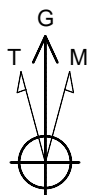


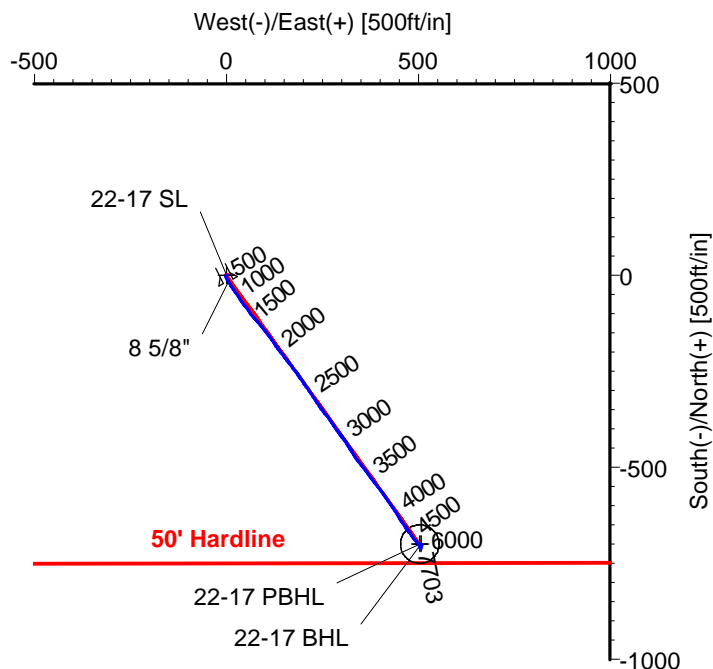
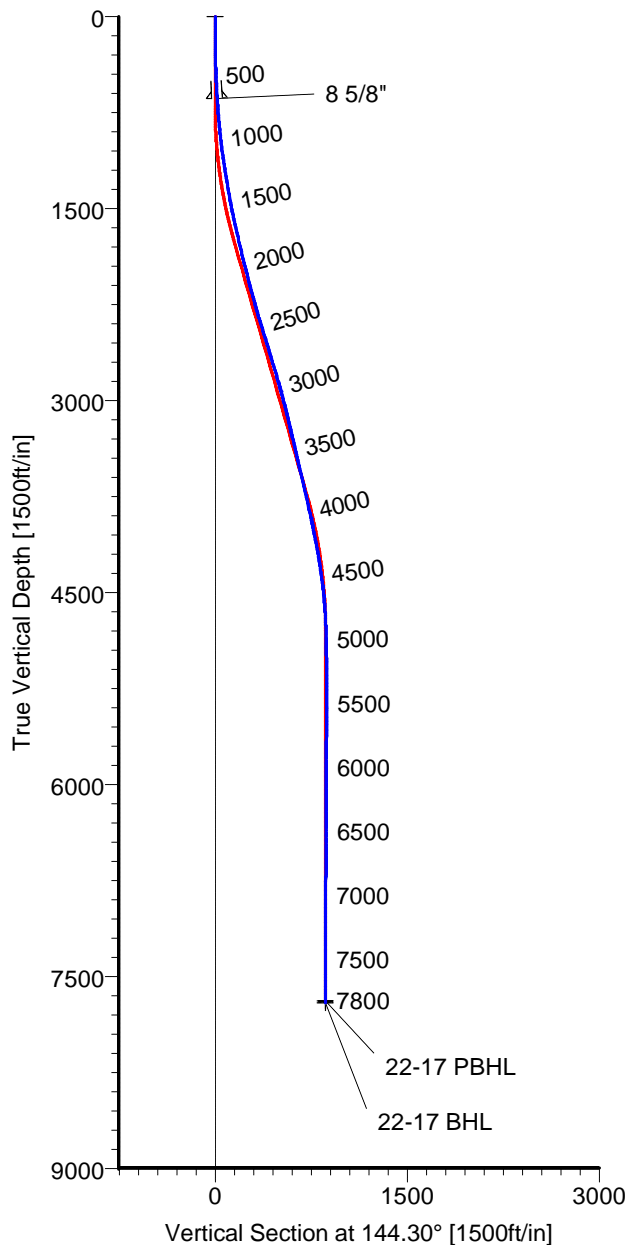
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Elliot 5-17 Pad
Well: 22-17
Wellpath: Original Hole



Azimuths to Grid North
True North: -0.37°
Magnetic North: 8.61°

Magnetic Field
Strength: 53104nT
Dip Angle: 66.90°
Date: 01/27/2011
Model: IGRF2010



