

Form 3160-3  
(June 2015)FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
**APPLICATION FOR PERMIT TO DRILL OR REENTER**

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER 1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		5. Lease Serial No.  6. If Indian, Allottee or Tribe Name  7. If Unit or CA Agreement, Name and No.  8. Lease Name and Well No.
2. Name of Operator		9. API Well No. <b>30-045-38205</b>
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish
13. State		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |   |   |
|---|---|
| 1. Well plat certified by a registered surveyor.<br>2. A Drilling Plan.<br>3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).<br>5. Operator certification.<br>6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

Application approval 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.  
 Conditions of approval, if any, are attached.

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.

(Continued on page 2)

\*(Instructions on page 2)



Approval Date: 04/22/2021

**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) 476-3480 Fax: (505) 476-3482State of New Mexico  
Energy, Minerals & Natural Resources DepartmentForm C-102  
Revised August 1, 2011Submit one copy to appropriate  
District OfficeOIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-045-38205</b>		<sup>2</sup> Pool Code <b>98342</b>	<sup>3</sup> Pool Name <b>WC 26N18W18; DEVONIAN</b>
<sup>4</sup> Property Code <b>321197</b>	<sup>5</sup> Property Name <b>NAVAJO TRIBAL U</b>		<sup>6</sup> Well Number <b>12A</b>
<sup>7</sup> GRID No. <b>372957</b>	<sup>8</sup> Operator Name <b>TACITUS, LLC</b>		<sup>9</sup> Elevation <b>5666'</b>

<sup>10</sup> Surface Location

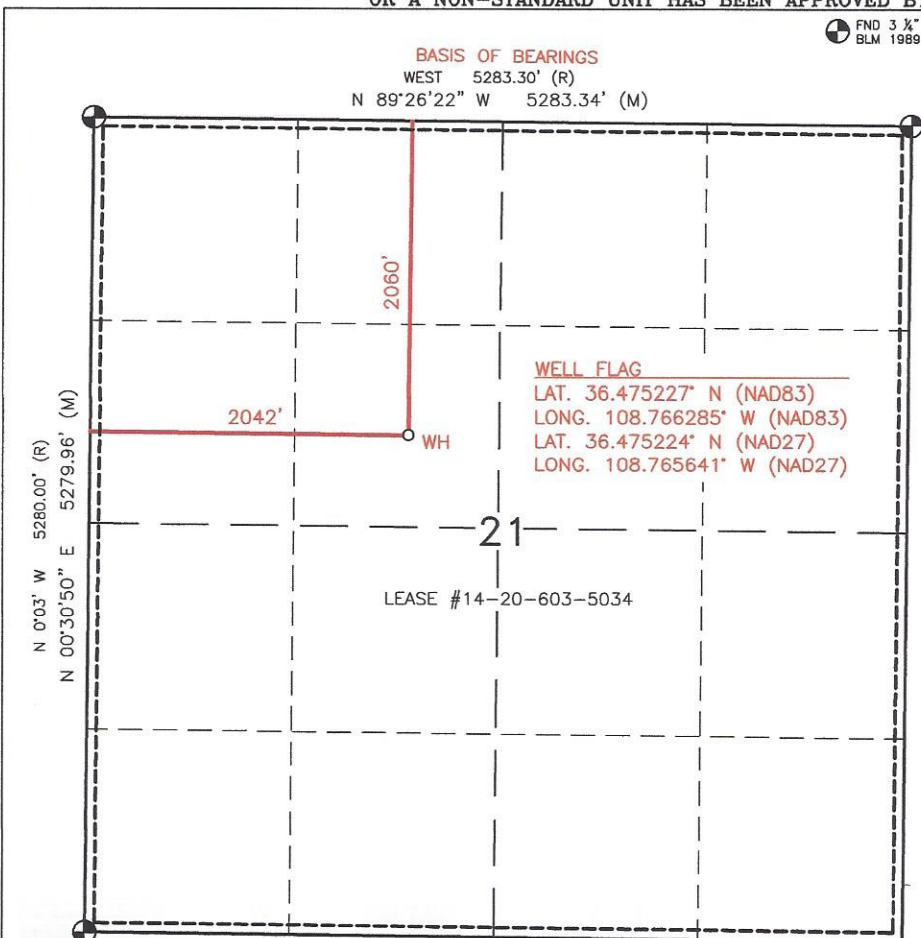
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	21	26N	18W		2060'	NORTH	2042'	WEST	SAN JUAN

<sup>11</sup> 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
<sup>12</sup> Dedicated Acres ALL SECTION 21 640.00 ACRES				<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> Order No.	

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

FND 3 1/4" BC  
BLM 1989

18

<sup>17</sup> 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.

*Peter Kondrat* 5/15/2020  
Signature Date

PETER KONDRAT  
Printed Name

peter.kondrat@tacitushelium.com  
E-mail Address

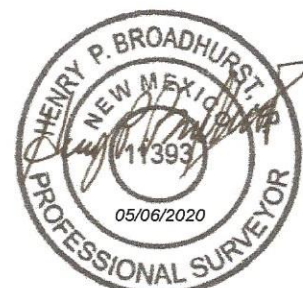
## SURVEYOR CERTIFICATION

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.

MARCH 15, 2019

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number

11393

**Operator Name:** TACITUS, LLC**Well Name:** NAVAJO TRIBAL U**Well Number:** 12A

## Section 4 - Location of Existing and/or Proposed Production Facilities

**Submit or defer a Proposed Production Facilities plan?** SUBMIT

**Production Facilities description:** Gathering System and Pipeline Notification The subject inert wells do not produce any pipeline quality gas and only the Helium will be recovered and sold. The wells are connected to the central process facility located at Township 26N Range 18W Section 20 in San Juan County, New Mexico. This location was the previous site for the central oil battery and gas compression facilities to allow for the sale of gas into the El Paso Natural gas system. The wells utilize the existing pipelines (or replacement pipelines segments as required) to flow the wells to the central processing facility. There is a total of ~ 5 miles of pipelines being used to gather the gas from the 6 wells currently producing. The Facility only removes the Helium from the stream. The helium is compressed into on site Helium trailers so it can be trucked to market. The Helium gas transporter is AirGas LLC. The wells were flowed back through test facilities at each well after completion or frac to clean up prior to flowing to the central facilities. The flowback operations are essentially complete, however because of potential water loading at the wells, they may need to be occasionally blown down at the wellsites. The Operator provides a schedule of anticipated Helium production rates to gas transporter so that they can provide the appropriate number of Helium trailers to collect all of the Helium produced from the central facilities. The Facility is currently designed to produce a maximum of 150 mcf/d of Helium. The Operators plans on new drilling or recompleting addition wells to maintain/increase this rate. The actual flow of the gas will be based the capabilities of the flowing gas wells.

