

Results of Directional Survey

API number:	30-025-41094		
OGRID:		Operator:	DEVON ENERGY PRODUCTION COMPANY, LP
		Property:	IRONHOUSE 19 STATE COM # 2H

surface	ULSTR:	P	19	T 18S	R 35E
				410 FSL	630 FEL

BH Loc	ULSTR:	A	19	T 18S	R 35E
13836	MD	9347.7	TVD	317 FNL	697 FEL
				4963 FSL	

Top Perf/OH	ULSTR:	P	19	T 18S	R 35E
9650	MD	9556.7	TVD	816 FSL	449 FEL

Bot Perf/OH	ULSTR:	A	19	T 18S	R 35E
13763	MD	9354.4	TVD	390 FNL	692 FEL
				4890 FSL	

	MD	N/S	E/W	VD
	9623	382.37	181.01	9542.93
TOP PERFS/OH	9650	405.59	180.55	9556.69
	9654	409.03	180.48	9558.73
	13676	4394.05	-55.33	9362.11
BOT PERFS/OH	13763	4480.48	-61.68	9354.44
	13771	4488.43	-62.26	9353.74

NEXT TO LAST	13771	4488.43	-62.26	9353.74
LAST READING	13836	4552.98	-66.87	9347.71
TD	13836	4552.98	-66.87	9347.71

Surface Location	410	FS	630	FE
Projected BHL	4963	FS	697	FE
Location of				
Top Perfs/OH	816	FS	449	FE
Bottom Perfs/OH	4890	FS	692	FE

SUMMARY of Subsurface Locations

Surface Location	P-19-18S-35E	410	FS	630	FE	Vert. Depth
Top Perfs/OH	P-19-18S-35E	816	FS	449	FE	9556.69
Bottom Perfs/OH	A-19-18S-35E	4890	FS	692	FE	9354.44
Projected TD	A-19-18S-35E	4963	FS	697	FE	9347.71

OCT 2.2 2013



A GYRO TECHNOLOGIES INC. COMPANY

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

HOEBS OCD

AUG 13 2013

RECEIVED

June 7, 2013

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

Attn: Patti Riechers

Re: **Ironhouse 19 State Com No 002H**

Please find enclosed a copy of the survey from 0' to 9,040' 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.

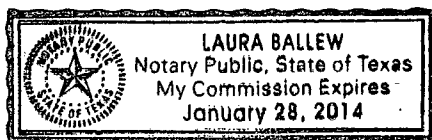
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 7th day of June,
A.D., 2013, by Keith Havelka.

Laura Ballew
Notary Public, State of Texas





Company: DEVON ENERGY PRODUCTION CO., LP
Well: IRONHOUSE 19 STATE COM NO 002H

Rig Name: MCVAY #8
State/County: NEW MEXICO/LEA
Latitude: 31.727, Longitude: -103.490
GRID North is 0.440 Degrees East of True North
VS-Azi: 0.000 Degrees



Depth Reference : RKB =19 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: run01-de_01.ut
Minimum Curvature Method
Report Date/Time: 6/7/2013 / 12:47

