

# **MALLARD EXPLORATION**

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

**NW NE SEC. 22 T8N R60W 6th P.M.**

**BLUE TEAL 15-10-3HN**

**ORIGINAL WELLBORE**

**16 March, 2018**

**Plan: PROPOSAL #3**



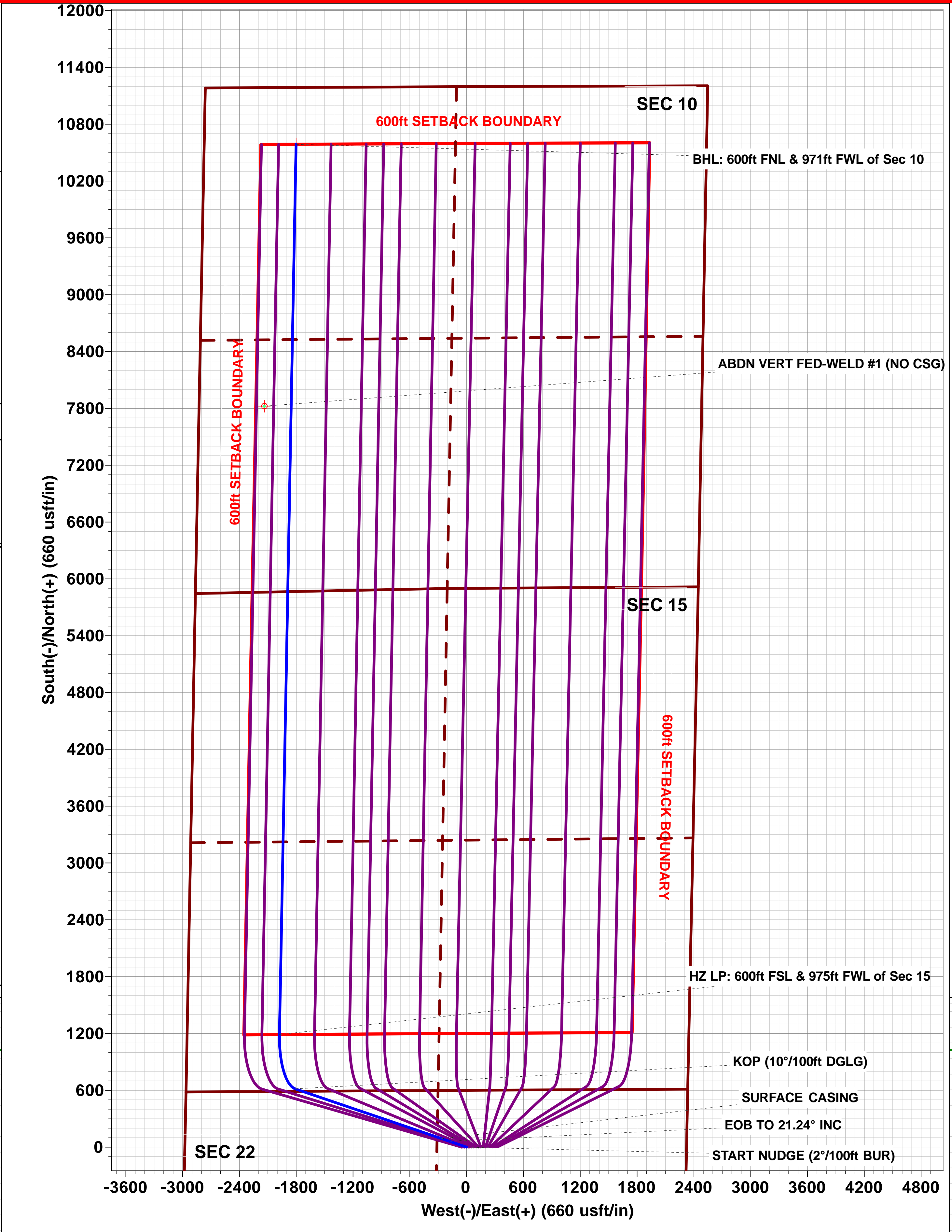
