

# **MALLARD EXPLORATION**

**WELD COUNTY, COLORADO (NAD 83)**

**SE SW SEC. 34 T8N R60W 6th P.M.**

**GREEN TEAL FED 34-27-15HN**

**ORIGINAL WELLBORE**

**03 January, 2019**

**Plan: PROPOSAL #2**



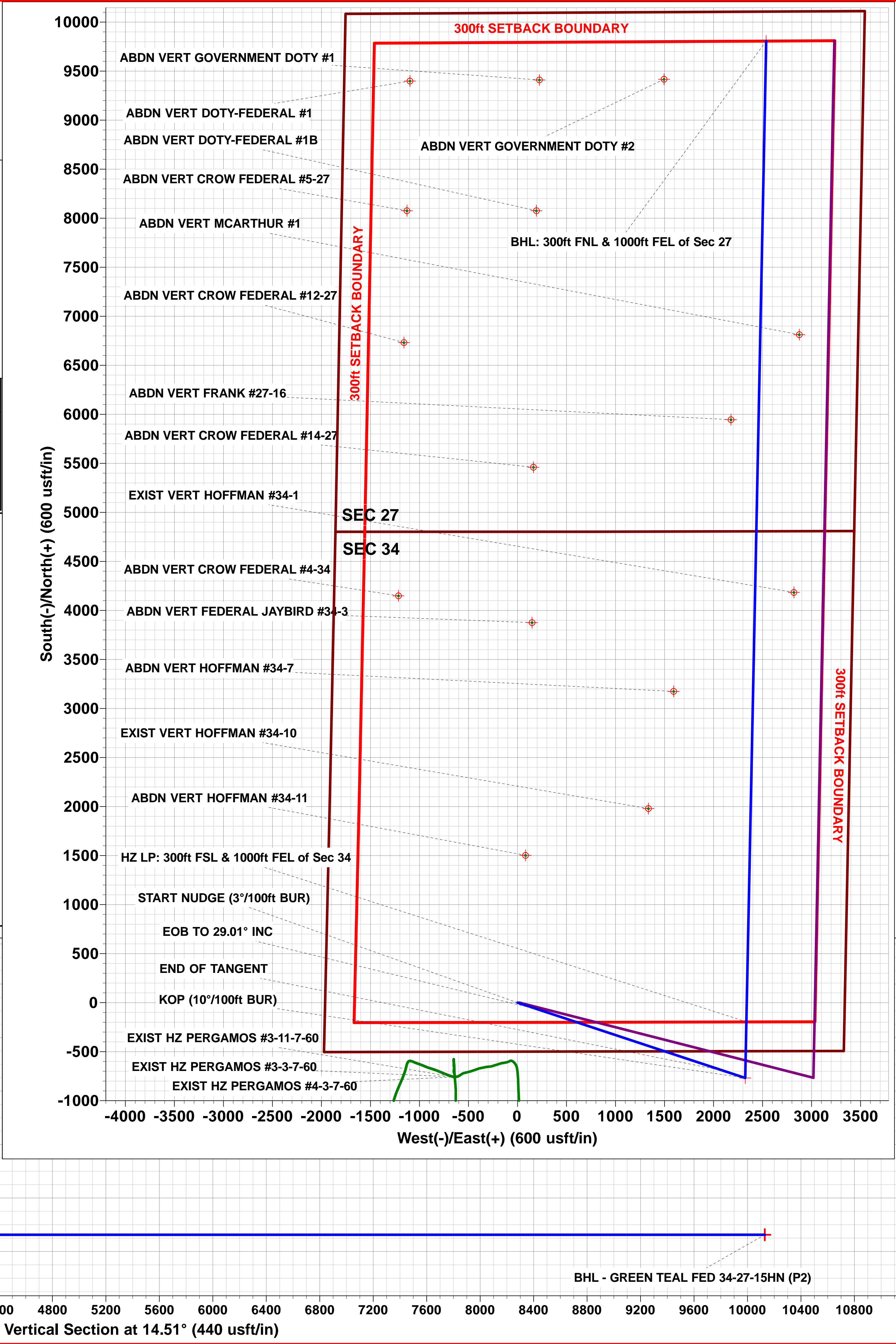
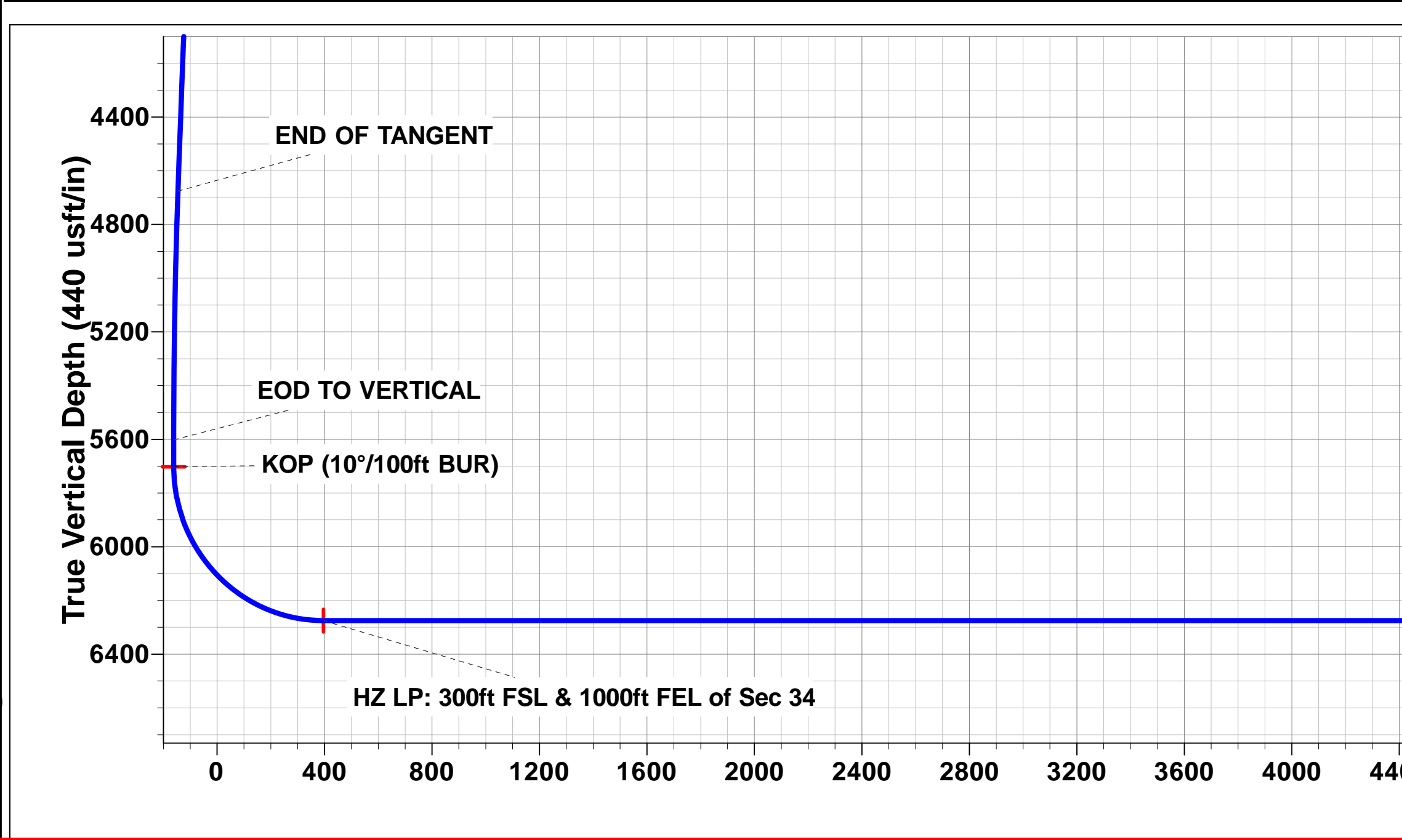
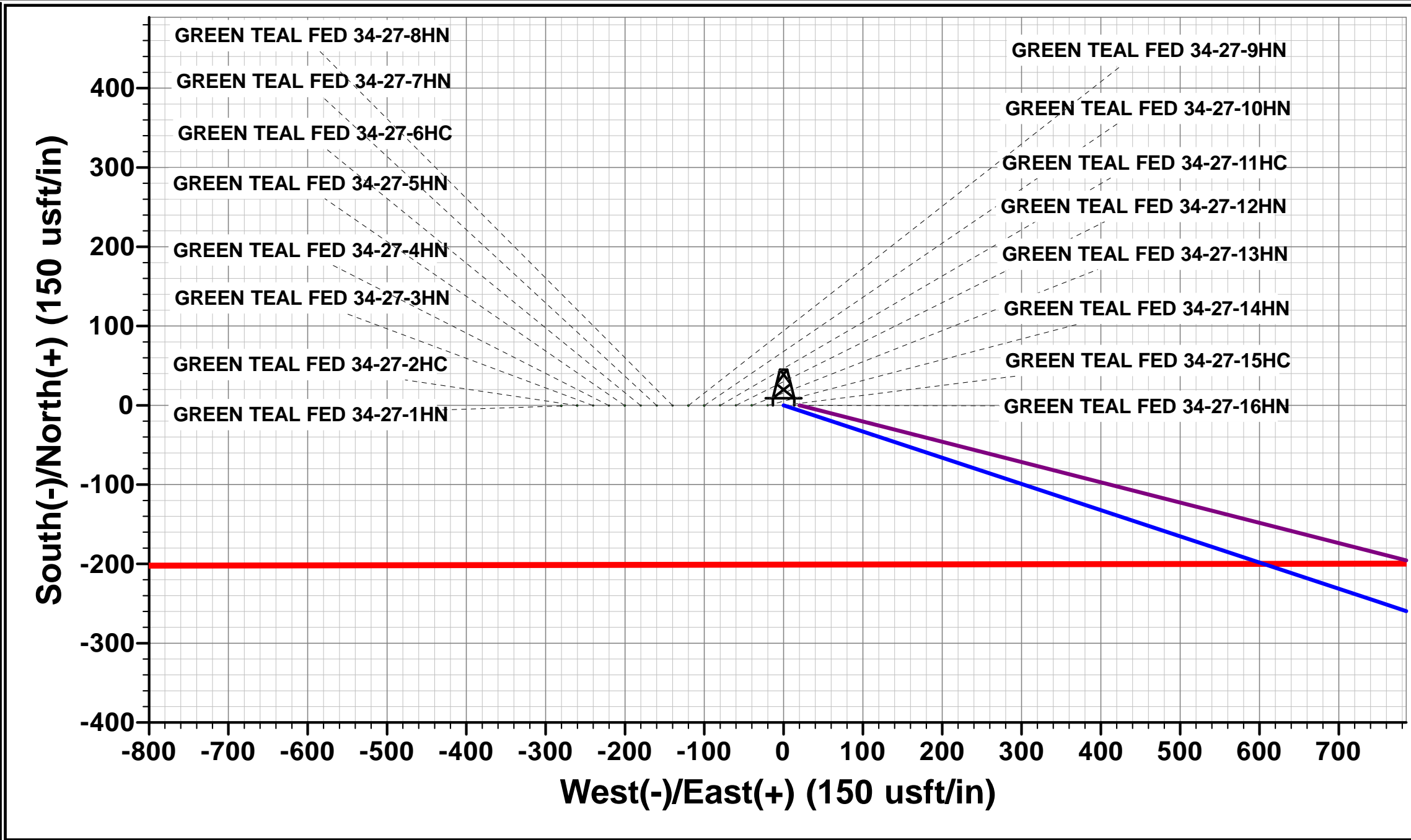
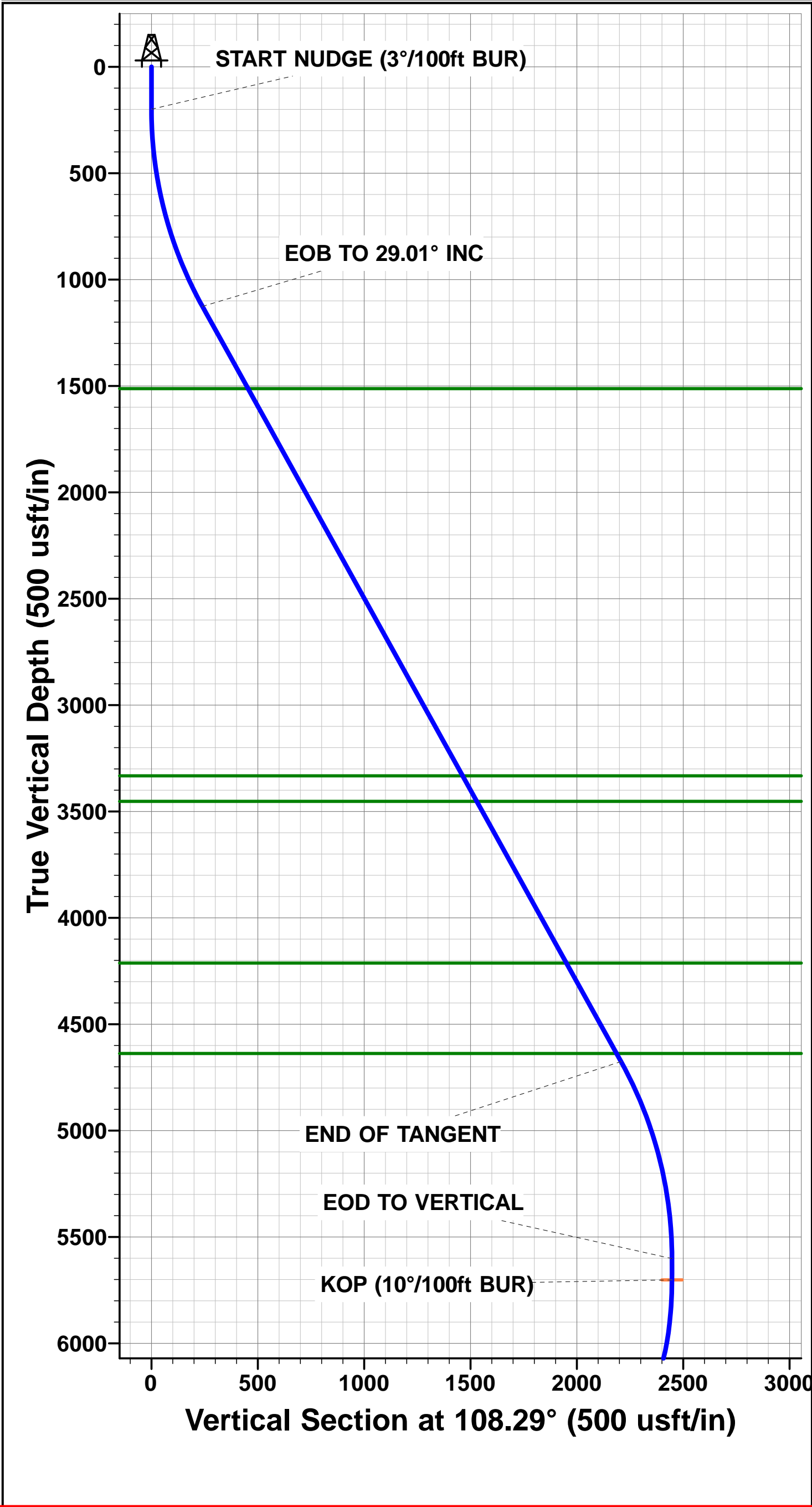


