



Weatherford®

Weatherford
2000 Oil Drive
Casper, WY 82604

Survey Certification

Operating Company:	Anadarko Petroleum Corp.
Well Name:	REIGLE 28C-4HZ
State:	CO
County:	WELD
API Number:	512336140
Datum:	NAD 83
Survey Calculation Method:	Minimum Curvature
North Reference:	True North

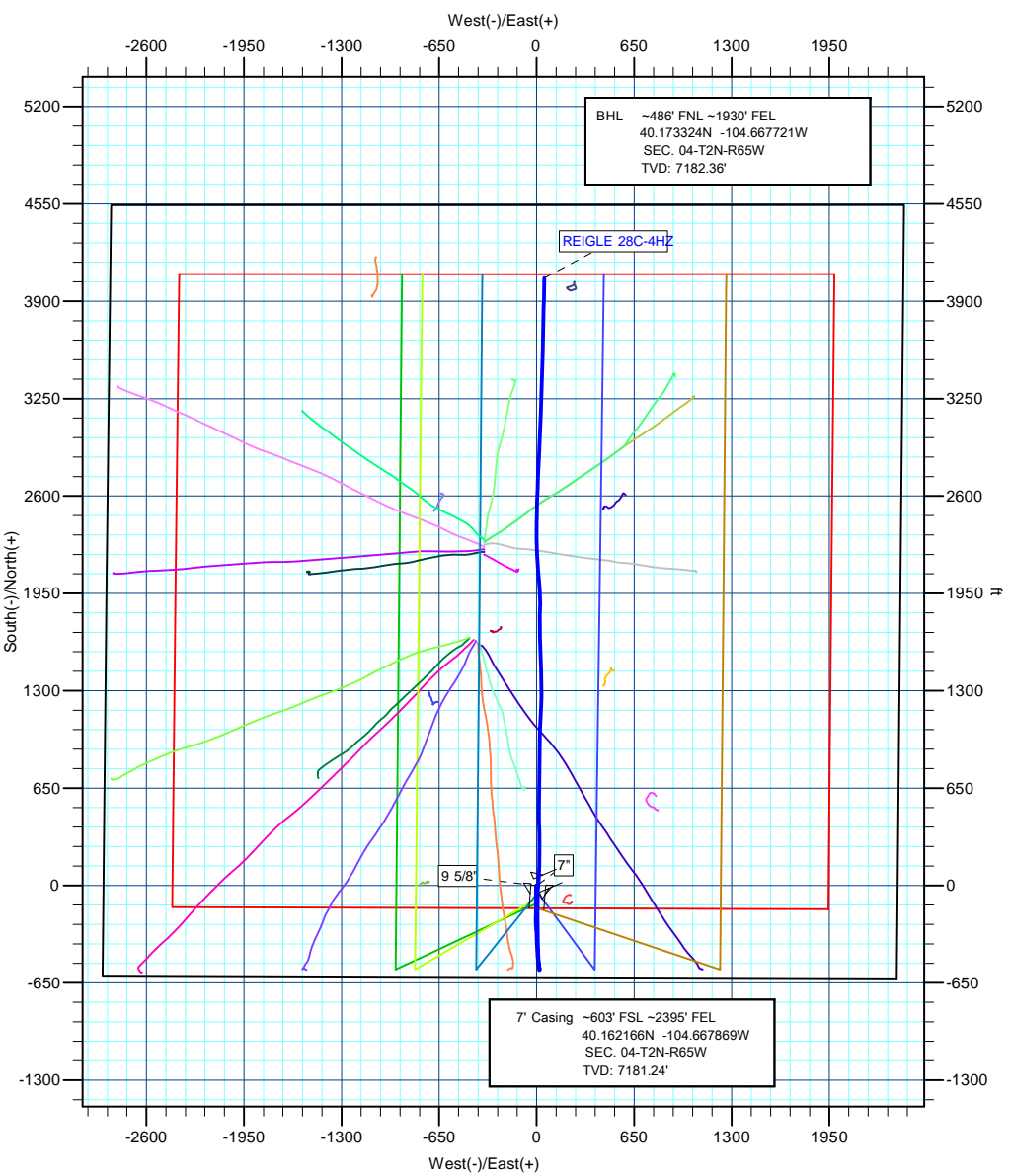
I, J. Aaron Underwood, hereby certify the attached
directional survey run from the measure depth of 907.00 feet
to the measured depth of 11,515.00 feet as accurate and true
to the best of my knowledge.

Signature

20-Nov-12

Date

J. Aaron Underwood
Directional Planning
Weatherford - Rockies District



Azimuths to True North
Magnetic North: 8.62°

Magnetic Field
Strength: 52881.6snT
Dip Angle: 66.83°
Date: 9/25/2012
Model: IGRF2010

Project: COLORADO NORTHERN ZONE - 83
Site: WELD REIGLE 15-4HZ PAD
Well: REIGLE 28C-4HZ
Wellbore: REIGLE 28C-4HZ
Design: REIGLE 28C-4HZ
Latitude: 40.162192
Longitude: -104.667906
GL: 4858.00
KB: GL+16' RKB @ 4874.00ft (XTREME 23)

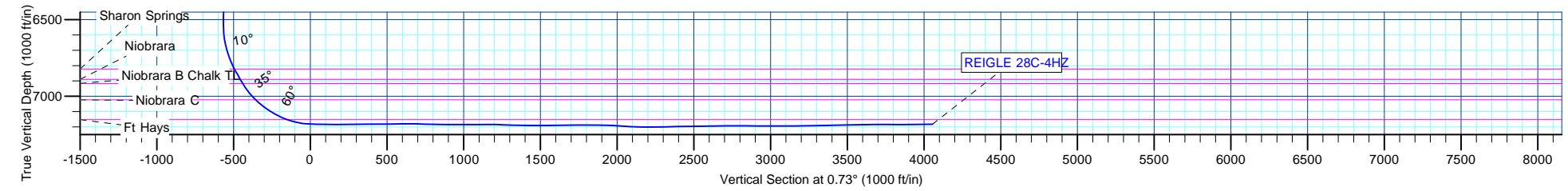
WELL DETAILS: REIGLE 28C-4HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4858.00 Latitude	Longitude	Slot
0.00	0.00	1303020.79	3232556.30	40.162192	-104.667906	