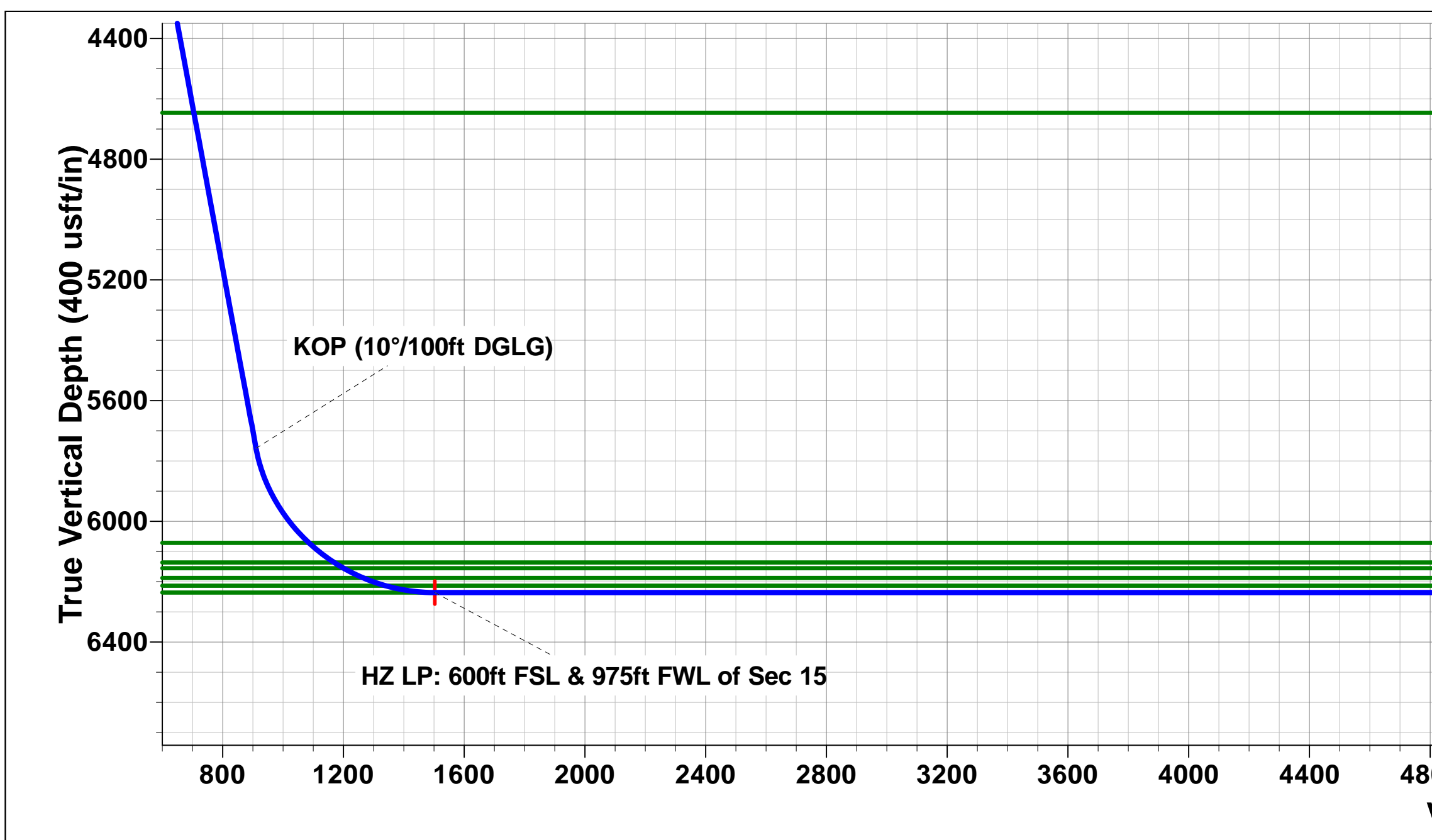
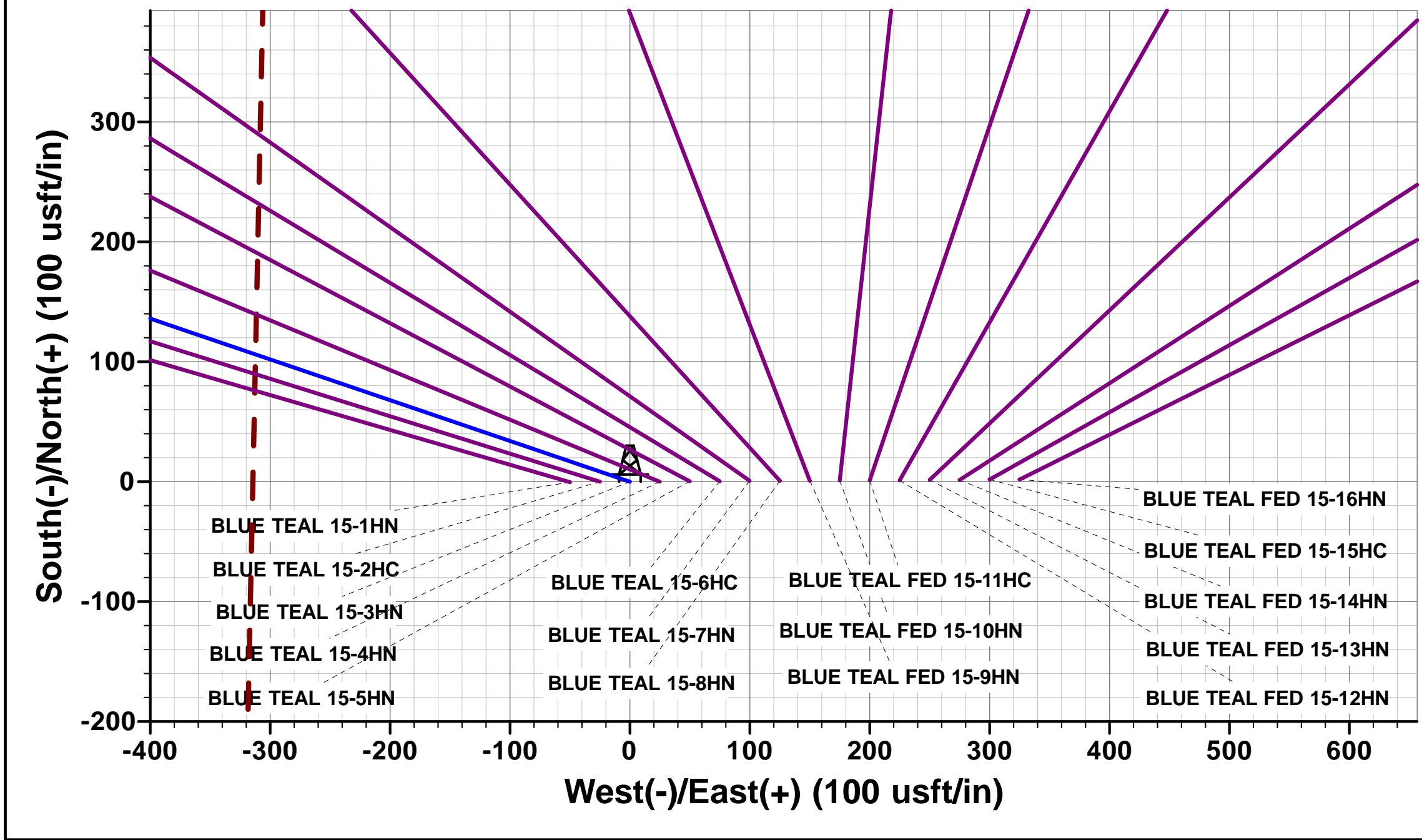
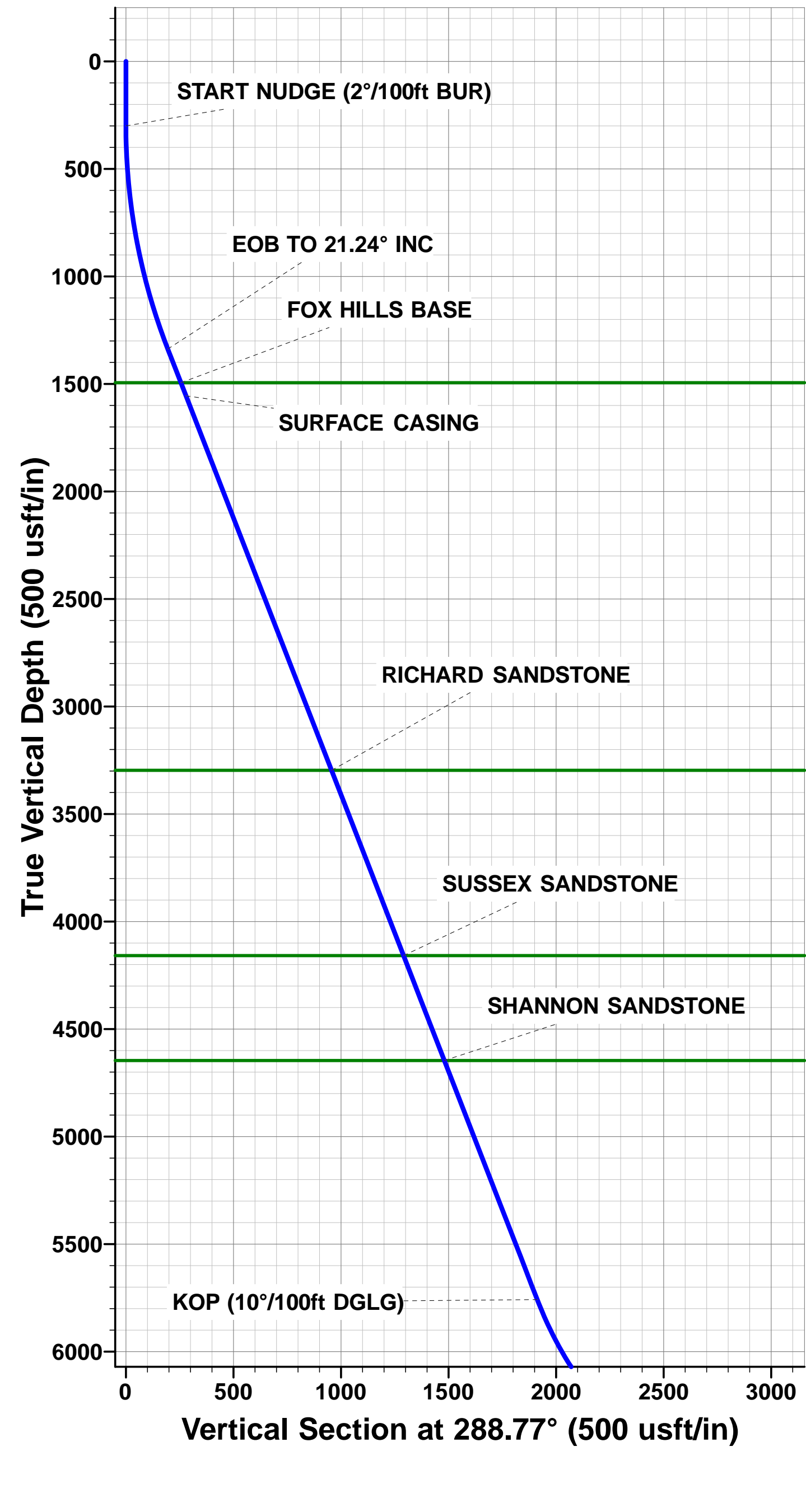