Project: WELD COUNTY, COLORADO (NAD 83)  
Site: SE SW SEC. 34 T8N R60W 6th P.M.  
Well: GREEN TEAL FED 34-27-15HN  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #2

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Dep	Annotation	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 500ft FSL & 1962ft FWL of Sec 34	
200.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (3°/100ft BUR)	
1126.09	1166.86	29.01	108.29	-75.17	227.45	-15.80	239.55	EOB TO 29.01° INC	
4675.95	5225.84	29.01	108.29	-692.81	2096.22	-145.66	2207.74	END OF TANGENT	
5602.04	6192.70	0.00	0.00	-767.98	2323.67	-161.46	2447.29	EOD TO VERTICAL	
5702.04	6292.70	0.00	0.00	-767.98	2323.67	-161.46	2447.29	KOP (10°/100ft BUR)	
6275.00	7192.70	90.00	1.16	-195.14	2335.27	396.02	3020.25	HZ LP: 300ft FSL & 1000ft FEL of Sec 34	
6275.00	17196.24	90.00	1.15	9806.36	2537.19	10129.27	13023.79	BHL: 300ft FNL & 1000ft FEL of Sec 27	

PROPOSED LOCAL COORDINATES:  
  
SHL: 500ft FSL & 1962ft FWL Sec 34  
HZ LP: 300ft FSL & 1000ft FEL Sec 34  
  
BHL: 300ft FNL & 1000ft FEL of Sec 27

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - GREEN TEAL FED 34-27-15HN (P2)	5702.04	-767.98	2323.67	40.610769°N	104.072529°W
HZ LP - GREEN TEAL FED 34-27-15HN (P2)	6275.00	-195.14	2335.27	40.612341°N	104.072487°W
BHL - GREEN TEAL FED 34-27-15HN (P2)	6275.00	9806.36	2537.19	40.639793°N	104.071756°W



# Planning Report



<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-15HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-15HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #2		

<b>Project</b>	WELD COUNTY, COLORADO (NAD 83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	SE SW SEC. 34 T8N R60W 6th P.M.		
<b>Site Position:</b>		<b>Northing:</b>	1,469,260.15 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,393,696.59 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	1.10 ft
		<b>Latitude:</b>	40.612875°N
		<b>Longitude:</b>	104.081907°W
		<b>Grid Convergence:</b>	0.92 °

<b>Well</b>	GREEN TEAL FED 34-27-15HN		
<b>Well Position</b>	<b>+N-S</b>	0.71 usft	<b>Northing:</b>
	<b>+E-W</b>	280.14 usft	<b>Easting:</b>
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	03/01/2019	7.69	67.09	52,394

