

MALLARD EXPLORATION

WELD COUNTY, COLORADO (NAD 83)

NE NW SEC. 21 T8N R60W 6th P.M.

GOLDENEYE FED 21-7HC

ORIGINAL WELLBORE

11 July, 2019

Plan: PROPOSAL #2





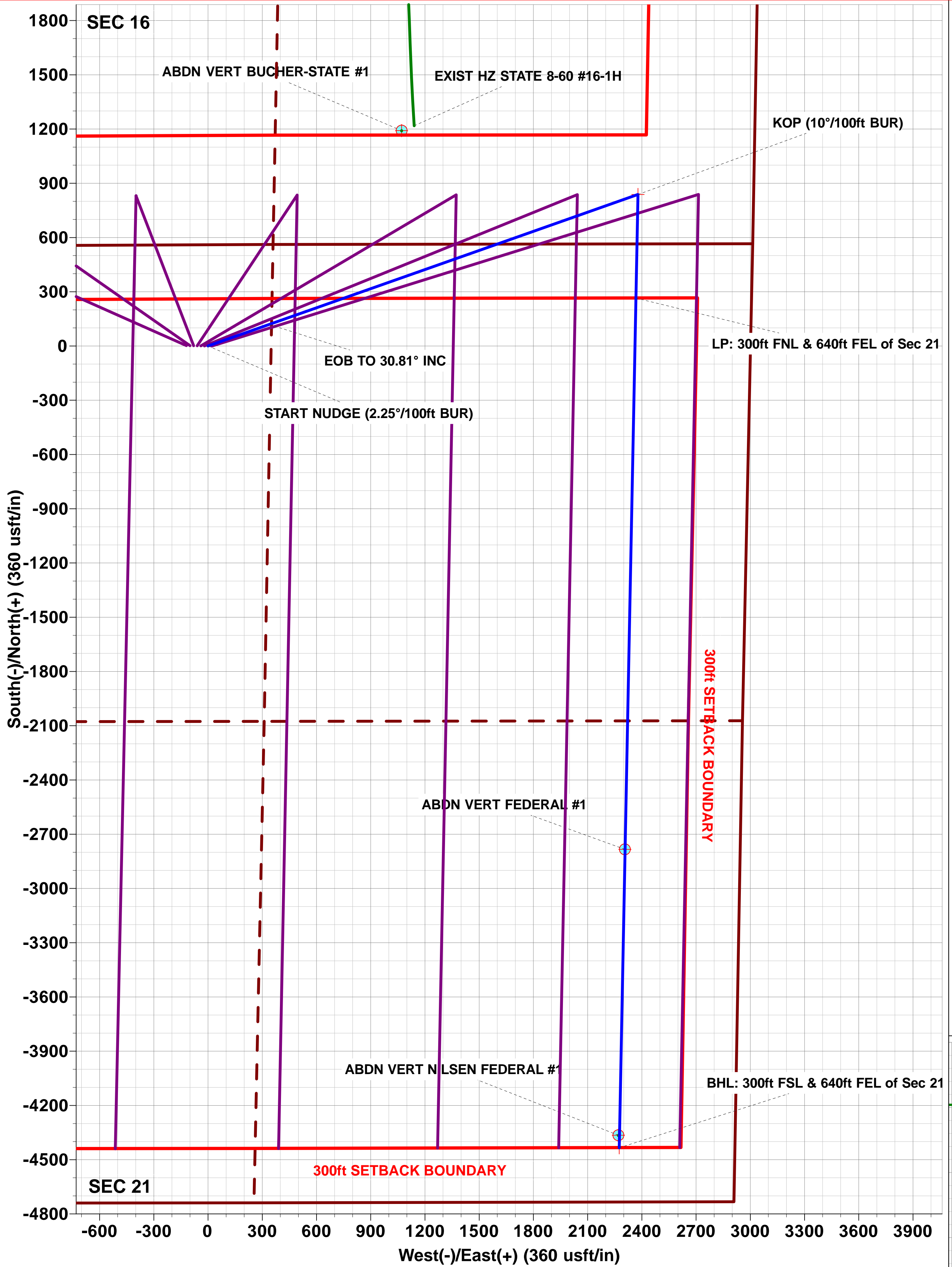
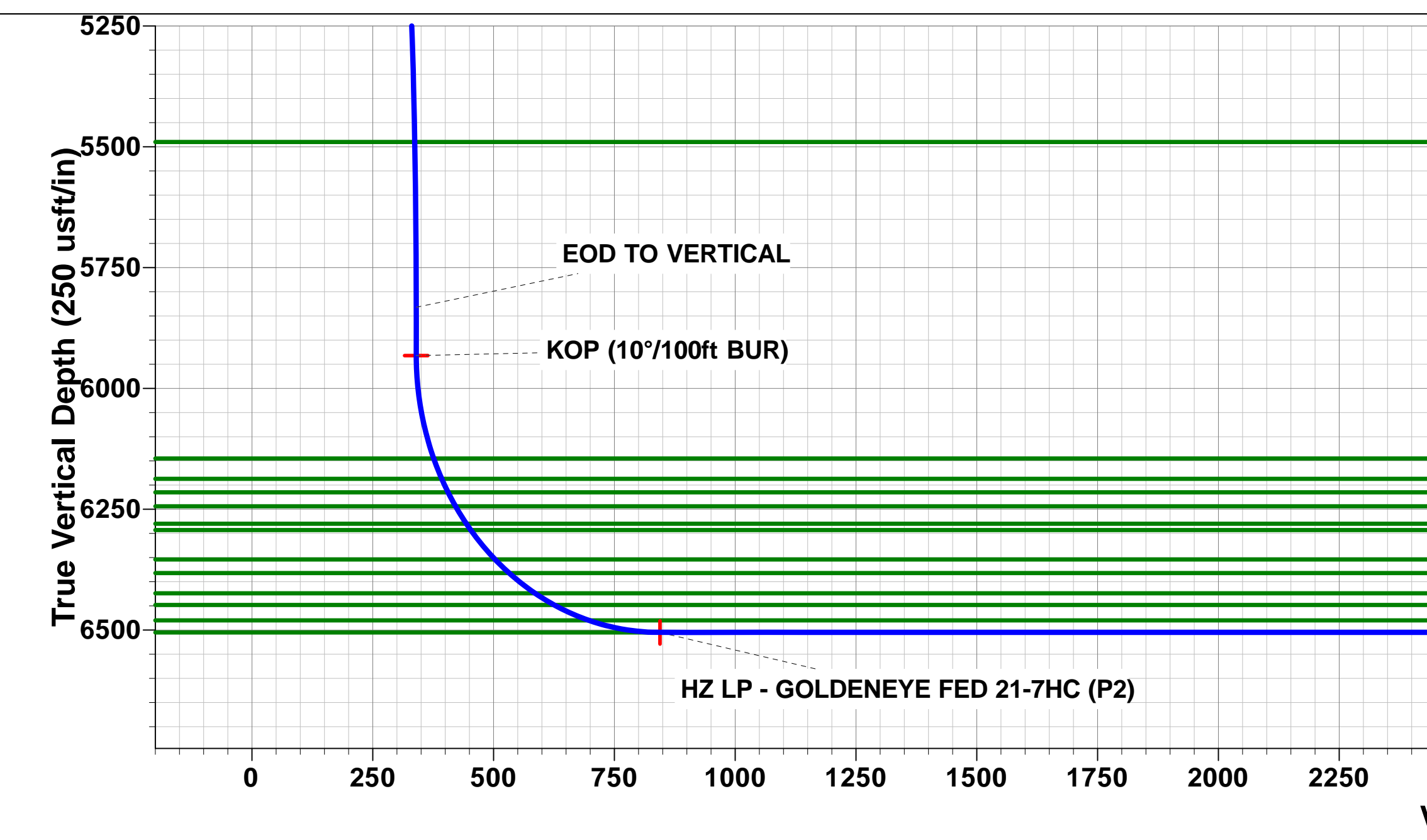
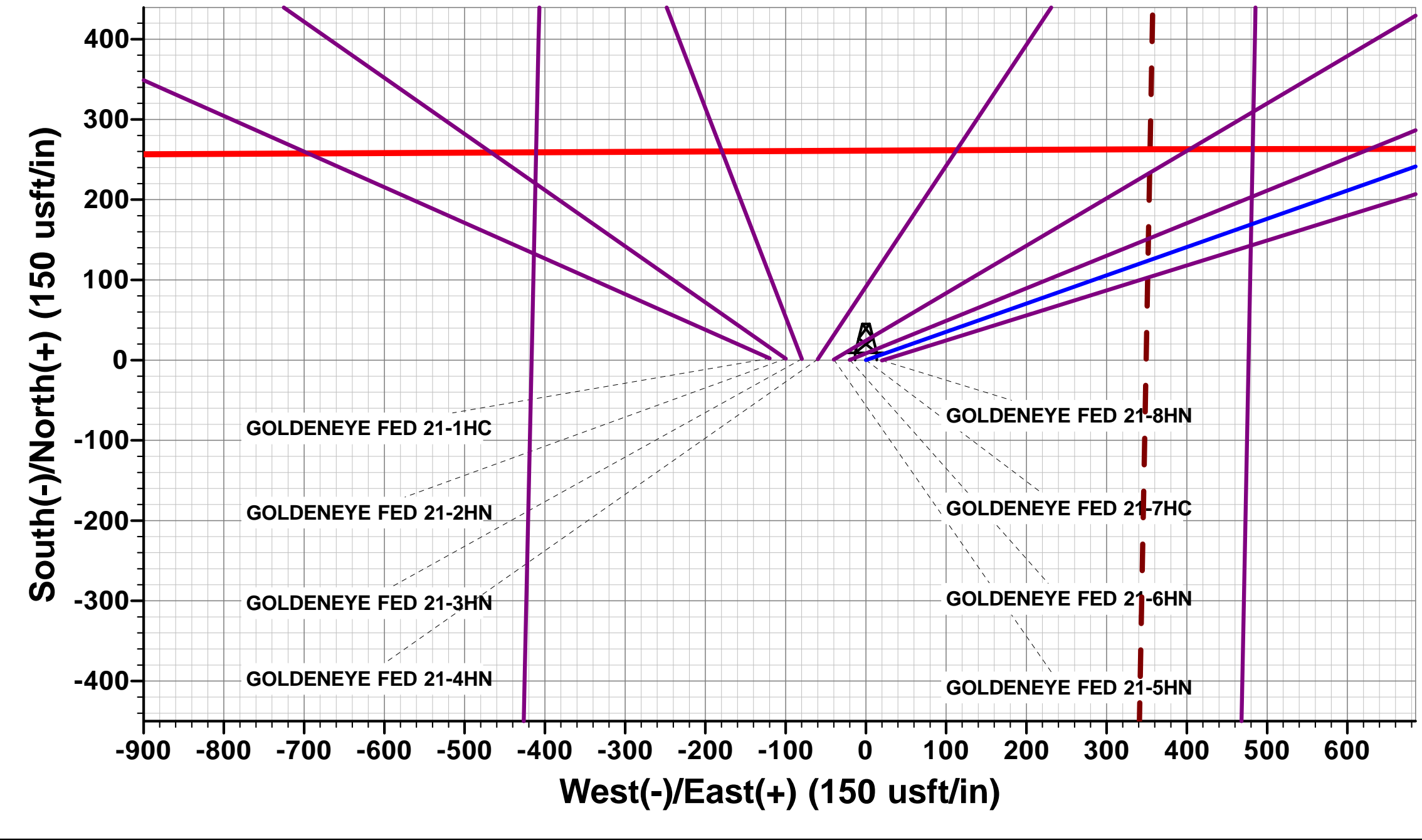
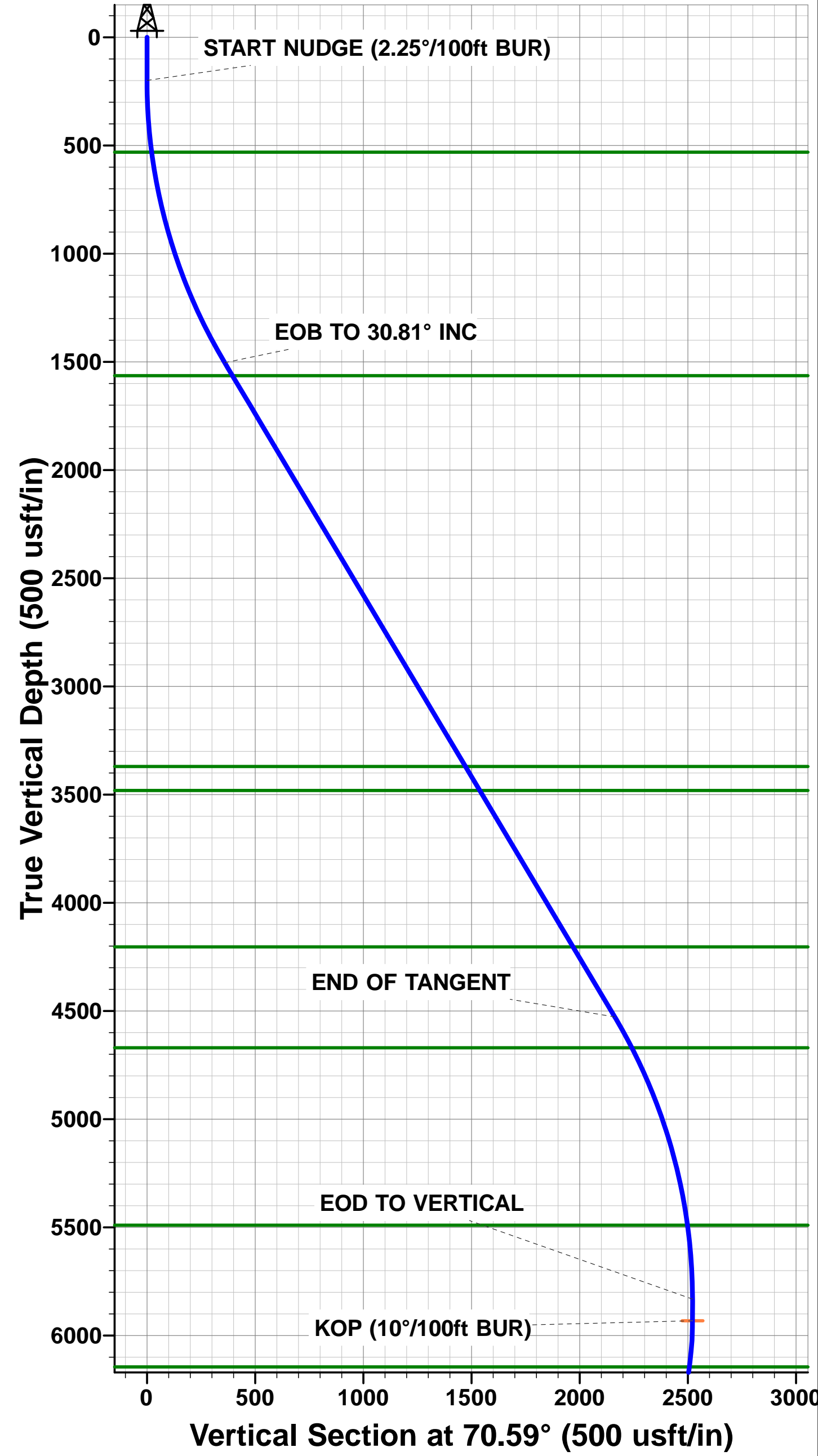
Project: WELD COUNTY, COLORADO (NAD 83)
Site: NE NW SEC. 21 T8N R60W 6th P.M.
Well: GOLDENEYE FED 21-7HC
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

