

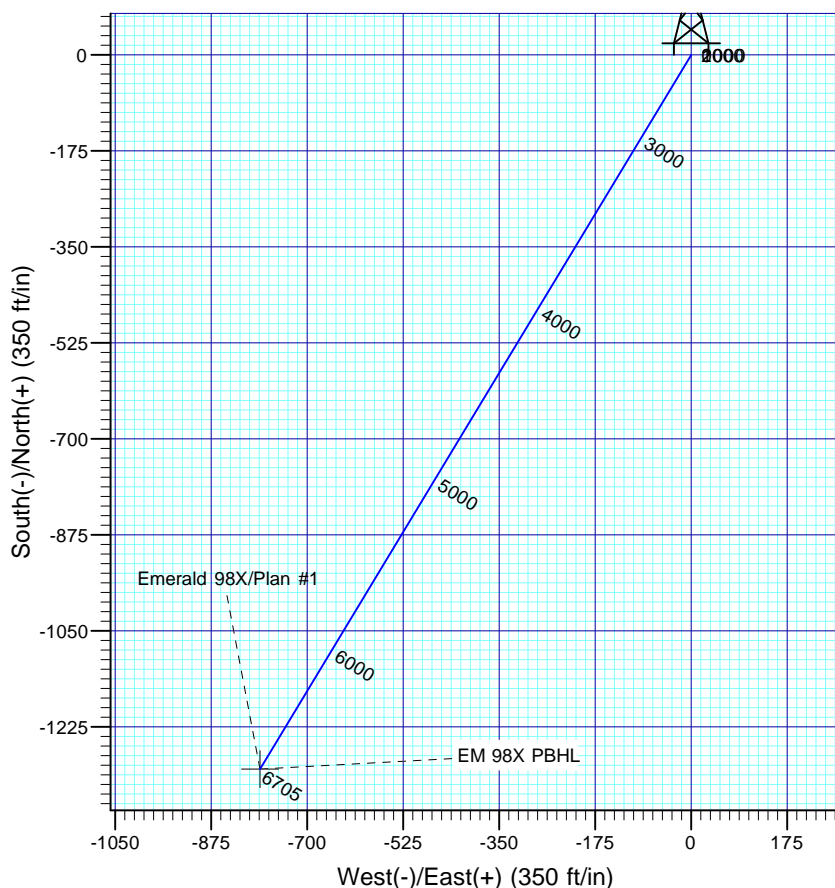
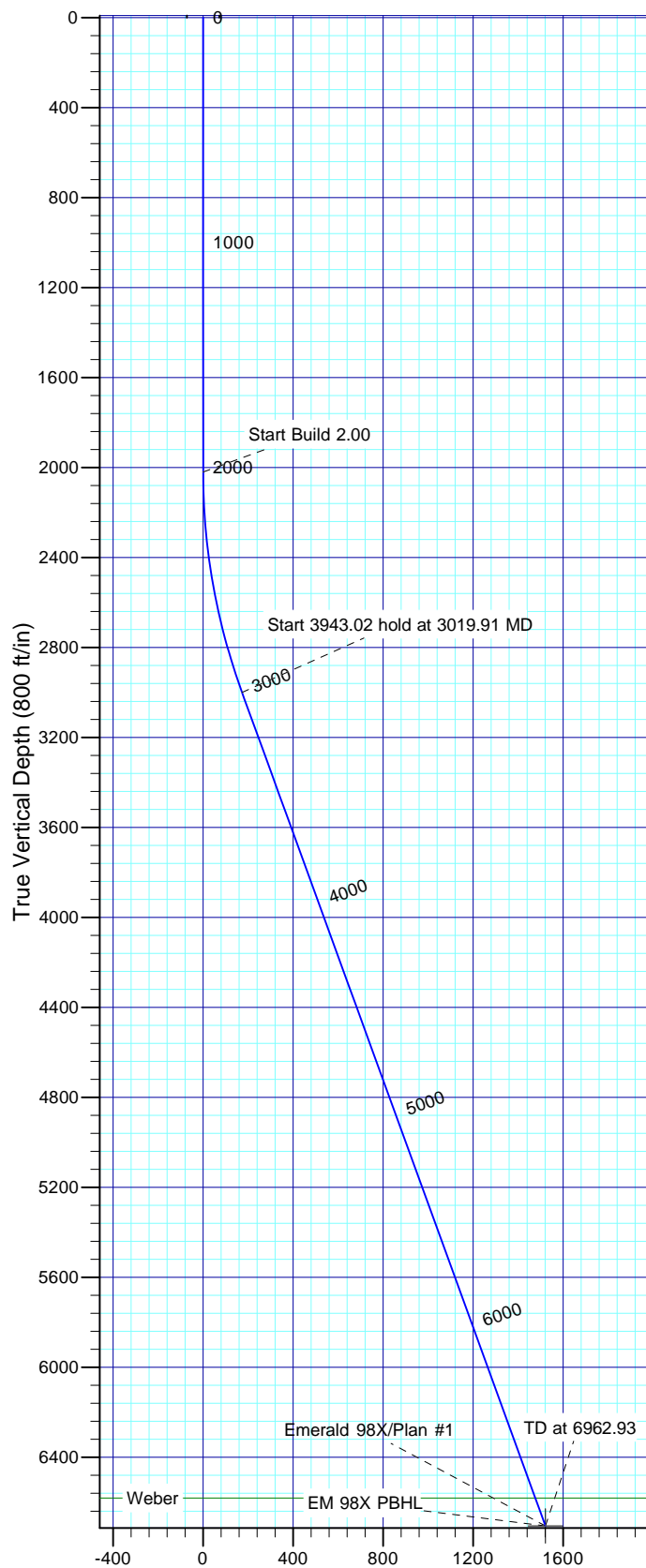
Well Details: Emerald 98X

TVD Reference: GL 5522' @ 5522.00ft (Ground Level) Ground Level: 5522.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1303161.39	2042758.03	40° 6' 53.431 N	108° 55' 24.460 W	

T M Azimuths to True North
Magnetic North: 10.75°

Magnetic Field
Strength: 52451.4snT
Dip Angle: 66.07°
Date: 12/20/2011
Model: IGRF200510



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6581.00	6830.97	Weber

Plan: Plan #1

18:12, December 20 2011
Created By: Rex Hall

PROJECT DETAILS: Rio Blanco County, CO (NAD 83)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

System Datum: Mean Sea Level

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	2020.00	0.00	0.00	2020.00	0.00	0.00	0.00	0.00	0.00	
3	3019.91	20.00	211.12	2999.73	-147.88	-89.28	2.00	211.12	172.74	
4	6962.93	20.00	211.12	6705.00	-1302.27	-786.23	0.00	0.00	521.21	EM 98X PBHL

Chevron

Rio Blanco County, CO (NAD 83)

Emerald 97X & 98X Pad

Emerald 98X

OH

Plan: Plan #1

Standard Planning Report

20 December, 2011

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Emerald 98X
Company:	Chevron	TVD Reference:	GL 5522' @ 5522.00ft (Ground Level)
Project:	Rio Blanco County, CO (NAD 83)	MD Reference:	GL 5522' @ 5522.00ft (Ground Level)
Site:	Emerald 97X & 98X Pad	North Reference:	True
Well:	Emerald 98X	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Rio Blanco County, CO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Emerald 97X & 98X Pad			
Site Position:		Northing:	1,303,173.37 usft	Latitude:	40° 6' 53.539 N
From:	Lat/Long	Easting:	2,042,731.34 usft	Longitude:	108° 55' 24.809 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-2.21 °

Well	Emerald 98X					
Well Position	+N/-S	-10.94 ft	Northing:	1,303,161.39 usft	Latitude:	40° 6' 53.431 N
	+E/-W	27.13 ft	Easting:	2,042,758.03 usft	Longitude:	108° 55' 24.460 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,522.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/20/11	10.75	66.07	52,451

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	211.12

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,020.00	0.00	0.00	2,020.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,019.91	20.00	211.12	2,999.73	-147.88	-89.28	2.00	2.00	0.00	211.12	
6,962.93	20.00	211.12	6,705.00	-1,302.27	-786.23	0.00	0.00	0.00	0.00	EM 98X PBHL

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Emerald 98X
Company:	Chevron	TVD Reference:	GL 5522' @ 5522.00ft (Ground Level)
Project:	Rio Blanco County, CO (NAD 83)	MD Reference:	GL 5522' @ 5522.00ft (Ground Level)
Site:	Emerald 97X & 98X Pad	North Reference:	True
Well:	Emerald 98X	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	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
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
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
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,020.00	0.00	0.00	2,020.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	1.60	211.12	2,099.99	-0.96	-0.58	1.12	2.00	2.00	0.00
2,200.00	3.60	211.12	2,199.88	-4.84	-2.92	5.65	2.00	2.00	0.00
2,300.00	5.60	211.12	2,299.55	-11.70	-7.07	13.67	2.00	2.00	0.00
2,400.00	7.60	211.12	2,398.89	-21.54	-13.01	25.17	2.00	2.00	0.00
2,500.00	9.60	211.12	2,497.76	-34.34	-20.73	40.12	2.00	2.00	0.00
2,600.00	11.60	211.12	2,596.05	-50.09	-30.24	58.51	2.00	2.00	0.00
2,700.00	13.60	211.12	2,693.63	-68.77	-41.52	80.33	2.00	2.00	0.00
2,800.00	15.60	211.12	2,790.40	-90.34	-54.54	105.53	2.00	2.00	0.00
2,900.00	17.60	211.12	2,886.23	-114.80	-69.31	134.10	2.00	2.00	0.00
3,000.00	19.60	211.12	2,981.00	-142.10	-85.79	165.99	2.00	2.00	0.00
3,019.91	20.00	211.12	2,999.73	-147.88	-89.28	172.74	2.00	2.00	0.00
3,100.00	20.00	211.12	3,074.99	-171.32	-103.43	200.13	0.00	0.00	0.00
3,200.00	20.00	211.12	3,168.96	-200.60	-121.11	234.33	0.00	0.00	0.00
3,300.00	20.00	211.12	3,262.93	-229.88	-138.79	268.52	0.00	0.00	0.00
3,400.00	20.00	211.12	3,356.90	-259.16	-156.46	302.72	0.00	0.00	0.00
3,500.00	20.00	211.12	3,450.87	-288.43	-174.14	336.92	0.00	0.00	0.00
3,600.00	20.00	211.12	3,544.84	-317.71	-191.81	371.12	0.00	0.00	0.00
3,700.00	20.00	211.12	3,638.81	-346.99	-209.49	405.32	0.00	0.00	0.00
3,800.00	20.00	211.12	3,732.78	-376.26	-227.16	439.52	0.00	0.00	0.00
3,900.00	20.00	211.12	3,826.75	-405.54	-244.84	473.72	0.00	0.00	0.00
4,000.00	20.00	211.12	3,920.73	-434.82	-262.51	507.92	0.00	0.00	0.00
4,100.00	20.00	211.12	4,014.70	-464.09	-280.19	542.12	0.00	0.00	0.00
4,200.00	20.00	211.12	4,108.67	-493.37	-297.87	576.32	0.00	0.00	0.00
4,300.00	20.00	211.12	4,202.64	-522.65	-315.54	610.51	0.00	0.00	0.00
4,400.00	20.00	211.12	4,296.61	-551.93	-333.22	644.71	0.00	0.00	0.00
4,500.00	20.00	211.12	4,390.58	-581.20	-350.89	678.91	0.00	0.00	0.00
4,600.00	20.00	211.12	4,484.55	-610.48	-368.57	713.11	0.00	0.00	0.00
4,700.00	20.00	211.12	4,578.52	-639.76	-386.24	747.31	0.00	0.00	0.00
4,800.00	20.00	211.12	4,672.49	-669.03	-403.92	781.51	0.00	0.00	0.00
4,900.00	20.00	211.12	4,766.46	-698.31	-421.59	815.71	0.00	0.00	0.00
5,000.00	20.00	211.12	4,860.43	-727.59	-439.27	849.91	0.00	0.00	0.00
5,100.00	20.00	211.12	4,954.40	-756.86	-456.95	884.11	0.00	0.00	0.00

Scientific Drilling International

Planning Report

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Company:	Chevron	TVD Reference:	GL 5522' @ 5522.00ft (Ground Level)
Project:	Rio Blanco County, CO (NAD 83)	MD Reference:	GL 5522' @ 5522.00ft (Ground Level)
Site:	Emerald 97X & 98X Pad	North Reference:	True
Well:	Emerald 98X	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,200.00	20.00	211.12	5,048.37	-786.14	-474.62	918.30	0.00	0.00	0.00	
5,300.00	20.00	211.12	5,142.34	-815.42	-492.30	952.50	0.00	0.00	0.00	
5,400.00	20.00	211.12	5,236.31	-844.70	-509.97	986.70	0.00	0.00	0.00	
5,500.00	20.00	211.12	5,330.28	-873.97	-527.65	1,020.90	0.00	0.00	0.00	
5,600.00	20.00	211.12	5,424.25	-903.25	-545.32	1,055.10	0.00	0.00	0.00	
5,700.00	20.00	211.12	5,518.22	-932.53	-563.00	1,089.30	0.00	0.00	0.00	
5,800.00	20.00	211.12	5,612.19	-961.80	-580.67	1,123.50	0.00	0.00	0.00	
5,900.00	20.00	211.12	5,706.16	-991.08	-598.35	1,157.70	0.00	0.00	0.00	
6,000.00	20.00	211.12	5,800.13	-1,020.36	-616.03	1,191.90	0.00	0.00	0.00	
6,100.00	20.00	211.12	5,894.10	-1,049.63	-633.70	1,226.10	0.00	0.00	0.00	
6,200.00	20.00	211.12	5,988.07	-1,078.91	-651.38	1,260.29	0.00	0.00	0.00	
6,300.00	20.00	211.12	6,082.04	-1,108.19	-669.05	1,294.49	0.00	0.00	0.00	
6,400.00	20.00	211.12	6,176.01	-1,137.47	-686.73	1,328.69	0.00	0.00	0.00	
6,500.00	20.00	211.12	6,269.99	-1,166.74	-704.40	1,362.89	0.00	0.00	0.00	
6,600.00	20.00	211.12	6,363.96	-1,196.02	-722.08	1,397.09	0.00	0.00	0.00	
6,700.00	20.00	211.12	6,457.93	-1,225.30	-739.75	1,431.29	0.00	0.00	0.00	
6,800.00	20.00	211.12	6,551.90	-1,254.57	-757.43	1,465.49	0.00	0.00	0.00	
6,830.97	20.00	211.12	6,581.00	-1,263.64	-762.90	1,476.08	0.00	0.00	0.00	
Weber										
6,900.00	20.00	211.12	6,645.87	-1,283.85	-775.11	1,499.69	0.00	0.00	0.00	
6,962.93	20.00	211.12	6,705.00	-1,302.27	-786.23	1,521.21	0.00	0.00	0.00	

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										
EM 98X PBHL	0.00	0.00	6,705.00	-1,302.27	-786.23	1,301,890.43	2,041,922.12	40° 6' 40.561 N	108° 55' 34.579 W	
- plan hits target center										
- Point										

Formations										
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)					
6,830.97	6,581.00	Weber		0.00						