<b>Design</b>	PROPOSAL #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Direction (°)</b>
	6,275.00	0.00	0.00	14.51

<b>Plan Sections</b>											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,939.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	-4,739.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,166.86	29.01	108.29	1,126.09	-3,812.91	-75.17	227.45	3.00	3.00	0.00	108.29	
5,225.84	29.01	108.29	4,675.95	-263.05	-692.81	2,096.22	0.00	0.00	0.00	0.00	
6,192.70	0.00	0.00	5,602.04	663.04	-767.98	2,323.67	3.00	-3.00	0.00	180.00	
6,292.70	0.00	0.00	5,702.04	763.04	-767.98	2,323.67	0.00	0.00	0.00	0.00	KOP - GREEN TEA
7,192.70	90.00	1.16	6,275.00	1,336.00	-195.14	2,335.27	10.00	10.00	0.13	1.16	HZ LP - GREEN TE
17,196.24	90.00	1.15	6,275.00	1,336.00	9,806.36	2,537.19	0.00	0.00	0.00	-79.57	BHL - GREEN TEA

# Planning Report



<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-15HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-15HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>SHL: 500ft FSL &amp; 1962ft FWL of Sec 34</b>										
0.00	0.00	0.00	0.00	4,939.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,839.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>START NUDGE (3°/100ft BUR)</b>										
200.00	0.00	0.00	200.00	4,739.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	3.00	108.29	299.95	4,639.05	-0.82	2.49	-0.17	3.00	3.00	0.00
400.00	6.00	108.29	399.63	4,539.37	-3.28	9.93	-0.69	3.00	3.00	0.00
500.00	9.00	108.29	498.77	4,440.23	-7.38	22.33	-1.55	3.00	3.00	0.00
600.00	12.00	108.29	597.08	4,341.92	-13.10	39.63	-2.75	3.00	3.00	0.00
700.00	15.00	108.29	694.31	4,244.69	-20.42	61.79	-4.29	3.00	3.00	0.00
800.00	18.00	108.29	790.18	4,148.82	-29.33	88.75	-6.17	3.00	3.00	0.00
900.00	21.00	108.29	884.43	4,054.57	-39.81	120.44	-8.37	3.00	3.00	0.00
1,000.00	24.00	108.29	976.81	3,962.19	-51.81	156.78	-10.89	3.00	3.00	0.00
1,100.00	27.00	108.29	1,067.06	3,871.94	-65.32	197.65	-13.73	3.00	3.00	0.00
<b>EOB TO 29.01° INC</b>										
1,166.86	29.01	108.29	1,126.09	3,812.91	-75.17	227.45	-15.80	3.00	3.00	0.00
1,200.00	29.01	108.29	1,155.07	3,783.93	-80.22	242.71	-16.86	0.00	0.00	0.00
1,300.00	29.01	108.29	1,242.53	3,696.47	-95.43	288.75	-20.06	0.00	0.00	0.00
1,400.00	29.01	108.29	1,329.98	3,609.02	-110.65	334.79	-23.26	0.00	0.00	0.00
1,500.00	29.01	108.29	1,417.44	3,521.56	-125.87	380.83	-26.46	0.00	0.00	0.00
1,600.00	29.01	108.29	1,504.90	3,434.10	-141.08	426.87	-29.66	0.00	0.00	0.00
<b>FOX HILLS BASE</b>										
1,609.26	29.01	108.29	1,513.00	3,426.00	-142.49	431.14	-29.96	0.00	0.00	0.00
1,700.00	29.01	108.29	1,592.36	3,346.64	-156.30	472.91	-32.86	0.00	0.00	0.00
1,800.00	29.01	108.29	1,679.81	3,259.19	-171.52	518.95	-36.06	0.00	0.00	0.00
1,900.00	29.01	108.29	1,767.27	3,171.73	-186.73	564.99	-39.26	0.00	0.00	0.00
2,000.00	29.01	108.29	1,854.73	3,084.27	-201.95	611.03	-42.46	0.00	0.00	0.00
2,100.00	29.01	108.29	1,942.18	2,996.82	-217.16	657.07	-45.66	0.00	0.00	0.00
2,200.00	29.01	108.29	2,029.64	2,909.36	-232.38	703.11	-48.86	0.00	0.00	0.00
2,300.00	29.01	108.29	2,117.10	2,821.90	-247.60	749.15	-52.06	0.00	0.00	0.00
2,400.00	29.01	108.29	2,204.56	2,734.44	-262.81	795.19	-55.25	0.00	0.00	0.00
2,500.00	29.01	108.29	2,292.01	2,646.99	-278.03	841.23	-58.45	0.00	0.00	0.00
2,600.00	29.01	108.29	2,379.47	2,559.53	-293.25	887.27	-61.65	0.00	0.00	0.00
2,700.00	29.01	108.29	2,466.93	2,472.07	-308.46	933.31	-64.85	0.00	0.00	0.00
2,800.00	29.01	108.29	2,554.38	2,384.62	-323.68	979.35	-68.05	0.00	0.00	0.00
2,900.00	29.01	108.29	2,641.84	2,297.16	-338.90	1,025.39	-71.25	0.00	0.00	0.00
3,000.00	29.01	108.29	2,729.30	2,209.70	-354.11	1,071.44	-74.45	0.00	0.00	0.00
3,100.00	29.01	108.29	2,816.76	2,122.24	-369.33	1,117.48	-77.65	0.00	0.00	0.00
3,200.00	29.01	108.29	2,904.21	2,034.79	-384.55	1,163.52	-80.85	0.00	0.00	0.00
3,300.00	29.01	108.29	2,991.67	1,947.33	-399.76	1,209.56	-84.05	0.00	0.00	0.00
3,400.00	29.01	108.29	3,079.13	1,859.87	-414.98	1,255.60	-87.25	0.00	0.00	0.00
3,500.00	29.01	108.29	3,166.58	1,772.42	-430.19	1,301.64	-90.44	0.00	0.00	0.00
3,600.00	29.01	108.29	3,254.04	1,684.96	-445.41	1,347.68	-93.64	0.00	0.00	0.00
<b>RICHARD SANDSTONE</b>										
3,690.28	29.01	108.29	3,333.00	1,606.00	-459.15	1,389.24	-96.53	0.00	0.00	0.00
3,700.00	29.01	108.29	3,341.50	1,597.50	-460.63	1,393.72	-96.84	0.00	0.00	0.00
3,800.00	29.01	108.29	3,428.96	1,510.04	-475.84	1,439.76	-100.04	0.00	0.00	0.00
<b>PARKMAN SANDSTONE</b>										
3,827.49	29.01	108.29	3,453.00	1,486.00	-480.03	1,452.42	-100.92	0.00	0.00	0.00
3,900.00	29.01	108.29	3,516.41	1,422.59	-491.06	1,485.80	-103.24	0.00	0.00	0.00
4,000.00	29.01	108.29	3,603.87	1,335.13	-506.28	1,531.84	-106.44	0.00	0.00	0.00
4,100.00	29.01	108.29	3,691.33	1,247.67	-521.49	1,577.88	-109.64	0.00	0.00	0.00
4,200.00	29.01	108.29	3,778.78	1,160.22	-536.71	1,623.92	-112.84	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-15HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-15HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,300.00	29.01	108.29	3,866.24	1,072.76	-551.93	1,669.96	-116.04	0.00	0.00	0.00
4,400.00	29.01	108.29	3,953.70	985.30	-567.14	1,716.00	-119.24	0.00	0.00	0.00
4,500.00	29.01	108.29	4,041.16	897.84	-582.36	1,762.04	-122.44	0.00	0.00	0.00
4,600.00	29.01	108.29	4,128.61	810.39	-597.58	1,808.08	-125.64	0.00	0.00	0.00
<b>SUSSEX SANDSTONE</b>										
<b>4,696.49</b>	<b>29.01</b>	<b>108.29</b>	<b>4,213.00</b>	<b>726.00</b>	<b>-612.26</b>	<b>1,852.50</b>	<b>-128.72</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
4,700.00	29.01	108.29	4,216.07	722.93	-612.79	1,854.12	-128.83	0.00	0.00	0.00
4,800.00	29.01	108.29	4,303.53	635.47	-628.01	1,900.16	-132.03	0.00	0.00	0.00
4,900.00	29.01	108.29	4,390.98	548.02	-643.23	1,946.20	-135.23	0.00	0.00	0.00
5,000.00	29.01	108.29	4,478.44	460.56	-658.44	1,992.24	-138.43	0.00	0.00	0.00
5,100.00	29.01	108.29	4,565.90	373.10	-673.66	2,038.28	-141.63	0.00	0.00	0.00
<b>SHANNON SANDSTONE</b>										
<b>5,182.44</b>	<b>29.01</b>	<b>108.29</b>	<b>4,638.00</b>	<b>301.00</b>	<b>-686.20</b>	<b>2,076.24</b>	<b>-144.27</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
5,200.00	29.01	108.29	4,653.36	285.64	-688.87	2,084.32	-144.83	0.00	0.00	0.00
<b>END OF TANGENT</b>										
<b>5,225.84</b>	<b>29.01</b>	<b>108.29</b>	<b>4,675.95</b>	<b>263.05</b>	<b>-692.81</b>	<b>2,096.22</b>	<b>-145.66</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
5,300.00	26.78	108.29	4,741.49	197.51	-703.69	2,129.16	-147.95	3.00	-3.00	0.00
5,400.00	23.78	108.29	4,831.91	107.09	-717.09	2,169.70	-150.76	3.00	-3.00	0.00
5,500.00	20.78	108.29	4,924.43	14.57	-728.99	2,205.70	-153.26	3.00	-3.00	0.00
5,600.00	17.78	108.29	5,018.81	-79.81	-739.35	2,237.05	-155.44	3.00	-3.00	0.00
5,700.00	14.78	108.29	5,114.79	-175.79	-748.15	2,263.66	-157.29	3.00	-3.00	0.00
5,800.00	11.78	108.29	5,212.10	-273.10	-755.36	2,285.47	-158.81	3.00	-3.00	0.00
5,900.00	8.78	108.29	5,310.49	-371.49	-760.96	2,302.42	-159.98	3.00	-3.00	0.00
6,000.00	5.78	108.29	5,409.67	-470.67	-764.93	2,314.45	-160.82	3.00	-3.00	0.00
6,100.00	2.78	108.29	5,509.38	-570.38	-767.27	2,321.53	-161.31	3.00	-3.00	0.00
<b>EOD TO VERTICAL</b>										
<b>6,192.70</b>	<b>0.00</b>	<b>0.00</b>	<b>5,602.04</b>	<b>-663.04</b>	<b>-767.98</b>	<b>2,323.67</b>	<b>-161.46</b>	<b>3.00</b>	<b>-3.00</b>	<b>0.00</b>
6,200.00	0.00	0.00	5,609.34	-670.34	-767.98	2,323.67	-161.46	0.00	0.00	0.00
<b>KOP (10°/100ft BUR)</b>										
<b>6,292.70</b>	<b>0.00</b>	<b>0.00</b>	<b>5,702.04</b>	<b>-763.04</b>	<b>-767.98</b>	<b>2,323.67</b>	<b>-161.46</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
6,300.00	0.73	1.16	5,709.34	-770.34	-767.93	2,323.67	-161.42	10.00	10.00	0.00
6,400.00	10.73	1.16	5,808.72	-869.72	-757.96	2,323.87	-151.71	10.00	10.00	0.00
6,500.00	20.73	1.16	5,904.85	-965.85	-730.89	2,324.42	-125.37	10.00	10.00	0.00
6,600.00	30.73	1.16	5,994.82	-1,055.82	-687.54	2,325.30	-83.18	10.00	10.00	0.00
6,700.00	40.73	1.16	6,075.89	-1,136.89	-629.23	2,326.48	-26.43	10.00	10.00	0.00
<b>SHARON SPRINGS</b>										
<b>6,734.02</b>	<b>44.13</b>	<b>1.16</b>	<b>6,101.00</b>	<b>-1,162.00</b>	<b>-606.29</b>	<b>2,326.94</b>	<b>-4.10</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,800.00	50.73	1.16	6,145.61	-1,206.61	-557.73	2,327.93	43.15	10.00	10.00	0.00
<b>NIOBRARA A CHALK</b>										
<b>6,842.04</b>	<b>54.93</b>	<b>1.16</b>	<b>6,171.00</b>	<b>-1,232.00</b>	<b>-524.25</b>	<b>2,328.60</b>	<b>75.73</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
<b>NIOBRARA A CHALK BASE</b>										
<b>6,894.23</b>	<b>60.15</b>	<b>1.16</b>	<b>6,199.00</b>	<b>-1,260.00</b>	<b>-480.23</b>	<b>2,329.50</b>	<b>118.57</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,900.00	60.73	1.16	6,201.85	-1,262.85	-475.22	2,329.60	123.45	10.00	10.00	0.00
<b>NIOBRARA B1 CHALK TOP</b>										
<b>6,954.02</b>	<b>66.13</b>	<b>1.16</b>	<b>6,226.00</b>	<b>-1,287.00</b>	<b>-426.93</b>	<b>2,330.57</b>	<b>170.45</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
7,000.00	70.73	1.16	6,242.90	-1,303.90	-384.19	2,331.44	212.04	10.00	10.00	0.00
<b>NIOBRARA B1 CHALK BASE</b>										
