

30 015 39376



Company: Devon Energy Production Company
Lease/Well: Cotton Draw Unit /No 164H

Rig Name: H&P 214
State/County: New Mexico/Eddy
Latitude: 32.15, Longitude: -103.75
GRID North is 0.31 Degrees East of True North
VS-Azi: 179.67 Degrees



Depth Reference : RKB= 25'

DRILLOG MS GYRO SURVEY CALCULATIONS
Filename: drop survey.ut
Minimum Curvature Method
Report Date/Time: 9/20/2013 / 08:27

Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Tim Dillon
Cotton Draw Unit No 164H / API 30-015-39376

RECEIVED
OCT 31 2013
NMOC D ARTESIA

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	****
155.19	0.36	27.16	155.19	0.44	0.22	-0.44	0.49	27.16	0.23
248.46	0.41	66.83	248.46	0.83	0.66	-0.83	1.06	38.61	0.28
341.73	0.53	24.48	341.72	1.35	1.15	-1.35	1.77	40.29	0.38
435.00	0.89	14.64	434.99	2.44	1.51	-2.43	2.87	31.66	0.41
528.27	1.14	24.13	528.24	3.99	2.07	-3.98	4.50	27.40	0.32
621.54	1.38	38.07	621.49	5.72	3.14	-5.71	6.53	28.77	0.42
714.81	1.36	16.61	714.73	7.67	4.15	-7.65	8.72	28.43	0.55
808.08	1.47	22.41	807.98	9.84	4.93	-9.81	11.01	26.59	0.19
901.35	0.73	359.97	901.23	11.54	5.38	-11.51	12.73	25.00	0.90
994.62	0.75	342.20	994.49	12.71	5.20	-12.68	13.73	22.23	0.25
1087.89	0.67	55.74	1087.75	13.60	5.46	-13.57	14.65	21.87	0.91
1181.16	0.81	61.97	1181.02	14.21	6.49	-14.18	15.62	24.53	0.17
1274.43	0.76	62.01	1274.28	14.81	7.62	-14.77	16.66	27.21	0.05
1367.70	0.86	43.73	1367.54	15.61	8.65	-15.56	17.85	28.99	0.30
1460.97	1.04	53.15	1460.80	16.63	9.81	-16.57	19.30	30.55	0.25
1554.24	1.08	36.87	1554.05	17.83	11.01	-17.77	20.96	31.70	0.32
1647.51	1.05	67.18	1647.31	18.87	12.33	-18.80	22.54	33.15	0.60
1740.78	1.56	53.62	1740.55	19.95	14.13	-19.87	24.45	35.31	0.64
1834.05	1.71	65.64	1833.78	21.28	16.42	-21.18	26.88	37.66	0.40
1927.32	2.03	59.57	1927.00	22.69	19.12	-22.58	29.67	40.12	0.40

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
2020.59	2.03	59.37	2020.21	24.37	21.96	-24.24	32.81	42.03	0.01
2113.86	2.26	81.40	2113.42	25.49	25.21	-25.34	35.84	44.68	0.91
2207.13	1.88	69.84	2206.63	26.29	28.46	-26.12	38.74	47.27	0.61
2300.40	1.93	74.88	2299.85	27.22	31.42	-27.04	41.57	49.09	0.19
2393.67	1.93	88.57	2393.07	27.67	34.51	-27.48	44.23	51.27	0.49
2486.94	2.12	96.73	2486.28	27.51	37.79	-27.29	46.74	53.94	0.36
2580.21	2.03	113.61	2579.49	26.65	41.01	-26.41	48.91	56.99	0.66
2673.48	1.71	133.31	2672.71	25.03	43.54	-24.78	50.22	60.11	0.76
2766.75	1.44	144.82	2765.94	23.11	45.23	-22.85	50.80	62.93	0.44
2860.02	1.66	159.46	2859.18	20.89	46.39	-20.62	50.87	65.76	0.48
2953.29	2.09	134.62	2952.40	18.42	48.07	-18.15	51.48	69.03	0.98
3046.56	1.72	104.76	3045.62	16.87	50.64	-16.58	53.38	71.57	1.12
3139.83	1.81	76.24	3138.85	16.86	53.42	-16.56	56.02	72.48	0.94
3233.10	1.81	50.19	3232.07	18.16	55.98	-17.83	58.85	72.03	0.87
3326.37	1.17	36.88	3325.31	19.86	57.69	-19.53	61.01	71.00	0.78
3419.64	0.88	79.33	3418.57	20.76	58.96	-20.42	62.51	70.61	0.85
3512.91	0.88	109.59	3511.83	20.65	60.35	-20.30	63.78	71.11	0.49
3606.18	0.70	102.00	3605.09	20.29	61.59	-19.93	64.84	71.77	0.22
3699.45	1.26	87.87	3698.35	20.21	63.17	-19.84	66.32	72.26	0.64
3792.72	3.57	95.44	3791.53	19.97	67.09	-19.58	70.00	73.42	2.50
3885.99	3.56	105.17	3884.62	18.94	72.77	-18.52	75.20	75.41	0.65
3979.26	4.09	114.69	3977.68	16.79	78.58	-16.34	80.36	77.94	0.88
4072.53	5.22	128.65	4070.64	12.75	84.92	-12.26	85.87	81.46	1.71
4165.80	6.52	141.49	4163.43	5.96	91.53	-5.43	91.72	86.27	1.98
4259.07	5.58	138.47	4256.18	-1.58	97.83	2.14	97.84	90.92	1.07
4352.34	4.30	133.63	4349.10	-7.39	103.37	7.98	103.63	94.09	1.44
4445.61	3.09	130.61	4442.17	-11.44	107.81	12.06	108.41	96.06	1.31
4538.88	2.99	132.27	4535.31	-14.71	111.52	15.35	112.48	97.51	0.15
4632.15	2.65	133.14	4628.47	-17.82	114.89	18.48	116.26	98.81	0.37
4725.42	2.41	125.78	4721.65	-20.43	118.05	21.11	119.80	99.82	0.43
4818.69	2.57	128.54	4814.83	-22.88	121.28	23.58	123.42	100.69	0.22
4911.96	2.36	129.61	4908.01	-25.41	124.39	26.13	126.96	101.55	0.24
5005.23	2.45	138.21	5001.20	-28.12	127.20	28.85	130.27	102.47	0.40
5098.50	2.45	122.88	5094.39	-30.69	130.21	31.44	133.77	103.26	0.70
5191.77	2.69	126.58	5187.56	-33.08	133.64	33.85	137.67	103.90	0.31
5285.04	2.50	131.52	5280.74	-35.73	136.92	36.52	141.50	104.63	0.31
5378.31	2.59	132.70	5373.92	-38.51	139.99	39.31	145.19	105.38	0.11
5471.58	3.30	137.26	5467.06	-41.91	143.36	42.73	149.36	106.30	0.80
5564.85	2.11	131.25	5560.23	-45.01	146.47	45.86	153.23	107.08	1.31
5658.12	2.18	119.63	5653.43	-47.02	149.31	47.88	156.54	107.48	0.47
5751.39	2.11	110.49	5746.64	-48.50	152.45	49.38	159.98	107.65	0.37
5844.66	1.82	104.27	5839.85	-49.47	155.50	50.36	163.18	107.65	0.38

