



Weatherford®

Weatherford International Ltd.

2000 Oil Drive

Casper, WY 82604

Survey Certification

Operating Company:	Anadarko Petroleum Corp.
Well Name:	SARCHET 15N-32HZ
State:	Colorado
County:	Weld
API Number:	512335595
Datum:	NAD 83
Survey Calculation Method:	Minimum Curvature
North Reference:	True North

I, John R. Morgan, hereby certify the attached directional survey run from the measure depth of 833.00 feet to the measured depth of 11,531.00 feet as accurate and true to the best of my knowledge.

Signature

27-Sep-12

Date

John Morgan

Directional Planning

Weatherford International - Rockies District



Weatherford®



FINAL SURVEYS.....SEC.1

DAILY ACTIVITY.....SEC.2

BHA REPORTS..... SEC.3

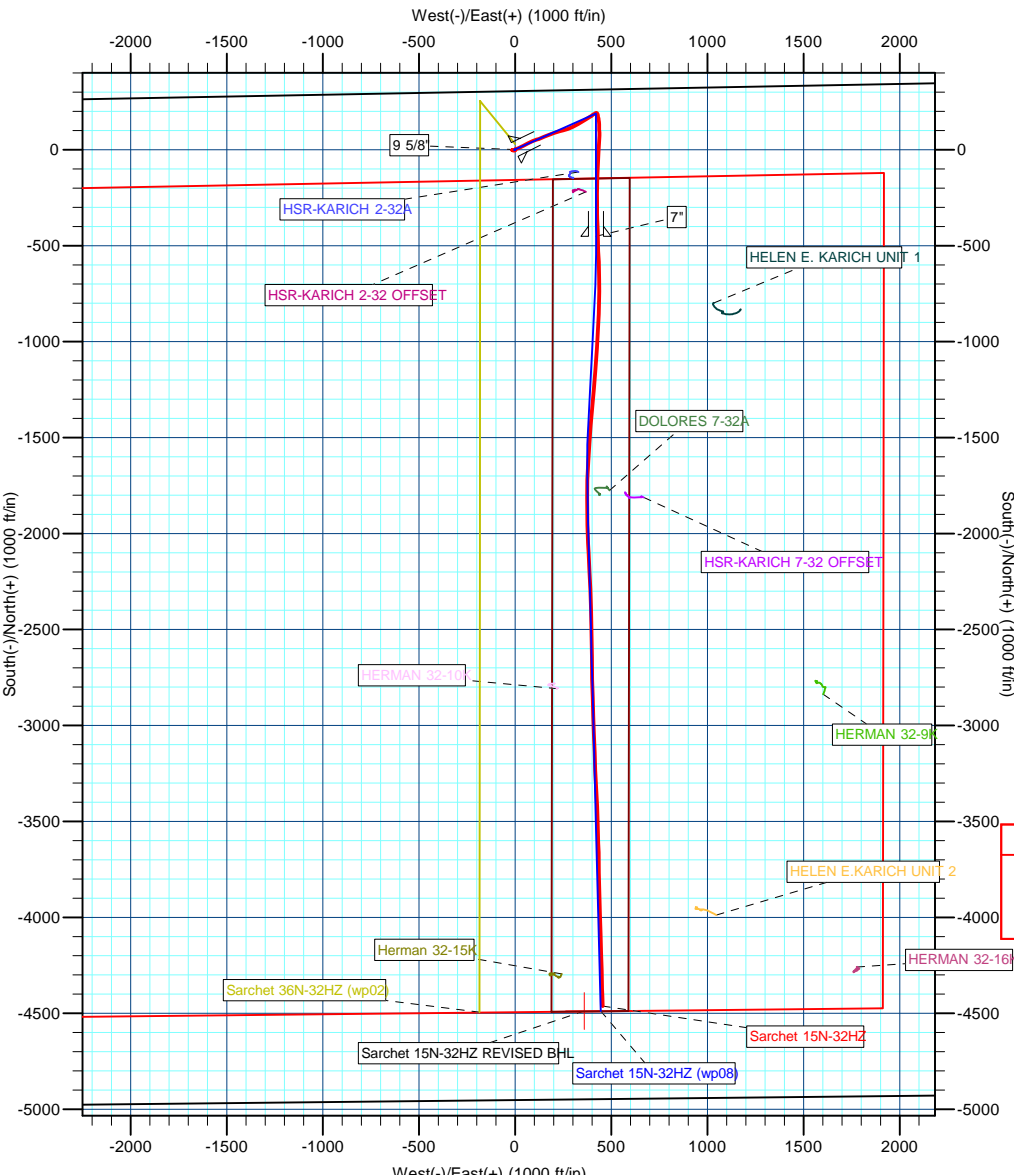
MOTOR REPORTS.....SEC.4

SLIDE REPORTSEC.5

Drilling Services-Denver, CO



FINAL SURVEYS



Azimuths to True North
Magnetic North: 8.78°

Magnetic Field
Strength: 52945.0nT
Dip Angle: 66.85°
Date: 2/13/2012
Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83
Site: WELD_SARCHET 28-32HZ Pad
Well: Sarchet 15N-32HZ
Wellbore: Sarchet 15N-32HZ
Section:
SHL:
Design: Sarchet 15N-32HZ (wp08)
Latitude: 40.187712
Longitude: -104.800145
GL: 4914.00
KB: 25' RKB + 4914' GL @ 4939.00ft (H&P 307)

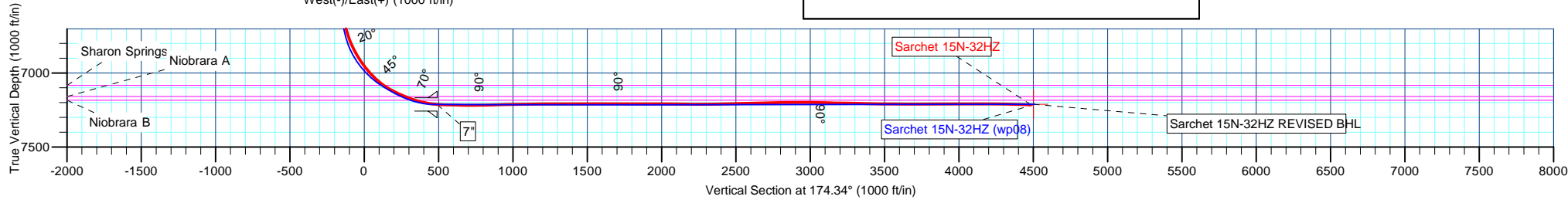
WELL DETAILS: Sarchet 15N-32HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4914.00 Latitude	Longitude	Slot
0.00	0.00	1311997.72	3195525.19	40.187712	-104.800145	