<b>7,033.41</b>	<b>74.07</b>	<b>1.16</b>	<b>6,253.00</b>	<b>-1,314.00</b>	<b>-352.35</b>	<b>2,332.08</b>	<b>243.03</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
7,100.00	80.73	1.16	6,267.52	-1,328.52	-287.42	2,333.40	306.22	10.00	10.00	0.00
<b>HZ LP: 300ft FSL &amp; 1000ft FEL of Sec 34 - NIOBRARA B2 CHALK TOP (TGT)</b>										
<b>7,192.70</b>	<b>90.00</b>	<b>1.16</b>	<b>6,275.00</b>	<b>-1,336.00</b>	<b>-195.14</b>	<b>2,335.27</b>	<b>396.02</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
7,200.00	90.00	1.16	6,275.00	-1,336.00	-187.84	2,335.42	403.13	0.00	0.00	0.00
7,300.00	90.00	1.16	6,275.00	-1,336.00	-87.86	2,337.44	500.43	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-15HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-15HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,400.00	90.00	1.16	6,275.00	-1,336.00	12.12	2,339.46	597.72	0.00	0.00	0.00
7,500.00	90.00	1.16	6,275.00	-1,336.00	112.10	2,341.49	695.02	0.00	0.00	0.00
7,600.00	90.00	1.16	6,275.00	-1,336.00	212.08	2,343.51	792.32	0.00	0.00	0.00
7,700.00	90.00	1.16	6,275.00	-1,336.00	312.06	2,345.53	889.62	0.00	0.00	0.00
7,800.00	90.00	1.16	6,275.01	-1,336.01	412.04	2,347.56	986.92	0.00	0.00	0.00
7,900.00	90.00	1.16	6,275.01	-1,336.01	512.02	2,349.58	1,084.22	0.00	0.00	0.00
8,000.00	90.00	1.16	6,275.01	-1,336.01	612.00	2,351.60	1,181.52	0.00	0.00	0.00
8,100.00	90.00	1.16	6,275.01	-1,336.01	711.98	2,353.63	1,278.82	0.00	0.00	0.00
8,200.00	90.00	1.16	6,275.01	-1,336.01	811.95	2,355.65	1,376.12	0.00	0.00	0.00
8,300.00	90.00	1.16	6,275.01	-1,336.01	911.93	2,357.67	1,473.42	0.00	0.00	0.00
8,400.00	90.00	1.16	6,275.01	-1,336.01	1,011.91	2,359.70	1,570.72	0.00	0.00	0.00
8,500.00	90.00	1.16	6,275.01	-1,336.01	1,111.89	2,361.72	1,668.01	0.00	0.00	0.00
8,600.00	90.00	1.16	6,275.01	-1,336.01	1,211.87	2,363.74	1,765.31	0.00	0.00	0.00
8,700.00	90.00	1.16	6,275.01	-1,336.01	1,311.85	2,365.76	1,862.61	0.00	0.00	0.00
8,800.00	90.00	1.16	6,275.01	-1,336.01	1,411.83	2,367.79	1,959.91	0.00	0.00	0.00
8,900.00	90.00	1.16	6,275.01	-1,336.01	1,511.81	2,369.81	2,057.21	0.00	0.00	0.00
9,000.00	90.00	1.16	6,275.02	-1,336.02	1,611.79	2,371.83	2,154.51	0.00	0.00	0.00
9,100.00	90.00	1.16	6,275.02	-1,336.02	1,711.77	2,373.85	2,251.81	0.00	0.00	0.00
9,200.00	90.00	1.16	6,275.02	-1,336.02	1,811.75	2,375.88	2,349.11	0.00	0.00	0.00
9,300.00	90.00	1.16	6,275.02	-1,336.02	1,911.73	2,377.90	2,446.41	0.00	0.00	0.00
9,400.00	90.00	1.16	6,275.02	-1,336.02	2,011.71	2,379.92	2,543.70	0.00	0.00	0.00
9,500.00	90.00	1.16	6,275.02	-1,336.02	2,111.69	2,381.94	2,641.00	0.00	0.00	0.00
9,600.00	90.00	1.16	6,275.02	-1,336.02	2,211.67	2,383.96	2,738.30	0.00	0.00	0.00
9,700.00	90.00	1.16	6,275.02	-1,336.02	2,311.65	2,385.98	2,835.60	0.00	0.00	0.00
9,800.00	90.00	1.16	6,275.02	-1,336.02	2,411.63	2,388.00	2,932.90	0.00	0.00	0.00
9,900.00	90.00	1.16	6,275.02	-1,336.02	2,511.61	2,390.03	3,030.20	0.00	0.00	0.00
10,000.00	90.00	1.16	6,275.02	-1,336.02	2,611.59	2,392.05	3,127.50	0.00	0.00	0.00
10,100.00	90.00	1.16	6,275.02	-1,336.02	2,711.57	2,394.07	3,224.80	0.00	0.00	0.00
10,200.00	90.00	1.16	6,275.02	-1,336.02	2,811.55	2,396.09	3,322.09	0.00	0.00	0.00
10,300.00	90.00	1.16	6,275.02	-1,336.02	2,911.53	2,398.11	3,419.39	0.00	0.00	0.00
10,400.00	90.00	1.16	6,275.02	-1,336.02	3,011.51	2,400.13	3,516.69	0.00	0.00	0.00
10,500.00	90.00	1.16	6,275.02	-1,336.02	3,111.48	2,402.15	3,613.99	0.00	0.00	0.00
10,600.00	90.00	1.16	6,275.02	-1,336.02	3,211.46	2,404.17	3,711.29	0.00	0.00	0.00
10,700.00	90.00	1.16	6,275.02	-1,336.02	3,311.44	2,406.19	3,808.59	0.00	0.00	0.00
10,800.00	90.00	1.16	6,275.02	-1,336.02	3,411.42	2,408.21	3,905.88	0.00	0.00	0.00
10,900.00	90.00	1.16	6,275.02	-1,336.02	3,511.40	2,410.23	4,003.18	0.00	0.00	0.00
11,000.00	90.00	1.16	6,275.02	-1,336.02	3,611.38	2,412.25	4,100.48	0.00	0.00	0.00
11,100.00	90.00	1.16	6,275.02	-1,336.02	3,711.36	2,414.27	4,197.78	0.00	0.00	0.00
11,200.00	90.00	1.16	6,275.02	-1,336.02	3,811.34	2,416.29	4,295.08	0.00	0.00	0.00
11,300.00	90.00	1.16	6,275.02	-1,336.02	3,911.32	2,418.31	4,392.38	0.00	0.00	0.00
11,400.00	90.00	1.16	6,275.03	-1,336.03	4,011.30	2,420.33	4,489.67	0.00	0.00	0.00
11,500.00	90.00	1.16	6,275.03	-1,336.03	4,111.28	2,422.35	4,586.97	0.00	0.00	0.00
11,600.00	90.00	1.16	6,275.03	-1,336.03	4,211.26	2,424.37	4,684.27	0.00	0.00	0.00
11,700.00	90.00	1.16	6,275.03	-1,336.03	4,311.24	2,426.39	4,781.57	0.00	0.00	0.00
11,800.00	90.00	1.16	6,275.03	-1,336.03	4,411.22	2,428.41	4,878.87	0.00	0.00	0.00
11,900.00	90.00	1.16	6,275.03	-1,336.03	4,511.20	2,430.43	4,976.17	0.00	0.00	0.00
12,000.00	90.00	1.16	6,275.03	-1,336.03	4,611.18	2,432.44	5,073.46	0.00	0.00	0.00
