OCD-ARTESIA

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

RECEIVED
APR 25 2019
DISTRICT II-ARTESIA O.C.D.

5. Lease Serial No.
NMNM015291

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.
DORAMI 33 FED COM
9H 317237

2. Name of Operator
PERCUSSION PETROLEUM OPERATING LLC 371755

9. API Well No.
30-015-45929

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory
919 Milam Street, Suite 2475 Houston TX 77002	(713)589-2337	N. SEVEN RIVERS; GLORIETA -YESO

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface SWSW / 490 FSL / 650 FWL / LAT 32.611064 / LONG -104.479131
At proposed prod. zone SWSW / 650 FSL / 20 FWL / LAT 32.611564 / LONG -104.498363

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 34 / T19S / R25E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
3.5 miles	EDDY	NM

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
490 feet	360	160

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
20 feet	3656 feet / 9223 feet	FED: NMB001424

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3528 feet	03/01/2019	30 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: (505)466-8120	01/07/2019

Title
President

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	04/05/2019

Title	Office
Assistant Field Manager Lands & Minerals	CARLSBAD

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.

APPROVED WITH CONDITIONS
Approval Date: 04/05/2019

(Continued on page 2)

*(Instructions on page 2)

RVP 4-26-19

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

(Continued on page 3)

Additional Operator Remarks

Location of Well

1. SHL: SWSW / 490 FSL / 650 FWL / TWSP: 19S / RANGE: 25E / SECTION: 34 / LAT: 32.611064 / LONG: -104.479131 (TVD: 0 feet, MD: 0 feet)
   PPP: SWSW / 603 FSL / 625 FWL / TWSP: 19S / RANGE: 25E / SECTION: 34 / LAT: 32.6113734 / LONG: -104.4792122 (TVD: 2558 feet, MD: 2564 feet)
   BHL: SWSW / 650 FSL / 20 FWL / TWSP: 19S / RANGE: 25E / SECTION: 33 / LAT: 32.611564 / LONG: -104.498363 (TVD: 3656 feet, MD: 9223 feet)

BLM Point of Contact

Name: Deborah Ham
Title: Legal Landlaw Examiner
Phone: 5752345965
Email: dham@blm.gov

Approval Date: 04/05/2019

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Percussion Petroleum Operating LLC**
LEASE NO.:	**NMNM015291**
WELL NAME & NO.:	**Dorami 33 Fed Com 9H**
SURFACE HOLE FOOTAGE:	**490' FSL & 650' FWL**
BOTTOM HOLE FOOTAGE	**650' FSL & 20' FWL**
LOCATION:	**Section 34, T 19S, R 25E, NMPM**
COUNTY:	**Eddy County, New Mexico**

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	○ Medium	◉ High
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	☑ COM	☐ Unit

A. HYDROGEN SULFIDE

1. Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **9-5/8"** surface casing shall be set at approximately **1250'** and cemented to surface.
   a. **If cement does not circulate to 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 **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.
   b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.
   c. If cement falls back, remedial cementing will be done prior to drilling out that string.
   d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.

2. The tapered **7" & 5-1/2"** production casing shall be cemented to surface:
   a. **If cement does not circulate to surface,** see B.1.a, c & d.
   b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to high cave/karst potential.

3. Operator has proposed a contingency **13-3/8"** casing to seal off lost circulation above 400'. This casing, if used, shall be cemented to surface.
   a. **If cement does not circulate to surface,** see B.1.a, c & d.

C. PRESSURE CONTROL

1. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.

D. SPECIAL REQUIREMENTS

1. The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, 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.

2. The well sign on location shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

DR 3/21/2019

GENERAL REQUIREMENTS

1. 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)
      ☒ Chaves and Roosevelt Counties
      Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
      During office hours call (575) 627-0272.
      After office hours call (575)
      ☒ 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

2. 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.

3. 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.

4. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) 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. 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.

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. The results of the test shall be reported to the appropriate BLM office.
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. 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.
f. 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. This test shall be performed prior to the test at full stack pressure.
g. 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

1. 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

2. 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.

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

Percussion Dorami 2H to 10H MASTER COAS

Dorami 33 Fed Com 2H:
Surface Hole Location: 1950' FSL & 850' FWL, Section 34 , T. 19 S., R. 25 E.
Bottom Hole Location: 2312' FSL & 20' FWL, Section 33, T. 19 S., R. 25 E.

Dorami 33 Fed Com 3H:
Surface Hole Location: 1930' FSL & 850' FWL, Section 34 , T. 19 S., R. 25 E.
Bottom Hole Location: 2175' FSL & 20' FWL, Section 33, T. 19 S., R. 25 E.

Dorami 33 Fed Com 4H:
Surface Hole Location: 1910' FSL & 850' FWL, Section 34 , T. 19 S., R. 25 E.
Bottom Hole Location: 1837' FSL & 20' FWL, Section 33, T. 19 S., R. 25 E.

Dorami 33 Fed Com 5H:
Surface Hole Location: 1395' FSL & 700' FWL, Section 34 , T. 19 S., R. 25 E.
Bottom Hole Location: 1412' FSL & 20' FWL, Section 33, T. 19 S., R. 25 E.

Dorami 33 Fed Com 6H:
Surface Hole Location: 1375' FSL & 700' FWL, Section 34 , T. 19 S., R. 25 E.
Bottom Hole Location: 1412' FSL & 20' FWL, Section 33, T. 19 S., R. 25 E.

Dorami 33 Fed Com 7H:
Surface Hole Location: 1355' FSL & 700' FWL, Section 34 , T. 19 S., R. 25 E.
Bottom Hole Location: 1262' FSL & 20' FWL, Section 33, T. 19 S., R. 25 E.

Dorami 33 Fed Com 8H:
Surface Hole Location: 510' FSL & 650' FWL, Section 34 , T. 19 S., R. 25 E.
Bottom Hole Location: 787' FSL & 20' FWL, Section 33, T. 19 S., R. 25 E.

Dorami 33 Fed Com 9H:
Surface Hole Location: 490' FSL & 650' FWL, Section 34 , T. 19 S., R. 25 E.
Bottom Hole Location: 650' FSL & 20' FWL, Section 33, T. 19 S., R. 25 E.

Dorami 33 Fed Com 10H:
Surface Hole Location: 470' FSL & 650' FWL, Section 34 , T. 19 S., R. 25 E.
Bottom Hole Location: 360' FSL & 20' FWL, Section 33, T. 19 S., R. 25 E.

Approval Date: 04/05/2019

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator 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 shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production:

Construction:

General Construction:

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

Pad Construction:

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised (i.e. an access road crossing the berm cannot be lower than the berm height).
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Tank Battery Construction:

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- All tank battery locations and facilities will be lined and bermed.
- The liner should be at least 20 mil in thickness and installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures.
- Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Road Construction:

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.
- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

Buried Pipeline/Cable Construction:

- Rerouting of the buried line(s) may be required if a subsurface void is encountered during construction to minimize the potential subsidence/collapse of the feature(s) as well as the possibility of leaks/spills entering the karst drainage system.

Powerline Construction:

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

Surface Flowlines Installation:

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

Leak Detection System:

- A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present.
- A leak detection plan will be submitted to BLM that incorporates an automatic shut off system (see below) to minimize the effects of an undesirable event that could negatively sensitive cave/karst resources.
- Well heads, pipelines (surface and buried), storage tanks, and all supporting equipment should be monitored regularly after installation to promptly identify and fix leaks.

Automatic Shut-off Systems:

- Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and groundwater concerns:

Closed Loop System:

- A closed loop system using steel tanks will be utilized during drilling – no pits
- All fluids and cuttings will be hauled off-site and disposed of properly at an authorized site

Rotary Drilling with Fresh Water:

- Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:

- The kick off point for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:

- ALL lost circulation zones between surface and the base of the cave occurrence zone will be logged and reported in the drilling report.
- If a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, regardless of the type of drilling machinery used, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:

- Additional plugging conditions of approval may be required upon well abandonment in high and medium karst potential occurrence zones.
- The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:

- The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice.
- If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Hydrology

- Surface disturbance will not be allowed (within x feet of drainage; or describe pad restriction).
- The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.
- Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control.

Tank Battery COAs Only:

- Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.
- Automatic shut off, check values, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

Surface Pipeline COAs Only:

- A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

Range

Cattle Guard Requirement

Where entry is granted across a fence line for an access road, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition with an appropriately sized cattle guard sufficient to carry out the project. Any new or existing cattle guards on the access route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations. Once the road is abandoned, the fence would be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

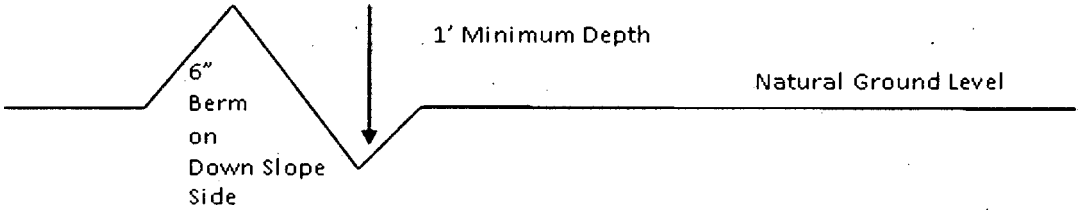
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

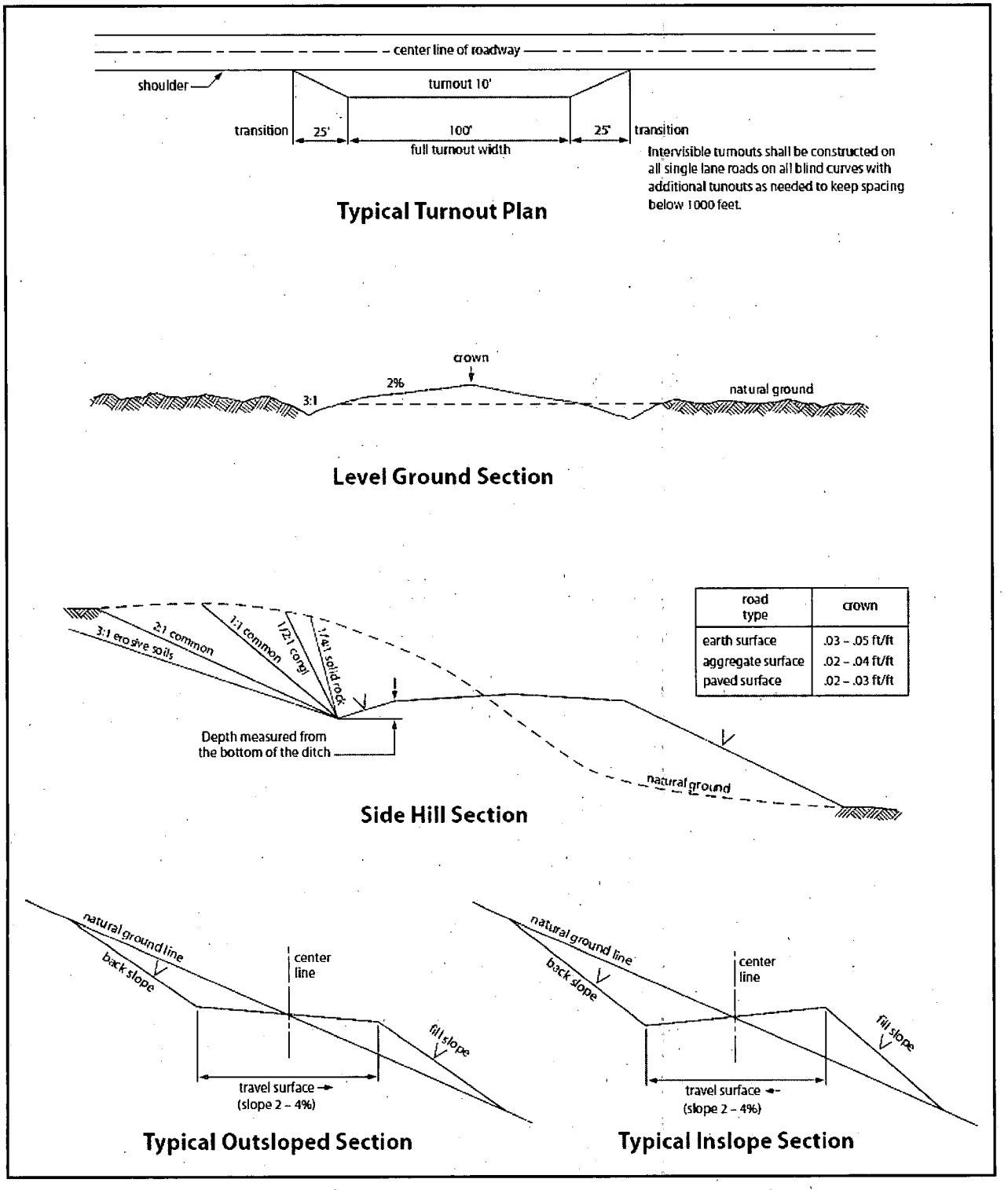


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus

freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (*see* 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;

b. Activities of other parties including, but not limited to:
   (1) Land clearing
   (2) Earth-disturbing and earth-moving work
   (3) Blasting

(4) Vandalism and sabotage;

c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars ($1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of Holder, regardless of fault. Upon failure of Holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he/she deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of **20** feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline shall be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline shall be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity shall be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation shall be allowed unless approved in writing by the Authorized Officer.

8. Holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline shall be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of **24** inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No

permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his 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 cultural or 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.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines shall be less than or equal to 4 inches and a working pressure below 125 psi.

Buried Lines

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part

702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

(X) seed mixture 1	( ) seed mixture 3
( ) seed mixture 2	( ) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his 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 cultural or 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.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.

b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

C. ELECTRIC LINES

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be

placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his 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 cultural or 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.

11. Special Stipulations:
- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 1 for Loamy Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed shall be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre shall be doubled. The seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

AFMSS

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

Operator Certification Data Report

04/08/2019

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Brian Wood **Signed on:** 01/07/2019

Title: President

Street Address: 37 Verano Loop

City: Santa Fe **State:** NM **Zip:** 87508

Phone: (505)466-8120

Email address: afmss@permitswest.com

Field Representative

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

AFMSS

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

Application Data Report
04/08/2019

APD ID: 10400037727 **Submission Date:** 01/07/2019

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400037727 **Tie to previous NOS?** **Submission Date:** 01/07/2019

BLM Office: CARLSBAD **User:** Brian Wood **Title:** President

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM015291 **Lease Acres:** 360

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? YES **APD Operator:** PERCUSSION PETROLEUM OPERATING LLC

Operator letter of designation:

Operator Info

Operator Organization Name: PERCUSSION PETROLEUM OPERATING LLC

Operator Address: 919 Milam Street, Suite 2475

Zip: 77002

Operator PO Box:

Operator City: Houston **State:** TX

Operator Phone: (713)589-2337

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO **Master Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: DORAMI 33 FED COM **Well Number:** 9H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** N. SEVEN RIVERS; **Pool Name:** GLORIETA -YESO

Is the proposed well in an area containing other mineral resources? NATURAL GAS,OIL

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** DORAMI 33 FED COM **Number:** 8H

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 3.5 Miles **Distance to nearest well:** 20 FT **Distance to lease line:** 490 FT

Reservoir well spacing assigned acres Measurement: 160 Acres

Well plat: Dorami_9H_Plat_GasCap_Plan_20190107112005.pdf

Well work start Date: 03/01/2019 **Duration:** 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 3239

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	490	FSL	650	FWL	19S	25E	34	Aliquot SWSW	32.611064	-104.479131	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 015291	3528	0	0
KOP Leg #1	640	FSL	617	FWL	19S	25E	34	Aliquot SWSW	32.611447	-104.4792382	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 015291	576	2959	2952
PPP Leg #1	603	FSL	625	FWL	19S	25E	34	Aliquot SWSW	32.611373 4	-104.4792122	EDDY	NEW MEXICO	FIRST PRIN	F	NMNM 015291	970	2564	2558

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	650	FSL	20	FWL	19S	25E	33	Aliquot SWSW	32.611564	-104.498363	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 096197	-128	9223	3656
BHL Leg #1	650	FSL	20	FWL	19S	25E	33	Aliquot SWSW	32.611564	-104.498363	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 096197	-128	9223	3656

Drilling Plan Data Report
04/08/2019

APD ID: 10400037727 **Submission Date:** 01/07/2019

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

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
1	QUATERNARY	3528	0	0	OTHER : Caliche	USEABLE WATER	No
2	GRAYBURG	2869	658	658	DOLOMITE	NATURAL GAS,OIL	No
3	SAN ANDRES	2684	843	843		NATURAL GAS,OIL	No
4	GLORIETA	1124	2403	2408	DOLOMITE	NATURAL GAS,OIL	No
5	YESO	969	2558	2563	DOLOMITE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M **Rating Depth:** 5000

Equipment: A 3000-psi 5000' rated BOP stack consisting of annular preventer and double (blind and pipe) ram will be used below surface casing to TD.
Requesting Variance? NO

Variance request:

Testing Procedure: Pressure tests will be conducted before drilling out from under all casing strings. Third party test crews will conduct all tests. All tests will be recorded for 10-minutes on low pressure (500 psi) and 10-minutes on high pressure (3000-psi). After BOP testing is complete, test casing (without test plug) to 2000-psi for 30 minutes. All tests will be charted on a plot. BOPs will be function tested every day.

Choke Diagram Attachment:

Dorami_9H_Choke_20190107112549.pdf

BOP Diagram Attachment:

Dorami_9H_BOP_20190107112756.pdf

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

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	12.25	9.625	NEW	API	N	0	1250	0	1250	3528		1250	J-55	36	LTC	1.125	1.125	DRY	1.8	DRY	1.8
2	PRODUCTION	8.75	7.0	NEW	API	Y	0	3650	0	3522	3528		3650	L-80	32	BUTT	1.125	1.125	DRY	1.8	DRY	1.8
3	PRODUCTION	8.75	5.5	NEW	API	Y	3650	9223	3522	3656			5573	L-80	17	BUTT	1.125	1.125	DRY	1.8	DRY	1.8

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Dorami_9H_Casing_Design_Assumptions_20190107112928.pdf

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

Casing Attachments

Casing ID: 2 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Dorami_9H_Casing_Design_Assumptions_20190107112950.pdf

Casing Design Assumptions and Worksheet(s):

Dorami_9H_Casing_Design_Assumptions_20190107113003.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Dorami_9H_Casing_Design_Assumptions_20190107113029.pdf

Casing Design Assumptions and Worksheet(s):

Dorami_9H_Casing_Design_Assumptions_20190107113041.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
SURFACE	Lead		0	1250	623	1.32	14.8	822	100	Class C	2% CaCl + ¼ pound per sack celloflake
PRODUCTION	Lead		0	3650	495	1.97	12.6	975	50	65/65/6 Class C	6% gel + 5% salt + ¼ pound per sack celloflake + 0.2% C41-P
PRODUCTION	Tail		0	3650	1518	1.32	14.8	2003	50	Class C	2% CaCl + ¼ pound per sack celloflake
PRODUCTION	Lead		3650	9223	495	1.97	12.6	975	50	65/65/6 Class C	6% gel + 5% salt + ¼ pound per sack

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											celloflake + 0.2% C41-P
PRODUCTION	Tail		3650	9223	1518	1.32	14.8	2003	50	Class C	2% CaCl + ¼ pound per sack celloflake

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 (LCM) will be on site to handle any abnormal hole condition that may be encountered while drilling this well.

Describe the mud monitoring system utilized: An electronic/mechanical mud monitor with a minimum pit volume totalizer, stroke counter, and flow sensor will be used.

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	1250	OTHER : Fresh water/gel	8.4	9.2							
1250	2960	OTHER : Fresh water/cut brine	8.3	9.2							
2960	9223	OTHER : Cut brine	8.6	9.2							

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

Section 6 - Test, Logging, Coring

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

A mud logger will be used from GL to TD. Samples will be collected every 10' in the lateral pay zone.

No electric logs are planned at this time.

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

MUDLOG

Coring operation description for the well:

No core or drill stem test is planned.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 1572 **Anticipated Surface Pressure:** 767.68

Anticipated Bottom Hole Temperature(F): 125

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:

Dorami_9H_H2S_Plan_20190107113308.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Dorami_9H_Horizontal_Drill_Plan_20190107113342.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Dorami_9H_Drill_Plan_20190107113353.pdf

Dorami_Lost_Circulation_Contingency_Plan.rev5_20190107113403.pdf

Other Variance attachment:

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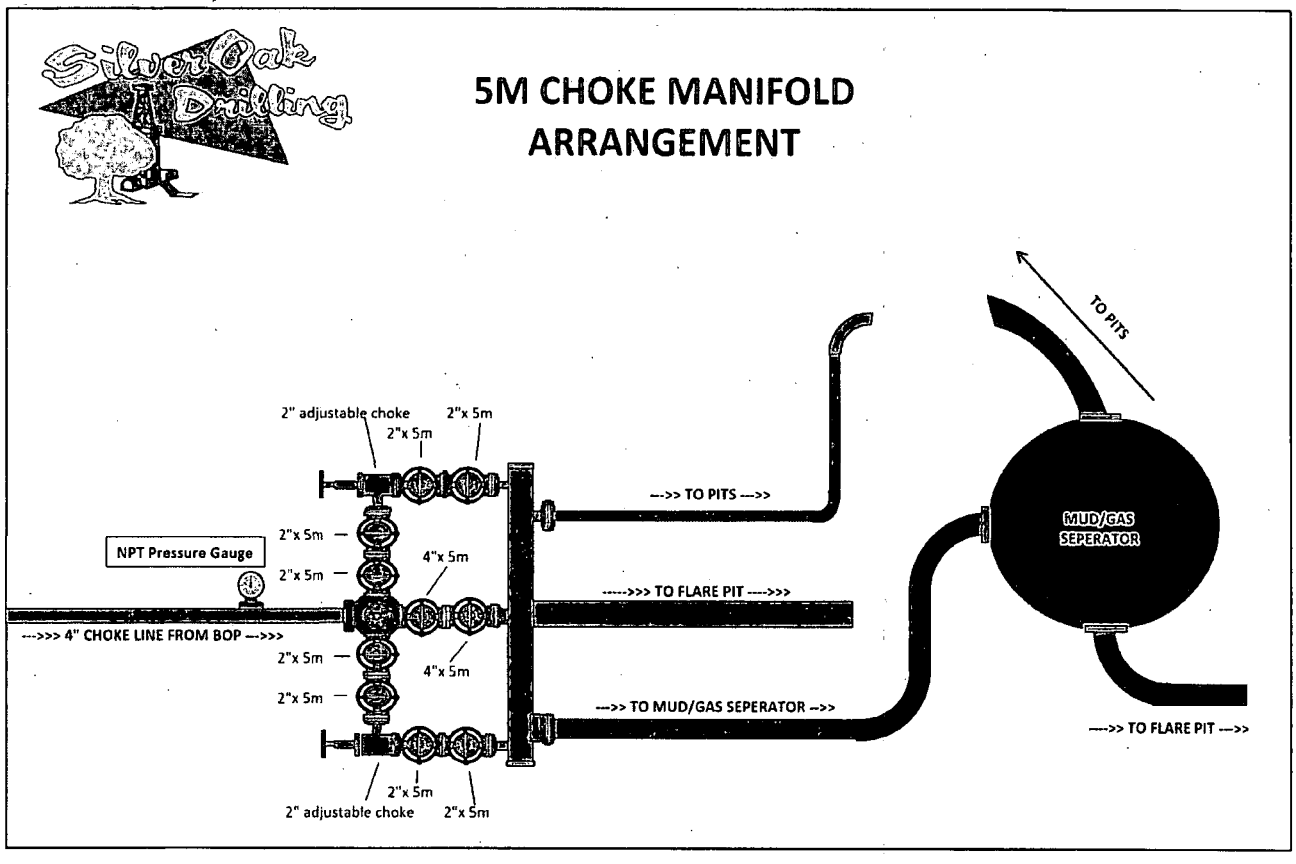

Pressure Testing

a. All testing to be done with 3rd party testing crews
b. All tests should be done for each BOP/Valve/Choke Manifold:
    1. Recorded for 10 minutes on low pressure (500 psi)
    2. Recorded for 10 minutes on high pressure (3000 psi)
    3. All BOP testing will be completed with a test plug in place in wellhead
c. After BOP testing is complete, test casing (without test plug) to 2000 psi for 30 minutes
d. Company representative to email all copies of all plots to Drilling Engineer as well as save in the well file.
e. BOP's shall be function tested every day.

Gas Buster Operation

a. Flow should be directed to pits unless choke is needed to control gas
b. Adjustable choke to adjusted only by Percussion Rep on location
c. Flare should remain burning (pilot lit) anytime fluid is going through gas buster
d. Choke needs to be monitored to not overrun gas buster

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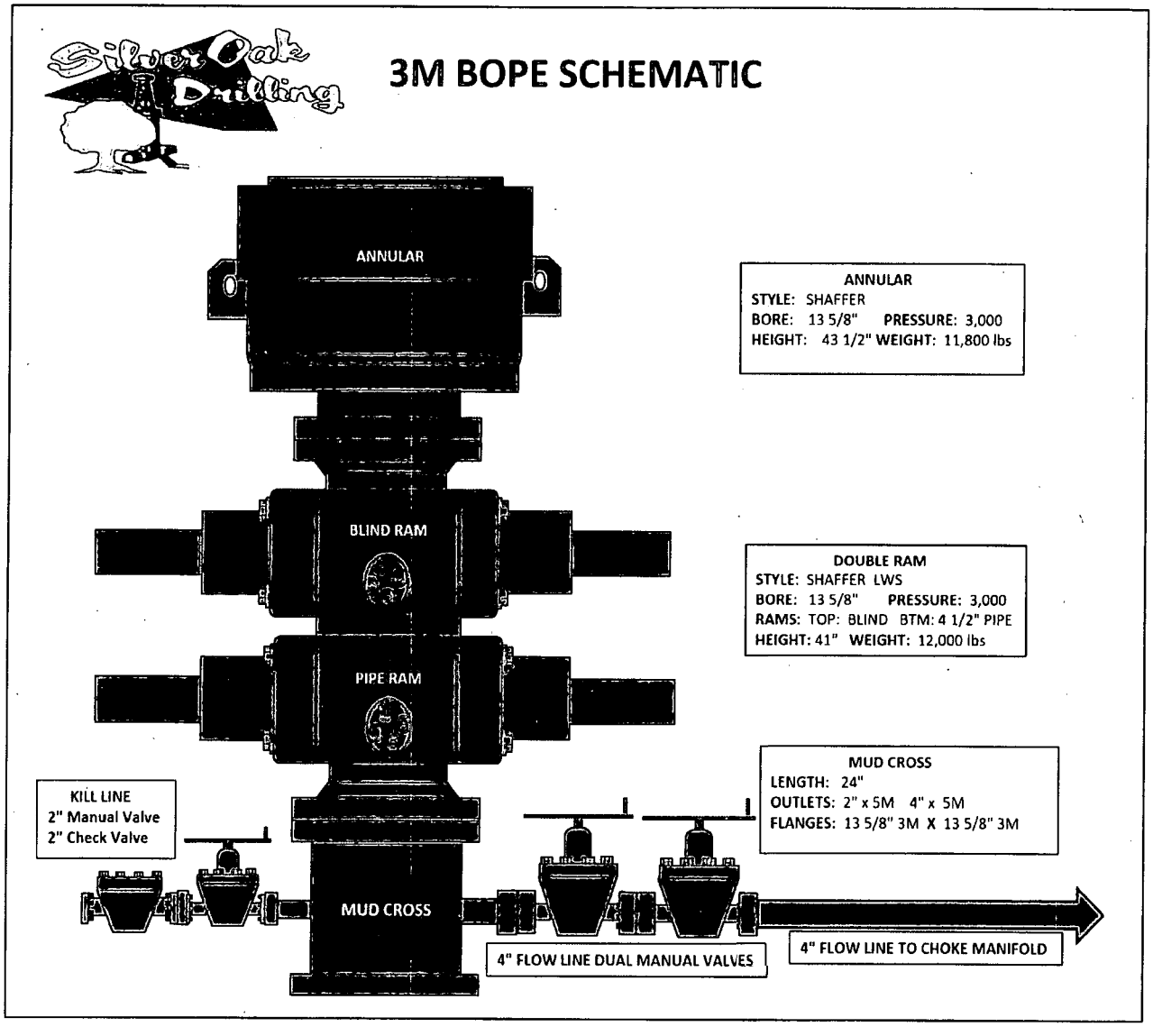
Nipple-Up

a. Raise stack and center over the wellhead
b. Install DSA and ring gaskets
c. Lower stack onto DSA
d. Torque DSA flange bolts in a star pattern to the specified torque
e. Verify BOP is centered to the rotary table
f. Install rotating head
g. Install hydraulic lines to BOP
h. Verify manifold line-up
i. Test BOP & manifold



PERCUSSION PETROLEUM LLC

Casing Design Criteria and Load Case Assumptions

Percussion Petroleum Operating, LLC.
919 Milam Street, Suite 2475
Houston, TX 77002

Lakewood Federal Com horizontal Wells

1. Collapse: DF_C=1.125
   a. Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
   b. Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and minimum mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft)

2. Burst: DF_B=1.125
   a. Pressure Test: psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
   b. Injection Down Casing: psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

3. Tensile: DF_T=1.8
   a. Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.5 ppg).

4. Surface Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
9-5/8"	36	J-55	STC	8.921	8.765	2,020	3,520	394	0.0773
Safety Factors									
	API Rec. SF	**ACTUAL SF**	Case		External Fluids		Internal Fluids		
Collapse	1.125	**3.30**	Lost Circulation		Mud		*None*		
Burst	1.125	**1.46**	Plug Bump		Green Cement + 2ksi surf pressure		Displacement Fluid/Mud		
Tension	1.8	**2.80**	100 klbs Overpull		Mud		Mud		

Buoyed Casing Weight: ***40,798 lbs (assuming 8.4 ppg fluid and 1,300' casing-worst case scenario)***

PERCUSSION PETROLEUM LLC

Production Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
7"	32	L-80	BTC	6.094	5.969	8,600	9,060	745	0.0361
5-1/2"	17	L-80	BTC	4.892	4.767	6,280	7,740	348	0.0232

Safety Factors					
	API Rec. SF	**ACTUAL SF**	Case	External Fluids	Internal Fluids
Collapse	1.125	**3.75**	Lost Circulation	Mud	*None*
Burst	1.125	**2.47**	Plug Bump	Green Cement + 2ksi surf pressure	Displacement Fluid/Mud
Tension	1.8	**2.29**	100 klbs Overpull	Mud	Mud

Buoyed Casing Weight: ***86,522 lbs (assuming 8.4 ppg fluid and 3,500' TVD-worst case scenario)***

PERCUSSION PETROLEUM LLC

Casing Design Criteria and Load Case Assumptions

Percussion Petroleum Operating, LLC.
919 Milam Street, Suite 2475
Houston, TX 77002

Lakewood Federal Com horizontal Wells

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2. Burst: DF_B=1.125
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3. Tensile: DF_T=1.8
   a. Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.5 ppg).

4. Surface Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
9-5/8"	36	J-55	STC	8.921	8.765	2,020	3,520	394	0.0773
Safety Factors									
	API Rec. SF	**ACTUAL SF**	Case		External Fluids		Internal Fluids		
Collapse	1.125	**3.30**	Lost Circulation		Mud		*None*		
Burst	1.125	**1.46**	Plug Bump		Green Cement + 2ksi surf pressure		Displacement Fluid/Mud		
Tension	1.8	**2.80**	100 klbs Overpull		Mud		Mud		

Buoyed Casing Weight: ***40,798 lbs (assuming 8.4 ppg fluid and 1,300' casing-worst case scenario)***

PERCUSSION PETROLEUM LLC

Production Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
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Safety Factors					
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Collapse	1.125	**3.75**	Lost Circulation	Mud	*None*
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PERCUSSION PETROLEUM LLC

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   a. Pressure Test: psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
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3. Tensile: DF_T=1.8
   a. Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.5 ppg).

4. Surface Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
9-5/8"	36	J-55	STC	8.921	8.765	2,020	3,520	394	0.0773
Safety Factors									
	API Rec. SF	**ACTUAL SF**	Case		External Fluids		Internal Fluids		
Collapse	1.125	**3.30**	Lost Circulation		Mud		*None*		
Burst	1.125	**1.46**	Plug Bump		Green Cement + 2ksi surf pressure		Displacement Fluid/Mud		
Tension	1.8	**2.80**	100 klbs Overpull		Mud		Mud		

Buoyed Casing Weight: ***40,798 lbs (assuming 8.4 ppg fluid and 1,300' casing-worst case scenario)***

PERCUSSION PETROLEUM LLC

Production Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
7"	32	L-80	BTC	6.094	5.969	8,600	9,060	745	0.0361
5-1/2"	17	L-80	BTC	4.892	4.767	6,280	7,740	348	0.0232

Safety Factors					
	API Rec. SF	**ACTUAL SF**	Case	External Fluids	Internal Fluids
Collapse	1.125	**3.75**	Lost Circulation	Mud	*None*
Burst	1.125	**2.47**	Plug Bump	Green Cement + 2ksi surf pressure	Displacement Fluid/Mud
Tension	1.8	**2.29**	100 klbs Overpull	Mud	Mud

Buoyed Casing Weight: ***86,522 lbs (assuming 8.4 ppg fluid and 3,500' TVD-worst case scenario)***

PERCUSSION PETROLEUM LLC

Casing Design Criteria and Load Case Assumptions

Percussion Petroleum Operating, LLC.
919 Milam Street, Suite 2475
Houston, TX 77002

Lakewood Federal Com horizontal Wells

1. Collapse: DF_C=1.125
   a. Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
   b. Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and minimum mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft)

2. Burst: DF_B=1.125
   a. Pressure Test: psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
   b. Injection Down Casing: psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

3. Tensile: DF_T=1.8
   a. Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.5 ppg).

4. Surface Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
9-5/8"	36	J-55	STC	8.921	8.765	2,020	3,520	394	0.0773
Safety Factors									
	API Rec. SF	**ACTUAL SF**	Case		External Fluids		Internal Fluids		
Collapse	1.125	**3.30**	Lost Circulation		Mud		*None*		
Burst	1.125	**1.46**	Plug Bump		Green Cement + 2ksi surf pressure		Displacement Fluid/Mud		
Tension	1.8	**2.80**	100 klbs Overpull		Mud		Mud		

Buoyed Casing Weight: ***40,798 lbs (assuming 8.4 ppg fluid and 1,300' casing-worst case scenario)***

PERCUSSION PETROLEUM LLC

Production Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
7"	32	L-80	BTC	6.094	5.969	8,600	9,060	745	0.0361
5-1/2"	17	L-80	BTC	4.892	4.767	6,280	7,740	348	0.0232

Safety Factors					
	API Rec. SF	**ACTUAL SF**	Case	External Fluids	Internal Fluids
Collapse	1.125	**3.75**	Lost Circulation	Mud	*None*
Burst	1.125	**2.47**	Plug Bump	Green Cement + 2ksi surf pressure	Displacement Fluid/Mud
Tension	1.8	**2.29**	100 klbs Overpull	Mud	Mud

Buoyed Casing Weight: ***86,522 lbs (assuming 8.4 ppg fluid and 3,500' TVD-worst case scenario)***

PERCUSSION PETROLEUM LLC

Casing Design Criteria and Load Case Assumptions

Percussion Petroleum Operating, LLC.
919 Milam Street, Suite 2475
Houston, TX 77002

Lakewood Federal Com horizontal Wells

1. Collapse: DF_C=1.125
   a. Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
   b. Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and minimum mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft)

2. Burst: DF_B=1.125
   a. Pressure Test: psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
   b. Injection Down Casing: psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

3. Tensile: DF_T=1.8
   a. Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.5 ppg).

4. Surface Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
9-5/8"	36	J-55	STC	8.921	8.765	2,020	3,520	394	0.0773
Safety Factors									
	API Rec. SF	**ACTUAL SF**	Case		External Fluids		Internal Fluids		
Collapse	1.125	**3.30**	Lost Circulation		Mud		*None*		
Burst	1.125	**1.46**	Plug Bump		Green Cement + 2ksi surf pressure		Displacement Fluid/Mud		
Tension	1.8	**2.80**	100 klbs Overpull		Mud		Mud		

Buoyed Casing Weight: ***40,798 lbs (assuming 8.4 ppg fluid and 1,300' casing-worst case scenario)***

PERCUSSION PETROLEUM LLC

Production Casing Program									
Casing Size (in)	**Weight (ppf)**	**Grade**	**Connection**	**ID**	**ID (drift)**	**Collapse (psi)**	**Burst (psi)**	**Tension (1,000 lbs)**	**Capacity (bbl/ft)**
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5-1/2"	17	L-80	BTC	4.892	4.767	6,280	7,740	348	0.0232

Safety Factors					
	API Rec. SF	**ACTUAL SF**	Case	External Fluids	Internal Fluids
Collapse	1.125	**3.75**	Lost Circulation	Mud	*None*
Burst	1.125	**2.47**	Plug Bump	Green Cement + 2ksi surf pressure	Displacement Fluid/Mud
Tension	1.8	**2.29**	100 klbs Overpull	Mud	Mud

Buoyed Casing Weight: ***86,522 lbs (assuming 8.4 ppg fluid and 3,500' TVD-worst case scenario)***

Hydrogen Sulfide Drilling Operations Plan

Percussion Petroleum Operating, LLC.
919 Milam Street, Suite 2475
Houston, TX 77002

1. H_2S Safety Instructions to the following:
    - Characteristics of H_2S.
    - Physical effects and hazards.
    - Principal and operation of H_2S detectors, warning system and briefing areas.
    - Evacuation procedures, routes and First Aid.
    - Proper use of safety equipment and life support systems.
    - Essential personnel meeting medical evaluation criteria will receive additional training on the proper use of 30 min pressure demand air packs.

2. H_2S Detection & Alarm Systems:
    - H_2S sensor/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud returns pits by the shale shaker. Additional H_2S monitors may be placed as deemed necessary.
    - An audio alarm system will be installed on the derrick, the floor, and in the doghouse.

3. Windsocks and Wind Streamers:
    - Windsocks at mud pit area should be high enough to be visible.
    - Windsock on the rig floor/top of doghouse should be high enough to be visible.

4. Condition Flags & Signs:
    - Warning sign on access road to location
    - Flags to be displayed on sign at entrance to location
        i. Green Flag – Normal Safe Operation Condition
        ii. Yellow Flag – Potential Pressure and Danger
        iii. Red Flag – Danger (H_2S present in dangerous concentrations) Only H_2S trained personnel admitted on location

5. Well Control Equipment:
    - See attached APD

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6. Communications:
   - While working under masks, chalkboards will be used for communications
   - Hand signals will be used where chalk board is inappropriate
   - Two-way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at drilling foreman's trailer or living quarters.

7. Drilling Stem Testing:
   - No Drill Stem Tests or hole coring is planned at this time.

8. Drilling contractor supervisor will be required to be familiar with the effects H_2S has on tubular goods and other mechanical equipment.

9. If H2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H2S scavenger chemicals if necessary.

10. Emergency Contacts:

Emergency Contact Information - H2S Contingency Plan				
Precussion Petroleum Operating, LLC	**713-518-1331**			
Key Parties at Percussion Petroleum		**Office**	**Mobile**	**Email**
Lelan J Anders	Vice President of Operations	713-429-1291	281-908-1752	Lelan@PercussionPetroleum.com
Lupe Carrillo	Chief Operating Officer	713-589-9509	832-776-1869	Lupe@PercussionPetroleum.com
John H. Campbell III	Chief Executive Officer	713-589-4683	936-718-6488	John@PercussionPetroleum.com

Artesia, New Mexico:	
Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

Carlsbad, New Mexico:	
Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
New Mexico Oil Conservation Division	575-887-6544

PERCUSSION PETROLEUM LLC

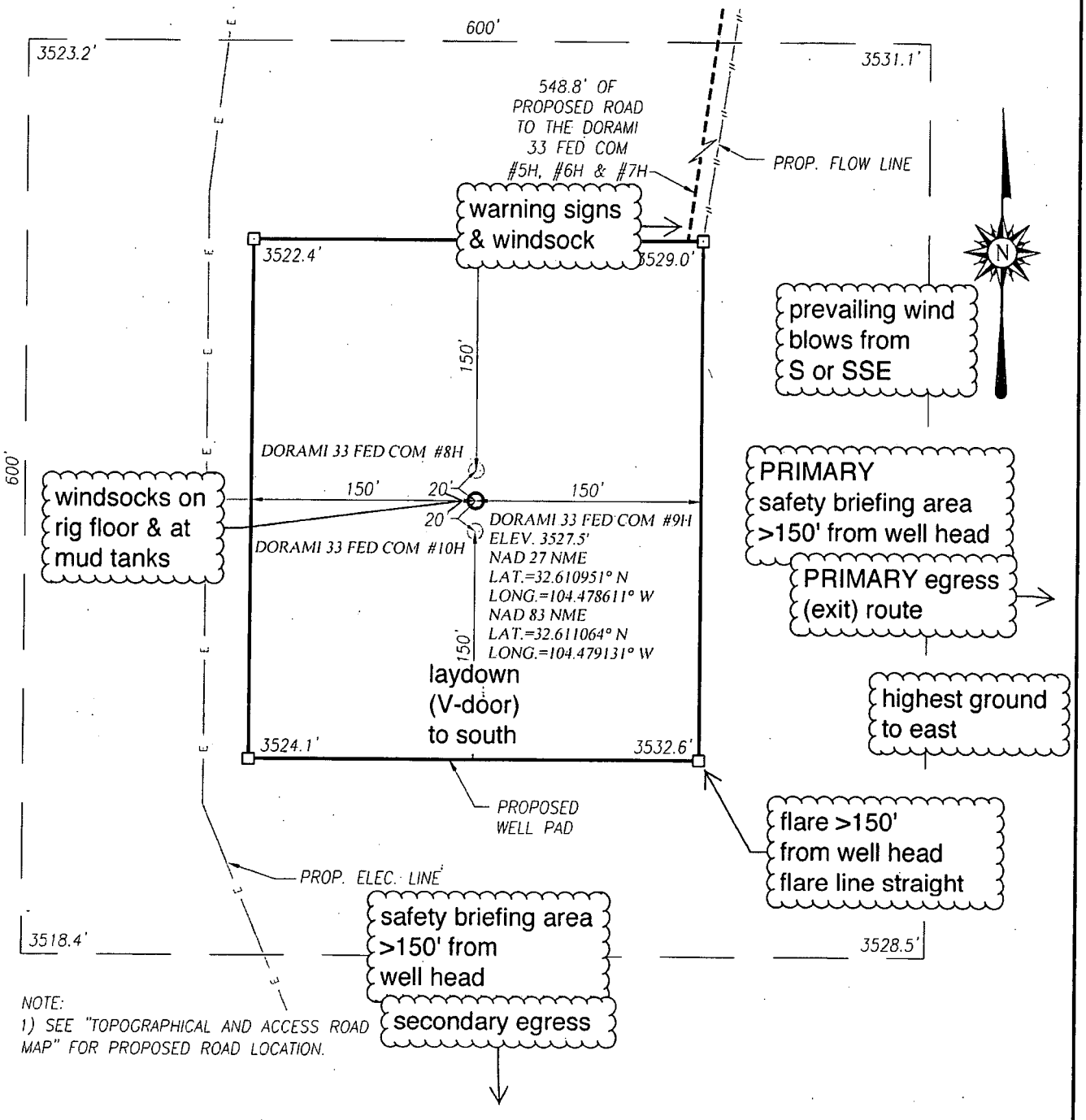
Santa Fe, New Mexico:	
New Mexico Emergency Response Commission	505-476-9600
New Mexico Emergency Response Commission (24 hr)	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

Federal Contacts:	
Carlsbad BLM Office	575-234-5972
National Emergency Response Center (Washington, DC)	800-424-8802

Medical:	
Flight for Life - Lubbock, TX	806-743-9911
AeroCare - Lubbock, TX	806-747-8923
Med Flight Air Ambulance - Albuquerque, NM	505-842-4433
SB Air Med Service - Albuquerque, NM	505-842-4949

Well Control/Other:	
Wild Well Control	281-784-4700
Boots & Coots IWC	800-256-9688
B.J. Services	575-746-3569
Halliburton	575-746-2757

WELL SITE PLAN



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD. FOLLOW ROAD STAKED SOUTH 1100.6 FEET TURN RIGHT AND GO WEST 767.8 FEET TURN LEFT AND GO SOUTH 1680.7 FEET TO THIS PAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FED COM #9H WELL LOCATED 490 FEET FROM THE SOUTH LINE AND 650 FEET FROM THE WEST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

Survey Date: 08/21/18	CAD Date: 09/17/18	Drawn By: LSL
W.O. No.: 18110961	Rev: .10/29/18	Rel. W.O.:	Sheet 1 of 1

Percussion Petroleum Operating, LLC

Dorami 33 Fed Com
8H/9H/10H
H2S Contingency Plan:
Radius Map

Section 34, Township 19S, Range 25E
Eddy County, New Mexico

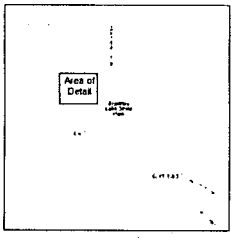
Surface Hole Location

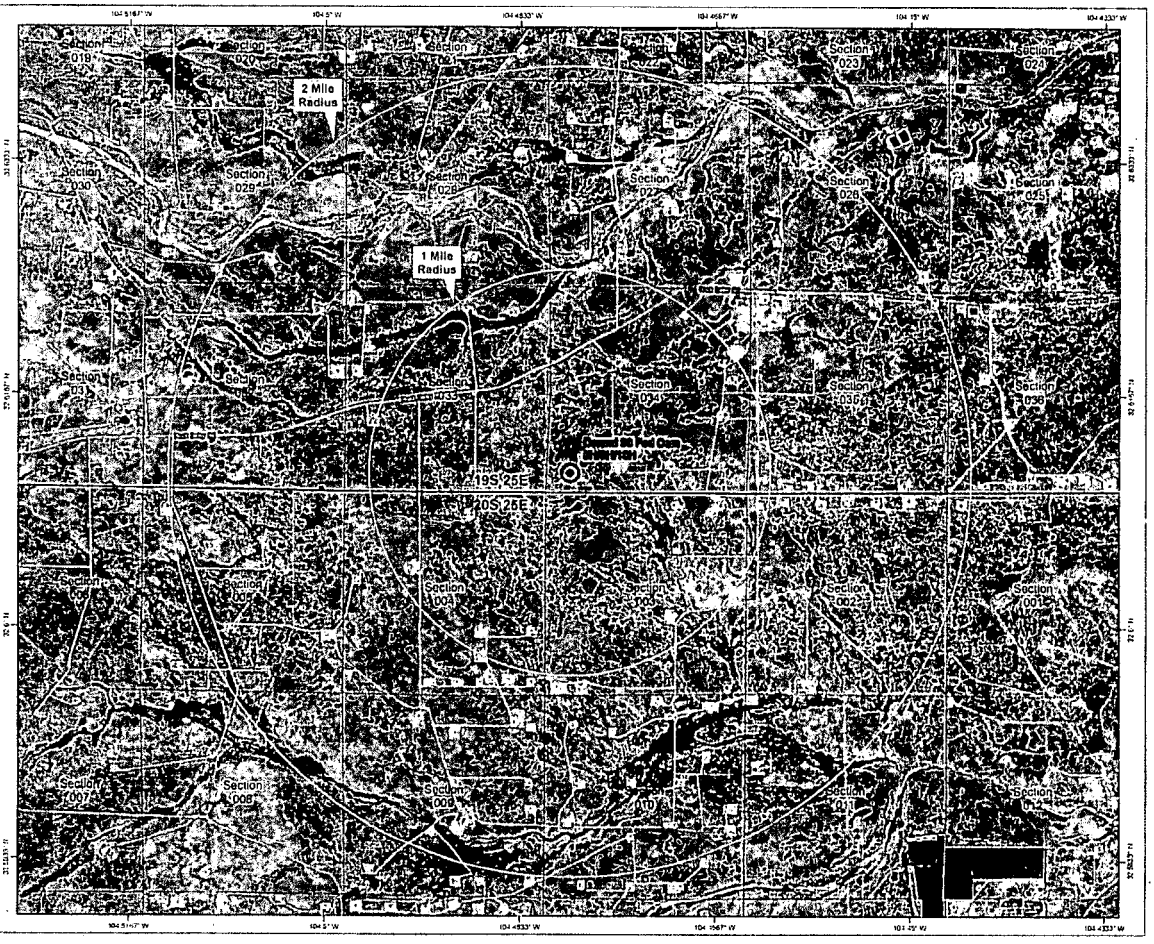
1:27,000
0 0.25 0.5 1
Miles

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMIAN WEST, Inc.

Prepared by Permits West, Inc., October 8, 2018
for Percussion Petroleum Operating, LLC





PERCUSSION PETROLEUM LLC

Company: Percussion Petroleum, LLC
Project: Eddy County, NM
Site: Dorami 33 Fed Com
Well: #9H
Wellbore: OH
Rig: Silver Oak 1
Design: Plan #3 / 11:41, October 31 2018

WELL DETAILS: #9H

RKB=17' @ 3545.00usft (Silver Oak 1)
3528.00

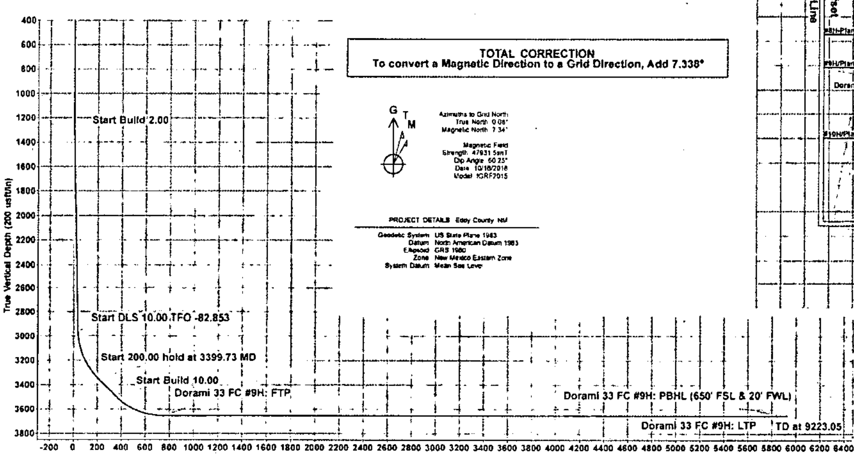
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	586066.80	496444.30	32.611064	-104.479131

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00
3	1471.80	5.44	347.59	1471.39	12.58	-2.77	2.00	2.81
4	2959.07	5.44	347.59	2951.97	150.18	-33.06	0.00	33.53
5	3399.73	45.00	270.18	3346.76	172.16	-201.74	10.00	202.28
6	3599.73	45.00	270.18	3488.18	172.81	-343.16	0.00	343.70
7	4049.73	90.00	270.18	3656.00	173.90	-748.30	10.00	748.84
8	9223.05	90.00	270.18	3656.00	190.40	-5921.60	0.00	5922.17

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Dorami 33 FC #9H: SHL (490' FSL & 650' FWL)	0.00	0.00	0.00	586066.80	496444.30	32.611064	-104.479131
Dorami 33 FC #9H: FTP	3656.00	173.90	-748.30	586240.70	495696.00	32.611540	-104.481562
Dorami 33 FC #9H: LTP	3656.00	190.10	-5841.60	586256.90	490602.70	32.611564	-104.498103
Dorami 33 FC #9H: PBHL (650' FSL & 20' FWL)	3656.00	190.40	-5921.60	586257.20	490522.70	32.611564	-104.498363



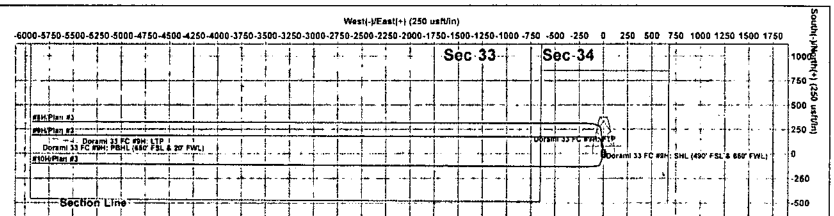
TOTAL CORRECTION
To convert a Magnetic Direction to a Grid Direction, Add 7.338°

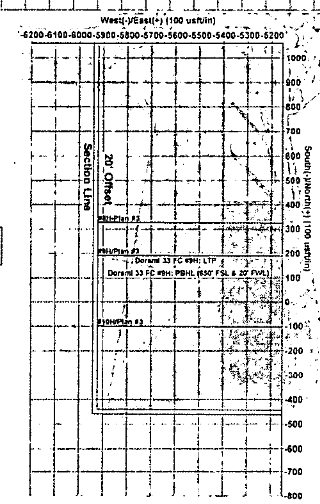
Azimuths to Grid North
True North: 0.08°
Magnetic North: 7.34°

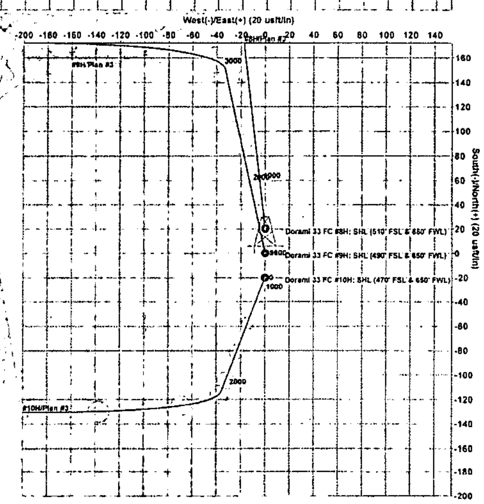
Magnetic Field
Strength: 47931.5snT
Dip Angle: 60.25°
Date: 10/18/2018
Model: IGRF2015

PROJECT DETAILS: Eddy County, NM

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level







Disclaimer:

WELLBENDERS DIRECTIONAL SERVICES LLC

Plan: Plan #3 (#9H/OH) Silver Oak 1

Created By: Derek Stephens Date: 11:41, October 31 2018

PERCUSSION PETROLEUM LLC

Wellbenders

Standard Plan With Toolface

WELLBENDERS DIRECTIONAL SERVICES

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Well:	#9H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	WBDS_SQL_2

Project Eddy County, NM

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Dorami 33 Fed Com

Site Position:		**Northing:**	586,971.30 usft	**Latitude:**	32.613551
From:	Map	**Easting:**	496,502.50 usft	**Longitude:**	-104.478946
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	-0.078 °

Well #9H

Well Position	**+N/-S**	0.00 usft	**Northing:**	586,066.80 usft	**Latitude:**	32.611064
	+E/-W	0.00 usft	**Easting:**	496,444.30 usft	**Longitude:**	-104.479131
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,528.00 usft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	10/16/2018	7.259	60.254	47,931.52641043

Design Plan #3

Audit Notes:

Version:	**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	270.18

Survey Tool Program **Date** 10/31/2018

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
0.00	9,223.05	Plan #3 (OH)	MWD+IGRF	OWSG MWD + IGRF or WMM

PERCUSSION PETROLEUM LLC

Wellbenders

Standard Plan With Toolface

WELLBENDERS DIRECTIONAL SERVICES

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Well:	#9H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	WBDS_SQL_2

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
1,300.00	2.00	347.59	1,299.98	1.70	-0.38	0.38	2.00	2.00	0.00	347.586
1,400.00	4.00	347.59	1,399.84	6.82	-1.50	1.52	2.00	2.00	0.00	0.000
1,471.80	5.44	347.59	1,471.39	12.58	-2.77	2.81	2.00	2.00	0.00	0.000
1,500.00	5.44	347.59	1,499.47	15.19	-3.34	3.39	0.00	0.00	0.00	0.000
1,600.00	5.44	347.59	1,599.02	24.44	-5.38	5.46	0.00	0.00	0.00	0.000
1,700.00	5.44	347.59	1,698.57	33.70	-7.42	7.52	0.00	0.00	0.00	0.000
1,800.00	5.44	347.59	1,798.12	42.95	-9.45	9.59	0.00	0.00	0.00	0.000
1,900.00	5.44	347.59	1,897.67	52.20	-11.49	11.65	0.00	0.00	0.00	0.000
2,000.00	5.44	347.59	1,997.22	61.45	-13.53	13.72	0.00	0.00	0.00	0.000
2,100.00	5.44	347.59	2,096.77	70.70	-15.56	15.79	0.00	0.00	0.00	0.000
2,200.00	5.44	347.59	2,196.32	79.95	-17.60	17.85	0.00	0.00	0.00	0.000
2,300.00	5.44	347.59	2,295.87	89.21	-19.64	19.92	0.00	0.00	0.00	0.000
2,400.00	5.44	347.59	2,395.42	98.46	-21.67	21.98	0.00	0.00	0.00	0.000
2,500.00	5.44	347.59	2,494.97	107.71	-23.71	24.05	0.00	0.00	0.00	0.000

PERCUSSION PETROLEUM LLC

Wellbenders

Standard Plan With Toolface

WELLBENDERS DIRECTIONAL SERVICES

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Well:	#9H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	WBDS_SQL_2

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
2,600.00	5.44	347.59	2,594.52	116.96	-25.75	26.11	0.00	0.00	0.00	0.000
2,700.00	5.44	347.59	2,694.07	126.21	-27.78	28.18	0.00	0.00	0.00	0.000
2,800.00	5.44	347.59	2,793.62	135.46	-29.82	30.24	0.00	0.00	0.00	0.000
2,900.00	5.44	347.59	2,893.17	144.72	-31.86	32.31	0.00	0.00	0.00	0.000
2,959.07	5.44	347.59	2,951.97	150.18	-33.06	33.53	0.00	0.00	0.00	0.000
3,000.00	7.20	313.16	2,992.67	153.83	-35.35	35.83	10.00	4.30	-84.11	-82.853
3,050.00	11.15	293.39	3,042.03	157.89	-42.07	42.57	10.00	7.90	-39.54	-48.618
3,100.00	15.70	284.39	3,090.66	161.50	-53.07	53.58	10.00	9.11	-18.01	-29.087
3,150.00	20.47	279.42	3,138.18	164.61	-68.26	68.77	10.00	9.52	-9.93	-20.320
3,200.00	25.32	276.28	3,184.23	167.21	-87.52	88.04	10.00	9.70	-6.28	-15.595
3,250.00	30.21	274.10	3,228.46	169.28	-110.71	111.24	10.00	9.79	-4.36	-12.698
3,300.00	35.14	272.48	3,270.53	170.80	-137.65	138.18	10.00	9.85	-3.24	-10.766
3,350.00	40.08	271.21	3,310.13	171.76	-168.13	168.67	10.00	9.88	-2.53	-9.400
3,399.73	45.00	270.18	3,346.76	172.16	-201.74	202.28	10.00	9.90	-2.06	-8.395
3,500.00	45.00	270.18	3,417.67	172.38	-272.64	273.18	0.00	0.00	0.00	0.000
3,599.73	45.00	270.18	3,488.18	172.61	-343.16	343.70	0.00	0.00	0.00	0.000
3,650.00	50.03	270.18	3,522.13	172.73	-380.22	380.76	10.00	10.00	0.00	0.000
3,700.00	55.03	270.18	3,552.54	172.85	-419.89	420.43	10.00	10.00	0.00	0.000
3,750.00	60.03	270.18	3,579.37	172.99	-462.06	462.60	10.00	10.00	0.00	0.000
3,800.00	65.03	270.18	3,602.43	173.13	-506.41	506.95	10.00	10.00	0.00	0.000
3,850.00	70.03	270.18	3,621.54	173.28	-552.59	553.14	10.00	10.00	0.00	0.000
3,900.00	75.03	270.18	3,636.55	173.43	-600.27	600.81	10.00	10.00	0.00	0.000
3,950.00	80.03	270.18	3,647.34	173.58	-649.08	649.62	10.00	10.00	0.00	0.000
4,000.00	85.03	270.18	3,653.84	173.74	-698.63	699.18	10.00	10.00	0.00	0.000
4,049.73	90.00	270.18	3,656.00	173.90	-748.30	748.84	10.00	10.00	0.00	0.000
4,100.00	90.00	270.18	3,656.00	174.06	-798.57	799.11	0.00	0.00	0.00	0.000
4,200.00	90.00	270.18	3,656.00	174.38	-898.57	899.11	0.00	0.00	0.00	0.000

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Well:	#9H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	WBDS_SQL_2

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
4,300.00	90.00	270.18	3,656.00	174.70	-998.57	999.11	0.00	0.00	0.00	0.000
4,400.00	90.00	270.18	3,656.00	175.02	-1,098.57	1,099.11	0.00	0.00	0.00	0.000
4,500.00	90.00	270.18	3,656.00	175.34	-1,198.57	1,199.11	0.00	0.00	0.00	0.000
4,600.00	90.00	270.18	3,656.00	175.66	-1,298.57	1,299.11	0.00	0.00	0.00	0.000
4,700.00	90.00	270.18	3,656.00	175.97	-1,398.57	1,399.11	0.00	0.00	0.00	0.000
4,800.00	90.00	270.18	3,656.00	176.29	-1,498.57	1,499.11	0.00	0.00	0.00	0.000
4,900.00	90.00	270.18	3,656.00	176.61	-1,598.57	1,599.11	0.00	0.00	0.00	0.000
5,000.00	90.00	270.18	3,656.00	176.93	-1,698.57	1,699.11	0.00	0.00	0.00	0.000
5,100.00	90.00	270.18	3,656.00	177.25	-1,798.57	1,799.11	0.00	0.00	0.00	0.000
5,200.00	90.00	270.18	3,656.00	177.57	-1,898.57	1,899.11	0.00	0.00	0.00	0.000
5,300.00	90.00	270.18	3,656.00	177.89	-1,998.57	1,999.11	0.00	0.00	0.00	0.000
5,400.00	90.00	270.18	3,656.00	178.21	-2,098.57	2,099.11	0.00	0.00	0.00	0.000
5,500.00	90.00	270.18	3,656.00	178.53	-2,198.56	2,199.11	0.00	0.00	0.00	0.000
5,600.00	90.00	270.18	3,656.00	178.84	-2,298.56	2,299.11	0.00	0.00	0.00	0.000
5,700.00	90.00	270.18	3,656.00	179.16	-2,398.56	2,399.11	0.00	0.00	0.00	0.000
5,800.00	90.00	270.18	3,656.00	179.48	-2,498.56	2,499.11	0.00	0.00	0.00	0.000
5,900.00	90.00	270.18	3,656.00	179.80	-2,598.56	2,599.11	0.00	0.00	0.00	0.000
6,000.00	90.00	270.18	3,656.00	180.12	-2,698.56	2,699.11	0.00	0.00	0.00	0.000
6,100.00	90.00	270.18	3,656.00	180.44	-2,798.56	2,799.11	0.00	0.00	0.00	0.000
6,200.00	90.00	270.18	3,656.00	180.76	-2,898.56	2,899.11	0.00	0.00	0.00	0.000
6,300.00	90.00	270.18	3,656.00	181.08	-2,998.56	2,999.11	0.00	0.00	0.00	0.000
6,400.00	90.00	270.18	3,656.00	181.40	-3,098.56	3,099.11	0.00	0.00	0.00	0.000
6,500.00	90.00	270.18	3,656.00	181.71	-3,198.56	3,199.11	0.00	0.00	0.00	0.000
6,600.00	90.00	270.18	3,656.00	182.03	-3,298.56	3,299.11	0.00	0.00	0.00	0.000
6,700.00	90.00	270.18	3,656.00	182.35	-3,398.56	3,399.11	0.00	0.00	0.00	0.000
6,800.00	90.00	270.18	3,656.00	182.67	-3,498.56	3,499.11	0.00	0.00	0.00	0.000
6,900.00	90.00	270.18	3,656.00	182.99	-3,598.56	3,599.11	0.00	0.00	0.00	0.000

PERCUSSION PETROLEUM LLC

Wellbenders

Standard Plan With Toolface

WELLBENDERS DIRECTIONAL SERVICES

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Well:	#9H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	WBDS_SQL_2

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
7,000.00	90.00	270.18	3,656.00	183.31	-3,698.56	3,699.11	0.00	0.00	0.00	0.000
7,100.00	90.00	270.18	3,656.00	183.63	-3,798.56	3,799.11	0.00	0.00	0.00	0.000
7,200.00	90.00	270.18	3,656.00	183.95	-3,898.56	3,899.11	0.00	0.00	0.00	0.000
7,300.00	90.00	270.18	3,656.00	184.27	-3,998.56	3,999.11	0.00	0.00	0.00	0.000
7,400.00	90.00	270.18	3,656.00	184.59	-4,098.56	4,099.11	0.00	0.00	0.00	0.000
7,500.00	90.00	270.18	3,656.00	184.90	-4,198.55	4,199.11	0.00	0.00	0.00	0.000
7,600.00	90.00	270.18	3,656.00	185.22	-4,298.55	4,299.11	0.00	0.00	0.00	0.000
7,700.00	90.00	270.18	3,656.00	185.54	-4,398.55	4,399.11	0.00	0.00	0.00	0.000
7,800.00	90.00	270.18	3,656.00	185.86	-4,498.55	4,499.11	0.00	0.00	0.00	0.000
7,900.00	90.00	270.18	3,656.00	186.18	-4,598.55	4,599.11	0.00	0.00	0.00	0.000
8,000.00	90.00	270.18	3,656.00	186.50	-4,698.55	4,699.11	0.00	0.00	0.00	0.000
8,100.00	90.00	270.18	3,656.00	186.82	-4,798.55	4,799.11	0.00	0.00	0.00	0.000
8,200.00	90.00	270.18	3,656.00	187.14	-4,898.55	4,899.11	0.00	0.00	0.00	0.000
8,300.00	90.00	270.18	3,656.00	187.46	-4,998.55	4,999.11	0.00	0.00	0.00	0.000
8,400.00	90.00	270.18	3,656.00	187.77	-5,098.55	5,099.11	0.00	0.00	0.00	0.000
8,500.00	90.00	270.18	3,656.00	188.09	-5,198.55	5,199.11	0.00	0.00	0.00	0.000
8,600.00	90.00	270.18	3,656.00	188.41	-5,298.55	5,299.11	0.00	0.00	0.00	0.000
8,700.00	90.00	270.18	3,656.00	188.73	-5,398.55	5,399.11	0.00	0.00	0.00	0.000
8,800.00	90.00	270.18	3,656.00	189.05	-5,498.55	5,499.11	0.00	0.00	0.00	0.000
8,900.00	90.00	270.18	3,656.00	189.37	-5,598.55	5,599.11	0.00	0.00	0.00	0.000
9,000.00	90.00	270.18	3,656.00	189.69	-5,698.55	5,699.11	0.00	0.00	0.00	0.000
9,100.00	90.00	270.18	3,656.00	190.01	-5,798.55	5,799.11	0.00	0.00	0.00	0.000
9,200.00	90.00	270.18	3,656.00	190.33	-5,898.55	5,899.11	0.00	0.00	0.00	0.000
9,223.05	90.00	270.18	3,656.00	190.40	-5,921.60	5,922.17	0.00	0.00	0.00	0.000

Checked By: _____ Approved By: _____ Date: _____

PERCUSSION PETROLEUM LLC

Percussion Petroleum, LLC

Eddy County, NM
Dorami 33 Fed Com
#9H

OH
Plan #3

Anticollision Report

31 October, 2018

WELLBENDERS DIRECTIONAL SERVICES LLC

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Reference	Plan #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 50.00usft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 5,500.00 usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 10/31/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	9,223.05	Plan #3 (OH)	MWD+IGRF	OWSG MWD + IGRF or WMM

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Dorami 33 Fed Com						
#10H - OH - Plan #3	800.00	800.00	20.00	14.68	3.762	CC, ES
#10H - OH - Plan #3	900.00	899.31	21.63	15.62	3.598	SF
#8H - OH - Plan #3	500.00	499.00	20.00	16.84	6.326	CC, ES
#8H - OH - Plan #3	600.00	598.28	21.69	17.81	5.594	SF

Offset Design Dorami 33 Fed Com - #10H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-179.427	-20.00	-0.20	20.00				
50.00	50.00	50.00	50.00	0.06	0.07	-179.427	-20.00	-0.20	20.00	19.87	0.13	149.786	
100.00	100.00	100.00	100.00	0.15	0.15	-179.427	-20.00	-0.20	20.00	19.70	0.30	67.223	
150.00	150.00	150.00	150.00	0.33	0.33	-179.427	-20.00	-0.20	20.00	19.34	0.66	30.489	
200.00	200.00	200.00	200.00	0.51	0.51	-179.427	-20.00	-0.20	20.00	18.99	1.01	19.716	
250.00	250.00	250.00	250.00	0.69	0.69	-179.427	-20.00	-0.20	20.00	18.63	1.37	14.568	
300.00	300.00	300.00	300.00	0.87	0.87	-179.427	-20.00	-0.20	20.00	18.27	1.73	11.552	
350.00	350.00	350.00	350.00	1.04	1.04	-179.427	-20.00	-0.20	20.00	17.91	2.09	9.570	
400.00	400.00	400.00	400.00	1.22	1.22	-179.427	-20.00	-0.20	20.00	17.55	2.45	8.169	
450.00	450.00	450.00	450.00	1.40	1.40	-179.427	-20.00	-0.20	20.00	17.19	2.81	7.126	
500.00	500.00	500.00	500.00	1.58	1.58	-179.427	-20.00	-0.20	20.00	16.84	3.17	6.319	
550.00	550.00	550.00	550.00	1.76	1.76	-179.427	-20.00	-0.20	20.00	16.48	3.52	5.676	
600.00	600.00	600.00	600.00	1.94	1.94	-179.427	-20.00	-0.20	20.00	16.12	3.88	5.152	
650.00	650.00	650.00	650.00	2.12	2.12	-179.427	-20.00	-0.20	20.00	15.76	4.24	4.716	
700.00	700.00	700.00	700.00	2.30	2.30	-179.427	-20.00	-0.20	20.00	15.40	4.60	4.349	
750.00	750.00	750.00	750.00	2.48	2.48	-179.427	-20.00	-0.20	20.00	15.04	4.96	4.034	
800.00	800.00	800.00	800.00	2.66	2.66	-179.427	-20.00	-0.20	20.00	14.68	5.32	3.762	CC, ES
850.00	850.00	849.67	849.67	2.84	2.83	-179.005	-20.40	-0.35	20.41	14.74	5.66	3.602	
900.00	900.00	899.31	899.29	3.02	3.00	-177.836	-21.61	-0.82	21.63	15.62	6.01	3.598	SF
950.00	950.00	948.89	948.82	3.20	3.16	-176.158	-23.61	-1.59	23.69	17.34	6.35	3.729	
1,000.00	1,000.00	998.38	998.22	3.38	3.33	-174.249	-26.41	-2.66	26.60	19.91	6.69	3.976	
1,050.00	1,050.00	1,047.84	1,047.53	3.55	3.49	-172.340	-29.99	-4.03	30.36	23.33	7.03	4.318	
1,100.00	1,100.00	1,102.33	1,097.16	3.73	3.68	-170.738	-33.88	-5.52	34.44	27.05	7.39	4.658	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Offset Design Dorami 33 Fed Com - #10H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,150.00	1,150.00	1,147.49	1,146.84	3.91	3.84	-169.477	-37.76	-7.01	38.54	30.81	7.73	4.988	
1,200.00	1,200.00	1,202.68	1,196.49	4.09	4.03	-168.458	-41.64	-8.50	42.65	34.56	8.09	5.271	
1,250.00	1,250.00	1,247.11	1,246.11	4.27	4.19	-155.390	-45.52	-9.99	47.17	38.74	8.42	5.599	
1,300.00	1,299.98	1,296.83	1,295.65	4.45	4.37	-155.243	-49.40	-11.48	52.48	43.70	8.77	5.981	
1,350.00	1,349.93	1,346.45	1,345.10	4.63	4.55	-155.469	-53.27	-12.97	58.57	49.45	9.13	6.419	
1,400.00	1,399.84	1,404.03	1,394.45	4.81	4.76	-155.954	-57.13	-14.45	65.46	55.96	9.51	6.887	
1,450.00	1,449.68	1,445.37	1,443.67	4.99	4.91	-156.607	-60.98	-15.92	73.15	63.32	9.83	7.441	
1,500.00	1,499.47	1,494.65	1,492.78	5.17	5.09	-157.360	-64.82	-17.40	81.51	71.33	10.18	8.004	
1,550.00	1,549.24	1,543.92	1,541.88	5.35	5.28	-158.017	-68.66	-18.87	89.96	79.43	10.53	8.540	
1,600.00	1,599.02	1,593.20	1,590.98	5.54	5.46	-158.561	-72.50	-20.35	98.42	87.54	10.89	9.041	
1,650.00	1,648.79	1,642.47	1,640.08	5.72	5.64	-159.018	-76.34	-21.82	106.89	95.65	11.24	9.511	
1,700.00	1,698.57	1,708.26	1,689.18	5.90	5.89	-159.409	-80.18	-23.29	115.36	103.71	11.65	9.903	
1,750.00	1,748.34	1,741.01	1,738.28	6.09	6.01	-159.746	-84.03	-24.77	123.84	111.90	11.94	10.368	
1,800.00	1,798.12	1,790.28	1,787.38	6.28	6.20	-160.040	-87.87	-26.24	132.32	120.02	12.30	10.760	
1,850.00	1,847.89	1,839.55	1,836.48	6.47	6.39	-160.298	-91.71	-27.71	140.81	128.15	12.65	11.129	
1,900.00	1,897.67	1,888.82	1,885.58	6.65	6.57	-160.527	-95.55	-29.19	149.29	136.29	13.01	11.479	
1,950.00	1,947.44	1,938.09	1,934.68	6.84	6.76	-160.732	-99.39	-30.66	157.78	144.42	13.36	11.809	
2,000.00	1,997.22	1,987.36	1,983.78	7.03	6.95	-160.915	-103.23	-32.13	166.27	152.56	13.72	12.122	
2,050.00	2,046.99	2,036.64	2,032.88	7.22	7.14	-161.081	-107.07	-33.61	174.76	160.69	14.07	12.419	
2,100.00	2,096.77	2,085.91	2,081.97	7.41	7.32	-161.232	-110.91	-35.08	183.26	168.83	14.43	12.702	
2,150.00	2,146.54	2,135.08	2,130.97	7.60	7.51	-161.312	-114.73	-36.74	191.75	176.97	14.78	12.971	
2,200.00	2,196.32	2,183.82	2,179.34	7.79	7.70	-160.477	-118.23	-41.49	200.34	185.20	15.14	13.234	
2,250.00	2,246.09	2,231.71	2,226.32	7.98	7.90	-158.605	-121.28	-50.14	209.19	193.71	15.49	13.508	
2,300.00	2,295.87	2,278.11	2,271.04	8.18	8.10	-155.932	-123.85	-62.23	218.68	202.86	15.82	13.823	
2,350.00	2,345.64	2,322.54	2,312.82	8.37	8.30	-152.704	-125.94	-77.15	229.28	213.15	16.13	14.215	
2,400.00	2,395.42	2,364.60	2,351.22	8.56	8.50	-149.161	-127.57	-94.21	241.46	225.06	16.40	14.725	
2,450.00	2,445.19	2,404.08	2,386.06	8.75	8.70	-145.511	-128.79	-112.74	255.68	239.07	16.61	15.391	
2,500.00	2,494.97	2,440.87	2,417.31	8.95	8.91	-141.916	-129.64	-132.11	272.25	255.49	16.76	16.242	
2,550.00	2,544.74	2,474.95	2,445.11	9.14	9.13	-138.493	-130.19	-151.81	291.37	274.53	16.84	17.299	
2,600.00	2,594.52	2,506.40	2,469.69	9.33	9.34	-135.309	-130.49	-171.41	313.10	296.25	16.85	18.583	
2,650.00	2,644.29	2,535.35	2,491.35	9.53	9.57	-132.398	-130.58	-190.62	337.39	320.59	16.80	20.085	
2,700.00	2,694.07	2,564.53	2,512.23	9.72	9.82	-129.522	-130.51	-211.01	364.07	347.32	16.75	21.737	
2,750.00	2,743.84	2,600.47	2,537.64	9.91	10.14	-126.271	-130.38	-236.42	392.25	375.38	16.87	23.252	
2,800.00	2,793.62	2,636.40	2,563.05	10.11	10.51	-123.367	-130.24	-261.83	421.42	404.39	17.03	24.746	
2,850.00	2,843.39	2,672.34	2,588.46	10.30	10.89	-120.768	-130.10	-287.24	451.37	434.17	17.20	26.240	
2,900.00	2,893.17	2,708.27	2,613.87	10.50	11.27	-118.440	-129.97	-312.65	481.98	464.59	17.39	27.723	
2,950.00	2,942.94	2,744.20	2,639.27	10.69	11.70	-116.348	-129.83	-338.05	513.12	495.51	17.60	29.150	
3,000.00	2,992.67	2,769.63	2,657.12	10.88	12.01	-79.140	-129.73	-356.15	543.98	526.39	17.59	30.918	
3,050.00	3,042.03	2,790.51	2,671.24	11.08	12.27	-56.994	-129.65	-371.54	573.34	555.86	17.47	32.811	
3,100.00	3,090.66	2,811.63	2,684.94	11.28	12.55	-46.028	-129.56	-387.62	601.04	583.68	17.35	34.634	
3,150.00	3,138.18	2,832.96	2,698.16	11.49	12.85	-39.451	-129.47	-404.36	626.94	609.71	17.24	36.375	
3,200.00	3,184.23	2,850.00	2,708.27	11.70	13.09	-35.084	-129.40	-418.07	650.98	633.96	17.02	38.249	
3,250.00	3,228.46	2,876.13	2,722.97	11.93	13.50	-31.736	-129.28	-439.67	672.96	655.95	17.01	39.568	
3,300.00	3,270.53	2,900.00	2,735.52	12.19	13.87	-29.221	-129.17	-459.97	692.90	675.96	16.95	40.889	
3,350.00	3,310.13	2,919.80	2,745.29	12.47	14.21	-27.305	-129.08	-477.20	710.69	693.88	16.81	42.272	
3,400.00	3,346.96	2,950.00	2,759.02	12.81	14.72	-25.661	-128.93	-504.09	726.38	709.47	16.91	42.953	
3,450.00	3,382.31	2,963.50	2,764.69	13.20	14.97	-25.495	-128.87	-516.34	741.62	724.93	16.69	44.443	
3,500.00	3,417.67	2,984.62	2,772.99	13.61	15.36	-25.218	-128.76	-535.75	758.63	742.00	16.63	45.614	
3,550.00	3,453.02	3,000.00	2,778.58	14.09	15.64	-25.004	-128.68	-550.08	777.30	760.81	16.48	47.158	
3,600.00	3,488.38	3,024.91	2,786.81	14.58	16.13	-24.634	-128.56	-573.59	797.44	780.89	16.55	48.195	
3,650.00	3,522.13	3,050.00	2,794.06	15.12	16.63	-23.416	-128.43	-597.61	817.34	800.71	16.62	49.169	
3,700.00	3,552.54	3,064.22	2,797.70	15.74	16.92	-22.526	-128.35	-611.36	834.97	818.45	16.52	50.557	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Offset Design Dorami 33 Fed Com - #10H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,750.00	3,579.37	3,084.10	2,802.21	16.43	17.33	-21.734	-128.25	-630.71	850.40	833.83	16.56	51.343	
3,800.00	3,602.43	3,100.00	2,805.33	17.18	17.66	-21.118	-128.17	-646.30	863.55	846.97	16.58	52.079	
3,850.00	3,621.54	3,124.17	2,809.25	18.00	18.18	-20.585	-128.04	-670.15	874.31	857.50	16.81	52.008	
3,900.00	3,636.55	3,150.00	2,812.32	18.89	18.73	-20.180	-127.90	-695.80	882.76	865.64	17.12	51.571	
3,950.00	3,647.34	3,164.53	2,813.54	19.82	19.05	-19.934	-127.82	-710.27	888.71	871.43	17.28	51.421	
4,000.00	3,653.84	3,184.77	2,814.63	20.80	19.50	-19.775	-127.71	-730.48	892.28	874.68	17.61	50.675	
4,050.00	3,656.00	3,206.29	2,815.00	21.80	19.97	-19.723	-127.60	-750.20	893.41	875.41	18.00	49.635	
4,100.00	3,656.00	3,254.49	2,815.00	22.83	21.06	-19.717	-127.34	-800.20	893.38	874.49	18.89	47.293	
4,150.00	3,656.00	3,304.49	2,815.00	23.90	22.20	-19.710	-127.07	-850.20	893.34	873.52	19.82	45.070	
4,200.00	3,656.00	3,354.49	2,815.00	24.98	23.37	-19.703	-126.80	-900.20	893.30	872.53	20.77	43.013	
4,250.00	3,656.00	3,404.49	2,815.00	26.09	24.54	-19.697	-126.53	-950.20	893.27	871.53	21.74	41.092	
4,300.00	3,656.00	3,454.49	2,815.00	27.21	25.73	-19.690	-126.26	-1,000.19	893.23	870.51	22.72	39.314	
4,350.00	3,656.00	3,504.49	2,815.00	28.36	26.93	-19.683	-125.99	-1,050.19	893.19	869.47	23.72	37.654	
4,400.00	3,656.00	3,554.49	2,815.00	29.50	28.15	-19.677	-125.72	-1,100.19	893.15	868.42	24.73	36.116	
4,450.00	3,656.00	3,604.49	2,815.00	30.68	29.36	-19.670	-125.45	-1,150.19	893.12	867.36	25.75	34.680	
4,500.00	3,656.00	3,654.49	2,815.00	31.85	30.59	-19.663	-125.18	-1,200.19	893.08	866.30	26.78	33.345	
4,550.00	3,656.00	3,704.49	2,815.00	33.04	31.83	-19.657	-124.91	-1,250.19	893.04	865.22	27.82	32.096	
4,600.00	3,656.00	3,754.49	2,815.00	34.24	33.07	-19.650	-124.64	-1,300.19	893.01	864.14	28.87	30.931	
4,650.00	3,656.00	3,804.49	2,815.00	35.45	34.31	-19.643	-124.37	-1,350.19	892.97	863.04	29.93	29.839	
4,700.00	3,656.00	3,854.49	2,815.00	36.66	35.57	-19.637	-124.10	-1,400.19	892.93	861.95	30.98	28.818	
4,750.00	3,656.00	3,904.49	2,815.00	37.88	36.82	-19.630	-123.83	-1,450.19	892.89	860.84	32.05	27.858	
4,800.00	3,656.00	3,954.49	2,815.00	39.10	38.08	-19.623	-123.56	-1,500.19	892.86	859.74	33.12	26.958	
4,850.00	3,656.00	4,004.49	2,815.00	40.34	39.34	-19.617	-123.29	-1,550.19	892.82	858.62	34.20	26.109	
4,900.00	3,656.00	4,054.49	2,815.00	41.57	40.61	-19.610	-123.02	-1,600.18	892.78	857.51	35.27	25.310	
4,950.00	3,656.00	4,104.49	2,815.00	42.82	41.88	-19.603	-122.75	-1,650.18	892.75	856.39	36.36	24.556	
5,000.00	3,656.00	4,154.49	2,815.00	44.06	43.15	-19.597	-122.48	-1,700.18	892.71	855.27	37.44	23.844	
5,050.00	3,656.00	4,204.49	2,815.00	45.31	44.43	-19.590	-122.21	-1,750.18	892.67	854.14	38.53	23.169	
5,100.00	3,656.00	4,254.49	2,815.00	46.56	45.70	-19.583	-121.94	-1,800.18	892.64	853.02	39.62	22.531	
5,150.00	3,656.00	4,304.49	2,815.00	47.82	46.98	-19.577	-121.67	-1,850.18	892.60	851.89	40.71	21.925	
5,200.00	3,656.00	4,354.49	2,815.00	49.08	48.26	-19.570	-121.40	-1,900.18	892.56	850.76	41.81	21.350	
5,250.00	3,656.00	4,404.49	2,815.00	50.34	49.54	-19.563	-121.13	-1,950.18	892.52	849.62	42.90	20.803	
5,300.00	3,656.00	4,454.49	2,815.00	51.61	50.83	-19.557	-120.86	-2,000.18	892.49	848.49	44.00	20.283	
5,350.00	3,656.00	4,504.49	2,815.00	52.87	52.11	-19.550	-120.59	-2,050.18	892.45	847.35	45.10	19.788	
5,400.00	3,656.00	4,554.49	2,815.00	54.14	53.40	-19.543	-120.32	-2,100.18	892.41	846.21	46.20	19.315	
5,450.00	3,656.00	4,604.49	2,815.00	55.41	54.69	-19.537	-120.05	-2,150.18	892.38	845.07	47.31	18.864	
5,500.00	3,656.00	4,654.49	2,815.00	56.69	55.98	-19.530	-119.78	-2,200.17	892.34	843.93	48.41	18.433	
5,550.00	3,656.00	4,704.49	2,815.00	57.96	57.27	-19.523	-119.51	-2,250.17	892.30	842.79	49.51	18.021	
5,600.00	3,656.00	4,754.49	2,815.00	59.24	58.56	-19.517	-119.24	-2,300.17	892.27	841.65	50.62	17.627	
5,650.00	3,656.00	4,804.49	2,815.00	60.52	59.85	-19.510	-118.97	-2,350.17	892.23	840.50	51.73	17.249	
5,700.00	3,656.00	4,854.49	2,815.00	61.79	61.14	-19.503	-118.70	-2,400.17	892.19	839.36	52.83	16.886	
5,750.00	3,656.00	4,904.49	2,815.00	63.08	62.44	-19.497	-118.43	-2,450.17	892.16	838.21	53.94	16.539	
5,800.00	3,656.00	4,954.48	2,815.00	64.36	63.73	-19.490	-118.16	-2,500.17	892.12	837.07	55.05	16.205	
5,850.00	3,656.00	5,004.48	2,815.00	65.64	65.03	-19.483	-117.89	-2,550.17	892.08	835.92	56.16	15.884	
5,900.00	3,656.00	5,054.48	2,815.00	66.93	66.32	-19.477	-117.62	-2,600.17	892.05	834.77	57.27	15.575	
5,950.00	3,656.00	5,104.48	2,815.00	68.21	67.62	-19.470	-117.35	-2,650.17	892.01	833.63	58.38	15.278	
6,000.00	3,656.00	5,154.48	2,815.00	69.50	68.92	-19.463	-117.08	-2,700.17	891.97	832.48	59.49	14.992	
6,050.00	3,656.00	5,204.48	2,815.00	70.79	70.22	-19.457	-116.81	-2,750.16	891.94	831.33	60.61	14.717	
6,100.00	3,656.00	5,254.48	2,815.00	72.08	71.52	-19.450	-116.54	-2,800.16	891.90	830.18	61.72	14.451	
6,150.00	3,656.00	5,304.48	2,815.00	73.37	72.82	-19.443	-116.27	-2,850.16	891.86	829.03	62.83	14.195	
6,200.00	3,656.00	5,354.48	2,815.00	74.66	74.12	-19.437	-116.01	-2,900.16	891.83	827.88	63.94	13.947	
6,250.00	3,656.00	5,404.48	2,815.00	75.95	75.42	-19.430	-115.74	-2,950.16	891.79	826.73	65.06	13.708	
6,300.00	3,656.00	5,454.48	2,815.00	77.24	76.72	-19.423	-115.47	-3,000.16	891.75	825.58	66.17	13.477	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Offset Design Dorami 33 Fed Com - #10H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,350.00	3,656.00	5,504.48	2,815.00	78.53	78.02	-19.417	-115.20	-3,050.16	891.72	824.43	67.28	13.253	
6,400.00	3,656.00	5,554.48	2,815.00	79.82	79.32	-19.410	-114.93	-3,100.16	891.68	823.28	68.40	13.037	
6,450.00	3,656.00	5,604.48	2,815.00	81.12	80.62	-19.403	-114.66	-3,150.16	891.64	822.13	69.51	12.828	
6,500.00	3,656.00	5,654.48	2,815.00	82.41	81.92	-19.396	-114.39	-3,200.16	891.61	820.98	70.62	12.625	
6,550.00	3,656.00	5,704.48	2,815.00	83.71	83.23	-19.390	-114.12	-3,250.16	891.57	819.83	71.74	12.428	
6,600.00	3,656.00	5,754.48	2,815.00	85.00	84.53	-19.383	-113.85	-3,300.16	891.53	818.68	72.85	12.238	
6,650.00	3,656.00	5,804.48	2,815.00	86.30	85.83	-19.376	-113.58	-3,350.15	891.50	817.53	73.96	12.053	
6,700.00	3,656.00	5,854.48	2,815.00	87.60	87.13	-19.370	-113.31	-3,400.15	891.46	816.38	75.08	11.874	
6,750.00	3,656.00	5,904.48	2,815.00	88.89	88.44	-19.363	-113.04	-3,450.15	891.42	815.23	76.19	11.700	
6,800.00	3,656.00	5,954.48	2,815.00	90.19	89.74	-19.356	-112.77	-3,500.15	891.39	814.08	77.31	11.531	
6,850.00	3,656.00	6,004.48	2,815.00	91.49	91.05	-19.350	-112.50	-3,550.15	891.35	812.93	78.42	11.367	
6,900.00	3,656.00	6,054.48	2,815.00	92.79	92.35	-19.343	-112.23	-3,600.15	891.31	811.78	79.53	11.207	
6,950.00	3,656.00	6,104.48	2,815.00	94.09	93.66	-19.336	-111.96	-3,650.15	891.28	810.63	80.65	11.052	
7,000.00	3,656.00	6,154.48	2,815.00	95.39	94.96	-19.330	-111.69	-3,700.15	891.24	809.48	81.76	10.901	
7,050.00	3,656.00	6,204.48	2,815.00	96.69	96.27	-19.323	-111.42	-3,750.15	891.20	808.33	82.87	10.754	
7,100.00	3,656.00	6,254.48	2,815.00	97.99	97.57	-19.316	-111.15	-3,800.15	891.17	807.18	83.99	10.611	
7,150.00	3,656.00	6,304.48	2,815.00	99.29	98.88	-19.310	-110.88	-3,850.15	891.13	806.03	85.10	10.472	
7,200.00	3,656.00	6,354.48	2,815.00	100.59	100.18	-19.303	-110.61	-3,900.15	891.09	804.88	86.21	10.336	
7,250.00	3,656.00	6,404.48	2,815.00	101.89	101.49	-19.296	-110.34	-3,950.14	891.06	803.73	87.33	10.204	
7,300.00	3,656.00	6,454.48	2,815.00	103.19	102.80	-19.289	-110.07	-4,000.14	891.02	802.58	88.44	10.075	
7,350.00	3,656.00	6,504.48	2,815.00	104.49	104.10	-19.283	-109.80	-4,050.14	890.98	801.43	89.55	9.950	
7,400.00	3,656.00	6,554.48	2,815.00	105.79	105.41	-19.276	-109.53	-4,100.14	890.95	800.29	90.66	9.827	
7,450.00	3,656.00	6,604.48	2,815.00	107.10	106.72	-19.269	-109.26	-4,150.14	890.91	799.14	91.77	9.708	
7,500.00	3,656.00	6,654.48	2,815.00	108.40	108.02	-19.263	-108.99	-4,200.14	890.87	797.99	92.89	9.591	
7,550.00	3,656.00	6,704.48	2,815.00	109.70	109.33	-19.256	-108.72	-4,250.14	890.84	796.84	94.00	9.477	
7,600.00	3,656.00	6,754.48	2,815.00	111.00	110.64	-19.249	-108.45	-4,300.14	890.80	795.69	95.11	9.366	
7,650.00	3,656.00	6,804.48	2,815.00	112.31	111.95	-19.243	-108.18	-4,350.14	890.77	794.54	96.22	9.257	
7,700.00	3,656.00	6,854.48	2,815.00	113.61	113.25	-19.236	-107.91	-4,400.14	890.73	793.40	97.33	9.151	
7,750.00	3,656.00	6,904.48	2,815.00	114.92	114.56	-19.229	-107.64	-4,450.14	890.69	792.25	98.44	9.048	
7,800.00	3,656.00	6,954.48	2,815.00	116.22	115.87	-19.222	-107.37	-4,500.14	890.66	791.10	99.55	8.946	
7,850.00	3,656.00	7,004.48	2,815.00	117.52	117.18	-19.216	-107.10	-4,550.13	890.62	789.96	100.67	8.847	
7,900.00	3,656.00	7,054.48	2,815.00	118.83	118.49	-19.209	-106.83	-4,600.13	890.58	788.81	101.78	8.750	
7,950.00	3,656.00	7,104.48	2,815.00	120.13	119.79	-19.202	-106.56	-4,650.13	890.55	787.66	102.89	8.656	
8,000.00	3,656.00	7,154.48	2,815.00	121.44	121.10	-19.196	-106.29	-4,700.13	890.51	786.52	104.00	8.563	
8,050.00	3,656.00	7,204.48	2,815.00	122.74	122.41	-19.189	-106.02	-4,750.13	890.48	785.37	105.10	8.472	
8,100.00	3,656.00	7,254.48	2,815.00	124.05	123.72	-19.182	-105.75	-4,800.13	890.44	784.23	106.21	8.383	
8,150.00	3,656.00	7,304.48	2,815.00	125.35	125.03	-19.176	-105.48	-4,850.13	890.40	783.08	107.32	8.296	
8,200.00	3,656.00	7,354.48	2,815.00	126.66	126.34	-19.169	-105.21	-4,900.13	890.37	781.94	108.43	8.211	
8,250.00	3,656.00	7,404.48	2,815.00	127.96	127.65	-19.162	-104.94	-4,950.13	890.33	780.79	109.54	8.128	
8,300.00	3,656.00	7,454.48	2,815.00	129.27	128.96	-19.155	-104.67	-5,000.13	890.29	779.65	110.65	8.046	
8,350.00	3,656.00	7,504.48	2,815.00	130.58	130.26	-19.149	-104.41	-5,050.13	890.26	778.50	111.76	7.966	
8,400.00	3,656.00	7,554.48	2,815.00	131.88	131.57	-19.142	-104.14	-5,100.13	890.22	777.36	112.86	7.888	
8,450.00	3,656.00	7,604.48	2,815.00	133.19	132.88	-19.135	-103.87	-5,150.12	890.19	776.21	113.97	7.811	
8,500.00	3,656.00	7,654.48	2,815.00	134.49	134.19	-19.129	-103.60	-5,200.12	890.15	775.07	115.08	7.735	
8,550.00	3,656.00	7,704.48	2,815.00	135.80	135.50	-19.122	-103.33	-5,250.12	890.11	773.93	116.19	7.661	
8,600.00	3,656.00	7,754.48	2,815.00	137.11	136.81	-19.115	-103.06	-5,300.12	890.08	772.79	117.29	7.589	
8,650.00	3,656.00	7,804.48	2,815.00	138.41	138.12	-19.109	-102.79	-5,350.12	890.04	771.64	118.40	7.517	
8,700.00	3,656.00	7,854.48	2,815.00	139.72	139.43	-19.102	-102.52	-5,400.12	890.01	770.50	119.50	7.448	
8,750.00	3,656.00	7,904.48	2,815.00	141.03	140.74	-19.095	-102.25	-5,450.12	889.97	769.36	120.61	7.379	
8,800.00	3,656.00	7,954.48	2,815.00	142.33	142.05	-19.088	-101.98	-5,500.12	889.93	768.22	121.71	7.312	
8,850.00	3,656.00	8,004.48	2,815.00	143.64	143.36	-19.082	-101.71	-5,550.12	889.90	767.08	122.82	7.246	
8,900.00	3,656.00	8,054.48	2,815.00	144.95	144.67	-19.075	-101.44	-5,600.12	889.86	765.94	123.92	7.181	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Offset Design Dorami 33 Fed Com - #10H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,950.00	3,656.00	8,104.48	2,815.00	146.26	145.98	-19.068	-101.17	-5,650.12	889.82	764.80	125.03	7.117	
9,000.00	3,656.00	8,154.48	2,815.00	147.56	147.29	-19.062	-100.90	-5,700.11	889.79	763.66	126.13	7.054	
9,050.00	3,656.00	8,204.48	2,815.00	148.87	148.60	-19.055	-100.63	-5,750.11	889.75	762.52	127.24	6.993	
9,100.00	3,656.00	8,254.48	2,815.00	150.18	149.91	-19.048	-100.36	-5,800.11	889.72	761.38	128.34	6.933	
9,150.00	3,656.00	8,304.48	2,815.00	151.49	151.22	-19.041	-100.09	-5,850.11	889.68	760.24	129.44	6.873	
9,200.00	3,656.00	8,354.48	2,815.00	152.80	152.53	-19.035	-99.82	-5,900.11	889.64	759.10	130.55	6.815	
9,223.05	3,656.00	8,377.53	2,815.00	153.40	153.13	-19.032	-99.69	-5,923.17	889.63	758.57	131.05	6.788	

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Offset Design Dorami 33 Fed Com - #8H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	1.00	0.00	0.00	0.00	0.573	20.00	0.20	20.00				
50.00	50.00	49.00	50.00	0.06	0.07	0.573	20.00	0.20	20.00	19.87	0.13	151.473	
100.00	100.00	101.00	100.00	0.15	0.15	0.573	20.00	0.20	20.00	19.70	0.30	66.423	
150.00	150.00	149.00	150.00	0.33	0.32	0.573	20.00	0.20	20.00	19.35	0.65	30.657	
200.00	200.00	201.00	200.00	0.51	0.51	0.573	20.00	0.20	20.00	18.98	1.02	19.646	
250.00	250.00	249.00	250.00	0.69	0.68	0.573	20.00	0.20	20.00	18.63	1.37	14.606	
300.00	300.00	301.00	300.00	0.87	0.87	0.573	20.00	0.20	20.00	18.27	1.74	11.528	
350.00	350.00	349.00	350.00	1.04	1.04	0.573	20.00	0.20	20.00	17.91	2.09	9.587	
400.00	400.00	401.00	400.00	1.22	1.23	0.573	20.00	0.20	20.00	17.55	2.45	8.157	
450.00	450.00	449.00	450.00	1.40	1.40	0.573	20.00	0.20	20.00	17.20	2.80	7.135	
500.00	500.00	499.00	500.00	1.58	1.58	0.573	20.00	0.20	20.00	16.84	3.16	6.326	CC, ES
550.00	550.00	548.66	549.66	1.76	1.76	0.427	20.41	0.15	20.41	16.89	3.52	5.800	
600.00	600.00	598.28	599.26	1.94	1.94	0.011	21.67	0.00	21.69	17.81	3.88	5.594	SF
650.00	650.00	647.84	648.78	2.12	2.11	-0.586	23.79	-0.24	23.82	19.59	4.23	5.627	
700.00	700.00	697.32	698.16	2.30	2.29	-1.262	26.75	-0.59	26.82	22.23	4.59	5.844	
750.00	750.00	746.68	747.37	2.48	2.47	-1.938	30.54	-1.03	30.67	25.73	4.94	6.206	
800.00	800.00	795.89	796.36	2.66	2.65	-2.563	35.16	-1.57	35.39	30.09	5.29	6.684	
850.00	850.00	844.92	845.09	2.84	2.84	-3.115	40.60	-2.21	40.95	35.31	5.64	7.256	
900.00	900.00	893.76	893.52	3.02	3.03	-3.591	46.83	-2.94	47.37	41.38	5.99	7.907	
950.00	950.00	942.36	941.61	3.20	3.22	-3.994	53.85	-3.76	54.63	48.30	6.34	8.621	
1,000.00	1,000.00	990.71	989.32	3.38	3.42	-4.334	61.64	-4.67	62.73	56.05	6.68	9.392	
1,050.00	1,050.00	1,038.78	1,036.61	3.55	3.62	-4.619	70.17	-5.67	71.66	64.64	7.02	10.209	
1,100.00	1,100.00	1,086.64	1,083.55	3.73	3.82	-4.859	79.45	-6.75	81.41	74.06	7.36	11.065	
1,150.00	1,150.00	1,135.61	1,131.50	3.91	4.05	-5.060	89.28	-7.90	91.52	83.80	7.72	11.857	
1,200.00	1,200.00	1,184.57	1,179.46	4.09	4.27	-5.220	99.11	-9.05	101.62	93.55	8.07	12.593	
1,250.00	1,250.00	1,233.63	1,227.50	4.27	4.49	7.066	108.96	-10.21	111.31	102.88	8.42	13.212	
1,300.00	1,299.98	1,282.84	1,275.70	4.45	4.72	7.009	118.85	-11.36	120.14	111.35	8.78	13.681	
1,350.00	1,349.93	1,332.20	1,324.04	4.63	4.95	7.007	128.76	-12.52	128.11	118.97	9.14	14.017	
1,400.00	1,399.84	1,381.69	1,372.50	4.81	5.19	7.051	138.70	-13.69	135.23	125.73	9.50	14.236	
1,450.00	1,449.68	1,431.29	1,421.09	4.99	5.43	7.135	148.66	-14.85	141.50	131.64	9.86	14.350	
1,500.00	1,499.47	1,480.98	1,469.75	5.17	5.67	7.256	158.63	-16.02	147.04	136.81	10.22	14.383	
1,550.00	1,549.24	1,530.68	1,518.42	5.35	5.91	7.378	168.61	-17.19	152.50	141.91	10.59	14.400	
1,600.00	1,599.02	1,580.38	1,567.10	5.54	6.15	7.491	178.59	-18.35	157.95	147.00	10.96	14.418	
1,650.00	1,648.79	1,630.08	1,615.77	5.72	6.39	7.597	188.58	-19.52	163.42	152.09	11.32	14.435	
1,700.00	1,698.57	1,679.78	1,664.44	5.90	6.63	7.696	198.56	-20.69	168.88	157.19	11.69	14.447	
1,750.00	1,748.34	1,729.48	1,713.12	6.09	6.88	7.789	208.54	-21.86	174.34	162.28	12.06	14.459	
1,800.00	1,798.12	1,779.18	1,761.79	6.28	7.12	7.876	218.52	-23.02	179.80	167.37	12.43	14.470	
1,850.00	1,847.89	1,828.88	1,810.47	6.47	7.37	7.958	228.50	-24.19	185.26	172.47	12.79	14.480	
1,900.00	1,897.67	1,878.59	1,859.14	6.65	7.62	8.036	238.48	-25.36	190.72	177.56	13.16	14.489	
1,950.00	1,947.44	1,928.29	1,907.81	6.84	7.86	8.109	248.46	-26.53	196.19	182.65	13.53	14.498	
2,000.00	1,997.22	1,977.99	1,956.49	7.03	8.11	8.178	258.44	-27.69	201.65	187.75	13.90	14.505	
2,050.00	2,046.99	2,029.43	2,006.86	7.22	8.37	7.895	268.51	-30.15	206.96	192.67	14.29	14.484	
2,100.00	2,096.77	2,081.05	2,057.19	7.41	8.62	6.418	277.66	-36.98	211.80	197.12	14.67	14.435	
2,150.00	2,146.54	2,131.42	2,105.68	7.60	8.87	3.868	285.57	-47.98	216.47	201.43	15.04	14.396	
2,200.00	2,196.32	2,179.84	2,151.39	7.79	9.10	0.464	292.17	-62.49	221.51	206.14	15.38	14.407	
2,250.00	2,246.09	2,225.77	2,193.62	7.98	9.33	-3.540	297.47	-79.73	227.62	211.94	15.68	14.519	
2,300.00	2,295.87	2,268.87	2,231.99	8.18	9.55	-7.877	301.57	-98.89	235.50	219.57	15.93	14.786	
2,350.00	2,345.64	2,308.94	2,266.40	8.37	9.76	-12.304	304.59	-119.20	245.79	229.68	16.11	15.260	
2,400.00	2,395.42	2,345.95	2,296.93	8.56	9.97	-16.622	306.70	-139.99	258.97	242.77	16.20	15.983	
2,450.00	2,445.19	2,379.95	2,323.82	8.75	10.18	-20.692	308.06	-160.76	275.33	259.12	16.21	16.982	
2,500.00	2,494.97	2,411.10	2,347.38	8.95	10.38	-24.434	308.80	-181.10	294.94	278.80	16.13	18.280	
2,550.00	2,544.74	2,439.65	2,368.03	9.14	10.58	-27.826	309.06	-200.81	317.70	301.71	15.99	19.870	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Offset Design Dorami 33 Fed Com - #8H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,600.00	2,594.52	2,475.58	2,393.44	9.33	10.86	-31.835	309.14	-226.21	342.86	326.83	16.03	21.383	
2,650.00	2,644.29	2,511.50	2,418.84	9.53	11.15	-35.437	309.22	-251.62	369.59	353.48	16.11	22.942	
2,700.00	2,694.07	2,547.43	2,444.25	9.72	11.48	-38.666	309.30	-277.02	397.56	381.34	16.22	24.505	
2,750.00	2,743.84	2,583.36	2,469.65	9.91	11.83	-41.560	309.38	-302.43	426.53	410.18	16.36	26.074	
2,800.00	2,793.62	2,619.29	2,495.05	10.11	12.20	-44.156	309.46	-327.83	456.32	439.80	16.52	27.622	
2,850.00	2,843.39	2,648.14	2,515.41	10.30	12.51	-46.051	309.53	-348.28	486.88	470.33	16.55	29.420	
2,900.00	2,893.17	2,667.18	2,528.43	10.50	12.74	-47.241	309.57	-362.17	518.96	502.57	16.39	31.670	
2,950.00	2,942.94	2,684.96	2,540.17	10.69	12.95	-48.316	309.62	-375.52	552.56	536.34	16.22	34.084	
3,000.00	2,992.67	2,700.00	2,549.77	10.88	13.14	-16.977	309.65	-387.10	586.65	570.66	16.00	36.675	
3,050.00	3,042.03	2,719.78	2,561.93	11.08	13.41	-0.461	309.70	-402.70	619.34	603.50	15.85	39.085	
3,100.00	3,090.66	2,737.84	2,572.56	11.28	13.65	5.885	309.75	-417.30	650.43	634.80	15.64	41.596	
3,150.00	3,138.18	2,750.00	2,579.45	11.49	13.82	8.738	309.78	-427.32	679.83	664.54	15.29	44.473	
3,200.00	3,184.23	2,775.00	2,592.95	11.70	14.20	9.820	309.85	-448.36	707.22	692.01	15.20	46.525	
3,250.00	3,228.46	2,800.00	2,605.52	11.93	14.59	10.282	309.92	-469.97	732.73	717.63	15.10	48.515	
3,300.00	3,270.53	2,813.24	2,611.79	12.19	14.81	10.575	309.95	-481.63	756.06	741.30	14.76	51.219	
3,350.00	3,310.13	2,832.67	2,620.50	12.47	15.14	10.629	310.01	-499.00	777.29	762.74	14.55	53.413	
3,400.00	3,346.96	2,850.00	2,627.76	12.81	15.43	10.621	310.06	-514.73	796.30	781.99	14.31	55.641	
3,450.00	3,382.31	2,871.66	2,636.17	13.20	15.83	10.506	310.12	-534.69	814.97	800.77	14.20	57.377	
3,500.00	3,417.67	2,900.00	2,646.02	13.61	16.35	10.344	310.21	-561.26	835.30	821.05	14.25	58.628	
3,550.00	3,453.02	2,900.00	2,646.02	14.09	16.35	10.344	310.21	-561.26	856.94	843.14	13.80	62.101	
3,600.00	3,488.38	2,926.50	2,654.04	14.58	16.86	10.180	310.29	-586.52	879.89	866.01	13.88	63.401	
3,650.00	3,522.13	2,950.00	2,660.16	15.12	17.32	9.617	310.36	-609.20	902.42	888.52	13.91	64.887	
3,700.00	3,552.54	2,950.00	2,660.16	15.74	17.32	9.257	310.36	-609.20	922.55	909.00	13.55	68.101	
3,750.00	3,579.37	2,979.75	2,666.57	16.43	17.93	8.853	310.45	-638.25	939.77	926.04	13.72	68.486	
3,800.00	3,602.43	3,000.00	2,670.06	17.18	18.34	8.560	310.52	-658.19	954.59	940.82	13.77	69.341	
3,850.00	3,621.54	3,016.06	2,672.33	18.00	18.69	8.341	310.57	-674.10	966.75	952.97	13.79	70.126	
3,900.00	3,636.55	3,034.38	2,674.37	18.89	19.08	8.172	310.63	-692.29	976.25	962.37	13.88	70.327	
3,950.00	3,647.34	3,050.00	2,675.65	19.82	19.41	8.056	310.67	-707.86	983.07	969.09	13.98	70.302	
4,000.00	3,653.84	3,071.19	2,676.72	20.80	19.87	7.984	310.74	-729.03	987.15	972.95	14.21	69.476	
4,050.00	3,656.00	3,090.30	2,677.00	21.80	20.28	7.961	310.80	-748.14	988.53	974.08	14.45	68.418	
4,100.00	3,656.00	3,140.30	2,677.00	22.83	21.40	7.961	310.96	-798.14	988.53	973.42	15.10	65.461	
4,150.00	3,656.00	3,209.70	2,677.00	23.90	22.97	7.961	311.12	-848.14	988.53	972.61	15.91	62.125	
4,200.00	3,656.00	3,240.30	2,677.00	24.98	23.68	7.961	311.28	-898.13	988.53	972.07	16.46	60.071	
4,250.00	3,656.00	3,309.70	2,677.00	26.09	25.30	7.961	311.44	-948.13	988.53	971.22	17.30	57.126	
4,300.00	3,656.00	3,340.30	2,677.00	27.21	26.02	7.961	311.60	-998.13	988.53	970.65	17.87	55.307	
4,350.00	3,656.00	3,409.70	2,677.00	28.36	27.68	7.961	311.76	-1,048.13	988.53	969.77	18.75	52.718	
4,400.00	3,656.00	3,440.30	2,677.00	29.50	28.42	7.961	311.92	-1,098.13	988.53	969.19	19.34	51.113	
4,450.00	3,656.00	3,509.70	2,677.00	30.68	30.10	7.961	312.08	-1,148.13	988.53	968.29	20.24	48.839	
4,500.00	3,656.00	3,540.30	2,677.00	31.85	30.85	7.961	312.24	-1,198.13	988.53	967.68	20.85	47.423	
4,550.00	3,656.00	3,609.70	2,677.00	33.04	32.56	7.961	312.40	-1,248.13	988.53	966.76	21.76	45.420	
4,600.00	3,656.00	3,640.30	2,677.00	34.24	33.31	7.961	312.56	-1,298.13	988.53	966.14	22.38	44.168	
4,650.00	3,656.00	3,709.70	2,677.00	35.45	35.03	7.961	312.72	-1,348.13	988.53	965.21	23.31	42.399	
4,700.00	3,656.00	3,740.30	2,677.00	36.66	35.80	7.961	312.88	-1,398.13	988.53	964.58	23.94	41.288	
4,750.00	3,656.00	3,809.70	2,677.00	37.88	37.53	7.961	313.04	-1,448.13	988.53	963.64	24.89	39.719	
4,800.00	3,656.00	3,840.30	2,677.00	39.10	38.30	7.961	313.19	-1,498.13	988.53	963.00	25.52	38.730	
4,850.00	3,656.00	3,909.70	2,677.00	40.34	40.05	7.961	313.35	-1,548.13	988.53	962.05	26.48	37.332	
4,900.00	3,656.00	3,940.30	2,677.00	41.57	40.82	7.961	313.51	-1,598.13	988.53	961.40	27.12	36.448	
4,950.00	3,656.00	4,009.70	2,677.00	42.82	42.58	7.961	313.67	-1,648.13	988.53	960.44	28.09	35.197	
5,000.00	3,656.00	4,040.30	2,677.00	44.06	43.36	7.961	313.83	-1,698.13	988.53	959.79	28.73	34.403	
5,050.00	3,656.00	4,109.70	2,677.00	45.31	45.12	7.961	313.99	-1,748.13	988.53	958.82	29.70	33.278	
5,100.00	3,656.00	4,140.30	2,677.00	46.56	45.90	7.961	314.15	-1,798.13	988.53	958.17	30.36	32.562	
5,150.00	3,656.00	4,209.70	2,677.00	47.82	47.67	7.961	314.31	-1,848.13	988.53	957.19	31.33	31.547	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Offset Design Dorami 33 Fed Com - #8H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.00	3,656.00	4,240.30	2,677.00	49.08	48.45	7.961	314.47	-1,898.13	988.53	956.53	31.99	30.899	
5,250.00	3,656.00	4,309.70	2,677.00	50.34	50.23	7.961	314.63	-1,948.13	988.53	955.55	32.97	29.979	
5,300.00	3,656.00	4,340.30	2,677.00	51.61	51.01	7.961	314.79	-1,998.13	988.53	954.89	33.63	29.390	
5,350.00	3,656.00	4,409.70	2,677.00	52.87	52.79	7.961	314.95	-2,048.13	988.53	953.91	34.62	28.553	
5,400.00	3,656.00	4,440.30	2,677.00	54.14	53.58	7.961	315.11	-2,098.13	988.53	953.24	35.28	28.016	
5,450.00	3,656.00	4,509.70	2,677.00	55.41	55.37	7.961	315.27	-2,148.13	988.53	952.25	36.27	27.251	
5,500.00	3,656.00	4,540.30	2,677.00	56.69	56.15	7.961	315.43	-2,198.13	988.53	951.58	36.94	26.760	
5,550.00	3,656.00	4,609.70	2,677.00	57.96	57.94	7.961	315.59	-2,248.13	988.53	950.59	37.93	26.059	
5,600.00	3,656.00	4,640.30	2,677.00	59.24	58.73	7.961	315.75	-2,298.13	988.53	949.92	38.60	25.608	
5,650.00	3,656.00	4,709.70	2,677.00	60.52	60.52	7.961	315.91	-2,348.13	988.53	948.93	39.60	24.963	
5,700.00	3,656.00	4,740.30	2,677.00	61.79	61.31	7.961	316.06	-2,398.13	988.53	948.26	40.27	24.548	
5,750.00	3,656.00	4,809.70	2,677.00	63.08	63.11	7.961	316.22	-2,448.13	988.53	947.26	41.27	23.954	
5,800.00	3,656.00	4,840.30	2,677.00	64.36	63.90	7.961	316.38	-2,498.13	988.53	946.58	41.94	23.570	
5,850.00	3,656.00	4,909.70	2,677.00	65.64	65.69	7.961	316.54	-2,548.13	988.53	945.58	42.94	23.020	
5,900.00	3,656.00	4,940.30	2,677.00	66.93	66.49	7.961	316.70	-2,598.13	988.53	944.91	43.62	22.664	
5,950.00	3,656.00	5,009.70	2,677.00	68.21	68.28	7.961	316.86	-2,648.13	988.53	943.91	44.62	22.155	
6,000.00	3,656.00	5,040.30	2,677.00	69.50	69.08	7.961	317.02	-2,698.13	988.53	943.23	45.29	21.825	
6,050.00	3,656.00	5,109.70	2,677.00	70.79	70.88	7.961	317.18	-2,748.13	988.53	942.23	46.30	21.351	
6,100.00	3,656.00	5,140.30	2,677.00	72.08	71.67	7.961	317.34	-2,798.13	988.53	941.55	46.98	21.043	
6,150.00	3,656.00	5,209.70	2,677.00	73.37	73.47	7.961	317.50	-2,848.12	988.53	940.54	47.98	20.602	
6,200.00	3,656.00	5,240.30	2,677.00	74.66	74.27	7.961	317.66	-2,898.12	988.53	939.87	48.66	20.315	
6,250.00	3,656.00	5,309.70	2,677.00	75.95	76.07	7.961	317.82	-2,948.12	988.53	938.86	49.67	19.903	
6,300.00	3,656.00	5,340.30	2,677.00	77.24	76.86	7.961	317.98	-2,998.12	988.53	938.18	50.35	19.635	
6,350.00	3,656.00	5,409.70	2,677.00	78.53	78.67	7.961	318.14	-3,048.12	988.53	937.17	51.35	19.249	
6,400.00	3,656.00	5,440.30	2,677.00	79.82	79.46	7.961	318.30	-3,098.12	988.53	936.49	52.03	18.998	
6,450.00	3,656.00	5,509.70	2,677.00	81.12	81.27	7.961	318.46	-3,148.12	988.53	935.48	53.04	18.636	
6,500.00	3,656.00	5,540.30	2,677.00	82.41	82.07	7.961	318.62	-3,198.12	988.53	934.80	53.73	18.400	
6,550.00	3,656.00	5,609.70	2,677.00	83.71	83.87	7.961	318.78	-3,248.12	988.53	933.79	54.74	18.060	
6,600.00	3,656.00	5,640.30	2,677.00	85.00	84.67	7.961	318.93	-3,298.12	988.53	933.11	55.42	17.838	
6,650.00	3,656.00	5,709.70	2,677.00	86.30	86.48	7.961	319.09	-3,348.12	988.53	932.10	56.43	17.518	
6,700.00	3,656.00	5,740.30	2,677.00	87.60	87.27	7.961	319.25	-3,398.12	988.53	931.41	57.11	17.309	
6,750.00	3,656.00	5,809.70	2,677.00	88.89	89.08	7.961	319.41	-3,448.12	988.53	930.40	58.12	17.007	
6,800.00	3,656.00	5,840.30	2,677.00	90.19	89.88	7.961	319.57	-3,498.12	988.53	929.72	58.81	16.810	
6,850.00	3,656.00	5,909.70	2,677.00	91.49	91.69	7.961	319.73	-3,548.12	988.53	928.71	59.82	16.525	
6,900.00	3,656.00	5,940.30	2,677.00	92.79	92.49	7.961	319.89	-3,598.12	988.53	928.02	60.50	16.338	
6,950.00	3,656.00	6,009.70	2,677.00	94.09	94.30	7.961	320.05	-3,648.12	988.53	927.01	61.52	16.069	
7,000.00	3,656.00	6,040.30	2,677.00	95.39	95.10	7.961	320.21	-3,698.12	988.53	926.32	62.20	15.892	
7,050.00	3,656.00	6,109.70	2,677.00	96.69	96.91	7.961	320.37	-3,748.12	988.53	925.31	63.22	15.637	
7,100.00	3,656.00	6,140.30	2,677.00	97.99	97.70	7.961	320.53	-3,798.12	988.53	924.62	63.90	15.469	
7,150.00	3,656.00	6,209.70	2,677.00	99.29	99.52	7.961	320.69	-3,848.12	988.53	923.61	64.92	15.227	
7,200.00	3,656.00	6,240.30	2,677.00	100.59	100.31	7.961	320.85	-3,898.12	988.53	922.92	65.60	15.068	
7,250.00	3,656.00	6,309.70	2,677.00	101.89	102.13	7.961	321.01	-3,948.12	988.53	921.91	66.62	14.839	
7,300.00	3,656.00	6,340.30	2,677.00	103.19	102.93	7.961	321.17	-3,998.12	988.53	921.22	67.30	14.688	
7,350.00	3,656.00	6,409.70	2,677.00	104.49	104.74	7.961	321.33	-4,048.12	988.53	920.21	68.32	14.469	
7,400.00	3,656.00	6,440.30	2,677.00	105.79	105.54	7.960	321.49	-4,098.12	988.53	919.52	69.01	14.325	
7,450.00	3,656.00	6,509.70	2,677.00	107.10	107.35	7.960	321.65	-4,148.12	988.53	918.50	70.02	14.117	
7,500.00	3,656.00	6,540.30	2,677.00	108.40	108.15	7.960	321.80	-4,198.12	988.53	917.82	70.71	13.980	
7,550.00	3,656.00	6,609.70	2,677.00	109.70	109.96	7.960	321.96	-4,248.12	988.53	916.80	71.73	13.782	
7,600.00	3,656.00	6,640.30	2,677.00	111.00	110.76	7.960	322.12	-4,298.12	988.53	916.11	72.41	13.651	
7,650.00	3,656.00	6,709.70	2,677.00	112.31	112.58	7.960	322.28	-4,348.12	988.53	915.09	73.43	13.462	
7,700.00	3,656.00	6,740.30	2,677.00	113.61	113.38	7.960	322.44	-4,398.12	988.53	914.41	74.12	13.337	
7,750.00	3,656.00	6,809.70	2,677.00	114.92	115.19	7.960	322.60	-4,448.12	988.53	913.39	75.14	13.156	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Offset Design Dorami 33 Fed Com - #8H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

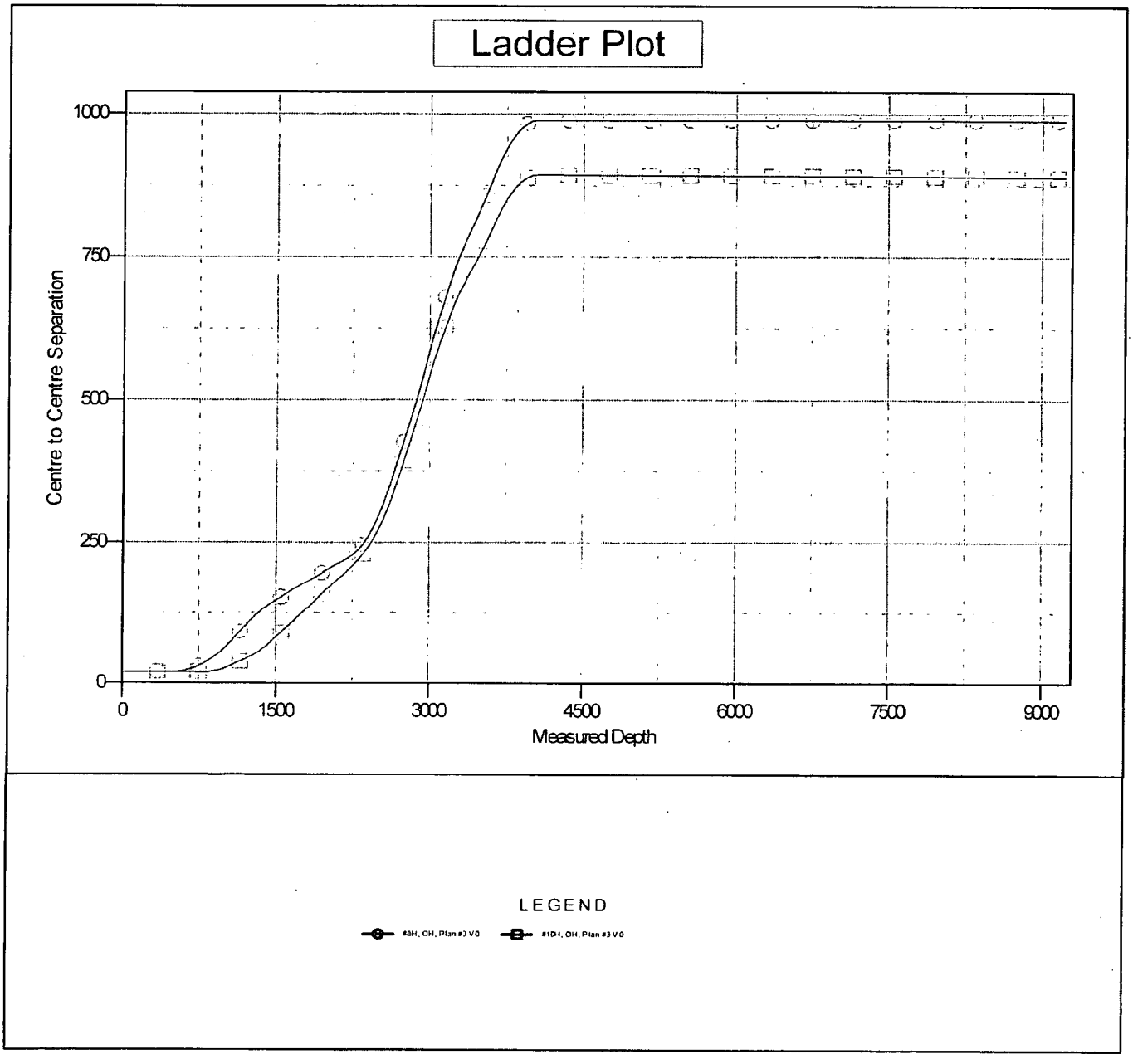
Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,800.00	3,656.00	6,840.30	2,677.00	116.22	115.99	7.960	322.76	-4,498.12	988.53	912.70	75.82	13.037	
7,850.00	3,656.00	6,909.70	2,677.00	117.52	117.81	7.960	322.92	-4,548.12	988.53	911.68	76.84	12.864	
7,900.00	3,656.00	6,940.30	2,677.00	118.83	118.61	7.960	323.08	-4,598.12	988.53	911.00	77.53	12.750	
7,950.00	3,656.00	7,009.70	2,677.00	120.13	120.42	7.960	323.24	-4,648.12	988.53	909.98	78.55	12.585	
8,000.00	3,656.00	7,040.30	2,677.00	121.44	121.22	7.960	323.40	-4,698.12	988.53	909.29	79.24	12.476	
8,050.00	3,656.00	7,109.70	2,677.00	122.74	123.04	7.960	323.56	-4,748.12	988.53	908.27	80.26	12.317	
8,100.00	3,656.00	7,140.30	2,677.00	124.05	123.84	7.960	323.72	-4,798.12	988.53	907.58	80.94	12.213	
8,150.00	3,656.00	7,209.70	2,677.00	125.35	125.65	7.960	323.88	-4,848.11	988.53	906.56	81.96	12.061	
8,200.00	3,656.00	7,240.30	2,677.00	126.66	126.45	7.960	324.04	-4,898.11	988.53	905.87	82.65	11.960	
8,250.00	3,656.00	7,309.70	2,677.00	127.96	128.27	7.960	324.20	-4,948.11	988.53	904.85	83.67	11.814	
8,300.00	3,656.00	7,340.30	2,677.00	129.27	129.07	7.960	324.36	-4,998.11	988.53	904.17	84.36	11.718	
8,350.00	3,656.00	7,409.70	2,677.00	130.58	130.89	7.960	324.52	-5,048.11	988.53	903.15	85.38	11.578	
8,400.00	3,656.00	7,440.30	2,677.00	131.88	131.69	7.960	324.67	-5,098.11	988.53	902.46	86.07	11.485	
8,450.00	3,656.00	7,509.70	2,677.00	133.19	133.50	7.960	324.83	-5,148.11	988.53	901.44	87.09	11.351	
8,500.00	3,656.00	7,540.30	2,677.00	134.49	134.30	7.960	324.99	-5,198.11	988.53	900.75	87.78	11.262	
8,550.00	3,656.00	7,609.70	2,677.00	135.80	136.12	7.960	325.15	-5,248.11	988.53	899.73	88.80	11.132	
8,600.00	3,656.00	7,640.30	2,677.00	137.11	136.92	7.960	325.31	-5,298.11	988.53	899.04	89.49	11.047	
8,650.00	3,656.00	7,709.70	2,677.00	138.41	138.74	7.960	325.47	-5,348.11	988.53	898.02	90.51	10.922	
8,700.00	3,656.00	7,740.30	2,677.00	139.72	139.54	7.960	325.63	-5,398.11	988.53	897.33	91.20	10.839	
8,750.00	3,656.00	7,809.70	2,677.00	141.03	141.36	7.960	325.79	-5,448.11	988.53	896.31	92.22	10.719	
8,800.00	3,656.00	7,840.30	2,677.00	142.33	142.16	7.960	325.95	-5,498.11	988.53	895.62	92.91	10.640	
8,850.00	3,656.00	7,909.70	2,677.00	143.64	143.98	7.960	326.11	-5,548.11	988.53	894.60	93.93	10.524	
8,900.00	3,656.00	7,940.30	2,677.00	144.95	144.78	7.960	326.27	-5,598.11	988.53	893.91	94.62	10.448	
8,950.00	3,656.00	8,009.70	2,677.00	146.26	146.60	7.960	326.43	-5,648.11	988.53	892.89	95.64	10.336	
9,000.00	3,656.00	8,040.30	2,677.00	147.56	147.40	7.960	326.59	-5,698.11	988.53	892.20	96.33	10.262	
9,050.00	3,656.00	8,109.70	2,677.00	148.87	149.21	7.960	326.75	-5,748.11	988.53	891.17	97.35	10.154	
9,100.00	3,656.00	8,140.30	2,677.00	150.18	150.02	7.960	326.91	-5,798.11	988.53	890.49	98.04	10.083	
9,150.00	3,656.00	8,190.30	2,677.00	151.49	151.33	7.960	327.07	-5,848.11	988.53	889.63	98.90	9.996	
9,200.00	3,656.00	8,240.30	2,677.00	152.80	152.64	7.960	327.23	-5,898.11	988.53	888.77	99.75	9.910	
9,223.05	3,656.00	8,263.36	2,677.00	153.40	153.24	7.960	327.30	-5,921.16	988.53	888.38	100.15	9.871	

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to RKB=17' @ 3545.00usft (Silver Oak 1
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: #9H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: -0.079°



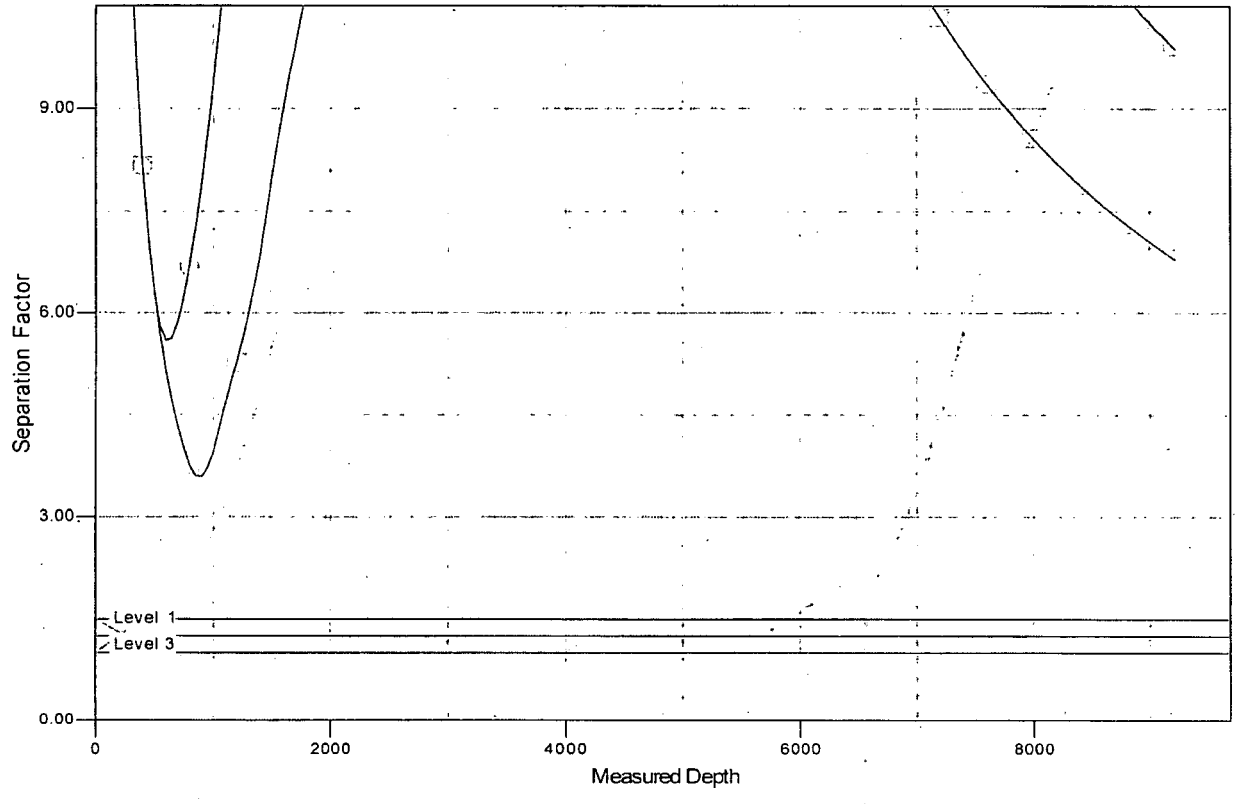
CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Percussion Petroleum, LLC	**Local Co-ordinate Reference:**	Well #9H
Project:	Eddy County, NM	**TVD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Reference Site:	Dorami 33 Fed Com	**MD Reference:**	RKB=17' @ 3545.00usft (Silver Oak 1)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	#9H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	WBDS_SQL_2
Reference Design:	Plan #3	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to RKB=17' @ 3545.00usft (Silver Oak 1
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: #9H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: -0.079°

Separation Factor Plot



LEGEND

#8H, OH, Plan #3 V0 #10H, OH, Plan #3 V0

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Percussion Petroleum Operating, LLC
Dorami 33 Fed Com 9H
SHL 490' FSL & 650' FWL 34-19S-25E
BHL 650' FSL & 20' FWL 33-19S-25E
Eddy County, NM

Drilling Program

1. ESTIMATED TOPS

Formation/Lithology	TVD	MD	Contents
Quaternary caliche	000'	000'	water
Grayburg dolomite	658'	658'	hydrocarbons
San Andres dolomite	843'	843'	hydrocarbons
Glorieta silty dolomite	2403'	2408'	hydrocarbons
Yeso dolomite	2558'	2563'	hydrocarbons
(KOP	2952'	2960'	hydrocarbons)
TD	3656'	9223'	hydrocarbons

2. NOTABLE ZONES

Yeso is the goal. Closest water well (RA 02958) is 3040' northeast. Depth to water was not recorded in this 450' deep well.

3. PRESSURE CONTROL

A 3000-psi 5000' rated BOP stack consisting of annular preventer and double (blind and pipe) ram will be used below surface casing to TD. See attached BOP and choke manifold diagrams.

Pressure tests will be conducted before drilling out from under all casing strings. Third party test crews will conduct all tests. All tests will be recorded for 10-minutes on low pressure (500 psi) and 10-minutes on high pressure (3000-psi). After BOP testing is complete, test casing (without test plug) to 2000-psi for 30 minutes. All tests will be charted on a plot. BOPs will be function tested every day.

4. CASING & CEMENT

All casing will be API and new. A contingency plan is attached.

Hole O. D.	Set MD	Set TVD	Casing O. D.	Weight (lb/ft)	Grade	Joint	Collapse	Burst	Tension
12.25"	0' - 1250'	0' - 1250'	Surface 9.625"	36	J-55	LTC	1.125	1.125	1.8
8.75"	0' - 3650'	0' - 3522'	Prod. 1 7"	32	L-80	BTC	1.125	1.125	1.8
8.75"	3650' - 9223'	3522' – 3656'	Prod. 2 5.5"	17	L-80	BTC	1.125	1.125	1.8

Casing Name	Type	Sacks	Yield	Cu. Ft.	Weight	Blend
Surface	Lead	623	1.32	822	14.8	Class C + 2% CaCl + ¼ pound per sack celloflake
TOC = GL		100% Excess			Stop collar 10' above shoe with centralizer. One on 1st collar and every 4th collar to GL.	
Production	Lead	495	1.97	975	12.6	65/65/6 Class C + 6% gel + 5% salt + ¼ pound per sack celloflake + 0.2% C41-P
	Tail	1518	1.32	2003	14.8	Class C + 2% CaCl + ¼ pound per sack celloflake
TOC = GL		50% Excess			Stop collar 10' above shoe with centralizer. One on 1st collar and every 10 collars to 1200' with 1 centralizer in 9.625" casing.	

5. MUD PROGRAM

An electronic/mechanical mud monitor with a minimum pit volume totalizer, stroke counter, and flow sensor will be used. All necessary mud products (LCM) will be on site to handle any abnormal hole condition that may be encountered while drilling this well. A closed loop system will be used.

Type	Interval (MD)	lb/gal	Viscosity	Fluid Loss	Plastic Viscosity	Yield Point
fresh water/gel	0' - 1250'	8.4 - 9.2	36-42	NC	3-5	5-7
fresh water/cut brine	1250' - 2960'	8.3 - 9.2	28-30	NC	1	1
cut brine	2960' - 9223'	8.6 - 9.2	29-32	NC	4-5	6-10

6. CORES, TESTS, & LOGS

No core or drill stem test is planned.

A mud logger will be used from GL to TD. Samples will be collected every 10' in the lateral pay zone.

No electric logs are planned at this time.

7. DOWN HOLE CONDITIONS

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is ≈1572 psi. Expected bottom hole temperature is ≈125° F.

A Hydrogen Sulfide Drilling Operation Plan is attached.

8. OTHER INFORMATION

Anticipated spud date is upon approval. It is expected it will take ≈1 month to drill and complete the well.

St. Devote LLC has operating rights in NMNM-015291, NMNM-096046, and NMNM-096197. St. Devote LLC is a subsidiary of Percussion.

PERCUSSION PETROLEUM LLC

919 Milam Street, Suite 2475
Houston, TX 77002

Contingency Planning – Dorami 33 Fed Com Area Wells

Prepared by Lelan J. Anders, Percussion Petroleum Operating, LLC.

INTRODUCTION:

This document is designed to address the issues that could arise at any time drilling horizontal Yeso wells. Percussion Petroleum Operating, LLC (PPO) is going to follow regularly used practices and procedures in order to drill the wells to TD and still keep them economical to operate.

SCENARIO:

If a complete loss of circulation occurs while drilling above 400 ft MD.

CORRECTIVE ACTIONS:

1. Pump an LCM sweep and attempt to regain circulation – if unsuccessful go to step 2

2. Continue drilling at attempt to seal off lost circulation zone with drill cuttings
    1. Monitor torque and drag on drill string to determine if pipe is sticking
    2. Have contingency plan to 'drill dry' – have plenty of water on hand and well control in place
    3. Continue to 'dry drill' until torque and drag dictate a different plan

3. If 'dry drilling' is unsuccessful – Run contingency surface casing string
    1. Ream out 12-1/4" open hole to 17-1/2" open hole
    2. Run contingency 13-3/8" 48# H-40, STC casing to no more than 400' MD
    3. Cement 13-3/8" casing using Class C cement
        i. Pump at minimum 200% excess cement
            1. 400 sacks 65/35/6 Class C Cement, 12.8 ppg, 1.87 yield, 10.15 gal/sk to be used on initial cement job.
        ii. Top off cement from surface using 1" if necessary
            1. Top off will be 200 sacks of 65/35/6 Class C Cement, 12.8 ppg, 1.87 yield, 10.15 gal/sk
            2. Second top off will be performed with same cement if needed.
        iii. Insure that cement has cured for a minimum of 12 hours prior to drilling out
    4. Install 13-3/8" 3M wellhead and drill to surface casing depth with 12-1/4" OD bit
    5. Run and cement surface casing as planned

APD ID: 10400037727 **Submission Date:** 01/07/2019

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Dorami_9H_Road_Map_20190107113422.pdf

Existing Road Purpose: ACCESS **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Dorami_9H_New_Road_Map_20190107113452.pdf

New road type: RESOURCE

Length: 3526.9 Feet **Width (ft.):** 30

Max slope (%): 0 **Max grade (%):** 3

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: Drainage dips will be installed in the existing caliche Pan Can A 1 road. Dips will be at least half in cut and skewed to drain.

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: Grader

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: Drainage dips will be installed in the existing caliche Pan Can A 1 road. Dips will be at least half in cut and skewed to drain.
Road Drainage Control Structures (DCS) description: None

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Dorami_9H_Well_Map_20190107113629.pdf

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: An 1141.5' long 4" O D. HDPE flow line will be laid on the surface northeast to a central tank battery on the south side of Percussion's Dorami 33 Fed Com 2H 3H 4H pad. Battery is described in those 3 APDs. Line will parallel proposed roads. Maximum flow line operating pressure will be 100 psi. A 596.6' long overhead raptor safe 3-phase power line will be built north from Percussion's existing power line.
Production Facilities map:

Dorami_9H_Production_Facilities_20190107113725.pdf

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: DUST CONTROL, INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING

Water source type: GW WELL

Describe type:

Source longitude:

Source latitude:

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: PRIVATE

Water source transport method: PIPELINE

Source transportation land ownership: PRIVATE

Water source volume (barrels): 10000

Source volume (acre-feet): 1.288931

Source volume (gal): 420000

Water source and transportation map:

Dorami_9H_Water_Source_Map_20190107113705.pdf

Water source comments: Two temporary 10" Kevlar lay flat surface pipelines will be laid 7700' along roads from Percussion's existing Huber 3 pond to the pad. Pipeline route will not be bladed or excavated.

New water well? NO

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: NM One Call (811) will be notified before construction starts. Top 6" of soil and brush will be stockpiled north of the pad. V-door will face south. Closed loop drilling system will be used. Caliche will be hauled from existing caliche pits on private land. Arkland caliche pit is in NWNE 23-19s-25e. Seven Rivers caliche pit is in SWSW 6-20s-26e.

Construction Materials source location attachment:

Dorami_9H_Construction_Methods_20190107113800.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drill cuttings, mud, salts, and other chemicals

Amount of waste: 1000 barrels

Waste disposal frequency : Daily

Safe containment description: Steel tanks

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: R360's state approved (NM-01-0006) disposal site at Halfway.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

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

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? YES

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

Description of cuttings location Steel tanks on pad

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?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Dorami_9H_Well_Site_Layout_20190107113834.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** DORAMI 33 FED COM

Multiple Well Pad Number: 8H

Recontouring attachment:

Dorami_9H_Interim_Reclamation_Diagram_20190107113849.pdf

Dorami_9H_Recontour_Plat_20190107113903.pdf

Drainage/Erosion control construction: Crowned and ditched

Drainage/Erosion control reclamation: Harrowed on the contour

Well pad proposed disturbance (acres): 2.34
Road proposed disturbance (acres): 2.43
Powerline proposed disturbance (acres): 0.41
Pipeline proposed disturbance (acres): 4.31
Other proposed disturbance (acres): 0

Well pad interim reclamation (acres): 0.63
Road interim reclamation (acres): 0
Powerline interim reclamation (acres): 0.41
Pipeline interim reclamation (acres): 4.31
Other interim reclamation (acres): 0

Well pad long term disturbance (acres): 1.71
Road long term disturbance (acres): 2.43
Powerline long term disturbance (acres): 0
Pipeline long term disturbance (acres): 0
Other long term disturbance (acres): 0

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

Total proposed disturbance: 9.49 **Total interim reclamation:** 5.35 **Total long term disturbance:** 4.14

Disturbance Comments:

Reconstruction method: Interim reclamation will be completed within 6 months of completing the well. Interim reclamation will consist of shrinking the well pad 0.63 acre by removing caliche and reclaiming 50' on the north and south sides of the pad. This will leave 1.71 acres for the anchors, pump jacks, and tractor-trailer turn around. Disturbed areas will be contoured to match pre-construction grades. Once the wells are plugged, then reclamation will be completed within 6 months of plugging the last well. Reclamation will consist of removing caliche and deeply ripping on the contour. Disturbed areas will be contoured to match pre-construction grades. Soil and brush will be evenly spread over disturbed areas and harrowed on the contour. Disturbed areas will be seeded in accordance with BLM's requirements. Noxious weeds will be controlled.
Topsoil redistribution: Soil and brush will be evenly spread over disturbed areas and harrowed on the contour. Disturbed areas will be seeded in accordance with BLM's requirements.
Soil treatment: None

Existing Vegetation at the well pad:

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

Seed Management

Seed Table

Seed type: **Seed source:**

Seed name:

Source name: **Source address:**

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre: **Proposed seeding season:**

Seed Summary **Total pounds/Acre:**

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: **Last Name:**

Phone: **Email:**

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: To BLM standards

Weed treatment plan attachment:

Monitoring plan description: To BLM standards

Monitoring plan attachment:

Success standards: To BLM satisfaction

Pit closure description: None

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

USFS Forest/Grassland: **USFS Ranger District:**

Fee Owner: Ross Ranch Inc **Fee Owner Address:** PO Box 216 Lakewood NM 88254

Phone: (575)365-4797 **Email:**

Surface use plan certification: NO

Surface use plan certification document:

Surface access agreement or bond: Agreement

Surface Access Agreement Need description: See attached

Surface Access Bond BLM or Forest Service:

BLM Surface Access Bond number:

USFS Surface access bond number:

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

Disturbance type: OTHER

Describe: Power Line

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Operator Name: PERCUSSION PETROLEUM OPERATING LLC

Well Name: DORAMI 33 FED COM **Well Number:** 9H

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information:

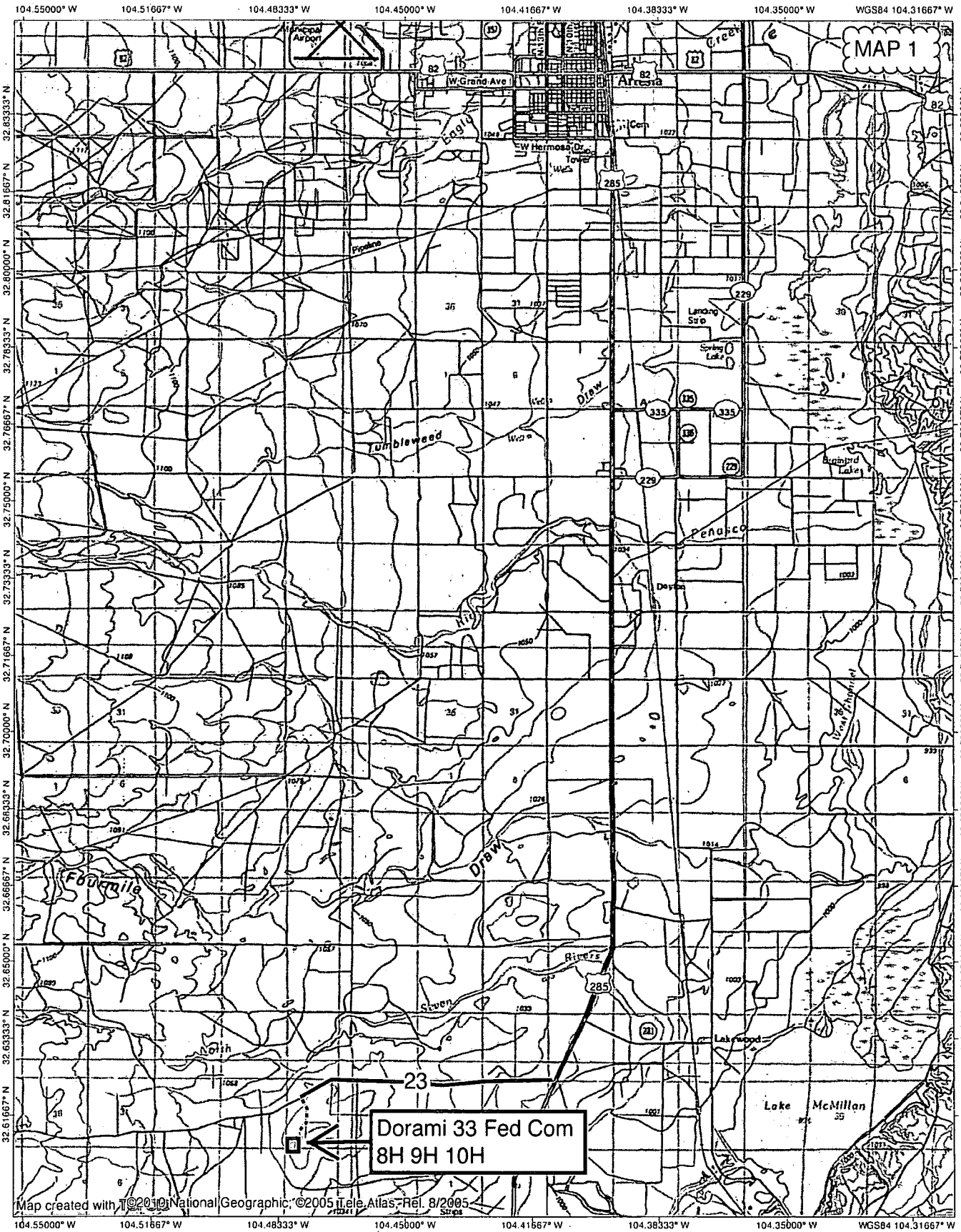
Use a previously conducted onsite? YES

Previous Onsite information: On-site inspection was held on October 4, 2018 with Will DeGrush (BLM). APAC consulted with BLM archaeologist Bruce Boeke on November 20, 2018. It was determined that no archaeology inspection was needed due to previous inspections and reports.

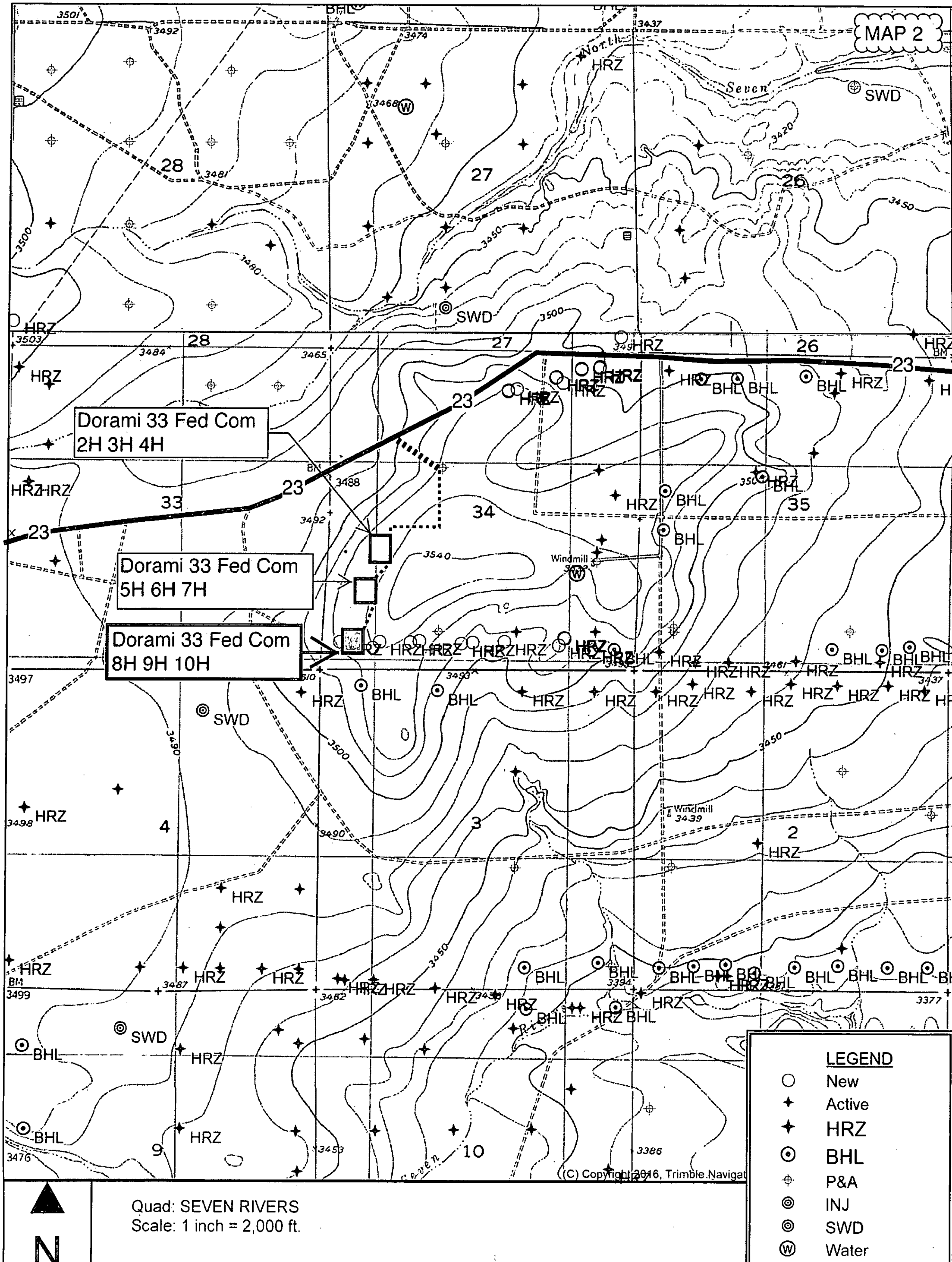
Other SUPO Attachment

Dorami_9H_SUPO_20190107114458.pdf

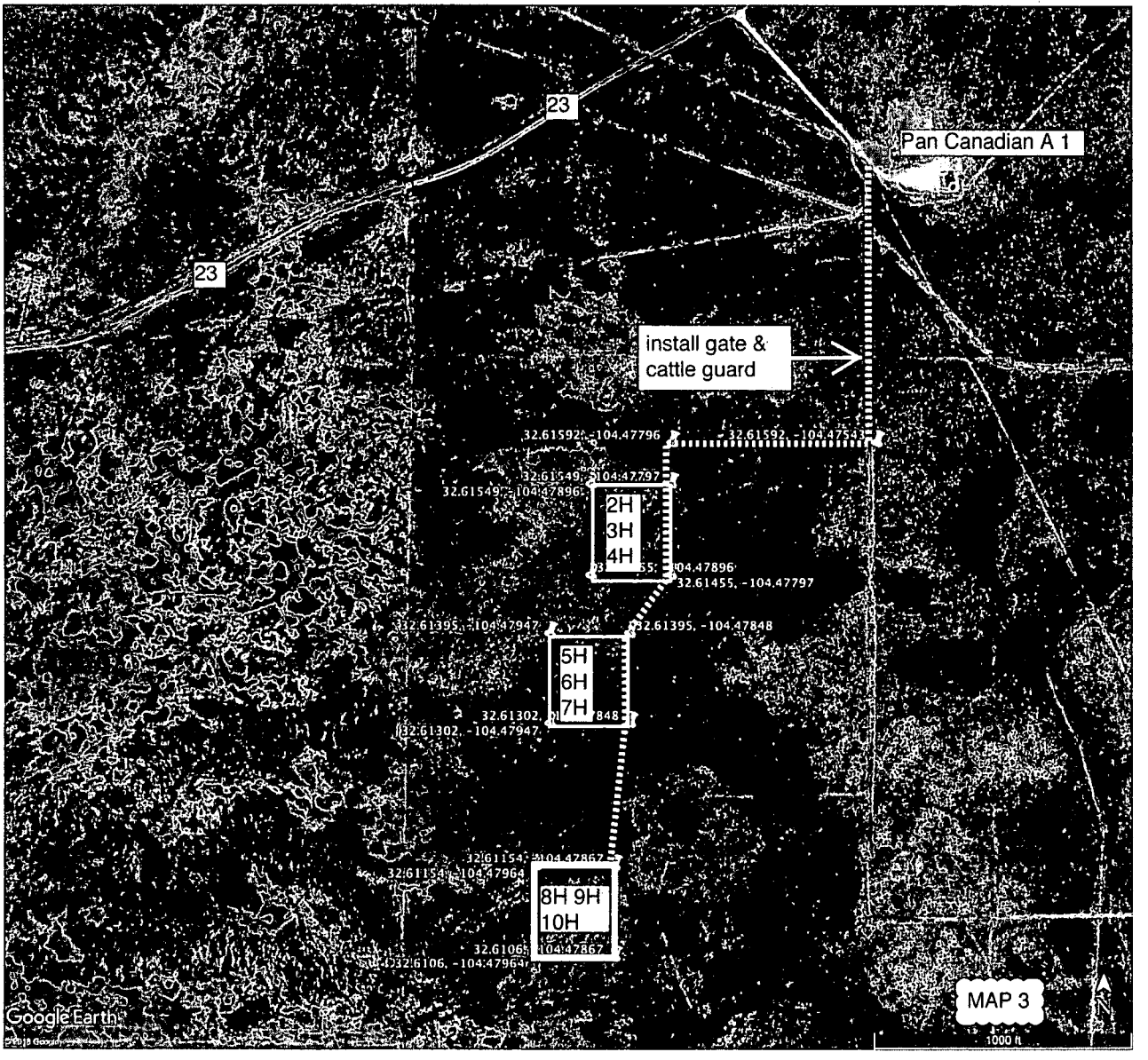
TOPO! map printed on 11/10/18 from "Untitled.tpo"



NATIONAL GEOGRAPHIC

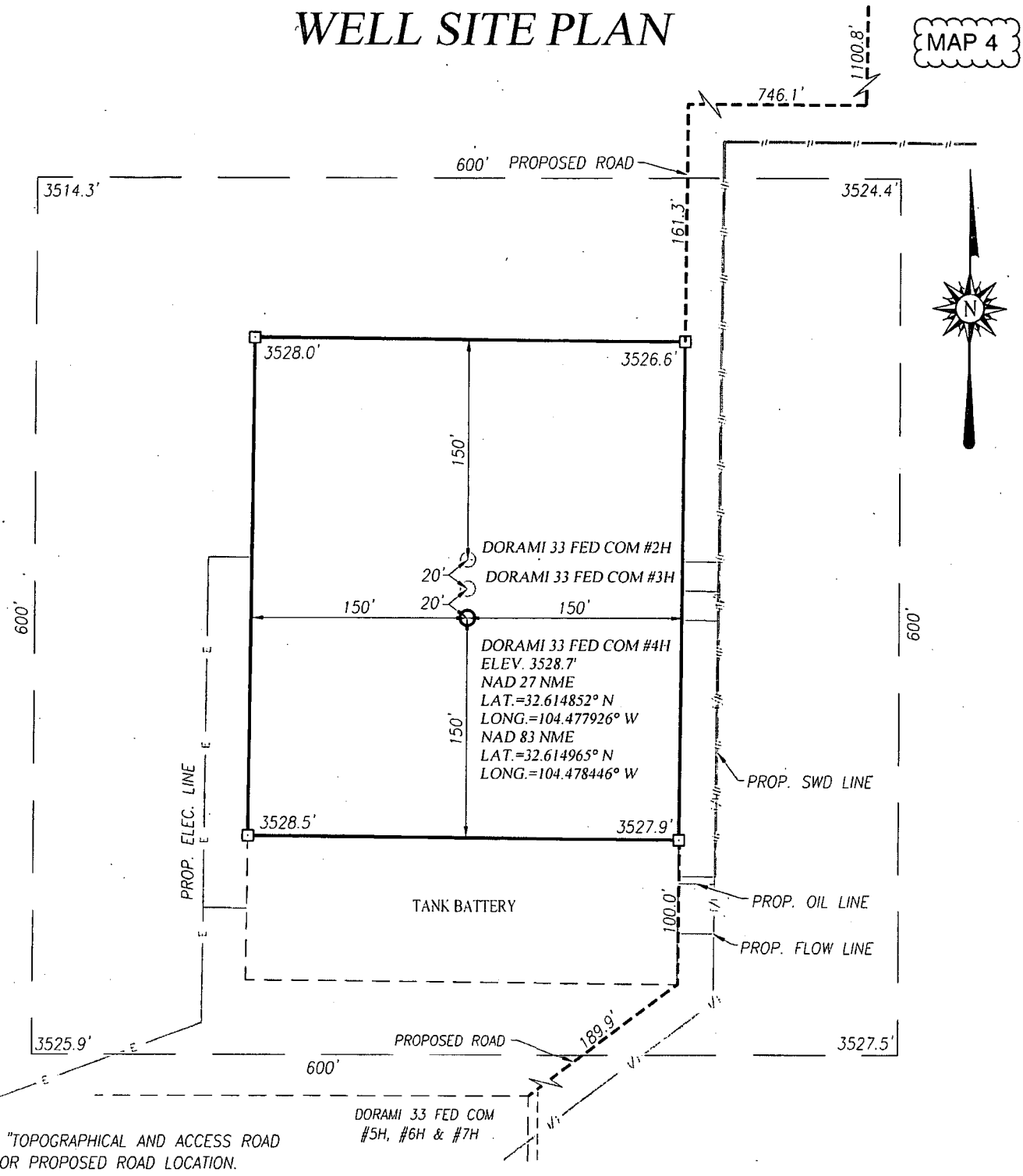


MAP 2
Dorami 33 Fed Com
2H 3H 4H
Dorami 33 Fed Com
5H 6H 7H
Dorami 33 Fed Com
8H 9H 10H
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Water
(C) Copyright 2016, Trimble Navigat
N
Quad: SEVEN RIVERS
Scale: 1 inch = 2,000 ft.


23
23
Pan Canadian A 1
install gate &
cattle guard
32.61592, -104.47796
32.61592, -104.47543
32.61549, -104.47797
32.61549, -104.47896
2H
3H
4H
32.61455, -104.47797
32.61395, -104.47947
32.61395, -104.47848
5H
6H
7H
32.61302, -104.47947
32.61154, -104.47867
32.61154, -104.47964
8H 9H
10H
32.6106, -104.47964
MAP 3
Google Earth
1000 ft

WELL SITE PLAN

MAP 4



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD. FOLLOW ROAD STAKED SOUTH 1100.6 FEET THEN TURN RIGHT AND GO WEST 746.1 FEET TURN LEFT AND GO SOUTH 161.3 FEET TO THIS PAD LOCATION.

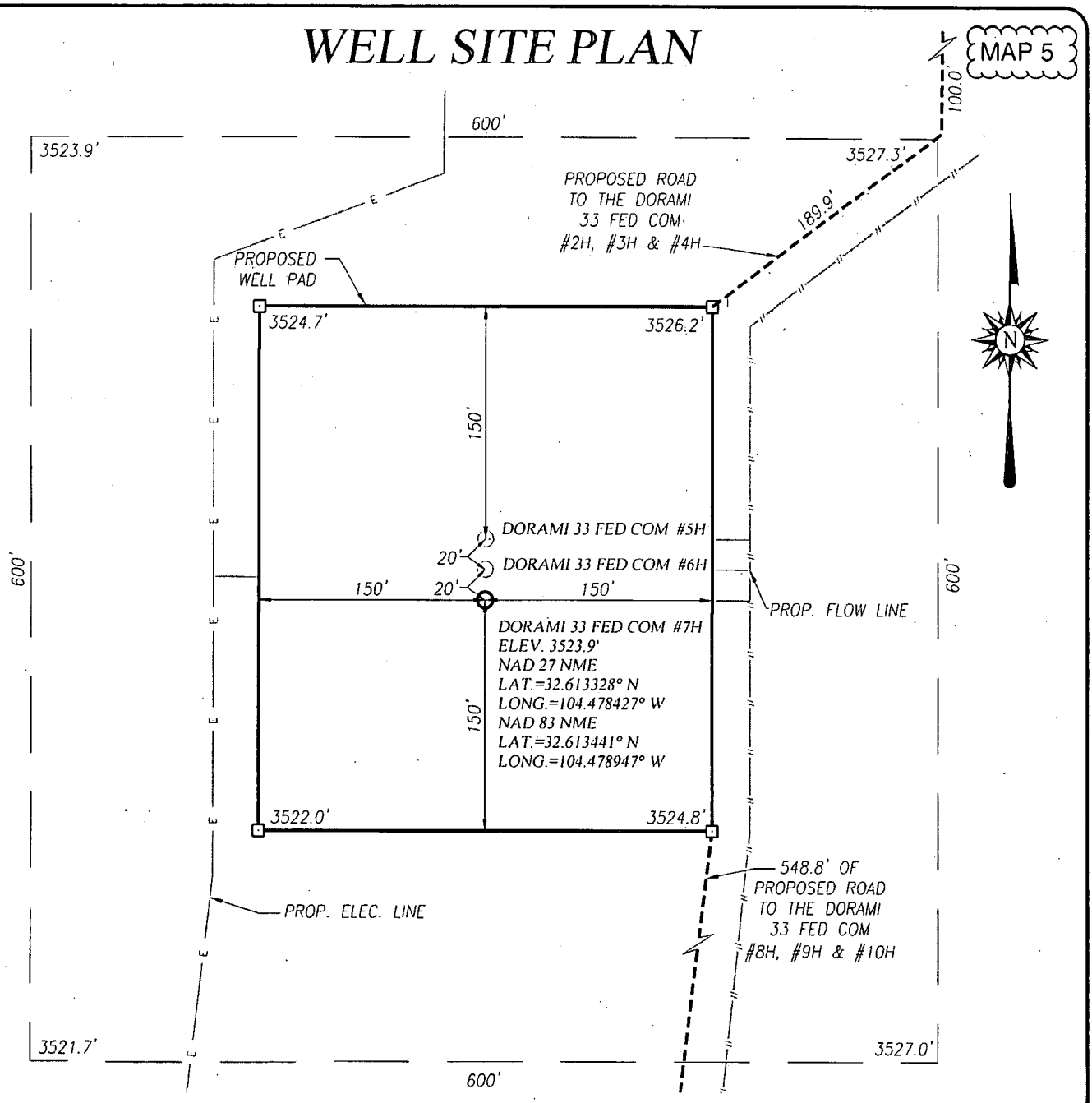
PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FED COM #4H WELL LOCATED 1910 FEET FROM THE SOUTH LINE AND 850 FEET FROM THE WEST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

Survey Date: 10/04/18	CAD Date: 10/24/18	Drawn By: LSL
W.O. No.: 18110956	Rev: .	Rel. W.O.:	Sheet 1 of 1

WELL SITE PLAN



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD. FOLLOW ROAD STAKED SOUTH 1100.6 FEET THEN TURN RIGHT AND GO WEST 746.1 FEET TURN LEFT AND GO SOUTH 161.3 FEET TO THE DORAMI 33 FED COM #2H, #3H & #4H PAD FROM THE SE COR. GO SOUTH 100 FEET THE VEER RIGHT AND GO SOUTHWEST 189.9 FEET TO THIS PAD.

100 0 100 200 Feet

Scale: 1"=100'

PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FED COM #7H WELL LOCATED 1355 FEET FROM THE SOUTH LINE AND 700 FEET FROM THE WEST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

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JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
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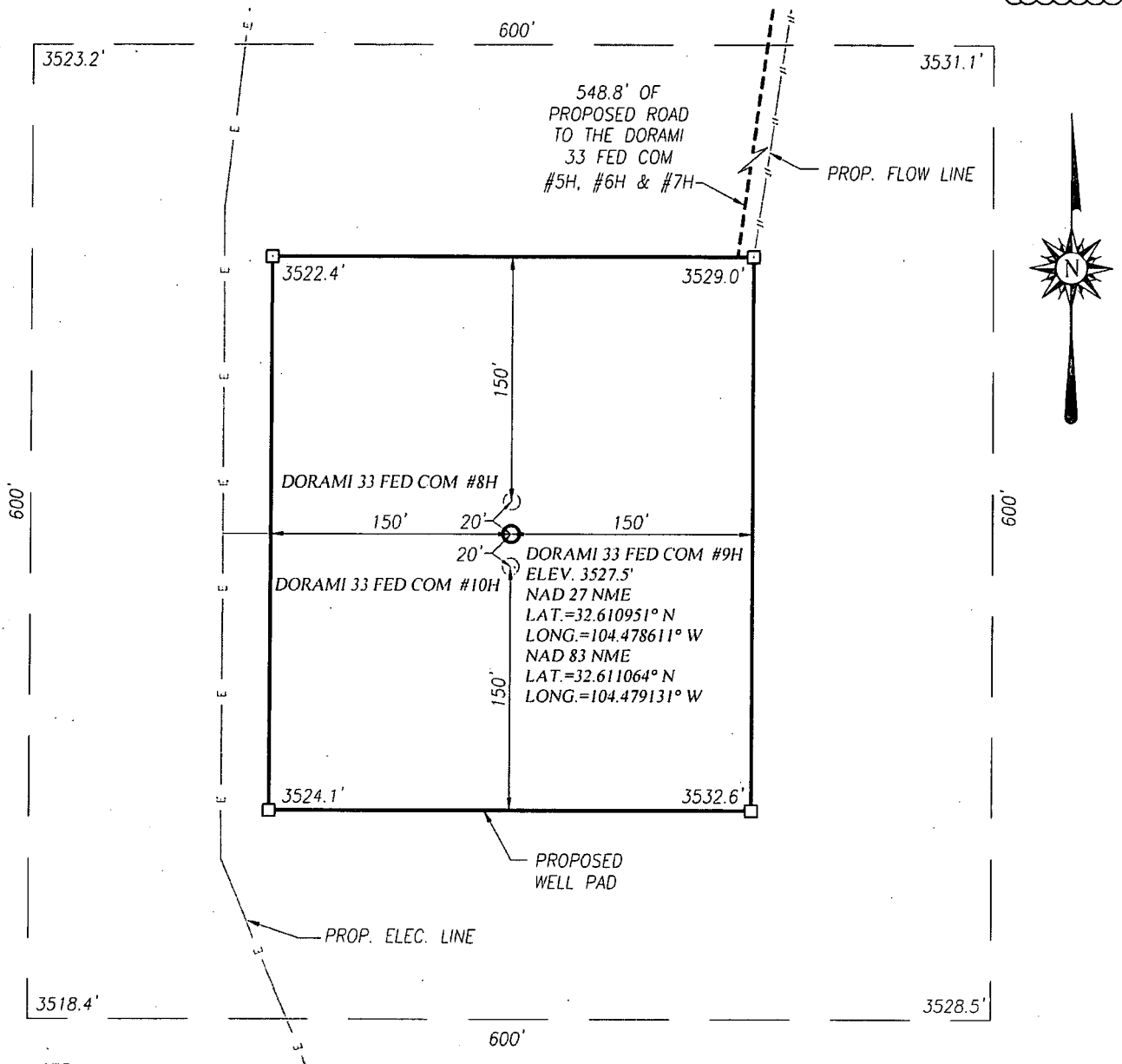
Survey Date: 08/20/18	CAD Date: 09/14/18	Drawn By: LSL
W.O. No.: 18110959	Rev: 10/26/18	Rel. W.O.:	Sheet 1 of 1

WELL SITE PLAN

MAP 6



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD. FOLLOW ROAD STAKED SOUTH 1100.6 FEET TURN RIGHT AND GO WEST 767.8 FEET TURN LEFT AND GO SOUTH 1680.7 FEET TO THIS PAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FED COM #9H WELL LOCATED 490 FEET FROM THE SOUTH LINE AND 650 FEET FROM THE WEST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
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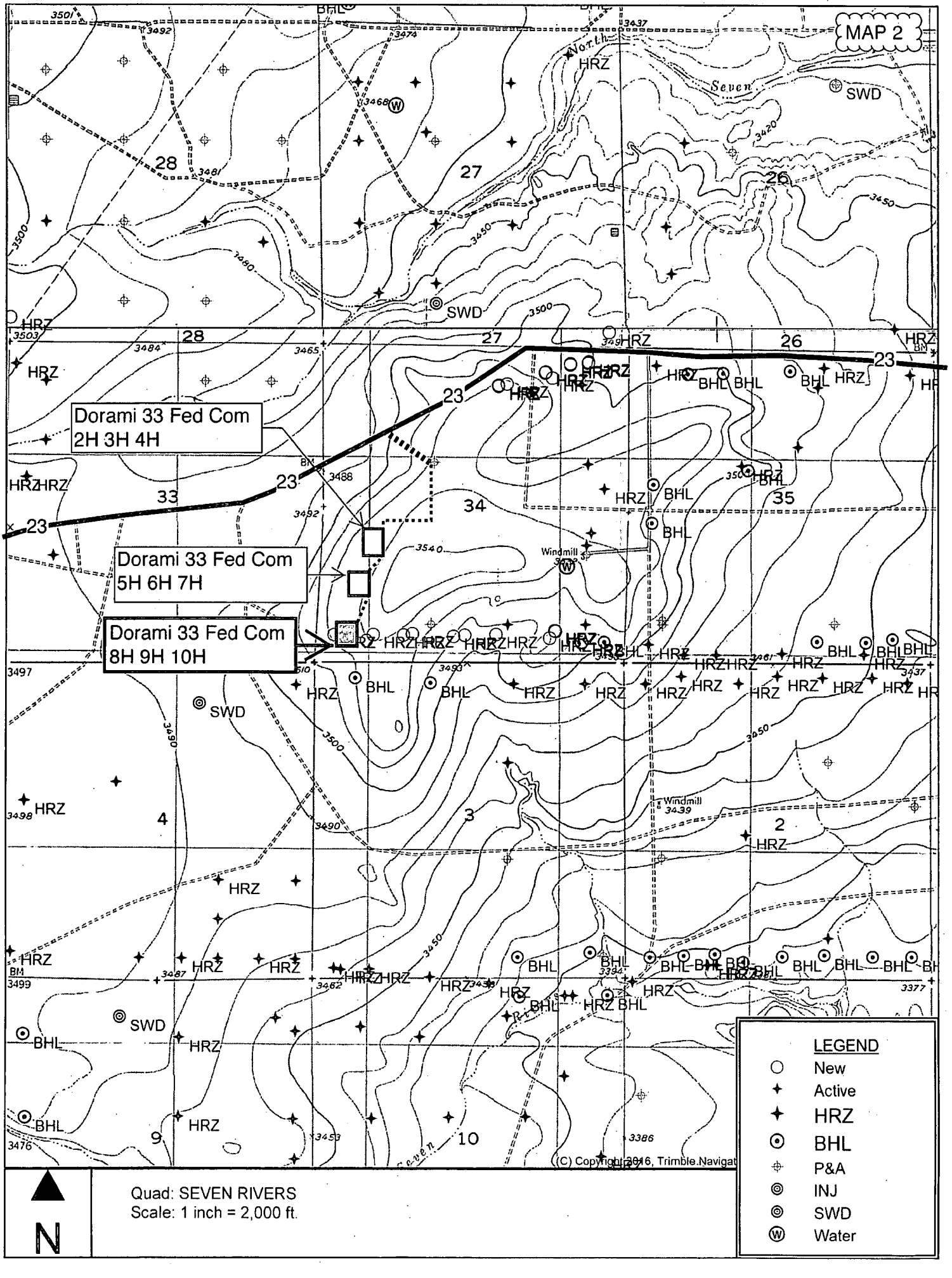
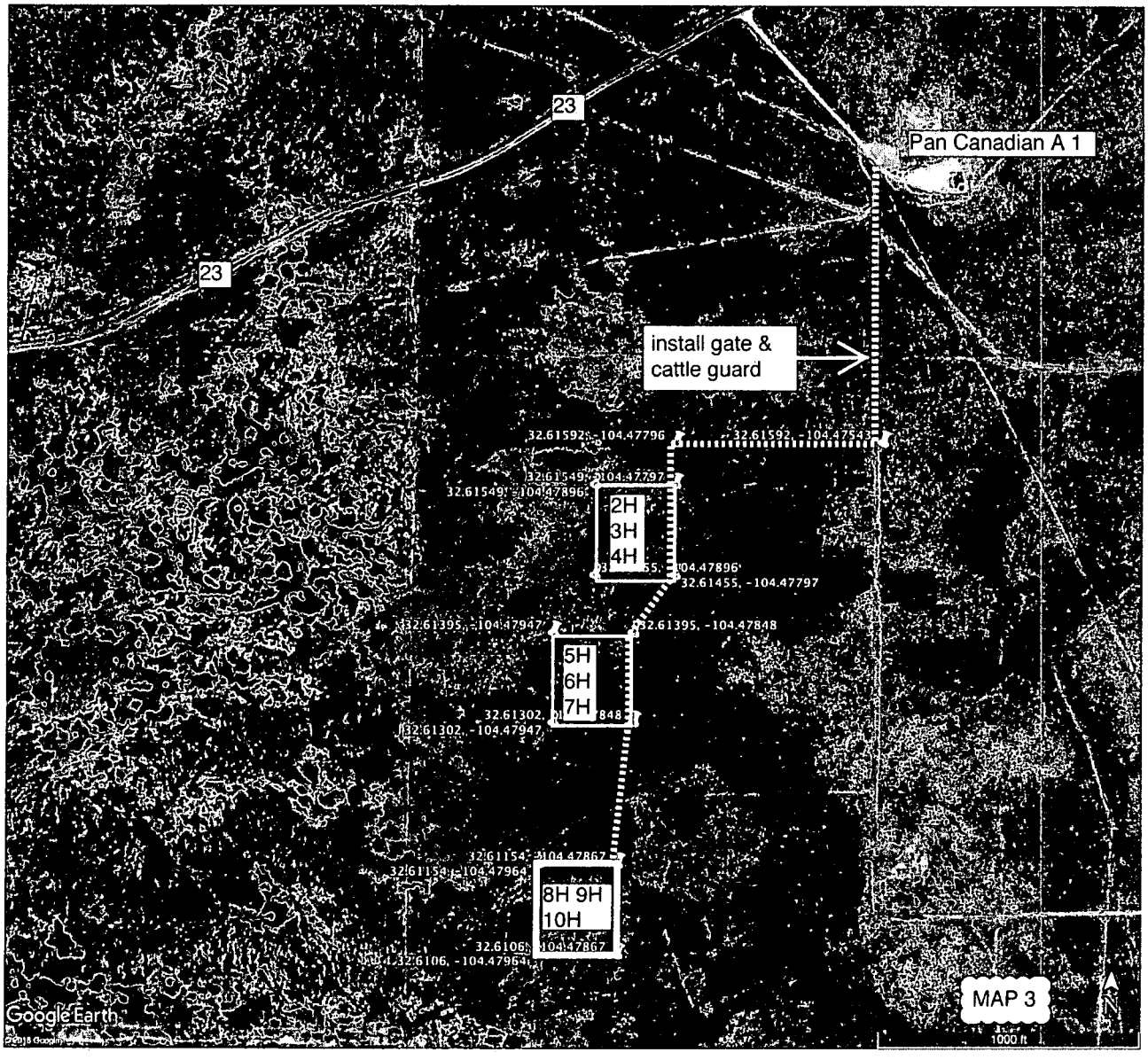
TBPLS# 10021000

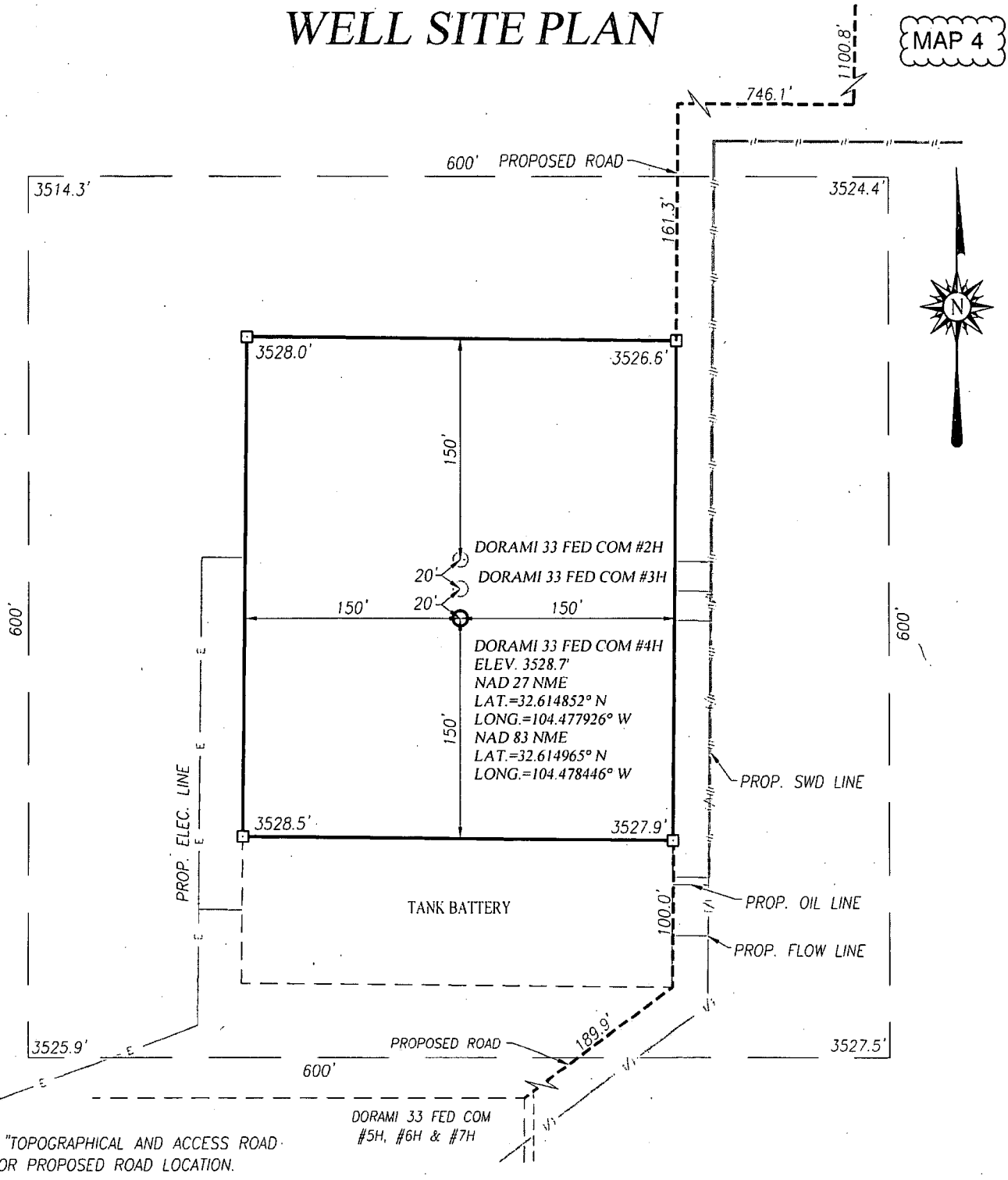
Survey Date: 08/21/18	CAD Date: 09/17/18	Drawn By: LSL
W.O. No.: 18110961	Rev: 10/29/18	Rel. W.O.:	Sheet 1 of 1


MAP 2
Dorami 33 Fed Com
2H 3H 4H
Dorami 33 Fed Com
5H 6H 7H
Dorami 33 Fed Com
8H 9H 10H
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Water
Quad: SEVEN RIVERS
Scale: 1 inch = 2,000 ft.
N
(C) Copyright 2016, Trimble Navigat


23
23
Pan Canadian A 1
install gate &
cattle guard
32.61592, -104.47796
32.61592, -104.47543
32.61549, -104.47797
32.61549, -104.47896
2H
3H
4H
32.61455, -104.47896
32.61455, -104.47797
32.61395, -104.47947
32.61395, -104.47848
5H
6H
7H
32.61302, -104.47947
32.61154, -104.47867
32.61154, -104.47964
8H 9H
10H
32.6106, -104.47867
32.6106, -104.47964
Google Earth
MAP 3
1000 ft

WELL SITE PLAN

MAP 4



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD. FOLLOW ROAD STAKED SOUTH 1100.6 FEET THEN TURN RIGHT AND GO WEST 746.1 FEET TURN LEFT AND GO SOUTH 161.3 FEET TO THIS PAD LOCATION.

PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FED COM #4H WELL LOCATED 1910 FEET FROM THE SOUTH LINE AND 850 FEET FROM THE WEST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

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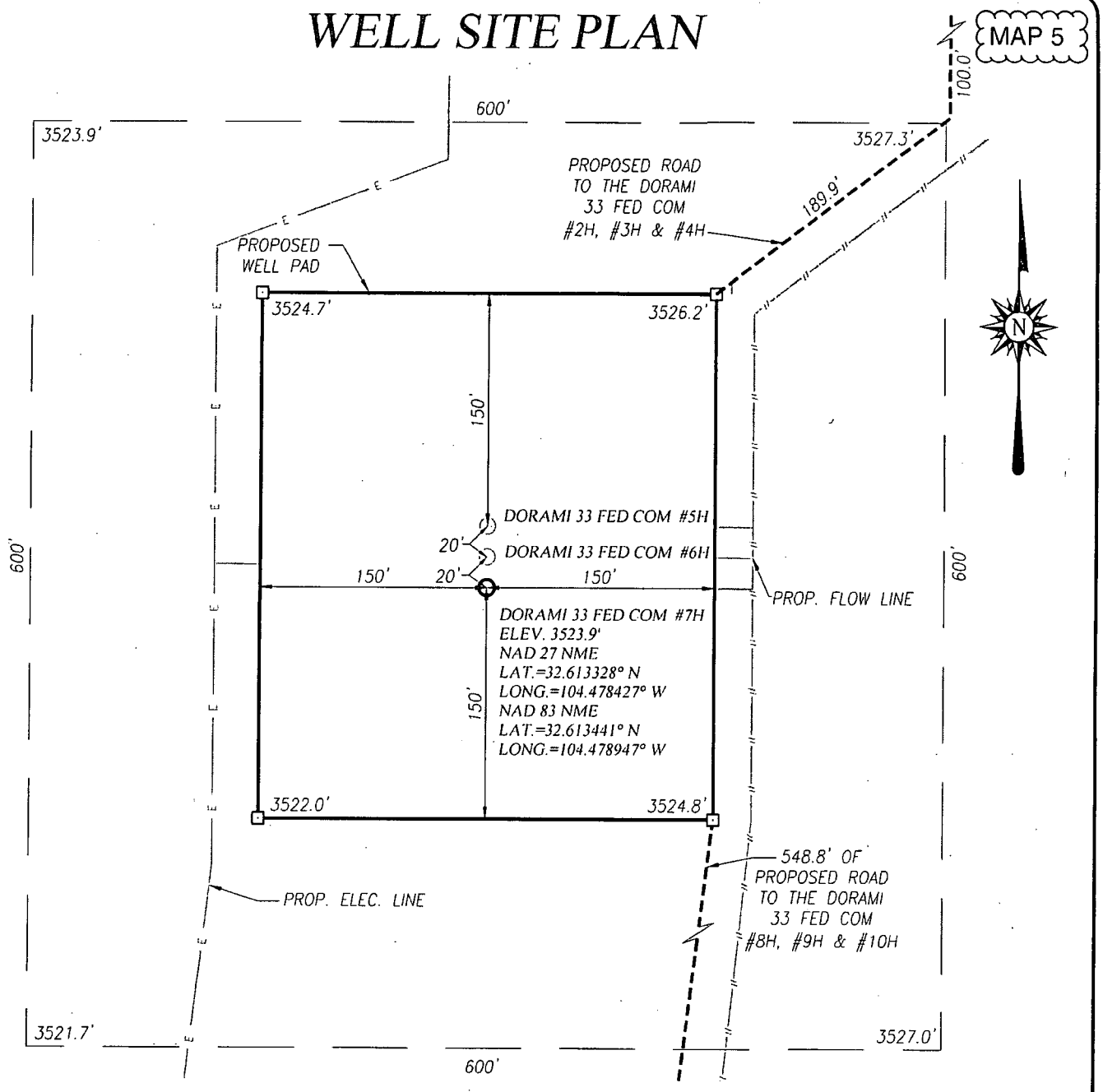
TBPLS# 10021000

Survey Date: 10/04/18	CAD Date: 10/24/18	Drawn By: LSL
W.O. No.: 18110956	Rev: .	Rel. W.O.:	Sheet 1 of 1

WELL SITE PLAN



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD. FOLLOW ROAD STAKED SOUTH 1100.6 FEET THEN TURN RIGHT AND GO WEST 746.1 FEET TURN LEFT AND GO SOUTH 161.3 FEET TO THE DORAMI 33 FED COM #2H, #3H & #4H PAD FROM THE SE COR. GO SOUTH 100 FEET THE VEER RIGHT AND GO SOUTHWEST 189.9 FEET TO THIS PAD.

100 0 100 200 Feet

Scale: 1"=100'

PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FED COM #7H WELL LOCATED 1355 FEET FROM THE SOUTH LINE AND 700 FEET FROM THE WEST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
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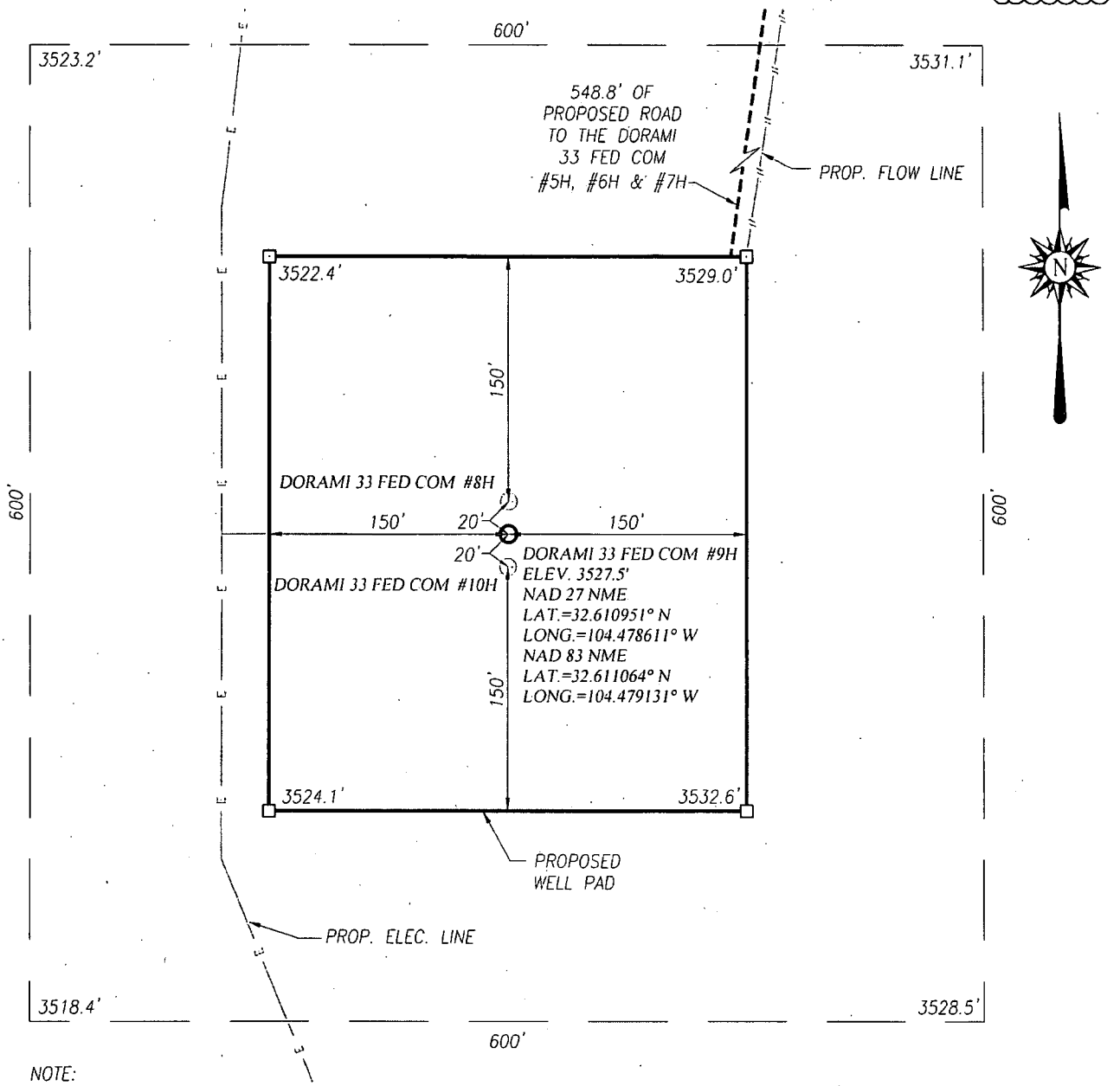
Survey Date: 08/20/18	CAD Date: 09/14/18	Drawn By: LSL
W.O. No.: 18110959	Rev: 10/26/18	Rel. W.O.:	Sheet 1 of 1

WELL SITE PLAN

MAP 6



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD. FOLLOW ROAD STAKED SOUTH 1100.6 FEET TURN RIGHT AND GO WEST 767.8 FEET TURN LEFT AND GO SOUTH 1680.7 FEET TO THIS PAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FED COM #9H WELL LOCATED 490 FEET FROM THE SOUTH LINE AND 650 FEET FROM THE WEST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

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412 N. DAL PASO HOBBS, N.M. 88240
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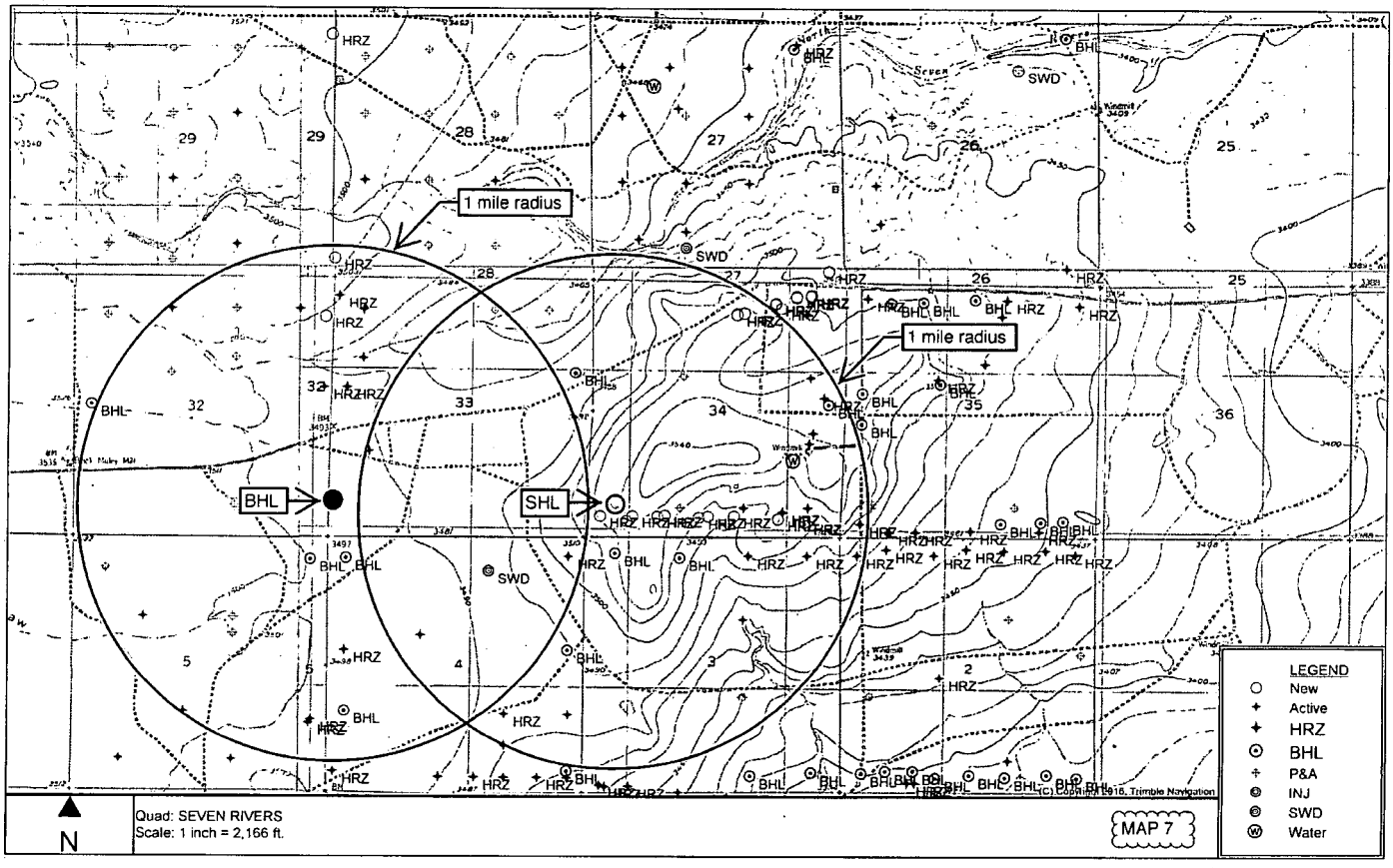
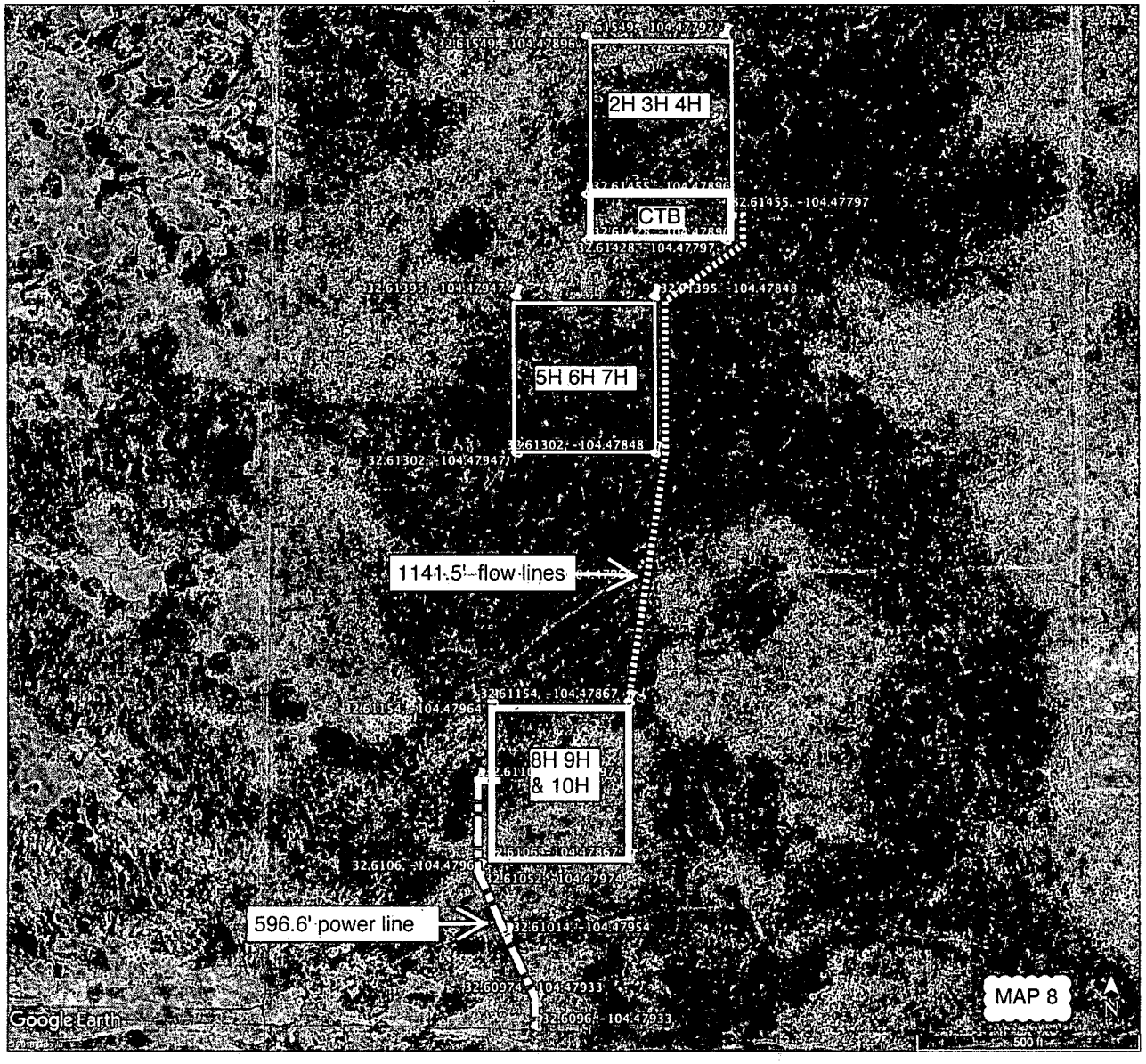
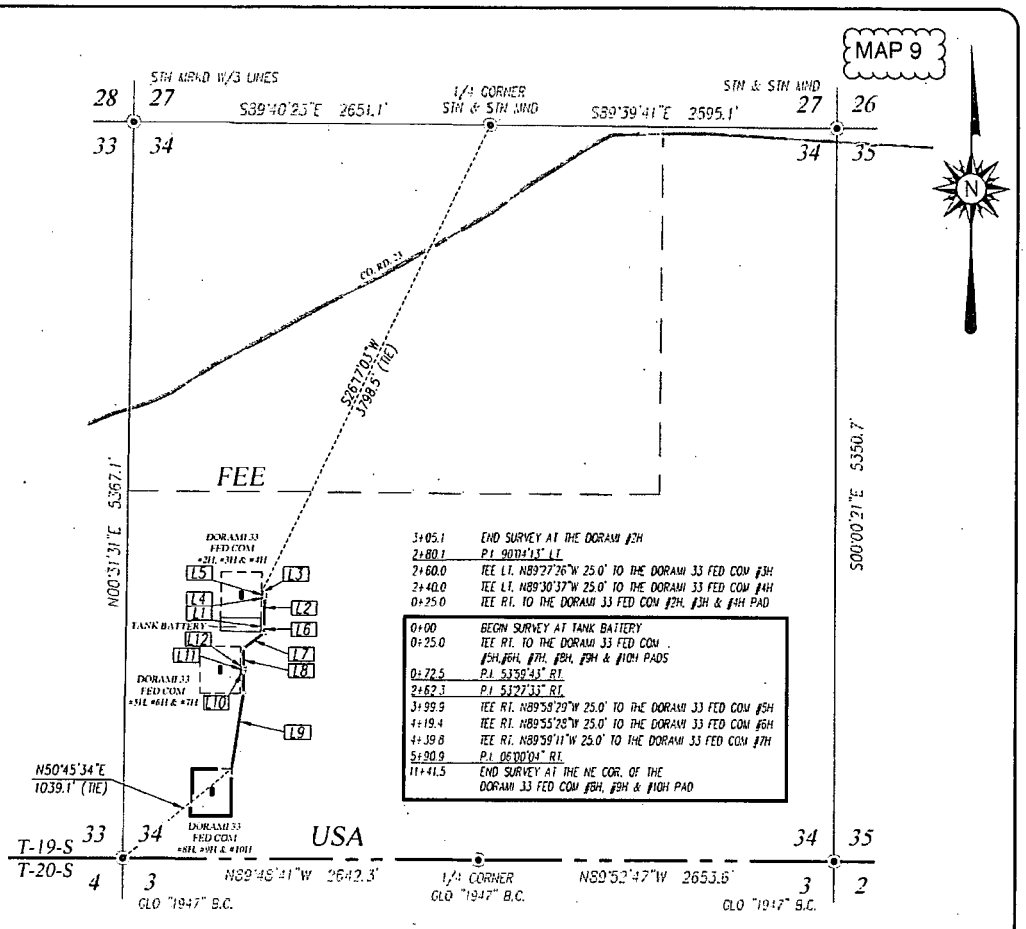
W.O. No.: 18110961	Rev: .10/29/18	Rel. W.O.:	Sheet 1 of 1


1 mile radius
1 mile radius
BHL
SHL
SWD
HRZ
BHL
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Water
N
Quad: SEVEN RIVERS
Scale: 1 inch = 2,166 ft.
MAP 7


2H 3H 4H
CTB
5H 6H 7H
1141.5' flow lines
8H 9H
& 10H
596.6' power line
MAP 8
Google Earth



3+05.1	END SURVEY AT THE DORAMI #2H
2+80.1	P.I. 90°04'43" LT.
2+60.0	TEE LT. N89°27'26"W 25.0' TO THE DORAMI 33 FED COM #3H
2+40.0	TEE LT. N89°30'37"W 25.0' TO THE DORAMI 33 FED COM #4H
0+25.0	TEE RT. TO THE DORAMI 33 FED COM #2H, #3H & #4H PAD
0+00	BEGIN SURVEY AT TANK BATTERY
0+25.0	TEE RT. TO THE DORAMI 33 FED COM #5H, #6H, #7H, #8H, #9H & #10H PADS
0+72.5	P.I. 53°59'43" RT.
2+62.3	P.I. 53°27'33" RT.
3+99.9	TEE RT. N89°58'29"W 25.0' TO THE DORAMI 33 FED COM #5H
4+19.4	TEE RT. N89°55'28"W 25.0' TO THE DORAMI 33 FED COM #6H
4+39.8	TEE RT. N89°59'11"W 25.0' TO THE DORAMI 33 FED COM #7H
5+90.9	P.I. 06°00'04" RT.
11+41.5	END SURVEY AT THE NE COR. OF THE DORAMI 33 FED COM #8H, #9H & #10H PAD

LINE	BEARING	DISTANCE
L1	S89°19'53"E	25.0'
L2	N00°31'01"E	255.1'
L3	N89°34'01"W	25.0'
L4	N89°30'37"W	25.0'
L5	N89°27'26"W	25.0'
L6	S00°31'01"W	47.4'
L7	S53°24'31"W	189.8'
L8	S00°03'01"W	328.6'
L9	S08°40'08"W	550.6'
L10	N89°59'11"W	25.0'
L11	N89°55'28"W	25.0'
L12	N89°58'29"W	25.0'

DESCRIPTION

SURVEY FOR A STRIP OF LAND 30.0 FEET WIDE AND 1543.2 FEET OR 0.292 MILES IN LENGTH CROSSING USA LAND IN SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO, AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON Ronald J Eidson

DATE: 10/29/2018

RONALD J. EIDSON
NEW MEXICO
3239
PROFESSIONAL SURVEYOR

LEGEND

- ◉ – DENOTES FOUND CORNER AS NOTED
- ——— – DENOTES CENTERLINE SURVEY

1000 0 1000 2000 FEET

Scale: 1" = 1000'

PERCUSSION PETROLEUM OPERATING, LLC

SURVEY FOR A FLOW LINE FROM TANK BATTERY TO THE DORAMI 33 FED COM #2H, #3H, #4H, #5H, #6H, #7H, #8H, #9H & #10H CROSSING SECTION 34 TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M. EDDY COUNTY, NEW MEXICO

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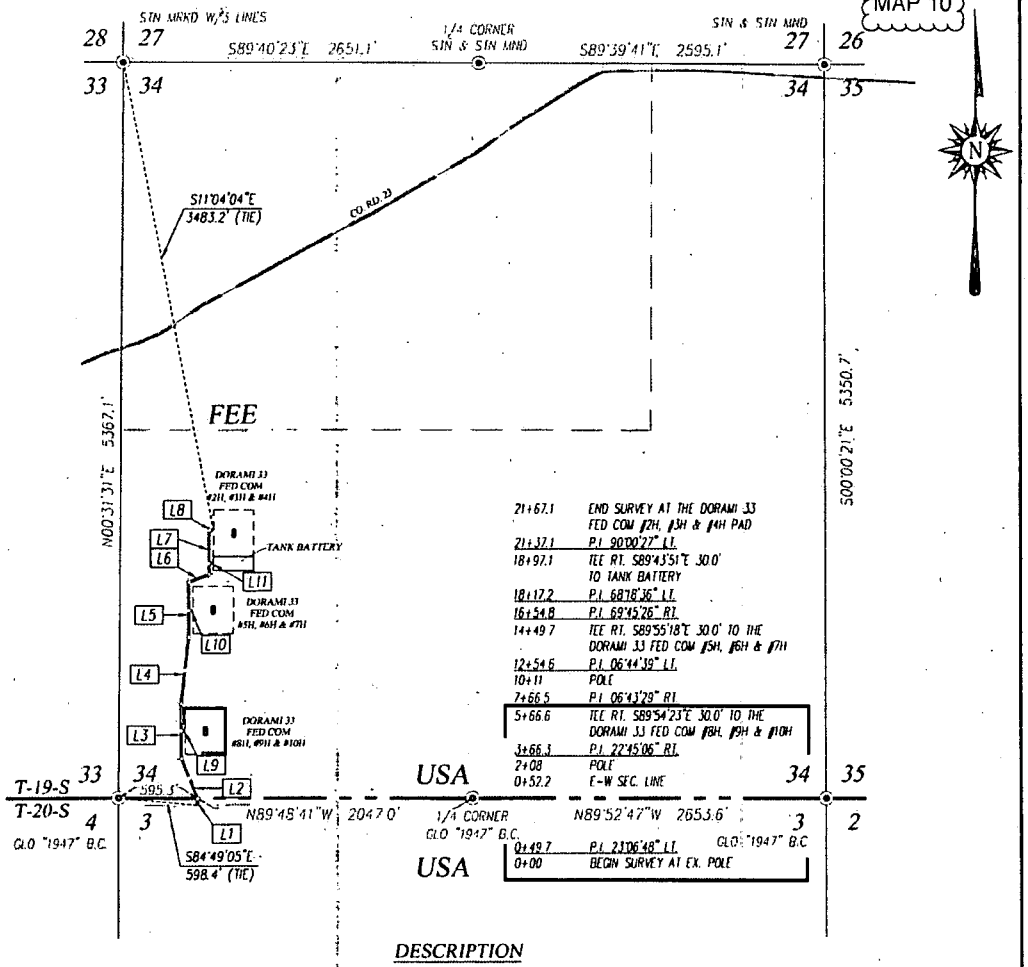
Survey Date: 10/08/18	CAD Date: 10/22/18	Drawn By: LSL	
W.O. No.: 18111115	Rev: 10/29/18	Rel. W.O.:	Sheet 1 of 1

MAP 10



21+67.1	END SURVEY AT THE DORAMI 33 FED COM #2H, #3H & #4H PAD
21+37.1	P.I. 90°00'27" LT.
18+97.1	TEE RT. S89°43'51"E 30.0' TO TANK BATTERY
18+17.2	P.I. 68°18'36" LT.
16+54.8	P.I. 69°45'26" RT.
14+49.7	TEE RT. S89°55'18"E 30.0' TO THE DORAMI 33 FED COM #5H, #6H & #7H
12+54.6	P.I. 06°44'39" LT.
10+11	POLE
7+66.5	P.I. 06°43'29" RT.
5+66.6	TEE RT. S89°54'23"E 30.0' TO THE DORAMI 33 FED COM #8H, #9H & #10H
3+66.3	P.I. 22°45'06" RT.
2+08	POLE
0+52.2	E-W SEC. LINE
0+49.7	P.I. 23°06'48" LT.
0+00	BEGIN SURVEY AT EX. POLE

DESCRIPTION

SURVEY FOR A STRIP OF LAND 30.0 FEET WIDE AND 2257.1 FEET OR 0.427 MILES IN LENGTH CROSSING USA LAND IN SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST AND SECTION 3, TOWNSHIP 20 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

LINE	BEARING	DISTANCE
L1	N00°25'35"E	49.7'
L2	N22°41'13"W	316.6'
L3	N00°03'53"E	400.2'
L4	N06°47'22"E	488.1'
L5	N00°02'43"E	400.2'
L6	N69°48'09"E	162.4'
L7	N00°29'33"E	319.9'
L8	S89°30'00"E	30.0'
L9	S89°54'23"E	30.0'
L10	S89°55'18"E	30.0'
L11	S89°43'51"E	30.0'

NOTE

1) BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

2) LATITUDE AND LONGITUDE VALUES SHOWN HEREON ARE RELATIVE TO THE NORTH AMERICAN DATUM 1983 (NAD83).

LEGEND

◉ – DENOTES FOUND CORNER AS NOTED

——— – DENOTES CENTERLINE SURVEY

1000 0 1000 2000 FEET

Scale: 1"=1000'

I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED, WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON

DATE: 10/23/2018

PROVIDING SURVEYING SERVICES SINCE 1946

JOHN WEST SURVEYING COMPANY

412 N. DAL PASO HOBBS, N.M. 88240

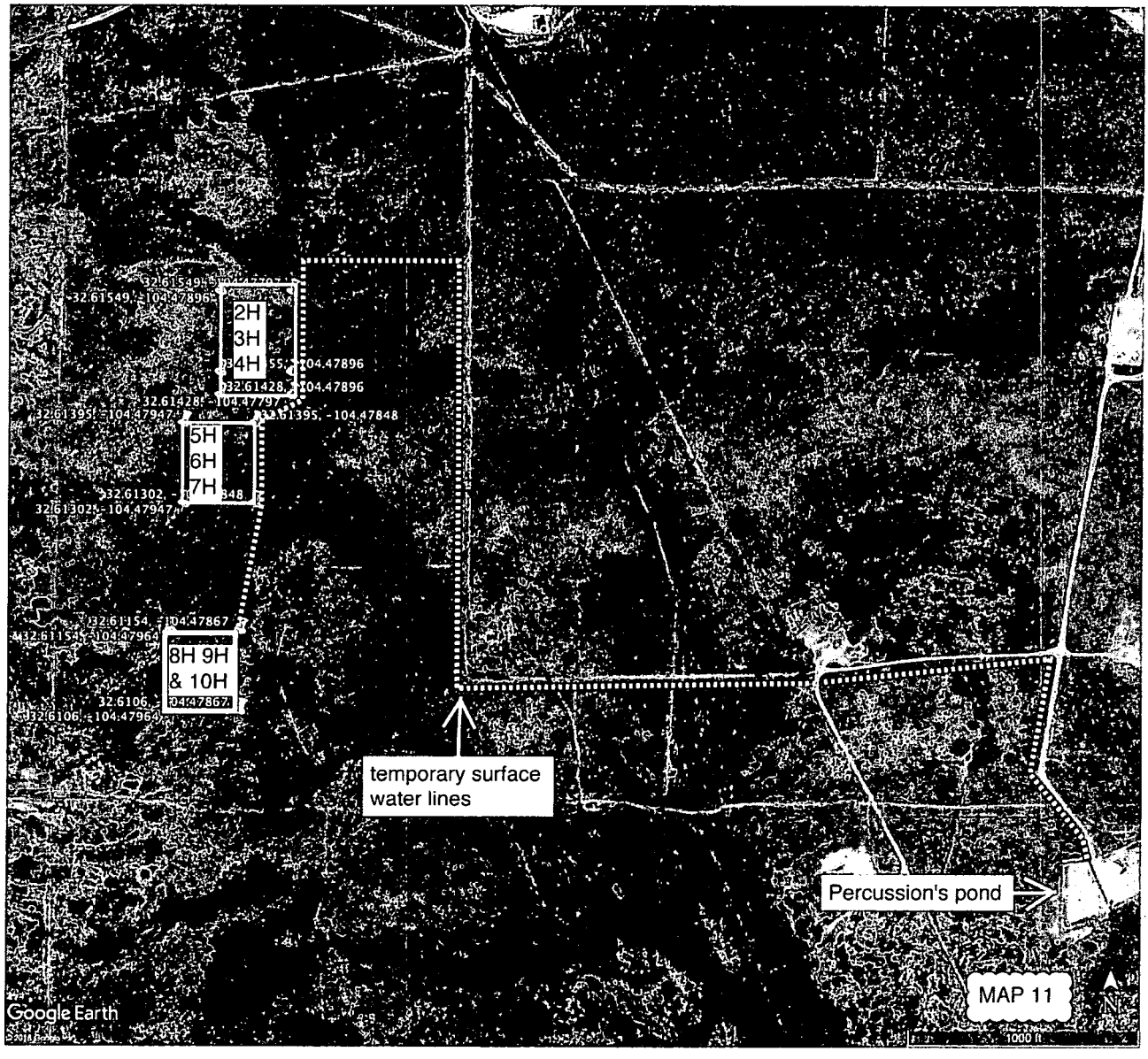
(575) 393-3117 www.jwsc.biz

TBPLS# 10021000

PERCUSSION PETROLEUM OPERATING, LLC

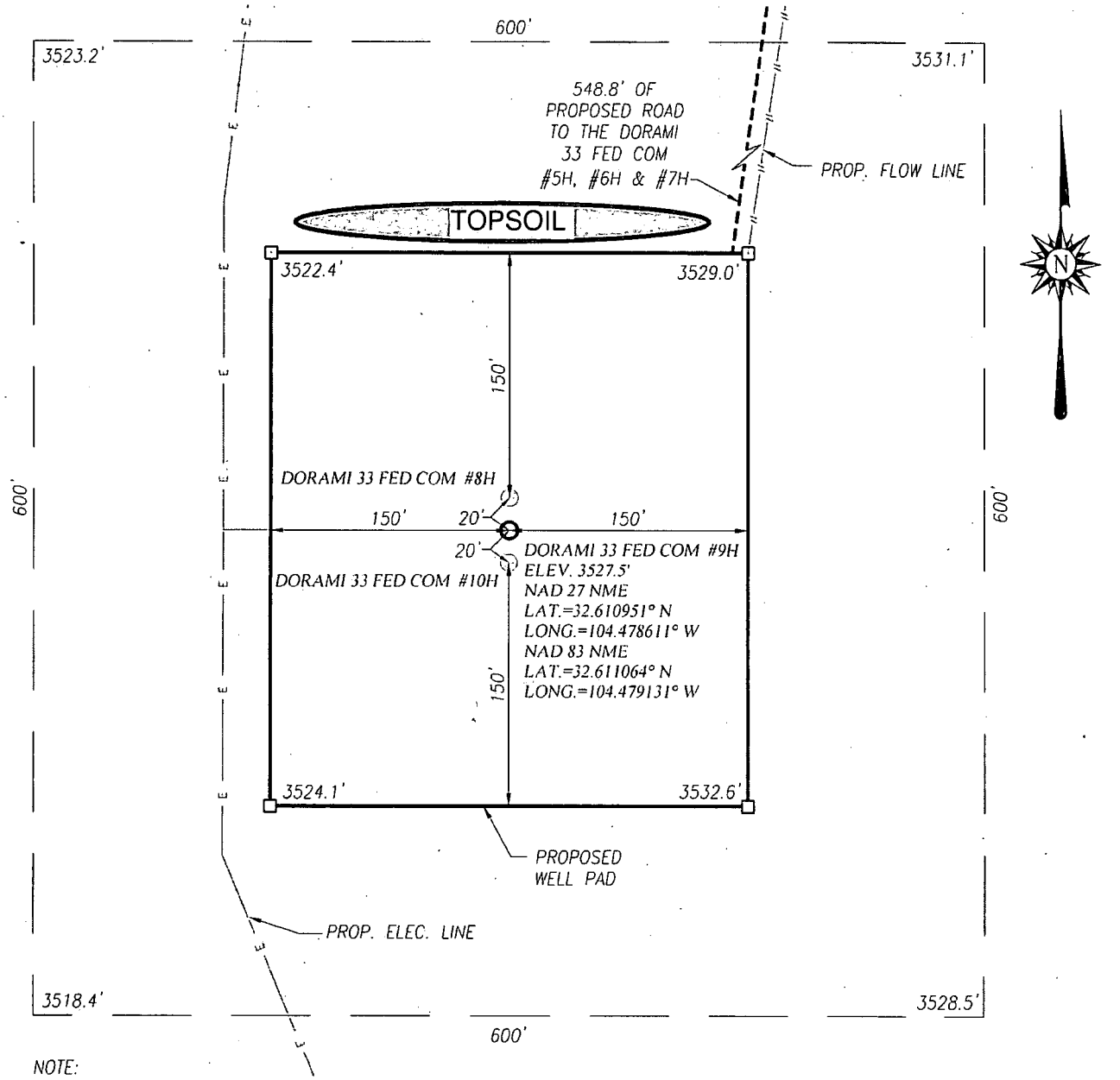
SURVEY FOR AN ELECTRIC LINE TO THE DORAMI 33 FED. COM #2H, #3H, #4H, #5H, #6H, #7H, #8H, #9H, #10H & TANK BATTERY CROSSING SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST AND SECTION 3, TOWNSHIP 20 SOUTH, RANGE 25 EAST N.M.P.M. EDDY COUNTY, NEW MEXICO

Survey Date: 10/08/18	CAD Date: 10/22/18	Drawn By: LSL
W.O. No.: 18111116	Rev: .	Rel. W.O.:
Sheet 1 of 1		


2H
3H
4H
5H
6H
7H
8H 9H
& 10H
temporary surface
water lines
Percussion's pond
MAP 11
Google Earth

WELL SITE PLAN

MAP 12



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD.. FOLLOW ROAD STAKED SOUTH 1100.6 FEET TURN RIGHT AND GO WEST 767.8 FEET TURN LEFT AND GO SOUTH 1680.7 FEET TO THIS PAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

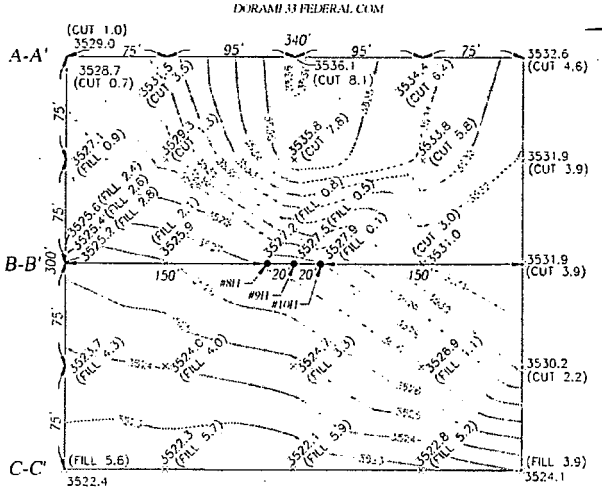
PERCUSSION PETROLEUM OPERATING, LLC

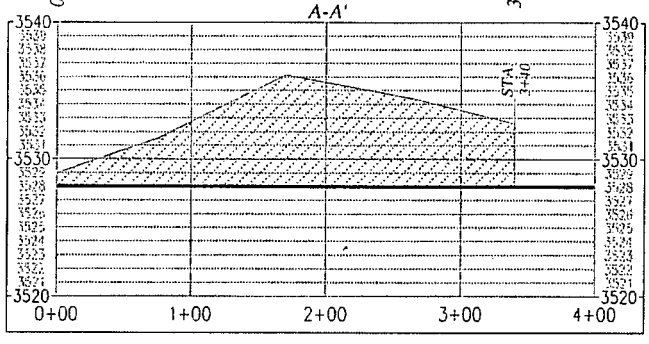
DORAMI 33 FED COM #9H WELL LOCATED 490 FEET FROM THE SOUTH LINE AND 650 FEET FROM THE WEST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

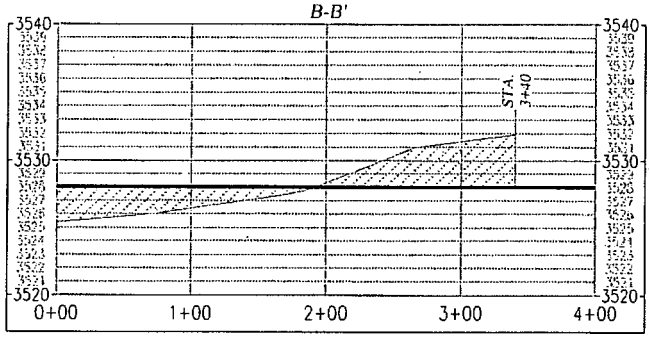
PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

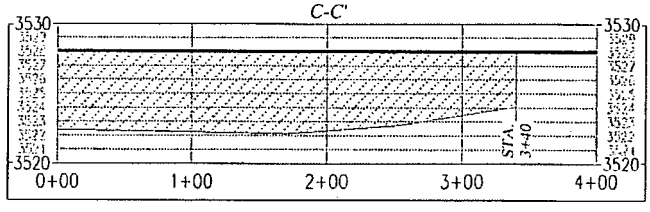
Survey Date: 08/21/18	CAD Date: 09/17/18	Drawn By: LSL
W.O. No.: 18110961	Rev: 10/29/18	Rel. W.O.:	Sheet 1 of 1

MAP 13









100 0 100

Scale: 1"=100'

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PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FEDERAL COM #8H, #9H & #10H WELL PAD
IN SECTION 34, TOWNSHIP 19 SOUTH,
RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 8/21/18	CAD Date: 9/24/18	Drawn By: ACK
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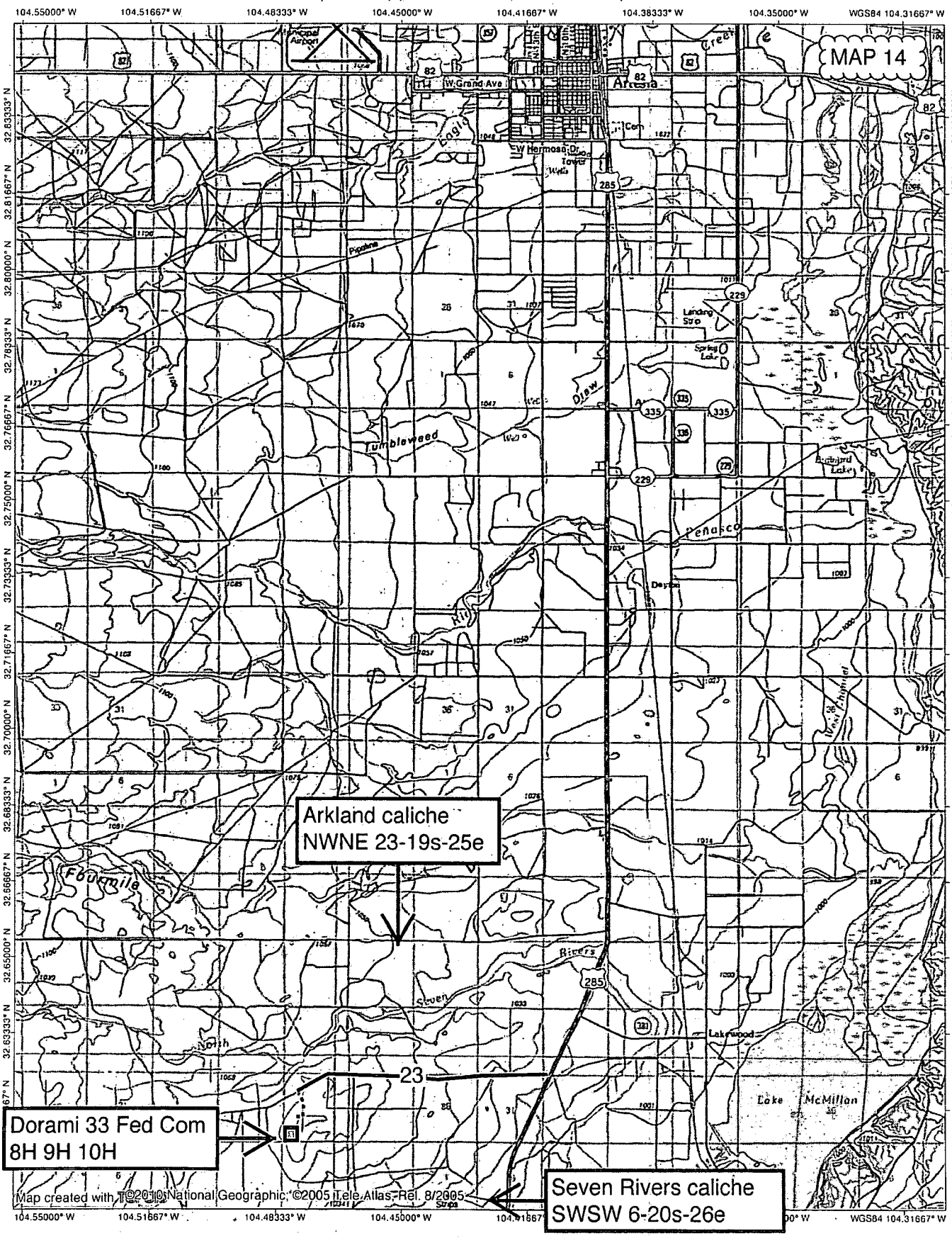
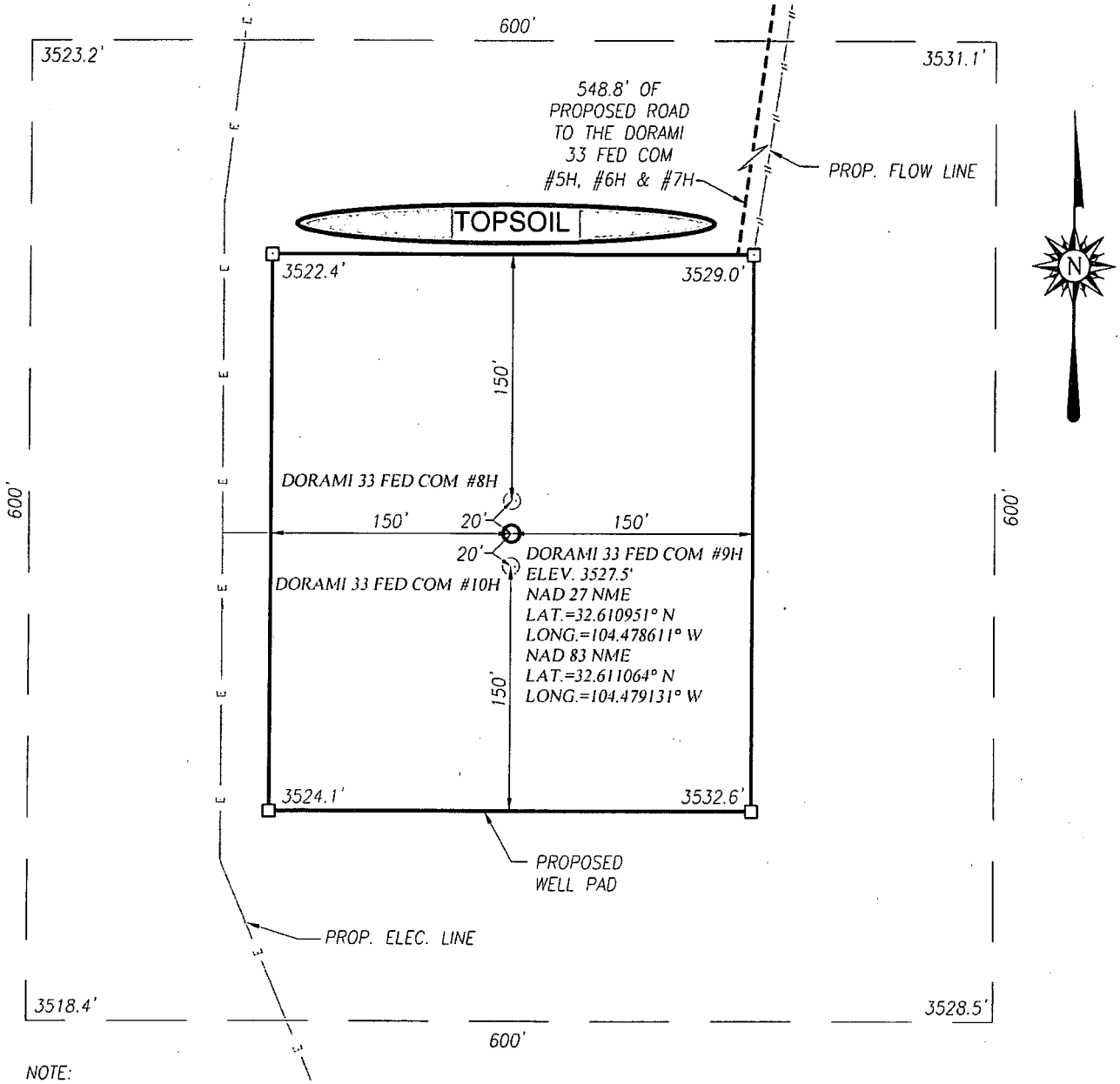

TOPO! map printed on 11/10/18 from "Untitled.tpo"
MAP 14
Arkland caliche
NWNE 23-19s-25e
Dorami 33 Fed Com
8H 9H 10H
Seven Rivers caliche
SWSW 6-20s-26e
23
Artesia
Lake McMillan
Map created with TOPO! ©2010 National Geographic, ©2005 Tele Atlas, Rel. 8/2005
NATIONAL GEOGRAPHIC
11/10/18

WELL SITE PLAN

MAP 15



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD. FOLLOW ROAD STAKED SOUTH 1100.6 FEET TURN RIGHT AND GO WEST 767.8 FEET TURN LEFT AND GO SOUTH 1680.7 FEET TO THIS PAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FED COM #9H WELL LOCATED 490 FEET FROM THE SOUTH LINE AND 650 FEET FROM THE WEST LINE OF SECTION 34, TOWNSHIP 19 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

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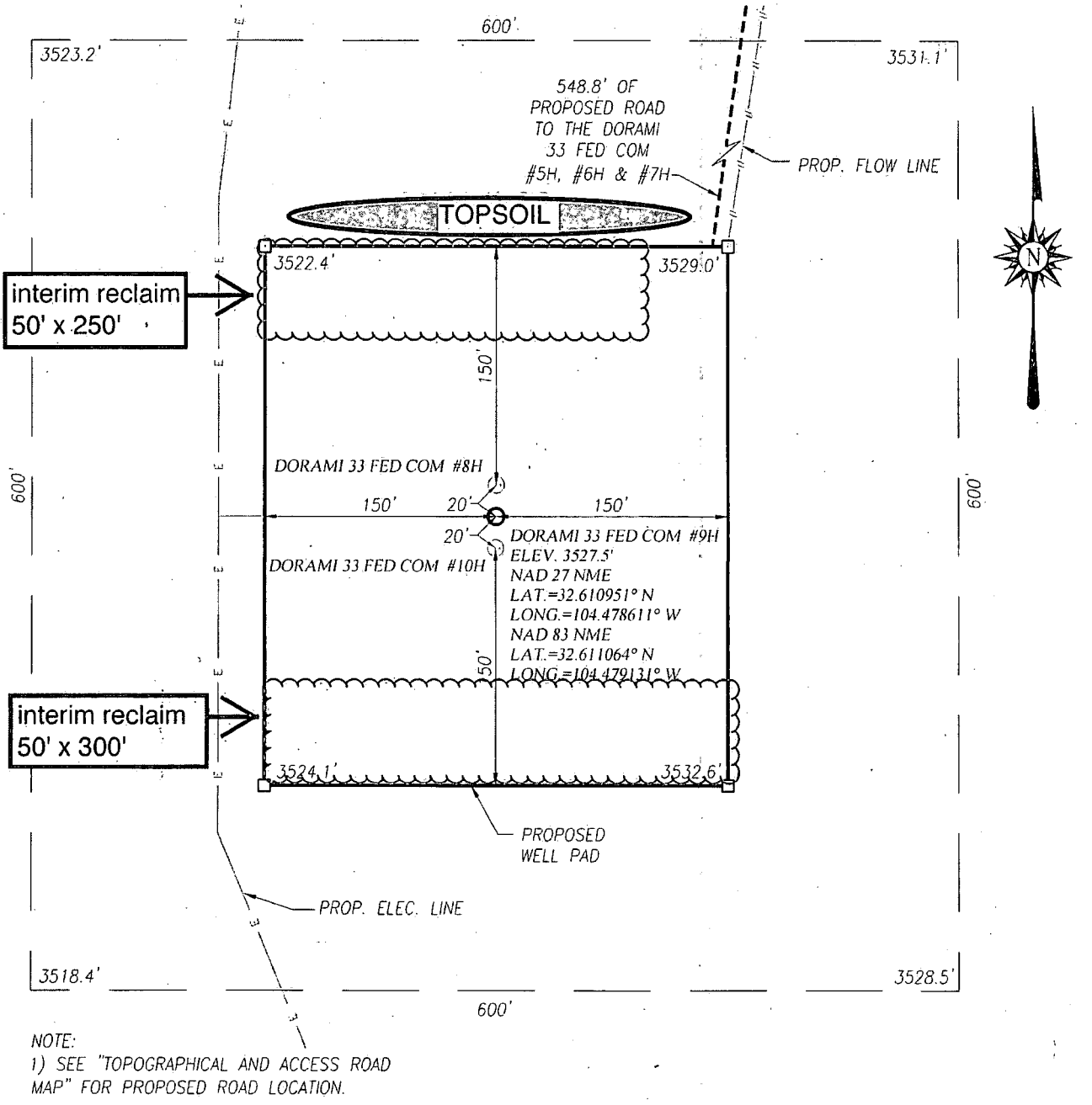
WELL SITE PLAN

MAP 16



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS ROAD MAP" FOR PROPOSED ROAD LOCATION.

DIRECTIONS TO LOCATION:

FROM THE INTERSECTION OF U.S. HWY. 285 AND CO. RD. 23 (ROCK DAISY RD.) GO WEST ON CO. RD. 23 APPROX. 3.9 MILES TO CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHEAST APPROX. 0.2 MILES TO PROPOSED ACCESS ROAD. FOLLOW ROAD STAKED SOUTH 1100.6 FEET TURN RIGHT AND GO WEST 767.8 FEET TURN LEFT AND GO SOUTH 1680.7 FEET TO THIS PAD LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

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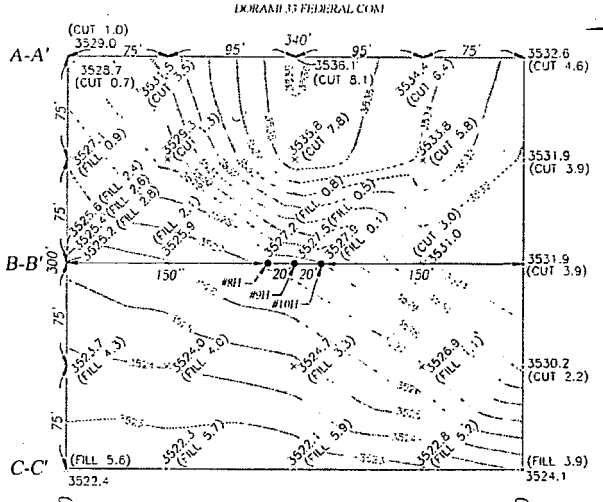
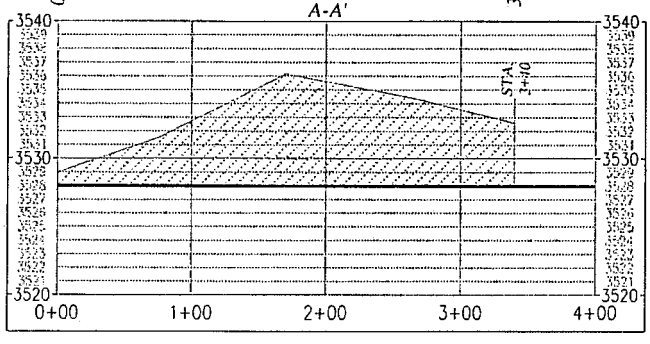
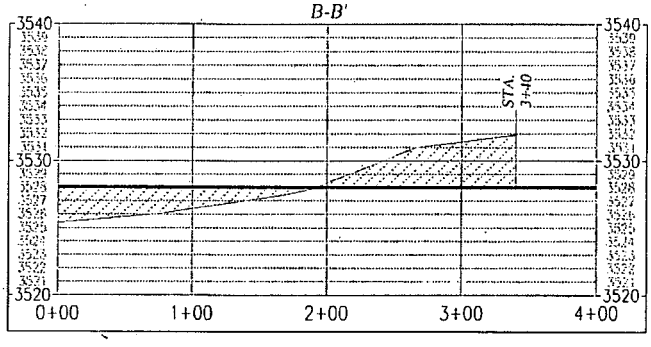
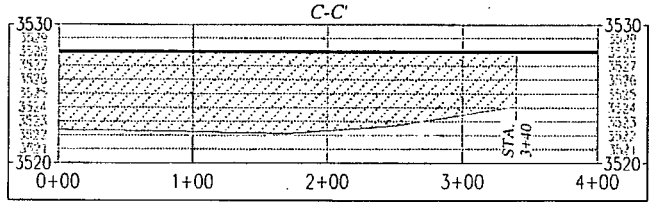
W.O. No.: 18110961	Rev: 10/29/18	Rel. W.O.:	Sheet 1 of 1

MAP 17









100 0 100

Scale: 1"=100'

PROVIDING SURVEYING SERVICES SINCE 1946

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PERCUSSION PETROLEUM OPERATING, LLC

DORAMI 33 FEDERAL COM #8H, #9H & #10H WELL PAD
IN SECTION 34, TOWNSHIP 19 SOUTH,
RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 8/21/18	CAD Date: 9/24/18	Drawn By: ACK
W.O. No.: 18110960	Rev: .	Rel. W.O.:	Sheet 1 of 1

Surface Use Plan

1. ROAD DIRECTIONS & DESCRIPTIONS (See MAPS 1 - 6)

From the junction of US 82 & US 285 in Artesia...
Go South 15.2 miles on US 285 to the equivalent of Mile Post 54.1
Then turn right and go West 3.9 miles on paved County Road 23 (Rock Daisy)
Then turn left and go SE 0.2 mile on caliche Pan Can A 1 road
Then turn right and go South 1100.8' on the reclaimed Irani Fed 1 road
Then turn right and go West 746.1' cross-country
Then turn left and go South 161.3' cross-country to planned 2H/3H/4H pad
Then turn left and go South 440' on the East side of the 2H/3H/4H pad CTB
Then bear right and go SW 189.9' cross-country to the 5H pad
Then turn left and go South 340' on the East side of the 5H/6H/7H pad
Then bear right and go SSW 548.8' cross-country to the 8H/9H/10H pad

Non-county roads will be maintained as needed to Gold Book standards. This includes pulling ditches, preserving the crown, and cleaning culverts. This will be done at least once a year, and more often as needed.

2. ROAD TO BE BUILT OR UPGRADED (See MAPS 2 - 6)

The 3526.9' of new resource road will be crowned and ditched, have a 14' wide driving surface, and be surfaced with caliche. A cattle guard and gate will be installed in the one fence that is crossed. No culvert or vehicle turnout is needed. Borrow ditches will turn out every ≈100 yards. Maximum disturbed width = 30'. Maximum grade = 3%. Maximum cut or fill = 3'.

Drainage dips will be installed in the existing caliche Pan Can A 1 road. Dips will be at least half in cut and skewed to drain.

3. EXISTING WELLS (See MAP 7)

Existing oil, gas, disposal, water, and P & A wells are within a mile. No injection wells are within a mile radius.

4. PROPOSED PRODUCTION FACILITIES (See MAPS 8 - 10)

An 1141.5' long ≈4" O D. HDPE flow line will be laid on the surface northeast to a central tank battery on the south side of Percussion's Dorami 33 Fed Com 2H 3H 4H pad. Battery is described in those 3 APDs. Line will parallel proposed roads. Maximum flow line operating pressure will be ≤100 psi.

A 596.6' long overhead raptor safe 3-phase power line will be built north from Percussion's existing power line.

5. WATER SUPPLY (See MAP 11)

Two temporary 10" Kevlar lay flat surface pipelines will be laid ≈7700' along roads from Percussion's existing Huber 3 pond to the pad. Pipeline route will not be bladed or excavated.

6. CONSTRUCTION MATERIALS & METHODS (See MAPS 12 - 14)

NM One Call (811) will be notified before construction starts. Top ≈6" of soil and brush will be stockpiled north of the pad. V-door will face south. Closed loop drilling system will be used. Caliche will be hauled from existing caliche pits on private land. Arkland caliche pit is in NWNE 23-19s-25e. Seven Rivers caliche pit is in SWSW 6-20s-26e.

7. WASTE DISPOSAL

All trash will be placed in a portable trash cage. It will be hauled to the Eddy County landfill. There will be no trash burning. Contents (drill cuttings, mud, salts, and other chemicals) of the mud tanks will be hauled to R360's state approved (NM-01-0006) disposal site at Halfway. Human waste will be disposed of in chemical toilets and hauled to the Artesia wastewater treatment plant.

8. ANCILLARY FACILITIES

There will be no airstrip or camp. Camper trailers will be on location for the company man, tool pusher, and mud logger.

9. WELL SITE LAYOUT (See MAP 15)

Also see Rig Layout diagram for depictions of the well pad, trash cage, access onto the location, parking, living facilities, and rig orientation.

10. RECLAMATION (See MAPS 16 & 17)

Interim reclamation will be completed within 6 months of completing the well. Interim reclamation will consist of shrinking the well pad 0.63 acre by removing caliche and reclaiming 50' on the north and south sides of the pad. This will leave 1.71 acres for the anchors, pump jacks, and tractor-trailer turn around. Disturbed areas will be contoured to match pre-construction grades. Soil and brush will be evenly spread over disturbed areas and harrowed on the contour. Disturbed areas will be seeded in accordance with BLM's requirements.

Once the wells are plugged, then reclamation will be completed within 6 months of plugging the last well. Reclamation will consist of removing caliche and deeply ripping on the contour. Disturbed areas will be contoured to match pre-construction grades. Soil and brush will be evenly spread over disturbed areas

and harrowed on the contour. Disturbed areas will be seeded in accordance with BLM's requirements. Noxious weeds will be controlled.

Land use:

3526.9' x 30' road = 2.43 acres
1141.5' x 30' flow line = 0.77 acres
596.6' x 30' power line = 0.41 acres
20' x 7700' water line from pond = 3.54 acres
+ 300' x 340' pad = 2.34 acres
9.49 acres short term
- 0.77 acres flow line
- 0.41 acres power line
- 0.63 acres interim reclamation
- 3.54 acres water line from pond
4.14 acres long term (1.71 acres pad + 2.43 acres road)

11. SURFACE OWNER

North ≈700' of road construction will be on private land owned by Ross Ranch Inc. Percussion Petroleum Operating, LLC has an agreement with Ross Ranch Inc. (PO Box 216, Lakewood NM 88254) for the road. Ross Ranch Inc. phone number is (575) 365-4797.

All remaining construction will be on BLM land managed by the Carlsbad Field Office, 620 E. Greene St., Carlsbad NM 88220. Phone number is 575 234-5972.

12. OTHER INFORMATION

On-site inspection was held on October 4, 2018 with Will DeGrush (BLM).

APAC consulted with BLM archaeologist Bruce Boeke on November 20, 2018. It was determined that no archaeology inspection was needed due to previous inspections and reports.

CERTIFICATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U. S. C. 1001 for the filing of false statements. Executed this 30th day of December, 2018.

Brian Wood, Consultant
Permits West, Inc.
37 Verano Loop, Santa Fe, NM 87508
(505) 466-8120 FAX: (505) 466-9682 Cellular: (505) 699-2276

Field representative will be:

Lelan Anders, Operations Manager
Percussion Petroleum Operating, LLC
919 Milam, Suite 2475
Houston, TX 77002
Office: (713) 429-1291
Mobile: (281) 908-1752

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number:

Injection well name:

Assigned injection well API number?

Injection well API number:

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

04/08/2019

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001424

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: