

EXTRACTION OIL & GAS

BROOMFIELD COUNTY

Sec 10-T1S-R68W

INTERCHANGE B S22-30-20N

OWB

Design: FINAL SURVEY

Standard Survey Report

31 May, 2022



Project: BROOMFIELD COUNTY
Site: Sec 10-T1S-R68W
Well: INTERCHANGE B S22-30-20N
Wellbore: OWB
Design: FINAL SURVEY

PROJECT DETAILS: BROOMFIELD 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: 7.84°
 Magnetic Field
 Strength: 51618.8snT
 Dip Angle: 66.25°
 Date: 4/12/2022
 Model: IGRF2020

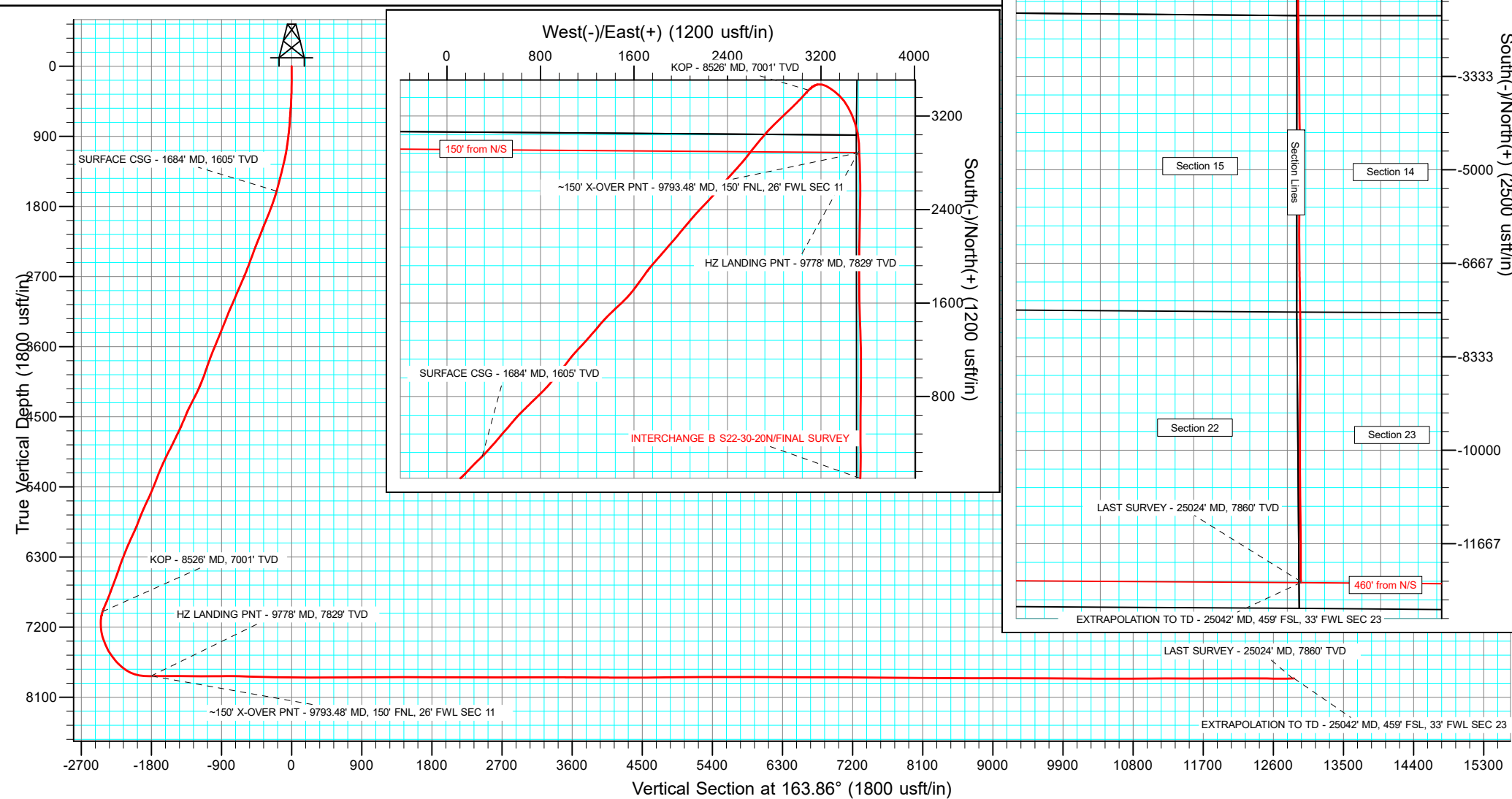
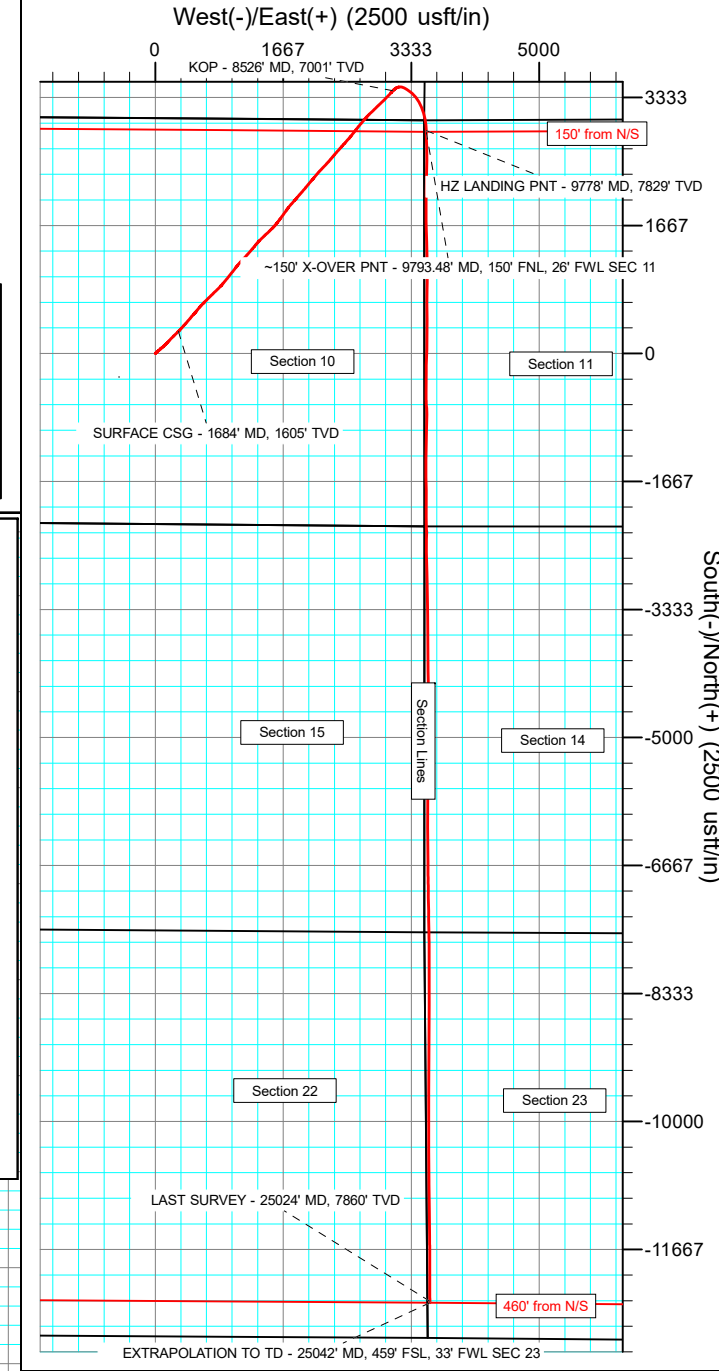
WELL DETAILS: INTERCHANGE B S22-30-20N

+N/-S	+E/-W	Northing	Easting	5206.00	Latitude	Longitude	Slot
0.00	0.00	1235322.59	3142686.37		39.978220°N	104.990845°W	

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
1684.00	30.64	45.10	1604.69	288.45	301.94	-193.15	420.38	SURFACE CSG - 1684' MD, 1605' TVD
8526.00	34.73	44.94	7000.70	3420.87	3093.57	-2426.08	4619.81	KOP - 8526' MD, 7001' TVD
9778.00	90.65	177.36	7829.04	2902.94	3527.52	-1807.93	5443.63	HZ LANDING PNT - 9778' MD, 7829' TVD
9793.48	90.80	177.37	7828.86	2887.48	3528.24	-1792.88	5459.11	~150' X-OVER PNT - 9793.48' MD, 150' FNL, 26' FWL SEC 11
25024.00	90.17	178.88	7859.88	-12340.44	3576.06	12848.14	20689.14	LAST SURVEY - 25024' MD, 7860' TVD
25042.00	90.17	178.88	7859.82	-12358.44	3576.41	12865.53	20707.14	EXTRAPOLATION TO TD - 25042' MD, 459' FSL, 33' FWL SEC 23

SHL:
 2222' FSL, 1776' FWL
 Sec 10-T1S-R68W
~150' X-OVER PNT:
 150' FNL, 26' FWL
 Sec 11-T1S-R68W
BHL:
 459' FSL, 33' FWL
 Sec 23-T1S-R68W



Survey Report

Company: EXTRACTION OIL & GAS	Local Co-ordinate Reference: Well INTERCHANGE B S22-30-20N
Project: BROOMFIELD COUNTY	TVD Reference: KB 28' @ 5234.00usft
Site: Sec 10-T1S-R68W	MD Reference: KB 28' @ 5234.00usft
Well: INTERCHANGE B S22-30-20N	North Reference: True
Wellbore: OWB	Survey Calculation Method: Minimum Curvature
Design: FINAL SURVEY	Database: EDT_32Bit_ODBC

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

Site Sec 10-T1S-R68W		
Site Position:	Northing: 1,238,390.57 usft	Latitude: 39.986670°N
From: Lat/Long	Easting: 3,140,881.15 usft	Longitude: 104.997225°W
Position Uncertainty: 0.00 usft	Slot Radius: 13.200 in	Grid Convergence: 0.32 °

Well INTERCHANGE B S22-30-20N		
Well Position +N/-S 0.00 usft	Northing: 1,235,322.59 usft	Latitude: 39.978220°N
+E/-W 0.00 usft	Easting: 3,142,686.37 usft	Longitude: 104.990845°W
Position Uncertainty 0.00 usft	Wellhead Elevation: usft	Ground Level: 5,206.00 usft

Wellbore OWB					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	4/12/2022	7.84	66.25	51,618.75080076

Design FINAL SURVEY				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.00		
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	163.86

Survey Program		Date 5/31/2022		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
119.00	1,645.00	SURFACE SURVEY (OWB)	MWD OWSG	OWSG MWD - Standard
1,765.00	25,042.00	FINAL SURVEY (OWB)	MWD OWSG	OWSG MWD - Standard

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	
119.00	0.44	260.43	119.00	-0.08	-0.45	-0.05	0.37	0.37	0.00	
206.00	1.01	55.73	206.00	0.30	-0.15	-0.33	1.63	0.66	178.51	
293.00	2.64	49.14	292.95	2.04	2.00	-1.41	1.89	1.87	-7.57	
381.00	4.97	54.95	380.75	5.56	6.66	-3.49	2.68	2.65	6.60	
468.00	6.94	45.72	467.28	11.39	13.51	-7.19	2.51	2.26	-10.61	
555.00	8.92	37.80	553.44	20.39	21.40	-13.64	2.59	2.28	-9.10	
642.00	9.84	55.30	639.30	29.96	31.65	-19.98	3.43	1.06	20.11	
729.00	10.81	55.12	724.89	38.85	44.46	-24.97	1.12	1.11	-0.21	
816.00	13.05	45.89	810.01	50.36	58.21	-32.19	3.37	2.57	-10.61	

