas**

**79701, USA**

**Phone: (432)-571-4718**

**Fax: (432)-571-4795**

---

**Schlumberger**

I, Mike Eckert, certify that; I am employed by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation; that I did on the day(s) of February 04, 2009, through March 20, 2009, conduct or supervise the taking of the ShortPulse surveys from a depth of 11076 feet to a depth of 13276 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Energen Resources for the University 20 #4701 ST01 well (Side Track #03) API No. 42-475-35473 in, Texas; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

Mike Eckert

MWD 2

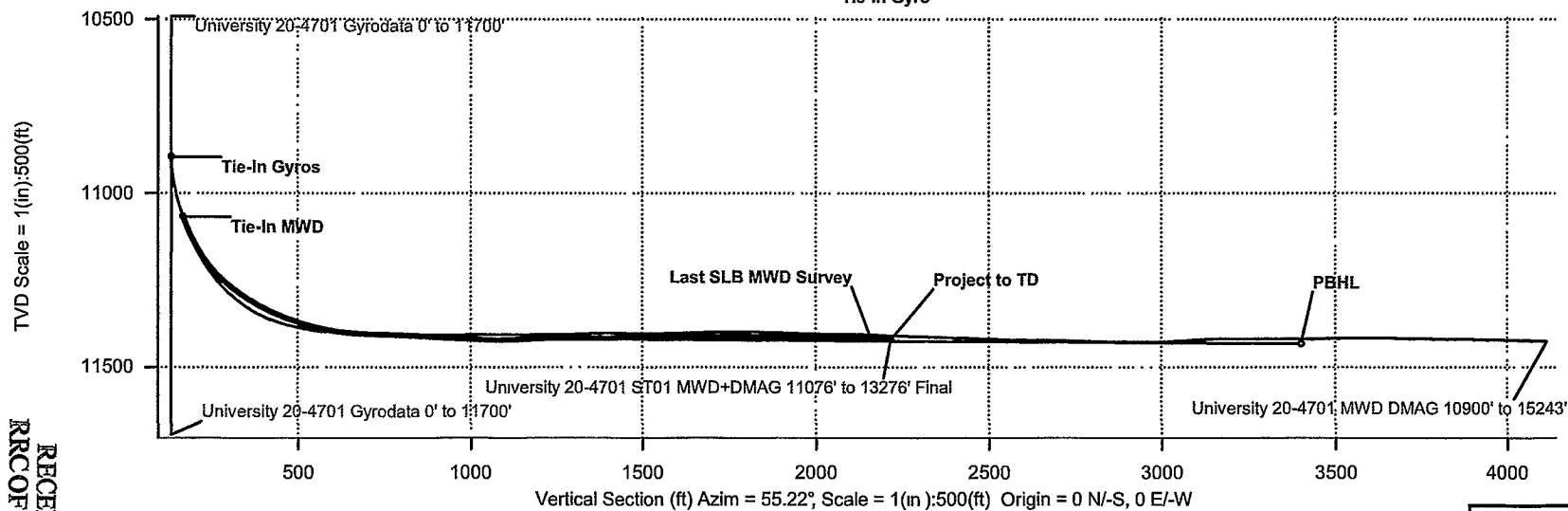
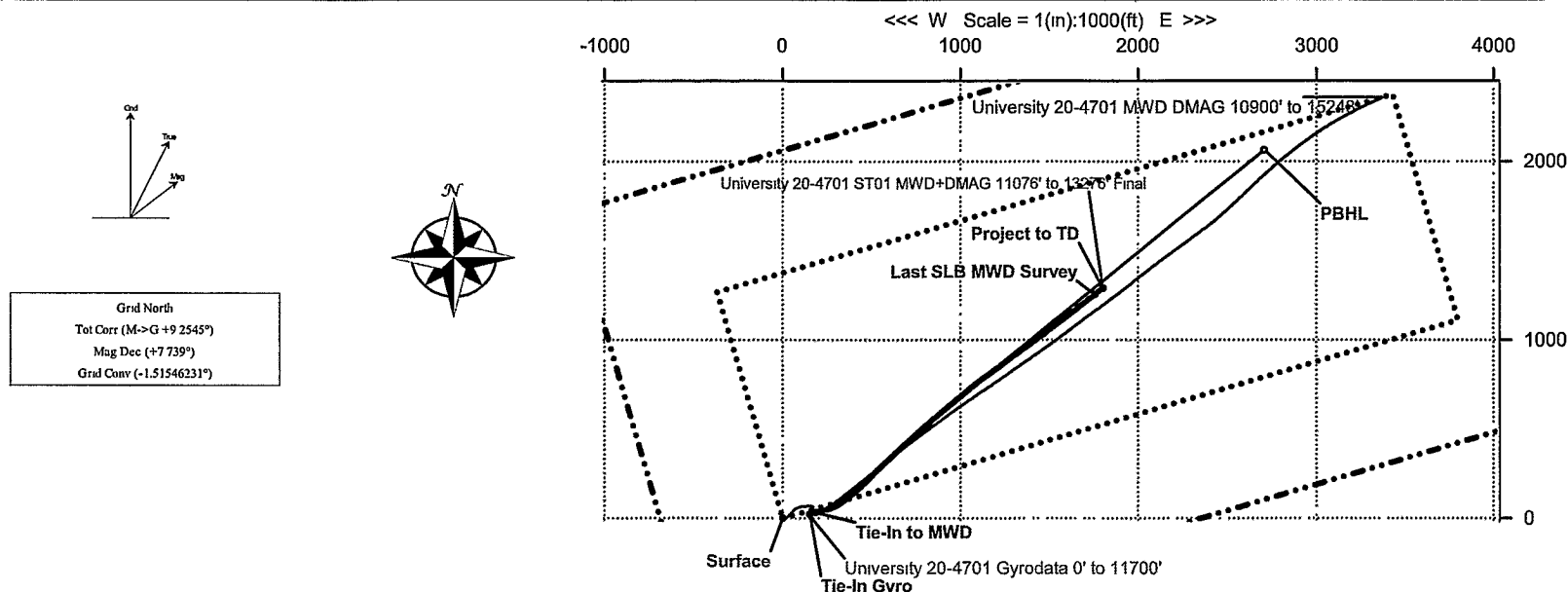
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WELL <b>University 20-4701 ST01</b>	FIELD <b>TX, Ward County</b>	STRUCTURE <b>Energen, University 20-4701 ST01</b>
Magnetic Parameters Model: BGGM 2009 Dip: 59.762° Mag Dec: +7.739° Date: March 12, 2009 FS: 48581.5 nT	Surface Location Lat: N31 39 41.946 Lon: W103 16 32.312 Northing: 731590.30 IUS Easting: 1084476.60 IUS NAD27 Texas State Planes, Central Zone US Feet Gnd Conv: -1.51546231° Scale Fact: 0.9999446484	Miscellaneous Sht: University 20-4701 ST01 Plan: Rev10 n1 12 Mar-09 TVD Ref: RKB (2779.00 ft above MSL) Shty Date: March 12, 2009



Quality Control  
Date Drawn, Fm 12:25 PM March 20, 2009  
Drawn by Kevin Wong  
Checked by Rob Lacy  
Client OK.

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## University 20-4701 ST01 MWD+DMAG 11076' to 13276' Final Survey Report

Report Date: March 26, 2009	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: Energen Resources Corporation	Vertical Section Azimuth: 54.350°
Field: TX, Ward County (NAD 27)	Vertical Section Origin: N 0.000 ft, E 0.000 ft
Structure / Slot: Energen, University 20-4701 / University 20-4701	TVD Reference Datum: RKB
Well: University 20-4701	TVD Reference Elevation: 2779.0 ft relative to MSL
Borehole: ST001	Sea Bed / Ground Level Elevation: 2758.000 ft relative to MSL
UWI/API#:	Magnetic Declination: 7.737°
Survey Name / Date: University 20-4701 ST01 MWD+DMAG 11076' to 13276' Final / February 21, 2005	Total Field Strength: 48579.375 nT
Tort / AHD / DDI / ERD ratio: 162.048° / 2350.92 ft / 5.646 / 0.206	Magnetic Dip: 59.762°
Grid Coordinate System: NAD27 Texas State Planes, Central Zone, US Feet	Declination Date: March 20, 2009
Location Lat/Long: N 31 38 41.646, W 103 16 32.312	Magnetic Declination Model: BGM 2008
Location Grid N/E Y/X: N 731580.300 RUS, E 1084476.600 RUS	North Reference: Gnd North
Grid Convergence Angle: -1.51546231°	Total Corr Mag North -> Grid North: +9.252°
Grid Scale Factor: 0.99994465	Local Coordinates Referenced To: Well Head

Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
Tie-In	11076.00	20.27	73.57	11066.99	169.33	32.63	184.97	10.11	731612.93	1084661.56	N 31 38 42.017	W 103 16 30.183
	11111.00	24.50	78.51	11099.35	181.68	35.79	197.91	13.22	731616.09	1084674.49	N 31 38 42.052	W 103 16 30.034
	11143.00	27.67	78.69	11128.08	194.51	38.57	211.70	9.91	731618.87	1084688.29	N 31 38 42.083	W 103 16 29.876
	11174.00	31.27	75.88	11155.07	208.55	41.95	226.56	12.44	731622.25	1084703.15	N 31 38 42.120	W 103 16 29.705
	11206.00	34.97	73.69	11181.87	224.94	46.55	243.43	12.15	731626.85	1084720.01	N 31 38 42.170	W 103 16 29.511
	11238.00	38.50	72.21	11207.51	243.08	52.17	261.72	11.37	731632.47	1084738.30	N 31 38 42.230	W 103 16 29.301
	11270.00	43.42	66.67	11231.67	263.32	59.58	281.32	19.10	731639.87	1084757.90	N 31 38 42.309	W 103 16 29.077
	11302.00	48.32	60.77	11253.96	285.96	69.78	301.87	20.23	731650.08	1084778.45	N 31 38 42.415	W 103 16 28.842
	11334.00	51.89	55.82	11274.49	310.44	82.70	322.72	16.28	731662.99	1084799.31	N 31 38 42.548	W 103 16 28.605
	11365.00	55.20	54.43	11292.90	335.37	96.96	343.17	11.27	731677.25	1084819.75	N 31 38 42.695	W 103 16 28.373
	11397.00	58.50	52.68	11310.40	362.15	112.87	364.72	11.28	731693.17	1084841.29	N 31 38 42.858	W 103 16 28.129
	11461.00	64.97	50.16	11340.70	418.41	148.03	408.73	10.69	731728.33	1084885.31	N 31 38 43.217	W 103 16 27.631
	11491.00	68.39	47.64	11352.57	445.83	166.15	429.48	13.76	731746.44	1084906.05	N 31 38 43.402	W 103 16 27.396
	11523.00	70.00	45.22	11363.94	475.45	186.76	451.15	8.68	731767.05	1084927.72	N 31 38 43.611	W 103 16 27.152
	11555.00	72.67	43.88	11374.18	505.32	208.37	472.41	9.24	731788.66	1084948.98	N 31 38 43.831	W 103 16 26.913
	11587.00	75.61	43.99	11382.92	535.59	230.53	493.77	9.19	731810.82	1084970.34	N 31 38 44.056	W 103 16 26.673
	11618.00	77.94	44.96	11390.02	565.32	252.06	514.91	8.11	731832.35	1084991.48	N 31 38 44.274	W 103 16 26.435
	11650.00	80.16	46.78	11396.10	596.39	273.93	537.46	8.91	731854.22	1085014.03	N 31 38 44.496	W 103 16 26.181
	11682.00	82.96	47.07	11400.79	627.78	295.55	560.58	8.80	731875.83	1085037.14	N 31 38 44.716	W 103 16 25.920
	11713.00	86.34	46.94	11403.68	658.38	316.59	583.15	10.91	731896.88	1085059.72	N 31 38 44.930	W 103 16 25.665
	11745.00	88.13	46.26	11405.22	690.05	338.55	606.37	5.98	731918.84	1085082.94	N 31 38 45.154	W 103 16 25.403
	11787.00	88.75	47.56	11406.37	731.68	367.24	637.03	3.43	731947.51	1085113.59	N 31 38 45.445	W 103 16 25.058
	11851.00	87.69	47.47	11408.36	795.20	410.44	684.20	1.66	731990.72	1085160.76	N 31 38 45.885	W 103 16 24.525
	11883.00	87.34	47.57	11409.74	826.94	432.03	707.78	1.14	732012.30	1085184.34	N 31 38 46.105	W 103 16 24.259
	11915.00	87.03	48.31	11411.32	858.70	453.44	731.51	2.50	732033.71	1085208.07	N 31 38 46.323	W 103 16 23.991
	11946.00	86.41	48.23	11413.09	889.48	474.04	754.61	2.02	732054.31	1085231.17	N 31 38 46.533	W 103 16 23.731
	11978.00	86.10	48.43	11415.18	921.23	495.27	778.46	1.15	732075.54	1085255.02	N 31 38 46.749	W 103 16 23.461
	12009.00	86.38	49.23	11417.21	952.02	515.63	801.75	2.73	732095.90	1085278.30	N 31 38 46.957	W 103 16 23.198
	12041.00	87.01	49.86	11419.06	983.85	536.36	826.05	2.78	732116.63	1085302.61	N 31 38 47.168	W 103 16 22.924
	12073.00	87.04	49.48	11420.72	1015.71	557.04	850.42	1.19	732137.31	1085326.97	N 31 38 47.379	W 103 16 22.648
	12105.00	88.38	49.42	11422.00	1047.56	577.83	874.71	4.19	732158.10	1085351.26	N 31 38 47.591	W 103 16 22.374
	12137.00	90.14	49.99	11422.41	1079.45	598.52	899.12	5.78	732178.79	1085375.66	N 31 38 47.802	W 103 16 22.098
	12179.00	92.24	50.31	11421.54	1121.33	625.43	931.35	5.06	732205.69	1085407.90	N 31 38 48.077	W 103 16 21.733
	12201.00	92.58	50.20	11420.61	1143.25	639.48	948.25	1.62	732219.75	1085424.80	N 31 38 48.220	W 103 16 21.542
	12232.00	92.55	50.38	11419.22	1174.14	659.27	972.08	0.59	732239.53	1085448.62	N 31 38 48.422	W 103 16 21.273
	12264.00	92.00	50.49	11417.95	1206.04	679.63	996.73	1.75	732259.90	1085473.27	N 31 38 48.630	W 103 16 20.994
	12296.00	91.27	49.93	11417.04	1237.95	700.11	1021.30	2.87	732280.37	1085497.84	N 31 38 48.839	W 103 16 20.716
	12328.00	90.03	50.21	11416.68	1269.86	720.64	1045.84	3.97	732300.90	1085522.38	N 31 38 49.049	W 103 16 20.438
	12360.00	89.86	50.87	11416.71	1301.78	740.98	1070.55	2.13	732321.24	1085547.08	N 31 38 49.256	W 103 16 20.159
	12391.00	90.00	52.25	11416.75	1332.75	760.25	1094.83	4.47	732340.51	1085571.36	N 31 38 49.453	W 103 16 19.884
	12423.00	90.41	53.12	11416.63	1364.73	779.65	1120.28	3.01	732359.91	1085596.61	N 31 38 49.652	W 103 16 19.596
	12455.00	91.27	54.25	11416.16	1396.73	798.60	1146.06	4.44	732378.85	1085622.59	N 31 38 49.846	W 103 16 19.303
	12519.00	91.44	54.33	11414.65	1460.71	835.94	1198.01	0.29	732416.20	1085674.54	N 31 38 50.229	W 103 16 18.714
	12550.00	90.86	53.82	11414.03	1491.70	854.13	1223.11	2.49	732434.38	1085699.64	N 31 38 50.415	W 103 16 18.429
	12582.00	90.48	53.39	11413.65	1523.70	873.11	1248.86	1.79	732453.36	1085725.39	N 31 38 50.610	W 103 16 18.137
	12614.00	90.07	53.67	11413.50	1555.69	892.13	1274.60	1.55	732472.38	1085751.12	N 31 38 50.805	W 103 16 17.845
	12646.00	90.10	53.56	11413.45	1587.69	911.12	1300.36	0.36	732491.37	1085776.88	N 31 38 50.999	W 103 16 17.553
	12678.00	90.38	54.19	11413.32	1619.69	929.98	1326.21	2.15	732510.23	1085802.73	N 31 38 51.193	W 103 16 17.260
	12710.00	90.76	53.76	11413.00	1651.69	948.80	1352.08	1.79	732529.05	1085828.61	N 31 38 51.386	W 103 16 16.967

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Oilfield Services, U.S. Land West

**Reservoir Development**

Drilling & Measurements (Anadrill)  
500 West Texas Avenue, Suite 500  
Midland, Texas  
79701, USA  
Phone: (432)-571-4718  
Fax: (432)-571-4795

**Schlumberger**

30-Jan-09

Railroad Commission of Texas  
Oil and Gas Division  
PO Box 12967  
Capital Station  
Austin, Texas 78711

Attention: Cathy Garrison

Re:

Energen Resources  
University 20 #4701  
Ward/Winkler County  
Larion 31  
Ward County, TX  
42-475-35473  
JSO# 40018427

39471

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation (P-5 No. 754900). Other information required by your office is as follows.