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
725.00	0.30	243.97	724.99	0.48	-1.37	0.00	0.00	-0.62
2552.00	0.00	0.00	2551.99	-1.61	-5.67	0.02	180.00	1.05
3127.05	8.63	65.99	3124.87	15.97	33.80	1.50	65.99	-12.55
5657.93	8.63	65.99	5627.12	170.42	380.53	0.00	0.00	-132.05
6232.98	0.00	0.00	6200.00	188.00	420.00	1.50	180.00	-145.65
6636.52	0.00	0.00	6603.54	188.00	420.00	0.00	0.00	-145.65
7206.40	56.99	180.00	7084.00	-72.80	420.00	10.00	180.00	113.88
7360.44	64.69	180.00	7159.00	-207.22	420.00	5.00	0.00	247.64
7613.14	89.96	180.00	7214.00	-451.77	420.00	10.00	0.00	491.00
7763.14	89.96	180.00	7214.10	-601.77	420.00	0.00	0.00	640.26
7913.14	89.94	183.00	7214.23	-751.70	416.07	2.00	90.29	789.08
8163.14	89.90	183.00	7214.58	-1001.35	402.99	0.02	180.00	1036.23
8613.14	89.85	183.00	7215.58	-1450.74	379.44	0.01	180.00	1481.09
8910.55	90.10	178.55	7215.71	-1748.04	375.43	1.50	-86.81	1776.55
11652.06	90.10	178.55	7211.00	-4488.67	445.00	0.00	0.00	4510.67

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Sarchet 15N-32HZ BHL	7203.00	-4488.67	359.35	40.175390	-104.798859	Point
Sarchet 15N-32HZ REVISED BHL	7211.00	-4488.67	359.35	40.175390	-104.798859	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3982.00	3993.99	Parkman
4456.00	4473.41	Sussex
7084.00	7206.40	Sharon Springs
7159.00	7360.44	Niobrara A
7184.00	7427.31	Niobrara B

CASING DETAILS			
TVD	MD	Name	Size
749.99	750.00	9 5/8"	9-5/8
7214.00	7613.14	7"	7



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_SARCHET 28-32HZ Pad

Sarchet 15N-32HZ

Sarchet 15N-32HZ

Design: Sarchet 15N-32HZ

Standard Survey Report

27 September, 2012

Anadarko Petroleum Corp

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Sarchet 15N-32HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Site:	WELD_SARCHET 28-32HZ Pad	MD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Well:	Sarchet 15N-32HZ	North Reference:	True
Wellbore:	Sarchet 15N-32HZ	Survey Calculation Method:	Minimum Curvature
Design:	Sarchet 15N-32HZ	Database:	edmp

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		WELD_SARCHET 28-32HZ Pad			
Site Position:		Northing:	1,312,027.61 usft	Latitude:	40.187794
From:	Lat/Long	Easting:	3,195,524.95 usft	Longitude:	-104.800145
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.45 °

Well		Sarchet 15N-32HZ				
Well Position	+N/-S	0.00 ft	Northing:	1,311,997.71 usft	Latitude:	40.187712
	+E/-W	0.00 ft	Easting:	3,195,525.19 usft	Longitude:	-104.800145
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,914.00 ft

Wellbore	Sarchet 15N-32HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/13/2012	8.78	66.85	52,945

Design	Sarchet 15N-32HZ				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	25.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	25.00	0.00	0.00	174.17	

Survey Program	Date	9/25/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
125.00	725.00	Survey #1 (Sarchet 15N-32HZ)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
858.00	11,611.00	Survey #2 (Sarchet 15N-32HZ)	MWD+IFR	MWD + IFR CORRECTION	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	
125.00	0.25	258.06	125.00	-0.05	-0.21	0.02	0.25	0.25	0.00	
225.00	0.12	16.00	225.00	0.01	-0.40	-0.05	0.32	-0.13	117.94	
325.00	0.19	58.89	325.00	0.20	-0.23	-0.22	0.13	0.07	42.89	
425.00	0.14	59.47	425.00	0.34	0.02	-0.34	0.05	-0.05	0.58	
525.00	0.39	266.32	525.00	0.38	-0.21	-0.40	0.52	0.25	-153.15	
625.00	0.36	292.08	625.00	0.48	-0.85	-0.56	0.17	-0.03	25.76	
725.00	0.30	243.97	724.99	0.48	-1.37	-0.62	0.27	-0.06	-48.11	
TIE ON										
858.00	0.25	141.49	857.99	0.10	-1.50	-0.26	0.32	-0.04	-77.05	

