

A GYRO TECHNOLOGIES INC. COMPANY

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

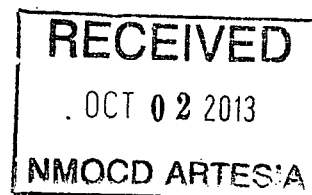
April 29, 2013

Devon Energy Production Co., L. P.
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

15-40511

Attn: Patti Riechers

Re: **Agate PWU 21 No. 007H**



Please find enclosed a copy of the survey from 0.00' to 6233.24' ran on the above referenced well.

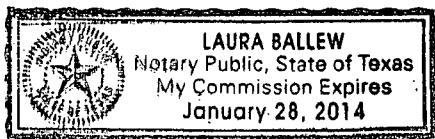
If I can be of any further service please do not hesitate to call me at 800-606-4976.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 29th day of April, A.D., 2013, by Keith Havelka.



Laura Ballew
Notary Public, State of Texas



Company: Devon Energy Production Company

Lease/Well: Agate PWU 21 / No. 007H

Rig Name: H&P 223

State/County: New Mexico/ Eddy

Latitude: 32.64, Longitude: -104.09

GRID North is 0.13 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB = 25'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: survey.ut

Minimum Curvature Method

Report Date/Time: 4/29/2013 / 08:57

Vaughn Energy Services

Gardendale, Texas

432-563-5444

Survey Engineer: Kyle Willis

Agate PWU 21 No. 007H / API 30-015-40511

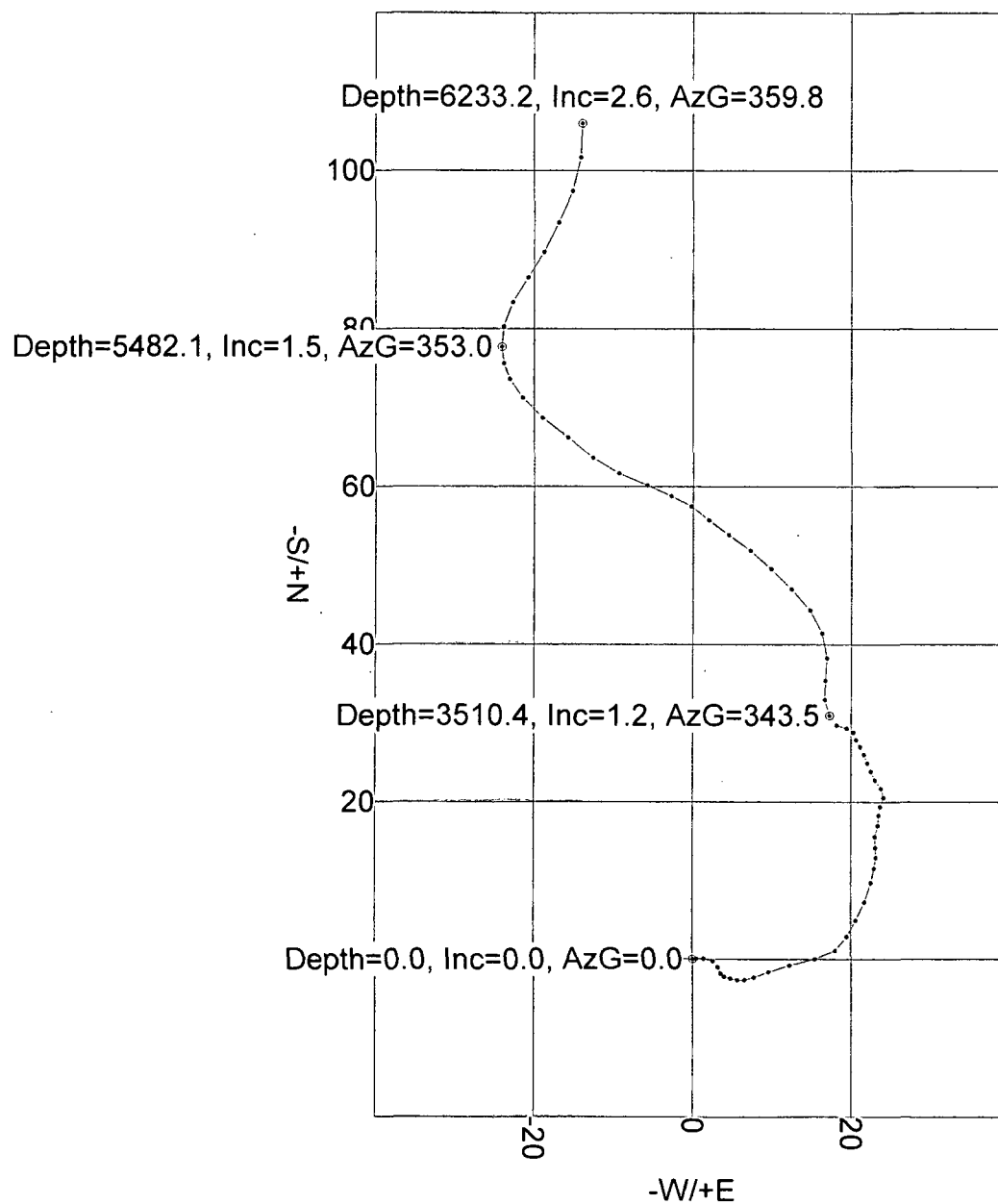
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
130.39	0.39	84.29	130.39	0.04	0.44	0.04	0.44	84.29	0.30
224.28	0.79	92.06	224.27	0.05	1.40	0.05	1.40	87.88	0.44
318.17	0.69	120.45	318.16	-0.26	2.54	-0.26	2.55	95.82	0.40
412.06	0.63	159.40	412.04	-1.03	3.21	-1.03	3.37	107.84	0.47
505.95	0.41	156.62	505.93	-1.83	3.53	-1.83	3.97	117.39	0.24
599.84	0.43	104.53	599.81	-2.22	4.00	-2.22	4.58	119.04	0.39
693.73	0.57	109.74	693.70	-2.47	4.78	-2.47	5.38	117.29	0.15
787.62	0.51	93.38	787.59	-2.65	5.64	-2.65	6.23	115.18	0.18
881.51	0.61	86.74	881.47	-2.65	6.55	-2.65	7.07	111.99	0.13
975.40	0.93	66.56	975.35	-2.32	7.75	-2.32	8.09	106.63	0.44
1069.29	1.47	71.38	1069.22	-1.63	9.59	-1.63	9.73	99.63	0.59
1163.18	1.93	72.75	1163.07	-0.77	12.25	-0.77	12.27	93.61	0.49
1257.07	2.04	78.65	1256.90	0.03	15.40	0.03	15.40	89.90	0.25
1350.96	1.52	53.20	1350.75	1.10	18.03	1.10	18.06	86.51	0.99

