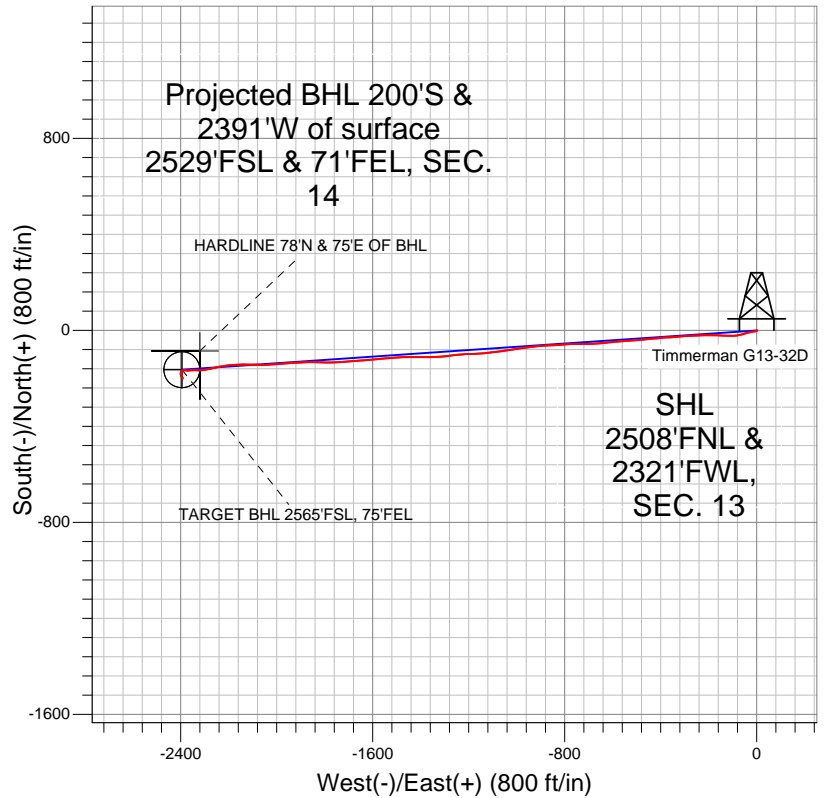
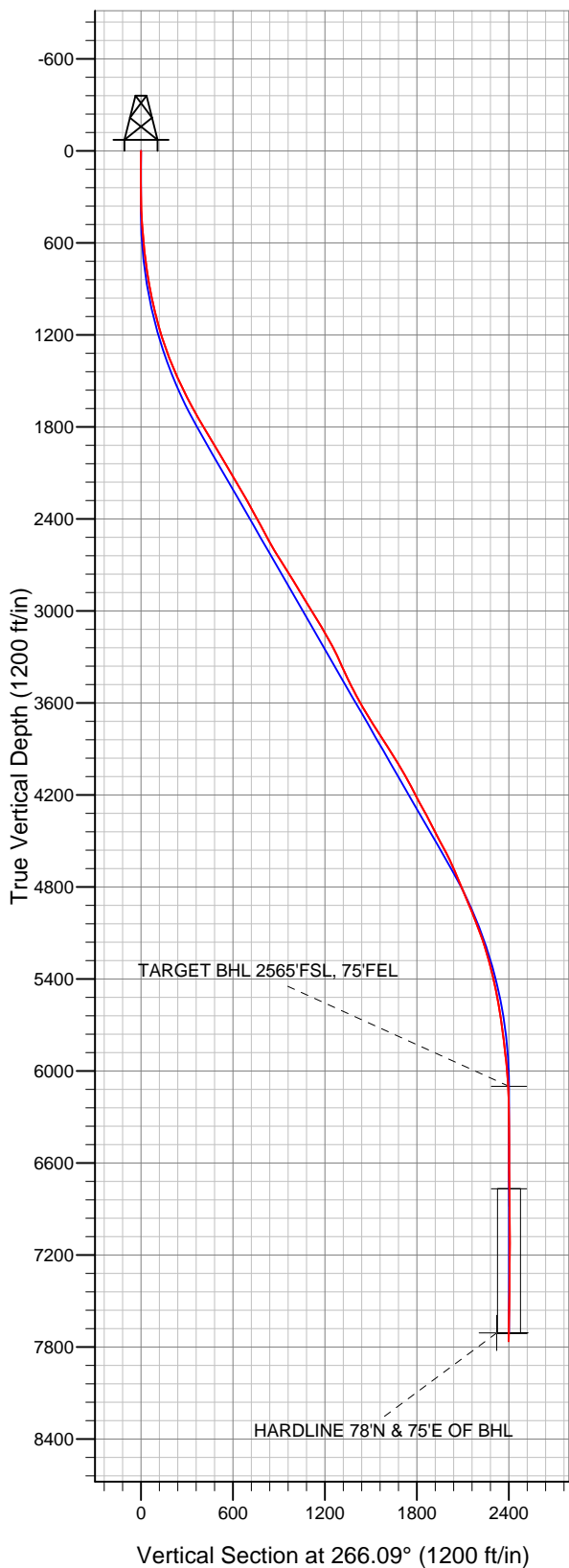


# Well Name: Timmerman G13-32D

Surface Location: Timmerman G13-20D Pad Sec.13-T4N-R65W  
 North American Datum 1983 US State Plane 1983Colorado Northern Zone  
 Ground Elevation: 4775.0

+N/-S 0.0	+E/-W 0.0	Northing 1357999.68	Easting 3247489.28	Latitude 40.312710	Longitude -104.612510	Slot
		Original Well Elev	WELL @ 4788.0ft (Original Well Elev)			

## NOBLE ENERGY INC WELD COUNTY CO



- LEGEND
- Wellbore #1
  - Timmerman G13-32D, Wellbore #1, Noble Timmerman G13-32D Plan #1 (10-25-11) V0
  - Survey #1

## Final Survey Plot

Projected Final Survey -  
 8325'MD & 7762'TVD @ 2399'VS  
 1.50 deg Inc 139.40 deg AZ

Project: SEC.13-T4N-R65W  
 Site: Timmerman G13-20D Pad Sec.13-T4N-R65W  
 Well: Timmerman G13-32D  
 Plan: Wellbore #1



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.13-T4N-R65W**

**Timmerman G13-20D Pad Sec.13-T4N-R65W**

**Timmerman G13-32D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**11 April, 2012**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Timmerman G13-32D
<b>Project:</b>	SEC.13-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4788.0ft (Original Well Elev)
<b>Site:</b>	Timmerman G13-20D Pad Sec.13-T4N-R65W	<b>MD Reference:</b>	WELL @ 4788.0ft (Original Well Elev)
<b>Well:</b>	Timmerman G13-32D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.13-T4N-R65W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Timmerman G13-20D Pad Sec.13-T4N-R65W		
<b>Site Position:</b>		<b>Northing:</b>	1,357,999.70ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,247,489.28ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.312710
		<b>Longitude:</b>	-104.612510
		<b>Grid Convergence:</b>	0.57 °

<b>Well</b>	Timmerman G13-32D		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,357,999.68 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,247,489.28 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.312710
		<b>Longitude:</b>	-104.612510
		<b>Ground Level:</b>	4,775.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	10/13/2011	8.69	67.00	53,090