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Well:	Sarchet 15N-32HZ	North Reference:	True
Wellbore:	Sarchet 15N-32HZ	Survey Calculation Method:	Minimum Curvature
Design:	Sarchet 15N-32HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
FIRST MWD SURVEY									
949.00	0.22	136.83	948.99	-0.18	-1.26	0.05	0.04	-0.03	-5.12
1,040.00	0.29	167.18	1,039.99	-0.53	-1.09	0.42	0.16	0.08	33.35
1,131.00	0.14	154.26	1,130.99	-0.86	-0.99	0.75	0.17	-0.16	-14.20
1,223.00	0.29	180.85	1,222.99	-1.19	-0.95	1.09	0.19	0.16	28.90
1,316.00	0.49	199.17	1,315.99	-1.80	-1.08	1.68	0.25	0.22	19.70
1,407.00	0.55	210.55	1,406.98	-2.54	-1.43	2.39	0.13	0.07	12.51
1,502.00	0.66	223.70	1,501.98	-3.33	-2.04	3.11	0.19	0.12	13.84
1,596.00	0.79	236.62	1,595.97	-4.08	-2.95	3.76	0.22	0.14	13.74
1,691.00	0.56	274.17	1,690.97	-4.41	-3.96	3.98	0.51	-0.24	39.53
1,786.00	0.58	272.01	1,785.96	-4.36	-4.91	3.83	0.03	0.02	-2.27
1,881.00	0.78	259.21	1,880.95	-4.46	-6.02	3.83	0.26	0.21	-13.47
1,976.00	0.84	265.45	1,975.94	-4.64	-7.35	3.87	0.11	0.06	6.57
2,072.00	0.84	298.98	2,071.94	-4.35	-8.67	3.45	0.50	0.00	34.93
2,167.00	0.95	293.94	2,166.92	-3.69	-10.00	2.66	0.14	0.12	-5.31
2,262.00	1.07	273.92	2,261.91	-3.31	-11.60	2.12	0.39	0.13	-21.07
2,357.00	0.56	299.84	2,356.90	-3.02	-12.89	1.70	0.65	-0.54	27.28
2,452.00	0.82	287.29	2,451.89	-2.59	-13.94	1.16	0.31	0.27	-13.21
2,547.00	0.56	107.06	2,546.89	-2.52	-14.15	1.07	1.45	-0.27	189.23
2,642.00	2.67	90.96	2,641.85	-2.70	-11.49	1.52	2.25	2.22	-16.95
2,737.00	3.97	77.53	2,736.69	-2.02	-6.07	1.40	1.59	1.37	-14.14
2,831.00	4.92	63.03	2,830.41	0.51	0.70	-0.43	1.56	1.01	-15.43
2,926.00	6.45	65.90	2,924.94	4.53	9.20	-3.58	1.64	1.61	3.02
3,021.00	7.73	65.64	3,019.21	9.35	19.90	-7.28	1.35	1.35	-0.27
3,116.00	9.22	67.52	3,113.17	14.89	32.75	-11.49	1.60	1.57	1.98
3,211.00	9.56	61.03	3,206.90	21.62	46.68	-16.77	1.17	0.36	-6.83
3,306.00	7.81	61.39	3,300.80	28.54	59.25	-22.37	1.84	-1.84	0.38
3,401.00	8.83	60.71	3,394.80	35.20	71.28	-27.77	1.08	1.07	-0.72
3,495.00	9.73	67.52	3,487.58	41.76	84.91	-32.92	1.51	0.96	7.24
3,590.00	7.73	66.02	3,581.47	47.43	98.17	-37.21	2.12	-2.11	-1.58
3,685.00	8.24	76.92	3,675.55	51.57	110.64	-40.06	1.68	0.54	11.47
3,780.00	8.29	70.24	3,769.57	55.42	123.71	-42.57	1.01	0.05	-7.03
3,874.00	9.16	66.27	3,862.48	60.72	136.94	-46.50	1.13	0.93	-4.22
3,969.00	10.25	66.60	3,956.12	67.13	151.62	-51.37	1.15	1.15	0.35
4,064.00	9.20	66.63	4,049.75	73.49	166.35	-56.21	1.11	-1.11	0.03
4,159.00	8.89	68.12	4,143.57	79.24	180.13	-60.53	0.41	-0.33	1.57
4,253.00	9.53	74.61	4,236.36	84.01	194.38	-63.83	1.30	0.68	6.90
4,348.00	7.58	70.86	4,330.30	88.16	207.88	-66.58	2.13	-2.05	-3.95
4,442.00	8.59	73.49	4,423.37	92.18	220.47	-69.31	1.14	1.07	2.80
4,537.00	9.54	73.66	4,517.18	96.42	234.83	-72.06	1.00	1.00	0.18
4,632.00	8.97	74.72	4,610.94	100.58	249.52	-74.71	0.63	-0.60	1.12
4,727.00	8.47	73.83	4,704.84	104.48	263.39	-77.18	0.55	-0.53	-0.94
4,822.00	8.06	67.00	4,798.86	109.03	276.24	-80.40	1.12	-0.43	-7.19

Anadarko Petroleum Corp

Survey Report

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Site:	WELD_SARCHET 28-32HZ Pad	MD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Well:	Sarchet 15N-32HZ	North Reference:	True
Wellbore:	Sarchet 15N-32HZ	Survey Calculation Method:	Minimum Curvature
Design:	Sarchet 15N-32HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,918.00	7.32	69.13	4,894.00	113.84	288.15	-83.98	0.83	-0.77	2.22
5,012.00	7.29	63.09	4,987.23	118.67	299.06	-87.67	0.82	-0.03	-6.43
5,107.00	8.51	65.88	5,081.33	124.27	310.85	-92.05	1.35	1.28	2.94
5,201.00	8.64	60.52	5,174.28	130.59	323.35	-97.06	0.86	0.14	-5.70
5,296.00	7.86	55.16	5,268.30	137.81	334.89	-103.08	1.15	-0.82	-5.64
5,391.00	8.68	59.85	5,362.31	145.13	346.42	-109.18	1.12	0.86	4.94
5,486.00	9.49	59.90	5,456.12	152.65	359.40	-115.35	0.85	0.85	0.05
5,580.00	7.58	58.82	5,549.07	159.75	371.41	-121.19	2.04	-2.03	-1.15
5,675.00	7.99	60.75	5,643.20	166.22	382.53	-126.50	0.51	0.43	2.03
5,771.00	6.65	55.57	5,738.42	172.62	392.93	-131.81	1.55	-1.40	-5.40
5,865.00	5.27	50.78	5,831.91	178.43	400.77	-136.79	1.56	-1.47	-5.10
5,960.00	4.40	55.83	5,926.57	183.24	407.16	-140.92	1.02	-0.92	5.32
6,054.00	3.61	59.37	6,020.34	186.77	412.69	-143.87	0.88	-0.84	3.77
6,149.00	3.12	60.45	6,115.17	189.57	417.52	-146.17	0.52	-0.52	1.14
6,244.00	1.98	73.73	6,210.08	191.30	421.34	-147.51	1.34	-1.20	13.98
6,338.00	0.75	112.31	6,304.05	191.53	423.47	-147.51	1.56	-1.31	41.04
6,433.00	0.60	111.02	6,399.04	191.11	424.51	-146.99	0.16	-0.16	-1.36
6,528.00	0.77	100.21	6,494.04	190.82	425.60	-146.59	0.22	0.18	-11.38
6,542.00	0.82	105.66	6,508.04	190.78	425.79	-146.53	0.65	0.36	38.93
6,623.00	4.43	157.75	6,588.94	187.72	427.53	-143.31	4.91	4.46	64.31
6,654.00	8.79	162.63	6,619.73	184.35	428.69	-139.84	14.17	14.06	15.74
6,686.00	12.91	166.81	6,651.15	178.54	430.24	-133.90	13.10	12.88	13.06
6,718.00	15.60	169.78	6,682.16	170.82	431.82	-126.06	8.71	8.41	9.28
6,749.00	15.87	169.76	6,712.00	162.55	433.31	-117.68	0.87	0.87	-0.06
6,780.00	16.94	171.44	6,741.74	153.91	434.74	-108.94	3.78	3.45	5.42
6,812.00	20.02	173.93	6,772.09	143.85	436.01	-98.81	9.93	9.63	7.78
6,845.00	23.22	175.98	6,802.76	131.74	437.07	-86.65	9.96	9.70	6.21
6,876.00	25.68	178.24	6,830.98	118.93	437.70	-73.84	8.49	7.94	7.29
6,908.00	27.73	179.72	6,859.57	104.55	437.95	-59.51	6.73	6.41	4.63
6,940.00	30.63	179.31	6,887.50	88.95	438.08	-43.98	9.08	9.06	-1.28
6,971.00	34.01	180.28	6,913.70	72.38	438.14	-27.49	11.03	10.90	3.13
7,003.00	36.83	181.87	6,939.77	53.84	437.78	-9.08	9.27	8.81	4.97
7,035.00	39.24	182.05	6,964.97	34.14	437.10	10.45	7.54	7.53	0.56
7,066.00	41.46	183.44	6,988.60	14.09	436.14	30.29	7.73	7.16	4.48
7,098.00	43.24	184.59	7,012.25	-7.41	434.63	51.53	6.07	5.56	3.59
7,130.00	45.83	184.26	7,035.05	-29.78	432.90	73.61	8.13	8.09	-1.03
7,161.00	49.45	183.66	7,055.94	-52.63	431.32	96.18	11.76	11.68	-1.94
7,192.00	53.36	182.86	7,075.27	-76.82	429.94	120.10	12.77	12.61	-2.58
7,224.00	57.12	181.36	7,093.52	-103.08	428.98	146.14	12.36	11.75	-4.69
7,256.00	60.26	182.03	7,110.14	-130.41	428.17	173.24	9.97	9.81	2.09
7,287.00	63.07	181.69	7,124.85	-157.68	427.29	200.27	9.12	9.06	-1.10
7,319.00	64.97	181.07	7,138.87	-186.43	426.60	228.81	6.19	5.94	-1.94
7,350.00	66.33	180.53	7,151.65	-214.67	426.20	256.86	4.67	4.39	-1.74
7,382.00	68.52	180.00	7,163.94	-244.22	426.07	286.24	7.01	6.84	-1.66