VAUGHN ENERGY SERVICES
HENDERSON, COLORADO
866-835-8333

SURVEYOR: NICK KULA
IRONHOUSE 19 STATE COM NO 002H / API 30-025-41091

HOBBS OCD

AUG 13 2013

RECEIVED

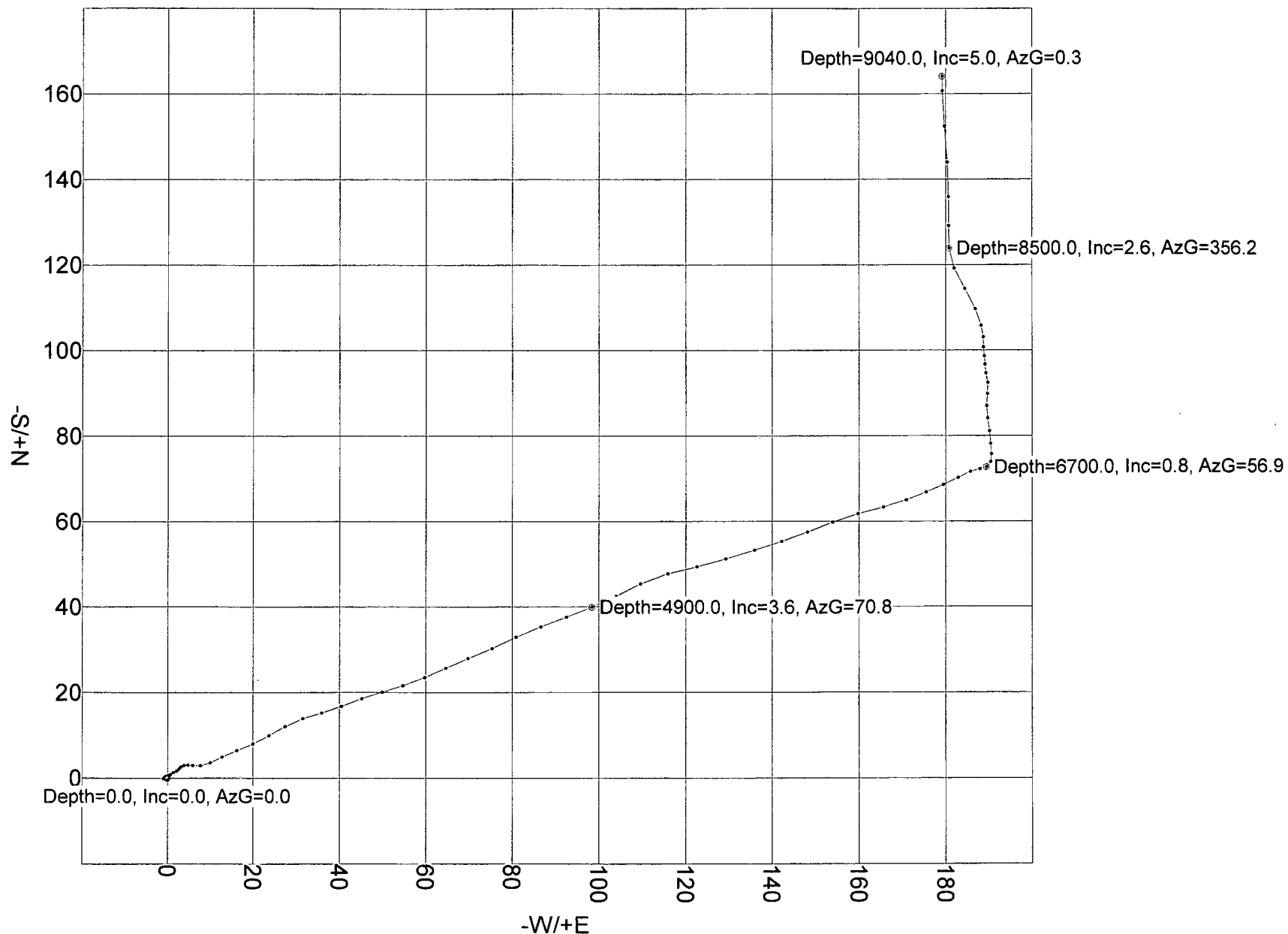
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	****
100.000	0.089	204.207	100.000	-0.071	-0.032	-0.071	0.078	204.207	0.089
200.000	0.032	119.000	200.000	-0.155	-0.039	-0.155	0.160	194.199	0.092
300.000	0.043	336.617	300.000	-0.134	-0.030	-0.134	0.137	192.590	0.072
400.000	0.101	280.739	400.000	-0.083	-0.132	-0.083	0.156	237.934	0.085
500.000	0.122	322.230	500.000	0.018	-0.284	0.018	0.285	273.689	0.082
600.000	0.037	0.625	600.000	0.135	-0.349	0.135	0.375	291.134	0.096
700.000	0.041	282.132	700.000	0.175	-0.384	0.175	0.422	294.470	0.050
800.000	0.107	334.340	799.999	0.266	-0.460	0.266	0.531	300.078	0.088
900.000	0.066	309.048	899.999	0.386	-0.545	0.386	0.668	305.347	0.055
1000.000	0.192	196.057	999.999	0.262	-0.636	0.262	0.687	292.368	0.226
1100.000	0.088	235.021	1099.999	0.056	-0.745	0.056	0.747	274.333	0.135
1200.000	0.035	295.045	1199.999	0.025	-0.836	0.025	0.837	271.735	0.077
1300.000	0.039	217.090	1299.999	0.011	-0.885	0.011	0.885	270.727	0.047
1400.000	0.052	216.729	1399.999	-0.053	-0.932	-0.053	0.934	266.771	0.014
1500.000	0.006	204.538	1499.999	-0.094	-0.962	-0.094	0.967	264.421	0.047
1600.000	0.133	78.088	1599.999	-0.075	-0.851	-0.075	0.854	264.981	0.136
1700.000	0.196	43.622	1699.998	0.073	-0.620	0.073	0.624	276.705	0.114
1800.000	0.138	35.886	1799.998	0.294	-0.431	0.294	0.522	304.248	0.062