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: 560ft FNL & 2292ft FWL of Sec 21		
200.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2.25°/100ft BUR)		
1504.15	1569.17	30.81	70.59	119.38	338.89	48.47	359.30	EOB TO 30.81° INC		
4527.89	5089.64	30.81	70.59	718.46	2039.41	291.69	2162.26	END OF TANGENT		
5832.04	6458.81	0.00	0.00	837.84	2378.30	340.16	2521.56	EOD TO VERTICAL		
5932.04	6558.81	0.00	0.00	837.84	2378.30	340.16	2521.56	KOP (10°/100ft BUR)		
6505.00	7458.82	90.00	181.12	264.99	2367.10	844.74	3094.53	LP: 300ft FNL & 640ft FEL of Sec 21		
6505.00	12158.82	90.00	181.13	-4434.11	2274.86	4983.60	7794.53	BHL: 300ft FSL & 640ft FEL of Sec 21		

PROPOSED LOCAL COORDINATES:

SHL: 560ft FNL & 2292ft FWL Sec 21
HZ LP: 300ft FNL & 640ft FEL Sec 21
BHL: 300ft FSL & 640ft FEL of Sec 21

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - GOLDENEYE FED 21-7HC (P2)	5932.04	837.84	2378.30	40.655844	-104.089130
HZ LP - GOLDENEYE FED 21-7HC (P2)	6505.00	264.99	2367.10	40.654272	-104.089171
BHL - GOLDENEYE FED 21-7HC (P2)	6505.00	-4434.11	2274.86	40.641374	-104.089505



Planning Report



Database:	Database 1	Local Co-ordinate Reference:	Well GOLDENEYE FED 21-7HC
Company:	MALLARD EXPLORATION	TVD Reference:	KB 20' @ 4957.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 4957.00usft
Site:	NE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-7HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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

Site		NE NW SEC. 21 T8N R60W 6th P.M.			
Site Position:		Northing:	1,484,003.48 usft	Latitude:	40.653615
From:	Lat/Long	Easting:	3,387,339.89 usft	Longitude:	-104.103964
Position Uncertainty:	0.00 usft	Slot Radius:	1.10 ft	Grid Convergence:	0.90 °

Well	GOLDENEYE FED 21-7HC					
Well Position	+N-S	-25.45 usft	Northing:	1,484,005.39 usft	Latitude:	40.653545
	+E-W	1,737.54 usft	Easting:	3,389,077.59 usft	Longitude:	-104.097702
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,937.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/07/2019	7.65	67.10	52,354

Design	PROPOSAL #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	6,505.00	0.00	0.00	152.84

Plan Sections											
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	-4,957.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	-4,757.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,569.17	30.81	70.59	1,504.15	-3,452.85	119.38	338.89	2.25	2.25	0.00	70.59	
5,089.64	30.81	70.59	4,527.89	-429.11	718.46	2,039.41	0.00	0.00	0.00	0.00	
6,458.81	0.00	0.00	5,832.04	875.04	837.84	2,378.30	2.25	-2.25	0.00	180.00	
6,558.81	0.00	0.00	5,932.04	975.04	837.84	2,378.30	0.00	0.00	0.00	0.00	KOP - GOLDENEYE
7,458.82	90.00	181.12	6,505.00	1,548.00	264.99	2,367.10	10.00	10.00	-19.88	181.12	HZ LP - GOLDENEYE
12,158.82	90.00	181.13	6,505.00	1,548.00	-4,434.11	2,274.86	0.00	0.00	0.00	91.75	BHL - GOLDENEYE