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Survey Report

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Well:	Sarchet 15N-32HZ	North Reference:	True
Wellbore:	Sarchet 15N-32HZ	Survey Calculation Method:	Minimum Curvature
Design:	Sarchet 15N-32HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,414.00	70.10	179.50	7,175.24	-274.15	426.20	316.04	5.15	4.94	-1.56
7,445.00	72.24	179.30	7,185.25	-303.49	426.51	345.25	6.93	6.90	-0.65
7,477.00	76.02	179.21	7,194.00	-334.26	426.91	375.91	11.82	11.81	-0.28
7,508.00	79.67	178.76	7,200.52	-364.56	427.44	406.10	11.86	11.77	-1.45
7,540.00	80.31	178.01	7,206.09	-396.06	428.33	437.53	3.05	2.00	-2.34
7,572.00	83.42	178.03	7,210.61	-427.71	429.43	469.13	9.72	9.72	0.06
7,604.00	87.20	177.69	7,213.23	-459.58	430.62	500.95	11.86	11.81	-1.06
7,610.00	87.62	177.82	7,213.50	-465.57	430.85	506.93	7.33	7.00	2.17
7,668.00	88.18	177.94	7,215.63	-523.49	433.00	564.77	0.99	0.97	0.21
7" INTERMEDIATE CASING									
7,729.00	88.77	178.07	7,217.25	-584.43	435.12	625.61	0.99	0.97	0.21
7,824.00	89.94	179.35	7,218.32	-679.39	437.26	720.31	1.83	1.23	1.35
7,919.00	91.15	180.89	7,217.41	-774.39	437.06	814.78	2.06	1.27	1.62
8,014.00	91.67	182.49	7,215.08	-869.31	434.26	908.93	1.77	0.55	1.68
8,109.00	90.99	182.98	7,212.87	-964.18	429.73	1,002.85	0.88	-0.72	0.52
8,204.00	91.11	184.37	7,211.13	-1,058.96	423.64	1,096.53	1.47	0.13	1.46
8,298.00	90.93	183.63	7,209.46	-1,152.72	417.08	1,189.13	0.81	-0.19	-0.79
8,393.00	90.12	185.39	7,208.59	-1,247.42	409.61	1,282.58	2.04	-0.85	1.85
8,487.00	90.19	184.82	7,208.33	-1,341.04	401.25	1,374.87	0.61	0.07	-0.61
8,582.00	89.81	184.68	7,208.33	-1,435.72	393.38	1,468.26	0.43	-0.40	-0.15
8,677.00	89.32	183.98	7,209.05	-1,530.44	386.21	1,561.76	0.90	-0.52	-0.74
8,772.00	89.94	183.24	7,209.67	-1,625.25	380.23	1,655.47	1.02	0.65	-0.78
8,867.00	90.31	181.88	7,209.46	-1,720.15	375.98	1,749.45	1.48	0.39	-1.43
8,962.00	90.19	179.60	7,209.05	-1,815.14	374.76	1,843.82	2.40	-0.13	-2.40
9,057.00	89.51	179.51	7,209.29	-1,910.13	375.49	1,938.40	0.72	-0.72	-0.09
9,151.00	89.88	177.69	7,209.79	-2,004.10	377.79	2,032.11	1.98	0.39	-1.94
9,246.00	89.69	177.15	7,210.15	-2,099.00	382.07	2,126.96	0.60	-0.20	-0.57
9,340.00	89.01	177.27	7,211.22	-2,192.89	386.64	2,220.82	0.73	-0.72	0.13
9,436.00	90.37	177.48	7,211.74	-2,288.78	391.04	2,316.67	1.43	1.42	0.22
9,530.00	91.36	178.44	7,210.32	-2,382.71	394.38	2,410.45	1.47	1.05	1.02
9,625.00	91.48	178.66	7,207.96	-2,477.65	396.79	2,505.14	0.26	0.13	0.23
9,720.00	91.73	179.39	7,205.30	-2,572.60	398.40	2,599.76	0.81	0.26	0.77
9,814.00	92.04	179.53	7,202.21	-2,666.54	399.29	2,693.31	0.36	0.33	0.15
9,910.00	90.74	178.78	7,199.88	-2,762.50	400.71	2,788.92	1.56	-1.35	-0.78
10,004.00	89.88	178.31	7,199.37	-2,856.47	403.09	2,882.64	1.04	-0.91	-0.50
10,099.00	89.32	177.76	7,200.04	-2,951.41	406.35	2,977.42	0.83	-0.59	-0.58
10,194.00	89.01	177.95	7,201.42	-3,046.33	409.90	3,072.21	0.38	-0.33	0.20
10,288.00	88.83	177.44	7,203.19	-3,140.24	413.68	3,166.02	0.58	-0.19	-0.54
10,383.00	89.14	177.74	7,204.88	-3,235.14	417.68	3,260.83	0.45	0.33	0.32
10,478.00	89.07	177.46	7,206.36	-3,330.04	421.66	3,355.65	0.30	-0.07	-0.29
10,572.00	89.32	177.06	7,207.68	-3,423.93	426.15	3,449.51	0.50	0.27	-0.43
10,667.00	88.27	178.46	7,209.68	-3,518.83	429.86	3,544.30	1.84	-1.11	1.47
10,762.00	89.51	178.13	7,211.52	-3,613.77	432.69	3,639.03	1.35	1.31	-0.35