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation	
825.99	826.00	0.38	230.72	-1.73	-0.09	-1.73	3.03	TIE ON	
906.99	907.00	0.66	249.47	-2.07	-0.74	-2.08	3.77	FIRST MWD SURVEY	
7181.24	7502.00	86.78	4.27	-9.48	10.51	-9.35	1134.83	7 IN. CASING	
7183.05	11515.00	90.86	1.55	4000.35	50.24	4000.66	5146.98	LAST MWD SURVEY	
7182.36	11570.00	90.58	1.77	4055.32	51.83	4055.65	5201.97	PROJ. TO BIT	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
REIGLE 28C-4HZ PBHL	7194.00	4081.43	48.24	40.173396	-104.667733	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3847.63	3880.42	Parkman
4437.70	4476.01	Sussex
6806.97	6868.47	Sharon Springs
6874.98	6946.60	Niobrara
6900.21	6975.98	Niobrara B Chalk TL
7007.65	7113.35	Niobrara C
7136.91	7358.78	Ft Hays

CASING DETAILS			
TVD	MD	Name	Size
7181.24	7502.00	7"	7
873.21	873.22	9 5/8"	9-5/8



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_REIGLE 15-4HZ PAD

REIGLE 28C-4HZ

REIGLE 28C-4HZ

Design: REIGLE 28C-4HZ

Standard Survey Report

20 November, 2012

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 28C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Well:	REIGLE 28C-4HZ	North Reference:	True
Wellbore:	REIGLE 28C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 28C-4HZ	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_REIGLE 15-4HZ PAD			
Site Position:		Northing:	1,303,020.80 usft	Latitude:	40.162192
From:	Lat/Long	Easting:	3,232,556.30 usft	Longitude:	-104.667906
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54 °

Well		REIGLE 28C-4HZ				
Well Position	+N/-S	0.00 ft	Northing:	1,303,020.79 usft	Latitude:	40.162192
	+E/-W	0.00 ft	Easting:	3,232,556.30 usft	Longitude:	-104.667906
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,858.00 ft

Wellbore	REIGLE 28C-4HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/25/2012	8.62	66.83	52,882

Design	REIGLE 28C-4HZ				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	16.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	16.00	0.00	0.00	179.19	

Survey Program	Date	11/14/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
116.00	826.00	Survey #1 (REIGLE 28C-4HZ)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
907.00	11,570.00	Survey #2 (REIGLE 28C-4HZ)	MWD	MWD - STANDARD	

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)	
16.00	0.00	0.00	16.00	0.00	0.00	0.00	0.00	0.00	0.00	
116.00	0.53	156.06	116.00	-0.42	0.19	0.43	0.53	0.53	0.00	
216.00	0.25	186.21	216.00	-1.06	0.35	1.07	0.34	-0.28	30.15	
316.00	0.23	92.60	316.00	-1.29	0.53	1.30	0.35	-0.02	-93.61	
416.00	0.38	227.34	416.00	-1.52	0.49	1.53	0.57	0.15	134.74	
516.00	0.01	358.04	515.99	-1.74	0.24	1.74	0.39	-0.37	130.70	
616.00	0.10	248.19	615.99	-1.76	0.16	1.76	0.10	0.09	-109.85	
716.00	0.07	65.87	715.99	-1.77	0.13	1.77	0.17	-0.03	177.68	
816.00	0.27	277.31	815.99	-1.71	-0.04	1.71	0.33	0.20	-148.56	
826.00	0.38	230.72	825.99	-1.73	-0.09	1.73	2.76	1.10	-465.90	

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 28C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Well:	REIGLE 28C-4HZ	North Reference:	True
Wellbore:	REIGLE 28C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 28C-4HZ	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)
TIE ON									
907.00	0.66	249.47	906.99	-2.07	-0.74	2.06	0.40	0.35	23.15
FIRST MWD SURVEY									
970.00	0.91	254.06	969.98	-2.33	-1.56	2.31	0.41	0.40	7.29
1,063.00	0.64	250.72	1,062.98	-2.70	-2.76	2.67	0.29	-0.29	-3.59
1,157.00	0.95	258.08	1,156.97	-3.04	-4.02	2.98	0.35	0.33	7.83
1,250.00	1.17	139.08	1,249.96	-3.92	-4.15	3.86	1.97	0.24	-127.96
1,343.00	1.29	133.92	1,342.94	-5.36	-2.77	5.32	0.18	0.13	-5.55
1,375.00	1.26	146.45	1,374.93	-5.90	-2.32	5.87	0.87	-0.09	39.16
1,460.00	1.62	173.28	1,459.90	-7.87	-1.66	7.85	0.89	0.42	31.56
1,545.00	2.32	183.40	1,544.85	-10.79	-1.62	10.76	0.92	0.82	11.91
1,631.00	3.14	191.05	1,630.75	-14.83	-2.18	14.80	1.04	0.95	8.90
1,716.00	5.02	188.53	1,715.54	-20.80	-3.18	20.75	2.22	2.21	-2.96
1,802.00	6.96	184.67	1,801.06	-29.71	-4.16	29.65	2.30	2.26	-4.49
1,887.00	8.50	180.61	1,885.29	-41.13	-4.64	41.06	1.92	1.81	-4.78
1,973.00	8.49	179.05	1,970.34	-53.83	-4.61	53.76	0.27	-0.01	-1.81
2,058.00	7.80	172.47	2,054.49	-65.82	-3.75	65.76	1.36	-0.81	-7.74
2,144.00	7.58	177.95	2,139.72	-77.28	-2.78	77.23	0.89	-0.26	6.37
2,229.00	6.72	179.68	2,224.05	-87.85	-2.55	87.81	1.04	-1.01	2.04
2,314.00	7.22	182.65	2,308.43	-98.16	-2.77	98.11	0.72	0.59	3.49
2,400.00	6.87	181.85	2,393.78	-108.70	-3.19	108.65	0.42	-0.41	-0.93
2,485.00	7.69	183.09	2,478.09	-119.46	-3.66	119.40	0.98	0.96	1.46
2,570.00	6.55	182.11	2,562.43	-129.99	-4.14	129.91	1.35	-1.34	-1.15
2,656.00	5.59	181.81	2,647.95	-139.07	-4.45	139.00	1.12	-1.12	-0.35
2,741.00	6.28	180.77	2,732.49	-147.86	-4.65	147.78	0.82	0.81	-1.22
2,826.00	6.34	177.54	2,816.98	-157.20	-4.51	157.12	0.42	0.07	-3.80
2,912.00	7.44	179.82	2,902.36	-167.51	-4.29	167.43	1.32	1.28	2.65
2,997.00	7.71	179.74	2,986.62	-178.72	-4.24	178.64	0.32	0.32	-0.09
3,083.00	7.14	180.39	3,071.89	-189.83	-4.25	189.75	0.67	-0.66	0.76
3,168.00	6.09	179.71	3,156.33	-199.62	-4.27	199.54	1.24	-1.24	-0.80
3,254.00	6.30	184.84	3,241.83	-208.88	-4.64	208.80	0.69	0.24	5.97
3,339.00	7.08	183.77	3,326.25	-218.76	-5.38	218.66	0.93	0.92	-1.26
3,425.00	7.15	185.31	3,411.58	-229.38	-6.22	229.26	0.24	0.08	1.79
3,510.00	6.40	180.72	3,495.99	-239.38	-6.77	239.26	1.09	-0.88	-5.40
3,596.00	6.15	169.74	3,581.48	-248.71	-6.01	248.60	1.42	-0.29	-12.77
3,684.00	6.12	174.81	3,668.98	-258.02	-4.75	257.92	0.62	-0.03	5.76
3,769.00	7.51	174.88	3,753.37	-268.06	-3.84	267.98	1.64	1.64	0.08
3,855.00	8.78	178.36	3,838.50	-280.22	-3.15	280.15	1.58	1.48	4.05
3,940.00	8.57	176.35	3,922.53	-293.03	-2.57	292.96	0.43	-0.25	-2.36
4,026.00	8.57	175.71	4,007.57	-305.81	-1.68	305.76	0.11	0.00	-0.74
4,111.00	8.03	177.34	4,091.68	-318.06	-0.93	318.01	0.69	-0.64	1.92
4,196.00	6.74	177.34	4,175.97	-328.97	-0.42	328.93	1.52	-1.52	0.00
4,282.00	7.48	176.81	4,261.31	-339.60	0.12	339.57	0.86	0.86	-0.62

