



30-025-42214

Yates Petroleum Corp.

Lea County, NM (NAD83)
Resolute BTO Federal
#1H

OH

Design: OH

HOBBS OCD

JUN 15 2015

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Standard Survey Report

03 May, 2015



JUL 13 2015



TDS
Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD83)	TVD Reference:	KB @ 3543.5usft (Nomac 22)
Site:	Resolute BTO Federal	MD Reference:	KB @ 3543.5usft (Nomac 22)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project:	Lea County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Resolute BTO Federal				
Site Position:		Northing:	419,845.94 usft	Latitude:	32° 9' 8.034 N	
From:	Map	Easting:	761,698.04 usft	Longitude:	103° 37' 16.660 W	
Position Uncertainty:		0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.38 °

Well	#1H					
Well Position	+N/-S	0.0 usft	Northing:	419,845.94 usft	Latitude:	32° 9' 8.034 N
	+E/-W	0.0 usft	Easting:	761,698.04 usft	Longitude:	103° 37' 16.660 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,522.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/2/2015	7.15	60.02	48,196

Design:	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	179.67	

Survey Program		Date	5/3/2015	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
200.0	1,100.0	GYRO #1 (OH)	GYRO	
1,222.0	10,291.0	MWD #2 (OH)	MWD	MWD - Standard
10,330.0	15,455.0	MWD #3 (OH)	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
200.0	0.27	187.89	200.0	-0.5	-0.1	0.5	0.14	0.14	0.00
400.0	0.25	243.70	400.0	-1.1	-0.5	1.1	0.12	-0.01	27.91
600.0	0.46	287.13	600.0	-1.1	-1.7	1.1	0.16	0.11	21.72
800.0	0.51	269.86	800.0	-0.8	-3.3	0.8	0.08	0.03	-8.64
1,000.0	0.48	267.95	1,000.0	-0.9	-5.1	0.9	0.02	-0.02	-0.96
1,027.0	0.49	277.18	1,027.0	-0.9	-5.3	0.8	0.29	0.04	34.16
RUSTLER									
1,100.0	0.58	298.19	1,100.0	-0.7	-5.9	0.6	0.29	0.12	28.79



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Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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)
TIE-IN to MS Survey									
1,222.0	0.60	320.40	1,222.0	0.1	-6.9	-0.2	0.19	0.02	18.20
1,355.0	0.53	325.24	1,355.0	1.2	-7.7	-1.2	0.06	-0.05	3.64
SALADO									
1,409.0	0.50	327.60	1,409.0	1.6	-7.9	-1.6	0.06	-0.05	4.37
1,596.0	0.40	318.90	1,596.0	2.8	-8.8	-2.8	0.06	-0.05	-4.65
1,784.0	0.30	311.80	1,784.0	3.6	-9.6	-3.6	0.06	-0.05	-3.78
1,973.0	0.10	239.20	1,972.9	3.8	-10.1	-3.9	0.15	-0.11	-38.41
2,160.0	0.10	110.20	2,159.9	3.7	-10.1	-3.7	0.10	0.00	-68.98
2,346.0	0.20	292.20	2,345.9	3.7	-10.3	-3.8	0.16	0.05	-95.70
2,534.0	0.20	295.00	2,533.9	4.0	-10.9	-4.1	0.01	0.00	1.49
2,720.0	0.10	112.80	2,719.9	4.1	-11.0	-4.1	0.16	-0.05	95.59
2,906.0	0.20	258.40	2,905.9	4.0	-11.2	-4.0	0.15	0.05	78.28
3,093.0	0.10	12.30	3,092.9	4.0	-11.5	-4.1	0.14	-0.05	60.91
3,280.0	0.20	75.50	3,279.9	4.3	-11.1	-4.4	0.10	0.05	33.80
3,377.0	0.24	97.43	3,376.9	4.3	-10.7	-4.4	0.10	0.04	22.62
CASTILE									
3,467.0	0.30	110.80	3,466.9	4.2	-10.3	-4.3	0.10	0.07	14.85
3,654.0	0.40	136.30	3,653.9	3.6	-9.4	-3.6	0.10	0.05	13.64
3,841.0	0.30	139.20	3,840.9	2.7	-8.6	-2.8	0.05	-0.05	1.55
4,027.0	0.30	143.70	4,026.9	1.9	-8.0	-2.0	0.01	0.00	2.42
4,213.0	0.20	149.00	4,212.9	1.3	-7.6	-1.3	0.06	-0.05	2.85
4,399.0	0.60	115.80	4,398.9	0.6	-6.5	-0.6	0.24	0.22	-17.85
4,586.0	0.20	171.70	4,585.9	-0.2	-5.6	0.1	0.28	-0.21	29.89
4,722.0	0.48	144.48	4,721.9	-0.9	-5.2	0.8	0.24	0.21	-20.02
BASE OF SALT									
4,773.0	0.60	141.20	4,772.9	-1.3	-5.0	1.2	0.24	0.23	-6.43
4,832.0	0.40	127.00	4,831.9	-1.6	-4.6	1.6	0.40	-0.34	-24.07
4,953.0	0.31	131.86	4,952.9	-2.1	-4.0	2.1	0.08	-0.08	4.01
DELAWARE									
4,965.0	0.30	132.50	4,964.9	-2.1	-4.0	2.1	0.08	-0.07	5.35
4,980.0	0.31	135.04	4,979.9	-2.2	-3.9	2.2	0.10	0.04	16.97
BELL CANYON									
5,152.0	0.40	157.50	5,151.9	-3.1	-3.4	3.1	0.10	0.06	13.06
5,339.0	0.30	212.90	5,338.9	-4.1	-3.4	4.1	0.18	-0.05	29.63
5,525.0	0.40	177.80	5,524.9	-5.1	-3.6	5.1	0.12	0.05	-18.87
5,712.0	0.40	166.80	5,711.9	-6.4	-3.4	6.4	0.04	0.00	-5.88
5,899.0	0.30	175.40	5,898.9	-7.6	-3.2	7.5	0.06	-0.05	4.60
5,935.0	0.17	169.44	5,934.9	-7.7	-3.2	7.7	0.37	-0.37	-16.55
CHERRY CANYON									
6,086.0	0.40	8.50	6,085.9	-7.4	-3.1	7.4	0.37	0.15	-106.59
6,272.0	0.40	40.30	6,271.9	-6.3	-2.6	6.2	0.12	0.00	17.10
6,459.0	0.80	27.90	6,458.9	-4.6	-1.6	4.6	0.22	0.21	-6.63
6,647.0	0.80	8.70	6,646.9	-2.2	-0.8	2.1	0.14	0.00	-10.21