<u>Name &amp; Title of Surveyor</u>	<u>Drain Hole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Francisco Huitron MWD 1	Side Track #02	10,900.00 ft to 15,243.00 ft	December 27, 2008 to January 25, 2009	ShortPulse

A certified plat on the bottom hole located is oriented both to the surface location and to the lease lines (or until line in case of pooling) is attached to survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Sincerely,

Rob Lacy

CC: Energen Resources  
Enclosures: [2]  
Certified RRC: 7007 2560 0003 3696 8275  
State of Texas  
County of Midland

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Oilfield Services, U.S. Land West

**Reservoir Development**

Drilling & Measurements (Anadrill)

500 West Texas Avenue, Suite 500

Midland, Texas

79701, USA

Phone: (432)-571-4718

Fax: (432)-571-4795

---

**Schlumberger**

I, Francisco Huitron, certify that; I am employed by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation; that I did on the day(s) of December 27, 2008, through January 25, 2009, conduct or supervise the taking of the ShortPulse surveys from a depth of 10900 feet to a depth of 15243 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report, that this survey was conducted at the request of Energen Resources for the University 20 #4701 well (Side Track #02) API No. 42-475-35473 in, Texas; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

Francisco Huitron

MWD 1

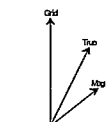
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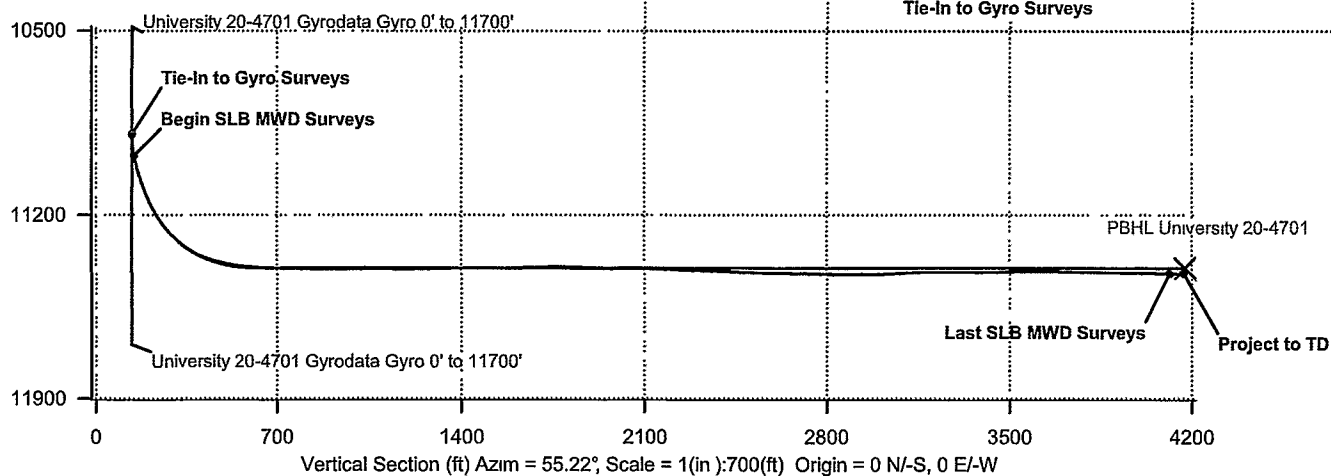
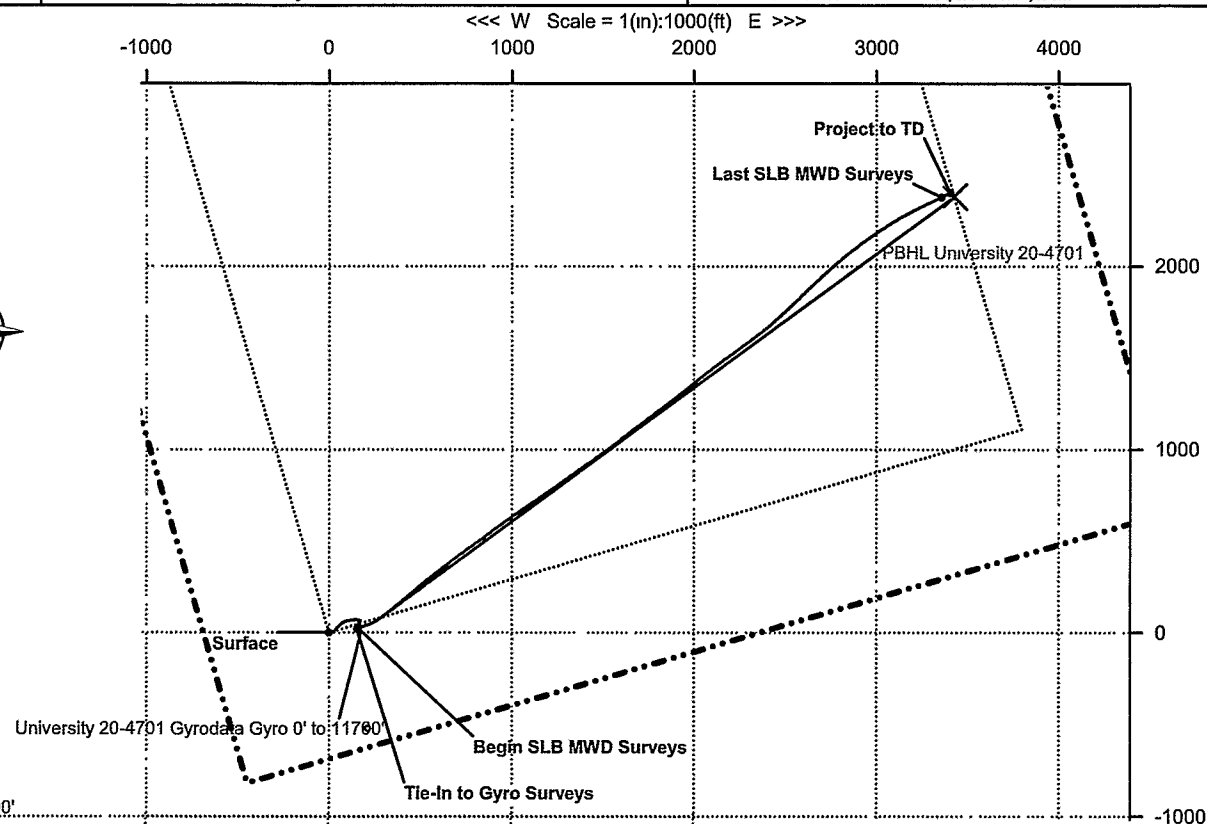
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MIDLAND

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WELL <b>University 20-4701</b>	FIELD <b>TX, Ward County</b>	STRUCTURE <b>Energen, University 20-4701</b>
Magnetic Parameters Model BGGM 2008 Dip 59.766° Mag Dec +7.761° Data FS January 05, 2009 48599.4 nT	Surface Location Lat N31 38 41.646 Lon W103 16 32.312 NAD27 Texas State Planes, Central Zone US Feet 731580.30 RUS Northing Easting 1084476.60 RUS Grid Conv -1.51546231° Scale Fact 0.9999446484	Miscellaneous Slot University 20-4701 Plan Rev05 n1 5-Jan-09 TVD Ref RKB (2779.00 ft above MSL) Srvy Date January 05, 2009



Grid North  
 Tot Corr (M→G +9.2765°)  
 Mag Dec (+7.761°)  
 Grid Conv (-1.51546231°)



Quality Control  
 Date Drawn En 11 49 AM January 30, 2009  
 Drawn by Kevin Wong  
 Checked by Rob Lacy  
 Client OK

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 MIDLAND





## University 20-4701 MWD 10900' to 15243' Final Survey Report

Report Date:	January 30, 2009	Survey / DLS Computation Method:	Minimum Curvature / Lubinski
Client:	Energen Resources Corporation	Vertical Section Azimuth:	54.840°
Field:	TX, Ward County (NAD 27)	Vertical Section Origin:	N 0.000 ft, E 0.000 ft
Structure / Slot:	Energen, University 20-4701 / University 20-4701	TVD Reference Datum:	RKB
Well:	University 20-4701	TVD Reference Elevation:	2779.0 ft relative to MSL
Borehole:	Original Hole	Sea Bed / Ground Level Elevation:	2758.000 ft relative to MSL
UWI/API#:		Magnetic Declination:	7.764°
Survey Name / Date:	University 20-4701 MWD 10900' to 15243' Final / January 5, 2008	Total Field Strength:	48601.821 nT
Tort / AHD / DDI / ERD ratio:	204.842° / 4301.17 ft / 6.070 / 0.376	Magnetic Dip:	59.767°
Grid Coordinate System:	NAD27 Texas State Planes, Central Zone, US Feet	Declination Date:	December 27, 2008
Location Lat/Long:	N 31 38 41.646, W 103 16 32.312	Magnetic Declination Model:	BGGM 2008
Location Grid N/E/Y/X:	N 731580 300 ftUS, E 1084476.600 ftUS	North Reference:	Grid North
Grid Convergence Angle:	-1.51546231°	Total Corr Mag North -> Grid North:	+9.279°
Grid Scale Factor:	0.99994465	Local Coordinates Referenced To:	Well Head

Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
Tie-In to Gyro Surveys	10900.00	2 01	137 74	10895.20	137.11	21.15	152 81	0 94	731601.45	1084629.40	N 31 38 41 895	W 103 16 30 551
Begin SLB MWD Surveys	10981.00	11 37	62 45	10975.63	145.22	23.80	160 86	13.62	731604.10	1084637.46	N 31 38 41 923	W 103 16 30.459
	11044.00	17.10	71 24	11036.68	160.28	29.66	175 15	9.70	731609.96	1084651.74	N 31 38 41.985	W 103 16 30.295
	11076.00	20.26	73 22	11066.99	170.05	32.77	184.92	10.07	731613.07	1084661.51	N 31 38 42.018	W 103 16 30 183
	11106.00	20.94	72 51	11095.07	180.09	35.88	195.00	2.41	731616.18	1084671.59	N 31 38 42.052	W 103 16 30 068
	11138.00	23.29	70 11	11124.72	191.64	39.75	206.41	7.87	731620.05	1084682.99	N 31 38 42 093	W 103 16 29 937
	11170.00	26.39	68 26	11153.75	204.66	44.54	218.96	9.99	731624.84	1084695.55	N 31 38 42 144	W 103 16 29.793
	11201.00	29.24	66 70	11181.17	218.78	50.09	232.32	9.49	731630.39	1084708.91	N 31 38 42.202	W 103 16 29 641
	11233.00	33.21	61.84	11208.53	235.13	57.32	247.23	14.68	731637.62	1084723.82	N 31 38 42 278	W 103 16 29.470
	11265.00	36.74	57 13	11234.75	253.40	66.66	263.01	13.88	731646.95	1084739.59	N 31 38 42 374	W 103 16 29 291
	11296.00	41.22	53 67	11258.85	272.89	77.75	279.03	16.06	731658.04	1084755.62	N 31 38 42.488	W 103 16 29 109
	11328.00	45.69	53 63	11282.07	294.89	90.79	296.75	13.97	731671.08	1084773.34	N 31 38 42 622	W 103 16 28 908
	11360.00	50.11	52.84	11303.52	318.62	105.00	315.77	13.93	731685.29	1084792.35	N 31 38 42 767	W 103 16 28 692
	11391.00	53.95	51 14	11322.59	343.02	120.05	335.01	13.12	731700.35	1084811.59	N 31 38 42 921	W 103 16 28 475
	11423.00	58.95	51 45	11340.27	369.63	136.72	355.82	15.65	731717.01	1084832.40	N 31 38 43.091	W 103 16 28.239
	11455.00	65.45	50.68	11355.19	397.86	154.51	377.82	20.42	731734.80	1084854.40	N 31 38 43 273	W 103 16 27.990
	11487.00	70.76	49.77	11367.11	427.44	173.50	400.63	16.80	731753.79	1084877.21	N 31 38 43 467	W 103 16 27.732
	11519.00	74.14	49.36	11376.76	457.82	193.29	423.85	10.63	731773.57	1084900.42	N 31 38 43.669	W 103 16 27.470
	11550.00	77.09	49.35	11384.46	487.71	212.84	446.63	9.52	731793.13	1084923.20	N 31 38 43 868	W 103 16 27.212
	11582.00	79.31	49.30	11391.01	518.88	233.26	470.38	6.94	731813.54	1084946.96	N 31 38 44.076	W 103 16 26.944
	11613.00	82.30	50.25	11395.96	549.36	253.02	493.75	10.11	731833.30	1084970.32	N 31 38 44.278	W 103 16 26 680
	11651.00	86.42	50.90	11399.69	587.07	277.03	522.95	10.97	731857.31	1084999.52	N 31 38 44 523	W 103 16 26 349
	11682.00	87.56	51.12	11401.32	617.95	296.50	547.01	3.75	731876.79	1085023.58	N 31 38 44.722	W 103 16 26 077
	11714.00	88.83	51.79	11402.33	649.88	316.43	572.03	4.49	731896.71	1085048.59	N 31 38 44 926	W 103 16 25 794
	11746.00	88.45	52.09	11403.09	681.83	336.15	597.22	1.51	731916.44	1085073.78	N 31 38 45 128	W 103 16 25.509
	11777.00	88.18	52.51	11404.00	712.79	355.10	621.73	1.61	731935.38	1085098.30	N 31 38 45 321	W 103 16 25.231
	11809.00	88.11	52.57	11405.04	744.74	374.56	647.12	0.29	731954.83	1085123.68	N 31 38 45 521	W 103 16 24 943
	11841.00	88.14	52.98	11406.08	776.71	393.90	672.59	1.28	731974.18	1085149.15	N 31 38 45.719	W 103 16 24 655
	11872.00	88.31	53.68	11407.04	807.68	412.41	697.44	2.32	731992.69	1085174.00	N 31 38 45.908	W 103 16 24.373
	11904.00	88.93	53.93	11407.81	839.67	431.30	723.26	2.09	732011.58	1085199.82	N 31 38 46.102	W 103 16 24.080
	11936.00	89.24	54.24	11408.32	871.66	450.07	749.17	1.37	732030.34	1085225.73	N 31 38 46.294	W 103 16 23.786
	11968.00	90.10	54.53	11408.51	903.66	468.70	775.18	2.84	732048.98	1085251.74	N 31 38 46 485	W 103 16 23.491
	11999.00	90.41	54.36	11408.37	934.66	486.73	800.40	1.14	732067.00	1085276.96	N 31 38 46.670	W 103 16 23 205
	12031.00	90.38	54.17	11408.15	966.65	505.42	826.38	0.60	732085.69	1085302.93	N 31 38 46 862	W 103 16 22 910
	12063.00	90.59	53.75	11407.88	998.65	524.24	852.25	1.47	732104.51	1085328.80	N 31 38 47 055	W 103 16 22 617
	12095.00	90.45	53.25	11407.59	1030.64	543.28	877.98	1.62	732123.55	1085354.52	N 31 38 47 250	W 103 16 22 325
	12126.00	90.24	53.74	11407.40	1061.63	561.72	902.89	1.72	732141.99	1085379.44	N 31 38 47 439	W 103 16 22 043
	12157.00	89.72	53.33	11407.41	1092.62	580.14	927.82	2.14	732160.41	1085404.37	N 31 38 47.628	W 103 16 21 760
	12220.00	89.79	54.37	11407.68	1155.61	617.31	978.69	1.65	732197.57	1085455.24	N 31 38 48 009	W 103 16 21.183
	12284.00	90.31	54.96	11407.63	1219.61	654.32	1030.90	1.23	732234.58	1085507.44	N 31 38 48 389	W 103 16 20.591
	12348.00	91.93	56.43	11406.38	1283.59	690.38	1083.76	3.42	732270.64	1085560.29	N 31 38 48.759	W 103 16 19.991
	12410.00	91.76	55.90	11404.38	1345.54	724.89	1135.23	0.90	732305.14	1085611.76	N 31 38 49.114	W 103 16 19.406
	12474.00	89.90	55.11	11403.45	1409.52	761.13	1187.97	3.16	732341.38	1085664.50	N 31 38 49 486	W 103 16 18.807
	12505.00	89.66	55.10	11403.57	1440.52	778.86	1213.39	0.77	732359.11	1085689.92	N 31 38 49 668	W 103 16 18 518
	12569.00	90.00	54.84	11403.76	1504.52	815.60	1265.80	0.67	732395.85	1085742.33	N 31 38 50.045	W 103 16 17.924
	12600.00	90.03	54.93	11403.75	1535.52	833.43	1291.16	0.31	732413.68	1085767.68	N 31 38 50 228	W 103 16 17 636
	12632.00	90.62	55.08	11403.57	1567.52	851.78	1317.37	1.90	732432.03	1085793.90	N 31 38 50 417	W 103 16 17 338
	12664.00	91.38	54.88	11403.01	1599.52	870.14	1343.57	2.46	732450.39	1085820.10	N 31 38 50.605	W 103 16 17.041

