

# **GREAT WESTERN OPERATING COMPANY**

**ADAMS COUNTY  
SEC 8-T1S-R67W  
OCHO LD 17-377HC**

**OWB**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**17 November, 2021**

Project: ADAMS COUNTY  
Site: SEC 8-T1S-R67W  
Well: OCHO LD 17-377HC  
Wellbore: OWB  
Design: PROPOSAL 1

PROJECT DETAILS: ADAMS COUNTY  
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level



Azimuths to True North  
Magnetic North: 7.85°  
Magnetic Field  
Strength: 51672.8nT  
Dip Angle: 66.28°  
Date: 11/16/2021  
Model: IGRF2020

WELL DETAILS: OCHO LD 17-377HC

+N/-S	+E/-W	Northing	Easting	5192.00 Latitude	Longitude	Slot
0.00	0.00	1237713.59	3164197.63	39.984419°N	104.914031°W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	4551.00	0.00	0.00	4551.00	0.00	0.00	0.00	0.00	0.00	
3	5550.91	30.00	321.19	5505.85	199.34	-160.34	3.00	321.19	-179.93	
4	7356.42	30.00	321.19	7069.51	902.73	-726.10	0.00	0.00	-814.80	
5	8767.77	90.00	180.06	8005.00	243.37	-1065.66	8.00	-137.06	-121.26	OCHO 17-377HC-LP
6	18358.72	90.00	180.06	8005.00	-9347.58	-1075.32	0.00	0.00	9409.22	OCHO 17-377HC-BTM PERF
7	18364.12	90.00	180.17	8005.00	-9352.98	-1075.33	2.00	90.00	9414.58	OCHO 17-377HC-PBHL
8	18458.89	90.00	180.17	8005.00	-9447.75	-1075.60	0.00	0.00	9508.78	OCHO 17-377HC-PBHL

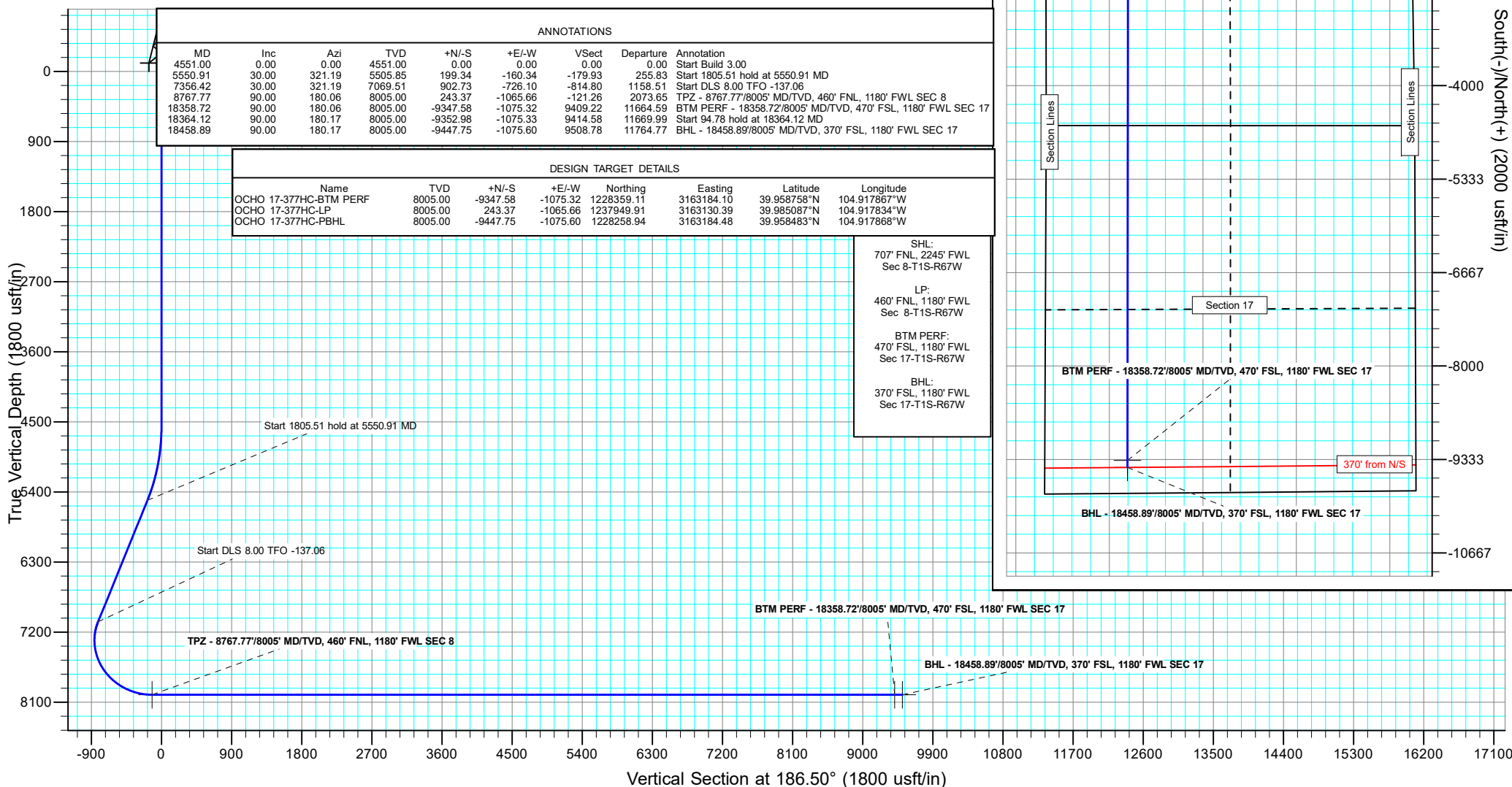
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
4551.00	0.00	0.00	4551.00	0.00	0.00	0.00	0.00	Start Build 3.00
5550.91	30.00	321.19	5505.85	199.34	-160.34	-179.93	255.83	Start 1805.51 hold at 5550.91 MD
7356.42	30.00	321.19	7069.51	902.73	-726.10	-814.80	1158.51	Start DLS 8.00 TFO -137.06
8767.77	90.00	180.06	8005.00	243.37	-1065.66	-121.26	2073.65	TPZ - 8767.77/8005' MD/TVD, 460' FNL, 1180' FWL SEC 8
18358.72	90.00	180.06	8005.00	-9347.58	-1075.32	9409.22	11664.59	BTM PERF - 18358.72/8005' MD/TVD, 470' FSL, 1180' FWL SEC 17
18364.12	90.00	180.17	8005.00	-9352.98	-1075.33	9414.58	11669.99	Start 94.78 hold at 18364.12 MD
18458.89	90.00	180.17	8005.00	-9447.75	-1075.60	9508.78	11764.77	BHL - 18458.89/8005' MD/TVD, 370' FSL, 1180' FWL SEC 17