Anadarko Petroleum Corp

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Sarchet 15N-32HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Site:	WELD_SARCHET 28-32HZ Pad	MD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Well:	Sarchet 15N-32HZ	North Reference:	True
Wellbore:	Sarchet 15N-32HZ	Survey Calculation Method:	Minimum Curvature
Design:	Sarchet 15N-32HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,857.00	90.31	179.17	7,211.67	-3,708.74	434.93	3,733.74	1.38	0.84	1.09
10,952.00	90.68	178.61	7,210.85	-3,803.72	436.77	3,828.41	0.71	0.39	-0.59
11,047.00	90.49	178.83	7,209.88	-3,898.69	438.89	3,923.11	0.31	-0.20	0.23
11,142.00	90.37	178.31	7,209.16	-3,993.66	441.26	4,017.82	0.56	-0.13	-0.55
11,237.00	89.88	177.95	7,208.96	-4,088.61	444.36	4,112.59	0.64	-0.52	-0.38
11,332.00	89.74	178.42	7,209.27	-4,183.56	447.37	4,207.36	0.52	-0.15	0.49
11,426.00	88.89	178.31	7,210.40	-4,277.51	450.05	4,301.10	0.91	-0.90	-0.12
11,521.00	88.40	178.28	7,212.64	-4,372.44	452.88	4,395.83	0.52	-0.52	-0.03
11,556.00	88.09	178.15	7,213.71	-4,407.41	453.96	4,430.72	0.96	-0.89	-0.37
LAST MWD SURVEY									
11,611.00	88.09	178.15	7,215.55	-4,462.35	455.74	4,485.56	0.00	0.00	0.00
PROJECTION TO TD									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
725.00	724.99	0.48	-1.37	TIE ON
858.00	857.99	0.10	-1.50	FIRST MWD SURVEY
7,668.00	7,215.63	-523.49	433.00	7" INTERMEDIATE CASING
11,556.00	7,213.71	-4,407.41	453.96	LAST MWD SURVEY
11,611.00	7,215.55	-4,462.35	455.74	PROJECTION TO TD

Checked By: _____ Approved By: _____ Date: _____

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_SARCHET 28-32HZ Pad

Sarchet 15N-32HZ

Sarchet 15N-32HZ

Design: Sarchet 15N-32HZ

Survey Report - Geographic

27 September, 2012

Anadarko Petroleum Corp

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Sarchet 15N-32HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Site:	WELD_SARCHET 28-32HZ Pad	MD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Well:	Sarchet 15N-32HZ	North Reference:	True
Wellbore:	Sarchet 15N-32HZ	Survey Calculation Method:	Minimum Curvature
Design:	Sarchet 15N-32HZ	Database:	edmp

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		WELD_SARCHET 28-32HZ Pad						
Site Position:		Northing:	1,312,027.61	usft	Latitude:	40.187794		
From:	Lat/Long	Easting:	3,195,524.95	usft	Longitude:	-104.800145		
Position Uncertainty:	0.00	ft	Slot Radius:	13-3/16	"	Grid Convergence:	0.45	°

Well	Sarchet 15N-32HZ					
Well Position	+N/-S	0.00 ft	Northing:	1,311,997.71 usft	Latitude:	40.187712
	+E/-W	0.00 ft	Easting:	3,195,525.19 usft	Longitude:	-104.800145
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,914.00 ft

Wellbore	Sarchet 15N-32HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/13/2012	8.78	66.85	52,945

Design	Sarchet 15N-32HZ				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	25.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	25.00	0.00	0.00	174.17	

Survey Program	Date	9/25/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
125.00	725.00	Survey #1 (Sarchet 15N-32HZ)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
858.00	11,611.00	Survey #2 (Sarchet 15N-32HZ)	MWD+IFR	MWD + IFR CORRECTION	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
25.00	0.00	0.00	25.00	0.00	0.00	1,311,997.71	3,195,525.19	40.187712	-104.800145	
125.00	0.25	258.06	125.00	-0.05	-0.21	1,311,997.67	3,195,524.98	40.187712	-104.800146	
225.00	0.12	16.00	225.00	0.01	-0.40	1,311,997.72	3,195,524.79	40.187712	-104.800147	
325.00	0.19	58.89	325.00	0.20	-0.23	1,311,997.91	3,195,524.96	40.187713	-104.800146	
425.00	0.14	59.47	425.00	0.34	0.02	1,311,998.06	3,195,525.21	40.187713	-104.800145	
525.00	0.39	266.32	525.00	0.38	-0.21	1,311,998.10	3,195,524.97	40.187713	-104.800146	
625.00	0.36	292.08	625.00	0.48	-0.85	1,311,998.19	3,195,524.34	40.187713	-104.800148	
725.00	0.30	243.97	724.99	0.48	-1.37	1,311,998.19	3,195,523.81	40.187713	-104.800150	
TIE ON										
858.00	0.25	141.49	857.99	0.10	-1.50	1,311,997.81	3,195,523.68	40.187712	-104.800151	
FIRST MWD SURVEY										

