

MALLARD EXPLORATION

WELD COUNTY, COLORADO (NAD 83)

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

GOLDENEYE FED 21-16-3HN

ORIGINAL WELLBORE

03 September, 2019

Plan: PROPOSAL #3





Project: WELD COUNTY, COLORADO (NAD 83)
Site: SE NW SEC. 21 T8N R60W 6th P.M.
Well: GOLDENEYE FED 21-16-3HN
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: 2365ft FNL & 2196ft FWL of Sec 21
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (3.5°/100ft BUR)
1284.60	1356.41	36.97	185.06	-327.91	-29.06	-327.60	329.20	EOB TO 36.97° INC
4686.45	5614.54	36.97	185.06	-2878.99	-255.11	-2876.23	2890.27	END OF TANGENT
5671.04	6670.94	0.00	185.06	-3206.90	-284.17	-3203.82	3219.47	EOD TO VERTICAL
5771.04	6770.94	0.00	0.00	-3206.90	-284.17	-3203.82	3219.47	KOP (10°/100ft BUR)
6344.00	7670.94	90.00	1.22	-2634.08	-271.97	-2631.15	3792.42	LP: 300ft FSL & 1980ft FWL of Sec 21
6344.00	13419.87	90.00	1.22	3113.56	-149.83	3114.93	9541.35	IP #1: 750ft FSL & 1980ft FWL of Sec 16
6344.00	13426.68	90.00	1.01	3120.36	-149.70	3121.73	9548.16	EOT TO 1.01° AZ
6344.00	17650.74	90.00	1.01	7343.77	-75.18	7344.15	13772.22	BHL: 300ft FNL & 1980ft FWL of Sec 16

PROPOSED LOCAL COORDINATES:

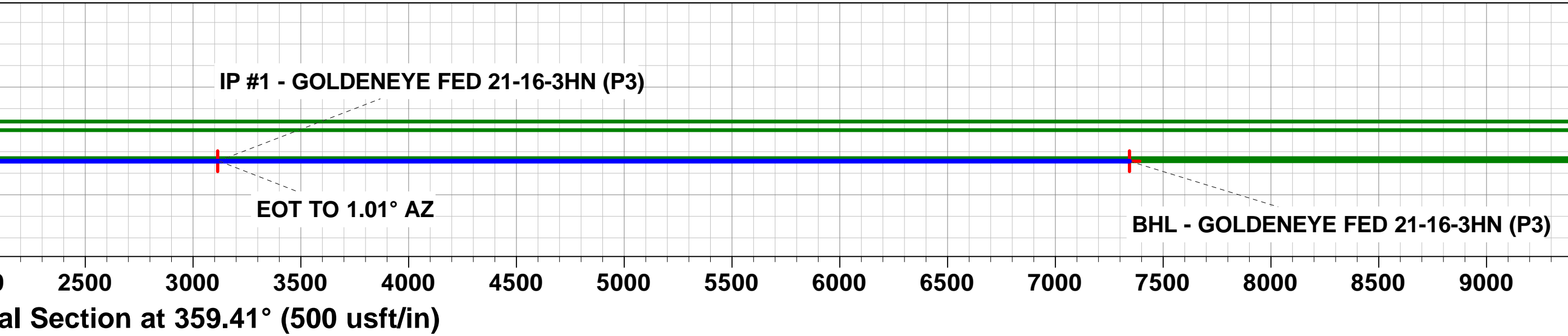
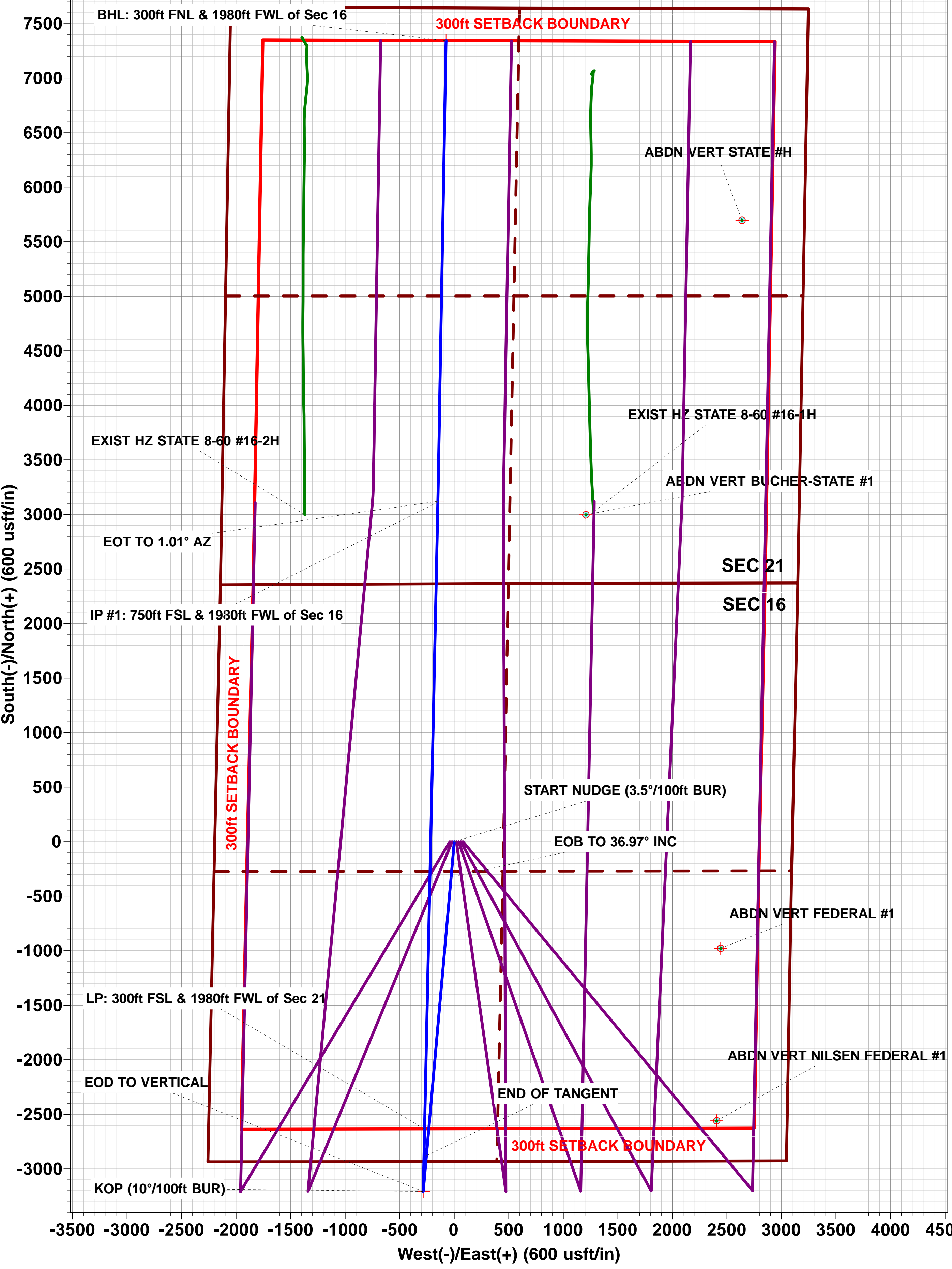
