



Weatherford®

Weatherford
2000 Oil Drive
Casper, WY 82604

Survey Certification

Operating Company:	Anadarko Petroleum Corp.
Well Name:	REIGLE 3C-4HZ
State:	CO
County:	WELD
API Number:	512336139
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 913.00 feet
to the measured depth of 11,621.00 feet as accurate and true
to the best of my knowledge.

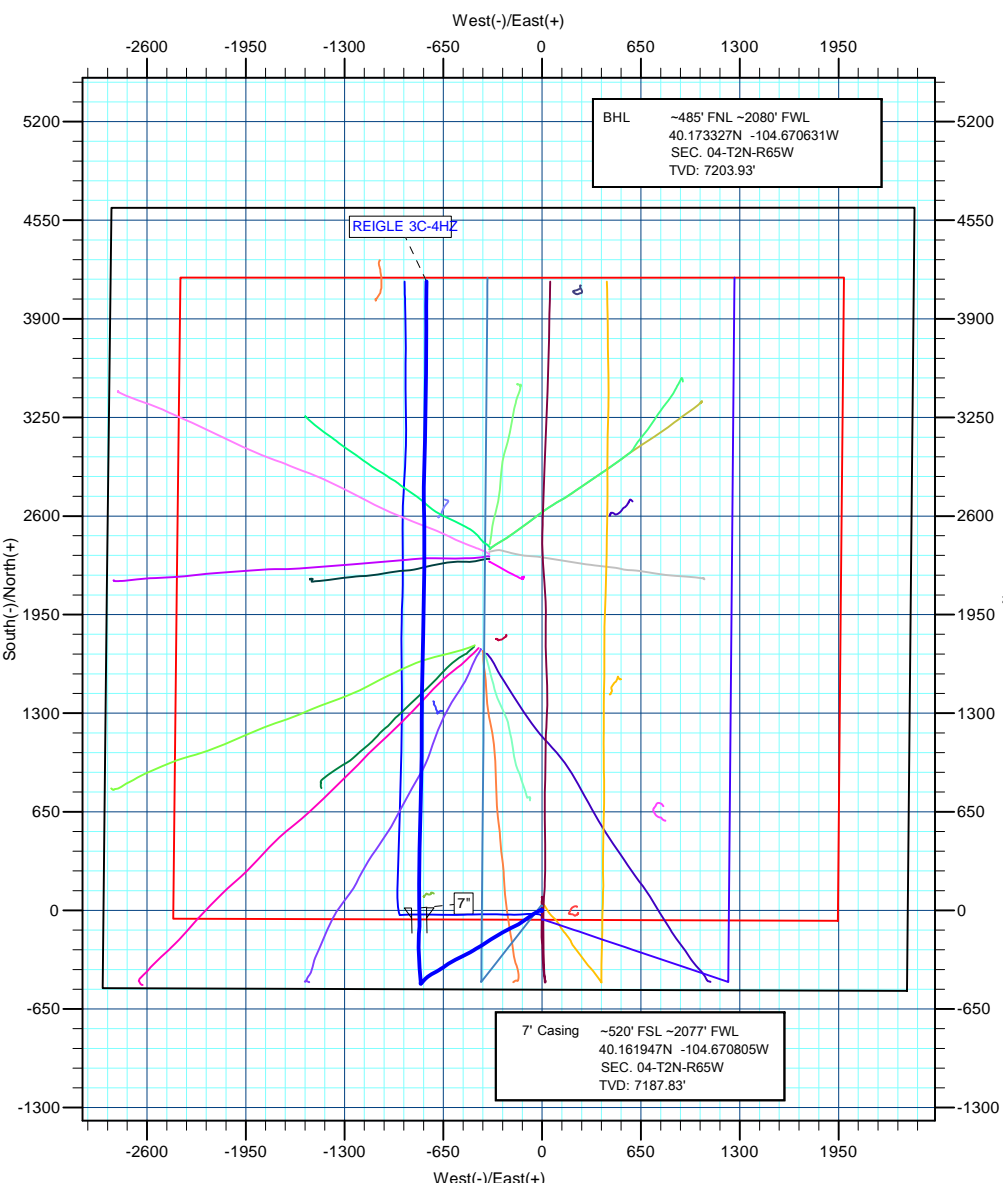
Signature

27-Dec-12

Date

J. Aaron Underwood

Directional Planning
Weatherford - Rockies District



Azimuths to True North
Magnetic North: 8.62°

Magnetic Field
Strength: 52881.4snT
Dip Angle: 66.83°
Date: 9/25/2012
Model: IGRF2010

Anadarko
Petroleum Corporation

Project: COLORADO NORTHERN ZONE - 83
Site: WELD, REIGLE 15-4HZ PAD
Well: REIGLE 3C-4HZ
Wellbore: REIGLE 3C-4HZ
Design: REIGLE 3C-4HZ
Latitude: 40.161945
Longitude: -104.667911
GL: 4858.00
KB: GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)

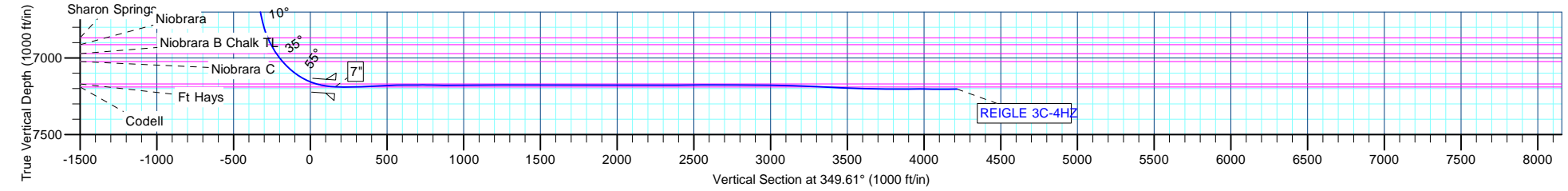
WELL DETAILS: REIGLE 3C-4HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4858.00 Latitude	Longitude	Slot
0.00	0.00	1302930.80	3232555.74	40.161945	-104.667911	