Project: WELD COUNTY, COLORADO (NAD 83)  
Site: NW NE SEC. 22 T8N R60W 6th P.M.  
Well: BLUE TEAL 15-10-3HN  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #3

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 600ft FNL & 2323ft FEL of Sec 22	
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)	
1337.66	1361.80	21.24	288.78	62.61	-184.18	92.62	194.53	EOB TO 21.24° INC	
1555.00	1594.98	21.24	288.78	89.79	-264.14	132.83	278.99	SURFACE CASING	
5758.12	6104.30	21.24	288.78	615.49	-1810.56	910.45	1912.32	KOP (10°/100ft DGLG)	
6236.25	6941.06	90.00	1.07	1188.17	-1976.91	1502.92	2532.61	HZ LP: 600ft FSL & 975ft FWL of Sec 15	
6236.20	16342.70	90.00	1.07	10588.17	-1801.42	10740.32	11934.25	BHL: 600ft FNL & 971ft FWL of Sec 10	

PROPOSED LOCAL COORDINATES:  
  
SHL: 600ft FNL & 2323ft FEL Sec 22  
  
HZ LP: 600ft FSL & 975ft FWL Sec 15  
  
BHL: 600ft FNL & 971ft FWL of Sec 10

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
HZ LP - BLUE TEAL 15-3HN	6236.25	1188.17	-1976.91	40.656761	-104.083287
BHL - BLUE TEAL 15-3HN (P2)	6236.20	10588.22	-1801.42	40.682562	-104.082657



# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

<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>	NW NE SEC. 22 T8N R60W 6th P.M.		
<b>Site Position:</b>		<b>Northing:</b>	1,484,083.08 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,395,003.84 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	1.10000 ft
		<b>Latitude:</b>	40.653499
		<b>Longitude:</b>	-104.076342
		<b>Grid Convergence:</b>	0.92 °

<b>Well</b>	BLUE TEAL 15-10-3HN		
<b>Well Position</b>	<b>+N/-S</b>	0.34 usft	<b>Northing:</b>
	<b>+E/-W</b>	49.95 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	16/03/2018	7.78	67.14	52,508

<b>Design</b>	PROPOSAL #3			
<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>
	0.00	0.00	0.00	350.34

