

**McVAY DRILLING COMPANY**

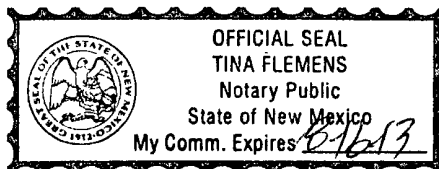
P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

HOBBS OCD**30-025-40574****NOV 01 2012****EG 11-6-2012**
RECEIVED

Well Name and Num: Ichabod 7 Fed 4H
Location: Sec. 7, T26S, R34E
Operator: Devon
Drilling Contractor: McVay Drilling Company

The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
0.92	790	0.55	8241	91.80	11307	90.66	13868
0.30	1300	3.61	8966	91.89	11591	90.48	13963
0.10	1803	6.68	8998	93.21	11781		
0.30	2299	15.90	9093	93.21	11970		
0.80	2738	27.70	9218	93.03	12065		
1.90	3223	38.08	9312	90.22	12160		
2.00	3716	52.58	9503	89.08	12253		
2.00	3940	61.47	9598	89.60	12443		
1.90	4195	69.29	9692	91.10	12633		
1.50	4456	80.11	9787	91.01	12728		
1.80	1709	85.03	9824	90.66	12823		
1.90	5242	91.89	9980	91.45	13108		
1.30	5705	91.19	10075	90.92	13203		
1.18	6213	88.20	10357	90.31	13298		
1.60	6720	90.22	10547	90.31	13393		
1.40	7195	91.87	10832	91.01	13488		
1.10	7733	92.07	11117	91.45	13678		

By: H. H. Crandall Jr.Subscribed and sworn to before me this 9th day of July, 2012Tina Flemens
Notary Public, Lea County, New Mexico

NOV 06 2012



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

June 26, 2012

Devon Energy Production Co., L. P.
20 North Broadway
Oklahoma City, OK 73102-8260

Attn: Mark Cooper

Re: Ichabod 7 Fed No. 004H

Please find enclosed a copy of the survey from 0' to 8840' 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.

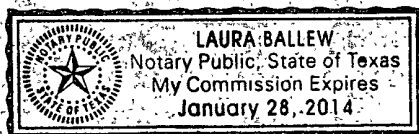
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
§
COUNTY OF NUECES §

This instrument was acknowledged before me on the 27th day of June, A.D., 2012, by Keith Havelka.

Laura Balley
Notary Public, State of Texas





Company: Devon Energy Production Company
Lease/Well: Ichabod 7 Fed/No. 004H
Location: S7 T26s R34e
Rig Name: McVay Rig #8
State/County: New Mexico/Lea
Latitude: 32.05
GRID North is 0.44 Degrees East of True North
VS-Azi: 0.00 Degrees



HOBBS OCD

RKB : 18'

NOV 01 2012

RECEIVED

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ichabod 7 fed #4h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 6/26/2012 / 10:48

Vaughn Energy Services

Gardendale, Texas

(432) 563-5444

Surveyor: Dustin Wedel

Ichabod 7 Fed No. 004H / API 30-025-40574

SUR: P-7-26s-34e, 108/S & 455/E
BHL: A-7-26s-34e, 402/N & 1005/E
API # 30-025-40574

