

T

M

Azimuths to True North

Magnetic North: 8.68°

Magnetic Field

Strength: 52946.9nT

Dip Angle: 66.85°

Date: 2/16/2012

Model: IGRF2010

Project: COLORADO NORTHERN ZONE - 83

Site: WELD_PALYO 29-11HZ Pad

Well: Palyo 35N-E11HZ

Wellbore: Palyo 35N-E11HZ

Section: SHL:

Design: Palyo 35N-E11HZ (wp05)

Latitude: 40.158583

Longitude: -104.637415

GL: 4855.00

KB: 17' RKB + 4855' GL @ 4872.00ft

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	VSect	
841.00	0.07	24.54	840.99	-0.63	2.74	0.00	0.00	0.99	
1000.01	0.00	0.00	1000.00	-0.54	2.78	0.04	180.00	0.91	
1745.84	14.92	42.08	1737.43	71.11	67.48	2.00	42.08	-61.41	
4359.03	14.92	42.08	4262.57	570.35	518.30	0.00	0.00	-495.68	
5104.86	0.00	0.00	5000.00	642.00	583.00	2.00	180.00	-558.01	
6302.90	0.00	0.00	6398.04	642.00	583.00	0.00	0.00	-558.01	
7402.90	90.00	180.00	6971.00	69.04	583.00	10.00	180.00	9.77	
9257.85	90.00	180.34	6971.00	-1785.90	577.55	0.02	90.00	1847.22	
11635.70	90.00	180.34	6971.00	-4163.71	563.57	0.00	0.00	4201.68	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)				
Name	TVD	+N/-S	+E/-W	Latitude
Palyo 35N-E11HZ BHL	6971.00	-4163.71	563.57	40.147153

FORMATION TOP DETAILS	
TVDPath	MDPath
3939.00	4024.18
4429.00	4530.01
6836.00	7001.42
6894.00	7102.43
6953.00	7256.91
Formation	
Parkman	
Sussex	
Sharon Springs	
Niobrara A	
Niobrara B	

CASING DETAILS			
TVD	MD	Name	Size
849.99	850.00	9 5/8"	9-5/8
6971.00	7402.90	7"	7

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_PALYO 29-11HZ Pad

Palyo 35N-E11HZ

Palyo 35N-E11HZ

Design: Palyo 35N-E11HZ

Standard Survey Report

20 September, 2012

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Palyo 35N-E11HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	17' RKB + 4855' GL @ 4872.00ft
Site:	WELD_PALYO 29-11HZ Pad	MD Reference:	17' RKB + 4855' GL @ 4872.00ft
Well:	Palyo 35N-E11HZ	North Reference:	True
Wellbore:	Palyo 35N-E11HZ	Survey Calculation Method:	Minimum Curvature
Design:	Palyo 35N-E11HZ	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_PALYO 29-11HZ Pad						
Site Position:		Northing:	1,301,787.54	usft	Latitude:	40.158582		
From:	Lat/Long	Easting:	3,241,120.73	usft	Longitude:	-104.637307		
Position Uncertainty:	0.00	ft	Slot Radius:	13-3/16	"	Grid Convergence:	0.56	°

Well	Palyo 35N-E11HZ					
Well Position	+N/-S	0.00 ft	Northing:	1,301,787.59 usft	Latitude:	40.158583
	+E/-W	0.00 ft	Easting:	3,241,090.55 usft	Longitude:	-104.637415
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,855.00 ft

Wellbore	Palyo 35N-E11HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/16/2012	8.68	66.85	52,947

Design	Palyo 35N-E11HZ				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	17.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	17.00	0.00	0.00	172.30	