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
5937.93	1.98	100.20	5933.07	-50.12	158.52	51.03	166.25	107.54	0.22
6031.20	1.60	109.86	6026.30	-50.84	161.32	51.77	169.14	107.49	0.52
6124.47	1.61	121.82	6119.53	-51.98	163.66	52.92	171.71	107.62	0.36
6217.74	1.21	155.16	6212.77	-53.56	165.19	54.51	173.65	107.96	0.96
6311.01	1.77	130.30	6306.01	-55.38	166.69	56.34	175.65	108.38	0.90
6404.28	1.91	118.60	6399.23	-57.06	169.16	58.03	178.52	108.64	0.43
6497.55	2.29	124.38	6492.44	-58.85	172.06	59.84	181.85	108.88	0.46
6590.82	1.59	123.88	6585.66	-60.63	174.67	61.63	184.90	109.14	0.74
6684.09	1.36	120.20	6678.90	-61.91	176.71	62.92	187.24	109.31	0.27
6777.36	1.82	126.48	6772.13	-63.35	178.86	64.37	189.74	109.50	0.53
6870.63	2.06	141.93	6865.35	-65.55	181.08	66.59	192.58	109.90	0.61
6963.90	2.37	162.87	6958.55	-68.71	182.68	69.76	195.18	110.61	0.92
7057.17	2.97	155.46	7051.72	-72.75	184.25	73.81	198.10	111.55	0.74
7150.44	3.25	143.52	7144.85	-77.08	186.83	78.15	202.11	112.42	0.76
7243.71	2.13	139.12	7238.02	-80.51	189.54	81.60	205.93	113.01	1.23
7336.98	2.04	134.00	7331.23	-82.97	191.86	84.08	209.03	113.39	0.22
7430.25	2.33	135.93	7424.43	-85.49	194.37	86.60	212.34	113.74	0.32
7523.52	2.96	138.04	7517.60	-88.64	197.30	89.77	216.29	114.19	0.68
7616.79	2.93	155.40	7610.75	-92.59	199.90	93.74	220.30	114.85	0.95
7710.06	3.25	170.76	7703.88	-97.36	201.31	98.52	223.62	115.81	0.95
7803.33	3.11	168.64	7797.01	-102.45	202.24	103.61	226.70	116.87	0.19
7896.60	2.51	157.09	7890.17	-106.81	203.53	107.98	229.86	117.69	0.88
7989.87	2.43	129.30	7983.35	-109.95	205.85	111.13	233.37	118.11	1.27
8083.14	2.04	108.23	8076.55	-111.72	208.96	112.92	236.95	118.13	0.97
8176.41	1.94	86.08	8169.77	-112.13	212.11	113.35	239.92	117.86	0.83
8269.68	1.89	105.76	8262.99	-112.44	215.17	113.68	242.78	117.59	0.70
8362.95	2.00	120.16	8356.21	-113.68	218.06	114.93	245.91	117.53	0.54
8456.22	1.73	134.79	8449.43	-115.49	220.47	116.75	248.89	117.65	0.59
8549.49	1.66	122.20	8542.66	-117.20	222.61	118.48	251.58	117.77	0.40
8642.76	1.31	101.55	8635.90	-118.13	224.80	119.42	253.95	117.72	0.68
8736.03	1.44	94.38	8729.14	-118.43	227.01	119.74	256.05	117.55	0.23
8829.30	1.48	74.27	8822.38	-118.20	229.34	119.51	258.01	117.27	0.55
8922.57	1.94	57.97	8915.61	-117.03	231.83	118.37	259.70	116.79	0.71
9015.84	2.24	39.27	9008.82	-114.79	234.32	116.14	260.93	116.10	0.79
9109.11	2.24	29.88	9102.02	-111.80	236.38	113.16	261.49	115.31	0.39
9202.38	1.65	25.69	9195.23	-109.01	237.87	110.38	261.66	114.62	0.65
9295.65	1.33	45.12	9288.47	-107.04	239.22	108.41	262.08	114.11	0.63
9388.92	0.98	60.92	9381.72	-105.88	240.69	107.27	262.95	113.75	0.51
9482.19	0.64	15.46	9474.98	-104.99	241.52	106.38	263.36	113.50	0.75
9575.46	0.81	320.51	9568.25	-103.98	241.24	105.37	262.70	113.32	0.74
9660.00	0.71	307.21	9652.78	-103.20	240.44	104.58	261.66	113.23	0.24



