

PATHFINDER

A Schlumberger Company

HOBBS OCD

AUG 30 2013

RECEIVED

DIRECTIONAL SURVEY REPORT

30-041-20940

ARMSTRONG ENERGY, INC.

PEP 36 STATE 2H

ROOSEVELT COUNTY, NEW MEXICO

PREPARED BY: KIRK DAVIS

MAR 03 2014

Pathfinder

6213 WCR 112
Midland, Texas 79706-3725
Tel. (432) 687-1647
Fax (432) 687-1544



A Schlumberger Company

August 26, 2013

ARMSTRONG ENERGY, INC.
P.O. BOX 1973
ROSWELL, NM 88202

RE: ARMSTRONG ENERGY, INC.
PEP 36 STATE 2H
ROOSEVELT COUNTY, NEW MEXICO
API No: 30-041-20940
Rig: West Sirius
PES File No.: 13MLD0597

Dear Sir or Madam:

We hereby certify that the enclosed Original Field Survey Data contained in this report represents to the best of our knowledge, a true and accurate survey of the well at the time the survey was run.

DIRECTIONAL SURVEY DATA
1 – Original survey report
1 – Survey report copies

We appreciate the opportunity to work with you and we look forward to your business support. If you have any questions, I can be reached at (432) 687-1647.

Sincerely,

A handwritten signature in black ink, appearing to read "Kirk Davis", written over a horizontal line.

KIRK DAVIS
M/LWD Service Coordinator
PathFinder Energy Services

PathFinder

6213 WCR 112
Midland, Texas 79706-1725
Tel: (432) 687-1647
Fax: (432) 687-1544



A Schlumberger Company

**STATE OF TEXAS
MIDLAND COUNTY**

I, **ZACH LOFTIES** certify that; I am employed by PathFinder, a Schlumberger company; that I did on the day(s) of **8/14/13** through **8/15/13** conduct or supervise the taking of a **Measurement While Drilling** survey from a depth of **7710 feet** to a depth of **7793 feet**; that the data is true, correct, complete and within the limitations of the tool as set forth by PathFinder, a Schlumberger company; that I am authorized and qualified to make this report; that this survey was conducted at the request of **ARMSTRONG ENERGY, INC.** for the **PEP 36 STATE 2H** Well API No. **30-041-20940** in **ROOSEVELT COUNTY, NEW MEXICO**; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by PathFinder, a Schlumberger company.

A handwritten signature in black ink, appearing to read "Zach Lofties", written over a horizontal line.

ZACH LOFTIES
Field Engineer

Pathfinder

6213 WCR 112
Midland, Texas 79706-3723
Tel. (432) 687-1647
Fax (432) 687-1644



A Schlumberger Company

DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PathFinder, a Schlumberger company
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) ZACH LOFTIES
3. POSITION OF SAID PERSON(S): (A) SURVEYORS (FIELD ENGINEER)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 8/14/13 TO 8/15/13
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: ROOSEVELT COUNTY
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

ARMSTRONG ENERGY, INC.
PEP 36 STATE 2H
ROOSEVELT COUNTY, NEW MEXICO
API NO.: 30-041-20940
RIG: WEST SIRIUS

9. SURVEY CERTIFIED FROM: 7710 TO 7793 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 49.65 FEET ON A BEARING OF 346.42 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED DEPTH OF 7826.00 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to be "K.D.", written over a horizontal line.

KIRK DAVIS
M/LWD Field Service Manager

PathFinder – a Schlumberger company

BHL Report

Page 01/01
Tie-in Date: 08/15/2013
Date Completed: 08/19/2013

ARMSTRONG ENERGY
PEP 36 STATE 2
ROOSEVELT COUNTY, NM
API#: 30-041-20940 Rig: WEST SIRIUS
PathFinder Office Supervisor: JOSEPH HOGAN
PathFinder Field Engineers: ZACH LOFTIES

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 33.49.20.4900 N LON: 103.26.20.0516 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 771649.6000 Y: 1027899.2000
North Aligned To: GRID NORTH
Total Magnetic Correction: 6.87° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 13.00' Kelly Bushing To Ground
Altitude: 4267.00' Ground To MSL

Measured Depth	7826.00	(feet)
Inclination	44.78	(deg)
Azimuth	17.00	(deg)
True Vertical Depth	7813.72	(feet)
Vertical Section	48.26	(feet)
Survey X cord	771637.94	(feet)
Survey Y cord	1027947.46	(feet)
Survey Lat	33.82249123 N	(deg)
Survey Lon	103.43894022 W	(deg)
Rectangular Corr. N/S	48.26 N	(feet)
Rectangular Corr. E/W	11.66 W	(feet)
Closure Distance	49.65	(feet)
Direction of Closure	346.42	(deg)
Dogleg Severity	39.75	(deg/100ft)

PathFinder – a Schlumberger company

Survey Report

ARMSTRONG ENERGY
PEP 36 STATE 2
ROOSEVELT COUNTY, NM
API#: 30-041-20940 Rig: WEST SIRIUS
PathFinder Office Supervisor: JOSEPH HOGAN
PathFinder Field Engineers: ZACH LOFTIES

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:33.49.20.4900 N LON:103.26.20.0516 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 771649.6000 Y: 1027899.2000
North Aligned To:GRID NORTH
Total Magnetic Correction: 6.87° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 13.00' Kelly Bushing To Ground
Altitude:4267.00' Ground To MSL

Survey Calculations by RX5 V6.05 using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL		Closure		DLS
						Rectangular (ft)	Offsets (ft)	Dist (ft)	Dir (deg)	
THE FOLLOWING ARE GYRODATA GYRO SURVEYS.										
200.00	0.40	173.01	200.00	0.00	-0.70	0.70 S	0.09 E	0.70@	172.91	0.00
300.00	0.42	174.05	300.00	100.00	-1.41	1.41 S	0.17 E	1.42@	173.23	0.02
400.00	0.41	173.44	400.00	100.00	-2.13	2.13 S	0.25 E	2.14@	173.41	0.01
500.00	0.43	172.33	499.99	100.00	-2.86	2.86 S	0.34 E	2.88@	173.27	0.02
600.00	0.44	173.38	599.99	100.00	-3.61	3.61 S	0.43 E	3.63@	173.18	0.01
700.00	0.46	169.43	699.99	100.00	-4.39	4.39 S	0.55 E	4.42@	172.86	0.04
800.00	0.49	162.20	799.98	100.00	-5.19	5.19 S	0.75 E	5.24@	171.73	0.07
900.00	0.53	156.96	899.98	100.00	-6.02	6.02 S	1.07 E	6.11@	169.96	0.06
1000.00	0.70	145.14	999.97	100.00	-6.95	6.95 S	1.60 E	7.13@	167.06	0.21
1100.00	0.98	133.78	1099.96	100.00	-8.04	8.04 S	2.56 E	8.44@	162.32	0.32
1200.00	0.98	133.33	1199.95	100.00	-9.22	9.22 S	3.80 E	9.97@	157.59	0.01
1300.00	0.92	128.30	1299.93	100.00	-10.30	10.30 S	5.05 E	11.47@	153.87	0.10
1400.00	0.74	122.13	1399.92	100.00	-11.14	11.14 S	6.23 E	12.77@	150.79	0.20
1500.00	0.71	121.98	1499.92	100.00	-11.81	11.81 S	7.30 E	13.89@	148.28	0.03
1600.00	0.60	118.96	1599.91	100.00	-12.40	12.40 S	8.29 E	14.91@	146.24	0.12
1700.00	0.45	101.90	1699.91	100.00	-12.73	12.73 S	9.13 E	15.67@	144.36	0.21
1800.00	0.33	67.96	1799.90	100.00	-12.70	12.70 S	9.78 E	16.03@	142.41	0.25
1900.00	0.33	70.36	1899.90	100.00	-12.50	12.50 S	10.32 E	16.21@	140.46	0.01
2000.00	0.33	70.54	1999.90	100.00	-12.31	12.31 S	10.86 E	16.41@	138.57	0.00
2100.00	0.28	61.00	2099.90	100.00	-12.09	12.09 S	11.35 E	16.58@	136.82	0.07
2200.00	0.27	57.27	2199.90	100.00	-11.85	11.85 S	11.76 E	16.69@	135.21	0.02
2300.00	0.34	50.86	2299.90	100.00	-11.53	11.53 S	12.19 E	16.78@	133.42	0.08
2400.00	0.43	46.27	2399.89	100.00	-11.08	11.08 S	12.69 E	16.85@	131.14	0.09
2500.00	0.55	48.83	2499.89	100.00	-10.51	10.51 S	13.32 E	16.97@	128.27	0.12
2600.00	0.76	54.84	2599.88	100.00	-9.81	9.81 S	14.22 E	17.28@	124.60	0.22