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
1444.85	1.37	23.14	1444.61	2.88	19.47	2.88	19.68	81.59	0.81
1538.74	1.50	33.37	1538.47	4.94	20.58	4.94	21.17	76.51	0.30
1632.63	1.65	18.04	1632.33	7.25	21.68	7.25	22.86	71.51	0.48
1726.52	1.49	17.59	1726.18	9.70	22.46	9.70	24.47	66.65	0.18
1820.41	0.84	4.34	1820.05	11.54	22.88	11.54	25.63	63.24	0.75
1914.30	0.86	12.67	1913.93	12.91	23.09	12.91	26.46	60.79	0.13
2008.19	0.80	341.57	2007.81	14.22	23.04	14.22	27.07	58.32	0.48
2102.08	0.91	9.12	2101.69	15.58	22.95	15.58	27.74	55.84	0.45
2195.97	0.88	21.95	2195.57	16.99	23.34	16.99	28.87	53.95	0.22
2289.86	0.82	343.14	2289.45	18.30	23.41	18.30	29.72	51.99	0.61
2383.75	0.75	40.95	2383.33	19.41	23.62	19.41	30.57	50.60	0.81
2477.64	0.83	1.14	2477.22	20.55	24.04	20.55	31.63	49.47	0.58
2571.53	0.73	325.91	2571.10	21.73	23.72	21.73	32.17	47.50	0.51
2665.42	0.86	324.35	2664.98	22.80	22.97	22.80	32.36	45.21	0.13
2759.31	0.64	347.08	2758.86	23.88	22.44	23.88	32.77	43.22	0.39
2853.20	0.76	329.95	2852.74	24.94	22.01	24.94	33.26	41.43	0.26
2947.09	0.71	348.13	2946.63	26.05	21.58	26.05	33.83	39.63	0.25
3040.98	0.66	319.67	3040.51	27.04	21.11	27.04	34.30	37.98	0.36
3134.87	0.60	338.58	3134.39	27.91	20.58	27.91	34.68	36.40	0.23
3228.76	0.62	343.50	3228.28	28.86	20.25	28.86	35.26	35.06	0.06
3322.65	0.85	273.34	3322.16	29.39	19.42	29.39	35.22	33.46	0.92
3416.54	0.82	298.54	3416.04	29.74	18.14	29.74	34.84	31.38	0.39
3510.43	1.18	343.46	3509.92	30.99	17.28	30.99	35.48	29.14	0.89
3604.32	1.37	343.51	3603.79	32.99	16.68	32.99	36.97	26.83	0.20
3698.21	1.70	15.06	3697.65	35.41	16.73	35.41	39.16	25.29	0.95
3792.10	1.85	353.44	3791.49	38.26	16.92	38.26	41.83	23.85	0.73
3885.99	2.07	344.98	3885.33	41.41	16.30	41.41	44.50	21.49	0.38
3979.88	2.08	320.35	3979.16	44.35	14.78	44.35	46.75	18.43	0.94
4073.77	2.23	317.06	4072.98	47.00	12.45	47.00	48.62	14.84	0.20
4167.66	2.16	313.13	4166.80	49.54	9.92	49.54	50.53	11.32	0.18
4261.55	2.15	309.74	4260.63	51.88	7.27	51.88	52.39	7.97	0.14
4355.44	1.99	301.74	4354.45	53.87	4.52	53.87	54.06	4.80	0.35
4449.33	1.85	311.88	4448.29	55.74	2.01	55.74	55.77	2.06	0.39
4543.22	1.64	303.09	4542.14	57.49	-0.25	57.49	57.49	359.75	0.36
4637.11	1.84	292.04	4635.98	58.79	-2.77	58.79	58.85	357.30	0.41

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
4731.00	2.26	296.32	4729.81	60.17	-5.83	60.17	60.45	354.47	0.48
4824.89	2.44	289.92	4823.63	61.67	-9.36	61.67	62.38	351.37	0.34
4918.78	2.34	311.78	4917.44	63.63	-12.66	63.63	64.87	348.74	0.97
5012.67	2.56	307.96	5011.24	66.19	-15.74	66.19	68.04	346.62	0.30
5106.56	2.38	308.47	5105.04	68.69	-18.92	68.69	71.25	344.60	0.20
5200.45	2.01	322.77	5198.87	71.21	-21.44	71.21	74.37	343.24	0.70
5294.34	1.52	328.93	5292.71	73.59	-23.08	73.59	77.13	342.58	0.56
5388.23	1.10	354.84	5386.58	75.56	-23.81	75.56	79.22	342.51	0.76
5482.12	1.52	353.02	5480.44	77.70	-24.04	77.70	81.33	342.81	0.45
5576.01	1.68	14.86	5574.30	80.27	-23.84	80.27	83.73	343.46	0.67
5669.90	2.32	24.17	5668.13	83.33	-22.71	83.33	86.37	344.76	0.77
5763.79	2.20	39.64	5761.95	86.45	-20.78	86.45	88.92	346.48	0.66
5857.68	2.47	25.09	5855.76	89.68	-18.77	89.68	91.62	348.18	0.69
5951.57	2.62	27.01	5949.56	93.42	-16.94	93.42	94.94	349.72	0.18
6045.46	2.70	22.21	6043.35	97.38	-15.13	97.38	98.55	351.17	0.25
6139.35	2.72	4.47	6137.13	101.65	-14.12	101.65	102.63	352.09	0.89
6233.24	2.58	359.76	6230.92	105.98	-13.95	105.98	106.90	352.50	0.28