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 28C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Well:	REIGLE 28C-4HZ	North Reference:	True
Wellbore:	REIGLE 28C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 28C-4HZ	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)
4,367.00	7.54	177.75	4,345.58	-350.70	0.65	350.67	0.16	0.07	1.11
4,453.00	7.21	177.41	4,430.87	-361.73	1.12	361.71	0.39	-0.38	-0.40
4,538.00	6.94	180.04	4,515.22	-372.19	1.35	372.17	0.50	-0.32	3.09
4,624.00	6.41	177.11	4,600.64	-382.18	1.59	382.17	0.73	-0.62	-3.41
4,709.00	7.95	177.23	4,684.97	-392.79	2.12	392.78	1.81	1.81	0.14
4,794.00	6.99	173.58	4,769.25	-403.80	2.98	403.80	1.26	-1.13	-4.29
4,880.00	7.24	175.75	4,854.59	-414.41	3.96	414.42	0.43	0.29	2.52
4,965.00	6.05	174.83	4,939.02	-424.21	4.76	424.23	1.41	-1.40	-1.08
5,051.00	6.58	179.26	5,024.49	-433.65	5.24	433.68	0.84	0.62	5.15
5,136.00	7.59	180.45	5,108.84	-444.13	5.26	444.16	1.20	1.19	1.40
5,221.00	6.39	178.11	5,193.21	-454.48	5.37	454.51	1.45	-1.41	-2.75
5,306.00	6.78	175.21	5,277.65	-464.20	5.94	464.24	0.60	0.46	-3.41
5,392.00	8.08	176.38	5,362.93	-475.29	6.75	475.34	1.52	1.51	1.36
5,477.00	6.42	170.70	5,447.25	-485.95	7.89	486.01	2.12	-1.95	-6.68
5,562.00	6.80	172.09	5,531.68	-495.62	9.35	495.70	0.49	0.45	1.64
5,647.00	6.87	169.54	5,616.08	-505.60	10.97	505.71	0.37	0.08	-3.00
5,733.00	6.53	172.38	5,701.49	-515.51	12.55	515.64	0.55	-0.40	3.30
5,818.00	6.49	168.71	5,785.94	-525.01	14.13	525.16	0.49	-0.05	-4.32
5,903.00	6.37	172.81	5,870.41	-534.40	15.66	534.57	0.56	-0.14	4.82
5,989.00	4.95	167.76	5,955.99	-542.76	17.05	542.95	1.75	-1.65	-5.87
6,074.00	3.90	162.46	6,040.73	-549.10	18.70	549.31	1.32	-1.24	-6.24
6,159.00	2.32	152.72	6,125.60	-553.38	20.36	553.62	1.95	-1.86	-11.46
6,224.00	2.19	139.62	6,190.55	-555.50	21.76	555.75	0.82	-0.20	-20.15
6,309.00	2.39	191.49	6,275.50	-558.47	22.46	558.74	2.37	0.24	61.02
6,394.00	2.46	211.24	6,360.42	-561.77	21.16	562.01	0.98	0.08	23.24
6,480.00	2.32	212.02	6,446.35	-564.82	19.28	565.04	0.17	-0.16	0.91
6,565.00	0.73	271.86	6,531.32	-566.27	17.83	566.46	2.41	-1.87	70.40
6,607.00	3.43	335.58	6,573.29	-565.11	17.04	565.30	7.56	6.43	151.71
6,650.00	7.95	356.41	6,616.07	-560.97	16.32	561.15	11.39	10.51	48.44
6,693.00	12.46	3.42	6,658.38	-553.37	16.41	553.55	10.86	10.49	16.30
6,735.00	15.99	355.47	6,699.09	-543.08	16.23	543.25	9.59	8.40	-18.93
6,778.00	19.25	355.08	6,740.07	-530.11	15.15	530.27	7.59	7.58	-0.91
6,821.00	23.23	355.84	6,780.14	-514.58	13.93	514.73	9.28	9.26	1.77
6,863.00	27.28	356.86	6,818.12	-496.70	12.80	496.83	9.70	9.64	2.43
6,906.00	30.08	358.74	6,855.84	-476.08	12.02	476.21	6.84	6.51	4.37
6,949.00	30.04	357.68	6,893.05	-454.55	11.35	454.67	1.24	-0.09	-2.47
6,991.00	32.69	356.39	6,928.91	-432.73	10.21	432.83	6.51	6.31	-3.07
7,034.00	36.92	356.62	6,964.21	-408.23	8.72	408.32	9.84	9.84	0.53
7,076.00	41.73	357.98	6,996.69	-381.66	7.48	381.72	11.63	11.45	3.24
7,119.00	46.49	359.63	7,027.56	-351.74	6.87	351.81	11.39	11.07	3.84
7,162.00	50.94	0.49	7,055.92	-319.44	6.92	319.51	10.46	10.35	2.00
7,204.00	55.71	0.38	7,081.00	-285.77	7.17	285.84	11.36	11.36	-0.26
7,247.00	57.98	358.64	7,104.52	-249.77	6.86	249.84	6.27	5.28	-4.05
7,290.00	63.16	359.16	7,125.64	-212.34	6.14	212.41	12.09	12.05	1.21