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Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
	12696.00	91.82	55.40	11402.12	1631.50	888.42	1369.82	2.13	732468.67	1085846.34	N 31 38 50.793	W 103 16 16.743
	12727.00	91.69	55.08	11401.17	1662.49	906.09	1395.28	1.11	732486.34	1085871.80	N 31 38 50.975	W 103 16 16.454
	12759.00	91.55	55.29	11400.27	1694.47	924.35	1421.54	0.79	732504.60	1085898.06	N 31 38 51.162	W 103 16 16.156
	12791.00	91.31	54.81	11399.47	1726.46	942.68	1447.76	1.68	732522.92	1085924.28	N 31 38 51.350	W 103 16 15.858
	12822.00	90.76	54.01	11398.91	1757.46	960.72	1472.96	3.13	732540.96	1085949.48	N 31 38 51.535	W 103 16 15.572
	12854.00	89.00	53.78	11398.97	1789.45	979.57	1498.82	5.55	732559.81	1085975.33	N 31 38 51.729	W 103 16 15.279
	12886.00	88.90	53.95	11399.56	1821.44	998.44	1524.66	0.62	732578.68	1086001.17	N 31 38 51.922	W 103 16 14.986
	12981.00	88.00	52.37	11402.13	1916.36	1055.37	1600.66	1.91	732635.61	1086077.16	N 31 38 52.505	W 103 16 14.125
	13013.00	87.90	52.20	11403.28	1948.31	1074.94	1625.95	0.62	732655.18	1086102.46	N 31 38 52.705	W 103 16 13.838
	13109.00	89.72	53.22	11405.27	2044.22	1133.08	1702.31	2.17	732713.32	1086178.81	N 31 38 53.300	W 103 16 12.973
	13140.00	89.83	53.21	11405.39	2075.20	1151.65	1727.14	0.36	732731.88	1086203.64	N 31 38 53.491	W 103 16 12.691
	13171.00	88.76	53.11	11405.77	2106.19	1170.23	1751.94	3.47	732750.46	1086228.44	N 31 38 53.681	W 103 16 12.410
	13235.00	88.14	53.02	11407.50	2170.13	1208.68	1803.08	0.98	732788.91	1086279.58	N 31 38 54.075	W 103 16 11.831
	13267.00	88.21	52.98	11408.52	2202.10	1227.92	1828.62	0.25	732808.15	1086305.12	N 31 38 54.272	W 103 16 11.541
	13331.00	88.21	53.08	11410.52	2266.04	1266.39	1879.73	0.16	732846.62	1086356.23	N 31 38 54.666	W 103 16 10.962
	13394.00	88.14	51.69	11412.53	2328.95	1304.83	1929.61	2.21	732885.05	1086406.10	N 31 38 55.059	W 103 16 10.397
	13426.00	87.56	51.39	11413.73	2360.87	1324.72	1954.65	2.04	732904.94	1086431.14	N 31 38 55.262	W 103 16 10.113
	13457.00	87.38	51.31	11415.10	2391.78	1344.06	1978.84	0.64	732924.28	1086455.32	N 31 38 55.460	W 103 16 9.840
	13489.00	87.28	51.16	11416.59	2423.69	1364.07	2003.76	0.56	732944.29	1086480.25	N 31 38 55.664	W 103 16 9.557
	13553.00	87.69	51.64	11419.40	2487.51	1403.96	2053.73	0.99	732984.18	1086530.21	N 31 38 56.072	W 103 16 8.992
	13585.00	88.04	52.43	11420.59	2519.45	1423.63	2078.94	2.70	733003.85	1086555.42	N 31 38 56.273	W 103 16 8.706
	13616.00	88.80	53.00	11421.44	2550.41	1442.41	2103.60	3.06	733022.62	1086580.07	N 31 38 56.465	W 103 16 8.427
	13680.00	89.59	54.26	11422.34	2614.39	1480.35	2155.12	2.32	733060.57	1086631.60	N 31 38 56.854	W 103 16 7.843
	13780.00	88.86	53.36	11423.69	2714.36	1539.39	2235.82	1.16	733119.60	1086712.29	N 31 38 57.459	W 103 16 6.927
	13812.00	88.69	53.04	11424.38	2746.34	1558.66	2261.44	1.13	733138.77	1086737.91	N 31 38 57.656	W 103 16 6.637
	13843.00	88.18	53.24	11425.23	2777.32	1577.15	2286.23	1.77	733157.35	1086762.70	N 31 38 57.846	W 103 16 6.356
	13875.00	88.76	53.25	11426.08	2809.29	1596.29	2311.86	1.81	733176.50	1086788.33	N 31 38 58.042	W 103 16 6.065
	13907.00	88.80	53.10	11426.76	2841.27	1615.46	2337.47	0.49	733195.67	1086813.94	N 31 38 58.238	W 103 16 5.775
	13939.00	90.03	52.94	11427.09	2873.26	1634.71	2363.03	3.88	733214.92	1086839.49	N 31 38 58.435	W 103 16 5.485
	13971.00	91.07	52.35	11426.78	2905.23	1654.13	2388.47	3.74	733234.33	1086864.93	N 31 38 58.634	W 103 16 5.197
	14003.00	90.00	49.36	11426.48	2937.15	1674.32	2413.28	9.92	733254.53	1086889.74	N 31 38 58.840	W 103 16 4.916
	14035.00	89.38	47.43	11426.66	2968.94	1695.57	2437.20	6.33	733275.77	1086913.66	N 31 38 59.057	W 103 16 4.646
	14067.00	91.07	47.96	11426.53	3000.69	1717.11	2460.87	5.53	733297.31	1086937.33	N 31 38 59.276	W 103 16 4.379
	14099.00	92.41	47.65	11425.56	3032.44	1738.59	2484.57	4.30	733318.79	1086961.02	N 31 38 59.495	W 103 16 4.112
	14130.00	93.62	47.26	11423.93	3063.14	1759.52	2507.37	4.10	733339.72	1086983.83	N 31 38 59.708	W 103 16 3.854
	14162.00	93.61	46.93	11421.91	3094.78	1781.26	2530.77	1.03	733361.46	1087007.22	N 31 38 59.929	W 103 16 3.590
	14194.00	92.34	46.23	11420.25	3126.41	1803.23	2553.98	4.53	733383.42	1087030.43	N 31 39 0.152	W 103 16 3.329
	14223.00	91.58	45.94	11419.26	3155.05	1823.33	2574.85	2.80	733403.52	1087051.31	N 31 39 0.357	W 103 16 3.093
	14255.00	89.93	45.55	11418.84	3186.64	1845.66	2597.77	5.30	733425.85	1087074.22	N 31 39 0.584	W 103 16 2.835
	14287.00	89.24	45.53	11419.07	3218.22	1868.07	2620.61	2.16	733448.26	1087097.06	N 31 39 0.811	W 103 16 2.578
	14319.00	90.10	46.54	11419.25	3249.84	1890.28	2643.64	4.15	733470.48	1087120.09	N 31 39 1.037	W 103 16 2.318
	14350.00	90.41	47.04	11419.11	3280.54	1911.51	2666.24	1.90	733491.70	1087142.68	N 31 39 1.253	W 103 16 2.063
	14382.00	89.90	47.21	11419.03	3312.25	1933.28	2689.69	1.68	733513.47	1087166.13	N 31 39 1.474	W 103 16 1.799
	14414.00	89.62	47.52	11419.16	3343.98	1954.96	2713.23	1.31	733535.14	1087189.67	N 31 39 1.695	W 103 16 1.533
	14446.00	89.76	48.56	11419.33	3375.75	1976.35	2737.02	3.28	733556.54	1087213.47	N 31 39 1.913	W 103 16 1.265
	14478.00	90.83	48.84	11419.17	3407.57	1997.47	2761.06	3.46	733577.66	1087237.50	N 31 39 2.128	W 103 16 0.993
	14509.00	91.34	49.54	11418.58	3438.41	2017.73	2784.52	2.79	733597.91	1087260.96	N 31 39 2.335	W 103 16 0.728
	14541.00	91.44	50.34	11417.81	3470.28	2038.32	2809.01	2.52	733618.50	1087285.45	N 31 39 2.545	W 103 16 0.451
	14573.00	91.24	51.03	11417.06	3502.19	2058.58	2833.76	2.24	733638.77	1087310.19	N 31 39 2.752	W 103 16 0.171
	14605.00	91.00	51.62	11416.43	3534.12	2078.58	2858.73	1.99	733658.76	1087335.17	N 31 39 2.956	W 103 15 59.888
	14637.00	90.62	52.55	11415.98	3566.08	2098.24	2883.98	3.14	733678.42	1087360.41	N 31 39 3.157	W 103 15 59.602
	14669.00	89.93	53.19	11415.83	3598.06	2117.55	2909.49	2.94	733697.73	1087385.92	N 31 39 3.355	W 103 15 59.313
	14701.00	89.48	53.78	11415.99	3630.05	2136.60	2935.21	2.32	733716.77	1087411.64	N 31 39 3.550	W 103 15 59.022
	14732.00	88.86	54.59	11416.44	3661.05	2154.73	2960.34	3.29	733734.91	1087436.77	N 31 39 3.736	W 103 15 58.737
	14796.00	89.14	56.44	11417.56	3725.03	2190.96	3013.09	2.92	733771.14	1087489.51	N 31 39 4.108	W 103 15 58.138
	14828.00	89.52	57.78	11417.93	3757.00	2208.34	3039.95	4.35	733788.51	1087516.38	N 31 39 4.287	W 103 15 57.832
	14858.00	88.93	58.17	11418.34	3786.96	2224.24	3065.39	2.36	733804.42	1087541.81	N 31 39 4.451	W 103 15 57.543
	14890.00	88.80	59.04	11418.97	3818.88	2240.91	3092.70	2.75	733821.08	1087569.12	N 31 39 4.623	W 103 15 57.232
	14922.00	89.28	60.38	11419.51	3850.76	2257.05	3120.32	4.45	733837.22	1087596.74	N 31 39 4.790	W 103 15 56.918
	14954.00	89.97	61.01	11419.72	3882.59	2272.71	3148.23	2.92	733852.88	1087624.65	N 31 39 4.952	W 103 15 56.600
	14986.00	88.80	61.36	11420.06	3914.39	2288.13	3176.26	3.82	733868.30	1087652.68	N 31 39 5.112	W 103 15 56.280
	15018.00	88.97	62.30	11420.68	3946.15	2303.24	3204.47	2.98	733883.40	1087680.88	N 31 39 5.269	W 103 15 55.959
	15050.00	89.35	63.41	11421.15	3977.83	2317.83	3232.94	3.67	733898.00	1087709.35	N 31 39 5.421	W 103 15 55.634
	15081.00	88.73	63.99	11421.67	4008.46	2331.57	3260.72	2.74	733911.73	1087737.14	N 31 39 5.584	W 103 15 55.317
	15145.00	89.07	65.18	11422.90	4071.52	2359.03	3318.52	1.93	733939.19	1087794.93	N 31 39 5.850	W 103 15 54.657

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Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
Last SLB MWD Surveys	15188.00	88 31	65 22	11423 88	4113.81	2377 06	3357.54	1.77	733957.22	1087833.95	N 31 39 6.039	W 103 15 54.211
Project to TD	15243 00	88 31	65.22	11425.51	4167.88	2400 10	3407.46	0 00	733980 27	1087883 86	N 31 39 6 280	W 103 15 53.641

Survey Type: Definitive Survey

Survey Error Model: SLB ISCWSA version 24 \*\*\* 3-D 95.00% Confidence 2.7955 sigma

Surveying Prog:

MD From ( ft )

0 00  
21.00  
10900.00  
11076.00  
11936 00  
15188 00  
15243 00

MD To ( ft )

21.00  
10900 00  
11076 00  
11936 00  
15188 00  
15243 00

EOU Freq Survey Tool Type

Act-Stns SLB\_CNSG+DPIPE-Depth Only  
Act-Stns SLB\_CNSG+DPIPE  
Act-Stns SLB\_MWD-INC\_ONLY  
Act-Stns SLB\_MWD+DMAG  
Act-Stns SLB\_MWD-STD  
Act-Stns SLB\_BLIND+TREND

Borehole -> Survey

Original Hole -> University 20-4701 Gyrodata Gyro 0' to 11700'  
Original Hole -> University 20-4701 Gyrodata Gyro 0' to 11700'  
Original Hole -> University 20-4701 MWD 10900' to 15243' Final  
Original Hole -> University 20-4701 MWD 10900' to 15243' Final  
Original Hole -> University 20-4701 MWD 10900' to 15243' Final  
Original Hole -> University 20-4701 MWD 10900' to 15243' Final

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MAY 15 2009

O&G  
MIDLAND

Oilfield Services, U.S. Land West

**Reservoir Development**

Drilling & Measurements (Anadrill)  
500 West Texas Avenue, Suite 500  
Midland, Texas  
79701, USA  
Phone: (432)-571-4718  
Fax: (432)-571-4795

**Schlumberger**

20-Mar-09

Railroad Commission of Texas  
Oil and Gas Division  
PO Box 12967  
Capital Station  
Austin, Texas 78711

Attention: Cathy Garrison

Re:

Energen Resources  
University 20 #4701 ST01  
Ward/Winkler County  
Lariat 31  
Ward County, TX  
42-475-35473  
ISO# 40018427

RECEIVED  
RRC OF TEXAS

APR 17 2009

C&G  
AUSTIN TX

39471

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation (P-5 No. 754900). Other information required by your office is as follows.