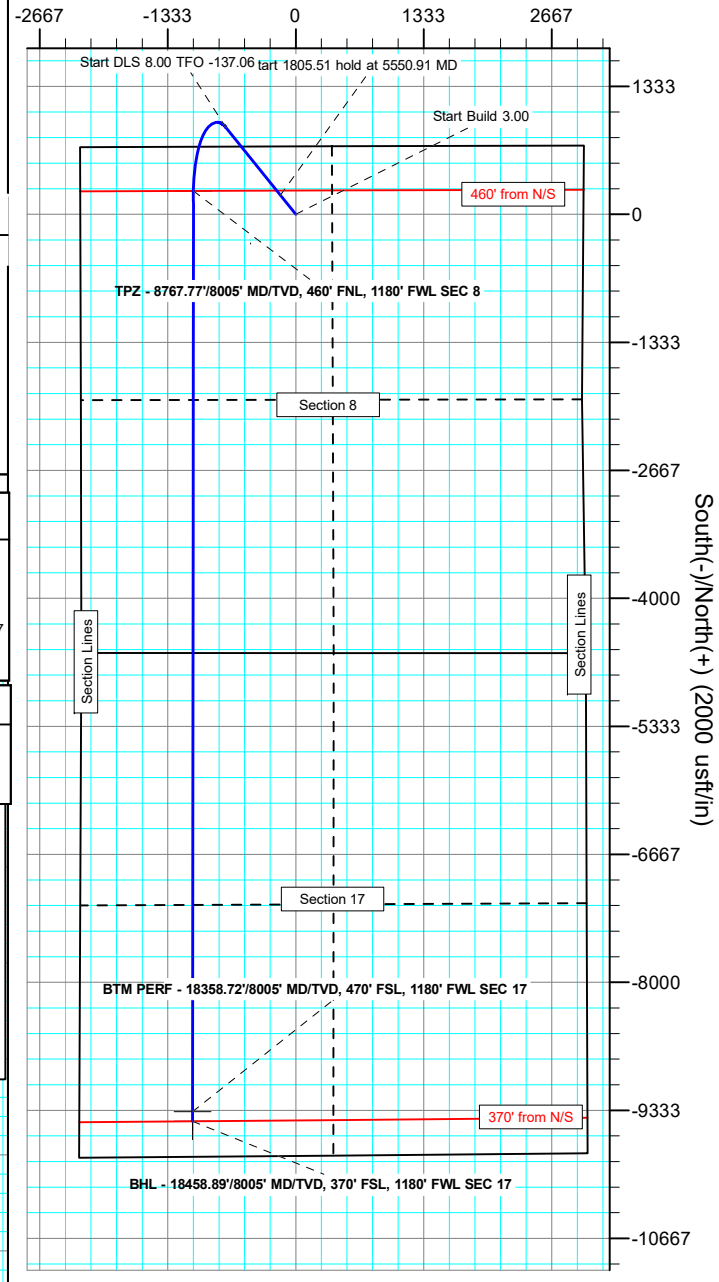
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
OCHO 17-377HC-BTM PERF	8005.00	-9347.58	-1075.32	1228359.11	3163184.10	39.958758°N	104.917867°W
OCHO 17-377HC-LP	8005.00	243.37	-1065.66	1237949.91	3163130.39	39.985087°N	104.917834°W
OCHO 17-377HC-PBHL	8005.00	-9447.75	-1075.60	1228258.94	3163184.48	39.958463°N	104.917868°W

