

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

5. Lease Serial No. **14-20-603-5035**

6. If Indian, Allottee or Tribe Name
NAVAJO

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator
TACITUS LLC

3a. Address
**2100 CORTLAND DRIVE
FARMINGTON, NM 87401**

3b. Phone No. (include area code)
(801) 980-7277

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No. **NAVAJO TRIBAL N #4**

9. API Well No. **30-045-05876**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
660 FNL, 660 FEL SEC 18, T26NR18W NMPM. LAT/LONG 36.4935646, -108.7934494 NAD83

10. Field and Pool or Exploratory Area
TOCITO DOME MISSISSIPPIAN, NORTH

11. Country or Parish, State
SAN JUAN, NEW MEXICO

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☒ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleation in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Tacitus LLC intends to cement squeeze existing Pennsylvanian D perforations 6378-6388', 6420-6436' & 6388-6394'. Then intends to complete a slot recovery of existing 4 1/2" & 8 5/8" casing, and leave existing 13 3/8" casing in-place set 73' ft deep. Then spot cement plug and WOC for 24 hours. With a Closed Loop drilling system, next dress of cement and drill 12 1/4" hole to approximately 1600' MD, followed by running 9 5/8" casing and cement, WOC for 24 hours, nipple up BOP, test casing witnessed by Navajo Nation inspector. Then drill 8 3/4" hole to 7261' MD, 6747' TVD then run 7" casing and cement, WOC for 24 hours, test casing witnessed by Navajo Nation inspector. Then pick up 6 1/8" directional tools and drill 4 laterals horizontally in the Mississippian Leadville Formation, leaving laterals open hole. Proposed directional survey accompanying sundry.

NMOCD

FEB 28 2019

DISTRICT III

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

14. I hereby certify that the foregoing is true and correct. Name (Printed Typed)

PETER KONDRAT

TACITUS AGENT & GEOLOGIST

Title

Signature

Peter Kondrat

Date

01/22/2019

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

PE

Date

1/29/19

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

#10

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

NMOCD

NMOC

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

MAR 05 2019

Form C-102
Revised August 1, 2011

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

DISTRICT III

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-05876	² Pool Code 86120	³ Pool Name TACITO DOME MISSISSIPPIAN, NORTH
⁴ Property Code 321195	⁵ Property Name NAVAJO TRIBAL N	⁶ Well Number 4
⁷ GRID No. 372957	⁸ Operator Name TACITUS, LLC	⁹ Elevation 5858'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	18	26N	18W		656'	NORTH	697'	EAST	SAN JUAN

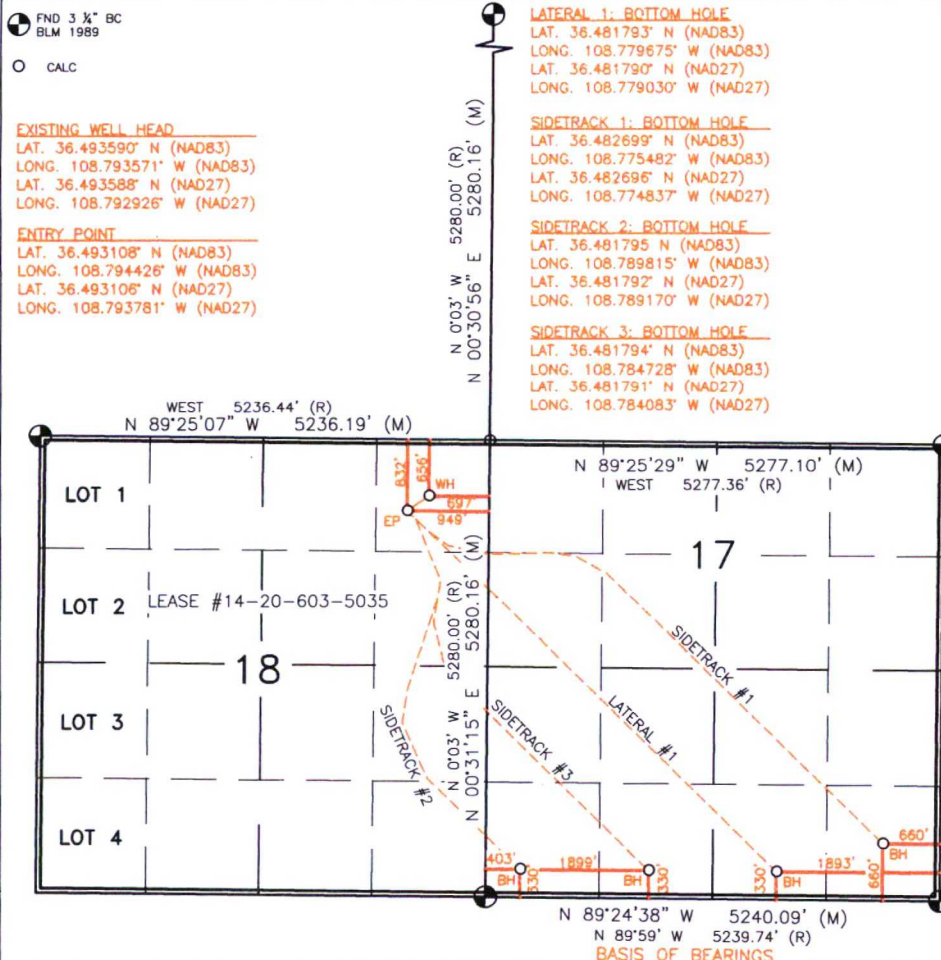
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O-LATERAL 1	17	26N	18W		330'	SOUTH	1893'	EAST	SAN JUAN
P-SIDETRACK 1	17	26N	18W		660'	SOUTH	660'	EAST	SAN JUAN
M-SIDETRACK 2	17	26N	18W		330'	SOUTH	403'	WEST	SAN JUAN
N-SIDETRACK 3	17	26N	18W		330'	SOUTH	1899'	WEST	SAN JUAN

¹² Dedicated Acres ALL SEC 18 AND ALL SEC. 17 1274.92 ACRES	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature _____ Date 2/27/19

