OCD Received 11/13/2020

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

5. Lease Serial No.
NMNM013233

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.
GOONCH FED COM 0409
134H

2. Name of Operator
NOVO OIL AND GAS NORTHERN DELAWARE LLC

9. API Well No.
30 015 47700

3a. Address
1001 West Wilshire Boulevard Suite 206, Oklahoma City, (

3b. Phone No. *(include area code)*
(405) 404-0414

10. Field and Pool, or Exploratory
~~COTTON DRAW BONE SPRING~~/null
CULEBRA BLUFF; BONE SPRING, SOUTH

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface SESE / 435 FSL / 285 FEL / LAT 32.3431069 / LONG -104.0848175
At proposed prod. zone SESE / 10 FSL / 726 FEL / LAT 32.3126497 / LONG -104.0862741

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 33/T22S/R28E/NMP

14. Distance in miles and direction from nearest town or post office*
4 miles

12. County or Parish
EDDY

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
285 feet

16. No of acres in lease
400.45

17. Spacing Unit dedicated to this well
320.23

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
20 feet

19. Proposed Depth
9406 feet / 20328 feet

20. BLM/BIA Bond No. in file
FED: NMB001536

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3040 feet

22. Approximate date work will start*
02/01/2020

23. Estimated duration
90 days

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.
2. A Drilling Plan.
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).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	BRIAN WOOD / Ph: (405) 404-0414	01/08/2020

Title
President

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575) 234-5959	10/21/2020

Title	Office
Assistant Field Manager Lands & Minerals	Carlsbad Field 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.

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.

- Will require a directional survey with the C-104

Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string

APPROVED WITH CONDITIONS

SL

KP 11/17/2020 GEO Review

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 10/21/2020

Entered - KMS NMOCD

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
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-47700	15011	CULEBRA BLUFF; BONE SPRING, SOUTH

[4] Property Code	[5] Property Name	[6] Well Number
372920	GOONCH FED COM 0409	134H

[7] OGRID No.	[8] Operator Name	[9] Elevation
372920	NOVO OIL & GAS NORTHERN DELAWARE, LLC	3039.7

[10] Surface Location

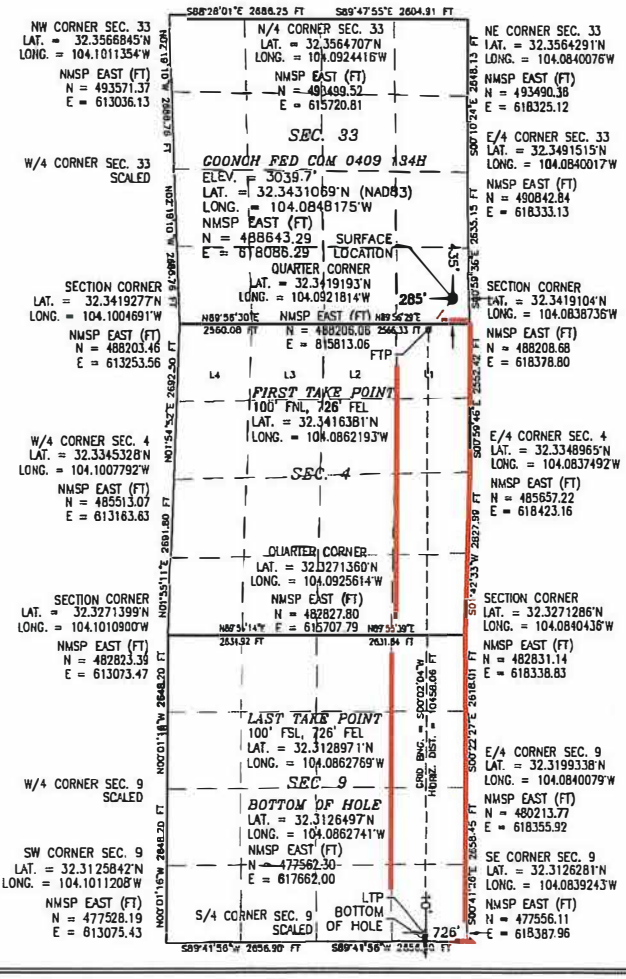
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	33	22 S	28 E		435	SOUTH	285	EAST	EDDY

[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
P	9	23 S	28 E		10	SOUTH	726	EAST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
320.23		C	

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.



[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.

B Wood

1-1-20

Signature Date

BRIAN WOOD

Printed Name

brian@permitswest.com

E-mail Address

505 466-8120

[18] 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.

JUNE 5, 2019

Date of Survey

FILIMON F. JARAMILLO — NEW MEXICO — 12797 — REGISTERED PROFESSIONAL SURVEYOR

Signature and Seal of Professional Surveyor

Certificate Number: FILIMON F. JARAMILLO, PLS 12797

SURVEY NO. 7259

Intent YES As Drilled

API #

Operator Name:	Property Name:	Well Number
NOVO OIL & GAS NORTHERN DELAWARE, LLC	GOONCH FED COM 0409	134H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County

Latitude	Longitude	NAD

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	4	23S	28E	1	100	NORTH	726	EAST	EDDY

Latitude	Longitude	NAD
32.3416381	104.0862193	83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
P	9	23S	28E		100	SOUTH	726	EAST	EDDY

Latitude	Longitude	NAD
32.3128971	104.0862769	83

Is this well the defining well for the Horizontal Spacing Unit? YES

Is this well an infill well? NO

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:	Property Name:	Well Number

KZ 06/29/2018

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 1/1/2020

X Original Operator & OGRID No.: Novo Oil & Gas Northern Delaware, LLC (372920)

□ Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: A C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule 19.15.18.12.A

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well	API	SHL (ULSTR)	SHL Footages	Expected MCF/D	Flared or Vented	Comments
Goonch Fed Com 0409 133H	30-015-	P-33-22S-28E	395 FSL & 485 FEL	375	30 days	Time depends on well clean up
Goonch Fed Com 0409 134H	30-015-	P-33-22S-28E	435 FSL & 285 FEL	375	30 days	Time depends on well clean up
Goonch Fed Com 0409 214H	30-015-	P-33-22S-28E	475 FSL & 485 FEL	4000	30 days	Time depends on well clean up
Goonch Fed Com 0409 233H	30-015-	P-33-22S-28E	455 FSL & 485 FEL	4000	30 days	Time depends on well clean up
Goonch Fed Com 0409 234H	30-015-	P-33-22S-28E	475 FSL & 285 FEL	4000	30 days	Time depends on well clean up

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is not yet dedicated. However, negotiations are underway. One possible connection is an existing Enterprise line that is <1/4 mile northwest. Novo Oil & Gas Northern Delaware, LLC will provide (periodically) to its Gas Transporter a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Novo Oil & Gas Northern Delaware, LLC and its Gas Transporter have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at an as yet undetermined Gas Transporter Processing Plant located in Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on its Gas Transporter system at that time. Based on current information, it is Novo Oil & Gas Northern Delaware, LLC's belief an existing or new system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

Additional Operator Remarks

Location of Well

0. SHL: SESE / 435 FSL / 285 FEL / TWSP: 22S / RANGE: 28E / SECTION: 33 / LAT: 32.3431069 / LONG: -104.0848175 (TVD: 0 feet, MD: 0 feet)

PPP: NESE / 2640 FSL / 726 FEL / TWSP: 23S / RANGE: 28E / SECTION: 4 / LAT: 32.33463 / LONG: -104.086235 (TVD: 9435 feet, MD: 12326 feet)

PPP: LOT 1 / 0 FNL / 726 FEL / TWSP: 23S / RANGE: 28E / SECTION: 4 / LAT: 32.341884 / LONG: -104.086215 (TVD: 9439 feet, MD: 9689 feet)

PPP: SESE / 377 FSL / 868 FEL / TWSP: 22S / RANGE: 28E / SECTION: 33 / LAT: 32.342948 / LONG: -104.0867044 (TVD: 8255 feet, MD: 8304 feet)

BHL: SESE / 10 FSL / 726 FEL / TWSP: 23S / RANGE: 28E / SECTION: 9 / LAT: 32.3126497 / LONG: -104.0862741 (TVD: 9406 feet, MD: 20328 feet)

BLM Point of Contact

Name: Gavin Mickwee
Title: Land Law Examiner
Phone: (575) 234-5972
Email: gmickwee@blm.gov

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**NOVO OIL AND GAS**
WELL NAME & NO.:	**GOONCH FED COM 0409 134H**
SURFACE HOLE FOOTAGE:	**435'/S & 285'/E**
BOTTOM HOLE FOOTAGE	**10'/S & 726'/E**
LOCATION:	**Section 33, T.22 S., R.28 E., NMPM**
COUNTY:	**EDDY County, New Mexico**

COA

H2S	(•) Yes	( ) No	
Potash	(•) None	( ) Secretary	( ) R-111-P
Cave/Karst Potential	( ) Low	(•) Medium	( ) High
Cave/Karst Potential	( ) Critical		
Variance	( ) None	(•) Flex Hose	( ) Other
Wellhead	( ) Conventional	(•) Multibowl	( ) Both
Other	[ ] 4 String Area	[ ] Capitan Reef	[ ] WIPP
Other	[ ] Fluid Filled	[ ] Cement Squeeze	[ ] Pilot Hole
Special Requirements	[ ] Water Disposal	[x] COM	[ ] Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **North East Loving** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **230** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface. **Excess cement calculates to 14%, additional cement might be required.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**

hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess cement calculates to 18%, additional cement might be required. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.
  JJP07282020

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig

- Notify the BLM when moving in and removing the Spudder Rig.
- Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
- BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.

b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall

have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

APD ID: 10400053038 **Submission Date:** 01/08/2020

Operator Name: NOVO OIL AND GAS NORTHERN DELAWARE LLC

Well Name: GOONCH FED COM 0409 **Well Number:** 134H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
629674	QUATERNARY	3040	0	0	OTHER : None	USEABLE WATER	N
629675	RUSTLER ANHYDRITE	2940	100	100	ANHYDRITE	NONE	N
629676	SALADO	2306	734	734	SALT	NONE	N
629677	CASTILE	2070	970	970	ANHYDRITE	NONE	N
629678	BELL CANYON	462	2578	2590	SANDSTONE	NATURAL GAS, OIL	N
629856	BASE OF SALT	462	2578	2590	SALT	NONE	N
629679	CHERRY CANYON	-600	3640	3664	SANDSTONE	NATURAL GAS, OIL	N
629680	BRUSHY CANYON	-1613	4653	4692	SANDSTONE	NATURAL GAS, OIL	N
629681	BONE SPRING LIME	-3075	6115	6166	LIMESTONE	NATURAL GAS, OIL	N
629682	BONE SPRING 1ST	-4080	7120	7169	SANDSTONE	NATURAL GAS, OIL	N
629683	BONE SPRING 2ND	-4345	7385	7434	OTHER : Carbonate	NATURAL GAS, OIL	N
629684	BONE SPRING 2ND	-4855	7895	7944	SANDSTONE	NATURAL GAS, OIL	N
629685	BONE SPRING 3RD	-5215	8255	8304	OTHER : Carbonate	NATURAL GAS, OIL	N
629686	BONE SPRING 3RD	-6105	9145	9198	SANDSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Operator Name: NOVO OIL AND GAS NORTHERN DELAWARE LLC

Well Name: GOONCH FED COM 0409 **Well Number:** 134H

Pressure Rating (PSI): 5M **Rating Depth:** 12000

Equipment: A 13.625 5,000-psi BOP system will be installed on a multi-bowl (speed head) wellhead with a 13.625 flanged casing spool. Top flange of casing spool will be set in a cellar below ground level. BOP system will consist of a single pipe ram on the bottom, mud cross, double pipe ram with blind rams on bottom and pipe rams on top, and annular preventer. Blowout preventer will be installed on top of the 13.375 surface casing and will remain installed to TD of the well. Wellhead, blowout preventer, and choke manifold diagram are included.
Requesting Variance? YES

Variance request: Variance is requested to use a co-flex hose between the BOP system and choke manifold. A co-flex pressure test certificate will be on the location when testing the BOP.
Testing Procedure: BOP system will be isolated with a test plug and tested by an independent tester to 250-psi low and 5000-psi high for 10 minutes. Surface casing will be pressure tested to 250-psi low and 1500-psi high. Intermediate casing will be pressure tested to 250-psi low and 0.22 psi/ft (1958 psi) high for 30 minutes.
Choke Diagram Attachment:

Goonch_0409_134H_Choke_20200108134122.pdf

BOP Diagram Attachment:

Goonch_0409_134H_BOP_20200108134129.pdf

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	SURFACE	17.5	13.375	NEW	API	N	0	175	0	175	3040	2865	175	J-55	54.5	BUTT	1.125	1.125	DRY	1.6	DRY	1.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5900	0	5851	3040	-2811	5900	HCL-80	43.5	BUTT	1.125	1.125	DRY	1.6	DRY	1.6
3	PRODUCTION	8.5	5.5	NEW	API	N	0	20328	0	9406	3040	-6366	20328	P-110	20	OTHER - TMK DQX	1.125	1.125	DRY	1.6	DRY	1.6

Casing Attachments

Operator Name: NOVO OIL AND GAS NORTHERN DELAWARE LLC

Well Name: GOONCH FED COM 0409 **Well Number:** 134H

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Goonch_0409_134H_Casing_Design_Assumptions_20200108134335.pdf

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Goonch_0409_134H_Casing_Design_Assumptions_20200108134416.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Goonch_0409_134H_Casing_Design_Assumptions_20200108134452.pdf

5.5in_DQX_Casing_Spec_20200108134458.pdf

Section 4 - Cement

Operator Name: NOVO OIL AND GAS NORTHERN DELAWARE LLC

Well Name: GOONCH FED COM 0409 **Well Number:** 134H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0	0	None	None
PRODUCTION	Tail		5400	20328	3187	1.42	13.2	4525	20	Class H	Fluid loss + retarder + LCM
SURFACE	Lead		0	175	0	0	0	0	0	None	None
SURFACE	Tail		0	175	150	1.62	13.8	243	100	Class C	Gel + accelerator + LCM
INTERMEDIATE	Lead		0	5900	855	2.27	11.9	1949	20	Class C	gel + extender + LCM
INTERMEDIATE	Tail		0	5900	200	1.34	14.8	268	20	Class C	gel + retarder + LCM

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: All necessary mud products (barite, bentonite, LCM) to control weight and fluid loss will be on site at all times. Mud program may change due to hole conditions. A closed loop system will be used.
Describe the mud monitoring system utilized: An electronic PVT mud system will monitor flow rate, pump pressure, stroke rate, and volume.

Circulating Medium Table

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	175	OTHER : Fresh water spud	8.3	8.3							
175	5900	OTHER : Brine diesel emulsion	9.8	10.2							
5900	20328	OIL-BASED MUD	8.5	10							

Operator Name: NOVO OIL AND GAS NORTHERN DELAWARE LLC

Well Name: GOONCH FED COM 0409 **Well Number:** 134H

Section 6 - Test, Logging, Coring

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

A 2-person mud logging program will be used from 3000 to TD.

GR log will be acquired by MDW tools from the intermediate casing to TD.

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

GAMMA RAY LOG,MUD LOG/GEOLOGICAL LITHOLOGY LOG,

Coring operation description for the well:

No core or drill stem test is planned.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4699 **Anticipated Surface Pressure:** 2622

Anticipated Bottom Hole Temperature(F): 150

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Goonch_0409_134H_H2S_Plan_20200108135924.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Goonch_0409_134H_Horizontal_Drill_Plan_20200108135943.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Goonch_0409_134H_Drill_Plan_20200108135951.pdf
CoFlex_Certs_20200108140002.pdf
Goonch_0409_134H_Speedhead_Specs_20200108140008.pdf
Goonch_0409_134H_Anti_Collision_Report_20200108140020.pdf

Other Variance attachment:

Goonch_0409_134H_Alternative_Casing__Spec_Request_20200108140453.pdf
Goonch_0409_134H_Casing_Cementing_Variance_20200108140459.pdf

Novo Oil & Gas Northern Delaware, LLC
Goonch Fed Com 0409 134H
SHL 435' FSL & 285' FEL 33-22S-28E
BHL 10' FSL & 726' FEL 9-23S-28e
Eddy County, NM

Drilling Program

1. ESTIMATED TOPS

Formation Name	TVD KB	MD	Bearing
Quaternary	0'	0'	water
Rustler anhydrite	100'	100'	N/A
Salado salt	734'	734'	N/A
Castile anhydrite	970'	970'	N/A
Base salt	2578'	2590'	
Bell Canyon sandstone	2578'	2590'	hydrocarbons
Cherry Canyon sandstone	3640'	3664'	hydrocarbons
Brushy Canyon sandstone	4653'	4692'	hydrocarbons
Bone Spring limestone	6115'	6166'	hydrocarbons
1st Bone Spring sandstone	7120'	7169'	hydrocarbons
2nd Bone Spring carbonate	7385'	7434'	hydrocarbons
2nd Bone Spring sandstone	7895'	7944'	hydrocarbons
3d Bone Spring carbonate	8255'	8304'	hydrocarbons
(KOP	8968'	9017'	hydrocarbons)
3rd Bone Spring sandstone	9145'	9198'	hydrocarbons
TD	9406'	20328'	hydrocarbons

2. NOTABLE ZONES

Third Bone Spring is the goal. All perforations will be ≥100' from the dedication perimeter. Closest water well (C 00036) is 1.4 miles west. Depth to water was not reported in this 106' deep well.

3. PRESSURE CONTROL

A 13.625" 5,000-psi BOP system will be installed on a multi-bowl (speed head) wellhead with a 13.625" flanged casing spool. Top flange of casing spool will be set in a cellar below ground level. BOP system will consist of a single pipe ram on the bottom, mud cross, double pipe ram with blind rams on bottom and pipe rams on top, and annular preventer. Blowout preventer will be installed on top of the 13.375" surface casing and will remain installed to TD of the well. Wellhead, blowout preventer, and choke manifold diagram are included.

BOP system will be isolated with a test plug and tested by an independent tester to 250-psi low and 5000-psi high for 10 minutes. Variance is requested to use a co-flex hose between the BOP system and choke manifold. A co-flex pressure test certificate will be on the location when testing the BOP.

Surface casing will be pressure tested to 250-psi low and 1500-psi high. Intermediate casing will be pressure tested to 250-psi low and 1500-psi high for 30 minutes.