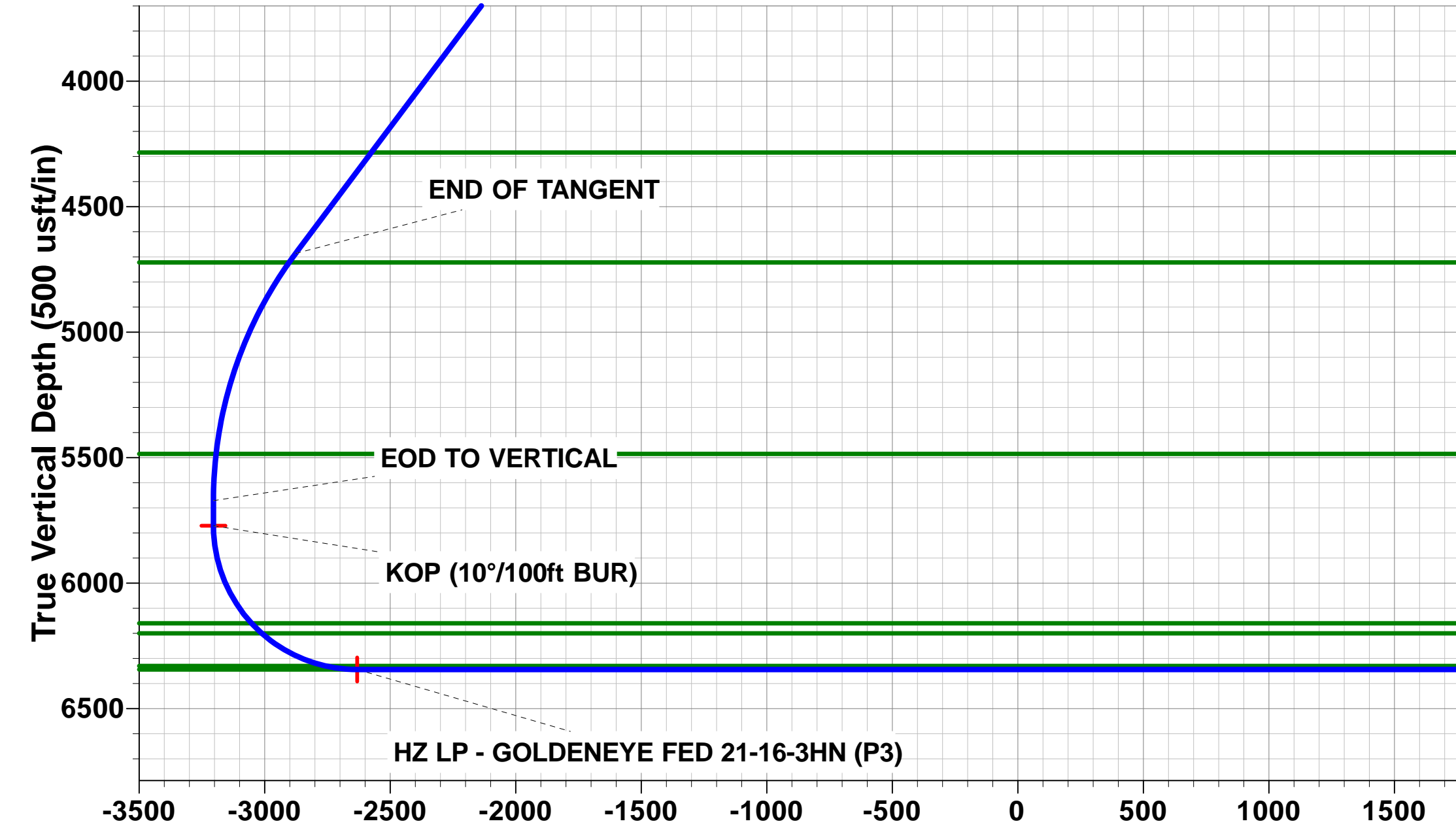
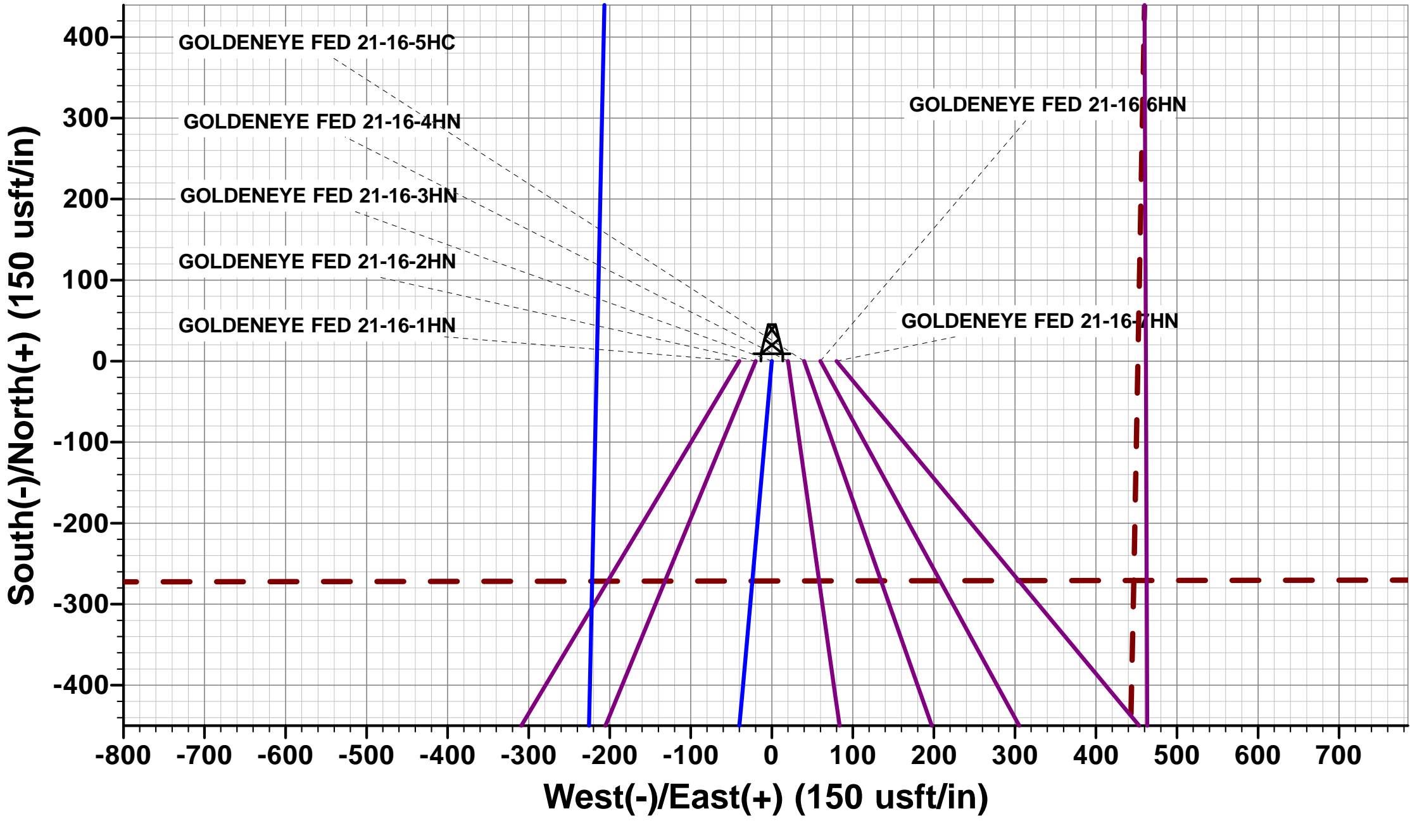