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**DRILLING SERVICES
END OF WELL REPORT**

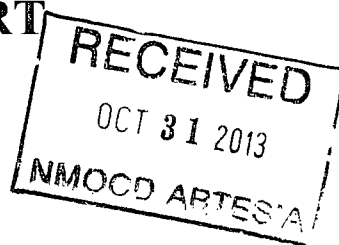
FOR

John Logemann

Devon Energy

Cotton Draw Unit 164H

Eddy County, New Mexico



Weatherford Drilling Services job start date : 4-30-2013

Weatherford Drilling Services job end date : 5-22-2013

Presented By:

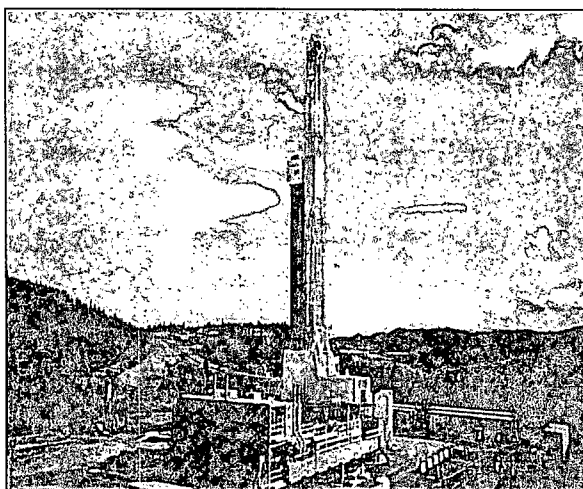
Damien Tarpley
Area Manager

Scott Dixon
Account Manager

Orry Armendariz
Directional Drilling Coordinator

Jesse Aguilar
MWD Coordinator

H&P 214





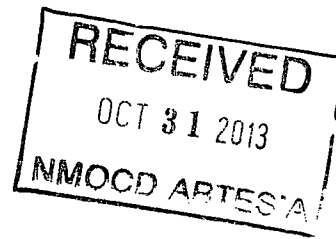
Weatherford

10000 West County Road 116
P.O. Box 61028
Midland, Texas 79711
Phone (432) 561-8892

May 29, 2013

John Logemann
333 W. Sherridan Ave
Oklahoma City, OK 73102

Reference Well Name : Cotton Draw Unit 164H
Location : Eddy County, New Mexico
Wft Job # : 4029310
Rig : H&P 214



Dear Mr. Logemann

Thank you for allowing us the opportunity to provide our services on your Cotton Draw Unit 164H in Eddy County, New Mexico.

Please find the final End Of Well (EOW) report enclosed behind this coverletter.

The EOW report contains the following information :

Section 1 - Weatherford (Wft) Final Definitive Survey & 8.5" x 11".

- * Note: This survey contains the Directional Survey's obtained by Weatherford Drilling Services via Weatherford MWD Services, and any gyro survey needed for Tie On (if required).

Section 2- Days vs. Feet Drilled (24 hrs) and Days vs. Depth Graphs

Section 3- Wft Gamma Logs

Section 4 - Wft Final BHA reports (BHA Graphic Reports, BHA Detail Reports, Motor Evaluation Reports, and BHA Slide Reports).

Section 5 - Wft Final Daily Drilling reports.

Section 6 - Wft Personnel list with contact numbers.

We at *Weatherford Drilling Services* understand the importance of this project to you and hope that you were satisfied with our Directional Drilling and MWD services provided.

Please feel free to contact me if you have any questions.

Sincerely,

Damien Tarpley
Area Manager
Weatherford Drilling Services
Midland, TX (432) 561-8892