<u>Name &amp; Title of Surveyor</u>	<u>Drain Hole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Mike Eckert MWD 2	Side Track #03	11,076.00 ft to 13,276.00 ft	February 4, 2009 to March 20, 2009	ShortPulse

A certified plat on the bottom hole located is oriented both to the surface location and to the lease lines (or until line in case of pooling) is attached to survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Sincerely,



Rob Lacy

CC: Energen Resources  
Enclosures: [2]  
Certified RRC: 7007 0220 0002 4966 4920  
State of Texas  
County of Midland

**ORIGINAL**

Oilfield Services, U.S. Land West

**Reservoir Development**

Drilling & Measurements (Anadrill)

500 West Texas Avenue, Suite 500

Midland, Texas

79701, USA

Phone: (432)-571-4718

Fax: (432)-571-4795

---

**Schlumberger**

I, Mike Eckert, certify that; I am employed by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation; that I did on the day(s) of February 04, 2009, through March 20, 2009, conduct or supervise the taking of the ShortPulse surveys from a depth of 1,1076 feet to a depth of 13276 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Energen Resources for the University 20 #4701 ST01 well (Side Track #03) API No. 42-475-35473 in, Texas; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

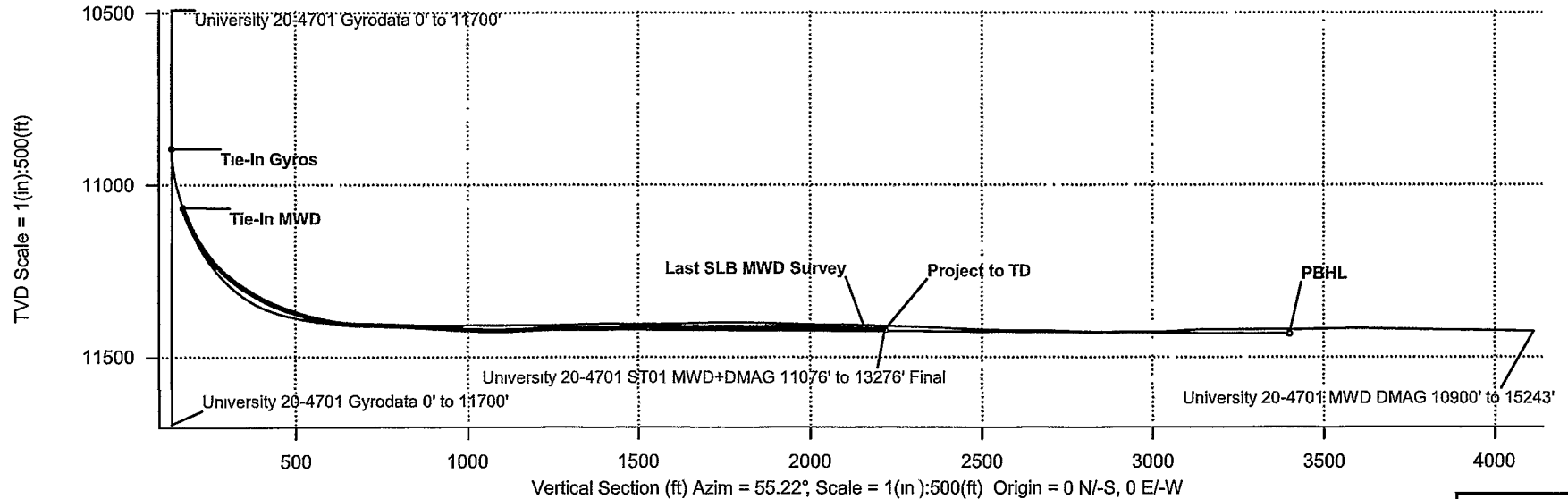
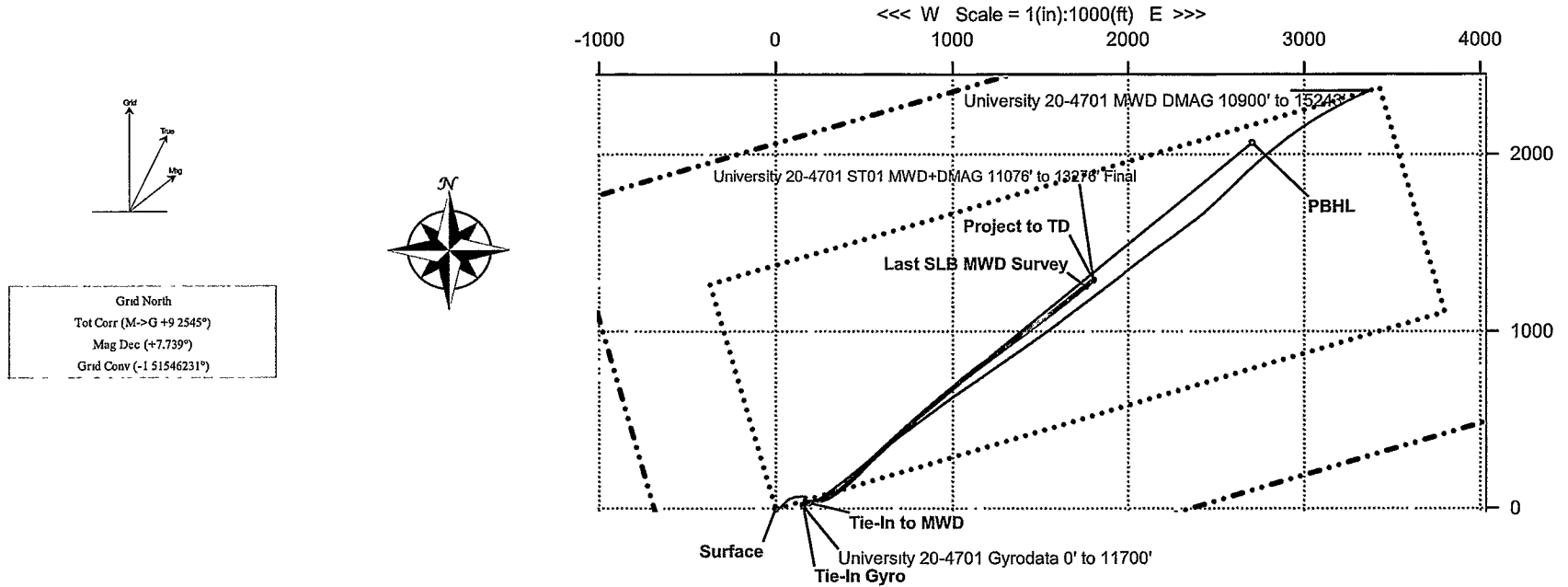


Mike Eckert

MWD 2

---

WELL <b>University 20-4701 ST01</b>	FIELD <b>TX, Ward County</b>	STRUCTURE <b>Energen, University 20-4701 ST01</b>
Magnetic Parameters Model: BGGM 2008 Dip: 59.762° Mag Dec: +7.739°	Surface Location Lat: N31 38 41.646 Lon: W103 16 32.312 Northing: 731580.30 NUS Easting: 1084476.60 NUS NAD27 Texas State Planes, Central Zone, US Feet Gnd Conv: -1.51546231° Scale Fact: 0.9999446484	Miscellaneous Slot: University 20-4701 ST01 Plan: Rev10 rsl 12 Mar-09 TVD Ref: RKB (2779.00 ft above MSL) Srvy Date: March 12, 2009



Quality Control  
 Date Drawn: Fri 12:25 PM March 20, 2009  
 Drawn by: Kevin Wong  
 Checked by: Rob Lacy  
 Client OK:



## University 20-4701 ST01 MWD+DMAG 11076' to 13276' Final Survey Report

Report Date: March 26, 2009	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: Energen Resources Corporation	Vertical Section Azimuth: 54 350°
Field: TX, Ward County (NAD 27)	Vertical Section Origin: N 0.000 ft, E 0.000 ft
Structure / Slot: Energen, University 20-4701 / University 20-4701	TVD Reference Datum: RKB
Well: University 20-4701	TVD Reference Elevation: 2779.0 ft relative to MSL
Borehole: ST001	Sea Bed / Ground Level Elevation: 2758.000 ft relative to MSL
UWI/API#: ST001	Magnetic Declination: 7 737°
Survey Name / Date: University 20-4701 ST01 MWD+DMAG 11076' to 13276' Final / February 21, 2005	Total Field Strength: 48579.375 nT
Tort / AHD / DDI / ERD ratio: 162.048° / 2350 92 ft / 5 646 / 0.206	Magnetic Dip: 59 762°
Grid Coordinate System: NAD27 Texas State Planes, Central Zone, US Feet	Declination Date: March 20, 2009
Location Lat/Long: N 31 38 41.646, W 103 16 32 312	Magnetic Declination Model: BGM 2008
Location Grid N/E Y/X: N 731580.300 ftUS, E 1084476.600 ftUS	North Reference: Gnd North
Gnd Convergence Angle: -1 51546231°	Total Corr Mag North -> Grid North: +9.252°
Gnd Scale Factor: 0.99994465	Local Coordinates Referenced To: Well Head

Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
Tie-In	11076.00	20.27	73.57	11066.99	169.33	32.63	184.97	10.11	731612.93	1084661.56	N 31 38 42 017	W 103 16 30.183
	11111.00	24.50	78.51	11099.35	181.68	35.79	197.91	13.22	731616.09	1084674.49	N 31 38 42 052	W 103 16 30.034
	11143.00	27.67	78.69	11128.08	194.51	38.57	211.70	9.91	731618.87	1084688.29	N 31 38 42 083	W 103 16 29.876
	11174.00	31.27	75.88	11155.07	208.55	41.95	226.56	12.44	731622.25	1084703.15	N 31 38 42 120	W 103 16 29.705
	11206.00	34.97	73.69	11181.87	224.94	46.55	243.43	12.15	731626.85	1084720.01	N 31 38 42 170	W 103 16 29.511
	11238.00	38.50	72.21	11207.51	243.08	52.17	261.72	11.37	731632.47	1084738.30	N 31 38 42 230	W 103 16 29.301
	11270.00	43.42	66.67	11231.67	263.32	59.58	281.32	19.10	731639.87	1084757.90	N 31 38 42 309	W 103 16 29.077
	11302.00	48.32	60.77	11253.96	285.96	69.78	301.87	20.23	731650.08	1084778.45	N 31 38 42 415	W 103 16 28.842
	11334.00	51.89	55.82	11274.49	310.44	82.70	322.72	16.28	731662.99	1084799.31	N 31 38 42 548	W 103 16 28.605
	11365.00	55.20	54.43	11292.90	335.37	96.96	343.17	11.27	731677.25	1084819.75	N 31 38 42 695	W 103 16 28.373
	11397.00	58.50	52.68	11310.40	362.15	112.87	364.72	11.28	731693.17	1084841.29	N 31 38 42 858	W 103 16 28.129
	11461.00	64.97	50.16	11340.70	418.41	148.03	406.73	10.69	731728.33	1084885.31	N 31 38 43 217	W 103 16 27.631
	11491.00	68.39	47.64	11352.57	445.83	166.15	429.48	13.76	731746.44	1084906.05	N 31 38 43 402	W 103 16 27.396
	11523.00	70.00	45.22	11363.94	475.45	186.76	451.15	8.68	731767.05	1084927.72	N 31 38 43 611	W 103 16 27.152
	11555.00	72.67	43.88	11374.18	505.32	208.37	472.41	9.24	731788.66	1084948.98	N 31 38 43 831	W 103 16 26.913
	11587.00	75.61	43.99	11382.92	535.59	230.53	493.77	9.19	731810.82	1084970.34	N 31 38 44 056	W 103 16 26.673
	11618.00	77.94	44.96	11390.02	565.32	252.06	514.91	8.11	731832.35	1084991.48	N 31 38 44 274	W 103 16 26.435
	11650.00	80.16	46.78	11396.10	596.39	273.93	537.46	8.91	731854.22	1085014.03	N 31 38 44 496	W 103 16 26.181
	11682.00	82.96	47.07	11400.79	627.78	295.55	560.58	8.80	731875.83	1085037.14	N 31 38 44 716	W 103 16 25.920
	11713.00	86.34	46.94	11403.68	658.38	316.59	583.15	10.91	731896.88	1085059.72	N 31 38 44 930	W 103 16 25.665
	11745.00	88.13	46.26	11405.22	690.05	338.55	606.37	5.98	731918.84	1085082.94	N 31 38 45 154	W 103 16 25.403
	11787.00	88.75	47.56	11406.37	731.68	367.24	637.03	3.43	731947.51	1085113.59	N 31 38 45 445	W 103 16 25.058
	11851.00	87.69	47.47	11408.36	795.20	410.44	684.20	1.66	731990.72	1085160.76	N 31 38 45 885	W 103 16 24.525
	11883.00	87.34	47.57	11409.74	826.94	432.03	707.78	1.14	732012.30	1085184.34	N 31 38 46 105	W 103 16 24.259
	11915.00	87.03	48.31	11411.32	858.70	453.44	731.51	2.50	732033.71	1085208.07	N 31 38 46 323	W 103 16 23.991
	11946.00	86.41	48.23	11413.09	889.48	474.04	754.61	2.02	732054.31	1085231.17	N 31 38 46 533	W 103 16 23.731
	11978.00	86.10	48.43	11415.18	921.23	495.27	778.46	1.15	732075.54	1085255.02	N 31 38 46 749	W 103 16 23.461
	12009.00	86.38	49.23	11417.21	952.02	515.63	801.75	2.73	732095.90	1085278.30	N 31 38 46 957	W 103 16 23.198
	12041.00	87.01	49.86	11419.06	983.85	536.36	826.05	2.78	732116.63	1085302.61	N 31 38 47 168	W 103 16 22.924
	12073.00	87.04	49.48	11420.72	1015.71	557.04	850.42	1.19	732137.31	1085326.97	N 31 38 47 379	W 103 16 22.648
	12105.00	88.38	49.42	11422.00	1047.56	577.83	874.71	4.19	732158.10	1085351.26	N 31 38 47 591	W 103 16 22.374
	12137.00	90.14	49.99	11422.41	1079.45	598.52	899.12	5.78	732178.79	1085375.66	N 31 38 47 802	W 103 16 22.098
	12179.00	92.24	50.31	11421.54	1121.33	625.43	931.35	5.06	732205.69	1085407.90	N 31 38 48 077	W 103 16 21.733
	12201.00	92.58	50.20	11420.61	1143.25	639.48	948.25	1.62	732219.75	1085424.80	N 31 38 48 220	W 103 16 21.542
	12232.00	92.55	50.38	11419.22	1174.14	659.27	972.08	0.59	732239.53	1085448.62	N 31 38 48 422	W 103 16 21.273
	12264.00	92.00	50.49	11417.95	1206.04	679.63	996.73	1.75	732259.90	1085473.27	N 31 38 48 630	W 103 16 20.994
	12296.00	91.27	49.93	11417.04	1237.95	700.11	1021.30	2.87	732280.37	1085497.84	N 31 38 48 839	W 103 16 20.716
	12328.00	90.03	50.21	11416.68	1269.86	720.64	1045.84	3.97	732300.90	1085522.38	N 31 38 49 049	W 103 16 20.438
	12360.00	89.86	50.87	11416.71	1301.78	740.98	1070.55	2.13	732321.24	1085547.08	N 31 38 49 256	W 103 16 20.159
	12391.00	90.00	52.25	11416.75	1332.75	760.25	1094.83	4.47	732340.51	1085571.36	N 31 38 49 453	W 103 16 19.884
	12423.00	90.41	53.12	11416.63	1364.73	779.65	1120.28	3.01	732359.91	1085596.81	N 31 38 49 652	W 103 16 19.596
	12455.00	91.27	54.25	11416.16	1396.73	798.60	1146.06	4.44	732378.85	1085622.59	N 31 38 49 846	W 103 16 19.303
	12519.00	91.44	54.33	11414.65	1460.71	835.94	1198.01	0.29	732416.20	1085674.54	N 31 38 50 229	W 103 16 18.714
	12550.00	90.86	53.82	11414.03	1491.70	854.13	1223.11	2.49	732434.38	1085699.64	N 31 38 50 415	W 103 16 18.429
	12582.00	90.48	53.39	11413.65	1523.70	873.11	1248.86	1.79	732453.36	1085725.39	N 31 38 50 610	W 103 16 18.137
	12614.00	90.07	53.67	11413.50	1555.69	892.13	1274.60	1.55	732472.38	1085751.12	N 31 38 50 805	W 103 16 17.845
	12646.00	90.10	53.56	11413.45	1587.69	911.12	1300.36	0.36	732491.37	1085776.88	N 31 38 50 999	W 103 16 17.553
	12678.00	90.38	54.19	11413.32	1619.69	929.98	1326.21	2.15	732510.23	1085802.73	N 31 38 51 193	W 103 16 17.260
	12710.00	90.76	53.76	11413.00	1651.69	948.80	1352.08	1.79	732529.05	1085828.61	N 31 38 51 386	W 103 16 16.967



Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
	12742.00	90.76	53.72	11412.58	1683.68	967.73	1377.89	0.12	732547.97	1085854.41	N 31 38 51.580	W 103 16 16.674
	12773.00	90.79	53.92	11412.16	1714.68	986.03	1402.91	0.65	732566.27	1085879.42	N 31 38 51.767	W 103 16 16.390
	12805.00	90.21	53.74	11411.88	1746.67	1004.91	1428.74	1.90	732585.15	1085905.25	N 31 38 51.961	W 103 16 16.097
	12837.00	89.83	53.47	11411.87	1778.67	1023.90	1454.49	1.46	732604.14	1085931.01	N 31 38 52.155	W 103 16 15.805
	12869.00	89.69	53.13	11412.00	1810.67	1043.02	1480.15	1.15	732623.26	1085956.67	N 31 38 52.351	W 103 16 15.514
	12901.00	89.69	52.52	11412.17	1842.65	1062.36	1505.65	1.91	732642.60	1085982.16	N 31 38 52.549	W 103 16 15.225
	12933.00	89.59	53.25	11412.37	1874.64	1081.67	1531.17	2.30	732661.90	1086007.68	N 31 38 52.747	W 103 16 14.936
	12965.00	89.42	52.81	11412.65	1906.63	1100.91	1556.73	1.47	732681.15	1086033.24	N 31 38 52.944	W 103 16 14.647
	12996.00	89.31	52.06	11412.99	1937.61	1119.81	1581.30	2.45	732700.04	1086057.81	N 31 38 53.137	W 103 16 14.368
	13028.00	89.04	52.54	11413.46	1969.59	1139.37	1606.62	1.72	732719.61	1086083.13	N 31 38 53.338	W 103 16 14.081
	13059.00	88.90	52.16	11414.01	2000.57	1158.31	1631.16	1.31	732738.54	1086107.66	N 31 38 53.531	W 103 16 13.803
	13091.00	88.69	52.09	11414.69	2032.53	1177.95	1656.41	0.69	732758.18	1086132.92	N 31 38 53.732	W 103 16 13.517
	13123.00	88.56	52.02	11415.45	2064.50	1197.62	1681.64	0.46	732777.85	1086158.14	N 31 38 53.933	W 103 16 13.232
	13155.00	88.42	51.96	11416.30	2096.46	1217.32	1706.84	0.48	732797.55	1086183.35	N 31 38 54.135	W 103 16 12.946
	13187.00	88.45	51.86	11417.17	2128.42	1237.05	1732.02	0.33	732817.28	1086208.52	N 31 38 54.337	W 103 16 12.661
Last SLB MWD Survey	13218.00	87.83	51.53	11418.18	2159.37	1256.26	1756.33	2.27	732836.49	1086232.83	N 31 38 54.533	W 103 16 12.386
Project to TD	13276.00	87.83	51.53	11420.37	2217.26	1292.31	1801.71	0.00	732872.54	1086278.21	N 31 38 54.902	W 103 16 11.872

**Survey Type:** Definitive Survey

**Survey Error Model:** SLB ISCWSA version 24 \*\*\* 3-D 95.00% Confidence 2.7955 sigma

**Surveying Prog:**

**MD From (ft)**

0.00

21.00

10900.00

10981.00

11076.00

11238.00

12264.00

13218.00

**MD To (ft)**

21.00

10900.00

10981.00

11076.00

11238.00

12264.00

13218.00

13276.00

**EOU Freq**

Act-Stns

Act-Stns

Act-Stns

Act-Stns

Act-Stns

Act-Stns

Act-Stns

Act-Stns

**Survey Tool Type**

SLB\_CNSG+DPIPE-Depth Only

SLB\_CNSG+DPIPE

SLB\_CNSG+DPIPE

SLB\_MWD+DMAG

SLB\_MWD-INC\_ONLY

SLB\_MWD+DMAG

SLB\_MWD-STD

SLB\_BLIND+TREND

**Borehole -> Survey**

ST001 -> University 20-4701 Gyrodata 0' to 11700'

ST001 -> University 20-4701 Gyrodata 0' to 11700'

ST001 -> University 20-4701 MWD DMAG 10900' to 15243'

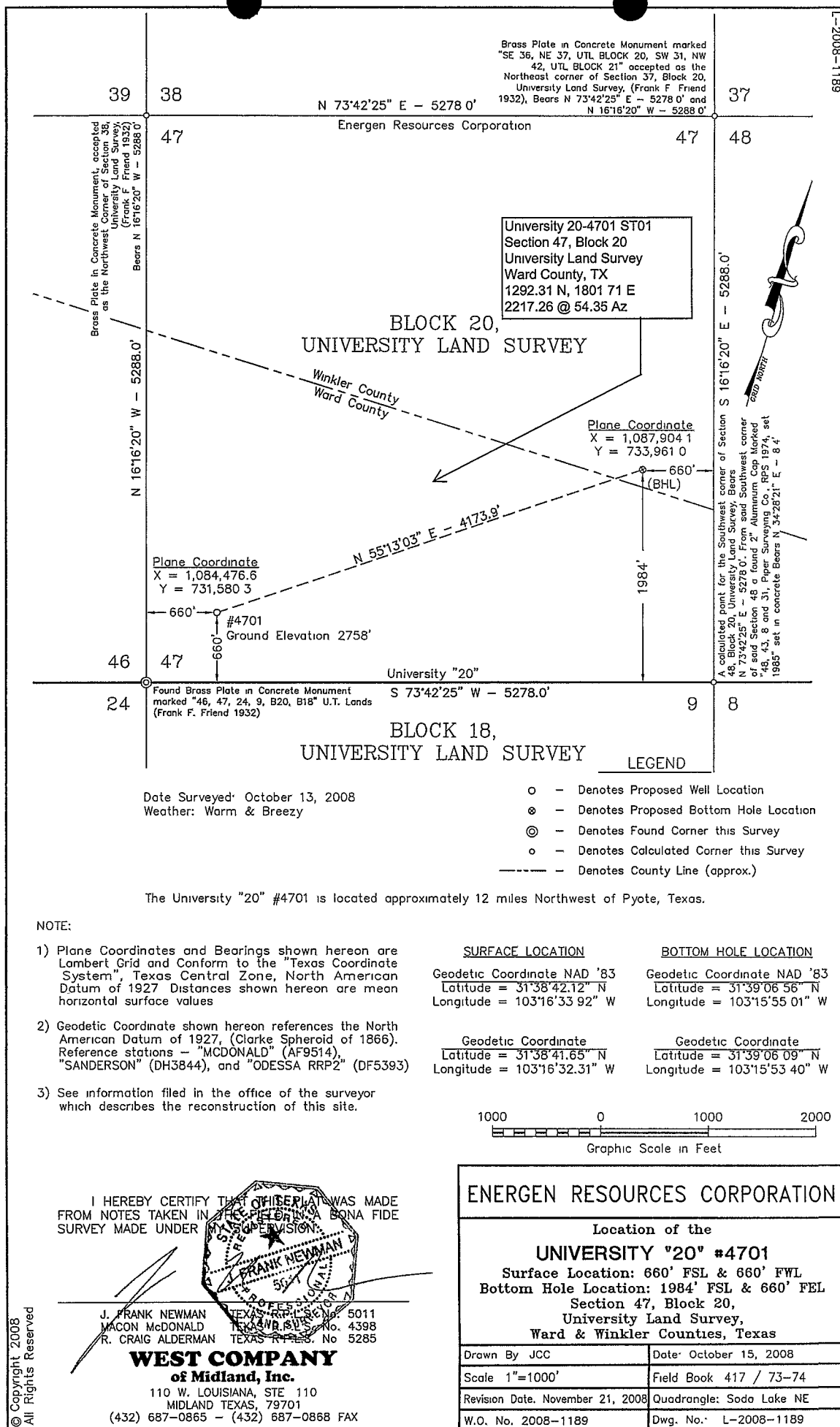
ST001 -> University 20-4701 MWD DMAG 10900' to 15243'

ST001 -> University 20-4701 ST01 MWD+DMAG 11076' to 13276' Final

ST001 -> University 20-4701 ST01 MWD+DMAG 11076' to 13276' Final

ST001 -> University 20-4701 ST01 MWD+DMAG 11076' to 13276' Final

ST001 -> University 20-4701 ST01 MWD+DMAG 11076' to 13276' Final



Oilfield Services, U.S. Land West

**Reservoir Development**

Drilling & Measurements (Anadrill)

500 West Texas Avenue, Suite 500

Midland, Texas

79701, USA

Phone: (432)-571-4718

Fax: (432)-571-4795

**Schlumberger**

30-Jan-09

Railroad Commission of Texas

Oil and Gas Division

PO Box 12967

Capital Station

Austin, Texas 78711

Attention: Cathy Garrison

Re:

Energen Resources

University 20 #4701

Ward/Winkler County

Lariat 31

Ward County, TX

42-475-35473

JSO# 40018427

39471

University "20"

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation (P-5 No. 754900). Other information required by your office is as follows.

<u>Name &amp; Title of Surveyor</u>	<u>Drain Hole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Francisco Huitron MWD 1	Side Track #02	10,900.00 ft to 15,243.00 ft	December 27, 2008 to January 25, 2009	ShortPulse

A certified plat on the bottom hole located is oriented both to the surface location and to the lease lines (or until line in case of pooling) is attached to survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Sincerely,



Rob Lacy

RECEIVED  
RRC OF TEXAS

FEB 05 2009

O&G  
AUSTIN TX

CC: Energen Resources

Enclosures: [2]

Certified RRC: 7007 2560 0003 3696 8275

State of Texas

County of Midland

ORIGINAL

Oilfield Services, U.S. Land West

**Reservoir Development**

Drilling & Measurements (Anadrill)

500 West Texas Avenue, Suite 500

Midland, Texas

79701, USA

Phone: (432)-571-4718

Fax: (432)-571-4795

---

**Schlumberger**

I, Francisco Huitron, certify that; I am employed by Drilling & Measurements (formerly Anadrill), a division of Schlumberger Technology Corporation; that I did on the day(s) of December 27, 2008, through January 25, 2009, conduct or supervise the taking of the ShortPulse surveys from a depth of 10900 feet to a depth of 15243 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Energen Resources for the University 20 #4701 well (Side Track #02) API No. 42-475-35473 in, Texas; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

*Francisco X. Huitron G.*

Francisco Huitron

MWD 1

RECEIVED  
RRC OF TEXAS

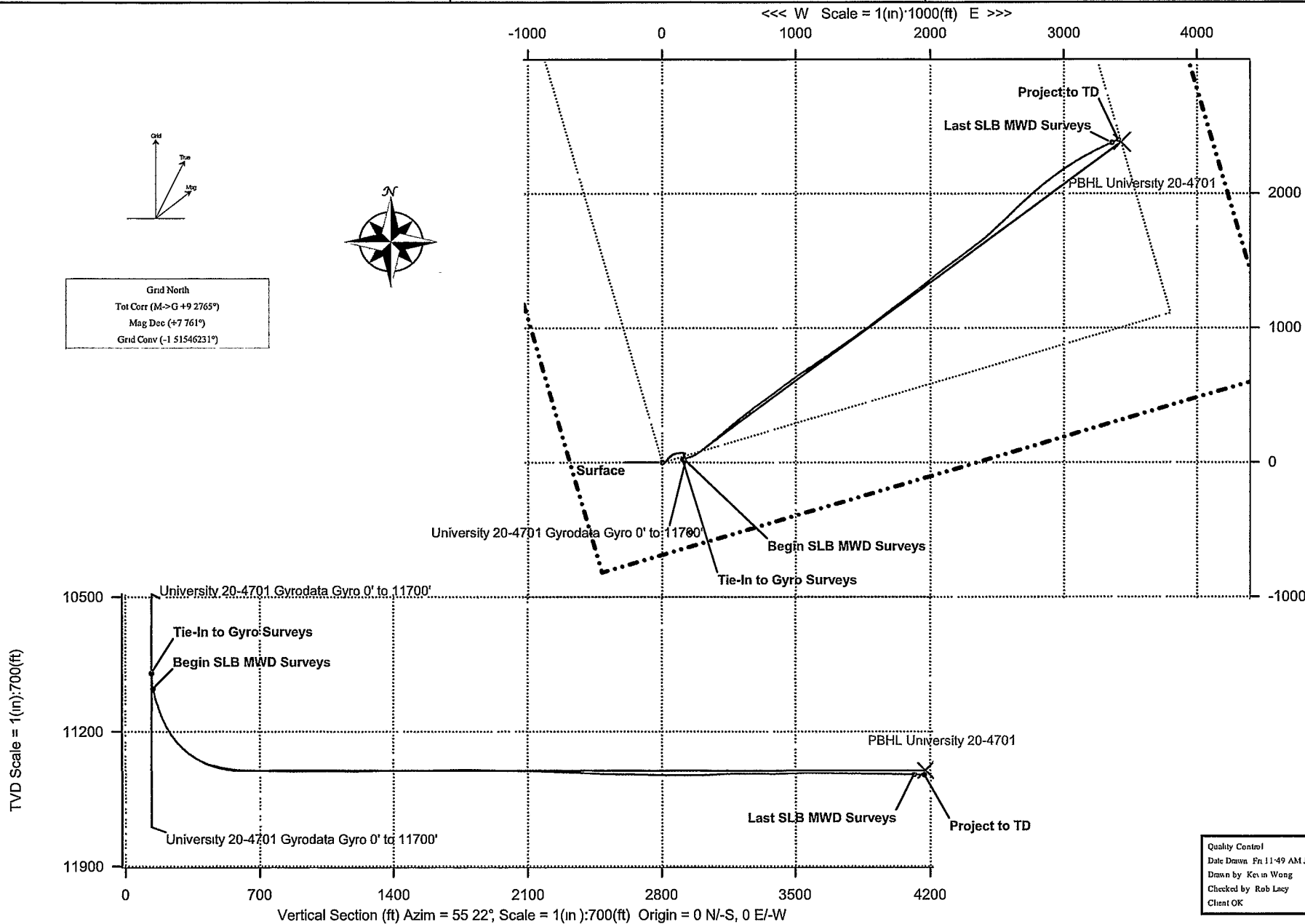
FEB 05 2009

O&G  
AUSTIN TX

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WELL	University 20-4701	FIELD	TX, Ward County	STRUCTURE	Energen, University 20-4701
------	--------------------	-------	-----------------	-----------	-----------------------------