**Production Facilities map:**

TACITUS\_HELIUM\_PLANT\_20200602063719.pdf

TACITUS\_HELIUM\_PLANT\_PICTURE\_20200602063726.pdf

NAVAJO\_TRIBAL\_U\_\_20200602114650

Tacitus\_LLC\_Tocito\_Dome\_Wells\_and\_Pipeline\_System\_Map\_20200708123823.pdf

## Section 5 - Location and Types of Water Supply

### Water Source Table

**Water source type:** OTHER**Describe type:** Tacitus sources water from Basin Disposal Inc with Aztec municipal water permit # NM-01-005

<b>Water source use type:</b>	SURFACE CASING
	STIMULATION
	INTERMEDIATE/PRODUCTION CASING

**Source latitude:****Source longitude:****Source datum:** NAD83

<b>Water source permit type:</b>	TEMPORARY WATER USE PERMIT
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<b>Water source transport method:</b>	TRUCKING
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**Source land ownership:** PRIVATE



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

# Drilling Plan Data Report

04/22/2021

APD ID: 10400057298

Submission Date: 06/02/2020

Highlighted data  
reflects the most  
recent changes

Operator Name: TACITUS, LLC

Well Name: NAVAJO TRIBAL U

Well Number: 12A

[Show Final Text](#)

Well Type: OTHER

Well Work Type: Drill

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
742347	MANCOS	5666	0	0	SANDSTONE, SHALE, SILTSTONE	NONE	N
779541	GREENHORN	5047	619	619	LIMESTONE	NATURAL GAS, OIL	N
779559	DAKOTA	4970	696	696	SANDSTONE, SHALE	NATURAL GAS, OIL	N
779560	MORRISON	4733	933	933	MUDSTONE	NATURAL GAS	N
779561	TODILTO	3716	1950	1950	LIMESTONE	NATURAL GAS	N
779562	ENTRADA	3700	1966	1966	SANDSTONE	NATURAL GAS	N
779563	CHINLE	2963	2703	2703	MUDSTONE	OTHER : helium	N
779577	SHINARUMP	2336	3330	3330	MUDSTONE	NATURAL GAS, OIL	N
779576	DECHELLY	2038	3628	3628	SANDSTONE	NATURAL GAS	N
779575	ORGAN ROCK	1438	4228	4228	SILTSTONE	OTHER : helium	N
779574	ISMAV	137	5529	5529	LIMESTONE	NATURAL GAS, OIL	N
779573	DESERT CREEK	18	5648	5648	LIMESTONE	NATURAL GAS, OIL	N
779572	AKAH	-164	5830	5830	LIMESTONE	NATURAL GAS, OIL	N
779571	BARKER CREEK	-330	5996	5996	LIMESTONE	NATURAL GAS, OIL	N
779570	PENNSYLVANIAN	-489	6155	6155	LIMESTONE	NATURAL GAS, OIL	N
779569	PINKERTON TRAIL	-586	6252	6252	LIMESTONE	NATURAL GAS, OIL	N
779568	MOLAS	-697	6363	6363	SHALE	NATURAL GAS, OTHER : helium	N
779567	LEADVILLE	-750	6416	6416	LIMESTONE	OIL, OTHER : helium	N



**Operator Name:** TACITUS, LLC**Well Name:** NAVAJO TRIBAL U**Well Number:** 12A

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
779566	OURAY	-863	6529	6529	LIMESTONE	NATURAL GAS, OIL, OTHER : helium	N
779565	ELBERT	-884	6550	6550	DOLOMITE, LIMESTONE, SHALE	NATURAL GAS, OTHER : helium	N
742348	MCCRACKEN	-1029	6695	6695	DOLOMITE, SANDSTONE, SHALE	OTHER : HELIUM	Y
779564	ANETH	-1112	6778	6778	LIMESTONE	OTHER : helium	Y
779558	PRE-CAMBRIAN	-1181	6847	6847	GRANITE	OTHER : helium	N

## Section 2 - Blowout Prevention

**Pressure Rating (PSI):** 5M**Rating Depth:** 10000**Equipment:** 5000 PSI DRILLING RIG BOP SYSTEM**Requesting Variance?** NO**Variance request:**

**Testing Procedure:** Maximum expected pressure is 3800 psi. The drilling contract has not yet been awarded, thus the exact BOP model to be used is not yet known. A diagram of a typical 11 inch 5,000 psi model BOP is attached BOP equipment and all accessories will meet or exceed BLM requirements in 43 CFR Part 3160 for a 5000 psi system. A 5000 psi double ram hydraulic BOP with pipe rams containing pipe shears will be used. An annular preventer will be used in conjunction with the BOP. Accumulator system capacity will be sufficient to close all BOPE with a 50% safety factor. BOP accumulator will have enough capacity to open the HCR valve, close all rams and annular preventer, and retain minimum of 200 psi above pre-charge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity, and the fluid level shall be maintained at manufacturer's recommendation. Fill, kill, and choke manifold lines will be 2. Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well. Accessories will include upper and lower Kelly cocks with handles, stabbing valve to fit drill pipe on floor at all times, 5000 psi choke manifold with 2 adjustable and 2 positive chokes, and pressure gauge (diagrams attached). BOP rams will be cycled every 24 hours. Tests will be recorded on IADC log. BOP testing shall be conducted when initially installed, whenever any seal is broken or repaired and/or if the time since the previous test exceeds 30 days. Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readily available to the driller. The remote BOP valve shall be capable of closing and opening the rams. Manual locking devices (hand wheels) shall be installed on rams. A valve will be installed on the annular preventer's closing line as close as possible to the preventer to act as a locking device. The valve will be maintained in the open position and shall only be closed when there is no power to the accumulator.

**Choke Diagram Attachment:**

BOP\_5000psi\_20200521133112.pdf

**BOP Diagram Attachment:**

BOP\_5000psi\_20200521133035.pdf

Operator Name: TACITUS, LLC

Well Name: NAVAJO TRIBAL U

Well Number: 12A

## Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	CONDUCTOR	17.5	13.375	NEW	API	N	0	150	0	150	5666	5516	150	H-40	48	ST&C						
2	SURFACE	12.25	9.625	NEW	API	N	0	1500	0	1500	5666	4166	1500	J-55	36	LT&C	2.9	4.7	BUOY	8.4	BUOY	10.4
3	PRODUCTION	7.875	5.5	NEW	API	N	0	7130	0	7130	5666	-1464	7130	N-80	17	LT&C	1.8	2.2	BUOY	2.9	BUOY	3.3

## Casing Attachments

Casing ID: 1 String Type: CONDUCTOR

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing ID: 2 String Type: SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Tacitus\_U12A\_APD\_casing\_assumption\_worksheet\_20200527111637.pdf

Operator Name: TACITUS, LLC

Well Name: NAVAJO TRIBAL U

Well Number: 12A

## Casing Attachments

Casing ID: 3 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

## Casing Design Assumptions and Worksheet(s):

Tacitus\_U12A\_APD\_casing\_assumption\_worksheet\_20200527111855.pdf

## Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
CONDUCTOR	Lead	150	0	150	170	1.18	15.6	200.6	50	Neat Cement	No

SURFACE	Lead	151	0	1500	300	2.01	12.5	600	50	premium lite high strength FM	2% KCL, Cello Flake, CD-32, lcm-1, fl-52
SURFACE	Tail		150	1500	120	1.27	15.2	152	50	premium lite high strength FM	2% KCL, Cello Flake, CD-32, lcm-1, fl-52
PRODUCTION	Lead	152	1500	7130	230	1.27	12.5	460	50	premium lite high strength fm	2% KCL, cello flake, cd-32, lcm-1, fl-52
PRODUCTION	Tail		1500	7130	127	1.27	15.2	127	50	premium lite high strength fm	2% kcl, cello flake, cd-32, lcm-1, fl-52

**Operator Name:** TACITUS, LLC**Well Name:** NAVAJO TRIBAL U**Well Number:** 12A

## Section 5 - Circulating Medium

**Mud System Type:** Closed**Will an air or gas system be Used?** NO**Description of the equipment for the circulating system in accordance with Onshore Order #2:****Diagram of the equipment for the circulating system in accordance with Onshore Order #2:**