Survey Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-20N
Project:	BROOMFIELD COUNTY	TVD Reference:	KB 28' @ 5234.00usft
Site:	Sec 10-T1S-R68W	MD Reference:	KB 28' @ 5234.00usft
Well:	INTERCHANGE B S22-30-20N	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)
904.00	15.51	48.62	895.29	65.06	74.17	-41.87	2.90	2.80	3.10
991.00	18.15	49.93	978.55	81.47	93.27	-52.33	3.07	3.03	1.51
1,078.00	20.30	48.35	1,060.70	100.23	114.92	-64.33	2.54	2.47	-1.82
1,165.00	22.54	45.89	1,141.68	121.86	138.17	-78.65	2.77	2.57	-2.83
1,253.00	24.74	42.55	1,222.30	147.17	162.74	-96.13	2.93	2.50	-3.80
1,340.00	25.84	43.87	1,300.96	174.25	188.19	-115.07	1.42	1.26	1.52
1,427.00	26.06	43.69	1,379.19	201.74	214.53	-134.15	0.27	0.25	-0.21
1,514.00	27.91	44.92	1,456.71	229.98	242.11	-153.61	2.22	2.13	1.41
1,601.00	29.93	45.98	1,532.86	259.48	272.10	-173.62	2.40	2.32	1.22
1,645.00	29.88	46.15	1,571.00	274.70	287.90	-183.85	0.22	-0.11	0.39
1,684.00	30.64	45.10	1,604.69	288.45	301.94	-193.15	2.38	1.95	-2.70
SURFACE CSG - 1684' MD, 1605' TVD									
1,765.00	32.24	43.05	1,673.80	318.81	331.31	-214.15	2.38	1.98	-2.53
1,854.00	33.57	41.77	1,748.52	354.51	363.91	-239.38	1.69	1.49	-1.44
1,943.00	35.28	42.09	1,821.93	391.94	397.53	-265.99	1.93	1.92	0.36
2,032.00	35.79	39.73	1,894.35	431.03	431.40	-294.12	1.64	0.57	-2.65
2,121.00	36.53	40.45	1,966.21	471.20	465.22	-323.31	0.96	0.83	0.81
2,210.00	37.76	42.17	2,037.15	511.56	500.70	-352.21	1.81	1.38	1.93
2,299.00	35.17	39.74	2,108.73	551.47	535.39	-380.91	3.33	-2.91	-2.73
2,388.00	35.94	40.27	2,181.13	591.11	568.66	-409.74	0.93	0.87	0.60
2,477.00	37.66	42.43	2,252.40	631.11	603.89	-438.37	2.42	1.93	2.43
2,566.00	38.59	45.72	2,322.42	670.57	642.11	-465.64	2.51	1.04	3.70
2,655.00	37.64	44.95	2,392.44	709.18	681.18	-491.87	1.19	-1.07	-0.87
2,744.00	37.74	45.95	2,462.87	747.35	719.96	-517.76	0.70	0.11	1.12
2,833.00	39.06	46.19	2,532.62	785.70	759.77	-543.53	1.49	1.48	0.27
2,922.00	39.65	45.38	2,601.44	825.06	800.22	-570.09	0.88	0.66	-0.91
3,012.00	39.54	44.31	2,670.79	865.73	840.67	-597.91	0.77	-0.12	-1.19
3,101.00	38.36	39.51	2,740.02	907.32	878.04	-627.48	3.64	-1.33	-5.39
3,190.00	37.06	39.64	2,810.42	949.28	912.72	-658.14	1.46	-1.46	0.15
3,279.00	36.90	39.27	2,881.52	990.61	946.74	-688.39	0.31	-0.18	-0.42
3,368.00	36.58	39.26	2,952.84	1,031.83	980.43	-718.62	0.36	-0.36	-0.01
3,546.00	36.84	37.01	3,095.55	1,115.52	1,046.12	-780.74	0.77	0.15	-1.26
3,635.00	36.59	40.82	3,166.90	1,156.90	1,079.53	-811.21	2.57	-0.28	4.28
3,725.00	37.32	43.23	3,238.82	1,197.08	1,115.75	-839.74	1.80	0.81	2.68
3,814.00	38.35	43.06	3,309.11	1,236.91	1,153.08	-867.62	1.16	1.16	-0.19
3,903.00	37.63	41.68	3,379.26	1,277.38	1,190.00	-896.23	1.25	-0.81	-1.55
3,992.00	37.01	40.70	3,450.04	1,317.98	1,225.54	-925.35	0.96	-0.70	-1.10
4,081.00	37.14	41.71	3,521.04	1,358.35	1,260.88	-954.30	0.70	0.15	1.13
4,171.00	36.38	38.96	3,593.15	1,399.39	1,295.75	-984.04	2.01	-0.84	-3.06
4,260.00	37.21	41.50	3,664.43	1,440.07	1,330.18	-1,013.54	1.95	0.93	2.85
4,349.00	37.30	45.40	3,735.27	1,479.17	1,367.22	-1,040.80	2.65	0.10	4.38
4,438.00	37.43	44.92	3,806.01	1,517.25	1,405.51	-1,066.74	0.36	0.15	-0.54
4,527.00	38.13	47.47	3,876.36	1,554.98	1,444.86	-1,092.04	1.92	0.79	2.87

Survey Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-20N
Project:	BROOMFIELD COUNTY	TVD Reference:	KB 28' @ 5234.00usft
Site:	Sec 10-T1S-R68W	MD Reference:	KB 28' @ 5234.00usft
Well:	INTERCHANGE B S22-30-20N	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)	
4,616.00	37.98	46.63	3,946.44	1,592.36	1,485.02	-1,116.79	0.61	-0.17	-0.94	
4,705.00	38.01	44.69	4,016.58	1,630.65	1,524.20	-1,142.67	1.34	0.03	-2.18	
4,794.00	37.51	41.22	4,086.95	1,670.51	1,561.33	-1,170.65	2.45	-0.56	-3.90	
4,883.00	37.91	37.18	4,157.37	1,712.69	1,595.71	-1,201.60	2.81	0.45	-4.54	
4,994.00	40.43	36.58	4,243.42	1,768.77	1,637.78	-1,243.78	2.30	2.27	-0.54	
5,083.00	39.40	35.64	4,311.68	1,814.90	1,671.44	-1,278.73	1.34	-1.16	-1.06	
5,172.00	38.94	35.48	4,380.68	1,860.63	1,704.13	-1,313.57	0.53	-0.52	-0.18	
5,261.00	36.79	39.49	4,450.95	1,903.98	1,737.32	-1,345.99	3.67	-2.42	4.51	
5,351.00	37.72	41.16	4,522.58	1,945.51	1,772.58	-1,376.08	1.53	1.03	1.86	
5,440.00	38.54	41.37	4,592.59	1,986.82	1,808.82	-1,405.68	0.93	0.92	0.24	
5,529.00	40.89	40.59	4,661.05	2,029.75	1,846.11	-1,436.56	2.70	2.64	-0.88	
5,618.00	42.29	40.86	4,727.61	2,074.52	1,884.65	-1,468.85	1.59	1.57	0.30	
5,707.00	41.66	41.69	4,793.78	2,119.26	1,923.91	-1,500.91	0.94	-0.71	0.93	
5,796.00	41.37	39.35	4,860.42	2,164.09	1,962.24	-1,533.32	1.77	-0.33	-2.63	
5,885.00	42.16	39.47	4,926.81	2,209.89	1,999.87	-1,566.86	0.89	0.89	0.13	
5,974.00	42.60	40.50	4,992.55	2,255.85	2,038.42	-1,600.29	0.92	0.49	1.16	
6,063.00	39.75	39.66	5,059.54	2,300.67	2,076.15	-1,632.86	3.26	-3.20	-0.94	
6,152.00	39.30	41.16	5,128.19	2,343.80	2,112.87	-1,664.08	1.19	-0.51	1.69	
6,241.00	38.94	42.99	5,197.24	2,385.48	2,150.49	-1,693.66	1.36	-0.40	2.06	
6,330.00	37.77	43.59	5,267.03	2,425.68	2,188.35	-1,721.75	1.38	-1.31	0.67	
6,419.00	37.08	43.57	5,337.71	2,464.86	2,225.64	-1,749.02	0.78	-0.78	-0.02	
6,507.00	38.38	40.03	5,407.50	2,504.07	2,263.18	-1,776.86	1.42	0.73	-1.99	
6,596.00	40.16	40.21	5,477.40	2,543.14	2,301.48	-1,804.15	2.00	2.00	0.20	
6,685.00	41.18	41.42	5,547.90	2,582.03	2,339.39	-1,831.77	1.45	1.15	1.36	
6,776.00	39.87	42.36	5,618.32	2,621.57	2,377.43	-1,859.74	1.61	-1.46	1.04	
6,867.00	37.96	42.11	5,688.56	2,660.96	2,415.01	-1,887.05	2.15	-2.15	-0.28	
6,958.00	36.16	42.01	5,758.58	2,700.78	2,452.94	-1,914.31	2.02	-2.02	-0.11	
7,049.00	36.47	41.04	5,828.29	2,740.24	2,490.88	-1,941.50	0.73	0.35	-1.09	
7,140.00	38.13	38.84	5,897.09	2,779.60	2,528.49	-1,968.61	2.39	1.87	-2.47	
7,231.00	39.25	37.65	5,966.56	2,818.29	2,566.92	-2,000.01	1.51	1.26	-1.34	
7,322.00	37.43	38.75	6,035.36	2,856.68	2,605.05	-2,031.20	2.18	-2.04	1.24	
7,413.00	36.19	39.01	6,104.62	2,894.19	2,643.52	-2,061.77	1.40	-1.39	0.29	
7,504.00	35.99	40.49	6,173.54	2,931.50	2,681.04	-2,091.17	1.00	-0.22	1.66	
7,595.00	35.79	40.56	6,242.64	2,968.16	2,718.94	-2,120.85	0.23	-0.22	0.08	
7,686.00	34.40	43.87	6,311.47	3,004.06	2,756.29	-2,150.70	2.65	-1.56	3.72	
7,777.00	35.59	45.96	6,380.38	3,039.19	2,793.33	-2,180.39	1.90	1.34	2.35	
7,868.00	37.92	45.91	6,449.68	3,073.23	2,830.60	-2,210.33	2.62	2.62	-0.06	
7,959.00	38.31	45.03	6,518.70	3,107.75	2,867.16	-2,240.45	0.75	0.44	-0.99	
8,050.00	38.75	46.59	6,587.33	3,141.39	2,903.51	-2,270.52	1.20	0.49	1.75	
8,141.00	39.46	46.74	6,656.39	3,174.91	2,939.34	-2,300.17	0.80	0.80	0.17	
8,232.00	39.13	44.29	6,725.27	3,208.40	2,975.55	-2,330.93	1.78	-0.37	-2.75	
8,323.00	39.42	43.59	6,794.17	3,241.97	3,011.65	-2,361.03	0.60	0.33	-0.79	
8,414.00	38.54	41.51	6,863.36	3,275.20	3,047.51	-2,391.11	1.77	-0.99	-2.34	

Survey Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-20N
Project:	BROOMFIELD COUNTY	TVD Reference:	KB 28' @ 5234.00usft
Site:	Sec 10-T1S-R68W	MD Reference:	KB 28' @ 5234.00usft
Well:	INTERCHANGE B S22-30-20N	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)	
8,526.00	34.73	44.94	7,000.70	3,420.87	3,093.57	-2,426.08	7.33	-6.46	5.81	
KOP - 8526' MD, 7001' TVD										
8,556.00	32.83	46.94	7,025.63	3,432.48	3,105.55	-2,433.90	7.33	-6.32	6.68	
8,645.00	26.93	62.27	7,102.88	3,458.39	3,141.10	-2,448.90	10.80	-6.63	17.22	
8,735.00	22.35	81.81	7,184.80	3,470.33	3,176.15	-2,450.64	10.32	-5.09	21.71	
8,824.00	22.47	102.71	7,267.21	3,469.00	3,209.55	-2,440.07	8.91	0.13	23.48	
8,913.00	25.48	116.29	7,348.59	3,456.77	3,243.33	-2,418.93	7.04	3.38	15.26	
9,002.00	29.38	123.67	7,427.59	3,436.17	3,278.69	-2,389.31	5.81	4.38	8.29	
9,091.00	34.84	127.92	7,502.96	3,408.42	3,316.95	-2,352.02	6.64	6.13	4.78	
9,180.00	40.00	133.77	7,573.64	3,372.97	3,357.70	-2,306.64	7.04	5.80	6.57	
9,269.00	44.17	142.20	7,639.73	3,328.63	3,397.41	-2,253.01	7.88	4.69	9.47	
9,358.00	49.03	151.00	7,700.92	3,274.65	3,432.76	-2,191.33	9.01	5.46	9.89	
9,447.00	57.07	156.58	7,754.41	3,210.86	3,463.96	-2,121.38	10.32	9.03	6.27	
9,537.00	68.52	162.15	7,795.51	3,136.04	3,491.92	-2,041.74	13.86	12.72	6.19	
9,626.00	79.13	168.25	7,820.29	3,053.53	3,513.60	-1,956.46	13.61	11.92	6.85	
9,715.00	89.53	177.34	7,829.09	2,965.88	3,524.61	-1,869.19	15.48	11.69	10.21	
9,778.00	90.55	177.36	7,829.04	2,902.94	3,527.53	-1,807.93	1.62	1.62	0.03	
HZ LANDING PNT - 9778' MD, 7829' TVD										
9,793.48	90.80	177.37	7,828.86	2,887.48	3,528.24	-1,792.88	1.62	1.62	0.03	
-150' X-OVER PNT - 9793.48' MD, 150' FNL, 26' FWL SEC 11										
9,804.00	90.97	177.37	7,828.70	2,876.97	3,528.72	-1,782.65	1.62	1.62	0.03	
9,893.00	89.61	179.00	7,828.25	2,788.02	3,531.54	-1,696.43	2.39	-1.53	1.83	
9,982.00	90.28	178.29	7,828.33	2,699.05	3,533.64	-1,610.37	1.10	0.75	-0.80	
10,071.00	89.72	180.04	7,828.33	2,610.06	3,534.94	-1,524.53	2.06	-0.63	1.97	
10,160.00	90.42	179.51	7,828.23	2,521.07	3,535.29	-1,438.95	0.99	0.79	-0.60	
10,249.00	89.01	181.33	7,828.67	2,432.08	3,534.64	-1,353.65	2.59	-1.58	2.04	
10,338.00	89.21	181.22	7,830.05	2,343.11	3,532.66	-1,268.73	0.26	0.22	-0.12	
10,427.00	89.65	180.93	7,830.94	2,254.13	3,530.99	-1,183.73	0.59	0.49	-0.33	
10,516.00	89.93	181.12	7,831.26	2,165.14	3,529.40	-1,098.69	0.38	0.31	0.21	
10,605.00	90.18	180.90	7,831.18	2,076.16	3,527.83	-1,013.65	0.37	0.28	-0.25	
10,694.00	90.61	180.19	7,830.56	1,987.16	3,526.98	-928.40	0.93	0.48	-0.80	
10,783.00	91.38	179.53	7,829.02	1,898.18	3,527.20	-842.86	1.14	0.87	-0.74	
10,872.00	89.36	180.50	7,828.44	1,809.19	3,527.17	-757.38	2.52	-2.27	1.09	
10,961.00	89.15	179.60	7,829.60	1,720.20	3,527.10	-671.92	1.04	-0.24	-1.01	
11,050.00	88.72	178.75	7,831.25	1,631.22	3,528.38	-586.10	1.07	-0.48	-0.96	
11,139.00	87.94	178.47	7,833.85	1,542.29	3,530.54	-500.07	0.93	-0.88	-0.31	
11,228.00	87.67	178.25	7,837.26	1,453.39	3,533.08	-413.96	0.39	-0.30	-0.25	
11,317.00	87.30	177.90	7,841.16	1,364.52	3,536.07	-327.77	0.57	-0.42	-0.39	
11,405.00	88.44	178.25	7,844.43	1,276.64	3,539.02	-242.53	1.36	1.30	0.40	
11,495.00	89.76	179.44	7,845.85	1,186.67	3,540.84	-155.60	1.97	1.47	1.32	
11,584.00	89.75	179.66	7,846.23	1,097.67	3,541.53	-69.92	0.25	-0.01	0.25	
11,672.00	89.90	179.67	7,846.50	1,009.67	3,542.05	14.75	0.17	0.17	0.01	
11,761.00	90.45	180.87	7,846.22	920.68	3,541.63	100.13	1.48	0.62	1.35	
11,850.00	89.80	181.41	7,846.03	831.70	3,539.86	185.11	0.95	-0.73	0.61	

Survey Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-20N
Project:	BROOMFIELD COUNTY	TVD Reference:	KB 28' @ 5234.00usft
Site:	Sec 10-T1S-R68W	MD Reference:	KB 28' @ 5234.00usft
Well:	INTERCHANGE B S22-30-20N	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)	
12,035.00	90.71	180.50	7,845.21	646.73	3,536.78	361.93	0.70	0.49	-0.49	
12,124.00	89.98	178.94	7,844.67	557.73	3,537.21	447.54	1.94	-0.82	-1.75	
12,213.00	90.21	179.25	7,844.52	468.74	3,538.62	533.41	0.43	0.26	0.35	
12,302.00	90.19	179.56	7,844.21	379.75	3,539.54	619.15	0.35	-0.02	0.35	
12,391.00	89.87	179.27	7,844.17	290.76	3,540.45	704.89	0.49	-0.36	-0.33	
12,480.00	89.96	181.94	7,844.30	201.77	3,539.51	790.11	3.00	0.10	3.00	
12,569.00	90.05	182.23	7,844.29	112.83	3,536.27	874.65	0.34	0.10	0.33	
12,658.00	90.15	181.28	7,844.14	23.87	3,533.55	959.34	1.07	0.11	-1.07	
12,836.00	90.18	181.25	7,843.62	-154.09	3,529.62	1,129.19	0.02	0.02	-0.02	
12,925.00	90.02	180.40	7,843.47	-243.08	3,528.33	1,214.31	0.97	-0.18	-0.96	
13,192.00	90.05	180.52	7,843.30	-510.07	3,526.19	1,470.19	0.05	0.01	0.04	
13,370.00	90.33	176.08	7,842.71	-687.94	3,531.47	1,642.52	2.50	0.16	-2.49	
13,459.00	89.98	177.86	7,842.47	-776.81	3,536.17	1,729.20	2.04	-0.39	2.00	
13,548.00	89.79	181.26	7,842.65	-865.80	3,536.86	1,814.86	3.83	-0.21	3.82	
13,727.00	89.82	182.43	7,843.26	-1,044.70	3,531.09	1,985.11	0.65	0.02	0.65	
13,816.00	89.86	181.19	7,843.51	-1,133.65	3,528.28	2,069.78	1.39	0.04	-1.39	
13,905.00	89.87	180.94	7,843.72	-1,222.64	3,526.63	2,154.80	0.28	0.01	-0.28	
13,994.00	89.95	180.20	7,843.86	-1,311.63	3,525.74	2,240.04	0.84	0.09	-0.83	
14,083.00	89.61	181.14	7,844.20	-1,400.63	3,524.70	2,325.23	1.12	-0.38	1.06	
14,172.00	89.71	180.37	7,844.73	-1,489.62	3,523.53	2,410.39	0.87	0.11	-0.87	
14,350.00	90.05	178.05	7,845.10	-1,667.59	3,525.98	2,582.03	1.32	0.19	-1.30	
14,439.00	89.99	179.15	7,845.07	-1,756.56	3,528.16	2,668.10	1.24	-0.07	1.24	
14,618.00	90.18	181.10	7,844.80	-1,935.55	3,527.77	2,839.92	1.09	0.11	1.09	
14,707.00	90.12	179.68	7,844.57	-2,024.54	3,527.16	2,925.24	1.60	-0.07	-1.60	
14,796.00	90.21	179.63	7,844.32	-2,113.54	3,527.70	3,010.88	0.12	0.10	-0.06	
14,974.00	90.29	177.76	7,843.54	-2,291.49	3,531.75	3,182.94	1.05	0.04	-1.05	
15,063.00	90.05	180.37	7,843.27	-2,380.47	3,533.20	3,268.82	2.94	-0.27	2.93	
15,153.00	89.91	180.70	7,843.31	-2,470.46	3,532.36	3,355.03	0.40	-0.16	0.37	
15,242.00	89.84	181.06	7,843.50	-2,559.45	3,531.00	3,440.13	0.41	-0.08	0.40	
15,331.00	89.69	178.26	7,843.87	-2,648.44	3,531.53	3,525.76	3.15	-0.17	-3.15	
15,420.00	89.88	178.48	7,844.20	-2,737.40	3,534.06	3,611.92	0.33	0.21	0.25	
15,509.00	89.63	178.44	7,844.58	-2,826.37	3,536.45	3,698.05	0.28	-0.28	-0.04	
15,598.00	89.65	178.10	7,845.14	-2,915.33	3,539.14	3,784.25	0.38	0.02	-0.38	
15,687.00	89.61	179.33	7,845.71	-3,004.30	3,541.13	3,870.27	1.38	-0.04	1.38	
15,776.00	89.48	178.14	7,846.42	-3,093.28	3,543.10	3,956.28	1.34	-0.15	-1.34	
15,865.00	89.58	178.65	7,847.15	-3,182.24	3,545.59	4,042.43	0.58	0.11	0.57	
15,954.00	89.41	181.37	7,847.94	-3,271.23	3,545.57	4,127.91	3.06	-0.19	3.06	
16,043.00	89.65	179.10	7,848.67	-3,360.22	3,545.21	4,213.29	2.56	0.27	-2.55	
16,132.00	90.17	179.34	7,848.81	-3,449.21	3,546.42	4,299.11	0.64	0.58	0.27	
16,221.00	90.12	180.41	7,848.58	-3,538.21	3,546.61	4,384.65	1.20	-0.06	1.20	
16,310.00	90.15	179.01	7,848.37	-3,627.20	3,547.06	4,470.27	1.57	0.03	-1.57	
16,399.00	90.27	179.38	7,848.04	-3,716.19	3,548.31	4,556.10	0.44	0.13	0.42	
16,577.00	90.82	179.38	7,846.35	-3,894.17	3,550.24	4,727.60	0.31	0.31	0.00	
16,666.00	90.67	179.14	7,845.19	-3,983.16	3,551.39	4,813.39	0.32	-0.17	-0.27	

Survey Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-20N
Project:	BROOMFIELD COUNTY	TVD Reference:	KB 28' @ 5234.00usft
Site:	Sec 10-T1S-R68W	MD Reference:	KB 28' @ 5234.00usft
Well:	INTERCHANGE B S22-30-20N	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)
16,755.00	90.47	179.29	7,844.31	-4,072.15	3,552.61	4,899.21	0.28	-0.22	0.17
16,934.00	90.70	179.09	7,842.48	-4,251.12	3,555.14	5,071.84	0.17	0.13	-0.11
17,023.00	90.56	179.45	7,841.50	-4,340.11	3,556.27	5,157.63	0.43	-0.16	0.40
17,112.00	90.06	179.45	7,841.02	-4,429.10	3,557.13	5,243.35	0.56	-0.56	0.00
17,201.00	90.14	179.15	7,840.87	-4,518.09	3,558.22	5,329.14	0.35	0.09	-0.34
17,290.00	89.80	181.17	7,840.91	-4,607.09	3,557.97	5,414.56	2.30	-0.38	2.27
17,379.00	90.08	179.47	7,841.01	-4,696.08	3,557.47	5,499.91	1.94	0.31	-1.91
17,468.00	89.96	180.81	7,840.97	-4,785.08	3,557.25	5,585.34	1.51	-0.13	1.51
17,557.00	90.02	180.44	7,840.99	-4,874.08	3,556.28	5,670.56	0.42	0.07	-0.42
17,646.00	89.97	179.46	7,841.00	-4,963.07	3,556.36	5,756.07	1.10	-0.06	-1.10
17,735.00	90.22	181.87	7,840.85	-5,052.06	3,555.33	5,841.26	2.72	0.28	2.71
17,824.00	89.95	180.77	7,840.72	-5,141.04	3,553.28	5,926.16	1.27	-0.30	-1.24
17,913.00	89.85	180.60	7,840.87	-5,230.03	3,552.21	6,011.35	0.22	-0.11	-0.19
18,002.00	89.61	181.73	7,841.29	-5,319.01	3,550.40	6,096.32	1.30	-0.27	1.27
18,091.00	89.61	180.56	7,841.90	-5,407.99	3,548.62	6,181.30	1.31	0.00	-1.31
18,180.00	89.43	181.29	7,842.64	-5,496.97	3,547.19	6,266.37	0.84	-0.20	0.82
18,269.00	90.12	179.63	7,842.99	-5,585.97	3,546.47	6,351.66	2.02	0.78	-1.87
18,358.00	89.89	181.51	7,842.99	-5,674.96	3,545.59	6,436.90	2.13	-0.26	2.11
18,447.00	90.02	178.93	7,843.06	-5,763.95	3,545.25	6,522.29	2.90	0.15	-2.90
18,536.00	90.03	179.47	7,843.02	-5,852.94	3,546.49	6,608.12	0.61	0.01	0.61
18,625.00	89.76	180.53	7,843.18	-5,941.94	3,546.49	6,693.61	1.23	-0.30	1.19
18,714.00	89.97	179.43	7,843.39	-6,030.94	3,546.52	6,779.11	1.26	0.24	-1.24
18,892.00	89.58	180.17	7,844.09	-6,208.93	3,547.14	6,950.26	0.47	-0.22	0.42
18,981.00	90.11	179.15	7,844.33	-6,297.93	3,547.67	7,035.90	1.29	0.60	-1.15
19,070.00	89.41	179.92	7,844.70	-6,386.92	3,548.39	7,121.58	1.17	-0.79	0.87
19,159.00	89.40	179.48	7,845.63	-6,475.92	3,548.86	7,207.20	0.49	-0.01	-0.49
19,249.00	89.44	178.96	7,846.54	-6,565.90	3,550.08	7,293.98	0.58	0.04	-0.58
19,338.00	89.61	179.19	7,847.28	-6,654.89	3,551.52	7,379.86	0.32	0.19	0.26
19,427.00	89.81	180.16	7,847.73	-6,743.89	3,552.02	7,465.49	1.11	0.22	1.09
19,516.00	89.54	178.45	7,848.23	-6,832.87	3,553.10	7,551.27	1.95	-0.30	-1.92
19,783.00	89.28	179.82	7,850.98	-7,099.82	3,557.13	7,808.81	0.52	-0.10	0.51
19,872.00	89.70	179.24	7,851.77	-7,188.82	3,557.86	7,894.50	0.80	0.47	-0.65
19,961.00	89.80	179.93	7,852.16	-7,277.81	3,558.51	7,980.17	0.78	0.11	0.78
20,050.00	90.10	178.94	7,852.24	-7,366.81	3,559.39	8,065.90	1.16	0.34	-1.11
20,229.00	89.52	178.92	7,852.83	-7,545.77	3,562.73	8,238.74	0.32	-0.32	-0.01
20,407.00	89.66	178.75	7,854.11	-7,723.73	3,566.35	8,410.69	0.12	0.08	-0.10
20,496.00	89.74	179.95	7,854.57	-7,812.72	3,567.36	8,496.46	1.35	0.09	1.35
20,585.00	89.75	181.36	7,854.97	-7,901.72	3,566.34	8,581.66	1.58	0.01	1.58
20,674.00	89.70	178.85	7,855.39	-7,990.71	3,566.18	8,667.10	2.82	-0.06	-2.82
20,763.00	89.67	180.45	7,855.88	-8,079.70	3,566.72	8,752.74	1.80	-0.03	1.80
20,852.00	89.97	178.95	7,856.16	-8,168.70	3,567.19	8,838.35	1.72	0.34	-1.69
20,941.00	90.00	180.67	7,856.19	-8,257.69	3,567.48	8,923.92	1.93	0.03	1.93
21,030.00	90.03	179.30	7,856.16	-8,346.69	3,567.51	9,009.42	1.54	0.03	-1.54

Survey Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-20N
Project:	BROOMFIELD COUNTY	TVD Reference:	KB 28' @ 5234.00usft
Site:	Sec 10-T1S-R68W	MD Reference:	KB 28' @ 5234.00usft
Well:	INTERCHANGE B S22-30-20N	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)	
21,119.00	89.77	181.20	7,856.32	-8,435.69	3,567.12	9,094.80	2.15	-0.29	2.13	
21,208.00	89.81	179.84	7,856.65	-8,524.68	3,566.31	9,180.06	1.53	0.04	-1.53	
21,297.00	89.87	180.38	7,856.89	-8,613.68	3,566.14	9,265.51	0.61	0.07	0.61	
21,386.00	89.88	179.73	7,857.09	-8,702.68	3,566.05	9,350.97	0.73	0.01	-0.73	
21,475.00	89.90	179.82	7,857.26	-8,791.68	3,566.40	9,436.56	0.10	0.02	0.10	
21,564.00	89.76	180.20	7,857.52	-8,880.68	3,566.39	9,522.05	0.46	-0.16	0.43	
21,653.00	89.98	180.70	7,857.73	-8,969.67	3,565.69	9,607.34	0.61	0.25	0.56	
21,742.00	89.86	180.65	7,857.85	-9,058.67	3,564.64	9,692.54	0.15	-0.13	-0.06	
21,831.00	89.58	180.08	7,858.28	-9,147.66	3,564.07	9,777.87	0.71	-0.31	-0.64	
21,920.00	89.69	180.77	7,858.85	-9,236.66	3,563.41	9,863.17	0.79	0.12	0.78	
22,009.00	89.81	179.78	7,859.24	-9,325.66	3,562.98	9,948.54	1.12	0.13	-1.11	
22,099.00	89.58	180.01	7,859.72	-9,415.65	3,563.15	10,035.04	0.36	-0.26	0.26	
22,187.00	89.83	180.98	7,860.17	-9,503.65	3,562.39	10,119.36	1.14	0.28	1.10	
22,276.00	89.76	180.06	7,860.49	-9,592.64	3,561.58	10,204.62	1.04	-0.08	-1.03	
22,365.00	89.95	180.92	7,860.72	-9,681.64	3,560.82	10,289.89	0.99	0.21	0.97	
22,454.00	89.68	179.22	7,861.00	-9,770.63	3,560.71	10,375.35	1.93	-0.30	-1.91	
22,543.00	89.88	180.54	7,861.34	-9,859.63	3,560.90	10,460.89	1.50	0.22	1.48	
22,633.00	89.82	180.74	7,861.58	-9,949.63	3,559.89	10,547.06	0.23	-0.07	0.22	
22,722.00	90.39	180.67	7,861.42	-10,038.62	3,558.80	10,632.24	0.65	0.64	-0.08	
22,811.00	89.92	178.83	7,861.18	-10,127.61	3,559.19	10,717.84	2.13	-0.53	-2.07	
22,900.00	90.35	180.32	7,860.97	-10,216.61	3,559.85	10,803.51	1.74	0.48	1.67	
22,989.00	90.19	179.55	7,860.55	-10,305.61	3,559.95	10,889.03	0.88	-0.18	-0.87	
23,077.00	90.19	179.28	7,860.26	-10,393.60	3,560.85	10,973.80	0.31	0.00	-0.31	
23,166.00	90.32	179.14	7,859.86	-10,482.59	3,562.07	11,059.63	0.21	0.15	-0.16	
23,256.00	89.87	180.48	7,859.71	-10,572.59	3,562.37	11,146.16	1.57	-0.50	1.49	
23,345.00	89.98	179.18	7,859.83	-10,661.59	3,562.64	11,231.72	1.47	0.12	-1.46	
23,434.00	89.88	179.27	7,859.94	-10,750.58	3,563.84	11,317.54	0.15	-0.11	0.10	
23,523.00	89.92	178.70	7,860.09	-10,839.56	3,565.42	11,403.46	0.64	0.04	-0.64	
23,612.00	90.02	179.91	7,860.14	-10,928.56	3,566.50	11,489.24	1.36	0.11	1.36	
23,701.00	90.08	179.41	7,860.06	-11,017.55	3,567.02	11,574.88	0.57	0.07	-0.56	
23,790.00	90.10	178.91	7,859.92	-11,106.54	3,568.33	11,660.73	0.56	0.02	-0.56	
23,879.00	90.03	179.86	7,859.82	-11,195.54	3,569.28	11,746.48	1.07	-0.08	1.07	
23,968.00	89.91	179.16	7,859.87	-11,284.53	3,570.04	11,832.18	0.80	-0.13	-0.79	
24,057.00	89.98	179.83	7,859.95	-11,373.53	3,570.83	11,917.88	0.76	0.08	0.75	
24,147.00	89.99	179.15	7,859.97	-11,463.53	3,571.63	12,004.55	0.76	0.01	-0.76	
24,236.00	90.16	180.22	7,859.86	-11,552.52	3,572.12	12,090.18	1.22	0.19	1.20	
24,325.00	89.98	178.44	7,859.75	-11,641.51	3,573.16	12,175.95	2.01	-0.20	-2.00	
24,414.00	90.03	181.29	7,859.74	-11,730.50	3,573.37	12,261.49	3.20	0.06	3.20	
24,503.00	89.93	178.81	7,859.77	-11,819.50	3,573.29	12,346.96	2.79	-0.11	-2.79	
24,592.00	89.98	179.95	7,859.84	-11,908.49	3,574.26	12,432.71	1.28	0.06	1.28	
24,680.00	89.88	181.35	7,859.95	-11,996.48	3,573.26	12,516.96	1.59	-0.11	1.59	
24,770.00	89.90	178.90	7,860.12	-12,086.47	3,573.06	12,603.35	2.72	0.02	-2.72	
24,858.00	89.89	180.38	7,860.28	-12,174.47	3,573.61	12,688.03	1.68	-0.01	1.68	

Survey Report

Company: EXTRACTION OIL & GAS	Local Co-ordinate Reference: Well INTERCHANGE B S22-30-20N
Project: BROOMFIELD COUNTY	TVD Reference: KB 28' @ 5234.00usft
Site: Sec 10-T1S-R68W	MD Reference: KB 28' @ 5234.00usft
Well: INTERCHANGE B S22-30-20N	North Reference: True
Wellbore: OWB	Survey Calculation Method: Minimum Curvature
Design: FINAL SURVEY	Database: EDT_32Bit_ODBC

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)	
24,947.00	90.26	178.63	7,860.17	-12,263.46	3,574.38	12,773.73	2.01	0.42	-1.97	
25,024.00	90.17	178.88	7,859.88	-12,340.44	3,576.06	12,848.14	0.35	-0.12	0.32	
LAST SURVEY - 25024' MD, 7860' TVD										
25,042.00	90.17	178.88	7,859.83	-12,358.44	3,576.41	12,865.53	0.00	0.00	0.00	
EXTRAPOLATION TO TD - 25042' MD, 459' FSL, 33' FWL SEC 23										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
INTERCHANGE B S22-; - hit/miss target - Shape	0.00	0.00	7,830.00	2,887.48	3,522.25	1,238,230.25	3,146,191.98	39.986146°N	104.978275°W	
- actual wellpath misses target center by 6.09usft at 9793.19usft MD (7828.87 TVD, 2887.77 N, 3528.22 E)										
- Point										
INTERCHANGE B S22-; - hit/miss target - Shape	0.00	0.00	7,865.00	-12,359.14	3,571.23	1,222,984.15	3,146,328.51	39.944291°N	104.978108°W	
- actual wellpath misses target center by 7.35usft at 25042.00usft MD (7859.82 TVD, -12358.44 N, 3576.41 E)										
- Point										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,684.00	1,604.69	288.45	301.94	SURFACE CSG - 1684' MD, 1605' TVD	
8,526.00	7,000.70	3,420.87	3,093.57	KOP - 8526' MD, 7001' TVD	
9,778.00	7,829.04	2,902.94	3,527.53	HZ LANDING PNT - 9778' MD, 7829' TVD	
9,793.48	7,828.86	2,887.48	3,528.24	~150' X-OVER PNT - 9793.48' MD, 150' FNL, 26' FWL SEC 11	
25,024.00	7,859.88	-12,340.44	3,576.06	LAST SURVEY - 25024' MD, 7860' TVD	
25,042.00	7,859.83	-12,358.44	3,576.41	EXTRAPOLATION TO TD - 25042' MD, 459' FSL, 33' FWL SEC 23	

Checked By: _____ Approved By: _____ Date: _____