SHL:  
70' FNL, 2245' FWL  
Sec 8-T1S-R67W  
LP:  
460' FNL, 1180' FWL  
Sec 8-T1S-R67W  
BTM PERF:  
470' FSL, 1180' FWL  
Sec 17-T1S-R67W  
BHL:  
370' FSL, 1180' FWL  
Sec 17-T1S-R67W



West(-)/East(+) (2000 usft/in)



## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well OCHO LD 17-377HC
<b>Company:</b>	GREAT WESTERN OPERATING COMPANY	<b>TVD Reference:</b>	KB 20' @ 5212.00usft
<b>Project:</b>	ADAMS COUNTY	<b>MD Reference:</b>	KB 20' @ 5212.00usft
<b>Site:</b>	SEC 8-T1S-R67W	<b>North Reference:</b>	True
<b>Well:</b>	OCHO LD 17-377HC	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	ADAMS COUNTY		
<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		

Site		SEC 8-T1S-R67W				
Site Position:		Northing:	1,238,424.59	usft	Latitude:	39.986364°N
From:	Lat/Long	Easting:	3,164,570.66	usft	Longitude:	104.912683°W
Position Uncertainty:		0.00	usft	Slot Radius:	13.200	in

Well		OCHO LD 17-377HC				
Well Position	+N/-S	0.00 usft	Northing:	1,237,713.59 usft	Latitude:	39.984419°N
	+E/-W	0.00 usft	Easting:	3,164,197.63 usft	Longitude:	104.914031°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,192.00 usft
Grid Convergence:		0.38 °				

<b>Wellbore</b>	OWB				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	11/16/2021	7.85	66.28	51,672.76775730

<b>Design</b>	PROPOSAL 1				
<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	186.50	

<b>Plan Survey Tool Program</b>	<b>Date</b>	11/17/2021			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	18,458.09 PROPOSAL 1 (OWB)	MWD		
			OWSG MWD - Standard		

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,551.00	0.00	0.00	4,551.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,550.91	30.00	321.19	5,505.85	199.34	-160.34	3.00	3.00	0.00	321.19	
7,356.42	30.00	321.19	7,069.51	902.73	-726.10	0.00	0.00	0.00	0.00	
8,767.77	90.00	180.06	8,005.00	243.37	-1,065.66	8.00	4.25	-10.00	-137.06	OCHO 17-377HC-LP
18,358.72	90.00	180.06	8,005.00	-9,347.58	-1,075.32	0.00	0.00	0.00	0.00	OCHO 17-377HC-BTI
18,364.12	90.00	180.17	8,005.00	-9,352.98	-1,075.33	2.00	0.00	2.00	90.00	OCHO 17-377HC-PB
18,458.89	90.00	180.17	8,005.00	-9,447.75	-1,075.60	0.00	0.00	0.00	0.00	OCHO 17-377HC-PB