PathFinder – a Schlumberger company

Survey Report

ARMSTRONG ENERGY
 PEP 36 STATE 2
 ROOSEVELT COUNTY, NM
 API#: 30-041-20940 Rig: WEST SIRIUS

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
2700.00	0.93	65.22	2699.87	100.00	-9.09	9.09 S	15.50 E	17.97@	120.38	0.23
2800.00	0.98	72.19	2799.86	100.00	-8.49	8.49 S	17.05 E	19.05@	116.46	0.13
2900.00	1.03	76.02	2899.84	100.00	-8.01	8.01 S	18.74 E	20.38@	113.14	0.08
3000.00	1.10	80.36	2999.83	100.00	-7.63	7.63 S	20.56 E	21.93@	110.36	0.11
3100.00	1.11	83.95	3099.81	100.00	-7.37	7.37 S	22.47 E	23.65@	108.16	0.07
3200.00	1.14	84.18	3199.79	100.00	-7.17	7.17 S	24.42 E	25.45@	106.35	0.03
3300.00	1.01	86.87	3299.77	100.00	-7.02	7.02 S	26.29 E	27.21@	104.94	0.14
3400.00	0.71	88.11	3399.76	100.00	-6.95	6.95 S	27.79 E	28.65@	104.04	0.30
3500.00	0.58	91.58	3499.75	100.00	-6.94	6.94 S	28.92 E	29.74@	103.50	0.14
3600.00	0.44	90.00	3599.75	100.00	-6.96	6.96 S	29.81 E	30.61@	103.14	0.14
3700.00	0.25	103.32	3699.75	100.00	-7.01	7.01 S	30.40 E	31.20@	102.98	0.20
3800.00	0.06	133.85	3799.75	100.00	-7.09	7.09 S	30.65 E	31.46@	103.03	0.20
3900.00	0.14	301.57	3899.75	100.00	-7.06	7.06 S	30.59 E	31.39@	103.01	0.20
4000.00	0.13	303.88	3999.75	100.00	-6.94	6.94 S	30.39 E	31.17@	102.86	0.01
4100.00	0.16	290.07	4099.75	100.00	-6.83	6.83 S	30.16 E	30.92@	102.75	0.05
4200.00	0.30	279.65	4199.75	100.00	-6.73	6.73 S	29.77 E	30.52@	102.75	0.14
4300.00	0.64	281.56	4299.74	100.00	-6.58	6.58 S	28.97 E	29.70@	102.79	0.34
4400.00	0.85	283.47	4399.73	100.00	-6.29	6.29 S	27.70 E	28.40@	102.80	0.21
4500.00	0.93	288.60	4499.72	100.00	-5.86	5.86 S	26.21 E	26.86@	102.61	0.11
4600.00	0.93	288.68	4599.71	100.00	-5.34	5.34 S	24.67 E	25.24@	102.22	0.00
4700.00	0.99	287.61	4699.69	100.00	-4.82	4.82 S	23.08 E	23.58@	101.80	0.06
4800.00	1.00	291.68	4799.68	100.00	-4.24	4.24 S	21.44 E	21.86@	101.18	0.07
4900.00	1.05	290.82	4899.66	100.00	-3.59	3.59 S	19.78 E	20.10@	100.29	0.05
5000.00	1.07	290.92	4999.65	100.00	-2.93	2.93 S	18.05 E	18.28@	99.22	0.02
5100.00	0.98	289.33	5099.63	100.00	-2.31	2.31 S	16.37 E	16.53@	98.05	0.09
5200.00	1.11	291.15	5199.61	100.00	-1.68	1.68 S	14.66 E	14.75@	96.55	0.13
5300.00	1.22	293.95	5299.59	100.00	-0.90	0.90 S	12.78 E	12.81@	94.03	0.12
5400.00	1.35	293.80	5399.57	100.00	0.01	0.01 N	10.73 E	10.73@	89.96	0.13