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 28C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Well:	REIGLE 28C-4HZ	North Reference:	True
Wellbore:	REIGLE 28C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 28C-4HZ	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)
7,332.00	67.36	0.53	7,143.21	-174.21	6.05	174.27	10.43	10.00	3.26
7,375.00	71.93	0.29	7,158.17	-133.90	6.33	133.98	10.64	10.63	-0.56
7,418.00	77.15	0.53	7,169.63	-92.47	6.63	92.56	12.15	12.14	0.56
7,460.00	82.28	2.86	7,177.12	-51.18	7.86	51.29	13.38	12.21	5.55
7,478.00	83.90	3.59	7,179.29	-33.34	8.87	33.47	9.86	9.00	4.06
7,502.00	86.78	4.27	7,181.24	-9.48	10.51	9.63	12.33	12.00	2.85
7 IN. CASING									
7,516.00	88.46	4.67	7,181.82	4.46	11.60	-4.30	12.33	12.00	2.83
7,601.00	89.45	1.61	7,183.37	89.31	16.25	-89.07	3.78	1.16	-3.60
7,687.00	89.20	0.95	7,184.38	175.28	18.17	-175.01	0.82	-0.29	-0.77
7,772.00	91.17	0.20	7,184.11	260.27	19.02	-259.98	2.48	2.32	-0.88
7,858.00	91.11	358.83	7,182.40	346.25	18.30	-345.96	1.59	-0.07	-1.59
7,943.00	89.75	358.87	7,181.76	431.23	16.59	-430.95	1.60	-1.60	0.05
8,029.00	90.56	0.49	7,181.53	517.22	16.11	-516.94	2.11	0.94	1.88
8,114.00	90.92	0.35	7,180.43	602.21	16.73	-601.92	0.45	0.42	-0.16
8,200.00	89.01	0.06	7,180.48	688.21	17.04	-687.90	2.25	-2.22	-0.34
8,285.00	88.71	1.33	7,182.17	773.18	18.07	-772.85	1.53	-0.35	1.49
8,371.00	88.21	1.07	7,184.48	859.13	19.87	-858.77	0.66	-0.58	-0.30
8,456.00	90.18	0.73	7,185.68	944.11	21.21	-943.72	2.35	2.32	-0.40
8,541.00	90.49	1.49	7,185.18	1,029.09	22.85	-1,028.67	0.97	0.36	0.89
8,626.00	90.62	2.94	7,184.36	1,114.02	26.14	-1,113.54	1.71	0.15	1.71
8,712.00	88.95	2.51	7,184.68	1,199.92	30.23	-1,199.37	2.01	-1.94	-0.50
8,797.00	87.10	0.41	7,187.61	1,284.84	32.39	-1,284.25	3.29	-2.18	-2.47
8,883.00	89.38	358.10	7,190.25	1,370.78	31.27	-1,370.19	3.77	2.65	-2.69
8,968.00	90.00	359.14	7,190.71	1,455.75	29.23	-1,455.19	1.42	0.73	1.22
9,054.00	89.45	356.82	7,191.12	1,541.69	26.20	-1,541.16	2.77	-0.64	-2.70
9,139.00	91.06	358.43	7,190.75	1,626.61	22.67	-1,626.12	2.68	1.89	1.89
9,225.00	91.66	0.73	7,188.71	1,712.58	22.04	-1,712.09	2.76	0.70	2.67
9,310.00	89.69	0.37	7,187.70	1,797.56	22.86	-1,797.06	2.36	-2.32	-0.42
9,395.00	89.03	0.02	7,188.65	1,882.56	23.15	-1,882.04	0.88	-0.78	-0.41
9,481.00	87.41	357.06	7,191.33	1,968.47	20.96	-1,967.98	3.92	-1.88	-3.44
9,566.00	85.93	355.31	7,196.26	2,053.14	15.31	-2,052.71	2.69	-1.74	-2.06
9,652.00	88.27	355.44	7,200.61	2,138.74	8.39	-2,138.41	2.73	2.72	0.15
9,737.00	90.62	356.67	7,201.44	2,223.53	2.54	-2,223.27	3.12	2.76	1.45
9,822.00	90.93	359.00	7,200.29	2,308.45	-0.67	-2,308.23	2.77	0.36	2.74
9,908.00	92.12	1.96	7,198.00	2,394.41	0.05	-2,394.17	3.71	1.38	3.44
9,993.00	89.65	0.73	7,196.68	2,479.37	2.05	-2,479.09	3.25	-2.91	-1.45
10,078.00	91.05	1.72	7,196.17	2,564.34	3.86	-2,564.03	2.02	1.65	1.16
10,163.00	91.60	2.09	7,194.20	2,649.27	6.69	-2,648.91	0.78	0.65	0.44
10,249.00	90.18	2.24	7,192.86	2,735.20	9.94	-2,734.78	1.66	-1.65	0.17
10,334.00	89.14	2.20	7,193.37	2,820.13	13.23	-2,819.66	1.22	-1.22	-0.05
10,419.00	89.32	2.99	7,194.51	2,905.04	17.08	-2,904.50	0.95	0.21	0.93
10,505.00	90.18	2.54	7,194.89	2,990.93	21.23	-2,990.33	1.13	1.00	-0.52

