



Noble Energy, Inc

Weld County, CO (NAD 83)

Sec 10, T02N-R64W (Oscar Y10 Pad)

Oscar Y10-79HN

Wellbore #1

Design: OH

Standard Survey Report

23 April, 2014





IDS
Survey Report



Company: Noble Energy, Inc
Project: Weld County, CO (NAD 83)
Site: Sec 10, T02N-R64W (Oscar Y10 Pad)
Well: Oscar Y10-79HN
Wellbore: Wellbore #1
Design: OH

Local Co-ordinate Reference: Well Oscar Y10-79HN
TVD Reference: Well @ 4973.0usft (HP 330)
MD Reference: Well @ 4973.0usft (HP 330)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Weld County, CO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site Sec 10, T02N-R64W (Oscar Y10 Pad)

Site Position:		Northing:	1,299,747.15 usft	Latitude:	40° 9' 8.100 N
From:	Lat/Long	Easting:	3,267,100.75 usft	Longitude:	104° 32' 39.984 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.62 °

Well Oscar Y10-79HN

Well Position	+N/-S	0.0 usft	Northing:	1,299,745.13 usft	Latitude:	40° 9' 8.100 N
	+E/-W	0.0 usft	Easting:	3,266,913.48 usft	Longitude:	104° 32' 42.396 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,943.0 usft	

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/16/2013	8.39	66.80	52,759

Design OH

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	340.17

Survey Program Date 4/23/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
387.0	1,144.0	ESS Surface (Wellbore #1)	EMS	EMS - Standard
1,197.0	7,309.0	MWD Intermediate (Wellbore #1)	MWD	MWD - Standard
7,344.0	7,926.0	MWD Lateral (Wellbore #1)	MWD	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
387.0	0.30	286.10	387.0	0.3	-1.0	0.6	0.08	0.08	0.00
First MWD									
766.0	0.80	316.80	766.0	2.5	-3.7	3.6	0.15	0.13	8.10
1,144.0	0.80	253.60	1,144.0	3.7	-8.1	6.2	0.22	0.00	-16.72
1,197.0	0.40	276.60	1,196.9	3.6	-8.6	6.3	0.87	-0.75	43.40
First MWD									
1,291.0	2.70	293.70	1,290.9	4.5	-11.0	8.0	2.47	2.45	18.19