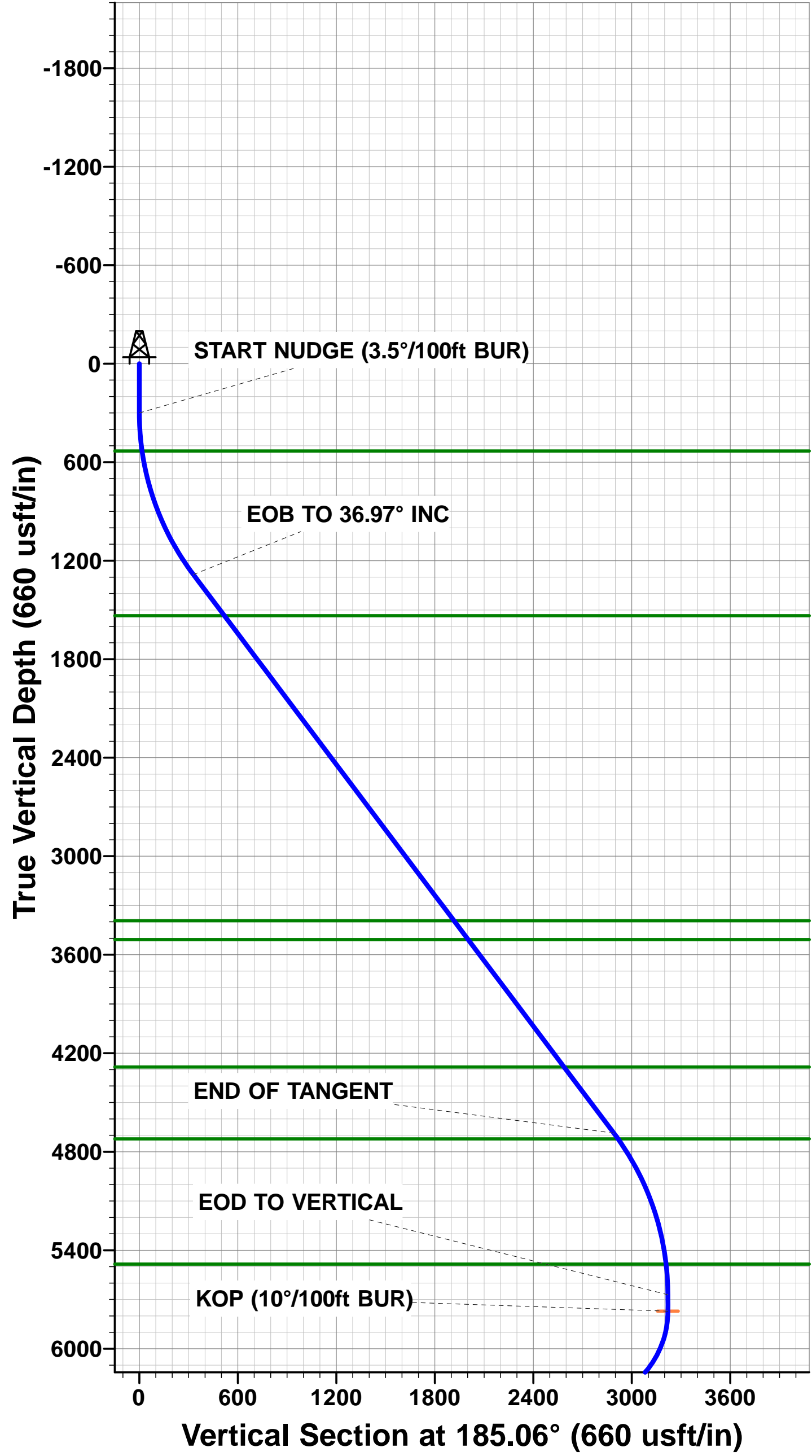
SHL: 2365ft FNL & 2196ft FWL Sec 21