<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	-4,910.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	-4,610.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,361.81	21.24	288.78	1,337.66	-3,572.34	62.61	-184.18	2.00	2.00	0.00	288.78	
6,104.30	21.24	288.78	5,758.12	848.12	615.49	-1,810.57	0.00	0.00	0.00	0.00	
6,941.06	90.00	1.07	6,236.25	1,326.25	1,188.17	-1,976.91	10.00	8.22	8.64	73.43	HZ LP - BLUE TEAL 1
16,342.74	90.00	1.07	6,236.20	1,326.20	10,588.22	-1,801.42	0.00	0.00	0.00	0.00	BHL - BLUE TEAL 15

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

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: 600ft FNL &amp; 2323ft FEL of Sec 22</b>										
0.00	0.00	0.00	0.00	4,910.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,810.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,710.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>START NUDGE (2°/100ft BUR)</b>										
300.00	0.00	0.00	300.00	4,610.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	2.00	288.78	399.98	4,510.02	0.56	-1.65	0.83	2.00	2.00	0.00
500.00	4.00	288.78	499.84	4,410.16	2.25	-6.61	3.32	2.00	2.00	0.00
600.00	6.00	288.78	599.45	4,310.55	5.05	-14.86	7.47	2.00	2.00	0.00
700.00	8.00	288.78	698.70	4,211.30	8.97	-26.40	13.27	2.00	2.00	0.00
800.00	10.00	288.78	797.47	4,112.53	14.01	-41.21	20.72	2.00	2.00	0.00
900.00	12.00	288.78	895.62	4,014.38	20.15	-59.27	29.80	2.00	2.00	0.00
1,000.00	14.00	288.78	993.06	3,916.94	27.39	-80.57	40.51	2.00	2.00	0.00
1,100.00	16.00	288.78	1,089.64	3,820.36	35.72	-105.07	52.84	2.00	2.00	0.00
1,200.00	18.00	288.78	1,185.27	3,724.73	45.13	-132.75	66.75	2.00	2.00	0.00
1,300.00	20.00	288.78	1,279.82	3,630.18	55.61	-163.57	82.25	2.00	2.00	0.00
<b>EOB TO 21.24° INC</b>										
1,361.80	21.24	288.78	1,337.66	3,572.34	62.61	-184.18	92.62	2.00	2.00	0.00
1,361.81	21.24	288.78	1,337.66	3,572.34	62.61	-184.18	92.62	2.00	2.00	0.00
1,400.00	21.24	288.78	1,373.26	3,536.74	67.06	-197.28	99.20	0.00	0.00	0.00
1,500.00	21.24	288.78	1,466.47	3,443.53	78.72	-231.57	116.45	0.00	0.00	0.00
<b>FOX HILLS BASE</b>										
1,530.34	21.24	288.78	1,494.75	3,415.25	82.26	-241.98	121.68	0.00	0.00	0.00
<b>SURFACE CASING</b>										
1,594.98	21.24	288.78	1,555.00	3,355.00	89.79	-264.14	132.83	0.00	0.00	0.00
1,600.00	21.24	288.78	1,559.68	3,350.32	90.38	-265.87	133.69	0.00	0.00	0.00
1,700.00	21.24	288.78	1,652.89	3,257.11	102.04	-300.16	150.94	0.00	0.00	0.00
1,800.00	21.24	288.78	1,746.10	3,163.90	113.70	-334.45	168.18	0.00	0.00	0.00
1,900.00	21.24	288.78	1,839.31	3,070.69	125.35	-368.75	185.43	0.00	0.00	0.00
2,000.00	21.24	288.78	1,932.52	2,977.48	137.01	-403.04	202.67	0.00	0.00	0.00
2,100.00	21.24	288.78	2,025.73	2,884.27	148.67	-437.34	219.92	0.00	0.00	0.00
2,200.00	21.24	288.78	2,118.94	2,791.06	160.33	-471.63	237.16	0.00	0.00	0.00
2,300.00	21.24	288.78	2,212.15	2,697.85	171.99	-505.92	254.41	0.00	0.00	0.00
2,400.00	21.24	288.78	2,305.36	2,604.64	183.64	-540.22	271.65	0.00	0.00	0.00
2,500.00	21.24	288.78	2,398.57	2,511.43	195.30	-574.51	288.90	0.00	0.00	0.00
2,600.00	21.24	288.78	2,491.78	2,418.22	206.96	-608.81	306.14	0.00	0.00	0.00
2,700.00	21.24	288.78	2,584.99	2,325.01	218.62	-643.10	323.38	0.00	0.00	0.00
2,800.00	21.24	288.78	2,678.20	2,231.80	230.28	-677.39	340.63	0.00	0.00	0.00
2,900.00	21.24	288.78	2,771.41	2,138.59	241.93	-711.69	357.87	0.00	0.00	0.00
3,000.00	21.24	288.78	2,864.61	2,045.39	253.59	-745.98	375.12	0.00	0.00	0.00
3,100.00	21.24	288.78	2,957.82	1,952.18	265.25	-780.27	392.36	0.00	0.00	0.00
3,200.00	21.24	288.78	3,051.03	1,858.97	276.91	-814.57	409.61	0.00	0.00	0.00
3,300.00	21.24	288.78	3,144.24	1,765.76	288.57	-848.86	426.85	0.00	0.00	0.00
3,400.00	21.24	288.78	3,237.45	1,672.55	300.22	-883.16	444.10	0.00	0.00	0.00
<b>RICHARD SANDSTONE</b>										
3,464.15	21.24	288.78	3,297.25	1,612.75	307.70	-905.16	455.16	0.00	0.00	0.00
3,500.00	21.24	288.78	3,330.66	1,579.34	311.88	-917.45	461.34	0.00	0.00	0.00
3,600.00	21.24	288.78	3,423.87	1,486.13	323.54	-951.74	478.59	0.00	0.00	0.00
3,700.00	21.24	288.78	3,517.08	1,392.92	335.20	-986.04	495.83	0.00	0.00	0.00
3,800.00	21.24	288.78	3,610.29	1,299.71	346.86	-1,020.33	513.08	0.00	0.00	0.00
3,900.00	21.24	288.78	3,703.50	1,206.50	358.52	-1,054.63	530.32	0.00	0.00	0.00
4,000.00	21.24	288.78	3,796.71	1,113.29	370.17	-1,088.92	547.57	0.00	0.00	0.00
4,100.00	21.24	288.78	3,889.92	1,020.08	381.83	-1,123.21	564.81	0.00	0.00	0.00