4. CASING & CEMENT

Variance is requested for the option to use a surface rig to drill the surface hole, set the surface casing, and cement the surface casing. If the schedule between rigs would preclude presetting the surface casing, then the primary rig will MIRU and drill all of the well.

All casing will be API and new. See attached casing assumption worksheet.

Novo Oil & Gas Northern Delaware, LLC
Goonch Fed Com 0409 134H
SHL 435' FSL & 285' FEL 33-22S-28E
BHL 10' FSL & 726' FEL 9-23S-28e
Eddy County, NM

Hole O. D.	Set MD	Set TVD	Casing OD	Weight (lb/ft)	Grade	Joint	Collapse	Burst	Tension
17.5"	0' - 175'	0' - 175'	13.375" surface	54.5	J-55	BTC	1.125	1.125	1.60
12.25"	0' - 5900'	0' - 5851'	9.625" intermed.	43.5	HCL-80	BTC	1.125	1.125	1.60
8.5"	0' – 20328'	0' – 9406'	5.5" product.	20	P-110	TMK DQX	1.125	1.125	1.60
8.5"	0' – 20328'	0' – 9406'	5.5" alternate product.	20	P-110	GBCD	1.125	1.125	1.60
8.5"	0' – 20328'	0' – 9406'	5.5" alternate product.	20	P-110 HC	CDC	1.125	1.125	1.60

Name	Type	Sacks	Yield	Cu. Ft.	Weight	Blend
Surface	Tail	150	1.62	243	13.8	Class C + gel + accelerator + LCM
TOC = GL		100% Excess			Centralizers on every jt to GL	
Intermediate	Lead	855	2.28	1949	11.9	Class C + gel + extender + LCM
	Tail	200	1.34	268	14.8	Class C + gel + retarder + LCM
TOC = GL		20% Excess			Centralizers on bottom 3 jts and then 1 centralizer every 4th jt to GL	
Production	Tail	3187	1.42	4525	13.2	Class H + fluid loss + retarder + LCM
TOC = 5400'		20% Excess			None planned	

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS

5. MUD PROGRAM

An electronic PVT mud system will monitor flow rate, pump pressure, stroke rate, and volume. All necessary mud products (barite, bentonite, LCM) to control weight and fluid loss will be on site at all times. Mud program may change due to hole conditions. A closed loop system will be used.

Type	Interval (MD)	lb/gal	Viscosity	Fluid Loss
fresh water spud	0' - 175'	8.3	30 - 60	NC
brine or ccut brine	175' - 5900'	9.8 – 10.2	35 - 45	NC
OBM	5900' – 20328'	8.5 – 10.0	35 - 65	4 - 6

6. CORES, TESTS, & LOGS

No core or drill stem test is planned.

A 2-person mud logging program will be used from ≈3000' to TD.

GR log will be acquired by MDW tools from the intermediate casing to TD.

7. DOWN HOLE CONDITIONS

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is ≈4699 psi. Expected bottom hole temperature is ≈150° F.

An H2S plan is attached.

8. OTHER INFORMATION

Anticipated spud date is upon approval. It is expected it will take ≈3 months to drill and complete the well.

GOONCH FED COM 0409 134H

NOVO

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
KOP 0409 134H	8967.54	-57.88	-582.78	488585.42	617503.51	32.34295	-104.08670
PBHL 0409 134H	9406.00	-11081.00	-424.29	477562.30	617662.00	32.31265	-104.08627
LP 0409 134H	9445.00	-526.62	-483.15	488116.68	617603.14	32.34166	-104.08639

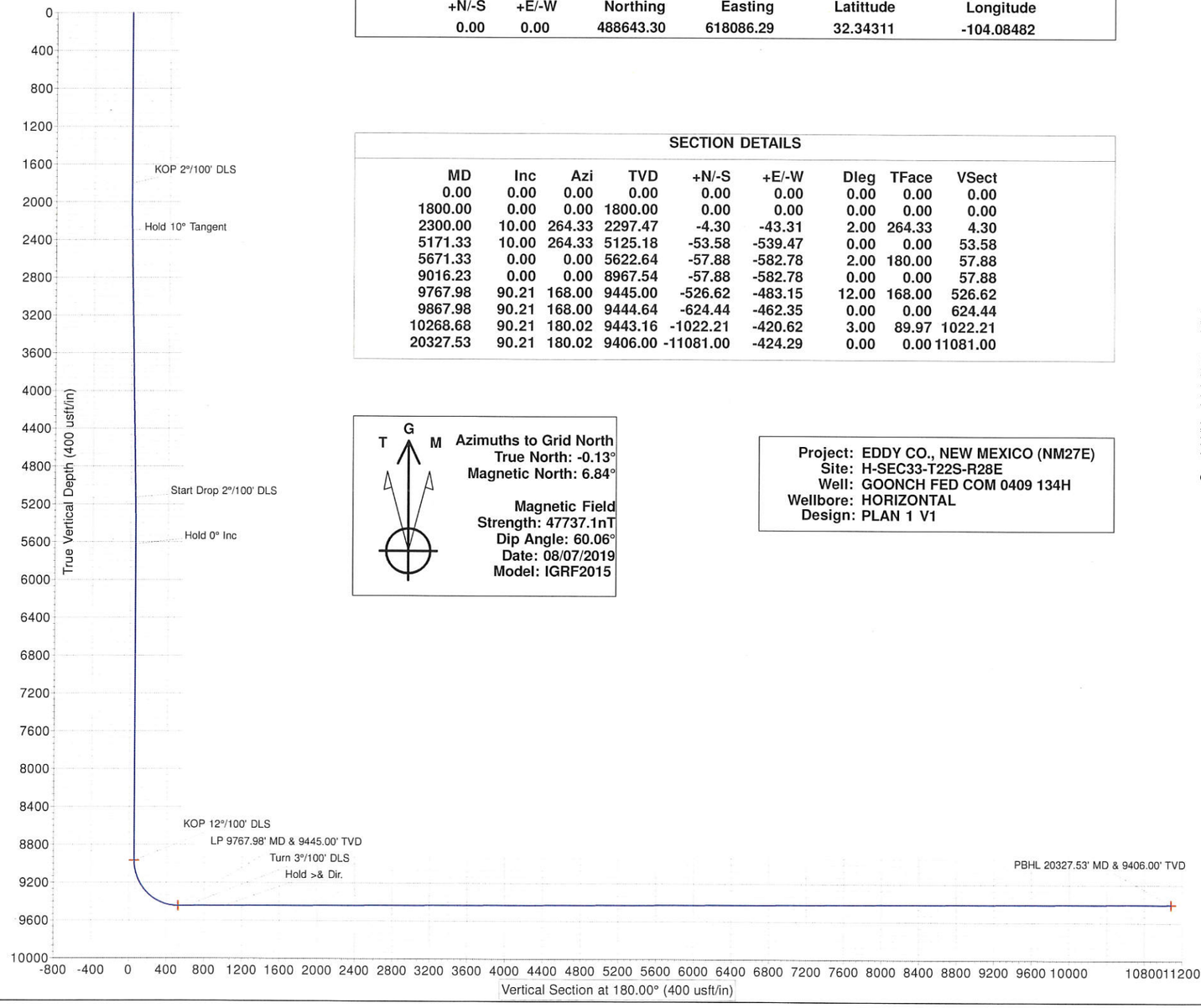
WELL DETAILS: GOONCH FED COM 0409 134H

3040.00

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.00	0.00	488643.30	618086.29	32.34311	-104.08482

SECTION DETAILS

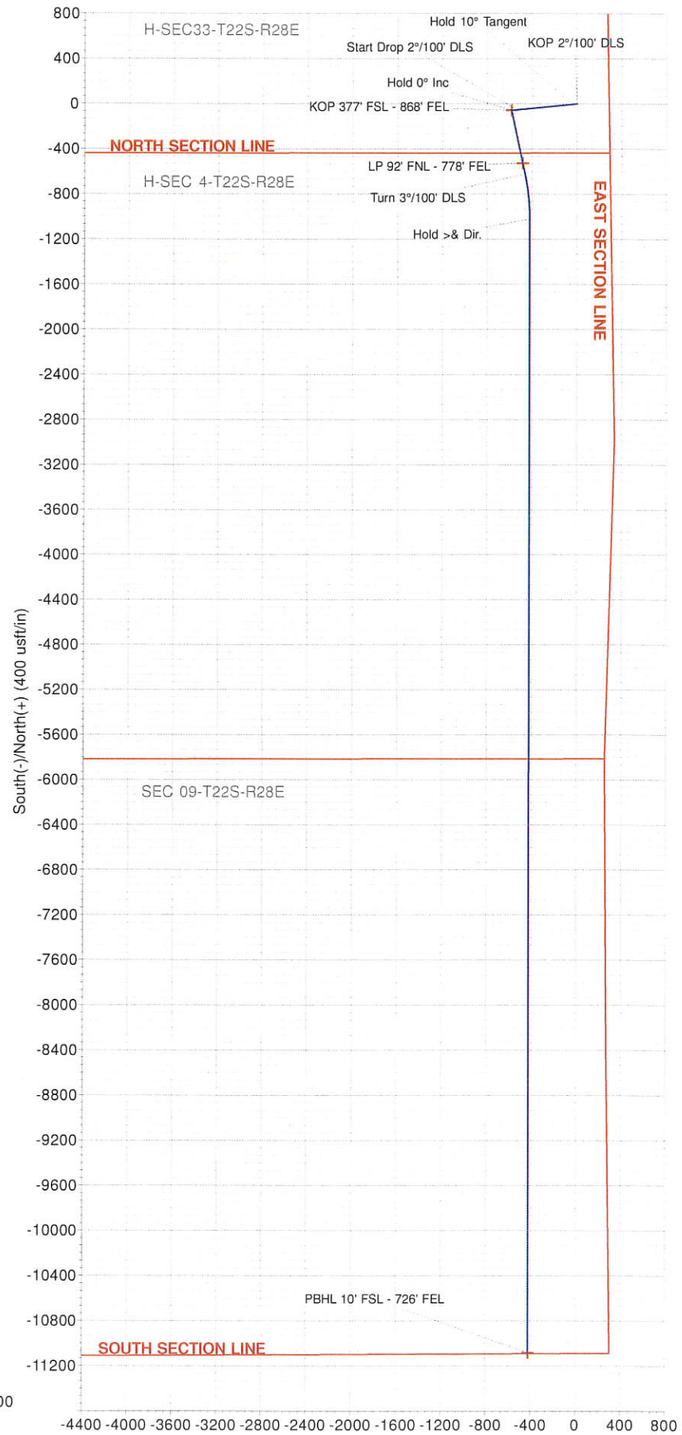
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	0.00
2300.00	10.00	264.33	2297.47	-4.30	-43.31	2.00	264.33	4.30
5171.33	10.00	264.33	5125.18	-53.58	-539.47	0.00	0.00	53.58
5671.33	0.00	0.00	5622.64	-57.88	-582.78	2.00	180.00	57.88
9016.23	0.00	0.00	8967.54	-57.88	-582.78	0.00	0.00	57.88
9767.98	90.21	168.00	9445.00	-526.62	-483.15	12.00	168.00	526.62
9867.98	90.21	168.00	9444.64	-624.44	-462.35	0.00	0.00	624.44
10268.68	90.21	180.02	9443.16	-1022.21	-420.62	3.00	89.97	1022.21
20327.53	90.21	180.02	9406.00	-11081.00	-424.29	0.00	0.00	11081.00



Azimuths to Grid North
True North: -0.13°
Magnetic North: 6.84°

Magnetic Field
Strength: 47737.1nT
Dip Angle: 60.06°
Date: 08/07/2019
Model: IGRF2015

Project: EDDY CO., NEW MEXICO (NM27E)
Site: H-SEC33-T22S-R28E
Well: GOONCH FED COM 0409 134H
Wellbore: HORIZONTAL
Design: PLAN 1 V1



Project	EDDY CO., NEW MEXICO (NM27E)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	H-SEC33-T22S-R28E				
Site Position:		Northing:	488,683.10 usft	Latitude:	32.34322
From:	Lat/Long	Easting:	617,885.58 usft	Longitude:	-104.08547
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.13 °

Well	GOONCH FED COM 0409 134H					
Well Position	+N/-S	0.00 usft	Northing:	488,643.30 usft	Latitude:	32.34311
	+E/-W	0.00 usft	Easting:	618,086.29 usft	Longitude:	-104.08482
Position Uncertainty		0.00 usft	Wellhead Elevation:	3,040.00 usft	Ground Level:	3,040.00 usft

Wellbore	HORIZONTAL				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	08/07/19	6.97	60.06	47,737.08821390

Design	PLAN 1 V1				
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	180.00	

Survey Tool Program	Date 08/07/19			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	20,327.53	PLAN 1 V1 (HORIZONTAL)	MWD	OWSG MWD - Standard

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00
KOP 2°/100' DLS							
1,900.00	2.00	264.33	1,899.98	-0.17	-1.74	0.17	2.00

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,000.00	4.00	264.33	1,999.84	-0.69	-6.94	0.69	2.00
2,100.00	6.00	264.33	2,099.45	-1.55	-15.62	1.55	2.00
2,200.00	8.00	264.33	2,198.70	-2.76	-27.74	2.76	2.00
2,300.00	10.00	264.33	2,297.47	-4.30	-43.31	4.30	2.00
Hold 10° Tangent							
2,400.00	10.00	264.33	2,395.95	-6.02	-60.59	6.02	0.00
2,500.00	10.00	264.33	2,494.43	-7.73	-77.87	7.73	0.00
2,600.00	10.00	264.33	2,592.91	-9.45	-95.15	9.45	0.00
2,700.00	10.00	264.33	2,691.39	-11.17	-112.43	11.17	0.00
2,800.00	10.00	264.33	2,789.87	-12.88	-129.71	12.88	0.00
2,900.00	10.00	264.33	2,888.35	-14.60	-146.99	14.60	0.00
3,000.00	10.00	264.33	2,986.83	-16.31	-164.27	16.31	0.00
3,100.00	10.00	264.33	3,085.31	-18.03	-181.55	18.03	0.00
3,200.00	10.00	264.33	3,183.79	-19.75	-198.83	19.75	0.00
3,300.00	10.00	264.33	3,282.27	-21.46	-216.11	21.46	0.00
3,400.00	10.00	264.33	3,380.75	-23.18	-233.39	23.18	0.00
3,500.00	10.00	264.33	3,479.23	-24.89	-250.67	24.89	0.00
3,600.00	10.00	264.33	3,577.72	-26.61	-267.95	26.61	0.00
3,700.00	10.00	264.33	3,676.20	-28.33	-285.23	28.33	0.00
3,800.00	10.00	264.33	3,774.68	-30.04	-302.51	30.04	0.00
3,900.00	10.00	264.33	3,873.16	-31.76	-319.79	31.76	0.00
4,000.00	10.00	264.33	3,971.64	-33.48	-337.07	33.48	0.00
4,100.00	10.00	264.33	4,070.12	-35.19	-354.35	35.19	0.00
4,200.00	10.00	264.33	4,168.60	-36.91	-371.63	36.91	0.00
4,300.00	10.00	264.33	4,267.08	-38.62	-388.91	38.62	0.00
4,400.00	10.00	264.33	4,365.56	-40.34	-406.19	40.34	0.00
4,500.00	10.00	264.33	4,464.04	-42.06	-423.47	42.06	0.00
4,600.00	10.00	264.33	4,562.52	-43.77	-440.75	43.77	0.00
4,700.00	10.00	264.33	4,661.00	-45.49	-458.02	45.49	0.00
4,800.00	10.00	264.33	4,759.48	-47.20	-475.30	47.20	0.00
4,900.00	10.00	264.33	4,857.97	-48.92	-492.58	48.92	0.00
5,000.00	10.00	264.33	4,956.45	-50.64	-509.86	50.64	0.00
5,100.00	10.00	264.33	5,054.93	-52.35	-527.14	52.35	0.00
5,171.33	10.00	264.33	5,125.17	-53.58	-539.47	53.58	0.00
Start Drop 2°/100' DLS							
5,200.00	9.43	264.33	5,153.43	-54.05	-544.28	54.05	2.00
5,300.00	7.43	264.33	5,252.35	-55.50	-558.87	55.50	2.00
5,400.00	5.43	264.33	5,351.71	-56.61	-570.00	56.61	2.00
5,500.00	3.43	264.33	5,451.41	-57.37	-577.68	57.37	2.00
5,600.00	1.43	264.33	5,551.32	-57.79	-581.90	57.79	2.00
5,671.33	0.00	264.33	5,622.64	-57.88	-582.78	57.88	2.00
Hold 0° Inc							
5,700.00	0.00	0.00	5,651.31	-57.88	-582.78	57.88	0.00
5,800.00	0.00	0.00	5,751.31	-57.88	-582.78	57.88	0.00
5,900.00	0.00	0.00	5,851.31	-57.88	-582.78	57.88	0.00
6,000.00	0.00	0.00	5,951.31	-57.88	-582.78	57.88	0.00
6,100.00	0.00	0.00	6,051.31	-57.88	-582.78	57.88	0.00
6,200.00	0.00	0.00	6,151.31	-57.88	-582.78	57.88	0.00
6,300.00	0.00	0.00	6,251.31	-57.88	-582.78	57.88	0.00
6,400.00	0.00	0.00	6,351.31	-57.88	-582.78	57.88	0.00
6,500.00	0.00	0.00	6,451.31	-57.88	-582.78	57.88	0.00
6,600.00	0.00	0.00	6,551.31	-57.88	-582.78	57.88	0.00
6,700.00	0.00	0.00	6,651.31	-57.88	-582.78	57.88	0.00
6,800.00	0.00	0.00	6,751.31	-57.88	-582.78	57.88	0.00

