Form 3160-3
(March 2012)

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

# APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM101601

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

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

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

8. Lease Name and Well No.
TANKLESS FEDERAL COM 2H 319583

2. Name of Operator
COG PRODUCTION LLC 217955

9. API Well No.
30-015-44434

3a. Address
2208 West Main Street Artesia NM 88210

3b. Phone No. *(include area code)*
(575)748-6940

10. Field and Pool, or Exploratory
LIVINGSTON RIDGE / BONE SPRING

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface SESE / 190 FSL / 560 FEL / LAT 32.341248 / LONG -103.741869
At proposed prod. zone NESE / 2310 FSL / 380 FEL / LAT 32.361947 / LONG -103.741296

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 35 / T22S / R31E / NMP

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

12. County or Parish
EDDY

13. State
NM

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

16. No. of acres in lease
640

17. Spacing Unit dedicated to this well
240

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

19. Proposed Depth
10165 feet / 17512 feet

20. BLM/BIA Bond No. on file
FED: NMB000860

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3446 feet

22. Approximate date work will start*
08/01/2017

23. Estimated duration
30 days

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

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 required by the BLM.

| 25. Signature | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | Mayte Reyes / Ph: (575)748-6945 | 04/12/2017 |

Title
Regulatory Analyst

| Approved by *(Signature)* | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | Cody Layton / Ph: (575)234-5959 | 08/30/2017 |

| Title | Office |
|---|---|
| Supervisor Multiple Resources | 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.

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 11 2017
RECEIVED

RWP 9-18-17

# PECOS DISTRICT
# SURFACE USE
# CONDITIONS OF APPROVAL

| | |
|---|---|
| OPERATOR'S NAME: | COG PRODUCTION LLC |
| LEASE NO.: | NMNM101601 |
| WELL NAME & NO.: | 2H –TANKLESS FEDERAL COM |
| SURFACE HOLE FOOTAGE: | 190'/S & 560'/E |
| BOTTOM HOLE FOOTAGE | 2440'/S & 380'/E |
| LOCATION: | Section 35 T.22S., R.31 E., NMP |
| COUNTY: | EDDY County, New Mexico |

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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)

**Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken**: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

**Below Ground-level Abandoned Well Marker to avoid raptor perching**: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

### Potash

1. Drilling within the Designated Potash Area. It is the intent of the Department of the Interior to administer oil and gas operations throughout the Designated Potash Area in a manner which promotes safe, orderly co-development of oil, gas, and potash resources. It is the policy of the Department of the Interior to deny approval of most applications for permits to drill oil and gas wells from surface locations within the Designated Potash Area. Three exceptions to this policy will be permitted if the drilling will occur under the following conditions from:

    a. A Drilling Island associated with a Development Area established under this Order or a Drilling Island established under a prior Order;

    b. A Barren Area and the Authorized Officer determines that such operations will not adversely affect active or planned potash mining operations in the immediate vicinity of the proposed drill-site; or

    c. A Drilling Island, not covered by (a) above or single well site established under this Order by the approval and in the sole discretion of the Authorized Officer, provided that such site was jointly recommended to the Authorized Officer by the oil and gas lessee(s) and the nearest potash lessee(s).

2. Development Areas

a. When processing an application for permit to drill (APD) an oil or gas well in the Designated Potash Area that complies with regulatory requirements, the Authorized Officer will determine whether to establish a Development Area in connection with the application, and if so, will determine the boundaries of the Development Area and the location within the Development Area of one or more Drilling Islands from which drilling will be permitted. The BLM may also designate a Development Area outside of the APD process based on information in its possession, and may modify the boundaries of a Development Area. Existing wells may be included within the boundaries of a Development Area. A Development Area may include Federal oil and gas leases and other Federal and non-Federal lands.

b. After designating or modifying a Development Area, the BLM will issue a Notice to Lessees, consistent with its authorities under 43 CFR Subpart 3105 and part 3180, information lessees that future drilling on lands under an oil and gas lease within that Development Area will:

    i. occur, under most circumstances, from a Barren Area or A Drilling Island within the Development Area; and

    ii. be managed under a unit or communitization agreement, generally by a single operator, consistent with BLM regulations and this Order. Unit and communitization agreements will be negotiated among lessees. The BLM will consider whether a specific plan of development is necessary or advisable for a particular Drilling Island.

c. The Authorized Officer reserves the right to approve an operator or successor operator of a Development Area and/or a Drilling Island, if applicable, to ensure that the operator has the resources to operate and extract the oil and gas resources consistent with the requirements of this Order and all applicable laws and regulations, and has provided financial assurance in the amount required by the Authorized Officer.

d. The Authorized Officer will determine the appropriate designation of a Development Area in terms of location, shape and size. In most cases, a single Drilling Island will be established for each Development Area. In establishing the location, shape and size of a Development Area and an associated Drilling Island, the Authorized Officer will consider:

    i. the appropriate location, shape, and size of a Development Area and associated Drillings Island to allow effective extraction of oil and gas resources while managing the impact on potash resources;

ii. the application of available oil and gas drilling and production technology in the Permian Basin;

iii. the applicable geology of the Designated Potash Area and optimal locations to minimize loss of potash ore while considering co-development of both resources;

iv. any long term exploration and/or mining plans provided by the potash industry;

v. whether a Barren Area may be the most appropriate area for a Drilling Island;

vi. the requirements of this Order; and

vii. any other relevant factors

e. As the Authorized Officer establishes a Development Area, the Authorized Officer will more strictly apply the factors listed in Section 6.e.(2)(d), especially the appropriate application of the available oil and gas drilling and production technology in the Permian Basin, when closer to current traditional (non-solution) potash mining operations. Greater flexibility in the application of the factors listed in Section 6.e(2)(d) will be applied further from current and near-term traditional (non-solution)potash mining operations. No Drilling Islands will be established within one mile of any area where approved potash mining operations will be conducted within 3 years consistent with the 3-year mine plan referenced above (Section 6.d.(8)) without the consent of the affected potash lessee(s).

f. The Authorized Officer may establish a Development Area associated with a well or wells drilled from a Barren Area as appropriate and necessary.

g. As part of the consideration for establishing Development Areas and Drilling Islands, the BLM will consider input from the potash lessees and the oil and gas lessees or mineral right owner who would be potentially subject to a unitization agreement supporting the Development Are, provided that the input is given timely.

3. Buffer Zones. Buffer Zones of ¼ mile for oil wells and ½ mile for gas wells are hereby established. These Buffer Zones will stay in effect until such time as revised distances are adopted by the BLM Director or other BLM official, as delegated. However, the Authorized Officer may adjust the Buffer Zones in an individual case, when the facts and circumstances demonstrate that such adjustment would enhance conservation and would not compromise safety. The

Director will base revised Buffer Zones on science, engineering, and new technology and will consider comments and reports from the Joint Industry Technical Committee and other interested parties in adopting any revisions.

4. Unitization and Communitization. To more properly conserve the potash, oil and gas resources in the Designated Potash Area and to adequately protect the rights of all parties in interest, including the United States, it is the policy of the Department of the Interior that all Federal oil and gas leases within a Development Area should be unitized or subject to an approved communitization agreement unless there is a compelling reason for another operating system. The Authorized Officer will make full use of his/her authorities wherever necessary or advisable to require unitization and/or communitization pursuant to the regulations in 43 CFR Subparts 3105 and 3180. The Authorized Officer will use his/her discretion to the fullest extent possible to assure that any communitization agreement and any unit plan of operations hereafter approved or prescribed within the Designated Potash Area will adhere to the provisions of this Order. The Authorized Officer will work with Federal lessees, and with the State Of New Mexico as provided below, to include non-Federal mineral rights owners in unit or communitization agreements to the extent possible.

5. Coordination with the State of New Mexico.

    a. If the effective operation of any Development Area requires that the New Mexico Oil Conservation Division (NMOCD) revise the State's mandatory well spacing requirements, the BLM will participate as needed in such a process. The BLM may adopt the NMOCD spacing requirements and require lessees to enter into communitization agreements based on those requirements.

    b. The BLM will cooperate with the NMOCD in the implementation of that agency's rules and regulations.

    c. In taking any action under Section 6.e. of this Order, the Authorized Officer will take into consideration the applicable rules and regulations of the NMOCD.

To minimize impacts to potash resources, the proposed well is confined within the boundaries of the established Tankless Drill Island (See Potash Memo and Map in attached file for Drill Island description).

# 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.

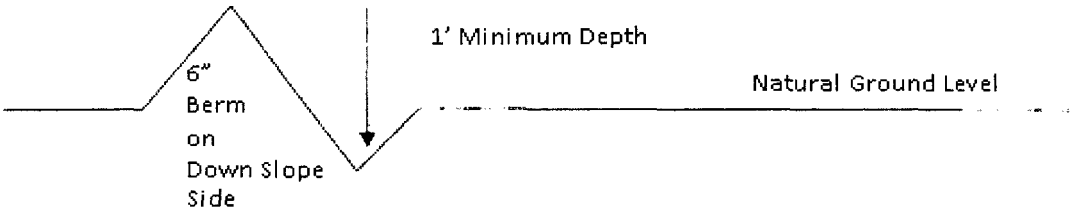
**Turnouts**
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**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

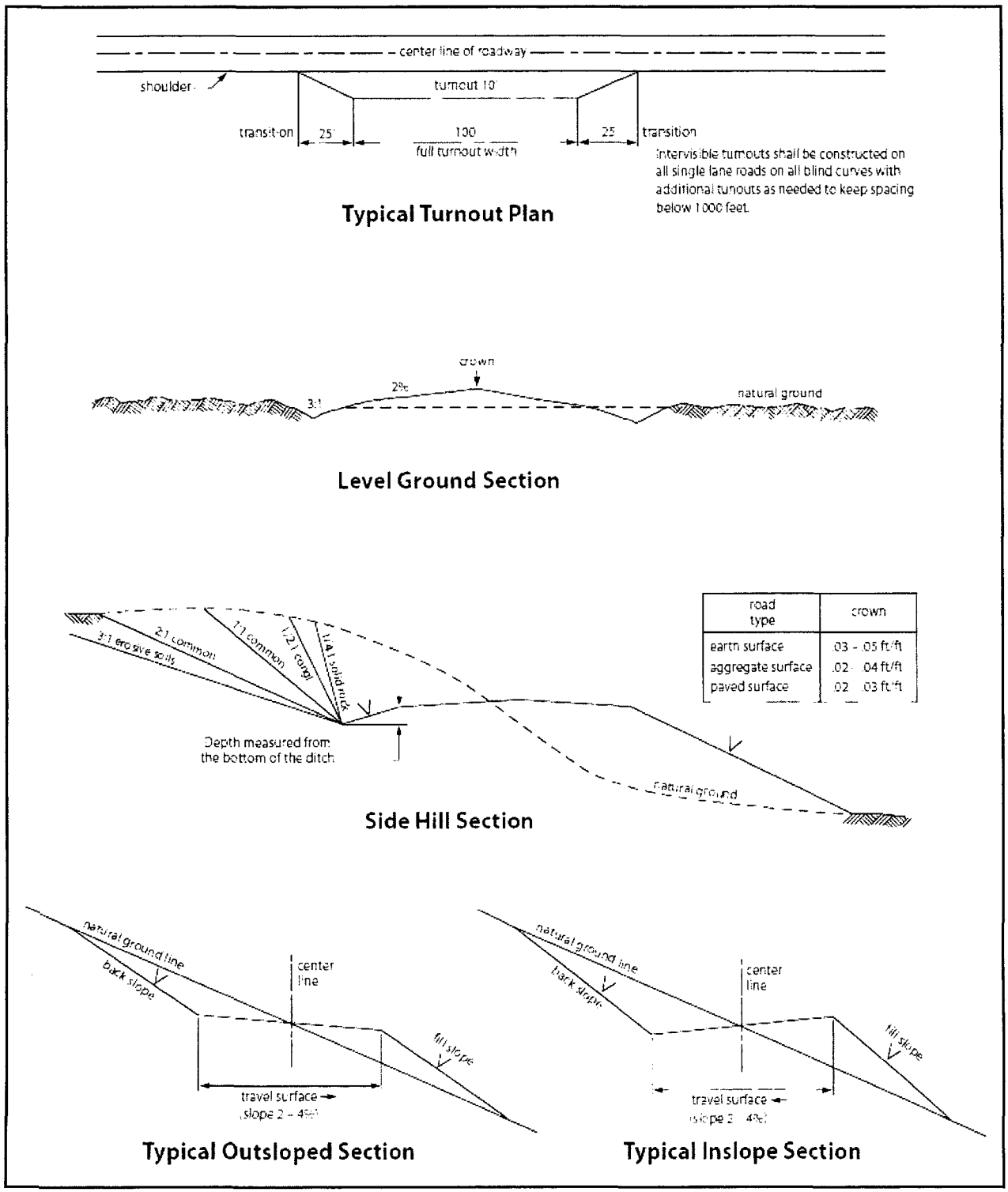



Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

# 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**
STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

**A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review a copy of your permit during construction to ensure compliance with all stipulations.**

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

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.

18. Special Stipulations:

a. **Lesser Prairie-Chicken:** Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted.

## 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).

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery 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 will be tested and the viability testing of seed shall 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 will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/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 will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. 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 Bristlegrass | 5lbs/A |
| Sand Bluestem | 5lbs/A |
| Little Bluestem | 3lbs/A |
| Big Bluestem | 6lbs/A |
| Plains Coreopsis | 2lbs/A |
| Sand Dropseed | 1lbs/A |

*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

08/31/2017

## 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:** Mayte Reyes **Signed on:** 04/10/2017

**Title:** Regulatory Analyst

**Street Address:** 2208 W Main Street

**City:** Artesia **State:** NM **Zip:** 88210

**Phone:** (575)748-6945

**Email address:** Mreyes1@concho.com

## Field Representative

**Representative Name:** Rand French

**Street Address:** 2208 West Main Stret

**City:** Artesia **State:** NM **Zip:** 88210

**Phone:** (575)748-6940

**Email address:** rfrench@concho.com

AFMSS

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

# Application Data Report
08/31/2017

**APD ID:** 10400013237
**Submission Date:** 04/12/2017
**Operator Name:** COG PRODUCTION LLC
**Well Name:** TANKLESS FEDERAL COM
**Well Number:** 2H
**Well Type:** OIL WELL
**Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

## Section 1 - General

**APD ID:** 10400013237
**Tie to previous NOS?**
**Submission Date:** 04/12/2017
**BLM Office:** CARLSBAD
**User:** Mayte Reyes
**Title:** Regulatory Analyst
**Federal/Indian APD:** FED
**Is the first lease penetrated for production Federal or Indian?** FED
**Lease number:** NMNM101601
**Lease Acres:** 640
**Surface access agreement in place?**
**Allotted?**
**Reservation:**
**Agreement in place?** NO
**Federal or Indian agreement:**
**Agreement number:**
**Agreement name:**
**Keep application confidential?** YES
**Permitting Agent?** NO
**APD Operator:** COG PRODUCTION LLC
**Operator letter of designation:**

## Operator Info

**Operator Organization Name:** COG PRODUCTION LLC
**Operator Address:** 2208 West Main Street
**Zip:** 88210
**Operator PO Box:**
**Operator City:** Artesia
**State:** NM
**Operator Phone:** (575)748-6940
**Operator Internet Address:** mreyes1@concho.com

## Section 2 - Well Information

**Well in Master Development Plan?** NO
**Mater Development Plan name:**
**Well in Master SUPO?** NO
**Master SUPO name:**
**Well in Master Drilling Plan?** NO
**Master Drilling Plan name:**
**Well Name:** TANKLESS FEDERAL COM
**Well Number:** 2H
**Well API Number:**
**Field/Pool or Exploratory?** Field and Pool
**Field Name:** LIVINGSTON RIDGE
**Pool Name:** BONE SPRING
**Is the proposed well in an area containing other mineral resources?** USEABLE WATER

**Operator Name:** COG PRODUCTION LLC

**Well Name:** TANKLESS FEDERAL COM **Well Number:** 2H

**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:** SINGLE WELL **Multiple Well Pad Name:** **Number:**

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

**Well Work Type:** Drill

**Well Type:** OIL WELL

**Describe Well Type:**

**Well sub-Type:** EXPLORATORY (WILDCAT)

**Describe sub-type:**

**Distance to town:** 18 Miles **Distance to nearest well:** 856 FT **Distance to lease line:** 190 FT

**Reservoir well spacing assigned acres Measurement:** 240 Acres

**Well plat:** COG_Tankless_2H_C102_04-12-2017.pdf

**Well work start Date:** 08/01/2017 **Duration:** 30 DAYS

## Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

**Datum:** NAD83 **Vertical Datum:** NAVD88

**Survey number:**

| | 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 | 190 | FSL | 560 | FEL | 22S | 31E | 35 | Aliquot SESE | 32.341248 | -103.741869 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 101601 | 3446 | 0 | 0 |
| KOP Leg #1 | 190 | FSL | 560 | FEL | 22S | 31E | 35 | Aliquot SESE | 32.341248 | -103.741869 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 101601 | 3446 | 0 | 0 |
| PPP Leg #1 | 330 | FSL | 380 | FEL | 22S | 31E | 35 | Aliquot SESE | 32.341633 | -103.741286 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 101601 | -6241 | 9687 | 9687 |

**Operator Name:** COG PRODUCTION LLC

**Well Name:** TANKLESS FEDERAL COM **Well Number:** 2H

| | 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 | 2310 | FSL | 380 | FEL | 22S | 31E | 26 | Aliquot NESE | 32.36159 | -103.741296 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 62590 | -6714 | 17200 | 10160 |
| BHL Leg #1 | 2310 | FSL | 380 | FEL | 22S | 31E | 26 | Aliquot NESE | 32.361947 | -103.741296 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 62590 | -6719 | 17512 | 10165 |

# Drilling Plan Data Report
08/31/2017

**APD ID:** 10400013237
**Submission Date:** 04/12/2017
**Operator Name:** COG PRODUCTION LLC
**Well Name:** TANKLESS FEDERAL COM
**Well Number:** 2H
**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 |
|---|---|---|---|---|---|---|---|
| 17318 | UNKNOWN | 0 | 0 | 0 | | NONE | No |
| 17746 | RUSTLER | -665 | 665 | 665 | | NONE | No |
| 17718 | TOP SALT | -763 | 763 | 763 | | NONE | No |
| 17722 | BASE OF SALT | -4216 | 4216 | 4216 | | NONE | No |
| 17719 | LAMAR | -4468 | 4468 | 4468 | | NATURAL GAS,OIL | No |
| 15332 | BELL CANYON | -4516 | 4516 | 4516 | | NATURAL GAS,OIL | No |
| 15316 | CHERRY CANYON | -5380 | 5380 | 5380 | | NATURAL GAS,OIL | No |
| 17713 | BRUSHY CANYON | -6626 | 6626 | 6626 | | NATURAL GAS,OIL | No |
| 17721 | BONE SPRING LIME | -8300 | 8300 | 8300 | | NATURAL GAS,OIL | No |
| 19973 | UPPER AVALON SHALE | -8719 | 8719 | 8719 | | NATURAL GAS,OIL | No |
| 17697 | --- | -9049 | 9049 | 9049 | | NATURAL GAS,OIL | No |
| 15338 | BONE SPRING 1ST | -9425 | 9425 | 9425 | | NONE | No |
| 17737 | BONE SPRING 2ND | -10012 | 10012 | 10012 | | NATURAL GAS,OIL | Yes |
| 17738 | BONE SPRING 3RD | -11157 | 11157 | 11157 | | NATURAL GAS,OIL | No |
| 17709 | WOLFCAMP | -11623 | 11623 | 11623 | | NATURAL GAS,OIL | No |

## Section 2 - Blowout Prevention

**Operator Name:** COG PRODUCTION LLC

**Well Name:** TANKLESS FEDERAL COM **Well Number:** 2H

**Pressure Rating (PSI):** 2M **Rating Depth:** 4495

**Equipment:** Annular. The BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.
**Requesting Variance?** YES

**Variance request:** A variance is requested for the use of a flexible choke line from the BOP to choke manifold. See attached for specs and hydrostatic test chart.
**Testing Procedure:** BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all of the components installed will be functional and tested.

