



# **Anadarko Petroleum Corporation**

**Dacono**

**Dacono 11 Pad**

**Dacono 3-2 (111425)**

**Dacono 3-2**

**Survey: 3-2**

## **Survey Report - Geographic**

**07 February, 2012**

# ARK Directional Services

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Dacono 3-2 (111425)
<b>Project:</b>	Dacono	<b>TVD Reference:</b>	RKB @ 5031.00ft
<b>Site:</b>	Dacono 11 Pad	<b>MD Reference:</b>	RKB @ 5031.00ft
<b>Well:</b>	Dacono 3-2 (111425)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Dacono 3-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Dacono 3-2	<b>Database:</b>	EDM5000

<b>Project</b>	Dacono		
<b>Map System:</b>	Universal Transverse Mercator	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD83 Colorado - HARN		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site	Dacono 11 Pad				
Site Position:		Northing:	14,556,637.29 usft	Latitude:	40.082118°N
From:	Lat/Long	Easting:	1,647,890.09 usft	Longitude:	104.973282°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	0.02 °

Well	Dacono 3-2 (111425)					
Well Position	+N/-S	0.00 ft	Northing:	14,556,637.29 usft	Latitude:	40.082118°N
	+E/-W	0.00 ft	Easting:	1,647,890.09 usft	Longitude:	104.973282°W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,016.00 ft

<b>Wellbore</b>	Dacono 3-2				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	04/10/12	8.84	66.73	52,853

<b>Survey Program</b>	<b>Date</b>	02/06/12			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
106.00	8,450.00	3-2 (Dacono 3-2)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Map Northing (usft)</b>	<b>Map Easting (usft)</b>	<b>Latitude</b>	<b>Longitude</b>	
0.00	0.00	0.00	0.00	0.00	0.00	14,556,637.29	1,647,890.09	40.082118°N	104.973282°W	
106.00	0.31	41.62	106.00	0.21	0.19	14,556,637.50	1,647,890.28	40.082119°N	104.973282°W	
199.00	0.62	24.75	199.00	0.86	0.57	14,556,638.15	1,647,890.66	40.082120°N	104.973280°W	
292.00	1.49	7.35	291.98	2.52	0.93	14,556,639.80	1,647,891.03	40.082125°N	104.973279°W	
410.00	3.21	2.64	409.88	7.34	1.28	14,556,644.62	1,647,891.37	40.082138°N	104.973278°W	
499.00	4.70	357.63	498.66	13.47	1.25	14,556,650.76	1,647,891.34	40.082155°N	104.973278°W	
586.00	6.02	355.83	585.28	21.58	0.77	14,556,658.87	1,647,890.85	40.082177°N	104.973280°W	
675.00	6.90	356.62	673.71	31.57	0.11	14,556,668.86	1,647,890.20	40.082205°N	104.973282°W	
765.00	7.51	356.54	763.00	42.84	-0.56	14,556,680.13	1,647,889.52	40.082236°N	104.973284°W	
855.00	7.91	1.33	852.19	54.90	-0.77	14,556,692.19	1,647,889.30	40.082269°N	104.973285°W	
947.00	8.09	5.94	943.30	67.67	0.04	14,556,704.96	1,647,890.12	40.082304°N	104.973282°W	
1,000.00	8.09	5.94	995.77	75.09	0.82	14,556,712.38	1,647,890.89	40.082324°N	104.973279°W	
1,024.00	8.22	5.72	1,019.53	78.48	1.16	14,556,715.76	1,647,891.23	40.082334°N	104.973278°W	
1,114.00	9.32	0.36	1,108.47	92.17	1.85	14,556,729.45	1,647,891.92	40.082371°N	104.973276°W	
1,203.00	11.29	358.82	1,196.03	108.08	1.71	14,556,745.37	1,647,891.78	40.082415°N	104.973276°W	
1,293.00	11.38	358.64	1,284.28	125.77	1.32	14,556,763.06	1,647,891.38	40.082463°N	104.973278°W	
1,383.00	12.70	358.64	1,372.30	144.54	0.88	14,556,781.82	1,647,890.93	40.082515°N	104.973279°W	
1,471.00	13.10	0.93	1,458.08	164.18	0.81	14,556,801.47	1,647,890.85	40.082569°N	104.973279°W	
1,558.00	13.18	5.46	1,542.80	183.91	1.91	14,556,821.20	1,647,891.95	40.082623°N	104.973275°W	
1,647.00	13.01	3.13	1,629.49	204.01	3.43	14,556,841.30	1,647,893.46	40.082678°N	104.973270°W	
1,736.00	12.39	1.33	1,716.31	223.56	4.19	14,556,860.85	1,647,894.22	40.082732°N	104.973267°W	