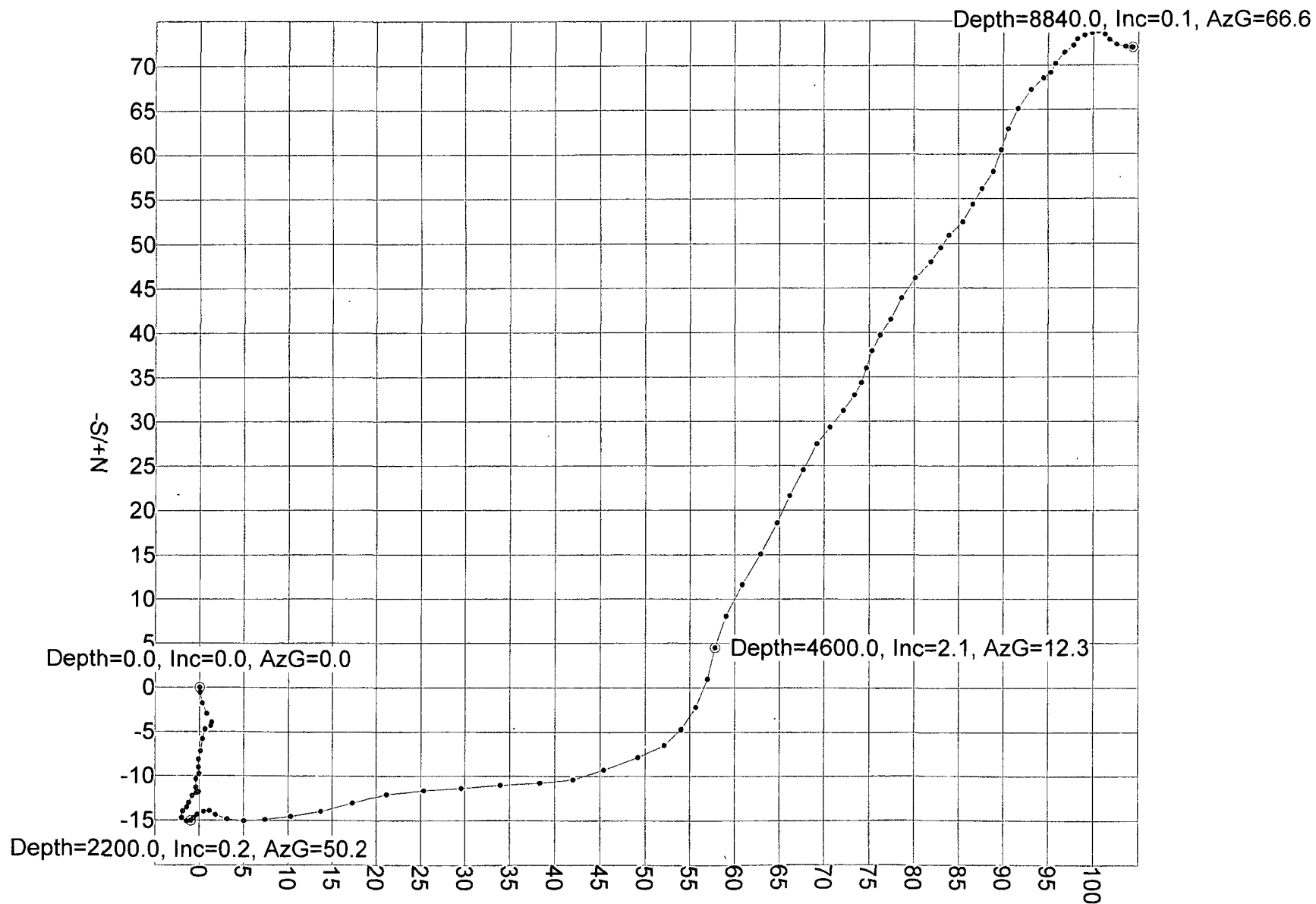
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.65	175.37	100.00	-0.57	0.05	-0.57	0.57	175.37	0.65
200.00	0.77	161.61	199.99	-1.78	0.31	-1.78	1.80	170.27	0.21
300.00	0.72	151.91	299.98	-2.97	0.81	-2.97	3.08	164.70	0.14
400.00	0.57	146.88	399.98	-3.94	1.38	-3.94	4.17	160.71	0.16
500.00	0.44	270.32	499.97	-4.35	1.27	-4.35	4.53	163.78	0.89
600.00	0.52	215.78	599.97	-4.72	0.62	-4.72	4.76	172.54	0.44
700.00	0.84	181.70	699.96	-5.82	0.33	-5.82	5.83	176.74	0.50
800.00	0.78	196.93	799.95	-7.21	0.11	-7.21	7.21	179.12	0.22
900.00	0.26	187.74	899.95	-8.09	-0.12	-8.09	8.09	180.85	0.52
1000.00	0.80	175.40	999.94	-9.01	-0.09	-9.01	9.01	180.60	0.54
1100.00	0.06	193.64	1099.94	-9.76	-0.05	-9.76	9.76	180.30	0.74
1200.00	0.74	209.94	1199.94	-10.37	-0.39	-10.37	10.38	182.13	0.68
1300.00	0.58	140.41	1299.93	-11.32	-0.39	-11.32	11.32	181.96	0.76
1400.00	0.12	181.79	1399.93	-11.81	-0.07	-11.81	11.81	180.33	0.49
1500.00	0.29	275.49	1499.93	-11.90	-0.32	-11.90	11.90	181.55	0.32
1600.00	0.49	209.64	1599.93	-12.24	-0.78	-12.24	12.27	183.67	0.45
1700.00	0.51	202.24	1699.92	-13.02	-1.16	-13.02	13.07	185.10	0.07
1800.00	0.17	221.78	1799.92	-13.54	-1.43	-13.54	13.62	186.03	0.35

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
1900.00	0.53	225.86	1899.92	-13.98	-1.86	-13.98	14.10	187.59	0.36
2000.00	0.50	150.88	1999.92	-14.69	-1.98	-14.69	14.82	187.69	0.63
2100.00	0.39	96.95	2099.91	-15.11	-1.43	-15.11	15.18	185.42	0.42
2200.00	0.20	50.18	2199.91	-15.04	-0.97	-15.04	15.08	183.68	0.29
2300.00	0.32	40.63	2299.91	-14.73	-0.66	-14.73	14.74	182.56	0.13
2400.00	0.34	58.67	2399.91	-14.36	-0.22	-14.36	14.36	180.89	0.11
2500.00	0.58	67.51	2499.91	-14.02	0.49	-14.02	14.02	177.98	0.24
2600.00	0.26	122.60	2599.91	-13.94	1.15	-13.94	13.99	175.30	0.48
2700.00	0.68	121.98	2699.90	-14.38	1.84	-14.38	14.50	172.71	0.42
2800.00	0.96	101.30	2799.89	-14.86	3.16	-14.86	15.19	167.98	0.41
2900.00	1.18	91.86	2899.87	-15.05	5.02	-15.05	15.87	161.56	0.28
3000.00	1.56	83.07	2999.85	-14.92	7.41	-14.92	16.66	153.61	0.43
3100.00	1.78	82.64	3099.80	-14.56	10.30	-14.56	17.83	144.72	0.22
3200.00	2.17	79.28	3199.74	-14.01	13.70	-14.01	19.59	135.64	0.40
3300.00	2.13	70.69	3299.67	-13.04	17.31	-13.04	21.68	126.99	0.32
3400.00	2.45	80.25	3399.59	-12.06	21.17	-12.06	24.37	119.67	0.49
3500.00	2.38	88.16	3499.50	-11.64	25.36	-11.64	27.90	114.65	0.34
3600.00	2.47	84.92	3599.42	-11.38	29.58	-11.38	31.70	111.04	0.16
3700.00	2.56	86.06	3699.32	-11.03	33.96	-11.03	35.70	108.00	0.10
3800.00	2.47	86.86	3799.22	-10.76	38.33	-10.76	39.82	105.68	0.09
3900.00	1.78	80.09	3899.15	-10.38	42.02	-10.38	43.28	103.87	0.74
4000.00	2.34	65.68	3999.09	-9.27	45.41	-9.27	46.34	101.54	0.76
4100.00	2.28	73.08	4099.01	-7.85	49.17	-7.85	49.79	99.07	0.30
4200.00	1.52	53.80	4198.95	-6.49	52.14	-6.49	52.54	97.09	0.98
4300.00	1.51	38.01	4298.92	-4.67	54.02	-4.67	54.22	94.94	0.42
4400.00	1.90	31.02	4398.87	-2.21	55.69	-2.21	55.73	92.27	0.44
4500.00	2.05	14.16	4498.82	0.95	56.98	0.95	56.99	89.04	0.60
4600.00	2.12	12.25	4598.75	4.49	57.81	4.49	57.99	85.56	0.09
4700.00	2.25	25.21	4698.68	8.07	59.04	8.07	59.59	82.22	0.51
4800.00	2.34	28.16	4798.60	11.65	60.84	11.65	61.94	79.16	0.15
4900.00	2.26	33.49	4898.52	15.09	62.89	15.09	64.67	76.51	0.23
5000.00	2.29	22.30	4998.44	18.58	64.73	18.58	67.34	73.99	0.44
5100.00	1.58	28.17	5098.38	21.64	66.14	21.64	69.59	71.89	0.74
5200.00	2.20	26.58	5198.33	24.57	67.65	24.57	71.97	70.04	0.62
5300.00	1.59	29.56	5298.27	27.49	69.19	27.49	74.45	68.33	0.62
5400.00	1.16	50.15	5398.24	29.34	70.65	29.34	76.50	67.45	0.65
5500.00	1.62	30.34	5498.21	31.21	72.14	31.21	78.60	66.61	0.66
5600.00	0.86	44.03	5598.19	32.97	73.37	32.97	80.44	65.81	0.81
5700.00	1.00	16.20	5698.18	34.35	74.14	34.35	81.71	65.14	0.47