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
6,900.00	0.00	0.00	6,851.31	-57.88	-582.78	57.88	0.00
7,000.00	0.00	0.00	6,951.31	-57.88	-582.78	57.88	0.00
7,100.00	0.00	0.00	7,051.31	-57.88	-582.78	57.88	0.00
7,200.00	0.00	0.00	7,151.31	-57.88	-582.78	57.88	0.00
7,300.00	0.00	0.00	7,251.31	-57.88	-582.78	57.88	0.00
7,400.00	0.00	0.00	7,351.31	-57.88	-582.78	57.88	0.00
7,500.00	0.00	0.00	7,451.31	-57.88	-582.78	57.88	0.00
7,600.00	0.00	0.00	7,551.31	-57.88	-582.78	57.88	0.00
7,700.00	0.00	0.00	7,651.31	-57.88	-582.78	57.88	0.00
7,800.00	0.00	0.00	7,751.31	-57.88	-582.78	57.88	0.00
7,900.00	0.00	0.00	7,851.31	-57.88	-582.78	57.88	0.00
8,000.00	0.00	0.00	7,951.31	-57.88	-582.78	57.88	0.00
8,100.00	0.00	0.00	8,051.31	-57.88	-582.78	57.88	0.00
8,200.00	0.00	0.00	8,151.31	-57.88	-582.78	57.88	0.00
8,300.00	0.00	0.00	8,251.31	-57.88	-582.78	57.88	0.00
8,400.00	0.00	0.00	8,351.31	-57.88	-582.78	57.88	0.00
8,500.00	0.00	0.00	8,451.31	-57.88	-582.78	57.88	0.00
8,600.00	0.00	0.00	8,551.31	-57.88	-582.78	57.88	0.00
8,700.00	0.00	0.00	8,651.31	-57.88	-582.78	57.88	0.00
8,800.00	0.00	0.00	8,751.31	-57.88	-582.78	57.88	0.00
8,900.00	0.00	0.00	8,851.31	-57.88	-582.78	57.88	0.00
9,000.00	0.00	0.00	8,951.31	-57.88	-582.78	57.88	0.00
9,016.23	0.00	0.00	8,967.54	-57.88	-582.78	57.88	0.00
KOP 12°/100' DLS - KOP 0409 134H							
9,025.00	1.05	168.00	8,976.31	-57.96	-582.76	57.96	12.00
9,050.00	4.05	168.00	9,001.28	-59.05	-582.53	59.05	12.00
9,075.00	7.05	168.00	9,026.16	-61.41	-582.03	61.41	12.00
9,100.00	10.05	168.00	9,050.88	-65.05	-581.26	65.05	12.00
9,125.00	13.05	168.00	9,075.37	-69.94	-580.22	69.94	12.00
9,150.00	16.05	168.00	9,099.57	-76.09	-578.91	76.09	12.00
9,175.00	19.05	168.00	9,123.40	-83.46	-577.34	83.46	12.00
9,200.00	22.05	168.00	9,146.81	-92.05	-575.52	92.05	12.00
9,225.00	25.05	168.00	9,169.72	-101.82	-573.44	101.82	12.00
9,250.00	28.05	168.00	9,192.08	-112.75	-571.12	112.75	12.00
9,275.00	31.05	168.00	9,213.83	-124.81	-568.55	124.81	12.00
9,300.00	34.05	168.00	9,234.90	-137.96	-565.76	137.96	12.00
9,325.00	37.05	168.00	9,255.23	-152.18	-562.74	152.18	12.00
9,350.00	40.05	168.00	9,274.78	-167.42	-559.50	167.42	12.00
9,375.00	43.05	168.00	9,293.49	-183.63	-556.05	183.63	12.00
9,400.00	46.05	168.00	9,311.30	-200.79	-552.40	200.79	12.00
9,425.00	49.05	168.00	9,328.17	-218.83	-548.57	218.83	12.00
9,450.00	52.05	168.00	9,344.06	-237.71	-544.56	237.71	12.00
9,475.00	55.05	168.00	9,358.91	-257.38	-540.37	257.38	12.00
9,500.00	58.05	168.00	9,372.68	-277.78	-536.04	277.78	12.00
9,525.00	61.05	168.00	9,385.35	-298.86	-531.56	298.86	12.00
9,550.00	64.05	168.00	9,396.87	-320.56	-526.95	320.56	12.00
9,575.00	67.05	168.00	9,407.22	-342.82	-522.21	342.82	12.00
9,600.00	70.05	168.00	9,416.36	-365.58	-517.38	365.58	12.00
9,625.00	73.05	168.00	9,424.27	-388.77	-512.45	388.77	12.00
9,650.00	76.05	168.00	9,430.93	-412.34	-507.44	412.34	12.00
9,675.00	79.05	168.00	9,436.32	-436.21	-502.36	436.21	12.00
9,700.00	82.05	168.00	9,440.42	-460.33	-497.24	460.33	12.00
9,725.00	85.05	168.00	9,443.23	-484.63	-492.07	484.63	12.00
9,750.00	88.05	168.00	9,444.73	-509.04	-486.88	509.04	12.00

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
9,767.98	90.21	168.00	9,445.00	-526.62	-483.15	526.62	12.00
LP 9767.98' MD & 9445.00' TVD - LP 0409 134H							
9,800.00	90.21	168.00	9,444.88	-557.94	-476.49	557.94	0.00
9,867.98	90.21	168.00	9,444.64	-624.43	-462.35	624.43	0.00
Turn 3°/100' DLS							
9,900.00	90.21	168.96	9,444.52	-655.81	-455.96	655.81	3.00
10,000.00	90.21	171.96	9,444.15	-754.41	-439.39	754.41	3.00
10,100.00	90.21	174.96	9,443.78	-853.75	-428.00	853.75	3.00
10,200.00	90.21	177.96	9,443.41	-953.55	-421.83	953.55	3.00
10,268.68	90.21	180.02	9,443.16	-1,022.21	-420.62	1,022.21	3.00
Hold >& Dir.							
10,300.00	90.21	180.02	9,443.04	-1,053.53	-420.63	1,053.53	0.00
10,400.00	90.21	180.02	9,442.67	-1,153.53	-420.67	1,153.53	0.00
10,500.00	90.21	180.02	9,442.30	-1,253.53	-420.70	1,253.53	0.00
10,600.00	90.21	180.02	9,441.93	-1,353.53	-420.74	1,353.53	0.00
10,700.00	90.21	180.02	9,441.56	-1,453.53	-420.78	1,453.53	0.00
10,800.00	90.21	180.02	9,441.19	-1,553.53	-420.81	1,553.53	0.00
10,900.00	90.21	180.02	9,440.82	-1,653.53	-420.85	1,653.53	0.00
11,000.00	90.21	180.02	9,440.45	-1,753.53	-420.89	1,753.53	0.00
11,100.00	90.21	180.02	9,440.08	-1,853.53	-420.92	1,853.53	0.00
11,200.00	90.21	180.02	9,439.72	-1,953.53	-420.96	1,953.53	0.00
11,300.00	90.21	180.02	9,439.35	-2,053.53	-421.00	2,053.53	0.00
11,400.00	90.21	180.02	9,438.98	-2,153.53	-421.03	2,153.53	0.00
11,500.00	90.21	180.02	9,438.61	-2,253.52	-421.07	2,253.52	0.00
11,600.00	90.21	180.02	9,438.24	-2,353.52	-421.11	2,353.52	0.00
11,700.00	90.21	180.02	9,437.87	-2,453.52	-421.14	2,453.52	0.00
11,800.00	90.21	180.02	9,437.50	-2,553.52	-421.18	2,553.52	0.00
11,900.00	90.21	180.02	9,437.13	-2,653.52	-421.22	2,653.52	0.00
12,000.00	90.21	180.02	9,436.76	-2,753.52	-421.25	2,753.52	0.00
12,100.00	90.21	180.02	9,436.39	-2,853.52	-421.29	2,853.52	0.00
12,200.00	90.21	180.02	9,436.02	-2,953.52	-421.33	2,953.52	0.00
12,300.00	90.21	180.02	9,435.65	-3,053.52	-421.36	3,053.52	0.00
12,400.00	90.21	180.02	9,435.28	-3,153.52	-421.40	3,153.52	0.00
12,500.00	90.21	180.02	9,434.91	-3,253.52	-421.43	3,253.52	0.00
12,600.00	90.21	180.02	9,434.54	-3,353.52	-421.47	3,353.52	0.00
12,700.00	90.21	180.02	9,434.17	-3,453.52	-421.51	3,453.52	0.00
12,800.00	90.21	180.02	9,433.81	-3,553.52	-421.54	3,553.52	0.00
12,900.00	90.21	180.02	9,433.44	-3,653.52	-421.58	3,653.52	0.00
13,000.00	90.21	180.02	9,433.07	-3,753.51	-421.62	3,753.51	0.00
13,100.00	90.21	180.02	9,432.70	-3,853.51	-421.65	3,853.51	0.00
13,200.00	90.21	180.02	9,432.33	-3,953.51	-421.69	3,953.51	0.00
13,300.00	90.21	180.02	9,431.96	-4,053.51	-421.73	4,053.51	0.00
13,400.00	90.21	180.02	9,431.59	-4,153.51	-421.76	4,153.51	0.00
13,500.00	90.21	180.02	9,431.22	-4,253.51	-421.80	4,253.51	0.00
13,600.00	90.21	180.02	9,430.85	-4,353.51	-421.84	4,353.51	0.00
13,700.00	90.21	180.02	9,430.48	-4,453.51	-421.87	4,453.51	0.00
13,800.00	90.21	180.02	9,430.11	-4,553.51	-421.91	4,553.51	0.00
13,900.00	90.21	180.02	9,429.74	-4,653.51	-421.95	4,653.51	0.00
14,000.00	90.21	180.02	9,429.37	-4,753.51	-421.98	4,753.51	0.00
14,100.00	90.21	180.02	9,429.00	-4,853.51	-422.02	4,853.51	0.00
14,200.00	90.21	180.02	9,428.63	-4,953.51	-422.06	4,953.51	0.00
14,300.00	90.21	180.02	9,428.26	-5,053.51	-422.09	5,053.51	0.00
14,400.00	90.21	180.02	9,427.90	-5,153.50	-422.13	5,153.50	0.00
14,500.00	90.21	180.02	9,427.53	-5,253.50	-422.16	5,253.50	0.00