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation	
825.99	826.00	0.01	111.89	-1.15	-3.64	-0.48	4.20	TIE ON	
912.99	913.00	0.50	7.37	-0.78	-3.59	-0.12	4.58	FIRST MWD SURVEY	
7187.83	7531.00	85.03	359.24	0.67	-808.68	146.48	1431.80	7 IN. CASING	
7204.42	11621.00	90.49	1.20	4089.16	-761.25	4159.40	5520.73	LAST MWD SURVEY	
7203.93	11678.00	90.49	1.20	4146.14	-760.05	4215.23	5577.73	PROJECTION TO TD	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)							
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape	
REIGLE 3C-4HZ PBHL (ADJUSTED)	7194.00	4171.42	-759.80	40.173396	-104.670630	Point	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3853.00	3914.18	Parkman
4444.00	4517.75	Sussex
6853.00	6965.24	Sharon Springs
6898.00	7015.16	Niobrara
6956.00	7083.62	Niobrara B Chalk TL
7008.00	7149.71	Niobrara C
7154.00	7422.72	Ft Hays
7174.00	7563.14	Codell

CASING DETAILS			
TVD	MD	Name	Size
7187.83	7531.00	7"	7"



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_REIGLE 15-4HZ PAD

REIGLE 3C-4HZ

REIGLE 3C-4HZ

Design: REIGLE 3C-4HZ

Standard Survey Report

27 December, 2012

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 3C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Well:	REIGLE 3C-4HZ	North Reference:	True
Wellbore:	REIGLE 3C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 3C-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 3C-4HZ					
Well Position	+N/-S	0.00 ft	Northing:	1,302,930.80 usft	Latitude:	40.161945
	+E/-W	0.00 ft	Easting:	3,232,555.75 usft	Longitude:	-104.667911
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,858.00 ft

Wellbore	REIGLE 3C-4HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/25/2012	8.62	66.83	52,881

Design	REIGLE 3C-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	252.47	

Survey Program	Date	12/27/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
116.00	826.00	Survey #1 (REIGLE 3C-4HZ)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
913.00	11,678.00	Survey #2 (REIGLE 3C-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	0.77	242.56	116.00	-0.31	-0.60	0.66	0.77	0.77	0.00	
216.00	0.42	253.42	215.99	-0.72	-1.54	1.69	0.37	-0.35	10.86	
316.00	0.35	268.90	315.99	-0.83	-2.20	2.35	0.12	-0.07	15.48	
416.00	0.12	269.05	415.99	-0.84	-2.61	2.74	0.23	-0.23	0.15	
516.00	0.19	205.78	515.99	-0.99	-2.79	2.96	0.17	0.07	-63.27	
616.00	0.12	277.76	615.99	-1.13	-2.96	3.17	0.19	-0.07	71.98	
716.00	0.33	284.53	715.99	-1.04	-3.35	3.50	0.21	0.21	6.77	

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 3C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Well:	REIGLE 3C-4HZ	North Reference:	True
Wellbore:	REIGLE 3C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 3C-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)
816.00	0.19	186.32	815.99	-1.13	-3.64	3.82	0.40	-0.14	-98.21
826.00	0.01	111.89	825.99	-1.15	-3.64	3.82	1.88	-1.80	-744.30
TIE ON									
913.00	0.50	7.37	912.99	-0.78	-3.59	3.66	0.58	0.56	-120.14
FIRST MWD SURVEY									
1,034.00	0.49	331.26	1,033.98	0.20	-3.77	3.53	0.25	-0.01	-29.84
1,125.00	0.56	323.39	1,124.98	0.90	-4.22	3.76	0.11	0.08	-8.65
1,216.00	0.91	269.59	1,215.97	1.25	-5.21	4.59	0.81	0.38	-59.12
1,306.00	0.91	350.68	1,305.96	1.95	-6.04	5.17	1.31	0.00	90.10
1,397.00	2.94	241.19	1,396.92	1.54	-8.20	7.36	3.69	2.23	-120.32
1,492.00	4.65	249.20	1,491.71	-1.00	-13.94	13.59	1.88	1.80	8.43
1,586.00	6.74	250.32	1,585.24	-4.21	-22.69	22.91	2.23	2.22	1.19
1,679.00	7.49	239.09	1,677.53	-9.17	-33.03	34.26	1.70	0.81	-12.08
1,773.00	8.68	235.50	1,770.59	-16.33	-44.14	47.01	1.37	1.27	-3.82
1,866.00	11.40	240.94	1,862.16	-24.77	-57.96	62.73	3.09	2.92	5.85
1,959.00	12.96	234.94	1,953.07	-35.23	-74.53	81.68	2.16	1.68	-6.45
2,053.00	12.70	234.02	2,044.72	-47.35	-91.52	101.53	0.35	-0.28	-0.98
2,146.00	11.74	233.08	2,135.62	-59.04	-107.36	120.15	1.05	-1.03	-1.01
2,240.00	12.78	235.97	2,227.47	-70.61	-123.62	139.14	1.28	1.11	3.07
2,333.00	11.61	236.27	2,318.37	-81.56	-139.93	157.99	1.26	-1.26	0.32
2,426.00	11.70	240.61	2,409.46	-91.38	-155.92	176.21	0.95	0.10	4.67
2,520.00	11.99	241.88	2,501.45	-100.66	-172.84	195.13	0.41	0.31	1.35
2,613.00	10.65	241.61	2,592.64	-109.30	-188.92	213.07	1.44	-1.44	-0.29
2,706.00	10.62	244.36	2,684.05	-117.10	-204.21	229.99	0.55	-0.03	2.96
2,799.00	10.84	245.66	2,775.42	-124.41	-219.90	247.16	0.35	0.24	1.40
2,885.00	12.25	242.42	2,859.68	-131.97	-235.36	264.18	1.80	1.64	-3.77
2,970.00	11.90	242.87	2,942.80	-140.14	-251.15	281.70	0.43	-0.41	0.53
3,056.00	12.49	238.62	3,026.86	-149.02	-266.98	299.47	1.25	0.69	-4.94
3,141.00	11.72	239.59	3,109.97	-158.18	-282.27	316.81	0.94	-0.91	1.14
3,227.00	10.74	239.58	3,194.32	-166.66	-296.72	333.14	1.14	-1.14	-0.01
3,312.00	11.76	241.80	3,277.69	-174.76	-311.18	349.37	1.30	1.20	2.61
3,397.00	11.81	234.21	3,360.90	-183.94	-325.87	366.14	1.82	0.06	-8.93
3,482.00	10.75	235.42	3,444.26	-193.53	-339.45	381.98	1.28	-1.25	1.42
3,568.00	10.89	234.66	3,528.73	-202.78	-352.68	397.39	0.23	0.16	-0.88
3,653.00	11.15	238.29	3,612.16	-211.75	-366.23	413.00	0.87	0.31	4.27
3,738.00	10.48	239.47	3,695.65	-219.99	-379.88	428.50	0.83	-0.79	1.39
3,824.00	9.96	236.68	3,780.29	-228.05	-392.83	443.28	0.83	-0.60	-3.24
3,909.00	10.69	240.02	3,863.91	-236.03	-405.80	458.05	1.11	0.86	3.93
3,994.00	11.53	239.91	3,947.32	-244.23	-419.98	474.04	0.99	0.99	-0.13
4,080.00	12.70	239.26	4,031.40	-253.37	-435.54	491.63	1.37	1.36	-0.76
4,165.00	11.69	239.53	4,114.48	-262.51	-450.99	509.12	1.19	-1.19	0.32
4,251.00	11.04	238.42	4,198.80	-271.24	-465.52	525.60	0.80	-0.76	-1.29