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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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)
6,834.0	0.60	350.00	6,833.8	0.1	-0.7	-0.1	0.16	-0.11	-10.00
7,021.0	0.40	341.20	7,020.8	1.7	-1.1	-1.7	0.11	-0.11	-4.71
7,207.0	0.40	314.60	7,206.8	2.8	-1.8	-2.8	0.10	0.00	-14.30
7,394.0	0.40	270.90	7,393.8	3.2	-2.9	-3.2	0.16	0.00	-23.37
7,581.0	0.40	346.30	7,580.8	3.9	-3.7	-3.9	0.26	0.00	40.32
7,765.0	0.40	204.80	7,764.8	3.9	-4.1	-3.9	0.41	0.00	-76.90
7,799.0	0.35	204.85	7,798.8	3.7	-4.2	-3.7	0.16	-0.16	0.14
BRUSHY CANYON									
7,953.0	0.10	205.70	7,952.8	3.2	-4.5	-3.2	0.16	-0.16	0.55
8,139.0	0.10	254.20	8,138.8	3.0	-4.7	-3.0	0.04	0.00	26.08
8,326.0	0.30	168.30	8,325.8	2.5	-4.8	-2.5	0.17	0.11	-45.94
8,513.0	0.10	335.90	8,512.8	2.1	-4.7	-2.1	0.21	-0.11	89.63
8,702.0	0.80	346.70	8,701.8	3.6	-5.1	-3.6	0.37	0.37	5.71
8,889.0	0.70	330.80	8,888.8	5.8	-5.9	-5.9	0.12	-0.05	-8.50
9,001.0	0.68	314.10	9,000.8	6.9	-6.8	-6.9	0.18	-0.02	-14.91
BONE SPRINGS									
9,076.0	0.70	303.00	9,075.8	7.4	-7.5	-7.5	0.18	0.03	-14.80
9,115.0	0.72	294.56	9,114.8	7.7	-7.9	-7.7	0.27	0.05	-21.63
UPPER AVALON									
9,262.0	0.90	269.10	9,261.8	8.0	-9.9	-8.1	0.27	0.12	-17.32
9,449.0	0.60	17.10	9,448.8	9.0	-11.1	-9.0	0.66	-0.16	57.75
9,478.0	0.37	11.02	9,477.8	9.2	-11.0	-9.3	0.79	-0.78	-20.93
LOWER AVALON									
9,636.0	0.90	213.60	9,635.8	8.7	-11.6	-8.7	0.79	0.33	-99.66
9,823.0	0.40	282.00	9,822.7	7.6	-13.0	-7.7	0.45	-0.27	36.58
9,917.0	0.60	210.60	9,916.7	7.2	-13.6	-7.3	0.64	0.21	-75.96
10,010.0	0.40	206.20	10,009.7	6.5	-14.0	-6.6	0.22	-0.22	-4.73
10,050.0	0.48	212.62	10,049.7	6.2	-14.1	-6.3	0.24	0.21	16.07
BONE SPRINGS 1 /SD/									
10,103.0	0.60	218.30	10,102.7	5.8	-14.4	-5.9	0.24	0.22	10.71
10,198.0	0.60	270.40	10,197.7	5.4	-15.2	-5.5	0.55	0.00	54.84
10,330.0	8.00	168.70	10,329.3	-3.6	-14.1	3.5	6.17	5.61	-77.05
10,376.0	13.10	169.30	10,374.5	-11.8	-12.5	11.8	11.09	11.09	1.30
10,416.0	19.60	176.90	10,412.9	-23.0	-11.3	22.9	17.07	16.25	19.00
10,463.0	24.30	180.60	10,456.5	-40.6	-11.0	40.5	10.42	10.00	7.87
10,510.0	26.50	180.60	10,498.9	-60.7	-11.2	60.6	4.68	4.68	0.00
10,549.9	31.93	179.03	10,533.7	-80.2	-11.1	80.1	13.75	13.61	-3.94
BONE SPRINGS 2 /SD/									
10,557.0	32.90	178.80	10,539.7	-84.0	-11.1	83.9	13.75	13.64	-3.24
10,603.0	40.10	177.10	10,576.7	-111.3	-10.1	111.2	15.80	15.65	-3.70
10,650.0	45.30	176.00	10,611.2	-143.1	-8.1	143.1	11.18	11.06	-2.34
10,698.0	49.30	176.00	10,643.8	-178.3	-5.7	178.3	8.33	8.33	0.00
10,744.0	52.70	176.80	10,672.7	-214.0	-3.4	213.9	7.51	7.39	1.74
10,791.0	57.30	178.20	10,699.6	-252.4	-1.8	252.4	10.09	9.79	2.98
10,823.1	60.65	179.47	10,716.2	-279.9	-1.2	279.9	10.97	10.43	3.97



