



Job Number: 091117505466
 Company: Yates Petroleum
 Lease/Well: Juniper BIP Federal, Well #6Y
 Location: Eddy County, New Mexico
 Rig Name: Silver Oak #10
 RKB: 20'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 8.02°
 Grid: East To Grid
 File name: F:\SURVEY\2009SU~1\YATESP~1\JUNIPR6Y.SVY
 Date/Time: 01-Jun-09 / 08:05
 Curve Name: Surface - 1200' M.D. (gyroscopic)

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

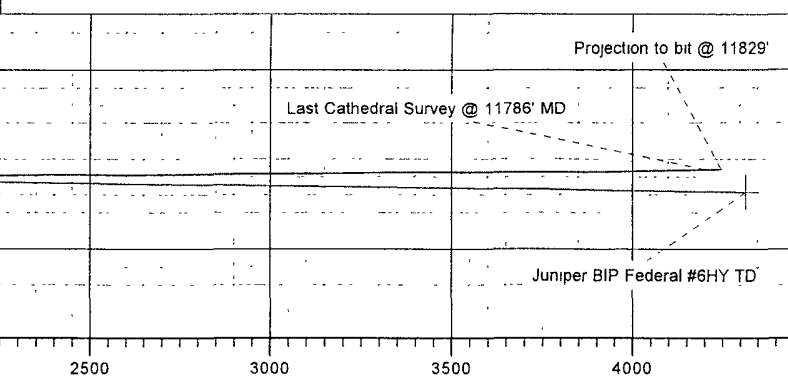
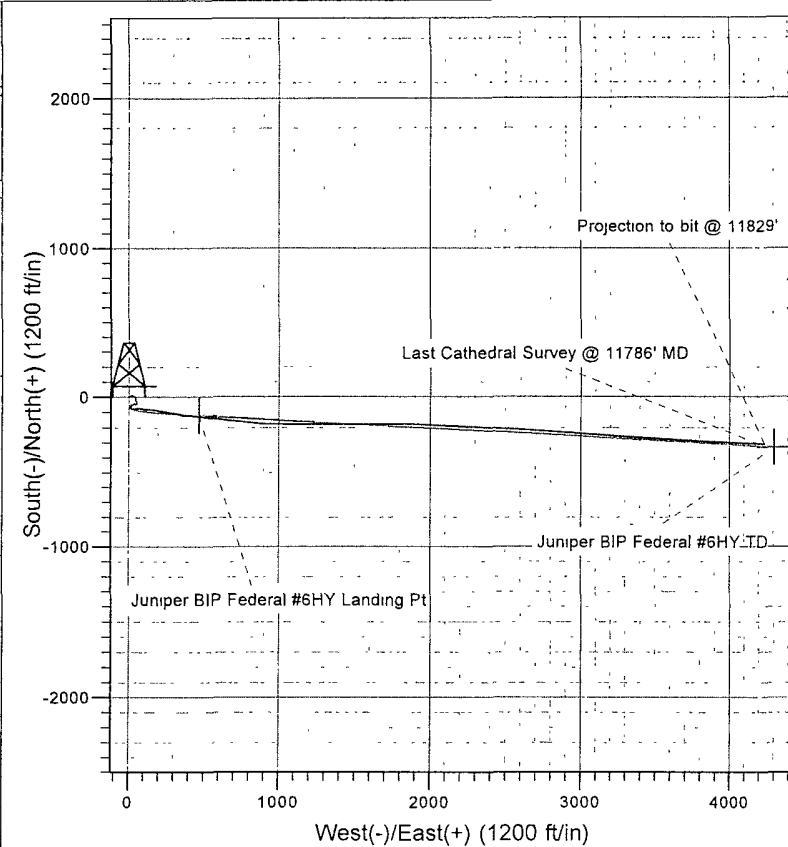
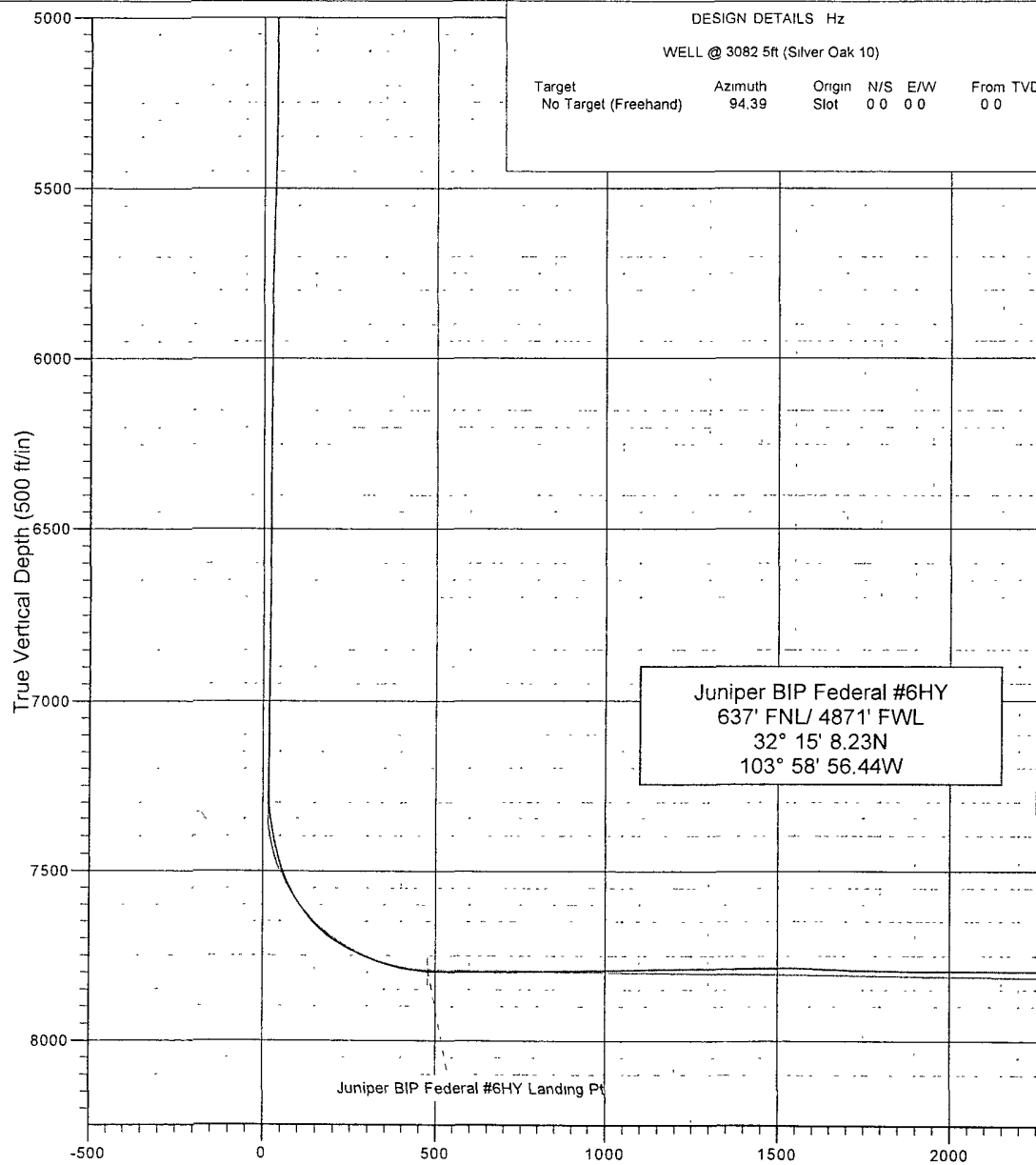
We hereby certify that our survey data from
 Surface MD to 1200' MD is, to the best of
 our knowledge a true and accurate account of
 the well bore
Dana Juttie 6-1-09
 MS Energy Services Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.50	61.15	100.00	.21	.38	.21	.44	61.15	.50
200.00	.75	53.29	199.99	.81	1.29	.81	1.52	57.78	.26
300.00	1.00	59.15	299.98	1.65	2.56	1.65	3.05	57.21	.27
400.00	1.75	62.28	399.95	2.81	4.66	2.81	5.44	58.94	.75
500.00	2.00	63.42	499.90	4.30	7.58	4.30	8.71	60.42	.25
600.00	1.75	51.56	599.84	6.03	10.33	6.03	11.96	59.73	.46
700.00	2.00	58.70	699.79	7.89	13.02	7.89	15.22	58.80	.34
800.00	1.25	69.86	799.75	9.17	15.53	9.17	18.04	59.45	.81
900.00	1.50	86.00	899.72	9.63	17.86	9.63	20.30	61.66	.46

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1000.00	2.00	91.10	999.68	9.69	20.91	9.69	23.05	65.14	.52
1100.00	3.00	111.16	1099.58	8.71	25.10	8.71	26.57	70.85	1.31
Last Survey Depth Recorded									
1200.00	4.25	116.24	1199.38	6.13	30.86	6.13	31.47	78.76	1.29



Project. Eddy County, NM
 Site Sec 4-T24S-R29E
 Well: Juniper BIP Federal #6HY
 Wellbore. Hz
 Design. Final Survey



Vertical Section at 94 39° (500 ft/in)

Directional Plus

Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well: Juniper BIP Federal #6HY
Project:	Eddy County, NM	TVD Reference:	WELL @ 3082.5ft (Silver Oak 10)
Site:	Sec 4-T24S-R29E	IMD Reference:	WELL @ 3082.5ft (Silver Oak 10)
Well:	Juniper BIP Federal #6HY	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	HZ	Database:	EDM 2003.21 US Multi User Db

Project:	Eddy County, NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:		Sec 4-T24S-R29E			
Site Position:		Northing:	455,986.95ft	Latitude:	32° 15' 11.27 N
From:	Lat/Long	Easting:	645,629.50ft	Longitude:	103° 59' 45.49 W
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	0.18 °

Well:	Juniper BIP Federal #6HY					
Well Position	+N/-S	0.0 ft	Northing:	455,987.02 ft	Latitude:	32° 15' 11.27 N
	+E/-W	0.0 ft	Easting:	645,649.50 ft	Longitude:	103° 59' 45.26 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	3,064.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	5/13/2009	8.02	60.21	48,826

Design:	Hz				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	94.39	

Survey Program		Date: 8/11/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.0	7,043.0	Survey #1 (Pilot) (Hz)	MWD	Geolink MWD
7,167.0	11,829.0	Survey #2 (Hz)	MWD	Geolink MWD

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations/ Comments
7,043.0	1.20	214.00	7,040.8	-61.6	14.1	18.7	0.00	0.00	
7,167.0	3.20	186.40	7,164.7	-66.1	13.0	18.0	1.78	1.61	
7,242.0	3.40	198.90	7,239.6	-70.3	12.0	17.3	0.99	0.27	
7,273.0	2.70	180.20	7,270.6	-71.9	11.7	17.2	3.90	-2.26	
7,305.0	3.70	121.80	7,302.5	-73.2	12.6	18.1	10.13	3.12	
7,337.0	6.60	101.20	7,334.4	-74.1	15.3	20.9	10.61	9.06	
7,369.0	9.10	94.60	7,366.1	-74.6	19.6	25.2	8.29	7.81	
7,400.0	11.00	96.30	7,396.6	-75.2	25.0	30.7	6.20	6.13	
7,432.0	13.10	89.20	7,427.9	-75.5	31.6	37.3	8.02	6.56	
7,464.0	14.70	85.30	7,459.0	-75.1	39.3	44.9	5.79	5.00	
7,496.0	17.90	89.50	7,489.7	-74.7	48.3	53.8	10.65	10.00	
7,528.0	21.40	93.20	7,519.8	-75.0	59.0	64.6	11.60	10.94	