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
1900.000	0.259	52.707	1899.997	0.528	-0.181	0.528	0.558	341.092	0.134
2000.000	0.199	97.517	1999.997	0.643	0.171	0.643	0.665	14.942	0.183
2100.000	0.428	53.138	2099.995	0.844	0.643	0.844	1.061	37.287	0.318
2200.000	0.526	57.196	2199.992	1.317	1.327	1.317	1.870	45.231	0.104
2300.000	0.452	70.583	2299.988	1.696	2.085	1.696	2.688	50.867	0.136
2400.000	0.483	31.661	2399.985	2.187	2.678	2.187	3.457	50.772	0.313
2500.000	0.324	55.934	2499.982	2.704	3.134	2.704	4.139	49.212	0.230
2600.000	0.527	72.730	2599.980	2.999	3.807	2.999	4.846	51.775	0.237
2700.000	0.534	93.279	2699.975	3.109	4.712	3.109	5.645	56.587	0.189
2800.000	0.817	95.685	2799.968	3.011	5.887	3.011	6.612	62.907	0.284
2900.000	1.233	88.126	2899.952	2.976	7.671	2.976	8.228	68.796	0.437
3000.000	1.536	64.057	2999.924	3.597	9.951	3.597	10.581	70.125	0.649
3100.000	2.017	62.301	3099.875	5.001	12.714	5.001	13.662	68.526	0.484
3200.000	2.344	71.373	3199.803	6.472	16.209	6.472	17.454	68.233	0.475
3300.000	2.325	63.687	3299.721	8.024	19.965	8.024	21.517	68.104	0.313
3400.000	2.508	61.774	3399.632	9.958	23.711	9.958	25.718	67.218	0.201
3500.000	2.477	60.178	3499.537	12.068	27.514	12.068	30.045	66.317	0.076
3600.000	2.592	70.231	3599.440	13.908	31.517	13.908	34.449	66.189	0.458
3700.000	2.649	76.441	3699.335	15.214	35.892	15.214	38.983	67.028	0.290
3800.000	2.894	66.669	3799.219	16.756	40.456	16.756	43.789	67.502	0.531
3900.000	2.860	70.929	3899.093	18.571	45.132	18.571	48.803	67.634	0.216
4000.000	2.877	73.889	3998.968	20.082	49.900	20.082	53.790	68.078	0.149
4100.000	2.936	70.712	4098.839	21.624	54.728	21.624	58.845	68.440	0.171
4200.000	3.191	68.429	4198.696	23.494	59.734	23.494	64.188	68.530	0.283
4300.000	3.011	62.920	4298.550	25.713	64.661	25.713	69.586	68.315	0.348
4400.000	3.456	69.676	4398.391	27.955	69.826	27.955	75.214	68.181	0.585
4500.000	3.499	64.889	4498.207	30.297	75.415	30.297	81.274	68.113	0.293
4600.000	3.484	63.756	4598.021	32.936	80.904	32.936	87.351	67.849	0.070
4700.000	3.597	70.442	4697.831	35.330	86.586	35.330	93.516	67.803	0.428
4800.000	3.702	66.789	4797.628	37.652	92.509	37.652	99.878	67.853	0.255
4900.000	3.573	70.813	4897.427	39.948	98.418	39.948	106.217	67.908	0.286
5000.000	3.431	59.482	4997.241	42.492	103.939	42.492	112.289	67.764	0.705
5100.000	3.794	65.430	5097.043	45.387	109.526	45.387	118.557	67.491	0.521
5200.000	3.983	73.651	5196.813	47.741	115.867	47.741	125.317	67.607	0.588
5300.000	3.999	78.747	5296.571	49.399	122.619	49.399	132.196	68.057	0.355
5400.000	4.038	70.641	5396.326	51.246	129.361	51.246	139.142	68.389	0.569
5500.000	3.902	75.363	5496.086	53.273	135.975	53.273	146.038	68.605	0.354
5600.000	3.620	68.595	5595.871	55.285	142.206	55.285	152.575	68.756	0.526
5700.000	3.676	70.807	5695.669	57.491	148.173	57.491	158.935	68.794	0.152

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
5800.000	3.492	65.464	5795.473	59.809	153.971	59.809	165.179	68.772	0.381
5900.000	3.619	76.596	5895.282	61.806	159.811	61.806	171.346	68.856	0.701
6000.000	3.252	73.418	5995.102	63.347	165.600	63.347	177.302	69.067	0.414
6100.000	3.080	71.488	6094.950	65.009	170.865	65.009	182.814	69.170	0.202
6200.000	2.586	65.371	6194.827	66.802	175.463	66.802	187.750	69.157	0.578
6300.000	2.347	66.898	6294.735	68.546	179.398	68.546	192.047	69.089	0.248
6400.000	2.043	61.083	6394.661	70.211	182.842	70.211	195.859	68.993	0.377
6500.000	1.620	66.992	6494.610	71.626	185.704	71.626	199.038	68.908	0.462
6600.000	1.049	84.757	6594.583	72.262	187.916	72.262	201.332	68.966	0.699
6700.000	0.846	56.917	6694.570	72.749	189.446	72.749	202.934	68.993	0.497
6800.000	0.991	22.770	6794.558	73.949	190.400	73.949	204.256	68.774	0.557
6900.000	1.125	352.521	6894.541	75.719	190.606	75.719	205.095	68.334	0.567
7000.000	1.665	357.301	6994.511	78.144	190.410	78.144	205.821	67.687	0.552
7100.000	1.766	353.121	7094.467	81.125	190.157	81.125	206.739	66.896	0.160
7200.000	1.707	350.434	7194.421	84.123	189.725	84.123	207.539	66.088	0.101
7300.000	1.618	1.294	7294.379	87.003	189.510	87.003	208.527	65.340	0.327
7400.000	1.597	5.885	7394.340	89.800	189.684	89.800	209.867	64.666	0.130
7500.000	1.406	357.116	7494.305	92.412	189.766	92.412	211.071	64.035	0.298
7600.000	1.254	340.399	7594.279	94.668	189.337	94.668	211.685	63.435	0.415
7700.000	1.211	7.173	7694.256	96.747	189.102	96.747	212.413	62.905	0.572
7800.000	1.054	343.823	7794.237	98.679	188.977	98.679	213.190	62.428	0.483
7900.000	1.336	0.572	7894.216	100.728	188.733	100.728	213.930	61.911	0.446
8000.000	1.373	358.404	7994.188	103.092	188.711	103.092	215.034	61.352	0.063
8100.000	1.869	343.760	8094.148	105.855	188.222	105.855	215.946	60.647	0.643
8200.000	2.837	338.673	8194.063	109.726	186.865	109.726	216.699	59.579	0.989
8300.000	3.274	327.463	8293.921	114.439	184.430	114.439	217.049	58.180	0.739
8400.000	2.969	337.723	8393.773	119.243	181.912	119.243	217.510	56.755	0.636
8500.000	2.618	356.167	8493.656	123.918	180.778	123.918	219.171	55.571	0.960
8600.000	3.396	0.616	8593.518	129.158	180.657	129.158	222.078	54.438	0.812
8700.000	4.317	358.949	8693.291	135.883	180.620	135.883	226.026	53.045	0.928
8800.000	4.929	357.302	8792.965	143.938	180.348	143.938	230.746	51.406	0.626
8900.000	4.787	353.553	8892.606	152.376	179.677	152.376	235.589	49.700	0.348
9000.000	4.811	359.814	8992.256	160.716	179.195	160.716	240.708	48.112	0.524
9040.000	5.046	0.265	9032.108	164.152	179.198	164.152	243.018	47.509	0.595