TDS
Survey Report



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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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)
As-Drilled Crosses 330' Hard Line									
10,837.0	62.10	180.00	10,722.9	-292.1	-1.1	292.1	10.97	10.45	3.78
10,884.0	66.40	180.80	10,743.3	-334.4	-1.4	334.4	9.28	9.15	1.70
10,931.0	72.40	180.40	10,759.8	-378.4	-1.9	378.4	12.79	12.77	-0.85
10,961.0	77.20	179.70	10,767.7	-407.3	-1.9	407.3	16.16	16.00	-2.33
11,008.0	81.40	177.70	10,776.4	-453.5	-0.9	453.5	9.87	8.94	-4.26
11,056.0	85.80	176.00	10,781.7	-501.1	1.7	501.1	9.82	9.17	-3.54
11,097.7	90.71	174.98	10,783.0	-542.7	5.0	542.7	12.03	11.78	-2.44
AS-Drilled EOC									
11,101.0	91.10	174.90	10,782.9	-545.9	5.3	546.0	12.03	11.78	-2.44
11,132.0	92.60	174.60	10,781.9	-576.8	8.2	576.8	4.93	4.84	-0.97
11,195.0	91.10	177.10	10,779.9	-639.6	12.7	639.7	4.63	-2.38	3.97
11,242.0	90.60	177.60	10,779.2	-686.5	14.9	686.6	1.50	-1.06	1.06
11,289.0	90.90	177.80	10,778.6	-733.5	16.8	733.6	0.77	0.64	0.43
11,382.0	89.20	178.40	10,778.5	-826.4	19.9	826.5	1.94	-1.83	0.65
11,475.0	89.40	178.30	10,779.7	-919.4	22.5	919.5	0.24	0.22	-0.11
11,568.0	89.50	178.70	10,780.5	-1,012.4	25.0	1,012.5	0.44	0.11	0.43
11,661.0	89.60	179.20	10,781.3	-1,105.3	26.7	1,105.5	0.55	0.11	0.54
11,754.0	89.20	179.90	10,782.3	-1,198.3	27.4	1,198.5	0.87	-0.43	0.75
11,847.0	90.50	180.50	10,782.5	-1,291.3	27.1	1,291.5	1.54	1.40	0.65
11,941.0	89.80	181.20	10,782.3	-1,385.3	25.7	1,385.4	1.05	-0.74	0.74
12,034.0	91.20	180.90	10,781.4	-1,478.3	24.0	1,478.4	1.54	1.51	-0.32
12,127.0	90.90	180.80	10,779.7	-1,571.3	22.6	1,571.4	0.34	-0.32	-0.11
12,221.0	90.60	181.50	10,778.5	-1,665.2	20.7	1,665.3	0.81	-0.32	0.74
12,315.0	90.70	182.10	10,777.4	-1,759.2	17.8	1,759.3	0.65	0.11	0.64
12,409.0	91.50	180.40	10,775.6	-1,853.1	15.7	1,853.2	2.00	0.85	-1.81
12,502.0	91.80	180.50	10,773.0	-1,946.1	15.0	1,946.2	0.34	0.32	0.11
12,595.0	91.90	181.00	10,770.0	-2,039.0	13.8	2,039.1	0.55	0.11	0.54
12,688.0	90.90	179.70	10,767.7	-2,132.0	13.2	2,132.1	1.76	-1.08	-1.40
12,781.0	91.80	180.30	10,765.5	-2,225.0	13.2	2,225.0	1.16	0.97	0.65
12,875.0	90.90	179.50	10,763.3	-2,319.0	13.4	2,319.0	1.28	-0.96	-0.85
12,968.0	90.10	179.10	10,762.5	-2,411.9	14.5	2,412.0	0.96	-0.86	-0.43
13,061.0	90.20	179.20	10,762.2	-2,504.9	15.9	2,505.0	0.15	0.11	0.11
13,154.0	90.70	179.40	10,761.5	-2,597.9	17.0	2,598.0	0.58	0.54	0.22
13,247.0	89.60	179.10	10,761.2	-2,690.9	18.2	2,691.0	1.23	-1.18	-0.32
13,340.0	90.30	179.60	10,761.3	-2,783.9	19.3	2,784.0	0.92	0.75	0.54
13,434.0	90.50	179.70	10,760.7	-2,877.9	19.9	2,878.0	0.24	0.21	0.11
13,528.0	90.10	179.90	10,760.2	-2,971.9	20.2	2,972.0	0.48	-0.43	0.21
13,621.0	90.80	180.50	10,759.4	-3,064.9	19.9	3,065.0	0.99	0.75	0.65
13,716.0	90.10	179.10	10,758.7	-3,159.9	20.2	3,160.0	1.65	-0.74	-1.47
13,809.0	90.30	180.20	10,758.4	-3,252.9	20.8	3,253.0	1.20	0.22	1.18
13,903.0	90.40	179.00	10,757.8	-3,346.9	21.4	3,347.0	1.28	0.11	-1.28
13,996.0	90.50	179.50	10,757.1	-3,439.9	22.6	3,439.9	0.55	0.11	0.54



