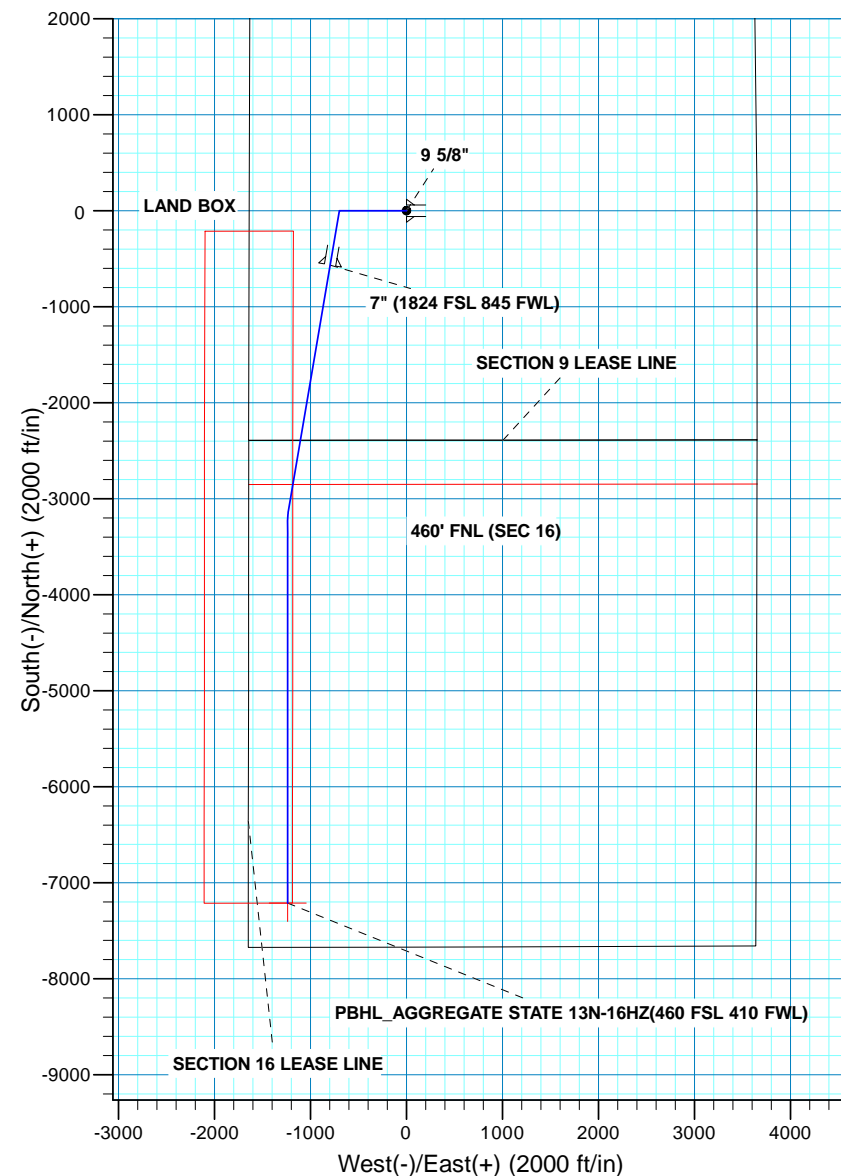
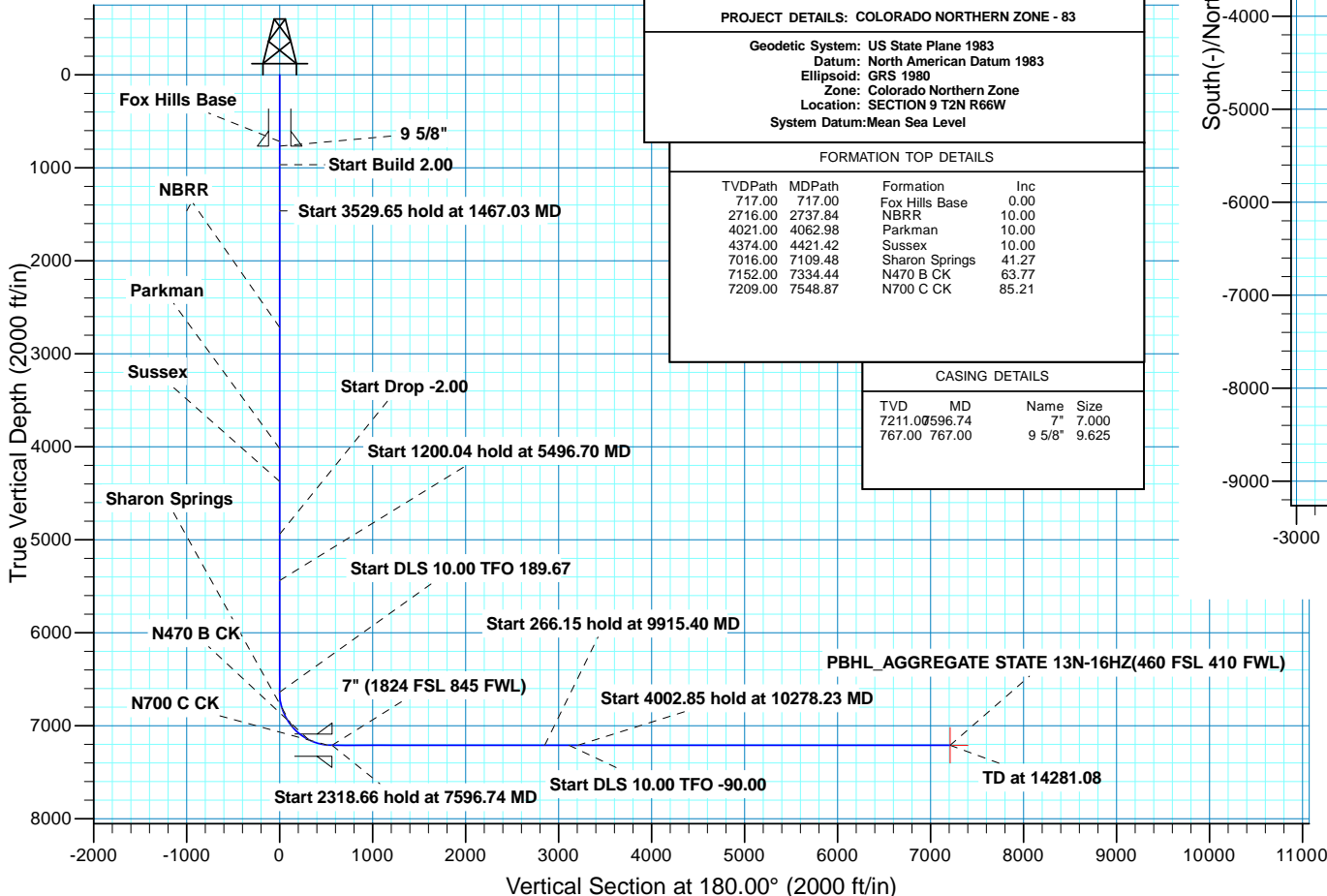


