

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. 14-20-603-5034

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 U #12

9. API Well No. 30-045-20580

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
2050' FNL, 2050' FWL SEC 21, T26NR18W NMPM

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 P&A the lower portion of the existing well, then perform a slot recovery of the 5 1/2" production casing and 8 5/8" surface casing but continue to utilize the existing 13 3/8" surface casing set 110' deep. Then spot kick off cement plug and WOC for 24 hours. Then with a Closed Loop system re-drill intermediate section with 12 1/4" bit to approximately 1600' MD, followed by setting new 9 5/8" casing and cement, WOC for 24 hours, test casing witnessed by Navajo Nation inspector. Then drill 8 3/4" hole to 6913' MD, 6491' 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. Depths may vary depending on CBL and slot recovery results. Initial plan is:

- 1) P&A existing Mississippian Completion and Slotted Liner: set CICR at 6180' w/ 50' of cement on top.
- 2) Run CBL in 5-1/2" and determine TOC. Cut off and retrieve 5-1/2".
- 3) Set CIBP in 8-5/8" just above 5-1/2" stub, run CBL and determine TOC & free point of 8-5/8". Cut off & retrieve 8-5/8".
- 4) Spot Kick off Cement Plug and Drill new 12-1/4" hole w/ LSND mud and set 9-5/8", 36#, J55 casing & cement in place at ~1600' MD
- 5) Drill 8-3/4" curve section to 6913' (6491' MD) w/ LSND mud and set 7", J55, 26# casing and cement back to surface.
- 6) Drill 4 each 6-1/8" horizontal laterals w/ air/mist. Each lateral will be ~6000' and left open hole.
- 7) Run 2-7/8" tubing and test for He.

NMOCD

FEB 28 2019

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

TACITUS AGENT & GEOLOGIST
Title

DISTRICT III

Signature

Date

02/21/2019

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

PE

Date

2/23/19

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

FED

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 FY

20

MAR 18 2019

Form C-102

Revised August 1, 2011

DISTRICT III

Submit one copy to appropriate District Office

☐ AMENDED REPORT

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

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-20580		² Pool Code 86120		³ Pool Name TOCITO DOME MISSISSIPPIAN, NORTH	
⁴ Property Code 321197		⁵ Property Name NAVAJO TRIBAL U		⁶ Well Number 12	
⁷ OGRID No. 372957		⁸ Operator Name TACITUS, LLC		⁹ Elevation 5668'	

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
F	21	26N	18W		2033'	NORTH	2055'	WEST	SAN JUAN

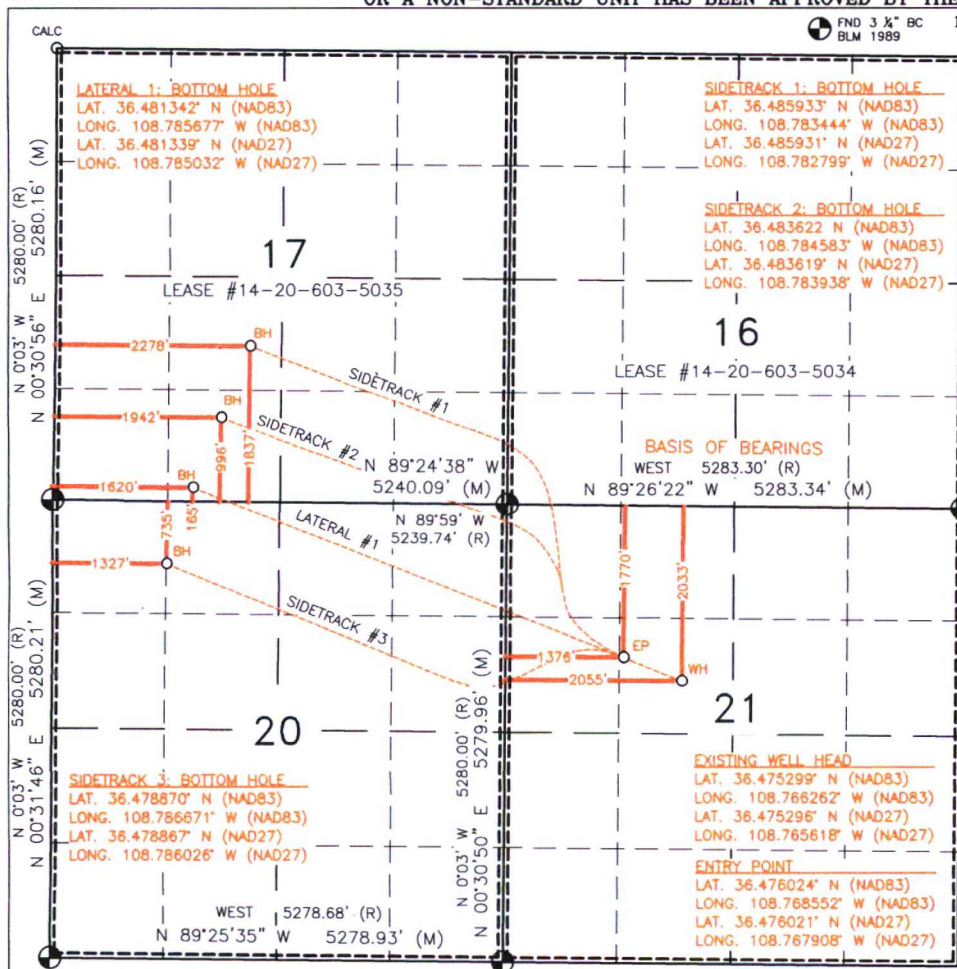
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N-LATERAL 1	17	26N	18W		165'	SOUTH	1620'	WEST	SAN JUAN
K-SIDETRACK 1	17	26N	18W		1837'	SOUTH	2278'	WEST	SAN JUAN
N-SIDETRACK 2	17	26N	18W		996'	SOUTH	1942'	WEST	SAN JUAN
C-SIDETRACK 3	20	26N	18W		735'	NORTH	1327'	WEST	SAN JUAN

¹² Dedicated Acres ALL SECTIONS 16, 17, 20 AND 21 2560.00 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
3/1/2019

Printed Name
Peter Kundra

E-mail Address
peter.kundra@tacituscorporation.com

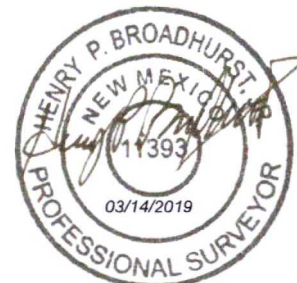
SURVEYOR CERTIFICATION

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



WellPlan Services
Office Tel: (403) 474-3581
Tollfree: (800) 474-3561
www.wellplanservices.com

Tacitus LLC

San Juan County NW (Flat Earth)

Sec 21 T26N R18W

Navajo Tribal U#12 Hz

Lateral #1

UWI:

WL:

Plan: #3

WPS Planning Report

18 February, 2019

NMOC

MAR 05 2019

DISTRICT III





Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Lateral #1
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

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

Site Sec 21 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 °

Notes:

Well Navajo Tribal U#12 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:	5,652.50 usft

Notes:

Wellbore Lateral #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	06/02/2019	9.43	66.43	51,926

Notes:

Design #3

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	291.61

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	
5,775.00	0.0	0.00	5,775.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,913.04	91.0	291.72	6,491.50	269.73	-677.26	8.00	8.00	-6.00	291.72	NTU#12 HZ Csg Pt
6,928.05	90.7	291.59	6,491.28	275.27	-691.21	2.00	-1.83	-0.81	-156.04	
12,307.80	90.7	291.59	6,424.00	2,255.00	-5,693.00	0.00	0.00	0.00	0.00	NTU#12 HZ L1C BHL



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Lateral #1
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (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)
9,900.00	90.7	291.59	6,454.11	-784.11	1,368.94	-3,454.36	3,715.73	0.00	0.00	0.00
10,000.00	90.7	291.59	6,452.86	-782.86	1,405.74	-3,547.34	3,815.72	0.00	0.00	0.00
10,100.00	90.7	291.59	6,451.61	-781.61	1,442.54	-3,640.31	3,915.71	0.00	0.00	0.00
10,200.00	90.7	291.59	6,450.36	-780.36	1,479.34	-3,733.29	4,015.70	0.00	0.00	0.00
10,300.00	90.7	291.59	6,449.11	-779.11	1,516.14	-3,826.26	4,115.70	0.00	0.00	0.00
10,400.00	90.7	291.59	6,447.86	-777.86	1,552.94	-3,919.24	4,215.69	0.00	0.00	0.00
10,500.00	90.7	291.59	6,446.61	-776.61	1,589.74	-4,012.21	4,315.68	0.00	0.00	0.00
10,600.00	90.7	291.59	6,445.36	-775.36	1,626.54	-4,105.19	4,415.67	0.00	0.00	0.00
10,700.00	90.7	291.59	6,444.11	-774.11	1,663.34	-4,198.16	4,515.66	0.00	0.00	0.00
10,800.00	90.7	291.59	6,442.86	-772.86	1,700.14	-4,291.13	4,615.66	0.00	0.00	0.00
10,900.00	90.7	291.59	6,441.61	-771.61	1,736.93	-4,384.11	4,715.65	0.00	0.00	0.00
11,000.00	90.7	291.59	6,440.35	-770.35	1,773.73	-4,477.08	4,815.64	0.00	0.00	0.00
11,100.00	90.7	291.59	6,439.10	-769.10	1,810.53	-4,570.06	4,915.63	0.00	0.00	0.00
11,200.00	90.7	291.59	6,437.85	-767.85	1,847.33	-4,663.03	5,015.63	0.00	0.00	0.00
11,300.00	90.7	291.59	6,436.60	-766.60	1,884.13	-4,756.01	5,115.62	0.00	0.00	0.00
11,400.00	90.7	291.59	6,435.35	-765.35	1,920.93	-4,848.98	5,215.61	0.00	0.00	0.00
11,500.00	90.7	291.59	6,434.10	-764.10	1,957.73	-4,941.95	5,315.60	0.00	0.00	0.00
11,600.00	90.7	291.59	6,432.85	-762.85	1,994.53	-5,034.93	5,415.59	0.00	0.00	0.00
11,700.00	90.7	291.59	6,431.60	-761.60	2,031.33	-5,127.90	5,515.59	0.00	0.00	0.00
11,800.00	90.7	291.59	6,430.35	-760.35	2,068.13	-5,220.88	5,615.58	0.00	0.00	0.00
11,900.00	90.7	291.59	6,429.10	-759.10	2,104.93	-5,313.85	5,715.57	0.00	0.00	0.00
12,000.00	90.7	291.59	6,427.85	-757.85	2,141.73	-5,406.83	5,815.56	0.00	0.00	0.00
12,100.00	90.7	291.59	6,426.60	-756.60	2,178.53	-5,499.80	5,915.56	0.00	0.00	0.00
12,200.00	90.7	291.59	6,425.35	-755.35	2,215.33	-5,592.77	6,015.55	0.00	0.00	0.00
12,300.00	90.7	291.59	6,424.10	-754.10	2,252.13	-5,685.75	6,115.54	0.00	0.00	0.00
TD at 12307.8' MD										
12,307.80	90.7	291.59	6,424.00	-754.00	2,255.00	-5,693.00	6,123.34	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
NTU#12 HZ L1C BHL P: - plan hits target center - Point	0.0	0.00	6,424.00	2,255.00	-5,693.00	2,255.000	-5,693.000	40.481693	-107.545918
NTU#12 HZ Csg Pt - plan hits target center - Point	0.0	0.00	6,491.50	269.73	-677.26	269.732	-677.263	40.476617	-107.527711



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Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Lateral #1
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (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)
KOP										
5,775.00	0.0	0.00	5,775.00	-105.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	2.0	291.72	5,800.00	-129.99	0.16	-0.41	0.44	8.00	8.00	0.00
5,900.00	10.0	291.72	5,899.37	-229.37	4.02	-10.10	10.87	8.00	8.00	0.00
6,000.00	18.0	291.72	5,996.32	-326.32	12.96	-32.55	35.03	8.00	8.00	0.00
6,100.00	26.0	291.72	6,088.97	-418.97	26.80	-67.30	72.44	8.00	8.00	0.00
6,200.00	34.0	291.72	6,175.52	-505.52	45.28	-113.69	122.38	8.00	8.00	0.00
6,300.00	42.0	291.72	6,254.28	-584.28	68.03	-170.81	183.86	8.00	8.00	0.00
6,400.00	50.0	291.72	6,323.72	-653.72	94.61	-237.56	255.71	8.00	8.00	0.00
6,500.00	58.0	291.72	6,382.50	-712.50	124.51	-312.63	336.51	8.00	8.00	0.00
6,600.00	66.0	291.72	6,429.46	-759.46	157.14	-394.56	424.70	8.00	8.00	0.00
6,700.00	74.0	291.72	6,463.70	-793.70	191.87	-481.77	518.57	8.00	8.00	0.00
6,800.00	82.0	291.72	6,484.55	-814.55	228.03	-572.56	616.29	8.00	8.00	0.00
6,900.00	89.9	291.72	6,491.61	-821.61	264.91	-665.15	715.96	8.00	8.00	0.00
Csg. Pt										
6,913.04	91.0	291.72	6,491.50	-821.50	269.73	-677.26	729.00	8.00	8.00	0.00
6,928.05	90.7	291.59	6,491.28	-821.28	275.27	-691.21	744.01	2.00	-1.83	-0.81
7,000.00	90.7	291.59	6,490.38	-820.38	301.75	-758.11	815.95	0.00	0.00	0.00
7,100.00	90.7	291.59	6,489.13	-819.13	338.55	-851.08	915.95	0.00	0.00	0.00
7,200.00	90.7	291.59	6,487.88	-817.88	375.35	-944.06	1,015.94	0.00	0.00	0.00
7,300.00	90.7	291.59	6,486.63	-816.62	412.15	-1,037.03	1,115.93	0.00	0.00	0.00
7,400.00	90.7	291.59	6,485.37	-815.37	448.95	-1,130.01	1,215.92	0.00	0.00	0.00
7,500.00	90.7	291.59	6,484.12	-814.12	485.75	-1,222.98	1,315.91	0.00	0.00	0.00
7,600.00	90.7	291.59	6,482.87	-812.87	522.55	-1,315.96	1,415.91	0.00	0.00	0.00
7,700.00	90.7	291.59	6,481.62	-811.62	559.35	-1,408.93	1,515.90	0.00	0.00	0.00
7,800.00	90.7	291.59	6,480.37	-810.37	596.15	-1,501.90	1,615.89	0.00	0.00	0.00
7,900.00	90.7	291.59	6,479.12	-809.12	632.95	-1,594.88	1,715.88	0.00	0.00	0.00
8,000.00	90.7	291.59	6,477.87	-807.87	669.75	-1,687.85	1,815.88	0.00	0.00	0.00
8,100.00	90.7	291.59	6,476.62	-806.62	706.55	-1,780.83	1,915.87	0.00	0.00	0.00
8,200.00	90.7	291.59	6,475.37	-805.37	743.34	-1,873.80	2,015.86	0.00	0.00	0.00
8,300.00	90.7	291.59	6,474.12	-804.12	780.14	-1,966.78	2,115.85	0.00	0.00	0.00
8,400.00	90.7	291.59	6,472.87	-802.87	816.94	-2,059.75	2,215.84	0.00	0.00	0.00
8,500.00	90.7	291.59	6,471.62	-801.62	853.74	-2,152.72	2,315.84	0.00	0.00	0.00
8,600.00	90.7	291.59	6,470.37	-800.37	890.54	-2,245.70	2,415.83	0.00	0.00	0.00
8,700.00	90.7	291.59	6,469.12	-799.12	927.34	-2,338.67	2,515.82	0.00	0.00	0.00
8,800.00	90.7	291.59	6,467.87	-797.87	964.14	-2,431.65	2,615.81	0.00	0.00	0.00
8,900.00	90.7	291.59	6,466.62	-796.62	1,000.94	-2,524.62	2,715.81	0.00	0.00	0.00
9,000.00	90.7	291.59	6,465.37	-795.37	1,037.74	-2,617.60	2,815.80	0.00	0.00	0.00
9,100.00	90.7	291.59	6,464.12	-794.12	1,074.54	-2,710.57	2,915.79	0.00	0.00	0.00
9,200.00	90.7	291.59	6,462.86	-792.86	1,111.34	-2,803.54	3,015.78	0.00	0.00	0.00
9,300.00	90.7	291.59	6,461.61	-791.61	1,148.14	-2,896.52	3,115.77	0.00	0.00	0.00
9,400.00	90.7	291.59	6,460.36	-790.36	1,184.94	-2,989.49	3,215.77	0.00	0.00	0.00
9,500.00	90.7	291.59	6,459.11	-789.11	1,221.74	-3,082.47	3,315.76	0.00	0.00	0.00
9,600.00	90.7	291.59	6,457.86	-787.86	1,258.54	-3,175.44	3,415.75	0.00	0.00	0.00
9,700.00	90.7	291.59	6,456.61	-786.61	1,295.34	-3,268.42	3,515.74	0.00	0.00	0.00
9,800.00	90.7	291.59	6,455.36	-785.36	1,332.14	-3,361.39	3,615.74	0.00	0.00	0.00



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Lateral #1
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,775.00	5,775.00	0.00	0.00	KOP
6,913.04	6,491.50	269.73	-677.26	Csg. Pt
12,307.80	6,424.00	2,255.00	-5,693.00	TD at 12307.8' MD



WellPlan Services
Office Tel: (403) 474-3581
Tollfree: (800) 474-3561
www.wellplanservices.com

Tacitus LLC

San Juan County NW (Flat Earth)

Sec 21 T26N R18W

Navajo Tribal U#12 Hz

Stk #1

UWI:

WL:

Plan: #3

WPS Planning Report

18 February, 2019





Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Stk #1
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

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

Site Sec 21 T26N R18W
Site Position: **None**
From: **None**
Position Uncertainty: 0.00 usft
Notes:
Northing: 0.000 usft
Easting: 0.000 usft
Slot Radius: 13-3/16 "
Latitude: 0.000000
Longitude: 0.000000
Grid Convergence: 0.00 °

Well Navajo Tribal U#12 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:** 5,652.50 usft
Notes:

Wellbore Stk #1
Magnetics **Model Name** **Sample Date** **Declination** **Dip Angle** **Field Strength**
(°) (°) (nT)
IGRF2015 06/02/2019 9.43 66.43 51,926
Notes:

Design #3
Audit Notes:
Version: **Phase:** PLAN **Tie On Depth:** 7,063.00
Vertical Section: **Depth From (TVD)** **+N/-S** **+E/-W** **Direction**
(usft) (usft) (usft) (°)
0.00 0.00 0.00 307.99

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
7,063.00	90.7	291.59	6,489.59	324.93	-816.68	0.00	0.00	0.00	0.00	
8,094.19	90.4	353.47	6,478.51	1,104.14	-1,413.90	6.00	-0.03	6.00	89.94	
9,022.36	90.4	353.47	6,472.15	2,026.26	-1,519.49	0.00	0.00	0.00	0.00	
10,063.46	90.4	291.00	6,464.14	2,809.09	-2,125.97	6.00	0.00	-6.00	-89.75	
13,163.46	90.4	291.00	6,442.50	3,920.00	-5,020.00	0.00	0.00	0.00	0.00	NTU#12 Hz S1C P2



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Stk #1
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (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 #1;7063' MD										
7,063.00	90.7	291.59	6,489.59	-819.59	324.93	-816.68	843.67	0.00	0.00	0.00
7,100.00	90.7	293.81	6,489.13	-819.13	339.21	-850.81	879.35	6.00	0.01	6.00
7,200.00	90.7	299.81	6,487.87	-817.87	384.30	-940.01	977.41	6.00	0.00	6.00
7,300.00	90.7	305.81	6,486.62	-816.62	438.46	-1,024.01	1,076.95	6.00	-0.01	6.00
7,400.00	90.7	311.82	6,485.40	-815.40	501.11	-1,101.88	1,176.88	6.00	-0.02	6.00
7,500.00	90.7	317.82	6,484.21	-814.21	571.55	-1,172.79	1,276.12	6.00	-0.02	6.00
7,600.00	90.6	323.82	6,483.06	-813.06	649.03	-1,235.93	1,373.57	6.00	-0.03	6.00
7,700.00	90.6	329.82	6,481.98	-811.98	732.67	-1,290.64	1,468.17	6.00	-0.04	6.00
7,800.00	90.6	335.82	6,480.97	-810.97	821.58	-1,336.30	1,558.88	6.00	-0.04	6.00
7,900.00	90.5	341.82	6,480.04	-810.04	914.78	-1,372.42	1,644.71	6.00	-0.05	6.00
8,000.00	90.4	347.82	6,479.20	-809.20	1,011.24	-1,398.59	1,724.71	6.00	-0.06	6.00
8,094.19	90.4	353.47	6,478.51	-808.51	1,104.14	-1,413.90	1,793.95	6.00	-0.06	6.00
8,100.00	90.4	353.47	6,478.47	-808.47	1,109.91	-1,414.56	1,798.02	0.00	0.00	0.00
8,200.00	90.4	353.47	6,477.79	-807.79	1,209.26	-1,425.94	1,868.13	0.00	0.00	0.00
8,300.00	90.4	353.47	6,477.10	-807.10	1,308.61	-1,437.32	1,938.24	0.00	0.00	0.00
8,400.00	90.4	353.47	6,476.42	-806.42	1,407.96	-1,448.69	2,008.35	0.00	0.00	0.00
8,500.00	90.4	353.47	6,475.73	-805.73	1,507.30	-1,460.07	2,078.47	0.00	0.00	0.00
8,600.00	90.4	353.47	6,475.05	-805.05	1,606.65	-1,471.44	2,148.58	0.00	0.00	0.00
8,700.00	90.4	353.47	6,474.36	-804.36	1,706.00	-1,482.82	2,218.69	0.00	0.00	0.00
8,800.00	90.4	353.47	6,473.68	-803.68	1,805.35	-1,494.20	2,288.80	0.00	0.00	0.00
8,900.00	90.4	353.47	6,472.99	-802.99	1,904.70	-1,505.57	2,358.91	0.00	0.00	0.00
9,000.00	90.4	353.47	6,472.31	-802.31	2,004.05	-1,516.95	2,429.02	0.00	0.00	0.00
9,022.36	90.4	353.47	6,472.15	-802.15	2,026.26	-1,519.49	2,444.70	0.00	0.00	0.00
9,100.00	90.4	348.81	6,471.61	-801.61	2,102.95	-1,531.45	2,501.32	6.00	0.02	-6.00
9,200.00	90.4	342.81	6,470.87	-800.87	2,199.85	-1,555.95	2,580.27	6.00	0.02	-8.00
9,300.00	90.4	336.81	6,470.10	-800.10	2,293.66	-1,590.45	2,665.20	6.00	0.02	-6.00
9,400.00	90.5	330.81	6,469.31	-799.31	2,383.35	-1,634.56	2,755.17	6.00	0.01	-6.00
9,500.00	90.5	324.81	6,468.51	-798.51	2,467.94	-1,687.81	2,849.20	6.00	0.01	-6.00
9,600.00	90.5	318.81	6,467.70	-797.70	2,546.49	-1,749.61	2,946.25	6.00	0.00	-6.00
9,700.00	90.5	312.81	6,466.90	-796.90	2,618.16	-1,819.28	3,045.28	6.00	0.00	-6.00
9,800.00	90.4	306.81	6,466.11	-796.11	2,682.15	-1,896.07	3,145.18	6.00	-0.01	-6.00
9,900.00	90.4	300.81	6,465.33	-795.33	2,737.76	-1,979.12	3,244.86	6.00	-0.01	-6.00
10,000.00	90.4	294.81	6,464.59	-794.59	2,784.39	-2,067.52	3,343.24	6.00	-0.02	-6.00
10,063.46	90.4	291.00	6,464.14	-794.14	2,809.09	-2,125.97	3,404.50	6.00	-0.02	-6.00
10,100.00	90.4	291.00	6,463.89	-793.89	2,822.18	-2,160.08	3,439.45	0.00	0.00	0.00
10,200.00	90.4	291.00	6,463.19	-793.19	2,858.02	-2,253.44	3,535.08	0.00	0.00	0.00
10,300.00	90.4	291.00	6,462.49	-792.49	2,893.85	-2,346.79	3,630.72	0.00	0.00	0.00
10,400.00	90.4	291.00	6,461.79	-791.79	2,929.69	-2,440.15	3,726.35	0.00	0.00	0.00
10,500.00	90.4	291.00	6,461.09	-791.09	2,965.52	-2,533.50	3,821.99	0.00	0.00	0.00
10,600.00	90.4	291.00	6,460.40	-790.40	3,001.36	-2,626.86	3,917.63	0.00	0.00	0.00
10,700.00	90.4	291.00	6,459.70	-789.70	3,037.20	-2,720.22	4,013.26	0.00	0.00	0.00
10,800.00	90.4	291.00	6,459.00	-789.00	3,073.03	-2,813.57	4,108.90	0.00	0.00	0.00
10,900.00	90.4	291.00	6,458.30	-788.30	3,108.87	-2,906.93	4,204.53	0.00	0.00	0.00
11,000.00	90.4	291.00	6,457.60	-787.60	3,144.70	-3,000.28	4,300.17	0.00	0.00	0.00



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Stk #1
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (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)
11,100.00	90.4	291.00	6,456.91	-786.91	3,180.54	-3,093.64	4,395.80	0.00	0.00	0.00
11,200.00	90.4	291.00	6,456.21	-786.21	3,216.38	-3,186.99	4,491.44	0.00	0.00	0.00
11,300.00	90.4	291.00	6,455.51	-785.51	3,252.21	-3,280.35	4,587.07	0.00	0.00	0.00
11,400.00	90.4	291.00	6,454.81	-784.81	3,288.05	-3,373.71	4,682.71	0.00	0.00	0.00
11,500.00	90.4	291.00	6,454.11	-784.11	3,323.88	-3,467.06	4,778.35	0.00	0.00	0.00
11,600.00	90.4	291.00	6,453.42	-783.41	3,359.72	-3,560.42	4,873.98	0.00	0.00	0.00
11,700.00	90.4	291.00	6,452.72	-782.72	3,395.55	-3,653.77	4,969.62	0.00	0.00	0.00
11,800.00	90.4	291.00	6,452.02	-782.02	3,431.39	-3,747.13	5,065.25	0.00	0.00	0.00
11,900.00	90.4	291.00	6,451.32	-781.32	3,467.23	-3,840.48	5,160.89	0.00	0.00	0.00
12,000.00	90.4	291.00	6,450.62	-780.62	3,503.06	-3,933.84	5,256.52	0.00	0.00	0.00
12,100.00	90.4	291.00	6,449.92	-779.92	3,538.90	-4,027.20	5,352.16	0.00	0.00	0.00
12,200.00	90.4	291.00	6,449.23	-779.23	3,574.73	-4,120.55	5,447.79	0.00	0.00	0.00
12,300.00	90.4	291.00	6,448.53	-778.53	3,610.57	-4,213.91	5,543.43	0.00	0.00	0.00
12,400.00	90.4	291.00	6,447.83	-777.83	3,646.41	-4,307.26	5,639.07	0.00	0.00	0.00
12,500.00	90.4	291.00	6,447.13	-777.13	3,682.24	-4,400.62	5,734.70	0.00	0.00	0.00
12,600.00	90.4	291.00	6,446.43	-776.43	3,718.08	-4,493.98	5,830.34	0.00	0.00	0.00
12,700.00	90.4	291.00	6,445.74	-775.74	3,753.91	-4,587.33	5,925.97	0.00	0.00	0.00
12,800.00	90.4	291.00	6,445.04	-775.04	3,789.75	-4,680.69	6,021.61	0.00	0.00	0.00
12,900.00	90.4	291.00	6,444.34	-774.34	3,825.59	-4,774.04	6,117.24	0.00	0.00	0.00
13,000.00	90.4	291.00	6,443.64	-773.64	3,861.42	-4,867.40	6,212.88	0.00	0.00	0.00
13,100.00	90.4	291.00	6,442.94	-772.94	3,897.26	-4,960.75	6,308.51	0.00	0.00	0.00
TD at 13163.46' MD										
13,163.46	90.4	291.00	6,442.50	-772.50	3,920.00	-5,020.00	6,369.20	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									
NTU#12 Hz S1C P2	0.0	0.00	6,442.50	3,920.00	-5,020.00	3,920.000	-5,020.000	40.486309	-107.543662
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,063.00	6,489.59	324.93	-816.68	Stk Pt #1;7063' MD
13,163.46	6,442.50	3,920.00	-5,020.00	TD at 13163.46' MD



WellPlan Services
Office Tel: (403) 474-3581
Tollfree: (800) 474-3561
www.wellplanservices.com

Tacitus LLC

San Juan County NW (Flat Earth)

Sec 21 T26N R18W

Navajo Tribal U#12 Hz

Stk #2

UWI:

WL:

Plan: #3

WPS Planning Report

18 February, 2019





Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Stk #2
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Project San Juan County NW (Flat Earth)

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

System Datum: Mean Sea Level

Site Sec 21 T26N R18W

Site Position: **From:** None
Position Uncertainty: 0.00 usft
Notes:

Northing: 0.000 usft
Easting: 0.000 usft
Slot Radius: 13-3/16 "

Latitude: 0.000000
Longitude: 0.000000
Grid Convergence: 0.00 °

Well Navajo Tribal U#12 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:** 5,652.50 usft
Notes:

Wellbore Stk #2

Magnetics **Model Name** **Sample Date** **Declination** **Dip Angle** **Field Strength**
(°) (°) (nT)
User Defined 06/02/2019 0.00 0.00 0

Notes:

Design #3

Audit Notes:

Version: **Phase:** PLAN **Tie On Depth:** 8,095.00

Vertical Section: **Depth From (TVD)** **+N/-S** **+E/-W** **Direction**
(usft) (usft) (usft) (°)
0.00 0.00 0.00 299.89

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
8,095.00	90.4	353.47	6,478.51	1,104.94	-1,414.00	0.00	0.00	0.00	0.00	
9,168.86	90.6	289.03	6,468.03	1,898.97	-2,051.24	6.00	0.02	-6.00	-89.52	
11,553.46	90.6	289.03	6,442.86	2,676.60	-4,305.33	0.00	0.00	0.00	0.00	
11,586.22	90.6	291.00	6,442.52	2,687.82	-4,336.12	6.00	-0.01	6.00	90.13	
12,686.22	90.6	291.00	6,431.00	3,082.00	-5,363.00	0.00	0.00	0.00	0.00	



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Stk #2
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (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 #2;8095' MD										
8,095.00	90.4	353.47	6,478.51	-808.51	1,104.94	-1,414.00	1,776.52	5.95	-0.06	5.95
8,100.00	90.4	353.17	6,478.47	-808.47	1,109.91	-1,414.58	1,779.50	6.00	0.05	-6.00
8,200.00	90.4	347.17	6,477.74	-807.74	1,208.39	-1,431.65	1,843.37	6.00	0.05	-6.00
8,300.00	90.5	341.17	6,476.93	-806.93	1,304.55	-1,458.91	1,914.93	6.00	0.04	-6.00
8,400.00	90.5	335.17	6,476.04	-806.04	1,397.33	-1,496.08	1,993.38	6.00	0.04	-6.00
8,500.00	90.6	329.17	6,475.10	-805.10	1,485.72	-1,542.75	2,077.88	6.00	0.03	-6.00
8,600.00	90.6	323.17	6,474.11	-804.11	1,568.75	-1,598.40	2,167.50	6.00	0.03	-6.00
8,700.00	90.6	317.17	6,473.07	-803.07	1,645.50	-1,662.42	2,261.25	6.00	0.02	-6.00
8,800.00	90.6	311.17	6,472.01	-802.01	1,715.14	-1,734.12	2,358.11	6.00	0.01	-6.00
8,900.00	90.6	305.17	6,470.93	-800.93	1,776.90	-1,812.70	2,457.02	6.00	0.01	-6.00
9,000.00	90.6	299.17	6,469.84	-799.84	1,830.11	-1,897.30	2,556.89	6.00	0.00	-6.00
9,100.00	90.6	293.17	6,468.76	-798.76	1,874.18	-1,987.01	2,656.63	6.00	-0.01	-6.00
9,168.86	90.6	289.03	6,468.03	-798.03	1,898.97	-2,051.24	2,724.66	6.00	-0.01	-6.00
9,200.00	90.6	289.03	6,467.70	-797.70	1,909.12	-2,080.67	2,755.24	0.00	0.00	0.00
9,300.00	90.6	289.03	6,466.65	-796.65	1,941.73	-2,175.20	2,853.45	0.00	0.00	0.00
9,400.00	90.6	289.03	6,465.59	-795.59	1,974.34	-2,269.73	2,951.65	0.00	0.00	0.00
9,500.00	90.6	289.03	6,464.54	-794.54	2,006.95	-2,364.25	3,049.86	0.00	0.00	0.00
9,600.00	90.6	289.03	6,463.48	-793.48	2,039.56	-2,458.78	3,148.07	0.00	0.00	0.00
9,700.00	90.6	289.03	6,462.43	-792.43	2,072.18	-2,553.31	3,246.27	0.00	0.00	0.00
9,800.00	90.6	289.03	6,461.37	-791.37	2,104.79	-2,647.84	3,344.48	0.00	0.00	0.00
9,900.00	90.6	289.03	6,460.32	-790.32	2,137.40	-2,742.36	3,442.69	0.00	0.00	0.00
10,000.00	90.6	289.03	6,459.26	-789.26	2,170.01	-2,836.89	3,540.89	0.00	0.00	0.00
10,100.00	90.6	289.03	6,458.20	-788.20	2,202.62	-2,931.42	3,639.10	0.00	0.00	0.00
10,200.00	90.6	289.03	6,457.15	-787.15	2,235.23	-3,025.95	3,737.30	0.00	0.00	0.00
10,300.00	90.6	289.03	6,456.09	-786.09	2,267.84	-3,120.47	3,835.51	0.00	0.00	0.00
10,400.00	90.6	289.03	6,455.04	-785.04	2,300.45	-3,215.00	3,933.72	0.00	0.00	0.00
10,500.00	90.6	289.03	6,453.98	-783.98	2,333.06	-3,309.53	4,031.92	0.00	0.00	0.00
10,600.00	90.6	289.03	6,452.93	-782.93	2,365.67	-3,404.06	4,130.13	0.00	0.00	0.00
10,700.00	90.6	289.03	6,451.87	-781.87	2,398.28	-3,498.58	4,228.34	0.00	0.00	0.00
10,800.00	90.6	289.03	6,450.82	-780.82	2,430.89	-3,593.11	4,326.54	0.00	0.00	0.00
10,900.00	90.6	289.03	6,449.76	-779.76	2,463.50	-3,687.64	4,424.75	0.00	0.00	0.00
11,000.00	90.6	289.03	6,448.71	-778.71	2,496.12	-3,782.16	4,522.96	0.00	0.00	0.00
11,100.00	90.6	289.03	6,447.65	-777.65	2,528.73	-3,876.69	4,621.16	0.00	0.00	0.00
11,200.00	90.6	289.03	6,446.59	-776.59	2,561.34	-3,971.22	4,719.37	0.00	0.00	0.00
11,300.00	90.6	289.03	6,445.54	-775.54	2,593.95	-4,065.75	4,817.58	0.00	0.00	0.00
11,400.00	90.6	289.03	6,444.48	-774.48	2,626.56	-4,160.27	4,915.78	0.00	0.00	0.00
11,500.00	90.6	289.03	6,443.43	-773.43	2,659.17	-4,254.80	5,013.99	0.00	0.00	0.00
11,553.46	90.6	289.03	6,442.86	-772.86	2,676.60	-4,305.33	5,066.49	0.00	0.00	0.00
11,586.22	90.6	291.00	6,442.52	-772.52	2,687.82	-4,336.12	5,098.77	6.00	-0.01	6.00
11,600.00	90.6	291.00	6,442.37	-772.37	2,692.75	-4,348.98	5,112.38	0.00	0.00	0.00
11,700.00	90.6	291.00	6,441.33	-771.33	2,728.59	-4,442.33	5,211.17	0.00	0.00	0.00
11,800.00	90.6	291.00	6,440.28	-770.28	2,764.42	-4,535.68	5,309.97	0.00	0.00	0.00
11,900.00	90.6	291.00	6,439.23	-769.23	2,800.26	-4,629.04	5,408.76	0.00	0.00	0.00
12,000.00	90.6	291.00	6,438.19	-768.19	2,836.09	-4,722.39	5,507.55	0.00	0.00	0.00



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Stk #2
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (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)
12,100.00	90.6	291.00	6,437.14	-767.14	2,871.93	-4,815.74	5,606.35	0.00	0.00	0.00
12,200.00	90.6	291.00	6,436.09	-766.09	2,907.76	-4,909.10	5,705.14	0.00	0.00	0.00
12,300.00	90.6	291.00	6,435.04	-765.04	2,943.60	-5,002.45	5,803.94	0.00	0.00	0.00
12,400.00	90.6	291.00	6,434.00	-764.00	2,979.43	-5,095.80	5,902.73	0.00	0.00	0.00
12,500.00	90.6	291.00	6,432.95	-762.95	3,015.27	-5,189.15	6,001.53	0.00	0.00	0.00
12,600.00	90.6	291.00	6,431.90	-761.90	3,051.10	-5,282.51	6,100.32	0.00	0.00	0.00
TD at 12686.22' MD										
12,686.22	90.6	291.00	6,431.00	-761.00	3,082.00	-5,363.00	6,185.50	0.00	0.00	0.00

Design Targets**Target Name**

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
NTU #12 S2C BHL P2 - plan hits target center - Point	0.0	0.00	6,431.00	3,082.00	-5,363.00	3,082.000	-5,363.000	40.483985	-107.544813

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,095.00	6,478.51	1,104.94	-1,414.00	Stk #2;8095' MD
12,686.22	6,431.00	3,082.00	-5,363.00	TD at 12686.22' MD



WellPlan Services
Office Tel: (403) 474-3581
Tollfree: (800) 474-3561
www.wellplanservices.com

Tacitus LLC

San Juan County NW (Flat Earth)

Sec 21 T26N R18W

Navajo Tribal U#12 Hz

Stk #3

UWI:

WL:

Plan: #3

WPS Planning Report

18 February, 2019





Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Stk #3
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (kb;17.5')
North Reference: True
Survey Calculation Method: Minimum Curvature

Project San Juan County NW (Flat Earth)

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

System Datum: Mean Sea Level

Site Sec 21 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 °
Notes:

Well Navajo Tribal U#12 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: 5,652.50 usft
Notes:

Wellbore Stk #3

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	06/02/2019	9.43	66.43	51,926

Notes:

Design #3

Audit Notes:

Version: Phase: PLAN Tie On Depth: 6,988.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	282.77

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
6,988.00	90.7	291.59	6,490.53	297.33	-746.95	0.00	0.00	0.00	0.00	
7,766.55	90.9	244.88	6,479.25	274.02	-1,503.67	6.00	0.02	-6.00	-89.51	
8,188.61	90.9	244.88	6,472.99	94.85	-1,885.77	0.00	0.00	0.00	0.00	
8,957.28	90.6	291.00	6,462.70	67.95	-2,633.29	6.00	-0.03	6.00	89.99	
12,557.28	90.6	291.00	6,425.00	1,358.00	-5,994.00	0.00	0.00	0.00	0.00	NTU #12 Hz SC3 P2



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Stk #3
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (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 #3;6988' MD										
6,988.00	90.7	291.59	6,490.53	-820.53	297.33	-746.95	794.19	0.88	0.87	-0.14
7,000.00	90.7	290.87	6,490.38	-820.38	301.68	-758.14	806.06	6.00	0.05	-6.00
7,100.00	90.8	284.87	6,489.07	-819.07	332.35	-853.26	905.61	6.00	0.05	-6.00
7,200.00	90.8	278.87	6,487.70	-817.70	352.92	-951.07	1,005.54	6.00	0.04	-6.00
7,300.00	90.8	272.87	6,486.26	-816.26	363.14	-1,050.49	1,104.76	6.00	0.03	-6.00
7,400.00	90.9	266.87	6,484.78	-814.78	362.92	-1,150.43	1,202.18	6.00	0.02	-6.00
7,500.00	90.9	260.87	6,483.27	-813.27	352.25	-1,249.80	1,296.74	6.00	0.01	-6.00
7,600.00	90.9	254.87	6,481.76	-811.76	331.25	-1,347.51	1,387.40	6.00	0.00	-6.00
7,700.00	90.9	248.87	6,480.24	-810.24	300.15	-1,442.49	1,473.16	6.00	-0.01	-6.00
7,766.55	90.9	244.88	6,479.25	-809.25	274.02	-1,503.67	1,527.05	6.00	-0.02	-6.00
7,800.00	90.9	244.88	6,478.75	-808.75	259.82	-1,533.96	1,553.45	0.00	0.00	0.00
7,900.00	90.9	244.88	6,477.27	-807.27	217.37	-1,624.49	1,632.36	0.00	0.00	0.00
8,000.00	90.9	244.88	6,475.79	-805.79	174.92	-1,715.02	1,711.28	0.00	0.00	0.00
8,100.00	90.9	244.88	6,474.30	-804.30	132.46	-1,805.55	1,790.19	0.00	0.00	0.00
8,188.61	90.9	244.88	6,472.99	-802.99	94.85	-1,885.77	1,860.11	0.00	0.00	0.00
8,200.00	90.9	245.56	6,472.82	-802.82	90.07	-1,896.10	1,869.14	6.00	0.00	6.00
8,300.00	90.8	251.56	6,471.34	-801.34	53.54	-1,989.13	1,951.80	6.00	0.00	6.00
8,400.00	90.8	257.56	6,469.87	-799.87	26.94	-2,085.47	2,039.87	6.00	-0.01	6.00
8,500.00	90.8	263.56	6,468.44	-798.44	10.55	-2,184.06	2,132.41	6.00	-0.02	6.00
8,600.00	90.8	269.56	6,467.05	-797.05	4.55	-2,283.82	2,228.38	6.00	-0.03	6.00
8,700.00	90.7	275.56	6,465.72	-795.72	9.02	-2,383.67	2,326.75	6.00	-0.04	6.00
8,800.00	90.7	281.56	6,464.47	-794.47	23.90	-2,482.50	2,426.42	6.00	-0.05	6.00
8,900.00	90.6	287.56	6,463.32	-793.32	49.04	-2,579.24	2,526.32	6.00	-0.06	6.00
8,957.28	90.6	291.00	6,462.70	-792.70	67.95	-2,633.29	2,583.22	6.00	-0.06	6.00
9,000.00	90.6	291.00	6,462.25	-792.25	83.25	-2,673.18	2,625.50	0.00	0.00	0.00
9,100.00	90.6	291.00	6,461.20	-791.20	119.09	-2,766.53	2,724.46	0.00	0.00	0.00
9,200.00	90.6	291.00	6,460.16	-790.16	154.92	-2,859.88	2,823.43	0.00	0.00	0.00
9,300.00	90.6	291.00	6,459.11	-789.11	190.76	-2,953.23	2,922.39	0.00	0.00	0.00
9,400.00	90.6	291.00	6,458.06	-788.06	226.59	-3,046.59	3,021.35	0.00	0.00	0.00
9,500.00	90.6	291.00	6,457.02	-787.02	262.43	-3,139.94	3,120.32	0.00	0.00	0.00
9,600.00	90.6	291.00	6,455.97	-785.97	298.26	-3,233.29	3,219.28	0.00	0.00	0.00
9,700.00	90.6	291.00	6,454.92	-784.92	334.10	-3,326.65	3,318.24	0.00	0.00	0.00
9,800.00	90.6	291.00	6,453.87	-783.87	369.93	-3,420.00	3,417.21	0.00	0.00	0.00
9,900.00	90.6	291.00	6,452.83	-782.83	405.77	-3,513.35	3,516.17	0.00	0.00	0.00
10,000.00	90.6	291.00	6,451.78	-781.78	441.60	-3,606.70	3,615.13	0.00	0.00	0.00
10,100.00	90.6	291.00	6,450.73	-780.73	477.44	-3,700.06	3,714.10	0.00	0.00	0.00
10,200.00	90.6	291.00	6,449.69	-779.68	513.27	-3,793.41	3,813.06	0.00	0.00	0.00
10,300.00	90.6	291.00	6,448.64	-778.64	549.11	-3,886.76	3,912.02	0.00	0.00	0.00
10,400.00	90.6	291.00	6,447.59	-777.59	584.94	-3,980.12	4,010.99	0.00	0.00	0.00
10,500.00	90.6	291.00	6,446.54	-776.54	620.78	-4,073.47	4,109.95	0.00	0.00	0.00
10,600.00	90.6	291.00	6,445.50	-775.50	656.61	-4,166.82	4,208.92	0.00	0.00	0.00
10,700.00	90.6	291.00	6,444.45	-774.45	692.45	-4,260.18	4,307.88	0.00	0.00	0.00
10,800.00	90.6	291.00	6,443.40	-773.40	728.28	-4,353.53	4,406.84	0.00	0.00	0.00
10,900.00	90.6	291.00	6,442.35	-772.35	764.12	-4,446.88	4,505.81	0.00	0.00	0.00



Database: WellPlan Services
Company: Tacitus LLC
Project: San Juan County NW (Flat Earth)
Site: Sec 21 T26N R18W
Well: Navajo Tribal U#12 Hz
Wellbore: Stk #3
Design: #3

Local Co-ordinate Reference: Well Navajo Tribal U#12 Hz
TVD Reference: RKB* @ 5670.00usft (kb;17.5')
MD Reference: RKB* @ 5670.00usft (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)
11,000.00	90.6	291.00	6,441.31	-771.31	799.95	-4,540.23	4,604.77	0.00	0.00	0.00
11,100.00	90.6	291.00	6,440.26	-770.26	835.79	-4,633.59	4,703.73	0.00	0.00	0.00
11,200.00	90.6	291.00	6,439.21	-769.21	871.62	-4,726.94	4,802.70	0.00	0.00	0.00
11,300.00	90.6	291.00	6,438.17	-768.17	907.46	-4,820.29	4,901.66	0.00	0.00	0.00
11,400.00	90.6	291.00	6,437.12	-767.12	943.29	-4,913.65	5,000.62	0.00	0.00	0.00
11,500.00	90.6	291.00	6,436.07	-766.07	979.13	-5,007.00	5,099.59	0.00	0.00	0.00
11,600.00	90.6	291.00	6,435.02	-765.02	1,014.96	-5,100.35	5,198.55	0.00	0.00	0.00
11,700.00	90.6	291.00	6,433.98	-763.98	1,050.80	-5,193.70	5,297.51	0.00	0.00	0.00
11,800.00	90.6	291.00	6,432.93	-762.93	1,086.63	-5,287.06	5,396.48	0.00	0.00	0.00
11,900.00	90.6	291.00	6,431.88	-761.88	1,122.46	-5,380.41	5,495.44	0.00	0.00	0.00
12,000.00	90.6	291.00	6,430.84	-760.84	1,158.30	-5,473.76	5,594.41	0.00	0.00	0.00
12,100.00	90.6	291.00	6,429.79	-759.79	1,194.13	-5,567.12	5,693.37	0.00	0.00	0.00
12,200.00	90.6	291.00	6,428.74	-758.74	1,229.97	-5,660.47	5,792.33	0.00	0.00	0.00
12,300.00	90.6	291.00	6,427.69	-757.69	1,265.80	-5,753.82	5,891.30	0.00	0.00	0.00
12,400.00	90.6	291.00	6,426.65	-756.65	1,301.64	-5,847.17	5,990.26	0.00	0.00	0.00
12,500.00	90.6	291.00	6,425.60	-755.60	1,337.47	-5,940.53	6,089.22	0.00	0.00	0.00
TD at 12557.28' MD										
12,557.28	90.6	291.00	6,425.00	-755.00	1,358.00	-5,994.00	6,145.91	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
NTU #12 Hz SC3 P2 - plan hits target center - Point	0.0	0.00	6,425.00	1,358.00	-5,994.00	1,358.000	-5,994.000	40.479210	-107.546912

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,988.00	6,490.53	297.33	-746.95	Stk #3:6988' MD
12,557.28	6,425.00	1,358.00	-5,994.00	TD at 12557.28' MD

Plan: #3 (Navajo Tribal U#12 Hz/Lateral #1)