Survey Program	Date	9/19/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
117.00	841.00	Survey #1 (Palyo 35N-E11HZ)	NS-GYRO-MS	NORTH SENSING GYROCOMPASSING M/S	
911.00	11,581.00	Survey #2 (Palyo 35N-E11HZ)	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)	
17.00	0.00	0.00	17.00	0.00	0.00	0.00	0.00	0.00	0.00	
117.00	0.21	76.07	117.00	0.04	0.18	-0.02	0.21	0.21	0.00	
217.00	0.26	64.90	217.00	0.18	0.56	-0.11	0.07	0.05	-11.17	
317.00	0.27	99.72	317.00	0.24	1.00	-0.10	0.16	0.01	34.82	
417.00	0.39	92.54	417.00	0.19	1.57	0.03	0.13	0.12	-7.18	
517.00	0.30	100.48	516.99	0.12	2.17	0.17	0.10	-0.09	7.94	
617.00	0.18	156.36	616.99	-0.07	2.49	0.40	0.25	-0.12	55.88	
717.00	0.20	157.38	716.99	-0.37	2.62	0.72	0.02	0.02	1.02	
817.00	0.11	156.91	816.99	-0.62	2.72	0.98	0.09	-0.09	-0.47	
841.00	0.07	24.54	840.99	-0.63	2.74	0.99	0.69	-0.17	-551.54	

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Palyo 35N-E11HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	17' RKB + 4855' GL @ 4872.00ft
Site:	WELD_PALYO 29-11HZ Pad	MD Reference:	17' RKB + 4855' GL @ 4872.00ft
Well:	Palyo 35N-E11HZ	North Reference:	True
Wellbore:	Palyo 35N-E11HZ	Survey Calculation Method:	Minimum Curvature
Design:	Palyo 35N-E11HZ	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									
911.00	0.16	181.31	910.99	-0.69	2.75	1.05	0.32	0.13	223.96
FIRST MWD SURVEY									
973.00	1.09	65.07	972.99	-0.53	3.29	0.96	1.89	1.50	-187.48
1,066.00	3.58	52.55	1,065.91	1.61	6.40	-0.74	2.72	2.68	-13.46
1,160.00	4.99	46.54	1,159.64	6.21	11.69	-4.59	1.57	1.50	-6.39
1,253.00	6.74	39.80	1,252.15	13.18	18.12	-10.64	2.02	1.88	-7.25
1,347.00	7.00	41.88	1,345.48	21.69	25.48	-18.08	0.38	0.28	2.21
1,440.00	8.84	44.75	1,437.59	30.98	34.29	-26.11	2.02	1.98	3.09
1,526.00	10.40	42.25	1,522.37	41.42	44.16	-35.13	1.88	1.81	-2.91
1,611.00	12.55	42.67	1,605.67	53.89	55.58	-45.96	2.53	2.53	0.49
1,696.00	14.55	44.86	1,688.30	68.25	69.37	-58.34	2.43	2.35	2.58
1,782.00	14.65	38.52	1,771.53	84.42	83.77	-72.43	1.86	0.12	-7.37
1,867.00	13.61	36.50	1,853.96	100.87	96.41	-87.04	1.35	-1.22	-2.38
1,953.00	13.77	44.04	1,937.52	116.36	109.55	-100.63	2.08	0.19	8.77
2,038.00	15.34	43.05	2,019.79	131.85	124.25	-114.01	1.87	1.85	-1.16
2,124.00	16.71	42.69	2,102.45	149.25	140.40	-129.09	1.60	1.59	-0.42
2,209.00	15.95	40.02	2,184.02	167.18	156.20	-144.74	1.26	-0.89	-3.14
2,295.00	15.69	44.35	2,266.76	184.54	171.93	-159.84	1.41	-0.30	5.03
2,380.00	14.48	42.84	2,348.83	200.55	187.19	-173.66	1.50	-1.42	-1.78
2,465.00	13.93	43.05	2,431.23	215.82	201.40	-186.89	0.65	-0.65	0.25
2,551.00	11.95	41.85	2,515.05	230.02	214.41	-199.21	2.32	-2.30	-1.40
2,636.00	12.38	42.68	2,598.14	243.28	226.46	-210.73	0.55	0.51	0.98
2,721.00	13.58	43.95	2,680.96	257.16	239.56	-222.73	1.45	1.41	1.49
2,807.00	15.35	42.06	2,764.23	272.88	254.19	-236.35	2.13	2.06	-2.20
2,892.00	16.10	44.75	2,846.05	289.60	270.03	-250.80	1.23	0.88	3.16
2,978.00	16.41	43.51	2,928.62	306.88	286.79	-265.68	0.54	0.36	-1.44
3,063.00	15.88	37.99	3,010.27	324.76	302.21	-281.33	1.91	-0.62	-6.49
3,148.00	14.56	41.98	3,092.29	341.87	316.52	-296.36	1.98	-1.55	4.69
3,233.00	14.79	45.64	3,174.52	357.39	331.42	-309.75	1.12	0.27	4.31
3,319.00	14.64	44.70	3,257.70	372.79	346.91	-322.94	0.33	-0.17	-1.09
3,404.00	13.96	39.67	3,340.06	388.32	361.01	-336.44	1.67	-0.80	-5.92
3,490.00	13.79	40.38	3,423.56	404.11	374.28	-350.31	0.28	-0.20	0.83
3,575.00	13.89	42.91	3,506.09	419.30	387.79	-363.55	0.72	0.12	2.98
3,660.00	14.41	44.46	3,588.51	434.32	402.14	-376.51	0.76	0.61	1.82
3,745.00	14.51	44.09	3,670.82	449.52	416.96	-389.59	0.16	0.12	-0.44
3,831.00	14.27	44.08	3,754.12	464.87	431.83	-402.81	0.28	-0.28	-0.01
3,916.00	14.47	43.98	3,836.46	480.04	446.49	-415.87	0.24	0.24	-0.12
4,002.00	16.36	43.27	3,919.36	496.59	462.25	-430.16	2.21	2.20	-0.83
4,087.00	16.34	42.94	4,000.92	514.06	478.60	-445.29	0.11	-0.02	-0.39
4,173.00	14.43	40.86	4,083.84	531.03	493.86	-460.05	2.31	-2.22	-2.42
4,258.00	11.79	38.70	4,166.62	545.82	506.22	-473.05	3.16	-3.11	-2.54
4,344.00	11.97	41.47	4,250.78	559.35	517.62	-484.94	0.70	0.21	3.22