# Planning Report



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<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

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)
4,200.00	21.24	288.78	3,983.13	926.87	393.49	-1,157.51	582.06	0.00	0.00	0.00
4,300.00	21.24	288.78	4,076.34	833.66	405.15	-1,191.80	599.30	0.00	0.00	0.00
<b>SUSSEX SANDSTONE</b>										
<b>4,388.41</b>	<b>21.24</b>	<b>288.78</b>	<b>4,158.75</b>	<b>751.25</b>	<b>415.45</b>	<b>-1,222.12</b>	<b>614.55</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
4,400.00	21.24	288.78	4,169.55	740.45	416.81	-1,226.09	616.55	0.00	0.00	0.00
4,500.00	21.24	288.78	4,262.76	647.24	428.46	-1,260.39	633.79	0.00	0.00	0.00
4,600.00	21.24	288.78	4,355.97	554.03	440.12	-1,294.68	651.04	0.00	0.00	0.00
4,700.00	21.24	288.78	4,449.18	460.82	451.78	-1,328.98	668.28	0.00	0.00	0.00
4,800.00	21.24	288.78	4,542.39	367.61	463.44	-1,363.27	685.53	0.00	0.00	0.00
4,900.00	21.24	288.78	4,635.60	274.40	475.10	-1,397.56	702.77	0.00	0.00	0.00
<b>SHANNON SANDSTONE</b>										
<b>4,911.97</b>	<b>21.24</b>	<b>288.78</b>	<b>4,646.75</b>	<b>263.25</b>	<b>476.49</b>	<b>-1,401.67</b>	<b>704.83</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
5,000.00	21.24	288.78	4,728.81	181.19	486.75	-1,431.86	720.02	0.00	0.00	0.00
5,100.00	21.24	288.78	4,822.02	87.98	498.41	-1,466.15	737.26	0.00	0.00	0.00
5,200.00	21.24	288.78	4,915.22	-5.22	510.07	-1,500.45	754.50	0.00	0.00	0.00
5,300.00	21.24	288.78	5,008.43	-98.43	521.73	-1,534.74	771.75	0.00	0.00	0.00
5,400.00	21.24	288.78	5,101.64	-191.64	533.39	-1,569.03	788.99	0.00	0.00	0.00
5,500.00	21.24	288.78	5,194.85	-284.85	545.04	-1,603.33	806.24	0.00	0.00	0.00
5,600.00	21.24	288.78	5,288.06	-378.06	556.70	-1,637.62	823.48	0.00	0.00	0.00
5,700.00	21.24	288.78	5,381.27	-471.27	568.36	-1,671.92	840.73	0.00	0.00	0.00
5,800.00	21.24	288.78	5,474.48	-564.48	580.02	-1,706.21	857.97	0.00	0.00	0.00
5,900.00	21.24	288.78	5,567.69	-657.69	591.68	-1,740.50	875.22	0.00	0.00	0.00
6,000.00	21.24	288.78	5,660.90	-750.90	603.33	-1,774.80	892.46	0.00	0.00	0.00
<b>KOP (10°/100ft DGLG)</b>										
<b>6,104.30</b>	<b>21.24</b>	<b>288.78</b>	<b>5,758.12</b>	<b>-848.12</b>	<b>615.49</b>	<b>-1,810.56</b>	<b>910.45</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
6,150.00	22.94	300.07	5,800.48	-890.48	622.62	-1,826.12	920.09	10.00	3.73	24.72
6,200.00	25.58	310.43	5,846.08	-936.08	634.52	-1,842.78	934.61	10.00	5.29	20.71
6,250.00	28.82	318.79	5,890.56	-980.56	650.59	-1,858.95	953.17	10.00	6.47	16.71
6,300.00	32.47	325.50	5,933.58	-1,023.58	670.73	-1,874.50	975.63	10.00	7.30	13.43
6,350.00	36.41	330.95	5,974.82	-1,064.82	694.78	-1,889.32	1,001.83	10.00	7.88	10.90
6,400.00	40.56	335.44	6,013.96	-1,103.96	722.56	-1,903.29	1,031.55	10.00	8.29	8.99
6,450.00	44.85	339.23	6,050.70	-1,140.70	753.85	-1,916.31	1,064.59	10.00	8.59	7.57
<b>SHARON SPRINGS</b>										
<b>6,479.67</b>	<b>47.46</b>	<b>341.21</b>	<b>6,071.25</b>	<b>-1,161.25</b>	<b>773.99</b>	<b>-1,923.55</b>	<b>1,085.65</b>	<b>10.00</b>	<b>8.76</b>	<b>6.68</b>
6,500.00	49.25	342.47	6,084.76	-1,174.76	788.42	-1,928.28	1,100.67	10.00	8.85	6.22
6,550.00	53.74	345.31	6,115.88	-1,205.88	826.01	-1,939.10	1,139.54	10.00	8.96	5.68
<b>NIORARA A CHALK</b>										
<b>6,586.75</b>	<b>57.07</b>	<b>347.20</b>	<b>6,136.75</b>	<b>-1,226.75</b>	<b>855.39</b>	<b>-1,946.28</b>	<b>1,169.71</b>	<b>10.00</b>	<b>9.07</b>	<b>5.13</b>
6,600.00	58.27	347.84	6,143.83	-1,233.83	866.32	-1,948.70	1,180.89	10.00	9.12	4.86
<b>NIORARA A CHALK BASE</b>										
<b>6,622.36</b>	<b>60.32</b>	<b>348.89</b>	<b>6,155.25</b>	<b>-1,245.25</b>	<b>885.15</b>	<b>-1,952.57</b>	<b>1,200.10</b>	<b>10.00</b>	<b>9.15</b>	<b>4.70</b>
6,650.00	62.86	350.13	6,168.40	-1,258.40	909.05	-1,957.00	1,224.41	10.00	9.19	4.49
<b>NIORARA B1 CHALK TOP</b>										
<b>6,695.75</b>	<b>67.09</b>	<b>352.07</b>	<b>6,187.75</b>	<b>-1,277.75</b>	<b>949.99</b>	<b>-1,963.40</b>	<b>1,265.84</b>	<b>10.00</b>	<b>9.24</b>	<b>4.23</b>
6,700.00	67.48	352.24	6,189.39	-1,279.39	953.88	-1,963.93	1,269.76	10.00	9.26	4.08
6,750.00	72.12	354.21	6,206.65	-1,296.65	1,000.46	-1,969.45	1,316.61	10.00	9.29	3.94
<b>NIORARA B1 CHALK BASE</b>										
<b>6,772.81</b>	<b>74.25</b>	<b>355.08</b>	<b>6,213.25</b>	<b>-1,303.25</b>	<b>1,022.20</b>	<b>-1,971.49</b>	<b>1,338.39</b>	<b>10.00</b>	<b>9.32</b>	<b>3.79</b>
6,800.00	76.79	356.08	6,220.05	-1,310.05	1,048.45	-1,973.52	1,364.60	10.00	9.33	3.70
6,850.00	81.47	357.88	6,229.48	-1,319.48	1,097.46	-1,976.09	1,413.36	10.00	9.35	3.60
6,900.00	86.15	359.64	6,234.87	-1,324.87	1,147.15	-1,977.16	1,462.51	10.00	9.37	3.51
<b>HZ LP: 600ft FSL &amp; 975ft FWL of Sec 15 - NIOBRARA B2 CHALK TOP</b>										
<b>6,941.06</b>	<b>90.00</b>	<b>1.07</b>	<b>6,236.25</b>	<b>-1,326.25</b>	<b>1,188.17</b>	<b>-1,976.91</b>	<b>1,502.92</b>	<b>10.00</b>	<b>9.38</b>	<b>3.48</b>