Weatherford®

Devon Energy
Cotton Draw Unit 164H
Eddy County, New Mexico

Section 1

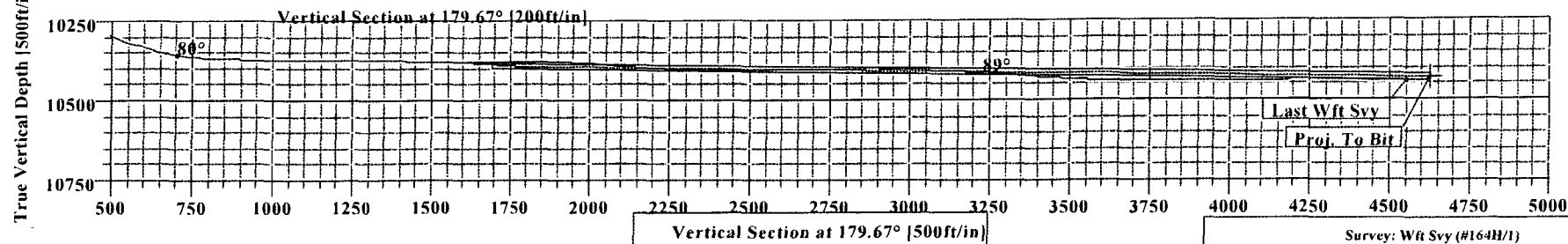
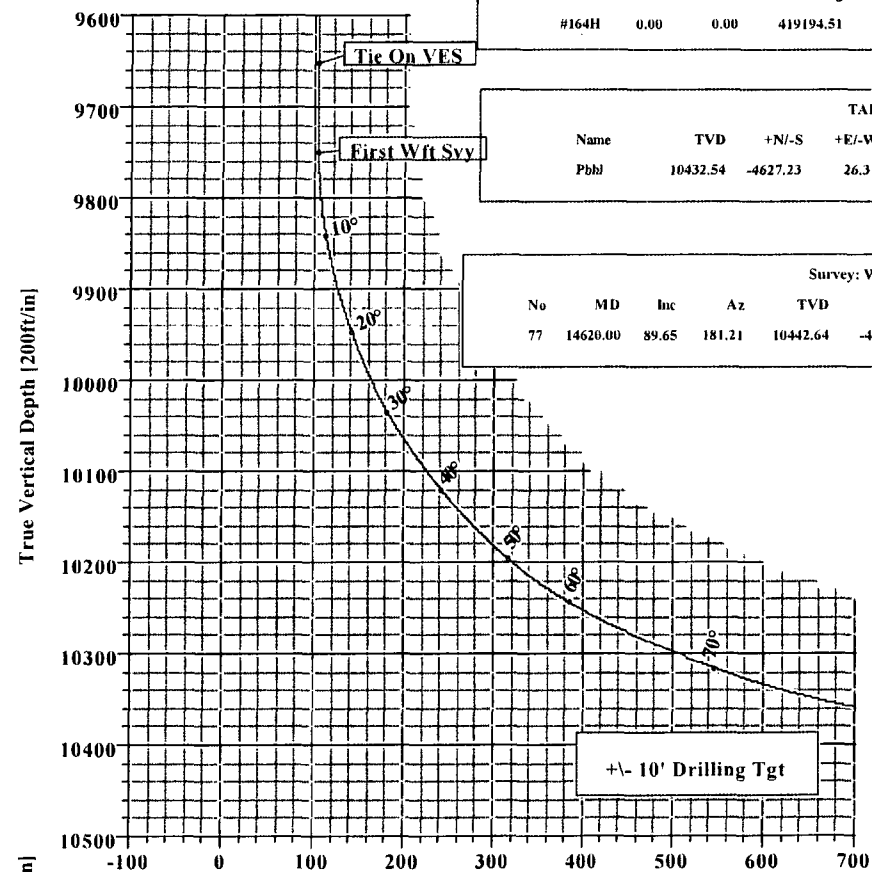
Weatherford (Wft) Final Definitive

Plot & Survey



Cotton Draw #164H
Eddy Co., New Mexico

KB ELEV: 3458
GL ELEV: 3433



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	11529.00	89.23	183.41	10379.21	-1537.15	165.95	0.00	0.00	1538.07	
2	11687.43	84.55	182.58	10387.81	-1695.08	157.68	3.00	190.02	1695.95	
3	11844.17	89.25	182.57	10396.28	-1851.39	150.66	3.00	-0.18	1852.22	
4	14623.03	89.25	182.57	10432.54	-4627.23	26.31	0.00	0.00	4627.30	Pbhl

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
#164H	0.00	0.00	419194.51	722955.98	32°09'03.892N	103°44'47.362W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Pbhl	10432.54	-4627.23	26.31	414567.28	722982.29	Rectangle (2934x50)

Survey: Wft Svy (#164H/1)

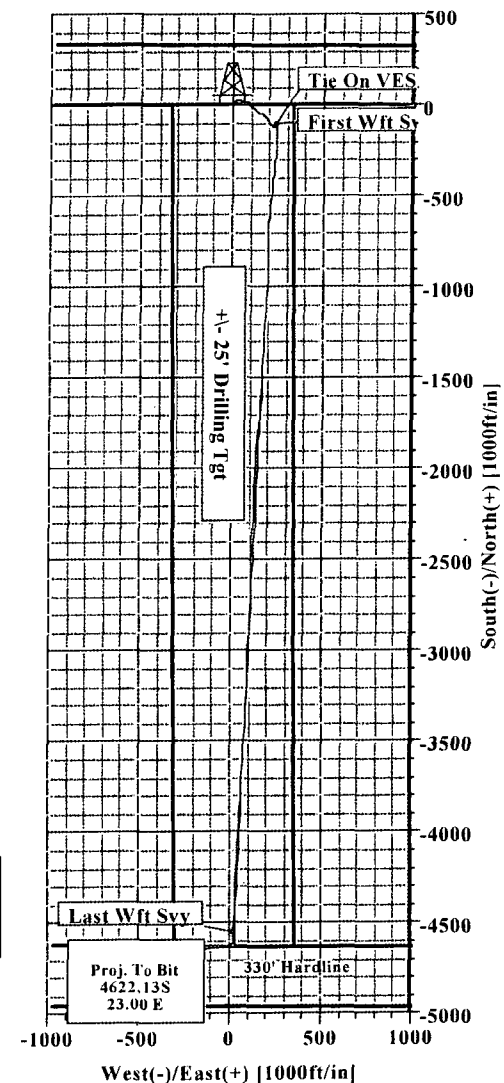
No	MD	Inc	Az	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
77	14620.00	89.65	181.21	10442.64	-4622.13	23.00	0.00	0.00	4622.18

