



A GYRO TECHNOLOGIES INC. COMPANY

PO Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

April 17, 2012

30-015-39863

Devon Energy Production Company
20 North Broadway
Oklahoma City, OK 73102

Attn: Mark Cooper

Re: **Vega 29 Federal No. 001H**

Please find enclosed a copy of the survey from 0' to 8,455' ran on the above referenced well.

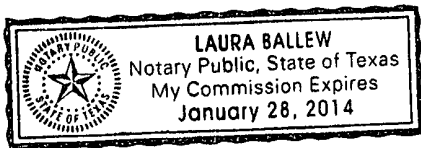
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
§
COUNTY OF NUECES §

This instrument was acknowledged before me on the 20th day of April, A.D., 2012, by Keith Havelka.



Laura Balley
Notary Public, State of Texas



Company: Devon Energy Production Company
 Lease/Well: Vega 29 Federal/No. 001H
 Location: 14 Miles S.E. of Loco Hills, NM
 Rig Name: HP 300
 State/County: New Mexico/Eddy
 Latitude: 32.64
 GRID North is 0.24 Degrees East of True North
 VS-Azi: 0.00 Degrees



Depth Reference : RKB - 26 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: vega 29 fed #1 h_ed_int.ut
 Minimum Curvature Method
 Report Date/Time: 4/17/2012 / 14:19

Vaughn Energy Services
 Midland, Texas
 432-563-5444

Surveyor: Eric McMahon
 Vega 29 Federal No. 001H / API 30-015-39863

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.12	347.17	100.00	0.11	-0.02	0.11	0.11	347.17	0.12
200.00	0.25	334.33	200.00	0.40	-0.14	0.40	0.43	340.75	0.13
300.00	0.21	281.80	300.00	0.64	-0.41	0.64	0.76	327.07	0.20
400.00	0.17	229.26	400.00	0.58	-0.70	0.58	0.91	309.51	0.17
500.00	0.29	206.46	500.00	0.25	-0.92	0.25	0.96	285.25	0.15
600.00	0.42	183.66	600.00	-0.34	-1.06	-0.34	1.12	252.14	0.19
700.00	0.35	180.34	699.99	-1.01	-1.09	-1.01	1.48	227.10	0.07
800.00	0.28	177.03	799.99	-1.55	-1.08	-1.55	1.89	214.71	0.07
900.00	0.31	145.70	899.99	-2.02	-0.91	-2.02	2.22	204.27	0.16
1000.00	0.35	114.36	999.99	-2.37	-0.48	-2.37	2.42	191.45	0.18
1100.00	0.41	106.23	1099.99	-2.60	0.14	-2.60	2.60	176.91	0.08
1200.00	0.47	98.11	1199.98	-2.75	0.89	-2.75	2.89	162.05	0.09
1300.00	0.49	91.85	1299.98	-2.83	1.72	-2.83	3.31	148.60	0.05
1400.00	0.50	85.60	1399.98	-2.81	2.58	-2.81	3.81	137.36	0.06
1500.00	1.55	83.00	1499.96	-2.61	4.36	-2.61	5.08	120.85	1.05
1600.00	2.61	80.40	1599.89	-2.06	7.95	-2.06	8.22	104.54	1.06
1700.00	3.31	79.13	1699.76	-1.14	13.03	-1.14	13.08	94.99	0.71
1800.00	4.02	77.85	1799.55	0.14	19.30	0.14	19.30	89.57	0.71

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.62	38.83	5796.23	106.43	80.46	106.43	133.42	37.09	0.10
5900.00	0.54	25.28	5896.22	107.28	81.00	107.28	134.42	37.05	0.16
6000.00	0.46	11.74	5996.22	108.09	81.28	108.09	135.24	36.94	0.14
6100.00	0.53	4.93	6096.21	108.95	81.40	108.95	136.00	36.77	0.09
6200.00	0.60	358.13	6196.21	109.93	81.42	109.93	136.80	36.53	0.10
6300.00	0.57	355.07	6296.20	110.96	81.36	110.96	137.59	36.25	0.04
6400.00	0.55	352.01	6396.20	111.93	81.25	111.93	138.31	35.98	0.04
6500.00	0.82	351.32	6496.19	113.11	81.08	113.11	139.17	35.63	0.27
6600.00	1.08	350.64	6596.18	114.74	80.82	114.74	140.35	35.16	0.27
6700.00	1.11	350.50	6696.16	116.64	80.50	116.64	141.72	34.61	0.03
6800.00	1.14	350.35	6796.14	118.58	80.18	118.58	143.14	34.06	0.03
6900.00	1.27	347.95	6896.12	120.65	79.78	120.65	144.64	33.47	0.13
7000.00	1.39	345.55	6996.09	122.90	79.24	122.90	146.23	32.81	0.13
7100.00	1.56	340.88	7096.06	125.36	78.50	125.36	147.91	32.05	0.20
7200.00	1.72	336.21	7196.02	128.02	77.45	128.02	149.62	31.17	0.21
7300.00	1.26	330.81	7295.98	130.35	76.30	130.35	151.04	30.34	0.48
7400.00	0.80	325.41	7395.97	131.88	75.37	131.88	151.90	29.75	0.47
7500.00	0.79	316.06	7495.96	132.95	74.50	132.95	152.40	29.27	0.13
7600.00	0.78	306.71	7595.95	133.85	73.48	133.85	152.69	28.77	0.13
7700.00	1.03	335.52	7695.94	135.07	72.56	135.07	153.33	28.25	0.51
7800.00	1.27	4.32	7795.92	136.99	72.28	136.99	154.89	27.82	0.62
7900.00	1.49	6.28	7895.89	139.39	72.50	139.39	157.12	27.48	0.23
8000.00	1.71	8.23	7995.85	142.17	72.86	142.17	159.75	27.13	0.23
8100.00	1.51	8.40	8095.81	144.95	73.27	144.95	162.41	26.81	0.21
8200.00	1.30	8.58	8195.78	147.38	73.63	147.38	164.74	26.55	0.21
8300.00	1.14	8.81	8295.76	149.48	73.95	149.48	166.77	26.32	0.17
8400.00	0.97	9.04	8395.74	151.30	74.23	151.30	168.53	26.14	0.17
8455.00	0.99	359.93	8450.73	152.23	74.31	152.23	169.40	26.02	0.29