Vaughn Energy Services
Gardendale, Texas
432-563-5444
Survey Engineer: Kyle Willis
Agate PWU 21 No. 007H / API 30-015-40511



VES Survey Date: 04/23/2013

Devon

Eddy County, NM (NAD 83)

Agate PWU "21"

Agate PWU "21" #7H

API 30-015-40511 / JOB# 900301425 / HP 223

Wellbore #1

Design: Wellbore #1

Sperry Drilling Services Combo Report

03 May, 2013

Surface UWI : API 30-015-40511 / JOB# 900301425 / HP 223

Well Coordinates: 597,961.18 N, 616,485.37 E (32° 38' 36.98" N, 104° 05' 21.09" W)

Ground Level: 3,321.90 ft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well Agate PWU "21" #7H
WELL @ 3346.90ft (Original Well Elev+25'KB)

N

Grid

API US Survey Feet

Version: 2003.21 Build: 43

HALLIBURTON

Design Report for Agate PWU "21" #7H - Wellbore #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
0.00	0.00	0.00	-3,346.90	0.00	0.00 N	0.00 E	597,961.18	616,485.37	0.00	0.00	
130.39	0.39	84.29	-3,216.51	130.39	0.04 N	0.44 E	597,961.22	616,485.81	0.30	0.44	First Gyro Survey
224.28	0.79	92.06	-3,122.63	224.27	0.05 N	1.41 E	597,961.23	616,486.78	0.43	1.41	
318.17	0.69	120.45	-3,028.74	318.16	0.26 S	2.54 E	597,960.92	616,487.91	0.40	2.54	
412.06	0.63	159.40	-2,934.86	412.04	1.03 S	3.21 E	597,960.15	616,488.58	0.47	3.19	
505.95	0.41	156.62	-2,840.97	505.93	1.82 S	3.52 E	597,959.36	616,488.89	0.24	3.49	
599.84	0.43	104.53	-2,747.09	599.81	2.22 S	4.00 E	597,958.96	616,489.37	0.39	3.96	
693.73	0.57	109.74	-2,653.20	693.70	2.46 S	4.78 E	597,958.71	616,490.15	0.16	4.73	
787.62	0.51	93.38	-2,559.31	787.59	2.64 S	5.64 E	597,958.53	616,491.01	0.18	5.58	
881.51	0.61	86.74	-2,465.43	881.47	2.64 S	6.55 E	597,958.54	616,491.92	0.13	6.50	
975.40	0.93	66.56	-2,371.55	975.35	2.31 S	7.75 E	597,958.87	616,493.12	0.44	7.71	
1,069.29	1.47	71.38	-2,277.68	1,069.22	1.62 S	9.59 E	597,959.56	616,494.96	0.58	9.56	
1,163.18	1.93	72.75	-2,183.83	1,163.07	0.77 S	12.24 E	597,960.41	616,497.61	0.49	12.23	
1,257.07	2.04	78.65	-2,089.99	1,256.91	0.03 N	15.39 E	597,961.21	616,500.76	0.25	15.39	
1,350.96	1.52	53.20	-1,996.15	1,350.75	1.11 N	18.03 E	597,962.28	616,503.40	0.99	18.04	
1,444.85	1.37	23.14	-1,902.29	1,444.61	2.88 N	19.46 E	597,964.06	616,504.83	0.81	19.52	
1,538.74	1.50	33.37	-1,808.43	1,538.47	4.94 N	20.58 E	597,966.12	616,505.95	0.31	20.67	
1,632.63	1.65	18.04	-1,714.57	1,632.33	7.25 N	21.68 E	597,968.43	616,507.05	0.47	21.81	
1,726.52	1.49	17.59	-1,620.72	1,726.18	9.70 N	22.46 E	597,970.88	616,507.83	0.17	22.64	
1,820.41	0.84	4.34	-1,526.85	1,820.05	11.55 N	22.88 E	597,972.73	616,508.25	0.74	23.10	
1,914.30	0.86	12.67	-1,432.97	1,913.93	12.93 N	23.09 E	597,974.10	616,508.46	0.13	23.33	
2,008.19	0.80	341.57	-1,339.09	2,007.81	14.24 N	23.04 E	597,975.41	616,508.41	0.48	23.30	
2,102.08	0.91	9.12	-1,245.21	2,101.69	15.59 N	22.95 E	597,976.77	616,508.32	0.45	23.24	
2,195.97	0.88	21.95	-1,151.33	2,195.57	17.00 N	23.34 E	597,978.17	616,508.71	0.22	23.66	
2,289.86	0.82	343.14	-1,057.45	2,289.45	18.31 N	23.41 E	597,979.49	616,508.78	0.60	23.76	
2,383.75	0.75	40.95	-963.57	2,383.33	19.42 N	23.62 E	597,980.59	616,508.99	0.81	23.98	
2,477.64	0.83	1.14	-869.68	2,477.22	20.56 N	24.04 E	597,981.74	616,509.41	0.58	24.42	
2,571.53	0.73	325.91	-775.80	2,571.10	21.74 N	23.71 E	597,982.91	616,509.08	0.51	24.12	
2,665.42	0.86	324.35	-681.92	2,664.98	22.80 N	22.97 E	597,983.98	616,508.34	0.14	23.40	
2,759.31	0.64	347.08	-588.04	2,758.86	23.89 N	22.44 E	597,985.06	616,507.81	0.39	22.89	
2,853.20	0.76	329.95	-494.16	2,852.74	24.94 N	22.01 E	597,986.11	616,507.38	0.26	22.48	
2,947.09	0.71	348.13	-400.27	2,946.63	26.05 N	21.58 E	597,987.22	616,506.95	0.25	22.07	
3,040.98	0.66	319.67	-306.39	3,040.51	27.03 N	21.11 E	597,988.20	616,506.48	0.36	21.62	
3,134.87	0.60	338.58	-212.51	3,134.39	27.90 N	20.58 E	597,989.07	616,505.95	0.23	21.11	
3,228.76	0.62	343.50	-118.62	3,228.28	28.84 N	20.26 E	597,990.02	616,505.63	0.06	20.80	
3,322.65	0.85	273.34	-24.74	3,322.16	29.37 N	19.42 E	597,990.55	616,504.79	0.92	19.97	
3,416.54	0.82	298.54	69.14	3,416.04	29.73 N	18.13 E	597,990.91	616,503.50	0.39	18.69	
3,510.43	1.18	343.46	163.02	3,509.92	30.98 N	17.27 E	597,992.15	616,502.64	0.89	17.85	
3,604.32	1.37	343.51	256.89	3,603.79	32.98 N	16.67 E	597,994.16	616,502.04	0.20	17.30	