# ARK Directional Services

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Dacono 3-2 (111425)
<b>Project:</b>	Dacono	<b>TVD Reference:</b>	RKB @ 5031.00ft
<b>Site:</b>	Dacono 11 Pad	<b>MD Reference:</b>	RKB @ 5031.00ft
<b>Well:</b>	Dacono 3-2 (111425)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Dacono 3-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Dacono 3-2	<b>Database:</b>	EDM5000

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,824.00	12.61	3.35	1,802.22	242.59	4.97	14,556,879.88	1,647,895.00	40.082784°N	104.973264°W
1,913.00	12.30	0.75	1,889.13	261.77	5.67	14,556,899.06	1,647,895.68	40.082837°N	104.973262°W
2,002.00	13.32	4.05	1,975.91	281.48	6.51	14,556,918.76	1,647,896.52	40.082891°N	104.973259°W
2,093.00	13.80	7.52	2,064.38	302.69	8.68	14,556,939.98	1,647,898.68	40.082949°N	104.973251°W
2,181.00	13.18	8.62	2,149.95	323.02	11.55	14,556,960.31	1,647,901.55	40.083005°N	104.973241°W
2,271.00	12.30	7.13	2,237.73	342.67	14.28	14,556,979.96	1,647,904.27	40.083059°N	104.973231°W
2,360.00	11.69	5.54	2,324.79	361.06	16.33	14,556,998.35	1,647,906.31	40.083110°N	104.973224°W
2,450.00	12.39	7.96	2,412.81	379.69	18.55	14,557,016.98	1,647,908.52	40.083161°N	104.973216°W
2,540.00	12.92	8.44	2,500.62	399.21	21.36	14,557,036.50	1,647,911.33	40.083214°N	104.973206°W
2,629.00	11.51	6.42	2,587.61	417.88	23.81	14,557,055.17	1,647,913.78	40.083266°N	104.973197°W
2,719.00	12.08	2.03	2,675.71	436.21	25.15	14,557,073.50	1,647,915.11	40.083316°N	104.973192°W
2,809.00	13.58	7.04	2,763.46	456.11	26.78	14,557,093.40	1,647,916.74	40.083371°N	104.973187°W
2,897.00	12.30	6.03	2,849.23	475.69	29.03	14,557,112.98	1,647,918.98	40.083424°N	104.973178°W
2,988.00	13.10	11.13	2,938.00	495.44	32.04	14,557,132.74	1,647,921.98	40.083479°N	104.973168°W
3,077.00	11.60	10.33	3,024.94	514.14	35.59	14,557,151.44	1,647,925.53	40.083530°N	104.973155°W
3,166.00	12.00	5.15	3,112.06	532.16	38.03	14,557,169.46	1,647,927.96	40.083580°N	104.973146°W
3,255.00	13.10	2.25	3,198.93	551.46	39.25	14,557,188.75	1,647,929.18	40.083632°N	104.973142°W
3,342.00	13.49	4.45	3,283.60	571.43	40.43	14,557,208.72	1,647,930.35	40.083687°N	104.973138°W
3,431.00	13.49	2.56	3,370.15	592.15	41.70	14,557,229.44	1,647,931.61	40.083744°N	104.973133°W
3,520.00	13.18	0.53	3,456.75	612.66	42.25	14,557,249.96	1,647,932.16	40.083801°N	104.973131°W
3,609.00	14.41	3.26	3,543.18	633.87	42.98	14,557,271.16	1,647,932.88	40.083859°N	104.973129°W
3,697.00	14.90	4.53	3,628.32	656.08	44.49	14,557,293.38	1,647,934.39	40.083920°N	104.973123°W
3,783.00	14.11	9.06	3,711.58	677.45	47.02	14,557,314.75	1,647,936.91	40.083978°N	104.973114°W
3,873.00	14.28	7.65	3,798.83	699.29	50.22	14,557,336.59	1,647,940.11	40.084038°N	104.973103°W
3,962.00	12.00	4.84	3,885.50	719.39	52.46	14,557,356.69	1,647,942.34	40.084094°N	104.973095°W