CASING DETAILS

No.	TVD	MD	Name	Size
1	639.60	640.00	8 5/8"	8.625

LEGEND

- 22-17, Original Hole, Plan #1
- Original Hole

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
22-17 SL	0.00	0.00	0.00	40°13'40.619N	104°55'14.372W	Point
22-17 PBHL	7690.00	-700.19	503.14	40°13'33.667N	104°55'07.944W	Circle (Radius: 50)
22-17 BHL	7702.99	-700.31	505.90	40°13'33.665N	104°55'07.908W	Point

Wellpath: (22-17/Original Hole)

ALLIS CHALMERS DIRECTIONAL DRILLING SERVICES
911 Regional Park Drive Houston, Texas 77060
Phone: 713-934-9600 Fax: 713-934-9067

Created By: Ivonne Gonzalez

Date: 02/22/2011



DIRECTIONAL
DRILLING SERVICES

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Elliot 5-17 Pad Well: 22-17 Wellpath: Original Hole	Date: 02/22/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 08:22:16 Well: 22-17, Grid North 4813'KB+13'KB 4826.0 Well (0.00N,0.00E,144.30Azi) Minimum Curvature	Page: 1 Db: Sybase
---	---	---	-------------------------------------

Field: Weld County, CO	
Map System: US State Plane Coordinate System 1983 Geo Datum: GRS 1980 Sys Datum: Mean Sea Level	Map Zone: Colorado, Northern Zone Coordinate System: Well Centre Geomagnetic Model: IGRF2010

Site: Elliot 5-17 Pad Centered on 21-17 Well Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4813.00 ft	Northing: 1326415.06 ft Easting: 3161797.25 ft Latitude: 40 13 40.616 N Longitude: 104 55 13.984 W North Reference: Grid Grid Convergence: 0.37 deg
---	--

Well: 22-17 Well Position: +N/-S 0.07 ft +E/-W -30.07 ft Position Uncertainty: 0.00 ft	Slot Name: 22-17 Latitude: 40 13 40.619 N Longitude: 104 55 14.372 W
--	---

Wellpath: Original Hole Current Datum: 4813'KB+13'KB Magnetic Data: 01/27/2011 Field Strength: 53104 nT Vertical Section: Depth From (TVD) ft	Height 4826.00 ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.99 deg Mag Dip Angle: 66.90 deg +N/-S ft +E/-W ft Direction deg
0.00	0.00	0.00 144.30

Survey Program for Definitive Wellpath				
Date: 02/22/2011	Validated: No	Version: 0		
Actual From ft	To ft	Survey	Toolcode	Tool Name
51.00	7755.00	Survey #1 (51.00-7755.00)	MWD	Std MWD
7800.00	7800.00	Survey #2 (7800.00-7800.00)	Project	Projection

Survey										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
51.00	0.90	233.60	51.00	-0.24	-0.32	0.00	1.76	1.76	0.00	MWD
141.00	1.10	219.60	140.98	-1.32	-1.44	0.23	0.35	0.22	-15.56	MWD
231.00	0.90	191.40	230.97	-2.68	-2.13	0.93	0.58	-0.22	-31.33	MWD
321.00	1.60	147.50	320.95	-4.43	-1.60	2.67	1.26	0.78	-48.78	MWD
428.00	2.10	147.10	427.89	-7.34	0.27	6.12	0.47	0.47	-0.37	MWD
518.00	3.20	151.40	517.80	-10.93	2.37	10.26	1.24	1.22	4.78	MWD
595.00	3.30	155.20	594.67	-14.83	4.33	14.57	0.31	0.13	4.94	MWD
636.00	3.30	154.50	635.61	-16.97	5.33	16.89	0.10	0.00	-1.71	MWD
640.00	3.32	154.00	639.60	-17.17	5.43	17.11	0.81	0.38	-12.44	8 5/8"
727.00	3.70	144.30	726.44	-21.71	8.17	22.40	0.81	0.44	-11.15	MWD
818.00	5.30	145.40	817.15	-27.56	12.27	29.54	1.76	1.76	1.21	MWD
909.00	6.20	150.30	907.69	-35.29	17.09	38.63	1.13	0.99	5.38	MWD
1000.00	7.20	145.70	998.07	-44.27	22.74	49.22	1.25	1.10	-5.05	MWD
1090.00	7.70	144.30	1087.31	-53.82	29.44	60.89	0.59	0.56	-1.56	MWD
1181.00	8.80	144.00	1177.37	-64.40	37.09	73.94	1.21	1.21	-0.33	MWD
1272.00	9.70	146.10	1267.19	-76.40	45.45	88.57	1.06	0.99	2.31	MWD
1363.00	10.00	142.60	1356.85	-89.04	54.53	104.13	0.74	0.33	-3.85	MWD
1453.00	10.20	142.60	1445.45	-101.58	64.12	119.90	0.22	0.22	0.00	MWD
1544.00	11.60	138.40	1534.81	-114.82	75.08	137.06	1.77	1.54	-4.62	MWD
1635.00	12.70	139.80	1623.77	-129.30	87.62	156.13	1.25	1.21	1.54	MWD
1726.00	13.00	142.90	1712.49	-145.11	100.25	176.34	0.83	0.33	3.41	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Elliot 5-17 Pad Well: 22-17 Wellpath: Original Hole	Date: 02/22/2011 Co-ordinate(NE) Reference: Well: 22-17, Grid North Vertical (TVD) Reference: 4813'KB+13'KB 4826.0 Section (VS) Reference: Well (0.00N,0.00E,144.30Azi) Survey Calculation Method: Minimum Curvature	Time: 08:22:16 Page: 2 Db: Sybase
---	---	--