**Choke Diagram Attachment:**

COG_Tankless_2H_2M_Choke_04-10-2017.pdf

**BOP Diagram Attachment:**

COG_Tankless_2H_2M_BOP_04-10-2017.pdf

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**Pressure Rating (PSI):** 3M **Rating Depth:** 10300

**Equipment:** Annular. The BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.
**Requesting Variance?** NO

**Variance request:** A variance is requested for the use of a flexible choke line from the BOP to choke manifold. See attached for specs and hydrostatic test chart.
**Testing Procedure:** BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all of the components installed will be functional and tested.

**Choke Diagram Attachment:**

COG_Tankless_2H_3M_Choke_04-10-2017.pdf

**BOP Diagram Attachment:**

COG_Tankless_2H_3M_BOP_04-10-2017.pdf

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## Section 3 - Casing

| Casing ID | String Type | Hole Size | Csg Size | Condition | Standard | Tapered String | Top Set MD | Bottom Set MD | Top Set TVD | Bottom Set TVD | Top Set MSL | Bottom Set MSL | Calculated casing length MD | Grade | Weight | Joint Type | Collapse SF | Burst SF | Joint SF Type | Joint SF | Body SF Type | Body SF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SURFACE | 17.5 | 13.375 | NEW | API | N | 0 | 690 | 0 | 690 | -6719 | -7669 | 690 | J-55 | 54.5 | STC | 3.58 | 1.42 | DRY | 13.67 | DRY | 13.67 |

**Operator Name:** COG PRODUCTION LLC

**Well Name:** TANKLESS FEDERAL COM **Well Number:** 2H

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | INTERMEDIATE | 12.25 | 9.625 | NEW | API | N | 0 | 4495 | 0 | 4495 | -6719 | -16719 | 4495 | J-55 | 40 | LTC | 1.08 | 1 | DRY | 2.89 | DRY | 2.89 |
| 3 | PRODUCTION | 8.75 | 5.5 | NEW | API | N | 0 | 17512 | 0 | 17512 | -6719 | -24458 | 17512 | P-110 | 17 | LTC | 1.51 | 2.69 | DRY | 2.58 | DRY | 2.58 |

**Casing Attachments**

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

COG_Tankless_2H_Casing_Prog_04-10-2017.pdf

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

COG_Tankless_2H_Casing_Prog_04-10-2017.pdf

**Operator Name:** COG PRODUCTION LLC

**Well Name:** TANKLESS FEDERAL COM **Well Number:** 2H

**Casing Attachments**

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

COG_Tankless_2H_Casing_Prog_04-10-2017.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 | 690 | 220 | 1.75 | 13.5 | 385 | 50 | Class C | 4% Gel + 1% CaCl2 |
| SURFACE | Tail | | 0 | 690 | 250 | 1.34 | 14.8 | 335 | 50 | C | 2% CaCl2 |
| INTERMEDIATE | Lead | | 0 | 4495 | 860 | 2 | 12.7 | 1760 | 50 | 35:65:6 C Blend | No Additives. |
| INTERMEDIATE | Tail | | 0 | 4495 | 250 | 1.34 | 14.8 | 335 | 50 | Class C | No Additives. |
| PRODUCTION | Lead | | 0 | 17512 | 790 | 2.5 | 11.9 | 1975 | 25 | Lead: 50:50:10 H Blend | No additives |
| PRODUCTION | Tail | | 0 | 17512 | 2000 | 1.24 | 14.4 | 2480 | 25 | 50:50:2 Class H Blend | No additives |

**Operator Name:** COG PRODUCTION LLC

**Well Name:** TANKLESS FEDERAL COM **Well Number:** 2H

## 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:** Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times

**Describe the mud monitoring system utilized:** PVT/Pason/Visual Monitoring

### 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 690 | 4495 | OTHER : Saturated Brine | 10 | 10.2 | | | | | | | Saturated Brine |
| 4495 | 17512 | OTHER : CUT BRINE | 8.6 | 9.4 | | | | | | | Cut Brine |
| 0 | 690 | OTHER : Fresh water gel | 8.6 | 8.8 | | | | | | | Fresh water gel |

## Section 6 - Test, Logging, Coring

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

None planned

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

CNL,GR

**Coring operation description for the well:**

None planned

**Operator Name:** COG PRODUCTION LLC

**Well Name:** TANKLESS FEDERAL COM **Well Number:** 2H

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 4970 **Anticipated Surface Pressure:** 2733.7

**Anticipated Bottom Hole Temperature(F):** 160

**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:**

COG_Tankless_2H_H2S_Schem_04-12-2017.pdf
COG_Tankless_2H_H2S_Plan_04-12-2017.pdf

## Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

COG_Tankless_2H_Directional_04-10-2017.pdf

**Other proposed operations facets description:**

None

**Other proposed operations facets attachment:**

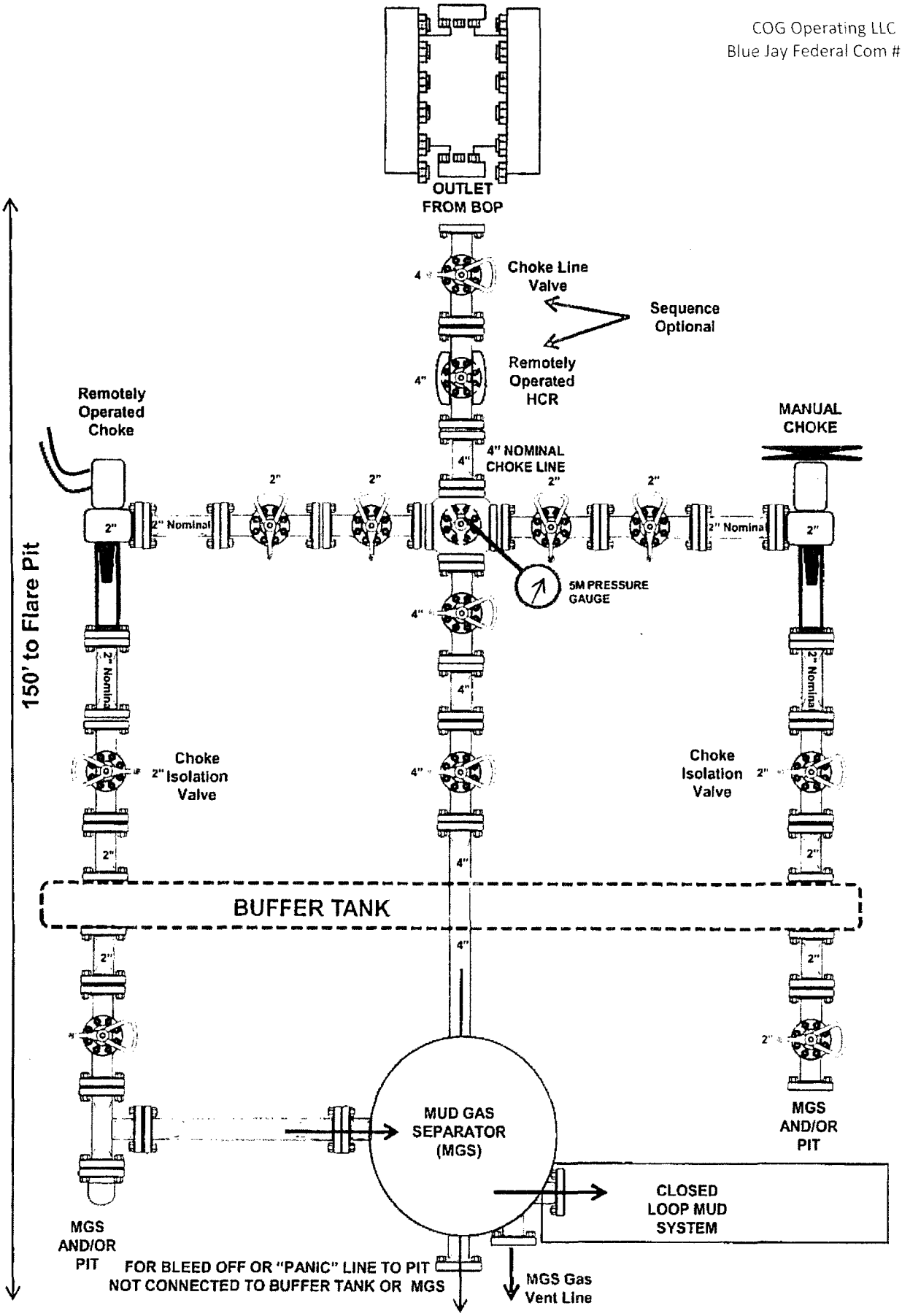
COG_Tankless_2H_Drilling_Prog_04-10-2017.pdf

**Other Variance attachment:**

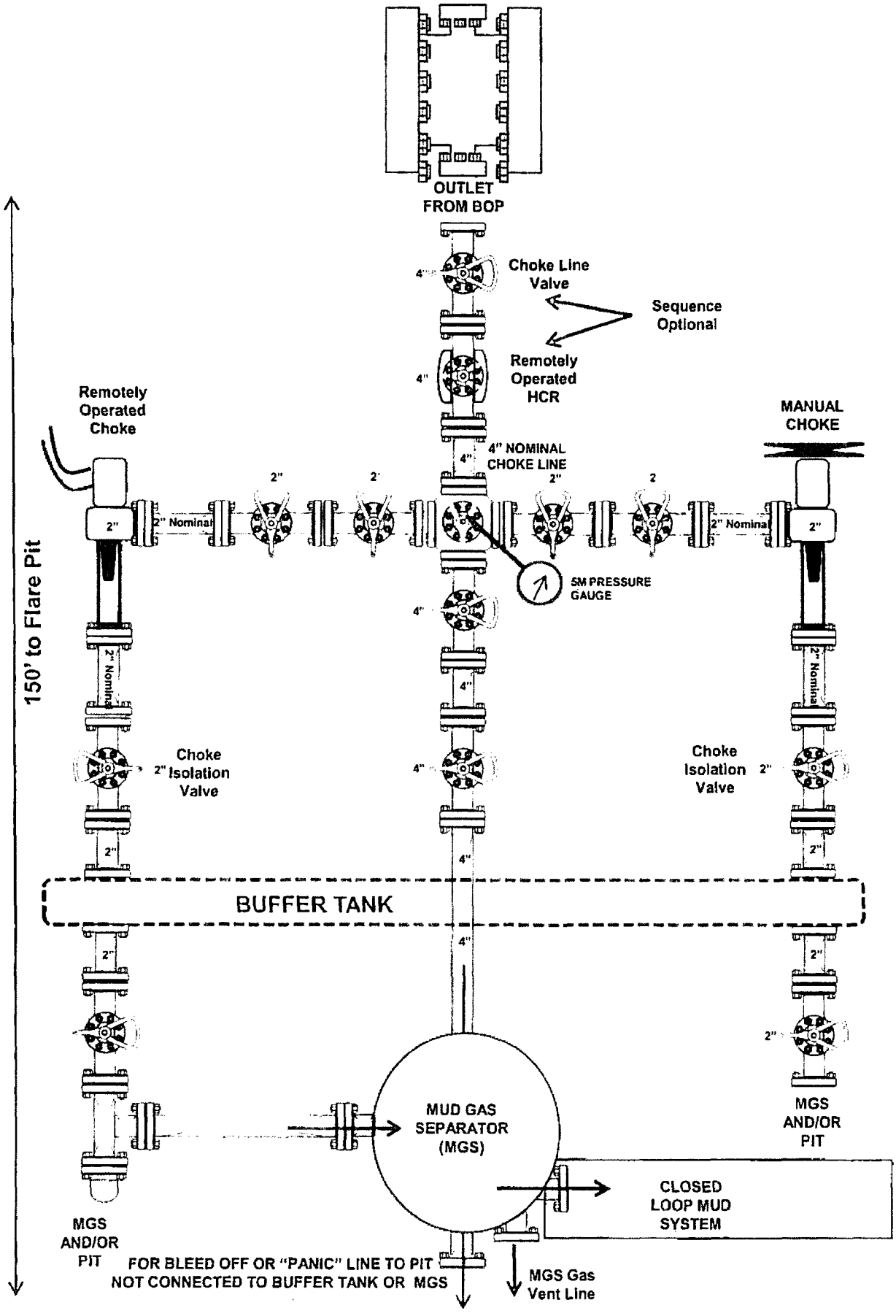
COG_Tankless_2H_Flex_Hose_04-10-2017.pdf

# 2M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)

COG Operating LLC
Blue Jay Federal Com #2H

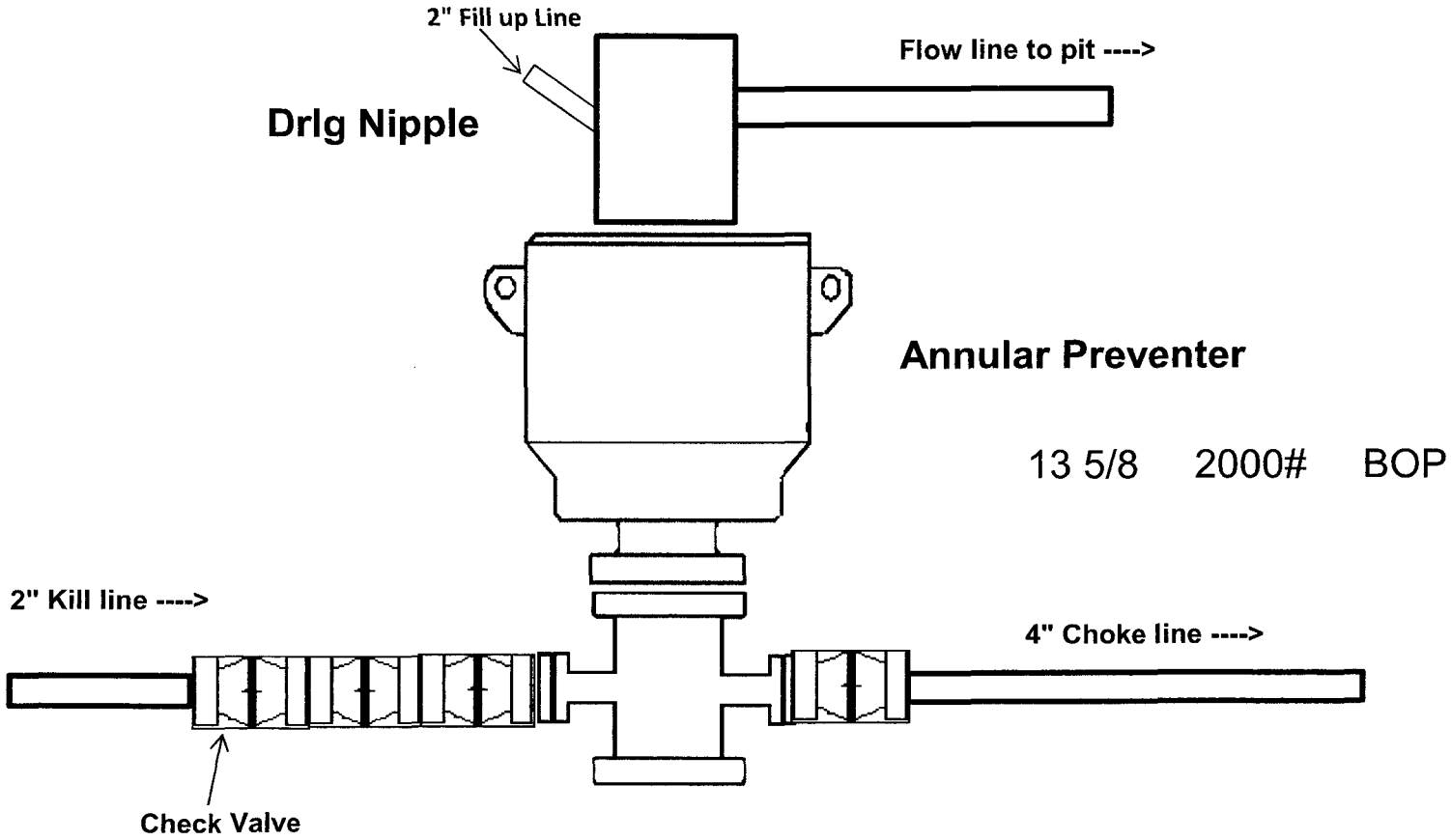


# 3M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)

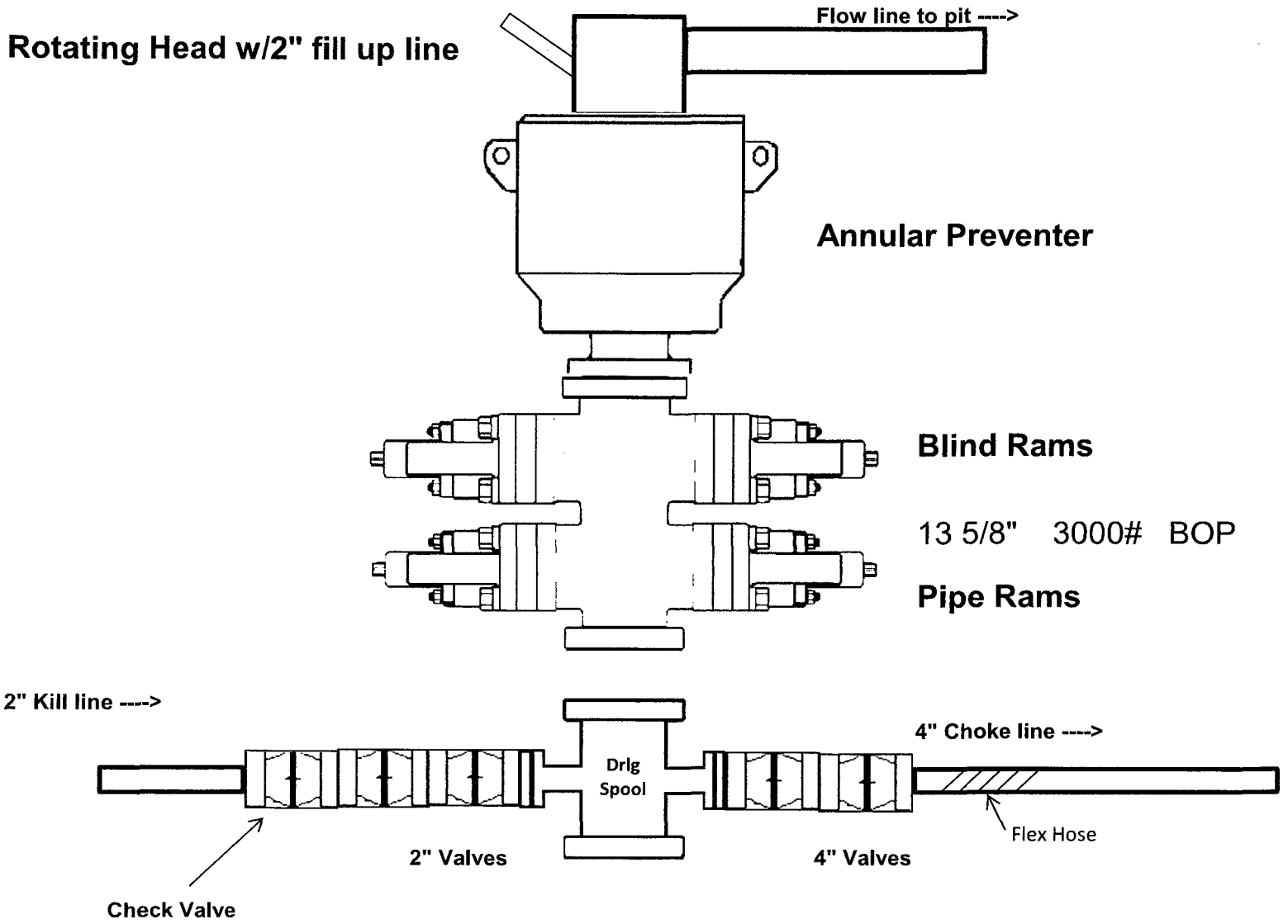


COG Operating LLC
Blue Jay Federal Com #2H

# 2,000 psi BOP Schematic



# 3,000 psi BOP Schematic



**Casing Program**

| Hole Size | Casing From | Casing To | Csg. Size | Weight (lbs) | Grade | Conn. | SF Collapse | SF Burst | SF Tension |
|---|---|---|---|---|---|---|---|---|---|
| 17.5" | 0 | 690 | 13.375" | 54.5 | J55 | STC | 3.58 | 1.42 | 13.67 |
| 12.25" | 0 | 4495 | 9.625" | 40 | J55 | LTC | 1.08 | 1.00 | 2.89 |
| 8.75" | 0 | 17,512 | 5.5" | 17 | P110 | LTC | 1.51 | 2.69 | 2.58 |
| | | | BLM Minimum Safety Factor | | | | 1.125 | 1 | 1.6 Dry<br>1.8 Wet |