# Planning Report

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<b>Company:</b>	GREAT WESTERN OPERATING COMPANY	<b>TVD Reference:</b>	KB 20' @ 5212.00usft
<b>Project:</b>	ADAMS COUNTY	<b>MD Reference:</b>	KB 20' @ 5212.00usft
<b>Site:</b>	SEC 8-T1S-R67W	<b>North Reference:</b>	True
<b>Well:</b>	OCHO LD 17-377HC	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,551.00	0.00	0.00	4,551.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 3.00									
4,600.00	1.47	321.19	4,599.99	0.49	-0.39	-0.44	3.00	3.00	0.00
4,700.00	4.47	321.19	4,699.85	4.53	-3.64	-4.09	3.00	3.00	0.00
4,800.00	7.47	321.19	4,799.30	12.63	-10.16	-11.40	3.00	3.00	0.00
4,900.00	10.47	321.19	4,898.06	24.78	-19.93	-22.36	3.00	3.00	0.00
5,000.00	13.47	321.19	4,995.88	40.94	-32.93	-36.95	3.00	3.00	0.00
5,100.00	16.47	321.19	5,092.47	61.06	-49.12	-55.12	3.00	3.00	0.00
5,200.00	19.47	321.19	5,187.58	85.10	-68.45	-76.81	3.00	3.00	0.00
5,300.00	22.47	321.19	5,280.95	112.98	-90.88	-101.98	3.00	3.00	0.00
5,400.00	25.47	321.19	5,372.31	144.64	-116.34	-130.55	3.00	3.00	0.00
5,500.00	28.47	321.19	5,461.43	179.97	-144.76	-162.44	3.00	3.00	0.00
5,550.91	30.00	321.19	5,505.85	199.34	-160.34	-179.93	3.00	3.00	0.00
Start 1805.51 hold at 5550.91 MD									
5,600.00	30.00	321.19	5,548.37	218.47	-175.72	-197.19	0.00	0.00	0.00
5,700.00	30.00	321.19	5,634.97	257.43	-207.06	-232.35	0.00	0.00	0.00
5,800.00	30.00	321.19	5,721.58	296.39	-238.39	-267.52	0.00	0.00	0.00
5,900.00	30.00	321.19	5,808.18	335.34	-269.73	-302.68	0.00	0.00	0.00
6,000.00	30.00	321.19	5,894.79	374.30	-301.06	-337.84	0.00	0.00	0.00
6,100.00	30.00	321.19	5,981.39	413.26	-332.40	-373.01	0.00	0.00	0.00
6,200.00	30.00	321.19	6,068.00	452.22	-363.73	-408.17	0.00	0.00	0.00
6,300.00	30.00	321.19	6,154.60	491.17	-395.07	-443.33	0.00	0.00	0.00
6,400.00	30.00	321.19	6,241.21	530.13	-426.40	-478.50	0.00	0.00	0.00
6,500.00	30.00	321.19	6,327.81	569.09	-457.74	-513.66	0.00	0.00	0.00
6,600.00	30.00	321.19	6,414.42	608.05	-489.07	-548.82	0.00	0.00	0.00
6,700.00	30.00	321.19	6,501.02	647.01	-520.41	-583.99	0.00	0.00	0.00
6,800.00	30.00	321.19	6,587.63	685.96	-551.74	-619.15	0.00	0.00	0.00
6,900.00	30.00	321.19	6,674.23	724.92	-583.08	-654.31	0.00	0.00	0.00
7,000.00	30.00	321.19	6,760.84	763.88	-614.41	-689.48	0.00	0.00	0.00
7,100.00	30.00	321.19	6,847.44	802.84	-645.75	-724.64	0.00	0.00	0.00
7,200.00	30.00	321.19	6,934.05	841.79	-677.08	-759.80	0.00	0.00	0.00
7,300.00	30.00	321.19	7,020.65	880.75	-708.42	-794.97	0.00	0.00	0.00
7,356.42	30.00	321.19	7,069.51	902.73	-726.10	-814.80	0.00	0.00	0.00
Start DLS 8.00 TFO -137.06									
7,400.00	27.54	316.05	7,107.72	918.48	-739.92	-828.89	8.00	-5.64	-11.80
7,450.00	24.99	309.06	7,152.56	933.46	-756.15	-841.94	8.00	-5.09	-13.97
7,500.00	22.84	300.73	7,198.28	945.08	-772.70	-851.61	8.00	-4.31	-16.66
7,550.00	21.20	290.99	7,244.65	953.28	-789.49	-857.86	8.00	-3.28	-19.49
7,600.00	20.19	280.01	7,291.44	958.02	-806.44	-860.65	8.00	-2.01	-21.95
7,650.00	19.92	268.36	7,338.42	959.28	-823.46	-859.98	8.00	-0.54	-23.31
7,700.00	20.41	256.83	7,385.38	957.05	-840.47	-855.84	8.00	0.98	-23.07
7,750.00	21.61	246.17	7,432.07	951.34	-857.39	-848.25	8.00	2.40	-21.32
7,800.00	23.42	236.83	7,478.27	942.18	-874.14	-837.25	8.00	3.61	-18.68
7,850.00	25.69	228.90	7,523.76	929.61	-890.63	-822.90	8.00	4.56	-15.85
7,900.00	28.33	222.27	7,568.31	913.70	-906.78	-805.27	8.00	5.28	-13.26
7,950.00	31.24	216.73	7,611.71	894.53	-922.52	-784.43	8.00	5.81	-11.08
8,000.00	34.34	212.07	7,653.74	872.18	-937.77	-760.50	8.00	6.21	-9.32
8,050.00	37.60	208.12	7,694.20	846.76	-952.46	-733.59	8.00	6.51	-7.92
8,100.00	40.97	204.71	7,732.90	818.40	-966.51	-703.82	8.00	6.74	-6.81
8,150.00	44.43	201.75	7,769.65	787.24	-979.85	-671.35	8.00	6.92	-5.93
8,200.00	47.96	199.13	7,804.26	753.43	-992.42	-636.34	8.00	7.05	-5.24
8,250.00	51.53	196.78	7,836.56	717.14	-1,004.16	-598.95	8.00	7.16	-4.68