Pathfinder

3213 WCR, 112
Midland, Texas 79706
Tel (432) 687-1647
Fax (432) 687-1544



May 11, 2012

Devon Energy
20 N. Broadway
Oklahoma City, OK

RE: Devon Energy
Vega 29 Federal #1H
API: 30-015-39726
Eddy County, NM
RIG: H&P 300
FIELD: Hackberry; Bone Spring
PES FILE NO.: 12MLD0120

To whom it may concern:

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
2 – 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 "Juan Alcocer".

JUAN ALCOCER
M/LWD Service Coordinator
PathFinder Energy Services

ML:sh

Pathfinder

3213 WCR 112
Midland, Texas 79706
Tel (432)687-1547
Fax (432)687-1541



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) MICHAEL SAKAS
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 8-APR-12 TO 14-APR-12
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY
7. TYPE OF SURVEY(S) PERFORMED: GAMMA-RAY
8. COMPLETE IDENTIFICATION OF WELL:

DEVON ENERGY
VEGA 29 FEDERAL #1H
EDDY COUNTY, NM
RIG: H&P 300
9. SURVEY CERTIFIED FROM: 8,455 TO 13,375 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 4,447.61 FEET ON A BEARING OF 179.65 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 13,419 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



JUAN ALCOCER
M/LWD SERVICE COORDINATOR



A Schlumberger Company

DIRECTIONAL SURVEY REPORT

Filed 05/14/12

DEVON ENERGY

VEGA 29 FEDERAL #1H

EDDY COUNTY, NEW MEXICO

PREPARED BY: JUAN ALCOCER

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 05/01/2012
Date Completed: 04/14/2012

DEVON ENERGY
VEGA 29 FEDERAL #1H
EDDY COUNTY, NM
Rig:H&P 300
PathFinder Office Supervisor: JUAN ALCOCER
PathFinder Field Engineers:MICHAEL SAKAS
TODD PISCIOтта

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.38.15.9816 N LON:103.53.8.6556 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 679118.4000 Y: 596042.8300
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.42° EAST TO GRID
Vertical Section Plane: 179.59
Survey Vert. Reference: 26.00' Rotary Table To Ground
Altitude:3486.90' Ground To MSL

Measured Depth	13419.00	(feet)
Inclination	90.75	(deg)
Azimuth	179.43	(deg)
True Vertical Depth	9083.43	(feet)
Vertical Section	4447.61	(feet)
Survey X cord	679145.84	(feet)
Survey Y cord	591595.31	(feet)
Survey Lat	32.62554767 N	(deg)
Survey Lon	103.88570940 W	(deg)
Rectangular Corr. N/S	4447.52 S	(feet)
Rectangular Corr. E/W	27.44 E	(feet)
Closure Distance	4447.61	(feet)
Direction of Closure	179.65	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

Page 01/07

Tie-in Date: 05/01/2012

Date Completed: 04/14/2012

DEVON ENERGY

VEGA 29 FEDERAL #1H

EDDY COUNTY, NM

Rig:H&P 300

PathFinder Office Supervisor: JUAN ALCOCER

PathFinder Field Engineers: MICHAEL SAKAS

TODD PISCIOтта

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.38.15.9816 N LON:103.53.8.6556 W