WELL DETAILS: AGGREGATE STATE 13N-16HZ										
GL 4904 & KB 17 @ 4921.00ft (ASSUMED)										
		+N/S 0.00	+E/-W 0.00	Northing 1298992.41	Easting 3199629.70	Latitude 40.1519220	Longitude -104.7858290			
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
967.00	0.00	0.00	967.00	0.00	0.00	0.00	0.00	0.00		Start Build 2.00
1467.03	10.00	270.00	1464.49	0.00	-43.53	2.00	270.00	0.00		Start 3529.65 hold at 1467.03 MD
4996.67	10.00	270.00	4940.51	0.00	-656.47	0.00	0.00	0.00		Start Drop -2.00
5496.70	0.00	0.00	5438.00	0.00	-700.00	2.00	180.00	0.00		Start 1200.04 hold at 5496.70 MD
6696.74	0.00	0.00	6638.04	0.00	-700.00	0.00	0.00	0.00		Start DLS 10.00 TFO 189.67
7596.74	90.00	189.67	7211.00	-564.82	-796.21	10.00	189.67	564.82		Start 2318.66 hold at 7596.74 MD
9915.40	90.00	189.67	7211.00	-2850.56	-1185.57	0.00	0.00	2850.56		Start 266.15 hold at 9915.40 MD
10181.55	90.00	189.67	7211.00	-3112.93	-1230.26	0.00	0.00	3112.93		Start DLS 10.00 TFO -90.00
10278.23	90.00	180.00	7211.00	-3209.15	-1238.40	10.00	-90.00	3209.15		Start 4002.85 hold at 10278.23 MD
14281.08	90.00	180.00	7211.00	-7212.00	-1238.40	0.00	0.00	7212.00	PBHL_AGGREGATE STATE	13N-16HZ
DESIGN TARGET DETAILS										
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape		
PBHL	7211.00	-7212.00	-1238.40	1291770.69	3198449.43	40.1321240	-104.7902580	Point		

PROJECT DETAILS: COLORADO NORTHERN ZONE - 83			
Geodetic System: US State Plane 1983			
Datum: North American Datum 1983			
Ellipsoid: GRS 1980			
Zone: Colorado Northern Zone			
Location: SECTION 9 T2N R66W			
System Datum:Mean Sea Level			
FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	Inc
717.00	717.00	Fox Hills Base	0.00
2716.00	2737.84	NBRR	10.00
4021.00	4062.98	Parkman	10.00
4374.00	4421.42	Sussex	10.00
7016.00	7109.48	Sharon Springs	41.27
7152.00	7334.44	N470 B CK	63.77
7209.00	7548.87	N700 C CK	85.21
CASING DETAILS			
TVD	MD	Name	Size
7211.00	596.74	7"	7.000
767.00	767.00	9 5/8"	9.625





# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**AGGREGATE STATE 22-9HZ PAD**

**AGGREGATE STATE 13N-16HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**06 September, 2013**

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well AGGREGATE STATE 13N-16HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Site:</b>	AGGREGATE STATE 22-9HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	AGGREGATE STATE 13N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

<b>Project</b>	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
<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		

<b>Site</b>	AGGREGATE STATE 22-9HZ PAD, SECTION 9 T2N R66W			
<b>Site Position:</b>		<b>Northing:</b>	1,298,992.41 usft	<b>Latitude:</b> 40.1519220
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,199,629.70 usft	<b>Longitude:</b> -104.7858290
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> 0.46 °

<b>Well</b>	AGGREGATE STATE 13N-16HZ, 2389' FSL 1639' FWL			
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	1,298,992.41 usft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	3,199,629.70 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft
			<b>Ground Level:</b>	4,904.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2013	9/5/2013	8.59	66.76	52,693

<b>Design</b>	PLAN #1 PRELIMINARY			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	180.00

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
967.00	0.00	0.00	967.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,467.03	10.00	270.00	1,464.49	0.00	-43.53	2.00	2.00	0.00	270.00	
4,996.67	10.00	270.00	4,940.51	0.00	-656.47	0.00	0.00	0.00	0.00	
5,496.70	0.00	0.00	5,438.00	0.00	-700.00	2.00	-2.00	0.00	180.00	
6,696.74	0.00	0.00	6,638.04	0.00	-700.00	0.00	0.00	0.00	0.00	
7,596.74	90.00	189.67	7,211.00	-564.82	-796.21	10.00	10.00	-18.93	189.67	
9,915.40	90.00	189.67	7,211.00	-2,850.56	-1,185.57	0.00	0.00	0.00	0.00	
10,181.55	90.00	189.67	7,211.00	-3,112.93	-1,230.26	0.00	0.00	0.00	0.00	
10,278.23	90.00	180.00	7,211.00	-3,209.15	-1,238.40	10.00	0.00	-10.00	-90.00	
14,281.08	90.00	180.00	7,211.00	-7,212.00	-1,238.40	0.00	0.00	0.00	0.00	PBHL_AGGREGATE

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well AGGREGATE STATE 13N-16HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Site:</b>	AGGREGATE STATE 22-9HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	AGGREGATE STATE 13N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
717.00	0.00	0.00	717.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Base</b>									
767.00	0.00	0.00	767.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
967.00	0.00	0.00	967.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,000.00	0.66	270.00	1,000.00	0.00	-0.19	0.00	2.00	2.00	0.00
1,100.00	2.66	270.00	1,099.95	0.00	-3.09	0.00	2.00	2.00	0.00
1,200.00	4.66	270.00	1,199.74	0.00	-9.47	0.00	2.00	2.00	0.00
1,300.00	6.66	270.00	1,299.25	0.00	-19.33	0.00	2.00	2.00	0.00
1,400.00	8.66	270.00	1,398.35	0.00	-32.66	0.00	2.00	2.00	0.00
1,467.03	10.00	270.00	1,464.49	0.00	-43.53	0.00	2.00	2.00	0.00
<b>Start 3529.65 hold at 1467.03 MD</b>									
1,500.00	10.00	270.00	1,496.96	0.00	-49.25	0.00	0.00	0.00	0.00
1,600.00	10.00	270.00	1,595.44	0.00	-66.62	0.00	0.00	0.00	0.00
1,700.00	10.00	270.00	1,693.93	0.00	-83.98	0.00	0.00	0.00	0.00
1,800.00	10.00	270.00	1,792.41	0.00	-101.35	0.00	0.00	0.00	0.00
1,900.00	10.00	270.00	1,890.89	0.00	-118.72	0.00	0.00	0.00	0.00
2,000.00	10.00	270.00	1,989.37	0.00	-136.08	0.00	0.00	0.00	0.00
2,100.00	10.00	270.00	2,087.85	0.00	-153.45	0.00	0.00	0.00	0.00
2,200.00	10.00	270.00	2,186.33	0.00	-170.81	0.00	0.00	0.00	0.00
2,300.00	10.00	270.00	2,284.81	0.00	-188.18	0.00	0.00	0.00	0.00
2,400.00	10.00	270.00	2,383.29	0.00	-205.54	0.00	0.00	0.00	0.00
2,500.00	10.00	270.00	2,481.77	0.00	-222.91	0.00	0.00	0.00	0.00
2,600.00	10.00	270.00	2,580.25	0.00	-240.28	0.00	0.00	0.00	0.00
2,700.00	10.00	270.00	2,678.73	0.00	-257.64	0.00	0.00	0.00	0.00
2,737.84	10.00	270.00	2,716.00	0.00	-264.21	0.00	0.00	0.00	0.00
<b>NBRR</b>									
2,800.00	10.00	270.00	2,777.21	0.00	-275.01	0.00	0.00	0.00	0.00
2,900.00	10.00	270.00	2,875.69	0.00	-292.37	0.00	0.00	0.00	0.00
3,000.00	10.00	270.00	2,974.17	0.00	-309.74	0.00	0.00	0.00	0.00
3,100.00	10.00	270.00	3,072.65	0.00	-327.10	0.00	0.00	0.00	0.00
3,200.00	10.00	270.00	3,171.13	0.00	-344.47	0.00	0.00	0.00	0.00
3,300.00	10.00	270.00	3,269.62	0.00	-361.83	0.00	0.00	0.00	0.00
3,400.00	10.00	270.00	3,368.10	0.00	-379.20	0.00	0.00	0.00	0.00
3,500.00	10.00	270.00	3,466.58	0.00	-396.57	0.00	0.00	0.00	0.00
3,600.00	10.00	270.00	3,565.06	0.00	-413.93	0.00	0.00	0.00	0.00
3,700.00	10.00	270.00	3,663.54	0.00	-431.30	0.00	0.00	0.00	0.00
3,800.00	10.00	270.00	3,762.02	0.00	-448.66	0.00	0.00	0.00	0.00
3,900.00	10.00	270.00	3,860.50	0.00	-466.03	0.00	0.00	0.00	0.00
4,000.00	10.00	270.00	3,958.98	0.00	-483.39	0.00	0.00	0.00	0.00
4,062.98	10.00	270.00	4,021.00	0.00	-494.33	0.00	0.00	0.00	0.00
<b>Parkman</b>									

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Site:</b>	AGGREGATE STATE 22-9HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	AGGREGATE STATE 13N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,100.00	10.00	270.00	4,057.46	0.00	-500.76	0.00	0.00	0.00	0.00	
4,200.00	10.00	270.00	4,155.94	0.00	-518.13	0.00	0.00	0.00	0.00	
4,300.00	10.00	270.00	4,254.42	0.00	-535.49	0.00	0.00	0.00	0.00	
4,400.00	10.00	270.00	4,352.90	0.00	-552.86	0.00	0.00	0.00	0.00	
4,421.42	10.00	270.00	4,374.00	0.00	-556.58	0.00	0.00	0.00	0.00	
<b>Sussex</b>										
4,500.00	10.00	270.00	4,451.38	0.00	-570.22	0.00	0.00	0.00	0.00	
4,600.00	10.00	270.00	4,549.86	0.00	-587.59	0.00	0.00	0.00	0.00	
4,700.00	10.00	270.00	4,648.34	0.00	-604.95	0.00	0.00	0.00	0.00	
4,800.00	10.00	270.00	4,746.82	0.00	-622.32	0.00	0.00	0.00	0.00	
4,900.00	10.00	270.00	4,845.31	0.00	-639.69	0.00	0.00	0.00	0.00	
4,996.67	10.00	270.00	4,940.51	0.00	-656.47	0.00	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
5,000.00	9.93	270.00	4,943.79	0.00	-657.05	0.00	2.00	-2.00	0.00	
5,100.00	7.93	270.00	5,042.57	0.00	-672.58	0.00	2.00	-2.00	0.00	
5,200.00	5.93	270.00	5,141.83	0.00	-684.65	0.00	2.00	-2.00	0.00	
5,300.00	3.93	270.00	5,241.46	0.00	-693.25	0.00	2.00	-2.00	0.00	
5,400.00	1.93	270.00	5,341.32	0.00	-698.37	0.00	2.00	-2.00	0.00	
5,496.70	0.00	0.00	5,438.00	0.00	-700.00	0.00	2.00	-2.00	93.07	
<b>Start 1200.04 hold at 5496.70 MD</b>										
5,500.00	0.00	0.00	5,441.30	0.00	-700.00	0.00	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,541.30	0.00	-700.00	0.00	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,641.30	0.00	-700.00	0.00	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,741.30	0.00	-700.00	0.00	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,841.30	0.00	-700.00	0.00	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,941.30	0.00	-700.00	0.00	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,041.30	0.00	-700.00	0.00	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,141.30	0.00	-700.00	0.00	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,241.30	0.00	-700.00	0.00	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,341.30	0.00	-700.00	0.00	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,441.30	0.00	-700.00	0.00	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,541.30	0.00	-700.00	0.00	0.00	0.00	0.00	
6,696.74	0.00	0.00	6,638.04	0.00	-700.00	0.00	0.00	0.00	0.00	
<b>Start DLS 10.00 TFO 189.67</b>										
6,700.00	0.33	189.67	6,641.30	-0.01	-700.00	0.01	10.00	10.00	0.00	
6,800.00	10.33	189.67	6,740.74	-9.15	-701.56	9.15	10.00	10.00	0.00	
6,900.00	20.33	189.67	6,837.06	-35.17	-705.99	35.17	10.00	10.00	0.00	
7,000.00	30.33	189.67	6,927.34	-77.29	-713.17	77.29	10.00	10.00	0.00	
7,100.00	40.33	189.67	7,008.82	-134.22	-722.86	134.22	10.00	10.00	0.00	
7,109.48	41.27	189.67	7,016.00	-140.32	-723.90	140.32	10.00	10.00	0.00	
<b>Sharon Springs</b>										
7,200.00	50.33	189.67	7,079.04	-204.23	-734.79	204.23	10.00	10.00	0.00	
7,300.00	60.33	189.67	7,135.86	-285.20	-748.58	285.20	10.00	10.00	0.00	
7,334.44	63.77	189.67	7,152.00	-315.19	-753.69	315.19	10.00	10.00	0.00	
<b>N470 B CK</b>										
7,400.00	70.33	189.67	7,177.55	-374.67	-763.82	374.67	10.00	10.00	0.00	
7,500.00	80.33	189.67	7,202.85	-469.91	-780.05	469.91	10.00	10.00	0.00	
7,548.87	85.21	189.67	7,209.00	-517.68	-788.18	517.68	10.00	10.00	0.00	
<b>N700 C CK</b>										
7,596.74	90.00	189.67	7,211.00	-564.82	-796.21	564.82	10.00	10.00	0.00	
<b>Start 2318.66 hold at 7596.74 MD - 7" (1824 FSL 845 FWL)</b>										
7,600.00	90.00	189.67	7,211.00	-568.04	-796.76	568.04	0.00	0.00	0.00	
7,700.00	90.00	189.67	7,211.00	-666.62	-813.55	666.62	0.00	0.00	0.00	

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Site:</b>	AGGREGATE STATE 22-9HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	AGGREGATE STATE 13N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,800.00	90.00	189.67	7,211.00	-765.20	-830.34	765.20	0.00	0.00	0.00
7,900.00	90.00	189.67	7,211.00	-863.78	-847.14	863.78	0.00	0.00	0.00
8,000.00	90.00	189.67	7,211.00	-962.36	-863.93	962.36	0.00	0.00	0.00
8,100.00	90.00	189.67	7,211.00	-1,060.94	-880.72	1,060.94	0.00	0.00	0.00
8,200.00	90.00	189.67	7,211.00	-1,159.52	-897.51	1,159.52	0.00	0.00	0.00
8,300.00	90.00	189.67	7,211.00	-1,258.10	-914.31	1,258.10	0.00	0.00	0.00
8,400.00	90.00	189.67	7,211.00	-1,356.68	-931.10	1,356.68	0.00	0.00	0.00
8,500.00	90.00	189.67	7,211.00	-1,455.26	-947.89	1,455.26	0.00	0.00	0.00
8,600.00	90.00	189.67	7,211.00	-1,553.84	-964.68	1,553.84	0.00	0.00	0.00
8,700.00	90.00	189.67	7,211.00	-1,652.42	-981.48	1,652.42	0.00	0.00	0.00
8,800.00	90.00	189.67	7,211.00	-1,751.00	-998.27	1,751.00	0.00	0.00	0.00
8,900.00	90.00	189.67	7,211.00	-1,849.58	-1,015.06	1,849.58	0.00	0.00	0.00
9,000.00	90.00	189.67	7,211.00	-1,948.16	-1,031.85	1,948.16	0.00	0.00	0.00
9,100.00	90.00	189.67	7,211.00	-2,046.74	-1,048.64	2,046.74	0.00	0.00	0.00
9,200.00	90.00	189.67	7,211.00	-2,145.32	-1,065.44	2,145.32	0.00	0.00	0.00
9,300.00	90.00	189.67	7,211.00	-2,243.90	-1,082.23	2,243.90	0.00	0.00	0.00
9,400.00	90.00	189.67	7,211.00	-2,342.48	-1,099.02	2,342.48	0.00	0.00	0.00
9,500.00	90.00	189.67	7,211.00	-2,441.06	-1,115.81	2,441.06	0.00	0.00	0.00
9,600.00	90.00	189.67	7,211.00	-2,539.64	-1,132.61	2,539.64	0.00	0.00	0.00
9,700.00	90.00	189.67	7,211.00	-2,638.22	-1,149.40	2,638.22	0.00	0.00	0.00
9,800.00	90.00	189.67	7,211.00	-2,736.80	-1,166.19	2,736.80	0.00	0.00	0.00
9,900.00	90.00	189.67	7,211.00	-2,835.38	-1,182.98	2,835.38	0.00	0.00	0.00
9,915.40	90.00	189.67	7,211.00	-2,850.56	-1,185.57	2,850.56	0.00	0.00	0.00
Start 266.15 hold at 9915.40 MD									
10,000.00	90.00	189.67	7,211.00	-2,933.96	-1,199.78	2,933.96	0.00	0.00	0.00
10,100.00	90.00	189.67	7,211.00	-3,032.54	-1,216.57	3,032.54	0.00	0.00	0.00
10,181.55	90.00	189.67	7,211.00	-3,112.93	-1,230.26	3,112.93	0.00	0.00	0.00
Start DLS 10.00 TFO -90.00									
10,200.00	90.00	187.82	7,211.00	-3,131.16	-1,233.07	3,131.16	10.00	0.00	-10.00
10,278.23	90.00	180.00	7,211.00	-3,209.15	-1,238.40	3,209.15	10.00	0.00	-10.00
Start 4002.85 hold at 10278.23 MD									
10,300.00	90.00	180.00	7,211.00	-3,230.92	-1,238.40	3,230.92	0.00	0.00	0.00
10,400.00	90.00	180.00	7,211.00	-3,330.92	-1,238.40	3,330.92	0.00	0.00	0.00
10,500.00	90.00	180.00	7,211.00	-3,430.92	-1,238.40	3,430.92	0.00	0.00	0.00
10,600.00	90.00	180.00	7,211.00	-3,530.92	-1,238.40	3,530.92	0.00	0.00	0.00
10,700.00	90.00	180.00	7,211.00	-3,630.92	-1,238.40	3,630.92	0.00	0.00	0.00
10,800.00	90.00	180.00	7,211.00	-3,730.92	-1,238.40	3,730.92	0.00	0.00	0.00
10,900.00	90.00	180.00	7,211.00	-3,830.92	-1,238.40	3,830.92	0.00	0.00	0.00
11,000.00	90.00	180.00	7,211.00	-3,930.92	-1,238.40	3,930.92	0.00	0.00	0.00
11,100.00	90.00	180.00	7,211.00	-4,030.92	-1,238.40	4,030.92	0.00	0.00	0.00
11,200.00	90.00	180.00	7,211.00	-4,130.92	-1,238.40	4,130.92	0.00	0.00	0.00
11,300.00	90.00	180.00	7,211.00	-4,230.92	-1,238.40	4,230.92	0.00	0.00	0.00
11,400.00	90.00	180.00	7,211.00	-4,330.92	-1,238.40	4,330.92	0.00	0.00	0.00
11,500.00	90.00	180.00	7,211.00	-4,430.92	-1,238.40	4,430.92	0.00	0.00	0.00
11,600.00	90.00	180.00	7,211.00	-4,530.92	-1,238.40	4,530.92	0.00	0.00	0.00
11,700.00	90.00	180.00	7,211.00	-4,630.92	-1,238.40	4,630.92	0.00	0.00	0.00
11,800.00	90.00	180.00	7,211.00	-4,730.92	-1,238.40	4,730.92	0.00	0.00	0.00
11,900.00	90.00	180.00	7,211.00	-4,830.92	-1,238.40	4,830.92	0.00	0.00	0.00
12,000.00	90.00	180.00	7,211.00	-4,930.92	-1,238.40	4,930.92	0.00	0.00	0.00
12,100.00	90.00	180.00	7,211.00	-5,030.92	-1,238.40	5,030.92	0.00	0.00	0.00
12,200.00	90.00	180.00	7,211.00	-5,130.92	-1,238.40	5,130.92	0.00	0.00	0.00
12,300.00	90.00	180.00	7,211.00	-5,230.92	-1,238.40	5,230.92	0.00	0.00	0.00
12,400.00	90.00	180.00	7,211.00	-5,330.92	-1,238.40	5,330.92	0.00	0.00	0.00

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well AGGREGATE STATE 13N-16HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Site:</b>	AGGREGATE STATE 22-9HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	AGGREGATE STATE 13N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,500.00	90.00	180.00	7,211.00	-5,430.92	-1,238.40	5,430.92	0.00	0.00	0.00
12,600.00	90.00	180.00	7,211.00	-5,530.92	-1,238.40	5,530.92	0.00	0.00	0.00
12,700.00	90.00	180.00	7,211.00	-5,630.92	-1,238.40	5,630.92	0.00	0.00	0.00
12,800.00	90.00	180.00	7,211.00	-5,730.92	-1,238.40	5,730.92	0.00	0.00	0.00
12,900.00	90.00	180.00	7,211.00	-5,830.92	-1,238.40	5,830.92	0.00	0.00	0.00
13,000.00	90.00	180.00	7,211.00	-5,930.92	-1,238.40	5,930.92	0.00	0.00	0.00
13,100.00	90.00	180.00	7,211.00	-6,030.92	-1,238.40	6,030.92	0.00	0.00	0.00
13,200.00	90.00	180.00	7,211.00	-6,130.92	-1,238.40	6,130.92	0.00	0.00	0.00
13,300.00	90.00	180.00	7,211.00	-6,230.92	-1,238.40	6,230.92	0.00	0.00	0.00
13,400.00	90.00	180.00	7,211.00	-6,330.92	-1,238.40	6,330.92	0.00	0.00	0.00
13,500.00	90.00	180.00	7,211.00	-6,430.92	-1,238.40	6,430.92	0.00	0.00	0.00
13,600.00	90.00	180.00	7,211.00	-6,530.92	-1,238.40	6,530.92	0.00	0.00	0.00
13,700.00	90.00	180.00	7,211.00	-6,630.92	-1,238.40	6,630.92	0.00	0.00	0.00
13,800.00	90.00	180.00	7,211.00	-6,730.92	-1,238.40	6,730.92	0.00	0.00	0.00
13,900.00	90.00	180.00	7,211.00	-6,830.92	-1,238.40	6,830.92	0.00	0.00	0.00
14,000.00	90.00	180.00	7,211.00	-6,930.92	-1,238.40	6,930.92	0.00	0.00	0.00
14,100.00	90.00	180.00	7,211.00	-7,030.92	-1,238.40	7,030.92	0.00	0.00	0.00
14,200.00	90.00	180.00	7,211.00	-7,130.92	-1,238.40	7,130.92	0.00	0.00	0.00
14,281.08	90.00	180.00	7,211.00	-7,212.00	-1,238.40	7,212.00	0.00	0.00	0.00
TD at 14281.08 - PBHL_AGGREGATE STATE 13N-16HZ(460 FSL 410 FWL)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_AGGREGATE ST	0.00	0.00	7,211.00	-7,212.00	-1,238.40	1,291,770.69	3,198,449.43	40.1321240	-104.7902580
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
767.00	767.00	9 5/8"	9.625	12.250	
7,596.74	7,211.00	7" (1824 FSL 845 FWL)	7.000	7.500	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
717.00	717.00	Fox Hills Base				
2,737.84	2,716.00	NBRR				
4,062.98	4,021.00	Parkman				
4,421.42	4,374.00	Sussex				
7,109.48	7,016.00	Sharon Springs				
7,334.44	7,152.00	N470 B CK				
7,548.87	7,209.00	N700 C CK				