Design Report for Agate PWU "21" #7H - Wellbore #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
3,698.21	1.70	15.06	350.75	3,697.65	35.40 N	16.72 E	597,996.58	616,502.09	0.95	17.39	
3,792.10	1.85	353.44	444.59	3,791.49	38.25 N	16.90 E	597,999.43	616,502.27	0.73	17.63	
3,885.99	2.07	344.98	538.43	3,885.33	41.40 N	16.29 E	598,002.57	616,501.66	0.39	17.08	
3,979.88	2.08	320.35	632.26	3,979.16	44.35 N	14.77 E	598,005.52	616,500.13	0.94	15.61	
4,073.77	2.23	317.06	726.08	4,072.98	47.00 N	12.43 E	598,008.17	616,497.80	0.21	13.33	
4,167.66	2.16	313.13	819.90	4,166.80	49.54 N	9.90 E	598,010.72	616,495.27	0.18	10.84	
4,261.55	2.15	309.74	913.73	4,260.63	51.88 N	7.25 E	598,013.05	616,492.62	0.14	8.24	
4,355.44	1.99	301.74	1,007.55	4,354.45	53.86 N	4.51 E	598,015.04	616,489.88	0.35	5.54	
4,449.33	1.85	311.88	1,101.39	4,448.29	55.73 N	2.00 E	598,016.91	616,487.37	0.39	3.06	
4,543.22	1.64	303.09	1,195.24	4,542.14	57.48 N	0.26 W	598,018.65	616,485.11	0.36	0.84	
4,637.11	1.84	292.04	1,289.08	4,635.98	58.78 N	2.78 W	598,019.95	616,482.59	0.42	-1.66	
4,731.00	2.26	296.32	1,382.91	4,729.81	60.16 N	5.84 W	598,021.34	616,479.53	0.48	-4.69	
4,824.89	2.44	289.92	1,476.73	4,823.63	61.66 N	9.37 W	598,022.84	616,476.00	0.34	-8.20	
4,918.78	2.34	311.78	1,570.54	4,917.44	63.62 N	12.68 W	598,024.80	616,472.69	0.97	-11.47	
5,012.67	2.56	307.96	1,664.34	5,011.24	66.19 N	15.77 W	598,027.36	616,469.60	0.29	-14.50	
5,106.56	2.38	308.47	1,758.14	5,105.04	68.69 N	18.95 W	598,029.87	616,466.42	0.19	-17.64	
5,200.45	2.01	322.77	1,851.96	5,198.86	71.21 N	21.47 W	598,032.39	616,463.90	0.70	-20.11	
5,294.34	1.52	328.93	1,945.81	5,292.71	73.59 N	23.11 W	598,034.77	616,462.26	0.56	-21.70	
5,388.23	1.10	354.84	2,039.68	5,386.58	75.56 N	23.83 W	598,036.73	616,461.54	0.76	-22.39	
5,482.12	1.52	353.02	2,133.54	5,480.44	77.69 N	24.06 W	598,038.87	616,461.31	0.45	-22.58	
5,576.01	1.68	14.86	2,227.40	5,574.30	80.26 N	23.86 W	598,041.43	616,461.51	0.67	-22.33	
5,669.90	2.32	24.17	2,321.23	5,668.13	83.32 N	22.73 W	598,044.50	616,462.64	0.76	-21.14	
5,763.79	2.20	39.64	2,415.05	5,761.95	86.44 N	20.80 W	598,047.62	616,464.57	0.66	-19.15	
5,857.68	2.47	25.09	2,508.86	5,855.76	89.66 N	18.79 W	598,050.84	616,466.58	0.69	-17.09	
5,951.57	2.62	27.01	2,602.66	5,949.56	93.41 N	16.96 W	598,054.58	616,468.41	0.18	-15.18	
6,045.46	2.70	22.21	2,696.45	6,043.35	97.37 N	15.15 W	598,058.54	616,470.22	0.25	-13.30	
6,139.35	2.72	4.47	2,790.23	6,137.13	101.63 N	14.14 W	598,062.81	616,471.23	0.89	-12.21	
6,233.24	2.58	359.76	2,884.02	6,230.92	105.97 N	13.98 W	598,067.14	616,471.39	0.28	-11.96	Final Gyro Survey
6,261.00	2.59	0.85	2,911.75	6,258.65	107.22 N	13.97 W	598,068.40	616,471.40	0.18	-11.93	First Sperry MWD Survey
6,292.00	2.38	353.85	2,942.72	6,289.62	108.56 N	14.03 W	598,069.74	616,471.34	1.19	-11.96	
6,324.00	2.01	337.27	2,974.70	6,321.60	109.74 N	14.32 W	598,070.91	616,471.05	2.28	-12.23	
6,356.00	1.08	75.39	3,006.69	6,353.59	110.33 N	14.24 W	598,071.51	616,471.13	7.54	-12.14	
6,387.00	3.65	104.89	3,037.66	6,384.56	110.15 N	13.01 W	598,071.33	616,472.36	8.91	-10.91	
6,419.00	7.01	107.91	3,069.52	6,416.42	109.29 N	10.16 W	598,070.47	616,475.21	10.53	-8.08	
6,450.00	10.27	108.08	3,100.17	6,447.07	107.85 N	5.73 W	598,069.03	616,479.64	10.52	-3.68	
6,482.00	13.34	108.40	3,131.49	6,478.39	105.80 N	0.48 E	598,066.98	616,485.85	9.60	2.49	
6,513.00	16.17	109.93	3,161.46	6,508.36	103.20 N	7.93 E	598,064.37	616,493.30	9.21	9.90	
6,532.00	17.88	113.17	3,179.63	6,526.53	101.15 N	13.10 E	598,062.32	616,498.47	10.29	15.03	
6,542.00	18.71	114.08	3,189.12	6,536.02	99.89 N	15.98 E	598,061.07	616,501.35	8.78	17.88	