12,100.00	90.00	1.16	6,275.03	-1,336.03	4,711.16	2,434.46	5,170.76	0.00	0.00	0.00
12,200.00	90.00	1.16	6,275.03	-1,336.03	4,811.14	2,436.48	5,268.06	0.00	0.00	0.00
12,300.00	90.00	1.16	6,275.03	-1,336.03	4,911.12	2,438.50	5,365.36	0.00	0.00	0.00
12,400.00	90.00	1.16	6,275.03	-1,336.03	5,011.10	2,440.52	5,462.66	0.00	0.00	0.00
12,500.00	90.00	1.16	6,275.03	-1,336.03	5,111.08	2,442.54	5,559.95	0.00	0.00	0.00
12,600.00	90.00	1.16	6,275.03	-1,336.03	5,211.06	2,444.56	5,657.25	0.00	0.00	0.00
12,700.00	90.00	1.16	6,275.03	-1,336.03	5,311.04	2,446.57	5,754.55	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-15HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-15HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,800.00	90.00	1.16	6,275.03	-1,336.03	5,411.02	2,448.59	5,851.85	0.00	0.00	0.00
12,900.00	90.00	1.16	6,275.03	-1,336.03	5,511.00	2,450.61	5,949.14	0.00	0.00	0.00
13,000.00	90.00	1.16	6,275.02	-1,336.02	5,610.98	2,452.63	6,046.44	0.00	0.00	0.00
13,100.00	90.00	1.16	6,275.02	-1,336.02	5,710.95	2,454.64	6,143.74	0.00	0.00	0.00
13,200.00	90.00	1.16	6,275.02	-1,336.02	5,810.93	2,456.66	6,241.04	0.00	0.00	0.00
13,300.00	90.00	1.16	6,275.02	-1,336.02	5,910.91	2,458.68	6,338.34	0.00	0.00	0.00
13,400.00	90.00	1.16	6,275.02	-1,336.02	6,010.89	2,460.70	6,435.63	0.00	0.00	0.00
13,500.00	90.00	1.16	6,275.02	-1,336.02	6,110.87	2,462.71	6,532.93	0.00	0.00	0.00
13,600.00	90.00	1.16	6,275.02	-1,336.02	6,210.85	2,464.73	6,630.23	0.00	0.00	0.00
13,700.00	90.00	1.16	6,275.02	-1,336.02	6,310.83	2,466.75	6,727.53	0.00	0.00	0.00
13,800.00	90.00	1.16	6,275.02	-1,336.02	6,410.81	2,468.76	6,824.82	0.00	0.00	0.00
13,900.00	90.00	1.16	6,275.02	-1,336.02	6,510.79	2,470.78	6,922.12	0.00	0.00	0.00
14,000.00	90.00	1.16	6,275.02	-1,336.02	6,610.77	2,472.80	7,019.42	0.00	0.00	0.00
14,100.00	90.00	1.16	6,275.02	-1,336.02	6,710.75	2,474.81	7,116.72	0.00	0.00	0.00
14,200.00	90.00	1.16	6,275.02	-1,336.02	6,810.73	2,476.83	7,214.01	0.00	0.00	0.00
14,300.00	90.00	1.16	6,275.02	-1,336.02	6,910.71	2,478.85	7,311.31	0.00	0.00	0.00
14,400.00	90.00	1.16	6,275.02	-1,336.02	7,010.69	2,480.86	7,408.61	0.00	0.00	0.00
14,500.00	90.00	1.16	6,275.02	-1,336.02	7,110.67	2,482.88	7,505.91	0.00	0.00	0.00
14,600.00	90.00	1.16	6,275.02	-1,336.02	7,210.65	2,484.89	7,603.20	0.00	0.00	0.00
14,700.00	90.00	1.16	6,275.02	-1,336.02	7,310.63	2,486.91	7,700.50	0.00	0.00	0.00
14,800.00	90.00	1.15	6,275.02	-1,336.02	7,410.61	2,488.93	7,797.80	0.00	0.00	0.00
14,900.00	90.00	1.15	6,275.02	-1,336.02	7,510.59	2,490.94	7,895.10	0.00	0.00	0.00
15,000.00	90.00	1.15	6,275.02	-1,336.02	7,610.57	2,492.96	7,992.39	0.00	0.00	0.00
15,100.00	90.00	1.15	6,275.02	-1,336.02	7,710.55	2,494.97	8,089.69	0.00	0.00	0.00
15,200.00	90.00	1.15	6,275.02	-1,336.02	7,810.53	2,496.99	8,186.99	0.00	0.00	0.00
15,300.00	90.00	1.15	6,275.02	-1,336.02	7,910.51	2,499.00	8,284.29	0.00	0.00	0.00
15,400.00	90.00	1.15	6,275.02	-1,336.02	8,010.49	2,501.02	8,381.58	0.00	0.00	0.00
15,500.00	90.00	1.15	6,275.01	-1,336.01	8,110.47	2,503.03	8,478.88	0.00	0.00	0.00
15,600.00	90.00	1.15	6,275.01	-1,336.01	8,210.45	2,505.05	8,576.18	0.00	0.00	0.00
15,700.00	90.00	1.15	6,275.01	-1,336.01	8,310.43	2,507.06	8,673.47	0.00	0.00	0.00
15,800.00	90.00	1.15	6,275.01	-1,336.01	8,410.41	2,509.08	8,770.77	0.00	0.00	0.00
15,900.00	90.00	1.15	6,275.01	-1,336.01	8,510.39	2,511.09	8,868.07	0.00	0.00	0.00
16,000.00	90.00	1.15	6,275.01	-1,336.01	8,610.37	2,513.11	8,965.37	0.00	0.00	0.00
16,100.00	90.00	1.15	6,275.01	-1,336.01	8,710.35	2,515.12	9,062.66	0.00	0.00	0.00
16,200.00	90.00	1.15	6,275.01	-1,336.01	8,810.32	2,517.13	9,159.96	0.00	0.00	0.00
16,300.00	90.00	1.15	6,275.01	-1,336.01	8,910.30	2,519.15	9,257.26	0.00	0.00	0.00
16,400.00	90.00	1.15	6,275.01	-1,336.01	9,010.28	2,521.16	9,354.55	0.00	0.00	0.00
16,500.00	90.00	1.15	6,275.01	-1,336.01	9,110.26	2,523.18	9,451.85	0.00	0.00	0.00
16,600.00	90.00	1.15	6,275.01	-1,336.01	9,210.24	2,525.19	9,549.15	0.00	0.00	0.00
16,700.00	90.00	1.15	6,275.00	-1,336.00	9,310.22	2,527.20	9,646.44	0.00	0.00	0.00
16,800.00	90.00	1.15	6,275.00	-1,336.00	9,410.20	2,529.22	9,743.74	0.00	0.00	0.00
16,900.00	90.00	1.15	6,275.00	-1,336.00	9,510.18	2,531.23	9,841.04	0.00	0.00	0.00
17,000.00	90.00	1.15	6,275.00	-1,336.00	9,610.16	2,533.24	9,938.33	0.00	0.00	0.00
17,100.00	90.00	1.15	6,275.00	-1,336.00	9,710.14	2,535.26	10,035.63	0.00	0.00	0.00
<b>BHL: 300ft FNL &amp; 1000ft FEL of Sec 27</b>										
<b>17,196.24</b>	<b>90.00</b>	<b>1.15</b>	<b>6,275.00</b>	<b>-1,336.00</b>	<b>9,806.36</b>	<b>2,537.19</b>	<b>10,129.27</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Planning Report