**Describe what will be on location to control well or mitigate other conditions:** Fluid Measurements: Pumps will be equipped with stroke counters with displays in the dog-house. Slow pump speed shall be recorded daily and after mudding up, at a minimum, on the drilling report. A Pit Volume Totalizer will be installed and the readout will be displayed in the dog-house. Gas-detecting equipment will be installed at the shakers, and readouts will be available in the dog-house and the in the geologist's work-station. Closed-Loop System: A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimize the amount of fluids and solids that require disposal. Drilling mud will consist of freshwater and will not be salt saturated or oil-based. Fluid & Solids Disposal: Fluids that cannot be reused, recycled, or returned to the supplier will be hauled to and disposed of at an EPA approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.). Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage products. Waste solids will be hauled to and disposed of at an EPA approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.). All garbage and trash materials will be contained on location in an industry approved trash container and will be removed from the site for proper disposal. Generation of hazardous waste is not anticipated. Federal regulations will be adhered to regarding handling and disposal of such waste if it is generated. Industry approved chemical toilets will be provided and maintained during drilling operations. Water Source: The Navajo Nation and Tacitus LLC have entered multiple confidential water source agreements. Natural Artesian Water Well (Permit #18.0320) with 800,000 gallons declared.

**Describe the mud monitoring system utilized:** Fluid Measurements: Pumps will be equipped with stroke counters with displays in the dog-house. Slow pump speed shall be recorded daily and after mudding up, at a minimum, on the drilling report. A Pit Volume Totalizer will be installed and the readout will be displayed in the dog-house. Gas-detecting equipment will be installed at the shakers, and readouts will be available in the dog-house and the in the geologist's work-station. Closed-Loop System: A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimize the amount of fluids and solids that require disposal. Drilling mud will consist of freshwater and will not be salt saturated or oil-based. Fluid & Solids Disposal: Fluids that cannot be reused, recycled, or returned to the supplier will be hauled to and disposed of at an EPA approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.). Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage products. Waste solids will be hauled to and disposed of at an EPA approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.). All garbage and trash materials will be contained on location in an industry approved trash container and will be removed from the site for proper disposal. Generation of hazardous waste is not anticipated. Federal regulations will be adhered to regarding handling and disposal of such waste if it is generated. Industry approved chemical toilets will be provided and maintained during drilling operations. Water Source: The Navajo Nation and Tacitus LLC have entered multiple confidential water source agreements. Natural Artesian Water Well (Permit #18.0320) with 800,000 gallons declared.

## Circulating Medium Table



**Operator Name:** TACITUS, LLC**Well Name:** NAVAJO TRIBAL U**Well Number:** 12A

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	150	LOW SOLIDS NON-DISPERSED (LSND)	8.4	8.7							
150	1500	LOW SOLIDS NON-DISPERSED (LSND)	8.4	8.9							
1500	3500	LOW SOLIDS NON-DISPERSED (LSND)	8.3	8.9							
3500	7130	LOW SOLIDS NON-DISPERSED (LSND)	8.3	8.9							

## Section 6 - Test, Logging, Coring

### List of production tests including testing procedures, equipment and safety measures:

#### Cased and Open Hole Logging:

Surface, Intermediate and Production Casing intervals may be logged with a Cement Bond Log (CBL) if cement returns are lost and/or cement is not brought to surface to determine the quality of the job prior to drilling ahead. Quad Combo, resistivity image and NMR (nuclear magnetic resonance) from 3500 MD/TVD to TD/~7030 MD/TVD.

#### Mud Logging:

Gas detecting equipment include Mass Spectrometer and Chromatograph shall will be installed in the mud return system for helium and other gases evaluation from ~3500 MD to TD/~7030 MD/TVD.

Pason Systems: Drilling parameters will be recorded and mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume.

DSTs: None planned

Coring: None planned

Testing: Flow tests possible.

### List of open and cased hole logs run in the well:

MUD LOG/GEOLOGICAL LITHOLOGY LOG,DUAL INDUCTION/MICRO-RESISTIVITY,GAMMA RAY LOG,CALIPER,COMPENSATED NEUTRON LOG,COMPENSATED DENSIOLOG,

### Coring operation description for the well:

Operator Name: TACITUS, LLC

Well Name: NAVAJO TRIBAL U

Well Number: 12A

## Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	CONDUCTOR	17.5	13.375	NEW	API	N	0	150	0	150	5666	5516	150	H-40	48	ST&C						
2	SURFACE	12.25	9.625	NEW	API	N	0	1500	0	1500	5666	4166	1500	J-55	36	LT&C	2.9	4.7	BUOY	8.4	BUOY	10.4
3	PRODUCTION	7.875	5.5	NEW	API	N	0	7130	0	7130	5666	-1464	7130	N-80	17	LT&C	1.8	2.2	BUOY	2.9	BUOY	3.3

## Casing Attachments

Casing ID: 1 String Type: CONDUCTOR

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing ID: 2 String Type: SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Tacitus\_U12A\_APD\_casing\_assumption\_worksheet\_20200527111637.pdf

Operator Name: TACITUS, LLC

Well Name: NAVAJO TRIBAL U

Well Number: 12A

## Casing Attachments

Casing ID: 3 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

## Casing Design Assumptions and Worksheet(s):

Tacitus\_U12A\_APD\_casing\_assumption\_worksheet\_20200527111855.pdf

## Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
CONDUCTOR	Lead	150	0	150	170	1.18	15.6	200.6	50	Neat Cement	No

SURFACE	Lead	151	0	1500	300	2.01	12.5	600	50	premium lite high strength FM	2% KCL, Cello Flake, CD-32, lcm-1, fl-52
SURFACE	Tail		150	1500	120	1.27	15.2	152	50	premium lite high strength FM	2% KCL, Cello Flake, CD-32, lcm-1, fl-52
PRODUCTION	Lead	152	1500	7130	230	1.27	12.5	460	50	premium lite high strength fm	2% KCL, cello flake, cd-32, lcm-1, fl-52
PRODUCTION	Tail		1500	7130	127	1.27	15.2	127	50	premium lite high strength fm	2% kcl, cello flake, cd-32, lcm-1, fl-52

Section	Depth	Hole Size	Size	Wt (lb/ft)	Grade	Thread	Collapse	Burst
Conductor	150'+/-	17 ½"	13 3/8"	48#	H40	ST&C	770psi	1730psi
Surface	1500'+/-	12 ¼"	9 5/8"	36#	J55	LT&C	2020psi	3520psi
Production	7130'+/-	7 7/8"	5 1/2"	17#	N80	LT&C	6280psi	7740psi

#### Using Red Book-Halliburton Casing Table

#### Calculations for 9.625 Inch Casing

Collapse Design Safety Factor assumes 0.5 psi/ft & no fluid in casing  
 $2020/750 = 2.9$

Burst Design Safety Factor assumes 0.5 psi/ft & formation pressure is 750 psi  
 $3520/750 = 4.7$

Joint Tensile Design Safety Factor  
 Buoyant

36# x 1500 ft deep = 54000 # Wt of Casing  
 LT&C 453000  
 $\text{Safety Factor } 453000/54000 = 8.4$

Body Tensile Design Safety Factor  
 Buoyant

36# x 1500 ft deep = 54000 # Wt of Casing  
 LT&C 564000  
 $\text{Safety Factor } 564000/54000 = 10.4$

#### Calculations for 5.5 Inch Casing

Collapse Design Safety Factor assumes 0.5 psi/ft & no fluid in casing  
 $6280/3565 = 1.8$