SITE DETAILS

Cotton Draw Unit #164H
Site Centre Northing: 419194.51
Easting: 722955.98
Ground Level: 3433.00
Positional Uncertainty: 0.00
Convergence: 0.31

LEGEND

- #164H, 1, Plan #5
- #164H, 1, Gyro
- 1
- Wft Svy



West(-)/East(+) [1000ft/in]

Proj. To Bit
4622.13S
23.00 E

330' Hardline

Last Wft Svy

Proj. To Bit

Survey: Wft Svy (#164H/1)

Created By: Russell W. Joyner

Date: 5/15/2013



Weatherford

WFT Survey Report X & Y's

**Weatherford**

Company: Devon Energy Date: 5/15/2013 Time: 07:29:06 Page: 1
Field: Eddy Co., NM (NAD 83) Co-ordinate(NE) Reference: Well: #164H, Grid North
Site: Cotton Draw Unit #164H Vertical.(TVD) Reference: SITE 3458.0
Well: #164H Section.(VS) Reference: Well (0.00N,0.00E,179.67Azi)
Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: Wft Svy Start Date: 5/4/2013
Company: Weatherford Engineer: Russell W. Joyner
Tool: MWD/MWD - Standard Tied-to: User Defined

Site: Cotton Draw Unit #164H

Site Position: Northing: 419194.51 ft Latitude: 32 9 3.892 N
From: Map Easting: 722955.98 ft Longitude: 103 44 47.362 W
Position Uncertainty: 0.00 ft North Reference: Grid
Ground Level: 3433.00 ft Grid Convergence: 0.31 deg

Well: #164H Slot Name:
Well Position: +N/-S 0.00 ft Northing: 419194.51 ft Latitude: 32 9 3.892 N
+E/-W 0.00 ft Easting: 722955.98 ft Longitude: 103 44 47.362 W
Position Uncertainty: 0.00 ft

Wellpath: 1 Drilled From: Surface
Current Datum: SITE Height 3458.00 ft Tie-on Depth: 0.00 ft
Magnetic Data: 5/15/2013 Above System Datum: Mean Sea Level
Field Strength: 48387 nT Declination: 7.43 deg
Vertical Section: Depth From (TVD) +N/-S Mag Dip Angle: 60.04 deg
ft ft +E/-W Direction
deg
0.00 0.00 0.00 179.67

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
9660.00	0.71	307.21	9652.78	-103.20	240.44	0.00	104.57	419091.31	723196.42	Tie On VES First Wft Svy
9758.00	0.56	208.82	9750.77	-103.25	239.73	0.99	104.61	419091.26	723195.71	
9789.00	3.34	183.36	9781.75	-104.29	239.60	9.18	105.65	419090.22	723195.58	
9821.00	6.88	176.67	9813.62	-107.13	239.66	11.20	108.49	419087.38	723195.64	
9853.00	10.34	172.06	9845.26	-111.89	240.16	11.02	113.25	419082.62	723196.14	
9884.00	13.91	173.40	9875.56	-118.35	240.98	11.55	119.72	419076.16	723196.96	
9915.00	16.46	176.60	9905.48	-126.44	241.67	8.66	127.81	419068.07	723197.65	
9946.00	18.91	179.06	9935.01	-135.85	242.01	8.26	137.22	419058.66	723197.99	
9977.00	21.20	177.64	9964.13	-146.47	242.32	7.55	147.85	419048.04	723198.30	
10009.00	24.38	177.81	9993.63	-158.85	242.81	9.94	160.23	419035.66	723198.79	
10040.00	28.26	177.52	10021.41	-172.58	243.38	12.52	173.97	419021.93	723199.36	
10072.00	31.99	178.65	10049.08	-188.63	243.90	11.79	190.02	419005.88	723199.88	
10103.00	34.99	182.68	10074.93	-205.73	243.68	12.04	207.11	418988.78	723199.66	
10134.00	37.67	187.84	10099.91	-224.00	241.97	13.11	225.37	418970.51	723197.95	
10165.00	40.44	187.87	10123.98	-243.34	239.30	8.94	244.70	418951.17	723195.28	
10196.00	42.84	186.17	10147.15	-263.78	236.79	8.56	265.13	418930.73	723192.77	
10228.00	45.44	184.64	10170.11	-285.97	234.70	8.78	287.30	418908.54	723190.68	
10259.00	49.11	184.17	10191.14	-308.67	232.96	11.89	309.99	418885.84	723188.94	
10291.00	52.87	185.21	10211.28	-333.45	230.92	12.02	334.75	418861.06	723186.90	
10322.00	56.83	185.57	10229.12	-358.68	228.53	12.81	359.97	418835.83	723184.51	
10353.00	60.13	185.38	10245.33	-384.98	226.01	10.66	386.26	418809.53	723181.99	
10385.00	62.90	185.76	10260.59	-412.97	223.28	8.72	414.23	418781.54	723179.26	
10416.00	66.24	185.72	10273.90	-440.82	220.48	10.77	442.07	418753.69	723176.46	
10448.00	67.40	185.70	10286.49	-470.09	217.56	3.63	471.32	418724.42	723173.54	
10479.00	68.13	185.40	10298.22	-498.65	214.78	2.52	499.86	418695.86	723170.76	
10511.00	68.53	185.67	10310.04	-528.25	211.91	1.48	529.45	418666.26	723167.89	
10542.00	71.10	184.88	10320.74	-557.22	209.24	8.63	558.40	418637.29	723165.22	
10573.00	72.24	184.39	10330.49	-586.55	206.86	3.97	587.72	418607.96	723162.84	
10604.00	74.19	183.78	10339.44	-616.15	204.75	6.57	617.31	418578.36	723160.73	
10636.00	75.35	182.90	10347.84	-646.98	202.95	4.49	648.12	418547.53	723158.93	