# Planning Report

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<b>Project:</b>	ADAMS COUNTY	<b>MD Reference:</b>	KB 20' @ 5212.00usft
<b>Site:</b>	SEC 8-T1S-R67W	<b>North Reference:</b>	True
<b>Well:</b>	OCHO LD 17-377HC	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,300.00	55.16	194.67	7,866.41	678.53	-1,015.01	-559.36	8.00	7.24	-4.24	
8,350.00	58.81	192.73	7,893.65	637.81	-1,024.92	-517.78	8.00	7.31	-3.88	
8,400.00	62.49	190.93	7,918.15	595.16	-1,033.84	-474.39	8.00	7.36	-3.59	
8,450.00	66.20	189.25	7,939.80	550.79	-1,041.73	-429.42	8.00	7.41	-3.36	
8,500.00	69.92	187.67	7,958.48	504.93	-1,048.54	-383.08	8.00	7.44	-3.17	
8,550.00	73.65	186.16	7,974.11	457.79	-1,054.25	-335.59	8.00	7.47	-3.02	
8,600.00	77.39	184.70	7,986.61	409.60	-1,058.83	-287.20	8.00	7.49	-2.91	
8,650.00	81.15	183.29	7,995.92	360.60	-1,062.25	-238.13	8.00	7.50	-2.82	
8,700.00	84.90	181.91	8,001.99	311.04	-1,064.50	-188.63	8.00	7.51	-2.77	
8,750.00	88.66	180.54	8,004.79	261.14	-1,065.56	-138.93	8.00	7.52	-2.73	
8,767.77	90.00	180.06	8,005.00	243.37	-1,065.66	-121.26	8.00	7.52	-2.73	
TPZ - 8767.77'/8005' MD/TVD, 460' FNL, 1180' FWL SEC 8										
8,800.00	90.00	180.06	8,005.00	211.14	-1,065.69	-89.24	0.00	0.00	0.00	
8,900.00	90.00	180.06	8,005.00	111.14	-1,065.79	10.13	0.00	0.00	0.00	
9,000.00	90.00	180.06	8,005.00	11.14	-1,065.89	109.50	0.00	0.00	0.00	
9,100.00	90.00	180.06	8,005.00	-88.86	-1,065.99	208.87	0.00	0.00	0.00	
9,200.00	90.00	180.06	8,005.00	-188.86	-1,066.09	308.24	0.00	0.00	0.00	
9,300.00	90.00	180.06	8,005.00	-288.86	-1,066.19	407.61	0.00	0.00	0.00	
9,400.00	90.00	180.06	8,005.00	-388.86	-1,066.29	506.98	0.00	0.00	0.00	
9,500.00	90.00	180.06	8,005.00	-488.86	-1,066.39	606.35	0.00	0.00	0.00	
9,600.00	90.00	180.06	8,005.00	-588.86	-1,066.50	705.72	0.00	0.00	0.00	
9,700.00	90.00	180.06	8,005.00	-688.86	-1,066.60	805.09	0.00	0.00	0.00	
9,800.00	90.00	180.06	8,005.00	-788.86	-1,066.70	904.46	0.00	0.00	0.00	
9,900.00	90.00	180.06	8,005.00	-888.86	-1,066.80	1,003.83	0.00	0.00	0.00	
10,000.00	90.00	180.06	8,005.00	-988.86	-1,066.90	1,103.20	0.00	0.00	0.00	
10,100.00	90.00	180.06	8,005.00	-1,088.86	-1,067.00	1,202.57	0.00	0.00	0.00	
10,200.00	90.00	180.06	8,005.00	-1,188.86	-1,067.10	1,301.94	0.00	0.00	0.00	
10,300.00	90.00	180.06	8,005.00	-1,288.86	-1,067.20	1,401.31	0.00	0.00	0.00	
10,400.00	90.00	180.06	8,005.00	-1,388.86	-1,067.30	1,500.68	0.00	0.00	0.00	
10,500.00	90.00	180.06	8,005.00	-1,488.86	-1,067.40	1,600.05	0.00	0.00	0.00	
10,600.00	90.00	180.06	8,005.00	-1,588.86	-1,067.50	1,699.42	0.00	0.00	0.00	
10,700.00	90.00	180.06	8,005.00	-1,688.86	-1,067.60	1,798.79	0.00	0.00	0.00	
10,800.00	90.00	180.06	8,005.00	-1,788.86	-1,067.70	1,898.15	0.00	0.00	0.00	
10,900.00	90.00	180.06	8,005.00	-1,888.86	-1,067.81	1,997.52	0.00	0.00	0.00	
11,000.00	90.00	180.06	8,005.00	-1,988.86	-1,067.91	2,096.89	0.00	0.00	0.00	
11,100.00	90.00	180.06	8,005.00	-2,088.86	-1,068.01	2,196.26	0.00	0.00	0.00	
11,200.00	90.00	180.06	8,005.00	-2,188.86	-1,068.11	2,295.63	0.00	0.00	0.00	
11,300.00	90.00	180.06	8,005.00	-2,288.86	-1,068.21	2,395.00	0.00	0.00	0.00	
11,400.00	90.00	180.06	8,005.00	-2,388.86	-1,068.31	2,494.37	0.00	0.00	0.00	
11,500.00	90.00	180.06	8,005.00	-2,488.86	-1,068.41	2,593.74	0.00	0.00	0.00	