Burst Design Safety Factor assumes 0.5 psi/ft & formation pressure is 750 psi  
 $7740/3565 = 2.2$

Joint Tensile Design Safety Factor  
 Buoyant

17# x 7130 ft deep = 121210 # Wt of Casing  
 LT&C 453000  
 $\text{Safety Factor } 348000/121210 = 2.9$

Body Tensile Design Safety Factor  
 Buoyant

17# x 7130 ft deep = 121210 # Wt of Casing  
LT&C 397000  
Safety Factor  $397000/121210 = 3.3$



COMPANY: Tacitus, LLC NAVAJO NATION LEASE NO. 14-20-603-5034  
WELL NAME: NAVAJO TRIBAL U #12A FOOTAGE: 2060' FNL / 2042' FWL  
LOCATION: Section 21, Township 26 NORTH, Range 18 WEST, COUNTY: SAN JUAN STATE: NEW MEXICO

### NAVAJO NATION STIPULATIONS Surface Management Stipulations

1. The surface ownership and/or jurisdiction of lands contained in this lease may be all or partly in the Navajo Nation. Site specific rights-of-way clearances and/or inventories may be required prior from the Navajo Nation before entry upon the surface for operation of the lease holdings. Prior contact with an approval of the Navajo Nation will be required before operations beginning. All applicable laws of the Navajo Nation (including tax laws, water codes, archaeological clearance, requirements of Environmental Protection Administration, etc.) must be complied with by the Lessee.
2. The Navajo Nation Minerals Department requires a copy of complete exploration and development data (drilling logs, seismic data, etc.) that are obtained by the Lessee on the subject lands be submitted as the information is available, at no cost. Such materials and data will be held confidential as described in 43 CFR 3162.8.
3. Navajo grazing rights will be protected, and the Navajo Nation's rights respecting the use of water will be unimpaired.
4. Lessee will not use any waters of the Navajo Nation (e.g., wells, tanks, rivers, springs, washes, creeks, stock water reservoirs, etc. without a water use permit issued by the Navajo Nation Water Code Administration. Lessee will not drill any water wells for its use without a drilling permit from the Water Code Administration.
5. Lessee will compensate the Navajo Nation and its grazing permittees (if any), for all surface use(s) as well as damages to crops, buildings, and other improvements of a surface landowner, including loss of grazing lands, occasioned by the lessee's operations, except that the lessee will not be held responsible for casualties occasioned by causes beyond the lessee's control. Compensation for surface use will be negotiated by Lessee and the Navajo Nation and will be based upon the area and level of disturbance, and duration of activity on the land.
6. Lessee will not drill any well within 500 feet of any house, structure, or reservoir of water, live stream, or other body of water without the written consent of the Navajo Nation Minerals Department and the Water Code Administration.
7. Lessee will bury, at minimum of four feet, all pipelines crossing tillable lands below plow depth unless other arrangements are made with the Navajo Nation.
8. Upon the request of the Navajo Nation Water Code Administration, or if so required by Navajo Regional Director or his authorized representative, and under the direction of the Field Manager, Bureau of Land Management, Lessee will condition any well drilled which does not produce oil or gas in paying quantities, but which is capable of producing water satisfactorily for domestic, agricultural or livestock use by the Navajo Nation. Otherwise, after the expiration or termination of the lease, Lessee will remove all pumping equipment installed by Lessee at any well.

Approval Date: 04/22/2021

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LOCATION: Section 21, Township 26 NORTH, Range 18 WEST, COUNTY: SAN JUAN STATE: NEW MEXICO

**BUREAU OF INDIAN AFFAIRS  
Surface Management Stipulations**

1. Lessee will carry on all operations in a workmanlike manner in accordance with approved methods and practices.
2. Lessees will abide by and conform to appropriate provisions of Titles 25, 36 and 43 Code of Federal Regulations, and any and other applicable regulations and manuals of the Secretary now or hereafter in force relative to surface leasing, rights-of-way and oil and gas leases (including the National Environmental Protection Act, as amended, and National Area Environmental Protection guidelines; the National Historic Preservation Act of 1966, as amended, and Archaeological Resources Protection Act, hereinafter referred to as NEPA, NHPA, ARPA and other applicable laws, 36 CFR 800 43 CFR 7)
  - a. Prior to issuing any cultural clearance, the Bureau of Land Management will consult with the Navajo Nation Historic Preservation Department, P. O. Box 2898, Window Rock, Arizona 86515, and provide copies of all historic preservation and related documents associated with an undertaking. The Navajo Nation contracted the Navajo Area Archaeology Office under Public Law 93-638.
  - b. Prior to entry upon the land or the disturbance of the surface thereof for drilling or other purposes, Lessee will submit a development plan for surface use to the Area Manager, Farmington Resource Area, Bureau of Land Management, 6251 College Blvd., Suite A, Farmington, New Mexico 87402. An Environmental Analysis will be made by the Bureau of Land Management in consultation with the BIA Navajo Regional office for the purpose of ensuring proper protection of the surface, the natural resources, the environment and existing improvements, and for assuring timely reclamation of disturbed lands. Upon completion of said environmental analysis, the Oil and Gas District Manager will notify Lessee of the conditions to which the proposed surface disturbing operations will be subject. (Note: Prior to start of operations, Lessee will furnish a copy of its development plan and Bureau of Land Management conditions to the BIA. The BIA reserves the right to require site specific archeological surveys and environmental reviews on tracts selected for development prior to giving concurrence to proposed action(s). The BIA will consult with the Navajo Nation prior to concurring in such action(s).
3. The Lessee will not use or permit to be used any part of said leased land for any unlawful conduct or purpose whatsoever. Lessee will not use or permit to be used any of said leased land for the manufacture, sale, gift, transportation, or storage of intoxicating liquors, beverages or drugs. In the event any representative of Lessee or its contractor or subcontractor, employed in connection with the operations on the lease premises will be responsible for any of the unlawful acts described in this clause, the Bureau of Land Management will give Lessee information as to such violation(s) with a copy of the notice to BIA and the Navajo Nation. Lessee will immediately take steps to cure the violation, including the termination or transfer of such employee. [25CFR 162.604; 18 U.S.C. Sections 1151, 1154 and 1156, as amended])
4. Vehicular access to the well site will be limited to the approved access road. Additional unapproved accesses to the well site materializing during the existence of the well, will be processed as trespass.
5. Reserve pits or any other lined or unlined open direct pit(s) will not be used to store produced water. Produced water will be stored in metal tanks or fiber glass enclosures.
6. Erosions forming in the access roads will be corrected. Preventive measures will be the operator's discretion. A permanent side road of the erosion is prohibited.
7. Except as otherwise state herein, copies of correspondence and notices will be mailed to the Bureau of Indian Affairs in care of the Regional Director, Navajo Regional Office, Attention: Branch of Real Estate Services, Bureau of Indian Affairs, P. O. Box 1060, Gallup, New Mexico 87305-1060.