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

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)
7,000.00	90.00	1.07	6,236.25	-1,326.25	1,247.10	-1,975.81	1,560.83	0.00	0.00	0.00
7,100.00	90.00	1.07	6,236.25	-1,326.25	1,347.09	-1,973.94	1,659.08	0.00	0.00	0.00
7,200.00	90.00	1.07	6,236.25	-1,326.25	1,447.07	-1,972.07	1,757.33	0.00	0.00	0.00
7,300.00	90.00	1.07	6,236.25	-1,326.25	1,547.05	-1,970.21	1,855.59	0.00	0.00	0.00
7,400.00	90.00	1.07	6,236.25	-1,326.25	1,647.03	-1,968.34	1,953.84	0.00	0.00	0.00
7,500.00	90.00	1.07	6,236.25	-1,326.25	1,747.02	-1,966.47	2,052.09	0.00	0.00	0.00
7,600.00	90.00	1.07	6,236.25	-1,326.25	1,847.00	-1,964.61	2,150.35	0.00	0.00	0.00
7,700.00	90.00	1.07	6,236.25	-1,326.25	1,946.98	-1,962.74	2,248.60	0.00	0.00	0.00
7,800.00	90.00	1.07	6,236.25	-1,326.25	2,046.96	-1,960.87	2,346.85	0.00	0.00	0.00
7,900.00	90.00	1.07	6,236.24	-1,326.24	2,146.95	-1,959.01	2,445.10	0.00	0.00	0.00
8,000.00	90.00	1.07	6,236.24	-1,326.24	2,246.93	-1,957.14	2,543.36	0.00	0.00	0.00
8,100.00	90.00	1.07	6,236.24	-1,326.24	2,346.91	-1,955.27	2,641.61	0.00	0.00	0.00
8,200.00	90.00	1.07	6,236.24	-1,326.24	2,446.89	-1,953.41	2,739.86	0.00	0.00	0.00
8,300.00	90.00	1.07	6,236.24	-1,326.24	2,546.88	-1,951.54	2,838.12	0.00	0.00	0.00
8,400.00	90.00	1.07	6,236.24	-1,326.24	2,646.86	-1,949.67	2,936.37	0.00	0.00	0.00
8,500.00	90.00	1.07	6,236.24	-1,326.24	2,746.84	-1,947.81	3,034.62	0.00	0.00	0.00
8,600.00	90.00	1.07	6,236.24	-1,326.24	2,846.82	-1,945.94	3,132.88	0.00	0.00	0.00
8,700.00	90.00	1.07	6,236.24	-1,326.24	2,946.81	-1,944.08	3,231.13	0.00	0.00	0.00
8,800.00	90.00	1.07	6,236.24	-1,326.24	3,046.79	-1,942.21	3,329.38	0.00	0.00	0.00
8,900.00	90.00	1.07	6,236.24	-1,326.24	3,146.77	-1,940.34	3,427.64	0.00	0.00	0.00
9,000.00	90.00	1.07	6,236.24	-1,326.24	3,246.75	-1,938.48	3,525.89	0.00	0.00	0.00
9,100.00	90.00	1.07	6,236.24	-1,326.24	3,346.74	-1,936.61	3,624.14	0.00	0.00	0.00
9,200.00	90.00	1.07	6,236.24	-1,326.24	3,446.72	-1,934.74	3,722.40	0.00	0.00	0.00
9,300.00	90.00	1.07	6,236.24	-1,326.24	3,546.70	-1,932.88	3,820.65	0.00	0.00	0.00
9,400.00	90.00	1.07	6,236.24	-1,326.24	3,646.68	-1,931.01	3,918.90	0.00	0.00	0.00
9,500.00	90.00	1.07	6,236.24	-1,326.24	3,746.67	-1,929.14	4,017.16	0.00	0.00	0.00
9,600.00	90.00	1.07	6,236.24	-1,326.24	3,846.65	-1,927.28	4,115.41	0.00	0.00	0.00
9,700.00	90.00	1.07	6,236.24	-1,326.24	3,946.63	-1,925.41	4,213.66	0.00	0.00	0.00
9,800.00	90.00	1.07	6,236.23	-1,326.23	4,046.61	-1,923.54	4,311.91	0.00	0.00	0.00
9,900.00	90.00	1.07	6,236.23	-1,326.23	4,146.60	-1,921.68	4,410.17	0.00	0.00	0.00
10,000.00	90.00	1.07	6,236.23	-1,326.23	4,246.58	-1,919.81	4,508.42	0.00	0.00	0.00
10,100.00	90.00	1.07	6,236.23	-1,326.23	4,346.56	-1,917.94	4,606.67	0.00	0.00	0.00
10,200.00	90.00	1.07	6,236.23	-1,326.23	4,446.55	-1,916.08	4,704.93	0.00	0.00	0.00
10,300.00	90.00	1.07	6,236.23	-1,326.23	4,546.53	-1,914.21	4,803.18	0.00	0.00	0.00
10,400.00	90.00	1.07	6,236.23	-1,326.23	4,646.51	-1,912.34	4,901.43	0.00	0.00	0.00
10,500.00	90.00	1.07	6,236.23	-1,326.23	4,746.49	-1,910.48	4,999.69	0.00	0.00	0.00
10,600.00	90.00	1.07	6,236.23	-1,326.23	4,846.48	-1,908.61	5,097.94	0.00	0.00	0.00
10,700.00	90.00	1.07	6,236.23	-1,326.23	4,946.46	-1,906.74	5,196.19	0.00	0.00	0.00
10,800.00	90.00	1.07	6,236.23	-1,326.23	5,046.44	-1,904.88	5,294.45	0.00	0.00	0.00
10,900.00	90.00	1.07	6,236.23	-1,326.23	5,146.42	-1,903.01	5,392.70	0.00	0.00	0.00
11,000.00	90.00	1.07	6,236.23	-1,326.23	5,246.41	-1,901.14	5,490.95	0.00	0.00	0.00
11,100.00	90.00	1.07	6,236.23	-1,326.23	5,346.39	-1,899.28	5,589.21	0.00	0.00	0.00
11,200.00	90.00	1.07	6,236.23	-1,326.23	5,446.37	-1,897.41	5,687.46	0.00	0.00	0.00
11,300.00	90.00	1.07	6,236.23	-1,326.23	5,546.35	-1,895.54	5,785.71	0.00	0.00	0.00
11,400.00	90.00	1.07	6,236.23	-1,326.23	5,646.34	-1,893.68	5,883.97	0.00	0.00	0.00
11,500.00	90.00	1.07	6,236.23	-1,326.23	5,746.32	-1,891.81	5,982.22	0.00	0.00	0.00
11,600.00	90.00	1.07	6,236.23	-1,326.23	5,846.30	-1,889.94	6,080.47	0.00	0.00	0.00
11,700.00	90.00	1.07	6,236.22	-1,326.22	5,946.28	-1,888.08	6,178.72	0.00	0.00	0.00
11,800.00	90.00	1.07	6,236.22	-1,326.22	6,046.27	-1,886.21	6,276.98	0.00	0.00	0.00
11,900.00	90.00	1.07	6,236.22	-1,326.22	6,146.25	-1,884.34	6,375.23	0.00	0.00	0.00
12,000.00	90.00	1.07	6,236.22	-1,326.22	6,246.23	-1,882.48	6,473.48	0.00	0.00	0.00
12,100.00	90.00	1.07	6,236.22	-1,326.22	6,346.21	-1,880.61	6,571.74	0.00	0.00	0.00
12,200.00	90.00	1.07	6,236.22	-1,326.22	6,446.20	-1,878.75	6,669.99	0.00	0.00	0.00
12,300.00	90.00	1.07	6,236.22	-1,326.22	6,546.18	-1,876.88	6,768.24	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