VAUGHN ENERGY SERVICES
HENDERSON, COLORADO
866-835-8333
SURVEYOR: NICK KULA
IRONHOUSE 19 STATE COM NO 002H / API 30-025-41091



VES Survey Date: 06/03/2013

Devon Ironhouse 19 State Com #2H Gyro + MWD Tie In-Update Survey Geodetic Report (Non-Def Survey)

Report Date: June 12, 2013 - 08:27 AM
Client: Devon
Field: NM Lea County (NAD 83)
Structure / Slot: Devon Ironhouse 19 State Com #2H / Devon Ironhouse 19 State Com #2H
Well: Devon Ironhouse 19 State Com #2H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Devon Ironhouse 19 State Com #2H Gyro + MWD Tie In-Update
Survey Date: June 03, 2013
Tort / AHD / DDI / ERD Ratio: 149.333 * / 4697.467 ft / 6.002 / 0.486
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 43' 37.65194", W 103° 29' 25.05491"
Location Grid N/E Y/X: N 629291.030 ftUS, E 800590.460 ftUS
CRS Grid Convergence Angle: 0.4558 *
Grid Scale Factor: 0.99998606

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.110 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3949.800 ft above MSL
Seabed / Ground Elevation: 3931.800 ft above MSL
Magnetic Declination: 7.448 *
Total Gravity Field Strength: 998.4781 mgn (9.80665 Based)
Total Magnetic Field Strength: 48722.866 nT
Magnetic Dip Angle: 60.811 *
Declination Date: June 03, 2013
Magnetic Declination Model: BGGM 2013
North Reference: Grid North
Grid Convergence Used: 0.4558 *
Total Corr Mag North->Grid North: 6.9921 *
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	629291.03	800590.46	N 32 43 37.65	W 103 29 25.05
	100.00	0.09	204.21	100.00	-0.07	-0.07	-0.03	0.09	629290.96	800590.43	N 32 43 37.65	W 103 29 25.06
	200.00	0.03	119.00	200.00	-0.15	-0.16	-0.04	0.09	629290.87	800590.42	N 32 43 37.65	W 103 29 25.06
	300.00	0.04	336.62	300.00	-0.13	-0.13	-0.03	0.07	629290.90	800590.43	N 32 43 37.65	W 103 29 25.06
	400.00	0.10	280.74	400.00	-0.08	-0.08	-0.13	0.08	629290.95	800590.33	N 32 43 37.65	W 103 29 25.06
	500.00	0.12	322.23	500.00	0.02	0.02	-0.28	0.08	629291.05	800590.18	N 32 43 37.65	W 103 29 25.06
	600.00	0.04	0.63	600.00	0.14	0.13	-0.35	0.10	629291.16	800590.11	N 32 43 37.65	W 103 29 25.06
	700.00	0.04	282.13	700.00	0.18	0.17	-0.38	0.05	629291.20	800590.08	N 32 43 37.65	W 103 29 25.06
	800.00	0.11	334.34	800.00	0.27	0.27	-0.46	0.09	629291.30	800590.00	N 32 43 37.65	W 103 29 25.06
	900.00	0.07	309.05	900.00	0.39	0.39	-0.54	0.06	629291.42	800589.92	N 32 43 37.66	W 103 29 25.07
	1000.00	0.19	196.06	1000.00	0.27	0.26	-0.63	0.23	629291.29	800589.83	N 32 43 37.65	W 103 29 25.06
	1100.00	0.09	235.02	1100.00	0.07	0.06	-0.74	0.14	629291.09	800589.72	N 32 43 37.65	W 103 29 25.06
	1200.00	0.04	295.05	1200.00	0.04	0.02	-0.83	0.08	629291.05	800589.63	N 32 43 37.65	W 103 29 25.06
	1300.00	0.04	217.09	1300.00	0.02	0.01	-0.88	0.05	629291.04	800589.58	N 32 43 37.65	W 103 29 25.07
	1400.00	0.05	216.73	1400.00	-0.04	-0.05	-0.93	0.01	629290.98	800589.53	N 32 43 37.65	W 103 29 25.07
	1500.00	0.01	204.54	1500.00	-0.08	-0.09	-0.96	0.05	629290.94	800589.50	N 32 43 37.65	W 103 29 25.07
	1600.00	0.13	78.09	1600.00	-0.06	-0.08	-0.85	0.14	629290.95	800589.61	N 32 43 37.65	W 103 29 25.06
	1700.00	0.20	43.62	1700.00	0.08	0.07	-0.82	0.11	629291.10	800589.84	N 32 43 37.65	W 103 29 25.06
	1800.00	0.14	35.89	1800.00	0.30	0.29	-0.43	0.06	629291.32	800590.03	N 32 43 37.65	W 103 29 25.06
	1900.00	0.26	52.71	1900.00	0.53	0.53	-0.18	0.13	629291.56	800590.28	N 32 43 37.66	W 103 29 25.06
	2000.00	0.20	97.52	2000.00	0.64	0.64	0.17	0.18	629291.67	800590.63	N 32 43 37.66	W 103 29 25.05
	2100.00	0.43	53.14	2100.00	0.83	0.84	0.65	0.32	629291.87	800591.11	N 32 43 37.66	W 103 29 25.05
	2200.00	0.53	57.20	2199.99	1.30	1.32	1.33	0.10	629292.35	800591.79	N 32 43 37.66	W 103 29 25.04
	2300.00	0.45	70.58	2299.99	1.66	1.70	2.09	0.14	629292.73	800592.55	N 32 43 37.67	W 103 29 25.03
	2400.00	0.48	31.66	2399.98	2.14	2.19	2.68	0.31	629293.22	800593.14	N 32 43 37.67	W 103 29 25.02