GRID Reference:NAD83 new mexico east Transverse Mercator

Ref GRID Coord: X: 679118.4000 Y: 596042.8300

North Aligned To:GRID NORTH

Total Magnetic Correction: 7.42° EAST TO GRID

Vertical Section Plane: 179.59

Survey Vert. Reference: 26.00' Rotary Table To Ground

Altitude:3486.90' Ground To MSL

Survey Calculations by RX5 V6.04A using Minimum Curvature

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)
THE FOLLOWING ARE VAUGHN ENERGY SERVICES GYRO SURVEYS.										
100.00	0.12	347.17	100.00	100.00	-0.10	0.10 N	0.03 W	0.10@	344.36	0.12
200.00	0.25	334.33	200.00	100.00	-0.40	0.40 N	0.15 W	0.42@	339.92	0.14
300.00	0.21	281.80	300.00	100.00	-0.64	0.63 N	0.42 W	0.76@	326.46	0.21
400.00	0.17	229.26	400.00	100.00	-0.58	0.57 N	0.71 W	0.91@	308.88	0.17
500.00	0.29	206.46	500.00	100.00	-0.26	0.25 N	0.94 W	0.97@	284.96	0.15
600.00	0.42	183.66	600.00	100.00	0.33	0.34 S	1.07 W	1.13@	252.32	0.19
700.00	0.35	180.34	699.99	100.00	1.01	1.01 S	1.10 W	1.49@	227.30	0.07
800.00	0.28	177.03	799.99	100.00	1.55	1.56 S	1.09 W	1.90@	214.83	0.07
900.00	0.31	145.70	899.99	100.00	2.02	2.03 S	0.92 W	2.23@	204.43	0.16
1000.00	0.35	114.36	999.99	100.00	2.38	2.38 S	0.49 W	2.43@	191.66	0.18
1100.00	0.41	106.23	1099.99	100.00	2.61	2.61 S	0.13 E	2.61@	177.13	0.08
1200.00	0.47	98.11	1199.98	100.00	2.77	2.76 S	0.88 E	2.90@	162.33	0.09
1300.00	0.49	91.85	1299.98	100.00	2.85	2.84 S	1.71 E	3.31@	148.85	0.06
1400.00	0.50	85.60	1399.98	100.00	2.83	2.82 S	2.58 E	3.82@	137.54	0.05
1500.00	1.55	83.00	1499.96	100.00	2.65	2.62 S	4.35 E	5.08@	121.01	1.05
1600.00	2.61	80.40	1599.89	100.00	2.13	2.07 S	7.94 E	8.21@	104.63	1.06
1700.00	3.31	79.13	1699.76	100.00	1.24	1.15 S	13.02 E	13.07@	95.04	0.70
1800.00	4.02	77.85	1799.55	100.00	0.00	0.13 N	19.28 E	19.28@	89.60	0.71
1900.00	4.14	75.18	1899.30	100.00	-1.61	1.79 N	26.20 E	26.26@	86.08	0.23
2000.00	4.27	72.51	1999.03	100.00	-3.60	3.84 N	33.24 E	33.46@	83.42	0.24
2100.00	3.41	71.85	2098.80	100.00	-5.60	5.88 N	39.62 E	40.05@	81.55	0.86
2200.00	2.55	71.20	2198.67	100.00	-7.21	7.53 N	44.55 E	45.18@	80.41	0.86
2300.00	2.20	71.59	2298.58	100.00	-8.50	8.85 N	48.48 E	49.28@	79.66	0.35

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY
VEGA 29 FEDERAL #1H
EDDY COUNTY, NM
RIG:H&P 300

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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)
2400.00	1.85	71.99	2398.52	100.00	-9.58	9.95 N	51.83 E	52.78@	79.13	0.35
2500.00	1.65	71.38	2498.47	100.00	-10.52	10.91 N	54.73 E	55.81@	78.72	0.20
2600.00	1.46	70.78	2598.44	100.00	-11.38	11.79 N	57.30 E	58.50@	78.37	0.19
2700.00	1.41	69.90	2698.40	100.00	-12.21	12.63 N	59.66 E	60.98@	78.04	0.05
2800.00	1.35	69.02	2798.38	100.00	-13.04	13.48 N	61.91 E	63.36@	77.72	0.06
2900.00	1.51	64.35	2898.34	100.00	-14.01	14.47 N	64.20 E	65.81@	77.30	0.20
3000.00	1.66	59.68	2998.31	100.00	-15.29	15.77 N	66.64 E	68.48@	76.68	0.20
3100.00	1.42	45.71	3098.27	100.00	-16.88	17.37 N	68.78 E	70.93@	75.83	0.44
3200.00	1.18	31.75	3198.24	100.00	-18.61	19.11 N	70.20 E	72.76@	74.77	0.40
3300.00	1.13	25.16	3298.22	100.00	-20.37	20.88 N	71.16 E	74.16@	73.65	0.14
3400.00	1.07	18.56	3398.21	100.00	-22.14	22.66 N	71.88 E	75.37@	72.51	0.14
3500.00	2.05	12.12	3498.17	100.00	-24.77	25.29 N	72.55 E	76.84@	70.78	0.99
3600.00	3.03	5.69	3598.07	100.00	-29.14	29.67 N	73.19 E	78.98@	67.94	1.02
3700.00	2.95	358.60	3697.93	100.00	-34.34	34.87 N	73.39 E	81.25@	64.59	0.38
3800.00	2.88	357.51	3797.80	100.00	-39.43	39.95 N	73.22 E	83.41@	61.38	0.09
3900.00	3.27	355.61	3897.66	100.00	-44.78	45.31 N	72.89 E	85.82@	58.14	0.40
4000.00	3.66	353.71	3997.48	100.00	-50.80	51.32 N	72.32 E	88.68@	54.64	0.41
4100.00	3.52	352.99	4097.28	100.00	-57.03	57.54 N	71.60 E	91.86@	51.21	0.15
4200.00	3.37	352.28	4197.10	100.00	-62.99	63.50 N	70.83 E	95.13@	48.12	0.16
4300.00	3.07	352.28	4296.94	100.00	-68.56	69.07 N	70.07 E	98.39@	45.41	0.30
4400.00	2.77	352.28	4396.81	100.00	-73.62	74.12 N	69.39 E	101.53@	43.11	0.30
4500.00	2.42	352.54	4496.71	100.00	-78.11	78.60 N	68.79 E	104.45@	41.19	0.35
4600.00	2.07	352.80	4596.63	100.00	-82.00	82.49 N	68.29 E	107.09@	39.62	0.35
4700.00	1.92	353.62	4696.57	100.00	-85.46	85.94 N	67.88 E	109.52@	38.30	0.15
4800.00	1.78	354.43	4796.52	100.00	-88.67	89.16 N	67.54 E	111.85@	37.15	0.14
4900.00	1.69	7.47	4896.47	100.00	-91.68	92.16 N	67.58 E	114.29@	36.25	0.40
5000.00	1.61	20.50	4996.43	100.00	-94.45	94.94 N	68.27 E	116.94@	35.72	0.38

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY
VEGA 29 FEDERAL #1H
EDDY COUNTY, NM
RIG:H&P 300