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Palyo 35N-E11HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	17' RKB + 4855' GL @ 4872.00ft
Site:	WELD_PALYO 29-11HZ Pad	MD Reference:	17' RKB + 4855' GL @ 4872.00ft
Well:	Palyo 35N-E11HZ	North Reference:	True
Wellbore:	Palyo 35N-E11HZ	Survey Calculation Method:	Minimum Curvature
Design:	Palyo 35N-E11HZ	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)
4,429.00	11.62	42.33	4,333.98	572.29	529.22	-496.20	0.46	-0.41	1.01
4,514.00	10.82	42.21	4,417.36	584.53	540.34	-506.84	0.94	-0.94	-0.14
4,600.00	10.34	41.92	4,501.89	596.25	550.92	-517.04	0.56	-0.56	-0.34
4,685.00	9.97	41.01	4,585.56	607.48	560.85	-526.83	0.47	-0.44	-1.07
4,771.00	7.78	40.69	4,670.53	617.51	569.53	-535.61	2.55	-2.55	-0.37
4,856.00	5.40	28.38	4,754.96	625.39	575.18	-542.67	3.24	-2.80	-14.48
4,942.00	3.41	17.42	4,840.71	631.39	577.87	-548.25	2.50	-2.31	-12.74
5,028.00	1.27	29.53	4,926.63	634.66	579.11	-551.33	2.54	-2.49	14.08
5,113.00	0.91	44.75	5,011.61	635.96	580.05	-552.49	0.54	-0.42	17.91
5,199.00	0.78	48.75	5,097.61	636.83	580.97	-553.23	0.17	-0.15	4.65
5,284.00	1.06	57.39	5,182.59	637.64	582.06	-553.88	0.37	0.33	10.16
5,369.00	0.60	50.80	5,267.59	638.34	583.07	-554.44	0.55	-0.54	-7.75
5,455.00	0.56	67.95	5,353.58	638.79	583.81	-554.78	0.21	-0.05	19.94
5,540.00	0.40	55.40	5,438.58	639.11	584.44	-555.02	0.22	-0.19	-14.76
5,626.00	0.59	33.87	5,524.57	639.65	584.93	-555.49	0.31	0.22	-25.03
5,711.00	0.41	15.84	5,609.57	640.30	585.26	-556.09	0.28	-0.21	-21.21
5,797.00	0.44	25.37	5,695.57	640.90	585.49	-556.65	0.09	0.03	11.08
5,882.00	0.42	349.40	5,780.57	641.50	585.57	-557.24	0.31	-0.02	-42.32
5,968.00	0.41	330.58	5,866.56	642.08	585.36	-557.84	0.16	-0.01	-21.88
6,053.00	0.35	18.44	5,951.56	642.59	585.29	-558.35	0.37	-0.07	56.31
6,139.00	0.38	326.30	6,037.56	643.07	585.22	-558.85	0.37	0.03	-60.63
6,224.00	0.38	296.19	6,122.56	643.43	584.81	-559.26	0.23	0.00	-35.42
6,310.00	0.41	318.67	6,208.56	643.79	584.35	-559.67	0.18	0.03	26.14
6,395.00	0.58	286.24	6,293.55	644.14	583.73	-560.10	0.38	0.20	-38.15
6,481.00	4.35	189.81	6,379.47	641.05	582.76	-557.16	5.18	4.38	-112.13
6,523.00	9.37	190.73	6,421.16	636.11	581.85	-552.40	11.95	11.95	2.19
6,566.00	13.29	186.98	6,463.31	627.77	580.60	-544.29	9.27	9.12	-8.72
6,609.00	17.25	182.18	6,504.79	616.48	579.76	-533.23	9.66	9.21	-11.16
6,652.00	20.95	182.45	6,545.41	602.43	579.18	-519.37	8.61	8.60	0.63
6,694.00	22.94	182.60	6,584.37	586.75	578.49	-503.93	4.74	4.74	0.36
6,737.00	26.46	182.28	6,623.43	568.80	577.73	-486.24	8.19	8.19	-0.74
6,780.00	29.90	182.38	6,661.33	548.51	576.90	-466.25	8.00	8.00	0.23
6,822.00	33.06	182.24	6,697.14	526.60	576.02	-444.65	7.53	7.52	-0.33
6,865.00	37.10	179.96	6,732.32	501.90	575.57	-420.24	9.88	9.40	-5.30
6,908.00	41.05	177.96	6,765.70	474.81	576.08	-393.32	9.64	9.19	-4.65
6,951.00	44.94	180.40	6,797.15	445.50	576.48	-364.22	9.84	9.05	5.67
6,993.00	49.18	183.81	6,825.76	414.79	575.32	-333.95	11.71	10.10	8.12
7,036.00	53.75	185.21	6,852.54	381.27	572.66	-301.08	10.93	10.63	3.26
7,079.00	57.84	184.35	6,876.71	345.84	569.71	-266.37	9.65	9.51	-2.00
7,122.00	62.98	183.23	6,897.93	308.54	567.25	-229.74	12.17	11.95	-2.60
7,164.00	67.19	183.46	6,915.62	270.52	565.02	-192.36	10.04	10.02	0.55
7,207.00	71.51	183.58	6,930.78	230.37	562.55	-152.90	10.05	10.05	0.28
7,250.00	73.76	181.52	6,943.62	189.38	560.73	-112.52	6.95	5.23	-4.79
7,292.00	77.82	180.26	6,953.93	148.68	560.10	-72.27	10.09	9.67	-3.00