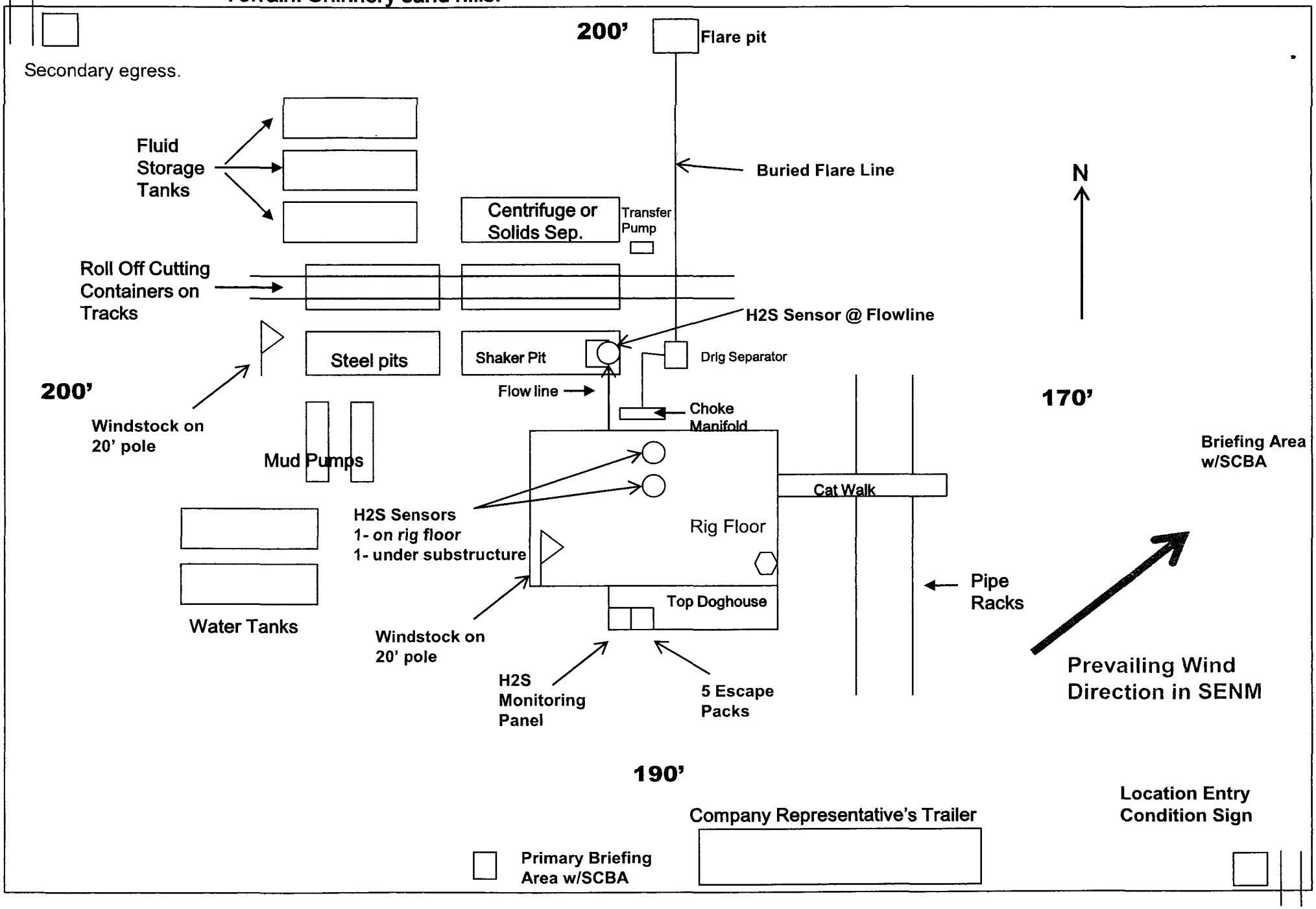
Intermediate casing will be kept at least 1/3 full while running casing.to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

COG PRODUCTION LLC

**$H_2S$ Equipment Schematic**

**Terrain: Shinnery sand hills.**

**Well pad will be 390' x 370' with cellar in center of pad**



**COG PRODUCTION LLC**
**HYDROGEN SULFIDE DRILLING OPERATIONS PLAN**

## 1. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

a. The hazards and characteristics of hydrogen sulfide ($H_2S$).
b. The proper use and maintenance of personal protective equipment and life support systems.
c. The proper use of $H_2S$ detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
d. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

a. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
c. The contents and requirements of the $H_2S$ Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

## 2. $H_2S$ SAFETY EQUIPMENT AND SYSTEMS

Note: All $H_2S$ safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H2S. If H2S greater than 100 ppm is encountered in the gas stream we will shut in and install H2S equipment.

a. Well Control Equipment:
   Flare line.
   Choke manifold with remotely operated choke.
   Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
   Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

b. Protective equipment for essential personnel:
Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

c. H2S detection and monitoring equipment:
2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.

d. Visual warning systems:
Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

e. Mud Program:
The mud program has been designed to minimize the volume of H2S circulated to the surface.

f. Metallurgy:
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

g. Communication:
Company vehicles equipped with cellular telephone.

COG PRODUCTION LLC has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore, we do not believe that an H2S contingency plan is necessary.

# EMERGENCY CALL LIST

| | OFFICE | MOBILE |
|---|---|---|
| COG PRODUCTION LLC OFFICE | 575-748-6940 | |
| SETH WILD | 432-683-7443 | 432-528-3633 |
| WALTER ROYE | 575-748-6940 | 432-934-1886 |

# EMERGENCY RESPONSE NUMBERS

| | OFFICE |
|---|---|
| STATE POLICE | 575-748-9718 |
| EDDY COUNTY SHERIFF | 575-746-2701 |
| EMERGENCY MEDICAL SERVICES (AMBULANCE) | 911 or 575-746-2701 |
| EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS) | 575-887-9511 |
| STATE EMERGENCY RESPONSE CENTER (SERC) | 575-476-9620 |
| CARLSBAD POLICE DEPARTMENT | 575-885-2111 |
| CARLSBAD FIRE DEPARTMENT | 575-885-3125 |
| NEW MEXICO OIL CONSERVATION DIVISION | 575-748-1283 |
| INDIAN FIRE & SAFETY | 800-530-8693 |
| HALLIBURTON SERVICES | 800-844-8451 |

# COG Production LLC

**Eddy County, NM (NAD27)**
**Sec 35, T22A, R31E**
**Tankless Federal Com #2H**

**Wellbore #1**

**Plan: Design #1**

# QES Well Planning Report

**03 April, 2017**

| | | | |
|---|---|---|---|
| **Database:** | EDM5002 | **Local Co-ordinate Reference:** | Well Tankless Federal Com #2H |
| **Company:** | COG Production LLC | **TVD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Project:** | Eddy County, NM (NAD27) | **MD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Site:** | Sec 35, T22A, R31E | **North Reference:** | Grid |
| **Well:** | Tankless Federal Com #2H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Design #1 | | |

| | | | |
|---|---|---|---|
| **Project** | Eddy County, NM (NAD27) | | |
| **Map System:** | US State Plane 1927 (Exact solution) | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | NAD 1927 (NADCON CONUS) | | |
| **Map Zone:** | New Mexico East 3001 | | |

**Site** Sec 35, T22A, R31E

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 488,322.50 usft | **Latitude:** | 32° 20' 28.052 N |
| **From:** | Map | **Easting:** | 682,820.60 usft | **Longitude:** | 103° 44' 28.975 W |
| **Position Uncertainty:** | 0.0 usft | **Slot Radius:** | 13-3/16 " | **Grid Convergence:** | 0.32 ° |

**Well** Tankless Federal Com #2H

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.0 usft | **Northing:** | 488,322.50 usft | **Latitude:** | 32° 20' 28.052 N |
| | **+E/-W** | 0.0 usft | **Easting:** | 682,820.60 usft | **Longitude:** | 103° 44' 28.975 W |
| **Position Uncertainty** | | 0.0 usft | **Wellhead Elevation:** | 0.0 usft | **Ground Level:** | 3,446.0 usft |

**Wellbore** Wellbore #1

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2010 | 3/22/2017 | 6.96 | 60.12 | 48,092 |

**Design** Design #1

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | | **Phase:** | PLAN | **Tie On Depth:** | 0.0 |
| **Vertical Section:** | **Depth From (TVD) (usft)** | **+N/-S (usft)** | **+E/-W (usft)** | **Direction (°)** | |
| | 0.0 | 0.0 | 0.0 | 1.03 | |

**Plan Sections**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 9,687.5 | 0.00 | 0.00 | 9,687.5 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 10,437.8 | 90.04 | 15.20 | 10,165.0 | 461.1 | 125.3 | 12.00 | 12.00 | 0.00 | 15.20 | |
| 10,826.4 | 90.04 | 359.66 | 10,164.7 | 845.2 | 175.4 | 4.00 | 0.00 | -4.00 | -89.99 | |
| 17,512.2 | 90.04 | 359.66 | 10,160.0 | 7,530.9 | 135.6 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL Tankless Feder |

| | | | |
|---|---|---|---|
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| **Project:** | Eddy County, NM (NAD27) | **MD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Site:** | Sec 35, T22A, R31E | **North Reference:** | Grid |
| **Well:** | Tankless Federal Com #2H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Design #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 100.0 | 0.00 | 0.00 | 100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 300.0 | 0.00 | 0.00 | 300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 400.0 | 0.00 | 0.00 | 400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 500.0 | 0.00 | 0.00 | 500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 600.0 | 0.00 | 0.00 | 600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **Rustler** | | | | | | | | | |
| 665.0 | 0.00 | 0.00 | 665.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 700.0 | 0.00 | 0.00 | 700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **TOS** | | | | | | | | | |
| 763.0 | 0.00 | 0.00 | 763.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 800.0 | 0.00 | 0.00 | 800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 900.0 | 0.00 | 0.00 | 900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,000.0 | 0.00 | 0.00 | 1,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,100.0 | 0.00 | 0.00 | 1,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,200.0 | 0.00 | 0.00 | 1,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,300.0 | 0.00 | 0.00 | 1,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,400.0 | 0.00 | 0.00 | 1,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,500.0 | 0.00 | 0.00 | 1,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,600.0 | 0.00 | 0.00 | 1,600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,700.0 | 0.00 | 0.00 | 1,700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,800.0 | 0.00 | 0.00 | 1,800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1,900.0 | 0.00 | 0.00 | 1,900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,000.0 | 0.00 | 0.00 | 2,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,100.0 | 0.00 | 0.00 | 2,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,200.0 | 0.00 | 0.00 | 2,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,300.0 | 0.00 | 0.00 | 2,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,400.0 | 0.00 | 0.00 | 2,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,500.0 | 0.00 | 0.00 | 2,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,600.0 | 0.00 | 0.00 | 2,600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,700.0 | 0.00 | 0.00 | 2,700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,800.0 | 0.00 | 0.00 | 2,800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 2,900.0 | 0.00 | 0.00 | 2,900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,000.0 | 0.00 | 0.00 | 3,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,100.0 | 0.00 | 0.00 | 3,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,200.0 | 0.00 | 0.00 | 3,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,300.0 | 0.00 | 0.00 | 3,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,400.0 | 0.00 | 0.00 | 3,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,500.0 | 0.00 | 0.00 | 3,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,600.0 | 0.00 | 0.00 | 3,600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,700.0 | 0.00 | 0.00 | 3,700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,800.0 | 0.00 | 0.00 | 3,800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 3,900.0 | 0.00 | 0.00 | 3,900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,000.0 | 0.00 | 0.00 | 4,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,100.0 | 0.00 | 0.00 | 4,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,200.0 | 0.00 | 0.00 | 4,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **BOS (Castile)** | | | | | | | | | |
| 4,216.0 | 0.00 | 0.00 | 4,216.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,300.0 | 0.00 | 0.00 | 4,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,400.0 | 0.00 | 0.00 | 4,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **Delaware** | | | | | | | | | |
| 4,468.0 | 0.00 | 0.00 | 4,468.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,500.0 | 0.00 | 0.00 | 4,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |

| | | | |
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| **Project:** | Eddy County, NM (NAD27) | **MD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Site:** | Sec 35, T22A, R31E | **North Reference:** | Grid |
| **Well:** | Tankless Federal Com #2H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Design #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| **Bell Canyon** | | | | | | | | | |
| 4,516.0 | 0.00 | 0.00 | 4,516.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,600.0 | 0.00 | 0.00 | 4,600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,700.0 | 0.00 | 0.00 | 4,700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,800.0 | 0.00 | 0.00 | 4,800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 4,900.0 | 0.00 | 0.00 | 4,900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,000.0 | 0.00 | 0.00 | 5,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,100.0 | 0.00 | 0.00 | 5,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,200.0 | 0.00 | 0.00 | 5,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,300.0 | 0.00 | 0.00 | 5,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **Cherry Canyon** | | | | | | | | | |
| 5,380.0 | 0.00 | 0.00 | 5,380.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,400.0 | 0.00 | 0.00 | 5,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,500.0 | 0.00 | 0.00 | 5,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,600.0 | 0.00 | 0.00 | 5,600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,700.0 | 0.00 | 0.00 | 5,700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,800.0 | 0.00 | 0.00 | 5,800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,900.0 | 0.00 | 0.00 | 5,900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,000.0 | 0.00 | 0.00 | 6,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,100.0 | 0.00 | 0.00 | 6,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,200.0 | 0.00 | 0.00 | 6,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,300.0 | 0.00 | 0.00 | 6,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,400.0 | 0.00 | 0.00 | 6,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,500.0 | 0.00 | 0.00 | 6,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,600.0 | 0.00 | 0.00 | 6,600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **Brushy Canyon** | | | | | | | | | |
| 6,626.0 | 0.00 | 0.00 | 6,626.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,700.0 | 0.00 | 0.00 | 6,700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,800.0 | 0.00 | 0.00 | 6,800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 6,900.0 | 0.00 | 0.00 | 6,900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,000.0 | 0.00 | 0.00 | 7,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,100.0 | 0.00 | 0.00 | 7,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,200.0 | 0.00 | 0.00 | 7,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,300.0 | 0.00 | 0.00 | 7,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,400.0 | 0.00 | 0.00 | 7,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,500.0 | 0.00 | 0.00 | 7,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,600.0 | 0.00 | 0.00 | 7,600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,700.0 | 0.00 | 0.00 | 7,700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,800.0 | 0.00 | 0.00 | 7,800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 7,900.0 | 0.00 | 0.00 | 7,900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 8,000.0 | 0.00 | 0.00 | 8,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 8,100.0 | 0.00 | 0.00 | 8,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 8,200.0 | 0.00 | 0.00 | 8,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **Bone Sprg (BGSL)** | | | | | | | | | |
| 8,300.0 | 0.00 | 0.00 | 8,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 8,400.0 | 0.00 | 0.00 | 8,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 8,500.0 | 0.00 | 0.00 | 8,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 8,600.0 | 0.00 | 0.00 | 8,600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 8,700.0 | 0.00 | 0.00 | 8,700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **U Avalon Sh** | | | | | | | | | |
| 8,719.0 | 0.00 | 0.00 | 8,719.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 8,800.0 | 0.00 | 0.00 | 8,800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 8,900.0 | 0.00 | 0.00 | 8,900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
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| **Site:** | Sec 35, T22A, R31E | **North Reference:** | Grid |
| **Well:** | Tankless Federal Com #2H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Design #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 9,000.0 | 0.00 | 0.00 | 9,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **L Avalon Sh** | | | | | | | | | |
| 9,049.0 | 0.00 | 0.00 | 9,049.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 9,100.0 | 0.00 | 0.00 | 9,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 9,200.0 | 0.00 | 0.00 | 9,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 9,300.0 | 0.00 | 0.00 | 9,300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 9,400.0 | 0.00 | 0.00 | 9,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **FBSG** | | | | | | | | | |
| 9,425.0 | 0.00 | 0.00 | 9,425.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 9,500.0 | 0.00 | 0.00 | 9,500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 9,600.0 | 0.00 | 0.00 | 9,600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| **KOP: Build 12°/100' @ 9687.5' MD** | | | | | | | | | |
| 9,687.5 | 0.00 | 0.00 | 9,687.5 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 9,700.0 | 1.50 | 15.20 | 9,700.0 | 0.2 | 0.0 | 0.2 | 12.00 | 12.00 | 0.00 |
| 9,725.0 | 4.50 | 15.20 | 9,725.0 | 1.4 | 0.4 | 1.4 | 12.00 | 12.00 | 0.00 |
| 9,750.0 | 7.50 | 15.20 | 9,749.8 | 3.9 | 1.1 | 4.0 | 12.00 | 12.00 | 0.00 |
| 9,775.0 | 10.50 | 15.20 | 9,774.5 | 7.7 | 2.1 | 7.8 | 12.00 | 12.00 | 0.00 |
| 9,800.0 | 13.50 | 15.20 | 9,799.0 | 12.7 | 3.5 | 12.8 | 12.00 | 12.00 | 0.00 |
| 9,825.0 | 16.50 | 15.20 | 9,823.1 | 19.0 | 5.2 | 19.1 | 12.00 | 12.00 | 0.00 |
| 9,850.0 | 19.50 | 15.20 | 9,846.9 | 26.4 | 7.2 | 26.6 | 12.00 | 12.00 | 0.00 |
| 9,875.0 | 22.50 | 15.20 | 9,870.2 | 35.1 | 9.5 | 35.2 | 12.00 | 12.00 | 0.00 |
| 9,900.0 | 25.50 | 15.20 | 9,893.1 | 44.9 | 12.2 | 45.1 | 12.00 | 12.00 | 0.00 |
| 9,925.0 | 28.50 | 15.20 | 9,915.3 | 55.8 | 15.2 | 56.1 | 12.00 | 12.00 | 0.00 |
| 9,950.0 | 31.50 | 15.20 | 9,937.0 | 67.9 | 18.4 | 68.2 | 12.00 | 12.00 | 0.00 |
| 9,975.0 | 34.50 | 15.20 | 9,957.9 | 81.0 | 22.0 | 81.4 | 12.00 | 12.00 | 0.00 |
| 10,000.0 | 37.50 | 15.20 | 9,978.2 | 95.2 | 25.9 | 95.7 | 12.00 | 12.00 | 0.00 |
| 10,025.0 | 40.50 | 15.20 | 9,997.6 | 110.4 | 30.0 | 110.9 | 12.00 | 12.00 | 0.00 |
| **SBSG** | | | | | | | | | |
| 10,044.3 | 42.81 | 15.20 | 10,012.0 | 122.8 | 33.4 | 123.3 | 12.00 | 12.00 | 0.00 |
| 10,050.0 | 43.50 | 15.20 | 10,016.2 | 126.5 | 34.4 | 127.1 | 12.00 | 12.00 | 0.00 |
| 10,075.0 | 46.50 | 15.20 | 10,033.8 | 143.6 | 39.0 | 144.3 | 12.00 | 12.00 | 0.00 |
| 10,100.0 | 49.50 | 15.20 | 10,050.6 | 161.5 | 43.9 | 162.3 | 12.00 | 12.00 | 0.00 |
| 10,125.0 | 52.50 | 15.20 | 10,066.3 | 180.3 | 49.0 | 181.1 | 12.00 | 12.00 | 0.00 |
| 10,150.0 | 55.50 | 15.20 | 10,081.0 | 199.8 | 54.3 | 200.7 | 12.00 | 12.00 | 0.00 |
| 10,175.0 | 58.50 | 15.20 | 10,094.6 | 220.0 | 59.8 | 221.1 | 12.00 | 12.00 | 0.00 |
| 10,200.0 | 61.50 | 15.20 | 10,107.1 | 240.9 | 65.5 | 242.0 | 12.00 | 12.00 | 0.00 |
| 10,225.0 | 64.50 | 15.20 | 10,118.5 | 262.4 | 71.3 | 263.6 | 12.00 | 12.00 | 0.00 |
| 10,250.0 | 67.50 | 15.20 | 10,128.6 | 284.4 | 77.3 | 285.8 | 12.00 | 12.00 | 0.00 |
| 10,275.0 | 70.50 | 15.20 | 10,137.6 | 307.0 | 83.4 | 308.4 | 12.00 | 12.00 | 0.00 |
| 10,300.0 | 73.50 | 15.20 | 10,145.3 | 329.9 | 89.6 | 331.5 | 12.00 | 12.00 | 0.00 |
| 10,325.0 | 76.50 | 15.20 | 10,151.8 | 353.2 | 96.0 | 354.9 | 12.00 | 12.00 | 0.00 |
| 10,350.0 | 79.50 | 15.20 | 10,157.0 | 376.8 | 102.4 | 378.6 | 12.00 | 12.00 | 0.00 |
| 10,375.0 | 82.50 | 15.20 | 10,160.9 | 400.6 | 108.8 | 402.5 | 12.00 | 12.00 | 0.00 |
| 10,400.0 | 85.50 | 15.20 | 10,163.5 | 424.6 | 115.4 | 426.6 | 12.00 | 12.00 | 0.00 |
| 10,425.0 | 88.50 | 15.20 | 10,164.8 | 448.7 | 121.9 | 450.8 | 12.00 | 12.00 | 0.00 |
| **EOC: 10437.8' MD, 90.04° Inc, 15.20° Azm / Turn 4°/100'** | | | | | | | | | |
| 10,437.8 | 90.04 | 15.20 | 10,165.0 | 461.1 | 125.3 | 463.3 | 12.00 | 12.00 | 0.00 |
| 10,500.0 | 90.04 | 12.71 | 10,164.9 | 521.4 | 140.3 | 523.9 | 4.00 | 0.00 | -4.00 |
| 10,600.0 | 90.04 | 8.71 | 10,164.9 | 619.6 | 158.9 | 622.4 | 4.00 | 0.00 | -4.00 |
| 10,700.0 | 90.04 | 4.71 | 10,164.8 | 718.9 | 170.5 | 721.9 | 4.00 | 0.00 | -4.00 |
| 10,800.0 | 90.04 | 0.71 | 10,164.7 | 818.8 | 175.3 | 821.8 | 4.00 | 0.00 | -4.00 |
| **EOT: 10826.4' MD, 90.04° Inc, 359.66° Azm** | | | | | | | | | |
| 10,826.4 | 90.04 | 359.66 | 10,164.7 | 845.2 | 175.4 | 848.2 | 4.00 | 0.00 | -4.00 |