Approval Date: 04/22/2021

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TERMS AND CONDITIONS  
FOR APPLICATION FOR PERMIT TO DRILL (APD)  
AND SUNDRY NOTICE  
TO CONSTRUCT ASSOCIATED ANCILLARY FACILITIES

Tacitus, LLC (Applicant)  
"Navajo Tribal U-12" (Project)

1. The term of the Permit shall not exceed twenty (20) years, beginning on the final approval date of the APD or Sundry Notice.
2. The Drilling Pad shall be limited to an area not to exceed two acres.
3.
  - a. ☐ Consideration to the Navajo Nation for the grant of the Permit and associated rights-of-way shall be a \_\_\_\_\_, and shall be paid in full to the Controller of the Navajo Nation, in lawful money of the United States, and a copy of the receipt for such payment provided to the Navajo Nation Minerals Department, or its successor, within ten (10) days of approval of and consents to the grant of the Permit by the Navajo Nation.
  - b. ☐ No consideration is assessed because the Applicant has a federal or state lease that was issued prior to March 30, 1990.
  - c. ☒ No consideration is assessed because the lease held by the Applicant was granted by the Navajo Nation, and the facilities are within the lease area.
4. The Applicant may use and occupy the area under the Permit for the purpose(s) of Constructing, Operating and Maintaining Pipeline and Ancillary Facilities. The Applicant may not develop, use or occupy the area under the Permit for any other purpose without the prior written approval of the Navajo Nation and the Secretary of the Interior in the case of trust land; the approval of the Navajo Nation may be granted, granted upon conditions or withheld in the sole discretion of the Navajo Nation. The Applicant may not use or occupy the area under the Permit for any unlawful purpose.
5. The Applicant or its assigns/operator shall provide the Navajo Nation Minerals Department the following technical information for each well drilled as soon as it becomes available:
  - a. Suite of electric logs and drilling log and mud log.
  - b. Results of any drill stem and pressure tests conducted.
  - c. Well completion report.
  - d. Gas analysis report.
  - e. Core analysis.
  - f. Water analysis reports.
  - g. Copies of any other special tests run on the wells.
  - h. Other information that may be requested by the Minerals Department.
6. The Permit shall not cover any use of land off the permitted area.
7. If the Applicant fails to construct within one (1) year after final approval of the APD is given by U.S. Bureau of Land Management (BLM) for trust land and one (1) year after final approval of the APD by the Navajo Nation on fee land, the Permit shall be deemed to have expired unless extensions have been granted by BLM within the one (1) year time limit on trust land and by the Navajo Nation on fee land.
8. In all activities conducted by the Applicant within the Navajo Nation, the Applicant shall abide by all laws and regulations of the Navajo Nation and of the United States, now in force and effect or as hereinafter may come into force and effect, including but not limited to the following:
  - a. Title 25, Code of Federal Regulations, Part 169.
  - b. All applicable federal and Navajo Nation antiquities laws and regulations, with the following additional condition: In the event of a discovery all operations in the immediate vicinity of the discovery must cease and the Navajo Nation Historic Preservation Department must be notified immediately. As used herein, "discovery" means any previously unidentified or incorrectly identified cultural resources, including but not limited to archaeological deposits, human remains, or location reportedly associated with Native American religious/traditional beliefs or practices.

- c. The Navajo Preference in Employment Act, 15 N.N.C. §§ 801 et seq., and the Navajo Nation Business Preference Law, 5 N.N.C. §§ 201 et seq.; and
  - d. The Navajo Nation Water Code, 22 N.N.C. §§ 1101 et seq.. Applicant shall apply for and submit all applicable Permit and information to the Navajo Nation Water Development Department, or its successor.
9. The Applicant shall ensure that the air quality of the Navajo Nation is not jeopardized due to violation of applicable laws and regulations by its operations pursuant to the Permit.
  10. The Applicant shall clear and keep clear the lands within the Permit area to the extent compatible with the purpose of the Permit, and shall dispose of all vegetation and other materials cut, uprooted, or otherwise accumulated during any surface disturbance activities.
  11. The Applicant shall reclaim all surface lands disturbed lands related to the Permit, as outlined in a restoration and revegetation plan, which shall be approved by the Navajo Nation Environmental Protection Agency (NNEPA) prior to any surface disturbance. The Applicant shall comply with all provisions of such restoration and revegetation plan and shall notify the Director of the NNEPA immediately upon completion of the surface disturbance activities so that a site inspection can be made.
  12. The Applicant shall at all times during the term of the Permit and at the Applicant's sole cost and expense, properly maintain the land subject to the Permit and all improvements located thereon and make all necessary and reasonable repairs.
  13. The Applicant shall obtain prior written permission to cross existing rights-of-way area, if any, from the appropriate parties.
  14. The Applicant shall be responsible for and promptly pay all damages when they are sustained.
  15. The Applicant shall indemnify and hold harmless the Navajo Nation and the Secretary of the Interior on trust land their respective authorized agent, employees, land users and occupants, against any liability for loss of life, personal injury and property damages arising from the development, use or occupancy or use of the area under the Permit by the Applicant.
  16. The Applicant shall not assign, convey or transfer, in any manner whatsoever, the Permit or any interest therein, or in or to any of the improvements on the land subject to the Permit, without the prior written consent of the Navajo Nation and the Secretary of the Interior if applicable. Any such attempted assignment, conveyance or transfer without such prior written consent shall be void and of no effect. The consent of the Navajo Nation may be granted, granted upon conditions or withheld in the sole discretion of the Navajo Nation.
  17. The Navajo Nation may terminate the Permit for violation of any of the terms and conditions stated herein. In addition, the Permit shall be terminable in whole or part by the Navajo Nation for any of the following causes:
    - a. Failure to comply with any terms and conditions of the Permit or of applicable laws or regulations;
    - b. An abandonment of the Permit; and
    - c. The use of the land subject to the Permit for any purpose inconsistent with the purpose for which the Permit is granted.
  18. At the termination of the Permit, the Applicant shall peaceably and without legal process deliver up the possession of the premises, in good condition, usual wear and tear excepted. Upon the written request of the Navajo Nation, the Applicant shall provide the Navajo Nation, at the Applicant's sole cost and expense with an environmental audit assessment of the premises at least sixty (60) days prior to delivery of said premises.
  19. Holding over by the Applicant after the termination of the Permit shall not constitute a renewal or extension thereof or give the Applicant any rights hereunder or into the land subject to the Permit or to any improvements located thereon.
  20. The Navajo Nation and the Secretary (on trust land only) shall have the right, at any reasonable time during the term of the Permit, to enter upon the premises, or any part thereof, to inspect the same and any improvement located thereon.
  21. By acceptance of the grant of Permit, the Applicant consents to the full territorial legislative, executive and judicial jurisdiction of the Navajo Nation, including but not limited to the jurisdiction to levy fines and to enter judgments for compensatory and punitive damages and injunctive relief, in connection with all activities conducted by the Applicant within the Navajo Nation or which have a proximate (legal) effect on persons or property within the Navajo Nation.
  22. By acceptance of the grant of the Permit, the Applicant covenants and agrees never to contest or challenge the legislative, executive or judicial jurisdiction of the Navajo Nation on the basis that such jurisdiction is inconsistent with the status of the Navajo Nation as an Indian nation, or that the Navajo Nation government does not possess full police power, (i.e. the power to legislate and regulate for the general health and welfare) over all lands, persons and activities within its territorial boundaries, or on any other basis not generally applicable to a similar challenge to the jurisdiction of a state government. Nothing contained in this provision shall be construed to negate or impair federal responsibilities with respect to the land subject to the Permit or to the Navajo Nation.
  23. Any action or proceeding brought by the Applicant against the Navajo Nation in connection with or arising out of the terms and conditions of the Permit shall be brought only in the Courts of the Navajo Nation, and no such action or proceeding shall be brought by the Applicant against the Navajo Nation in any court of any state.
  24. Nothing contained herein shall be interpreted as constituting a waiver, express or implied, of the sovereign immunity of the Navajo Nation.