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 28C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Well:	REIGLE 28C-4HZ	North Reference:	True
Wellbore:	REIGLE 28C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 28C-4HZ	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)	
10,590.00	90.74	3.12	7,194.20	3,075.83	25.42	-3,075.16	0.95	0.66	0.68	
10,675.00	90.06	0.91	7,193.61	3,160.77	28.41	-3,160.05	2.72	-0.80	-2.60	
10,761.00	90.62	2.04	7,193.10	3,246.74	30.62	-3,245.97	1.47	0.65	1.31	
10,846.00	91.05	2.56	7,191.86	3,331.66	34.03	-3,330.84	0.79	0.51	0.61	
10,931.00	91.79	1.49	7,189.75	3,416.58	37.04	-3,415.71	1.53	0.87	-1.26	
11,016.00	91.54	0.99	7,187.29	3,501.52	38.88	-3,500.62	0.66	-0.29	-0.59	
11,102.00	90.49	0.79	7,185.76	3,587.50	40.21	-3,586.56	1.24	-1.22	-0.23	
11,187.00	90.49	2.05	7,185.03	3,672.46	42.32	-3,671.49	1.48	0.00	1.48	
11,272.00	89.88	1.28	7,184.76	3,757.43	44.79	-3,756.41	1.16	-0.72	-0.91	
11,356.00	89.69	1.20	7,185.08	3,841.41	46.61	-3,840.36	0.25	-0.23	-0.10	
11,442.00	91.23	1.26	7,184.39	3,927.38	48.45	-3,926.30	1.79	1.79	0.07	
11,515.00	90.86	1.55	7,183.05	4,000.35	50.24	-3,999.23	0.64	-0.51	0.40	
LAST MWD SURVEY										
11,570.00	90.58	1.77	7,182.36	4,055.32	51.83	-4,054.18	0.65	-0.51	0.40	
PROJ. TO BIT										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
826.00	825.99	-1.73	-0.09	TIE ON	
907.00	906.99	-2.07	-0.74	FIRST MWD SURVEY	
7,502.00	7,181.24	-9.48	10.51	7 IN. CASING	
11,515.00	7,183.05	4,000.35	50.24	LAST MWD SURVEY	
11,570.00	7,182.36	4,055.32	51.83	PROJ. TO BIT	

Checked By: _____ Approved By: _____ Date: _____

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_REIGLE 15-4HZ PAD

REIGLE 28C-4HZ

REIGLE 28C-4HZ

Design: REIGLE 28C-4HZ

Survey Report - Geographic

20 November, 2012

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 28C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Well:	REIGLE 28C-4HZ	North Reference:	True
Wellbore:	REIGLE 28C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 28C-4HZ	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_REIGLE 15-4HZ PAD			
Site Position:		Northing:	1,303,020.80 usft	Latitude:	40.162192
From:	Lat/Long	Easting:	3,232,556.30 usft	Longitude:	-104.667906
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54 °

Well	REIGLE 28C-4HZ					
Well Position	+N/-S	0.00 ft	Northing:	1,303,020.79 usft	Latitude:	40.162192
	+E/-W	0.00 ft	Easting:	3,232,556.30 usft	Longitude:	-104.667906
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,858.00 ft

Wellbore	REIGLE 28C-4HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/25/2012	8.62	66.83	52,882

Design	REIGLE 28C-4HZ				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	16.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	16.00	0.00	0.00	179.19	

Survey Program	Date	11/14/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
116.00	826.00	Survey #1 (REIGLE 28C-4HZ)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
907.00	11,570.00	Survey #2 (REIGLE 28C-4HZ)	MWD	MWD - STANDARD	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
16.00	0.00	0.00	16.00	0.00	0.00	1,303,020.79	3,232,556.30	40.162192	-104.667906
116.00	0.53	156.06	116.00	-0.42	0.19	1,303,020.37	3,232,556.49	40.162191	-104.667906
216.00	0.25	186.21	216.00	-1.06	0.35	1,303,019.73	3,232,556.66	40.162189	-104.667905
316.00	0.23	92.60	316.00	-1.29	0.53	1,303,019.50	3,232,556.84	40.162189	-104.667904
416.00	0.38	227.34	416.00	-1.52	0.49	1,303,019.27	3,232,556.80	40.162188	-104.667905
516.00	0.01	358.04	515.99	-1.74	0.24	1,303,019.05	3,232,556.56	40.162187	-104.667905
616.00	0.10	248.19	615.99	-1.76	0.16	1,303,019.03	3,232,556.48	40.162187	-104.667906
716.00	0.07	65.87	715.99	-1.77	0.13	1,303,019.02	3,232,556.45	40.162187	-104.667906
816.00	0.27	277.31	815.99	-1.71	-0.04	1,303,019.07	3,232,556.27	40.162187	-104.667906
826.00	0.38	230.72	825.99	-1.73	-0.09	1,303,019.05	3,232,556.22	40.162187	-104.667907
TIE ON									

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 28C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Well:	REIGLE 28C-4HZ	North Reference:	True
Wellbore:	REIGLE 28C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 28C-4HZ	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
907.00	0.66	249.47	906.99	-2.07	-0.74	1,303,018.71	3,232,555.58	40.162186	-104.667909
FIRST MWD SURVEY									
970.00	0.91	254.06	969.98	-2.33	-1.56	1,303,018.44	3,232,554.76	40.162186	-104.667912
1,063.00	0.64	250.72	1,062.98	-2.70	-2.76	1,303,018.06	3,232,553.57	40.162185	-104.667916
1,157.00	0.95	258.08	1,156.97	-3.04	-4.02	1,303,017.71	3,232,552.31	40.162184	-104.667921
1,250.00	1.17	139.08	1,249.96	-3.92	-4.15	1,303,016.83	3,232,552.19	40.162181	-104.667921
1,343.00	1.29	133.92	1,342.94	-5.36	-2.77	1,303,015.40	3,232,553.58	40.162177	-104.667916
1,375.00	1.26	146.45	1,374.93	-5.90	-2.32	1,303,014.86	3,232,554.04	40.162176	-104.667915
1,460.00	1.62	173.28	1,459.90	-7.87	-1.66	1,303,012.90	3,232,554.71	40.162170	-104.667912
1,545.00	2.32	183.40	1,544.85	-10.79	-1.62	1,303,009.99	3,232,554.78	40.162162	-104.667912
1,631.00	3.14	191.05	1,630.75	-14.83	-2.18	1,303,005.93	3,232,554.26	40.162151	-104.667914
1,716.00	5.02	188.53	1,715.54	-20.80	-3.18	1,302,999.96	3,232,553.32	40.162135	-104.667918
1,802.00	6.96	184.67	1,801.06	-29.71	-4.16	1,302,991.04	3,232,552.42	40.162110	-104.667921
1,887.00	8.50	180.61	1,885.29	-41.13	-4.64	1,302,979.62	3,232,552.04	40.162079	-104.667923
1,973.00	8.49	179.05	1,970.34	-53.83	-4.61	1,302,966.92	3,232,552.20	40.162044	-104.667923
2,058.00	7.80	172.47	2,054.49	-65.82	-3.75	1,302,954.93	3,232,553.17	40.162011	-104.667920
2,144.00	7.58	177.95	2,139.72	-77.28	-2.78	1,302,943.49	3,232,554.24	40.161980	-104.667916
2,229.00	6.72	179.68	2,224.05	-87.85	-2.55	1,302,932.91	3,232,554.57	40.161951	-104.667915
2,314.00	7.22	182.65	2,308.43	-98.16	-2.77	1,302,922.60	3,232,554.45	40.161923	-104.667916
2,400.00	6.87	181.85	2,393.78	-108.70	-3.19	1,302,912.06	3,232,554.13	40.161894	-104.667918
2,485.00	7.69	183.09	2,478.09	-119.46	-3.66	1,302,901.30	3,232,553.76	40.161864	-104.667919
2,570.00	6.55	182.11	2,562.43	-129.99	-4.14	1,302,890.77	3,232,553.38	40.161835	-104.667921
2,656.00	5.59	181.81	2,647.95	-139.07	-4.45	1,302,881.68	3,232,553.15	40.161810	-104.667922
2,741.00	6.28	180.77	2,732.49	-147.86	-4.65	1,302,872.89	3,232,553.04	40.161786	-104.667923
2,826.00	6.34	177.54	2,816.98	-157.20	-4.51	1,302,863.55	3,232,553.26	40.161761	-104.667922
2,912.00	7.44	179.82	2,902.36	-167.51	-4.29	1,302,853.24	3,232,553.58	40.161732	-104.667922
2,997.00	7.71	179.74	2,986.62	-178.72	-4.24	1,302,842.04	3,232,553.73	40.161701	-104.667921
3,083.00	7.14	180.39	3,071.89	-189.83	-4.25	1,302,830.93	3,232,553.83	40.161671	-104.667921
3,168.00	6.09	179.71	3,156.33	-199.62	-4.27	1,302,821.14	3,232,553.90	40.161644	-104.667922
3,254.00	6.30	184.84	3,241.83	-208.88	-4.64	1,302,811.87	3,232,553.62	40.161619	-104.667923
3,339.00	7.08	183.77	3,326.25	-218.76	-5.38	1,302,801.99	3,232,552.97	40.161592	-104.667926
3,425.00	7.15	185.31	3,411.58	-229.38	-6.22	1,302,791.36	3,232,552.23	40.161562	-104.667929
3,510.00	6.40	180.72	3,495.99	-239.38	-6.77	1,302,781.35	3,232,551.77	40.161535	-104.667931
3,596.00	6.15	169.74	3,581.48	-248.71	-6.01	1,302,772.04	3,232,552.62	40.161509	-104.667928
3,684.00	6.12	174.81	3,668.98	-258.02	-4.75	1,302,762.74	3,232,553.97	40.161484	-104.667923
3,769.00	7.51	174.88	3,753.37	-268.06	-3.84	1,302,752.70	3,232,554.97	40.161456	-104.667920
3,855.00	8.78	178.36	3,838.50	-280.22	-3.15	1,302,740.55	3,232,555.77	40.161423	-104.667918
3,940.00	8.57	176.35	3,922.53	-293.03	-2.57	1,302,727.75	3,232,556.48	40.161388	-104.667915
4,026.00	8.57	175.71	4,007.57	-305.81	-1.68	1,302,714.97	3,232,557.49	40.161353	-104.667912
4,111.00	8.03	177.34	4,091.68	-318.06	-0.93	1,302,702.74	3,232,558.35	40.161319	-104.667910
4,196.00	6.74	177.34	4,175.97	-328.97	-0.42	1,302,691.83	3,232,558.96	40.161289	-104.667908
4,282.00	7.48	176.81	4,261.31	-339.60	0.12	1,302,681.20	3,232,559.61	40.161260	-104.667906
4,367.00	7.54	177.75	4,345.58	-350.70	0.65	1,302,670.11	3,232,560.24	40.161229	-104.667904
4,453.00	7.21	177.41	4,430.87	-361.73	1.12	1,302,659.09	3,232,560.81	40.161199	-104.667902
4,538.00	6.94	180.04	4,515.22	-372.19	1.35	1,302,648.63	3,232,561.14	40.161170	-104.667901
4,624.00	6.41	177.11	4,600.64	-382.18	1.59	1,302,638.64	3,232,561.48	40.161143	-104.667901
4,709.00	7.95	177.23	4,684.97	-392.79	2.12	1,302,628.03	3,232,562.10	40.161114	-104.667899
4,794.00	6.99	173.58	4,769.25	-403.80	2.98	1,302,617.03	3,232,563.07	40.161084	-104.667896
4,880.00	7.24	175.75	4,854.59	-414.41	3.96	1,302,606.44	3,232,564.15	40.161054	-104.667892
4,965.00	6.05	174.83	4,939.02	-424.21	4.76	1,302,596.64	3,232,565.04	40.161028	-104.667889
5,051.00	6.58	179.26	5,024.49	-433.65	5.24	1,302,587.21	3,232,565.60	40.161002	-104.667888
5,136.00	7.59	180.45	5,108.84	-444.13	5.26	1,302,576.72	3,232,565.72	40.160973	-104.667887
5,221.00	6.39	178.11	5,193.21	-454.48	5.37	1,302,566.38	3,232,565.93	40.160944	-104.667887
5,306.00	6.78	175.21	5,277.65	-464.20	5.94	1,302,556.66	3,232,566.60	40.160918	-104.667885
5,392.00	8.08	176.38	5,362.93	-475.29	6.75	1,302,545.58	3,232,567.51	40.160887	-104.667882