	2500.00	0.32	55.93	2499.98	2.65	2.70	3.14	0.23	629293.73	800593.60	N 32 43 37.68	W 103 29 25.02
	2600.00	0.53	72.73	2599.98	2.94	3.00	3.81	0.24	629294.03	800594.27	N 32 43 37.68	W 103 29 25.01
	2700.00	0.53	93.28	2699.98	3.03	3.11	4.71	0.19	629294.14	800595.17	N 32 43 37.68	W 103 29 25.00
	2800.00	0.82	95.69	2799.97	2.92	3.01	5.89	0.28	629294.04	800596.35	N 32 43 37.68	W 103 29 24.99
	2900.00	1.23	88.13	2899.95	2.86	2.98	7.67	0.44	629294.01	800598.13	N 32 43 37.68	W 103 29 24.96
	3000.00	1.54	64.06	2999.92	3.44	3.60	9.95	0.65	629294.63	800600.41	N 32 43 37.69	W 103 29 24.94
	3100.00	2.02	62.30	3099.88	4.80	5.00	12.72	0.48	629296.03	800603.18	N 32 43 37.70	W 103 29 24.91
	3200.00	2.34	71.37	3199.80	6.22	6.47	16.21	0.47	629297.50	800606.67	N 32 43 37.71	W 103 29 24.86
	3300.00	2.33	63.69	3299.72	7.71	8.03	19.97	0.31	629299.06	800610.43	N 32 43 37.73	W 103 29 24.82
	3400.00	2.51	61.77	3399.63	9.59	9.96	23.72	0.20	629300.99	800614.18	N 32 43 37.75	W 103 29 24.78
	3500.00	2.48	60.18	3499.54	11.64	12.07	27.52	0.08	629303.10	800617.98	N 32 43 37.77	W 103 29 24.73
	3600.00	2.59	70.23	3599.44	13.42	13.91	31.52	0.46	629304.94	800621.98	N 32 43 37.79	W 103 29 24.68
	3700.00	2.65	76.44	3699.34	14.66	15.21	35.90	0.29	629306.24	800626.36	N 32 43 37.80	W 103 29 24.63
	3800.00	2.89	66.67	3799.22	16.13	16.76	40.46	0.53	629307.79	800630.92	N 32 43 37.81	W 103 29 24.58
	3900.00	2.86	70.93	3899.09	17.87	18.57	45.14	0.22	629309.60	800635.60	N 32 43 37.83	W 103 29 24.52
	4000.00	2.88	73.89	3998.97	19.31	20.08	49.90	0.15	629311.11	800640.36	N 32 43 37.85	W 103 29 24.47
	4100.00	2.94	70.71	4098.84	20.77	21.62	54.73	0.17	629312.65	800645.19	N 32 43 37.86	W 103 29 24.41
	4200.00	3.19	68.43	4198.70	22.56	23.49	59.74	0.28	629314.52	800650.20	N 32 43 37.88	W 103 29 24.35
	4300.00	3.01	62.92	4298.55	24.71	25.71	64.67	0.35	629316.74	800655.12	N 32 43 37.90	W 103 29 24.30
	4400.00	3.46	69.68	4398.39	26.87	27.96	69.83	0.59	629318.99	800660.29	N 32 43 37.92	W 103 29 24.23
	4500.00	3.50	64.89	4498.21	29.12	30.30	75.42	0.29	629321.33	800665.88	N 32 43 37.95	W 103 29 24.17
	4600.00	3.48	63.76	4598.02	31.68	32.94	80.91	0.07	629323.97	800671.37	N 32 43 37.97	W 103 29 24.10
	4700.00	3.60	70.44	4697.83	33.98	35.33	86.59	0.43	629326.36	800677.05	N 32 43 37.99	W 103 29 24.04
	4800.00	3.70	66.79	4797.63	36.21	37.65	92.51	0.26	629328.68	800682.97	N 32 43 38.02	W 103 29 23.97
	4900.00	3.57	70.81	4897.43	38.42	39.95	98.42	0.29	629330.98	800688.88	N 32 43 38.04	W 103 29 23.90
	5000.00	3.43	59.48	4997.24	40.87	42.49	103.94	0.71	629333.52	800694.40	N 32 43 38.06	W 103 29 23.83
	5100.00	3.79	65.43	5097.04	43.68	45.39	109.53	0.52	629336.42	800699.99	N 32 43 38.09	W 103 29 23.77
	5200.00	3.98	73.65	5196.81	45.94	47.74	115.87	0.59	629338.77	800706.33	N 32 43 38.12	W 103 29 23.69
	5300.00	4.00	78.75	5296.57	47.49	49.40	122.62	0.35	629340.43	800713.08	N 32 43 38.13	W 103 29 23.61
	5400.00	4.04	70.64	5396.33	49.23	51.25	129.37	0.57	629342.28	800719.82	N 32 43 38.15	W 103 29 23.54
	5500.00	3.90	75.36	5496.09	51.15	53.27	135.98	0.35	629344.30	800726.44	N 32 43 38.17	W 103 29 23.46
	5600.00	3.62	68.60	5595.87	53.07	55.29	142.21	0.53	629346.31	800732.67	N 32 43 38.19	W 103 29 23.39
	5700.00	3.68	70.81	5695.67	55.18	57.49	148.18	0.15	629348.52	800738.84	N 32 43 38.21	W 103 29 23.32
	5800.00	3.49	65.46	5795.47	57.41	59.81	153.98	0.38	629350.84	800744.43	N 32 43 38.23	W 103 29 23.25
	5900.00	3.62	76.60	5895.28	59.32	61.81	159.82	0.70	629352.84	800750.27	N 32 43 38.25	W 103 29 23.18
	6000.00	3.25	73.42	5995.10	60.77	63.35	165.61	0.41	629354.38	800756.06	N 32 43 38.27	W 103 29 23.11
	6100.00	3.08	71.49	6094.95	62.35	65.01	170.87	0.20	629356.04	800761.33	N 32 43 38.28	W 103 29 23.05
	6200.00	2.59	65.37	6194.83	64.07	66.80	175.47	0.58	629357.83	800765.93	N 32 43 38.30	W 103 29 22.99
	6300.00	2.35	66.90	6294.73	65.75	68.55	179.40	0.25	629359.58	800769.86	N 32 43 38.32	W 103 29 22.95