Design Report for Agate PWU "21" #7H - Wellbore #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
6,552.00	19.46	114.77	3,198.57	6,545.47	98.54 N	18.96 E	598,059.71	616,504.33	7.83	20.83	
6,577.00	21.70	114.40	3,221.98	6,568.88	94.88 N	26.95 E	598,056.06	616,512.32	8.98	28.75	
6,608.00	24.99	115.50	3,250.43	6,597.33	89.70 N	38.08 E	598,050.87	616,523.45	10.71	39.78	
6,640.00	27.69	118.00	3,279.11	6,626.01	83.29 N	50.75 E	598,044.47	616,536.12	9.12	52.32	
6,671.00	30.28	120.32	3,306.23	6,653.13	75.97 N	63.86 E	598,037.14	616,549.23	9.11	65.29	
6,703.00	33.11	122.32	3,333.45	6,680.35	67.22 N	78.21 E	598,028.39	616,563.58	9.43	79.48	
6,734.00	36.20	121.90	3,358.95	6,705.85	57.85 N	93.14 E	598,019.03	616,578.51	10.00	94.22	
6,765.00	39.07	120.04	3,383.50	6,730.40	48.12 N	109.37 E	598,009.30	616,594.74	9.96	110.27	
6,796.00	42.70	117.69	3,406.93	6,753.83	38.34 N	127.15 E	597,999.52	616,612.52	12.72	127.85	
6,828.00	46.49	115.02	3,429.71	6,776.61	28.39 N	147.28 E	597,989.56	616,632.65	13.21	147.79	
6,860.00	50.23	113.54	3,450.97	6,797.87	18.56 N	169.08 E	597,979.74	616,654.45	12.19	169.40	
6,891.00	54.05	111.57	3,470.00	6,816.90	9.19 N	191.68 E	597,970.36	616,677.05	13.30	191.82	
6,923.00	57.93	109.79	3,487.89	6,834.79	0.17 S	216.49 E	597,961.01	616,701.86	12.97	216.45	
6,954.00	61.97	108.02	3,503.41	6,850.31	8.85 S	241.87 E	597,952.32	616,727.24	13.94	241.66	
6,986.00	65.21	105.14	3,517.65	6,864.55	17.02 S	269.34 E	597,944.16	616,754.71	12.94	268.96	
7,017.00	68.57	102.49	3,529.82	6,876.72	23.82 S	297.02 E	597,937.36	616,782.39	13.39	296.51	
7,054.00	72.91	100.17	3,542.02	6,888.92	30.67 S	331.26 E	597,930.51	616,816.63	13.14	330.61	
7,081.00	76.23	98.74	3,549.20	6,896.10	34.94 S	356.93 E	597,926.24	616,842.30	13.31	356.20	
7,112.00	79.02	96.71	3,555.85	6,902.75	39.01 S	386.93 E	597,922.17	616,872.30	11.04	386.12	
7,143.00	81.93	94.19	3,560.98	6,907.88	41.91 S	417.36 E	597,919.27	616,902.73	12.34	416.48	
7,178.00	85.69	92.17	3,564.75	6,911.65	43.83 S	452.09 E	597,917.34	616,937.46	12.18	451.18	
7,206.00	87.94	91.27	3,566.30	6,913.20	44.67 S	480.03 E	597,916.50	616,965.40	8.65	479.10	
7,238.00	88.15	91.87	3,567.40	6,914.30	45.55 S	512.00 E	597,915.63	616,997.37	1.99	511.04	
7,269.00	88.52	90.74	3,568.30	6,915.20	46.25 S	542.98 E	597,914.92	617,028.35	3.83	542.00	
7,301.00	88.21	88.93	3,569.21	6,916.11	46.16 S	574.97 E	597,915.01	617,060.33	5.74	573.98	
7,333.00	87.99	88.07	3,570.27	6,917.17	45.33 S	606.94 E	597,915.85	617,092.31	2.77	605.97	
7,364.00	88.31	88.11	3,571.27	6,918.17	44.29 S	637.90 E	597,916.88	617,123.27	1.04	636.95	
7,396.00	88.40	87.94	3,572.19	6,919.09	43.19 S	669.87 E	597,917.99	617,155.24	0.60	668.93	
7,427.00	88.83	86.67	3,572.94	6,919.84	41.73 S	700.83 E	597,919.44	617,186.20	4.32	699.91	
7,459.00	89.11	84.91	3,573.52	6,920.42	39.38 S	732.73 E	597,921.79	617,218.10	5.57	731.85	
7,530.00	89.78	84.21	3,574.20	6,921.10	32.65 S	803.41 E	597,928.52	617,288.78	1.36	802.64	
7,616.00	90.12	84.61	3,574.28	6,921.18	24.28 S	889.00 E	597,936.90	617,374.37	0.61	888.38	
7,711.00	88.77	84.57	3,575.20	6,922.10	15.32 S	983.57 E	597,945.86	617,468.94	1.42	983.10	
7,806.00	89.32	85.26	3,576.78	6,923.68	6.90 S	1,078.18 E	597,954.27	617,563.55	0.93	1,077.86	
7,900.00	90.22	85.86	3,577.16	6,924.06	0.38 N	1,171.90 E	597,961.55	617,657.27	1.15	1,171.69	
7,995.00	89.97	87.97	3,577.00	6,923.90	5.49 N	1,266.76 E	597,966.66	617,752.12	2.24	1,266.63	
8,090.00	90.15	89.05	3,576.90	6,923.80	7.96 N	1,361.72 E	597,969.13	617,847.09	1.15	1,361.63	
8,184.00	90.62	89.89	3,576.27	6,923.17	8.83 N	1,455.72 E	597,970.00	617,941.08	1.02	1,455.62	
8,279.00	90.00	88.75	3,575.76	6,922.66	9.96 N	1,550.71 E	597,971.13	618,036.07	1.37	1,550.61	