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
14,600.00	90.21	180.02	9,427.16	-5,353.50	-422.20	5,353.50	0.00
14,700.00	90.21	180.02	9,426.79	-5,453.50	-422.24	5,453.50	0.00
14,800.00	90.21	180.02	9,426.42	-5,553.50	-422.27	5,553.50	0.00
14,900.00	90.21	180.02	9,426.05	-5,653.50	-422.31	5,653.50	0.00
15,000.00	90.21	180.02	9,425.68	-5,753.50	-422.35	5,753.50	0.00
15,100.00	90.21	180.02	9,425.31	-5,853.50	-422.38	5,853.50	0.00
15,200.00	90.21	180.02	9,424.94	-5,953.50	-422.42	5,953.50	0.00
15,300.00	90.21	180.02	9,424.57	-6,053.50	-422.46	6,053.50	0.00
15,400.00	90.21	180.02	9,424.20	-6,153.50	-422.49	6,153.50	0.00
15,500.00	90.21	180.02	9,423.83	-6,253.50	-422.53	6,253.50	0.00
15,600.00	90.21	180.02	9,423.46	-6,353.50	-422.57	6,353.50	0.00
15,700.00	90.21	180.02	9,423.09	-6,453.50	-422.60	6,453.50	0.00
15,800.00	90.21	180.02	9,422.72	-6,553.50	-422.64	6,553.50	0.00
15,900.00	90.21	180.02	9,422.35	-6,653.49	-422.68	6,653.49	0.00
16,000.00	90.21	180.02	9,421.99	-6,753.49	-422.71	6,753.49	0.00
16,100.00	90.21	180.02	9,421.62	-6,853.49	-422.75	6,853.49	0.00
16,200.00	90.21	180.02	9,421.25	-6,953.49	-422.79	6,953.49	0.00
16,300.00	90.21	180.02	9,420.88	-7,053.49	-422.82	7,053.49	0.00
16,400.00	90.21	180.02	9,420.51	-7,153.49	-422.86	7,153.49	0.00
16,500.00	90.21	180.02	9,420.14	-7,253.49	-422.89	7,253.49	0.00
16,600.00	90.21	180.02	9,419.77	-7,353.49	-422.93	7,353.49	0.00
16,700.00	90.21	180.02	9,419.40	-7,453.49	-422.97	7,453.49	0.00
16,800.00	90.21	180.02	9,419.03	-7,553.49	-423.00	7,553.49	0.00
16,900.00	90.21	180.02	9,418.66	-7,653.49	-423.04	7,653.49	0.00
17,000.00	90.21	180.02	9,418.29	-7,753.49	-423.08	7,753.49	0.00
17,100.00	90.21	180.02	9,417.92	-7,853.49	-423.11	7,853.49	0.00
17,200.00	90.21	180.02	9,417.55	-7,953.49	-423.15	7,953.49	0.00
17,300.00	90.21	180.02	9,417.18	-8,053.48	-423.19	8,053.48	0.00
17,400.00	90.21	180.02	9,416.81	-8,153.48	-423.22	8,153.48	0.00
17,500.00	90.21	180.02	9,416.44	-8,253.48	-423.26	8,253.48	0.00
17,600.00	90.21	180.02	9,416.07	-8,353.48	-423.30	8,353.48	0.00
17,700.00	90.21	180.02	9,415.71	-8,453.48	-423.33	8,453.48	0.00
17,800.00	90.21	180.02	9,415.34	-8,553.48	-423.37	8,553.48	0.00
17,900.00	90.21	180.02	9,414.97	-8,653.48	-423.41	8,653.48	0.00
18,000.00	90.21	180.02	9,414.60	-8,753.48	-423.44	8,753.48	0.00
18,100.00	90.21	180.02	9,414.23	-8,853.48	-423.48	8,853.48	0.00
18,200.00	90.21	180.02	9,413.86	-8,953.48	-423.51	8,953.48	0.00
18,300.00	90.21	180.02	9,413.49	-9,053.48	-423.55	9,053.48	0.00
18,400.00	90.21	180.02	9,413.12	-9,153.48	-423.59	9,153.48	0.00
18,500.00	90.21	180.02	9,412.75	-9,253.48	-423.62	9,253.48	0.00
18,600.00	90.21	180.02	9,412.38	-9,353.48	-423.66	9,353.48	0.00
18,700.00	90.21	180.02	9,412.01	-9,453.48	-423.70	9,453.48	0.00
18,800.00	90.21	180.02	9,411.64	-9,553.47	-423.73	9,553.47	0.00
18,900.00	90.21	180.02	9,411.27	-9,653.47	-423.77	9,653.47	0.00
19,000.00	90.21	180.02	9,410.90	-9,753.47	-423.81	9,753.47	0.00
19,100.00	90.21	180.02	9,410.53	-9,853.47	-423.84	9,853.47	0.00
19,200.00	90.21	180.02	9,410.16	-9,953.47	-423.88	9,953.47	0.00
19,300.00	90.21	180.02	9,409.80	-10,053.47	-423.92	10,053.47	0.00
19,400.00	90.21	180.02	9,409.43	-10,153.47	-423.95	10,153.47	0.00
19,500.00	90.21	180.02	9,409.06	-10,253.47	-423.99	10,253.47	0.00
19,600.00	90.21	180.02	9,408.69	-10,353.47	-424.03	10,353.47	0.00
19,700.00	90.21	180.02	9,408.32	-10,453.47	-424.06	10,453.47	0.00
19,800.00	90.21	180.02	9,407.95	-10,553.47	-424.10	10,553.47	0.00
19,900.00	90.21	180.02	9,407.58	-10,653.47	-424.14	10,653.47	0.00

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
20,000.00	90.21	180.02	9,407.21	-10,753.47	-424.17	10,753.47	0.00
20,100.00	90.21	180.02	9,406.84	-10,853.47	-424.21	10,853.47	0.00
20,200.00	90.21	180.02	9,406.47	-10,953.46	-424.24	10,953.46	0.00
20,300.00	90.21	180.02	9,406.10	-11,053.46	-424.28	11,053.46	0.00
20,327.53	90.21	180.02	9,406.00	-11,080.99	-424.29	11,080.99	0.00

PBHL 20327.53' MD & 9406.00' TVD - PBHL 0409 134H

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,800.00	1,800.00	0.00	0.00	KOP 2°/100' DLS
2,300.00	2,297.47	-4.30	-43.31	Hold 10° Tangent
5,171.33	5,125.17	-53.58	-539.47	Start Drop 2°/100' DLS
5,671.33	5,622.64	-57.88	-582.78	Hold 0° Inc
9,016.23	8,967.54	-57.88	-582.78	KOP 12°/100' DLS
9,767.98	9,445.00	-526.62	-483.15	LP 9767.98' MD & 9445.00' TVD
9,867.98	9,444.64	-624.43	-462.35	Turn 3°/100' DLS
10,268.68	9,443.16	-1,022.21	-420.62	Hold >& Dir.
20,327.53	9,406.00	-11,080.99	-424.29	PBHL 20327.53' MD & 9406.00' TVD

NOVO

H_2S Drilling Operations Plan

a. All personnel will be trained in H_2S working conditions as required by Onshore Order 6 before drilling out of the surface casing.

b. Two briefing areas will be established. Each will be at least 150' from the wellhead, perpendicular from one another, and easily entered and exited. See H_2S page 5 for more details.

c. H_2S Safety Equipment/Systems:

i. Well Control Equipment

- Flare line will be $\geq$150' from the wellhead and ignited by a pilot light.
- Beware of SO_2 created by flaring.
- Choke manifold will include a remotely operated choke.
- Mud gas separator

ii. Protective Equipment for Essential Personnel

- Every person on site will be required to wear a personal H_2S and SO_2 monitor at all times while on site. Monitors will not be worn on hard hats. Monitors will be worn on the front of the chest.
- One self-contained breathing apparatus (SCBA) 30-minute rescue pack will be at each briefing area. Two 30-minute SCBA packs will be stored in the safety trailer.
- Four work/escape packs will be on the rig floor. Each pack will have a long enough hose to allow unimpaired work activity.
- Four emergency escape packs will be in the doghouse for emergency evacuation.
- Hand signals will be used when wearing protective breathing apparatus.
- Stokes litter or stretcher
- Two full OSHA compliant body harnesses
- A 100-foot long x 5/8" OSHA compliant rope
- One 20-pound ABC fire extinguisher

iii. H_2S Detection & Monitoring Equipment

- Every person on site will be required to wear a personal H_2S and SO_2 monitor at all times while on site. Monitors will not be worn on hard hats. Monitors will be worn on the front of the chest.
- A stationary detector with three sensors will be in the doghouse.
- Sensors will be installed on the rig floor, bell nipple, and at the end of the flow line or where drilling fluids are discharged.
- Visual alarm will be triggered at 10 ppm.
- Audible alarm will be triggered at 10 ppm.
- Calibration will occur at least every 30 days. Gas sample tubes will be kept in the safety trailer.

iv. Visual Warning System

- Color-coded H_2S condition sign will be set at the entrance to the pad.
- Color-coded condition flag will be installed to indicate current H_2S conditions.
- Two wind socks will be installed that will be visible from all sides.

v. Mud Program

- A water based mud with a pH of $\geq$10 will be maintained to control corrosion, H_2S gas returns to the surface, and minimize sulfide stress cracking and embrittlement.
- Drilling mud containing H_2S gas will be degassed at an optimum location for the rig configuration.
- This gas will be piped into the flare system.
- Enough mud additives will be on location to scavenge and/or neutralize H_2S where formation pressures are unknown.

vi. Metallurgy

- All equipment that has the potential to be exposed to H_2S will be suitable for H_2S service.
- Equipment that will meet these metallurgical standards include the drill string, casing, wellhead, BOP assembly, casing head and spool, rotating head, kill lines, choke, choke manifold and lines, valves, mud-gas separators, DST tools, test units, tubing, flanges, and other related equipment (elastomer packings and seals).

vii. Communication from well site

- Cell phones and/or two-way radios will be used to communicate from the well site.

d. A remote-controlled choke, mud-gas separator, and a rotating head will be installed before drilling or testing any formation expected to contain H_2S.

Company Personnel to be Notified

Kurt Shipley, Vice-President - Operations	Office: (405) 609-1596

Local & County Agencies

Loving Fire Department	911 or (575) 745-3600
Eddy County Sheriff (Carlsbad)	911 (575) 887-7551
Eddy County Emergency Management (Carlsbad)	(575) 887-9511
Carlsbad Medical Center Hospital	(575) 887-4100
Eddy County South Road Department (Carlsbad)	(575) 885-4835

State Agencies

NM State Police (Carlsbad)	(575) 885-3138
NM Oil Conservation (Artesia)	(575) 748-1283
NM Oil Conservation (Santa Fe)	(505) 476-3440
NM Dept. of Transportation (Roswell)	(575) 637-7201

Federal Agencies

BLM Carlsbad Field Office	(575) 234-5972
National Response Center	(800) 424-8802
US EPA Region 6 (Dallas)	(800) 887-6063
	(214) 665-6444

Residents within 2 miles

none

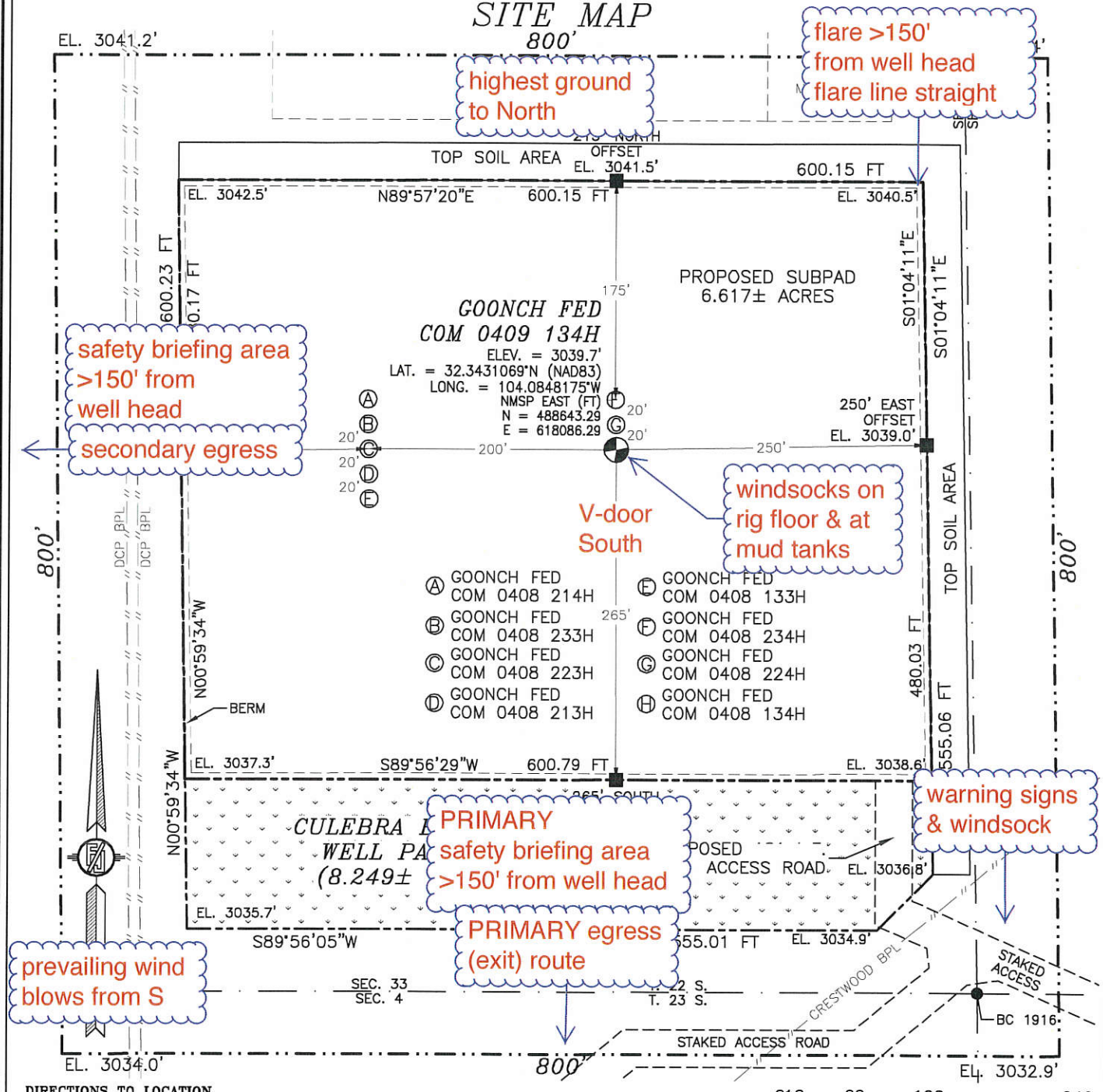
Air Evacuation

Med Flight Air Ambulance (Albuquerque)	(800) 842-4431
Lifeguard (Albuquerque)	(888) 866-7256

Veterinarians

Desert Willow Veterinary Services (Carlsbad)	(575) 885-3399
Animal Care Center (Carlsbad)	(575) 885-5352

SECTION 33, TOWNSHIP 22 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP



DIRECTIONS TO LOCATION

FROM STATE ROAD 31 (POTASH MINES) & CR. 605 (REFINERY) GO NORTHWEST ON REFINERY ROAD APPROX 3.57 MILES TO HERRADURA BEND ROAD, TURN LEFT AND GO WEST-SOUTHWEST ON HERRADURA BEND ROAD APPROX. 0.66 MILE, TURN RIGHT AND GO SOUTH-SOUTHEAST APPROX. 0.59 MILE TO A STAKED ACCESS ROAD ON RIGHT (WEST), FOLLOW STAKED ROAD SOUTH-SOUTHWEST 597', THEN WEST-NORTHWEST 330' TO THE SOUTHEAST PAD CORNER FOR CULEBRA BLUFF WELL PAD 1, FOLLOW PAD ACCESS ROAD WEST AND NORTH 378', TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

I, FILIMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

12797

6/6/19

FILIMON F. JARAMILLO, PLS 12797

NOVO OIL & GAS NORTHERN DELAWARE, LLC
GOONCH FED COM 0409 134H
LOCATED 435 FT. FROM THE SOUTH LINE AND 285 FT. FROM THE EAST LINE OF SECTION 33, TOWNSHIP 22 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO

JUNE 5, 2019

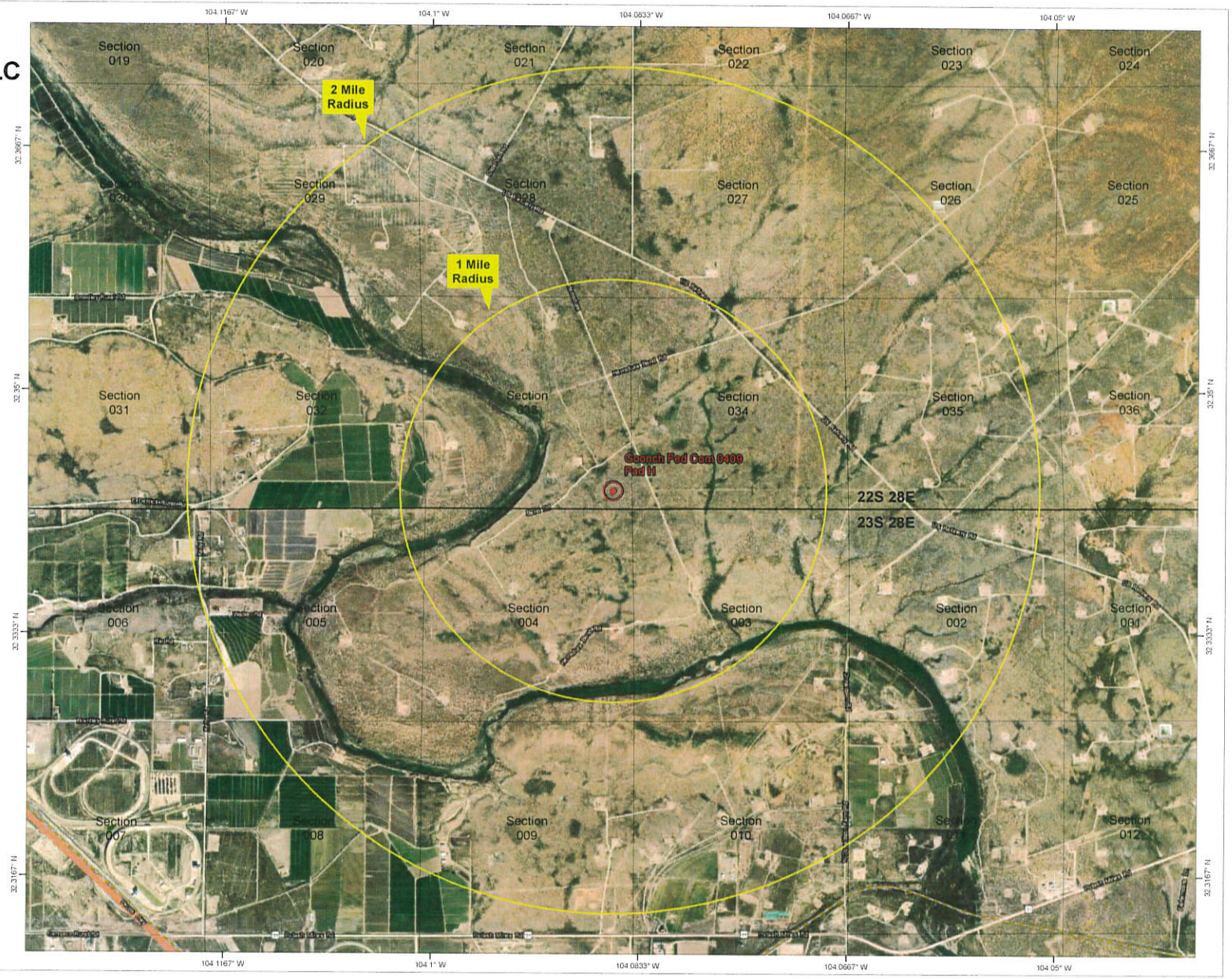
SURVEY NO. 7259

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

Novo Oil and Gas Northern Delaware, LLC

Goonch Fed Com 0409 Pad H
H_2S Contingency Plan:
Radius Map

Section 33, Township 22S, Range 28E
Eddy County, New Mexico



Surface Hole Location

1:27,000

0 0.25 0.5 1

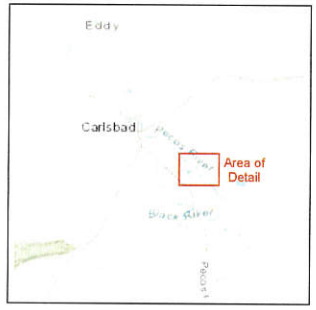
Miles

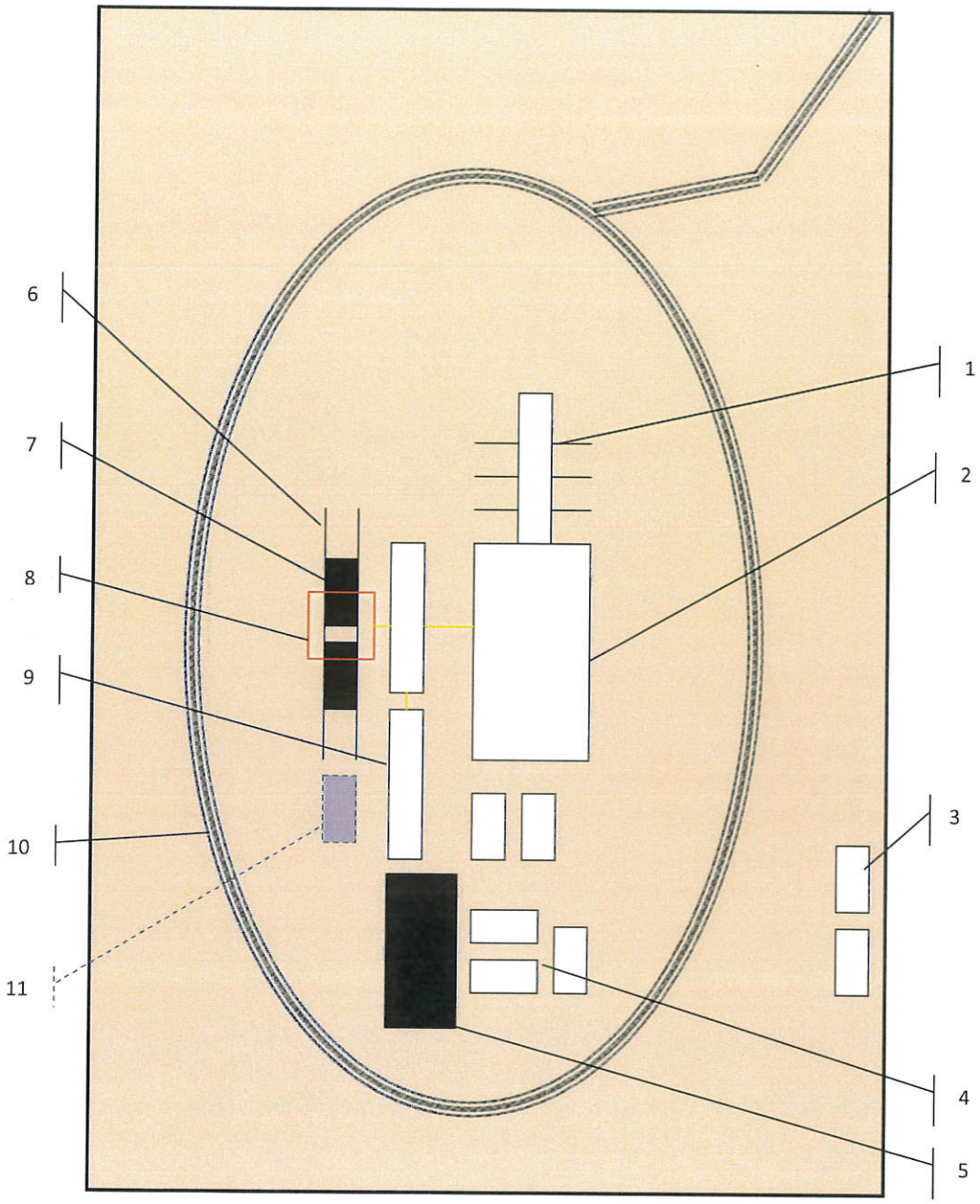
N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST

Prepared by Permits West, Inc., November 18, 2019
for Novo Oil and Gas Northern Delaware, LLC





Schematic Closed Loop Drilling Rig*

1. Pipe Rack
2. Drill Rig
3. House Trailers/ Offices
4. Generator/Fuel/Storage
5. Overflow-Frac Tank
6. Skids
7. Roll Offs
8. Hopper or Centrifuge
9. Mud Tanks
10. Loop Drive
11. Generator (only for use with centrifuge)

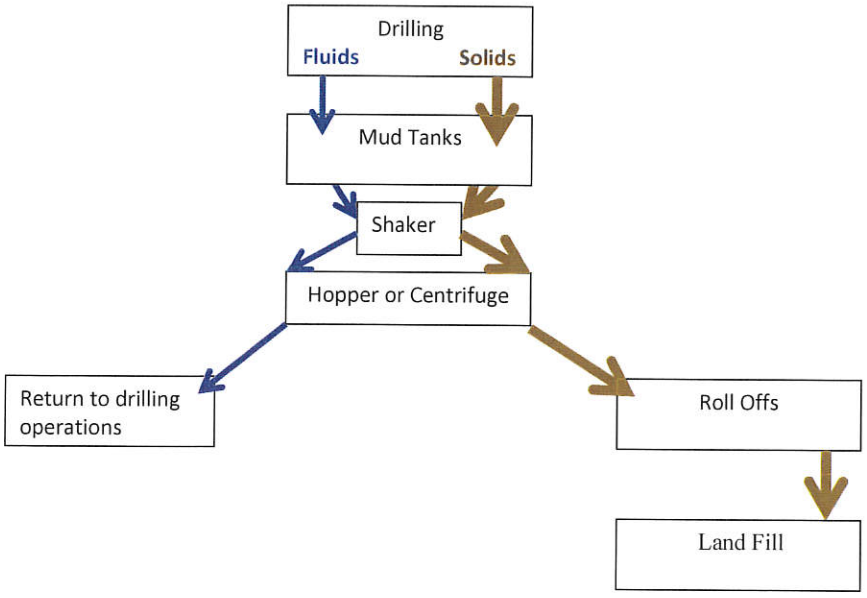
*Not drawn to scale: Closed loop system requires at least 30 feet beyond mud tanks. Ideally 60 feet would be available

Above: Centrifugal Closed Loop System

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS
37Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120

Closed Loop Drilling System: Mud tanks to right (1)
Hopper in air to settle out solids (2)
Water return pipe (3)
Shaker between hopper and mud tanks (4)
Roll offs on skids (5)

Flow Chart for Drilling Fluids and Solids



Photos Courtesy of Gandy Corporation Oil Field Service

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS
37Verano Loop, Santa Fe, New Mexico 87508 (505) 466-8120