| | | | |
|---|---|---|---|
| **Database:** | EDM5002 | **Local Co-ordinate Reference:** | Well Tankless Federal Com #2H |
| **Company:** | COG Production LLC | **TVD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Project:** | Eddy County, NM (NAD27) | **MD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Site:** | Sec 35, T22A, R31E | **North Reference:** | Grid |
| **Well:** | Tankless Federal Com #2H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Design #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 10,900.0 | 90.04 | 359.66 | 10,164.6 | 918.8 | 174.9 | 921.8 | 0.00 | 0.00 | 0.00 |
| 11,000.0 | 90.04 | 359.66 | 10,164.6 | 1,018.8 | 174.3 | 1,021.8 | 0.00 | 0.00 | 0.00 |
| 11,100.0 | 90.04 | 359.66 | 10,164.5 | 1,118.8 | 173.7 | 1,121.7 | 0.00 | 0.00 | 0.00 |
| 11,200.0 | 90.04 | 359.66 | 10,164.4 | 1,218.8 | 173.1 | 1,221.7 | 0.00 | 0.00 | 0.00 |
| 11,300.0 | 90.04 | 359.66 | 10,164.4 | 1,318.8 | 172.5 | 1,321.7 | 0.00 | 0.00 | 0.00 |
| 11,400.0 | 90.04 | 359.66 | 10,164.3 | 1,418.8 | 171.9 | 1,421.7 | 0.00 | 0.00 | 0.00 |
| 11,500.0 | 90.04 | 359.66 | 10,164.2 | 1,518.8 | 171.4 | 1,521.6 | 0.00 | 0.00 | 0.00 |
| 11,600.0 | 90.04 | 359.66 | 10,164.1 | 1,618.8 | 170.8 | 1,621.6 | 0.00 | 0.00 | 0.00 |
| 11,700.0 | 90.04 | 359.66 | 10,164.1 | 1,718.8 | 170.2 | 1,721.6 | 0.00 | 0.00 | 0.00 |
| 11,800.0 | 90.04 | 359.66 | 10,164.0 | 1,818.8 | 169.6 | 1,821.5 | 0.00 | 0.00 | 0.00 |
| 11,900.0 | 90.04 | 359.66 | 10,163.9 | 1,918.8 | 169.0 | 1,921.5 | 0.00 | 0.00 | 0.00 |
| 12,000.0 | 90.04 | 359.66 | 10,163.9 | 2,018.8 | 168.4 | 2,021.5 | 0.00 | 0.00 | 0.00 |
| 12,100.0 | 90.04 | 359.66 | 10,163.8 | 2,118.8 | 167.8 | 2,121.5 | 0.00 | 0.00 | 0.00 |
| 12,200.0 | 90.04 | 359.66 | 10,163.7 | 2,218.8 | 167.2 | 2,221.4 | 0.00 | 0.00 | 0.00 |
| 12,300.0 | 90.04 | 359.66 | 10,163.7 | 2,318.8 | 166.6 | 2,321.4 | 0.00 | 0.00 | 0.00 |
| 12,400.0 | 90.04 | 359.66 | 10,163.6 | 2,418.8 | 166.0 | 2,421.4 | 0.00 | 0.00 | 0.00 |
| 12,500.0 | 90.04 | 359.66 | 10,163.5 | 2,518.8 | 165.4 | 2,521.3 | 0.00 | 0.00 | 0.00 |
| 12,600.0 | 90.04 | 359.66 | 10,163.4 | 2,618.8 | 164.8 | 2,621.3 | 0.00 | 0.00 | 0.00 |
| 12,700.0 | 90.04 | 359.66 | 10,163.4 | 2,718.8 | 164.2 | 2,721.3 | 0.00 | 0.00 | 0.00 |
| 12,800.0 | 90.04 | 359.66 | 10,163.3 | 2,818.8 | 163.6 | 2,821.3 | 0.00 | 0.00 | 0.00 |
| 12,900.0 | 90.04 | 359.66 | 10,163.2 | 2,918.8 | 163.0 | 2,921.2 | 0.00 | 0.00 | 0.00 |
| 13,000.0 | 90.04 | 359.66 | 10,163.2 | 3,018.8 | 162.4 | 3,021.2 | 0.00 | 0.00 | 0.00 |
| 13,100.0 | 90.04 | 359.66 | 10,163.1 | 3,118.8 | 161.8 | 3,121.2 | 0.00 | 0.00 | 0.00 |
| 13,200.0 | 90.04 | 359.66 | 10,163.0 | 3,218.8 | 161.2 | 3,221.1 | 0.00 | 0.00 | 0.00 |
| 13,300.0 | 90.04 | 359.66 | 10,163.0 | 3,318.8 | 160.6 | 3,321.1 | 0.00 | 0.00 | 0.00 |
| 13,400.0 | 90.04 | 359.66 | 10,162.9 | 3,418.8 | 160.1 | 3,421.1 | 0.00 | 0.00 | 0.00 |
| 13,500.0 | 90.04 | 359.66 | 10,162.8 | 3,518.8 | 159.5 | 3,521.1 | 0.00 | 0.00 | 0.00 |
| 13,600.0 | 90.04 | 359.66 | 10,162.7 | 3,618.8 | 158.9 | 3,621.0 | 0.00 | 0.00 | 0.00 |
| 13,700.0 | 90.04 | 359.66 | 10,162.7 | 3,718.8 | 158.3 | 3,721.0 | 0.00 | 0.00 | 0.00 |
| 13,800.0 | 90.04 | 359.66 | 10,162.6 | 3,818.8 | 157.7 | 3,821.0 | 0.00 | 0.00 | 0.00 |
| 13,900.0 | 90.04 | 359.66 | 10,162.5 | 3,918.8 | 157.1 | 3,920.9 | 0.00 | 0.00 | 0.00 |
| 14,000.0 | 90.04 | 359.66 | 10,162.5 | 4,018.8 | 156.5 | 4,020.9 | 0.00 | 0.00 | 0.00 |
| 14,100.0 | 90.04 | 359.66 | 10,162.4 | 4,118.7 | 155.9 | 4,120.9 | 0.00 | 0.00 | 0.00 |
| 14,200.0 | 90.04 | 359.66 | 10,162.3 | 4,218.7 | 155.3 | 4,220.9 | 0.00 | 0.00 | 0.00 |
| 14,300.0 | 90.04 | 359.66 | 10,162.3 | 4,318.7 | 154.7 | 4,320.8 | 0.00 | 0.00 | 0.00 |
| 14,400.0 | 90.04 | 359.66 | 10,162.2 | 4,418.7 | 154.1 | 4,420.8 | 0.00 | 0.00 | 0.00 |
| 14,500.0 | 90.04 | 359.66 | 10,162.1 | 4,518.7 | 153.5 | 4,520.8 | 0.00 | 0.00 | 0.00 |
| 14,600.0 | 90.04 | 359.66 | 10,162.0 | 4,618.7 | 152.9 | 4,620.7 | 0.00 | 0.00 | 0.00 |
| 14,700.0 | 90.04 | 359.66 | 10,162.0 | 4,718.7 | 152.3 | 4,720.7 | 0.00 | 0.00 | 0.00 |
| 14,800.0 | 90.04 | 359.66 | 10,161.9 | 4,818.7 | 151.7 | 4,820.7 | 0.00 | 0.00 | 0.00 |
| 14,900.0 | 90.04 | 359.66 | 10,161.8 | 4,918.7 | 151.1 | 4,920.7 | 0.00 | 0.00 | 0.00 |
| 15,000.0 | 90.04 | 359.66 | 10,161.8 | 5,018.7 | 150.5 | 5,020.6 | 0.00 | 0.00 | 0.00 |
| 15,100.0 | 90.04 | 359.66 | 10,161.7 | 5,118.7 | 149.9 | 5,120.6 | 0.00 | 0.00 | 0.00 |
| 15,200.0 | 90.04 | 359.66 | 10,161.6 | 5,218.7 | 149.3 | 5,220.6 | 0.00 | 0.00 | 0.00 |
| 15,300.0 | 90.04 | 359.66 | 10,161.6 | 5,318.7 | 148.8 | 5,320.5 | 0.00 | 0.00 | 0.00 |
| 15,400.0 | 90.04 | 359.66 | 10,161.5 | 5,418.7 | 148.2 | 5,420.5 | 0.00 | 0.00 | 0.00 |
| 15,500.0 | 90.04 | 359.66 | 10,161.4 | 5,518.7 | 147.6 | 5,520.5 | 0.00 | 0.00 | 0.00 |
| 15,600.0 | 90.04 | 359.66 | 10,161.3 | 5,618.7 | 147.0 | 5,620.5 | 0.00 | 0.00 | 0.00 |
| 15,700.0 | 90.04 | 359.66 | 10,161.3 | 5,718.7 | 146.4 | 5,720.4 | 0.00 | 0.00 | 0.00 |
| 15,800.0 | 90.04 | 359.66 | 10,161.2 | 5,818.7 | 145.8 | 5,820.4 | 0.00 | 0.00 | 0.00 |
| 15,900.0 | 90.04 | 359.66 | 10,161.1 | 5,918.7 | 145.2 | 5,920.4 | 0.00 | 0.00 | 0.00 |
| 16,000.0 | 90.04 | 359.66 | 10,161.1 | 6,018.7 | 144.6 | 6,020.3 | 0.00 | 0.00 | 0.00 |
| 16,100.0 | 90.04 | 359.66 | 10,161.0 | 6,118.7 | 144.0 | 6,120.3 | 0.00 | 0.00 | 0.00 |
| 16,200.0 | 90.04 | 359.66 | 10,160.9 | 6,218.7 | 143.4 | 6,220.3 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
| **Database:** | EDM5002 | **Local Co-ordinate Reference:** | Well Tankless Federal Com #2H |
| **Company:** | COG Production LLC | **TVD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Project:** | Eddy County, NM (NAD27) | **MD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Site:** | Sec 35, T22A, R31E | **North Reference:** | Grid |
| **Well:** | Tankless Federal Com #2H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Design #1 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 16,300.0 | 90.04 | 359.66 | 10,160.9 | 6,318.7 | 142.8 | 6,320.3 | 0.00 | 0.00 | 0.00 |
| 16,400.0 | 90.04 | 359.66 | 10,160.8 | 6,418.7 | 142.2 | 6,420.2 | 0.00 | 0.00 | 0.00 |
| 16,500.0 | 90.04 | 359.66 | 10,160.7 | 6,518.7 | 141.6 | 6,520.2 | 0.00 | 0.00 | 0.00 |
| 16,600.0 | 90.04 | 359.66 | 10,160.6 | 6,618.7 | 141.0 | 6,620.2 | 0.00 | 0.00 | 0.00 |
| 16,700.0 | 90.04 | 359.66 | 10,160.6 | 6,718.7 | 140.4 | 6,720.1 | 0.00 | 0.00 | 0.00 |
| 16,800.0 | 90.04 | 359.66 | 10,160.5 | 6,818.7 | 139.8 | 6,820.1 | 0.00 | 0.00 | 0.00 |
| 16,900.0 | 90.04 | 359.66 | 10,160.4 | 6,918.7 | 139.2 | 6,920.1 | 0.00 | 0.00 | 0.00 |
| 17,000.0 | 90.04 | 359.66 | 10,160.4 | 7,018.7 | 138.6 | 7,020.1 | 0.00 | 0.00 | 0.00 |
| 17,100.0 | 90.04 | 359.66 | 10,160.3 | 7,118.7 | 138.1 | 7,120.0 | 0.00 | 0.00 | 0.00 |
| 17,200.0 | 90.04 | 359.66 | 10,160.2 | 7,218.7 | 137.5 | 7,220.0 | 0.00 | 0.00 | 0.00 |
| 17,300.0 | 90.04 | 359.66 | 10,160.1 | 7,318.7 | 136.9 | 7,320.0 | 0.00 | 0.00 | 0.00 |
| 17,400.0 | 90.04 | 359.66 | 10,160.1 | 7,418.7 | 136.3 | 7,419.9 | 0.00 | 0.00 | 0.00 |
| 17,500.0 | 90.04 | 359.66 | 10,160.0 | 7,518.7 | 135.7 | 7,519.9 | 0.00 | 0.00 | 0.00 |
| **TD @ 17512.2' MD/10160.0' TVD** | | | | | | | | | |
| 17,512.2 | 90.04 | 359.66 | 10,160.0 | 7,530.9 | 135.6 | 7,532.1 | 0.00 | 0.00 | 0.00 |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| LTP Tankless Federal C<br>- plan misses target center by 7402.7usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)<br>- Point | 0.00 | 0.00 | 0.0 | 7,401.4 | 136.4 | 495,723.90 | 682,956.96 | 32° 21' 41.286 N | 103° 44' 26.908 W |
| FTP Tankless Federal C<br>- plan misses target center by 227.9usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)<br>- Point | 0.00 | 0.00 | 0.0 | 140.8 | 179.3 | 488,463.31 | 682,999.85 | 32° 20' 29.435 N | 103° 44' 26.876 W |
| PBHL Tankless Federal<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 10,160.0 | 7,530.9 | 135.6 | 495,853.40 | 682,956.20 | 32° 21' 42.567 N | 103° 44' 26.908 W |

**Formations**

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 665.0 | 665.0 | Rustler | | -0.04 | 1.03 |
| 763.0 | 763.0 | TOS | | -0.04 | 1.03 |
| 4,216.0 | 4,216.0 | BOS (Castile) | | -0.04 | 1.03 |
| 4,468.0 | 4,468.0 | Delaware | | -0.04 | 1.03 |
| 4,516.0 | 4,516.0 | Bell Canyon | | -0.04 | 1.03 |
| 5,380.0 | 5,380.0 | Cherry Canyon | | -0.04 | 1.03 |
| 6,626.0 | 6,626.0 | Brushy Canyon | | -0.04 | 1.03 |
| 8,300.0 | 8,300.0 | Bone Sprg (BGSL) | | -0.04 | 1.03 |
| 8,719.0 | 8,719.0 | U Avalon Sh | | -0.04 | 1.03 |
| 9,049.0 | 9,049.0 | L Avalon Sh | | -0.04 | 1.03 |
| 9,425.0 | 9,425.0 | FBSG | | -0.04 | 1.03 |
| 10,044.3 | 10,012.0 | SBSG | | -0.04 | 1.03 |

| | | | |
|---|---|---|---|
| **Database:** | EDM5002 | **Local Co-ordinate Reference:** | Well Tankless Federal Com #2H |
| **Company:** | COG Production LLC | **TVD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Project:** | Eddy County, NM (NAD27) | **MD Reference:** | KB @ 3475.0usft (Noram #21) |
| **Site:** | Sec 35, T22A, R31E | **North Reference:** | Grid |
| **Well:** | Tankless Federal Com #2H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Design #1 | | |

**Plan Annotations**

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | Local Coordinates +E/-W (usft) | Comment |
|---|---|---|---|---|
| 9,687.5 | 9,687.5 | 0.0 | 0.0 | KOP: Build 12°/100' @ 9687.5' MD |
| 10,437.8 | 10,165.0 | 461.1 | 125.3 | EOC: 10437.8' MD, 90.04° Inc, 15.20° Azm / Turn 4°/100' |
| 10,826.4 | 10,164.7 | 845.2 | 175.4 | EOT: 10826.4' MD, 90.04° Inc, 359.66° Azm |
| 17,512.2 | 10,160.0 | 7,530.9 | 135.6 | TD @ 17512.2' MD/10160.0' TVD |

Company Name: COG Production LLC
Tankless Federal Com #2H
Eddy County, NM (NAD27)
Rig: Noram #21
Created By: Shelly Cale Peterkin
Date: 3/22/2017

**WELL DETAILS: Tankless Federal Com #2H**

| +N/-S | +E/-W | Northing | Ground Level Easting | 3446.0 Latitude | Longitude | Slot |
|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 488322.90 | 582620.66 | 32° 20' 28.052 N | 103° 44' 26.975 W | |