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Nonthing (ft)	Easting (ft)	Latitude (N/S ° °')	Longitude (E/W ° °')
	6400.00	2.04	61.08	6394.66	67.36	70.21	182.85	0.38	629361.24	800773.30	N 32 43 38.33	W 103 29 22.91
	6500.00	1.62	66.99	6494.61	68.73	71.63	185.71	0.46	629362.66	800776.17	N 32 43 38.35	W 103 29 22.87
	6600.00	1.05	84.76	6594.58	69.33	72.26	187.92	0.70	629363.29	800778.38	N 32 43 38.35	W 103 29 22.85
	6700.00	0.85	56.92	6694.57	69.80	72.75	189.45	0.50	629363.78	800779.91	N 32 43 38.36	W 103 29 22.83
	6800.00	0.99	22.77	6794.56	70.98	73.95	190.40	0.56	629364.98	800780.86	N 32 43 38.37	W 103 29 22.82
	6900.00	1.13	352.52	6894.54	72.75	75.72	190.61	0.57	629366.75	800781.07	N 32 43 38.39	W 103 29 22.82
	7000.00	1.67	357.30	6994.51	75.18	78.14	190.42	0.55	629369.17	800780.87	N 32 43 38.41	W 103 29 22.82
	7100.00	1.77	353.12	7094.47	78.16	81.13	190.16	0.16	629372.15	800780.62	N 32 43 38.44	W 103 29 22.82
	7200.00	1.71	350.43	7194.42	81.17	84.12	189.73	0.10	629375.15	800780.19	N 32 43 38.47	W 103 29 22.83
	7300.00	1.62	1.29	7294.38	84.05	87.00	189.51	0.33	629378.03	800779.97	N 32 43 38.50	W 103 29 22.83
	7400.00	1.60	5.89	7394.34	86.84	89.80	189.69	0.13	629380.83	800780.15	N 32 43 38.53	W 103 29 22.83
	7500.00	1.41	357.12	7494.31	89.45	92.41	189.77	0.30	629383.44	800780.23	N 32 43 38.55	W 103 29 22.82
	7600.00	1.25	340.40	7594.28	91.72	94.67	189.34	0.41	629385.70	800779.80	N 32 43 38.57	W 103 29 22.83
	7700.00	1.21	7.17	7694.26	93.80	96.75	189.11	0.57	629387.78	800779.56	N 32 43 38.59	W 103 29 22.83
	7800.00	1.05	343.82	7794.24	95.73	98.68	188.98	0.48	629389.71	800779.44	N 32 43 38.61	W 103 29 22.83
	7900.00	1.34	0.57	7894.22	97.79	100.73	188.74	0.45	629391.76	800779.19	N 32 43 38.63	W 103 29 22.84
	8000.00	1.37	358.40	7994.19	100.15	103.09	188.72	0.06	629394.12	800779.17	N 32 43 38.66	W 103 29 22.84
	8100.00	1.87	343.76	8094.15	102.92	105.86	188.23	0.64	629396.88	800778.68	N 32 43 38.68	W 103 29 22.84
	8200.00	2.84	338.67	8194.06	106.81	109.73	186.87	0.99	629400.76	800777.33	N 32 43 38.72	W 103 29 22.86
	8300.00	3.27	327.46	8293.92	111.56	114.44	184.43	0.74	629405.47	800774.89	N 32 43 38.77	W 103 29 22.89
	8400.00	2.97	337.72	8393.77	116.40	119.24	181.92	0.64	629410.27	800772.37	N 32 43 38.82	W 103 29 22.91
	8500.00	2.62	356.17	8493.66	121.10	123.92	180.78	0.96	629414.95	800771.24	N 32 43 38.86	W 103 29 22.93
	8600.00	3.40	0.62	8593.52	126.34	129.16	180.66	0.81	629420.19	800771.12	N 32 43 38.92	W 103 29 22.93
	8700.00	4.32	358.95	8693.29	133.06	135.88	180.62	0.93	629426.91	800771.08	N 32 43 38.98	W 103 29 22.93
	8800.00	4.93	357.30	8792.96	141.12	143.94	180.35	0.63	629434.97	800770.81	N 32 43 39.06	W 103 29 22.93
	8900.00	4.79	353.55	8892.61	149.57	152.38	179.68	0.35	629443.40	800770.14	N 32 43 39.15	W 103 29 22.94
	9000.00	4.81	359.81	8992.26	157.91	160.72	179.20	0.52	629451.74	800769.66	N 32 43 39.23	W 103 29 22.94
	9040.00	5.05	0.27	9032.11	161.35	164.15	179.20	0.60	629455.18	800769.66	N 32 43 39.26	W 103 29 22.94
	9213.00	5.36	350.19	9204.40	176.94	179.72	177.86	0.56	629470.75	800768.32	N 32 43 39.42	W 103 29 22.96
	9244.00	8.44	353.97	9235.17	180.64	183.41	177.38	10.04	629474.44	800767.83	N 32 43 39.45	W 103 29 22.96
	9276.00	12.31	356.87	9266.64	186.39	189.16	176.94	12.20	629480.18	800767.40	N 32 43 39.51	W 103 29 22.97
	9309.00	15.92	1.70	9298.64	194.42	197.20	176.88	11.50	629488.22	800767.34	N 32 43 39.59	W 103 29 22.97
	9339.00	20.05	4.61	9327.17	203.66	208.44	177.42	14.08	629497.47	800767.88	N 32 43 39.68	W 103 29 22.96
	9370.00	24.09	5.57	9355.89	215.24	218.04	178.46	13.08	629509.06	800768.92	N 32 43 39.80	W 103 29 22.95
	9402.00	28.23	5.75	9384.61	229.25	232.07	179.85	12.94	629523.10	800770.31	N 32 43 39.93	W 103 29 22.93
	9433.00	32.45	3.99	9411.36	244.83	247.67	181.17	13.91	629538.70	800771.63	N 32 43 40.09	W 103 29 22.91
	9465.00	36.67	2.85	9437.70	262.93	265.79	182.24	13.34	629556.81	800772.70	N 32 43 40.27	W 103 29 22.90
	9496.00	41.24	1.53	9461.81	282.38	285.26	182.97	14.98	629576.28	800773.43	N 32 43 40.46	W 103 29 22.89
