



Scientific Drilling

RCVD DEC 14/11

OIL CONS. DIV.

DIST. 3

ConocoPhillips

SJB (NM West)
SEC 21-T32N-R6W
SJ 32-5 #118H

API# 30-045-35292

Lateral A

Design: Lateral A

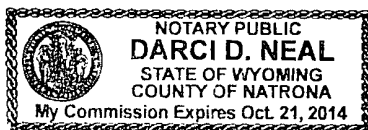
Standard Survey Report

16 November, 2011

This survey is correct to the best of my knowledge and is supported by actual field data.

Notarized this date 16th of November, 2011.

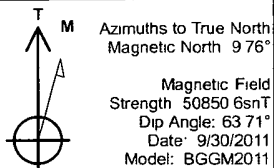
Darci D. Neal
Notary Signature
County of Natrona
State of Wyoming



ConocoPhillips



Project: SJB (NM West)
 Site: SEC 21-T32N-R6W
 Well: SJ 32-5 #118H
 Wellbore: Lateral A
 Design: Lateral A

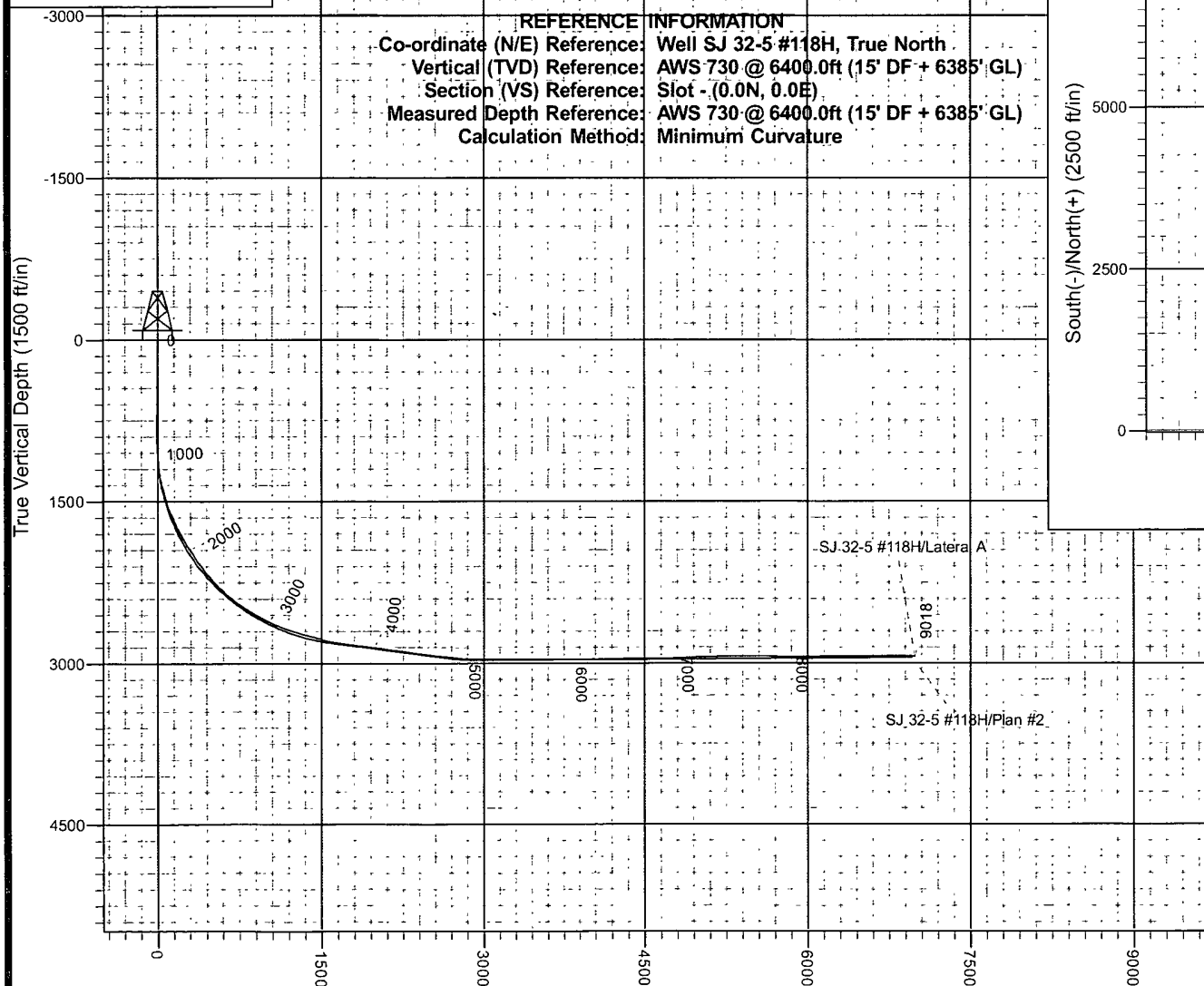


+N/-S 0 0
 +E/-W 0.0
 Northing 2171546.17

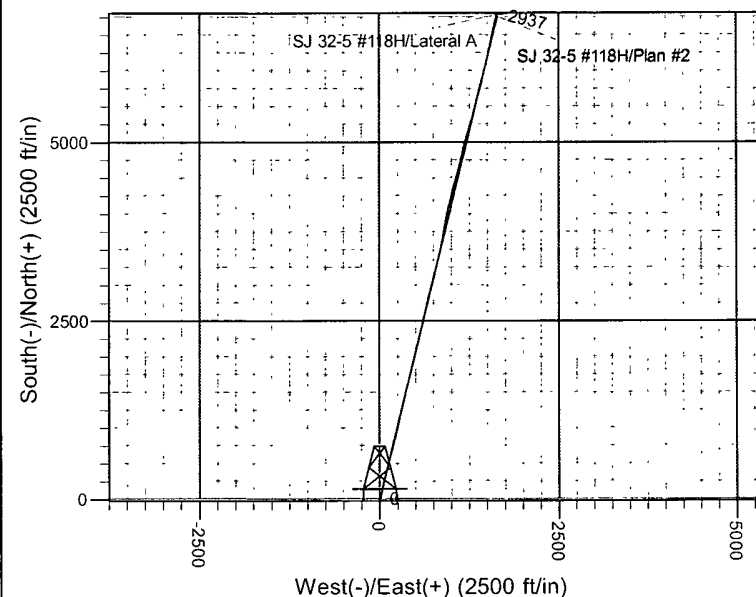
WELL DETAILS: SJ 32-5 #118H
 AWS 730 @ 6400.0ft (15' DF + 6385' GL)
 Ground Level: 6385.0
 Easting 608527 02
 Latitude 36° 58' 1.980 N
 Longitude 107° 27' 42 .642 W

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SJ 32-5 #118H, True North
 Vertical (TVD) Reference: AWS 730 @ 6400.0ft (15' DF + 6385' GL)
 Section (VS) Reference: Slot - (0.0N, 0.0E)
 Measured Depth Reference: AWS 730 @ 6400.0ft (15' DF + 6385' GL)
 Calculation Method: Minimum Curvature



Vertical Section at 13 67° (1500 ft/in)



PROJECT DETAILS: SJB (NM West)
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico West 3003
 System Datum: Mean Sea Level

COMPANY DETAILS: ConocoPhillips
 Calculation Method: Minimum Curvature
 Error System: ISCWSA
 Scan Method: Closest Approach 3D
 Error Surface: Combined Covariances
 Warning Method: Risk Ratio

SITE DETAILS: SEC 21-T32N-R6W
 San Juan County NM
 Site Centre Latitude: 36° 58' 1.980 N
 Longitude: 107° 27' 42 642 W
 Positional Uncertainty: 7.5
 Convergence: 0.22
 Local North: True

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well SJ 32-5 #118H
Project:	SJB (NM West)	TVD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Site:	SEC 21-T32N-R6W	MD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Well:	SJ 32-5 #118H	North Reference:	True
Wellbore:	Lateral A	Survey Calculation Method:	Minimum Curvature
Design:	Lateral A	Database:	EDMCOP

Project	SJB (NM West), New Mexico, S-Type MV/DK Wells		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		Using Well Reference Point
Map Zone:	New Mexico West 3003		Using geodetic scale factor

Site	SEC 21-T32N-R6W		
Site Position:		Northing:	2,171,546.17 ft
From:	Lat/Long	Easting:	608,527.02 ft
Position Uncertainty:	15.0 ft	Slot Radius:	6-1/8"
		Latitude:	36° 58' 1.980 N
		Longitude:	107° 27' 42.642 W
		Grid Convergence:	0.22 °

Well	SJ 32-5 #118H, FC Horizontal		
Well Position	+N/-S	0.0 ft	Northing: 2,171,546.17 ft
	+E/-W	0.0 ft	Easting: 608,527.02 ft
			Latitude: 36° 58' 1.980 N
			Longitude: 107° 27' 42.642 W
Position Uncertainty	3.5 ft	Wellhead Elevation:	ft
		Ground Level:	6,385.0 ft

Wellbore	Lateral A		
Magnetics	Model Name	Sample Date	Declination
			(°)
	BGGM2011	9/30/2011	9.76
			Dip Angle
			(°)
			63.71
			Field Strength
			(nT)
			50,851

Design	Lateral A		
Audit Notes:			
Version:	1 0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			Direction
			(°)
			13.67

Survey Program	Date	11/16/2011		
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
607.0	5,001.0	Survey #1 - 8 3/4" Hole (Lateral A)	MWD SDI	MWD - Standard ver 1.0.1
5,021.0	9,018.0	Survey #1 - 6 1/4" Hole (Lateral A)	MWD SDI	MWD - Standard ver 1.0.1

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
607.0	0.81	175.19	607.0	-4.3	0.4	-4.1	0.13	0.13	0.00
First SDI MWD Survey									
667.0	0.95	163.41	667.0	-5.2	0.5	-4.9	0.38	0.23	-19.63
729.0	0.97	162.69	729.0	-6.2	0.8	-5.8	0.04	0.03	-1.16
790.0	0.63	147.00	790.0	-6.9	1.2	-6.5	0.66	-0.56	-25.72
851.0	0.68	82.12	851.0	-7.2	1.7	-6.6	1.15	0.08	-106.36
881.0	0.88	64.48	881.0	-7.1	2.1	-6.4	1.03	0.67	-58.80
912.0	1.16	47.24	911.9	-6.7	2.5	-5.9	1.33	0.90	-55.61
942.0	1.47	37.44	941.9	-6.2	3.0	-5.3	1.27	1.03	-32.67
973.0	1.83	24.28	972.9	-5.5	3.4	-4.5	1.68	1.16	-42.45
1,004.0	2.36	15.48	1,003.9	-4.4	3.8	-3.4	2.00	1.71	-28.39

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well SJ 32-5 #118H
Project:	SJB (NM West)	TVD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Site:	SEC 21-T32N-R6W	MD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Well:	SJ 32-5 #118H	North Reference:	True
Wellbore:	Lateral A	Survey Calculation Method:	Minimum Curvature
Design:	Lateral A	Database:	EDMCOP

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)	
1,034.0	2.95	13.12	1,033.9	-3.0	4.2	-2.0	2.00	1.97	-7.87	
1,065.0	3.66	11.96	1,064.8	-1.3	4.5	-0.2	2.30	2.29	-3.74	
1,095.0	4.34	13.72	1,094.7	0.7	5.0	1.9	2.30	2.27	5.87	
1,126.0	5.19	13.65	1,125.6	3.2	5.6	4.5	2.74	2.74	-0.23	
1,156.0	6.02	14.33	1,155.5	6.1	6.3	7.4	2.78	2.77	2.27	
1,187.0	6.89	14.46	1,186.3	9.5	7.2	10.9	2.81	2.81	0.42	
1,218.0	7.92	14.97	1,217.0	13.3	8.2	14.9	3.33	3.32	1.65	
1,248.0	9.02	15.42	1,246.7	17.6	9.4	19.3	3.67	3.67	1.50	
1,279.0	9.97	14.99	1,277.3	22.5	10.7	24.4	3.07	3.06	-1.39	
1,309.0	10.96	13.41	1,306.8	27.8	12.1	29.9	3.44	3.30	-5.27	
1,340.0	11.96	12.92	1,337.2	33.8	13.5	36.0	3.24	3.23	-1.58	
1,370.0	13.25	12.49	1,366.4	40.2	14.9	42.6	4.31	4.30	-1.43	
1,401.0	14.25	12.56	1,396.6	47.4	16.5	49.9	3.23	3.23	0.23	
1,432.0	15.15	13.71	1,426.5	55.0	18.3	57.8	3.05	2.90	3.71	
1,462.0	16.20	14.87	1,455.4	62.9	20.3	65.9	3.65	3.50	3.87	
1,493.0	17.21	14.91	1,485.1	71.5	22.6	74.8	3.26	3.26	0.13	
1,523.0	18.19	14.36	1,513.7	80.3	24.9	83.9	3.31	3.27	-1.83	
1,554.0	19.24	13.88	1,543.1	90.0	27.3	93.9	3.42	3.39	-1.55	
1,585.0	20.35	13.38	1,572.2	100.2	29.8	104.4	3.62	3.58	-1.61	
1,616.0	21.68	12.72	1,601.2	111.0	32.3	115.5	4.36	4.29	-2.13	
1,646.0	22.94	12.79	1,628.9	122.1	34.8	126.9	4.20	4.20	0.23	
1,677.0	24.02	12.78	1,657.4	134.2	37.5	139.2	3.48	3.48	-0.03	
1,708.0	24.59	13.47	1,685.6	146.6	40.4	152.0	2.05	1.84	2.23	
1,738.0	25.47	13.80	1,712.8	158.9	43.4	164.7	2.97	2.93	1.10	
1,769.0	26.11	13.16	1,740.7	172.0	46.6	178.2	2.25	2.06	-2.06	
1,799.0	27.00	13.45	1,767.5	185.1	49.7	191.6	3.00	2.97	0.97	
1,831.0	27.70	13.10	1,796.0	199.4	53.0	206.3	2.24	2.19	-1.09	
1,863.0	28.82	13.32	1,824.1	214.2	56.5	221.4	3.52	3.50	0.69	
1,894.0	29.88	13.22	1,851.2	228.9	60.0	236.6	3.42	3.42	-0.32	
1,926.0	30.86	13.43	1,878.8	244.7	63.7	252.8	3.08	3.06	0.66	
1,957.0	31.73	14.39	1,905.3	260.3	67.6	268.9	3.23	2.81	3.10	
1,989.0	32.66	14.50	1,932.3	276.8	71.8	286.0	2.91	2.91	0.34	
2,021.0	32.92	14.18	1,959.2	293.6	76.1	303.3	0.98	0.81	-1.00	
2,052.0	33.25	13.81	1,985.2	310.0	80.2	320.2	1.25	1.06	-1.19	
2,084.0	33.98	13.13	2,011.9	327.3	84.3	337.9	2.57	2.28	-2.13	
2,116.0	34.39	13.92	2,038.3	344.7	88.5	355.9	1.89	1.28	2.47	
2,147.0	34.61	13.44	2,063.9	361.8	92.7	373.5	1.13	0.71	-1.55	
2,179.0	35.50	14.35	2,090.1	379.6	97.1	391.8	3.23	2.78	2.84	
2,211.0	36.32	14.29	2,116.0	397.8	101.8	410.6	2.56	2.56	-0.19	
2,243.0	37.60	13.87	2,141.6	416.5	106.4	429.8	4.08	4.00	-1.31	
2,274.0	38.73	12.78	2,165.9	435.1	110.8	449.0	4.24	3.65	-3.52	
2,306.0	39.67	12.89	2,190.7	454.8	115.3	469.2	2.95	2.94	0.34	
2,337.0	40.95	12.98	2,214.4	474.4	119.8	489.3	4.13	4.13	0.29	
2,369.0	41.83	14.13	2,238.4	495.0	124.8	510.4	3.63	2.75	3.59	
2,401.0	42.92	13.89	2,262.0	515.9	130.0	532.0	3.44	3.41	-0.75	
2,433.0	44.19	13.63	2,285.2	537.3	135.3	554.0	4.01	3.97	-0.81	
2,465.0	45.53	13.31	2,307.9	559.3	140.5	576.6	4.25	4.19	-1.00	
2,496.0	46.99	13.80	2,329.3	581.0	145.8	599.0	4.85	4.71	1.58	
2,528.0	48.57	13.50	2,350.8	604.1	151.4	622.7	4.99	4.94	-0.94	
2,559.0	49.66	14.44	2,371.1	626.8	157.0	646.1	4.20	3.52	3.03	
2,591.0	50.89	14.16	2,391.6	650.6	163.1	670.8	3.90	3.84	-0.88	
2,622.0	51.96	14.21	2,410.9	674.1	169.0	695.0	3.45	3.45	0.16	
2,654.0	52.86	14.78	2,430.4	698.7	175.4	720.3	3.15	2.81	1.78	
2,686.0	53.76	14.53	2,449.5	723.5	181.9	746.0	2.88	2.81	-0.78	

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well SJ 32-5 #118H
Project:	SJB (NM West)	TVD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Site:	SEC 21-T32N-R6W	MD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Well:	SJ 32-5 #118H	North Reference:	True
Wellbore:	Lateral A	Survey Calculation Method:	Minimum Curvature
Design:	Lateral A	Database:	EDMCOP

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)
2,717.0	54.85	14.47	2,467.6	747.9	188.2	771.2	3.52	3.52	-0.19
2,749.0	55.99	14.53	2,485.8	773.4	194.8	797.5	3.57	3.56	0.19
2,780.0	56.49	14.51	2,503.0	798.3	201.2	823.3	1.61	1.61	-0.06
2,812.0	57.76	14.04	2,520.4	824.4	207.9	850.2	4.16	3.97	-1.47
2,844.0	58.81	13.75	2,537.2	850.8	214.4	877.4	3.37	3.28	-0.91
2,876.0	60.13	13.73	2,553.5	877.6	220.9	904.9	4.13	4.13	-0.06
2,907.0	61.05	13.29	2,568.7	903.8	227.2	932.0	3.22	2.97	-1.42
2,938.0	62.26	13.57	2,583.4	930.4	233.6	959.2	3.98	3.90	0.90
2,970.0	63.12	13.42	2,598.1	958.0	240.2	987.7	2.72	2.69	-0.47
3,001.0	63.91	13.51	2,611.9	985.0	246.7	1,015.4	2.56	2.55	0.29
3,032.0	64.93	12.88	2,625.3	1,012.2	253.1	1,043.4	3.77	3.29	-2.03
3,064.0	65.59	12.87	2,638.7	1,040.6	259.5	1,072.4	2.06	2.06	-0.03
3,096.0	66.90	12.46	2,651.6	1,069.1	266.0	1,101.7	4.26	4.09	-1.28
3,120.0	67.45	12.42	2,660.9	1,090.7	270.7	1,123.8	2.30	2.29	-0.17
3,150.0	68.31	12.68	2,672.2	1,117.9	276.8	1,151.6	2.98	2.87	0.87
3,181.0	69.78	12.76	2,683.3	1,146.1	283.1	1,180.6	4.75	4.74	0.26
3,211.0	71.45	13.14	2,693.2	1,173.7	289.5	1,208.9	5.69	5.57	1.27
3,242.0	72.34	12.73	2,702.9	1,202.4	296.1	1,238.3	3.13	2.87	-1.32
3,272.0	73.11	12.90	2,711.8	1,230.3	302.4	1,267.0	2.62	2.57	0.57
3,302.0	74.02	13.06	2,720.3	1,258.4	308.9	1,295.7	3.08	3.03	0.53
3,333.0	75.10	12.77	2,728.5	1,287.5	315.6	1,325.6	3.60	3.48	-0.94
3,364.0	74.99	13.07	2,736.5	1,316.7	322.3	1,355.6	1.00	-0.35	0.97
3,395.0	74.95	13.30	2,744.5	1,345.8	329.1	1,385.5	0.73	-0.13	0.74
3,425.0	74.31	13.96	2,752.5	1,374.0	335.9	1,414.4	3.01	-2.13	2.20
3,455.0	74.23	12.94	2,760.6	1,402.0	342.6	1,443.3	3.28	-0.27	-3.40
3,486.0	74.28	13.09	2,769.0	1,431.1	349.3	1,473.1	0.49	0.16	0.48
3,516.0	75.34	13.65	2,776.9	1,459.3	356.0	1,502.1	3.97	3.53	1.87
3,547.0	76.32	13.74	2,784.5	1,488.5	363.2	1,532.1	3.17	3.16	0.29
3,578.0	77.55	13.73	2,791.5	1,517.8	370.3	1,562.3	3.97	3.97	-0.03
3,608.0	78.56	14.19	2,797.7	1,546.3	377.4	1,591.7	3.69	3.37	1.53
3,639.0	79.58	14.23	2,803.6	1,575.8	384.9	1,622.1	3.29	3.29	0.13
3,669.0	80.58	14.76	2,808.8	1,604.4	392.3	1,651.7	3.76	3.33	1.77
3,700.0	81.97	14.38	2,813.5	1,634.1	400.0	1,682.3	4.64	4.48	-1.23
3,730.0	82.62	14.55	2,817.5	1,662.9	407.4	1,712.0	2.24	2.17	0.57
3,761.0	82.42	14.15	2,821.5	1,692.6	415.0	1,742.8	1.43	-0.65	-1.29
3,792.0	82.85	14.03	2,825.5	1,722.5	422.5	1,773.5	1.44	1.39	-0.39
3,822.0	82.27	13.82	2,829.4	1,751.3	429.7	1,803.3	2.05	-1.93	-0.70
3,853.0	82.38	13.36	2,833.5	1,781.2	436.9	1,834.0	1.51	0.35	-1.48
3,883.0	82.88	13.76	2,837.4	1,810.1	443.9	1,863.7	2.13	1.67	1.33
3,914.0	82.65	14.23	2,841.3	1,840.0	451.3	1,894.5	1.68	-0.74	1.52
3,944.0	82.75	13.87	2,845.1	1,868.8	458.5	1,924.2	1.24	0.33	-1.20
3,975.0	82.41	13.37	2,849.1	1,898.7	465.8	1,955.0	1.94	-1.10	-1.61
4,005.0	81.84	13.10	2,853.2	1,927.6	472.6	1,984.7	2.10	-1.90	-0.90
4,036.0	82.28	13.57	2,857.5	1,957.5	479.7	2,015.4	2.07	1.42	1.52
4,066.0	81.97	13.94	2,861.6	1,986.4	486.7	2,045.1	1.60	-1.03	1.23
4,097.0	82.21	13.98	2,865.9	2,016.2	494.1	2,075.8	0.78	0.77	0.13
4,127.0	82.14	13.88	2,869.9	2,045.0	501.3	2,105.5	0.40	-0.23	-0.33
4,158.0	82.11	13.12	2,874.2	2,074.9	508.5	2,136.3	2.43	-0.10	-2.45
4,189.0	82.27	13.05	2,878.4	2,104.8	515.4	2,167.0	0.56	0.52	-0.23
4,219.0	82.07	13.20	2,882.5	2,133.7	522.2	2,196.7	0.83	-0.67	0.50
4,250.0	81.83	12.83	2,886.8	2,163.6	529.1	2,227.4	1.41	-0.77	-1.19
4,281.0	81.74	13.06	2,891.3	2,193.5	535.9	2,258.1	0.79	-0.29	0.74
4,311.0	81.36	13.26	2,895.7	2,222.4	542.7	2,287.7	1.43	-1.27	0.67
4,342.0	81.49	13.44	2,900.3	2,252.3	549.8	2,318.4	0.71	0.42	0.58

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well SJ 32-5 #118H
Project:	SJB (NM West)	TVD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Site:	SEC 21-T32N-R6W	MD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Well:	SJ 32-5 #118H	North Reference:	True
Wellbore:	Lateral A	Survey Calculation Method:	Minimum Curvature
Design:	Lateral A	Database:	EDMCOP

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)
4,372.0	81.81	13.12	2,904.6	2,281.1	556.6	2,348.1	1.50	1.07	-1.07
4,403.0	82.11	13.09	2,909.0	2,311.0	563.5	2,378.8	0.97	0.97	-0.10
4,433.0	82.14	13.32	2,913.1	2,340.0	570.3	2,408.5	0.77	0.10	0.77
4,464.0	82.41	13.36	2,917.3	2,369.9	577.4	2,439.2	0.88	0.87	0.13
4,495.0	83.19	13.26	2,921.1	2,399.8	584.5	2,469.9	2.54	2.52	-0.32
4,525.0	83.39	13.54	2,924.6	2,428.8	591.4	2,499.7	1.14	0.67	0.93
4,556.0	83.80	13.48	2,928.1	2,458.7	598.6	2,530.5	1.34	1.32	-0.19
4,586.0	83.83	13.28	2,931.3	2,487.7	605.5	2,560.4	0.67	0.10	-0.67
4,617.0	84.07	13.37	2,934.6	2,517.7	612.6	2,591.2	0.83	0.77	0.29
4,648.0	83.87	13.28	2,937.9	2,547.7	619.7	2,622.0	0.71	-0.65	-0.29
4,678.0	83.94	12.80	2,941.0	2,576.8	626.5	2,651.9	1.61	0.23	-1.60
4,709.0	84.04	12.84	2,944.3	2,606.9	633.3	2,682.7	0.35	0.32	0.13
4,739.0	83.83	12.96	2,947.5	2,635.9	640.0	2,712.5	0.81	-0.70	0.40
4,770.0	84.24	12.34	2,950.7	2,666.0	646.7	2,743.3	2.39	1.32	-2.00
4,802.0	84.61	12.50	2,953.8	2,697.1	653.6	2,775.2	1.26	1.16	0.50
4,833.0	84.75	12.66	2,956.7	2,727.2	660.3	2,806.0	0.68	0.45	0.52
4,865.0	86.19	13.04	2,959.2	2,758.3	667.4	2,837.9	4.65	4.50	1.19
4,896.0	86.43	13.75	2,961.2	2,788.4	674.5	2,868.9	2.41	0.77	2.29
4,927.0	87.17	14.14	2,962.9	2,818.5	682.0	2,899.8	2.70	2.39	1.26
4,959.0	88.02	14.01	2,964.3	2,849.5	689.8	2,931.8	2.69	2.66	-0.41
5,001.0	90.20	13.86	2,964.9	2,890.2	699.9	2,973.8	5.20	5.19	-0.36
Last Survey in 8 3/4" Hole									
5,021.0	89.03	14.31	2,965.0	2,909.6	704.8	2,993.8	6.27	-5.85	2.25
First Survey in 6 1/4" Hole									
5,052.0	89.19	14.40	2,965.5	2,939.7	712.4	3,024.8	0.59	0.52	0.29
5,084.0	89.23	14.82	2,966.0	2,970.6	720.5	3,056.8	1.32	0.13	1.31
5,121.0	89.97	14.77	2,966.2	3,006.4	730.0	3,093.8	2.00	2.00	-0.14
5,152.0	90.10	13.66	2,966.2	3,036.5	737.6	3,124.8	3.61	0.42	-3.58
5,184.0	90.64	14.28	2,966.0	3,067.5	745.3	3,156.8	2.57	1.69	1.94
5,215.0	89.29	13.30	2,966.0	3,097.6	752.7	3,187.8	5.38	-4.35	-3.16
5,247.0	89.83	13.96	2,966.3	3,128.7	760.2	3,219.8	2.66	1.69	2.06
5,279.0	90.07	13.61	2,966.3	3,159.8	767.8	3,251.8	1.33	0.75	-1.09
5,311.0	90.40	13.75	2,966.2	3,190.9	775.4	3,283.8	1.12	1.03	0.44
5,342.0	90.87	14.35	2,965.8	3,221.0	782.9	3,314.7	2.46	1.52	1.94
5,374.0	90.27	13.71	2,965.5	3,252.0	790.7	3,346.7	2.74	-1.88	-2.00
5,405.0	89.50	13.71	2,965.6	3,282.1	798.0	3,377.7	2.48	-2.48	0.00
5,437.0	89.83	14.31	2,965.8	3,313.2	805.8	3,409.7	2.14	1.03	1.88
5,468.0	90.07	14.76	2,965.8	3,343.2	813.6	3,440.7	1.65	0.77	1.45
5,500.0	90.34	13.87	2,965.7	3,374.2	821.5	3,472.7	2.91	0.84	-2.78
5,532.0	90.81	14.44	2,965.3	3,405.2	829.3	3,504.7	2.31	1.47	1.78
5,563.0	91.55	14.19	2,964.7	3,435.2	837.0	3,535.7	2.52	2.39	-0.81
5,595.0	91.18	12.61	2,963.9	3,466.4	844.4	3,567.7	5.07	-1.16	-4.94
5,627.0	91.51	12.36	2,963.2	3,497.6	851.3	3,599.7	1.29	1.03	-0.78
5,659.0	91.08	12.10	2,962.5	3,528.9	858.1	3,631.7	1.57	-1.34	-0.81
5,691.0	89.70	10.77	2,962.3	3,560.2	864.4	3,663.7	5.99	-4.31	-4.16
5,722.0	89.56	10.18	2,962.5	3,590.7	870.1	3,694.6	1.96	-0.45	-1.90
5,753.0	89.50	10.02	2,962.7	3,621.2	875.5	3,725.5	0.55	-0.19	-0.52
5,785.0	89.90	10.00	2,962.9	3,652.7	881.1	3,757.5	1.25	1.25	-0.06
5,817.0	90.24	10.10	2,962.8	3,684.2	886.6	3,789.4	1.11	1.06	0.31
5,849.0	90.64	9.53	2,962.6	3,715.8	892.1	3,821.3	2.18	1.25	-1.78
5,881.0	90.87	10.30	2,962.2	3,747.3	897.6	3,853.3	2.51	0.72	2.41
5,912.0	90.24	10.17	2,961.9	3,777.8	903.1	3,884.2	2.08	-2.03	-0.42
5,943.0	90.24	8.87	2,961.7	3,808.4	908.2	3,915.1	4.19	0.00	-4.19
5,975.0	90.27	9.24	2,961.6	3,840.0	913.3	3,947.0	1.16	0.09	1.16

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well SJ 32-5 #118H
Project:	SJB (NM West)	TVD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Site:	SEC 21-T32N-R6W	MD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Well:	SJ 32-5 #118H	North Reference:	True
Wellbore:	Lateral A	Survey Calculation Method:	Minimum Curvature
Design:	Lateral A	Database:	EDMCOP

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)	
6,007.0	90.37	10.83	2,961.4	3,871.5	918.9	3,979.0	4.98	0.31	4.97	
6,039.0	90.71	11.22	2,961.1	3,902.9	925.0	4,010.9	1.62	1.06	1.22	
6,070.0	89.63	11.65	2,961.0	3,933.3	931.1	4,041.9	3.75	-3.48	1.39	
6,102.0	90.10	11.74	2,961.1	3,964.6	937.6	4,073.9	1.50	1.47	0.28	
6,134.0	91.01	12.27	2,960.8	3,995.9	944.3	4,105.9	3.29	2.84	1.66	
6,165.0	91.28	11.99	2,960.2	4,026.2	950.8	4,136.8	1.25	0.87	-0.90	
6,196.0	91.48	12.67	2,959.4	4,056.5	957.4	4,167.8	2.29	0.65	2.19	
6,228.0	92.39	13.64	2,958.3	4,087.6	964.7	4,199.8	4.16	2.84	3.03	
6,260.0	90.24	14.48	2,957.6	4,118.7	972.4	4,231.8	7.21	-6.72	2.63	
6,292.0	90.54	14.72	2,957.4	4,149.6	980.5	4,263.8	1.20	0.94	0.75	
6,323.0	91.11	14.31	2,956.9	4,179.6	988.3	4,294.8	2.26	1.84	-1.32	
6,355.0	90.61	13.89	2,956.5	4,210.7	996.1	4,326.8	2.04	-1.56	-1.31	
6,386.0	90.40	14.70	2,956.2	4,240.7	1,003.7	4,357.8	2.70	-0.68	2.61	
6,418.0	91.14	14.21	2,955.8	4,271.7	1,011.7	4,389.8	2.77	2.31	-1.53	
6,449.0	91.31	13.03	2,955.1	4,301.8	1,019.0	4,420.8	3.84	0.55	-3.81	
6,481.0	90.91	13.64	2,954.5	4,332.9	1,026.4	4,452.8	2.28	-1.25	1.91	
6,513.0	89.60	13.22	2,954.3	4,364.1	1,033.8	4,484.8	4.30	-4.09	-1.31	
6,544.0	89.56	14.75	2,954.6	4,394.1	1,041.3	4,515.8	4.94	-0.13	4.94	
6,576.0	89.97	15.53	2,954.7	4,425.0	1,049.7	4,547.7	2.75	1.28	2.44	
6,608.0	90.64	15.06	2,954.5	4,455.9	1,058.1	4,579.7	2.56	2.09	-1.47	
6,640.0	89.93	15.85	2,954.4	4,486.7	1,066.6	4,611.7	3.32	-2.22	2.47	
6,671.0	90.27	16.59	2,954.3	4,516.5	1,075.3	4,642.7	2.63	1.10	2.39	
6,703.0	90.44	15.10	2,954.1	4,547.3	1,084.0	4,674.7	4.69	0.53	-4.66	
6,735.0	90.91	14.75	2,953.7	4,578.2	1,092.3	4,706.6	1.83	1.47	-1.09	
6,766.0	91.55	15.13	2,953.1	4,608.1	1,100.3	4,737.6	2.40	2.06	1.23	
6,798.0	91.55	14.56	2,952.2	4,639.1	1,108.5	4,769.6	1.78	0.00	-1.78	
6,830.0	91.38	14.44	2,951.4	4,670.0	1,116.5	4,801.6	0.65	-0.53	-0.38	
6,861.0	91.85	14.55	2,950.5	4,700.0	1,124.2	4,832.6	1.56	1.52	0.35	
6,893.0	92.39	14.47	2,949.3	4,731.0	1,132.2	4,864.6	1.71	1.69	-0.25	
6,924.0	93.06	13.39	2,947.9	4,761.0	1,139.7	4,895.5	4.10	2.16	-3.48	
6,956.0	92.32	13.21	2,946.3	4,792.2	1,147.0	4,927.5	2.38	-2.31	-0.56	
6,988.0	92.66	12.49	2,945.0	4,823.3	1,154.2	4,959.5	2.49	1.06	-2.25	
7,019.0	91.58	12.78	2,943.8	4,853.6	1,160.9	4,990.4	3.61	-3.48	0.94	
7,050.0	91.48	11.42	2,943.0	4,883.9	1,167.4	5,021.4	4.40	-0.32	-4.39	
7,082.0	92.15	12.01	2,942.0	4,915.2	1,173.9	5,053.4	2.79	2.09	1.84	
7,114.0	91.78	14.18	2,940.9	4,946.3	1,181.2	5,085.3	6.88	-1.16	6.78	
7,146.0	92.29	14.49	2,939.7	4,977.3	1,189.1	5,117.3	1.86	1.59	0.97	
7,177.0	90.87	15.78	2,938.9	5,007.2	1,197.2	5,148.3	6.19	-4.58	4.16	
7,208.0	91.08	15.81	2,938.4	5,037.0	1,205.6	5,179.3	0.68	0.68	0.10	
7,239.0	91.11	15.52	2,937.8	5,066.9	1,214.0	5,210.2	0.94	0.10	-0.94	
7,269.0	91.68	15.13	2,937.0	5,095.8	1,221.9	5,240.2	2.30	1.90	-1.30	
7,300.0	90.91	16.99	2,936.3	5,125.6	1,230.5	5,271.2	6.49	-2.48	6.00	
7,330.0	91.21	16.59	2,935.8	5,154.3	1,239.1	5,301.1	1.67	1.00	-1.33	
7,361.0	89.70	16.63	2,935.5	5,184.0	1,248.0	5,332.1	4.87	-4.87	0.13	
7,392.0	89.87	15.62	2,935.6	5,213.8	1,256.6	5,363.1	3.30	0.55	-3.26	
7,422.0	90.64	17.02	2,935.5	5,242.6	1,265.0	5,393.0	5.33	2.57	4.67	
7,453.0	91.13	17.05	2,935.0	5,272.2	1,274.1	5,424.0	1.58	1.58	0.10	
7,484.0	89.56	15.51	2,934.8	5,302.0	1,282.8	5,454.9	7.09	-5.06	-4.97	
7,514.0	88.82	14.90	2,935.3	5,330.9	1,290.7	5,484.9	3.20	-2.47	-2.03	
7,545.0	89.06	14.72	2,935.8	5,360.9	1,298.6	5,515.9	0.97	0.77	-0.58	
7,575.0	89.49	14.69	2,936.2	5,389.9	1,306.2	5,545.9	1.44	1.43	-0.10	
7,606.0	90.27	16.12	2,936.3	5,419.8	1,314.5	5,576.9	5.25	2.52	4.61	
7,636.0	89.13	14.60	2,936.4	5,448.7	1,322.4	5,606.9	6.33	-3.80	-5.07	
7,667.0	89.33	14.23	2,936.9	5,478.7	1,330.1	5,637.9	1.36	0.65	-1.19	

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well SJ 32-5 #118H
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Site:	SEC 21-T32N-R6W	MD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Well:	SJ 32-5 #118H	North Reference:	True
Wellbore:	Lateral A	Survey Calculation Method:	Minimum Curvature
Design:	Lateral A	Database:	EDMCOP

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)	
7,698.0	88.18	14.08	2,937.5	5,508.8	1,337.7	5,668.9	3.74	-3.71	-0.48	
7,728.0	88.15	12.91	2,938.5	5,537.9	1,344.7	5,698.9	3.90	-0.10	-3.90	
7,759.0	88.82	13.72	2,939.3	5,568.1	1,351.8	5,729.8	3.39	2.16	2.61	
7,789.0	88.82	13.91	2,939.9	5,597.2	1,359.0	5,759.8	0.63	0.00	0.63	
7,820.0	89.60	14.45	2,940.4	5,627.3	1,366.6	5,790.8	3.06	2.52	1.74	
7,851.0	89.26	13.04	2,940.7	5,657.4	1,373.9	5,821.8	4.68	-1.10	-4.55	
7,881.0	89.43	13.01	2,941.0	5,686.6	1,380.7	5,851.8	0.58	0.57	-0.10	
7,912.0	89.97	13.76	2,941.2	5,716.8	1,387.9	5,882.8	2.98	1.74	2.42	
7,943.0	90.24	13.67	2,941.1	5,746.9	1,395.2	5,913.8	0.92	0.87	-0.29	
7,973.0	90.10	14.53	2,941.0	5,776.0	1,402.5	5,943.8	2.90	-0.47	2.87	
8,003.0	90.17	14.16	2,941.0	5,805.0	1,410.0	5,973.8	1.26	0.23	-1.23	
8,034.0	90.57	14.10	2,940.8	5,835.1	1,417.5	6,004.8	1.30	1.29	-0.19	
8,064.0	91.01	14.84	2,940.3	5,864.1	1,425.0	6,034.8	2.87	1.47	2.47	
8,095.0	91.65	14.59	2,939.6	5,894.1	1,432.9	6,065.8	2.22	2.06	-0.81	
8,126.0	91.28	13.97	2,938.8	5,924.2	1,440.6	6,096.8	2.33	-1.19	-2.00	
8,156.0	91.72	15.00	2,938.0	5,953.2	1,448.1	6,126.8	3.73	1.47	3.43	
8,187.0	90.47	14.06	2,937.5	5,983.2	1,455.8	6,157.8	5.04	-4.03	-3.03	
8,217.0	89.29	13.48	2,937.5	6,012.3	1,463.0	6,187.8	4.38	-3.93	-1.93	
8,248.0	89.56	14.08	2,937.8	6,042.4	1,470.4	6,218.8	2.12	0.87	1.94	
8,278.0	89.83	13.98	2,938.0	6,071.5	1,477.6	6,248.8	0.96	0.90	-0.33	
8,309.0	90.07	13.23	2,938.0	6,101.7	1,484.9	6,279.8	2.54	0.77	-2.42	
8,339.0	89.60	12.60	2,938.1	6,130.9	1,491.6	6,309.8	2.62	-1.57	-2.10	
8,371.0	90.03	13.84	2,938.2	6,162.1	1,498.9	6,341.8	4.10	1.34	3.88	
8,402.0	89.97	12.89	2,938.2	6,192.2	1,506.1	6,372.8	3.07	-0.19	-3.06	
8,432.0	89.97	12.53	2,938.2	6,221.5	1,512.7	6,402.7	1.20	0.00	-1.20	
8,463.0	90.74	13.09	2,938.0	6,251.7	1,519.6	6,433.7	3.07	2.48	1.81	
8,493.0	90.87	12.25	2,937.6	6,281.0	1,526.2	6,463.7	2.83	0.43	-2.80	
8,524.0	91.75	13.53	2,936.9	6,311.2	1,533.1	6,494.7	5.01	2.84	4.13	
8,554.0	90.17	12.16	2,936.4	6,340.4	1,539.7	6,524.7	6.97	-5.27	-4.57	
8,585.0	90.47	11.58	2,936.2	6,370.8	1,546.1	6,555.7	2.11	0.97	-1.87	
8,615.0	90.50	11.78	2,936.0	6,400.1	1,552.2	6,585.7	0.67	0.10	0.67	
8,646.0	91.01	10.34	2,935.6	6,430.6	1,558.1	6,616.6	4.93	1.65	-4.65	
8,677.0	90.34	11.47	2,935.2	6,461.0	1,564.0	6,647.6	4.24	-2.16	3.65	
8,707.0	90.84	11.81	2,934.9	6,490.4	1,570.1	6,677.6	2.02	1.67	1.13	
8,738.0	89.09	11.36	2,934.9	6,520.8	1,576.3	6,708.6	5.83	-5.65	-1.45	
8,768.0	88.72	10.79	2,935.5	6,550.2	1,582.0	6,738.5	2.26	-1.23	-1.90	
8,799.0	89.19	11.58	2,936.0	6,580.6	1,588.1	6,769.5	2.96	1.52	2.55	
8,829.0	89.80	12.89	2,936.3	6,609.9	1,594.4	6,799.5	4.82	2.03	4.37	
8,860.0	90.34	12.84	2,936.3	6,640.1	1,601.3	6,830.5	1.75	1.74	-0.16	
8,891.0	89.63	12.22	2,936.3	6,670.4	1,608.0	6,861.5	3.04	-2.29	-2.00	
8,921.0	89.63	13.44	2,936.5	6,699.6	1,614.7	6,891.5	4.07	0.00	4.07	
8,968.0	89.43	13.13	2,936.9	6,745.4	1,625.5	6,938.5	0.78	-0.43	-0.66	
Last SDI MWD Survey										
9,018.0	89.43	13.13	2,937.4	6,794.1	1,636.9	6,988.5	0.00	0.00	0.00	
Projection to TD										



Scientific Drilling
Survey Report



Company:	ConocoPhillips	Local Co-ordinate Reference:	Well SJ 32-5 #118H
Project:	SJB (NM West)	TVD Reference:	AWS 730 @ 6400 0ft (15' DF + 6385' GL)
Site:	SEC 21-T32N-R6W	MD Reference:	AWS 730 @ 6400.0ft (15' DF + 6385' GL)
Well:	SJ 32-5 #118H	North Reference:	True
Wellbore:	Lateral A	Survey Calculation Method:	Minimum Curvature
Design:	Lateral A	Database:	EDMCOP

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
607.0	607.0	-4.3	0.4	First SDI MWD Survey
5,001.0	2,964.9	2,890.2	699.9	Last Survey in 8 3/4" Hole
5,021.0	2,965.0	2,909.6	704.8	First Survey in 6 1/4" Hole
8,968.0	2,936.9	6,745.4	1,625.5	Last SDI MWD Survey
9,018.0	2,937.4	6,794.1	1,636.9	Projection to TD

Checked By: _____ Approved By: _____ Date: _____