11,600.00	90.00	180.06	8,005.00	-2,588.86	-1,068.51	2,693.11	0.00	0.00	0.00	
11,700.00	90.00	180.06	8,005.00	-2,688.86	-1,068.61	2,792.48	0.00	0.00	0.00	
11,800.00	90.00	180.06	8,005.00	-2,788.86	-1,068.71	2,891.85	0.00	0.00	0.00	
11,900.00	90.00	180.06	8,005.00	-2,888.86	-1,068.81	2,991.22	0.00	0.00	0.00	
12,000.00	90.00	180.06	8,005.00	-2,988.86	-1,068.91	3,090.59	0.00	0.00	0.00	
12,100.00	90.00	180.06	8,005.00	-3,088.86	-1,069.01	3,189.96	0.00	0.00	0.00	
12,200.00	90.00	180.06	8,005.00	-3,188.86	-1,069.11	3,289.33	0.00	0.00	0.00	
12,300.00	90.00	180.06	8,005.00	-3,288.86	-1,069.22	3,388.70	0.00	0.00	0.00	
12,400.00	90.00	180.06	8,005.00	-3,388.86	-1,069.32	3,488.07	0.00	0.00	0.00	
12,500.00	90.00	180.06	8,005.00	-3,488.86	-1,069.42	3,587.44	0.00	0.00	0.00	
12,600.00	90.00	180.06	8,005.00	-3,588.86	-1,069.52	3,686.81	0.00	0.00	0.00	
12,700.00	90.00	180.06	8,005.00	-3,688.86	-1,069.62	3,786.18	0.00	0.00	0.00	
12,800.00	90.00	180.06	8,005.00	-3,788.86	-1,069.72	3,885.55	0.00	0.00	0.00	
12,900.00	90.00	180.06	8,005.00	-3,888.86	-1,069.82	3,984.91	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well OCHO LD 17-377HC
<b>Company:</b>	GREAT WESTERN OPERATING COMPANY	<b>TVD Reference:</b>	KB 20' @ 5212.00usft
<b>Project:</b>	ADAMS COUNTY	<b>MD Reference:</b>	KB 20' @ 5212.00usft
<b>Site:</b>	SEC 8-T1S-R67W	<b>North Reference:</b>	True
<b>Well:</b>	OCHO LD 17-377HC	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,000.00	90.00	180.06	8,005.00	-3,988.86	-1,069.92	4,084.28	0.00	0.00	0.00
13,100.00	90.00	180.06	8,005.00	-4,088.86	-1,070.02	4,183.65	0.00	0.00	0.00
13,200.00	90.00	180.06	8,005.00	-4,188.86	-1,070.12	4,283.02	0.00	0.00	0.00
13,300.00	90.00	180.06	8,005.00	-4,288.86	-1,070.22	4,382.39	0.00	0.00	0.00
13,400.00	90.00	180.06	8,005.00	-4,388.86	-1,070.32	4,481.76	0.00	0.00	0.00
13,500.00	90.00	180.06	8,005.00	-4,488.86	-1,070.42	4,581.13	0.00	0.00	0.00
13,600.00	90.00	180.06	8,005.00	-4,588.86	-1,070.53	4,680.50	0.00	0.00	0.00
13,700.00	90.00	180.06	8,005.00	-4,688.86	-1,070.63	4,779.87	0.00	0.00	0.00
13,800.00	90.00	180.06	8,005.00	-4,788.86	-1,070.73	4,879.24	0.00	0.00	0.00
13,900.00	90.00	180.06	8,005.00	-4,888.86	-1,070.83	4,978.61	0.00	0.00	0.00
14,000.00	90.00	180.06	8,005.00	-4,988.86	-1,070.93	5,077.98	0.00	0.00	0.00
14,100.00	90.00	180.06	8,005.00	-5,088.86	-1,071.03	5,177.35	0.00	0.00	0.00
14,200.00	90.00	180.06	8,005.00	-5,188.86	-1,071.13	5,276.72	0.00	0.00	0.00
14,300.00	90.00	180.06	8,005.00	-5,288.86	-1,071.23	5,376.09	0.00	0.00	0.00
14,400.00	90.00	180.06	8,005.00	-5,388.86	-1,071.33	5,475.46	0.00	0.00	0.00
14,500.00	90.00	180.06	8,005.00	-5,488.86	-1,071.43	5,574.83	0.00	0.00	0.00
14,600.00	90.00	180.06	8,005.00	-5,588.86	-1,071.53	5,674.20	0.00	0.00	0.00
14,700.00	90.00	180.06	8,005.00	-5,688.86	-1,071.63	5,773.57	0.00	0.00	0.00
14,800.00	90.00	180.06	8,005.00	-5,788.86	-1,071.73	5,872.94	0.00	0.00	0.00
14,900.00	90.00	180.06	8,005.00	-5,888.86	-1,071.83	5,972.30	0.00	0.00	0.00
15,000.00	90.00	180.06	8,005.00	-5,988.86	-1,071.94	6,071.67	0.00	0.00	0.00
15,100.00	90.00	180.06	8,005.00	-6,088.86	-1,072.04	6,171.04	0.00	0.00	0.00
15,200.00	90.00	180.06	8,005.00	-6,188.86	-1,072.14	6,270.41	0.00	0.00	0.00