4,051.00	14.50	8.62	3,972.12	739.63	54.92	14,557,376.93	1,647,944.79	40.084149°N	104.973086°W
4,139.00	13.80	7.26	4,057.45	760.93	57.89	14,557,398.23	1,647,947.76	40.084208°N	104.973075°W
4,229.00	11.51	359.83	4,145.26	780.56	59.22	14,557,417.86	1,647,949.08	40.084262°N	104.973071°W
4,318.00	12.08	3.83	4,232.39	798.73	59.82	14,557,436.04	1,647,949.67	40.084312°N	104.973068°W
4,406.00	12.00	2.82	4,318.45	817.06	60.88	14,557,454.36	1,647,950.73	40.084362°N	104.973065°W
4,496.00	13.01	3.04	4,406.31	836.52	61.88	14,557,473.82	1,647,951.72	40.084415°N	104.973061°W
4,586.00	12.39	3.13	4,494.11	856.28	62.95	14,557,493.58	1,647,952.78	40.084470°N	104.973057°W
4,675.00	12.48	6.95	4,581.03	875.36	64.63	14,557,512.66	1,647,954.46	40.084522°N	104.973051°W
4,763.00	13.10	8.93	4,666.84	894.65	67.33	14,557,531.95	1,647,957.15	40.084575°N	104.973042°W
4,852.00	14.41	7.35	4,753.29	915.59	70.31	14,557,552.90	1,647,960.13	40.084632°N	104.973031°W
4,939.00	13.71	6.55	4,837.68	936.57	72.87	14,557,573.88	1,647,962.69	40.084690°N	104.973022°W
5,027.00	12.39	6.55	4,923.41	956.31	75.14	14,557,593.62	1,647,964.95	40.084744°N	104.973014°W
5,116.00	12.79	5.15	5,010.27	975.61	77.11	14,557,612.92	1,647,966.91	40.084797°N	104.973007°W
5,202.00	13.32	2.73	5,094.04	994.99	78.44	14,557,632.30	1,647,968.23	40.084850°N	104.973002°W
5,291.00	13.58	1.94	5,180.60	1,015.67	79.28	14,557,652.98	1,647,969.07	40.084907°N	104.972999°W
5,381.00	12.79	1.24	5,268.23	1,036.19	79.85	14,557,673.50	1,647,969.64	40.084964°N	104.972997°W
5,471.00	11.60	0.93	5,356.20	1,055.20	80.22	14,557,692.51	1,647,969.99	40.085016°N	104.972995°W
5,561.00	11.91	2.73	5,444.31	1,073.52	80.81	14,557,710.83	1,647,970.58	40.085066°N	104.972993°W
5,649.00	12.08	6.55	5,530.39	1,091.74	82.29	14,557,729.05	1,647,972.06	40.085116°N	104.972988°W
5,738.00	12.61	12.14	5,617.34	1,110.49	85.39	14,557,747.80	1,647,975.16	40.085168°N	104.972977°W
5,828.00	10.90	13.85	5,705.44	1,128.36	89.50	14,557,765.67	1,647,979.25	40.085217°N	104.972962°W
5,915.00	11.29	8.62	5,790.82	1,144.77	92.74	14,557,782.08	1,647,982.49	40.085262°N	104.972951°W
6,005.00	12.08	7.35	5,878.96	1,162.82	95.27	14,557,800.13	1,647,985.01	40.085311°N	104.972942°W
6,095.00	12.48	7.13	5,966.90	1,181.81	97.68	14,557,819.12	1,647,987.42	40.085364°N	104.972933°W
6,185.00	11.51	6.42	6,054.93	1,200.38	99.89	14,557,837.69	1,647,989.63	40.085415°N	104.972925°W
6,273.00	10.99	11.04	6,141.24	1,217.34	102.48	14,557,854.65	1,647,992.21	40.085461°N	104.972916°W
6,363.00	10.90	7.83	6,229.60	1,234.19	105.28	14,557,871.50	1,647,995.01	40.085507°N	104.972906°W
6,453.00	10.42	5.15	6,318.05	1,250.72	107.17	14,557,888.04	1,647,996.89	40.085553°N	104.972899°W
6,542.00	11.38	5.46	6,405.44	1,267.48	108.73	14,557,904.80	1,647,998.44	40.085599°N	104.972894°W
6,632.00	11.91	4.93	6,493.59	1,285.57	110.37	14,557,922.89	1,648,000.08	40.085648°N	104.972888°W