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 3C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Well:	REIGLE 3C-4HZ	North Reference:	True
Wellbore:	REIGLE 3C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 3C-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)	
4,336.00	11.85	241.13	4,282.11	-279.72	-480.09	542.05	1.14	0.95	3.19	
4,422.00	12.48	244.43	4,366.17	-287.99	-496.21	559.91	1.09	0.73	3.84	
4,507.00	10.70	241.11	4,449.44	-295.77	-511.40	576.74	2.24	-2.09	-3.91	
4,592.00	11.19	241.98	4,532.89	-303.46	-525.59	592.59	0.61	0.58	1.02	
4,678.00	12.31	242.53	4,617.09	-311.61	-541.10	609.83	1.31	1.30	0.64	
4,763.00	10.80	243.75	4,700.36	-319.31	-556.28	626.62	1.80	-1.78	1.44	
4,849.00	9.86	248.28	4,784.97	-325.60	-570.35	641.93	1.44	-1.09	5.27	
4,934.00	10.97	243.63	4,868.57	-331.88	-584.35	657.18	1.64	1.31	-5.47	
5,020.00	10.79	237.76	4,953.03	-339.81	-598.49	673.06	1.30	-0.21	-6.83	
5,105.00	10.63	236.46	5,036.55	-348.39	-611.76	688.29	0.34	-0.19	-1.53	
5,191.00	11.41	233.14	5,120.96	-357.87	-625.18	703.94	1.17	0.91	-3.86	
5,276.00	10.98	237.96	5,204.35	-367.21	-638.77	719.71	1.21	-0.51	5.67	
5,361.00	10.97	236.30	5,287.79	-375.99	-652.36	735.31	0.37	-0.01	-1.95	
5,447.00	11.44	236.78	5,372.15	-385.21	-666.30	751.38	0.56	0.55	0.56	
5,532.00	10.41	237.90	5,455.61	-393.91	-679.86	766.93	1.24	-1.21	1.32	
5,617.00	11.71	239.17	5,539.03	-402.41	-693.77	782.76	1.56	1.53	1.49	
5,703.00	12.32	242.92	5,623.15	-411.06	-709.43	800.30	1.15	0.71	4.36	
5,788.00	10.95	242.10	5,706.40	-418.96	-724.64	817.19	1.62	-1.61	-0.96	
5,874.00	11.93	236.90	5,790.69	-427.64	-739.31	833.78	1.65	1.14	-6.05	
5,959.00	11.23	230.62	5,873.96	-437.69	-753.07	849.93	1.70	-0.82	-7.39	
6,045.00	9.10	228.31	5,958.61	-447.53	-764.62	863.91	2.52	-2.48	-2.69	
6,130.00	7.34	224.00	6,042.73	-455.90	-773.41	874.82	2.19	-2.07	-5.07	
6,216.00	7.36	219.52	6,128.03	-464.10	-780.73	884.27	0.67	0.02	-5.21	
6,301.00	5.76	218.35	6,212.47	-471.65	-786.84	892.37	1.89	-1.88	-1.38	
6,386.00	4.29	228.24	6,297.14	-477.11	-791.86	898.80	2.00	-1.73	11.64	
6,472.00	2.73	227.34	6,382.98	-480.64	-795.77	903.59	1.82	-1.81	-1.05	
6,557.00	1.70	230.03	6,467.91	-482.82	-798.22	906.59	1.22	-1.21	3.16	
6,627.00	1.05	215.83	6,537.89	-484.01	-799.39	908.06	1.04	-0.93	-20.29	
6,727.00	2.62	351.47	6,637.86	-482.49	-800.27	908.44	3.45	1.57	135.64	
6,769.00	6.56	10.79	6,679.72	-479.19	-799.96	907.15	9.95	9.38	46.00	
6,812.00	11.26	5.12	6,722.19	-472.59	-799.13	904.36	11.11	10.93	-13.19	
6,857.00	14.91	356.80	6,766.02	-462.43	-799.06	901.24	9.11	8.11	-18.49	
6,899.00	15.81	356.18	6,806.52	-451.32	-799.74	898.54	2.18	2.14	-1.48	
6,942.00	20.32	352.81	6,847.39	-438.06	-801.07	895.81	10.76	10.49	-7.84	
6,985.00	24.84	355.00	6,887.08	-421.65	-802.79	892.51	10.69	10.51	5.09	
7,027.00	30.30	354.20	6,924.30	-402.31	-804.63	888.44	13.03	13.00	-1.90	
7,070.00	33.73	356.08	6,960.76	-379.60	-806.54	883.43	8.31	7.98	4.37	
7,113.00	37.79	356.66	6,995.64	-354.52	-808.13	877.38	9.47	9.44	1.35	
7,156.00	41.59	355.13	7,028.72	-327.14	-810.11	871.02	9.12	8.84	-3.56	
7,198.00	45.60	357.29	7,059.14	-298.25	-812.00	864.13	10.18	9.55	5.14	
7,251.00	51.23	359.47	7,094.30	-258.64	-813.09	853.23	11.06	10.62	4.11	
7,293.00	57.47	0.85	7,118.77	-224.53	-812.98	842.85	15.09	14.86	3.29	