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)
12,400.00	90.00	1.07	6,236.22	-1,326.22	6,646.16	-1,875.01	6,866.50	0.00	0.00	0.00
12,500.00	90.00	1.07	6,236.22	-1,326.22	6,746.14	-1,873.15	6,964.75	0.00	0.00	0.00
12,600.00	90.00	1.07	6,236.22	-1,326.22	6,846.13	-1,871.28	7,063.00	0.00	0.00	0.00
12,700.00	90.00	1.07	6,236.22	-1,326.22	6,946.11	-1,869.41	7,161.26	0.00	0.00	0.00
12,800.00	90.00	1.07	6,236.22	-1,326.22	7,046.09	-1,867.55	7,259.51	0.00	0.00	0.00
12,900.00	90.00	1.07	6,236.22	-1,326.22	7,146.07	-1,865.68	7,357.76	0.00	0.00	0.00
13,000.00	90.00	1.07	6,236.22	-1,326.22	7,246.06	-1,863.81	7,456.02	0.00	0.00	0.00
13,100.00	90.00	1.07	6,236.22	-1,326.22	7,346.04	-1,861.95	7,554.27	0.00	0.00	0.00
13,200.00	90.00	1.07	6,236.22	-1,326.22	7,446.02	-1,860.08	7,652.52	0.00	0.00	0.00
13,300.00	90.00	1.07	6,236.22	-1,326.22	7,546.01	-1,858.21	7,750.78	0.00	0.00	0.00
13,400.00	90.00	1.07	6,236.22	-1,326.22	7,645.99	-1,856.35	7,849.03	0.00	0.00	0.00
13,500.00	90.00	1.07	6,236.22	-1,326.22	7,745.97	-1,854.48	7,947.28	0.00	0.00	0.00
13,600.00	90.00	1.07	6,236.21	-1,326.21	7,845.95	-1,852.61	8,045.53	0.00	0.00	0.00
13,700.00	90.00	1.07	6,236.21	-1,326.21	7,945.94	-1,850.75	8,143.79	0.00	0.00	0.00
13,800.00	90.00	1.07	6,236.21	-1,326.21	8,045.92	-1,848.88	8,242.04	0.00	0.00	0.00
13,900.00	90.00	1.07	6,236.21	-1,326.21	8,145.90	-1,847.01	8,340.29	0.00	0.00	0.00
14,000.00	90.00	1.07	6,236.21	-1,326.21	8,245.88	-1,845.15	8,438.55	0.00	0.00	0.00
14,100.00	90.00	1.07	6,236.21	-1,326.21	8,345.87	-1,843.28	8,536.80	0.00	0.00	0.00
14,200.00	90.00	1.07	6,236.21	-1,326.21	8,445.85	-1,841.41	8,635.05	0.00	0.00	0.00
14,300.00	90.00	1.07	6,236.21	-1,326.21	8,545.83	-1,839.55	8,733.31	0.00	0.00	0.00
14,400.00	90.00	1.07	6,236.21	-1,326.21	8,645.81	-1,837.68	8,831.56	0.00	0.00	0.00
14,500.00	90.00	1.07	6,236.21	-1,326.21	8,745.80	-1,835.81	8,929.81	0.00	0.00	0.00
14,600.00	90.00	1.07	6,236.21	-1,326.21	8,845.78	-1,833.95	9,028.07	0.00	0.00	0.00
14,700.00	90.00	1.07	6,236.21	-1,326.21	8,945.76	-1,832.08	9,126.32	0.00	0.00	0.00
14,800.00	90.00	1.07	6,236.21	-1,326.21	9,045.74	-1,830.21	9,224.57	0.00	0.00	0.00
14,900.00	90.00	1.07	6,236.21	-1,326.21	9,145.73	-1,828.35	9,322.83	0.00	0.00	0.00
15,000.00	90.00	1.07	6,236.21	-1,326.21	9,245.71	-1,826.48	9,421.08	0.00	0.00	0.00
15,100.00	90.00	1.07	6,236.21	-1,326.21	9,345.69	-1,824.61	9,519.33	0.00	0.00	0.00
15,200.00	90.00	1.07	6,236.21	-1,326.21	9,445.67	-1,822.75	9,617.59	0.00	0.00	0.00
15,300.00	90.00	1.07	6,236.21	-1,326.21	9,545.66	-1,820.88	9,715.84	0.00	0.00	0.00
15,400.00	90.00	1.07	6,236.21	-1,326.21	9,645.64	-1,819.02	9,814.09	0.00	0.00	0.00
15,500.00	90.00	1.07	6,236.20	-1,326.20	9,745.62	-1,817.15	9,912.34	0.00	0.00	0.00
15,600.00	90.00	1.07	6,236.20	-1,326.20	9,845.60	-1,815.28	10,010.60	0.00	0.00	0.00
15,700.00	90.00	1.07	6,236.20	-1,326.20	9,945.59	-1,813.42	10,108.85	0.00	0.00	0.00
15,800.00	90.00	1.07	6,236.20	-1,326.20	10,045.57	-1,811.55	10,207.10	0.00	0.00	0.00
15,900.00	90.00	1.07	6,236.20	-1,326.20	10,145.55	-1,809.68	10,305.36	0.00	0.00	0.00
16,000.00	90.00	1.07	6,236.20	-1,326.20	10,245.53	-1,807.82	10,403.61	0.00	0.00	0.00
16,100.00	90.00	1.07	6,236.20	-1,326.20	10,345.52	-1,805.95	10,501.86	0.00	0.00	0.00
16,200.00	90.00	1.07	6,236.20	-1,326.20	10,445.50	-1,804.08	10,600.12	0.00	0.00	0.00
16,300.00	90.00	1.07	6,236.20	-1,326.20	10,545.48	-1,802.22	10,698.37	0.00	0.00	0.00
<b>BHL: 600ft FNL &amp; 971ft FWL of Sec 10</b>										
<b>16,342.70</b>	<b>90.00</b>	<b>1.07</b>	<b>6,236.20</b>	<b>-1,326.20</b>	<b>10,588.17</b>	<b>-1,801.42</b>	<b>10,740.32</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
16,342.74	90.00	1.07	6,236.20	-1,326.20	10,588.22	-1,801.42	10,740.36	0.00	0.00	0.00

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BLUE TEAL 15-10-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4910.00usft (Original Well Elev)
<b>Site:</b>	NW NE SEC. 22 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BLUE TEAL 15-10-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #3		

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,530.34	1,494.75	FOX HILLS BASE				
3,464.15	3,297.25	RICHARD SANDSTONE				
4,388.41	4,158.75	SUSSEX SANDSTONE				
4,911.97	4,646.75	SHANNON SANDSTONE				
6,479.67	6,071.25	SHARON SPRINGS				
6,586.75	6,136.75	NIOBRARA A CHALK				
6,622.36	6,155.25	NIOBRARA A CHALK BASE				
6,695.75	6,187.75	NIOBRARA B1 CHALK TOP				
6,772.81	6,213.25	NIOBRARA B1 CHALK BASE				
6,941.06	6,236.25	NIOBRARA B2 CHALK TOP				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 600ft FNL & 2323ft FEL of Sec 22
300.00	300.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,361.80	1,337.66	62.61	-184.18	EOB TO 21.24° INC
1,594.98	1,555.00	89.79	-264.14	SURFACE CASING
6,104.30	5,758.12	615.49	-1,810.56	KOP (10°/100ft DGLG)
6,941.06	6,236.25	1,188.17	-1,976.91	HZ LP: 600ft FSL & 975ft FWL of Sec 15
16,342.70	6,236.20	10,588.17	-1,801.42	BHL: 600ft FNL & 971ft FWL of Sec 10