Weatherford

WFT Survey Report X & Y's

**Weatherford**

Company: Devon Energy
Field: Eddy Co., NM (NAD 83)
Site: Cotton Draw Unit #164H
Well: #164H
Wellpath: 1

Date: 5/15/2013 Time: 07:29:06 Page: 2
Co-ordinate(NE) Reference: Well: #164H, Grid North
Vertical (TVD) Reference: SITE 3458.0
Section (VS) Reference: Well (0.00N,0.00E,179.67Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
10667.00	77.38	182.68	10355.15	-677.07	201.49	6.58	678.20	418517.44	723157.47	
10699.00	80.95	181.89	10361.17	-708.47	200.23	11.42	709.59	418486.04	723156.21	
10731.00	85.31	180.94	10364.99	-740.22	199.45	13.94	741.34	418454.29	723155.43	
10762.00	87.69	180.59	10366.88	-771.15	199.04	7.76	772.27	418423.36	723155.02	
10776.00	87.76	180.94	10367.44	-785.14	198.85	2.55	786.26	418409.37	723154.83	
10870.00	87.20	180.75	10371.57	-879.04	197.47	0.63	880.15	418315.47	723153.45	
10964.00	88.81	181.90	10374.85	-972.95	195.29	2.10	974.05	418221.56	723151.27	
11058.00	89.51	182.31	10376.22	-1066.88	191.84	0.86	1067.95	418127.63	723147.82	
11153.00	90.14	183.27	10376.51	-1161.77	187.22	1.21	1162.81	418032.74	723143.20	
11247.00	89.93	183.26	10376.46	-1255.61	181.86	0.22	1256.63	417938.90	723137.84	
11341.00	89.51	183.36	10376.92	-1349.45	176.44	0.46	1350.44	417845.06	723132.42	
11435.00	89.23	183.01	10377.95	-1443.30	171.21	0.48	1444.25	417751.21	723127.19	
11529.00	89.23	183.41	10379.21	-1537.15	165.95	0.43	1538.07	417657.36	723121.93	
11624.00	90.63	183.63	10379.33	-1631.97	160.12	1.49	1632.85	417562.54	723116.10	
11718.00	90.00	183.88	10378.81	-1725.76	153.96	0.72	1726.61	417468.75	723109.94	
11813.00	89.58	184.53	10379.16	-1820.50	147.00	0.81	1821.31	417374.01	723102.98	
11907.00	87.62	184.01	10381.46	-1914.21	140.00	2.16	1914.98	417280.30	723095.98	
12001.00	85.25	183.07	10387.30	-2007.84	134.21	2.71	2008.57	417186.67	723090.19	
12096.00	85.10	183.16	10395.29	-2102.37	129.06	0.18	2103.07	417092.14	723085.04	
12190.00	86.99	182.67	10401.78	-2196.02	124.29	2.08	2196.69	416998.49	723080.27	
12284.00	88.32	181.23	10405.62	-2289.88	121.10	2.08	2290.53	416904.63	723077.08	
12379.00	89.72	180.45	10407.25	-2384.85	119.71	1.69	2385.49	416809.66	723075.69	
12473.00	90.63	181.00	10406.96	-2478.84	118.52	1.13	2479.48	416715.67	723074.50	
12568.00	90.70	181.22	10405.86	-2573.82	116.68	0.24	2574.44	416620.69	723072.66	
12662.00	90.14	181.50	10405.17	-2667.79	114.45	0.67	2668.40	416526.72	723070.43	
12756.00	90.49	182.01	10404.65	-2761.74	111.57	0.66	2762.33	416432.77	723067.55	
12852.00	90.70	182.57	10403.65	-2857.66	107.73	0.62	2858.23	416336.85	723063.71	
12946.00	87.76	182.58	10404.92	-2951.55	103.51	3.13	2952.09	416242.96	723059.49	
13040.00	87.76	182.71	10408.59	-3045.37	99.17	0.14	3045.89	416149.14	723055.15	
13134.00	87.62	183.07	10412.38	-3139.18	94.44	0.41	3139.66	416055.33	723050.42	
13229.00	86.01	182.83	10417.66	-3233.90	89.56	1.71	3234.36	415960.61	723045.54	
13323.00	85.94	183.22	10424.26	-3327.54	84.61	0.42	3327.97	415866.97	723040.59	
13417.00	85.52	183.62	10431.26	-3421.11	79.02	0.62	3421.51	415773.40	723035.00	
13511.00	86.43	183.21	10437.85	-3514.71	73.43	1.06	3515.07	415679.80	723029.41	
13606.00	87.76	181.79	10442.67	-3609.49	69.29	2.05	3609.83	415585.02	723025.27	
13700.00	90.21	182.53	10444.33	-3703.41	65.75	2.72	3703.72	415491.10	723021.73	
13795.00	90.14	183.21	10444.04	-3798.29	61.00	0.72	3798.57	415396.22	723016.98	
13889.00	89.65	184.02	10444.22	-3892.10	55.07	1.01	3892.35	415302.41	723011.05	
13970.00	90.56	183.64	10444.07	-3972.92	49.66	1.22	3973.13	415221.59	723005.64	
14063.00	91.47	183.49	10442.42	-4065.72	43.88	0.99	4065.90	415128.79	722999.86	
14158.00	90.91	183.45	10440.45	-4160.52	38.13	0.59	4160.67	415033.99	722994.11	
14252.00	91.12	183.92	10438.78	-4254.32	32.09	0.55	4254.43	414940.19	722988.07	
14347.00	88.81	181.26	10438.84	-4349.20	27.80	3.71	4349.29	414845.31	722983.78	
14442.00	88.74	180.51	10440.87	-4444.17	26.33	0.79	4444.25	414750.34	722982.31	
14536.00	89.72	181.36	10442.13	-4538.15	24.79	1.38	4538.21	414656.36	722980.77	
14549.00	89.65	181.21	10442.20	-4551.14	24.50	1.27	4551.21	414643.37	722980.48	Last Wft Svy
14620.00	89.65	181.21	10442.64	-4622.13	23.00	0.00	4622.18	414572.38	722978.98	Proj. To Bit