25. Except as prohibited by applicable federal law, the law of the Navajo Nation shall govern the construction, performance and enforcement of the terms and conditions contained herein.
26. The terms and conditions contained herein shall extend to and be binding upon the successors, heirs, assigns, executors, administrators, employees and agents, including all contractors and subcontractors, of the Applicant, and the term "Applicant", whenever used herein, shall be deemed to include all such successors, heirs, assigns, executors, administrators, employees and agents.
27. There is expressly reserved to the Navajo Nation full territorial legislative, executive and judicial jurisdiction over the area under the Permit and all lands burdened by the Permit, including without limitation over all persons, including the public, and all activities conducted or otherwise occurring within the area under the Permit; and the area under the Permit and all lands burdened by the Permit shall be and forever remain Navajo Indian Country for purposes of Navajo Nation jurisdiction.
28. Permittee shall comply with NNEPA "Specific Terms and Conditions of Approval", attached and incorporated into these terms and conditions.
29. The applicant shall cover all settling, evaporation, and reserve pits to exclude waterfowl and other birds.
30. The applicant shall record all water zones encountered during the drilling by depth, case and properly seal to prevent any cross contamination of aquifers or loss of water on the surface due to artesian flow. The applicant will provide all such information to the Navajo Nation Department of Water Resources.
31. The applicant shall obtain drilling and water use permits from the Technical, Construction, and Operations Branch, Navajo Nation Department of Water Resources, prior to initiating any drilling/construction activities on Navajo Nation land.



## Conditions of Approval

Operator: Tacitus, LLC  
Well Name: Navajo Tribal U 12A  
Legal Location: T26N R18W Sec 21 SENW NMPM; San Juan County, NM  
NEPA Log Number: DOI-BLM-NM-F010-2020-0036-CX  
Lease Number: 14-20-603-5034

The following conditions of approval will apply to the Tacitus, LLC, Navajo Tribal U 12A, access road and other associated facilities, unless a particular Surface Managing Agency or private surface owner has supplied to Bureau of Land Management and the operator a contradictory environmental stipulation. The failure of the operator to comply with these requirements may result in an assessment or civil penalties pursuant to 43 CFR 3163.1 or 3163.2.

**Time Length of Categorical Exclusion:** If the If the Navajo Tribal U 12A well has not been spudded by May 1, 2024, the APD for the non-spudded well will expire and the operator is to cease all operations related to preparing to drill the well.

**Disclaimers:** BLM's approval of the APD does not relieve the lessee and operator from obtaining any other authorizations that may be required by the BIA, Navajo Tribe, State, or other jurisdictional entities.

**Copy of Plans:** A complete copy of the APD package, including: Surface Use Plan of Operations, Plan of Development (if required), Conditions of Approval, NNDFW Biological Resources Compliance Form, and NN HHPD Cultural Resources Compliance Form (if required), and Project Stipulations (if required) shall be at the project area at all times and available to all persons.

**Review of NEPA documents:** It is the responsibility of the operator to follow all the design features, best management practices, and mitigation measures as contained in Categorical Exclusion DOI-BLM-NM-F010-2020-0036-CX.

**Best Management Practices (BMPs):** Farmington Field Office established environmental Best Management Practices (BMP's) will be followed during construction and reclamation of well site pads, access roads, pipeline ties, facility placement or any other surface disturbing activity associated with this project. Bureau wide standard BMP's are found in the Gold Book, Fourth Edition-Revised 2007 and at [http://www.blm.gov/wo/st/en/prog/energy/oil\\_and\\_gas/best\\_management\\_practices.html](http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices.html). Farmington Field Office BMP's are integrated into the Surface Use Plan of Operations, Bare Soil Reclamation Plan, and COAs.

### Construction, Production, Facilities, Reclamation & Maintenance

**Construction & Reclamation Notification:** The operator or their contractor will contact the Bureau of Land Management, Farmington Field Office, Environmental Protection Staff, Randy McKee (505) 564-7708 or by email, at least 48 hours prior to any construction or reclamation on this project. Although the Navajo Tribal U 12 well will be drilled and completed on existing disturbance from prior activity, any further surface disturbance activity will conform to the surface plan of operations, reclamation plan, and the conditions of approval.

**Production Facilities:** design and layout of facilities will be deferred until an onsite with BLM-FFO surface protection staff is conducted to determine the best location. Tacitus or their contractor will contact the Bureau of Land Management, Farmington Field Office, Surface, and Environmental Protection Staff to schedule a facility layout onsite.

**Paint Color:** All permanent (onsite for 6 months or longer) above-ground equipment constructed or installed, including pumping units, will be painted the Carlsbad Canyon standard environmental color. All production facilities will be painted within 3 months of installation. Facilities that are required to comply with Occupational Health and Safety Act Rules and Regulations will be excluded from this painting requirement.

**Staking:** The holder shall place slope stakes, culvert location and grade stakes, and other construction control stakes as deemed necessary by the authorized officer to ensure construction in accordance with the plan of development. If stakes are disturbed, they shall be replaced before proceeding with construction.

**Weather:** No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of 6 inches deep, the soil shall be deemed too wet.

**Stockpile of Soil:** The top 6 inches of soil material will be stripped and stockpiled in the construction zones around the pad [construction zones may be restricted or deleted to provide resource avoidance]. The stockpiled soil will be free of brush and tree limbs, trunks and roots. The stockpiled soil material will be spread on the reclaimed portions of the pad [including the reserve pit, cut and fill slopes] prior to re-seeding. Spreading shall not be done when the ground or topsoil is frozen or wet.

**Storage Tanks:** All open top permanent production or storage tanks regardless of diameter made of fiberglass, steel, or other material used for the containment of oil, condensate, produced water and or other production waste shall be screened, netted or otherwise covered to protect migratory birds and other wildlife from access.

**Compressors:** Compressor units on this well location not equipped with a drip pan for containment of fluids shall be lined with an impervious material at least 8 mils thick and a 12 inch berm. The compressor will be painted to match the well facilities. Any variance to this will be approved by the Authorized Officer (AO). Noise mitigation may be required at the time of compressor installation.

**Culverts:** Silt Traps/Bell Holes will be built upstream of all culvert locations.

**Driving Surface Area:** All activities associated within the construction, operation, maintenance, and abandonment of the well location is limited to areas approved in the APD or ROW permit. During the production of the well, vehicular traffic is limited to the daily driving surface area established during interim reclamation construction operations. This area typically forms a keyhole or teardrop driving surface from which all production facilities may be serviced or inspected. A v-type ditch will be constructed on the outside of the driving surface to further define the driving surface and to deter vehicular traffic from entering onto the interim reclamation areas.

**Contouring of Cut and Fill Slopes:** The interim cut and fill slope grade shall be as close to the original contour as possible. To obtain this ratio, pits and slopes shall be back sloped into the pad during interim reclamation. Only subsurface soil and material shall be utilized in the contouring of the cut and fill slopes.

Under no circumstances shall topsoil be utilized as substrate material for contouring of cut and fill slopes.

**Maintenance:** In order to perform subsequent well operations, right-of-way (ROW) operations, or install new/additional equipment, it may be necessary to drive, park, and operate on restored, interim vegetation within the previously disturbed area. This is generally acceptable provided damage is promptly repaired and reclaimed following use. Where vehicular travel has occurred as a “convenience” and interim reclamation/vegetation has been compromised, immediate remediation of the affected areas is required. Additionally, where erosion has occurred and compromised the reclamation of the well location, the affected area must be promptly remediated so that future erosion is prevented and the landform is stabilized.