<b>Database:</b>	Database 1	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-15HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.00usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-15HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #2		

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,609.26	1,513.00	FOX HILLS BASE				
3,690.28	3,333.00	RICHARD SANDSTONE				
3,827.49	3,453.00	PARKMAN SANDSTONE				
4,696.49	4,213.00	SUSSEX SANDSTONE				
5,182.44	4,638.00	SHANNON SANDSTONE				
6,734.02	6,101.00	SHARON SPRINGS				
6,842.04	6,171.00	NIOBRARA A CHALK				
6,894.23	6,199.00	NIOBRARA A CHALK BASE				
6,954.02	6,226.00	NIOBRARA B1 CHALK TOP				
7,033.41	6,253.00	NIOBRARA B1 CHALK BASE				
7,192.70	6,275.00	NIOBRARA B2 CHALK TOP (TGT)				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 500ft FSL & 1962ft FWL of Sec 34
200.00	200.00	0.00	0.00	START NUDGE (3°/100ft BUR)
1,166.86	1,126.09	-75.17	227.45	EOB TO 29.01° INC
5,225.84	4,675.95	-692.81	2,096.22	END OF TANGENT
6,192.70	5,602.04	-767.98	2,323.67	EOD TO VERTICAL
6,292.70	5,702.04	-767.98	2,323.67	KOP (10°/100ft BUR)
7,192.70	6,275.00	-195.14	2,335.27	HZ LP: 300ft FSL & 1000ft FEL of Sec 34
17,196.24	6,275.00	9,806.36	2,537.19	BHL: 300ft FNL & 1000ft FEL of Sec 27