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 28C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Well:	REIGLE 28C-4HZ	North Reference:	True
Wellbore:	REIGLE 28C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 28C-4HZ	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
5,477.00	6.42	170.70	5,447.25	-485.95	7.89	1,302,534.94	3,232,568.75	40.160858	-104.667878
5,562.00	6.80	172.09	5,531.68	-495.62	9.35	1,302,525.28	3,232,570.30	40.160832	-104.667873
5,647.00	6.87	169.54	5,616.08	-505.60	10.97	1,302,515.31	3,232,572.01	40.160804	-104.667867
5,733.00	6.53	172.38	5,701.49	-515.51	12.55	1,302,505.42	3,232,573.69	40.160777	-104.667861
5,818.00	6.49	168.71	5,785.94	-525.01	14.13	1,302,495.93	3,232,575.36	40.160751	-104.667856
5,903.00	6.37	172.81	5,870.41	-534.40	15.66	1,302,486.56	3,232,576.98	40.160725	-104.667850
5,989.00	4.95	167.76	5,955.99	-542.76	17.05	1,302,478.21	3,232,578.44	40.160702	-104.667845
6,074.00	3.90	162.46	6,040.73	-549.10	18.70	1,302,471.89	3,232,580.15	40.160685	-104.667839
6,159.00	2.32	152.72	6,125.60	-553.38	20.36	1,302,467.62	3,232,581.85	40.160673	-104.667833
6,224.00	2.19	139.62	6,190.55	-555.50	21.76	1,302,465.52	3,232,583.27	40.160667	-104.667828
6,309.00	2.39	191.49	6,275.50	-558.47	22.46	1,302,462.55	3,232,584.00	40.160659	-104.667826
6,394.00	2.46	211.24	6,360.42	-561.77	21.16	1,302,459.24	3,232,582.73	40.160650	-104.667831
6,480.00	2.32	212.02	6,446.35	-564.82	19.28	1,302,456.17	3,232,580.88	40.160642	-104.667837
6,565.00	0.73	271.86	6,531.32	-566.27	17.83	1,302,454.71	3,232,579.44	40.160638	-104.667842
6,607.00	3.43	335.58	6,573.29	-565.11	17.04	1,302,455.86	3,232,578.64	40.160641	-104.667845
6,650.00	7.95	356.41	6,616.07	-560.97	16.32	1,302,459.99	3,232,577.89	40.160652	-104.667848
6,693.00	12.46	3.42	6,658.38	-553.37	16.41	1,302,467.60	3,232,577.91	40.160673	-104.667848
6,735.00	15.99	355.47	6,699.09	-543.08	16.23	1,302,477.89	3,232,577.62	40.160701	-104.667848
6,778.00	19.25	355.08	6,740.07	-530.11	15.15	1,302,490.85	3,232,576.42	40.160737	-104.667852
6,821.00	23.23	355.84	6,780.14	-514.58	13.93	1,302,506.36	3,232,575.06	40.160779	-104.667856
6,863.00	27.28	356.86	6,818.12	-496.70	12.80	1,302,524.23	3,232,573.76	40.160829	-104.667860
6,906.00	30.08	358.74	6,855.84	-476.08	12.02	1,302,544.84	3,232,572.79	40.160885	-104.667863
6,949.00	30.04	357.68	6,893.05	-454.55	11.35	1,302,566.36	3,232,571.91	40.160944	-104.667866
6,991.00	32.69	356.39	6,928.91	-432.73	10.21	1,302,588.18	3,232,570.57	40.161004	-104.667870
7,034.00	36.92	356.62	6,964.21	-408.23	8.72	1,302,612.65	3,232,568.85	40.161071	-104.667875
7,076.00	41.73	357.98	6,996.69	-381.66	7.48	1,302,639.22	3,232,567.36	40.161144	-104.667880
7,119.00	46.49	359.63	7,027.56	-351.74	6.87	1,302,669.12	3,232,566.47	40.161226	-104.667882
7,162.00	50.94	0.49	7,055.92	-319.44	6.92	1,302,701.43	3,232,566.21	40.161315	-104.667882
7,204.00	55.71	0.38	7,081.00	-285.77	7.17	1,302,735.10	3,232,566.15	40.161408	-104.667881
7,247.00	57.98	358.64	7,104.52	-249.77	6.86	1,302,771.09	3,232,565.50	40.161506	-104.667882
7,290.00	63.16	359.16	7,125.64	-212.34	6.14	1,302,808.51	3,232,564.43	40.161609	-104.667884
7,332.00	67.36	0.53	7,143.21	-174.21	6.05	1,302,846.65	3,232,563.98	40.161714	-104.667885
7,375.00	71.93	0.29	7,158.17	-133.90	6.33	1,302,886.95	3,232,563.89	40.161824	-104.667884
7,418.00	77.15	0.53	7,169.63	-92.47	6.63	1,302,928.38	3,232,563.80	40.161938	-104.667883
7,460.00	82.28	2.86	7,177.12	-51.18	7.86	1,302,969.68	3,232,564.64	40.162052	-104.667878
7,478.00	83.90	3.59	7,179.29	-33.34	8.87	1,302,987.53	3,232,565.48	40.162101	-104.667875
7,502.00	86.78	4.27	7,181.24	-9.48	10.51	1,303,011.40	3,232,566.89	40.162166	-104.667869
7 IN. CASING									
7,516.00	88.46	4.67	7,181.82	4.46	11.60	1,303,025.36	3,232,567.85	40.162204	-104.667865
7,601.00	89.45	1.61	7,183.37	89.31	16.25	1,303,110.25	3,232,571.71	40.162437	-104.667848
7,687.00	89.20	0.95	7,184.38	175.28	18.17	1,303,196.23	3,232,572.82	40.162673	-104.667841
7,772.00	91.17	0.20	7,184.11	260.27	19.02	1,303,281.23	3,232,572.88	40.162907	-104.667838
7,858.00	91.11	358.83	7,182.40	346.25	18.30	1,303,367.19	3,232,571.35	40.163143	-104.667841
7,943.00	89.75	358.87	7,181.76	431.23	16.59	1,303,452.15	3,232,568.84	40.163376	-104.667847
8,029.00	90.56	0.49	7,181.53	517.22	16.11	1,303,538.14	3,232,567.56	40.163612	-104.667849
8,114.00	90.92	0.35	7,180.43	602.21	16.73	1,303,623.13	3,232,567.38	40.163845	-104.667846
8,200.00	89.01	0.06	7,180.48	688.21	17.04	1,303,709.13	3,232,566.88	40.164081	-104.667845
8,285.00	88.71	1.33	7,182.17	773.18	18.07	1,303,794.11	3,232,567.11	40.164315	-104.667842
8,371.00	88.21	1.07	7,184.48	859.13	19.87	1,303,880.07	3,232,568.11	40.164550	-104.667835
8,456.00	90.18	0.73	7,185.68	944.11	21.21	1,303,965.05	3,232,568.65	40.164784	-104.667830
8,541.00	90.49	1.49	7,185.18	1,029.09	22.85	1,304,050.05	3,232,569.50	40.165017	-104.667824
8,626.00	90.62	2.94	7,184.36	1,114.02	26.14	1,304,135.00	3,232,571.98	40.165250	-104.667813
8,712.00	88.95	2.51	7,184.68	1,199.92	30.23	1,304,220.94	3,232,575.27	40.165486	-104.667798
8,797.00	87.10	0.41	7,187.61	1,284.84	32.39	1,304,305.87	3,232,576.63	40.165719	-104.667790
8,883.00	89.38	358.10	7,190.25	1,370.78	31.27	1,304,391.79	3,232,574.71	40.165955	-104.667794