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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)
14,090.0	90.60	179.90	10,756.2	-3,533.9	23.1	3,533.9	0.44	0.11	0.43
14,184.0	91.00	180.20	10,754.9	-3,627.9	23.0	3,627.9	0.53	0.43	0.32
14,278.0	91.30	180.40	10,753.0	-3,721.8	22.5	3,721.9	0.38	0.32	0.21
14,372.0	90.50	180.30	10,751.5	-3,815.8	22.0	3,815.9	0.86	-0.85	-0.11
14,465.0	90.40	179.70	10,750.8	-3,908.8	22.0	3,908.9	0.65	-0.11	-0.65
14,558.0	91.40	179.30	10,749.3	-4,001.8	22.8	4,001.9	1.16	1.08	-0.43
14,651.0	91.20	179.30	10,747.2	-4,094.8	23.9	4,094.8	0.22	-0.22	0.00
14,745.0	91.00	179.40	10,745.4	-4,188.8	25.0	4,188.8	0.24	-0.21	0.11
14,839.0	90.90	179.60	10,743.8	-4,282.7	25.8	4,282.8	0.24	-0.11	0.21
15,027.0	91.20	179.40	10,740.4	-4,470.7	27.4	4,470.8	0.19	0.16	-0.11
15,121.0	91.60	179.60	10,738.1	-4,564.7	28.3	4,564.7	0.48	0.43	0.21
15,215.0	91.60	179.60	10,735.5	-4,658.6	28.9	4,658.7	0.00	0.00	0.00
15,307.0	91.00	179.60	10,733.4	-4,750.6	29.6	4,750.7	0.65	-0.65	0.00
15,399.0	90.90	180.00	10,731.9	-4,842.6	29.9	4,842.7	0.45	-0.11	0.43
Final MWD Survey									
15,455.0	90.90	180.00	10,731.0	-4,898.6	29.9	4,898.7	0.00	0.00	0.00
Projection to Bit/TD									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,027.0	1,027.0	RUSTLER		0.00		
1,355.0	1,355.0	SALADO		0.00		
3,377.0	3,376.9	CASTILE		0.00		
4,722.0	4,721.9	BASE OF SALT		0.00		
4,953.0	4,952.9	DELAWARE		0.00		
4,980.0	4,979.9	BELL CANYON		0.00		
5,935.0	5,934.9	CHERRY CANYON		0.00		
7,799.0	7,798.8	BRUSHY CANYON		0.00		
9,001.0	9,000.8	BONE SPRINGS		0.00		
9,115.0	9,114.8	UPPER AVALON		0.00		
9,478.0	9,477.8	LOWER AVALON		0.00		
10,050.0	10,049.7	BONE SPRINGS 1 /SD/		0.00		
10,549.9	10,533.7	BONE SPRINGS 2 /SD/		0.00		



TDS
Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD83)	TVD Reference:	KB @ 3543.5usft (Nomac 22)
Site:	Resolute BTO Federal	MD Reference:	KB @ 3543.5usft (Nomac 22)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,100.0	1,100.0	-0.7	-5.9	TIE-IN to MS Survey
10,823.1	10,716.2	-279.9	-1.2	As-Drilled Crosses 330' Hard Line
11,097.7	10,783.0	-542.7	5.0	AS-Drilled EOC
15,399.0	10,731.9	-4,842.6	29.9	Final MWD Survey
15,455.0	10,731.0	-4,898.6	29.9	Projection to Bit/TD

Checked By: _____ Approved By: _____ Date: _____



Yates Petroleum Corp.
 Project: Lea County, NM (NAD83)
 Site: Resolute BTO Federal
 Well: #1H
 Wellbore: OH
 Plan: Plan #4

WELL DETAILS: #1H

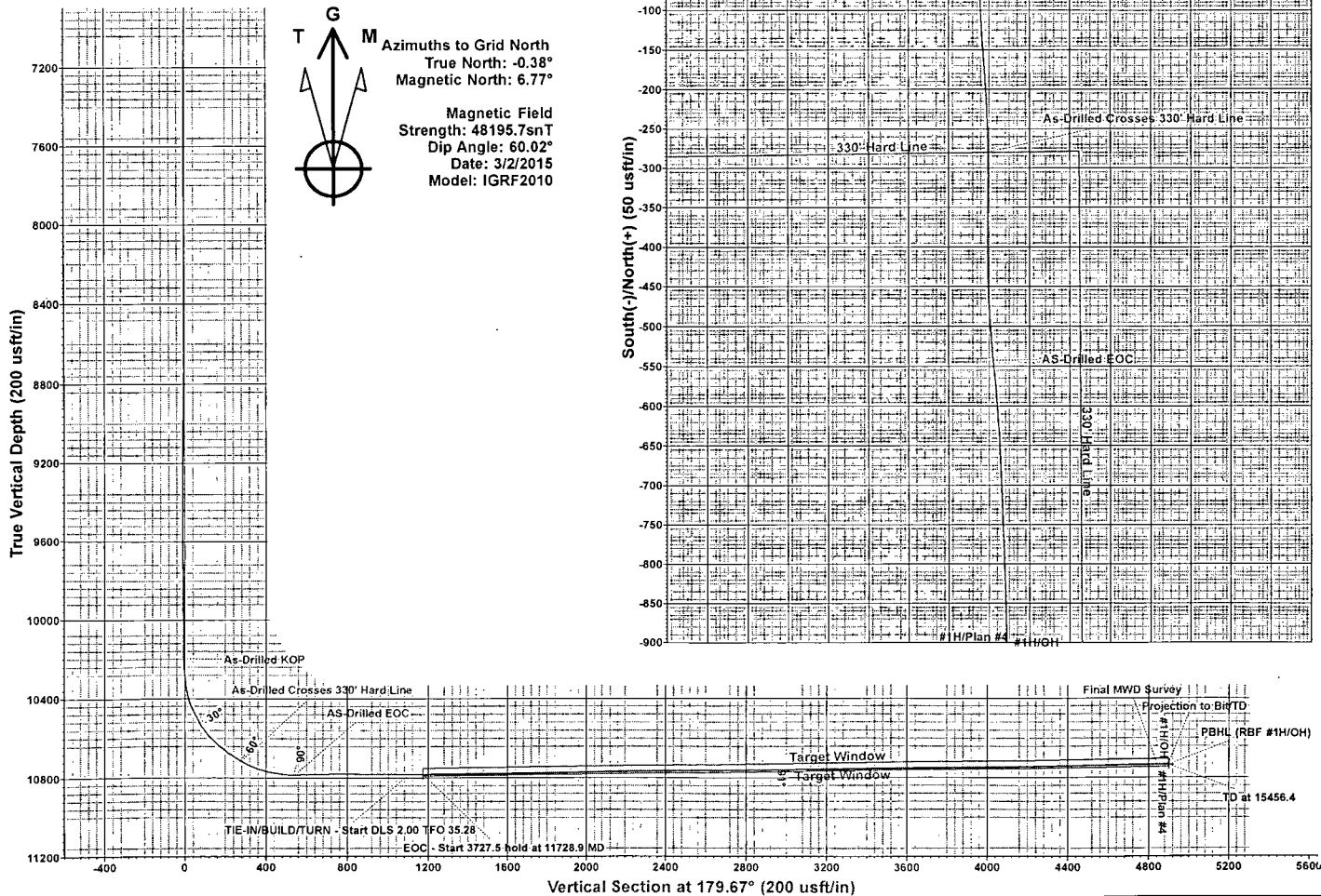
Ground Elevation:: 3522.0
 RKB Elevation: KB @ 3543.5usft (Nomac 22)
 Rig Name: Nomac 22