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 3C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
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Wellbore:	REIGLE 3C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 3C-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)	
7,336.00	64.58	2.91	7,139.59	-186.96	-811.72	830.34	17.06	16.53	4.79	
7,379.00	69.53	3.13	7,156.35	-147.43	-809.63	816.44	11.52	11.51	0.51	
7,422.00	74.00	1.50	7,169.80	-106.64	-807.99	802.59	11.00	10.40	-3.79	
7,464.00	79.87	0.03	7,179.29	-65.75	-807.45	789.75	14.39	13.98	-3.50	
7,476.00	81.25	358.50	7,181.26	-53.91	-807.60	786.33	17.04	11.50	-12.75	
7,531.00	85.03	359.24	7,187.83	0.67	-808.68	770.92	6.99	6.87	1.35	
7 IN. CASING										
7,588.00	88.94	0.00	7,190.83	57.58	-809.06	754.13	6.99	6.87	1.33	
7,673.00	92.28	0.11	7,189.93	142.56	-808.97	728.46	3.93	3.93	0.13	
7,759.00	92.82	0.18	7,186.10	228.48	-808.76	702.37	0.63	0.63	0.08	
7,844.00	92.53	0.44	7,182.13	313.38	-808.30	676.36	0.46	-0.34	0.31	
7,929.00	91.54	0.23	7,179.11	398.33	-807.80	650.30	1.19	-1.16	-0.25	
8,015.00	90.12	1.74	7,177.87	484.30	-806.32	622.99	2.41	-1.65	1.76	
8,100.00	90.80	1.37	7,177.19	569.27	-804.02	595.20	0.91	0.80	-0.44	
8,186.00	88.52	2.13	7,177.70	655.22	-801.39	566.80	2.79	-2.65	0.88	
8,271.00	89.26	2.75	7,179.34	740.13	-797.77	537.78	1.14	0.87	0.73	
8,357.00	90.35	0.53	7,179.64	826.08	-795.31	509.54	2.88	1.27	-2.58	
8,442.00	90.43	0.54	7,179.06	911.08	-794.52	483.18	0.09	0.09	0.01	
8,528.00	91.23	0.79	7,177.81	997.06	-793.52	456.33	0.97	0.93	0.29	
8,614.00	89.81	0.25	7,177.03	1,083.05	-792.74	429.68	1.77	-1.65	-0.63	
8,699.00	90.49	0.35	7,176.81	1,168.05	-792.29	403.66	0.81	0.80	0.12	
8,785.00	90.35	0.18	7,176.18	1,254.05	-791.90	377.37	0.26	-0.16	-0.20	
8,870.00	89.45	0.41	7,176.33	1,339.04	-791.46	351.35	1.09	-1.06	0.27	
8,956.00	89.44	0.51	7,177.16	1,425.04	-790.77	324.79	0.12	-0.01	0.12	
9,041.00	89.75	0.50	7,177.76	1,510.03	-790.02	298.48	0.36	0.36	-0.01	
9,126.00	89.75	1.43	7,178.13	1,595.02	-788.59	271.51	1.09	0.00	1.09	
9,212.00	90.18	1.55	7,178.18	1,680.99	-786.35	243.48	0.52	0.50	0.14	
9,297.00	90.74	1.00	7,177.50	1,765.96	-784.46	216.08	0.92	0.66	-0.65	
9,383.00	89.75	1.75	7,177.13	1,851.94	-782.40	188.22	1.44	-1.15	0.87	
9,468.00	89.44	1.22	7,177.73	1,936.91	-780.19	160.52	0.72	-0.36	-0.62	
9,553.00	90.00	1.19	7,178.15	2,021.89	-778.41	133.22	0.66	0.66	-0.04	
9,639.00	89.75	0.60	7,178.34	2,107.88	-777.06	106.04	0.75	-0.29	-0.69	
9,724.00	90.00	0.51	7,178.52	2,192.87	-776.24	79.65	0.31	0.29	-0.11	
9,810.00	90.37	359.94	7,178.24	2,278.87	-775.90	53.43	0.79	0.43	-0.66	
9,895.00	90.74	359.76	7,177.42	2,363.86	-776.12	28.04	0.48	0.44	-0.21	
9,981.00	90.35	0.00	7,176.60	2,449.86	-776.30	2.30	0.53	-0.45	0.28	
10,066.00	90.12	0.05	7,176.25	2,534.86	-776.27	-23.34	0.28	-0.27	0.06	
10,151.00	89.32	359.56	7,176.67	2,619.86	-776.56	-48.66	1.10	-0.94	-0.58	
10,237.00	90.00	358.81	7,177.18	2,705.85	-777.78	-73.40	1.18	0.79	-0.87	
10,322.00	89.63	0.09	7,177.45	2,790.84	-778.60	-98.22	1.57	-0.44	1.51	
10,407.00	88.89	1.16	7,178.55	2,875.83	-777.67	-124.70	1.53	-0.87	1.26	
10,493.00	89.32	1.78	7,179.90	2,961.79	-775.46	-152.70	0.88	0.50	0.72	