Page 03/07

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)
5100.00	1.69	34.21	5096.39	100.00	-96.98	97.48 N	69.59 E	119.77@	35.52	0.40
5200.00	1.77	47.93	5196.35	100.00	-99.22	99.73 N	71.56 E	122.75@	35.66	0.42
5300.00	1.58	52.52	5296.30	100.00	-101.07	101.60 N	73.80 E	125.58@	35.99	0.23
5400.00	1.40	57.11	5396.27	100.00	-102.56	103.11 N	75.92 E	128.04@	36.37	0.22
5500.00	1.00	57.24	5496.25	100.00	-103.68	104.24 N	77.68 E	130.00@	36.69	0.40
5600.00	0.60	57.37	5596.24	100.00	-104.43	105.00 N	78.86 E	131.31@	36.91	0.40
5700.00	0.61	48.10	5696.23	100.00	-105.06	105.63 N	79.70 E	132.33@	37.03	0.10
5800.00	0.62	38.83	5796.23	100.00	-105.83	106.41 N	80.43 E	133.39@	37.08	0.10
5900.00	0.54	25.28	5896.22	100.00	-106.68	107.26 N	80.97 E	134.39@	37.05	0.16
6000.00	0.46	11.74	5996.22	100.00	-107.49	108.08 N	81.25 E	135.22@	36.94	0.14
6100.00	0.53	4.93	6096.21	100.00	-108.35	108.93 N	81.38 E	135.97@	36.76	0.09
6200.00	0.60	358.13	6196.21	100.00	-109.33	109.92 N	81.40 E	136.77@	36.52	0.10
6300.00	0.57	355.07	6296.20	100.00	-110.35	110.94 N	81.34 E	137.56@	36.25	0.04
6400.00	0.55	352.01	6396.20	100.00	-111.32	111.91 N	81.23 E	138.28@	35.97	0.04
6500.00	0.82	351.32	6496.19	100.00	-112.51	113.09 N	81.05 E	139.14@	35.63	0.27
6600.00	1.08	350.64	6596.18	100.00	-114.14	114.73 N	80.79 E	140.32@	35.15	0.26
6700.00	1.11	350.50	6696.16	100.00	-116.03	116.61 N	80.48 E	141.69@	34.61	0.03
6800.00	1.14	350.35	6796.14	100.00	-117.97	118.55 N	80.15 E	143.10@	34.06	0.03
6900.00	1.27	347.95	6896.12	100.00	-120.04	120.61 N	79.75 E	144.60@	33.47	0.14
7000.00	1.39	345.55	6996.09	100.00	-122.30	122.87 N	79.22 E	146.19@	32.81	0.13
7100.00	1.56	340.88	7096.06	100.00	-124.77	125.33 N	78.47 E	147.87@	32.05	0.21
7200.00	1.72	336.21	7196.02	100.00	-127.43	127.99 N	77.42 E	149.58@	31.17	0.21
7300.00	1.26	330.81	7295.98	100.00	-129.77	130.32 N	76.28 E	151.01@	30.34	0.48
7400.00	0.80	325.41	7395.97	100.00	-131.31	131.86 N	75.35 E	151.87@	29.74	0.47
7500.00	0.79	316.06	7495.96	100.00	-132.39	132.93 N	74.47 E	152.37@	29.26	0.13
7600.00	0.78	306.71	7595.95	100.00	-133.30	133.83 N	73.45 E	152.66@	28.76	0.13
7700.00	1.03	335.52	7695.94	100.00	-134.53	135.06 N	72.53 E	153.30@	28.24	0.51

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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)
7800.00	1.27	4.32	7795.92	100.00	-136.46	136.98 N	72.24 E	154.86@	27.81	0.62
7900.00	1.49	6.28	7895.89	100.00	-138.86	139.38 N	72.47 E	157.09@	27.47	0.23
8000.00	1.71	8.23	7995.85	100.00	-141.62	142.15 N	72.82 E	159.71@	27.13	0.23
8100.00	1.51	8.40	8095.81	100.00	-144.40	144.93 N	73.23 E	162.38@	26.81	0.20
8200.00	1.30	8.58	8195.78	100.00	-146.82	147.35 N	73.59 E	164.71@	26.54	0.21
8300.00	1.14	8.81	8295.76	100.00	-148.92	149.46 N	73.91 E	166.73@	26.31	0.16
8400.00	0.97	9.04	8395.74	100.00	-150.74	151.28 N	74.20 E	168.49@	26.13	0.17
** TIED INTO VAUGHN ENERGY SERVICES GYRO SURVEY @ 8455.00'MD.										
8455.00	0.99	359.93	8450.73	55.00	-151.67	152.21 N	74.27 E	169.36@	26.01	0.29
8464.00	1.14	306.86	8459.76	9.03	-151.81	152.34 N	74.20 E	169.45@	25.97	10.64
8496.00	3.52	217.83	8491.71	31.97	-151.23	151.76 N	73.34 E	168.55@	25.79	11.52
8528.00	7.91	202.98	8523.54	32.00	-148.43	148.95 N	71.88 E	165.39@	25.76	14.36
8559.00	12.49	198.76	8554.04	31.00	-143.31	143.81 N	69.97 E	159.93@	25.94	14.96
8591.00	16.88	196.74	8584.99	32.00	-135.60	136.08 N	67.51 E	151.91@	26.39	13.81
8622.00	19.61	194.63	8614.43	31.00	-126.27	126.74 N	64.90 E	142.39@	27.12	9.06
8653.00	21.10	189.44	8643.50	31.00	-115.75	116.20 N	62.67 E	132.02@	28.34	7.55
8685.00	21.81	187.77	8673.28	32.00	-104.19	104.63 N	60.93 E	121.07@	30.21	2.93
8716.00	23.92	185.13	8701.84	31.00	-92.23	92.66 N	59.59 E	110.16@	32.74	7.57
8748.00	25.15	181.53	8730.95	32.00	-78.98	79.40 N	58.82 E	98.82@	36.53	6.05
8779.00	27.17	179.33	8758.78	31.00	-65.31	65.74 N	58.73 E	88.15@	41.78	7.23
8811.00	29.72	178.19	8786.91	32.00	-50.07	50.50 N	59.07 E	77.71@	49.47	8.15
8842.00	32.36	177.22	8813.47	31.00	-34.10	34.53 N	59.71 E	68.98@	59.96	8.67
8874.00	34.03	175.20	8840.25	32.00	-16.61	17.05 N	60.88 E	63.22@	74.35	6.26
8905.00	36.76	174.06	8865.52	31.00	1.27	0.82 S	62.56 E	62.57@	90.75	9.06
8937.00	39.92	173.80	8890.61	32.00	21.02	20.56 S	64.66 E	67.85@	107.64	9.89
8968.00	43.97	174.06	8913.67	31.00	41.64	41.16 S	66.85 E	78.51@	121.62	13.08
9000.00	47.57	175.82	8935.98	32.00	64.49	64.00 S	68.86 E	94.01@	132.90	11.92
9031.00	51.44	177.22	8956.11	31.00	88.02	87.52 S	70.28 E	112.25@	141.23	12.95