	9528.00	46.17	359.77	9484.93	304.48	307.36	183.21	15.87	629598.38	800773.67	N 32 43 40.68	W 103 29 22.88
	9560.00	50.83	358.54	9506.13	328.44	331.32	182.85	14.84	629622.34	800773.30	N 32 43 40.92	W 103 29 22.88
	9591.00	54.17	357.57	9525.00	353.02	355.89	182.01	11.06	629646.92	800772.47	N 32 43 41.16	W 103 29 22.89
	9623.00	57.88	358.10	9542.93	379.52	382.37	181.01	11.05	629673.40	800771.47	N 32 43 41.42	W 103 29 22.90
	9654.00	61.03	359.60	9558.73	406.18	409.03	180.48	11.58	629700.06	800770.94	N 32 43 41.68	W 103 29 22.90
	9686.00	63.49	0.21	9573.62	434.50	437.35	180.44	7.87	629728.38	800770.89	N 32 43 41.96	W 103 29 22.90
	9717.00	66.04	358.80	9586.83	462.54	465.39	180.19	9.20	629756.41	800770.65	N 32 43 42.24	W 103 29 22.90
	9749.00	68.32	357.84	9599.24	492.03	494.87	179.32	7.64	629785.89	800769.78	N 32 43 42.53	W 103 29 22.91
	9781.00	71.14	357.49	9610.33	522.03	524.86	178.10	8.87	629815.88	800768.56	N 32 43 42.83	W 103 29 22.92
	9812.00	73.69	357.84	9619.70	551.57	554.39	176.90	8.30	629845.41	800767.35	N 32 43 43.12	W 103 29 22.93
	9844.00	75.53	358.54	9628.19	582.42	585.22	175.92	6.12	629876.24	800766.38	N 32 43 43.43	W 103 29 22.94
	9875.00	76.94	358.54	9635.56	612.53	615.32	175.16	4.55	629906.34	800765.61	N 32 43 43.73	W 103 29 22.95
	9907.00	78.52	358.19	9642.36	643.79	646.58	174.26	5.05	629937.60	800764.72	N 32 43 44.04	W 103 29 22.95
	9938.00	80.20	357.40	9648.09	674.25	677.02	173.09	5.97	629968.04	800763.55	N 32 43 44.34	W 103 29 22.97
	9970.00	82.31	357.22	9652.95	705.86	708.61	171.61	6.62	629999.63	800762.06	N 32 43 44.65	W 103 29 22.98
	10001.00	84.77	357.40	9656.44	736.64	739.38	170.16	7.96	630030.40	800760.62	N 32 43 44.95	W 103 29 22.99
	10033.00	87.05	357.57	9658.72	768.55	771.26	168.76	7.14	630062.28	800759.22	N 32 43 45.27	W 103 29 23.01
	10064.00	89.34	357.66	9659.70	799.52	802.22	167.47	7.39	630093.24	800757.93	N 32 43 45.58	W 103 29 23.02
	10089.00	91.36	357.74	9659.55	824.51	827.20	166.47	8.09	630118.21	800756.92	N 32 43 45.82	W 103 29 23.03
	10184.00	92.51	357.97	9656.34	919.43	922.07	162.91	1.23	630213.09	800753.37	N 32 43 46.76	W 103 29 23.06
	10278.00	93.74	356.33	9651.21	1013.23	1015.81	158.25	2.18	630306.83	800748.71	N 32 43 47.69	W 103 29 23.11
	10373.00	93.83	356.35	9644.94	1107.91	1110.41	152.20	0.10	630401.42	800742.65	N 32 43 48.63	W 103 29 23.17
	10466.00	94.70	354.58	9638.03	1200.46	1202.86	144.86	2.12	630493.87	800735.32	N 32 43 49.54	W 103 29 23.25
	10560.00	95.32	354.63	9629.82	1293.82	1296.09	136.06	0.66	630587.10	800726.52	N 32 43 50.46	W 103 29 23.34
	10655.00	95.58	354.90	9620.79	1388.11	1390.26	127.43	0.39	630681.27	800717.89	N 32 43 51.40	W 103 29 23.43
	10750.00	95.76	355.29	9611.41	1482.42	1484.45	119.35	0.45	630775.46	800709.81	N 32 43 52.33	W 103 29 23.52
	10845.00	95.85	355.80	9601.80	1576.75	1578.68	112.01	0.54	630869.68	800702.47	N 32 43 53.26	W 103 29 23.60
	10939.00	96.02	356.17	9592.08	1670.10	1671.94	105.46	0.43	630962.95	800695.92	N 32 43 54.19	W 103 29 23.66
	11034.00	96.11	356.07	9582.04	1764.44	1766.20	99.07	0.14	631057.20	800689.53	N 32 43 55.12	W 103 29 23.73
	11128.00	96.38	356.41	9571.82	1857.77	1859.44	92.94	0.46	631150.44	800683.40	N 32 43 56.04	W 103 29 23.79
	11223.00	95.23	356.59	9562.21	1952.18	1953.77	87.17	1.23	631244.77	800677.63	N 32 43 56.98	W 103 29 23.85
	11318.00	95.32	357.13	9553.47	2046.71	2048.23	81.99	0.57	631339.22	800672.45	N 32 43 57.91	W 103 29 23.90
	11412.00	95.58	357.84	9544.55	2140.24	2141.71	77.88	0.80	631432.71	800668.34	N 32 43 58.84	W 103 29 23.94
	11507.00	95.14	357.20	9535.67	2234.79	2236.21	73.79	0.82	631527.20	800664.25	N 32 43 59.77	W 103 29 23.98
	11602.00	94.62	356.18	9527.59	2329.36	2330.70	68.32	1.20	631621.70	800658.78	N 32 44 0.71	W 103 29 24.04
	11697.00	94.53	356.65	9520.01	2423.95	2425.21	62.40	0.50	631716.21	800652.86	N 32 44 1.64	W 103 29 24.10
	11791.00	94.53	356.54	9512.59	2517.57	2518.75	56.84	0.12	631809.74	800647.30	N 32 44 2.57	W 103 29 24.15
	11886.00	94.35	356.96	9505.23	2613.20	2613.32	51.47	0.48	631904.31	800641.93	N 32 44 3.50	W 103 29 24.21
	11980.00	94.18	357.41	9498.24	2705.89	2706.94	46.86					