Planning Report



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Site:	NE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-7HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
SHL: 560ft FNL & 2292ft FWL of Sec 21										
0.00	0.00	0.00	0.00	4,957.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,857.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2.25°/100ft BUR)										
200.00	0.00	0.00	200.00	4,757.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	2.25	70.59	299.97	4,657.03	0.65	1.85	0.26	2.25	2.25	0.00
400.00	4.50	70.59	399.79	4,557.21	2.61	7.40	1.06	2.25	2.25	0.00
500.00	6.75	70.59	499.31	4,457.69	5.86	16.65	2.38	2.25	2.25	0.00
Fox Hills Base										
531.94	7.47	70.59	531.00	4,426.00	7.18	20.38	2.91	2.25	2.25	0.00
600.00	9.00	70.59	598.36	4,358.64	10.42	29.57	4.23	2.25	2.25	0.00
700.00	11.25	70.59	696.79	4,260.21	16.26	46.15	6.60	2.25	2.25	0.00
800.00	13.50	70.59	794.46	4,162.54	23.38	66.36	9.49	2.25	2.25	0.00
900.00	15.75	70.59	891.22	4,065.78	31.77	90.17	12.90	2.25	2.25	0.00
1,000.00	18.00	70.59	986.91	3,970.09	41.41	117.55	16.81	2.25	2.25	0.00
1,100.00	20.25	70.59	1,081.38	3,875.62	52.30	148.45	21.23	2.25	2.25	0.00
1,200.00	22.50	70.59	1,174.50	3,782.50	64.41	182.83	26.15	2.25	2.25	0.00
1,300.00	24.75	70.59	1,266.11	3,690.89	77.72	220.62	31.55	2.25	2.25	0.00
1,400.00	27.00	70.59	1,356.08	3,600.92	92.22	261.78	37.44	2.25	2.25	0.00
1,500.00	29.25	70.59	1,444.26	3,512.74	107.88	306.24	43.80	2.25	2.25	0.00
EOB TO 30.81° INC										
1,569.17	30.81	70.59	1,504.15	3,452.85	119.38	338.89	48.47	2.25	2.25	0.00
1,600.00	30.81	70.59	1,530.63	3,426.37	124.63	353.78	50.60	0.00	0.00	0.00
Pierre Shale Top										
1,638.85	30.81	70.59	1,564.00	3,393.00	131.24	372.55	53.28	0.00	0.00	0.00
1,700.00	30.81	70.59	1,616.52	3,340.48	141.65	402.08	57.51	0.00	0.00	0.00
1,800.00	30.81	70.59	1,702.41	3,254.59	158.66	450.39	64.42	0.00	0.00	0.00
1,900.00	30.81	70.59	1,788.30	3,168.70	175.68	498.69	71.33	0.00	0.00	0.00
2,000.00	30.81	70.59	1,874.19	3,082.81	192.70	546.99	78.24	0.00	0.00	0.00
2,100.00	30.81	70.59	1,960.08	2,996.92	209.71	595.30	85.14	0.00	0.00	0.00
2,200.00	30.81	70.59	2,045.97	2,911.03	226.73	643.60	92.05	0.00	0.00	0.00
2,300.00	30.81	70.59	2,131.86	2,825.14	243.75	691.91	98.96	0.00	0.00	0.00
2,400.00	30.81	70.59	2,217.75	2,739.25	260.77	740.21	105.87	0.00	0.00	0.00
2,500.00	30.81	70.59	2,303.64	2,653.36	277.78	788.51	112.78	0.00	0.00	0.00
2,600.00	30.81	70.59	2,389.53	2,567.47	294.80	836.82	119.69	0.00	0.00	0.00
2,700.00	30.81	70.59	2,475.42	2,481.58	311.82	885.12	126.60	0.00	0.00	0.00
2,800.00	30.81	70.59	2,561.31	2,395.69	328.83	933.43	133.51	0.00	0.00	0.00
2,900.00	30.81	70.59	2,647.20	2,309.80	345.85	981.73	140.41	0.00	0.00	0.00
3,000.00	30.81	70.59	2,733.09	2,223.91	362.87	1,030.03	147.32	0.00	0.00	0.00
3,100.00	30.81	70.59	2,818.98	2,138.02	379.88	1,078.34	154.23	0.00	0.00	0.00
3,200.00	30.81	70.59	2,904.87	2,052.13	396.90	1,126.64	161.14	0.00	0.00	0.00
3,300.00	30.81	70.59	2,990.76	1,966.24	413.92	1,174.95	168.05	0.00	0.00	0.00
3,400.00	30.81	70.59	3,076.65	1,880.35	430.93	1,223.25	174.96	0.00	0.00	0.00
3,500.00	30.81	70.59	3,162.54	1,794.46	447.95	1,271.55	181.87	0.00	0.00	0.00
3,600.00	30.81	70.59	3,248.43	1,708.57	464.97	1,319.86	188.78	0.00	0.00	0.00
3,700.00	30.81	70.59	3,334.33	1,622.67	481.98	1,368.16	195.68	0.00	0.00	0.00
Richard Sandstone										
3,741.54	30.81	70.59	3,370.00	1,587.00	489.05	1,388.23	198.55	0.00	0.00	0.00
3,800.00	30.81	70.59	3,420.22	1,536.78	499.00	1,416.47	202.59	0.00	0.00	0.00
Parkman Sandstone										
3,870.77	30.81	70.59	3,481.00	1,476.00	511.04	1,450.65	207.48	0.00	0.00	0.00
3,900.00	30.81	70.59	3,506.11	1,450.89	516.02	1,464.77	209.50	0.00	0.00	0.00
4,000.00	30.81	70.59	3,592.00	1,365.00	533.03	1,513.07	216.41	0.00	0.00	0.00

