



Company: B.P.
Project: La Plata County, CO NAD83
Site: East Sauls Creek Pad
Well: East Sauls Creek 35 4-2
Wellbore: Lateral 1 (Drainage)
Design: Plan #2

PROJECT DETAILS: La Plata County, CO NAD83
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Southern Zone
System Datum: Mean Sea Level
Local North: Grid



Plan: Plan #2 (East Sauls Creek 35 4-2/Lateral 1 (Drainage))

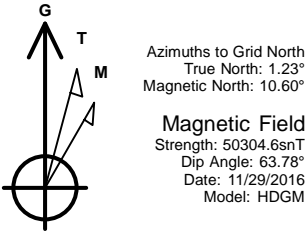
Created By: Janie Collins Date: 13:04, December 05 2016

WELL DETAILS: East Sauls Creek 35 4-2

+N/-S		+E/-W		GL 7398' & RKB 11' @ 7409.00usft (Aztec 507) 7398.00		Northing		Easting		Latitude		Longitude		Slot	
0.00		0.00				1220232.44		2415169.42		37.2542239		-107.5094937			

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2708.28	0.00	0.00	2708.28	0.00	0.00	0.00	0.00	0.00	
3520.78	65.00	91.51	3357.38	-10.90	413.38	8.00	91.51	413.51	
3720.78	65.00	91.51	3441.90	-15.67	594.57	0.00	0.00	594.77	
4033.28	90.00	91.51	3509.00	-23.65	897.15	8.00	0.00	897.45	
4333.28	90.00	91.51	3509.00	-31.55	1197.04	0.00	0.00	1197.44	
4370.78	90.75	91.51	3508.76	-32.54	1234.53	2.00	0.00	1234.94	
6370.78	90.75	91.51	3482.58	-85.24	3233.66	0.00	0.00	3234.75	
6496.10	93.15	92.23	3478.31	-89.32	3358.84	2.00	16.61	3359.98	
8647.97	93.15	92.23	3360.00	-172.83	5505.83	0.00	0.00	5508.54	ESC 35 4-2 Lat 1 PBHL

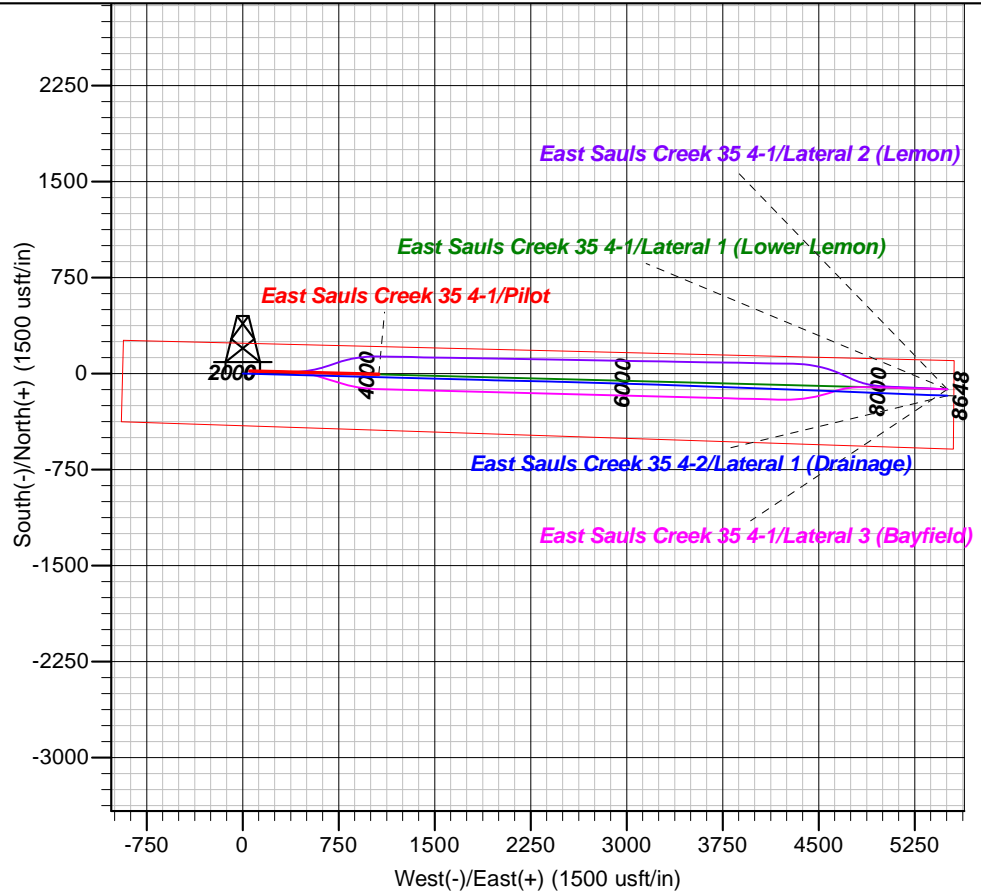
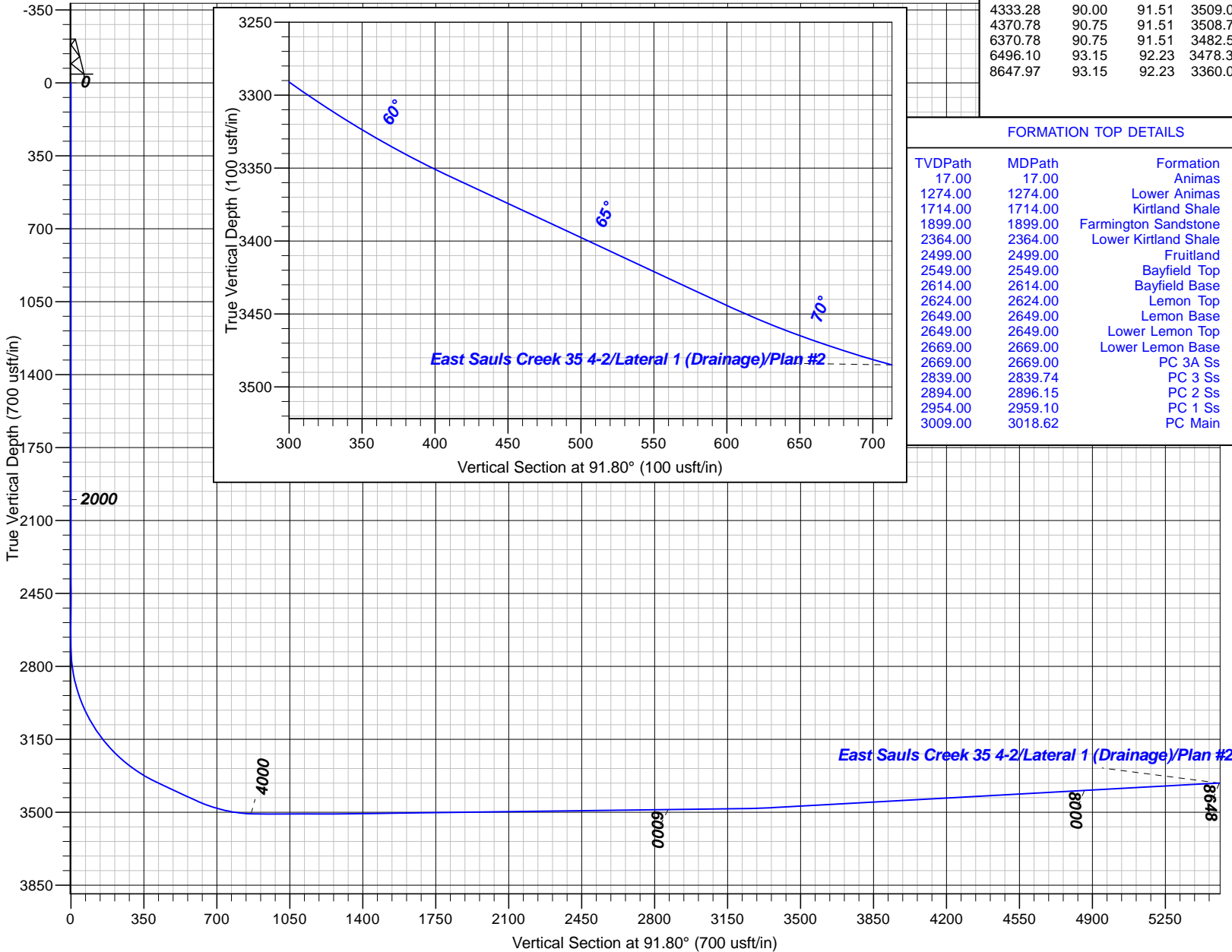


FORMATION TOP DETAILS

TVDPath	MDPath	Formation
17.00	17.00	Animas
1274.00	1274.00	Lower Animas
1714.00	1714.00	Kirtland Shale
1899.00	1899.00	Farmington Sandstone
2364.00	2364.00	Lower Kirtland Shale
2499.00	2499.00	Fruitland
2549.00	2549.00	Bayfield Top
2614.00	2614.00	Bayfield Base
2624.00	2624.00	Lemon Top
2649.00	2649.00	Lemon Base
2649.00	2649.00	Lower Lemon Top
2669.00	2669.00	Lower Lemon Base
2669.00	2669.00	PC 3A Ss
2839.00	2839.74	PC 3 Ss
2894.00	2896.15	PC 2 Ss
2954.00	2959.10	PC 1 Ss
3009.00	3018.62	PC Main

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
ESC 35 4-2 Lat 1 PBHL	3360.00	-172.83	5505.83	1220059.61	2420675.25	37.2540731	-107.4905686





B.P.

**La Plata County, CO NAD83
East Sauls Creek Pad
East Sauls Creek 35 4-2**

Lateral 1 (Drainage)

Plan: Plan #2

Standard Planning Report

05 December, 2016



www.scientificdrilling.com





Database:	Grand Junction District	Local Co-ordinate Reference:	Well East Sauls Creek 35 4-2
Company:	B.P.	TVD Reference:	GL 7398' & RKB 11' @ 7409.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 7398' & RKB 11' @ 7409.00usft (Aztec 507)
Site:	East Sauls Creek Pad	North Reference:	Grid
Well:	East Sauls Creek 35 4-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 (Drainage)		
Design:	Plan #2		

Project	La Plata County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Southern Zone		

Site		East Sauls Creek Pad			
Site Position:		Northing:	1,227,806.45 usft	Latitude:	37.2749933
From:	Map	Easting:	2,414,712.24 usft	Longitude:	-107.5116245
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.23 °

Well	East Sauls Creek 35 4-2					
Well Position	+N/-S	-7,574.01 usft	Northing:	1,220,232.44 usft	Latitude:	37.2542239
	+E/-W	457.18 usft	Easting:	2,415,169.42 usft	Longitude:	-107.5094937
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	7,398.00 usft

Wellbore	Lateral 1 (Drainage)				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/29/2016	9.37	63.78	50,305

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	91.80

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	
2,708.28	0.00	0.00	2,708.28	0.00	0.00	0.00	0.00	0.00	0.00	
3,520.78	65.00	91.51	3,357.38	-10.90	413.38	8.00	8.00	0.00	91.51	
3,720.78	65.00	91.51	3,441.90	-15.67	594.57	0.00	0.00	0.00	0.00	
4,033.28	90.00	91.51	3,509.00	-23.65	897.15	8.00	8.00	0.00	0.00	
4,333.28	90.00	91.51	3,509.00	-31.55	1,197.04	0.00	0.00	0.00	0.00	
4,370.78	90.75	91.51	3,508.76	-32.54	1,234.53	2.00	2.00	0.00	0.00	
6,370.78	90.75	91.51	3,482.58	-85.24	3,233.66	0.00	0.00	0.00	0.00	
6,496.10	93.15	92.23	3,478.31	-89.32	3,358.84	2.00	1.92	0.57	16.61	
8,647.97	93.15	92.23	3,360.00	-172.83	5,505.83	0.00	0.00	0.00	0.00	ESC 35 4-2 Lat 1 PBt



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Company:	B.P.	TVD Reference:	GL 7398' & RKB 11' @ 7409.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 7398' & RKB 11' @ 7409.00usft (Aztec 507)
Site:	East Sauls Creek Pad	North Reference:	Grid
Well:	East Sauls Creek 35 4-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 (Drainage)		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	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
17.00	0.00	0.00	17.00	0.00	0.00	0.00	0.00	0.00	0.00
Animas									
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
1,274.00	0.00	0.00	1,274.00	0.00	0.00	0.00	0.00	0.00	0.00
Lower Animas									
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
1,714.00	0.00	0.00	1,714.00	0.00	0.00	0.00	0.00	0.00	0.00
Kirtland Shale									
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,899.00	0.00	0.00	1,899.00	0.00	0.00	0.00	0.00	0.00	0.00
Farmington Sandstone									
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
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,364.00	0.00	0.00	2,364.00	0.00	0.00	0.00	0.00	0.00	0.00
Lower Kirtland Shale									
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,499.00	0.00	0.00	2,499.00	0.00	0.00	0.00	0.00	0.00	0.00
Fruitland									
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,549.00	0.00	0.00	2,549.00	0.00	0.00	0.00	0.00	0.00	0.00
Bayfield Top									
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,614.00	0.00	0.00	2,614.00	0.00	0.00	0.00	0.00	0.00	0.00
Bayfield Base									
2,624.00	0.00	0.00	2,624.00	0.00	0.00	0.00	0.00	0.00	0.00
Lemon Top									
2,649.00	0.00	0.00	2,649.00	0.00	0.00	0.00	0.00	0.00	0.00
Lemon Base - Lower Lemon Top									
2,669.00	0.00	0.00	2,669.00	0.00	0.00	0.00	0.00	0.00	0.00
Lower Lemon Base - PC 3A Ss									
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,708.28	0.00	0.00	2,708.28	0.00	0.00	0.00	0.00	0.00	0.00



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Well:	East Sauls Creek 35 4-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 (Drainage)		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,800.00	7.34	91.51	2,799.75	-0.15	5.86	5.86	8.00	8.00	0.00
2,839.74	10.52	91.51	2,839.00	-0.32	12.03	12.03	8.00	8.00	0.00
PC 3 Ss									
2,896.15	15.03	91.51	2,894.00	-0.65	24.49	24.50	8.00	8.00	0.00
PC 2 Ss									
2,900.00	15.34	91.51	2,897.72	-0.67	25.50	25.51	8.00	8.00	0.00
2,959.10	20.07	91.51	2,954.00	-1.15	43.46	43.47	8.00	8.00	0.00
PC 1 Ss									
3,000.00	23.34	91.51	2,992.00	-1.54	58.57	58.59	8.00	8.00	0.00
3,018.62	24.83	91.51	3,009.00	-1.74	66.17	66.19	8.00	8.00	0.00
PC Main									
3,100.00	31.34	91.51	3,080.76	-2.75	104.44	104.48	8.00	8.00	0.00
3,200.00	39.34	91.51	3,162.27	-4.28	162.22	162.27	8.00	8.00	0.00
3,300.00	47.34	91.51	3,234.94	-6.08	230.77	230.84	8.00	8.00	0.00
3,400.00	55.34	91.51	3,297.36	-8.14	308.76	308.86	8.00	8.00	0.00
3,500.00	63.34	91.51	3,348.32	-10.40	394.68	394.81	8.00	8.00	0.00
3,520.78	65.00	91.51	3,357.38	-10.90	413.38	413.51	8.00	8.00	0.00
3,600.00	65.00	91.51	3,390.86	-12.79	485.15	485.31	0.00	0.00	0.00
3,700.00	65.00	91.51	3,433.12	-15.18	575.75	575.94	0.00	0.00	0.00
3,720.78	65.00	91.51	3,441.90	-15.67	594.57	594.77	0.00	0.00	0.00
3,800.00	71.34	91.51	3,471.34	-17.61	668.05	668.27	8.00	8.00	0.00
3,900.00	79.34	91.51	3,496.64	-20.16	764.68	764.94	8.00	8.00	0.00
4,000.00	87.34	91.51	3,508.23	-22.77	863.89	864.18	8.00	8.00	0.00
4,033.28	90.00	91.51	3,509.00	-23.65	897.15	897.45	8.00	8.00	0.00
4,100.00	90.00	91.51	3,509.00	-25.41	963.84	964.17	0.00	0.00	0.00
4,200.00	90.00	91.51	3,509.00	-28.04	1,063.81	1,064.17	0.00	0.00	0.00
4,300.00	90.00	91.51	3,509.00	-30.68	1,163.77	1,164.16	0.00	0.00	0.00
4,333.28	90.00	91.51	3,509.00	-31.55	1,197.04	1,197.44	0.00	0.00	0.00
4,370.78	90.75	91.51	3,508.76	-32.54	1,234.53	1,234.94	2.00	2.00	0.00
4,400.00	90.75	91.51	3,508.37	-33.31	1,263.74	1,264.16	0.00	0.00	0.00
4,500.00	90.75	91.51	3,507.06	-35.95	1,363.69	1,364.15	0.00	0.00	0.00
4,600.00	90.75	91.51	3,505.76	-38.58	1,463.65	1,464.14	0.00	0.00	0.00
4,700.00	90.75	91.51	3,504.45	-41.22	1,563.61	1,564.13	0.00	0.00	0.00
4,800.00	90.75	91.51	3,503.14	-43.85	1,663.56	1,664.12	0.00	0.00	0.00
4,900.00	90.75	91.51	3,501.83	-46.49	1,763.52	1,764.11	0.00	0.00	0.00
5,000.00	90.75	91.51	3,500.52	-49.12	1,863.48	1,864.10	0.00	0.00	0.00
5,100.00	90.75	91.51	3,499.21	-51.76	1,963.43	1,964.09	0.00	0.00	0.00
5,200.00	90.75	91.51	3,497.90	-54.39	2,063.39	2,064.08	0.00	0.00	0.00
5,300.00	90.75	91.51	3,496.59	-57.03	2,163.35	2,164.07	0.00	0.00	0.00
5,400.00	90.75	91.51	3,495.28	-59.66	2,263.30	2,264.06	0.00	0.00	0.00
5,500.00	90.75	91.51	3,493.97	-62.30	2,363.26	2,364.05	0.00	0.00	0.00
5,600.00	90.75	91.51	3,492.67	-64.93	2,463.22	2,464.04	0.00	0.00	0.00
5,700.00	90.75	91.51	3,491.36	-67.57	2,563.17	2,564.03	0.00	0.00	0.00
5,800.00	90.75	91.51	3,490.05	-70.20	2,663.13	2,664.02	0.00	0.00	0.00
5,900.00	90.75	91.51	3,488.74	-72.84	2,763.09	2,764.01	0.00	0.00	0.00
6,000.00	90.75	91.51	3,487.43	-75.47	2,863.04	2,864.00	0.00	0.00	0.00
6,100.00	90.75	91.51	3,486.12	-78.11	2,963.00	2,963.99	0.00	0.00	0.00
6,200.00	90.75	91.51	3,484.81	-80.74	3,062.96	3,063.98	0.00	0.00	0.00
6,300.00	90.75	91.51	3,483.50	-83.38	3,162.91	3,163.97	0.00	0.00	0.00
6,370.78	90.75	91.51	3,482.58	-85.24	3,233.66	3,234.75	0.00	0.00	0.00
6,400.00	91.31	91.68	3,482.05	-86.05	3,262.87	3,263.96	2.00	1.92	0.57
6,496.10	93.15	92.23	3,478.31	-89.32	3,358.84	3,359.98	2.00	1.92	0.57



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Well:	East Sauls Creek 35 4-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 (Drainage)		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,500.00	93.15	92.23	3,478.10	-89.48	3,362.73	3,363.88	0.00	0.00	0.00
6,600.00	93.15	92.23	3,472.60	-93.36	3,462.50	3,463.72	0.00	0.00	0.00
6,700.00	93.15	92.23	3,467.10	-97.24	3,562.27	3,563.57	0.00	0.00	0.00
6,800.00	93.15	92.23	3,461.60	-101.12	3,662.05	3,663.41	0.00	0.00	0.00
6,900.00	93.15	92.23	3,456.10	-105.00	3,761.82	3,763.26	0.00	0.00	0.00
7,000.00	93.15	92.23	3,450.61	-108.88	3,861.59	3,863.11	0.00	0.00	0.00
7,100.00	93.15	92.23	3,445.11	-112.76	3,961.36	3,962.95	0.00	0.00	0.00
7,200.00	93.15	92.23	3,439.61	-116.64	4,061.14	4,062.80	0.00	0.00	0.00
7,300.00	93.15	92.23	3,434.11	-120.52	4,160.91	4,162.64	0.00	0.00	0.00
7,400.00	93.15	92.23	3,428.61	-124.40	4,260.68	4,262.49	0.00	0.00	0.00
7,500.00	93.15	92.23	3,423.12	-128.28	4,360.46	4,362.34	0.00	0.00	0.00
7,600.00	93.15	92.23	3,417.62	-132.16	4,460.23	4,462.18	0.00	0.00	0.00
7,700.00	93.15	92.23	3,412.12	-136.04	4,560.00	4,562.03	0.00	0.00	0.00
7,800.00	93.15	92.23	3,406.62	-139.92	4,659.78	4,661.87	0.00	0.00	0.00
7,900.00	93.15	92.23	3,401.12	-143.80	4,759.55	4,761.72	0.00	0.00	0.00
8,000.00	93.15	92.23	3,395.63	-147.68	4,859.32	4,861.57	0.00	0.00	0.00
8,100.00	93.15	92.23	3,390.13	-151.57	4,959.10	4,961.41	0.00	0.00	0.00
8,200.00	93.15	92.23	3,384.63	-155.45	5,058.87	5,061.26	0.00	0.00	0.00
8,300.00	93.15	92.23	3,379.13	-159.33	5,158.64	5,161.10	0.00	0.00	0.00
8,400.00	93.15	92.23	3,373.63	-163.21	5,258.42	5,260.95	0.00	0.00	0.00
8,500.00	93.15	92.23	3,368.14	-167.09	5,358.19	5,360.80	0.00	0.00	0.00
8,600.00	93.15	92.23	3,362.64	-170.97	5,457.96	5,460.64	0.00	0.00	0.00
8,647.97	93.15	92.23	3,360.00	-172.83	5,505.83	5,508.54	0.00	0.00	0.00
ESC 35 4-2 Lat 1 PBHL									

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
ESC 35 4-2 Lat 1 PBHL - plan hits target center - Point	0.00	360.00	3,360.00	-172.83	5,505.83	1,220,059.61	2,420,675.25	37.2540731	-107.4905686



Database:	Grand Junction District	Local Co-ordinate Reference:	Well East Sauls Creek 35 4-2
Company:	B.P.	TVD Reference:	GL 7398' & RKB 11' @ 7409.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 7398' & RKB 11' @ 7409.00usft (Aztec 507)
Site:	East Sauls Creek Pad	North Reference:	Grid
Well:	East Sauls Creek 35 4-2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 (Drainage)		
Design:	Plan #2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
17.00	17.00	Animas				
1,274.00	1,274.00	Lower Animas				
1,714.00	1,714.00	Kirtland Shale				
1,899.00	1,899.00	Farmington Sandstone				
2,364.00	2,364.00	Lower Kirtland Shale				
2,499.00	2,499.00	Fruitland				
2,549.00	2,549.00	Bayfield Top				
2,614.00	2,614.00	Bayfield Base				
2,624.00	2,624.00	Lemon Top				
2,649.00	2,649.00	Lemon Base				
2,649.00	2,649.00	Lower Lemon Top				
2,669.00	2,669.00	Lower Lemon Base				
2,669.00	2,669.00	PC 3A Ss				
2,839.74	2,839.00	PC 3 Ss				
2,896.15	2,894.00	PC 2 Ss				
2,959.10	2,954.00	PC 1 Ss				
3,018.62	3,009.00	PC Main				