15,300.00	90.00	180.06	8,005.00	-6,288.86	-1,072.24	6,369.78	0.00	0.00	0.00
15,400.00	90.00	180.06	8,005.00	-6,388.86	-1,072.34	6,469.15	0.00	0.00	0.00
15,500.00	90.00	180.06	8,005.00	-6,488.86	-1,072.44	6,568.52	0.00	0.00	0.00
15,600.00	90.00	180.06	8,005.00	-6,588.86	-1,072.54	6,667.89	0.00	0.00	0.00
15,700.00	90.00	180.06	8,005.00	-6,688.86	-1,072.64	6,767.26	0.00	0.00	0.00
15,800.00	90.00	180.06	8,005.00	-6,788.86	-1,072.74	6,866.63	0.00	0.00	0.00
15,900.00	90.00	180.06	8,005.00	-6,888.86	-1,072.84	6,966.00	0.00	0.00	0.00
16,000.00	90.00	180.06	8,005.00	-6,988.86	-1,072.94	7,065.37	0.00	0.00	0.00
16,100.00	90.00	180.06	8,005.00	-7,088.86	-1,073.04	7,164.74	0.00	0.00	0.00
16,200.00	90.00	180.06	8,005.00	-7,188.86	-1,073.14	7,264.11	0.00	0.00	0.00
16,300.00	90.00	180.06	8,005.00	-7,288.86	-1,073.25	7,363.48	0.00	0.00	0.00
16,400.00	90.00	180.06	8,005.00	-7,388.86	-1,073.35	7,462.85	0.00	0.00	0.00
16,500.00	90.00	180.06	8,005.00	-7,488.86	-1,073.45	7,562.22	0.00	0.00	0.00
16,600.00	90.00	180.06	8,005.00	-7,588.86	-1,073.55	7,661.59	0.00	0.00	0.00
16,700.00	90.00	180.06	8,005.00	-7,688.86	-1,073.65	7,760.96	0.00	0.00	0.00
16,800.00	90.00	180.06	8,005.00	-7,788.86	-1,073.75	7,860.33	0.00	0.00	0.00
16,900.00	90.00	180.06	8,005.00	-7,888.86	-1,073.85	7,959.70	0.00	0.00	0.00
17,000.00	90.00	180.06	8,005.00	-7,988.86	-1,073.95	8,059.06	0.00	0.00	0.00
17,100.00	90.00	180.06	8,005.00	-8,088.86	-1,074.05	8,158.43	0.00	0.00	0.00
17,200.00	90.00	180.06	8,005.00	-8,188.86	-1,074.15	8,257.80	0.00	0.00	0.00
17,300.00	90.00	180.06	8,005.00	-8,288.86	-1,074.25	8,357.17	0.00	0.00	0.00
17,400.00	90.00	180.06	8,005.00	-8,388.86	-1,074.35	8,456.54	0.00	0.00	0.00
17,500.00	90.00	180.06	8,005.00	-8,488.86	-1,074.45	8,555.91	0.00	0.00	0.00
17,600.00	90.00	180.06	8,005.00	-8,588.86	-1,074.55	8,655.28	0.00	0.00	0.00
17,700.00	90.00	180.06	8,005.00	-8,688.86	-1,074.66	8,754.65	0.00	0.00	0.00
17,800.00	90.00	180.06	8,005.00	-8,788.86	-1,074.76	8,854.02	0.00	0.00	0.00
17,900.00	90.00	180.06	8,005.00	-8,888.86	-1,074.86	8,953.39	0.00	0.00	0.00
18,000.00	90.00	180.06	8,005.00	-8,988.86	-1,074.96	9,052.76	0.00	0.00	0.00
18,100.00	90.00	180.06	8,005.00	-9,088.86	-1,075.06	9,152.13	0.00	0.00	0.00
18,200.00	90.00	180.06	8,005.00	-9,188.86	-1,075.16	9,251.50	0.00	0.00	0.00
18,300.00	90.00	180.06	8,005.00	-9,288.86	-1,075.26	9,350.87	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well OCHO LD 17-377HC
<b>Company:</b>	GREAT WESTERN OPERATING COMPANY	<b>TVD Reference:</b>	KB 20' @ 5212.00usft
<b>Project:</b>	ADAMS COUNTY	<b>MD Reference:</b>	KB 20' @ 5212.00usft
<b>Site:</b>	SEC 8-T1S-R67W	<b>North Reference:</b>	True
<b>Well:</b>	OCHO LD 17-377HC	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
18,358.72	90.00	180.06	8,005.00	-9,347.58	-1,075.32	9,409.22	0.00	0.00	0.00	
BTM PERF - 18358.72'/8005' MD/TVD, 470' FSL, 1180' FWL SEC 17										
18,364.12	90.00	180.17	8,005.00	-9,352.98	-1,075.33	9,414.58	2.00	0.00	2.00	
Start 94.78 hold at 18364.12 MD										
18,400.00	90.00	180.17	8,005.00	-9,388.86	-1,075.43	9,450.25	0.00	0.00	0.00	
18,458.89	90.00	180.17	8,005.00	-9,447.75	-1,075.60	9,508.78	0.00	0.00	0.00	
BHL - 18458.89'/8005' MD/TVD, 370' FSL, 1180' FWL SEC 17										