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	6,100.0	0.0	0.0	266.09	

<b>Survey Program</b>	<b>Date</b>	4/11/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
109.0	8,325.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
109.0	0.30	109.00	109.0	-0.1	0.3	-0.3	0.28	0.28	0.00	
200.0	0.80	210.80	200.0	-0.7	0.2	-0.1	1.00	0.55	111.87	
292.0	1.20	226.50	292.0	-1.9	-0.9	1.0	0.52	0.43	17.07	
385.0	2.10	255.80	384.9	-3.0	-3.2	3.4	1.30	0.97	31.51	
476.0	3.40	265.60	475.8	-3.6	-7.5	7.8	1.51	1.43	10.77	
568.0	5.10	263.20	567.6	-4.3	-14.3	14.6	1.86	1.85	-2.61	
650.0	6.20	255.60	649.2	-5.9	-22.2	22.6	1.62	1.34	-9.27	
731.0	8.00	253.00	729.6	-8.6	-31.8	32.4	2.26	2.22	-3.21	
752.0	8.40	254.10	750.3	-9.4	-34.7	35.3	2.05	1.90	5.24	
828.0	9.10	253.90	825.5	-12.6	-45.8	46.6	0.92	0.92	-0.26	
910.0	10.90	254.60	906.2	-16.5	-59.5	60.5	2.20	2.20	0.85	
992.0	12.80	260.00	986.5	-20.1	-76.0	77.1	2.68	2.32	6.59	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Timmerman G13-32D
<b>Project:</b>	SEC.13-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4788.0ft (Original Well Elev)
<b>Site:</b>	Timmerman G13-20D Pad Sec.13-T4N-R65W	<b>MD Reference:</b>	WELL @ 4788.0ft (Original Well Elev)
<b>Well:</b>	Timmerman G13-32D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,073.0	13.90	267.10	1,065.3	-22.2	-94.5	95.8	2.43	1.36	8.77
1,155.0	16.40	270.90	1,144.4	-22.5	-115.9	117.2	3.28	3.05	4.63
1,236.0	17.20	272.90	1,222.0	-21.7	-139.3	140.5	1.22	0.99	2.47
1,318.0	19.50	274.00	1,299.8	-20.1	-165.1	166.1	2.84	2.80	1.34
1,400.0	22.00	268.30	1,376.5	-19.6	-194.1	195.0	3.92	3.05	-6.95
1,481.0	24.40	268.80	1,450.9	-20.4	-226.0	226.9	2.97	2.96	0.62
1,563.0	25.50	266.70	1,525.3	-21.8	-260.5	261.4	1.72	1.34	-2.56
1,645.0	26.70	267.80	1,598.9	-23.5	-296.6	297.5	1.58	1.46	1.34
1,726.0	28.00	263.70	1,670.9	-26.3	-333.7	334.7	2.82	1.60	-5.06
1,808.0	30.60	266.90	1,742.4	-29.6	-373.7	374.8	3.70	3.17	3.90
1,890.0	30.50	263.90	1,813.0	-32.9	-415.2	416.5	1.86	-0.12	-3.66
1,971.0	30.80	265.80	1,882.7	-36.6	-456.3	457.7	1.25	0.37	2.35
2,053.0	30.90	264.80	1,953.1	-40.1	-498.2	499.8	0.64	0.12	-1.22
2,135.0	30.70	265.80	2,023.5	-43.5	-540.1	541.8	0.67	-0.24	1.22
2,216.0	30.50	264.40	2,093.2	-47.0	-581.1	583.0	0.91	-0.25	-1.73
2,298.0	31.00	264.30	2,163.7	-51.1	-622.9	624.9	0.61	0.61	-0.12
2,379.0	30.10	266.20	2,233.5	-54.6	-663.9	666.1	1.63	-1.11	2.35
2,461.0	28.80	268.50	2,304.9	-56.4	-704.1	706.4	2.10	-1.59	2.80
