



CRESTONE PEAK
RESOURCES

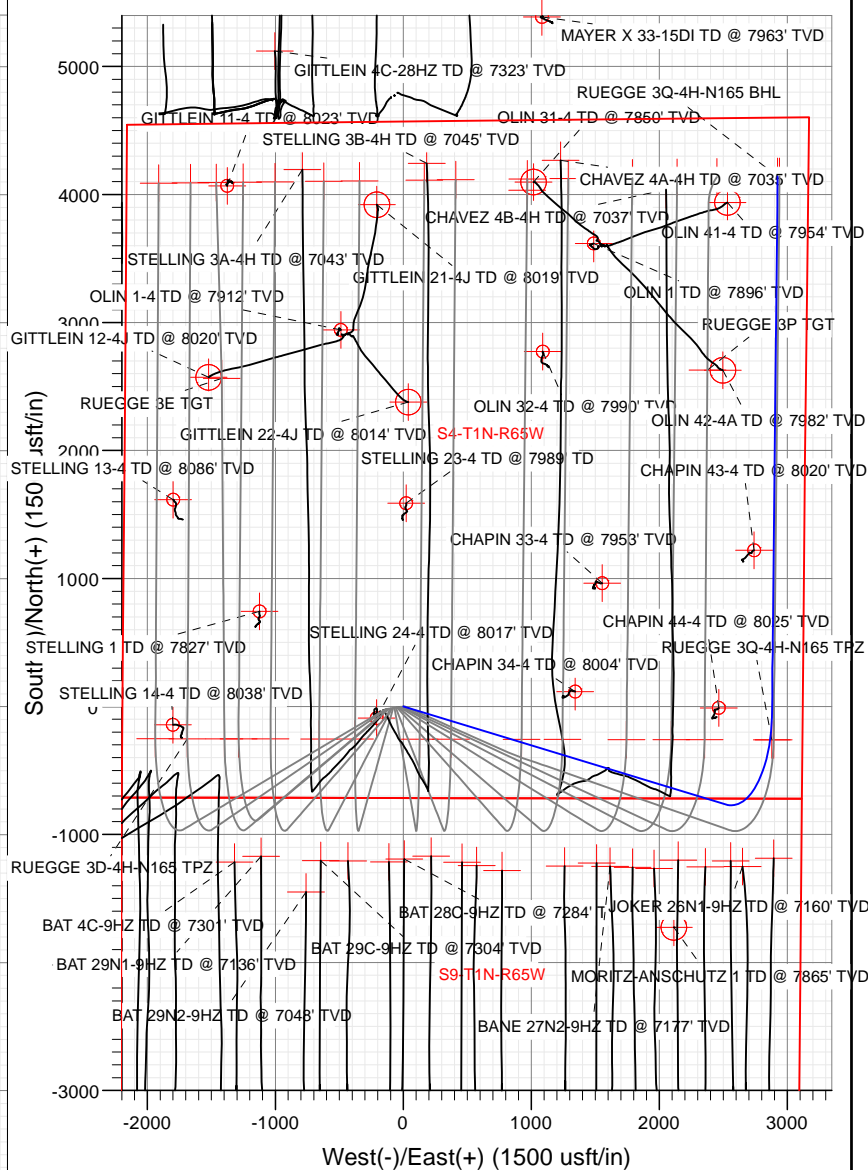
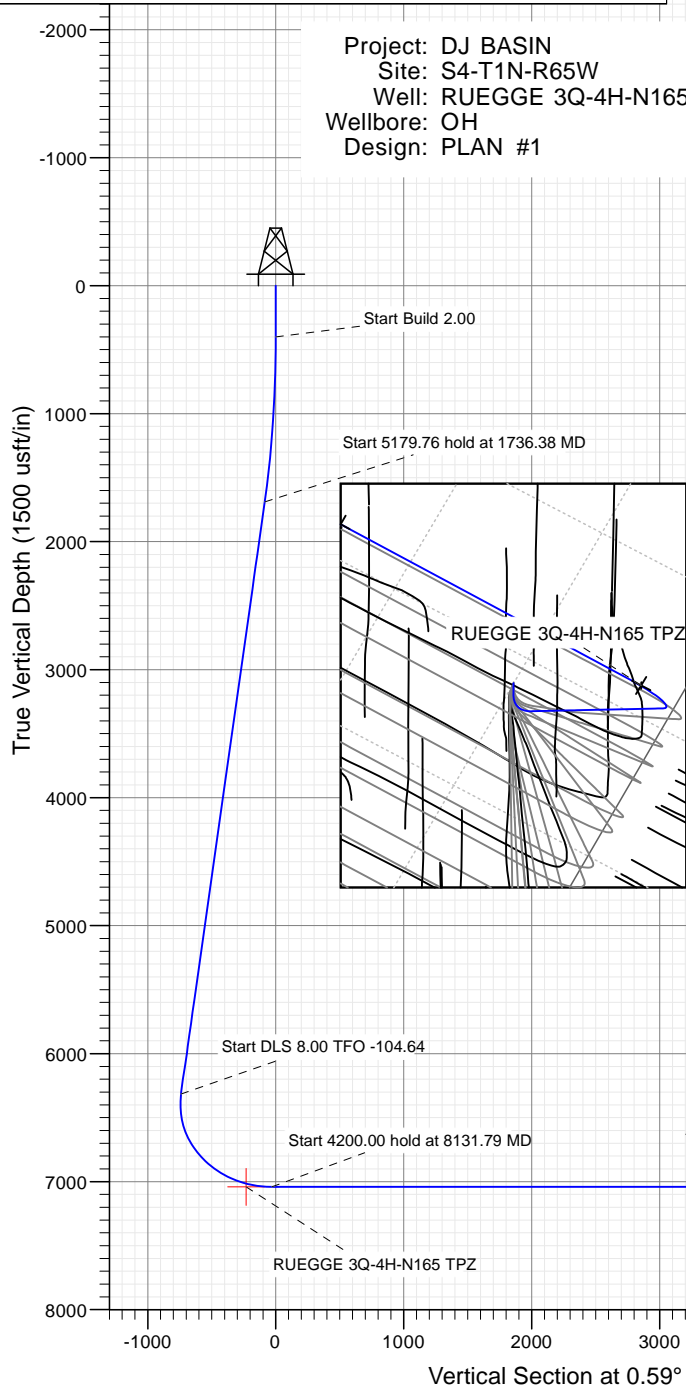
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	1736.38	26.73	106.89	1688.43	-88.95	292.88	2.00	106.89	-85.93	
4	6916.14	26.73	106.89	6314.77	-765.95	2521.93	0.00	0.00	-739.94	
5	8131.79	90.00	0.59	7041.00	-59.16	2880.27	8.00	-104.64	-29.50	
6	12331.79	90.00	0.59	7041.00	4140.61	2923.83	0.00	0.00	4170.50	RUEGGE 3Q-4H-N165 BHL

PLAN #1
RUEGGE 3Q-4H-N165
23' 1/2" @ 4335.00usft
Ground Level @ 4915.00
North American Datum 1983
Well RUEGGE 3Q-4H-N165 - Slot RUEGGE 3Q-4H-N165 SHL True North

Type	Target	Asimuth	Origin	Type	N/S	E/W	From	TVD
User	No Target (Freehand)	0.59	Slot	0.00	0.00	0.00	0.00	0.00
Name	RUEGGE 3Q-4H-N165 BHL	TVD	+N/-S	+E/-W	Latitude	Longitude		
	RUEGGE 3Q-4H-N165 TPZ	7041.00	4140.61	2923.83	40.086648	-104.660112		
		7041.00	-260.19	2878.19	40.074567	-104.660277		

Project: DJ BASIN
Site: S4-T1N-R65W
Well: RUEGGE 3Q-4H-N165
Wellbore: OH
Design: PLAN #1



Azimuths to True North
Magnetic North: 8.22°

Magnetic Field
Strength: 52188.7snT
Dip Angle: 66.50°
Date: 11/2/2017
Model: HDGM

WELL DETAILS: RUEGGE 3Q-4H-N165

4915.00
+N/-S 0.00 +E/-W 0.00 Northing 1271355.55 Easting 3232110.24 Latitude 40.075281 Longitude -104.660112 Slot RUEGGE 3Q-4H-N165 SHL

CATHEDRAL



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RUEGGE 3Q-4H-N165 - Slot RUEGGE 3Q
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4938.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4938.00usft
Site:	S4-T1N-R65W	North Reference:	True
Well:	RUEGGE 3Q-4H-N165	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Project	DJ BASIN		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		S4-T1N-R65W			
Site Position:		Northing:	1,271,333.68 usft	Latitude:	40.075225
From:	Map	Easting:	3,231,971.96 usft	Longitude:	-104.671056
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54 °

Well	RUEGGE 3Q-4H-N165 - Slot RUEGGE 3Q-4H-N165 SHL					
Well Position	+N/-S	0.00 usft	Northing:	1,271,355.55 usft	Latitude:	40.075281
	+E/-W	0.00 usft	Easting:	3,232,110.24 usft	Longitude:	-104.670562
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,915.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	11/2/2017	8.22	66.50	52,188.70000000

Design	PLAN #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	0.59

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (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	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	
1,736.38	26.73	106.89	1,688.43	-88.95	292.88	2.00	2.00	0.00	106.89	
6,916.14	26.73	106.89	6,314.77	-765.95	2,521.93	0.00	0.00	0.00	0.00	
8,131.79	90.00	0.59	7,041.00	-59.16	2,880.27	8.00	5.20	-8.74	-104.64	
12,331.79	90.00	0.59	7,041.00	4,140.61	2,923.83	0.00	0.00	0.00	0.00	RUEGGE 3Q-4H-N16

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RUEGGE 3Q-4H-N165 - Slot RUEGGE 3Q
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4938.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4938.00usft
Site:	S4-T1N-R65W	North Reference:	True
Well:	RUEGGE 3Q-4H-N165	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
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	
200.00	0.00	0.00	200.00	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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
500.00	2.00	106.89	499.98	-0.51	1.67	-0.49	2.00	2.00	
600.00	4.00	106.89	599.84	-2.03	6.68	-1.96	2.00	2.00	
700.00	6.00	106.89	699.45	-4.56	15.02	-4.41	2.00	2.00	
800.00	8.00	106.89	798.70	-8.10	26.68	-7.83	2.00	2.00	
900.00	10.00	106.89	897.47	-12.65	41.64	-12.22	2.00	2.00	
1,000.00	12.00	106.89	995.62	-18.19	59.90	-17.58	2.00	2.00	
1,100.00	14.00	106.89	1,093.06	-24.73	81.42	-23.89	2.00	2.00	
1,200.00	16.00	106.89	1,189.64	-32.25	106.19	-31.16	2.00	2.00	
1,300.00	18.00	106.89	1,285.27	-40.75	134.16	-39.36	2.00	2.00	
1,400.00	20.00	106.89	1,379.82	-50.21	165.31	-48.50	2.00	2.00	
1,500.00	22.00	106.89	1,473.17	-60.62	199.60	-58.56	2.00	2.00	
1,600.00	24.00	106.89	1,565.21	-71.98	236.98	-69.53	2.00	2.00	
1,700.00	26.00	106.89	1,655.84	-84.26	277.42	-81.40	2.00	2.00	
1,736.38	26.73	106.89	1,688.43	-88.95	292.88	-85.93	2.00	2.00	
1,800.00	26.73	106.89	1,745.26	-97.27	320.26	-93.96	0.00	0.00	
1,900.00	26.73	106.89	1,834.57	-110.34	363.29	-106.59	0.00	0.00	
2,000.00	26.73	106.89	1,923.89	-123.41	406.32	-119.22	0.00	0.00	
2,100.00	26.73	106.89	2,013.21	-136.48	449.36	-131.84	0.00	0.00	
2,200.00	26.73	106.89	2,102.52	-149.55	492.39	-144.47	0.00	0.00	
2,300.00	26.73	106.89	2,191.84	-162.62	535.43	-157.10	0.00	0.00	
2,400.00	26.73	106.89	2,281.15	-175.69	578.46	-169.72	0.00	0.00	
2,500.00	26.73	106.89	2,370.47	-188.76	621.49	-182.35	0.00	0.00	
2,600.00	26.73	106.89	2,459.78	-201.83	664.53	-194.97	0.00	0.00	
2,700.00	26.73	106.89	2,549.10	-214.90	707.56	-207.60	0.00	0.00	
2,800.00	26.73	106.89	2,638.41	-227.97	750.59	-220.23	0.00	0.00	
2,900.00	26.73	106.89	2,727.73	-241.04	793.63	-232.85	0.00	0.00	
3,000.00	26.73	106.89	2,817.05	-254.11	836.66	-245.48	0.00	0.00	
3,100.00	26.73	106.89	2,906.36	-267.18	879.70	-258.11	0.00	0.00	
3,200.00	26.73	106.89	2,995.68	-280.25	922.73	-270.73	0.00	0.00	
3,300.00	26.73	106.89	3,084.99	-293.32	965.76	-283.36	0.00	0.00	
3,400.00	26.73	106.89	3,174.31	-306.39	1,008.80	-295.98	0.00	0.00	
3,500.00	26.73	106.89	3,263.62	-319.46	1,051.83	-308.61	0.00	0.00	
3,600.00	26.73	106.89	3,352.94	-332.53	1,094.86	-321.24	0.00	0.00	
3,700.00	26.73	106.89	3,442.25	-345.60	1,137.90	-333.86	0.00	0.00	
3,800.00	26.73	106.89	3,531.57	-358.67	1,180.93	-346.49	0.00	0.00	
3,900.00	26.73	106.89	3,620.89	-371.74	1,223.97	-359.12	0.00	0.00	
4,000.00	26.73	106.89	3,710.20	-384.81	1,267.00	-371.74	0.00	0.00	
4,100.00	26.73	106.89	3,799.52	-397.88	1,310.03	-384.37	0.00	0.00	
4,200.00	26.73	106.89	3,888.83	-410.95	1,353.07	-397.00	0.00	0.00	
4,300.00	26.73	106.89	3,978.15	-424.02	1,396.10	-409.62	0.00	0.00	
4,400.00	26.73	106.89	4,067.46	-437.09	1,439.14	-422.25	0.00	0.00	
4,500.00	26.73	106.89	4,156.78	-450.16	1,482.17	-434.87	0.00	0.00	
4,600.00	26.73	106.89	4,246.09	-463.23	1,525.20	-447.50	0.00	0.00	
4,700.00	26.73	106.89	4,335.41	-476.30	1,568.24	-460.13	0.00	0.00	
4,800.00	26.73	106.89	4,424.73	-489.37	1,611.27	-472.75	0.00	0.00	
4,900.00	26.73	106.89	4,514.04	-502.44	1,654.30	-485.38	0.00	0.00	
5,000.00	26.73	106.89	4,603.36	-515.51	1,697.34	-498.01	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RUEGGE 3Q-4H-N165 - Slot RUEGGE 3Q
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4938.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4938.00usft
Site:	S4-T1N-R65W	North Reference:	True
Well:	RUEGGE 3Q-4H-N165	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
5,100.00	26.73	106.89	4,692.67	-528.58	1,740.37	-510.63	0.00	0.00	
5,200.00	26.73	106.89	4,781.99	-541.65	1,783.41	-523.26	0.00	0.00	
5,300.00	26.73	106.89	4,871.30	-554.72	1,826.44	-535.88	0.00	0.00	
5,400.00	26.73	106.89	4,960.62	-567.79	1,869.47	-548.51	0.00	0.00	
5,500.00	26.73	106.89	5,049.93	-580.86	1,912.51	-561.14	0.00	0.00	
5,600.00	26.73	106.89	5,139.25	-593.93	1,955.54	-573.76	0.00	0.00	
5,700.00	26.73	106.89	5,228.57	-607.00	1,998.57	-586.39	0.00	0.00	
5,800.00	26.73	106.89	5,317.88	-620.07	2,041.61	-599.02	0.00	0.00	
5,900.00	26.73	106.89	5,407.20	-633.14	2,084.64	-611.64	0.00	0.00	
6,000.00	26.73	106.89	5,496.51	-646.21	2,127.68	-624.27	0.00	0.00	
6,100.00	26.73	106.89	5,585.83	-659.28	2,170.71	-636.89	0.00	0.00	
6,200.00	26.73	106.89	5,675.14	-672.35	2,213.74	-649.52	0.00	0.00	
6,300.00	26.73	106.89	5,764.46	-685.42	2,256.78	-662.15	0.00	0.00	
6,400.00	26.73	106.89	5,853.77	-698.49	2,299.81	-674.77	0.00	0.00	
6,500.00	26.73	106.89	5,943.09	-711.56	2,342.84	-687.40	0.00	0.00	
6,600.00	26.73	106.89	6,032.41	-724.63	2,385.88	-700.03	0.00	0.00	
6,700.00	26.73	106.89	6,121.72	-737.70	2,428.91	-712.65	0.00	0.00	
6,800.00	26.73	106.89	6,211.04	-750.77	2,471.95	-725.28	0.00	0.00	
6,900.00	26.73	106.89	6,300.35	-763.84	2,514.98	-737.90	0.00	0.00	
6,916.14	26.73	106.89	6,314.77	-765.95	2,521.93	-739.94	0.00	0.00	
7,000.00	25.80	91.84	6,390.05	-772.03	2,558.25	-745.64	8.00	-1.11	
7,100.00	26.78	73.85	6,479.85	-766.45	2,601.71	-739.62	8.00	0.98	
7,200.00	29.80	58.16	6,568.02	-747.05	2,644.53	-719.78	8.00	3.02	
7,300.00	34.31	45.68	6,652.85	-714.19	2,685.87	-686.50	8.00	4.52	
7,400.00	39.82	36.02	6,732.68	-668.52	2,724.93	-640.43	8.00	5.51	
7,500.00	45.96	28.46	6,805.96	-610.93	2,760.94	-582.47	8.00	6.14	
7,600.00	52.50	22.36	6,871.26	-542.54	2,793.22	-513.75	8.00	6.54	
7,700.00	59.30	17.27	6,927.32	-464.67	2,821.12	-435.60	8.00	6.80	
7,800.00	66.28	12.86	6,973.03	-378.85	2,844.10	-349.55	8.00	6.97	
7,900.00	73.36	8.90	7,007.52	-286.75	2,861.73	-257.26	8.00	7.09	
8,000.00	80.52	5.22	7,030.11	-190.15	2,873.65	-160.55	8.00	7.16	
8,100.00	87.71	1.70	7,040.36	-90.94	2,879.63	-61.28	8.00	7.19	
8,131.79	90.00	0.59	7,041.00	-59.16	2,880.27	-29.50	8.00	7.20	
8,200.00	90.00	0.59	7,041.00	9.04	2,880.98	38.71	0.00	0.00	
8,300.00	90.00	0.59	7,041.00	109.04	2,882.01	138.71	0.00	0.00	
8,400.00	90.00	0.59	7,041.00	209.03	2,883.05	238.71	0.00	0.00	
8,500.00	90.00	0.59	7,041.00	309.03	2,884.09	338.71	0.00	0.00	
8,600.00	90.00	0.59	7,041.00	409.02	2,885.13	438.71	0.00	0.00	
8,700.00	90.00	0.59	7,041.00	509.02	2,886.16	538.71	0.00	0.00	
8,800.00	90.00	0.59	7,041.00	609.01	2,887.20	638.71	0.00	0.00	
8,900.00	90.00	0.59	7,041.00	709.01	2,888.24	738.71	0.00	0.00	
9,000.00	90.00	0.59	7,041.00	809.00	2,889.27	838.71	0.00	0.00	
9,100.00	90.00	0.59	7,041.00	909.00	2,890.31	938.71	0.00	0.00	
9,200.00	90.00	0.59	7,041.00	1,008.99	2,891.35	1,038.71	0.00	0.00	
9,300.00	90.00	0.59	7,041.00	1,108.99	2,892.39	1,138.71	0.00	0.00	
9,400.00	90.00	0.59	7,041.00	1,208.98	2,893.42	1,238.71	0.00	0.00	
9,500.00	90.00	0.59	7,041.00	1,308.97	2,894.46	1,338.71	0.00	0.00	
9,600.00	90.00	0.59	7,041.00	1,408.97	2,895.50	1,438.71	0.00	0.00	
9,700.00	90.00	0.59	7,041.00	1,508.96	2,896.53	1,538.71	0.00	0.00	
9,800.00	90.00	0.59	7,041.00	1,608.96	2,897.57	1,638.71	0.00	0.00	
9,900.00	90.00	0.59	7,041.00	1,708.95	2,898.61	1,738.71	0.00	0.00	
10,000.00	90.00	0.59	7,041.00	1,808.95	2,899.65	1,838.71	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well RUEGGE 3Q-4H-N165 - Slot RUEGGE 3Q
Company:	Crestone Peak Resources	TVD Reference:	23' KB @ 4938.00usft
Project:	DJ BASIN	MD Reference:	23' KB @ 4938.00usft
Site:	S4-T1N-R65W	North Reference:	True
Well:	RUEGGE 3Q-4H-N165	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
10,100.00	90.00	0.59	7,041.00	1,908.94	2,900.68	1,938.71	0.00	0.00	
10,200.00	90.00	0.59	7,041.00	2,008.94	2,901.72	2,038.71	0.00	0.00	
10,300.00	90.00	0.59	7,041.00	2,108.93	2,902.76	2,138.71	0.00	0.00	
10,400.00	90.00	0.59	7,041.00	2,208.93	2,903.79	2,238.71	0.00	0.00	
10,500.00	90.00	0.59	7,041.00	2,308.92	2,904.83	2,338.71	0.00	0.00	
10,600.00	90.00	0.59	7,041.00	2,408.92	2,905.87	2,438.71	0.00	0.00	
10,700.00	90.00	0.59	7,041.00	2,508.91	2,906.91	2,538.71	0.00	0.00	
10,800.00	90.00	0.59	7,041.00	2,608.90	2,907.94	2,638.71	0.00	0.00	
10,900.00	90.00	0.59	7,041.00	2,708.90	2,908.98	2,738.71	0.00	0.00	
11,000.00	90.00	0.59	7,041.00	2,808.89	2,910.02	2,838.71	0.00	0.00	
11,100.00	90.00	0.59	7,041.00	2,908.89	2,911.05	2,938.71	0.00	0.00	
11,200.00	90.00	0.59	7,041.00	3,008.88	2,912.09	3,038.71	0.00	0.00	
11,300.00	90.00	0.59	7,041.00	3,108.88	2,913.13	3,138.71	0.00	0.00	
11,400.00	90.00	0.59	7,041.00	3,208.87	2,914.17	3,238.71	0.00	0.00	
11,500.00	90.00	0.59	7,041.00	3,308.87	2,915.20	3,338.71	0.00	0.00	
11,600.00	90.00	0.59	7,041.00	3,408.86	2,916.24	3,438.71	0.00	0.00	
11,700.00	90.00	0.59	7,041.00	3,508.86	2,917.28	3,538.71	0.00	0.00	
11,800.00	90.00	0.59	7,041.00	3,608.85	2,918.31	3,638.71	0.00	0.00	
11,900.00	90.00	0.59	7,041.00	3,708.85	2,919.35	3,738.71	0.00	0.00	
12,000.00	90.00	0.59	7,041.00	3,808.84	2,920.39	3,838.71	0.00	0.00	
12,100.00	90.00	0.59	7,041.00	3,908.83	2,921.43	3,938.71	0.00	0.00	
12,200.00	90.00	0.59	7,041.00	4,008.83	2,922.46	4,038.71	0.00	0.00	
12,300.00	90.00	0.59	7,041.00	4,108.82	2,923.50	4,138.71	0.00	0.00	
12,331.79	90.00	0.59	7,041.00	4,140.61	2,923.83	4,170.50	0.00	0.00	

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
RUEGGE 3Q-4H-N165 I	0.00	0.00	7,041.00	4,140.61	2,923.83	1,275,523.33	3,234,995.21	40.086648	-104.660112
- plan hits target center									
- Point									
RUEGGE 3Q-4H-N165 *	0.00	0.00	7,041.00	-260.19	2,878.19	1,271,122.30	3,234,990.73	40.074567	-104.660277
- plan misses target center by 27.69usft at 7935.24usft MD (7016.87 TVD, -253.12 N, 2866.60 E)									
- Point									