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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)
9063.00	56.37	178.90	8974.96	32.00	113.86	113.35 S	71.15 E	133.83@	147.89	15.98
9095.00	59.27	179.60	8992.00	32.00	140.94	140.43 S	71.50 E	157.59@	153.02	9.25
9126.00	61.11	179.86	9007.41	31.00	167.84	167.33 S	71.63 E	182.02@	156.83	5.98
9158.00	64.63	179.77	9022.00	32.00	196.31	195.80 S	71.72 E	208.53@	159.88	11.00
9189.00	69.47	179.60	9034.08	31.00	224.85	224.34 S	71.88 E	235.57@	162.24	15.62
9221.00	72.28	179.86	9044.57	32.00	255.08	254.57 S	72.02 E	264.56@	164.20	8.81
9252.00	74.57	179.60	9053.41	31.00	284.79	284.28 S	72.16 E	293.30@	165.76	7.43
9284.00	78.52	179.33	9060.86	32.00	315.91	315.40 S	72.45 E	323.61@	167.06	12.37
9315.00	82.22	179.51	9066.04	31.00	346.46	345.95 S	72.76 E	353.52@	168.12	11.95
9347.00	83.89	180.12	9069.91	32.00	378.23	377.72 S	72.86 E	384.68@	169.08	5.55
9403.00	89.78	180.74	9073.00	56.00	434.11	433.60 S	72.44 E	439.61@	170.52	10.58
9442.00	90.57	181.36	9072.88	39.00	473.10	472.60 S	71.73 E	478.01@	171.37	2.57
9536.00	88.20	182.32	9073.89	94.00	567.01	566.54 S	68.71 E	570.69@	173.09	2.72
9630.00	87.85	183.99	9077.13	94.00	660.77	660.33 S	63.54 E	663.38@	174.50	1.81
9725.00	87.93	180.04	9080.63	95.00	755.60	755.19 S	60.20 E	757.59@	175.44	4.16
9819.00	87.76	181.95	9084.16	94.00	849.50	849.11 S	58.57 E	851.12@	176.05	2.04
9914.00	89.16	179.01	9086.72	95.00	944.45	944.06 S	57.78 E	945.82@	176.50	3.43
10008.00	88.64	179.37	9088.52	94.00	1038.43	1038.03 S	59.10 E	1039.71@	176.74	0.67
10103.00	91.71	179.51	9088.23	95.00	1133.41	1133.01 S	60.03 E	1134.60@	176.97	3.23
10197.00	91.63	180.20	9085.49	94.00	1227.37	1226.97 S	60.27 E	1228.45@	177.19	0.74
10292.00	91.45	180.70	9082.94	95.00	1322.33	1321.93 S	59.52 E	1323.27@	177.42	0.56
10386.00	91.36	181.52	9080.63	94.00	1416.26	1415.89 S	57.70 E	1417.06@	177.67	0.88
10481.00	92.95	179.76	9077.06	95.00	1511.17	1510.81 S	56.64 E	1511.87@	177.85	2.50
10575.00	92.07	178.29	9072.94	94.00	1605.08	1604.70 S	58.24 E	1605.76@	177.92	1.82
10670.00	91.01	179.19	9070.39	95.00	1700.03	1699.64 S	60.33 E	1700.71@	177.97	1.46
10765.00	86.88	180.89	9072.14	95.00	1794.99	1794.60 S	60.26 E	1795.61@	178.08	4.70
10859.00	88.37	181.12	9076.04	94.00	1888.87	1888.50 S	58.62 E	1889.41@	178.22	1.60

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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)
10954.00	87.93	181.58	9079.10	95.00	1983.78	1983.43 S	56.38 E	1984.23@	178.37	0.67
11048.00	90.57	181.89	9080.33	94.00	2077.70	2077.37 S	53.53 E	2078.06@	178.52	2.83
11143.00	90.48	182.35	9079.46	95.00	2172.60	2172.30 S	50.02 E	2172.87@	178.68	0.49
11238.00	90.66	182.97	9078.52	95.00	2267.46	2267.19 S	45.61 E	2267.65@	178.85	0.68
11332.00	89.43	180.94	9078.44	94.00	2361.37	2361.13 S	42.40 E	2361.51@	178.97	2.53
11427.00	89.43	182.09	9079.39	95.00	2456.31	2456.09 S	39.89 E	2456.41@	179.07	1.21
11521.00	88.72	179.89	9080.91	94.00	2550.26	2550.06 S	38.27 E	2550.34@	179.14	2.46
11616.00	89.43	179.13	9082.44	95.00	2645.25	2645.04 S	39.08 E	2645.33@	179.15	1.09
11710.00	89.25	179.79	9083.52	94.00	2739.24	2739.03 S	39.97 E	2739.32@	179.16	0.73
11805.00	91.01	178.51	9083.31	95.00	2834.24	2834.01 S	41.38 E	2834.31@	179.16	2.29
11900.00	91.28	179.24	9081.41	95.00	2929.21	2928.97 S	43.24 E	2929.29@	179.15	0.82
11994.00	91.10	180.16	9079.46	94.00	3023.19	3022.95 S	43.73 E	3023.27@	179.17	1.00
12089.00	91.36	181.13	9077.42	95.00	3118.15	3117.92 S	42.66 E	3118.21@	179.22	1.06
12183.00	91.36	181.82	9075.19	94.00	3212.07	3211.86 S	40.25 E	3212.12@	179.28	0.73
12278.00	89.52	180.16	9074.46	95.00	3307.03	3306.84 S	38.60 E	3307.07@	179.33	2.61
12372.00	89.16	180.80	9075.54	94.00	3401.01	3400.83 S	37.82 E	3401.04@	179.36	0.78
12467.00	88.64	181.12	9077.36	95.00	3495.97	3495.80 S	36.23 E	3495.99@	179.41	0.64
12562.00	88.64	182.04	9079.62	95.00	3590.88	3590.73 S	33.61 E	3590.89@	179.46	0.97
12656.00	89.43	180.91	9081.20	94.00	3684.82	3684.69 S	31.19 E	3684.82@	179.52	1.47
12751.00	89.16	181.30	9082.37	95.00	3779.78	3779.66 S	29.36 E	3779.78@	179.56	0.50
12845.00	89.52	182.18	9083.45	94.00	3873.70	3873.61 S	26.50 E	3873.70@	179.61	1.01
12940.00	88.72	180.36	9084.91	95.00	3968.65	3968.57 S	24.40 E	3968.65@	179.65	2.09
13034.00	90.13	178.79	9085.86	94.00	4062.64	4062.56 S	25.09 E	4062.64@	179.65	2.24
13129.00	90.13	179.82	9085.64	95.00	4157.63	4157.55 S	26.25 E	4157.63@	179.64	1.08
13223.00	89.96	180.61	9085.57	94.00	4251.63	4251.55 S	25.89 E	4251.63@	179.65	0.86
13318.00	90.92	179.00	9084.84	95.00	4346.62	4346.54 S	26.22 E	4346.62@	179.65	1.97
13375.00	90.75	179.43	9084.01	57.00	4403.61	4403.53 S	27.00 E	4403.61@	179.65	0.81

PathFinder Energy Services, Inc.

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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)
STRAIGHT LINE PROJECTION TO BIT @ 13419'MD.								
13419.00	90.75	179.43	9083.43	44.00	4447.61	4447.52 S 27.44 E	4447.61@ 179.65	0.00

** 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 Energy Services, Inc. and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	DEVON ENERGY		
LEASE / WELL No.:	VEGA 29 FEDERAL	#1H	
WELL LOCATION:	EDDY COUNTY		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	H&P 300		
API WELL No:	30-015-39863		
JOB No:	12MLD0120		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.46	LWD Calculated:	7.42
Agreed Upon:		7.42	
X =	679118.400000	Feet	Y = 596042.830000
		Feet	
SITE LATITUDE:	32.637773	SITE LONGITUDE:	103.885738
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	179.59		
KELLY BUSHING ELEVATION	26		
ALTITUDE:	3486.9	Feet	WATER DEPTH:
		Feet	

TIE-IN SURVEY

MEASURED DEPTH:	8455		
DRIFT ANGLE:	0.99		
DRIFT DIRECTION:	152.23 359.93		
TRUE VERTICAL DEPTH:	8450.73		
VERTICAL SECTION:	151.67		
RECTANGULAR COORDINATE (N / S):	152.21 N		
RECTANGULAR COORDINATE (E / W)	74.27 E		
CLOSURE DISTANCE / DIRECTION	169.36'	26.01'	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	Vaugh Energy Services		
COPY OF TIE-IN SURVEY REPORT	☒ YES		☐ NO

WELL PLAN

KICKOFF DEPTH:	8475	TOTAL DEPTH:	13419
KICKOFF ANGLE:	0	MAX ANGLE:	89.65

PES Engineers

MIKE SAKAS

**Signature of both field engineers required if applicable

TODD PISCIOTTA

Directional Driller: JORDAN WILLIAMS

DATE: 13-Apr-2012

VES

Company: Devon Energy

Well: Vega 29 Fed #1H

Rig: HP #300

Location: Eddy Co. NM

Latitude: 32.638

Grid Correction: -0.24

Longitude: -103.886

Depth Reference: RKB = 26 Feet

API # 30-105-39863

Surveyor: Eric McMahon

Date: 4/7/12

Field copy only not definitive.