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1817.00	13.40	143.60	1801.09	-161.76	112.68	197.11	0.47	0.44	0.77	MWD
1907.00	13.70	145.00	1888.58	-178.88	124.98	218.20	0.49	0.33	1.56	MWD
1998.00	14.60	141.20	1976.82	-196.65	138.35	240.43	1.42	0.99	-4.18	MWD
2089.00	14.30	143.60	2064.94	-214.63	152.20	263.12	0.74	-0.33	2.64	MWD
2180.00	15.50	141.20	2152.88	-233.16	166.49	286.50	1.48	1.32	-2.64	MWD
2271.00	14.90	144.00	2240.70	-252.10	180.99	310.34	1.04	-0.66	3.08	MWD
2361.00	16.50	145.70	2327.34	-272.02	194.99	334.69	1.85	1.78	1.89	MWD
2452.00	17.40	144.70	2414.39	-293.80	210.14	361.21	1.04	0.99	-1.10	MWD
2542.00	17.60	146.40	2500.22	-316.11	225.44	388.27	0.61	0.22	1.89	MWD
2634.00	16.50	146.10	2588.18	-338.54	240.43	415.23	1.20	-1.20	-0.33	MWD
2724.00	16.70	141.50	2674.43	-359.27	255.61	440.92	1.48	0.22	-5.11	MWD
2815.00	16.90	144.30	2761.55	-380.25	271.47	467.20	0.92	0.22	3.08	MWD
2906.00	16.40	145.40	2848.73	-401.56	286.48	493.28	0.65	-0.55	1.21	MWD
2996.00	14.40	142.20	2935.50	-420.87	300.55	517.16	2.41	-2.22	-3.56	MWD
3087.00	15.40	147.10	3023.44	-439.95	314.05	540.54	1.77	1.10	5.38	MWD
3178.00	13.70	150.00	3111.52	-459.43	326.01	563.34	2.03	-1.87	3.19	MWD
3268.00	12.50	146.10	3199.18	-476.75	336.77	583.68	1.66	-1.33	-4.33	MWD
3359.00	14.30	141.20	3287.70	-493.68	349.30	604.74	2.34	1.98	-5.38	MWD
3450.00	13.20	141.50	3376.09	-510.57	362.81	626.34	1.21	-1.21	0.33	MWD
3541.00	12.10	142.90	3464.88	-526.31	375.04	646.26	1.25	-1.21	1.54	MWD
3632.00	13.20	141.90	3553.67	-542.10	387.20	666.17	1.23	1.21	-1.10	MWD
3722.00	13.20	144.30	3641.29	-558.53	399.54	686.72	0.61	0.00	2.67	MWD
3814.00	13.20	145.40	3730.86	-575.70	411.63	707.72	0.27	0.00	1.20	MWD
3904.00	12.50	144.20	3818.61	-592.06	423.16	727.74	0.83	-0.78	-1.33	MWD
3995.00	12.70	145.00	3907.42	-608.24	434.66	747.59	0.29	0.22	0.88	MWD
4085.00	10.40	148.20	3995.59	-623.25	444.62	765.59	2.65	-2.56	3.56	MWD
4176.00	11.60	146.40	4084.91	-637.85	454.01	782.93	1.37	1.32	-1.98	MWD
4267.00	10.40	146.40	4174.24	-652.32	463.62	800.28	1.32	-1.32	0.00	MWD
4403.00	8.10	143.60	4308.46	-670.26	476.10	822.13	1.72	-1.69	-2.06	MWD
4539.00	7.40	141.20	4443.22	-684.79	487.27	840.45	0.57	-0.51	-1.76	MWD
4675.00	4.60	145.70	4578.46	-696.13	495.84	854.65	2.09	-2.06	3.31	MWD
4811.00	2.60	137.70	4714.19	-702.91	500.99	863.17	1.51	-1.47	-5.88	MWD
4947.00	1.20	171.10	4850.11	-706.60	503.28	867.51	1.27	-1.03	24.56	MWD
5084.00	1.10	167.20	4987.09	-709.30	503.80	870.00	0.09	-0.07	-2.85	MWD
5220.00	0.70	172.50	5123.07	-711.40	504.19	871.93	0.30	-0.29	3.90	MWD
5356.00	0.50	46.90	5259.07	-711.82	504.74	872.59	0.79	-0.15	-92.35	MWD
5492.00	0.50	359.50	5395.06	-710.82	505.16	872.03	0.30	0.00	-34.85	MWD
5628.00	0.90	13.90	5531.05	-709.19	505.41	870.85	0.32	0.29	10.59	MWD
5764.00	0.70	18.50	5667.04	-707.36	505.93	869.67	0.15	-0.15	3.38	MWD
5900.00	0.70	10.40	5803.03	-705.76	506.35	868.61	0.07	0.00	-5.96	MWD
6037.00	0.40	4.10	5940.02	-704.46	506.53	867.66	0.22	-0.22	-4.60	MWD
6173.00	0.20	347.50	6076.02	-703.75	506.52	867.08	0.16	-0.15	-12.21	MWD
6309.00	0.20	15.70	6212.02	-703.29	506.53	866.71	0.07	0.00	20.74	MWD
6446.00	0.20	222.00	6349.02	-703.24	506.43	866.61	0.28	0.00	-112.19	MWD
6582.00	0.50	306.40	6485.02	-703.06	505.80	866.10	0.38	0.22	62.06	MWD
6717.00	0.40	267.00	6620.01	-702.74	504.85	865.29	0.24	-0.07	-29.19	MWD
6854.00	0.20	251.90	6757.01	-702.84	504.15	864.95	0.16	-0.15	-11.02	MWD
6990.00	0.20	270.50	6893.01	-702.91	503.68	864.74	0.05	0.00	13.68	MWD
7126.00	0.50	298.70	7029.01	-702.62	502.93	864.07	0.25	0.22	20.74	MWD
7262.00	0.40	19.90	7165.00	-701.89	502.57	863.26	0.43	-0.07	59.71	MWD
7399.00	0.50	79.30	7302.00	-701.33	503.32	863.25	0.33	0.07	43.36	MWD
7535.00	0.50	74.00	7438.00	-701.06	504.47	863.70	0.03	0.00	-3.90	MWD
7671.00	0.40	46.60	7573.99	-700.57	505.39	863.83	0.17	-0.07	-20.15	MWD

Allis-Chalmers Energy, Inc.

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Elliot 5-17 Pad Well: 22-17 Wellpath: Original Hole	Date: 02/22/2011 Co-ordinate(NE) Reference: Well: 22-17, Grid North Vertical (TVD) Reference: 4813'KB+13'KB 4826.0 Section (VS) Reference: Well (0.00N,0.00E,144.30Azi) Survey Calculation Method: Minimum Curvature	Page: 3 Db: Sybase
---	---	---

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
7755.00	0.20	79.30	7657.99	-700.34	505.74	863.86	0.30	-0.24	38.93	MWD
7787.01	0.20	79.30	7690.00	-700.32	505.85	863.90	0.00	0.00	0.00	22-17 PBHL
7800.00	0.20	79.30	7702.99	-700.31	505.90	863.92	0.00	0.00	0.00	22-17 BHL

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
22-17 SL			0.00	0.00	0.00	1326415.13	3161767.18	40	13	40.619 N	104	55	14.372 W
22-17 PBHL			7690.00	-700.19	503.14	1325714.94	3162270.32	40	13	33.667 N	104	55	7.944 W
-Circle (Radius: 50)													
22-17 BHL			7702.99	-700.31	505.90	1325714.82	3162273.08	40	13	33.665 N	104	55	7.908 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
640.00	639.60	8.625	9.875	8 5/8"