Printed Name PETER KUNDRAT

E-mail Address peter.kundrat@taclius.com

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

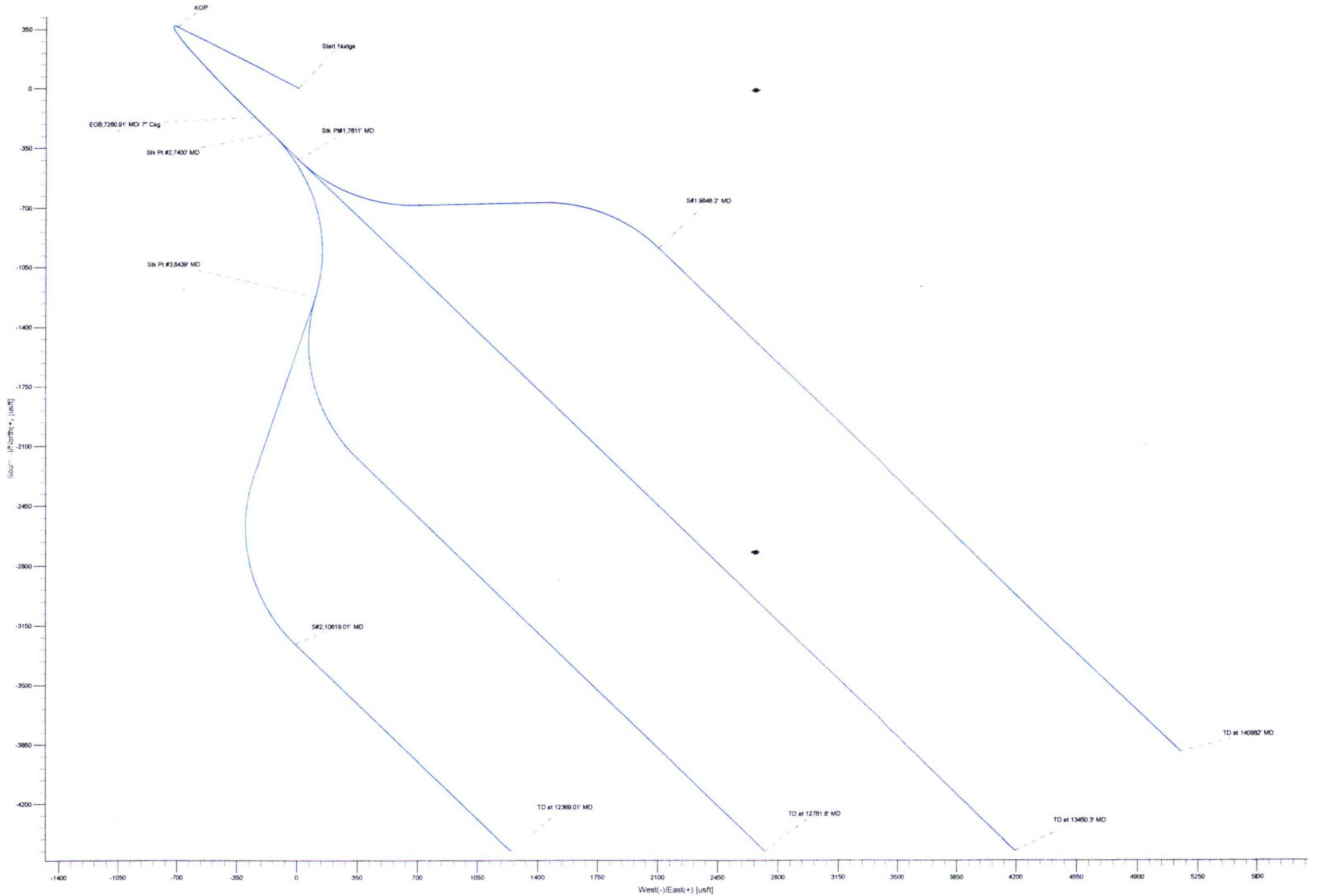
JANUARY 18, 2019

Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number 11393

Plan: #1 (Navajo Tribal N#4 Leadville Hz/Lateral #1)





WellPlan Services
Office Tel: (403) 474-3581
Tollfree: (800) 474-3581
www.wellplanservices.com

Tacitus LLC

San Juan Couty NW (Flat Earth)

Sec 18 T26N R18W

Navajo Tribal N#4 Leadville Hz

Lateral #1

UWI:

WL:

Plan: #1

WPS Planning Report

21 January, 2019





Database:	WellPlan Services	Local Co-ordinate Reference:	Well Navajo Tribal N#4 Leadville Hz
Company:	Tacitus LLC	TVD Reference:	RKB @ 5879.50usft (kb;17.5')
Project:	San Juan Couty NW (Flat Earth)	MD Reference:	RKB @ 5879.50usft (kb;17.5')
Site:	Sec 18 T26N R18W	North Reference:	True
Well:	Navajo Tribal N#4 Leadville Hz	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	#1		

Project	San Juan Couty NW (Flat Earth)		
Map System:	Flat Earth	System Datum:	Mean Sea Level
Geo Datum:	WGS 1984		
Map Zone:	No Conversions		

Site	Sec 18 T26N R18W		
Site Position:		Northing:	0.000 usft
From:	None	Easting:	0.000 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	0.000000
		Longitude:	0.000000
		Grid Convergence:	0.00 °

Well	Navajo Tribal N#4 Leadville Hz					
Well Position	+N/-S	0.00 usft	Northing:	0.000 usft	Latitude:	40.475927
	+E/-W	0.00 usft	Easting:	0.000 usft	Longitude:	-107.525253
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,862.00 usft	

Wellbore	Lateral #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	15/01/2019	0.00	0.00	0

Design	#1			
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	136.90

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	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.0	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,243.42	14.9	297.13	3,235.10	43.73	-85.37	2.00	2.00	0.00	297.13	
5,956.36	14.9	297.13	5,857.21	361.13	-704.94	0.00	0.00	0.00	0.00	
7,260.91	90.2	134.10	6,746.50	-173.00	-253.00	8.00	5.77	-12.50	-162.46	7" CASING POINT
13,450.30	90.2	134.10	6,729.50	-4,480.00	4,192.00	0.00	0.00	0.00	0.00	Lateral #1



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan Couty NW (Flat Earth)
Site: Sec 18 T26N R18W
Well: Navajo Tribal N#4 Leadville Hz
Wellbore: Lateral #1
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.0	0.00	0.00	5,879.50	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8" Csg.										
1,500.00	0.0	0.00	1,500.00	4,379.50	0.00	0.00	0.00	0.00	0.00	0.00
Start Nudge										
2,500.00	0.0	0.00	2,500.00	3,379.50	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	2.0	297.13	2,599.98	3,279.52	0.80	-1.55	-1.64	2.00	2.00	0.00
2,700.00	4.0	297.13	2,699.84	3,179.66	3.18	-6.21	-6.57	2.00	2.00	0.00
2,800.00	6.0	297.13	2,799.45	3,080.05	7.16	-13.97	-14.77	2.00	2.00	0.00
2,900.00	8.0	297.13	2,898.70	2,980.80	12.71	-24.81	-26.24	2.00	2.00	0.00
3,000.00	10.0	297.13	2,997.47	2,882.03	19.84	-38.74	-40.96	2.00	2.00	0.00
3,100.00	12.0	297.13	3,095.62	2,783.88	28.54	-55.72	-58.91	2.00	2.00	0.00
3,200.00	14.0	297.13	3,193.06	2,686.44	38.80	-75.74	-80.08	2.00	2.00	0.00
3,243.42	14.9	297.13	3,235.10	2,644.40	43.73	-85.37	-90.26	2.00	2.00	0.00
3,300.00	14.9	297.13	3,289.79	2,589.71	50.35	-98.29	-103.92	0.00	0.00	0.00
3,400.00	14.9	297.13	3,386.44	2,493.06	62.05	-121.13	-128.07	0.00	0.00	0.00
3,500.00	14.9	297.13	3,483.09	2,396.41	73.75	-143.97	-152.22	0.00	0.00	0.00
3,600.00	14.9	297.13	3,579.75	2,299.75	85.45	-166.80	-176.36	0.00	0.00	0.00
3,700.00	14.9	297.13	3,676.40	2,203.10	97.15	-189.64	-200.51	0.00	0.00	0.00
3,800.00	14.9	297.13	3,773.05	2,106.45	108.85	-212.48	-224.66	0.00	0.00	0.00
3,900.00	14.9	297.13	3,869.70	2,009.80	120.55	-235.32	-248.80	0.00	0.00	0.00
4,000.00	14.9	297.13	3,966.35	1,913.15	132.25	-258.15	-272.95	0.00	0.00	0.00
4,100.00	14.9	297.13	4,063.00	1,816.50	143.95	-280.99	-297.10	0.00	0.00	0.00
4,200.00	14.9	297.13	4,159.66	1,719.84	155.65	-303.83	-321.24	0.00	0.00	0.00
4,300.00	14.9	297.13	4,256.31	1,623.19	167.35	-326.66	-345.39	0.00	0.00	0.00
4,400.00	14.9	297.13	4,352.96	1,526.54	179.05	-349.50	-369.53	0.00	0.00	0.00
4,500.00	14.9	297.13	4,449.61	1,429.89	190.75	-372.34	-393.68	0.00	0.00	0.00
4,600.00	14.9	297.13	4,546.26	1,333.24	202.45	-395.18	-417.83	0.00	0.00	0.00
4,700.00	14.9	297.13	4,642.92	1,236.58	214.15	-418.01	-441.97	0.00	0.00	0.00
4,800.00	14.9	297.13	4,739.57	1,139.93	225.85	-440.85	-466.12	0.00	0.00	0.00
4,900.00	14.9	297.13	4,836.22	1,043.28	237.55	-463.69	-490.27	0.00	0.00	0.00
5,000.00	14.9	297.13	4,932.87	946.63	249.24	-486.53	-514.41	0.00	0.00	0.00
5,100.00	14.9	297.13	5,029.52	849.98	260.94	-509.36	-538.56	0.00	0.00	0.00
5,200.00	14.9	297.13	5,126.17	753.33	272.64	-532.20	-562.71	0.00	0.00	0.00
5,300.00	14.9	297.13	5,222.83	656.67	284.34	-555.04	-586.85	0.00	0.00	0.00
5,400.00	14.9	297.13	5,319.48	560.02	296.04	-577.88	-611.00	0.00	0.00	0.00
5,500.00	14.9	297.13	5,416.13	463.37	307.74	-600.71	-635.15	0.00	0.00	0.00
5,600.00	14.9	297.13	5,512.78	366.72	319.44	-623.55	-659.29	0.00	0.00	0.00
5,700.00	14.9	297.13	5,609.43	270.07	331.14	-646.39	-683.44	0.00	0.00	0.00
5,800.00	14.9	297.13	5,706.09	173.41	342.84	-669.23	-707.58	0.00	0.00	0.00
5,900.00	14.9	297.13	5,802.74	76.76	354.54	-692.06	-731.73	0.00	0.00	0.00
KOP										
5,956.36	14.9	297.13	5,857.21	22.29	361.13	-704.94	-745.34	0.00	0.00	0.00
6,000.00	11.6	291.88	5,899.69	-20.19	365.32	-713.99	-754.58	8.00	-7.52	-12.01
6,100.00	5.2	255.63	5,998.62	-119.12	367.95	-727.72	-765.88	8.00	-6.39	-36.25
6,200.00	6.9	174.00	6,098.22	-218.72	360.84	-731.48	-763.27	8.00	1.70	-81.64
6,300.00	14.0	152.24	6,196.53	-317.03	344.15	-725.21	-746.79	8.00	7.10	-21.76



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan Couty NW (Flat Earth)
Site: Sec 18 T26N R18W
Well: Navajo Tribal N#4 Leadville Hz
Wellbore: Lateral #1
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,400.00	21.7	145.33	6,291.65	-412.15	318.19	-709.03	-716.78	8.00	7.73	-6.91
6,500.00	29.6	141.96	6,381.73	-502.23	283.47	-683.25	-673.81	8.00	7.87	-3.38
6,600.00	37.5	139.91	6,465.01	-585.51	240.66	-648.37	-618.73	8.00	7.92	-2.05
6,700.00	45.5	138.49	6,539.87	-660.37	190.61	-605.08	-552.60	8.00	7.94	-1.42
6,800.00	53.4	137.41	6,604.85	-725.35	134.28	-554.20	-476.71	8.00	7.96	-1.08
6,900.00	61.4	136.53	6,658.69	-779.19	72.76	-496.75	-392.53	8.00	7.97	-0.87
7,000.00	69.3	135.78	6,700.34	-820.84	7.27	-433.82	-301.72	8.00	7.97	-0.75
7,100.00	77.3	135.11	6,728.99	-849.49	-60.93	-366.66	-206.03	8.00	7.97	-0.68
7,200.00	85.3	134.47	6,744.09	-864.59	-130.52	-296.56	-107.32	8.00	7.98	-0.63
EOB;7260.91' MD/ 7" Csg										
7,260.91	90.2	134.10	6,746.50	-867.00	-173.00	-253.00	-46.54	8.00	7.98	-0.62
7,300.00	90.2	134.10	6,746.39	-866.89	-200.20	-224.93	-7.50	0.00	0.00	0.00
7,400.00	90.2	134.10	6,746.12	-866.62	-269.79	-153.11	92.38	0.00	0.00	0.00
7,500.00	90.2	134.10	6,745.84	-866.34	-339.37	-81.30	192.26	0.00	0.00	0.00
7,600.00	90.2	134.10	6,745.57	-866.07	-408.96	-9.48	292.14	0.00	0.00	0.00
7,700.00	90.2	134.10	6,745.29	-865.79	-478.55	62.34	392.02	0.00	0.00	0.00
7,800.00	90.2	134.10	6,745.02	-865.52	-548.13	134.15	491.90	0.00	0.00	0.00
7,900.00	90.2	134.10	6,744.74	-865.24	-617.72	205.97	591.78	0.00	0.00	0.00
8,000.00	90.2	134.10	6,744.47	-864.97	-687.31	277.79	691.66	0.00	0.00	0.00
8,100.00	90.2	134.10	6,744.20	-864.70	-756.89	349.60	791.54	0.00	0.00	0.00
8,200.00	90.2	134.10	6,743.92	-864.42	-826.48	421.42	891.42	0.00	0.00	0.00
8,300.00	90.2	134.10	6,743.65	-864.15	-896.07	493.24	991.30	0.00	0.00	0.00
8,400.00	90.2	134.10	6,743.37	-863.87	-965.65	565.05	1,091.18	0.00	0.00	0.00
8,500.00	90.2	134.10	6,743.10	-863.60	-1,035.24	636.87	1,191.06	0.00	0.00	0.00
8,600.00	90.2	134.10	6,742.82	-863.32	-1,104.83	708.69	1,290.94	0.00	0.00	0.00
8,700.00	90.2	134.10	6,742.55	-863.05	-1,174.42	780.50	1,390.82	0.00	0.00	0.00
8,800.00	90.2	134.10	6,742.27	-862.77	-1,244.00	852.32	1,490.70	0.00	0.00	0.00
8,900.00	90.2	134.10	6,742.00	-862.50	-1,313.59	924.13	1,590.58	0.00	0.00	0.00
9,000.00	90.2	134.10	6,741.72	-862.22	-1,383.18	995.95	1,690.46	0.00	0.00	0.00
9,100.00	90.2	134.10	6,741.45	-861.95	-1,452.76	1,067.77	1,790.34	0.00	0.00	0.00
9,200.00	90.2	134.10	6,741.17	-861.67	-1,522.35	1,139.58	1,890.22	0.00	0.00	0.00
9,300.00	90.2	134.10	6,740.90	-861.40	-1,591.94	1,211.40	1,990.10	0.00	0.00	0.00
9,400.00	90.2	134.10	6,740.62	-861.12	-1,661.52	1,283.22	2,089.98	0.00	0.00	0.00
9,500.00	90.2	134.10	6,740.35	-860.85	-1,731.11	1,355.03	2,189.86	0.00	0.00	0.00
9,600.00	90.2	134.10	6,740.08	-860.58	-1,800.70	1,426.85	2,289.74	0.00	0.00	0.00
9,700.00	90.2	134.10	6,739.80	-860.30	-1,870.28	1,498.67	2,389.62	0.00	0.00	0.00
9,800.00	90.2	134.10	6,739.53	-860.03	-1,939.87	1,570.48	2,489.50	0.00	0.00	0.00
9,900.00	90.2	134.10	6,739.25	-859.75	-2,009.46	1,642.30	2,589.38	0.00	0.00	0.00
10,000.00	90.2	134.10	6,738.98	-859.48	-2,079.04	1,714.12	2,689.26	0.00	0.00	0.00
10,100.00	90.2	134.10	6,738.70	-859.20	-2,148.63	1,785.93	2,789.14	0.00	0.00	0.00
10,200.00	90.2	134.10	6,738.43	-858.93	-2,218.22	1,857.75	2,889.02	0.00	0.00	0.00
10,300.00	90.2	134.10	6,738.15	-858.65	-2,287.80	1,929.56	2,988.89	0.00	0.00	0.00
10,400.00	90.2	134.10	6,737.88	-858.38	-2,357.39	2,001.38	3,088.77	0.00	0.00	0.00
10,500.00	90.2	134.10	6,737.60	-858.10	-2,426.98	2,073.20	3,188.65	0.00	0.00	0.00
10,600.00	90.2	134.10	6,737.33	-857.83	-2,496.56	2,145.01	3,288.53	0.00	0.00	0.00
10,700.00	90.2	134.10	6,737.05	-857.55	-2,566.15	2,216.83	3,388.41	0.00	0.00	0.00



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan Couty NW (Flat Earth)
Site: Sec 18 T26N R18W
Well: Navajo Tribal N#4 Leadville Hz
Wellbore: Lateral #1
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,800.00	90.2	134.10	6,736.78	-857.28	-2,635.74	2,288.65	3,488.29	0.00	0.00	0.00
10,900.00	90.2	134.10	6,736.50	-857.00	-2,705.33	2,360.46	3,588.17	0.00	0.00	0.00
11,000.00	90.2	134.10	6,736.23	-856.73	-2,774.91	2,432.28	3,688.05	0.00	0.00	0.00
11,100.00	90.2	134.10	6,735.96	-856.46	-2,844.50	2,504.10	3,787.93	0.00	0.00	0.00
11,200.00	90.2	134.10	6,735.68	-856.18	-2,914.09	2,575.91	3,887.81	0.00	0.00	0.00
11,300.00	90.2	134.10	6,735.41	-855.91	-2,983.67	2,647.73	3,987.69	0.00	0.00	0.00
11,400.00	90.2	134.10	6,735.13	-855.63	-3,053.26	2,719.55	4,087.57	0.00	0.00	0.00
11,500.00	90.2	134.10	6,734.86	-855.36	-3,122.85	2,791.36	4,187.45	0.00	0.00	0.00
11,600.00	90.2	134.10	6,734.58	-855.08	-3,192.43	2,863.18	4,287.33	0.00	0.00	0.00
11,700.00	90.2	134.10	6,734.31	-854.81	-3,262.02	2,934.99	4,387.21	0.00	0.00	0.00
11,800.00	90.2	134.10	6,734.03	-854.53	-3,331.61	3,006.81	4,487.09	0.00	0.00	0.00
11,900.00	90.2	134.10	6,733.76	-854.26	-3,401.19	3,078.63	4,586.97	0.00	0.00	0.00
12,000.00	90.2	134.10	6,733.48	-853.98	-3,470.78	3,150.44	4,686.85	0.00	0.00	0.00
12,100.00	90.2	134.10	6,733.21	-853.71	-3,540.37	3,222.26	4,786.73	0.00	0.00	0.00
12,200.00	90.2	134.10	6,732.93	-853.43	-3,609.95	3,294.08	4,886.61	0.00	0.00	0.00
12,300.00	90.2	134.10	6,732.66	-853.16	-3,679.54	3,365.89	4,986.49	0.00	0.00	0.00
12,400.00	90.2	134.10	6,732.38	-852.88	-3,749.13	3,437.71	5,086.37	0.00	0.00	0.00
12,500.00	90.2	134.10	6,732.11	-852.61	-3,818.71	3,509.53	5,186.25	0.00	0.00	0.00
12,600.00	90.2	134.10	6,731.84	-852.34	-3,888.30	3,581.34	5,286.13	0.00	0.00	0.00
12,700.00	90.2	134.10	6,731.56	-852.06	-3,957.89	3,653.16	5,386.01	0.00	0.00	0.00
12,800.00	90.2	134.10	6,731.29	-851.79	-4,027.47	3,724.98	5,485.89	0.00	0.00	0.00
12,900.00	90.2	134.10	6,731.01	-851.51	-4,097.06	3,796.79	5,585.77	0.00	0.00	0.00
13,000.00	90.2	134.10	6,730.74	-851.24	-4,166.65	3,868.61	5,685.65	0.00	0.00	0.00
13,100.00	90.2	134.10	6,730.46	-850.96	-4,236.24	3,940.42	5,785.53	0.00	0.00	0.00
13,200.00	90.2	134.10	6,730.19	-850.69	-4,305.82	4,012.24	5,885.41	0.00	0.00	0.00
13,300.00	90.2	134.10	6,729.91	-850.41	-4,375.41	4,084.06	5,985.29	0.00	0.00	0.00
13,400.00	90.2	134.10	6,729.64	-850.14	-4,445.00	4,155.87	6,085.17	0.00	0.00	0.00
TD at 13450.3' MD										
13,450.30	90.2	134.10	6,729.50	-850.00	-4,480.00	4,192.00	6,135.41	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
W/C - hit/miss target - Shape	0.0	0.00	0.00	0.00	0.00	0.000	0.000	40.475927	-107.525253
- plan hits target center - Circle (radius 330.00)									
Lateral #1 - plan hits target center - Point	0.0	0.00	6,729.50	-4,480.00	4,192.00	-4,480.000	4,192.000	40.463946	-107.509769
7" CASING POINT - plan hits target center - Point	0.0	0.00	6,746.50	-173.00	-253.00	-173.000	-253.000	40.475434	-107.526145



Database:	WellPlan Services	Local Co-ordinate Reference:	Well Navajo Tribal N#4 Leadville Hz
Company:	Tacitus LLC	TVD Reference:	RKB @ 5879.50usft (kb;17.5')
Project:	San Juan Couty NW (Flat Earth)	MD Reference:	RKB @ 5879.50usft (kb;17.5')
Site:	Sec 18 T26N R18W	North Reference:	True
Well:	Navajo Tribal N#4 Leadville Hz	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	#1		

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,500.00	1,500.00	9 5/8" Csg.		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,500.00	2,500.00	0.00	0.00	Start Nudge
5,956.36	5,857.21	361.13	-704.94	KOP
7,260.91	6,746.50	-173.00	-253.00	EOB;7260.91' MD/ 7" Csg
13,450.30	6,729.50	-4,480.00	4,192.00	TD at 13450.3' MD



WellPlan Services
Office Tel: (403) 474-3581
Tollfree: (800) 474-3581
www.wellplanservices.com

Tacitus LLC

San Juan Couty NW (Flat Earth)

Sec 18 T26N R18W

Navajo Tribal N#4 Leadville Hz

Stk #1

UWI:

WL:

Plan: #1

WPS Planning Report

21 January, 2019





Database:	WellPlan Services	Local Co-ordinate Reference:	Well Navajo Tribal N#4 Leadville Hz
Company:	Tacitus LLC	TVD Reference:	RKB @ 5879.50usft (kb;17.5')
Project:	San Juan Couty NW (Flat Earth)	MD Reference:	RKB @ 5879.50usft (kb;17.5')
Site:	Sec 18 T26N R18W	North Reference:	True
Well:	Navajo Tribal N#4 Leadville Hz	Survey Calculation Method:	Minimum Curvature
Wellbore:	Stk #1		
Design:	#1		

Project	San Juan Couty NW (Flat Earth)		
Map System:	Flat Earth	System Datum:	Mean Sea Level
Geo Datum:	WGS 1984		
Map Zone:	No Conversions		

Site	Sec 18 T26N R18W		
Site Position:		Northing:	0.000 usft
From:	None	Easting:	0.000 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	0.000000
		Longitude:	0.000000
		Grid Convergence:	0.00 °

Well	Navajo Tribal N#4 Leadville Hz		
Well Position	+N/-S	0.00 usft	Northing: 0.000 usft
	+E/-W	0.00 usft	Easting: 0.000 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	40.475927
		Longitude:	-107.525253
		Ground Level:	5,862.00 usft

Wellbore	Stk #1		
Magnetics	Model Name	Sample Date	Declination
	User Defined	15/01/2019	(°)
			0.00
			Dip Angle
			(°)
			0.00
			Field Strength
			(nT)
			0

Design	#1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 7,611.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			127.12

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
7,611.00	90.2	134.10	6,745.54	-416.61	-1.58	0.00	0.00	0.00	0.00	
8,368.03	90.9	88.68	6,737.89	-685.52	684.96	6.00	0.10	-6.00	-88.84	
9,091.28	90.9	88.68	6,726.03	-668.85	1,407.92	0.00	0.00	0.00	0.00	
9,848.20	90.8	134.10	6,713.55	-937.70	2,094.30	6.00	-0.01	6.00	89.73	
14,098.20	90.8	134.10	6,650.50	-3,895.00	5,146.00	0.00	0.00	0.00	0.00	SIDETRACK #1



Database: WellPlan Services
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Site: Sec 18 T26N R18W
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Wellbore: Stk #1
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Stk P#1;7611' MD										
7,611.00	90.2	134.10	6,745.54	-866.04	-416.61	-1.58	250.17	0.00	0.00	0.00
7,700.00	90.3	128.76	6,745.21	-865.71	-475.48	65.13	338.89	6.00	0.12	-6.00
7,800.00	90.4	122.76	6,744.64	-865.14	-533.89	146.24	438.81	6.00	0.12	-6.00
7,900.00	90.5	116.76	6,743.88	-864.38	-583.50	233.01	537.94	6.00	0.11	-6.00
8,000.00	90.6	110.76	6,742.91	-863.41	-623.77	324.49	635.19	6.00	0.11	-6.00
8,100.00	90.7	104.76	6,741.77	-862.27	-654.26	419.67	729.48	6.00	0.10	-6.00
8,200.00	90.8	98.76	6,740.45	-860.95	-674.63	517.52	819.79	6.00	0.09	-6.00
8,300.00	90.9	92.76	6,738.97	-859.47	-684.66	616.96	905.14	6.00	0.09	-6.00
8,368.03	90.9	88.68	6,737.89	-858.39	-685.52	684.96	959.87	6.00	0.08	-6.00
8,400.00	90.9	88.68	6,737.36	-857.86	-684.78	716.92	984.91	0.00	0.00	0.00
8,500.00	90.9	88.68	6,735.72	-856.22	-682.48	816.88	1,063.22	0.00	0.00	0.00
8,600.00	90.9	88.68	6,734.08	-854.58	-680.17	916.84	1,141.53	0.00	0.00	0.00
8,700.00	90.9	88.68	6,732.44	-852.94	-677.87	1,016.80	1,219.85	0.00	0.00	0.00
8,800.00	90.9	88.68	6,730.80	-851.30	-675.56	1,116.76	1,298.16	0.00	0.00	0.00
8,900.00	90.9	88.68	6,729.16	-849.66	-673.26	1,216.72	1,376.47	0.00	0.00	0.00
9,000.00	90.9	88.68	6,727.52	-848.02	-670.95	1,316.68	1,454.78	0.00	0.00	0.00
9,091.28	90.9	88.68	6,726.03	-846.53	-668.85	1,407.92	1,526.27	0.00	0.00	0.00
9,100.00	90.9	89.20	6,725.89	-846.38	-668.69	1,416.64	1,533.12	6.00	0.03	6.00
9,200.00	91.0	95.20	6,724.22	-844.72	-672.53	1,516.50	1,615.07	6.00	0.02	6.00
9,300.00	91.0	101.20	6,722.53	-843.03	-686.79	1,615.42	1,702.54	6.00	0.01	6.00
9,400.00	91.0	107.20	6,720.82	-841.32	-711.31	1,712.30	1,794.60	6.00	0.00	6.00
9,500.00	91.0	113.21	6,719.13	-839.63	-745.83	1,806.09	1,890.21	6.00	-0.01	6.00
9,600.00	90.9	119.21	6,717.46	-837.96	-789.96	1,895.76	1,988.34	6.00	-0.02	6.00
9,700.00	90.9	125.21	6,715.83	-836.33	-843.23	1,980.32	2,087.92	6.00	-0.03	6.00
9,800.00	90.9	131.21	6,714.27	-834.77	-905.04	2,058.86	2,187.84	6.00	-0.04	6.00
S#1;9848.2' MD										
9,848.20	90.8	134.10	6,713.55	-834.05	-937.70	2,094.30	2,235.81	6.00	-0.05	6.00
9,900.00	90.8	134.10	6,712.78	-833.28	-973.74	2,131.49	2,287.22	0.00	0.00	0.00
10,000.00	90.8	134.10	6,711.30	-831.80	-1,043.32	2,203.30	2,386.46	0.00	0.00	0.00
10,100.00	90.8	134.10	6,709.81	-830.31	-1,112.91	2,275.10	2,485.71	0.00	0.00	0.00
10,200.00	90.8	134.10	6,708.33	-828.83	-1,182.49	2,346.91	2,584.96	0.00	0.00	0.00
10,300.00	90.8	134.10	6,706.85	-827.35	-1,252.07	2,418.71	2,684.21	0.00	0.00	0.00
10,400.00	90.8	134.10	6,705.36	-825.86	-1,321.66	2,490.52	2,783.46	0.00	0.00	0.00
10,500.00	90.8	134.10	6,703.88	-824.38	-1,391.24	2,562.32	2,882.71	0.00	0.00	0.00
10,600.00	90.8	134.10	6,702.40	-822.89	-1,460.83	2,634.13	2,981.96	0.00	0.00	0.00
10,700.00	90.8	134.10	6,700.91	-821.41	-1,530.41	2,705.93	3,081.20	0.00	0.00	0.00
10,800.00	90.8	134.10	6,699.43	-819.93	-1,599.99	2,777.74	3,180.45	0.00	0.00	0.00
10,900.00	90.8	134.10	6,697.94	-818.44	-1,669.58	2,849.54	3,279.70	0.00	0.00	0.00
11,000.00	90.8	134.10	6,696.46	-816.96	-1,739.16	2,921.35	3,378.95	0.00	0.00	0.00
11,100.00	90.8	134.10	6,694.98	-815.48	-1,808.74	2,993.15	3,478.20	0.00	0.00	0.00
11,200.00	90.8	134.10	6,693.49	-813.99	-1,878.33	3,064.95	3,577.45	0.00	0.00	0.00
11,300.00	90.8	134.10	6,692.01	-812.51	-1,947.91	3,136.76	3,676.69	0.00	0.00	0.00
11,400.00	90.8	134.10	6,690.53	-811.03	-2,017.49	3,208.56	3,775.94	0.00	0.00	0.00
11,500.00	90.8	134.10	6,689.04	-809.54	-2,087.08	3,280.37	3,875.19	0.00	0.00	0.00
11,600.00	90.8	134.10	6,687.56	-808.06	-2,156.66	3,352.17	3,974.44	0.00	0.00	0.00



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,700.00	90.8	134.10	6,686.08	-806.58	-2,226.24	3,423.98	4,073.69	0.00	0.00	0.00
11,800.00	90.8	134.10	6,684.59	-805.09	-2,295.83	3,495.78	4,172.94	0.00	0.00	0.00
11,900.00	90.8	134.10	6,683.11	-803.61	-2,365.41	3,567.59	4,272.18	0.00	0.00	0.00
12,000.00	90.8	134.10	6,681.63	-802.13	-2,435.00	3,639.39	4,371.43	0.00	0.00	0.00
12,100.00	90.8	134.10	6,680.14	-800.64	-2,504.58	3,711.20	4,470.68	0.00	0.00	0.00
12,200.00	90.8	134.10	6,678.66	-799.16	-2,574.16	3,783.00	4,569.93	0.00	0.00	0.00
12,300.00	90.8	134.10	6,677.18	-797.68	-2,643.75	3,854.81	4,669.18	0.00	0.00	0.00
12,400.00	90.8	134.10	6,675.69	-796.19	-2,713.33	3,926.61	4,768.43	0.00	0.00	0.00
12,500.00	90.8	134.10	6,674.21	-794.71	-2,782.91	3,998.42	4,867.67	0.00	0.00	0.00
12,600.00	90.8	134.10	6,672.73	-793.23	-2,852.50	4,070.22	4,966.92	0.00	0.00	0.00
12,700.00	90.8	134.10	6,671.24	-791.74	-2,922.08	4,142.03	5,066.17	0.00	0.00	0.00
12,800.00	90.8	134.10	6,669.76	-790.26	-2,991.66	4,213.83	5,165.42	0.00	0.00	0.00
12,900.00	90.8	134.10	6,668.28	-788.78	-3,061.25	4,285.64	5,264.67	0.00	0.00	0.00
13,000.00	90.8	134.10	6,666.79	-787.29	-3,130.83	4,357.44	5,363.92	0.00	0.00	0.00
13,100.00	90.8	134.10	6,665.31	-785.81	-3,200.42	4,429.24	5,463.16	0.00	0.00	0.00
13,200.00	90.8	134.10	6,663.82	-784.32	-3,270.00	4,501.05	5,562.41	0.00	0.00	0.00
13,300.00	90.8	134.10	6,662.34	-782.84	-3,339.58	4,572.85	5,661.66	0.00	0.00	0.00
13,400.00	90.8	134.10	6,660.86	-781.36	-3,409.17	4,644.66	5,760.91	0.00	0.00	0.00
13,500.00	90.8	134.10	6,659.37	-779.87	-3,478.75	4,716.46	5,860.16	0.00	0.00	0.00
13,600.00	90.8	134.10	6,657.89	-778.39	-3,548.33	4,788.27	5,959.41	0.00	0.00	0.00
13,700.00	90.8	134.10	6,656.41	-776.91	-3,617.92	4,860.07	6,058.65	0.00	0.00	0.00
13,800.00	90.8	134.10	6,654.92	-775.42	-3,687.50	4,931.88	6,157.90	0.00	0.00	0.00
13,900.00	90.8	134.10	6,653.44	-773.94	-3,757.08	5,003.68	6,257.15	0.00	0.00	0.00
14,000.00	90.8	134.10	6,651.96	-772.46	-3,826.67	5,075.49	6,356.40	0.00	0.00	0.00
TD at 14098.2' MD										
14,098.20	90.8	134.10	6,650.50	-771.00	-3,895.00	5,146.00	6,453.86	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SIDETRACK #1	0.0	0.00	6,650.50	-3,895.00	5,146.00	-3,895.000	5,146.000	40.465620	-107.506399
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,611.00	6,745.54	-416.61	-1.58	Stk Pt#1;7611' MD
9,848.20	6,713.55	-937.70	2,094.30	S#1;9848.2' MD
14,098.20	6,650.50	-3,895.00	5,146.00	TD at 14098.2' MD



WellPlan Services
Office Tel: (403) 474-3581
Tollfree: (800) 474-3581
www.wellplanservices.com

Tacitus LLC

San Juan Couty NW (Flat Earth)

Sec 18 T26N R18W

Navajo Tribal N#4 Leadville Hz

Stk #2

UWI:

WL:

Plan: #1

WPS Planning Report

21 January, 2019





Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan Couty NW (Flat Earth)
Site: Sec 18 T26N R18W
Well: Navajo Tribal N#4 Leadville Hz
Wellbore: Stk #2
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Project San Juan Couty NW (Flat Earth)
Map System: Flat Earth
Geo Datum: WGS 1984
Map Zone: No Conversions
System Datum: Mean Sea Level

Site Sec 18 T26N R18W
Site Position: Northing: 0.000 usft Latitude: 0.000000
From: None Easting: 0.000 usft Longitude: 0.000000
Position Uncertainty: 0.00 usft Slot Radius: 13-3/16 " Grid Convergence: 0.00 °

Well Navajo Tribal N#4 Leadville Hz
Well Position +N/-S 0.00 usft Northing: 0.000 usft Latitude: 40.475927
+E/-W 0.00 usft Easting: 0.000 usft Longitude: -107.525253
Position Uncertainty 0.00 usft Wellhead Elevation: 0.00 usft Ground Level: 5,862.00 usft

Wellbore Stk #2
Magnetics Model Name Sample Date Declination Dip Angle Field Strength
(°) (°) (nT)
User Defined 15/01/2019 0.00 0.00 0

Design #1
Audit Notes:
Version: Phase: PLAN Tie On Depth: 7,400.00
Vertical Section: Depth From (TVD) +N/-S +E/-W Direction
(usft) (usft) (usft) (°)
0.00 0.00 0.00 164.50

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
7,400.00	90.2	134.10	6,746.12	-269.79	-153.11	0.00	0.00	0.00	0.00	
8,476.43	91.4	198.68	6,730.21	-1,261.32	87.08	6.00	0.11	6.00	88.58	
9,542.99	91.4	198.68	6,705.03	-2,271.42	-254.41	0.00	0.00	0.00	0.00	
10,619.01	91.2	134.10	6,678.15	-3,262.42	-14.45	6.00	-0.01	-6.00	-89.31	
12,369.01	91.2	134.10	6,641.50	-4,480.00	1,242.00	0.00	0.00	0.00	0.00	Sidetrack #2



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan Couty NW (Flat Earth)
Site: Sec 18 T26N R18W
Well: Navajo Tribal N#4 Leadville Hz
Wellbore: Stk #2
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Stk Pt #2;7400' MD										
7,400.00	90.2	134.10	6,746.12	-866.62	-269.79	-153.11	219.08	0.00	0.00	0.00
7,500.00	90.3	140.09	6,745.71	-866.21	-343.00	-85.07	307.81	6.00	0.15	6.00
7,600.00	90.4	146.09	6,745.05	-865.55	-422.93	-25.04	400.86	6.00	0.14	6.00
7,700.00	90.6	152.09	6,744.15	-864.65	-508.68	26.30	497.22	6.00	0.14	6.00
7,800.00	90.7	158.09	6,743.00	-863.50	-599.33	68.39	595.82	6.00	0.13	6.00
7,900.00	90.8	164.09	6,741.63	-862.13	-693.88	100.78	695.59	6.00	0.13	6.00
8,000.00	91.0	170.09	6,740.05	-860.55	-791.30	123.11	795.43	6.00	0.12	6.00
8,100.00	91.1	176.09	6,738.27	-858.77	-890.51	135.13	894.25	6.00	0.11	6.00
8,200.00	91.2	182.09	6,736.32	-856.82	-990.44	136.72	990.96	6.00	0.09	6.00
8,300.00	91.2	188.09	6,734.22	-854.72	-1,089.97	127.85	1,084.51	6.00	0.08	6.00
8,400.00	91.3	194.09	6,731.99	-852.49	-1,188.04	108.63	1,173.88	6.00	0.07	6.00
8,476.43	91.4	198.68	6,730.21	-850.71	-1,261.32	87.08	1,238.74	6.00	0.05	6.00
8,500.00	91.4	198.68	6,729.65	-850.15	-1,283.64	79.53	1,258.24	0.00	0.00	0.00
8,600.00	91.4	198.68	6,727.29	-847.79	-1,378.35	47.52	1,340.95	0.00	0.00	0.00
8,700.00	91.4	198.68	6,724.93	-845.43	-1,473.06	15.50	1,423.66	0.00	0.00	0.00
8,800.00	91.4	198.68	6,722.57	-843.07	-1,567.76	-16.52	1,506.37	0.00	0.00	0.00
8,900.00	91.4	198.68	6,720.21	-840.71	-1,662.47	-48.54	1,589.08	0.00	0.00	0.00
9,000.00	91.4	198.68	6,717.85	-838.35	-1,757.18	-80.55	1,671.79	0.00	0.00	0.00
9,100.00	91.4	198.68	6,715.49	-835.99	-1,851.88	-112.57	1,754.50	0.00	0.00	0.00
9,200.00	91.4	198.68	6,713.12	-833.62	-1,946.59	-144.59	1,837.21	0.00	0.00	0.00
9,300.00	91.4	198.68	6,710.76	-831.26	-2,041.30	-176.61	1,919.92	0.00	0.00	0.00
9,400.00	91.4	198.68	6,708.40	-828.90	-2,136.00	-208.62	2,002.63	0.00	0.00	0.00
9,500.00	91.4	198.68	6,706.04	-826.54	-2,230.71	-240.64	2,085.34	0.00	0.00	0.00
9,542.99	91.4	198.68	6,705.03	-825.53	-2,271.42	-254.41	2,120.90	0.00	0.00	0.00
9,600.00	91.4	195.26	6,703.66	-824.16	-2,325.93	-271.04	2,168.98	6.00	0.07	-6.00
9,700.00	91.4	189.26	6,701.18	-821.68	-2,423.57	-292.25	2,257.41	6.00	0.06	-6.00
9,800.00	91.5	183.25	6,698.62	-819.12	-2,522.90	-303.14	2,350.22	6.00	0.04	-6.00
9,900.00	91.5	177.25	6,696.00	-816.50	-2,622.82	-303.58	2,446.39	6.00	0.02	-6.00
10,000.00	91.5	171.25	6,693.36	-813.86	-2,722.24	-293.57	2,544.86	6.00	0.01	-6.00
10,100.00	91.5	165.25	6,690.72	-811.22	-2,820.06	-273.22	2,644.57	6.00	-0.01	-6.00
10,200.00	91.5	159.25	6,688.11	-808.61	-2,915.22	-242.75	2,744.41	6.00	-0.03	-6.00
10,300.00	91.4	153.24	6,685.56	-806.06	-3,006.68	-202.50	2,843.30	6.00	-0.04	-6.00
10,400.00	91.4	147.24	6,683.10	-803.60	-3,093.43	-152.91	2,940.14	6.00	-0.06	-6.00
10,500.00	91.3	141.24	6,680.76	-801.25	-3,174.52	-94.51	3,033.88	6.00	-0.07	-6.00
10,600.00	91.2	135.24	6,678.55	-799.05	-3,249.06	-27.96	3,123.50	6.00	-0.09	-6.00
S#2;10619.01' MD										
10,619.01	91.2	134.10	6,678.15	-798.65	-3,262.42	-14.44	3,139.98	6.00	-0.10	-6.00
10,700.00	91.2	134.10	6,676.45	-796.95	-3,318.77	43.70	3,209.82	0.00	0.00	0.00
10,800.00	91.2	134.10	6,674.36	-794.86	-3,388.35	115.50	3,296.05	0.00	0.00	0.00
10,900.00	91.2	134.10	6,672.26	-792.76	-3,457.92	187.30	3,382.28	0.00	0.00	0.00
11,000.00	91.2	134.10	6,670.17	-790.67	-3,527.50	259.10	3,468.50	0.00	0.00	0.00
11,100.00	91.2	134.10	6,668.08	-788.58	-3,597.07	330.89	3,554.73	0.00	0.00	0.00
11,200.00	91.2	134.10	6,665.98	-786.48	-3,666.65	402.69	3,640.96	0.00	0.00	0.00
11,300.00	91.2	134.10	6,663.89	-784.39	-3,736.23	474.49	3,727.19	0.00	0.00	0.00
11,400.00	91.2	134.10	6,661.79	-782.29	-3,805.80	546.28	3,813.42	0.00	0.00	0.00



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan Couty NW (Flat Earth)
Site: Sec 18 T26N R18W
Well: Navajo Tribal N#4 Leadville Hz
Wellbore: Stk #2
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,500.00	91.2	134.10	6,659.70	-780.20	-3,875.38	618.08	3,899.65	0.00	0.00	0.00
11,600.00	91.2	134.10	6,657.61	-778.10	-3,944.96	689.88	3,985.87	0.00	0.00	0.00
11,700.00	91.2	134.10	6,655.51	-776.01	-4,014.53	761.67	4,072.10	0.00	0.00	0.00
11,800.00	91.2	134.10	6,653.42	-773.92	-4,084.11	833.47	4,158.33	0.00	0.00	0.00
11,900.00	91.2	134.10	6,651.32	-771.82	-4,153.68	905.27	4,244.56	0.00	0.00	0.00
12,000.00	91.2	134.10	6,649.23	-769.73	-4,223.26	977.06	4,330.79	0.00	0.00	0.00
12,100.00	91.2	134.10	6,647.13	-767.63	-4,292.84	1,048.86	4,417.01	0.00	0.00	0.00
12,200.00	91.2	134.10	6,645.04	-765.54	-4,362.41	1,120.66	4,503.24	0.00	0.00	0.00
12,300.00	91.2	134.10	6,642.95	-763.45	-4,431.99	1,192.45	4,589.47	0.00	0.00	0.00
TD at 12369.01' MD										
12,369.01	91.2	134.10	6,641.50	-762.00	-4,480.00	1,242.00	4,648.97	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Sidetrack #2	0.0	0.00	6,641.50	-4,480.00	1,242.00	-4,480.000	1,242.000	40.463731	-107.520363
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,400.00	6,746.12	-269.79	-153.11	Stk Pt #2;7400' MD
10,619.01	6,678.15	-3,262.42	-14.44	S#2;10619.01' MD
12,369.01	6,641.50	-4,480.00	1,242.00	TD at 12369.01' MD



WellPlan Services
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Tacitus LLC

San Juan Couty NW (Flat Earth)

Sec 18 T26N R18W

Navajo Tribal N#4 Leadville Hz

Stk #3

UWI:

WL:

Plan: #1

WPS Planning Report

21 January, 2019





Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan Couty NW (Flat Earth)
Site: Sec 18 T26N R18W
Well: Navajo Tribal N#4 Leadville Hz
Wellbore: Stk #3
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Project San Juan Couty NW (Flat Earth)

Map System: Flat Earth
Geo Datum: WGS 1984
Map Zone: No Conversions

System Datum: Mean Sea Level

Site Sec 18 T26N R18W

Site Position: Northing: 0.000 usft Latitude: 0.000000
From: None Easting: 0.000 usft Longitude: 0.000000
Position Uncertainty: 0.00 usft Slot Radius: 13-3/16 " Grid Convergence: 0.00 °

Well Navajo Tribal N#4 Leadville Hz

Well Position +N/-S 0.00 usft Northing: 0.000 usft Latitude: 40.475927
+E/-W 0.00 usft Easting: 0.000 usft Longitude: -107.525253
Position Uncertainty 0.00 usft Wellhead Elevation: 0.00 usft Ground Level: 5,862.00 usft

Wellbore Stk #3

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	15/01/2019	0.00	0.00	0

Design #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 8,439.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	148.72

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
8,439.00	91.3	196.43	6,731.09	-1,225.65	98.37	0.00	0.00	0.00	0.00	
9,477.62	91.1	134.10	6,706.32	-2,181.02	349.63	6.00	-0.02	-6.00	-89.43	
12,781.80	91.1	134.10	6,641.50	-4,480.00	2,722.00	0.00	0.00	0.00	0.00	SIDETRACK #3



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 18 T26N R18W
Well: Navajo Tribal N#4 Leadville Hz
Wellbore: Stk #3
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Stk Pt #3;8439' MD										
8,439.00	91.3	196.43	6,731.09	-851.59	-1,225.65	98.37	1,098.54	6.00	0.06	6.00
8,500.00	91.4	192.77	6,729.65	-850.15	-1,284.65	83.00	1,140.98	6.00	0.06	-6.00
8,600.00	91.4	186.77	6,727.22	-847.72	-1,383.13	66.04	1,216.34	6.00	0.04	-6.00
8,700.00	91.4	180.77	6,724.74	-845.24	-1,482.83	59.47	1,298.14	6.00	0.03	-6.00
8,800.00	91.4	174.77	6,722.21	-842.71	-1,582.68	63.36	1,385.49	6.00	0.01	-6.00
8,900.00	91.4	168.76	6,719.69	-840.19	-1,681.57	77.67	1,477.43	6.00	0.00	-6.00
9,000.00	91.4	162.76	6,717.18	-837.68	-1,778.43	102.25	1,572.97	6.00	-0.02	-6.00
9,100.00	91.4	156.76	6,714.72	-835.22	-1,872.18	136.81	1,671.04	6.00	-0.04	-6.00
9,200.00	91.3	150.76	6,712.33	-832.83	-1,961.81	180.99	1,770.58	6.00	-0.05	-6.00
9,300.00	91.3	144.76	6,710.05	-830.55	-2,046.33	234.30	1,870.50	6.00	-0.07	-6.00
9,400.00	91.2	138.76	6,707.89	-828.39	-2,124.82	296.16	1,969.69	6.00	-0.08	-6.00
9,477.62	91.1	134.10	6,706.32	-826.82	-2,181.02	349.63	2,045.49	6.00	-0.09	-6.00
9,500.00	91.1	134.10	6,705.88	-826.38	-2,196.60	365.70	2,067.15	0.00	0.00	0.00
9,600.00	91.1	134.10	6,703.92	-824.42	-2,266.18	437.50	2,163.89	0.00	0.00	0.00
9,700.00	91.1	134.10	6,701.96	-822.46	-2,335.75	509.30	2,260.64	0.00	0.00	0.00
9,800.00	91.1	134.10	6,700.00	-820.50	-2,405.33	581.10	2,357.38	0.00	0.00	0.00
9,900.00	91.1	134.10	6,698.04	-818.54	-2,474.91	652.90	2,454.12	0.00	0.00	0.00
10,000.00	91.1	134.10	6,696.07	-816.57	-2,544.49	724.70	2,550.87	0.00	0.00	0.00
10,100.00	91.1	134.10	6,694.11	-814.61	-2,614.06	796.50	2,647.61	0.00	0.00	0.00
10,200.00	91.1	134.10	6,692.15	-812.65	-2,683.64	868.30	2,744.36	0.00	0.00	0.00
10,300.00	91.1	134.10	6,690.19	-810.69	-2,753.22	940.09	2,841.10	0.00	0.00	0.00
10,400.00	91.1	134.10	6,688.23	-808.73	-2,822.80	1,011.89	2,937.85	0.00	0.00	0.00
10,500.00	91.1	134.10	6,686.27	-806.77	-2,892.38	1,083.69	3,034.59	0.00	0.00	0.00
10,600.00	91.1	134.10	6,684.30	-804.80	-2,961.95	1,155.49	3,131.34	0.00	0.00	0.00
10,700.00	91.1	134.10	6,682.34	-802.84	-3,031.53	1,227.29	3,228.08	0.00	0.00	0.00
10,800.00	91.1	134.10	6,680.38	-800.88	-3,101.11	1,299.09	3,324.82	0.00	0.00	0.00
10,900.00	91.1	134.10	6,678.42	-798.92	-3,170.69	1,370.89	3,421.57	0.00	0.00	0.00
11,000.00	91.1	134.10	6,676.46	-796.96	-3,240.26	1,442.69	3,518.31	0.00	0.00	0.00
11,100.00	91.1	134.10	6,674.49	-794.99	-3,309.84	1,514.49	3,615.06	0.00	0.00	0.00
11,200.00	91.1	134.10	6,672.53	-793.03	-3,379.42	1,586.28	3,711.80	0.00	0.00	0.00
11,300.00	91.1	134.10	6,670.57	-791.07	-3,449.00	1,658.08	3,808.55	0.00	0.00	0.00
11,400.00	91.1	134.10	6,668.61	-789.11	-3,518.58	1,729.88	3,905.29	0.00	0.00	0.00
11,500.00	91.1	134.10	6,666.65	-787.15	-3,588.15	1,801.68	4,002.04	0.00	0.00	0.00
11,600.00	91.1	134.10	6,664.69	-785.18	-3,657.73	1,873.48	4,098.78	0.00	0.00	0.00
11,700.00	91.1	134.10	6,662.72	-783.22	-3,727.31	1,945.28	4,195.53	0.00	0.00	0.00
11,800.00	91.1	134.10	6,660.76	-781.26	-3,796.89	2,017.08	4,292.27	0.00	0.00	0.00
11,900.00	91.1	134.10	6,658.80	-779.30	-3,866.46	2,088.88	4,389.01	0.00	0.00	0.00
12,000.00	91.1	134.10	6,656.84	-777.34	-3,936.04	2,160.68	4,485.76	0.00	0.00	0.00
12,100.00	91.1	134.10	6,654.88	-775.38	-4,005.62	2,232.48	4,582.50	0.00	0.00	0.00
12,200.00	91.1	134.10	6,652.91	-773.41	-4,075.20	2,304.27	4,679.25	0.00	0.00	0.00
12,300.00	91.1	134.10	6,650.95	-771.45	-4,144.77	2,376.07	4,775.99	0.00	0.00	0.00
12,400.00	91.1	134.10	6,648.99	-769.49	-4,214.35	2,447.87	4,872.74	0.00	0.00	0.00
12,500.00	91.1	134.10	6,647.03	-767.53	-4,283.93	2,519.67	4,969.48	0.00	0.00	0.00
12,600.00	91.1	134.10	6,645.07	-765.57	-4,353.51	2,591.47	5,066.23	0.00	0.00	0.00
12,700.00	91.1	134.10	6,643.10	-763.60	-4,423.09	2,663.27	5,162.97	0.00	0.00	0.00



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan Couty NW (Flat Earth)
Site: Sec 18 T26N R18W
Well: Navajo Tribal N#4 Leadville Hz
Wellbore: Stk #3
Design: #1

Local Co-ordinate Reference: Well Navajo Tribal N#4 Leadville Hz
TVD Reference: RKB @ 5879.50usft (kb;17.5')
MD Reference: RKB @ 5879.50usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
TD at 12781.8' MD										
12,781.80	91.1	134.10	6,641.50	-762.00	-4,480.00	2,722.00	5,242.11	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SIDETRACK #3	0.0	0.00	6,641.50	-4,480.00	2,722.00	-4,480.000	2,722.000	40.463839	-107.515048
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,439.00	6,731.09	-1,225.65	98.37	Stk Pt #3;8439' MD
12,781.80	6,641.50	-4,480.00	2,722.00	TD at 12781.8' MD