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 3C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Well:	REIGLE 3C-4HZ	North Reference:	True
Wellbore:	REIGLE 3C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 3C-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)	
10,578.00	88.52	1.66	7,181.50	3,046.73	-772.91	-180.72	0.95	-0.94	-0.14	
10,663.00	87.90	1.92	7,184.15	3,131.65	-770.26	-208.83	0.79	-0.73	0.31	
10,749.00	87.71	1.41	7,187.45	3,217.55	-767.76	-237.09	0.63	-0.22	-0.59	
10,834.00	87.18	0.71	7,191.24	3,302.45	-766.19	-264.16	1.03	-0.62	-0.82	
10,919.00	87.60	0.45	7,195.11	3,387.36	-765.33	-290.55	0.58	0.49	-0.31	
11,005.00	87.72	0.33	7,198.62	3,473.28	-764.75	-316.99	0.20	0.14	-0.14	
11,090.00	88.33	0.81	7,201.55	3,558.23	-763.90	-343.39	0.91	0.72	0.56	
11,176.00	89.38	359.78	7,203.27	3,644.21	-763.46	-369.71	1.71	1.22	-1.20	
11,261.00	90.26	359.83	7,203.53	3,729.20	-763.75	-395.03	1.04	1.04	0.06	
11,347.00	90.93	359.60	7,202.64	3,815.20	-764.17	-420.53	0.82	0.78	-0.27	
11,432.00	88.89	0.76	7,202.77	3,900.19	-763.91	-446.39	2.76	-2.40	1.36	
11,517.00	89.29	0.53	7,204.12	3,985.18	-762.95	-472.90	0.54	0.47	-0.27	
11,603.00	90.18	1.23	7,204.52	4,071.16	-761.63	-500.06	1.32	1.03	0.81	
11,621.00	90.49	1.20	7,204.42	4,089.16	-761.25	-505.84	1.73	1.72	-0.17	
LAST MWD SURVEY										
11,678.00	90.49	1.20	7,203.93	4,146.14	-760.05	-524.14	0.00	0.00	0.00	
PROJECTION TO TD										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
826.00	825.99	-1.15	-3.64	TIE ON	
913.00	912.99	-0.78	-3.59	FIRST MWD SURVEY	
7,531.00	7,187.83	0.67	-808.68	7 IN. CASING	
11,621.00	7,204.42	4,089.16	-761.25	LAST MWD SURVEY	
11,678.00	7,203.93	4,146.14	-760.05	PROJECTION TO TD	

Checked By: _____ Approved By: _____ Date: _____

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_REIGLE 15-4HZ PAD

REIGLE 3C-4HZ

REIGLE 3C-4HZ

Design: REIGLE 3C-4HZ

Survey Report - Geographic

27 December, 2012

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 3C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Well:	REIGLE 3C-4HZ	North Reference:	True
Wellbore:	REIGLE 3C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 3C-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 3C-4HZ				
Well Position	+N/-S	0.00 ft	Northing:	1,302,930.80 usft	Latitude:	40.161945
	+E/-W	0.00 ft	Easting:	3,232,555.75 usft	Longitude:	-104.667911
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,858.00 ft

Wellbore	REIGLE 3C-4HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/25/2012	8.62	66.83	52,881

Design	REIGLE 3C-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	252.47	

Survey Program	Date	12/27/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
116.00	826.00	Survey #1 (REIGLE 3C-4HZ)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
913.00	11,678.00	Survey #2 (REIGLE 3C-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	1,302,930.80	3,232,555.75	40.161945	-104.667911	
116.00	0.77	242.56	116.00	-0.31	-0.60	1,302,930.49	3,232,555.15	40.161944	-104.667913	
216.00	0.42	253.42	215.99	-0.72	-1.54	1,302,930.06	3,232,554.21	40.161943	-104.667917	
316.00	0.35	268.90	315.99	-0.83	-2.20	1,302,929.95	3,232,553.55	40.161943	-104.667919	
416.00	0.12	269.05	415.99	-0.84	-2.61	1,302,929.93	3,232,553.14	40.161943	-104.667921	
516.00	0.19	205.78	515.99	-0.99	-2.79	1,302,929.78	3,232,552.97	40.161942	-104.667921	
616.00	0.12	277.76	615.99	-1.13	-2.96	1,302,929.64	3,232,552.79	40.161942	-104.667922	
716.00	0.33	284.53	715.99	-1.04	-3.35	1,302,929.73	3,232,552.41	40.161942	-104.667923	
816.00	0.19	186.32	815.99	-1.13	-3.64	1,302,929.63	3,232,552.11	40.161942	-104.667924	

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 3C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Well:	REIGLE 3C-4HZ	North Reference:	True
Wellbore:	REIGLE 3C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 3C-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
826.00	0.01	111.89	825.99	-1.15	-3.64	1,302,929.62	3,232,552.11	40.161942	-104.667924
TIE ON									
913.00	0.50	7.37	912.99	-0.78	-3.59	1,302,929.99	3,232,552.16	40.161943	-104.667924
FIRST MWD SURVEY									
1,034.00	0.49	331.26	1,033.98	0.20	-3.77	1,302,930.97	3,232,551.97	40.161946	-104.667925
1,125.00	0.56	323.39	1,124.98	0.90	-4.22	1,302,931.66	3,232,551.52	40.161948	-104.667926
1,216.00	0.91	269.59	1,215.97	1.25	-5.21	1,302,932.00	3,232,550.52	40.161948	-104.667930
1,306.00	0.91	350.68	1,305.96	1.95	-6.04	1,302,932.69	3,232,549.69	40.161950	-104.667933
1,397.00	2.94	241.19	1,396.92	1.54	-8.20	1,302,932.26	3,232,547.53	40.161949	-104.667941
1,492.00	4.65	249.20	1,491.71	-1.00	-13.94	1,302,929.67	3,232,541.82	40.161942	-104.667961
1,586.00	6.74	250.32	1,585.24	-4.21	-22.69	1,302,926.37	3,232,533.09	40.161933	-104.667992
1,679.00	7.49	239.09	1,677.53	-9.17	-33.03	1,302,921.32	3,232,522.80	40.161920	-104.668029
1,773.00	8.68	235.50	1,770.59	-16.33	-44.14	1,302,914.06	3,232,511.76	40.161900	-104.668069
1,866.00	11.40	240.94	1,862.16	-24.77	-57.96	1,302,905.49	3,232,498.02	40.161877	-104.668119
1,959.00	12.96	234.94	1,953.07	-35.23	-74.53	1,302,894.87	3,232,481.55	40.161848	-104.668178
2,053.00	12.70	234.02	2,044.72	-47.35	-91.52	1,302,882.59	3,232,464.68	40.161815	-104.668239
2,146.00	11.74	233.08	2,135.62	-59.04	-107.36	1,302,870.75	3,232,448.95	40.161783	-104.668295
2,240.00	12.78	235.97	2,227.47	-70.61	-123.62	1,302,859.04	3,232,432.80	40.161751	-104.668354
2,333.00	11.61	236.27	2,318.37	-81.56	-139.93	1,302,847.93	3,232,416.59	40.161721	-104.668412
2,426.00	11.70	240.61	2,409.46	-91.38	-155.92	1,302,837.96	3,232,400.69	40.161694	-104.668469
2,520.00	11.99	241.88	2,501.45	-100.66	-172.84	1,302,828.52	3,232,383.86	40.161669	-104.668530
2,613.00	10.65	241.61	2,592.64	-109.30	-188.92	1,302,819.73	3,232,367.86	40.161645	-104.668587
2,706.00	10.62	244.36	2,684.05	-117.10	-204.21	1,302,811.79	3,232,352.65	40.161624	-104.668642
2,799.00	10.84	245.66	2,775.42	-124.41	-219.90	1,302,804.33	3,232,337.02	40.161604	-104.668698
2,885.00	12.25	242.42	2,859.68	-131.97	-235.36	1,302,796.63	3,232,321.64	40.161583	-104.668753
2,970.00	11.90	242.87	2,942.80	-140.14	-251.15	1,302,788.31	3,232,305.92	40.161560	-104.668810
3,056.00	12.49	238.62	3,026.86	-149.02	-266.98	1,302,779.28	3,232,290.18	40.161536	-104.668867
3,141.00	11.72	239.59	3,109.97	-158.18	-282.27	1,302,769.98	3,232,274.97	40.161511	-104.668921
3,227.00	10.74	239.58	3,194.32	-166.66	-296.72	1,302,761.36	3,232,260.61	40.161488	-104.668973
3,312.00	11.76	241.80	3,277.69	-174.76	-311.18	1,302,753.13	3,232,246.22	40.161465	-104.669025
3,397.00	11.81	234.21	3,360.90	-183.94	-325.87	1,302,743.81	3,232,231.62	40.161440	-104.669077
3,482.00	10.75	235.42	3,444.26	-193.53	-339.45	1,302,734.09	3,232,218.12	40.161414	-104.669126
3,568.00	10.89	234.66	3,528.73	-202.78	-352.68	1,302,724.72	3,232,204.98	40.161388	-104.669173
3,653.00	11.15	238.29	3,612.16	-211.75	-366.23	1,302,715.63	3,232,191.52	40.161364	-104.669222
3,738.00	10.48	239.47	3,695.65	-219.99	-379.88	1,302,707.25	3,232,177.95	40.161341	-104.669270
3,824.00	9.96	236.68	3,780.29	-228.05	-392.83	1,302,699.07	3,232,165.08	40.161319	-104.669317
3,909.00	10.69	240.02	3,863.91	-236.03	-405.80	1,302,690.98	3,232,152.18	40.161297	-104.669363
3,994.00	11.53	239.91	3,947.32	-244.23	-419.98	1,302,682.64	3,232,138.08	40.161275	-104.669414
4,080.00	12.70	239.26	4,031.40	-253.37	-435.54	1,302,673.36	3,232,122.60	40.161250	-104.669470
4,165.00	11.69	239.53	4,114.48	-262.51	-450.99	1,302,664.07	3,232,107.24	40.161224	-104.669525
4,251.00	11.04	238.42	4,198.80	-271.24	-465.52	1,302,655.20	3,232,092.79	40.161200	-104.669577
4,336.00	11.85	241.13	4,282.11	-279.72	-480.09	1,302,646.59	3,232,078.30	40.161177	-104.669629
4,422.00	12.48	244.43	4,366.17	-287.99	-496.21	1,302,638.17	3,232,062.26	40.161154	-104.669687
4,507.00	10.70	241.11	4,449.44	-295.77	-511.40	1,302,630.25	3,232,047.14	40.161133	-104.669741
4,592.00	11.19	241.98	4,532.89	-303.46	-525.59	1,302,622.43	3,232,033.02	40.161112	-104.669792
4,678.00	12.31	242.53	4,617.09	-311.61	-541.10	1,302,614.13	3,232,017.60	40.161090	-104.669847
4,763.00	10.80	243.75	4,700.36	-319.31	-556.28	1,302,606.29	3,232,002.49	40.161068	-104.669902
4,849.00	9.86	248.28	4,784.97	-325.60	-570.35	1,302,599.87	3,231,988.48	40.161051	-104.669952
4,934.00	10.97	243.63	4,868.57	-331.88	-584.35	1,302,593.45	3,231,974.53	40.161034	-104.670002
5,020.00	10.79	237.76	4,953.03	-339.81	-598.49	1,302,585.39	3,231,960.47	40.161012	-104.670053
5,105.00	10.63	236.46	5,036.55	-348.39	-611.76	1,302,576.69	3,231,947.28	40.160989	-104.670100
5,191.00	11.41	233.14	5,120.96	-357.87	-625.18	1,302,567.08	3,231,933.96	40.160963	-104.670148
5,276.00	10.98	237.96	5,204.35	-367.21	-638.77	1,302,557.61	3,231,920.46	40.160937	-104.670197

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 3C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Well:	REIGLE 3C-4HZ	North Reference:	True
Wellbore:	REIGLE 3C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 3C-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
5,361.00	10.97	236.30	5,287.79	-375.99	-652.36	1,302,548.70	3,231,906.95	40.160913	-104.670245
5,447.00	11.44	236.78	5,372.15	-385.21	-666.30	1,302,539.36	3,231,893.09	40.160888	-104.670295
5,532.00	10.41	237.90	5,455.61	-393.91	-679.86	1,302,530.53	3,231,879.62	40.160864	-104.670344
5,617.00	11.71	239.17	5,539.03	-402.41	-693.77	1,302,521.90	3,231,865.78	40.160840	-104.670394
5,703.00	12.32	242.92	5,623.15	-411.06	-709.43	1,302,513.11	3,231,850.20	40.160817	-104.670450
5,788.00	10.95	242.10	5,706.40	-418.96	-724.64	1,302,505.06	3,231,835.07	40.160795	-104.670504
5,874.00	11.93	236.90	5,790.69	-427.64	-739.31	1,302,496.24	3,231,820.48	40.160771	-104.670556
5,959.00	11.23	230.62	5,873.96	-437.69	-753.07	1,302,486.07	3,231,806.82	40.160744	-104.670606
6,045.00	9.10	228.31	5,958.61	-447.53	-764.62	1,302,476.12	3,231,795.36	40.160716	-104.670647
6,130.00	7.34	224.00	6,042.73	-455.90	-773.41	1,302,467.66	3,231,786.65	40.160693	-104.670678
6,216.00	7.36	219.52	6,128.03	-464.10	-780.73	1,302,459.39	3,231,779.40	40.160671	-104.670705
6,301.00	5.76	218.35	6,212.47	-471.65	-786.84	1,302,451.79	3,231,773.36	40.160650	-104.670727
6,386.00	4.29	228.24	6,297.14	-477.11	-791.86	1,302,446.28	3,231,768.40	40.160635	-104.670744
6,472.00	2.73	227.34	6,382.98	-480.64	-795.77	1,302,442.71	3,231,764.52	40.160626	-104.670758
6,557.00	1.70	230.03	6,467.91	-482.82	-798.22	1,302,440.51	3,231,762.09	40.160620	-104.670767
6,627.00	1.05	215.83	6,537.89	-484.01	-799.39	1,302,439.31	3,231,760.93	40.160616	-104.670771
6,727.00	2.62	351.47	6,637.86	-482.49	-800.27	1,302,440.82	3,231,760.04	40.160621	-104.670775
6,769.00	6.56	10.79	6,679.72	-479.19	-799.96	1,302,444.13	3,231,760.32	40.160630	-104.670773
6,812.00	11.26	5.12	6,722.19	-472.59	-799.13	1,302,450.74	3,231,761.09	40.160648	-104.670770
6,857.00	14.91	356.80	6,766.02	-462.43	-799.06	1,302,460.90	3,231,761.06	40.160676	-104.670770
6,899.00	15.81	356.18	6,806.52	-451.32	-799.74	1,302,471.99	3,231,760.28	40.160706	-104.670773
6,942.00	20.32	352.81	6,847.39	-438.06	-801.07	1,302,485.24	3,231,758.83	40.160742	-104.670777
6,985.00	24.84	355.00	6,887.08	-421.65	-802.79	1,302,501.64	3,231,756.95	40.160788	-104.670784
7,027.00	30.30	354.20	6,924.30	-402.31	-804.63	1,302,520.96	3,231,754.93	40.160841	-104.670790
7,070.00	33.73	356.08	6,960.76	-379.60	-806.54	1,302,543.65	3,231,752.80	40.160903	-104.670797
7,113.00	37.79	356.66	6,995.64	-354.52	-808.13	1,302,568.71	3,231,750.98	40.160972	-104.670803
7,156.00	41.59	355.13	7,028.72	-327.14	-810.11	1,302,596.07	3,231,748.75	40.161047	-104.670810
7,198.00	45.60	357.29	7,059.14	-298.25	-812.00	1,302,624.94	3,231,746.58	40.161126	-104.670817
7,251.00	51.23	359.47	7,094.30	-258.64	-813.09	1,302,664.54	3,231,745.12	40.161235	-104.670820
7,293.00	57.47	0.85	7,118.77	-224.53	-812.98	1,302,698.65	3,231,744.91	40.161329	-104.670820
7,336.00	64.58	2.91	7,139.59	-186.96	-811.72	1,302,736.23	3,231,745.82	40.161432	-104.670816
7,379.00	69.53	3.13	7,156.35	-147.43	-809.63	1,302,775.78	3,231,747.53	40.161540	-104.670808
7,422.00	74.00	1.50	7,169.80	-106.64	-807.99	1,302,816.59	3,231,748.79	40.161652	-104.670802
7,464.00	79.87	0.03	7,179.29	-65.75	-807.45	1,302,857.48	3,231,748.95	40.161765	-104.670800
7,476.00	81.25	358.50	7,181.26	-53.91	-807.60	1,302,869.31	3,231,748.68	40.161797	-104.670801
7,531.00	85.03	359.24	7,187.83	0.67	-808.68	1,302,923.89	3,231,747.10	40.161947	-104.670805
7 IN. CASING									
7,588.00	88.94	0.00	7,190.83	57.58	-809.06	1,302,980.79	3,231,746.19	40.162103	-104.670806
7,673.00	92.28	0.11	7,189.93	142.56	-808.97	1,303,065.77	3,231,745.47	40.162336	-104.670806
7,759.00	92.82	0.18	7,186.10	228.48	-808.76	1,303,151.68	3,231,744.88	40.162572	-104.670805
7,844.00	92.53	0.44	7,182.13	313.38	-808.30	1,303,236.59	3,231,744.55	40.162805	-104.670803
7,929.00	91.54	0.23	7,179.11	398.33	-807.80	1,303,321.53	3,231,744.24	40.163038	-104.670802
8,015.00	90.12	1.74	7,177.87	484.30	-806.32	1,303,407.51	3,231,744.92	40.163274	-104.670796
8,100.00	90.80	1.37	7,177.19	569.27	-804.02	1,303,492.50	3,231,746.43	40.163508	-104.670788
8,186.00	88.52	2.13	7,177.70	655.22	-801.39	1,303,578.47	3,231,748.24	40.163744	-104.670779
8,271.00	89.26	2.75	7,179.34	740.13	-797.77	1,303,663.41	3,231,751.07	40.163977	-104.670766
8,357.00	90.35	0.53	7,179.64	826.08	-795.31	1,303,749.38	3,231,752.72	40.164213	-104.670757
8,442.00	90.43	0.54	7,179.06	911.08	-794.52	1,303,834.38	3,231,752.72	40.164446	-104.670754
8,528.00	91.23	0.79	7,177.81	997.06	-793.52	1,303,920.37	3,231,752.91	40.164682	-104.670751
8,614.00	89.81	0.25	7,177.03	1,083.05	-792.74	1,304,006.36	3,231,752.88	40.164918	-104.670748
8,699.00	90.49	0.35	7,176.81	1,168.05	-792.29	1,304,091.36	3,231,752.53	40.165151	-104.670746
8,785.00	90.35	0.18	7,176.18	1,254.05	-791.90	1,304,177.36	3,231,752.12	40.165388	-104.670745
8,870.00	89.45	0.41	7,176.33	1,339.04	-791.46	1,304,262.36	3,231,751.76	40.165621	-104.670743

Andarko Petroleum Corporation

Survey Report - Geographic

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well REIGLE 3C-4HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Site:	WELD_REIGLE 15-4HZ PAD	MD Reference:	GL + 16 RKB XTREME 23 @ 4874.00ft (XTREME 23)
Well:	REIGLE 3C-4HZ	North Reference:	True
Wellbore:	REIGLE 3C-4HZ	Survey Calculation Method:	Minimum Curvature
Design:	REIGLE 3C-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
8,956.00	89.44	0.51	7,177.16	1,425.04	-790.77	1,304,348.35	3,231,751.64	40.165857	-104.670741
9,041.00	89.75	0.50	7,177.76	1,510.03	-790.02	1,304,433.35	3,231,751.59	40.166090	-104.670738
9,126.00	89.75	1.43	7,178.13	1,595.02	-788.59	1,304,518.35	3,231,752.23	40.166324	-104.670733
9,212.00	90.18	1.55	7,178.18	1,680.99	-786.35	1,304,604.33	3,231,753.66	40.166560	-104.670725
9,297.00	90.74	1.00	7,177.50	1,765.96	-784.46	1,304,689.32	3,231,754.75	40.166793	-104.670718
9,383.00	89.75	1.75	7,177.13	1,851.94	-782.40	1,304,775.31	3,231,756.01	40.167029	-104.670711
9,468.00	89.44	1.22	7,177.73	1,936.91	-780.19	1,304,860.30	3,231,757.41	40.167262	-104.670703
9,553.00	90.00	1.19	7,178.15	2,021.89	-778.41	1,304,945.29	3,231,758.40	40.167495	-104.670697
9,639.00	89.75	0.60	7,178.34	2,107.88	-777.06	1,305,031.29	3,231,758.94	40.167731	-104.670692
9,724.00	90.00	0.51	7,178.52	2,192.87	-776.24	1,305,116.29	3,231,758.97	40.167965	-104.670689
9,810.00	90.37	359.94	7,178.24	2,278.87	-775.90	1,305,202.28	3,231,758.50	40.168201	-104.670688
9,895.00	90.74	359.76	7,177.42	2,363.86	-776.12	1,305,287.27	3,231,757.48	40.168434	-104.670688
9,981.00	90.35	0.00	7,176.60	2,449.86	-776.30	1,305,373.26	3,231,756.49	40.168670	-104.670689
10,066.00	90.12	0.05	7,176.25	2,534.86	-776.27	1,305,458.26	3,231,755.73	40.168904	-104.670689
10,151.00	89.32	359.56	7,176.67	2,619.86	-776.56	1,305,543.25	3,231,754.64	40.169137	-104.670690
10,237.00	90.00	358.81	7,177.18	2,705.85	-777.78	1,305,629.22	3,231,752.61	40.169373	-104.670694
10,322.00	89.63	0.09	7,177.45	2,790.84	-778.60	1,305,714.21	3,231,751.00	40.169606	-104.670697
10,407.00	88.89	1.16	7,178.55	2,875.83	-777.67	1,305,799.20	3,231,751.13	40.169840	-104.670694
10,493.00	89.32	1.78	7,179.90	2,961.79	-775.46	1,305,885.17	3,231,752.53	40.170075	-104.670686
10,578.00	88.52	1.66	7,181.50	3,046.73	-772.91	1,305,970.14	3,231,754.28	40.170309	-104.670677
10,663.00	87.90	1.92	7,184.15	3,131.65	-770.26	1,306,055.08	3,231,756.14	40.170542	-104.670668
10,749.00	87.71	1.41	7,187.45	3,217.55	-767.76	1,306,141.00	3,231,757.83	40.170778	-104.670659
10,834.00	87.18	0.71	7,191.24	3,302.45	-766.19	1,306,225.91	3,231,758.60	40.171011	-104.670653
10,919.00	87.60	0.45	7,195.11	3,387.36	-765.33	1,306,310.82	3,231,758.67	40.171244	-104.670650
11,005.00	87.72	0.33	7,198.62	3,473.28	-764.75	1,306,396.75	3,231,758.44	40.171480	-104.670648
11,090.00	88.33	0.81	7,201.55	3,558.23	-763.90	1,306,481.70	3,231,758.49	40.171713	-104.670645
11,176.00	89.38	359.78	7,203.27	3,644.21	-763.46	1,306,567.68	3,231,758.13	40.171949	-104.670643
11,261.00	90.26	359.83	7,203.53	3,729.20	-763.75	1,306,652.67	3,231,757.04	40.172182	-104.670644
11,347.00	90.93	359.60	7,202.64	3,815.20	-764.17	1,306,738.65	3,231,755.81	40.172418	-104.670646
11,432.00	88.89	0.76	7,202.77	3,900.19	-763.91	1,306,823.65	3,231,755.28	40.172652	-104.670645
11,517.00	89.29	0.53	7,204.12	3,985.18	-762.95	1,306,908.63	3,231,755.44	40.172885	-104.670642
11,603.00	90.18	1.23	7,204.52	4,071.16	-761.63	1,306,994.63	3,231,755.95	40.173121	-104.670637
11,621.00	90.49	1.20	7,204.42	4,089.16	-761.25	1,307,012.63	3,231,756.16	40.173170	-104.670635
LAST MWD SURVEY									
11,678.00	90.49	1.20	7,203.93	4,146.14	-760.05	1,307,069.62	3,231,756.82	40.173327	-104.670631
PROJECTION TO TD									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
826.00	825.99	-1.15	-3.64	TIE ON
913.00	912.99	-0.78	-3.59	FIRST MWD SURVEY
7,531.00	7,187.83	0.67	-808.68	7 IN. CASING
11,621.00	7,204.42	4,089.16	-761.25	LAST MWD SURVEY
11,678.00	7,203.93	4,146.14	-760.05	PROJECTION TO TD

Checked By: _____	Approved By: _____	Date: _____
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