Weatherford

WFT Survey Report X & Y's



Company: Devon Energy	Date: 5/15/2013	Time: 07:29:06	Page: 3
Field: Eddy Co., NM (NAD 83)	Co-ordinate(NE) Reference: Well: #164H, Grid North		
Site: Cotton Draw Unit #164H	Vertical (TVD) Reference: SITE 3458.0		
Well: #164H	Section (VS) Reference: Well: (0.00N,0.00E,179.67Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature		
	Db: Sybase		

Annotation

MD ft	TVD ft	
9660.00	9652.78	Tie On VES
9758.00	9750.77	First Wft Svy
14549.00	10442.20	Last Wft Svy
14620.00	10442.64	Proj. To Bit



COTTON DRAW UNIT 164H

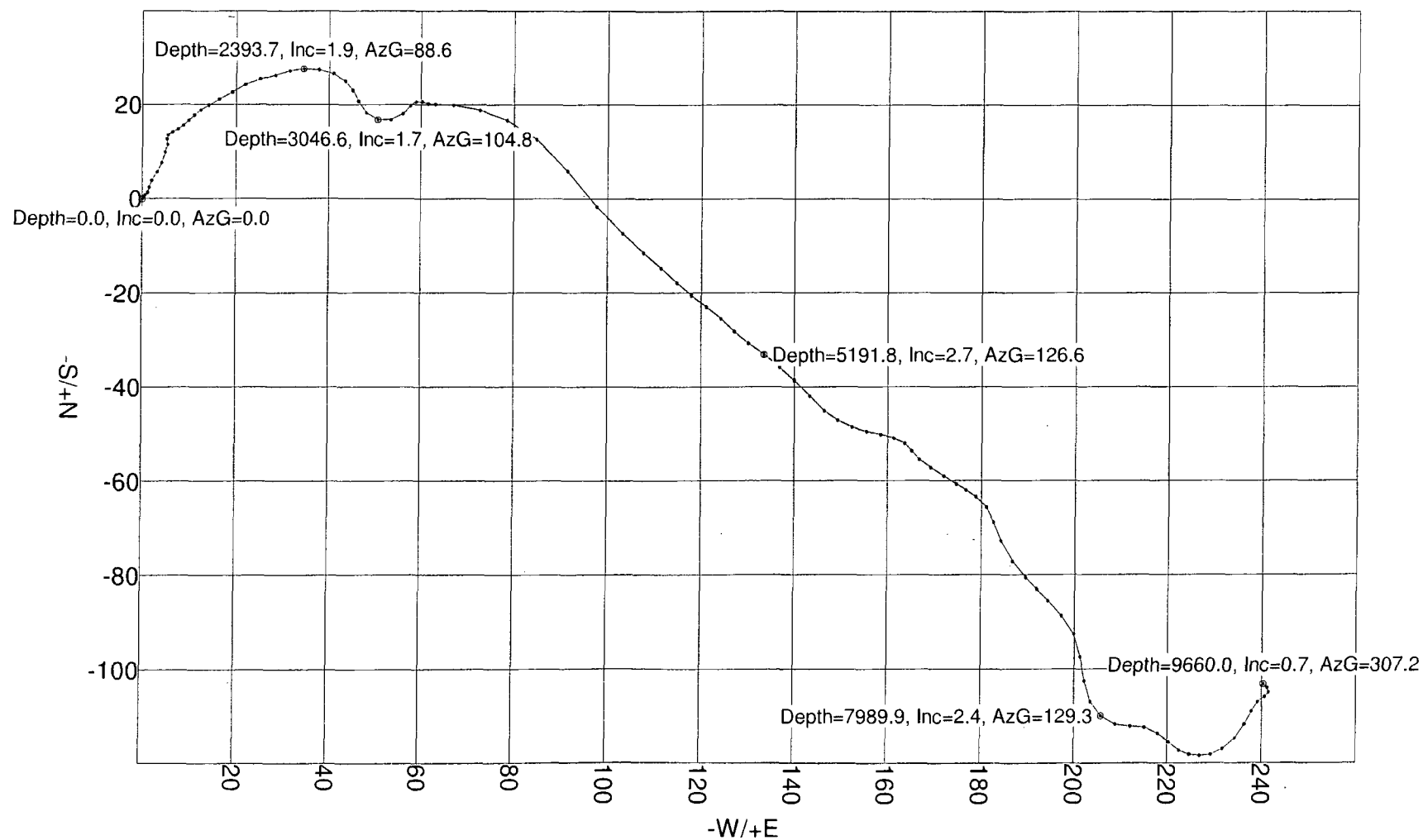
WEST UNRESTRICTED

Perforation Summary

District		County		Field Name		Project Group		State/Province							
PERMIAN BASIN		EDDY		PADUCA		DELAWARE BASIN		NM							
Surface Legal Location		API/UWI		Latitude (°)		Longitude (°)		Ground Elev MSL (ft)		KB - Ground Level (ft)		Orig KB Elevation (ft)		Tubing Head Elevation (ft)	
SEC11 T25S R31E		3001539376		32° 9' 4.507" N		103° 44' 47.447" W		3,433.70		25.00		3,458.70			
Date	Zone	Top (ftKB)	Top (TVD) (ftKB)	Btm (ftKB)	Btm (TVD) (ftKB)	Current Status	Carrier Des	Gun Size (in.)	Charge Type	Chg Sz (g)	Shot Dens (shots/ft)	Phasing (s)	Conveyance Method		
6/5/2013	BONE SPRING 2ND, OH	10,760.0	10,366.8	10,762.0	10,366.9			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/5/2013	BONE SPRING 2ND, OH	10,880.0	10,372.0	10,882.0	10,372.1			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/5/2013	BONE SPRING 2ND, OH	11,000.0	10,375.5	11,002.0	10,375.5			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/5/2013	BONE SPRING 2ND, OH	11,120.0	10,376.5	11,122.0	10,376.4			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/5/2013	BONE SPRING 2ND, OH	11,240.0	10,376.4	11,242.0	10,376.5			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/5/2013	BONE SPRING 2ND, OH	11,360.0	10,377.1	11,362.0	10,377.1			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/5/2013	BONE SPRING 2ND, OH	11,480.0	10,378.6	11,482.0	10,378.6			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/5/2013	BONE SPRING 2ND, OH	11,600.0	10,379.5	11,602.0	10,379.5			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/5/2013	BONE SPRING 2ND, OH	11,720.0	10,378.8	11,722.0	10,378.8			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	11,840.0	10,379.5	11,842.0	10,379.5			