**Non-Permitted Disturbance:** Construction, construction maintenance or any other activity outside the areas permitted by the APD will require additional approval and may require a new cultural survey and clearance.

**Employee Education:** All employees of the project, including the Project Sponsor and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles and company equipment. This includes all personnel associated with construction, use, maintenance and abandonment of the well pad, well facilities, access and pipeline. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16U.S.C. 470aa-mm).

**Cultural Resources Conditions of Compliance:** (from CRCF NNHPD NO: HPD-16-628)

Site NM-H-24-101:

1. Site is crossed by the current APE and the existing flowline #U16 well.
2. Features of the site can be avoided if all work is confined to the existing right of way and the existing road.
3. Fence the edges of the flowline ROW prior to ground disturbing work within the site.
4. An archaeologist will monitor all ground-disturbing activities & produce a monitoring report within 30-days of the monitoring activities.
5. Monitoring stipulations: NNHPD requests a monitoring report be submitted within 30-days of completed activity.

In-Use Sites (IUS): No further work is recommended.

TCP#673:

1. TCP is located outside of the APE but is visually affected by several of the wells in the area, particularly SED Well #002.
2. Tacitus, LLC, will ensure that contractors are **NOT** working on the wells or flowlines when ceremonies or offerings are being conducted near the TCP.

Please refer to CULTURAL RESOURCES COMPLIANCE FORM, NNHPD NO: HPD-19-628 for more information.

**Discovery of Cultural Resources:** IN THE EVENT OF A DISCOVERY [“DISCOVERY” MEANS ANY PREVIOUSLY UNIDENTIFIED OR INCORRECTLY IDENTIFIED CULTURAL RESOURCES INCLUDING BUT NOT LIMITED TO ARCHAEOLOGICAL DEPOSITS, HUMAN REMAINS, OR LOCATIONS REPORTEDLY ASSOCIATED WITH NATIVE AMERICAN RELIGIOUS /TRADITIONAL BELIEFS OR PRACTICES], ALL OPERATIONS IN THE IMMEDIATE VICINITY OF THE DISCOVERY MUST CEASE, AND THE NAVAJO NATION HISTORIC PRESERVATION DEPARTMENT MUST BE NOTICIED AT 928-871-7198.

**Damage to Sites:** If, in its operations, operator/holder damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the operator/holder agrees at his/her expense to have a permitted cultural resources consultant prepare and have executed a Navajo Nation Historic Preservation Department approved data recovery plan. Damage to cultural resources may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

**Noxious/Invasive Weeds:** Tacitus will inventory the proposed site for the presence of noxious and invasive weeds. Noxious weeds are those listed on the New Mexico Noxious Weed List and USDA Federal Noxious Weed List. The New Mexico Noxious Weed List or USDA Noxious Weed List can be updated at any time and should be regularly check for any changes. Invasive species may or may not be listed as a noxious weed but have been identified to likely cause economic or environmental harm or harm to human health. The following noxious weeds have been identified as occurring on lands within the boundaries of the Farmington Field Office (FFO). There are numerous invasive species on the FFO such as Russian thistle (*Salsola spp.*) and field bindweed (*Convolvulus arvensis*).

<u>Russian Knapweed (<i>Centaurea repens</i>)</u>	<u>Musk Thistle (<i>Cardus nutans</i>)</u>
<u>Bull Thistle (<i>Cirsium vulgare</i>)</u>	<u>Canada Thistle (<i>Cirsium arvense</i>)</u>
<u>Scotch Thistle (<i>Onopordum acanthium</i>)</u>	<u>Hoary Cress (<i>Cardaria draba</i>)</u>
<u>Perennial Pepperweed (<i>Lepidium latifolium</i>)</u>	<u>Halogeton (<i>Halogeton glomeratus</i>)</u>
<u>Spotted Knapweed (<i>Centaurea maculosa</i>)</u>	<u>Dalmation Toadflax (<i>Linaria genistifolia</i>)</u>
<u>Yellow Toadflax (<i>Linaria vulgaris</i>)</u>	<u>Camelthorn (<i>Alhagi pseudalhagi</i>)</u>
<u>African Rue (<i>Peganum harmala</i>)</u>	<u>Salt Cedar (<i>Tamarix spp.</i>)</u>
<u>Diffuse Knapweed (<i>Centaurea diffusa</i>)</u>	<u>Leafy Spurge (<i>Euphorbia esula</i>)</u>

- a. Any identified weeds will be treated prior to new surface disturbance if determined by the FFO Noxious Weed Coordinator. If a Weed Management is not on file, a Weed Management Plan will be created. A Pesticide Use Proposal (PUP) will be submitted to and approved by the FFO Noxious Weed Coordinator prior to application of pesticide. The FFO Noxious Weeds Coordinator (505-564-7600) can provide assistance in the development of the PUP.
- b. Vehicles and equipment should be inspected and cleaned prior to coming onto the site. This is especially important on vehicles from out of state or if coming from a weed-infested site.
- c. Fill dirt or gravel may be needed for excavation, road construction/repair, or as a surfacing material. If fill dirt or gravel will be required, the source shall be noxious weed free and approved by the FFO Noxious Weed Coordinator.

- d. The site shall be monitored for the life of the project for the presence of noxious weeds (includes maintenance and construction activities). If weeds are found the FFO Coordinator shall be notified at (505) 564-7600 and provided with a Weed Management Plan and if necessary, a Pesticide Use Proposal (PUP). The FFO Coordinator can provide assistance developing the Weed Management Plan and/or the Pesticide Use Proposal.
- e. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and state laws and used only in accordance with their registered use and limitations. DJR's weed-control contractor would contact the BLM-FFO prior to using these chemicals.

Noxious/invasive weed treatments must be reported to the FFO Noxious Weed Coordinator. A Pesticide Use Report (PUR) is required to report any mechanical, chemical, biological, or cultural treatments used to eradicate, and/or control noxious or invasive species. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

**Bare ground vegetation trim-out:** If bare ground vegetation treatment (trim-out) is desired around facility structures, the operator will submit a bare ground/trim-out design included in their Surface Use Plan of Operations (SUPO). The design will address vegetation safety concerns of the operator and BLM while minimizing impacts to interim reclamation efforts. The design must include what structures to be treated and buffer distances of trim-out. Pesticide use for vegetation control around anchor structures is not approved. If pesticides are used for bare ground trim-out, the trim-out will not exceed three feet from the edge of any eligible permanent structure (i.e. well heads, fences, tanks). Additional distance/areas may be requested and must be approved by the FFO authorized officer. The additional information below must also be provided to the FFO:

- a. Pesticide use for trim out will require a Pesticide Use Proposal (PUP). A PUP is required *prior* to any treatment and must be approved by the FFO Noxious Weed Coordinator. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and state laws and used only in accordance with their registered use and limitations. Tacitus' weed-control contractor would contact the BLM-FFO prior to using these chemicals and provide Pesticide Use Reports (PURs) post treatment.
- b. A Pesticide Use Report (PUR) or a Biological Use Report (BUR) is required to report any chemical, or biological treatments used to eradicate, or control vegetation on site. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

### **Paleontology**

Any paleontological resource discovered by the Operator, or any person working on the Operator behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant scientific values. The Holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the Holder.



**Threatened, Endangered or Sensitive Species:** If the operator/holder discovers any Threatened, Endangered, or NN sensitive species or work in the vicinity of known habitat, activities will be suspended and the discovery promptly reported to the Navajo Nation Fish and Wildlife Service (NNFWS) . Failure to notify the NNFWS about a discovery may result in civil or criminal penalties in accordance with The Endangered Species Act (as amended).