**PROJECT DETAILS: Eddy County, NM (NAD27)**

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

Tankless Federal Com #2H
Eddy County, NM (NAD27)
Q170*** & WT-170***
Design #1

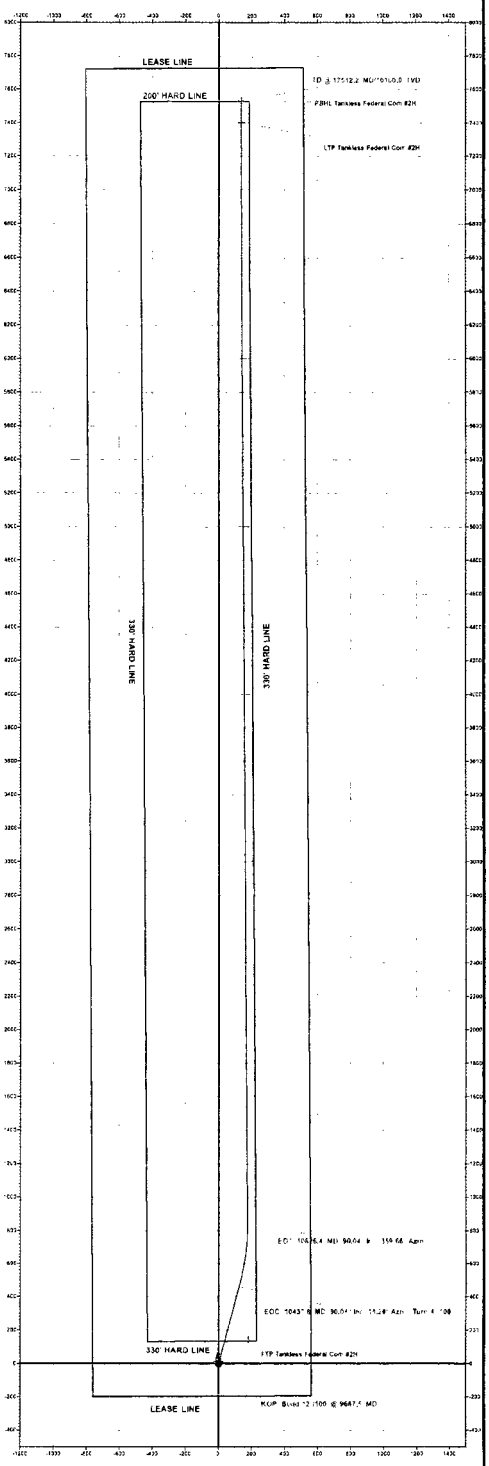
CONCHO

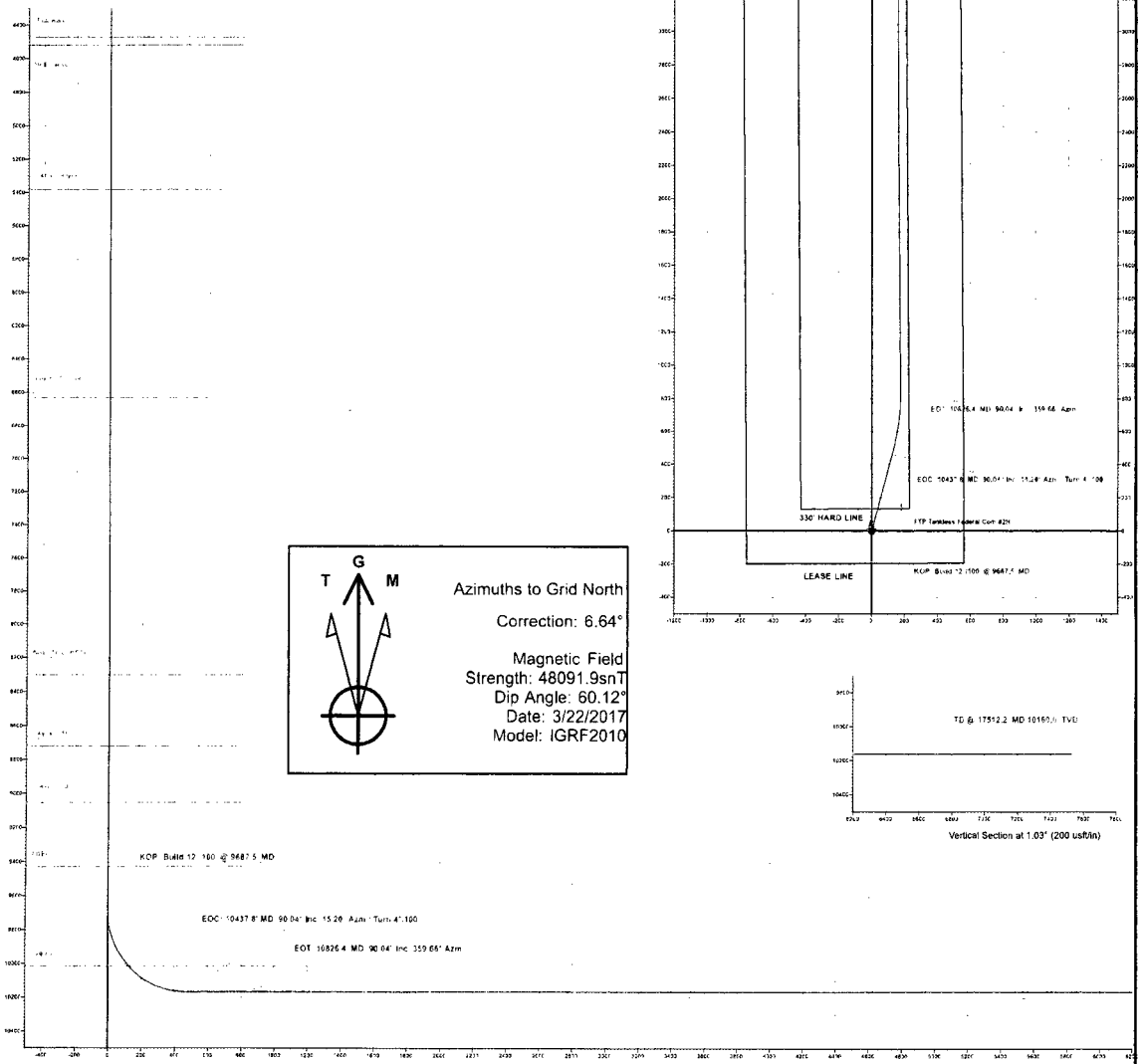
**ANNOTATIONS**

| MD | Inc | Azi | TVD | +N/-S | +E/-W | VSect | Departure | Annotation |
|---|---|---|---|---|---|---|---|---|
| 9687.5 | 0.00 | 0.00 | 9687.5 | 0.0 | 0.0 | 0.0 | 0.0 | KOP: Build 12°/100' @ 9687.5' MD |
| 10437.8 | 90.04 | 15.20 | 10165.0 | 461.1 | 125.2 | 463.3 | 477.8 | EOC: 10437.8' MD, 90.04° Inc, 15.20° Azm / Turn 4°/100' |
| 10826.4 | 90.04 | 359.66 | 10164.7 | 845.2 | 175.4 | 848.2 | 866.3 | EOT: 10826.4' MD, 90.04° Inc, 359.66° Azm |
| 17512.2 | 90.04 | 359.66 | 10169.0 | 7530.8 | 135.6 | 7532.1 | 7552.2 | TD @ 17512.2' MD/10169.0' TVD |

**DESIGN TARGET DETAILS**

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---|---|---|---|---|---|---|
| FTP Tankless Federal Com #2H | 0.0 | 148.8 | 179.3 | 488463.31 | 582999.85 | 32° 20' 29.435 N | 103° 44' 26.876 W |
| - plan misses target center by 227.5usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E) | | | | | | | |
| LTP Tankless Federal Com #2H | 0.0 | 7401.4 | 136.4 | 495723.90 | 582956.96 | 32° 21' 41.286 N | 103° 44' 26.808 W |
| - plan misses target center by 7402.7usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E) | | | | | | | |
| PBHL Tankless Federal Com #2H | 10160.0 | 7530.9 | 135.6 | 495853.40 | 582956.20 | 32° 21' 42.567 N | 103° 44' 26.804 W |
| - plan hits target center | | | | | | | |



# COG Production LLC - Tankless Federal #2H

## 1. Geologic Formations

| | | | |
|---|---|---|---|
| TVD of target | 10,165' EOL | Pilot hole depth | NA |
| MD at TD: | 17,512' | Deepest expected fresh water: | 450' |

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/ Target Zone? | Hazards* |
|---|---|---|---|
| Quaternary Fill | Surface | Water | |
| Rustler | 665 | Water | |
| Top of Salt | 763 | Salt | |
| Base of Salt | 4216 | Salt | |
| Lamar | 4468 | Salt Water | |
| Bell Canyon | 4516 | Salt Water | |
| Cherry Canyon | 5380 | Oil/Gas | |
| Brushy Canyon | 6626 | Oil/Gas | |
| Bone Spring Lime | 8300 | Oil/Gas | |
| U. Avalon Shale | 8719 | Oil/Gas | |
| L. Avalon Shale | 9049 | Oil/Gas | |
| 1st Bone Spring Sand | 9425 | Oil/Gas | |
| 2nd Bone Spring Sand | 10012 | Oil/Gas | |
| 3rd Bone Spring Sand | 11157 | Oil/Gas | |
| Wolfcamp | 11623 | Oil/Gas | |

## 2. Casing Program

| Hole Size | Casing From | Casing To | Csg. Size | Weight (lbs) | Grade | Conn. | SF Collapse | SF Burst | SF Tension |
|---|---|---|---|---|---|---|---|---|---|
| 17.5" | 0 | 690 | 13.375" | 54.5 | J55 | STC | 3.58 | 1.42 | 13.67 |
| 12.25" | 0 | 4495 | 9.625" | 40 | J55 | LTC | 1.08 | 1.00 | 2.89 |
| 8.75" | 0 | 17,512 | 5.5" | 17 | P110 | LTC | 1.51 | 2.69 | 2.58 |
| | | | BLM Minimum Safety Factor | | | | 1.125 | 1 | 1.6 Dry<br>1.8 Wet |

Intermediate casing will be kept at least 1/3 full while running casing.to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

## COG Production LLC - Tankless Federal #2H

| | Y or N |
|---|---|
| Is casing new? If used, attach certification as required in Onshore Order #1 | Y |
| Does casing meet API specifications? If no, attach casing specification sheet. | Y |
| Is premium or uncommon casing planned? If yes attach casing specification sheet. | N |
| Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria). | Y |
| Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing? | Y |
| | |
| Is well located within Capitan Reef? | N |
| If yes, does production casing cement tie back a minimum of 50' above the Reef? | |
| Is well within the designated 4 string boundary? | |
| | |
| Is well located in SOPA but not in R-111-P? | Y |
| If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing? | Y |
| | |
| Is well located in R-111-P and SOPA? | N |
| If yes, are the first three strings cemented to surface? | |
| Is 2nd string set 100' to 600' below the base of salt? | |
| | |
| Is well located in high Cave/Karst? | N |
| If yes, are there two strings cemented to surface? | |
| (For 2 string wells) If yes, is there a contingency casing if lost circulation occurs? | |
| | |
| Is well located in critical Cave/Karst? | N |
| If yes, are there three strings cemented to surface? | |

### 3. Cementing Program

| Casing | # Sks | Wt. lb/ gal | Yld ft3/ sack | $H_20$ gal/sk | 500# Comp. Strength (hours) | Slurry Description |
|---|---|---|---|---|---|---|
| Surf. | 220 | 13.5 | 1.75 | 9 | 12 | Lead: Class C + 4% Gel + 1% CaCl2 |
| | 250 | 14.8 | 1.34 | 6.34 | 8 | Tail: Class C + 2% CaCl2 |
| Inter. | 860 | 12.7 | 2.0 | 9.6 | 16 | Lead: 35:65:6 C Blend |
| | 250 | 14.8 | 1.34 | 6.34 | 8 | Tail: Class C + 2% CaCl |
| 5.5 Prod | 790 | 11.9 | 2.5 | 19 | 72 | Lead: 50:50:10 H Blend |
| | 2000 | 14.4 | 1.24 | 5.7 | 19 | Tail: 50:50:2 Class H Blend |

Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results
Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

| Casing String | TOC | % Excess |
|---|---|---|
| Surface | 0' | 50% |
| 1st Intermediate | 0' | 50% |
| Production | 3,995' | 25% OH in Lateral (KOP to EOL) – 40% OH in Vertical |

**4. Pressure Control Equipment**

| | |
|---|---|
| N | A variance is requested for the use of a diverter on the surface casing. See attached for schematic. |

| BOP installed and tested before drilling which hole? | Size? | Min. Required WP | Type | x | Tested to: |
|---|---|---|---|---|---|
| 12-1/4" | 13-5/8" | 2M | Annular | x | 2000 psi |
| | | | Blind Ram | | 2M |
| | | | Pipe Ram | | |
| | | | Double Ram | | |
| | | | Other* | | |
| 8-3/4" | 13-5/8" | 3M | Annular | x | 50% testing pressure |
| | | | Blind Ram | x | 3M |
| | | | Pipe Ram | x | |
| | | | Double Ram | | |
| | | | Other* | | |

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

| | |
|---|---|
| X | Formation integrity test will be performed per Onshore Order #2.<br>On Exploratory wells or 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. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. |
| Y | A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart. |
| | N Are anchors required by manufacturer? |
| N | A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. |

## 5. Mud Program

| Depth | | Type | Weight (ppg) | Viscosity | Water Loss |
|---|---|---|---|---|---|
| From | To | | | | |
| 0 | Surf. Shoe | FW Gel | 8.6 - 8.8 | 28-34 | N/C |
| Surf csg | 9-5/8" Int shoe | Saturated Brine | 10 - 10.2 | 28-34 | N/C |
| 9-5/8" Int shoe | Lateral TD | Cut Brine | 8.6 - 9.4 | 28-34 | N/C |

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

| | |
|---|---|
| What will be used to monitor the loss or gain of fluid? | PVT/Pason/Visual Monitoring |

## 6. Logging and Testing Procedures

| Logging, Coring and Testing. | |
|---|---|
| Y | Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM. |
| Y | No Logs are planned based on well control or offset log information. |
| N | Drill stem test? If yes, explain. |
| N | Coring? If yes, explain. |

| Additional logs planned | | Interval |
|---|---|---|
| N | Resistivity | Pilot Hole TD to ICP |
| N | Density | Pilot Hole TD to ICP |
| Y | CBL | Production casing (If cement not circulated to surface) |
| Y | Mud log | Intermediate shoe to TD |
| N | PEX | |

**7. Drilling Conditions**

| Condition | Specify what type and where? |
|---|---|
| BH Pressure at deepest TVD | 4970 psi at 10165' TVD |
| Abnormal Temperature | NO 160 Deg. F. |

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

| | |
|---|---|
| Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM. | |
| N | H2S is present |
| Y | H2S Plan attached |

**8. Other Facets of Operation**

| | |
|---|---|
| N | Is it a walking operation? |
| N | Is casing pre-set? |

| | |
|---|---|
| x | H2S Plan. |
| x | BOP & Choke Schematics. |
| x | Directional Plan |

Midwest Hose
& Specialty, Inc.

# Internal Hydrostatic Test Certificate

| | | | |
|---|---|---|---|
| Customer | Odessa | Hose Assembly Type | Choke & Kill |
| MWH Sales Representative | Charles Ash | Certification | API 7K/FSL LEVEL2 |
| Date Assembled | 11/11/2016 | Hose Grade | Mud |
| Location Assembled | OKC | Hose Working Pressure | 100000 |
| Sales Order # | 308747 | Hose Lot # and Date Code | 12354-09/15 |
| Customer Purchase Order # | 345144 | Hose I.D. (Inches) | 3.5" |
| Assembly Serial # (Pick Ticket #) | 371501 | Hose O.D. (Inches) | 5.87" |
| Hose Assembly Length | 35 Feet | Armor (yes/no) | No |

| End A | | End B | |
|---|---|---|---|
| Stem (Part and Revision #) | R3.5X64WB | Stem (Part and Revision #) | R3.5X64WB |
| Stem (Heat #) | A112669 | Stem (Heat #) | A112669 |
| Ferrule (Part and Revision #) | RF3.5X5750 | Ferrule (Part and Revision #) | RF3.5X5750 |
| Ferrule (Heat #) | 41632 | Ferrule (Heat #) | 41632 |
| Connection - Flange Hammer Union Part | 4-1/16 10K | Connection (Part #) | 4-1/16 10K |
| Connection (Heat #) | | Connection (Heat #) | |
| Nut (Part #) | | Nut (Part #) | |
| Nut (Heat #) | | Nut (Heat #) | |
| Dies Used | 5.80" | Dies Used | 5.80" |

| | | |
|---|---|---|
| Test Pressure (psi) | 15,000 | Hose assembly was tested with ambient water temperature. |
| Test Pressure Hold Time (minutes) | 24 1/2 | |

| Date Tested | Tested By | Approved By |
|---|---|---|
| 11/11/2016 | Richard Dix | Charles Ash |

Midwest Hose
& Specialty, Inc.

| | |
|---|---|
| *Customer:* **Odessa** | *Customer P.O.#* **345144** |
| *Sales Order #* **308747** | *Date Assembled:* **11/11/2016** |

| | | | |
|---|---|---|---|
| *Hose Assembly Type:* | **Choke & Kill** | *Rig #* | **N/A** |
| *Assembly Serial #* | **371501** | *Hose Lot # and Date Code* | **12354-09/15** |
| *Hose Working Pressure (psi)* | **100000** | *Test Pressure (psi)* | **15000** |
| *Hose Assembly Description:* | **CK56-SS-10K-6410K-6410K-35.00' FT-W/LIFTERS** | | |

*We hereby certify that the above material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards.*

*Supplier:*
***Midwest Hose & Specialty, Inc.***
***3312 S I-35 Service Rd***
***Oklahoma City, OK 73129***

*Comments:*

| ***Approved By*** | ***Date*** |
|---|---|
| Charles Ash | **11/11/2016** |

Midwest Hose & Specialty, Inc.

# Internal Hydrostatic Test Graph

November 11, 2016

**Customer:** Odessa

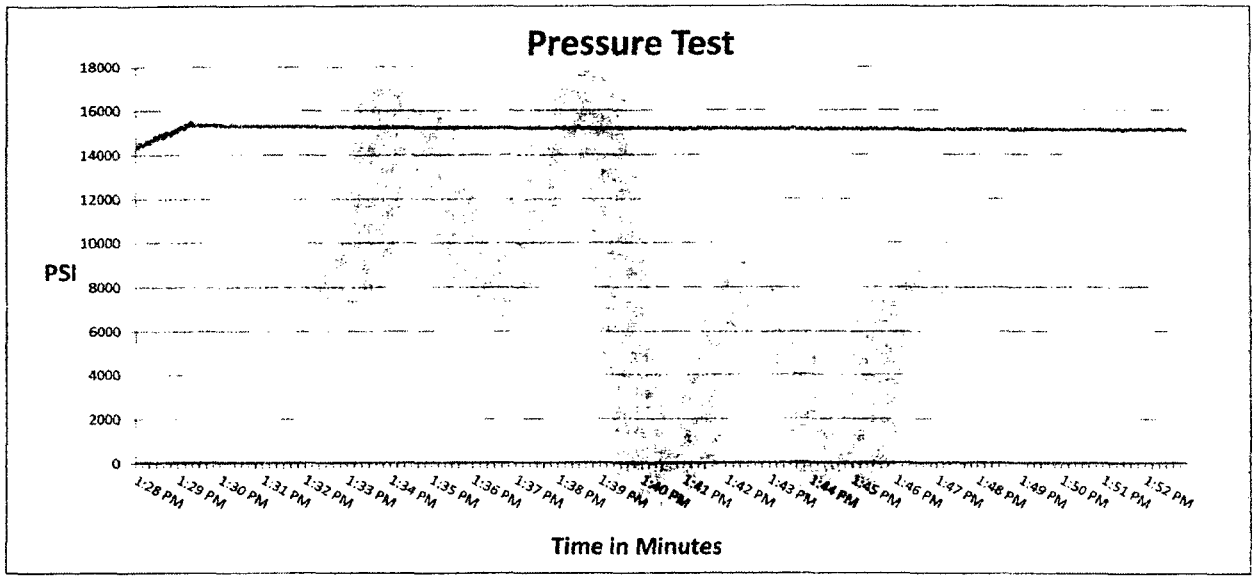
**Pick Ticket #:** 371501

## Hose Specifications

| Hose Type | Length |
|---|---|
| Ck | 35' |
| **I.D.** | **O.D.** |
| 3.5"" | 5.30" |
| **Working Pressure** | **Burst Pressure** |
| 10000 PSI | Standard Safety Multiplier Applies |

## Verification

| Type of Fitting | Coupling Method |
|---|---|
| 4 1/16 10K | Swage |
| **Die Size** | **Final O.D.** |
| 5.80" | 5.83" |
| **Hose Serial #** | **Hose Assembly Serial #** |
| 12354 | 371501 |




| Test Pressure | Time Held at Test Pressure | Actual Burst Pressure | Peak Pressure |
|---|---|---|---|
| 15000 PSI | 24 2/4 Minutes | | 15512 PSI |

**Comments:** Hose assembly pressure tested with water at ambient temperature.

**Tested By:** *Richard Davis*

x

**Approved By:** *Charles Ash*

x

**APD ID:** 10400013237 **Submission Date:** 04/12/2017

**Operator Name:** COG PRODUCTION LLC

**Well Name:** TANKLESS FEDERAL COM **Well Number:** 2H

**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?** NO

## Section 2 - New or Reconstructed Access Roads

**Will new roads be needed?** YES

**New Road Map:**

COG_Tankless_2H_Maps_Plats_04-10-2017.pdf

**New road type:** RESOURCE

**Length:** 26 Feet **Width (ft.):** 30

**Max slope (%):** 33 **Max grade (%):** 1

**Army Corp of Engineers (ACOE) permit required?** NO

**ACOE Permit Number(s):**

**New road travel width:** 14

**New road access erosion control:** Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

**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:** Blading

**Access other construction information:** No turnouts are planned. Re-routing access road around proposed well location.