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS ("/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	13210.00	92.68	356.44	9391.76	3929.98	3930.08	-24.11	0.26	633221.04	800566.35	N 32 44 16.54	W 103 29 24.97
	13305.00	93.03	356.35	9387.03	4024.75	4024.77	-30.07	0.38	633315.74	800560.39	N 32 44 17.48	W 103 29 25.03
	13399.00	93.30	356.00	9381.84	4118.48	4118.42	-36.34	0.47	633409.38	800554.13	N 32 44 18.40	W 103 29 25.10
	13488.00	93.74	356.11	9376.38	4207.19	4207.04	-42.45	0.51	633498.00	800548.01	N 32 44 19.28	W 103 29 25.16
	13582.00	94.44	356.22	9369.67	4300.83	4300.59	-48.72	0.75	633591.55	800541.74	N 32 44 20.21	W 103 29 25.22
	13676.00	94.79	355.69	9362.11	4394.38	4394.05	-55.33	0.67	633685.01	800535.13	N 32 44 21.13	W 103 29 25.29
Final Survey	13771.00	95.32	355.91	9353.74	4488.85	4488.43	-62.26	0.60	633779.38	800528.20	N 32 44 22.07	W 103 29 25.37
Projection to TD	13836.00	95.32	355.91	9347.71	4553.47	4552.98	-66.87	0.00	633843.94	800523.59	N 32 44 22.70	W 103 29 25.41

Survey Type: Non-Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	18.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Devon Ironhouse 19 State Com #2H Gyro + MWD Tie In-Update
	18.000	9040.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / Devon Ironhouse 19 State Com #2H
	9040.000	13836.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Devon Ironhouse 19 State Com #2H