PathFinder – a Schlumberger company

Survey Report

ARMSTRONG ENERGY
 PEP 36 STATE 2
 ROOSEVELT COUNTY, NM
 API#: 30-041-20940 Rig: WEST SIRIUS

Page 03/04

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
5500.00	1.54	294.51	5499.54	100.00	1.04	1.04 N	8.43 E	8.49@	82.97	0.19
5600.00	1.63	295.19	5599.50	100.00	2.20	2.20 N	5.92 E	6.32@	69.59	0.09
5700.00	1.27	294.54	5699.46	100.00	3.27	3.27 N	3.63 E	4.88@	47.97	0.36
5800.00	1.01	292.07	5799.44	100.00	4.06	4.06 N	1.80 E	4.44@	23.92	0.26
5900.00	0.93	291.28	5899.43	100.00	4.69	4.69 N	0.23 E	4.69@	2.79	0.08
6000.00	0.69	289.05	5999.42	100.00	5.18	5.18 N	1.10 W	5.29@	348.03	0.24
6100.00	0.59	279.54	6099.41	100.00	5.46	5.46 N	2.17 W	5.88@	338.28	0.14
6200.00	0.67	283.45	6199.41	100.00	5.68	5.68 N	3.25 W	6.54@	330.22	0.09
6300.00	0.82	295.38	6299.40	100.00	6.12	6.12 N	4.47 W	7.58@	323.89	0.21
6400.00	0.88	300.21	6399.39	100.00	6.82	6.82 N	5.78 W	8.93@	319.72	0.09
6500.00	0.88	296.40	6499.38	100.00	7.54	7.54 N	7.13 W	10.38@	316.62	0.06
6600.00	0.66	318.60	6599.37	100.00	8.32	8.32 N	8.20 W	11.68@	315.42	0.37
6700.00	0.76	284.92	6699.36	100.00	8.92	8.92 N	9.22 W	12.83@	314.06	0.42
6800.00	0.86	258.48	6799.35	100.00	8.94	8.94 N	10.59 W	13.86@	310.16	0.38
6900.00	0.88	260.79	6899.34	100.00	8.67	8.67 N	12.09 W	14.87@	305.64	0.04
7000.00	0.77	262.89	6999.33	100.00	8.46	8.46 N	13.51 W	15.94@	302.06	0.11
7100.00	0.90	257.09	7099.32	100.00	8.20	8.20 N	14.94 W	17.05@	298.76	0.16
7200.00	1.00	256.42	7199.31	100.00	7.82	7.82 N	16.56 W	18.31@	295.29	0.10
7300.00	1.18	262.06	7299.29	100.00	7.48	7.48 N	18.43 W	19.88@	292.08	0.21
7400.00	1.15	253.89	7399.27	100.00	7.05	7.05 N	20.41 W	21.59@	289.07	0.17
7500.00	1.06	259.37	7499.25	100.00	6.61	6.61 N	22.28 W	23.24@	286.51	0.14
** TIED INTO GYRODATA GYRO SURVEYS AT 7600'MD.										
7600.00	1.06	262.85	7599.23	100.00	6.32	6.32 N	24.11 W	24.92@	284.69	0.06
THE FOLLOWING IS A GYRODATA GYRO SINGLE-SHOT SURVEY.										
7690.00	0.98	272.47	7689.22	90.00	6.25	6.25 N	25.70 W	26.45@	283.67	0.21
THE FOLLOWING ARE PATHFINDER MWD SURVEYS WITH INTERPOLATED AZIMUTHS.										
7710.00	3.25	10.00	7709.21	20.00	6.82	6.82 N	25.78 W	26.66@	284.81	17.58
7727.00	6.77	13.00	7726.14	17.00	8.27	8.27 N	25.47 W	26.78@	287.98	20.76
7741.00	13.01	16.80	7739.92	14.00	10.58	10.58 N	24.83 W	26.99@	293.08	44.79

PathFinder – a Schlumberger company

Survey Report

ARMSTRONG ENERGY
 PEP 36 STATE 2
 ROOSEVELT COUNTY, NM
 API#: 30-041-20940 Rig: WEST SIRIUS

Page 04/04

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS
						(ft)	(ft)	(ft)	(deg)	(dg/100ft)
7759.00	19.35	20.23	7757.20	18.00	15.32	15.32 N	23.21 W	27.81@	303.44	35.61
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
7774.00	24.45	22.78	7771.11	15.00	20.52	20.52 N	21.15 W	29.47@	314.14	34.58
7793.00	31.74	19.35	7787.87	19.00	28.87	28.87 N	17.96 W	34.01@	328.11	39.28
PROJECTION TO BIT AT 7826'MD.										
7826.00	44.78	17.00	7813.72	33.00	48.26	48.26 N	11.66 W	49.65@	346.42	39.75

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder – a Schlumberger company and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.