Northing 419845.94 Easting 761698.04 Latitude 32° 9' 8.034 N Longitude 103° 37' 16.660 W



Azimuths to Grid North
 True North: -0.38°
 Magnetic North: 6.77°

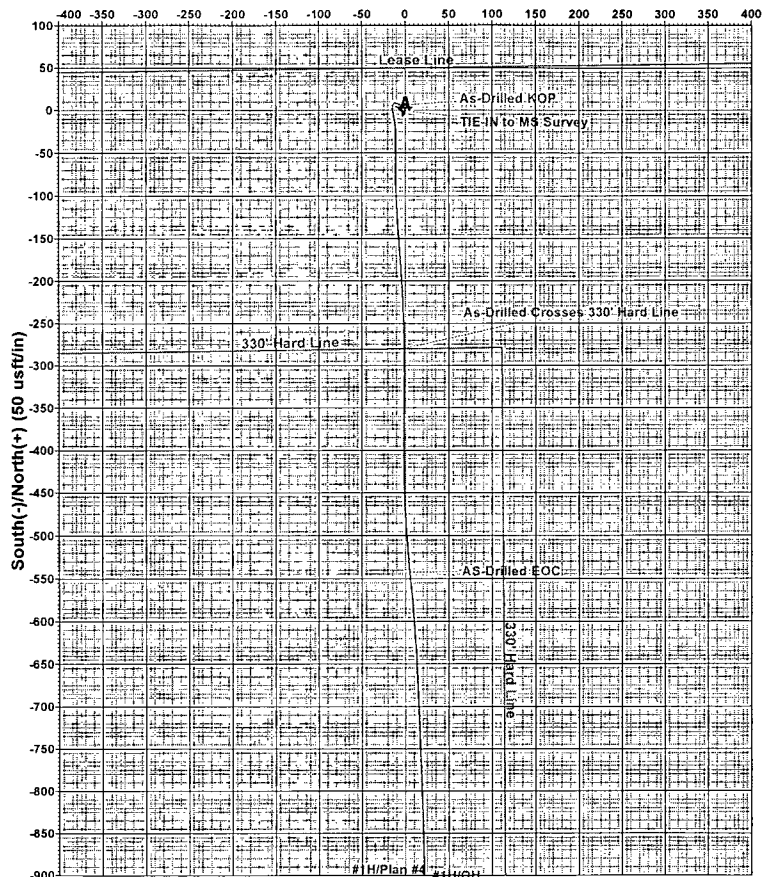
Magnetic Field
 Strength: 48195.7snT
 Dip Angle: 60.02°
 Date: 3/2/2015
 Model: IGRF2010



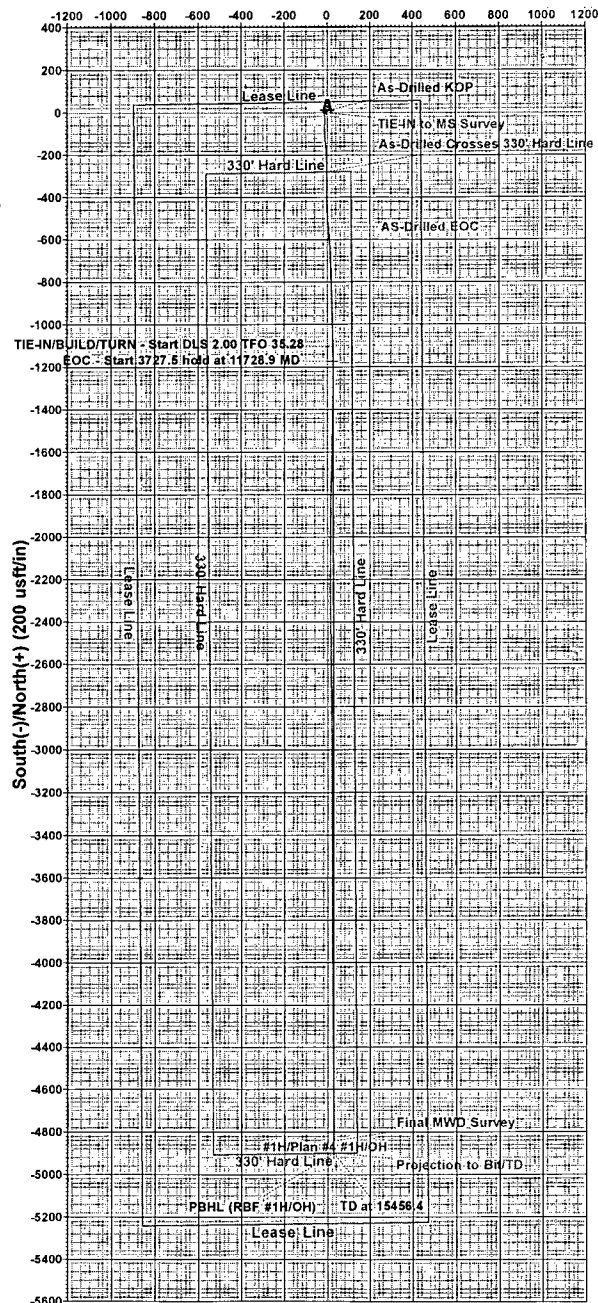
Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	11661.0	89.60	179.20	10781.3	-1105.3	26.7	0.00	0.00	1105.5	
2	11728.9	90.71	179.98	10781.1	-1173.2	27.1	2.00	35.28	1173.4	
3	15456.4	90.71	179.98	10735.0	-4900.4	28.2	0.00	0.00	4900.5	PBHL (RBF #1H/OH)