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude		
OCHO 17-377HC-LP - plan hits target center - Point	0.00	0.00	8,005.00	243.37	-1,065.66	1,237,949.91	3,163,130.39	39.985087°N 104.917834°W		
OCHO 17-377HC-PBHL - plan hits target center - Point	0.00	0.00	8,005.00	-9,447.75	-1,075.60	1,228,258.94	3,163,184.48	39.958483°N 104.917868°W		
OCHO 17-377HC-BTM I - plan hits target center - Point	0.00	0.00	8,005.00	-9,347.58	-1,075.32	1,228,359.11	3,163,184.10	39.958758°N 104.917867°W		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
4,551.00	4,551.00	0.00	0.00	Start Build 3.00	
5,550.91	5,505.85	199.34	-160.34	Start 1805.51 hold at 5550.91 MD	
7,356.42	7,069.51	902.73	-726.10	Start DLS 8.00 TFO -137.06	
8,767.77	8,005.00	243.37	-1,065.66	TPZ - 8767.77'/8005' MD/TVD, 460' FNL, 1180' FWL SEC 8	
18,358.72	8,005.00	-9,347.58	-1,075.32	BTM PERF - 18358.72'/8005' MD/TVD, 470' FSL, 1180' FWL SEC 17	
18,364.12	8,005.00	-9,352.98	-1,075.33	Start 94.78 hold at 18364.12 MD	
18,458.89	8,005.00	-9,447.75	-1,075.60	BHL - 18458.89'/8005' MD/TVD, 370' FSL, 1180' FWL SEC 17	