Design Report for Agate PWU "21" #7H - Wellbore #1

Measured Depth (ft)	Inclination (°)	Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
					Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
8,374.00	88.03	88.21	3,577.39	6,924.29	12.47 N	1,645.65 E	597,973.65	618,131.02	2.15	1,645.59	
8,468.00	89.17	88.95	3,579.69	6,926.59	14.80 N	1,739.59 E	597,975.98	618,224.96	1.45	1,739.56	
8,563.00	89.91	89.38	3,580.45	6,927.35	16.19 N	1,834.58 E	597,977.36	618,319.95	0.90	1,834.56	
8,657.00	90.12	90.11	3,580.42	6,927.32	16.61 N	1,928.58 E	597,977.78	618,413.94	0.81	1,928.54	
8,752.00	90.18	90.42	3,580.18	6,927.08	16.17 N	2,023.58 E	597,977.34	618,508.94	0.33	2,023.52	
8,847.00	91.17	90.68	3,579.06	6,925.96	15.25 N	2,118.56 E	597,976.43	618,603.93	1.08	2,118.47	
8,941.00	89.20	88.95	3,578.75	6,925.65	15.56 N	2,212.56 E	597,976.73	618,697.92	2.79	2,212.45	
9,036.00	88.68	87.75	3,580.51	6,927.41	18.29 N	2,307.50 E	597,979.47	618,792.86	1.38	2,307.43	
9,131.00	89.88	88.65	3,581.70	6,928.60	21.28 N	2,402.44 E	597,982.45	618,887.81	1.58	2,402.41	
9,225.00	90.09	88.56	3,581.73	6,928.63	23.56 N	2,496.41 E	597,984.74	618,981.78	0.24	2,496.41	
9,320.00	91.91	89.25	3,580.07	6,926.97	25.38 N	2,591.38 E	597,986.56	619,076.74	2.05	2,591.39	
9,415.00	91.23	89.63	3,577.47	6,924.37	26.31 N	2,686.34 E	597,987.48	619,171.70	0.82	2,686.35	
9,509.00	90.90	88.43	3,575.72	6,922.62	27.90 N	2,780.30 E	597,989.08	619,265.67	1.32	2,780.33	
9,604.00	91.33	87.05	3,573.87	6,920.77	31.64 N	2,875.21 E	597,992.82	619,360.57	1.52	2,875.29	
9,699.00	89.42	87.33	3,573.25	6,920.15	36.30 N	2,970.09 E	597,997.48	619,455.45	2.03	2,970.24	
9,794.00	89.78	87.80	3,573.91	6,920.81	40.34 N	3,065.00 E	598,001.51	619,550.36	0.62	3,065.21	
9,888.00	89.97	88.77	3,574.12	6,921.02	43.15 N	3,158.96 E	598,004.33	619,644.32	1.05	3,159.21	
9,983.00	90.61	89.08	3,573.64	6,920.54	44.93 N	3,253.94 E	598,006.11	619,739.30	0.75	3,254.20	
10,077.00	89.97	88.38	3,573.16	6,920.06	47.02 N	3,347.91 E	598,008.19	619,833.28	1.01	3,348.20	
10,172.00	90.49	89.11	3,572.78	6,919.68	49.10 N	3,442.89 E	598,010.27	619,928.25	0.94	3,443.20	
10,267.00	89.48	88.72	3,572.81	6,919.71	50.90 N	3,537.87 E	598,012.07	620,023.23	1.14	3,538.20	
10,361.00	89.75	88.93	3,573.44	6,920.34	52.82 N	3,631.85 E	598,014.00	620,117.21	0.36	3,632.20	
10,456.00	89.78	89.41	3,573.83	6,920.73	54.20 N	3,726.84 E	598,015.38	620,212.20	0.51	3,727.19	
10,551.00	90.25	89.72	3,573.80	6,920.70	54.92 N	3,821.83 E	598,016.10	620,307.20	0.59	3,822.19	
10,645.00	90.03	88.74	3,573.57	6,920.47	56.18 N	3,915.82 E	598,017.36	620,401.19	1.07	3,916.18	
10,740.00	89.91	88.51	3,573.62	6,920.52	58.46 N	4,010.80 E	598,019.64	620,496.16	0.27	4,011.18	
10,834.00	90.43	89.03	3,573.34	6,920.24	60.48 N	4,104.77 E	598,021.66	620,590.13	0.78	4,105.18	
10,929.00	88.45	87.81	3,574.27	6,921.17	63.10 N	4,199.73 E	598,024.28	620,685.09	2.45	4,200.17	
11,024.00	88.69	88.18	3,576.64	6,923.54	66.42 N	4,294.64 E	598,027.60	620,780.00	0.46	4,295.12	
11,119.00	86.22	88.73	3,580.86	6,927.76	68.98 N	4,389.50 E	598,030.16	620,874.86	2.66	4,390.02	
11,213.00	86.45	89.01	3,586.87	6,933.77	70.83 N	4,483.29 E	598,032.01	620,968.65	0.39	4,483.83	
11,308.00	86.18	89.29	3,592.97	6,939.87	72.24 N	4,578.08 E	598,033.41	621,063.45	0.41	4,578.63	
11,402.00	85.77	88.73	3,599.57	6,946.47	73.86 N	4,671.84 E	598,035.03	621,157.20	0.74	4,672.40	
11,497.00	85.92	89.31	3,606.46	6,953.36	75.48 N	4,766.57 E	598,036.65	621,251.93	0.63	4,767.15	
11,592.00	85.80	89.23	3,613.31	6,960.21	76.69 N	4,861.32 E	598,037.86	621,346.68	0.15	4,861.90	
11,686.00	85.42	89.95	3,620.51	6,967.41	77.36 N	4,955.04 E	598,038.53	621,440.40	0.86	4,955.61	
11,781.00	85.00	90.20	3,628.44	6,975.34	77.23 N	5,049.71 E	598,038.41	621,535.07	0.51	5,050.26	
11,855.00	84.97	90.96	3,634.91	6,981.81	76.49 N	5,123.42 E	598,037.66	621,608.78	1.02	5,123.95	Final Sperry MWD Survey
11,925.00	84.97	90.96	3,641.05	6,987.95	75.32 N	5,193.14 E	598,036.49	621,678.50	0.00	5,193.63	Projection to TD

Design Report for Agate PWU "21" #7H - Wellbore #1

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
130.39	130.39	0.04	0.44	First Gyro Survey
6,233.24	6,230.92	105.97	-13.98	Final Gyro Survey
6,261.00	6,258.65	107.22	-13.97	First Sperry MWD Survey
11,855.00	6,981.81	76.49	5,123.42	Final Sperry MWD Survey
11,925.00	6,987.95	75.32	5,193.14	Projection to TD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	88.91	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
130.39	6,233.24	VES Gyros	NS-Gyro-MS
6,261.00	11,925.00	Sperry MWD Surveys	MWD

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (°)	+N/-S (°)	+E/-W (°)	Northing (°)	Easting (°)	Latitude	Longitude
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Directional Difficulty Index

Average Dogleg over Survey:	1.53 °/100ft	Maximum Dogleg over Survey:	13.94 °/100ft at 6,954.00 ft
Net Tortousity applicable to Plans:	0.05 °/100ft	Directional Difficulty Index:	6.226

Design Report for Agate PWU "21" #7H - Wellbore #1

Audit Info

North Reference Sheet for Agate PWU "21" - Agate PWU "21" #7H - Wellbore #1

All data is in Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to WELL @ 3346.90ft (Original Well Elev+25'KB). Northing and Easting are relative to Agate PWU "21" #7H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is 104° 20' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:0° 0' 0.000 N°

False Easting: 541,337.50ft, False Northing: 0.00ft, Scale Reduction: 0.99991556

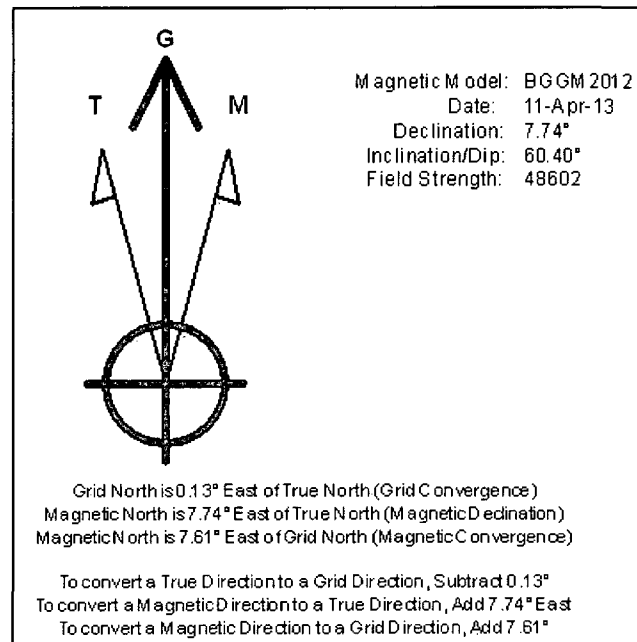
Grid Coordinates of Well: 597,961.18 ft N, 616,485.37 ft E

Geographical Coordinates of Well: 32° 38' 36.98" N, 104° 05' 21.09" W

Grid Convergence at Surface is: 0.13°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,925.00ft
the Bottom Hole Displacement is 5,193.69ft in the Direction of 89.17° (Grid).

Magnetic Convergence at surface is: -7.61° (11 April 2013, , BGGM2012)



Stimulations Summary

District PERMIAN BASIN	County EDDY	Field Name PARKWAY WEST	Project Group DELAWARE BASIN	State/Province NM
Surface Legal Location SEC20 T19S R29E	API/UWI 3001540511	Latitude ("") 32° 38' 36.982" N	Longitude ("") 104° 5' 21.088" W	Ground Elev... 3,321.90
			KB - GL (ft) 25.00	Orig KB Elev (ft) 3,346.90
				Tubing Head Elevation (ft)
HYDRAULIC FRAC , 5/13/2013 07:52 , BONE SPRING 1ST, OH , 11,595.0 ftKB - 11,907.0 ftKB, ELITE , OTTAWA Bulk Sand 215327 LB; RESIN COA				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4336.81	0.0		5,347.0
				ISIP (psi)
				1,482.0
				Avg Treat Pressur...
				4,985.0
				Q Treat Avg (bbl/...
				69
				P Max (psi)
				7,054.0
				Q Treat Max (bbl/...
				73
				Conc Max...
				4.00
HYDRAULIC FRAC , 5/13/2013 10:54 , BONE SPRING 1ST, OH , 11,121.0 ftKB - 11,439.0 ftKB, ELITE , OTTAWA Bulk Sand 204307 LB; RESIN COA				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4269.88	952.0		2,129.0
				ISIP (psi)
				1,435.0
				Avg Treat Pressur...
				4,185.0
				Q Treat Avg (bbl/...
				70
				P Max (psi)
				6,323.0
				Q Treat Max (bbl/...
				73
				Conc Max...
				4.00
HYDRAULIC FRAC , 5/13/2013 13:35 , BONE SPRING 1ST, OH , 10,646.0 ftKB - 10,964.0 ftKB, ELITE , OTTAWA Bulk Sand 210769 LB; RESIN COA				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4159.29	983.0		3,961.0
				ISIP (psi)
				1,137.0
				Avg Treat Pressur...
				4,142.0
				Q Treat Avg (bbl/...
				70
				P Max (psi)
				5,722.0
				Q Treat Max (bbl/...
				72
				Conc Max...
				4.00
HYDRAULIC FRAC , 5/13/2013 16:02 , BONE SPRING 1ST, OH , 10,171.0 ftKB - 10,489.0 ftKB, ELITE , OTTAWA Bulk Sand 198547 LB; RESIN COA				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4218.43	802.0		3,530.0
				ISIP (psi)
				1,165.0
				Avg Treat Pressur...
				3,834.0
				Q Treat Avg (bbl/...
				71
				P Max (psi)
				6,495.0
				Q Treat Max (bbl/...
				75
				Conc Max...
				4.00
HYDRAULIC FRAC , 5/13/2013 18:23 , BONE SPRING 1ST, OH , 9,695.0 ftKB - 10,014.0 ftKB, ELITE , OTTAWA Bulk Sand 211675 LB; RESIN COAT				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4155.91	540.0		2,914.0
				ISIP (psi)
				1,134.0
				Avg Treat Pressur...
				3,787.0
				Q Treat Avg (bbl/...
				71
				P Max (psi)
				5,035.0
				Q Treat Max (bbl/...
				73
				Conc Max...
				4.00
HYDRAULIC FRAC , 5/14/2013 09:45 , BONE SPRING 1ST, OH , 9,221.0 ftKB - 9,539.0 ftKB, ELITE , OTTAWA Bulk Sand 210707 LB; RESIN COATE				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4153.12	15.0		4,354.0
				ISIP (psi)
				1,575.0
				Avg Treat Pressur...
				4,752.0
				Q Treat Avg (bbl/...
				70
				P Max (psi)
				6,351.0
				Q Treat Max (bbl/...
				73
				Conc Max...
				4.00
HYDRAULIC FRAC , 5/14/2013 12:17 , BONE SPRING 1ST, OH , 8,746.0 ftKB - 9,065.0 ftKB, ELITE , OTTAWA Bulk Sand 215424 LB; RESIN COATE				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4205.93	1,330.0		4,749.0
				ISIP (psi)
				1,816.0
				Avg Treat Pressur...
				4,306.0
				Q Treat Avg (bbl/...
				70
				P Max (psi)
				6,832.0
				Q Treat Max (bbl/...
				72
				Conc Max...
				4.00
HYDRAULIC FRAC , 5/14/2013 14:36 , BONE SPRING 1ST, OH , 8,271.0 ftKB - 8,590.0 ftKB, ELITE , OTTAWA Bulk Sand 215591 LB; RESIN COATE				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4153.69	1,501.0		4,301.0
				ISIP (psi)
				2,095.0
				Avg Treat Pressur...
				4,376.0
				Q Treat Avg (bbl/...
				71
				P Max (psi)
				6,969.0
				Q Treat Max (bbl/...
				72
				Conc Max...
				4.00
HYDRAULIC FRAC , 5/14/2013 16:53 , BONE SPRING 1ST, OH , 7,796.0 ftKB - 8,115.0 ftKB, ELITE , OTTAWA Bulk Sand 217303 LB; RESIN COATE				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4165.21	1,408.0		3,862.0
				ISIP (psi)
				1,811.0
				Avg Treat Pressur...
				4,033.0
				Q Treat Avg (bbl/...
				71
				P Max (psi)
				5,549.0
				Q Treat Max (bbl/...
				72
				Conc Max...
				4.00
HYDRAULIC FRAC , 5/15/2013 08:15 , BONE SPRING 1ST, OH , 7,321.0 ftKB - 7,640.0 ftKB, ELITE , OTTAWA Bulk Sand 225595 LB; RESIN COATE				
Proppant De...	Total Clean Volu...	Pre Trt S/I Prs (psi)	Pst Trt S/I Prs (psi)	P Break (psi)
260,613.1	4363.29	934.0		6,041.0
				ISIP (psi)
				1,926.0
				Avg Treat Pressur...
				4,289.0
				Q Treat Avg (bbl/...
				70
				P Max (psi)
				7,741.0
				Q Treat Max (bbl/...
				72
				Conc Max...
				4.00