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 4957.00usft
Site:	NE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-7HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
4,100.00	30.81	70.59	3,677.89	1,279.11	550.05	1,561.38	223.32	0.00	0.00	0.00
4,200.00	30.81	70.59	3,763.78	1,193.22	567.07	1,609.68	230.23	0.00	0.00	0.00
4,300.00	30.81	70.59	3,849.67	1,107.33	584.08	1,657.99	237.14	0.00	0.00	0.00
4,400.00	30.81	70.59	3,935.56	1,021.44	601.10	1,706.29	244.05	0.00	0.00	0.00
4,500.00	30.81	70.59	4,021.45	935.55	618.12	1,754.59	250.96	0.00	0.00	0.00
4,600.00	30.81	70.59	4,107.34	849.66	635.13	1,802.90	257.86	0.00	0.00	0.00
4,700.00	30.81	70.59	4,193.23	763.77	652.15	1,851.20	264.77	0.00	0.00	0.00
Sussex Sandstone										
4,712.54	30.81	70.59	4,204.00	753.00	654.29	1,857.26	265.64	0.00	0.00	0.00
4,800.00	30.81	70.59	4,279.12	677.88	669.17	1,899.51	271.68	0.00	0.00	0.00
4,900.00	30.81	70.59	4,365.01	591.99	686.18	1,947.81	278.59	0.00	0.00	0.00
5,000.00	30.81	70.59	4,450.90	506.10	703.20	1,996.11	285.50	0.00	0.00	0.00
END OF TANGENT										
5,089.64	30.81	70.59	4,527.89	429.11	718.46	2,039.41	291.69	0.00	0.00	0.00
5,100.00	30.57	70.59	4,536.80	420.20	720.21	2,044.40	292.41	2.25	-2.25	0.00
5,200.00	28.32	70.59	4,623.88	333.12	736.55	2,090.77	299.04	2.25	-2.25	0.00
Shannon Sandstone										
5,252.11	27.15	70.59	4,670.00	287.00	744.61	2,113.64	302.31	2.25	-2.25	0.00
5,300.00	26.07	70.59	4,712.81	244.19	751.73	2,133.88	305.20	2.25	-2.25	0.00
5,400.00	23.82	70.59	4,803.48	153.52	765.75	2,173.66	310.89	2.25	-2.25	0.00
5,500.00	21.57	70.59	4,895.72	61.28	778.57	2,210.05	316.10	2.25	-2.25	0.00
5,600.00	19.32	70.59	4,989.42	-32.42	790.18	2,243.00	320.81	2.25	-2.25	0.00
5,700.00	17.07	70.59	5,084.41	-127.41	800.55	2,272.45	325.02	2.25	-2.25	0.00
5,800.00	14.82	70.59	5,180.55	-223.55	809.68	2,298.37	328.73	2.25	-2.25	0.00
5,900.00	12.57	70.59	5,277.70	-320.70	817.55	2,320.70	331.92	2.25	-2.25	0.00
6,000.00	10.32	70.59	5,375.71	-418.71	824.14	2,339.42	334.60	2.25	-2.25	0.00
6,100.00	8.07	70.59	5,474.42	-517.42	829.45	2,354.50	336.76	2.25	-2.25	0.00
TeePee Buttes										
6,115.73	7.72	70.59	5,490.00	-533.00	830.17	2,356.54	337.05	2.25	-2.25	0.00
6,200.00	5.82	70.59	5,573.67	-616.67	833.47	2,365.91	338.39	2.25	-2.25	0.00
6,300.00	3.57	70.59	5,673.33	-716.33	836.20	2,373.63	339.49	2.25	-2.25	0.00
6,400.00	1.32	70.59	5,773.23	-816.23	837.61	2,377.66	340.07	2.25	-2.25	0.00
EOD TO VERTICAL										
6,458.81	0.00	0.00	5,832.04	-875.04	837.84	2,378.30	340.16	2.25	-2.25	0.00
6,500.00	0.00	0.00	5,873.23	-916.23	837.84	2,378.30	340.16	0.00	0.00	0.00
KOP (10°/100ft BUR)										
6,558.81	0.00	0.00	5,932.04	-975.04	837.84	2,378.30	340.16	0.00	0.00	0.00
6,600.00	4.12	181.12	5,973.19	-1,016.19	836.36	2,378.27	341.47	10.00	10.00	0.00
6,700.00	14.12	181.12	6,071.80	-1,114.80	820.54	2,377.96	355.40	10.00	10.00	0.00
Sharon Springs										
6,777.01	21.82	181.12	6,145.00	-1,188.00	796.80	2,377.50	376.31	10.00	10.00	0.00
6,800.00	24.12	181.12	6,166.17	-1,209.17	787.83	2,377.32	384.21	10.00	10.00	0.00
Niobrara Top										
6,823.04	26.42	181.12	6,187.00	-1,230.00	778.00	2,377.13	392.87	10.00	10.00	0.00
Niobrara A Chalk										
6,854.76	29.59	181.12	6,215.00	-1,258.00	763.11	2,376.84	405.99	10.00	10.00	0.00
Niobrara A Chalk Base										
6,888.70	32.99	181.12	6,244.00	-1,287.00	745.48	2,376.49	421.51	10.00	10.00	0.00
6,900.00	34.12	181.12	6,253.42	-1,296.42	739.24	2,376.37	427.01	10.00	10.00	0.00
Niobrara B1 Chalk Top										
6,932.76	37.39	181.12	6,280.00	-1,323.00	720.10	2,376.00	443.87	10.00	10.00	0.00
Niobrara B1 Chalk Base										