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	0.99	19.62	5798.16	36.00	74.67	36.00	82.90	64.26	0.06
5900.00	1.36	18.02	5898.14	37.95	75.33	37.95	84.35	63.27	0.37
6000.00	0.92	42.34	5998.12	39.67	76.24	39.67	85.94	62.51	0.65
6100.00	1.53	26.25	6098.10	41.46	77.37	41.46	87.78	61.82	0.69
6200.00	1.55	27.80	6198.06	43.85	78.59	43.85	90.00	60.84	0.05
6300.00	1.59	40.57	6298.03	46.10	80.13	46.10	92.44	60.08	0.35
6400.00	1.32	47.79	6397.99	47.93	81.88	47.93	94.88	59.66	0.33
6500.00	0.95	17.61	6497.97	49.50	82.99	49.50	96.63	59.19	0.69
6600.00	1.03	47.86	6597.96	50.89	83.91	50.89	98.14	58.76	0.52
6700.00	1.44	43.86	6697.94	52.41	85.45	52.41	100.24	58.48	0.41
6800.00	1.27	14.28	6797.91	54.38	86.59	54.38	102.25	57.87	0.71
6900.00	1.17	48.70	6897.89	56.13	87.63	56.13	104.07	57.36	0.73
7000.00	1.55	22.17	6997.86	58.06	88.91	58.06	106.19	56.86	0.72
7100.00	1.41	17.32	7097.83	60.49	89.79	60.49	108.26	56.03	0.19
7200.00	1.41	20.07	7197.80	62.82	90.58	62.82	110.23	55.26	0.07
7300.00	1.52	30.73	7297.76	65.11	91.67	65.11	112.45	54.61	0.29
7400.00	1.45	39.19	7397.73	67.23	93.15	67.23	114.88	54.18	0.23
7500.00	0.76	59.91	7497.71	68.55	94.52	68.55	116.76	54.05	0.78
7600.00	0.42	36.53	7597.71	69.17	95.32	69.17	117.77	54.03	0.41
7700.00	0.90	23.49	7697.70	70.18	95.84	70.18	118.79	53.79	0.50
7800.00	0.99	52.21	7797.69	71.43	96.84	71.43	120.33	53.59	0.47
7900.00	0.46	48.36	7897.68	72.22	97.82	72.22	121.59	53.56	0.53
8000.00	0.51	18.15	7997.68	72.91	98.26	72.91	122.36	53.42	0.26
8100.00	0.74	88.47	8097.67	73.36	99.05	73.36	123.25	53.47	0.75
8200.00	0.35	31.38	8197.67	73.64	99.85	73.64	124.07	53.59	0.63
8300.00	0.61	102.55	8297.66	73.78	100.53	73.78	124.70	53.72	0.59
8400.00	0.36	132.44	8397.66	73.45	101.28	73.45	125.11	54.05	0.34
8500.00	0.52	145.34	8497.66	72.87	101.77	72.87	125.17	54.40	0.18
8600.00	0.64	110.49	8597.65	72.30	102.55	72.30	125.48	54.82	0.37
8700.00	0.53	95.87	8697.65	72.05	103.54	72.05	126.14	55.16	0.19
8800.00	0.25	99.04	8797.64	71.97	104.21	71.97	126.65	55.37	0.28
8840.00	0.13	66.62	8837.64	71.98	104.34	71.98	126.75	55.40	0.39



Vaughn Energy Services
Gardendale, Texas
(432) 563-5444
Surveyor: Dustin Wedel
Ichabod 7 Fed No. 004H / API 30-025-40574



VES Survey Date: 06/19/2012



Company: Devon
Lease/Well: Ichabod 7 Fed/#4H
Location: S7 T26s R34e
Rig Name: McVay Rig #8
State/County: New Mexico/Lea
Latitude: 32 05
GRID North is 0.44 Degrees East of True North
VS-Azi: 0.00 Degrees



SUR: P-7-26s-34e, 108/S & 455/E
BHL: A-7-26s-34e, 402/N & 1005/E
API # 30-025-40574

FIELD COPY ONLY (NOT DEFINITIVE)

RKB : 18 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ichabod 7 fed #4h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 6/19/2012 / 06:12

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	0.65	175.37	100.00	-0.57	0.05	-0.57	0.57	175.37	0.65
200.00	0.77	161.61	199.99	-1.78	0.31	-1.78	1.80	170.27	0.21
300.00	0.72	151.91	299.98	-2.97	0.81	-2.97	3.08	164.70	0.14
400.00	0.57	146.88	399.98	-3.94	1.38	-3.94	4.17	160.71	0.16
500.00	0.44	270.32	499.97	-4.35	1.27	-4.35	4.53	163.78	0.89
600.00	0.52	215.78	599.97	-4.72	0.62	-4.72	4.76	172.54	0.44
700.00	0.84	181.70	699.96	-5.82	0.33	-5.82	5.83	176.74	0.50
800.00	0.78	196.93	799.95	-7.21	0.11	-7.21	7.21	179.12	0.22
900.00	0.26	187.74	899.95	-8.09	-0.12	-8.09	8.09	180.85	0.52
1000.00	0.80	175.40	999.94	-9.01	-0.09	-9.01	9.01	180.60	0.54
1100.00	0.06	193.64	1099.94	-9.76	-0.05	-9.76	9.76	180.30	0.74
1200.00	0.74	209.94	1199.94	-10.37	-0.39	-10.37	10.38	182.13	0.68
1300.00	0.58	140.41	1299.93	-11.32	-0.39	-11.32	11.32	181.96	0.76
1400.00	0.12	181.79	1399.93	-11.81	-0.07	-11.81	11.81	180.33	0.49
1500.00	0.29	275.49	1499.93	-11.90	-0.32	-11.90	11.90	181.55	0.32
1600.00	0.49	209.64	1599.93	-12.24	-0.78	-12.24	12.27	183.67	0.45
1700.00	0.51	202.24	1699.92	-13.02	-1.16	-13.02	13.07	185.10	0.07
1800.00	0.17	221.78	1799.92	-13.54	-1.43	-13.54	13.62	186.03	0.35
1900.00	0.53	225.86	1899.92	-13.98	-1.86	-13.98	14.10	187.59	0.36
2000.00	0.50	150.88	1999.92	-14.69	-1.98	-14.69	14.82	187.69	0.63
2100.00	0.39	96.95	2099.91	-15.11	-1.43	-15.11	15.18	185.42	0.42
2200.00	0.20	50.18	2199.91	-15.04	-0.97	-15.04	15.08	183.68	0.29
2300.00	0.32	40.63	2299.91	-14.73	-0.66	-14.73	14.74	182.56	0.13
2400.00	0.34	58.67	2399.91	-14.36	-0.22	-14.36	14.36	180.89	0.11
2500.00	0.58	67.51	2499.91	-14.02	0.49	-14.02	14.02	177.98	0.24
2600.00	0.26	122.60	2599.91	-13.94	1.15	-13.94	13.99	175.30	0.48
2700.00	0.68	121.98	2699.90	-14.38	1.84	-14.38	14.50	172.71	0.42
2800.00	0.96	101.30	2799.89	-14.86	3.16	-14.86	15.19	167.98	0.41
2900.00	1.18	91.86	2899.87	-15.05	5.02	-15.05	15.87	161.56	0.28

Depth FT	Angle Deg	Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Horizontal Distance FT	Course Direction Deg	Dogleg Severity Deg/100
3000.00	1.56	83.07	2999.85	-14.92	7.41	-14.92	16.66	153.61	0.43
3100.00	1.78	82.64	3099.80	-14.56	10.30	-14.56	17.83	144.72	0.22
3200.00	2.17	79.28	3199.74	-14.01	13.70	-14.01	19.59	135.64	0.40
3300.00	2.13	70.69	3299.67	-13.04	17.31	-13.04	21.68	126.99	0.32
3400.00	2.45	80.25	3399.59	-12.06	21.17	-12.06	24.37	119.67	0.49
3500.00	2.38	88.16	3499.50	-11.64	25.36	-11.64	27.90	114.65	0.34
3600.00	2.47	84.92	3599.42	-11.38	29.58	-11.38	31.70	111.04	0.16
3700.00	2.56	86.06	3699.32	-11.03	33.96	-11.03	35.70	108.00	0.10
3800.00	2.47	86.86	3799.22	-10.76	38.33	-10.76	39.82	105.68	0.09
3900.00	1.78	80.09	3899.15	-10.38	42.02	-10.38	43.28	103.87	0.74
4000.00	2.34	65.68	3999.09	-9.27	45.41	-9.27	46.34	101.54	0.76
4100.00	2.28	73.08	4099.01	-7.85	49.17	-7.85	49.79	99.07	0.30
4200.00	1.52	53.80	4198.95	-6.49	52.14	-6.49	52.54	97.09	0.98
4300.00	1.51	38.01	4298.92	-4.67	54.02	-4.67	54.22	94.94	0.42
4400.00	1.90	31.02	4398.87	-2.21	55.69	-2.21	55.73	92.27	0.44
4500.00	2.05	14.16	4498.82	0.95	56.98	0.95	56.99	89.04	0.60
4600.00	2.12	12.25	4598.75	4.49	57.81	4.49	57.99	85.56	0.09
4700.00	2.25	25.21	4698.68	8.07	59.04	8.07	59.59	82.22	0.51
4800.00	2.34	28.16	4798.60	11.65	60.84	11.65	61.94	79.16	0.15
4900.00	2.26	33.49	4898.52	15.09	62.89	15.09	64.67	76.51	0.23
5000.00	2.29	22.30	4998.44	18.58	64.73	18.58	67.34	73.99	0.44
5100.00	1.58	28.17	5098.38	21.64	66.14	21.64	69.59	71.89	0.74
5200.00	2.20	26.58	5198.33	24.57	67.65	24.57	71.97	70.04	0.62
5300.00	1.59	29.56	5298.27	27.49	69.19	27.49	74.45	68.33	0.62
5400.00	1.16	50.15	5398.24	29.34	70.65	29.34	76.50	67.45	0.65
5500.00	1.62	30.34	5498.21	31.21	72.14	31.21	78.60	66.61	0.66
5600.00	0.86	44.03	5598.19	32.97	73.37	32.97	80.44	65.81	0.81
5700.00	1.00	16.20	5698.18	34.35	74.14	34.35	81.71	65.14	0.47
5800.00	0.99	19.62	5798.16	36.00	74.67	36.00	82.90	64.26	0.06
5900.00	1.36	18.02	5898.14	37.95	75.33	37.95	84.35	63.27	0.37
6000.00	0.92	42.34	5998.12	39.67	76.24	39.67	85.94	62.51	0.65
6100.00	1.53	26.25	6098.10	41.46	77.37	41.46	87.78	61.82	0.69
6200.00	1.55	27.80	6198.06	43.85	78.59	43.85	90.00	60.84	0.05
6300.00	1.59	40.57	6298.03	46.10	80.13	46.10	92.44	60.08	0.35
6400.00	1.32	47.79	6397.99	47.93	81.88	47.93	94.88	59.66	0.33
6500.00	0.95	17.61	6497.97	49.50	82.99	49.50	96.63	59.19	0.69
6600.00	1.03	47.86	6597.96	50.89	83.91	50.89	98.14	58.76	0.52
6700.00	1.44	43.86	6697.94	52.41	85.45	52.41	100.24	58.48	0.41
6800.00	1.27	14.28	6797.91	54.38	86.59	54.38	102.25	57.87	0.71
6900.00	1.17	48.70	6897.89	56.13	87.63	56.13	104.07	57.36	0.73
7000.00	1.55	22.17	6997.86	58.06	88.91	58.06	106.19	56.86	0.72
7100.00	1.41	17.32	7097.83	60.49	89.79	60.49	108.26	56.03	0.19
7200.00	1.41	20.07	7197.80	62.82	90.58	62.82	110.23	55.26	0.07
7300.00	1.52	30.73	7297.76	65.11	91.67	65.11	112.45	54.61	0.29
7400.00	1.45	39.19	7397.73	67.23	93.15	67.23	114.88	54.18	0.23
7500.00	0.76	59.91	7497.71	68.55	94.52	68.55	116.76	54.05	0.78
7600.00	0.42	36.53	7597.71	69.17	95.32	69.17	117.77	54.03	0.41
7700.00	0.90	23.49	7697.70	70.18	95.84	70.18	118.79	53.79	0.50
7800.00	0.99	52.21	7797.69	71.43	96.84	71.43	120.33	53.59	0.47
7900.00	0.46	48.36	7897.68	72.22	97.82	72.22	121.59	53.56	0.53

Depth FT	Angle Deg	Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Section FT	Distance FT	Direction Deg	Severity Deg/100
8000.00	0.51	18.15	7997.68	72.91	98.26	72.91	122.36	53.42	0.26
8100.00	0.74	88.47	8097.67	73.36	99.05	73.36	123.25	53.47	0.75
8200.00	0.35	31.38	8197.67	73.64	99.85	73.64	124.07	53.59	0.63
8300.00	0.61	102.55	8297.66	73.78	100.53	73.78	124.70	53.72	0.59
8400.00	0.36	132.44	8397.66	73.45	101.28	73.45	125.11	54.05	0.34
8500.00	0.52	145.34	8497.66	72.87	101.77	72.87	125.17	54.40	0.18
8600.00	0.64	110.49	8597.65	72.30	102.55	72.30	125.48	54.82	0.37
8700.00	0.53	95.87	8697.65	72.05	103.54	72.05	126.14	55.16	0.19
8800.00	0.25	99.04	8797.64	71.97	104.21	71.97	126.65	55.37	0.28
8840.00	0.13	66.62	8837.64	71.98	104.34	71.98	126.75	55.40	0.39

HORIZONTAL DISPLACEMENT IS
126.75 FEET AT 55.40 DEGREES

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

*FIELD
Calculation*

DEVON ENERGY
ICHABOD 7 FEDERAL #4H
DELAWARE
Rig:MCVAY 8

Sun Jun 17 23:10:49 2012

Coordinates

Latitude: 32.050996 N (32 deg. 3 min. 3.5867 sec.)
Longitude: 103.501914 W (-103 deg. 30 min. 6.8888 sec.)
Elevation: 3386.80 feet.
Calculation Date: Jun/17/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.0132 degrees
Total Magnetic Field: 0.48419 gauss
Magnetic Declination: 7.417407 degrees
Horizontal Intensity: 0.241999 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.417407 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 798928.9400 feet
Y: 383282.2800 feet
True to Grid: (convergence) -0.441235 degrees
Magnetic to Grid: 6.976171 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 6.976171 Degr.



A Schlumberger Company

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Devon Energy
Ichabod 7 Federal #4H
Lea County, Nm
Rig:McVay 8

Thu Jun 14 18:41:20 2012

Coordinates

Latitude: 32.050996 N (32 deg. 3 min. 3.5867 sec.)
Longitude: 103.501914 W (-103 deg. 30 min. 6.8888 sec.)
Elevation: 3386.80 feet.
Calculation Date: Jun/14/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.0134 degrees
Total Magnetic Field: 0.48420 gauss
Magnetic Declination: 7.418418 degrees
Horizontal Intensity: 0.242002 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.418418 Degs

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 798928.9400 feet
Y: 383282.2800 feet
True to Grid: (convergence) -0.441235 degrees
Magnetic to Grid: 6.977183 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 6.977183 Degs.



A Schlumberger Company

DIRECTIONAL SURVEY REPORT

DEVON ENERGY

ICHABOD 7 FEDERAL #4H

LEA COUNTY, NEW MEXICO

SUR: P-7-26s-34e, 108/S & 455/E
BHL: A-7-26s-34e, 402/N & 1005/E
API # 30-025-40574

PREPARED BY: MARCUS MITCHAM

Pathfinder

5213 WCF 112
Midland, Texas 79706-3725, USA
Tel (432) 687-1647
Fax (432) 687-1544



July 10, 2012

Devon Energy
20 N. Broadway
Oklahoma City, OK

RE: Devon Energy
Ichabod 7 Federal #4H
API: 30-025-40574
Lea County, NM
RIG: MCVAY 8
FIELD: Delaware
PES FILE NO.: 12MLD0246

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 "MARCUS MITCHAM".

MARCUS MITCHAM
M/LWD Service Coordinator
PathFinder Energy Services

ML:sh

Pathfinder

6213 WCP 112
Midland, Texas 79705-3725 USA
Tel: (432) 687-1647
Fax: (432) 687-1544



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) PRITHWISH DAS
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 6/20/12 TO 7/03/12
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: LEA COUNTY
7. TYPE OF SURVEY(S) PERFORMED: GAMMA-RAY
8. COMPLETE IDENTIFICATION OF WELL:

DEVON ENERGY
ICHABOD 7 FEDERAL #4H
LEA COUNTY, NM
RIG: MCVAY 8
9. SURVEY CERTIFIED FROM: 8,966 TO 13,963 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 4,805.50 FEET ON A BEARING OF 353.25 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 14,020 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



MARCUS MITCHAM
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 06/20/2012
Date Completed: 07/03/2012

DEVON ENERGY
ICHABOD 7 FEDERAL #4H
LEA COUNTY, NM
Rig:MCVAY 8
PathFinder Office Supervisor: JUAN ALCOCER
PathFinder Field Engineers:WISH DAS
MURAD ALIYEV

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.3.3.5867 N LON:103.30.6.8888 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 798928.9400 Y: 383282.2800
North Aligned To:GRID NORTH
Total Magnetic Correction: 6.98° EAST TO GRID
Vertical Section Plane: 353.33
Survey Vert. Reference: 19.00' Rotary Table To Ground
Altitude:3367.80' Ground To MSL

Measured Depth	14020.00	(feet)
Inclination	90.48	(deg)
Azimuth	353.36	(deg)
True Vertical Depth	9458.98	(feet)
Vertical Section	4805.49	(feet)
Survey X cord	798364.01	(feet)
Survey Y cord	387054.45	(feet)
Survey Lat	32.06137678 N	(deg)
Survey Lon	103.50364322 W	(deg)
Rectangular Corr. N/S	4772.17 N	(feet)
Rectangular Corr. E/W	564.93 W	(feet)
Closure Distance	4805.50	(feet)
Direction of Closure	353.25	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY
 ICHABOD 7 FEDERAL #4H
 LEA COUNTY, NM
 Rig:MCVAY 8
 PathFinder Office Supervisor: JUAN ALCOCER
 PathFinder Field Engineers: WISH DAS
 MURAD ALIYEV

Page 01/03
 Tie-in Date: 06/20/2012
 Date Completed: 07/03/2012

Survey Horiz. Reference:WELLHEAD
 Ref Coordinates: LAT:32.3.3.5867 N LON:103.30.6.8888 W
 GRID Reference:NAD83 new mexico east Transverse Mercator
 Ref GRID Coord: X: 798928.9400 Y: 383282.2800
 North Aligned To:GRID NORTH
 Total Magnetic Correction: 6.98° EAST TO GRID
 Vertical Section Plane: 353.33
 Survey Vert. Reference: 19.00' Rotary Table To Ground
 Altitude:3367.80' 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)
TIED-IN TO VAUGHN ENERGY SERVICE GYRO SURVEY AT 8840'MD.								
8840.00	0.13	66.62	8837.64	0.00	59.37	71.98 N 104.34 E	126.76@ 55.40	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.								
8966.00	3.61	354.50	8963.56	126.00	63.38	75.99 N 104.09 E	128.88@ 53.87	2.83
8998.00	6.68	3.20	8995.42	32.00	66.22	78.85 N 104.10 E	130.59@ 52.86	9.87
9029.00	9.06	1.97	9026.13	31.00	70.41	83.09 N 104.28 E	133.34@ 51.45	7.70
9061.00	12.40	0.21	9057.57	32.00	76.32	89.04 N 104.38 E	137.20@ 49.53	10.49
9093.00	15.92	359.07	9088.59	32.00	84.10	96.87 N 104.32 E	142.36@ 47.12	11.03
9124.00	19.43	356.70	9118.12	31.00	93.48	106.27 N 103.96 E	148.66@ 44.37	11.56
9154.00	23.48	353.88	9146.04	30.00	104.44	117.20 N 103.03 E	156.05@ 41.32	13.93
9186.00	26.03	353.09	9175.09	32.00	117.84	130.51 N 101.51 E	165.34@ 37.87	8.04
9218.00	27.70	352.74	9203.64	32.00	132.30	144.86 N 99.72 E	175.87@ 34.54	5.24
9249.00	30.78	353.62	9230.69	31.00	147.44	159.90 N 97.93 E	187.50@ 31.49	10.03
9281.00	35.44	353.53	9257.48	32.00	164.91	177.26 N 95.97 E	201.57@ 28.43	14.56
9312.00	38.08	353.01	9282.32	31.00	183.46	195.68 N 93.80 E	217.00@ 25.61	8.57
9344.00	40.54	352.57	9307.07	32.00	203.73	215.79 N 91.25 E	234.29@ 22.92	7.74
9376.00	43.53	352.39	9330.84	32.00	225.16	237.03 N 88.45 E	253.00@ 20.46	9.35
9408.00	46.43	351.77	9353.47	32.00	247.77	259.43 N 85.33 E	273.11@ 18.21	9.16
9439.00	49.24	351.25	9374.28	31.00	270.73	282.16 N 81.93 E	293.81@ 16.19	9.15
9471.00	51.35	350.46	9394.72	32.00	295.32	306.46 N 78.02 E	316.24@ 14.28	6.86
9503.00	52.58	350.11	9414.44	32.00	320.49	331.30 N 73.76 E	339.42@ 12.55	3.94
9534.00	55.05	350.02	9432.74	31.00	345.47	355.95 N 69.45 E	362.66@ 11.04	7.97
9566.00	58.92	350.37	9450.17	32.00	372.26	382.38 N 64.88 E	387.85@ 9.63	12.13
9598.00	61.47	350.46	9466.07	32.00	399.99	409.76 N 60.26 E	414.17@ 8.37	7.97

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY
ICHABOD 7 FEDERAL #4H
LEA COUNTY, NM
RIG:MCVAY 8

Page 02/03

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)
9629.00	64.28	350.54	9480.21	31.00	427.54	436.97 N	55.70 E	440.51@	7.26	9.07
9661.00	65.86	350.81	9493.70	32.00	456.53	465.60 N	51.00 E	468.39@	6.25	5.00
9692.00	69.29	351.42	9505.52	31.00	485.16	493.91 N	46.58 E	496.10@	5.39	11.21
9724.00	72.55	352.13	9515.98	32.00	515.38	523.84 N	42.26 E	525.54@	4.61	10.40
9756.00	75.53	353.18	9524.78	32.00	546.14	554.35 N	38.33 E	555.67@	3.95	9.83
9787.00	80.11	353.27	9531.32	31.00	576.44	584.43 N	34.75 E	585.46@	3.40	14.78
9818.00	85.03	353.97	9535.32	31.00	607.17	614.97 N	31.34 E	615.77@	2.92	16.03
9850.00	88.37	353.97	9537.16	32.00	639.11	646.74 N	27.98 E	647.34@	2.48	10.44
9882.00	89.34	354.02	9537.80	32.00	671.10	678.55 N	24.64 E	679.00@	2.08	3.04
9980.00	91.89	352.29	9536.75	98.00	769.08	775.84 N	12.96 E	775.95@	0.96	3.14
10075.00	91.19	351.04	9534.20	95.00	864.00	869.80 N	0.81 W	869.80@	359.95	1.51
10167.00	91.01	352.20	9532.43	92.00	955.95	960.80 N	14.21 W	960.90@	359.15	1.28
10262.00	88.90	351.34	9532.51	95.00	1050.90	1054.81 N	27.81 W	1055.18@	358.49	2.40
10357.00	88.20	351.50	9534.91	95.00	1145.82	1148.72 N	41.98 W	1149.49@	357.91	0.76
10452.00	89.16	351.08	9537.10	95.00	1240.73	1242.60 N	56.36 W	1243.88@	357.40	1.10
10547.00	90.22	352.40	9537.61	95.00	1335.69	1336.61 N	70.01 W	1338.44@	357.00	1.78
10642.00	90.84	352.64	9536.73	95.00	1430.68	1430.79 N	82.38 W	1433.16@	356.70	0.70
10737.00	90.40	352.92	9535.71	95.00	1525.67	1525.04 N	94.31 W	1527.95@	356.46	0.55
10832.00	91.89	352.56	9533.81	95.00	1620.64	1619.25 N	106.32 W	1622.74@	356.24	1.61
10927.00	92.77	352.48	9529.95	95.00	1715.55	1713.36 N	118.67 W	1717.47@	356.04	0.93
11022.00	92.86	352.89	9525.28	95.00	1810.43	1807.48 N	130.76 W	1812.20@	355.86	0.44
11117.00	92.07	352.27	9521.19	95.00	1905.33	1901.59 N	143.01 W	1906.96@	355.70	1.06
11212.00	91.98	352.00	9517.84	95.00	2000.25	1995.64 N	156.00 W	2001.73@	355.53	0.30
11307.00	91.80	352.69	9514.71	95.00	2095.19	2089.74 N	168.65 W	2096.54@	355.39	0.75
11402.00	91.28	352.20	9512.15	95.00	2190.14	2183.88 N	181.14 W	2191.38@	355.26	0.75
11496.00	92.24	351.24	9509.26	94.00	2284.06	2276.86 N	194.67 W	2285.16@	355.11	1.44
11591.00	91.89	351.34	9505.84	95.00	2378.94	2370.70 N	209.04 W	2379.90@	354.96	0.38

PathFinder Energy Services, Inc.

Survey Report

DEVON ENERGY
ICHABOD 7 FEDERAL #4H
LEA COUNTY, NM
RIG:MCVAY 8

Page 03/03

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)
						(ft)	(ft)	(ft)	(deg)	
11686.00	92.95	350.30	9501.83	95.00	2473.76	2464.40 N	224.19 W	2474.57@	354.80	1.56
11781.00	93.21	350.43	9496.73	95.00	2568.49	2557.92 N	240.06 W	2569.16@	354.64	0.31
11875.00	93.03	350.93	9491.61	94.00	2662.25	2650.54 N	255.26 W	2662.81@	354.50	0.56
11970.00	93.21	351.29	9486.44	95.00	2757.04	2744.26 N	269.92 W	2757.51@	354.38	0.42
12065.00	93.03	351.20	9481.27	95.00	2851.84	2838.02 N	284.36 W	2852.23@	354.28	0.21
12160.00	90.22	351.54	9478.57	95.00	2946.73	2931.89 N	298.61 W	2947.06@	354.18	2.98
12253.00	89.08	351.09	9479.14	93.00	3039.67	3023.82 N	312.65 W	3039.94@	354.10	1.32
12348.00	90.22	350.93	9479.72	95.00	3134.59	3117.65 N	327.50 W	3134.81@	354.00	1.21
12443.00	89.60	350.88	9479.87	95.00	3229.51	3211.46 N	342.51 W	3229.67@	353.91	0.65
12538.00	90.40	350.82	9479.87	95.00	3324.42	3305.25 N	357.62 W	3324.54@	353.82	0.85
12633.00	91.10	351.28	9478.63	95.00	3419.33	3399.08 N	372.40 W	3419.42@	353.75	0.88
12728.00	91.01	350.89	9476.88	95.00	3514.24	3492.92 N	387.12 W	3514.31@	353.68	0.42
12823.00	90.66	350.53	9475.50	95.00	3609.13	3586.66 N	402.45 W	3609.17@	353.60	0.53
12918.00	90.22	350.19	9474.77	95.00	3704.00	3680.32 N	418.36 W	3704.02@	353.51	0.59
13013.00	90.48	351.37	9474.18	95.00	3798.90	3774.09 N	433.58 W	3798.91@	353.45	1.27
13108.00	91.45	352.67	9472.59	95.00	3893.86	3868.15 N	446.77 W	3893.87@	353.41	1.71
13203.00	90.92	352.52	9470.62	95.00	3988.83	3962.34 N	459.01 W	3988.84@	353.39	0.58
13298.00	90.31	351.46	9469.60	95.00	4083.80	4056.41 N	472.25 W	4083.80@	353.36	1.29
13393.00	90.31	350.97	9469.09	95.00	4178.73	4150.29 N	486.75 W	4178.73@	353.31	0.52
13488.00	91.01	351.32	9467.99	95.00	4273.66	4244.15 N	501.38 W	4273.66@	353.26	0.82
13583.00	90.84	351.87	9466.46	95.00	4368.60	4338.12 N	515.26 W	4368.61@	353.23	0.61
13678.00	91.45	352.80	9464.56	95.00	4463.57	4432.25 N	527.93 W	4463.58@	353.21	1.17
13773.00	91.45	354.68	9462.16	95.00	4558.53	4526.65 N	538.28 W	4558.54@	353.22	1.98
13868.00	90.66	353.86	9460.41	95.00	4653.50	4621.15 N	547.77 W	4653.51@	353.24	1.20
13963.00	90.48	353.36	9459.46	95.00	4748.49	4715.56 N	558.34 W	4748.50@	353.25	0.56
STRAIGHT LINE PROJECTION TO BIT DEPTH 14020' MD.										
14020.00	90.48	353.36	9458.98	57.00	4805.49	4772.17 N	564.93 W	4805.50@	353.25	0.00



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	DEVON ENERGY		
LEASE / WELL No.:	ICHABOD 7 FEDERAL	# 4H	
WELL LOCATION:	LEA COUNTY		
COUNTY / STATE / COUNTRY:	LEA	NM	USA
RIG:	McVAY # 8		
API WELL No:	30-025-40574		
JOB No:	12MLD0246		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	6.977	LWD Calculated	6.977
		Agreed Upon:	6.98
X =	798928.940000	Feet	Y = 383282.280000
			Feet
SITE LATITUDE:	32.0509914	SITE LONGITUDE:	103.50914
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	351.98		
KELLY BUSHING ELEVATION:	19		
ALTITUDE:	3367.8	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	8840		
DRIFT ANGLE:	0.13		
DRIFT DIRECTION:	66.62		
TRUE VERTICAL DEPTH:	8837.64		
VERTICAL SECTION:	71.98		
RECTANGULAR COORDINATE (N / S) :	71.98		
RECTANGULAR COORDINATE (E / W) :	104.34		
CLOSURE DISTANCE / DIRECTION:	126.75	55.4	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	VAUGHN ENERGY SERVICE		
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	8900	TOTAL DEPTH:	14170
KICKOFF ANGLE:	0	MAX ANGLE:	90.67

PES Engineers: P.DAS
M.ALIYEV

**Signature of both field engineers required if applicable

Directional Driller: _____

DATE: 19-Jun-2012

HOBBS OCD

NOV 01 2012

District I

1625 N. French Dr., Hobbs, NM 88240

District II

1301 W. Grand Avenue, Artesia, NM 88210

District III

1000 Rio Brazos Rd., Aztec, NM 87410

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico

RECEIVED Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-102

Revised October 15, 2009

Submit one copy to appropriate

District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-40574		Pool Code 97939	Well Name WC-025 6-00 3363407R Delaware SALADO DRAW NE, BRUSHY CANYON
Property Code 38479	Property Name ICHABOD "7" FEDERAL		Well Number 4H
OGRID No. 6137	Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.		Elevation 3367.8

" Surface Location

U.L. or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	7	26 S	34 E		108	SOUTH	455	EAST	LEA

" Bottom Hole Location If Different From Surface

U.L. or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	7	26 S	34 E		402	NORTH	1005	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

NW CORNER SEC. 7 LAT. = 32.0652210°N LONG. = 103.5175327°W NMSP EAST (FT) N = 388420.13 E = 794050.54	BOTTOM OF HOLE LAT. = 32.0643191°N LONG. = 103.5036207°W NMSP EAST (FT) N = 388124.90 E = 798362.76	NE CORNER SEC. 7 LAT. = 32.0652287°N LONG. = 103.5004585°W NMSP EAST (FT) N = 388463.35 E = 799339.80
PP: 101 FSL & 456 FEL		
SW CORNER SEC. 7 LAT. = 32.0506927°N LONG. = 103.5175350°W NMSP EAST (FT) N = 383134.89 E = 794089.78	ICHABOD "7" FEDERAL #4H ELEV. = 3367.8' LAT. = 32.0509963°N (NAD83) LONG. = 1103.5019135°W NMSP EAST (FT) N = 383282.28 E = 798928.94	SE CORNER SEC. 7 LAT. = 32.0506998°N LONG. = 103.5004449°W NMSP EAST (FT) N = 383177.86 E = 799384.79

HARDLINE BOUNDARY

SURFACE LOCATION

17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Signature: *D. R.* Date: 10/31/2012

Printed Name: David H. Cook Regulatory Specialist

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief

MADE 10/2012

Date of Survey: *10/31/2012*

Signature and Seal of Professional Surveyor: *[Signature]*

Certificate Number: *11-6-2012* HILLO. PLS 12797 SURVEY NO 7878

ELG 11-6-2012