HZ LP: 300ft FSL & 1980ft FWL Sec 21

IP #1: 750ft FSL & 1980ft FWL of Sec 16

BHL: 300ft FNL & 1980ft FWL of Sec 16

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - GOLDENEYE FED 21-16-3HN (P3)	5771.04	-3206.90	-284.17	40.639788	-104.099217
HZ LP - GOLDENEYE FED 21-16-3HN (P3)	6344.00	-2634.07	-271.97	40.641360	-104.099173
IP #1 - GOLDENEYE FED 21-16-3HN (P3)	6344.00	3113.55	-149.83	40.657136	-104.098733
BHL - GOLDENEYE FED 21-16-3HN (P3)	6344.00	7343.77	-75.18	40.668747	-104.098464



Planning Report



Database:	Database 1	Local Co-ordinate Reference:	Well GOLDENEYE FED 21-16-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 25' @ 4960.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4960.00usft
Site:	SE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-16-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #3		

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	SE NW SEC. 21 T8N R60W 6th P.M.				
Site Position:		Northing:	1,482,197.63 usft	Latitude:	40.648590
From:	Lat/Long	Easting:	3,388,929.95 usft	Longitude:	-104.098337
Position Uncertainty:	0.00 usft	Slot Radius:	1.10 ft	Grid Convergence:	0.91 °

Well		GOLDENEYE FED 21-16-3HN				
Well Position	+N/-S	-0.01 usft	Northing:	1,482,198.25 usft	Latitude:	40.648590
	+E/-W	39.96 usft	Easting:	3,388,969.91 usft	Longitude:	-104.098193
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,935.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	03/09/2019	7.63	67.09	52,334

Design	PROPOSAL #3			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	6,344.00	0.00	0.00	359.41

Plan Sections											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,960.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	-4,660.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,356.41	36.97	185.06	1,284.60	-3,675.40	-327.91	-29.06	3.50	3.50	0.00	185.06	
5,614.54	36.97	185.06	4,686.44	-273.56	-2,878.99	-255.11	0.00	0.00	0.00	0.00	
6,670.94	0.00	0.00	5,671.04	711.04	-3,206.90	-284.17	3.50	-3.50	0.00	180.00	
6,770.94	0.00	0.00	5,771.04	811.04	-3,206.90	-284.17	0.00	0.00	0.00	0.00	KOP - GOLDENEYE
7,670.94	90.00	1.22	6,344.00	1,384.00	-2,634.07	-271.97	10.00	10.00	0.14	1.22	HZ LP - GOLDENEYE
13,419.87	90.00	1.22	6,344.00	1,384.00	3,113.55	-149.83	0.00	0.00	0.00	-83.08	IP #1 - GOLDENEYE
13,426.68	90.00	1.01	6,344.00	1,384.00	3,120.36	-149.70	3.00	0.00	-3.00	-90.08	
17,650.74	90.00	1.01	6,344.00	1,384.00	7,343.77	-75.18	0.00	0.00	0.00	0.00	BHL - GOLDENEYE

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4960.00usft
Site:	SE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-16-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
SHL: 2365ft FNL & 2196ft FWL of Sec 21										
0.00	0.00	0.00	0.00	4,960.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,860.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,760.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (3.5°/100ft BUR)										
300.00	0.00	0.00	300.00	4,660.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	3.50	185.06	399.94	4,560.06	-3.04	-0.27	-3.04	3.50	3.50	0.00
500.00	7.00	185.06	499.50	4,460.50	-12.15	-1.08	-12.14	3.50	3.50	0.00
Fox Hills Base										
532.78	8.15	185.06	532.00	4,428.00	-16.46	-1.46	-16.44	3.50	3.50	0.00
600.00	10.50	185.06	598.32	4,361.68	-27.31	-2.42	-27.28	3.50	3.50	0.00
700.00	14.00	185.06	696.03	4,263.97	-48.44	-4.29	-48.39	3.50	3.50	0.00
800.00	17.50	185.06	792.26	4,167.74	-75.47	-6.69	-75.40	3.50	3.50	0.00
900.00	21.00	185.06	886.66	4,073.34	-108.31	-9.60	-108.20	3.50	3.50	0.00
1,000.00	24.50	185.06	978.86	3,981.14	-146.82	-13.01	-146.68	3.50	3.50	0.00
1,100.00	28.00	185.06	1,068.54	3,891.46	-190.87	-16.91	-190.69	3.50	3.50	0.00
1,200.00	31.50	185.06	1,155.34	3,804.66	-240.29	-21.29	-240.06	3.50	3.50	0.00
1,300.00	35.00	185.06	1,238.96	3,721.04	-294.90	-26.13	-294.61	3.50	3.50	0.00
EOB TO 36.97° INC										
1,356.41	36.97	185.06	1,284.60	3,675.40	-327.91	-29.06	-327.60	3.50	3.50	0.00
1,400.00	36.97	185.06	1,319.42	3,640.58	-354.03	-31.37	-353.69	0.00	0.00	0.00
1,500.00	36.97	185.06	1,399.31	3,560.69	-413.94	-36.68	-413.54	0.00	0.00	0.00
1,600.00	36.97	185.06	1,479.20	3,480.80	-473.85	-41.99	-473.39	0.00	0.00	0.00
Pierre Shale Top										
1,669.84	36.97	185.06	1,535.00	3,425.00	-515.69	-45.70	-515.20	0.00	0.00	0.00
1,700.00	36.97	185.06	1,559.10	3,400.90	-533.76	-47.30	-533.25	0.00	0.00	0.00
1,800.00	36.97	185.06	1,638.99	3,321.01	-593.67	-52.61	-593.10	0.00	0.00	0.00
1,900.00	36.97	185.06	1,718.88	3,241.12	-653.58	-57.92	-652.95	0.00	0.00	0.00
2,000.00	36.97	185.06	1,798.77	3,161.23	-713.49	-63.22	-712.81	0.00	0.00	0.00
2,100.00	36.97	185.06	1,878.66	3,081.34	-773.40	-68.53	-772.66	0.00	0.00	0.00
2,200.00	36.97	185.06	1,958.55	3,001.45	-833.31	-73.84	-832.51	0.00	0.00	0.00
2,300.00	36.97	185.06	2,038.44	2,921.56	-893.22	-79.15	-892.37	0.00	0.00	0.00
2,400.00	36.97	185.06	2,118.33	2,841.67	-953.14	-84.46	-952.22	0.00	0.00	0.00
2,500.00	36.97	185.06	2,198.22	2,761.78	-1,013.05	-89.77	-1,012.07	0.00	0.00	0.00
2,600.00	36.97	185.06	2,278.11	2,681.89	-1,072.96	-95.08	-1,071.93	0.00	0.00	0.00
2,700.00	36.97	185.06	2,358.00	2,602.00	-1,132.87	-100.39	-1,131.78	0.00	0.00	0.00
2,800.00	36.97	185.06	2,437.89	2,522.11	-1,192.78	-105.69	-1,191.63	0.00	0.00	0.00
2,900.00	36.97	185.06	2,517.78	2,442.22	-1,252.69	-111.00	-1,251.49	0.00	0.00	0.00
3,000.00	36.97	185.06	2,597.67	2,362.33	-1,312.60	-116.31	-1,311.34	0.00	0.00	0.00
3,100.00	36.97	185.06	2,677.56	2,282.44	-1,372.51	-121.62	-1,371.19	0.00	0.00	0.00
3,200.00	36.97	185.06	2,757.45	2,202.55	-1,432.42	-126.93	-1,431.05	0.00	0.00	0.00
3,300.00	36.97	185.06	2,837.35	2,122.65	-1,492.33	-132.24	-1,490.90	0.00	0.00	0.00
3,400.00	36.97	185.06	2,917.24	2,042.76	-1,552.24	-137.55	-1,550.75	0.00	0.00	0.00
3,500.00	36.97	185.06	2,997.13	1,962.87	-1,612.15	-142.86	-1,610.61	0.00	0.00	0.00
3,600.00	36.97	185.06	3,077.02	1,882.98	-1,672.06	-148.17	-1,670.46	0.00	0.00	0.00
3,700.00	36.97	185.06	3,156.91	1,803.09	-1,731.98	-153.47	-1,730.31	0.00	0.00	0.00
3,800.00	36.97	185.06	3,236.80	1,723.20	-1,791.89	-158.78	-1,790.17	0.00	0.00	0.00
3,900.00	36.97	185.06	3,316.69	1,643.31	-1,851.80	-164.09	-1,850.02	0.00	0.00	0.00
Richard Sandstone										
3,995.52	36.97	185.06	3,393.00	1,567.00	-1,909.02	-169.16	-1,907.19	0.00	0.00	0.00
4,000.00	36.97	185.06	3,396.58	1,563.42	-1,911.71	-169.40	-1,909.87	0.00	0.00	0.00
4,100.00	36.97	185.06	3,476.47	1,483.53	-1,971.62	-174.71	-1,969.73	0.00	0.00	0.00
Parkman Sandstone										