Magnetic Parameters					Surface Location				NAD27 Texas State Planes, Central Zone, US Feet		Miscellaneous				
Model	BGGM 2003	Dip	59.765°	Date	January 05, 2009	Lat	N31 38 41 646	Northing	731680.30 RUS	Grid Conv	-1.51546231°	Plot	University 20-4701	TVD Ref	RKB (2779.00 ft above MSL)
		Mag Dec	+7.761°	FS	45599.4 nT	Lon	W103 16 32.312	Easting	1084476.80 RUS	Scale Fact	0.9999446484	Plan	Rev05 rsl 5-Jan-09	Srvy Date	January 05, 2009



Quality Control  
 Date Drawn: Fri 11:49 AM January 30, 2009  
 Drawn by: Ken in Wong  
 Checked by: Rob Lacy  
 Client OK



## University 20-4701 MWD 10900' to 15243' Final Survey Report

Report Date: January 30, 2009	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: Energen Resources Corporation	Vertical Section Azimuth: 54.840°
Field: TX, Ward County (NAD 27)	Vertical Section Origin: N 0.000 ft, E 0.000 ft
Structure / Slot: Energen, University 20-4701 / University 20-4701	TVD Reference Datum: RKB
Well: University 20-4701	TVD Reference Elevation: 2779.0 ft relative to MSL
Borehole: Original Hole	Sea Bed / Ground Level Elevation: 2758.000 ft relative to MSL
UWI/API#:	Magnetic Declination: 7.764°
Survey Name / Date: University 20-4701 MWD 10900' to 15243' Final / January 5, 2005	Total Field Strength: 48601.821 nT
Tort / AHD / DDI / ERD ratio: 204.842° / 4301.17 ft / 6.070 / 0.376	Magnetic Dip: 59.767°
Grid Coordinate System: NAD27 Texas State Planes, Central Zone, US Feet	Declination Date: December 27, 2008
Location Lat/Long: N 31 38 41 646, W 103 16 32.312	Magnetic Declination Model: BGGM 2008
Location Grid N/E Y/X: N 731580 300 RUS, E 1084476.600 RUS	North Reference: Grid North
Grid Convergence Angle: -1.51546231°	Total Corr Mag North -> Grid North: +9.279°
Grid Scale Factor: 0.99994465	Local Coordinates Referenced To: Well Head

Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (RUS)	Easting (RUS)	Latitude	Longitude
Tie-In to Gyro Surveys	10900.00	2.01	137.74	10895.20	137.11	21.15	152.81	0.94	731601.45	1084629.40	N 31 38 41 895	W 103 16 30.551
Begin SLB MWD Surveys	10981.00	11.37	62.45	10975.63	145.22	23.80	160.86	13.62	731604.10	1084637.46	N 31 38 41 923	W 103 16 30.459
	11044.00	17.10	71.24	11036.68	160.28	29.66	175.15	9.70	731609.96	1084651.74	N 31 38 41 985	W 103 16 30.295
	11076.00	20.26	73.22	11066.99	170.05	32.77	184.92	10.07	731613.07	1084661.51	N 31 38 42 018	W 103 16 30.183
	11106.00	20.94	72.51	11095.07	180.09	35.88	195.00	2.41	731616.18	1084671.59	N 31 38 42.052	W 103 16 30.088
	11138.00	23.29	70.11	11124.72	191.64	39.75	206.41	7.87	731620.05	1084682.99	N 31 38 42 093	W 103 16 29.937
	11170.00	26.39	68.26	11153.75	204.66	44.54	218.96	9.99	731624.84	1084695.55	N 31 38 42.144	W 103 16 29.793
	11201.00	29.24	66.70	11181.17	218.78	50.09	232.32	9.49	731630.39	1084708.91	N 31 38 42 202	W 103 16 29.641
	11233.00	33.21	61.84	11208.53	235.13	57.32	247.23	14.68	731637.62	1084723.82	N 31 38 42 278	W 103 16 29.470
	11265.00	36.74	57.13	11234.75	253.40	66.66	263.01	13.88	731646.95	1084739.59	N 31 38 42 374	W 103 16 29.291
	11296.00	41.22	53.67	11258.85	272.89	77.75	279.03	16.06	731658.04	1084755.62	N 31 38 42 488	W 103 16 29.109
	11328.00	45.69	53.63	11282.07	294.89	90.79	296.75	13.97	731671.08	1084773.34	N 31 38 42 622	W 103 16 28.908
	11360.00	50.11	52.84	11303.52	318.62	105.00	315.77	13.93	731685.29	1084792.35	N 31 38 42 767	W 103 16 28.692
	11391.00	53.95	51.14	11322.59	343.02	120.05	335.01	13.12	731700.35	1084811.59	N 31 38 42 921	W 103 16 28.475
	11423.00	58.95	51.45	11340.27	369.63	136.72	355.82	15.65	731717.01	1084832.40	N 31 38 43 091	W 103 16 28.239
	11455.00	65.45	50.68	11355.19	397.86	154.51	377.82	20.42	731734.80	1084854.40	N 31 38 43 273	W 103 16 27.990
	11487.00	70.76	49.77	11367.11	427.44	173.50	400.63	16.80	731753.79	1084877.21	N 31 38 43 467	W 103 16 27.732
	11519.00	74.14	49.36	11376.76	457.82	193.29	423.85	10.63	731773.57	1084900.42	N 31 38 43.669	W 103 16 27.470
	11550.00	77.09	49.35	11384.46	487.71	212.84	446.63	9.52	731793.13	1084923.20	N 31 38 43.868	W 103 16 27.212
	11582.00	79.31	49.30	11391.01	518.88	233.26	470.38	6.94	731813.54	1084946.96	N 31 38 44 076	W 103 16 26.944
	11613.00	82.30	50.25	11395.96	549.36	253.02	493.75	10.11	731833.30	1084970.32	N 31 38 44 278	W 103 16 26.680
	11651.00	86.42	50.90	11399.69	587.07	277.03	522.95	10.97	731857.31	1084999.52	N 31 38 44 523	W 103 16 26.349
	11682.00	87.56	51.12	11401.32	617.95	296.50	547.01	3.75	731876.79	1085023.58	N 31 38 44 722	W 103 16 26.077
	11714.00	88.83	51.79	11402.33	649.88	316.43	572.03	4.49	731896.71	1085048.59	N 31 38 44 926	W 103 16 25.794
	11746.00	88.45	52.09	11403.09	681.83	336.15	597.22	1.51	731916.44	1085073.78	N 31 38 45 128	W 103 16 25.509
	11777.00	88.18	52.51	11404.00	712.79	355.10	621.73	1.61	731935.38	1085098.30	N 31 38 45.321	W 103 16 25.231
	11809.00	88.11	52.57	11405.04	744.74	374.56	647.12	0.29	731954.83	1085123.68	N 31 38 45.521	W 103 16 24.943
	11841.00	88.14	52.98	11406.08	776.71	393.90	672.59	1.28	731974.18	1085149.15	N 31 38 45 719	W 103 16 24.655
	11872.00	88.31	53.68	11407.04	807.68	412.41	697.44	2.32	731992.69	1085174.00	N 31 38 45.908	W 103 16 24.373
	11904.00	88.93	53.93	11407.81	839.67	431.30	723.26	2.09	732011.58	1085199.82	N 31 38 46.102	W 103 16 24.080
	11936.00	89.24	54.24	11408.32	871.66	450.07	749.17	1.37	732030.34	1085225.73	N 31 38 46 294	W 103 16 23.786
	11968.00	90.10	54.53	11408.51	903.66	468.70	775.18	2.84	732048.98	1085251.74	N 31 38 46 485	W 103 16 23.491
	11999.00	90.41	54.36	11408.37	934.66	486.73	800.40	1.14	732067.00	1085276.96	N 31 38 46 670	W 103 16 23.205
	12031.00	90.38	54.17	11408.15	966.65	505.42	826.38	0.60	732085.69	1085302.93	N 31 38 46 862	W 103 16 22.910
	12063.00	90.59	53.75	11407.88	998.65	524.24	852.25	1.47	732104.51	1085328.80	N 31 38 47 055	W 103 16 22.617
	12095.00	90.45	53.25	11407.59	1030.64	543.28	877.98	1.62	732123.55	1085354.52	N 31 38 47.250	W 103 16 22.325
	12126.00	90.24	53.74	11407.40	1061.63	561.72	902.89	1.72	732141.99	1085379.44	N 31 38 47 439	W 103 16 22.043
	12157.00	89.72	53.33	11407.41	1092.62	580.14	927.82	2.14	732160.41	1085404.37	N 31 38 47 628	W 103 16 21.760
	12220.00	89.79	54.37	11407.68	1155.61	617.31	978.69	1.65	732197.57	1085455.24	N 31 38 48.009	W 103 16 21.183
	12284.00	90.31	54.96	11407.63	1219.61	654.32	1030.90	1.23	732234.58	1085507.44	N 31 38 48 389	W 103 16 20.591
	12348.00	91.93	56.43	11406.38	1283.59	690.38	1083.76	3.42	732270.64	1085560.29	N 31 38 48.759	W 103 16 19.991
	12410.00	91.76	55.90	11404.38	1345.54	724.89	1135.23	0.90	732305.14	1085611.76	N 31 38 49.114	W 103 16 19.406
	12474.00	89.90	55.11	11403.45	1409.52	761.13	1187.97	3.16	732341.38	1085664.50	N 31 38 49.486	W 103 16 18.807
	12505.00	89.66	55.10	11403.57	1440.52	778.86	1213.39	0.77	732359.11	1085689.92	N 31 38 49 668	W 103 16 18.518
	12569.00	90.00	54.84	11403.76	1504.52	815.60	1265.80	0.67	732395.85	1085742.33	N 31 38 50 045	W 103 16 17.924
	12600.00	90.03	54.93	11403.75	1535.52	833.43	1291.16	0.31	732413.68	1085767.68	N 31 38 50.228	W 103 16 17.636
	12632.00	90.62	55.08	11403.57	1567.52	851.78	1317.37	1.90	732432.03	1085793.90	N 31 38 50.417	W 103 16 17.338
	12664.00	91.38	54.88	11403.01	1599.52	870.14	1343.57	2.46	732450.39	1085820.10	N 31 38 50 605	W 103 16 17.041

Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
	12696.00	91 82	55 40	11402.12	1631 50	888.42	1369 82	2 13	732468 67	1085846 34	N 31 38 50 793	W 103 16 16.743
	12727 00	91 69	55 08	11401.17	1662 49	906 09	1395.28	1.11	732486 34	1085871 80	N 31 38 50 975	W 103 16 16.454
	12759 00	91 55	55 29	11400 27	1694.47	924 35	1421 54	0 79	732504 60	1085898 06	N 31 38 51.162	W 103 16 16.156
	12791 00	91 31	54 81	11399.47	1726.46	942 68	1447.76	1 68	732522 92	1085924 28	N 31 38 51 350	W 103 16 15 858
	12822.00	90 76	54 01	11398.91	1757.46	960.72	1472 96	3.13	732540 96	1085949.48	N 31 38 51 535	W 103 16 15.572
	12854 00	89 00	53 78	11398.97	1789 45	979 57	1498 82	5 55	732559.81	1085975 33	N 31 38 51.729	W 103 16 15 279
	12886 00	88.90	53.95	11399.56	1821.44	998.44	1524 66	0.62	732578.68	1086001.17	N 31 38 51 922	W 103 16 14 986
	12981 00	88 00	52.37	11402.13	1916.36	1055 37	1600 66	1 91	732635 61	1086077.16	N 31 38 52 505	W 103 16 14 125
	13013 00	87 90	52.20	11403.28	1948.31	1074 94	1625 95	0.62	732655.18	1086102 46	N 31 38 52 705	W 103 16 13 838
	13109 00	89 72	53 22	11405.27	2044.22	1133 08	1702 31	2 17	732713.32	1086178 81	N 31 38 53 300	W 103 16 12 973
	13140 00	89 83	53 21	11405 39	2075.20	1151.65	1727.14	0.36	732731 88	1086203 64	N 31 38 53.491	W 103 16 12.691
	13171.00	88 76	53 11	11405 77	2106.19	1170 23	1751.94	3 47	732750 46	1086228 44	N 31 38 53.681	W 103 16 12.410
	13235.00	88.14	53.02	11407.50	2170.15	1208 68	1803 08	0 98	732788.91	1086279 58	N 31 38 54 075	W 103 16 11 831
	13267 00	88 21	52.98	11408.52	2202.10	1227 92	1828 62	0 25	732808.15	1086305.12	N 31 38 54 272	W 103 16 11.541
	13331 00	88 21	53 08	11410.52	2266.04	1266 39	1879.73	0.16	732846.62	1086356 23	N 31 38 54 666	W 103 16 10.962
	13394.00	88 14	51 69	11412 53	2328.95	1304.83	1929 61	2 21	732885 05	1086406 10	N 31 38 55.059	W 103 16 10 397
	13426.00	87.56	51.39	11413.73	2360.87	1324 72	1954 65	2 04	732904 94	1086431 14	N 31 38 55 262	W 103 16 10.113
	13457 00	87 38	51 31	11415 10	2391.78	1344.06	1978 84	0.64	732924 28	1086455 32	N 31 38 55.460	W 103 16 9.840
	13489.00	87 28	51 16	11416 59	2423 69	1364 07	2003.76	0 56	732944 29	1086480 25	N 31 38 55.664	W 103 16 9 557
	13553 00	87 69	51.64	11419.40	2487 51	1403 96	2053 73	0.99	732984 18	1086530 21	N 31 38 56.072	W 103 16 8.992
	13585 00	88 04	52 43	11420.59	2519.45	1423.63	2078 94	2 70	733003 85	1086555 42	N 31 38 56 273	W 103 16 8 706
	13616 00	88 80	53.00	11421.44	2550 41	1442 41	2103 60	3.06	733022.62	1086580 07	N 31 38 56 465	W 103 16 8 427
	13680 00	89 59	54 26	11422 34	2614 39	1480.35	2155.12	2.32	733060 57	1086631 60	N 31 38 56.854	W 103 16 7.843
	13780 00	88 86	53 36	11423.69	2714 36	1539.39	2235 82	1.16	733119.60	1086712 29	N 31 38 57.459	W 103 16 6.927
	13812 00	88 69	53.04	11424.38	2746.34	1558.56	2261 44	1.13	733138.77	1086737 91	N 31 38 57 656	W 103 16 6 637
	13843.00	88.18	53 24	11425.23	2777.32	1577.15	2286 23	1 77	733157.35	1086762 70	N 31 38 57.846	W 103 16 6 356
	13875.00	88 76	53 25	11426 08	2809.29	1596.29	2311.86	1 81	733176 50	1086788.33	N 31 38 58.042	W 103 16 6.065
	13907.00	88 80	53.10	11426.76	2841 27	1615 46	2337 47	0 49	733195 67	1086813 94	N 31 38 58.238	W 103 16 5 775
	13939 00	90 03	52.94	11427.09	2873.26	1634 71	2363 03	3 88	733214 92	1086839 49	N 31 38 58.435	W 103 16 5 485
	13971.00	91 07	52 35	11426.78	2905.23	1654.13	2388 47	3 74	733234 33	1086864.93	N 31 38 58.634	W 103 16 5 197
	14003 00	90 00	49 36	11426.48	2937.15	1674.32	2413 28	9 92	733254.53	1086889 74	N 31 38 58 840	W 103 16 4 916
	14035.00	89 38	47 43	11426 66	2968 94	1695 57	2437.20	6 33	733275 77	1086913 66	N 31 38 59.057	W 103 16 4.646
	14067.00	91 07	47 96	11426 53	3000 69	1717.11	2460 87	5.53	733297.31	1086937.33	N 31 38 59 276	W 103 16 4.379
	14099 00	92.41	47 65	11425 56	3032.44	1738 59	2484 57	4 30	733318 79	1086961.02	N 31 38 59.495	W 103 16 4.112
	14130.00	93 62	47 26	11423 93	3063.14	1759.52	2507 37	4 10	733339 72	1086983 83	N 31 38 59 708	W 103 16 3 854
	14162.00	93.61	46 93	11421 91	3094 78	1781 26	2530 77	1 03	733361 46	1087007 22	N 31 38 59.929	W 103 16 3 590
	14194.00	92 34	46 23	11420 25	3126.41	1803.23	2553 98	4 53	733383 42	1087030 43	N 31 39 0.152	W 103 16 3 329
	14223.00	91 58	45 94	11419 26	3155 05	1823 33	2574 85	2.80	733403 52	1087051 31	N 31 39 0.357	W 103 16 3.093
	14255.00	89 93	45 55	11418.84	3186.64	1845 66	2597.77	5 30	733425 85	1087074 22	N 31 39 0 584	W 103 16 2 835
	14287 00	89 24	45.53	11419.07	3218.22	1868 07	2620 61	2.16	733448.26	1087097 06	N 31 39 0 811	W 103 16 2.578
	14319.00	90 10	46 54	11419.25	3249.84	1890 28	2643 64	4.15	733470.48	1087120 09	N 31 39 1 037	W 103 16 2.318
	14350.00	90 41	47 04	11419.11	3280 54	1911.51	2666 24	1 90	733491.70	1087142 68	N 31 39 1 253	W 103 16 2 063
	14382 00	89 90	47 21	11419 03	3312 25	1933 28	2689 69	1 68	733513.47	1087166.13	N 31 39 1.474	W 103 16 1.799
	14414.00	89.62	47.52	11419.16	3343 98	1954.96	2713.23	1.31	733535.14	1087189 67	N 31 39 1.695	W 103 16 1.533
	14446.00	89 76	48 56	11419 33	3375.75	1976.35	2737 02	3 28	733556 54	1087213 47	N 31 39 1 913	W 103 16 1 265
	14478 00	90.83	48 84	11419.17	3407.57	1997 47	2761.06	3.46	733577.66	1087237 50	N 31 39 2.128	W 103 16 0 993
	14509 00	91.34	49 54	11418.58	3438 41	2017.73	2784.52	2 79	733597 91	1087260 96	N 31 39 2 335	W 103 16 0 728
	14541.00	91.44	50 34	11417 81	3470 28	2038 32	2809.01	2.52	733618 50	1087285 45	N 31 39 2 545	W 103 16 0.451
	14573 00	91.24	51 03	11417 06	3502 19	2058 58	2833.76	2 24	733638.77	1087310.19	N 31 39 2 752	W 103 16 0.171
	14605 00	91 00	51.62	11416.43	3534.12	2078 58	2858.73	1 99	733658.76	1087335.17	N 31 39 2 956	W 103 15 59 888
	14637.00	90 62	52.55	11415 98	3566 08	2098 24	2883 98	3 14	733678 42	1087360 41	N 31 39 3 157	W 103 15 59.602
	14669 00	89 93	53.19	11415.83	3598 06	2117 55	2909 49	2.94	733697.73	1087385 92	N 31 39 3 355	W 103 15 59.313
	14701 00	89.48	53 78	11415 99	3630.05	2136 60	2935 21	2 32	733716 77	1087411 64	N 31 39 3 550	W 103 15 59.022
	14732 00	88 86	54 59	11416 44	3661 05	2154.73	2960.34	3 29	733734 91	1087436 77	N 31 39 3.736	W 103 15 58.737
	14796 00	89.14	56.44	11417.56	3725 03	2190 96	3013 09	2 92	733771.14	1087489 51	N 31 39 4.108	W 103 15 58 138
	14828.00	89 52	57.78	11417.93	3757.00	2208 34	3039 95	4 35	733788.51	1087516.38	N 31 39 4 287	W 103 15 57.832
	14858.00	88 93	58.17	11418.34	3786 96	2224 24	3065 39	2 36	733804.42	1087541 81	N 31 39 4 451	W 103 15 57 543
	14890 00	88 80	59 04	11418 97	3818.88	2240 91	3092 70	2 75	733821.08	1087569.12	N 31 39 4 623	W 103 15 57.232
	14922.00	89 28	60.38	11419.51	3850 76	2257.05	3120 32	4 45	733837.22	1087596 74	N 31 39 4 790	W 103 15 56 918
	14954 00	89 97	61 01	11419 72	3882.59	2272 71	3148 23	2 92	733852.88	1087624 65	N 31 39 4.952	W 103 15 56 600
	14986.00	88 80	61 36	11420 06	3914.39	2288.13	3176 26	3 82	733868 30	1087652 68	N 31 39 5.112	W 103 15 56.280
	15018.00	88 97	62 30	11420.68	3946 15	2303 24	3204.47	2 98	733883.40	1087680 88	N 31 39 5 269	W 103 15 55.959
	15050 00	89 35	63 41	11421.15	3977.83	2317 83	3232.94	3 67	733898.00	1087709 35	N 31 39 5 421	W 103 15 55 634
	15081.00	88 73	63 99	11421 67	4008 46	2331 57	3260 72	2.74	733911 73	1087737 14	N 31 39 5 564	W 103 15 55 317
	15145 00	89 07	65.18	11422 90	4071 52	2359 03	3318 52	1 93	733939 19	1087794 93	N 31 39 5.850	W 103 15 54 657

Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
Last SLB MWD Surveys	15188.00	88 31	65.22	11423 88	4113 81	2377 06	3357 54	1 77	733957.22	1087833 95	N 31 39 6.039 W 103 15 54.211	
Project to TD	15243 00	88 31	65 22	11425 51	4167.88	2400.10	3407.46	0.00	733980 27	1087883 86	N 31 39 6 280 W 103 15 53 641	

**Survey Type:** Definitive Survey

**Survey Error Model:** SLB ISCWSA version 24 \*\*\* 3-D 95.00% Confidence 2.7955 sigma

**Surveying Prog:**

**MD From ( ft )**

0 00

21 00

10900 00

11076 00

11936 00

15188 00

**MD To ( ft )**

21.00

10900.00

11076.00

11936.00

15188 00

15243 00

**EOU Freq Survey Tool Type**

Act-Stns SLB\_CNSG+DPIPE-Depth Only

Act-Stns SLB\_CNSG+DPIPE

Act-Stns SLB\_MWD-INC\_ONLY

Act-Stns SLB\_MWD+DMAG

Act-Stns SLB\_MWD-STD

Act-Stns SLB\_BLIND+TREND

**Borehole -> Survey**

Original Hole -> University 20-4701 Gyrodata Gyro 0' to 11700'

Original Hole -> University 20-4701 Gyrodata Gyro 0' to 11700'

Original Hole -> University 20-4701 MWD 10900' to 15243' Final

Original Hole -> University 20-4701 MWD 10900' to 15243' Final

Original Hole -> University 20-4701 MWD 10900' to 15243' Final

Original Hole -> University 20-4701 MWD 10900' to 15243' Final



39471

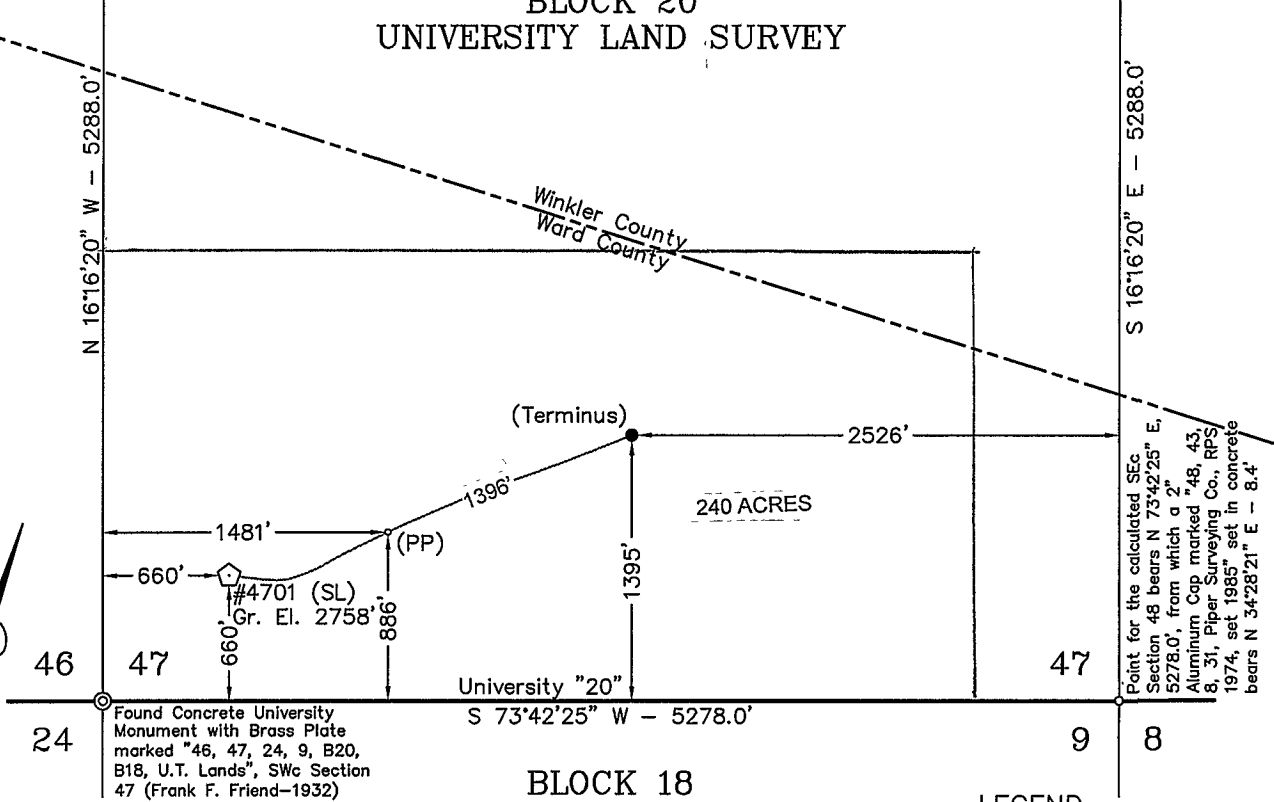
Concrete University Monument with Brass Plate marked "SE 36, NE 37, UTL BLOCK 20; SW 31, NW 42, UTL BLOCK 21", accepted as the NEc Section 37 (Frank F. Friend-1932) bears N 73°42'25" E - 5278.0' and N 16°16'20" W - 5288.0'

L-2009-0607

Dist 8  
39471  
War-Mines Wolfcamp

Concrete University Monument with Brass Plate, N1/4 Section 38 (Frank F. Friend-1932) bears N 16°16'20" W - 5288.0'

BLOCK 20  
UNIVERSITY LAND SURVEY



Date Surveyed: October 13, 2009  
Weather: Warm & Breezy

RECEIVED  
SEP 24 2009  
O&G  
AUSTIN TX

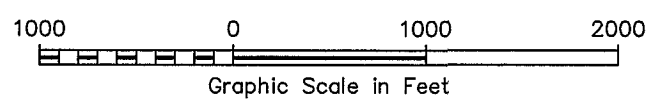
- ⬢ - Denotes Horizontal Surface Location
- - Denotes Penetration Point
- - Denotes Producing Well Location
- ⊙ - Denotes Found Monument (As Described)
- - Denotes Calculated Corner this Survey
- - Denotes County Line (Approx.)

Coordinate Table			
Description	Plane Coordinate	Geodetic Coordinate	Geodetic Coordinate (NAD '83)
University "20" #4701 Surface Location	X = 1,084,476.6 Y = 731,580.3	Longitude = 103°16'32.31" W Latitude = 31°38'41.65" N	Longitude = 103°16'33.92" W Latitude = 31°38'42.12" N
University "20" #4701 Penetration Point	X = 1,085,201.4 Y = 732,027.8	Longitude = 103°16'24.07" W Latitude = 31°38'46.26" N	Longitude = 103°16'25.67" W Latitude = 31°38'46.73" N
University "20" #4701 Terminus	X = 1,086,278.3 Y = 732,872.6	Longitude = 103°16'11.87" W Latitude = 31°38'54.90" N	Longitude = 103°16'13.48" W Latitude = 31°38'55.37" N

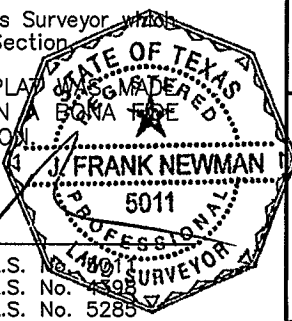
NOTE:

- Plane Coordinates and Bearings shown hereon are Lambert Grid and Conform to the "Texas Coordinate System", Texas Central Zone, North American Datum of 1927. Distances shown hereon are mean horizontal surface values.
- Geodetic Coordinates, unless otherwise shown hereon, reference the North American Datum of 1927, (Clarke Spheroid of 1866). Reference Stations - "McDONALD VLBI STA" - CORS (AF9514), "SANDERSON" - CORS (DH3844) and "ODESSA RRP2" - CORS (DF5393).
- See information filed in the office of this Surveyor which describes the reconstruction of this Section.

The University "20" #4701 is located approximately 12 miles Northwest of Pyote, Texas.



I HEREBY CERTIFY THAT THIS PLAN WAS MADE FROM NOTES TAKEN IN THE FIELD IN A bona fide SURVEY MADE UNDER MY SUPERVISION.