**Access miscellaneous information:**

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

## Drainage Control

**New road drainage crossing:** OTHER

**Drainage Control comments:** None necessary

**Road Drainage Control Structures (DCS) description:** None needed.

**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:**

COG_Tankless_2H_1Mile_Data_04-10-2017.pdf

**Existing Wells description:**

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

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

**Estimated Production Facilities description:** Production will be sent to a proposed adjacent Tankless Central Tank Battery facility. A surface flow line of approximately 506.8' of 3" steel pipe carrying oil, gas and water under a maximum pressure of 125 psi will follow the road to the facility at the Tankless Central Tank Battery location. We plan to install a 4" surface polyethylene pipe transporting Gas Lift Gas from the Tanklesss Central Tank Battery to the Tankless Federal Com 2H. The surface Gas Lift Gas pipe of approximately 506.8' under a maximum pressure of 125 psi will be installed no farther than 10 feet from the edge of the road.. Please see attached CTB and flowlines plats.

## Section 5 - Location and Types of Water Supply

### Water Source Table

**Operator Name:** COG PRODUCTION LLC

**Well Name:** TANKLESS FEDERAL COM **Well Number:** 2H

**Water source use type:** ICE PAD CONSTRUCTION & MAINTENANCE, STIMULATION, SURFACE CASING
**Describe type:** Fresh water will be furnished by the C-1455 water well located in Section 18. T22S. R34E. The water will be purchased from Mesquite Services 2313 Eas Greene Street, Carlsbad, NM 88220.
**Source latitude:**

**Water source type:** OTHER

**Source longitude:**

**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):** 450000

**Source volume (acre-feet):** 58.001892

**Source volume (gal):** 18900000

**Water source use type:** INTERMEDIATE/PRODUCTION CASING

**Water source type:** OTHER

**Describe type:** Brine water will be provided by Malaga II Brine Station located in Section 12. T23S. R28E. Brine water will be purchased from Mesquite SWD Inc., P O Box 1479, Carlsbad, NM 88221. Phone: 575-706-1840
**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT

**Source land ownership:** COMMERCIAL

**Water source transport method:** TRUCKING

**Source transportation land ownership:** COMMERCIAL

**Water source volume (barrels):** 30000

**Source volume (acre-feet):** 3.866793

**Source volume (gal):** 1260000

**Water source and transportation map:**

COG_Tankless_2H_Fresh_H2O_04-10-2017.pdf
COG_Tankless_2H_Brine_H2O_04-10-2017.pdf

**Water source comments:** Fresh water will be furnished by the C-1455 water well located in Section 18. T22S. R34E. The water will be purchased from Mesquite Services 2313 Eas Greene Street, Carlsbad, NM 88220. Brine water will be provided by Malaga II Brine Station located in Section 12. T23S. R28E. Brine water will be purchased from Mesquite SWD Inc., P O Box 1479, Carlsbad, NM 88221. Phone: 575-706-1840
**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:**

**State appropriation permit:**

**Additional information attachment:**

## Section 6 - Construction Materials

**Construction Materials description:** Caliche will be obtained from the actual well site. If caliche does not exist or is not plentiful from the well site, the caliche source will be caliche pit from from Draper Brantley located in Section 15. T23S. R28E. Draper Brantley address is 706 Riverside Drive, Carlsbad, NM 88220. (575) 706-3169.
**Construction Materials source location attachment:**

## Section 7 - Methods for Handling Waste

**Waste type:** DRILLING

**Waste content description:** Drilling fluids and produced oil land water while drilling and completion operations

**Amount of waste:** 6000 barrels

**Waste disposal frequency :** One Time Only

**Safe containment description:** All drilling waste will be stored safely and disposed of properly

**Safe containmant attachment:**

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

**Disposal location description:** Trucked to an approved disposal facility

**Waste type:** GARBAGE

**Waste content description:** Garbage and trash produced during drilling and completion operations.

**Amount of waste:** 500 pounds

**Waste disposal frequency :** One Time Only

**Safe containment description:** Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility
**Safe containmant attachment:**

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

**Disposal location description:** Trucked to an approved disposal facility.

**Waste type:** SEWAGE

**Waste content description:** Human waste and gray water

**Amount of waste:** 1000 gallons

**Waste disposal frequency** : One Time Only

**Safe containment description:** Waste will be properly contained and disposed of properly at a state approved disposal facility.
**Safe containmant attachment:**

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

**Disposal location description:** Trucked to an approved disposal facility

## 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

**Description of cuttings location** Roll off cutting containers on tracks

**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?:** YES

**Ancillary Facilities attachment:**

COG_Tankless_2H_GCP_04-10-2017.pdf

COG_Tankless_2H_Closed_Loop_04-12-2017.pdf

**Comments:** Gas Capture Plan attached

## Section 9 - Well Site Layout

**Well Site Layout Diagram:**

COG_Tankless_Flowlines_04-10-2017.pdf

COG_Tankless_CTB_04-10-2017.pdf

COG_Tankless_2H_Prod_Facility_04-12-2017.pdf

**Comments:** Production will be sent to a proposed adjacent Tankless Central Tank Battery facility. A surface flow line of approximately 506.8' of 3" steel pipe carrying oil, gas and water under a maximum pressure of 125 psi will follow the road to the facility at the Tankless Central Tank Battery location. We plan to install a 4" surface polyethylene pipe transporting Gas Lift Gas from the Tanklesss Central Tank Battery to the Tankless Federal Com 2H. The surface Gas Lift Gas pipe of approximately 506.8' under a maximum pressure of 125 psi will be installed no farther than 10 feet from the edge of the road.

## Section 10 - Plans for Surface Reclamation

**Type of disturbance:** NEW

**Recontouring attachment:**

**Drainage/Erosion control construction:** Surface run off control structures will not be necessary for this proposed location due to the relatively flat topography, along with all of the existing disturbance that surrounds this location, powerlines, roads, buried and surface pipelines and CTB..
**Drainage/Erosion control reclamation:** N/A

**Wellpad long term disturbance (acres):** 2.69

**Wellpad short term disturbance (acres):** 3.31

**Access road long term disturbance (acres):** 0.01

**Access road short term disturbance (acres):** 0.01

**Pipeline long term disturbance (acres):** 3.443526E-8

**Pipeline short term disturbance (acres):** 3.443526E-8

**Other long term disturbance (acres):** 0

**Other short term disturbance (acres):** 0

**Total long term disturbance:** 2.7

**Total short term disturbance:** 3.32

**Reconstruction method:** Portions of the pad not needed for production operations will be re-contoured to its original state as much as possible. The caliche that is removed will be reused. The stockpiled topsoil will be spread out over reclaimed area and reseeded with BLM approved seed mixture.
**Topsoil redistribution:** West 70'

**Soil treatment:** None

**Existing Vegetation at the well pad:** Shinnery Oak/Mesquite grassland

**Existing Vegetation at the well pad attachment:**

**Existing Vegetation Community at the road:** Shinnery Oak/Mesquite grassland

**Existing Vegetation Community at the road attachment:**

**Existing Vegetation Community at the pipeline:** Shinnery Oak/Mesquite grassland

**Existing Vegetation Community at the pipeline attachment:**

**Existing Vegetation Community at other disturbances:** N/A

**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:**

## 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:** Rand **Last Name:** French

**Phone:** (432)254-5556 **Email:** rfrench@concho.com

**Seedbed prep:**

**Seed BMP:**

**Seed method:**

**Existing invasive species?** NO

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Weed treatment plan description:** N/A

**Weed treatment plan attachment:**

**Monitoring plan description:** N/A

**Monitoring plan attachment:**

**Success standards:** N/A

**Pit closure description:** N/A

**Pit closure attachment:**

COG_Tankless_2H_Closed_Loop_04-10-2017.pdf

## Section 11 - Surface Ownership

**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:**

## 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?** NO

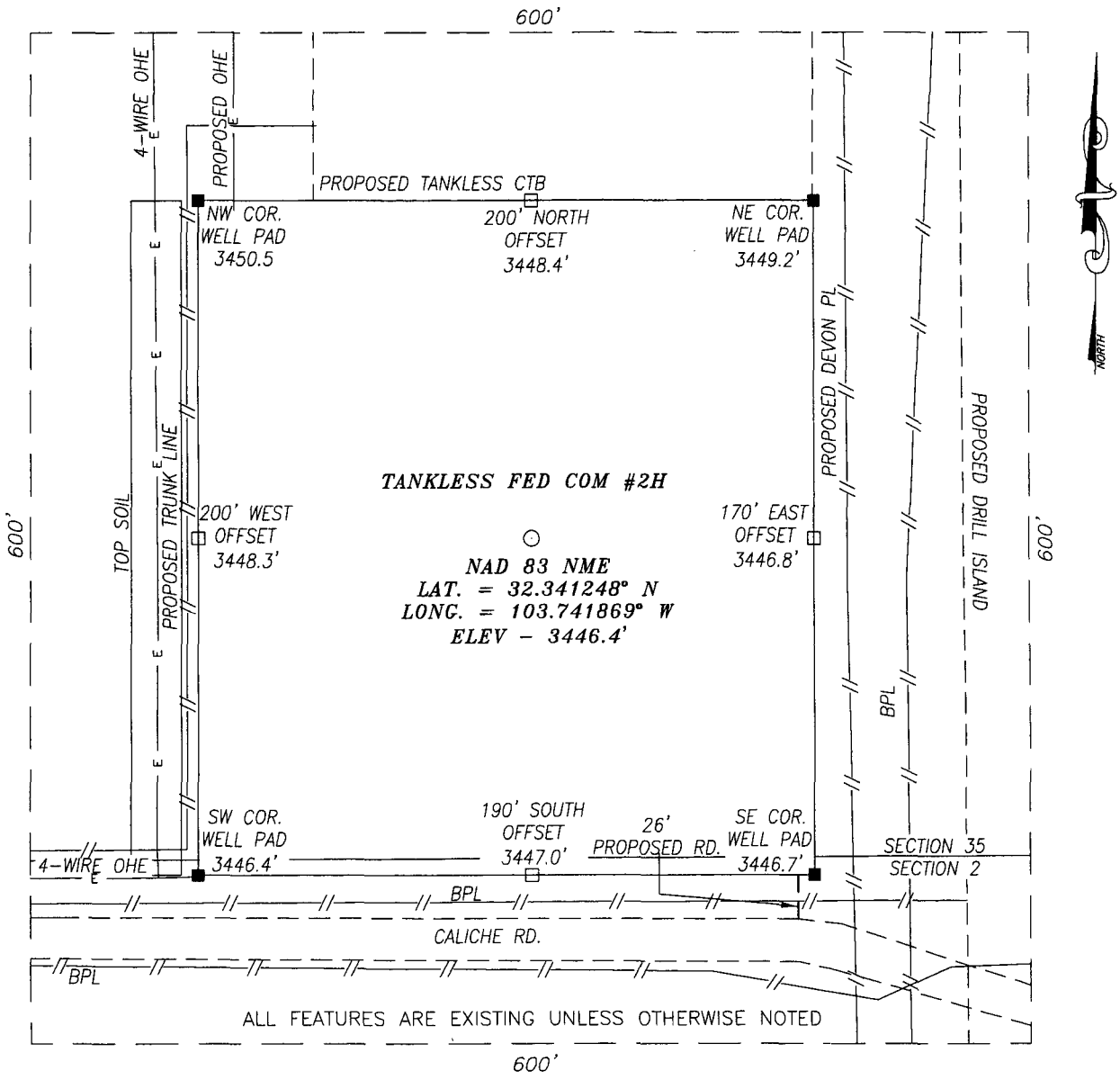
**Previous Onsite information:**

### Other SUPO Attachment

COG_Tankless_2H_Certification_04-10-2017.pdf

# SECTION 35, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M.,

EDDY COUNTY NEW MEXICO




DIRECTIONS TO LOCATION:
FROM THE INTERSECTION OF RED RD.-C.R. 798 AND MILLS RANCH RD. GO SOUTH ON RED RD. FOR APPROX. 1.2 MI.; THEN TURN RIGHT (WESTERLY) AND GO APPROX. 325'; PROPOSED WELL LIES APPROX. 225' TO THE NORTH.


HARCROW SURVEYING, LLC
2314 W. MAIN ST, ARTESIA, N.M. 88210
PH: (575) 746-2158 FAX: (575) 746-2158
c.harcrow@harcrowsurveying.com


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

CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

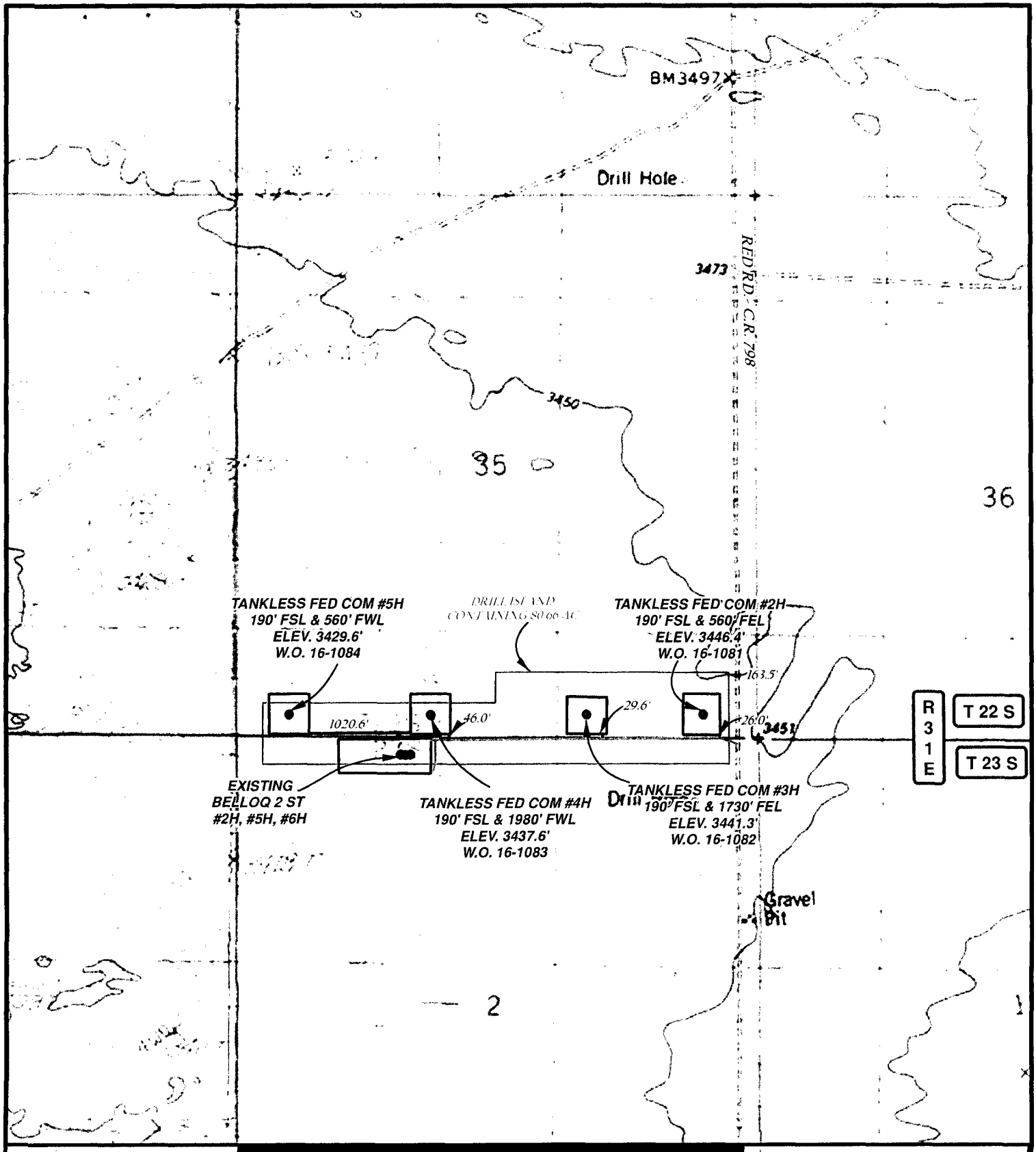
Chad Harcrow 4/4/16
CHAD HARCROW N.M.P.S. NO. 17777 DATE

100 0 100 200 Feet
Scale: 1"=100'

## COG PRODUCTION, LLC

**TANKLESS FEDERAL COM #2H**
**LOCATED 190 FEET FROM THE SOUTH LINE AND 560 FEET FROM THE EAST LINE OF SECTION 35, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO**

| | |
|---|---|
| SURVEY DATE: 12/15/2016 | PAGE: 1 OF 1 |
| DRAFTING DATE: 12/23/2016 | |
| APPROVED BY: CH / DRAWN BY: JH | FILE: 17-433 |




## LEGEND

- WELL
- WELLPAD
- EXISTING ROAD
- PROPOSED ROAD
- DRILL ISLAND

# TANKLESS FEDERAL COM #2H, #3H, #4H, #5H

| | | |
|---|---|---|
| SECTION: 35 | TOWNSHIP: 22 S. | RANGE: 31 E. |
| STATE: NEW MEXICO | COUNTY: EDDY | SURVEY: N.M.P.M |
| W.O. # 17-433 | | LEASE: TANKLESS FED COM |

0 2,500 FEET

0 0.1 0.2 0.4 Miles

1 IN = 1,500 FT

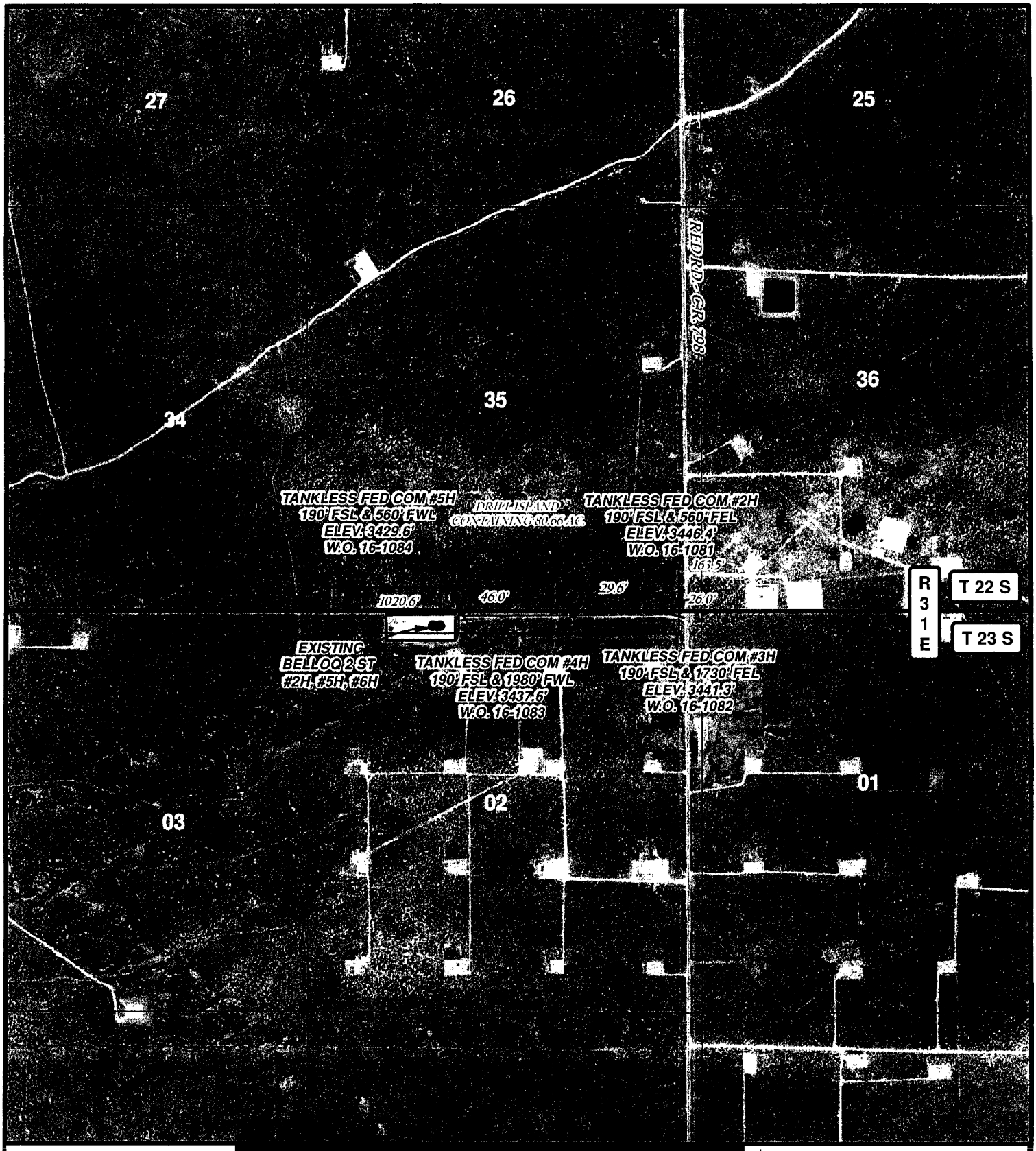
LOCATION MAP | TOPO ROAD | 12/27/2016 | J.H.