# ARK Directional Services

## Survey Report - Geographic

<b>Company:</b>	Anadarko Petroleum Corporation	<b>Local Co-ordinate Reference:</b>	Well Dacono 3-2 (111425)
<b>Project:</b>	Dacono	<b>TVD Reference:</b>	RKB @ 5031.00ft
<b>Site:</b>	Dacono 11 Pad	<b>MD Reference:</b>	RKB @ 5031.00ft
<b>Well:</b>	Dacono 3-2 (111425)	<b>North Reference:</b>	True
<b>Wellbore:</b>	Dacono 3-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Dacono 3-2	<b>Database:</b>	EDM5000

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,721.00	11.12	7.96	6,580.80	1,303.22	112.35	14,557,940.54	1,648,002.05	40.085697°N	104.972881°W
6,811.00	8.92	2.64	6,669.42	1,318.79	113.87	14,557,956.11	1,648,003.57	40.085740°N	104.972875°W
6,898.00	6.81	7.13	6,755.60	1,330.65	114.83	14,557,967.97	1,648,004.52	40.085772°N	104.972872°W
6,985.00	5.32	11.65	6,842.11	1,339.72	116.28	14,557,977.04	1,648,005.97	40.085797°N	104.972867°W
7,074.00	4.09	13.94	6,930.81	1,346.84	117.88	14,557,984.16	1,648,007.57	40.085817°N	104.972861°W
7,163.00	3.21	19.26	7,019.63	1,352.27	119.46	14,557,989.59	1,648,009.15	40.085832°N	104.972855°W
7,250.00	2.50	22.73	7,106.52	1,356.32	121.00	14,557,993.64	1,648,010.69	40.085843°N	104.972850°W
7,383.00	1.71	22.73	7,239.43	1,360.83	122.89	14,557,998.15	1,648,012.57	40.085855°N	104.972843°W
7,515.00	1.32	24.44	7,371.38	1,364.03	124.28	14,558,001.35	1,648,013.96	40.085864°N	104.972838°W
7,648.00	1.19	22.55	7,504.35	1,366.70	125.44	14,558,004.02	1,648,015.13	40.085871°N	104.972834°W
7,781.00	1.32	30.46	7,637.32	1,369.29	126.75	14,558,006.62	1,648,016.43	40.085878°N	104.972829°W
7,912.00	1.32	32.92	7,768.29	1,371.86	128.33	14,558,009.18	1,648,018.01	40.085885°N	104.972823°W
8,048.00	1.41	28.35	7,904.25	1,374.65	129.98	14,558,011.97	1,648,019.66	40.085893°N	104.972818°W
8,181.00	1.41	30.33	8,037.21	1,377.50	131.58	14,558,014.82	1,648,021.26	40.085901°N	104.972812°W
8,313.00	1.32	15.12	8,169.17	1,380.37	132.80	14,558,017.69	1,648,022.48	40.085909°N	104.972807°W
8,405.00	1.32	25.14	8,261.15	1,382.35	133.53	14,558,019.68	1,648,023.20	40.085914°N	104.972805°W
8,450.00	1.32	25.14	8,306.13	1,383.29	133.97	14,558,020.61	1,648,023.64	40.085917°N	104.972803°W
Proj to TD at 8450 MD/8306 TVD									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,450.00	8,306.13	1,383.29	133.97	Proj to TD at 8450 MD/8306 TVD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_