Depth	Inc	AzG	N/S	E/W	TVD	DL	VS	GD	Gbrg
0.00	0.00	0.00	0.00	0.00	0.00	****	0.00	0.00	0.00
100.00	0.12	347.17	0.11	-0.02	100.00	0.12	0.11	0.11	347.17
200.00	0.25	334.33	0.40	-0.14	200.00	0.13	0.40	0.43	340.75
300.00	0.21	281.80	0.64	-0.41	300.00	0.20	0.64	0.76	327.07
400.00	0.17	229.26	0.58	-0.70	400.00	0.17	0.58	0.91	309.51
500.00	0.29	206.46	0.25	-0.92	500.00	0.15	0.25	0.96	285.25
600.00	0.42	183.66	-0.34	-1.06	600.00	0.19	-0.34	1.12	252.14
700.00	0.35	180.34	-1.01	-1.09	699.99	0.07	-1.01	1.48	227.10
800.00	0.28	177.03	-1.55	-1.08	799.99	0.07	-1.55	1.89	214.71
900.00	0.31	145.70	-2.02	-0.91	899.99	0.16	-2.02	2.22	204.27
1000.00	0.35	114.36	-2.37	-0.48	999.99	0.18	-2.37	2.42	191.45
1100.00	0.41	106.23	-2.60	0.14	1099.99	0.08	-2.60	2.60	176.91
1200.00	0.47	98.11	-2.75	0.89	1199.98	0.09	-2.75	2.89	162.05
1300.00	0.49	91.85	-2.83	1.72	1299.98	0.05	-2.83	3.31	148.60
1400.00	0.50	85.60	-2.81	2.58	1399.98	0.06	-2.81	3.81	137.36
1500.00	1.55	83.00	-2.61	4.36	1499.96	1.05	-2.61	5.08	120.85
1600.00	2.61	80.40	-2.06	7.95	1599.89	1.06	-2.06	8.22	104.54
1700.00	3.31	79.13	-1.14	13.03	1699.76	0.71	-1.14	13.08	94.99
1800.00	4.02	77.85	0.14	19.30	1799.55	0.71	0.14	19.30	89.57
1900.00	4.14	75.18	1.81	26.21	1899.30	0.23	1.81	26.28	86.06
2000.00	4.27	72.51	3.85	33.25	1999.03	0.23	3.85	33.48	83.40
2100.00	3.41	71.85	5.89	39.63	2098.80	0.86	5.89	40.06	81.54
2200.00	2.55	71.20	7.53	44.56	2198.67	0.86	7.53	45.19	80.40
2300.00	2.20	71.59	8.86	48.48	2298.58	0.35	8.86	49.28	79.65
2400.00	1.85	71.99	9.96	51.83	2398.52	0.35	9.96	52.78	79.12
2500.00	1.65	71.38	10.92	54.73	2498.47	0.19	10.92	55.81	78.72
2600.00	1.46	70.78	11.80	57.30	2598.44	0.19	11.80	58.50	78.37
2700.00	1.41	69.90	12.64	59.66	2698.41	0.06	12.64	60.98	78.04
2800.00	1.35	69.02	13.48	61.92	2798.38	0.06	13.48	63.37	77.71
2900.00	1.51	64.35	14.48	64.20	2898.35	0.19	14.48	65.82	77.29
3000.00	1.66	59.68	15.78	66.64	2998.31	0.20	15.78	68.49	76.68
3100.00	1.42	45.71	17.38	68.78	3098.27	0.44	17.38	70.95	75.82
3200.00	1.18	31.75	19.12	70.21	3198.25	0.40	19.12	72.77	74.77
3300.00	1.13	25.16	20.89	71.17	3298.23	0.14	20.89	74.18	73.65
3400.00	1.07	18.56	22.66	71.89	3398.21	0.14	22.66	75.38	72.51
3500.00	2.05	12.12	25.29	72.56	3498.17	0.99	25.29	76.84	70.78
3600.00	3.03	5.69	29.66	73.20	3598.07	1.02	29.66	78.98	67.94
3700.00	2.95	358.60	34.86	73.40	3697.93	0.38	34.86	81.26	64.59
3800.00	2.88	357.51	39.95	73.22	3797.80	0.09	39.95	83.41	61.39