Anadarko Petroleum Corp

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Sarchet 15N-32HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Site:	WELD_SARCHET 28-32HZ Pad	MD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Well:	Sarchet 15N-32HZ	North Reference:	True
Wellbore:	Sarchet 15N-32HZ	Survey Calculation Method:	Minimum Curvature
Design:	Sarchet 15N-32HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
949.00	0.22	136.83	948.99	-0.18	-1.26	1,311,997.53	3,195,523.93	40.187712	-104.800150
1,040.00	0.29	167.18	1,039.99	-0.53	-1.09	1,311,997.18	3,195,524.10	40.187711	-104.800149
1,131.00	0.14	154.26	1,130.99	-0.86	-0.99	1,311,996.85	3,195,524.20	40.187710	-104.800149
1,223.00	0.29	180.85	1,222.99	-1.19	-0.95	1,311,996.52	3,195,524.25	40.187709	-104.800149
1,316.00	0.49	199.17	1,315.99	-1.80	-1.08	1,311,995.91	3,195,524.12	40.187707	-104.800149
1,407.00	0.55	210.55	1,406.98	-2.54	-1.43	1,311,995.16	3,195,523.78	40.187705	-104.800150
1,502.00	0.66	223.70	1,501.98	-3.33	-2.04	1,311,994.37	3,195,523.18	40.187703	-104.800153
1,596.00	0.79	236.62	1,595.97	-4.08	-2.95	1,311,993.61	3,195,522.27	40.187701	-104.800156
1,691.00	0.56	274.17	1,690.97	-4.41	-3.96	1,311,993.28	3,195,521.26	40.187700	-104.800159
1,786.00	0.58	272.01	1,785.96	-4.36	-4.91	1,311,993.32	3,195,520.32	40.187700	-104.800163
1,881.00	0.78	259.21	1,880.95	-4.46	-6.02	1,311,993.21	3,195,519.20	40.187700	-104.800167
1,976.00	0.84	265.45	1,975.94	-4.64	-7.35	1,311,993.02	3,195,517.87	40.187699	-104.800172
2,072.00	0.84	298.98	2,071.94	-4.35	-8.67	1,311,993.30	3,195,516.55	40.187700	-104.800176
2,167.00	0.95	293.94	2,166.92	-3.69	-10.00	1,311,993.94	3,195,515.22	40.187702	-104.800181
2,262.00	1.07	273.92	2,261.91	-3.31	-11.60	1,311,994.31	3,195,513.61	40.187703	-104.800187
2,357.00	0.56	299.84	2,356.90	-3.02	-12.89	1,311,994.59	3,195,512.32	40.187704	-104.800191
2,452.00	0.82	287.29	2,451.89	-2.59	-13.94	1,311,995.02	3,195,511.27	40.187705	-104.800195
2,547.00	0.56	107.06	2,546.89	-2.52	-14.15	1,311,995.08	3,195,511.06	40.187705	-104.800196
2,642.00	2.67	90.96	2,641.85	-2.70	-11.49	1,311,994.93	3,195,513.72	40.187705	-104.800186
2,737.00	3.97	77.53	2,736.69	-2.02	-6.07	1,311,995.64	3,195,519.14	40.187706	-104.800167
2,831.00	4.92	63.03	2,830.41	0.51	0.70	1,311,998.23	3,195,525.89	40.187713	-104.800143
2,926.00	6.45	65.90	2,924.94	4.53	9.20	1,312,002.32	3,195,534.36	40.187724	-104.800112
3,021.00	7.73	65.64	3,019.21	9.35	19.90	1,312,007.22	3,195,545.01	40.187738	-104.800074
3,116.00	9.22	67.52	3,113.17	14.89	32.75	1,312,012.87	3,195,557.82	40.187753	-104.800028
3,211.00	9.56	61.03	3,206.90	21.62	46.68	1,312,019.71	3,195,571.70	40.187771	-104.799978
3,306.00	7.81	61.39	3,300.80	28.54	59.25	1,312,026.72	3,195,584.21	40.187790	-104.799933
3,401.00	8.83	60.71	3,394.80	35.20	71.28	1,312,033.47	3,195,596.19	40.187809	-104.799890
3,495.00	9.73	67.52	3,487.58	41.76	84.91	1,312,040.15	3,195,609.77	40.187827	-104.799841
3,590.00	7.73	66.02	3,581.47	47.43	98.17	1,312,045.92	3,195,622.98	40.187842	-104.799794
3,685.00	8.24	76.92	3,675.55	51.57	110.64	1,312,050.15	3,195,635.42	40.187854	-104.799749
3,780.00	8.29	70.24	3,769.57	55.42	123.71	1,312,054.11	3,195,648.46	40.187864	-104.799702
3,874.00	9.16	66.27	3,862.48	60.72	136.94	1,312,059.52	3,195,661.65	40.187879	-104.799655
3,969.00	10.25	66.60	3,956.12	67.13	151.62	1,312,066.03	3,195,676.28	40.187896	-104.799603
4,064.00	9.20	66.63	4,049.75	73.49	166.35	1,312,072.52	3,195,690.95	40.187914	-104.799550
4,159.00	8.89	68.12	4,143.57	79.24	180.13	1,312,078.38	3,195,704.69	40.187930	-104.799501
4,253.00	9.53	74.61	4,236.36	84.01	194.38	1,312,083.26	3,195,718.90	40.187943	-104.799450
4,348.00	7.58	70.86	4,330.30	88.16	207.88	1,312,087.51	3,195,732.37	40.187954	-104.799401
4,442.00	8.59	73.49	4,423.37	92.18	220.47	1,312,091.64	3,195,744.92	40.187965	-104.799356
4,537.00	9.54	73.66	4,517.18	96.42	234.83	1,312,095.98	3,195,759.25	40.187977	-104.799305
4,632.00	8.97	74.72	4,610.94	100.58	249.52	1,312,100.26	3,195,773.91	40.187988	-104.799252
4,727.00	8.47	73.83	4,704.84	104.48	263.39	1,312,104.27	3,195,787.74	40.187999	-104.799203
4,822.00	8.06	67.00	4,798.86	109.03	276.24	1,312,108.92	3,195,800.56	40.188011	-104.799157
4,918.00	7.32	69.13	4,894.00	113.84	288.15	1,312,113.83	3,195,812.43	40.188025	-104.799114
5,012.00	7.29	63.09	4,987.23	118.67	299.06	1,312,118.75	3,195,823.30	40.188038	-104.799075
5,107.00	8.51	65.88	5,081.33	124.27	310.85	1,312,124.44	3,195,835.05	40.188053	-104.799033
5,201.00	8.64	60.52	5,174.28	130.59	323.35	1,312,130.85	3,195,847.49	40.188071	-104.798988
5,296.00	7.86	55.16	5,268.30	137.81	334.89	1,312,138.17	3,195,858.98	40.188090	-104.798947
5,391.00	8.68	59.85	5,362.31	145.13	346.42	1,312,145.57	3,195,870.45	40.188110	-104.798905
5,486.00	9.49	59.90	5,456.12	152.65	359.40	1,312,153.20	3,195,883.37	40.188131	-104.798859
5,580.00	7.58	58.82	5,549.07	159.75	371.41	1,312,160.39	3,195,895.32	40.188151	-104.798816
5,675.00	7.99	60.75	5,643.20	166.22	382.53	1,312,166.95	3,195,906.39	40.188168	-104.798776
5,771.00	6.65	55.57	5,738.42	172.62	392.93	1,312,173.43	3,195,916.75	40.188186	-104.798739
5,865.00	5.27	50.78	5,831.91	178.43	400.77	1,312,179.30	3,195,924.53	40.188202	-104.798711
5,960.00	4.40	55.83	5,926.57	183.24	407.16	1,312,184.16	3,195,930.89	40.188215	-104.798688
6,054.00	3.61	59.37	6,020.34	186.77	412.69	1,312,187.74	3,195,936.39	40.188225	-104.798668