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Palyo 35N-E11HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	17' RKB + 4855' GL @ 4872.00ft
Site:	WELD_PALYO 29-11HZ Pad	MD Reference:	17' RKB + 4855' GL @ 4872.00ft
Well:	Palyo 35N-E11HZ	North Reference:	True
Wellbore:	Palyo 35N-E11HZ	Survey Calculation Method:	Minimum Curvature
Design:	Palyo 35N-E11HZ	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)
7,335.00	83.48	179.95	6,960.91	106.26	560.03	-30.25	13.18	13.16	-0.72
7,362.00	84.96	180.79	6,963.63	79.40	559.85	-3.66	6.30	5.48	3.11
7,402.00	87.13	181.01	6,966.39	39.51	559.22	35.80	5.46	5.43	0.56
7" INTERMEDIATE CASING									
7,439.00	89.14	181.22	6,967.59	2.53	558.50	72.34	5.46	5.43	0.56
7,524.00	91.06	179.15	6,967.44	-82.46	558.23	156.52	3.32	2.26	-2.44
7,609.00	90.25	179.02	6,966.47	-167.44	559.59	240.92	0.97	-0.95	-0.15
7,695.00	90.44	178.97	6,965.95	-253.42	561.09	326.33	0.23	0.22	-0.06
7,780.00	89.88	178.76	6,965.71	-338.41	562.78	410.78	0.70	-0.66	-0.25
7,866.00	90.18	178.78	6,965.67	-424.39	564.62	496.23	0.35	0.35	0.02
7,951.00	91.05	178.48	6,964.76	-509.36	566.66	580.70	1.08	1.02	-0.35
8,037.00	91.30	179.20	6,962.99	-595.32	568.40	666.12	0.89	0.29	0.84
8,122.00	91.73	179.03	6,960.75	-680.28	569.71	750.49	0.54	0.51	-0.20
8,207.00	90.74	179.66	6,958.91	-765.25	570.68	834.83	1.38	-1.16	0.74
8,293.00	91.11	179.00	6,957.53	-851.24	571.69	920.17	0.88	0.43	-0.77
8,378.00	90.99	179.28	6,955.97	-936.21	572.96	1,004.55	0.36	-0.14	0.33
8,464.00	89.26	179.11	6,955.78	-1,022.20	574.17	1,089.93	2.02	-2.01	-0.20
8,549.00	88.28	178.89	6,957.60	-1,107.17	575.65	1,174.33	1.18	-1.15	-0.26
8,635.00	88.95	179.05	6,959.68	-1,193.13	577.20	1,259.72	0.80	0.78	0.19
8,720.00	89.82	179.50	6,960.60	-1,278.11	578.27	1,344.08	1.15	1.02	0.53
8,806.00	88.03	179.41	6,962.21	-1,364.09	579.09	1,429.39	2.08	-2.08	-0.10
8,891.00	88.27	178.94	6,964.95	-1,449.04	580.31	1,513.74	0.62	0.28	-0.55
8,976.00	86.92	178.03	6,968.52	-1,533.93	582.56	1,598.17	1.91	-1.59	-1.07
9,062.00	86.79	178.21	6,973.24	-1,619.76	585.38	1,683.59	0.26	-0.15	0.21
9,147.00	87.96	178.44	6,977.13	-1,704.63	587.86	1,768.03	1.40	1.38	0.27
9,233.00	88.64	179.39	6,979.68	-1,790.57	589.49	1,853.42	1.36	0.79	1.10
9,318.00	88.21	179.56	6,982.02	-1,875.54	590.26	1,937.72	0.54	-0.51	0.20
9,404.00	89.26	179.52	6,983.92	-1,961.51	590.95	2,023.02	1.22	1.22	-0.05
9,489.00	91.36	180.86	6,983.46	-2,046.50	590.67	2,107.20	2.93	2.47	1.58
9,575.00	89.51	180.02	6,982.80	-2,132.49	590.01	2,192.33	2.36	-2.15	-0.98
9,660.00	91.11	179.35	6,982.34	-2,217.49	590.48	2,276.62	2.04	1.88	-0.79
9,745.00	92.22	180.96	6,979.87	-2,302.45	590.25	2,360.78	2.30	1.31	1.89
9,831.00	92.64	180.74	6,976.23	-2,388.36	588.98	2,445.75	0.55	0.49	-0.26
9,916.00	90.06	181.39	6,974.23	-2,473.32	587.40	2,529.72	3.13	-3.04	0.76
10,002.00	89.38	181.62	6,974.65	-2,559.28	585.14	2,614.62	0.83	-0.79	0.27
10,088.00	89.75	180.98	6,975.30	-2,645.26	583.19	2,699.55	0.86	0.43	-0.74
10,173.00	90.49	180.59	6,975.12	-2,730.25	582.02	2,783.62	0.98	0.87	-0.46
10,258.00	90.19	180.61	6,974.62	-2,815.24	581.13	2,867.73	0.35	-0.35	0.02
10,344.00	91.11	181.14	6,973.64	-2,901.23	579.82	2,952.76	1.23	1.07	0.62
10,429.00	90.74	181.76	6,972.27	-2,986.19	577.67	3,036.67	0.85	-0.44	0.73
10,515.00	90.00	181.01	6,971.71	-3,072.16	575.59	3,121.59	1.23	-0.86	-0.87
10,600.00	88.64	180.92	6,972.72	-3,157.14	574.16	3,205.61	1.60	-1.60	-0.11
10,686.00	88.95	181.00	6,974.53	-3,243.11	572.72	3,290.61	0.37	0.36	0.09