Directional Plus

Survey Report

Company:	Yates Petroleum Corp	Local Co-ordinate Reference:	Well: Juniper BIP Federal #6HY
Project:	Eddy County, NM	TVD Reference:	WELL @ 3082.5ft (Silver Oak 10)
Site:	Sec 4-T24S-R29E	MD Reference:	WELL @ 3082.5ft (Silver Oak 10)
Well:	Juniper BIP Federal #6HY	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	HZ	Database:	EDM 2003 21 US Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations/Comments
7,560.0	25.60	94.10	7,549.1	-75.8	71.8	77.3	13.17	13.12	
7,592.0	29.10	95.30	7,577.6	-77.0	86.4	92.0	11.07	10.94	
7,623.0	33.10	95.70	7,604.1	-78.6	102.3	108.1	12.92	12.90	
7,640.0	35.80	96.10	7,618.1	-79.5	111.9	117.7	15.94	15.88	
7,672.0	39.60	96.30	7,643.4	-81.7	131.4	137.2	11.88	11.87	
7,703.0	44.10	97.50	7,666.5	-84.1	151.9	157.9	14.74	14.52	
7,734.0	50.50	97.70	7,687.5	-87.2	174.4	180.6	20.65	20.65	
7,766.0	57.00	96.90	7,706.4	-90.4	200.0	206.4	20.41	20.31	
7,797.0	59.90	98.70	7,722.7	-94.0	226.2	232.7	10.58	9.35	
7,829.0	62.30	100.30	7,738.1	-98.7	253.8	260.6	8.68	7.50	
7,860.0	65.50	100.00	7,751.8	-103.6	281.2	288.3	10.36	10.32	
7,892.0	68.90	99.80	7,764.2	-108.6	310.3	317.7	10.64	10.62	
7,924.0	72.90	99.40	7,774.6	-113.7	340.1	347.8	12.56	12.50	
7,955.0	76.50	99.00	7,782.8	-118.4	369.6	377.6	11.68	11.61	
7,986.0	79.80	98.50	7,789.2	-123.1	399.6	407.8	10.76	10.65	
8,018.0	83.70	98.40	7,793.8	-127.7	430.9	439.4	12.19	12.19	
8,052.0	87.70	96.80	7,796.3	-132.2	464.5	473.3	12.67	11.76	
8,084.0	88.00	96.50	7,797.5	-135.9	496.3	505.2	1.33	0.94	
8,115.0	88.30	96.70	7,798.5	-139.5	527.0	536.2	1.16	0.97	
8,147.0	89.60	96.00	7,799.1	-143.0	558.8	568.1	4.61	4.06	
8,179.0	90.40	96.20	7,799.1	-146.4	590.7	600.1	2.58	2.50	
8,210.0	90.50	96.30	7,798.9	-149.8	621.5	631.1	0.46	0.32	
8,242.0	90.70	96.10	7,798.5	-153.2	653.3	663.1	0.88	0.62	
8,274.0	90.70	95.70	7,798.1	-156.5	685.1	695.1	1.25	0.00	
8,306.0	91.20	96.00	7,797.6	-159.8	716.9	727.1	1.82	1.56	
8,337.0	91.40	95.30	7,796.9	-162.8	747.8	758.1	2.35	0.65	
8,368.0	90.40	94.80	7,796.4	-165.6	778.7	789.0	3.61	-3.23	
8,400.0	90.50	94.60	7,796.2	-168.2	810.6	821.0	0.70	0.31	
8,431.0	90.90	94.60	7,795.8	-170.7	841.4	852.0	1.29	1.29	
8,463.0	91.10	95.00	7,795.2	-173.3	873.3	884.0	1.40	0.62	
8,494.0	91.40	93.50	7,794.5	-175.6	904.2	915.0	4.93	0.97	
8,525.0	91.00	92.50	7,793.9	-177.3	935.2	946.0	3.47	-1.29	
8,557.0	91.30	91.80	7,793.3	-178.5	967.2	978.0	2.38	0.94	
8,589.0	90.90	90.60	7,792.6	-179.1	999.1	1,009.9	3.95	-1.25	
8,620.0	91.20	90.90	7,792.1	-179.5	1,030.1	1,040.9	1.37	0.97	
8,652.0	91.40	90.90	7,791.3	-180.0	1,062.1	1,072.8	0.62	0.62	
8,683.0	90.40	89.70	7,790.9	-180.2	1,093.1	1,103.7	5.04	-3.23	
8,715.0	90.60	89.70	7,790.6	-180.0	1,125.1	1,135.6	0.62	0.62	
8,747.0	90.70	89.90	7,790.2	-179.9	1,157.1	1,167.5	0.70	0.31	
8,778.0	91.10	90.20	7,789.7	-179.9	1,188.1	1,198.4	1.61	1.29	
8,810.0	90.40	89.50	7,789.3	-179.9	1,220.1	1,230.3	3.09	-2.19	
8,842.0	90.50	89.90	7,789.1	-179.7	1,252.1	1,262.2	1.29	0.31	
8,873.0	90.70	89.20	7,788.7	-179.5	1,283.1	1,293.1	2.35	0.65	
8,905.0	90.40	91.70	7,788.4	-179.7	1,315.1	1,325.0	7.87	-0.94	
8,937.0	90.10	88.80	7,788.3	-179.8	1,347.1	1,356.9	9.11	-0.94	
8,969.0	90.60	88.90	7,788.1	-179.2	1,379.1	1,388.8	1.59	1.56	
9,000.0	90.20	90.90	7,787.9	-179.1	1,410.1	1,419.7	6.58	-1.29	
9,032.0	90.40	90.40	7,787.7	-179.5	1,442.1	1,451.6	1.68	0.62	
9,064.0	90.90	90.50	7,787.3	-179.8	1,474.1	1,483.5	1.59	1.56	
9,096.0	90.40	91.30	7,787.0	-180.3	1,506.1	1,515.5	2.95	-1.56	
9,127.0	89.90	89.90	7,786.9	-180.6	1,537.1	1,546.4	4.80	-1.61	
9,159.0	87.90	89.10	7,787.5	-180.3	1,569.1	1,578.3	6.73	-6.25	
9,191.0	86.80	88.20	7,789.0	-179.6	1,601.0	1,610.1	4.44	-3.44	

Directional Plus

Survey Report

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Project:	Eddy County, NM	TVD Reference:	WELL @ 3082.5ft (Silver Oak 10)
Site:	Sec 4-T24S-R29E	MD Reference:	WELL @ 3082.5ft (Silver Oak 10)
Well:	Juniper BIP Federal #6HY	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	HZ	Database:	EDM-2003 21 US Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (%/100ft)	Build Rate (%/100ft)	Formations/Comments
9,222.0	86.90	88.30	7,790.7	-178.6	1,632.0	1,640.8	0.46	0.32	
9,254.0	88.30	88.50	7,792.0	-177.7	1,663.9	1,672.6	4.42	4.37	
9,286.0	88.80	88.80	7,792.8	-177.0	1,695.9	1,704.5	1.82	1.56	
9,317.0	88.80	89.10	7,793.5	-176.4	1,726.9	1,735.3	0.97	0.00	
9,349.0	89.10	89.90	7,794.1	-176.1	1,758.9	1,767.2	2.67	0.94	
9,381.0	89.50	90.20	7,794.5	-176.1	1,790.9	1,799.1	1.56	1.25	
9,412.0	89.20	92.00	7,794.8	-176.7	1,821.9	1,830.1	5.89	-0.97	
9,444.0	89.40	91.20	7,795.2	-177.6	1,853.9	1,862.0	2.58	0.62	
9,476.0	89.70	91.30	7,795.5	-178.3	1,885.8	1,894.0	0.99	0.94	
9,507.0	89.40	92.80	7,795.7	-179.4	1,916.8	1,924.9	4.93	-0.97	
9,539.0	89.70	92.80	7,796.0	-181.0	1,948.8	1,956.9	0.94	0.94	
9,571.0	89.70	92.50	7,796.1	-182.5	1,980.7	1,988.9	0.94	0.00	
9,602.0	90.40	92.60	7,796.1	-183.9	2,011.7	2,019.9	2.28	2.26	
9,634.0	90.40	92.60	7,796.9	-185.3	2,043.7	2,051.9	0.00	0.00	
9,666.0	90.10	91.90	7,795.7	-186.6	2,075.7	2,083.8	2.38	-0.94	
9,697.0	89.70	92.00	7,795.8	-187.6	2,106.6	2,114.8	1.33	-1.29	
9,728.0	89.60	92.80	7,796.0	-188.9	2,137.6	2,145.8	2.60	-0.32	
9,759.0	89.70	93.00	7,796.2	-190.5	2,168.6	2,176.8	0.72	0.32	
9,791.0	90.30	93.40	7,796.2	-192.3	2,200.5	2,208.8	2.25	1.87	
9,822.0	90.40	94.10	7,796.0	-194.3	2,231.5	2,239.8	2.28	0.32	
9,854.0	90.50	93.90	7,795.7	-196.5	2,263.4	2,271.8	0.70	0.31	
9,885.0	90.60	93.60	7,795.4	-198.6	2,294.3	2,302.8	1.02	0.32	
9,917.0	90.70	93.50	7,795.1	-200.5	2,326.2	2,334.8	0.44	0.31	
9,949.0	91.20	92.70	7,794.5	-202.3	2,358.2	2,366.8	2.95	1.56	
9,980.0	90.50	92.80	7,794.1	-203.8	2,389.2	2,397.7	2.28	-2.26	
10,012.0	89.50	92.80	7,794.1	-205.3	2,421.1	2,429.7	3.12	-3.12	
10,044.0	89.00	92.40	7,794.5	-206.8	2,453.1	2,461.7	2.00	-1.56	
10,075.0	89.10	92.10	7,795.0	-208.0	2,484.1	2,492.7	1.02	0.32	
10,107.0	89.70	92.40	7,795.4	-209.3	2,516.0	2,524.7	2.10	1.87	
10,139.0	90.10	92.70	7,795.4	-210.7	2,548.0	2,556.6	1.56	1.25	
10,170.0	89.90	93.40	7,795.4	-212.3	2,578.9	2,587.6	2.35	-0.65	
10,202.0	90.50	93.80	7,795.3	-214.3	2,610.9	2,619.6	2.25	1.87	
10,236.0	91.00	95.20	7,794.9	-217.0	2,644.8	2,653.6	4.37	1.47	
10,268.0	91.10	95.20	7,794.3	-219.9	2,676.6	2,685.6	0.31	0.31	
10,299.0	90.20	93.80	7,793.9	-222.3	2,707.5	2,716.6	5.37	-2.90	
10,331.0	90.20	94.10	7,793.8	-224.5	2,739.5	2,748.6	0.94	0.00	
10,363.0	90.10	94.20	7,793.7	-226.9	2,771.4	2,780.6	0.44	-0.31	
10,394.0	90.30	94.20	7,793.6	-229.1	2,802.3	2,811.6	0.65	0.65	
10,426.0	90.40	93.40	7,793.4	-231.2	2,834.2	2,843.6	2.52	0.31	
10,458.0	90.40	93.50	7,793.2	-233.2	2,866.2	2,875.6	0.31	0.00	
10,490.0	90.60	93.90	7,792.9	-235.2	2,898.1	2,907.6	1.40	0.62	
10,521.0	91.00	93.60	7,792.5	-237.3	2,929.0	2,938.6	1.61	1.29	
10,553.0	90.40	94.20	7,792.1	-239.4	2,961.0	2,970.6	2.65	-1.87	
10,584.0	90.60	94.00	7,791.8	-241.7	2,991.9	3,001.6	0.91	0.65	
10,616.0	90.60	94.20	7,791.5	-243.9	3,023.8	3,033.6	0.62	0.00	
10,648.0	89.80	94.00	7,791.4	-246.2	3,055.7	3,065.6	2.58	-2.50	
10,697.0	90.10	93.80	7,791.4	-249.6	3,104.6	3,114.6	0.74	0.61	
10,711.0	90.30	94.20	7,791.4	-250.5	3,118.6	3,128.6	3.19	1.43	
10,743.0	90.40	93.80	7,791.2	-252.8	3,150.5	3,160.6	1.29	0.31	
10,774.0	90.60	94.00	7,790.9	-254.9	3,181.4	3,191.6	0.91	0.65	
10,806.0	90.90	93.60	7,790.5	-257.0	3,213.3	3,223.6	1.56	0.94	
10,838.0	91.10	93.50	7,789.9	-259.0	3,245.3	3,255.6	0.70	0.62	
10,868.0	91.20	93.90	7,789.3	-260.9	3,275.2	3,285.6	1.37	0.33	

Directional Plus

Survey Report

Company:	Yates Petroleum Corp	Local Co-ordinate Reference:	Well: Juniper BIP Federal #6HY
Project:	Eddy County, NM	TVD Reference:	WELL @ 3082.5ft (Silver Oak 10)
Site:	Sec 4 T24S R29E	MD Reference:	WELL @ 3082.5ft (Silver Oak 10)
Well:	Juniper BIP Federal #6HY	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	HZ	Database:	EDM 2003.21 US Multi User Db

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	N/S (ft)	E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations/Comments
10,900.0	90.50	93.50	7,788.8	-263.0	3,307.1	3,317.6	2.52	-2.19	
10,931.0	90.60	93.50	7,788.5	-264.9	3,338.1	3,348.5	0.32	0.32	
10,962.0	90.90	93.40	7,788.1	-266.7	3,369.0	3,379.5	1.02	0.97	
10,994.0	91.00	93.50	7,787.6	-268.7	3,400.9	3,411.5	0.44	0.31	
11,026.0	89.80	93.10	7,787.4	-270.5	3,432.9	3,443.5	3.95	-3.75	
11,057.0	89.70	93.30	7,787.5	-272.2	3,463.8	3,474.5	0.72	-0.32	
11,089.0	89.70	92.80	7,787.7	-273.9	3,495.8	3,506.5	1.56	0.00	
11,121.0	89.70	93.40	7,787.9	-275.7	3,527.8	3,538.5	1.87	0.00	
11,152.0	89.80	93.10	7,788.0	-277.4	3,558.7	3,569.5	1.02	0.32	
11,184.0	89.90	93.30	7,788.1	-279.2	3,590.6	3,601.5	0.70	0.31	
11,216.0	89.70	92.70	7,788.2	-280.9	3,622.6	3,633.5	1.98	-0.62	
11,247.0	90.20	92.60	7,788.2	-282.3	3,653.6	3,664.5	1.64	1.61	
11,279.0	90.20	93.20	7,788.1	-283.9	3,685.5	3,696.5	1.87	0.00	
11,311.0	90.30	92.50	7,788.0	-285.5	3,717.5	3,728.4	2.21	0.31	
11,343.0	90.20	93.00	7,787.8	-287.1	3,749.5	3,760.4	1.59	-0.31	
11,374.0	90.40	92.60	7,787.7	-288.6	3,780.4	3,791.4	1.44	0.65	
11,406.0	90.50	92.40	7,787.4	-290.0	3,812.4	3,823.4	0.70	0.31	
11,438.0	90.50	92.30	7,787.1	-291.3	3,844.4	3,855.4	0.31	0.00	
11,469.0	90.50	93.00	7,786.9	-292.7	3,875.3	3,886.4	2.26	0.00	
11,501.0	90.90	93.20	7,786.5	-294.5	3,907.3	3,918.3	1.40	1.25	
11,565.0	90.90	92.40	7,785.5	-297.6	3,971.2	3,982.3	1.25	0.00	
11,659.0	91.20	92.80	7,783.7	-301.8	4,065.1	4,076.3	0.53	0.32	
11,754.0	91.70	92.10	7,781.3	-305.9	4,160.0	4,171.2	0.91	0.53	
11,786.0	91.70	92.50	7,780.4	-307.2	4,191.9	4,203.1	1.25	0.00	Last Cathedral Survey @ 11786' MD
11,829.0	91.70	92.50	7,779.1	-309.1	4,234.9	4,246.1	0.00	0.00	Projection to bit @ 11829'

Target Name	hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (ft)	N/S (ft)	E/W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Juniper BIP Federal #6H	- survey misses target center by 8.8ft at 8056.4ft MD (7796.5 TVD, -132.7 N, 468.9 E)	0.00	0.00	7,792.3	-125.0	469.9	455,863.49	646,119.81	32° 15' 10.03 N	103° 59' 39.78 W
Juniper BIP Federal #6H	- Point									
Juniper BIP Federal #6H	- survey misses target center by 95.8ft at 11829.0ft MD (7779.1 TVD, -309.1 N, 4234.9 E)	0.00	0.00	7,842.0	-330.4	4,303.9	455,670.13	649,954.45	32° 15' 8.00 N	103° 58' 55.14 W
Juniper BIP Federal #6H	- Point									

Measured Depth (ft)	Vertical Depth (ft)	N/S (ft)	E/W (ft)	Comment
11,786.0	7,780.4	-307.2	4,191.9	Last Cathedral Survey @ 11786' MD
11,829.0	7,779.1	-309.1	4,234.9	Projection to bit @ 11829'

Checked By: _____ Approved By: _____ Date: _____

Directional Plus

Survey Report

Company: Yates Petroleum Corp.
Project: Eddy County, NM
Site: Sec 4-T24S-R29E
Well: Juniper BIP Federal #6HY
Wellbore: Hz
Design: Hz

Local Co-ordinate Reference: Well Juniper BIP Federal #6HY
TVD Reference: WELL @ 3082.5ft (Silver Oak 10)
MD Reference: WELL @ 3082.5ft (Silver Oak 10)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.21 US Multi User Db

Project Eddy County, NM

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Sec 4-T24S-R29E

Site Position:		Northing:	455,986.95 ft	Latitude:	32° 15' 11.27 N
From:	Lat/Long	Easting:	645,629.50 ft	Longitude:	103° 59' 45.49 W
Position Uncertainty:	0.0 ft	Slot Radius:	in	Grid Convergence:	0.18 °

Well Juniper BIP Federal #6HY

Well Position	+N/-S	0.0 ft	Northing:	455,987.02 ft	Latitude:	32° 15' 11.27 N
	+E/-W	0.0 ft	Easting:	645,649.50 ft	Longitude:	103° 59' 45.26 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	3,064.0 ft	

Wellbore Hz

Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF200510	5/13/2009	8.02	60.21	48,826

Design Hz

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.0

Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	94.39

Survey Program **Date** 8/11/2009

From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
100.0	7,043.0	Survey #1 (Pilot) (Hz)	MWD	Geolink MWD

7,167.0

11,829.0 Survey #2 (Hz)

MWD

Geolink MWD

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
7,043.0	1.20	214.00	7,040.8	-61.6	14.1	18.7	0.00	0.00	
7,167.0	3.20	186.40	7,164.7	-66.1	13.0	18.0	1.78	1.61	
7,242.0	3.40	198.90	7,239.6	-70.3	12.0	17.3	0.99	0.27	
7,273.0	2.70	180.20	7,270.6	-71.9	11.7	17.2	3.90	-2.26	
7,305.0	3.70	121.80	7,302.5	-73.2	12.6	18.1	10.13	3.12	
7,337.0	6.60	101.20	7,334.4	-74.1	15.3	20.9	10.61	9.06	
7,369.0	9.10	94.60	7,366.1	-74.6	19.6	25.2	8.29	7.81	
7,400.0	11.00	96.30	7,396.6	-75.2	25.0	30.7	6.20	6.13	
7,432.0	13.10	89.20	7,427.9	-75.5	31.6	37.3	8.02	6.56	
7,464.0	14.70	85.30	7,459.0	-75.1	39.3	44.9	5.79	5.00	
7,496.0	17.90	89.50	7,489.7	-74.7	48.3	53.8	10.65	10.00	
7,528.0	21.40	93.20	7,519.8	-75.0	59.0	64.6	11.60	10.94	

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
7,560.0	25.60	94.10	7,549.1	-75.8	71.8	77.3	13.17	13.12	
7,592.0	29.10	95.30	7,577.6	-77.0	86.4	92.0	11.07	10.94	
7,623.0	33.10	95.70	7,604.1	-78.6	102.3	108.1	12.92	12.90	
7,640.0	35.80	96.10	7,618.1	-79.5	111.9	117.7	15.94	15.88	
7,672.0	39.60	96.30	7,643.4	-81.7	131.4	137.2	11.88	11.87	
7,703.0	44.10	97.50	7,666.5	-84.1	151.9	157.9	14.74	14.52	
7,734.0	50.50	97.70	7,687.5	-87.2	174.4	180.6	20.65	20.65	
7,766.0	57.00	96.90	7,706.4	-90.4	200.0	206.4	20.41	20.31	
7,797.0	59.90	98.70	7,722.7	-94.0	226.2	232.7	10.58	9.35	
7,829.0	62.30	100.30	7,738.1	-98.7	253.8	260.6	8.68	7.50	
7,860.0	65.50	100.00	7,751.8	-103.6	281.2	288.3	10.36	10.32	
7,892.0	68.90	99.80	7,764.2	-108.6	310.3	317.7	10.64	10.62	
7,924.0	72.90	99.40	7,774.6	-113.7	340.1	347.8	12.56	12.50	
7,955.0	76.50	99.00	7,782.8	-118.4	369.6	377.6	11.68	11.61	
7,986.0	79.80	98.50	7,789.2	-123.1	399.6	407.8	10.76	10.65	
8,018.0	83.70	98.40	7,793.8	-127.7	430.9	439.4	12.19	12.19	
8,052.0	87.70	96.80	7,796.3	-132.2	464.5	473.3	12.67	11.76	
8,084.0	88.00	96.50	7,797.5	-135.9	496.3	505.2	1.33	0.94	
8,115.0	88.30	96.70	7,798.5	-139.5	527.0	536.2	1.16	0.97	
8,147.0	89.60	96.00	7,799.1	-143.0	558.8	568.1	4.61	4.06	
8,179.0	90.40	96.20	7,799.1	-146.4	590.7	600.1	2.58	2.50	
8,210.0	90.50	96.30	7,798.9	-149.8	621.5	631.1	0.46	0.32	
8,242.0	90.70	96.10	7,798.5	-153.2	653.3	663.1	0.88	0.62	
8,274.0	90.70	95.70	7,798.1	-156.5	685.1	695.1	1.25	0.00	
8,306.0	91.20	96.00	7,797.6	-159.8	716.9	727.1	1.82	1.56	

8,337.0	91.40	95.30	7,796.9	-162.8	747.8	758.1	2.35	0.65
8,368.0	90.40	94.80	7,796.4	-165.6	778.7	789.0	3.61	-3.23
8,400.0	90.50	94.60	7,796.2	-168.2	810.6	821.0	0.70	0.31
8,431.0	90.90	94.60	7,795.8	-170.7	841.4	852.0	1.29	1.29
8,463.0	91.10	95.00	7,795.2	-173.3	873.3	884.0	1.40	0.62
8,494.0	91.40	93.50	7,794.5	-175.6	904.2	915.0	4.93	0.97
8,525.0	91.00	92.50	7,793.9	-177.3	935.2	946.0	3.47	-1.29
8,557.0	91.30	91.80	7,793.3	-178.5	967.2	978.0	2.38	0.94
8,589.0	90.90	90.60	7,792.6	-179.1	999.1	1,009.9	3.95	-1.25
8,620.0	91.20	90.90	7,792.1	-179.5	1,030.1	1,040.9	1.37	0.97
8,652.0	91.40	90.90	7,791.3	-180.0	1,062.1	1,072.8	0.62	0.62
8,683.0	90.40	89.70	7,790.9	-180.2	1,093.1	1,103.7	5.04	-3.23
8,715.0	90.60	89.70	7,790.6	-180.0	1,125.1	1,135.6	0.62	0.62
8,747.0	90.70	89.90	7,790.2	-179.9	1,157.1	1,167.5	0.70	0.31
8,778.0	91.10	90.20	7,789.7	-179.9	1,188.1	1,198.4	1.61	1.29
8,810.0	90.40	89.50	7,789.3	-179.9	1,220.1	1,230.3	3.09	-2.19
8,842.0	90.50	89.90	7,789.1	-179.7	1,252.1	1,262.2	1.29	0.31
8,873.0	90.70	89.20	7,788.7	-179.5	1,283.1	1,293.1	2.35	0.65
8,905.0	90.40	91.70	7,788.4	-179.7	1,315.1	1,325.0	7.87	-0.94
8,937.0	90.10	88.80	7,788.3	-179.8	1,347.1	1,356.9	9.11	-0.94
8,969.0	90.60	88.90	7,788.1	-179.2	1,379.1	1,388.8	1.59	1.56
9,000.0	90.20	90.90	7,787.9	-179.1	1,410.1	1,419.7	6.58	-1.29
9,032.0	90.40	90.40	7,787.7	-179.5	1,442.1	1,451.6	1.68	0.62
9,064.0	90.90	90.50	7,787.3	-179.8	1,474.1	1,483.5	1.59	1.56
9,096.0	90.40	91.30	7,787.0	-180.3	1,506.1	1,515.5	2.95	-1.56
9,127.0	89.90	89.90	7,786.9	-180.6	1,537.1	1,546.4	4.80	-1.61
9,159.0	87.90	89.10	7,787.5	-180.3	1,569.1	1,578.3	6.73	-6.25
9,191.0	86.80	88.20	7,789.0	-179.6	1,601.0	1,610.1	4.44	-3.44

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
9,222.0	86.90	88.30	7,790.7	-178.6	1,632.0	1,640.8	0.46	0.32	
9,254.0	88.30	88.50	7,792.0	-177.7	1,663.9	1,672.6	4.42	4.37	
9,286.0	88.80	88.80	7,792.8	-177.0	1,695.9	1,704.5	1.82	1.56	
9,317.0	88.80	89.10	7,793.5	-176.4	1,726.9	1,735.3	0.97	0.00	
9,349.0	89.10	89.90	7,794.1	-176.1	1,758.9	1,767.2	2.67	0.94	
9,381.0	89.50	90.20	7,794.5	-176.1	1,790.9	1,799.1	1.56	1.25	
9,412.0	89.20	92.00	7,794.8	-176.7	1,821.9	1,830.1	5.89	-0.97	
9,444.0	89.40	91.20	7,795.2	-177.6	1,853.9	1,862.0	2.58	0.62	
9,476.0	89.70	91.30	7,795.5	-178.3	1,885.8	1,894.0	0.99	0.94	
9,507.0	89.40	92.80	7,795.7	-179.4	1,916.8	1,924.9	4.93	-0.97	
9,539.0	89.70	92.80	7,796.0	-181.0	1,948.8	1,956.9	0.94	0.94	
9,571.0	89.70	92.50	7,796.1	-182.5	1,980.7	1,988.9	0.94	0.00	
9,602.0	90.40	92.60	7,796.1	-183.9	2,011.7	2,019.9	2.28	2.26	
9,634.0	90.40	92.60	7,795.9	-185.3	2,043.7	2,051.9	0.00	0.00	
9,666.0	90.10	91.90	7,795.7	-186.6	2,075.7	2,083.8	2.38	-0.94	
9,697.0	89.70	92.00	7,795.8	-187.6	2,106.6	2,114.8	1.33	-1.29	

9,728.0	89.60	92.80	7,796.0	-188.9	2,137.6	2,145.8	2.60	-0.32
9,759.0	89.70	93.00	7,796.2	-190.5	2,168.6	2,176.8	0.72	0.32
9,791.0	90.30	93.40	7,796.2	-192.3	2,200.5	2,208.8	2.25	1.87
9,822.0	90.40	94.10	7,796.0	-194.3	2,231.5	2,239.8	2.28	0.32
9,854.0	90.50	93.90	7,795.7	-196.5	2,263.4	2,271.8	0.70	0.31
9,885.0	90.60	93.60	7,795.4	-198.6	2,294.3	2,302.8	1.02	0.32
9,917.0	90.70	93.50	7,795.1	-200.5	2,326.2	2,334.8	0.44	0.31
9,949.0	91.20	92.70	7,794.5	-202.3	2,358.2	2,366.8	2.95	1.56
9,980.0	90.50	92.80	7,794.1	-203.8	2,389.2	2,397.7	2.28	-2.26
10,012.0	89.50	92.80	7,794.1	-205.3	2,421.1	2,429.7	3.12	-3.12
10,044.0	89.00	92.40	7,794.5	-206.8	2,453.1	2,461.7	2.00	-1.56
10,075.0	89.10	92.10	7,795.0	-208.0	2,484.1	2,492.7	1.02	0.32
10,107.0	89.70	92.40	7,795.4	-209.3	2,516.0	2,524.7	2.10	1.87
10,139.0	90.10	92.70	7,795.4	-210.7	2,548.0	2,556.6	1.56	1.25
10,170.0	89.90	93.40	7,795.4	-212.3	2,578.9	2,587.6	2.35	-0.65
10,202.0	90.50	93.80	7,795.3	-214.3	2,610.9	2,619.6	2.25	1.87
10,236.0	91.00	95.20	7,794.9	-217.0	2,644.8	2,653.6	4.37	1.47
10,268.0	91.10	95.20	7,794.3	-219.9	2,676.6	2,685.6	0.31	0.31
10,299.0	90.20	93.80	7,793.9	-222.3	2,707.5	2,716.6	5.37	-2.90
10,331.0	90.20	94.10	7,793.8	-224.5	2,739.5	2,748.6	0.94	0.00
10,363.0	90.10	94.20	7,793.7	-226.9	2,771.4	2,780.6	0.44	-0.31
10,394.0	90.30	94.20	7,793.6	-229.1	2,802.3	2,811.6	0.65	0.65
10,426.0	90.40	93.40	7,793.4	-231.2	2,834.2	2,843.6	2.52	0.31
10,458.0	90.40	93.50	7,793.2	-233.2	2,866.2	2,875.6	0.31	0.00
10,490.0	90.60	93.90	7,792.9	-235.2	2,898.1	2,907.6	1.40	0.62
10,521.0	91.00	93.60	7,792.5	-237.3	2,929.0	2,938.6	1.61	1.29
10,553.0	90.40	94.20	7,792.1	-239.4	2,961.0	2,970.6	2.65	-1.87
10,584.0	90.60	94.00	7,791.8	-241.7	2,991.9	3,001.6	0.91	0.65
10,616.0	90.60	94.20	7,791.5	-243.9	3,023.8	3,033.6	0.62	0.00
10,648.0	89.80	94.00	7,791.4	-246.2	3,055.7	3,065.6	2.58	-2.50
10,697.0	90.10	93.80	7,791.4	-249.6	3,104.6	3,114.6	0.74	0.61
10,711.0	90.30	94.20	7,791.4	-250.5	3,118.6	3,128.6	3.19	1.43
10,743.0	90.40	93.80	7,791.2	-252.8	3,150.5	3,160.6	1.29	0.31
10,774.0	90.60	94.00	7,790.9	-254.9	3,181.4	3,191.6	0.91	0.65
10,806.0	90.90	93.60	7,790.5	-257.0	3,213.3	3,223.6	1.56	0.94
10,838.0	91.10	93.50	7,789.9	-259.0	3,245.3	3,255.6	0.70	0.62
10,868.0	91.20	93.90	7,789.3	-260.9	3,275.2	3,285.6	1.37	0.33

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
10,900.0	90.50	93.50	7,788.8	-263.0	3,307.1	3,317.6	2.52	-2.19	
10,931.0	90.60	93.50	7,788.5	-264.9	3,338.1	3,348.5	0.32	0.32	
10,962.0	90.90	93.40	7,788.1	-266.7	3,369.0	3,379.5	1.02	0.97	
10,994.0	91.00	93.50	7,787.6	-268.7	3,400.9	3,411.5	0.44	0.31	
11,026.0	89.80	93.10	7,787.4	-270.5	3,432.9	3,443.5	3.95	-3.75	
11,057.0	89.70	93.30	7,787.5	-272.2	3,463.8	3,474.5	0.72	-0.32	
11,089.0	89.70	92.80	7,787.7	-273.9	3,495.8	3,506.5	1.56	0.00	

11,121.0	89.70	93.40	7,787.9	-275.7	3,527.8	3,538.5	1.87	0.00	
11,152.0	89.80	93.10	7,788.0	-277.4	3,558.7	3,569.5	1.02	0.32	
11,184.0	89.90	93.30	7,788.1	-279.2	3,590.6	3,601.5	0.70	0.31	
11,216.0	89.70	92.70	7,788.2	-280.9	3,622.6	3,633.5	1.98	-0.62	
11,247.0	90.20	92.60	7,788.2	-282.3	3,653.6	3,664.5	1.64	1.61	
11,279.0	90.20	93.20	7,788.1	-283.9	3,685.5	3,696.5	1.87	0.00	
11,311.0	90.30	92.50	7,788.0	-285.5	3,717.5	3,728.4	2.21	0.31	
11,343.0	90.20	93.00	7,787.8	-287.1	3,749.5	3,760.4	1.59	-0.31	
11,374.0	90.40	92.60	7,787.7	-288.6	3,780.4	3,791.4	1.44	0.65	
11,406.0	90.50	92.40	7,787.4	-290.0	3,812.4	3,823.4	0.70	0.31	
11,438.0	90.50	92.30	7,787.1	-291.3	3,844.4	3,855.4	0.31	0.00	
11,469.0	90.50	93.00	7,786.9	-292.7	3,875.3	3,886.4	2.26	0.00	
11,501.0	90.90	93.20	7,786.5	-294.5	3,907.3	3,918.3	1.40	1.25	
11,565.0	90.90	92.40	7,785.5	-297.6	3,971.2	3,982.3	1.25	0.00	
11,659.0	91.20	92.80	7,783.7	-301.8	4,065.1	4,076.3	0.53	0.32	
11,754.0	91.70	92.10	7,781.3	-305.9	4,160.0	4,171.2	0.91	0.53	
11,786.0	91.70	92.50	7,780.4	-307.2	4,191.9	4,203.1	1.25	0.00	Last Cathedral Survey @ 11786' MD
11,829.0	91.70	92.50	7,779.1	-309.1	4,234.9	4,246.1	0.00	0.00	Projection to bit @ 11829'

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Juniper BIP Federal - survey misses target center by 8.8ft at 8056.4ft MD (7796.5 TVD, -132.7 N, 468.9 E) - Point	0.00		7,792.3	-125.0	469.9	455,863.49	646,119.81	32° 15' 10.03 N	103° 59' 39.78 W
Juniper BIP Federal - survey misses target center by 95.8ft at 11829.0ft MD (7779.1 TVD, -309.1 N, 4234.9 E) - Point	0.00	0.00	7,842.0	-330.4	4,303.9	455,670.13	649,954.45	32° 15' 8.00 N	103° 58' 55.14 W

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
11,786.0	7,780.4	-307.2	4,191.9	Last Cathedral Survey @ 11786' MD
11,829.0	7,779.1	-309.1	4,234.9	Projection to bit @ 11829'

Checked By:

Approved By:

Date: