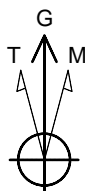


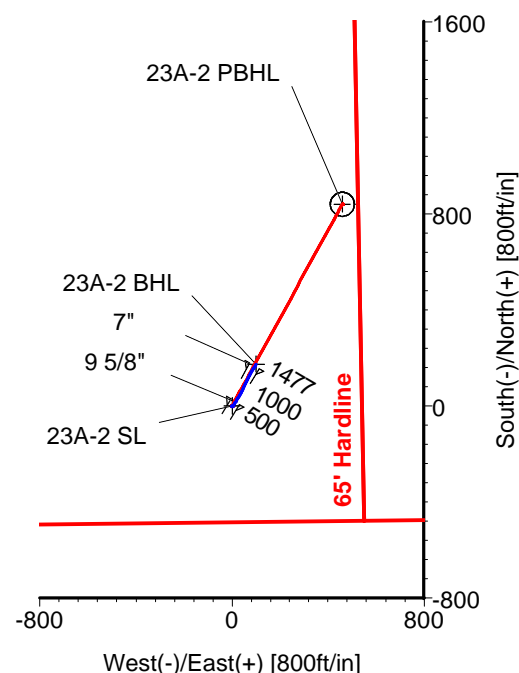
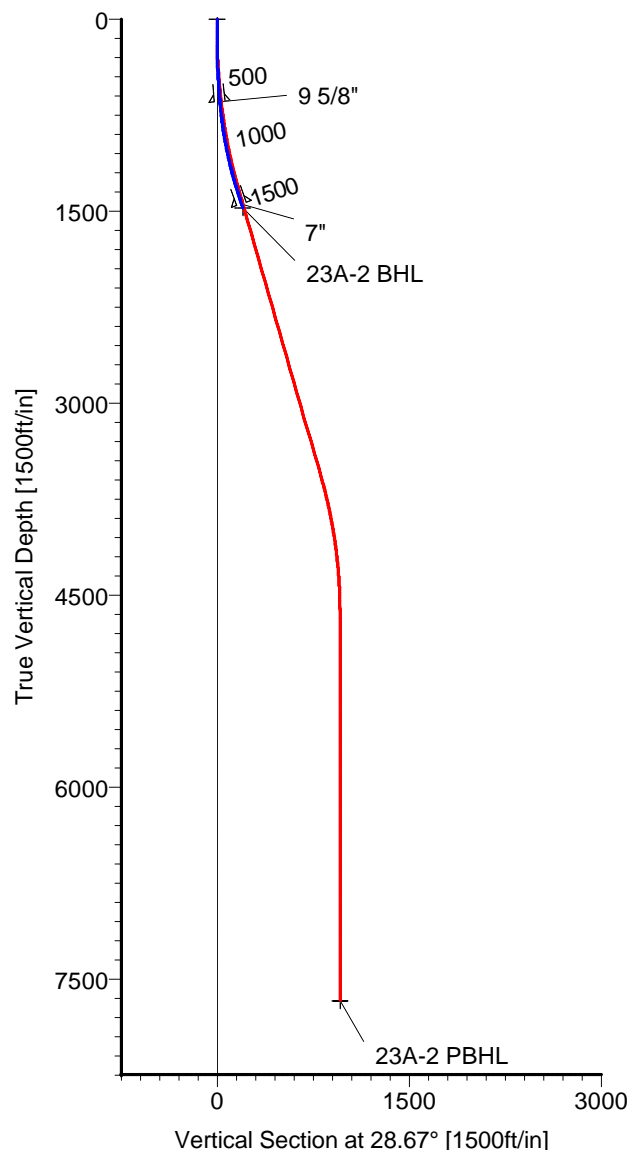
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Jepsen 14-2 Pad
Well: 23A-2
Wellpath: Original Hole



Azimuths to Grid North
True North: -0.56°
Magnetic North: 8.20°

Magnetic Field
Strength: 53087nT
Dip Angle: 66.94°
Date: 08/20/2011
Model: IGRF2010



CASING DETAILS

No.	TVD	MD	Name	Size
1	645.26	646.00	9 5/8"	9.625
2	1445.13	1466.00	7"	7.000

LEGEND

- 23A-2, Original Hole, Plan #2
- Original Hole

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
23A-2 SL	0.00	0.00	0.00	40°14'54.398N	104°37'55.859W	Point
23A-2 BHL	1477.32	174.27	100.66	40°14'56.110N	104°37'54.539W	Point
23A-2 PBHL	7672.00	840.27	459.47	40°15'02.657N	104°37'49.827W	Circle (Radius: 50)

Wellpath: (23A-2/Original Hole)

Created By: Ivonne Gonzalez

Date: 08/24/2011

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

Archer

ARCHER

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Jepsen 14-2 Pad Well: 23A-2 Wellpath: Original Hole	Date: 08/24/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 11:43:23 Well: 23A-2, Grid North 4772'GL+15'KB 4787.0 Well (0.00N,0.00E,28.67Azi) Minimum Curvature	Page: 1 Db: Adapti
---	---	--	-------------------------------------

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: Jepsen 14-2 Pad Centered on 32-2 Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4772.00 ft	Northing: 1334521.81 ft Easting: 3242238.56 ft Latitude: 40 14 54.240 N Longitude: 104 37 55.866 W North Reference: Grid Grid Convergence: 0.56 deg
---	--

Well: 23A-2 Well Position: +N/-S 15.96 ft +E/-W 0.41 ft Position Uncertainty: 0.00 ft	Slot Name: Northing: 1334537.77 ft Easting : 3242238.97 ft Latitude: 40 14 54.398 N Longitude: 104 37 55.859 W
---	---

Wellpath: Original Hole Current Datum: 4772'GL+15'KB Magnetic Data: 08/20/2011 Field Strength: 53087 nT Vertical Section: Depth From (TVD) ft	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.76 deg Mag Dip Angle: 66.94 deg +N/-S ft +E/-W ft Direction deg
0.00	0.00

Survey Program for Definitive Wellpath			
Date: 08/24/2011	Validated: No	Version: 0	
Actual From ft	To ft	Survey	Toolcode Tool Name
50.00	1455.00	Survey #1 (50.00-1455.00)	MWD Std MWD
1500.00	1500.00	Survey #2 (1500.00-1500.00)	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
50.00	1.20	185.90	50.00	-0.52	-0.05	-0.48	2.40	2.40	0.00	MWD
140.00	0.70	171.20	139.98	-2.00	-0.07	-1.79	0.61	-0.56	-16.33	MWD
230.00	1.10	84.70	229.98	-2.47	0.88	-1.74	1.41	0.44	-96.11	MWD
321.00	1.90	54.10	320.95	-1.50	2.97	0.11	1.21	0.88	-33.63	MWD
426.00	3.20	31.60	425.84	2.02	5.92	4.61	1.54	1.24	-21.43	MWD
517.00	3.70	30.60	516.68	6.71	8.74	10.08	0.55	0.55	-1.10	MWD
608.00	5.10	33.00	607.41	12.63	12.44	17.05	1.55	1.54	2.64	MWD
646.00	4.95	31.27	645.26	15.45	14.21	20.37	0.56	-0.39	-4.57	9 5/8"
660.00	4.90	30.60	659.21	16.48	14.83	21.57	0.56	-0.38	-4.75	MWD
695.00	5.50	30.60	694.06	19.21	16.44	24.74	1.71	1.71	0.00	MWD
787.00	6.90	28.10	785.52	27.88	21.29	34.67	1.55	1.52	-2.72	MWD
877.00	9.00	32.70	874.65	38.57	27.64	47.10	2.44	2.33	5.11	MWD
968.00	10.70	28.80	964.31	51.97	35.56	62.65	2.01	1.87	-4.29	MWD
1059.00	12.00	24.20	1053.53	68.00	43.50	80.53	1.74	1.43	-5.05	MWD
1150.00	13.40	24.20	1142.30	86.25	51.70	100.48	1.54	1.54	0.00	MWD
1240.00	15.30	28.10	1229.49	106.24	61.57	122.75	2.37	2.11	4.33	MWD
1331.00	17.10	29.90	1316.88	128.43	73.90	148.14	2.05	1.98	1.98	MWD
1422.00	18.70	30.60	1403.47	152.58	88.00	176.09	1.77	1.76	0.77	MWD
1455.00	18.80	30.20	1434.72	161.73	93.36	186.69	0.49	0.30	-1.21	MWD
1466.00	18.80	30.20	1445.13	164.80	95.15	190.24	0.00	0.00	0.00	7"
1500.00	18.80	30.20	1477.32	174.27	100.66	201.19	0.00	0.00	0.00	23A-2 BHL

ARCHER

Survey Report

Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Jepsen 14-2 Pad Well: 23A-2 Wellpath: Original Hole	Date: 08/24/2011 Time: 11:43:23 Page: 2 Co-ordinate(NE) Reference: Well: 23A-2, Grid North Vertical (TVD) Reference: 4772'GL+15'KB 4787.0 Section (VS) Reference: Well (0.00N,0.00E,28.67Azi) Survey Calculation Method: Minimum Curvature Db: Adapti
---	---

Targets

Name	Description		TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->		
	Dip.	Dir.						Deg	Min	Sec	Deg	Min	Sec
23A-2 SL			0.00	0.00	0.00	1334537.77	3242238.97	40	14	54.398 N	104	37	55.859 W
23A-2 BHL			1477.32	174.27	100.66	1334712.04	3242339.63	40	14	56.110 N	104	37	54.539 W
23A-2 PBHL			7672.00	840.27	459.47	1335378.05	3242698.43	40	15	2.657 N	104	37	49.827 W
-Circle (Radius: 50)													

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
646.00	645.26	9.625	12.250	9 5/8"
1466.00	1445.13	7.000	8.750	7"