Planning Report



Database:	Database 1	Local Co-ordinate Reference:	Well GOLDENEYE FED 21-16-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 25' @ 4960.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4960.00usft
Site:	SE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-16-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
4,139.47	36.97	185.06	3,508.00	1,452.00	-1,995.26	-176.80	-1,993.35	0.00	0.00	0.00
4,200.00	36.97	185.06	3,556.36	1,403.64	-2,031.53	-180.02	-2,029.58	0.00	0.00	0.00
4,300.00	36.97	185.06	3,636.25	1,323.75	-2,091.44	-185.33	-2,089.43	0.00	0.00	0.00
4,400.00	36.97	185.06	3,716.14	1,243.86	-2,151.35	-190.64	-2,149.29	0.00	0.00	0.00
4,500.00	36.97	185.06	3,796.03	1,163.97	-2,211.26	-195.94	-2,209.14	0.00	0.00	0.00
4,600.00	36.97	185.06	3,875.92	1,084.08	-2,271.17	-201.25	-2,268.99	0.00	0.00	0.00
4,700.00	36.97	185.06	3,955.81	1,004.19	-2,331.08	-206.56	-2,328.85	0.00	0.00	0.00
4,800.00	36.97	185.06	4,035.71	924.29	-2,390.99	-211.87	-2,388.70	0.00	0.00	0.00
4,900.00	36.97	185.06	4,115.60	844.40	-2,450.91	-217.18	-2,448.55	0.00	0.00	0.00
5,000.00	36.97	185.06	4,195.49	764.51	-2,510.82	-222.49	-2,508.41	0.00	0.00	0.00
5,100.00	36.97	185.06	4,275.38	684.62	-2,570.73	-227.80	-2,568.26	0.00	0.00	0.00
Sussex Sandstone										
5,110.79	36.97	185.06	4,284.00	676.00	-2,577.19	-228.37	-2,574.72	0.00	0.00	0.00
5,200.00	36.97	185.06	4,355.27	604.73	-2,630.64	-233.11	-2,628.11	0.00	0.00	0.00
5,300.00	36.97	185.06	4,435.16	524.84	-2,690.55	-238.42	-2,687.97	0.00	0.00	0.00
5,400.00	36.97	185.06	4,515.05	444.95	-2,750.46	-243.72	-2,747.82	0.00	0.00	0.00
5,500.00	36.97	185.06	4,594.94	365.06	-2,810.37	-249.03	-2,807.67	0.00	0.00	0.00
5,600.00	36.97	185.06	4,674.83	285.17	-2,870.28	-254.34	-2,867.53	0.00	0.00	0.00
END OF TANGENT										
5,614.54	36.97	185.06	4,686.45	273.55	-2,878.99	-255.11	-2,876.23	0.00	0.00	0.00
Shannon Sandstone										
5,658.60	35.43	185.06	4,722.00	238.00	-2,904.91	-257.41	-2,902.13	3.50	-3.50	0.00
5,700.00	33.98	185.06	4,756.03	203.97	-2,928.39	-259.49	-2,925.58	3.50	-3.50	0.00
5,800.00	30.48	185.06	4,840.61	119.39	-2,981.51	-264.20	-2,978.65	3.50	-3.50	0.00
5,900.00	26.98	185.06	4,928.28	31.72	-3,029.39	-268.44	-3,026.48	3.50	-3.50	0.00
6,000.00	23.48	185.06	5,018.72	-58.72	-3,071.85	-272.20	-3,068.90	3.50	-3.50	0.00
6,100.00	19.98	185.06	5,111.60	-151.60	-3,108.73	-275.47	-3,105.74	3.50	-3.50	0.00
6,200.00	16.48	185.06	5,206.57	-246.57	-3,139.89	-278.23	-3,136.87	3.50	-3.50	0.00
6,300.00	12.98	185.06	5,303.26	-343.26	-3,165.22	-280.48	-3,162.18	3.50	-3.50	0.00
6,400.00	9.48	185.06	5,401.33	-441.33	-3,184.62	-282.20	-3,181.56	3.50	-3.50	0.00
TeePee Buttes										
6,484.50	6.53	185.06	5,485.00	-525.00	-3,196.34	-283.23	-3,193.27	3.50	-3.50	0.00
6,500.00	5.98	185.06	5,500.41	-540.41	-3,198.02	-283.38	-3,194.95	3.50	-3.50	0.00
6,600.00	2.48	185.06	5,600.12	-640.12	-3,205.37	-284.03	-3,202.29	3.50	-3.50	0.00
EOD TO VERTICAL										
6,670.94	0.00	185.06	5,671.04	-711.04	-3,206.90	-284.17	-3,203.82	3.50	-3.50	0.00
6,700.00	0.00	0.00	5,700.10	-740.10	-3,206.90	-284.17	-3,203.82	0.00	0.00	0.00
KOP (10°/100ft BUR)										
6,770.94	0.00	0.00	5,771.04	-811.04	-3,206.90	-284.17	-3,203.82	0.00	0.00	0.00
6,800.00	2.91	1.22	5,800.08	-840.08	-3,206.16	-284.15	-3,203.09	10.00	10.00	0.00
6,900.00	12.91	1.22	5,899.01	-939.01	-3,192.43	-283.86	-3,189.36	10.00	10.00	0.00
7,000.00	22.91	1.22	5,994.04	-1,034.04	-3,161.73	-283.21	-3,158.67	10.00	10.00	0.00
7,100.00	32.91	1.22	6,082.30	-1,122.30	-3,115.00	-282.21	-3,111.95	10.00	10.00	0.00
Sharon Springs										
7,198.49	42.75	1.22	6,160.00	-1,200.00	-3,054.68	-280.93	-3,051.64	10.00	10.00	0.00
7,200.00	42.91	1.22	6,161.11	-1,201.11	-3,053.65	-280.91	-3,050.62	10.00	10.00	0.00
Niobrara Top										
7,255.70	48.48	1.22	6,200.00	-1,240.00	-3,013.82	-280.06	-3,010.80	10.00	10.00	0.00
7,300.00	52.91	1.22	6,228.06	-1,268.06	-2,979.56	-279.33	-2,976.55	10.00	10.00	0.00
7,400.00	62.91	1.22	6,281.12	-1,321.12	-2,894.97	-277.53	-2,891.98	10.00	10.00	0.00
7,500.00	72.91	1.22	6,318.69	-1,358.69	-2,802.45	-275.56	-2,799.49	10.00	10.00	0.00
Niobrara B2 Chalk Target Top										
7,544.03	77.31	1.22	6,330.00	-1,370.00	-2,759.93	-274.65	-2,756.97	10.00	10.00	0.00