N

CONCHO

COG PRODUCTION, LLC

HARCROW SURVEYING, LLC.
2314 W. MAIN ST, ARTESIA, NM 88210
PH: (575) 746-2158 FAX: (575) 746-2158
c.harcrow@harcrowsurveying.com




## LEGEND

- WELL
- WELLPAD
- EXISTING ROAD
- PROPOSED ROAD
- DRILL ISLAND

# TANKLESS FEDERAL COM #2H, #3H, #4H, #5H

| | | |
|---|---|---|
| SECTION: 35 | TOWNSHIP: 22 S. | RANGE: 31 E. |
| STATE: NEW MEXICO | COUNTY: EDDY | SURVEY: N.M.P.M |
| W.O. # 17-433 | | LEASE: TANKLESS FED COM |

0 2,500 5,000 FEET

0 0.125 0.25 0.5 Miles

1 IN = 2,000 FT

LOCATION MAP | IMAGERY | 12/27/2016 | J.H.

N

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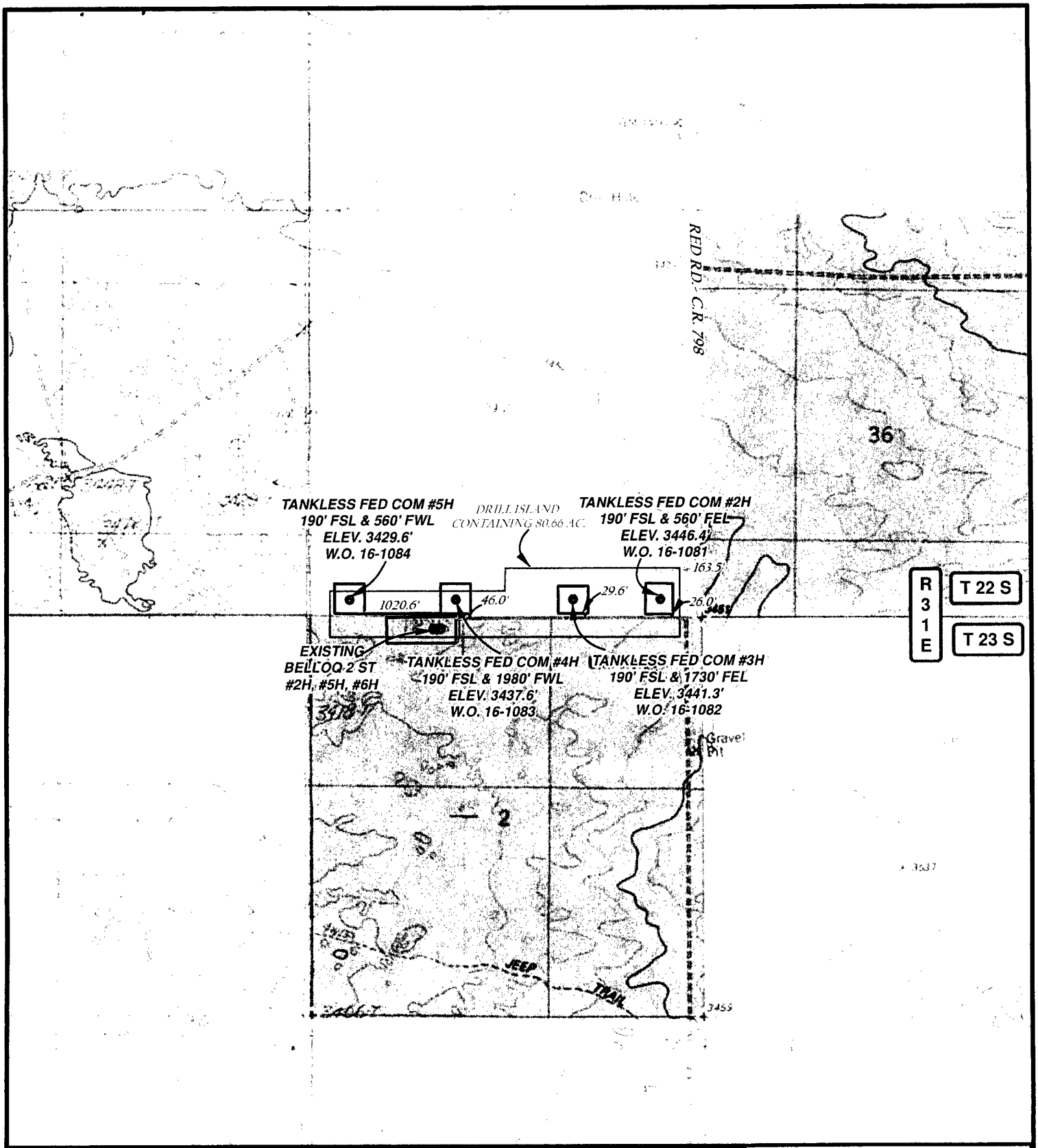


## LEGEND

- WELL
- WELLPAD
- EXISTING ROAD
- PROPOSED ROAD
- DRILL ISLAND
- DEPT. OF ENERGY
- STATE OF NM
- US BLM

# TANKLESS FEDERAL COM #2H, #3H, #4H, #5H

| | | |
|---|---|---|
| SECTION: 35 | TOWNSHIP: 22 S. | RANGE: 31 E. |
| STATE: NEW MEXICO | COUNTY: EDDY | SURVEY: N.M.P.M |
| W.O. # 17-433 | | LEASE: TANKLESS FED COM |

0 2,500 5,000 FEET

0 0.125 0.25 0.5 Miles

1 IN = 2,000 FT

LOCATION MAP | LAND STATUS | 12/27/2016 | J.H.

N

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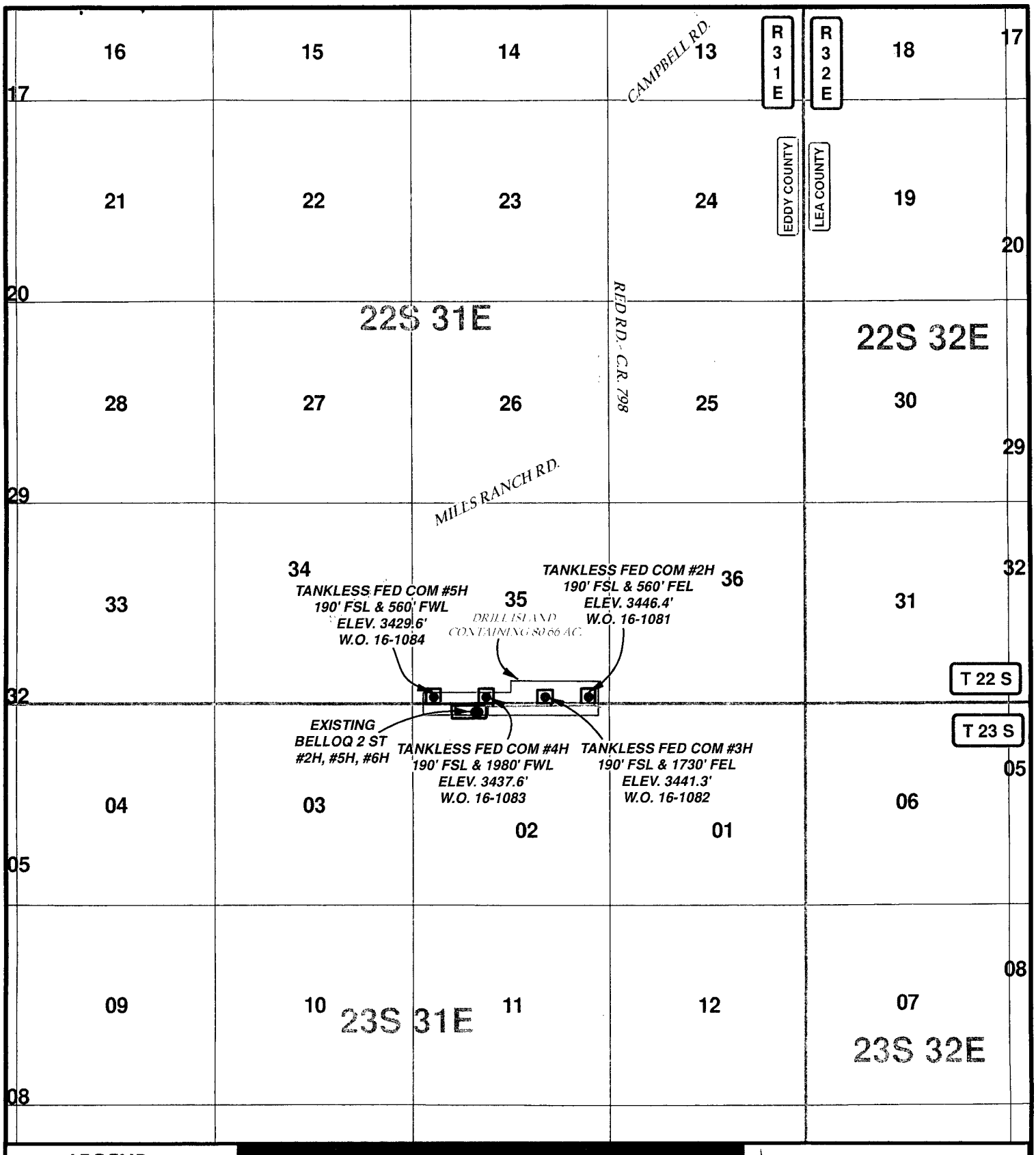


## LEGEND

- WELL
- WELLPAD
- EXISTING ROAD
- PROPOSED ROAD
- DRILL ISLAND

## TANKLESS FEDERAL COM #2H, #3H, #4H, #5H

| | | |
|---|---|---|
| SECTION: 35 | TOWNSHIP: 22 S. | RANGE: 31 E. |
| STATE: NEW MEXICO | COUNTY: EDDY | SURVEY: N.M.P.M |
| W.O. # 17-433 | | LEASE: TANKLESS FED COM |

0 2,500 5,000 7,500 10,000 FEET

0 0.275 0.55 1.1 Miles

1 IN = 4,000 FT

LOCATION MAP VICINITY 12/27/2016 J.H.

N

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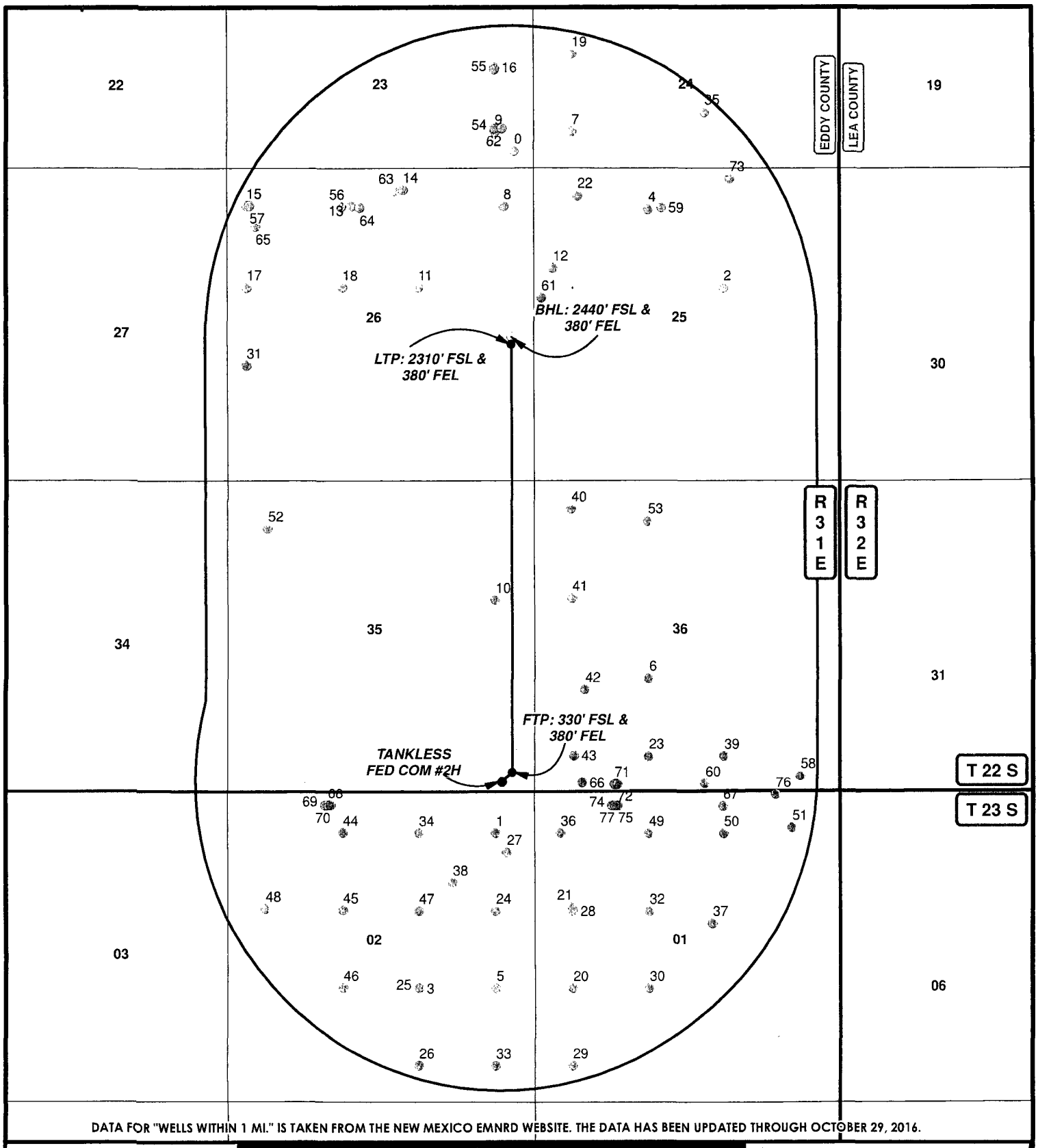


DATA FOR "WELLS WITHIN 1 MI." IS TAKEN FROM THE NEW MEXICO EMNRD WEBSITE. THE DATA HAS BEEN UPDATED THROUGH OCTOBER 29, 2016.

## LEGEND

- WELL
- BOTTOMHOLE
- WELLS WITHIN 1 MI.
- 1 MI. BUFFER

## TANKLESS FEDERAL COM #2H

| | | |
|---|---|---|
| SEC: 26 & 35 | TWP: 22 S. | RGE: 31 E. | ELEVATION: 3446.4' |
| STATE: NEW MEXICO | COUNTY: EDDY | 190' FSL & 560' FEL |
| W.O. # 17-433 | LEASE: TANKLESS FED COM | SURVEY: N.M.P.M |

0 2,500 5,000 FEET

0 0.175 0.35 0.7 Miles

1 IN = 2,583 FT

1 MILE MAP | 3/2/2017 | S.A.

N

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TANKLESS FEDERAL COM #2H 1 MILE DATA (17-299)