Andarko Petroleum Corporation

Survey Report

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well Palyo 35N-E11HZ
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	17' RKB + 4855' GL @ 4872.00ft
Site:	WELD_PALYO 29-11HZ Pad	MD Reference:	17' RKB + 4855' GL @ 4872.00ft
Well:	Palyo 35N-E11HZ	North Reference:	True
Wellbore:	Palyo 35N-E11HZ	Survey Calculation Method:	Minimum Curvature
Design:	Palyo 35N-E11HZ	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)	
10,771.00	89.01	180.30	6,976.04	-3,328.09	571.75	3,374.69	0.83	0.07	-0.82	
10,857.00	89.26	180.36	6,977.34	-3,414.08	571.26	3,459.84	0.30	0.29	0.07	
10,942.00	89.38	179.95	6,978.35	-3,499.07	571.03	3,544.03	0.50	0.14	-0.48	
11,028.00	89.08	180.27	6,979.51	-3,585.06	570.86	3,629.23	0.51	-0.35	0.37	
11,113.00	89.08	180.24	6,980.87	-3,670.05	570.48	3,713.40	0.04	0.00	-0.04	
11,198.00	89.38	180.91	6,982.01	-3,755.04	569.63	3,797.51	0.86	0.35	0.79	
11,284.00	89.38	180.68	6,982.94	-3,841.03	568.44	3,882.56	0.27	0.00	-0.27	
11,369.00	90.86	182.09	6,982.77	-3,926.00	566.38	3,966.49	2.40	1.74	1.66	
11,455.00	91.17	181.59	6,981.24	-4,011.94	563.62	4,051.28	0.68	0.36	-0.58	
11,527.00	91.73	181.94	6,979.42	-4,083.88	561.41	4,122.28	0.92	0.78	0.49	
LAST MWD SURVEY										
11,581.00	91.73	181.94	6,977.79	-4,137.83	559.58	4,175.49	0.00	0.00	0.00	
PROJECTION TO TD										

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name			Casing Diameter (")	Hole Diameter (")
850.00	849.99	9 5/8"			9-5/8	12-1/4
7,402.00	6,966.39	7"			7	7-1/2

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
841.00	840.99	-0.63	2.74	TIE ON	
911.00	910.99	-0.69	2.75	FIRST MWD SURVEY	
7,402.00	6,966.39	39.51	559.22	7" INTERMEDIATE CASING	
11,527.00	6,979.42	-4,083.88	561.41	LAST MWD SURVEY	
11,581.00	6,977.79	-4,137.83	559.58	PROJECTION TO TD	

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------