Planning Report



Database:	Database 1	Local Co-ordinate Reference:	Well GOLDENEYE FED 21-16-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 25' @ 4960.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4960.00usft
Site:	SE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-16-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
7,600.00	82.91	1.22	6,339.61	-1,379.61	-2,704.82	-273.48	-2,701.88	10.00	10.00	0.00
LP: 300ft FSL & 1980ft FWL of Sec 21 - Niobrara B2 Chalk Target Center										
7,670.94	90.00	1.22	6,344.00	-1,384.00	-2,634.07	-271.97	-2,631.15	10.00	10.00	0.00
7,700.00	90.00	1.22	6,344.00	-1,384.00	-2,605.02	-271.36	-2,602.11	0.00	0.00	0.00
7,800.00	90.00	1.22	6,344.00	-1,384.00	-2,505.05	-269.23	-2,502.16	0.00	0.00	0.00
7,900.00	90.00	1.22	6,344.00	-1,384.00	-2,405.07	-267.10	-2,402.21	0.00	0.00	0.00
8,000.00	90.00	1.22	6,344.00	-1,384.00	-2,305.09	-264.97	-2,302.26	0.00	0.00	0.00
8,100.00	90.00	1.22	6,344.00	-1,384.00	-2,205.11	-262.84	-2,202.31	0.00	0.00	0.00
8,200.00	90.00	1.22	6,344.00	-1,384.00	-2,105.14	-260.71	-2,102.36	0.00	0.00	0.00
8,300.00	90.00	1.22	6,344.00	-1,384.00	-2,005.16	-258.59	-2,002.41	0.00	0.00	0.00
8,400.00	90.00	1.22	6,344.00	-1,384.00	-1,905.18	-256.46	-1,902.46	0.00	0.00	0.00
8,500.00	90.00	1.22	6,344.00	-1,384.00	-1,805.20	-254.33	-1,802.51	0.00	0.00	0.00
8,600.00	90.00	1.22	6,344.00	-1,384.00	-1,705.23	-252.20	-1,702.56	0.00	0.00	0.00
8,700.00	90.00	1.22	6,344.00	-1,384.00	-1,605.25	-250.08	-1,602.61	0.00	0.00	0.00
8,800.00	90.00	1.22	6,344.00	-1,384.00	-1,505.27	-247.95	-1,502.66	0.00	0.00	0.00
8,900.00	90.00	1.22	6,344.00	-1,384.00	-1,405.29	-245.82	-1,402.70	0.00	0.00	0.00
9,000.00	90.00	1.22	6,344.00	-1,384.00	-1,305.32	-243.69	-1,302.75	0.00	0.00	0.00
9,100.00	90.00	1.22	6,344.01	-1,384.01	-1,205.34	-241.57	-1,202.80	0.00	0.00	0.00
9,200.00	90.00	1.22	6,344.01	-1,384.01	-1,105.36	-239.44	-1,102.85	0.00	0.00	0.00
9,300.00	90.00	1.22	6,344.01	-1,384.01	-1,005.39	-237.31	-1,002.90	0.00	0.00	0.00
9,400.00	90.00	1.22	6,344.01	-1,384.01	-905.41	-235.19	-902.95	0.00	0.00	0.00
9,500.00	90.00	1.22	6,344.01	-1,384.01	-805.43	-233.06	-803.00	0.00	0.00	0.00
9,600.00	90.00	1.22	6,344.01	-1,384.01	-705.45	-230.94	-703.05	0.00	0.00	0.00
9,700.00	90.00	1.22	6,344.01	-1,384.01	-605.48	-228.81	-603.10	0.00	0.00	0.00
9,800.00	90.00	1.22	6,344.01	-1,384.01	-505.50	-226.68	-503.15	0.00	0.00	0.00
9,900.00	90.00	1.22	6,344.01	-1,384.01	-405.52	-224.56	-403.20	0.00	0.00	0.00
10,000.00	90.00	1.22	6,344.01	-1,384.01	-305.54	-222.43	-303.25	0.00	0.00	0.00
10,100.00	90.00	1.22	6,344.01	-1,384.01	-205.57	-220.31	-203.30	0.00	0.00	0.00
10,200.00	90.00	1.22	6,344.01	-1,384.01	-105.59	-218.18	-103.35	0.00	0.00	0.00
10,300.00	90.00	1.22	6,344.01	-1,384.01	-5.61	-216.06	-3.40	0.00	0.00	0.00
10,400.00	90.00	1.22	6,344.01	-1,384.01	94.37	-213.93	96.55	0.00	0.00	0.00
10,500.00	90.00	1.22	6,344.01	-1,384.01	194.34	-211.81	196.50	0.00	0.00	0.00
10,600.00	90.00	1.22	6,344.01	-1,384.01	294.32	-209.68	296.45	0.00	0.00	0.00
10,700.00	90.00	1.22	6,344.01	-1,384.01	394.30	-207.56	396.40	0.00	0.00	0.00
10,800.00	90.00	1.22	6,344.01	-1,384.01	494.28	-205.43	496.35	0.00	0.00	0.00
10,900.00	90.00	1.22	6,344.01	-1,384.01	594.25	-203.31	596.30	0.00	0.00	0.00
11,000.00	90.00	1.22	6,344.01	-1,384.01	694.23	-201.19	696.25	0.00	0.00	0.00
11,100.00	90.00	1.22	6,344.01	-1,384.01	794.21	-199.06	796.20	0.00	0.00	0.00
11,200.00	90.00	1.22	6,344.01	-1,384.01	894.19	-196.94	896.15	0.00	0.00	0.00
11,300.00	90.00	1.22	6,344.01	-1,384.01	994.16	-194.81	996.11	0.00	0.00	0.00
11,400.00	90.00	1.22	6,344.01	-1,384.01	1,094.14	-192.69	1,096.06	0.00	0.00	0.00
11,500.00	90.00	1.22	6,344.01	-1,384.01	1,194.12	-190.57	1,196.01	0.00	0.00	0.00
11,600.00	90.00	1.22	6,344.01	-1,384.01	1,294.10	-188.44	1,295.96	0.00	0.00	0.00
11,700.00	90.00	1.22	6,344.01	-1,384.01	1,394.07	-186.32	1,395.91	0.00	0.00	0.00
11,800.00	90.00	1.22	6,344.01	-1,384.01	1,494.05	-184.20	1,495.86	0.00	0.00	0.00
11,900.00	90.00	1.22	6,344.01	-1,384.01	1,594.03	-182.08	1,595.81	0.00	0.00	0.00
12,000.00	90.00	1.22	6,344.01	-1,384.01	1,694.01	-179.95	1,695.76	0.00	0.00	0.00
12,100.00	90.00	1.22	6,344.00	-1,384.00	1,793.98	-177.83	1,795.71	0.00	0.00	0.00
12,200.00	90.00	1.22	6,344.00	-1,384.00	1,893.96	-175.71	1,895.66	0.00	0.00	0.00
12,300.00	90.00	1.22	6,344.00	-1,384.00	1,993.94	-173.59	1,995.61	0.00	0.00	0.00
12,400.00	90.00	1.22	6,344.00	-1,384.00	2,093.92	-171.46	2,095.56	0.00	0.00	0.00
12,500.00	90.00	1.22	6,344.00	-1,384.00	2,193.89	-169.34	2,195.51	0.00	0.00	0.00
12,600.00	90.00	1.22	6,344.00	-1,384.00	2,293.87	-167.22	2,295.46	0.00	0.00	0.00
12,700.00	90.00	1.22	6,344.00	-1,384.00	2,393.85	-165.10	2,395.41	0.00	0.00	0.00