J. FRANK NEWMAN TEXAS R.P.L.S. No. 5011  
MACON McDONALD TEXAS R.P.L.S. No. 4398  
R. CRAIG ALDERMAN TEXAS R.P.L.S. No. 5285

**WEST COMPANY**  
of Midland, Inc.

110 W. LOUISIANA, STE. 110  
MIDLAND TEXAS, 79701  
(432) 687-0865 - (432) 687-0868 FAX

**ENERGEN RESOURCES CORPORATION**

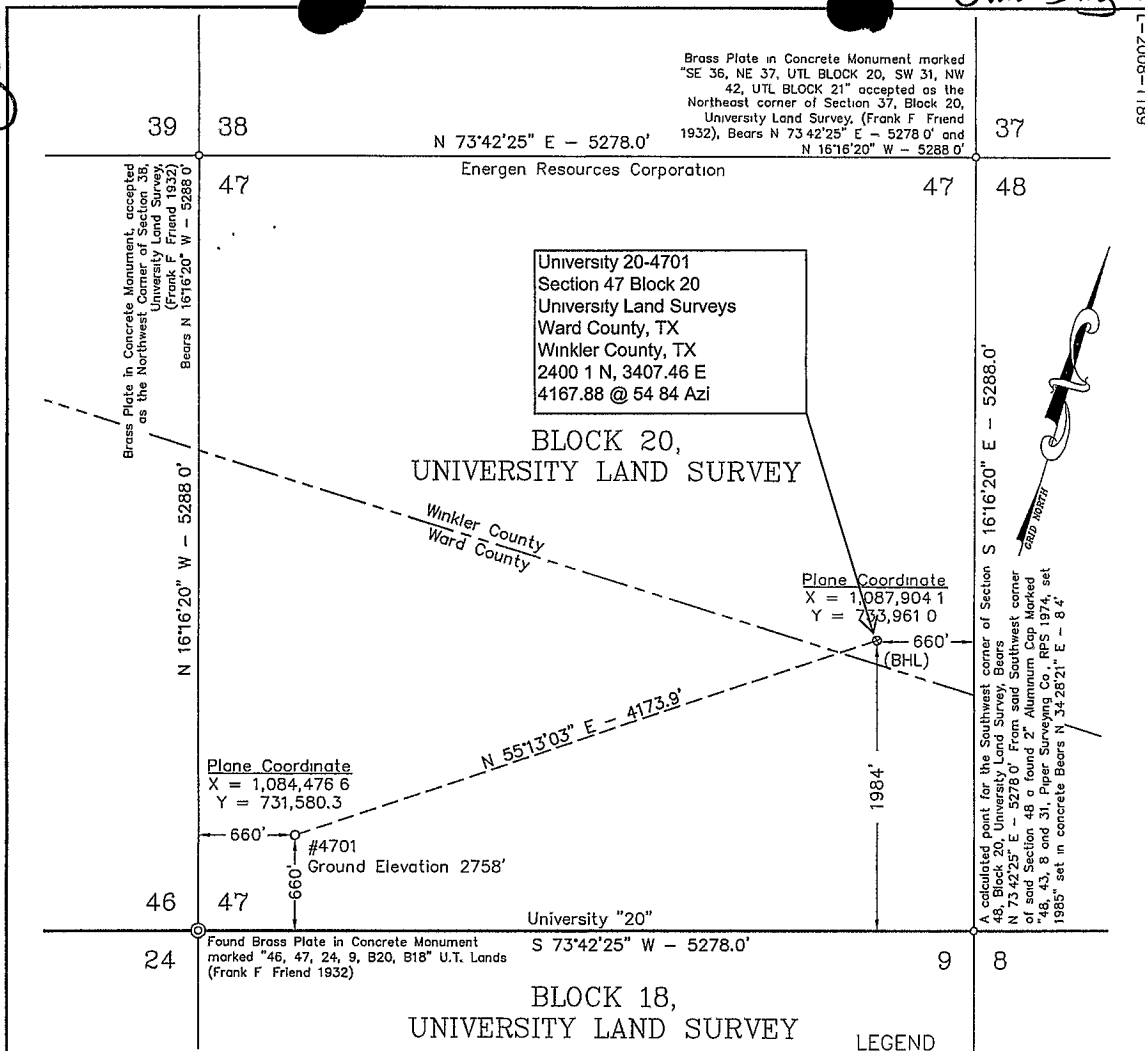
Location of the  
**UNIVERSITY '20' #4701**  
Surface Location: 660' FSL & 660' FWL  
Terminus: 1395' FSL & 2526' FEL  
Section 47, Block 20  
University Land Survey  
Ward County, Texas

Drawn By: LVA	Date: September 4, 2009
Scale: 1"=1000'	Field Book: 417 / 73-74
Revision Date:	Quadrangle: Soda Lake NE
W.O. No: 2009-0607	Dwg. No.: L-2009-0607

War-Wink,  
S. (Wolfcamp)

University 20

Use# 39471



Date Surveyed: October 13, 2008  
Weather: Warm & Breezy

The University "20" #4701 is located approximately 12 miles Northwest of Pyote, Texas

NOTE:

- Plane Coordinates and Bearings shown hereon are Lambert Grid and Conform to the "Texas Coordinate System", Texas Central Zone, North American Datum of 1927. Distances shown hereon are mean horizontal surface values.
- Geodetic Coordinate shown hereon references the North American Datum of 1927, (Clarke Spheroid of 1866). Reference stations - "MCDONALD" (AF9514), "SANDERSON" (DH3844), and "ODESSA RRP2" (DF5393).
- See information filed in the office of the surveyor which describes the reconstruction of this site

SURFACE LOCATION

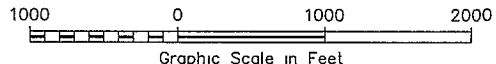
Geodetic Coordinate NAD '83  
Latitude = 31°38'42.12" N  
Longitude = 103°16'33.92" W

BOTTOM HOLE LOCATION

Geodetic Coordinate NAD '83  
Latitude = 31°39'06.56" N  
Longitude = 103°15'55.01" W

Geodetic Coordinate  
Latitude = 31°38'41.65" N  
Longitude = 103°16'32.31" W

Geodetic Coordinate  
Latitude = 31°39'06.09" N  
Longitude = 103°15'53.40" W



I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM NOTES TAKEN IN THE FIELD IN A BONA FIDE SURVEY MADE UNDER MY SUPERVISION.

J. FRANK NEWMAN  
MAON McDONALD  
R. CRAIG ALDERMAN

TEXAS R.P.S. No. 5011  
TEXAS R.P.S. No. 4398  
TEXAS R.P.S. No. 5285

**WEST COMPANY**  
of Midland, Inc.

110 W. LOUISIANA, STE. 110  
MIDLAND TEXAS, 79701  
(432) 687-0865 - (432) 687-0868 FAX

**ENERGEN RESOURCES CORPORATION**

Location of the  
**UNIVERSITY "20" #4701**  
Surface Location: 660' FSL & 660' FWL  
Bottom Hole Location: 1984' FSL & 660' FEL  
Section 47, Block 20,  
University Land Survey,  
Ward & Winkler Counties, Texas

Drawn By: JCC	Date: October 15, 2008
Scale: 1"=1000'	Field Book: 417 / 73-74
Revision Date: November 21, 2008	Quadrangle: Soda Lake NE
W.O. No: 2008-1189	Dwg No: L-2008-1189

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475-35473

CHRISTI CRADDICK, CHAIRMAN  
RYAN SITTON, COMMISSIONER  
WAYNE CHRISTIAN, COMMISSIONER



DANNY SORRELLS  
DIRECTOR, OIL AND GAS DIVISION  
LESLIE SAVAGE  
ASSISTANT DIRECTOR, TECHNICAL PERMITTING

# RAILROAD COMMISSION OF TEXAS

## OIL AND GAS DIVISION

November 15, 2018

ENERGEN RESOURCES CORPORATION  
ATTN: REGULATORY DEPARTMENT  
3510 N A ST BLDGS A AND B  
MIDLAND TX 79705

RE: UNIVERSITY "20" — WELL NO. 4701  
WARD COUNTY, DISTRICT 08, TEXAS  
API NO. 475-35473  
LEASE/ID NO. 39471  
PRODUCING INTERVAL: 11992' – 13278'

Dear Operator:

The Commission has approved your request to transfer the above-referenced well from the WAR-WINK, S. (WOLFCAMP) (95129600) field to the TWO GEORGES (BONE SPRING) (92100050) field.

Please file Forms G-1/W-2, P-4, and W-1 (if not already done) for the well with the new field name indicating the transfer comments in the remarks section. If the previous completion report associated with lease/ID no. 39471 showed perforations, mark "field transfer" in item #6 of the Form W-1. If this completion report did not show perforations, mark "recompletion" instead. If the well is not on the proration schedule in either field, mark "amended." Contact the district 08 proration analyst, if you have any questions or to determine if a Form P-15 with plat is required.

Sincerely,

A handwritten signature in blue ink that reads "Matt Faubel".

Matt Faubel  
Engineering Specialist II  
Railroad Commission of Texas  
Oil & Gas Division  
Phone: +1 (512) 463-5405

DISTRICT:	08
LEASE/ID NO.:	39471
WELL NO.:	4701
API NO.:	475-35473
FIELD NAME:	WAR-WINK, S. (WOLFCAMP)
FIELD NO.:	95129600

# CERTIFICATE OF COMPLIANCE AND TRANSPORTATION AUTHORITY

P-4

This facsimile P-4 was generated electronically from data submitted to the RRC.

A certification of the automated data is available in the RRC's Austin office.

Tracking No.: 217230

1. Field name exactly as shown on proration schedule <b>TWO GEORGES (BONE SPRING)</b>		2. Lease name as shown on proration schedule <b>UNIVERSITY 20</b>				
3. Current operator name exactly as shown on P-5 Organization Report <b>ENERGEN RESOURCES CORPORATION</b>		4. Operator P-5 no. <b>252002</b>	5. Oil Lse/Gas ID no <b>52311</b>	6. County <b>WARD</b>	7. RRC district <b>08</b>	
8. Operator address including city, state, and zip code <b>3510 N A ST BLDGS A AND B MIDLAND, TX 79705</b>		9. Well no(s) (see instruction E) <b>4701</b>				
12. Purpose of Filing. (Complete section a or b below.) (See instructions B and G) <b>a. Change of:</b> <input type="checkbox"/> operator <input type="checkbox"/> oil or condensate gatherer <input type="checkbox"/> gas gatherer <input type="checkbox"/> gas purchaser <input type="checkbox"/> gas purchaser system code <input type="checkbox"/> field name from _____ <input type="checkbox"/> lease name from _____ --- OR --- <b>b. New RRC Number for:</b> <input checked="" type="checkbox"/> oil lease <input type="checkbox"/> gas well <b>Due to:</b> <input type="checkbox"/> new completion or recompletion <input type="checkbox"/> reclass oil to gas <input type="checkbox"/> reclass gas to oil <input type="checkbox"/> other well (specify) _____ <input type="checkbox"/> consolidation, unitization, or subdivision (oil lease only)		10. Classification <input checked="" type="checkbox"/> Oil <input type="checkbox"/> Gas <input type="checkbox"/> Other (see instruction A)		11. Effective Date <b>04/22/2009</b>		
13. Authorized GAS WELL GAS or CASINGHEAD GAS Gatherer(s) and/or Purchaser(s). (See instruction G).						
Gatherer	Purchaser	Name of GAS WELL GAS or CASINGHEAD GAS Gatherer(s) or Purchaser(s) As Indicated in Columns to the Left (Attach an additional sheet in same format if more space is needed)		Purchaser's RRC Assigned System Code	Percent of Take	Full-well stream
X		ENERGY TRANSFER COMPANY(252017)			100.0	
	X	ENERGY TRANSFER COMPANY(252017)		0001	100.0	
14. Authorized OIL or CONDENSATE Gatherer(s). (See instruction G).						
Name of OIL or CONDENSATE Gatherer(s) - List Highest Volume Gatherer First (Attach an additional sheet in same format if more space is needed)						Percent of Take
PLAINS MARKETING, L.P.(667883)						100.0
<b>RRC USE ONLY:</b> Reviewer's initials: <u>RRC Staff</u> Approval date: <u>10/23/2019</u>						
<b>15. PREVIOUS OPERATOR CERTIFICATION FOR CHANGE OF OPERATOR P-4 FILING.</b> Being the PREVIOUS OPERATOR, I certify that operating responsibility for the well(s) designated in this filing, located on the subject lease has been transferred in its entirety to the above named Current Operator. I understand, as Previous Operator, that designation of the above named operator as Current Operator is not effective until this certificate is approved by the Commission.						
Name of Previous Operator _____ Name (print) _____ Title _____				Signature <input type="checkbox"/> <b>Authorized Employee of previous operator</b> <input type="checkbox"/> <b>Authorized agent of previous operator (see instruction G)</b> _____ Date _____ Phone with area code _____		
<b>16. CURRENT OPERATOR CERTIFICATION.</b> By signing this certificate as the Current Operator, I certify that all statements on this form are true and correct and I acknowledge responsibility for the regulatory compliance of the subject lease including plugging of well(s) pursuant to Rule 14. I further acknowledge that I assume responsibility for the physical operation, control, and proper plugging of each well designated in this filing. I also acknowledge that I will remain designated as the Current Operator until a new certificate designating a new Current Operator is approved by the Commission.						
<b>ENERGEN RESOURCES CORPORATION</b> Name (print) <u>Regulatory Analyst</u> Title <u>vfreeman@diamondbackenergy.com</u> E-mail Address (optional)				<b>Vonda Freeman</b> Signature <input checked="" type="checkbox"/> <b>Authorized Employee of current operator</b> <input type="checkbox"/> <b>Authorized agent of current operator (see instruction G)</b> <u>07/08/2019</u> Date _____ Phone with area code <u>(432) 684-3693</u>		

## Form P-16

Page 1

Rev. 02/2019

## Acreage Designation

SECTION I. OPERATOR INFORMATION			
Operator Name:	ENERGEN RESOURCES CORPORATION	Operator P-5 No.:	252002
Operator Address:	3510 N, A ST. BLDGS A & B MIDLAND, TX 79705		

District No.:	08	API No.:	42-475-35473	<b>Purpose of Filing:</b>  <input type="checkbox"/> Drilling Permit Application (Form W-1)  <input checked="" type="checkbox"/> Completion Report (Form G-1/W-2)
Well No.:	4701	Drilling Permit No.:	848736	
Lease Name:	UNIVERSITY 20	RRC ID or Lease No.:		
Total Lease Acres:	640.00	Field Name:	TWO GEORGES (BONE SPRING)	
Proration Acres:	280.00	Field No.:	92100050	
Wellbore Profile	Horizontal Well	Is this a UFT field?	No	
SL Record (Parent) Well Drilling Permit No.:		County:	Ward	

[illegible]

A. Total Assigned Horiz. Acreage	=		C. Total Assigned Acreage	=	640.00
Total Remaining Horiz. Acreage	=		Total Remaining Acreage	=	0.00
B. Total Assigned Vert./Dir. Acreage	=				
Total Remaining Vert./Dir. Acreage	=				

Docket # 08-0315102

FIELD TRANSFER

Additional Pages: (No. of additional pages)

Vonda Freeman  
Signature

[vfreeman@diamondbackenergy.com](mailto:vfreeman@diamondbackenergy.com)

**Email**  
(include email address *only* if you affirmatively consent to its public release)

Date: 07/08/19  
mo. day yr.

## GROUNDWATER PROTECTION DETERMINATION

Form GW-2



## Groundwater Advisory Unit

**Date Issued:** 05 October 2018**GAU Number:** 210103**Attention:** ENERGEN RESOURCES  
3510 N A ST BLDGS A AND B  
MIDLAND, TX 79705**Operator No.:** 252002**API Number:** 49533377  
**County:** WINKLER  
**Lease Name:** UNIVERSITY 20  
**Lease Number:** 41258  
**Well Number:** 1D  
**Total Vertical Depth:** 6543  
**Latitude:** 31.655629  
**Longitude:** -103.280317  
**Datum:** NAD27**Purpose:** Injection into Producing Zone (H1)**Location:** Survey-UL; Block-20; Section-47

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

The interval from the land surface to a depth of 300 feet must be protected.

The BASE OF UNDERGROUND SOURCES OF DRINKING WATER (USDW) is estimated to occur at a depth of 1250 feet at the site of the referenced well.

This recommendation is applicable for all wells drilled in this Section 47.

Note: Unless stated otherwise, this recommendation is intended to apply only to the subject well and not for area-wide use. Unless stated otherwise, this recommendation is for normal drilling, production, and plugging operations only.

This determination is based on information provided when the application was submitted on 10/01/2018. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or [gau@rrc.texas.gov](mailto:gau@rrc.texas.gov).

Groundwater Advisory Unit, Oil and Gas Division