Anadarko Petroleum Corp

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Sarchet 15N-32HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Site:	WELD_SARCHET 28-32HZ Pad	MD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Well:	Sarchet 15N-32HZ	North Reference:	True
Wellbore:	Sarchet 15N-32HZ	Survey Calculation Method:	Minimum Curvature
Design:	Sarchet 15N-32HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,149.00	3.12	60.45	6,115.17	189.57	417.52	1,312,190.57	3,195,941.19	40.188232	-104.798651
6,244.00	1.98	73.73	6,210.08	191.30	421.34	1,312,192.34	3,195,945.00	40.188237	-104.798637
6,338.00	0.75	112.31	6,304.05	191.53	423.47	1,312,192.58	3,195,947.13	40.188238	-104.798630
6,433.00	0.60	111.02	6,399.04	191.11	424.51	1,312,192.17	3,195,948.17	40.188237	-104.798626
6,528.00	0.77	100.21	6,494.04	190.82	425.60	1,312,191.89	3,195,949.27	40.188236	-104.798622
6,542.00	0.82	105.66	6,508.04	190.78	425.79	1,312,191.84	3,195,949.46	40.188236	-104.798621
6,623.00	4.43	157.75	6,588.94	187.72	427.53	1,312,188.81	3,195,951.23	40.188227	-104.798615
6,654.00	8.79	162.63	6,619.73	184.35	428.69	1,312,185.44	3,195,952.41	40.188218	-104.798611
6,686.00	12.91	166.81	6,651.15	178.54	430.24	1,312,179.64	3,195,954.00	40.188202	-104.798605
6,718.00	15.60	169.78	6,682.16	170.82	431.82	1,312,171.94	3,195,955.65	40.188181	-104.798600
6,749.00	15.87	169.76	6,712.00	162.55	433.31	1,312,163.68	3,195,957.20	40.188158	-104.798594
6,780.00	16.94	171.44	6,741.74	153.91	434.74	1,312,155.05	3,195,958.70	40.188135	-104.798589
6,812.00	20.02	173.93	6,772.09	143.85	436.01	1,312,145.00	3,195,960.05	40.188107	-104.798585
6,845.00	23.22	175.98	6,802.76	131.74	437.07	1,312,132.90	3,195,961.20	40.188074	-104.798581
6,876.00	25.68	178.24	6,830.98	118.93	437.70	1,312,120.09	3,195,961.94	40.188038	-104.798579
6,908.00	27.73	179.72	6,859.57	104.55	437.95	1,312,105.72	3,195,962.30	40.187999	-104.798578
6,940.00	30.63	179.31	6,887.50	88.95	438.08	1,312,090.12	3,195,962.56	40.187956	-104.798577
6,971.00	34.01	180.28	6,913.70	72.38	438.14	1,312,073.55	3,195,962.74	40.187911	-104.798577
7,003.00	36.83	181.87	6,939.77	53.84	437.78	1,312,055.01	3,195,962.53	40.187860	-104.798578
7,035.00	39.24	182.05	6,964.97	34.14	437.10	1,312,035.30	3,195,962.01	40.187806	-104.798581
7,066.00	41.46	183.44	6,988.60	14.09	436.14	1,312,015.25	3,195,961.20	40.187751	-104.798584
7,098.00	43.24	184.59	7,012.25	-7.41	434.63	1,311,993.74	3,195,959.86	40.187692	-104.798590
7,130.00	45.83	184.26	7,035.05	-29.78	432.90	1,311,971.35	3,195,958.30	40.187630	-104.798596
7,161.00	49.45	183.66	7,055.94	-52.63	431.32	1,311,948.49	3,195,956.91	40.187568	-104.798601
7,192.00	53.36	182.86	7,075.27	-76.82	429.94	1,311,924.29	3,195,955.72	40.187501	-104.798606
7,224.00	57.12	181.36	7,093.52	-103.08	428.98	1,311,898.02	3,195,954.97	40.187429	-104.798610
7,256.00	60.26	182.03	7,110.14	-130.41	428.17	1,311,870.69	3,195,954.38	40.187354	-104.798613
7,287.00	63.07	181.69	7,124.85	-157.68	427.29	1,311,843.42	3,195,953.71	40.187279	-104.798616
7,319.00	64.97	181.07	7,138.87	-186.43	426.60	1,311,814.66	3,195,953.24	40.187200	-104.798618
7,350.00	66.33	180.53	7,151.65	-214.67	426.20	1,311,786.41	3,195,953.07	40.187123	-104.798620
7,382.00	68.52	180.00	7,163.94	-244.22	426.07	1,311,756.87	3,195,953.17	40.187042	-104.798620
7,414.00	70.10	179.50	7,175.24	-274.15	426.20	1,311,726.94	3,195,953.54	40.186959	-104.798620
7,445.00	72.24	179.30	7,185.25	-303.49	426.51	1,311,697.60	3,195,954.08	40.186879	-104.798619
7,477.00	76.02	179.21	7,194.00	-334.26	426.91	1,311,666.83	3,195,954.72	40.186794	-104.798617
7,508.00	79.67	178.76	7,200.52	-364.56	427.44	1,311,636.54	3,195,955.50	40.186711	-104.798615
7,540.00	80.31	178.01	7,206.09	-396.06	428.33	1,311,605.05	3,195,956.63	40.186625	-104.798612
7,572.00	83.42	178.03	7,210.61	-427.71	429.43	1,311,573.41	3,195,957.98	40.186538	-104.798608
7,604.00	87.20	177.69	7,213.23	-459.58	430.62	1,311,541.55	3,195,959.42	40.186450	-104.798604
7,610.00	87.62	177.82	7,213.50	-465.57	430.85	1,311,535.56	3,195,959.70	40.186434	-104.798603
7,668.00	88.18	177.94	7,215.63	-523.49	433.00	1,311,477.66	3,195,962.30	40.186275	-104.798595
7" INTERMEDIATE CASING									
7,729.00	88.77	178.07	7,217.25	-584.43	435.12	1,311,416.74	3,195,964.90	40.186108	-104.798588
7,824.00	89.94	179.35	7,218.32	-679.39	437.26	1,311,321.79	3,195,967.79	40.185847	-104.798580
7,919.00	91.15	180.89	7,217.41	-774.39	437.06	1,311,226.80	3,195,968.34	40.185586	-104.798581
8,014.00	91.67	182.49	7,215.08	-869.31	434.26	1,311,131.86	3,195,966.29	40.185326	-104.798591
8,109.00	90.99	182.98	7,212.87	-964.18	429.73	1,311,036.96	3,195,962.51	40.185065	-104.798607
8,204.00	91.11	184.37	7,211.13	-1,058.96	423.64	1,310,942.13	3,195,957.17	40.184805	-104.798629
8,298.00	90.93	183.63	7,209.46	-1,152.72	417.08	1,310,848.33	3,195,951.35	40.184548	-104.798652
8,393.00	90.12	185.39	7,208.59	-1,247.42	409.61	1,310,753.57	3,195,944.63	40.184288	-104.798679
8,487.00	90.19	184.82	7,208.33	-1,341.04	401.25	1,310,659.88	3,195,937.01	40.184031	-104.798709
8,582.00	89.81	184.68	7,208.33	-1,435.72	393.38	1,310,565.15	3,195,929.89	40.183771	-104.798737
8,677.00	89.32	183.98	7,209.05	-1,530.44	386.21	1,310,470.37	3,195,923.46	40.183511	-104.798763
8,772.00	89.94	183.24	7,209.67	-1,625.25	380.23	1,310,375.52	3,195,918.23	40.183251	-104.798784
8,867.00	90.31	181.88	7,209.46	-1,720.15	375.98	1,310,280.59	3,195,914.74	40.182990	-104.798800
8,962.00	90.19	179.60	7,209.05	-1,815.14	374.76	1,310,185.59	3,195,914.26	40.182729	-104.798804