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	11,960.0	10,384.3	11,962.0	10,384.4			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	12,080.0	10,393.9	12,082.0	10,394.1			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	12,200.0	10,402.3	12,202.0	10,402.4			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	12,320.0	10,406.5	12,322.0	10,406.6			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	12,440.0	10,407.2	12,442.0	10,407.2			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	12,560.0	10,406.0	12,562.0	10,405.9			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	12,680.0	10,405.1	12,682.0	10,405.1			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	12,800.0	10,404.2	12,802.0	10,404.2			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	12,920.0	10,404.1	12,922.0	10,404.1			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	13,040.0	10,408.6	13,042.0	10,408.7			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/4/2013	BONE SPRING 2ND, OH	13,160.0	10,413.6	13,162.0	10,413.7			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/3/2013	BONE SPRING 2ND, OH	13,280.0	10,421.2	13,282.0	10,421.4			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/3/2013	BONE SPRING 2ND, OH	13,400.0	10,429.9	13,402.0	10,430.1			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/3/2013	BONE SPRING 2ND, OH	13,520.0	10,438.4	13,522.0	10,438.5			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/3/2013	BONE SPRING 2ND, OH	13,640.0	10,443.7	13,642.0	10,443.8			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/3/2013	BONE SPRING 2ND, OH	13,760.0	10,444.1	13,762.0	10,444.1			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
6/3/2013	BONE SPRING 2ND, OH	13,880.0	10,444.2	13,882.0	10,444.2			3 1/8	SHAPED	23.0	6.0	60	WIRELINE		
5/31/2013	BONE SPRING 2ND, OH	14,000.0	10,443.7	14,002.0	10,443.7			3 1/8	SHAPED	23.0	6.0	60	TUBING		
5/31/2013	BONE SPRING 2ND, OH	14,100.0	10,441.5	14,102.0	10,441.5			3 1/8	SHAPED	23.0	6.0	60	TUBING		
5/31/2013	BONE SPRING 2ND, OH	14,200.0	10,439.7	14,202.0	10,439.7			3 1/8	SHAPED	23.0	6.0	60	TUBING		
5/31/2013	BONE SPRING 2ND, OH	14,300.0	10,438.3	14,302.0	10,438.3			3 1/8	SHAPED	23.0	6.0	60	TUBING		



Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Tim Dillon
Cotton Draw Unit No 164H / API 30-015-39376



VES Survey Date: 05/02/2013