Planning Report



Database:	Database 1	Local Co-ordinate Reference:	Well GOLDENEYE FED 21-16-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 25' @ 4960.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4960.00usft
Site:	SE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-16-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
12,800.00	90.00	1.22	6,344.00	-1,384.00	2,493.83	-162.98	2,495.36	0.00	0.00	0.00
12,900.00	90.00	1.22	6,344.00	-1,384.00	2,593.80	-160.85	2,595.31	0.00	0.00	0.00
13,000.00	90.00	1.22	6,344.00	-1,384.00	2,693.78	-158.73	2,695.26	0.00	0.00	0.00
13,100.00	90.00	1.22	6,344.00	-1,384.00	2,793.76	-156.61	2,795.21	0.00	0.00	0.00
13,200.00	90.00	1.22	6,344.00	-1,384.00	2,893.74	-154.49	2,895.17	0.00	0.00	0.00
13,300.00	90.00	1.22	6,344.00	-1,384.00	2,993.71	-152.37	2,995.12	0.00	0.00	0.00
13,400.00	90.00	1.22	6,344.00	-1,384.00	3,093.69	-150.25	3,095.07	0.00	0.00	0.00
IP #1: 750ft FSL & 1980ft FWL of Sec 16										
13,419.87	90.00	1.22	6,344.00	-1,384.00	3,113.56	-149.83	3,114.93	0.00	0.00	0.00
EOT TO 1.01° AZ										
13,426.68	90.00	1.01	6,344.00	-1,384.00	3,120.36	-149.70	3,121.73	3.00	0.00	-3.00
13,500.00	90.00	1.01	6,344.00	-1,384.00	3,193.67	-148.40	3,195.02	0.00	0.00	0.00
13,600.00	90.00	1.01	6,344.00	-1,384.00	3,293.66	-146.64	3,294.99	0.00	0.00	0.00
13,700.00	90.00	1.01	6,344.00	-1,384.00	3,393.64	-144.87	3,394.95	0.00	0.00	0.00
13,800.00	90.00	1.01	6,344.00	-1,384.00	3,493.63	-143.11	3,494.91	0.00	0.00	0.00
13,900.00	90.00	1.01	6,344.00	-1,384.00	3,593.61	-141.35	3,594.87	0.00	0.00	0.00
14,000.00	90.00	1.01	6,344.00	-1,384.00	3,693.60	-139.58	3,694.83	0.00	0.00	0.00
14,100.00	90.00	1.01	6,344.00	-1,384.00	3,793.58	-137.82	3,794.79	0.00	0.00	0.00
14,200.00	90.00	1.01	6,344.00	-1,384.00	3,893.56	-136.05	3,894.75	0.00	0.00	0.00
14,300.00	90.00	1.01	6,344.00	-1,384.00	3,993.55	-134.29	3,994.71	0.00	0.00	0.00
14,400.00	90.00	1.01	6,344.00	-1,384.00	4,093.53	-132.53	4,094.68	0.00	0.00	0.00
14,500.00	90.00	1.01	6,344.00	-1,384.00	4,193.52	-130.76	4,194.64	0.00	0.00	0.00
14,600.00	90.00	1.01	6,344.00	-1,384.00	4,293.50	-129.00	4,294.60	0.00	0.00	0.00
14,700.00	90.00	1.01	6,344.00	-1,384.00	4,393.49	-127.23	4,394.56	0.00	0.00	0.00
14,800.00	90.00	1.01	6,344.00	-1,384.00	4,493.47	-125.47	4,494.52	0.00	0.00	0.00
14,900.00	90.00	1.01	6,344.00	-1,384.00	4,593.46	-123.70	4,594.48	0.00	0.00	0.00
15,000.00	90.00	1.01	6,344.00	-1,384.00	4,693.44	-121.94	4,694.44	0.00	0.00	0.00
15,100.00	90.00	1.01	6,344.00	-1,384.00	4,793.42	-120.18	4,794.40	0.00	0.00	0.00
15,200.00	90.00	1.01	6,344.00	-1,384.00	4,893.41	-118.41	4,894.36	0.00	0.00	0.00
15,300.00	90.00	1.01	6,344.00	-1,384.00	4,993.39	-116.65	4,994.33	0.00	0.00	0.00
15,400.00	90.00	1.01	6,344.00	-1,384.00	5,093.38	-114.88	5,094.29	0.00	0.00	0.00
15,500.00	90.00	1.01	6,344.00	-1,384.00	5,193.36	-113.12	5,194.25	0.00	0.00	0.00
15,600.00	90.00	1.01	6,344.00	-1,384.00	5,293.35	-111.36	5,294.21	0.00	0.00	0.00
15,700.00	90.00	1.01	6,344.00	-1,384.00	5,393.33	-109.59	5,394.17	0.00	0.00	0.00
15,800.00	90.00	1.01	6,344.00	-1,384.00	5,493.32	-107.83	5,494.13	0.00	0.00	0.00
15,900.00	90.00	1.01	6,344.00	-1,384.00	5,593.30	-106.06	5,594.09	0.00	0.00	0.00
16,000.00	90.00	1.01	6,344.00	-1,384.00	5,693.28	-104.30	5,694.05	0.00	0.00	0.00
16,100.00	90.00	1.01	6,344.00	-1,384.00	5,793.27	-102.54	5,794.01	0.00	0.00	0.00
16,200.00	90.00	1.01	6,344.00	-1,384.00	5,893.25	-100.77	5,893.98	0.00	0.00	0.00
16,300.00	90.00	1.01	6,344.00	-1,384.00	5,993.24	-99.01	5,993.94	0.00	0.00	0.00
16,400.00	90.00	1.01	6,344.00	-1,384.00	6,093.22	-97.24	6,093.90	0.00	0.00	0.00
16,500.00	90.00	1.01	6,344.00	-1,384.00	6,193.21	-95.48	6,193.86	0.00	0.00	0.00
16,600.00	90.00	1.01	6,344.00	-1,384.00	6,293.19	-93.71	6,293.82	0.00	0.00	0.00
16,700.00	90.00	1.01	6,344.00	-1,384.00	6,393.18	-91.95	6,393.78	0.00	0.00	0.00
16,800.00	90.00	1.01	6,344.00	-1,384.00	6,493.16	-90.19	6,493.74	0.00	0.00	0.00
16,900.00	90.00	1.01	6,344.00	-1,384.00	6,593.14	-88.42	6,593.70	0.00	0.00	0.00
17,000.00	90.00	1.01	6,344.00	-1,384.00	6,693.13	-86.66	6,693.66	0.00	0.00	0.00
17,100.00	90.00	1.01	6,344.00	-1,384.00	6,793.11	-84.89	6,793.63	0.00	0.00	0.00
17,200.00	90.00	1.01	6,344.00	-1,384.00	6,893.10	-83.13	6,893.59	0.00	0.00	0.00
17,300.00	90.00	1.01	6,344.00	-1,384.00	6,993.08	-81.37	6,993.55	0.00	0.00	0.00
17,400.00	90.00	1.01	6,344.00	-1,384.00	7,093.07	-79.60	7,093.51	0.00	0.00	0.00
17,500.00	90.00	1.01	6,344.00	-1,384.00	7,193.05	-77.84	7,193.47	0.00	0.00	0.00
17,600.00	90.00	1.01	6,344.00	-1,384.00	7,293.04	-76.07	7,293.43	0.00	0.00	0.00

Planning Report



Database:	Database 1	Local Co-ordinate Reference:	Well GOLDENEYE FED 21-16-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 25' @ 4960.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB 25' @ 4960.00usft
Site:	SE NW SEC. 21 T8N R60W 6th P.M.	North Reference:	True
Well:	GOLDENEYE FED 21-16-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
BHL: 300ft FNL & 1980ft FWL of Sec 16										
17,650.74	90.00	1.01	6,344.00	-1,384.00	7,343.77	-75.18	7,344.15	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
532.78	532.00	Fox Hills Base				
1,669.84	1,535.00	Pierre Shale Top				
3,995.52	3,393.00	Richard Sandstone				
4,139.47	3,508.00	Parkman Sandstone				
5,110.79	4,284.00	Sussex Sandstone				
5,658.60	4,722.00	Shannon Sandstone				
6,484.50	5,485.00	TeePee Buttes				
7,198.49	6,160.00	Sharon Springs				
7,255.70	6,200.00	Niobrara Top				
7,544.03	6,330.00	Niobrara B2 Chalk Target Top				
7,670.94	6,344.00	Niobrara B2 Chalk Target Center				

Plan Annotations					
MD (usft)	TVD (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
0.00	0.00	0.00	0.00	SHL: 2365ft FNL & 2196ft FWL of Sec 21	
300.00	300.00	0.00	0.00	START NUDGE (3.5°/100ft BUR)	
1,356.41	1,284.60	-327.91	-29.06	EOB TO 36.97° INC	
5,614.54	4,686.45	-2,878.99	-255.11	END OF TANGENT	
6,670.94	5,671.04	-3,206.90	-284.17	EOD TO VERTICAL	
6,770.94	5,771.04	-3,206.90	-284.17	KOP (10°/100ft BUR)	
7,670.94	6,344.00	-2,634.08	-271.97	LP: 300ft FSL & 1980ft FWL of Sec 21	
13,419.87	6,344.00	3,113.56	-149.83	IP #1: 750ft FSL & 1980ft FWL of Sec 16	
13,426.68	6,344.00	3,120.36	-149.70	EOT TO 1.01° AZ	
17,650.74	6,344.00	7,343.77	-75.18	BHL: 300ft FNL & 1980ft FWL of Sec 16	