Anadarko Petroleum Corp

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Sarchet 15N-32HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Site:	WELD_SARCHET 28-32HZ Pad	MD Reference:	25' RKB + 4914' GL @ 4939.00ft (H&P 307)
Well:	Sarchet 15N-32HZ	North Reference:	True
Wellbore:	Sarchet 15N-32HZ	Survey Calculation Method:	Minimum Curvature
Design:	Sarchet 15N-32HZ	Database:	edmp

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,057.00	89.51	179.51	7,209.29	-1,910.13	375.49	1,310,090.61	3,195,915.75	40.182468	-104.798801
9,151.00	89.88	177.69	7,209.79	-2,004.10	377.79	1,309,996.66	3,195,918.78	40.182211	-104.798793
9,246.00	89.69	177.15	7,210.15	-2,099.00	382.07	1,309,901.80	3,195,923.81	40.181950	-104.798778
9,340.00	89.01	177.27	7,211.22	-2,192.89	386.64	1,309,807.95	3,195,929.12	40.181692	-104.798761
9,436.00	90.37	177.48	7,211.74	-2,288.78	391.04	1,309,712.10	3,195,934.28	40.181429	-104.798746
9,530.00	91.36	178.44	7,210.32	-2,382.71	394.38	1,309,618.20	3,195,938.37	40.181171	-104.798734
9,625.00	91.48	178.66	7,207.96	-2,477.65	396.79	1,309,523.28	3,195,941.52	40.180911	-104.798725
9,720.00	91.73	179.39	7,205.30	-2,572.60	398.40	1,309,428.35	3,195,943.88	40.180650	-104.798719
9,814.00	92.04	179.53	7,202.21	-2,666.54	399.29	1,309,334.41	3,195,945.51	40.180392	-104.798716
9,910.00	90.74	178.78	7,199.88	-2,762.50	400.71	1,309,238.47	3,195,947.68	40.180129	-104.798711
10,004.00	89.88	178.31	7,199.37	-2,856.47	403.09	1,309,144.52	3,195,950.81	40.179871	-104.798703
10,099.00	89.32	177.76	7,200.04	-2,951.41	406.35	1,309,049.61	3,195,954.82	40.179610	-104.798691
10,194.00	89.01	177.95	7,201.42	-3,046.33	409.90	1,308,954.72	3,195,959.12	40.179349	-104.798678
10,288.00	88.83	177.44	7,203.19	-3,140.24	413.68	1,308,860.85	3,195,963.64	40.179092	-104.798665
10,383.00	89.14	177.74	7,204.88	-3,235.14	417.68	1,308,765.98	3,195,968.39	40.178831	-104.798650
10,478.00	89.07	177.46	7,206.36	-3,330.04	421.66	1,308,671.11	3,195,973.11	40.178571	-104.798636
10,572.00	89.32	177.06	7,207.68	-3,423.93	426.15	1,308,577.26	3,195,978.35	40.178313	-104.798620
10,667.00	88.27	178.46	7,209.68	-3,518.83	429.86	1,308,482.39	3,195,982.81	40.178052	-104.798607
10,762.00	89.51	178.13	7,211.52	-3,613.77	432.69	1,308,387.48	3,195,986.38	40.177792	-104.798597
10,857.00	90.31	179.17	7,211.67	-3,708.74	434.93	1,308,292.53	3,195,989.37	40.177531	-104.798589
10,952.00	90.68	178.61	7,210.85	-3,803.72	436.77	1,308,197.57	3,195,991.96	40.177270	-104.798582
11,047.00	90.49	178.83	7,209.88	-3,898.69	438.89	1,308,102.62	3,195,994.83	40.177010	-104.798575
11,142.00	90.37	178.31	7,209.16	-3,993.66	441.26	1,308,007.67	3,195,997.95	40.176749	-104.798566
11,237.00	89.88	177.95	7,208.96	-4,088.61	444.36	1,307,912.75	3,196,001.80	40.176488	-104.798555
11,332.00	89.74	178.42	7,209.27	-4,183.56	447.37	1,307,817.83	3,196,005.56	40.176228	-104.798544
11,426.00	88.89	178.31	7,210.40	-4,277.51	450.05	1,307,723.90	3,196,008.98	40.175970	-104.798535
11,521.00	88.40	178.28	7,212.64	-4,372.44	452.88	1,307,628.99	3,196,012.56	40.175709	-104.798525
11,556.00	88.09	178.15	7,213.71	-4,407.41	453.96	1,307,594.04	3,196,013.92	40.175613	-104.798521
LAST MWD SURVEY									
11,611.00	88.09	178.15	7,215.55	-4,462.35	455.74	1,307,539.11	3,196,016.13	40.175462	-104.798514
PROJECTION TO TD									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
725.00	724.99	0.48	-1.37	TIE ON
858.00	857.99	0.10	-1.50	FIRST MWD SURVEY
7,668.00	7,215.63	-523.49	433.00	7" INTERMEDIATE CASING
11,556.00	7,213.71	-4,407.41	453.96	LAST MWD SURVEY
11,611.00	7,215.55	-4,462.35	455.74	PROJECTION TO TD

Checked By: _____ Approved By: _____ Date: _____