<b>Database:</b>	Denver Sales Office	<b>Local Co-ordinate Reference:</b>	Well AGGREGATE STATE 13N-16HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4904 & KB 17 @ 4921.00ft (ASSUMED)
<b>Site:</b>	AGGREGATE STATE 22-9HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	AGGREGATE STATE 13N-16HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	PLAN #1 PRELIMINARY		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
967.00	967.00	0.00	0.00	Start Build 2.00
1,467.03	1,464.49	0.00	-43.53	Start 3529.65 hold at 1467.03 MD
4,996.67	4,940.51	0.00	-656.47	Start Drop -2.00
5,496.70	5,438.00	0.00	-700.00	Start 1200.04 hold at 5496.70 MD
6,696.74	6,638.04	0.00	-700.00	Start DLS 10.00 TFO 189.67
7,596.74	7,211.00	-564.82	-796.21	Start 2318.66 hold at 7596.74 MD
9,915.40	7,211.00	-2,850.56	-1,185.57	Start 266.15 hold at 9915.40 MD
10,181.55	7,211.00	-3,112.93	-1,230.26	Start DLS 10.00 TFO -90.00
10,278.23	7,211.00	-3,209.15	-1,238.40	Start 4002.85 hold at 10278.23 MD
14,281.08	7,211.00	-7,212.00	-1,238.40	TD at 14281.08