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 28C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL+16' RKB @ 4874.00ft (XTREME 23)
Well:	REIGLE 28C-4HZ	North Reference:	True
Wellbore:	REIGLE 28C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 28C-4HZ	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
8,968.00	90.00	359.14	7,190.71	1,455.75	29.23	1,304,476.74	3,232,571.86	40.166188	-104.667802
9,054.00	89.45	356.82	7,191.12	1,541.69	26.20	1,304,562.65	3,232,568.03	40.166424	-104.667813
9,139.00	91.06	358.43	7,190.75	1,626.61	22.67	1,304,647.53	3,232,563.71	40.166657	-104.667825
9,225.00	91.66	0.73	7,188.71	1,712.58	22.04	1,304,733.49	3,232,562.27	40.166893	-104.667827
9,310.00	89.69	0.37	7,187.70	1,797.56	22.86	1,304,818.48	3,232,562.29	40.167127	-104.667824
9,395.00	89.03	0.02	7,188.65	1,882.56	23.15	1,304,903.47	3,232,561.78	40.167360	-104.667823
9,481.00	87.41	357.06	7,191.33	1,968.47	20.96	1,304,989.37	3,232,558.79	40.167596	-104.667831
9,566.00	85.93	355.31	7,196.26	2,053.14	15.31	1,305,073.97	3,232,552.35	40.167828	-104.667851
9,652.00	88.27	355.44	7,200.61	2,138.74	8.39	1,305,159.51	3,232,544.62	40.168063	-104.667876
9,737.00	90.62	356.67	7,201.44	2,223.53	2.54	1,305,244.24	3,232,537.98	40.168296	-104.667897
9,822.00	90.93	359.00	7,200.29	2,308.45	-0.67	1,305,329.13	3,232,533.97	40.168529	-104.667909
9,908.00	92.12	1.96	7,198.00	2,394.41	0.05	1,305,415.09	3,232,533.88	40.168765	-104.667906
9,993.00	89.65	0.73	7,196.68	2,479.37	2.05	1,305,500.06	3,232,535.08	40.168998	-104.667899
10,078.00	91.05	1.72	7,196.17	2,564.34	3.86	1,305,585.05	3,232,536.10	40.169231	-104.667892
10,163.00	91.60	2.09	7,194.20	2,649.27	6.69	1,305,670.00	3,232,538.13	40.169465	-104.667882
10,249.00	90.18	2.24	7,192.86	2,735.20	9.94	1,305,755.95	3,232,540.57	40.169701	-104.667871
10,334.00	89.14	2.20	7,193.37	2,820.13	13.23	1,305,840.91	3,232,543.06	40.169934	-104.667859
10,419.00	89.32	2.99	7,194.51	2,905.04	17.08	1,305,925.85	3,232,546.12	40.170167	-104.667845
10,505.00	90.18	2.54	7,194.89	2,990.93	21.23	1,306,011.78	3,232,549.46	40.170403	-104.667830
10,590.00	90.74	3.12	7,194.20	3,075.83	25.42	1,306,096.71	3,232,552.86	40.170636	-104.667815
10,675.00	90.06	0.91	7,193.61	3,160.77	28.41	1,306,181.68	3,232,555.05	40.170869	-104.667805
10,761.00	90.62	2.04	7,193.10	3,246.74	30.62	1,306,267.66	3,232,556.46	40.171105	-104.667797
10,846.00	91.05	2.56	7,191.86	3,331.66	34.03	1,306,352.61	3,232,559.07	40.171338	-104.667784
10,931.00	91.79	1.49	7,189.75	3,416.58	37.04	1,306,437.55	3,232,561.28	40.171571	-104.667774
11,016.00	91.54	0.99	7,187.29	3,501.52	38.88	1,306,522.51	3,232,562.32	40.171804	-104.667767
11,102.00	90.49	0.79	7,185.76	3,587.50	40.21	1,306,608.50	3,232,562.85	40.172040	-104.667762
11,187.00	90.49	2.05	7,185.03	3,672.46	42.32	1,306,693.48	3,232,564.15	40.172273	-104.667755
11,272.00	89.88	1.28	7,184.76	3,757.43	44.79	1,306,778.46	3,232,565.83	40.172507	-104.667746
11,356.00	89.69	1.20	7,185.08	3,841.41	46.61	1,306,862.45	3,232,566.86	40.172737	-104.667739
11,442.00	91.23	1.26	7,184.39	3,927.38	48.45	1,306,948.44	3,232,567.90	40.172973	-104.667733
11,515.00	90.86	1.55	7,183.05	4,000.35	50.24	1,307,021.42	3,232,569.00	40.173173	-104.667726
LAST MWD SURVEY									
11,570.00	90.58	1.77	7,182.36	4,055.32	51.83	1,307,076.41	3,232,570.08	40.173324	-104.667721
PROJ. TO BIT									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
826.00	825.99	-1.73	-0.09	TIE ON	
907.00	906.99	-2.07	-0.74	FIRST MWD SURVEY	
7,502.00	7,181.24	-9.48	10.51	7 IN. CASING	
11,515.00	7,183.05	4,000.35	50.24	LAST MWD SURVEY	
11,570.00	7,182.36	4,055.32	51.83	PROJ. TO BIT	

Checked By: _____ Approved By: _____ Date: _____