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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,385.0	5.50	303.40	1,384.7	7.9	-16.8	13.1	3.06	2.98	10.32
1,477.0	7.70	296.70	1,476.0	13.1	-25.9	21.1	2.53	2.39	-7.28
1,570.0	9.80	289.00	1,568.0	18.5	-39.0	30.6	2.58	2.26	-8.28
1,665.0	11.80	282.70	1,661.3	23.2	-56.1	40.9	2.44	2.11	-6.63
1,758.0	13.80	281.70	1,752.0	27.6	-76.3	51.8	2.16	2.15	-1.08
1,850.0	15.50	283.10	1,841.0	32.6	-99.0	64.2	1.89	1.85	1.52
1,943.0	16.60	283.10	1,930.3	38.4	-124.0	78.2	1.18	1.18	0.00
2,036.0	18.00	284.40	2,019.1	45.0	-150.9	93.5	1.56	1.51	1.40
2,131.0	16.70	282.00	2,109.8	51.5	-178.4	109.0	1.56	-1.37	-2.53
2,226.0	16.40	282.70	2,200.9	57.3	-204.9	123.4	0.38	-0.32	0.74
2,321.0	16.30	288.90	2,292.0	64.5	-230.6	138.9	1.84	-0.11	6.53
2,416.0	13.90	285.90	2,383.8	72.0	-254.2	153.9	2.66	-2.53	-3.16
2,512.0	14.80	290.10	2,476.8	79.3	-276.8	168.5	1.43	0.94	4.38
2,607.0	15.30	291.70	2,568.5	88.2	-299.8	184.6	0.68	0.53	1.68
2,702.0	15.70	294.50	2,660.0	98.1	-323.2	201.9	0.89	0.42	2.95
2,797.0	14.10	289.60	2,751.9	107.3	-345.8	218.3	2.14	-1.68	-5.16
2,892.0	14.20	296.20	2,844.0	116.4	-367.1	234.0	1.70	0.11	6.95
2,987.0	14.00	295.20	2,936.1	126.4	-388.0	250.5	0.33	-0.21	-1.05
3,082.0	13.40	295.10	3,028.4	136.0	-408.3	266.4	0.63	-0.63	-0.11
3,177.0	12.00	285.50	3,121.1	143.3	-427.8	279.9	2.66	-1.47	-10.11
3,273.0	10.40	283.10	3,215.3	147.9	-445.9	290.4	1.74	-1.67	-2.50
3,368.0	9.30	279.40	3,308.9	151.1	-461.8	298.8	1.34	-1.16	-3.89
3,463.0	8.40	276.30	3,402.7	153.1	-476.3	305.6	1.07	-0.95	-3.26
3,558.0	6.30	260.70	3,497.0	153.0	-488.3	309.6	3.03	-2.21	-16.42
3,653.0	4.50	248.60	3,591.5	150.8	-496.9	310.5	2.23	-1.89	-12.74
3,748.0	2.60	227.70	3,686.3	148.0	-502.0	309.6	2.39	-2.00	-22.00
3,843.0	2.70	192.90	3,781.3	144.4	-504.1	306.8	1.67	0.11	-36.63
3,938.0	1.90	157.30	3,876.2	140.7	-504.0	303.4	1.68	-0.84	-37.47
4,033.0	1.10	134.60	3,971.1	138.7	-502.7	301.0	1.03	-0.84	-23.89
4,129.0	1.00	134.40	4,067.1	137.4	-501.5	299.4	0.10	-0.10	-0.21
4,224.0	1.10	116.60	4,162.1	136.4	-500.1	298.0	0.36	0.11	-18.74
4,319.0	1.10	118.00	4,257.1	135.6	-498.4	296.7	0.03	0.00	1.47
4,414.0	1.30	93.70	4,352.1	135.1	-496.6	295.6	0.57	0.21	-25.58
4,509.0	1.10	127.10	4,447.1	134.5	-494.8	294.4	0.75	-0.21	35.16
4,604.0	1.00	83.30	4,542.0	134.0	-493.2	293.4	0.83	-0.11	-46.11
4,699.0	1.70	52.00	4,637.0	135.0	-491.3	293.7	1.04	0.74	-32.95
4,794.0	1.10	41.40	4,732.0	136.5	-489.6	294.5	0.69	-0.63	-11.16
4,889.0	0.60	34.90	4,827.0	137.6	-488.7	295.3	0.54	-0.53	-6.84
4,984.0	1.00	95.90	4,922.0	138.0	-487.6	295.2	0.93	0.42	64.21
5,079.0	1.20	63.40	5,017.0	138.3	-485.9	295.0	0.68	0.21	-34.21
5,174.0	1.50	13.80	5,111.9	140.0	-484.7	296.1	1.23	0.32	-52.21
5,270.0	1.60	5.00	5,207.9	142.5	-484.3	298.4	0.27	0.10	-9.17
5,365.0	1.10	11.10	5,302.9	144.7	-484.0	300.4	0.55	-0.53	6.42
5,460.0	1.60	5.90	5,397.8	147.0	-483.6	302.3	0.54	0.53	-5.47



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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,555.0	1.80	12.20	5,492.8	149.7	-483.2	304.8	0.29	0.21	6.63
5,650.0	2.60	3.60	5,587.7	153.3	-482.7	308.0	0.91	0.84	-9.05
5,745.0	1.60	1.90	5,682.7	156.8	-482.6	311.2	1.05	-1.05	-1.79
5,840.0	1.10	22.40	5,777.6	159.0	-482.2	313.1	0.72	-0.53	21.58
5,935.0	1.80	1.40	5,872.6	161.3	-481.8	315.2	0.91	0.74	-22.11
6,030.0	2.00	1.30	5,967.6	164.5	-481.7	318.1	0.21	0.21	-0.11
6,125.0	2.50	354.50	6,062.5	168.2	-481.9	321.7	0.60	0.53	-7.16
6,220.0	2.80	352.00	6,157.4	172.6	-482.4	326.0	0.34	0.32	-2.63
6,309.0	2.60	351.30	6,246.3	176.7	-483.0	330.1	0.23	-0.22	-0.79
6,356.0	2.80	355.70	6,293.2	178.9	-483.3	332.2	0.61	0.43	9.36
6,404.0	8.10	356.30	6,341.0	183.4	-483.6	336.6	11.04	11.04	1.25
6,452.0	14.80	355.70	6,388.0	192.9	-484.2	345.8	13.96	13.96	-1.25
6,500.0	19.00	355.30	6,433.9	206.9	-485.3	359.2	8.75	8.75	-0.83
6,547.0	21.50	355.10	6,478.0	223.1	-486.7	375.0	5.32	5.32	-0.43
6,595.0	23.70	354.90	6,522.3	241.4	-488.3	392.8	4.59	4.58	-0.42
6,642.0	27.20	354.90	6,564.8	261.5	-490.1	412.3	7.45	7.45	0.00
6,690.0	30.20	356.40	6,606.9	284.5	-491.8	434.5	6.43	6.25	3.13
6,737.0	34.70	356.30	6,646.5	309.7	-493.4	458.7	9.58	9.57	-0.21
6,785.0	39.40	356.70	6,684.8	338.5	-495.2	486.5	9.80	9.79	0.83
6,832.0	43.00	358.40	6,720.2	369.5	-496.5	516.0	8.02	7.66	3.62
6,880.0	43.60	0.80	6,755.1	402.4	-496.7	547.0	3.65	1.25	5.00
6,927.0	44.10	2.20	6,789.0	434.9	-495.9	577.4	2.32	1.06	2.98
6,975.0	49.60	2.00	6,821.8	469.9	-494.6	609.8	11.46	11.46	-0.42
7,022.0	58.60	358.70	6,849.4	507.9	-494.4	645.6	19.97	19.15	-7.02
7,070.0	64.70	356.50	6,872.1	550.1	-496.2	685.8	13.33	12.71	-4.58
7,117.0	68.60	356.30	6,890.8	593.2	-498.9	727.3	8.31	8.30	-0.43
7,165.0	71.90	358.10	6,907.0	638.3	-501.1	770.5	7.73	6.88	3.75
7,212.0	75.20	359.80	6,920.3	683.4	-502.0	813.1	7.83	7.02	3.62
7,260.0	78.20	358.80	6,931.3	730.1	-502.5	857.2	6.57	6.25	-2.08
7,309.0	82.00	0.00	6,939.8	778.3	-503.0	902.8	8.12	7.76	2.45
Last Intermediate MWD									
7,344.0	85.60	359.70	6,943.5	813.1	-503.1	935.6	10.32	10.29	-0.86
First Lateral MWD									
7,352.0	85.68	359.71	6,944.1	821.1	-503.2	943.1	1.06	1.05	0.11
Actual 7" Csg @ 7352' MD / 2076' FNL & 62' FWL, Sec 10									
7,439.0	86.60	359.80	6,950.0	907.9	-503.5	1,024.9	1.06	1.05	0.11
7,534.0	90.00	1.10	6,952.8	1,002.8	-502.8	1,113.9	3.83	3.58	1.37
7,629.0	89.50	0.00	6,953.2	1,097.8	-501.9	1,203.0	1.27	-0.53	-1.16
7,724.0	92.10	359.30	6,951.9	1,192.8	-502.5	1,292.5	2.83	2.74	-0.74
7,819.0	90.00	0.00	6,950.2	1,287.8	-503.0	1,382.1	2.33	-2.21	0.74
Last OH MWD @ 7819' MD									
7,896.0	90.00	0.00	6,950.2	1,364.8	-503.0	1,454.5	0.00	0.00	0.00
Top Fish @ 7896' MD									
7,926.0	90.00	0.00	6,950.2	1,394.8	-503.0	1,482.7	0.00	0.00	0.00



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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Bottom of Fish @ 7926' MD - TD OH @ 7926' MD / 1511' FNL & 74' FWL, Sec 10

Casing Points

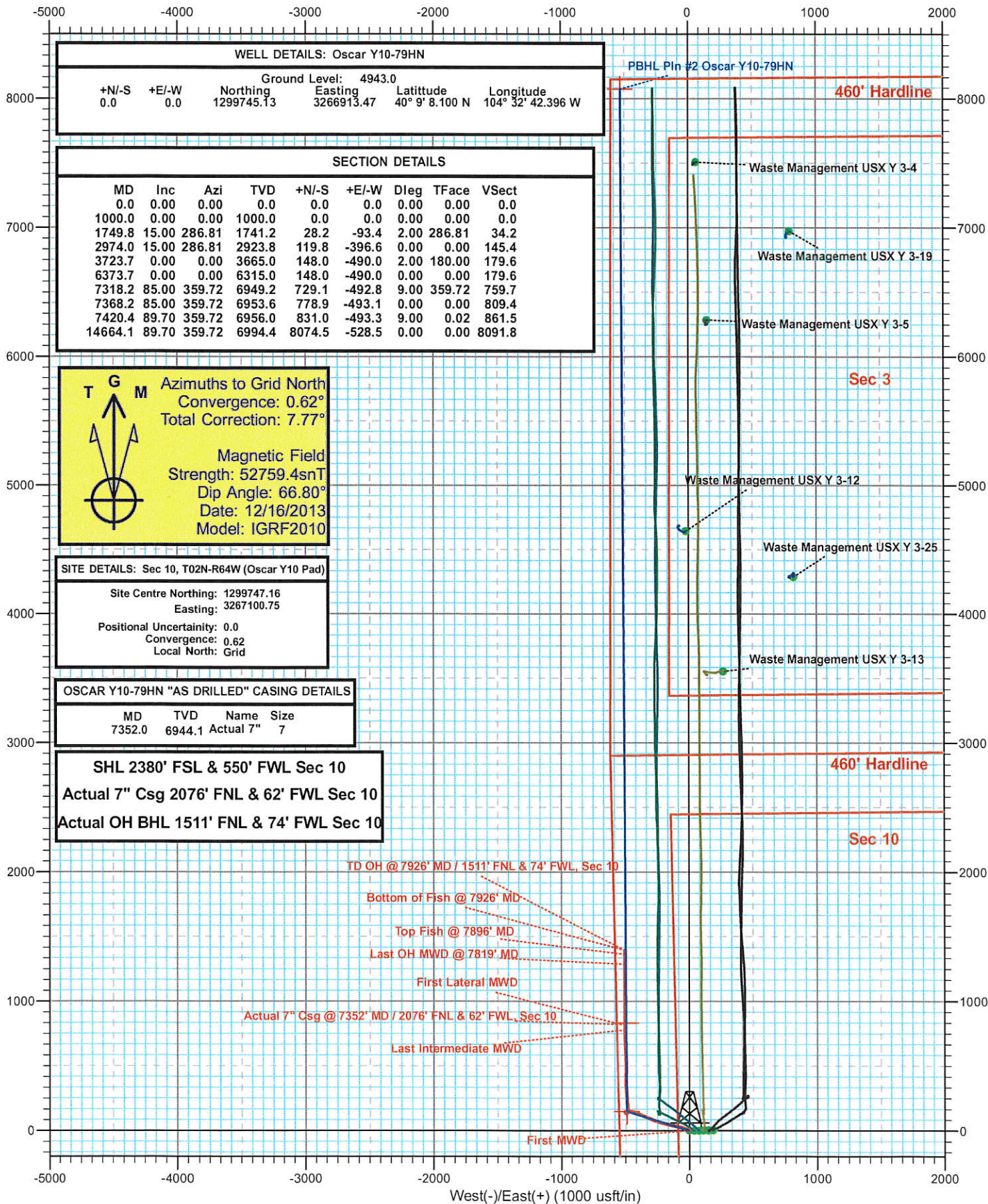
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
7,352.0	6,944.1	Actual 7"	7	8-3/4

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
387.0	387.0	0.3	-1.0	First MWD
1,197.0	1,196.9	3.6	-8.6	First MWD
7,309.0	6,939.8	778.3	-503.0	Last Intermediate MWD
7,344.0	6,943.5	813.1	-503.1	First Lateral MWD
7,352.0	6,944.1	821.1	-503.2	Actual 7" Csg @ 7352' MD / 2076' FNL & 62' FWL, Sec 10
7,819.0	6,950.2	1,287.8	-503.0	Last OH MWD @ 7819' MD
7,896.0	6,950.2	1,364.8	-503.0	Top Fish @ 7896' MD
7,926.0	6,950.2	1,394.8	-503.0	Bottom of Fish @ 7926' MD
7,926.0	6,950.2	1,394.8	-503.0	TD OH @ 7926' MD / 1511' FNL & 74' FWL, Sec 10

Checked By: _____ Approved By: _____ Date: _____

Weld County, CO (NAD 83) Sec 10, T02N-R64W (Oscar Y10 Pad) Oscar Y10-79HN HP 330 Plan #2





Weld County, CO (NAD 83)
Sec 10, T02N-R64W (Oscar Y10 Pad)
Oscar Y10-79HN
HP 330
Plan #2



WELL DETAILS: Oscar Y10-79HN

Ground Level: 4943.0					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1299745.13	3266913.47	40° 9' 8.100 N	104° 32' 42.396 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
1749.8	15.00	286.81	1741.2	28.2	-93.4	2.00	286.81	34.2	
2974.0	15.00	286.81	2923.8	119.8	-396.6	0.00	0.00	145.4	
3723.7	0.00	0.00	3665.0	148.0	-490.0	2.00	180.00	179.6	
6373.7	0.00	0.00	6315.0	148.0	-490.0	0.00	0.00	179.6	KOP Pln #2 Oscar Y10-79HN
7318.2	85.00	359.72	6949.2	729.1	-492.8	9.00	359.72	759.7	
7368.2	85.00	359.72	6953.6	778.9	-493.1	0.00	0.00	809.4	
7420.4	89.70	359.72	6956.0	831.0	-493.3	9.00	0.02	861.5	
14664.1	89.70	359.72	6994.4	8074.5	-528.5	0.00	0.00	8091.8	PBHL Pln #2 Oscar Y10-79HN