**Hazards:** Wildlife hazards associated with the proposed project would be fenced, covered, and/or contained in storage tanks, as necessary.

### **Soil, Air, Water**

**Land Farming:** No excavation, remediation or closure activities will be authorized without prior approval, on any federal or Indian mineral estate, federal surface or federal ROW. A Sundry Notice (DOI, BLM Form 3160-5) must be submitted with an explanation of the remediation or closure plan for on-lease actions.

**Emission Control Standard:** Compressor engines 300 horsepower or less used during well production must be rated by the manufacturer as emitting NOx at 2 grams per horsepower hour or less to comply with the New Mexico Environmental Department, Air Quality Bureau's guidance.

**Waste Disposal:** All fluids (i.e., scrubber cleaners) used during washing of production equipment, including compressors, will be properly disposed of to avoid ground contamination, or hazard to livestock or wildlife.

**Operator Name:** TACITUS, LLC**Well Name:** NAVAJO TRIBAL U**Well Number:** 12A**Section 7 - Methods for Handling Waste****Waste type:** DRILLING

**Waste content description:** Fluids and Solids Control Program Fluid Measurements: Pumps will be equipped with stroke counters with displays in the dog-house. Slow pump speed shall be recorded daily and after mudding up, at a minimum, on the drilling report. A Pit Volume Totalizer will be installed and the readout will be displayed in the dog-house. Gas-detecting equipment will be installed at the shakers, and readouts will be available in the dog-house and the in the geologist's work-station. Closed-Loop System: A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimize the amount of fluids and solids that require disposal. Drilling mud will consist of freshwater and will not be salt saturated or oil-based. Fluid & Solids Disposal: Fluids that cannot be reused, recycled, or returned to the supplier will be hauled to and disposed of at an EPA approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.). Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage products. Waste solids will be hauled to and disposed of at an EPA approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.). All garbage and trash materials will be contained on location in an industry approved trash container and will be removed from the site for proper disposal. Generation of hazardous waste is not anticipated. Federal regulations will be adhered to regarding handling and disposal of such waste if it is generated. Industry approved chemical toilets will be provided and maintained during drilling operations.

**Amount of waste:** 400 barrels**Waste disposal frequency :** Daily

**Safe containment description:** Closed-Loop System: A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimize the amount of fluids and solids that require disposal. Drilling mud will consist of freshwater and will not be salt saturated or oil-based.

**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:**

**Disposal location description:** Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage products. Waste solids will be hauled to and disposed of at an EPA approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc)

**Reserve Pit****Reserve Pit being used?** NO**Temporary disposal of produced water into reserve pit?** NO**Reserve pit length (ft.)****Reserve pit width (ft.)****Reserve pit depth (ft.)****Reserve pit volume (cu. yd.)****Is at least 50% of the reserve pit in cut?****Reserve pit liner****Reserve pit liner specifications and installation description**

**Operator Name:** TACITUS, LLC**Well Name:** NAVAJO TRIBAL U**Well Number:** 12A

### Cuttings Area

**Cuttings Area being used?** NO**Are you storing cuttings on location?** Y

**Description of cuttings location** Closed-Loop System: A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimize the amount of fluids and solids that require disposal. Drilling mud will consist of freshwater and will not be salt saturated or oil-based.

**Cuttings area length (ft.)****Cuttings area width (ft.)****Cuttings area depth (ft.)****Cuttings area volume (cu. yd.)****Is at least 50% of the cuttings area in cut?****WCuttings area liner****Cuttings area liner specifications and installation description**

### Section 8 - Ancillary Facilities

**Are you requesting any Ancillary Facilities?:** N**Ancillary Facilities attachment:****Comments:**

### Section 9 - Well Site Layout

**Well Site Layout Diagram:**

NAVAJO\_TRIBAL\_U\_\_20200602083228

AD777\_Rig\_Inventory\_with\_Foot\_Print\_20200602083407.pdf

**Comments:**

**Operator Name:** TACITUS, LLC**Well Name:** NAVAJO TRIBAL U**Well Number:** 12A

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
779566	OURAY	-863	6529	6529	LIMESTONE	NATURAL GAS, OIL, OTHER : helium	N
779565	ELBERT	-884	6550	6550	DOLOMITE, LIMESTONE, SHALE	NATURAL GAS, OTHER : helium	N
742348	MCCRACKEN	-1029	6695	6695	DOLOMITE, SANDSTONE, SHALE	OTHER : HELIUM	Y
779564	ANETH	-1112	6778	6778	LIMESTONE	OTHER : helium	Y
779558	PRE-CAMBRIAN	-1181	6847	6847	GRANITE	OTHER : helium	N

## Section 2 - Blowout Prevention

**Pressure Rating (PSI):** 5M**Rating Depth:** 10000**Equipment:** 5000 PSI DRILLING RIG BOP SYSTEM**Requesting Variance?** NO**Variance request:**

**Testing Procedure:** Maximum expected pressure is 3800 psi. The drilling contract has not yet been awarded, thus the exact BOP model to be used is not yet known. A diagram of a typical 11 inch 5,000 psi model BOP is attached BOP equipment and all accessories will meet or exceed BLM requirements in 43 CFR Part 3160 for a 5000 psi system. A 5000 psi double ram hydraulic BOP with pipe rams containing pipe shears will be used. An annular preventer will be used in conjunction with the BOP. Accumulator system capacity will be sufficient to close all BOPE with a 50% safety factor. BOP accumulator will have enough capacity to open the HCR valve, close all rams and annular preventer, and retain minimum of 200 psi above pre-charge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity, and the fluid level shall be maintained at manufacturer's recommendation. Fill, kill, and choke manifold lines will be 2. Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well. Accessories will include upper and lower Kelly cocks with handles, stabbing valve to fit drill pipe on floor at all times, 5000 psi choke manifold with 2 adjustable and 2 positive chokes, and pressure gauge (diagrams attached). BOP rams will be cycled every 24 hours. Tests will be recorded on IADC log. BOP testing shall be conducted when initially installed, whenever any seal is broken or repaired and/or if the time since the previous test exceeds 30 days. Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readily available to the driller. The remote BOP valve shall be capable of closing and opening the rams. Manual locking devices (hand wheels) shall be installed on rams. A valve will be installed on the annular preventer's closing line as close as possible to the preventer to act as a locking device. The valve will be maintained in the open position and shall only be closed when there is no power to the accumulator.

**Choke Diagram Attachment:**

BOP\_5000psi\_20200521133112.pdf

**BOP Diagram Attachment:**

BOP\_5000psi\_20200521133035.pdf

**District I**

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

**District II**

811 S. First St., Artesia, NM 88210  
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**District III**

1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**

1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

COMMENTS

Action 58061

## COMMENTS

Operator: Tacitus, LLC 2100 Cortland Drive Farmington, NM 87401	OGRID: 372957
	Action Number: 58061
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

## COMMENTS

Created By	Comment	Comment Date
kpickford	KP GEO Review 11/5/2021	11/5/2021



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**State of New Mexico**  
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CONDITIONS

Action 58061

**CONDITIONS**

Operator: Tacitus, LLC 2100 Cortland Drive Farmington, NM 87401	OGRID: 372957
	Action Number: 58061
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

**CONDITIONS**

Created By	Condition	Condition Date
kpickford	Notify OCD 24 hours prior to casing & cement	11/5/2021
kpickford	Cement is required to circulate on both surface and intermediate1 strings of casing	11/5/2021
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	11/5/2021