2,543.0	28.60	271.30	2,376.8	-56.5	-743.5	745.6	1.66	-0.24	3.41
2,624.0	27.80	266.40	2,448.2	-57.3	-781.8	783.8	3.02	-0.99	-6.05
2,706.0	28.70	265.00	2,520.4	-60.2	-820.5	822.6	1.36	1.10	-1.71
2,788.0	30.50	268.50	2,591.7	-62.4	-860.9	863.1	3.04	2.20	4.27
2,869.0	32.40	264.30	2,660.8	-65.1	-903.0	905.4	3.58	2.35	-5.19
2,951.0	32.20	263.30	2,730.1	-69.9	-946.6	949.1	0.70	-0.24	-1.22
3,033.0	31.70	261.60	2,799.7	-75.6	-989.6	992.5	1.26	-0.61	-2.07
3,114.0	32.10	262.70	2,868.5	-81.4	-1,032.0	1,035.2	0.87	0.49	1.36
3,196.0	30.70	260.70	2,938.5	-87.6	-1,074.3	1,077.7	2.13	-1.71	-2.44
3,277.0	30.50	263.00	3,008.2	-93.4	-1,115.1	1,118.9	1.47	-0.25	2.84
3,359.0	32.50	267.90	3,078.1	-96.7	-1,157.8	1,161.7	3.96	2.44	5.98
3,441.0	30.20	267.60	3,148.1	-98.4	-1,200.4	1,204.3	2.81	-2.80	-0.37
3,522.0	28.30	265.00	3,218.8	-100.9	-1,239.9	1,243.9	2.82	-2.35	-3.21
3,604.0	24.70	262.10	3,292.2	-105.0	-1,276.2	1,280.4	4.66	-4.39	-3.54
3,686.0	24.40	265.10	3,366.8	-108.8	-1,310.1	1,314.4	1.56	-0.37	3.66
3,767.0	25.50	267.90	3,440.2	-110.9	-1,344.2	1,348.6	1.99	1.36	3.46
3,849.0	27.70	269.50	3,513.5	-111.7	-1,380.9	1,385.3	2.82	2.68	1.95
3,931.0	30.40	272.20	3,585.2	-111.0	-1,420.7	1,424.9	3.66	3.29	3.29
4,012.0	30.00	267.90	3,655.2	-111.0	-1,461.4	1,465.6	2.72	-0.49	-5.31
4,094.0	30.50	265.70	3,726.1	-113.3	-1,502.6	1,506.9	1.48	0.61	-2.68
4,176.0	33.20	265.10	3,795.7	-116.8	-1,545.8	1,550.1	3.32	3.29	-0.73
4,257.0	33.60	265.50	3,863.3	-120.4	-1,590.2	1,594.7	0.56	0.49	0.49
4,339.0	32.30	265.20	3,932.1	-124.1	-1,634.6	1,639.3	1.60	-1.59	-0.37
4,420.0	31.10	265.50	4,001.1	-127.5	-1,677.1	1,681.9	1.49	-1.48	0.37
4,502.0	29.00	266.00	4,072.0	-130.6	-1,718.0	1,722.9	2.58	-2.56	0.61
4,584.0	27.90	265.70	4,144.1	-133.4	-1,757.0	1,762.0	1.35	-1.34	-0.37
4,665.0	27.90	271.80	4,215.7	-134.2	-1,794.8	1,799.8	3.52	0.00	7.53
4,747.0	29.10	272.90	4,287.8	-132.6	-1,833.9	1,838.7	1.60	1.46	1.34
4,829.0	27.30	268.30	4,360.1	-132.1	-1,872.6	1,877.3	3.44	-2.20	-5.61
4,910.0	27.90	265.50	4,431.9	-134.2	-1,910.1	1,914.8	1.76	0.74	-3.46
4,992.0	27.80	267.20	4,504.4	-136.6	-1,948.3	1,953.1	0.98	-0.12	2.07
5,074.0	27.30	264.30	4,577.1	-139.4	-1,986.1	1,991.0	1.75	-0.61	-3.54
5,155.0	24.80	266.50	4,649.8	-142.3	-2,021.6	2,026.6	3.31	-3.09	2.72
5,237.0	22.70	267.20	4,724.9	-144.1	-2,054.5	2,059.6	2.58	-2.56	0.85
5,318.0	23.20	273.70	4,799.5	-143.9	-2,086.1	2,091.0	3.19	0.62	8.02
5,400.0	23.00	271.60	4,874.9	-142.4	-2,118.2	2,123.0	1.03	-0.24	-2.56

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Timmerman G13-32D
<b>Project:</b>	SEC.13-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4788.0ft (Original Well Elev)
<b>Site:</b>	Timmerman G13-20D Pad Sec.13-T4N-R65W	<b>MD Reference:</b>	WELL @ 4788.0ft (Original Well Elev)
<b>Well:</b>	Timmerman G13-32D	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

**Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,482.0	21.80	268.70	4,950.7	-142.3	-2,149.5	2,154.2	1.99	-1.46	-3.54
5,563.0	21.50	265.70	5,026.0	-143.7	-2,179.3	2,184.0	1.42	-0.37	-3.70
5,645.0	20.60	263.70	5,102.5	-146.4	-2,208.6	2,213.5	1.40	-1.10	-2.44
5,727.0	17.90	259.00	5,179.9	-150.4	-2,235.3	2,240.4	3.79	-3.29	-5.73
5,808.0	16.10	257.00	5,257.4	-155.3	-2,258.5	2,263.8	2.34	-2.22	-2.47
5,890.0	13.80	256.30	5,336.6	-160.2	-2,279.1	2,284.7	2.81	-2.80	-0.85
5,972.0	13.10	262.00	5,416.4	-163.8	-2,297.8	2,303.6	1.83	-0.85	6.95
6,053.0	11.30	261.80	5,495.5	-166.2	-2,314.7	2,320.7	2.22	-2.22	-0.25
6,135.0	9.80	274.50	5,576.2	-166.8	-2,329.6	2,335.6	3.36	-1.83	15.49
6,217.0	8.00	273.00	5,657.2	-166.0	-2,342.3	2,348.2	2.21	-2.20	-1.83
6,298.0	7.20	266.50	5,737.5	-166.0	-2,353.0	2,358.8	1.45	-0.99	-8.02
6,380.0	6.90	262.00	5,818.9	-167.0	-2,363.0	2,368.9	0.77	-0.37	-5.49
6,461.0	7.00	275.30	5,899.3	-167.2	-2,372.7	2,378.6	1.99	0.12	16.42
6,543.0	5.30	269.90	5,980.8	-166.8	-2,381.5	2,387.3	2.19	-2.07	-6.59
6,625.0	3.60	267.60	6,062.5	-166.9	-2,387.9	2,393.7	2.08	-2.07	-2.80
6,662.8	2.98	262.95	6,100.3	-167.0	-2,390.0	2,395.8	1.80	-1.65	-12.32
<b>TARGET BHL 2565'FSL, 75'FEL</b>									
6,706.0	2.30	254.60	6,143.4	-167.4	-2,392.0	2,397.8	1.80	-1.56	-19.32
6,788.0	1.30	254.40	6,225.4	-168.1	-2,394.4	2,400.3	1.22	-1.22	-0.24
6,870.0	0.70	243.30	6,307.4	-168.6	-2,395.8	2,401.7	0.77	-0.73	-13.54
6,951.0	0.40	226.60	6,388.4	-169.0	-2,396.4	2,402.4	0.42	-0.37	-20.62
7,033.0	0.40	182.20	6,470.4	-169.5	-2,396.7	2,402.6	0.37	0.00	-54.15
7,115.0	0.40	141.70	6,552.4	-170.0	-2,396.5	2,402.5	0.34	0.00	-49.39
7,196.0	0.40	204.80	6,633.4	-170.5	-2,396.4	2,402.5	0.52	0.00	77.90
7,278.0	1.40	224.40	6,715.4	-171.4	-2,397.3	2,403.4	1.26	1.22	23.90
7,330.5	1.46	218.43	6,767.8	-172.4	-2,398.1	2,404.3	0.31	0.12	-11.38
<b>TARGET CIRCLE 2565'FSL, 75'FEL</b>									
7,359.0	1.50	215.40	6,796.3	-173.0	-2,398.6	2,404.8	0.31	0.14	-10.61
7,441.0	1.70	206.10	6,878.3	-175.0	-2,399.7	2,406.1	0.40	0.24	-11.34
7,523.0	1.60	188.70	6,960.3	-177.2	-2,400.4	2,406.9	0.62	-0.12	-21.22
7,604.0	2.00	168.80	7,041.2	-179.7	-2,400.3	2,407.0	0.91	0.49	-24.57
7,686.0	2.00	172.00	7,123.2	-182.5	-2,399.8	2,406.7	0.14	0.00	3.90
7,849.0	2.10	165.50	7,286.1	-188.2	-2,398.7	2,406.0	0.16	0.06	-3.99
8,013.0	1.80	153.30	7,450.0	-193.4	-2,396.8	2,404.4	0.31	-0.18	-7.44
8,176.0	1.50	124.90	7,612.9	-196.9	-2,393.9	2,401.8	0.53	-0.18	-17.42
8,258.0	1.40	136.50	7,694.9	-198.3	-2,392.3	2,400.3	0.38	-0.12	14.15
8,270.3	1.48	135.64	7,707.2	-198.5	-2,392.1	2,400.1	0.65	0.62	-6.98
<b>HARDLINE 78'N &amp; 75'E OF BHL</b>									
8,274.0	1.50	135.40	7,710.9	-198.6	-2,392.0	2,400.0	0.65	0.63	-6.52
8,325.0	1.50	139.40	7,761.9	-199.6	-2,391.1	2,399.2	0.21	0.00	7.84

Checked By: _____	Approved By: _____	Date: _____
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