Planning Report



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Company:	MALLARD EXPLORATION	TVD Reference:	KB 20' @ 4957.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 4957.00usft
Site:	NE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-7HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
6,949.31	39.05	181.12	6,293.00	-1,336.00	709.87	2,375.80	452.88	10.00	10.00	0.00
7,000.00	44.12	181.12	6,330.91	-1,373.91	676.24	2,375.14	482.50	10.00	10.00	0.00
Niobrara B2 Chalk Base										
7,033.12	47.43	181.12	6,354.00	-1,397.00	652.51	2,374.68	503.40	10.00	10.00	0.00
Niobrara C Chalk Top										
7,076.32	51.75	181.12	6,382.00	-1,425.00	619.63	2,374.04	532.36	10.00	10.00	0.00
7,100.00	54.12	181.12	6,396.27	-1,439.27	600.74	2,373.67	549.00	10.00	10.00	0.00
Niobrara C Chalk Base										
7,150.44	59.16	181.12	6,424.00	-1,467.00	558.63	2,372.84	586.09	10.00	10.00	0.00
7,200.00	64.12	181.12	6,447.53	-1,490.53	515.04	2,371.99	624.49	10.00	10.00	0.00
Niobrara D Chalk Top										
7,201.07	64.23	181.12	6,448.00	-1,491.00	514.08	2,371.97	625.34	10.00	10.00	0.00
Ft. Hays										
7,288.94	73.01	181.12	6,480.00	-1,523.00	432.36	2,370.37	697.32	10.00	10.00	0.00
7,300.00	74.12	181.12	6,483.13	-1,526.13	421.75	2,370.17	706.66	10.00	10.00	0.00
7,400.00	84.12	181.12	6,501.98	-1,544.98	323.69	2,368.25	793.04	10.00	10.00	0.00
LP: 300ft FNL & 640ft FEL of Sec 21 - Codell (Target)										
7,458.82	90.00	181.12	6,505.00	-1,548.00	264.99	2,367.10	844.74	10.00	10.00	0.00
7,500.00	90.00	181.12	6,505.00	-1,548.00	223.81	2,366.30	881.01	0.00	0.00	0.00
7,600.00	90.00	181.12	6,505.00	-1,548.00	123.83	2,364.34	969.07	0.00	0.00	0.00
7,700.00	90.00	181.12	6,505.00	-1,548.00	23.85	2,362.39	1,057.14	0.00	0.00	0.00
7,800.00	90.00	181.12	6,505.00	-1,548.00	-76.13	2,360.43	1,145.20	0.00	0.00	0.00
7,900.00	90.00	181.12	6,505.00	-1,548.00	-176.11	2,358.48	1,233.27	0.00	0.00	0.00
8,000.00	90.00	181.12	6,505.00	-1,548.00	-276.09	2,356.52	1,321.33	0.00	0.00	0.00
8,100.00	90.00	181.12	6,505.00	-1,548.00	-376.07	2,354.57	1,409.40	0.00	0.00	0.00
8,200.00	90.00	181.12	6,505.00	-1,548.00	-476.05	2,352.61	1,497.46	0.00	0.00	0.00
8,300.00	90.00	181.12	6,505.00	-1,548.00	-576.04	2,350.65	1,585.52	0.00	0.00	0.00
8,400.00	90.00	181.12	6,505.00	-1,548.00	-676.02	2,348.70	1,673.59	0.00	0.00	0.00
8,500.00	90.00	181.12	6,505.00	-1,548.00	-776.00	2,346.74	1,761.65	0.00	0.00	0.00
8,600.00	90.00	181.12	6,505.00	-1,548.00	-875.98	2,344.78	1,849.71	0.00	0.00	0.00
8,700.00	90.00	181.12	6,505.00	-1,548.00	-975.96	2,342.82	1,937.78	0.00	0.00	0.00
8,800.00	90.00	181.12	6,505.00	-1,548.00	-1,075.94	2,340.86	2,025.84	0.00	0.00	0.00
8,900.00	90.00	181.12	6,505.00	-1,548.00	-1,175.92	2,338.90	2,113.90	0.00	0.00	0.00
9,000.00	90.00	181.12	6,505.00	-1,548.00	-1,275.90	2,336.94	2,201.96	0.00	0.00	0.00
9,100.00	90.00	181.12	6,505.00	-1,548.00	-1,375.88	2,334.98	2,290.03	0.00	0.00	0.00
9,200.00	90.00	181.12	6,505.00	-1,548.00	-1,475.86	2,333.02	2,378.09	0.00	0.00	0.00
9,300.00	90.00	181.12	6,505.00	-1,548.00	-1,575.84	2,331.06	2,466.15	0.00	0.00	0.00
9,400.00	90.00	181.12	6,505.00	-1,548.00	-1,675.82	2,329.10	2,554.21	0.00	0.00	0.00
9,500.00	90.00	181.12	6,505.00	-1,548.00	-1,775.81	2,327.14	2,642.27	0.00	0.00	0.00
9,600.00	90.00	181.12	6,505.00	-1,548.00	-1,875.79	2,325.18	2,730.33	0.00	0.00	0.00
9,700.00	90.00	181.12	6,505.00	-1,548.00	-1,975.77	2,323.22	2,818.40	0.00	0.00	0.00
9,800.00	90.00	181.12	6,505.00	-1,548.00	-2,075.75	2,321.26	2,906.46	0.00	0.00	0.00
9,900.00	90.00	181.12	6,505.00	-1,548.00	-2,175.73	2,319.29	2,994.52	0.00	0.00	0.00
10,000.00	90.00	181.12	6,505.00	-1,548.00	-2,275.71	2,317.33	3,082.58	0.00	0.00	0.00
10,100.00	90.00	181.13	6,505.00	-1,548.00	-2,375.69	2,315.37	3,170.64	0.00	0.00	0.00
10,200.00	90.00	181.13	6,505.00	-1,548.00	-2,475.67	2,313.40	3,258.70	0.00	0.00	0.00
10,300.00	90.00	181.13	6,505.00	-1,548.00	-2,575.65	2,311.44	3,346.76	0.00	0.00	0.00
10,400.00	90.00	181.13	6,505.00	-1,548.00	-2,675.63	2,309.47	3,434.82	0.00	0.00	0.00
10,500.00	90.00	181.13	6,505.00	-1,548.00	-2,775.61	2,307.51	3,522.88	0.00	0.00	0.00
10,600.00	90.00	181.13	6,505.00	-1,548.00	-2,875.59	2,305.54	3,610.94	0.00	0.00	0.00
10,700.00	90.00	181.13	6,505.00	-1,548.00	-2,975.57	2,303.58	3,699.00	0.00	0.00	0.00
10,800.00	90.00	181.13	6,505.00	-1,548.00	-3,075.55	2,301.61	3,787.06	0.00	0.00	0.00
10,900.00	90.00	181.13	6,505.00	-1,548.00	-3,175.54	2,299.65	3,875.12	0.00	0.00	0.00