West(-)/East(+) (50 usft/in)



West(-)/East(+) (200 usft/in)



Terra Directional Services LLC
 3705 S CR 1210, Midland, TX 79706
 Phone: (432) 618-1210

PROJECT DETAILS: Lea County, NM (NAD83)
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level
 Local North: Grid



Job Number: SVMO-150268
 Company: Yates Petroleum Corporation
 Lease/Well: Resolute BTO Federal 1H
 Location: Lea County, NM
 Rig Name: Nomac #22
 RKB: 21.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 6.77°
 Grid: East To Grid North
 File name: Y:\WINSER~1\2015SU~1\YATESP~1\MOIRESOLU~1\1H.SVY
 Date/Time: 06-Apr-15 / 16:50
 Curve Name: Surface - 1100' M.D. (SRG)

MS Survey

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane 179.67

Vertical Section Referenced to Wellhead

Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 1100' MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.

Daniel West 4/6/15
 MS Energy Services Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
200.00	.27	187.89	200.00	-.47	-.06	.47	.47	187.89	.13
400.00	.25	243.70	400.00	-1.13	-.52	1.12	1.24	204.79	.12
600.00	.46	287.13	599.99	-1.08	-1.68	1.07	2.00	237.16	.16
800.00	.51	269.86	799.99	-.85	-3.34	.83	3.44	255.72	.08
1000.00	.48	267.95	999.98	-.88	-5.06	.85	5.14	260.12	.02
Last Survey Depth Recorded									
1100.00	.58	298.19	1099.98	-.66	-5.93	.62	5.96	263.67	.29

NM OIL CONSERVATION
 ARTESIA DISTRICT

JUL 01 2015

RECEIVED

HOBBS OGD

5/11/2015

JUL 09 2015

RECEIVED



Customer Name: Yates Petroleum Corp
 Well Name: Resolute BTO Federal #1H
 API Number: 30-025-42214
 County / Parish: Lea County, NM

M.W.D. Operator: George Sakas
 Directional Driller: Irby LeJeune
 Total Magnetic Correction: 6.77
 Job #: NM-522

Vertical Section: 179.67

Tie In Survey(s) Provided By:

MULTI SHOT

	Meas. Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	+N / -S	+E / -W	Dist.	Angle	DLS
Tie - In										
0	1100.00	0.58	298.19	1099.98	0.62	-0.66	-5.93	5.96	263.67	0.29
1	1222.00	0.60	320.40	1221.97	-0.16	0.12	-6.88	6.88	271.03	0.19
2	1409.00	0.50	327.60	1408.97	-1.61	1.57	-7.94	8.10	281.16	0.06
3	1596.00	0.40	318.90	1595.96	-2.80	2.75	-8.81	9.23	287.33	0.06
4	1784.00	0.30	311.80	1783.96	-3.63	3.57	-9.61	10.25	290.39	0.06
5	1973.00	0.10	239.20	1972.95	-3.87	3.82	-10.12	10.81	290.66	0.15
6	2160.00	0.10	110.70	2159.95	-3.73	3.67	-10.11	10.75	289.98	0.10
7	2346.00	0.20	292.20	2345.95	-3.80	3.74	-10.25	10.91	290.04	0.16
8	2534.00	0.20	295.00	2533.95	-4.07	4.00	-10.86	11.57	290.24	0.01
9	2720.00	0.10	112.80	2719.95	-4.14	4.08	-11.00	11.73	290.34	0.16
10	2906.00	0.20	258.40	2905.95	-4.01	3.95	-11.17	11.85	289.47	0.15
11	3093.00	0.10	12.30	3092.95	-4.11	4.04	-11.45	12.15	289.44	0.14
12	3280.00	0.20	75.50	3279.95	-4.35	4.28	-11.10	11.90	291.10	0.10
13	3467.00	0.30	110.80	3466.95	-4.25	4.19	-10.33	11.15	292.09	0.10
14	3654.00	0.40	136.30	3653.95	-3.60	3.55	-9.42	10.07	290.63	0.10
15	3841.00	0.30	139.20	3840.94	-2.75	2.70	-8.65	9.06	287.36	0.05
16	4027.00	0.30	143.70	4026.94	-1.99	1.94	-8.04	8.27	283.58	0.01
17	4213.00	0.20	149.00	4212.94	-1.32	1.27	-7.59	7.69	279.51	0.06
18	4399.00	0.60	115.80	4398.93	-0.61	0.57	-6.54	6.57	274.97	0.24
19	4586.00	0.20	171.70	4585.93	0.15	-0.18	-5.61	5.62	268.17	0.28
20	4773.00	0.60	141.20	4772.92	1.24	-1.27	-4.95	5.11	255.67	0.24
21	4832.00	0.40	127.00	4831.92	1.60	-1.63	-4.60	4.88	250.47	0.40
22	4965.00	0.30	132.50	4964.92	2.12	-2.15	-3.97	4.51	241.61	0.08
23	5152.00	0.40	157.50	5151.92	3.06	-3.08	-3.36	4.56	227.48	0.10
24	5339.00	0.30	212.90	5338.91	4.07	-4.09	-3.37	5.30	219.50	0.18
25	5525.00	0.40	177.80	5524.91	5.13	-5.15	-3.61	6.29	215.05	0.12
26	5712.00	0.40	166.80	5711.91	6.42	-6.44	-3.44	7.30	208.11	0.04
27	5899.00	0.30	175.40	5898.90	7.54	-7.56	-3.25	8.23	203.26	0.06
28	6086.00	0.40	8.50	6085.90	7.39	-7.40	-3.12	8.03	202.82	0.37
29	6272.00	0.40	40.30	6271.90	6.25	-6.27	-2.60	6.78	202.53	0.12
30	6459.00	0.80	27.90	6458.89	4.61	-4.62	-1.57	4.87	198.75	0.22
31	6647.00	0.80	8.70	6646.87	2.15	-2.16	-0.75	2.29	199.25	0.14
32	6834.00	0.60	350.00	6833.85	-0.10	0.10	-0.73	0.73	277.57	0.16
33	7021.00	0.40	341.20	7020.85	-1.69	1.68	-1.11	2.01	326.61	0.11
34	7207.00	0.40	314.60	7206.84	-2.76	2.75	-1.78	3.27	327.11	0.10
35	7394.00	0.40	270.90	7393.84	-3.23	3.22	-2.90	4.33	318.02	0.16
36	7581.00	0.40	346.30	7580.84	-3.88	3.86	-3.70	5.35	316.21	0.26
37	7765.00	0.40	204.80	7764.83	-3.93	3.90	-4.12	5.68	313.42	0.41
38	7953.00	0.10	205.70	7952.83	-3.19	3.16	-4.47	5.47	305.25	0.16
39	8139.00	0.10	254.20	8138.83	-3.00	2.97	-4.70	5.56	302.30	0.04
40	8326.00	0.30	168.30	8325.83	-2.47	2.45	-4.76	5.35	297.21	0.17