3900.00	~ 3.27	-355.61	45.30	72.90	3897.66	0.40	45.30	85.82	58.14
4000.00	~ 3.66	- 353.71	51.31	72.33	3997.48	0.41	51.31	88.68	54.65
4100.00	~ 3.52	~ 352.99	57.52	71.60	4097.28	0.15	57.52	91.85	51.22
4200.00	~ 3.37	-352.28	63.48	70.84	4197.10	0.15	63.48	95.12	48.13
4300.00	~ 3.07	- 352.28	69.05	70.08	4296.94	0.30	69.05	98.38	45.42
4400.00	~ 2.77	- 352.28	74.11	69.40	4396.81	0.30	74.11	101.53	43.12
4500.00	~ 2.42	- 352.54	78.60	68.80	4496.71	0.35	78.60	104.45	41.20
4600.00	~ 2.07	- 352.80	82.48	68.30	4596.63	0.35	82.48	107.09	39.63
4700.00	~ 1.92	~ 353.62	85.94	67.88	4696.57	0.15	85.94	109.52	38.30
4800.00	~ 1.78	- 354.43	89.15	67.55	4796.52	0.15	89.15	111.85	37.15
4900.00	~ 1.69	~ 7.47	92.16	67.59	4896.47	0.40	92.16	114.29	36.26
5000.00	~ 1.61	- 20.50	94.94	68.27	4996.43	0.38	94.94	116.94	35.72
5100.00	~ 1.69	-34.21	97.48	69.60	5096.39	0.40	97.48	119.77	35.53
5200.00	~ 1.77	-47.93	99.73	71.57	5196.35	0.42	99.73	122.76	35.66
5300.00	~ 1.58	~52.52	101.61	73.81	5296.30	0.23	101.61	125.59	36.00
5400.00	~ 1.40	-57.11	103.11	75.94	5396.27	0.22	103.11	128.06	36.37
5500.00	~ 1.00	-57.24	104.25	77.70	5496.25	0.40	104.25	130.02	36.70
5600.00	~ 0.60	-57.37	105.01	78.88	5596.24	0.40	105.01	131.33	36.91
5700.00	- 0.61	-48.10	105.65	79.72	5696.23	0.10	105.65	132.35	37.04
5800.00	~ 0.62	-38.83	106.43	80.46	5796.23	0.10	106.43	133.42	37.09
5900.00	~ 0.54	-25.28	107.28	81.00	5896.22	0.16	107.28	134.42	37.05
6000.00	~ 0.46	-11.74	108.09	81.28	5996.22	0.14	108.09	135.24	36.94
6100.00	~ 0.53	~ 4.93	108.95	81.40	6096.21	0.09	108.95	136.00	36.77
6200.00	~ 0.60	~ 358.13	109.93	81.42	6196.21	0.10	109.93	136.80	36.53
6300.00	~ 0.57	-355.07	110.96	81.36	6296.20	0.04	110.96	137.59	36.25
6400.00	~ 0.55	- 352.01	111.93	81.25	6396.20	0.04	111.93	138.31	35.98
6500.00	~ 0.82	-351.32	113.11	81.08	6496.19	0.27	113.11	139.17	35.63
6600.00	~ 1.08	- 350.64	114.74	80.82	6596.18	0.27	114.74	140.35	35.16
6700.00	~ 1.11	-350.50	116.64	80.50	6696.16	0.03	116.64	141.72	34.61
6800.00	~ 1.14	~ 350.35	118.58	80.18	6796.14	0.03	118.58	143.14	34.06
6900.00	~ 1.27	-347.95	120.65	79.78	6896.12	0.13	120.65	144.64	33.47
7000.00	~ 1.39	~ 345.55	122.90	79.24	6996.09	0.13	122.90	146.23	32.81
7100.00	~ 1.56	340.88	125.36	78.50	7096.06	0.20	125.36	147.91	32.05
7200.00	~ 1.72	336.21	128.02	77.45	7196.02	0.21	128.02	149.62	31.17
7300.00	~ 1.26	330.81	130.35	76.30	7295.98	0.48	130.35	151.04	30.34
7400.00	~ 0.80	325.41	131.88	75.37	7395.97	0.47	131.88	151.90	29.75
7500.00	~ 0.79	316.06	132.95	74.50	7495.96	0.13	132.95	152.40	29.27
7600.00	~ 0.78	306.71	133.85	73.48	7595.95	0.13	133.85	152.69	28.77
7700.00	~ 1.03	~ 335.52	135.07	72.56	7695.94	0.51	135.07	153.33	28.25
7800.00	~ 1.27	~ 4.32	136.99	72.28	7795.92	0.62	136.99	154.89	27.82
7900.00	~ 1.49	~ 6.28	139.39	72.50	7895.89	0.23	139.39	157.12	27.48
8000.00	~ 1.71	~ 8.23	142.17	72.86	7995.85	0.23	142.17	159.75	27.13
8100.00	~ 1.51	~ 8.40	144.95	73.27	8095.81	0.21	144.95	162.41	26.81
8200.00	~ 1.30	~ 8.58	147.38	73.63	8195.78	0.21	147.38	164.74	26.55
8300.00	~ 1.14	~ 8.81	149.48	73.95	8295.76	0.17	149.48	166.77	26.32
8400.00	~ 0.97	9.04	151.30	74.23	8395.74	0.17	151.30	168.53	26.14
8455.00	~ 0.99	- 359.93	152.23	74.31	8450.73	0.29	152.23	169.40	26.02

21

10.30

-197.18



A Schlumberger Company

PathFinder Energy Services, Inc. Magnetic & Grid Calculations

Devon Energy
Vega 29 Federal #1H
Eddy County, Nm
Rig:HP 300

Wed Mar 28 16:49:08 2012

Coordinates

Latitude: 32.637773 N (32 deg. 38 min. 15.9816 sec.)
Longitude: 103.885738 W (-103 deg. 53 min. 8.6556 sec.)
Elevation: 3512.90 feet.
Calculation Date: Mar/28/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.4965 degrees
Total Magnetic Field: 0.48752 gauss
Magnetic Declination: 7.665820 degrees
Horizontal Intensity: 0.240092 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.665820 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 679118.4000 feet
Y: 596042.8300 feet
True to Grid: (convergence) -0.241404 degrees
Magnetic to Grid: 7.424416 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.424416 Degr.

Field Data

PathFinder Energy Services, Inc. Magnetic & Grid Calculations

Devon Energy
Vega 29 Federal #1H
Hackberry; Bone Spring

Sat Apr 07 11:33:08 2012

Coordinates

Latitude: 32.637773 N (32 deg. 38 min. 15.9816 sec.)
Longitude: 103.885738 W (-103 deg. 53 min. 8.6556 sec.)
Elevation: 3512.90 feet.
Calculation Date: Apr/07/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.4958 degrees
Total Magnetic Field: 0.48749 gauss
Magnetic Declination: 7.662454 degrees
Horizontal Intensity: 0.240083 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.662454 Degs

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 679118.4000 feet
Y: 596042.8300 feet
True to Grid: (convergence) -0.241404 degrees
Magnetic to Grid: 7.421051 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.421051 Degs.