Planning Report



Database:	Database 1	Local Co-ordinate Reference:	Well GOLDENEYE FED 21-7HC
Company:	MALLARD EXPLORATION	TVD Reference:	KB 20' @ 4957.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 4957.00usft
Site:	NE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-7HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
11,000.00	90.00	181.13	6,505.00	-1,548.00	-3,275.52	2,297.68	3,963.18	0.00	0.00	0.00
11,100.00	90.00	181.13	6,505.00	-1,548.00	-3,375.50	2,295.71	4,051.23	0.00	0.00	0.00
11,200.00	90.00	181.13	6,505.00	-1,548.00	-3,475.48	2,293.75	4,139.29	0.00	0.00	0.00
11,300.00	90.00	181.13	6,505.00	-1,548.00	-3,575.46	2,291.78	4,227.35	0.00	0.00	0.00
11,400.00	90.00	181.13	6,505.00	-1,548.00	-3,675.44	2,289.81	4,315.41	0.00	0.00	0.00
11,500.00	90.00	181.13	6,505.00	-1,548.00	-3,775.42	2,287.84	4,403.47	0.00	0.00	0.00
11,600.00	90.00	181.13	6,505.00	-1,548.00	-3,875.40	2,285.87	4,491.53	0.00	0.00	0.00
11,700.00	90.00	181.13	6,505.00	-1,548.00	-3,975.38	2,283.90	4,579.58	0.00	0.00	0.00
11,800.00	90.00	181.13	6,505.00	-1,548.00	-4,075.36	2,281.93	4,667.64	0.00	0.00	0.00
11,900.00	90.00	181.13	6,505.00	-1,548.00	-4,175.34	2,279.96	4,755.70	0.00	0.00	0.00
12,000.00	90.00	181.13	6,505.00	-1,548.00	-4,275.32	2,277.99	4,843.76	0.00	0.00	0.00
12,100.00	90.00	181.13	6,505.00	-1,548.00	-4,375.30	2,276.02	4,931.81	0.00	0.00	0.00
BHL: 300ft FSL & 640ft FEL of Sec 21										
12,158.82	90.00	181.13	6,505.00	-1,548.00	-4,434.11	2,274.86	4,983.60	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
531.94	531.00	Fox Hills Base				
1,638.85	1,564.00	Pierre Shale Top				
3,741.54	3,370.00	Richard Sandstone				
3,870.77	3,481.00	Parkman Sandstone				
4,712.54	4,204.00	Sussex Sandstone				
5,252.11	4,670.00	Shannon Sandstone				
6,115.73	5,490.00	TeePee Buttes				
6,777.01	6,145.00	Sharon Springs				
6,823.04	6,187.00	Niobrara Top				
6,854.76	6,215.00	Niobrara A Chalk				
6,888.70	6,244.00	Niobrara A Chalk Base				
6,932.76	6,280.00	Niobrara B1 Chalk Top				
6,949.31	6,293.00	Niobrara B1 Chalk Base				
7,033.12	6,354.00	Niobrara B2 Chalk Base				
7,076.32	6,382.00	Niobrara C Chalk Top				
7,150.44	6,424.00	Niobrara C Chalk Base				
7,201.07	6,448.00	Niobrara D Chalk Top				
7,288.94	6,480.00	Ft. Hays				
7,458.82	6,505.00	Codell (Target)				

Planning Report



Database:	Database 1	Local Co-ordinate Reference:	Well GOLDENEYE FED 21-7HC
Company:	MALLARD EXPLORATION	TVD Reference:	KB 20' @ 4957.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 20' @ 4957.00usft
Site:	NE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-7HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Plan Annotations				
Local Coordinates				
MD (usft)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Comment
0.00	0.00	0.00	0.00	SHL: 560ft FNL & 2292ft FWL of Sec 21
200.00	200.00	0.00	0.00	START NUDGE (2.25°/100ft BUR)
1,569.17	1,504.15	119.38	338.89	EOB TO 30.81° INC
5,089.64	4,527.89	718.46	2,039.41	END OF TANGENT
6,458.81	5,832.04	837.84	2,378.30	EOD TO VERTICAL
6,558.81	5,932.04	837.84	2,378.30	KOP (10°/100ft BUR)
7,458.82	6,505.00	264.99	2,367.10	LP: 300ft FNL & 640ft FEL of Sec 21
12,158.82	6,505.00	-4,434.11	2,274.86	BHL: 300ft FSL & 640ft FEL of Sec 21