41	8513.00	0.10	335.90	8512.83	-2.14	2.11	-4.72	5.17	294.12	0.21
42	8702.00	0.80	346.70	8701.82	-3.58	3.55	-5.09	6.21	304.87	0.37
43	8889.00	0.70	330.80	8888.81	-5.85	5.82	-5.95	8.32	314.35	0.12
44	9076.00	0.70	303.00	9075.79	-7.48	7.44	-7.47	10.54	314.89	0.18
45	9262.00	0.90	269.10	9261.78	-8.09	8.03	-9.88	12.73	309.11	0.27
46	9449.00	0.60	17.10	9448.77	-9.01	8.95	-11.06	14.22	308.96	0.66
47	9636.00	0.90	213.60	9635.76	-8.72	8.66	-11.59	14.46	306.77	0.79
48	9823.00	0.40	282.00	9822.75	-7.65	7.57	-13.04	15.08	300.14	0.45
49	9917.00	0.60	210.60	9916.75	-7.29	7.21	-13.61	15.40	297.93	0.64
50	10010.00	0.40	206.20	10009.74	-6.58	6.50	-14.00	15.44	294.92	0.22
51	10103.00	0.60	218.30	10102.74	-5.91	5.83	-14.44	15.58	291.98	0.24
52	10198.00	0.60	270.40	10197.74	-5.53	5.44	-15.25	16.19	289.65	0.55
53	10330.00	8.00	168.70	10329.31	3.49	-3.57	-14.14	14.58	255.82	6.17
54	10376.00	13.10	169.30	10374.52	11.77	-11.84	-12.54	17.25	226.65	11.09
55	10416.00	19.60	176.90	10412.88	22.94	-23.01	-11.34	25.65	206.23	17.07
56	10463.00	24.30	180.60	10456.47	40.50	-40.56	-11.01	42.03	195.19	10.42
57	10510.00	26.50	180.60	10498.92	60.65	-60.72	-11.22	61.75	190.47	4.68
58	10557.00	32.90	178.80	10539.73	83.92	-83.99	-11.07	84.71	187.51	13.75
59	10603.00	40.10	177.10	10576.68	111.25	-111.31	-10.05	111.76	185.16	15.80
60	10650.00	45.30	176.00	10611.21	143.07	-143.11	-8.12	143.34	183.25	11.18
61	10698.00	49.30	176.00	10643.76	178.26	-178.30	-5.66	178.39	181.82	8.33
62	10744.00	52.70	176.80	10672.70	213.95	-213.97	-3.42	214.00	180.92	7.51
63	10791.00	57.30	178.20	10699.65	252.41	-252.42	-1.76	252.43	180.40	10.09
64	10837.00	62.10	180.00	10722.85	292.11	-292.12	-1.15	292.12	180.23	10.97
65	10884.00	66.40	180.80	10743.27	334.43	-334.44	-1.45	334.44	180.25	9.28
66	10931.00	72.40	180.40	10759.80	378.40	-378.41	-1.91	378.42	180.29	12.79
67	10961.00	77.20	179.70	10767.66	407.34	-407.35	-1.93	407.36	180.27	16.16
68	11008.00	81.40	177.70	10776.39	453.50	-453.51	-0.88	453.51	180.11	9.87
69	11056.00	85.80	176.00	10781.74	501.13	-501.13	1.75	501.13	179.80	9.82
70	11101.00	91.10	174.90	10782.95	545.97	-545.95	5.31	545.98	179.44	12.03
71	11132.00	92.60	174.60	10781.95	576.84	-576.81	8.15	576.86	179.19	4.93
72	11195.00	91.10	177.10	10779.92	639.66	-639.60	12.71	639.73	178.86	4.63
73	11242.00	90.60	177.60	10779.22	686.62	-686.55	14.88	686.71	178.76	1.50
74	11289.00	90.90	177.80	10778.61	733.59	-733.50	16.76	733.70	178.69	0.77
75	11382.00	89.20	178.40	10778.53	826.55	-826.45	19.85	826.69	178.62	1.94
76	11475.00	89.40	178.30	10779.66	919.52	-919.40	22.53	919.68	178.60	0.24
77	11568.00	89.50	178.70	10780.55	1012.49	-1012.37	24.96	1012.67	178.59	0.44
78	11661.00	89.60	179.20	10781.28	1105.48	-1105.35	26.66	1105.67	178.62	0.55
79	11754.00	89.20	179.90	10782.26	1198.48	-1198.34	27.39	1198.65	178.69	0.87
80	11847.00	90.50	180.50	10782.50	1291.47	-1291.34	27.07	1291.62	178.80	1.54
81	11941.00	89.80	181.20	10782.26	1385.45	-1385.32	25.67	1385.56	178.94	1.05
82	12034.00	91.30	180.90	10781.36	1478.41	-1478.30	23.97	1478.50	179.07	1.64
83	12127.00	90.90	180.80	10779.58	1571.38	-1571.27	22.59	1571.44	179.18	0.44
84	12221.00	90.60	181.50	10778.35	1665.34	-1665.25	20.70	1665.37	179.29	0.81
85	12315.00	90.70	182.10	10777.28	1759.27	-1759.19	17.75	1759.28	179.42	0.65
86	12409.00	91.50	180.40	10775.48	1853.21	-1853.15	15.70	1853.22	179.51	2.00
87	12502.00	91.80	180.50	10772.80	1946.16	-1946.11	14.97	1946.17	179.56	0.34
88	12595.00	91.90	181.00	10769.80	2039.10	-2039.05	13.76	2039.10	179.61	0.55
89	12688.00	90.90	179.70	10767.52	2132.06	-2132.02	13.19	2132.06	179.65	1.76
90	12780.00	91.80	180.30	10765.36	2224.03	-2223.99	13.19	2224.03	179.66	1.18
91	12875.00	90.90	179.50	10763.12	2319.00	-2318.96	13.35	2319.00	179.67	1.27
92	12968.00	90.10	179.10	10762.31	2412.00	-2411.95	14.49	2412.00	179.66	0.96
93	13061.00	90.20	179.20	10762.06	2504.99	-2504.94	15.87	2504.99	179.64	0.15
94	13154.00	90.70	179.40	10761.33	2597.99	-2597.93	17.01	2597.99	179.62	0.58
95	13247.00	89.60	179.10	10761.09	2690.98	-2690.92	18.22	2690.98	179.61	1.23

96	13340.00	90.30	179.60	10761.17	2783.98	-2783.91	19.28	2783.98	179.60	0.92
97	13434.00	90.50	179.70	10760.51	2877.98	-2877.91	19.85	2877.98	179.60	0.24
98	13528.00	90.10	179.90	10760.02	2971.98	-2971.91	20.18	2971.98	179.61	0.48
99	13621.00	90.80	180.50	10759.29	3064.97	-3064.90	19.86	3064.97	179.63	0.99
100	13716.00	90.10	179.10	10758.55	3159.96	-3159.90	20.19	3159.96	179.63	1.65
101	13809.00	90.30	180.20	10758.22	3252.96	-3252.89	20.76	3252.96	179.63	1.20
102	13903.00	90.40	179.00	10757.65	3346.96	-3346.89	21.41	3346.96	179.63	1.28
103	13996.00	90.50	179.50	10756.92	3439.95	-3439.88	22.63	3439.95	179.62	0.55
104	14090.00	90.60	179.90	10756.01	3533.95	-3533.87	23.12	3533.95	179.63	0.44
105	14184.00	91.00	180.20	10754.70	3627.93	-3627.86	23.04	3627.93	179.64	0.53
106	14278.00	91.30	180.40	10752.81	3721.91	-3721.84	22.55	3721.91	179.65	0.38
107	14372.00	90.50	180.30	10751.34	3815.89	-3815.83	21.97	3815.89	179.67	0.86
108	14465.00	90.40	179.70	10750.61	3908.89	-3908.82	21.97	3908.89	179.68	0.65
109	14558.00	91.40	179.30	10749.15	4001.87	-4001.81	22.78	4001.87	179.67	1.16
110	14651.00	91.20	179.30	10747.04	4094.85	-4094.78	23.92	4094.85	179.67	0.22
111	14745.00	91.00	179.40	10745.23	4188.83	-4188.75	24.99	4188.83	179.66	0.24
112	14839.00	90.90	179.60	10743.67	4282.81	-4282.74	25.81	4282.81	179.65	0.24
113	14933.00	90.90	179.30	10742.20	4376.80	-4376.72	26.71	4376.80	179.65	0.32
114	15027.00	91.20	179.40	10740.47	4470.78	-4470.70	27.77	4470.78	179.64	0.34
115	15121.00	91.60	179.60	10738.18	4564.76	-4564.67	28.59	4564.76	179.64	0.48
116	15215.00	90.70	179.70	10736.29	4658.74	-4658.64	29.17	4658.74	179.64	0.96
117	15307.00	91.00	179.60	10734.93	4750.73	-4750.63	29.73	4750.73	179.64	0.34
118	15399.00	90.90	180.00	10733.40	4842.71	-4842.62	30.05	4842.71	179.64	0.45
PTB	15455.00	90.90	180.00	10732.52	4898.70	-4898.61	30.05	4898.70	179.65	0.00