| FID | Shape * | OPERATOR | WELL_NAME | LATITUDE | LONGITUDE | API | SECTION | TOWNSHIP | RANGE | FTG_NS | NS_CD | FTG_EW | EW_CD | COMPL_STAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | Point | TEXAS CRUDE OIL CO | WRIGHT FED 001 | 32.370592 | -103.741154 | 3001505839 | 23 | 22.0S | 31E | 330 | S | 330 | E | Plugged |
| 1 | Point | LINN OPERATING, INC. | STATE AA-2 001 | 32.338792 | -103.742237 | 3001505840 | 2 | 23.0S | 31E | 660 | N | 660 | E | Active |
| 2 | Point | CLEARY PET CORP | FEDERAL B 001 | 32.364224 | -103.729422 | 3001520947 | 25 | 22.0S | 31E | 1980 | N | 1980 | E | Plugged |
| 3 | Point | SUPERIOR OIL CO | DUNES ST 001 | 32.331567 | -103.74651 | 3001524112 | 2 | 23.0S | 31E | 1980 | S | 1980 | E | Plugged |
| 4 | Point | POGO PRODUCING CO | NEFF FEDERAL 001 | 32.36786 | -103.733637 | 3001525301 | 25 | 22.0S | 31E | 660 | N | 1980 | W | Plugged |
| 5 | Point | LINN OPERATING, INC. | BARCLAY STATE 001 | 32.331549 | -103.742215 | 3001525534 | 2 | 23.0S | 31E | 1980 | S | 660 | E | Plugged |
| 6 | Point | LINN OPERATING, INC. | MEDANO STATE 001 | 32.346035 | -103.733648 | 3001526171 | 36 | 22.0S | 31E | 1980 | S | 1980 | W | Active |
| 7 | Point | CHEVRON U S A INC | GETTY 24 FEDERAL 002 | 32.371496 | -103.737931 | 3001526287 | 24 | 22.0S | 31E | 660 | S | 660 | W | Active |
| 8 | Point | OXY USA INC | FEDERAL 26 001 | 32.368008 | -103.74174 | 3001526376 | 26 | 22.0S | 31E | 610 | N | 510 | E | Plugged |
| 9 | Point | OXY USA INC | FEDERAL 23 001 | 32.371499 | -103.742227 | 3001526377 | 23 | 22.0S | 31E | 660 | S | 660 | E | Active |
| 10 | Point | EOG Y RESOURCES, INC. | DAVID ROSS FEDERAL SWD 001 | 32.349705 | -103.742236 | 3001526629 | 35 | 22.0S | 31E | 1980 | N | 660 | E | Active |
| 11 | Point | POGO PRODUCING CO | FEDERAL 26 002 | 32.36424 | -103.746525 | 3001526638 | 26 | 22.0S | 31E | 1980 | N | 1980 | E | Plugged |
| 12 | Point | OXY USA INC | NEFF FEDERAL 002 | 32.365148 | -103.739008 | 3001526639 | 25 | 22.0S | 31E | 1650 | N | 330 | W | Active |
| 13 | Point | OXY USA INC | FEDERAL 26 003 | 32.368005 | -103.750247 | 3001526788 | 26 | 22.0S | 31E | 610 | N | 2130 | W | Active |
| 14 | Point | OXY USA INC | FEDERAL 26 005 | 32.368776 | -103.747337 | 3001526854 | 26 | 22.0S | 31E | 330 | N | 2230 | E | Active |
| 15 | Point | OXY USA INC | FEDERAL 26 004 | 32.36803 | -103.756104 | 3001526866 | 26 | 22.0S | 31E | 600 | N | 330 | W | Active |
| 16 | Point | OXY USA INC | FEDERAL 23 002 | 32.374495 | -103.742225 | 3001526932 | 23 | 22.0S | 31E | 1750 | S | 660 | E | Active |
| 17 | Point | OXY USA INC | FEDERAL 26 006 | 32.364237 | -103.756106 | 3001526940 | 26 | 22.0S | 31E | 1980 | N | 330 | W | Active |
| 18 | Point | OXY USA INC | FEDERAL 26 007 | 32.364239 | -103.750736 | 3001526941 | 26 | 22.0S | 31E | 1980 | N | 1980 | W | Active |
| 19 | Point | CHEVRON U S A INC | GETTY 24 FEDERAL 007 | 32.375124 | -103.737928 | 3001527147 | 24 | 22.0S | 31E | 1980 | S | 660 | W | Active |
| 20 | Point | OWENS PET INC | UNION FEDERAL 001 | 32.331538 | -103.737921 | 3001527998 | 1 | 23.0S | 31E | 1980 | S | 660 | W | Plugged |
| 21 | Point | OWENS PET INC | UNION FEDERAL 002 | 32.335349 | -103.737932 | 3001528119 | 1 | 23.0S | 31E | 1910 | N | 660 | W | Plugged |
| 22 | Point | OXY USA INC | NEFF FEDERAL 003 | 32.368499 | -103.737607 | 3001528281 | 25 | 22.0S | 31E | 430 | N | 760 | W | Active |
| 23 | Point | LINN OPERATING, INC. | MEDANO STATE 002 | 32.342407 | -103.733651 | 3001529525 | 36 | 22.0S | 31E | 660 | S | 1980 | W | Active |
| 24 | Point | LINN OPERATING, INC. | BARCLAY STATE 003 | 32.335163 | -103.742226 | 3001529527 | 2 | 23.0S | 31E | 1980 | N | 660 | E | Active |
| 25 | Point | LINN OPERATING, INC. | BARCLAY STATE 002 | 32.331567 | -103.74651 | 3001529590 | 2 | 23.0S | 31E | 1980 | S | 1980 | E | Plugged |
| 26 | Point | LINN OPERATING, INC. | BARCLAY STATE 004 | 32.327939 | -103.7465 | 3001529792 | 2 | 23.0S | 31E | 660 | S | 1980 | E | Active |
| 27 | Point | LINN OPERATING, INC. | BARCLAY STATE 008 | 32.337884 | -103.741616 | 3001529926 | 2 | 23.0S | 31E | 990 | N | 470 | E | Plugged |
| 28 | Point | LINN OPERATING, INC. | BARCLAY FEDERAL 014 | 32.335157 | -103.737931 | 3001530065 | 1 | 23.0S | 31E | 1980 | N | 660 | W | Active |
| 29 | Point | FOREST OIL CORPORATION | BARCLAY FEDERAL 015 | 32.327909 | -103.737911 | 3001530066 | 1 | 23.0S | 31E | 660 | S | 660 | W | Plugged |
| 30 | Point | LINN OPERATING, INC. | BARCLAY FEDERAL 010 | 32.331536 | -103.733627 | 3001530239 | 1 | 23.0S | 31E | 1980 | S | 1980 | W | Active |
| 31 | Point | OXY USA INC | FEDERAL 26 009 | 32.360595 | -103.756107 | 3001530355 | 26 | 22.0S | 31E | 1980 | S | 330 | W | Active |
| 32 | Point | LINN OPERATING, INC. | BARCLAY FEDERAL 021 | 32.33515 | -103.733637 | 3001530766 | 1 | 23.0S | 31E | 1980 | N | 1980 | W | Active |
| 33 | Point | LINN OPERATING, INC. | BARCLAY STATE 007 | 32.32792 | -103.742205 | 3001530809 | 2 | 23.0S | 31E | 660 | S | 660 | E | Plugged |
| 34 | Point | LINN OPERATING, INC. | BARCLAY STATE 009 | 32.338798 | -103.746531 | 3001530810 | 2 | 23.0S | 31E | 660 | N | 1980 | E | Active |
| 35 | Point | CHEVRON U S A INC | GETTY 24 FEDERAL 013 | 32.37239 | -103.730489 | 3001531801 | 24 | 22.0S | 31E | 990 | S | 2310 | E | Plugged |
| 36 | Point | FOREST OIL CORPORATION | BARCLAY FEDERAL 016 | 32.338786 | -103.738593 | 3001533653 | 1 | 23.0S | 31E | 660 | N | 460 | W | Plugged |
| 37 | Point | LINN OPERATING, INC. | BARCLAY FEDERAL 029 | 32.334595 | -103.730089 | 3001533655 | 1 | 23.0S | 31E | 2180 | N | 2180 | E | Active |
| 38 | Point | FOREST OIL CORPORATION | BARCLAY STATE 005C | 32.336486 | -103.744637 | 3001533665 | 2 | 23.0S | 31E | 1500 | N | 1400 | E | New (Not drilled or compl) |
| 39 | Point | COG OPERATING LLC | LIVINGSTON RIDGE 36 STATE 001 | 32.342414 | -103.729429 | 3001534644 | 36 | 22.0S | 31E | 660 | S | 1980 | E | Active |
| 40 | Point | REEF EXPLORATION, L.P. | STATE 36 002C | 32.353957 | -103.737982 | 3001535670 | 36 | 22.0S | 31E | 460 | N | 660 | W | New (Not drilled or compl) |
| 41 | Point | REEF EXPLORATION, L.P. | STATE 36 003C | 32.349779 | -103.737936 | 3001535671 | 36 | 22.0S | 31E | 1980 | N | 660 | W | New (Not drilled or compl) |
| 42 | Point | REEF EXPLORATION, L.P. | STATE 36 004C | 32.345522 | -103.737239 | 3001535672 | 36 | 22.0S | 31E | 1780 | S | 860 | W | New (Not drilled or compl) |
| 43 | Point | HARVARD PETROLEUM COMPANY, LLC | 36 STATE 005 | 32.342446 | -103.737856 | 3001535673 | 36 | 22.0S | 31E | 660 | S | 660 | W | Active |
| 44 | Point | TLT SWD, LLC | STATE 2 002 | 32.338805 | -103.750742 | 3001535674 | 2 | 23.0S | 31E | 660 | N | 1980 | W | Active |
| 45 | Point | TLT SWD, LLC | STATE 2 003 | 32.335196 | -103.750753 | 3001535675 | 2 | 23.0S | 31E | 1980 | N | 1980 | W | Active |
| 46 | Point | TLT SWD, LLC | STATE 2 004 | 32.331586 | -103.750724 | 3001535676 | 2 | 23.0S | 31E | 1980 | S | 1980 | W | Plugged |
| 47 | Point | TLT SWD, LLC | STATE 2 001 | 32.33517 | -103.74652 | 3001535678 | 2 | 23.0S | 31E | 1980 | N | 1980 | E | Plugged |
| 48 | Point | REEF EXPLORATION, L.P. | STATE 2 007C | 32.335265 | -103.755047 | 3001535748 | 2 | 23.0S | 31E | 1980 | N | 660 | W | New (Not drilled or compl) |
| 49 | Point | REEF EXPLORATION, L.P. | FEDERAL 1 004C | 32.338778 | -103.733648 | 3001535793 | 1 | 23.0S | 31E | 660 | N | 1980 | W | New (Not drilled or compl) |
| 50 | Point | REEF EXPLORATION, L.P. | FEDERAL 1 003C | 32.338772 | -103.729441 | 3001535794 | 1 | 23.0S | 31E | 660 | N | 1980 | E | New (Not drilled or compl) |
| 51 | Point | REEF EXPLORATION, L.P. | FEDERAL 1 002C | 32.339045 | -103.725615 | 3001535795 | 1 | 23.0S | 31E | 560 | N | 810 | E | New (Not drilled or compl) |
| 52 | Point | COG PRODUCTION, LLC | TANKLESS 35 FEDERAL 001 | 32.353033 | -103.754929 | 3001536784 | 35 | 22.0S | 31E | 770 | N | 730 | W | New (Not drilled or compl) |
| 53 | Point | REEF EXPLORATION, L.P. | STATE 36 001C | 32.35338 | -103.733678 | 3001536806 | 36 | 22.0S | 31E | 661 | N | 1981 | W | New (Not drilled or compl) |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 54 Point | OXY USA INC | FEDERAL 23 004 | 32.371655 | -103.742253 | 3001537336 | 23 22.0S | 31E | 715 S | 657 E | New (Not drilled or compl) | | |
| 55 Point | OXY USA INC | FEDERAL 23 006 | 32.374387 | -103.742262 | 3001537340 | 23 22.0S | 31E | 1709 S | 660 E | Active | | |
| 56 Point | OXY USA INC | FEDERAL 23 007H | 32.368 | -103.750815 | 3001539436 | 26 22.0S | 31E | 590 N | 1955 W | New (Not drilled or compl) | | |
| 57 Point | OXY USA INC | FEDERAL 23 011H | 32.368038 | -103.755941 | 3001539437 | 26 22.0S | 31E | 590 N | 380 W | New (Not drilled or compl) | | |
| 58 Point | COG OPERATING LLC | LIVINGSTON RIDGE 36 STATE 004H | 32.34149 | -103.725133 | 3001539683 | 36 22.0S | 31E | 330 S | 660 E | New (Not drilled or compl) | | |
| 59 Point | OXY USA INC | NEFF 25 FEDERAL 005H | 32.367955 | -103.7329 | 3001541031 | 25 22.0S | 31E | 634 N | 2218 W | New (Not drilled or compl) | | |
| 60 Point | COG OPERATING LLC | BULTACO STATE 002H | 32.341126 | -103.730501 | 3001541298 | 36 22.0S | 31E | 190 S | 2310 E | New (Not drilled or compl) | | |
| 61 Point | OXY USA INC | NEFF 25 FEDERAL 009H | 32.363769 | -103.739638 | 3001541459 | 25 22.0S | 31E | 2160 N | 150 W | New (Not drilled or compl) | | |
| 62 Point | OXY USA INC | FEDERAL 26 012H | 32.371653 | -103.741833 | 3001541573 | 23 22.0S | 31E | 713 S | 528 E | New (Not drilled or compl) | | |
| 63 Point | OXY USA INC | FEDERAL 26 013H | 32.368724 | -103.747855 | 3001541600 | 26 22.0S | 31E | 334 N | 2378 E | New (Not drilled or compl) | | |
| 64 Point | OXY USA INC | FEDERAL 23 013H | 32.367949 | -103.749768 | 3001541636 | 26 22.0S | 31E | 610 N | 2277 W | New (Not drilled or compl) | | |
| 65 Point | OXY USA INC | FEDERAL 23 012H | 32.367071 | -103.755594 | 3001541803 | 26 22.0S | 31E | 941 N | 490 W | New (Not drilled or compl) | | |
| 66 Point | DEVON ENERGY PRODUCTION COMPANY, LP | ARK 36 STATE 001H | 32.341179 | -103.737402 | 3001542082 | 36 22.0S | 31E | 200 S | 795 W | New (Not drilled or compl) | | |
| 67 Point | DEVON ENERGY PRODUCTION COMPANY, LP | TOMB RAIDER 1 FEDERAL 001H | 32.34005 | -103.729506 | 3001542655 | 1 23.0S | 31E | 200 N | 2005 E | New (Not drilled or compl) | | |
| 68 Point | DEVON ENERGY PRODUCTION COMPANY, LP | BELLOQ 2 STATE 002H | 32.340103 | -103.751586 | 3001542895 | 2 23.0S | 31E | 200 N | 1720 W | New (Not drilled or compl) | | |
| 69 Point | DEVON ENERGY PRODUCTION COMPANY, LP | BELLOQ 2 STATE 005H | 32.340106 | -103.751749 | 3001542896 | 2 23.0S | 31E | 200 N | 1670 W | New (Not drilled or compl) | | |
| 70 Point | DEVON ENERGY PRODUCTION COMPANY, LP | BELLOQ 2 STATE 006H | 32.340101 | -103.751424 | 3001542897 | 2 23.0S | 31E | 200 N | 1770 W | New (Not drilled or compl) | | |
| 71 Point | DEVON ENERGY PRODUCTION COMPANY, LP | ARK 36 STATE 002H | 32.341093 | -103.735586 | 3001543027 | 36 22.0S | 31E | 171 S | 1353 W | New (Not drilled or compl) | | |
| 72 Point | DEVON ENERGY PRODUCTION COMPANY, LP | ARK 36 STATE 003H | 32.341106 | -103.735423 | 3001543028 | 36 22.0S | 31E | 176 S | 1403 W | New (Not drilled or compl) | | |
| 73 Point | OXY USA INC | NEFF FEDERAL 006H | 32.36928 | -103.729083 | 3001543184 | 25 22.0S | 31E | 150 N | 1885 E | New (Not drilled or compl) | | |
| 74 Point | DEVON ENERGY PRODUCTION COMPANY, LP | TOMB RAIDER 1 12 FEDERAL 061H | 32.340073 | -103.735722 | 3001543592 | 1 23.0S | 31E | 200 N | 1310 W | New (Not drilled or compl) | | |
| 75 Point | DEVON ENERGY PRODUCTION COMPANY, LP | TOMB RAIDER 1 FEDERAL 004H | 32.340072 | -103.735397 | 3001543593 | 1 23.0S | 31E | 200 N | 1410 W | New (Not drilled or compl) | | |
| 76 Point | COG OPERATING LLC | BULTACO STATE 003H | 32.340602 | -103.726531 | 3001543670 | 36 22.0S | 31E | 5 S | 1090 E | New (Not drilled or compl) | | |
| 77 Point | DEVON ENERGY PRODUCTION COMPANY, LP | TOMB RAIDER 1 12 FEDERAL 062H | 32.340073 | -103.73556 | 3001543889 | 1 23.0S | 31E | 200 N | 1360 W | New (Not drilled or compl) | | |


*Tankless Fed #2H*
*Water Transfer Route*

Date: 4/4/2017
Author: Whyrnie McDonald
State: New Mexico
County: Eddy

*Disclaimer: This is not a legal survey document*

## Map Legend

—·—·— Route

N
W E
S

0 1.25 2.5 5 7.5 10 Miles


*Tankless Fed #2H*
*To Malaga II Brine*

Date: 4/3/2017
Author: Whytnie McDonald
State: New Mexico
County: Eddy

***Disclaimer: This is not a legal survey document***

## Map Legend

Route

N
W E
S

0 0.5 1 2 3 4
Miles

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

State of New Mexico
Energy, Minerals and Natural Resources Department

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



Submit Original to Appropriate District Office

# GAS CAPTURE PLAN

Date: 4/7/2017

☒ Original
☐ Amended - Reason for Amendment:

Operator & OGRID No.: COG Production LLC, OGRID 229137

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

*Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).*

## Well(s)/Production Facility – Name of facility

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

| Well Name | API | Well Location (ULSTR) | Footages | Expected MCF/D | Flared or Vented | Comments |
|---|---|---|---|---|---|---|
| Tankless Fed Com 2H | 30-015- | P-35-22S-31E | 190' FSL & 560' FEL | 656 MMCFD | | Gas will connect to a proposed CTB in Sec35, T22S, R31E |

## Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to DCP, and will be connected to Eunice low/high pressure gathering system located in Lea County, New Mexico. It will require 0' to an undetermined amount of feet of pipeline to connect the facility to low/high pressure gathering system. COG Operating LLC provides (periodically) to DCP a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, COG Operating LLC and DCP have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Eunice Processing Plant located in Sec 3 Twn, 21S Rng, 36E, Lea County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

## Flowback Strategy

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

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

## Alternatives to Reduce Flaring

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

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

COG Operating LLC

Rig Plat & Closed Loop Equipment Diagram

Well pad will be 390' X 370' with cellar in center of pad

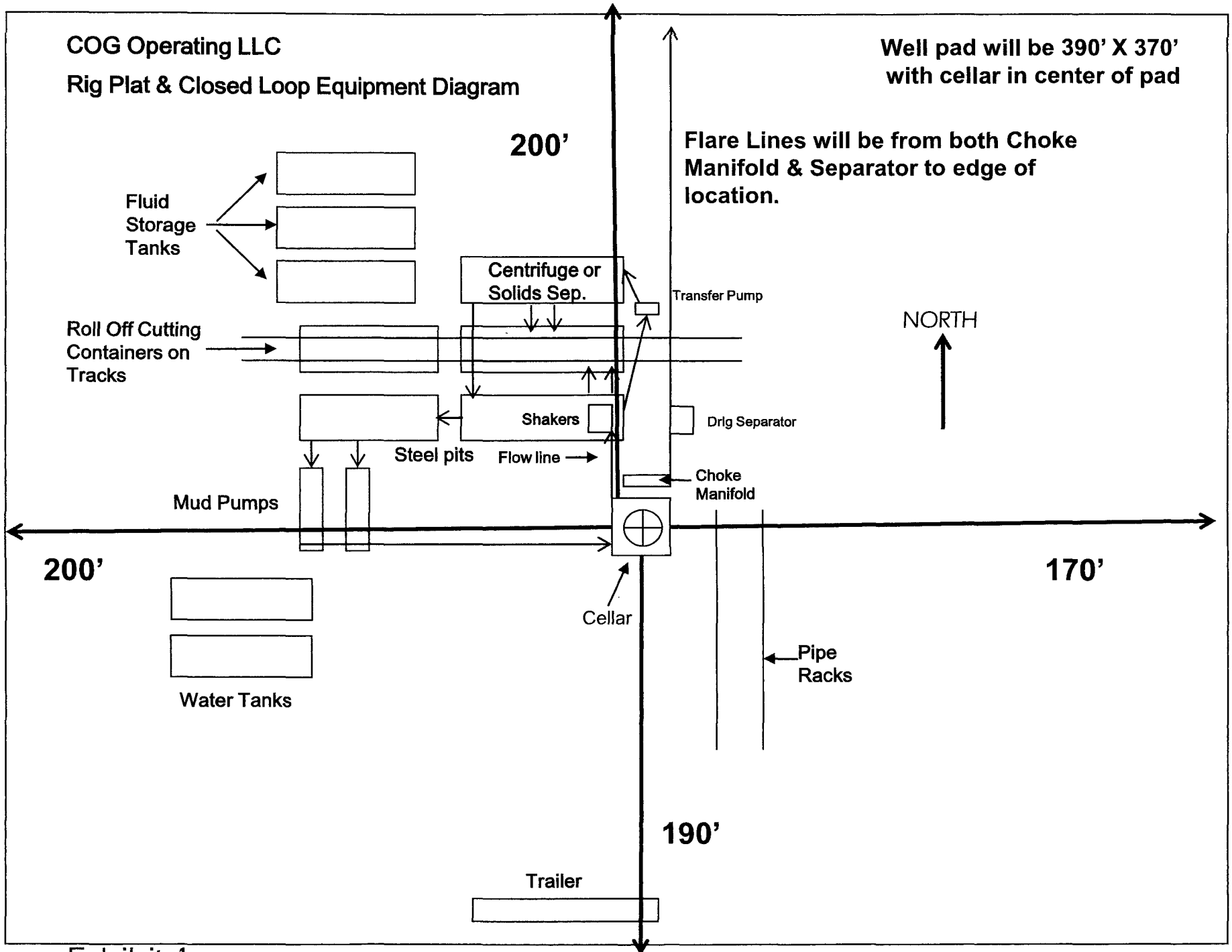



Exhibit 1

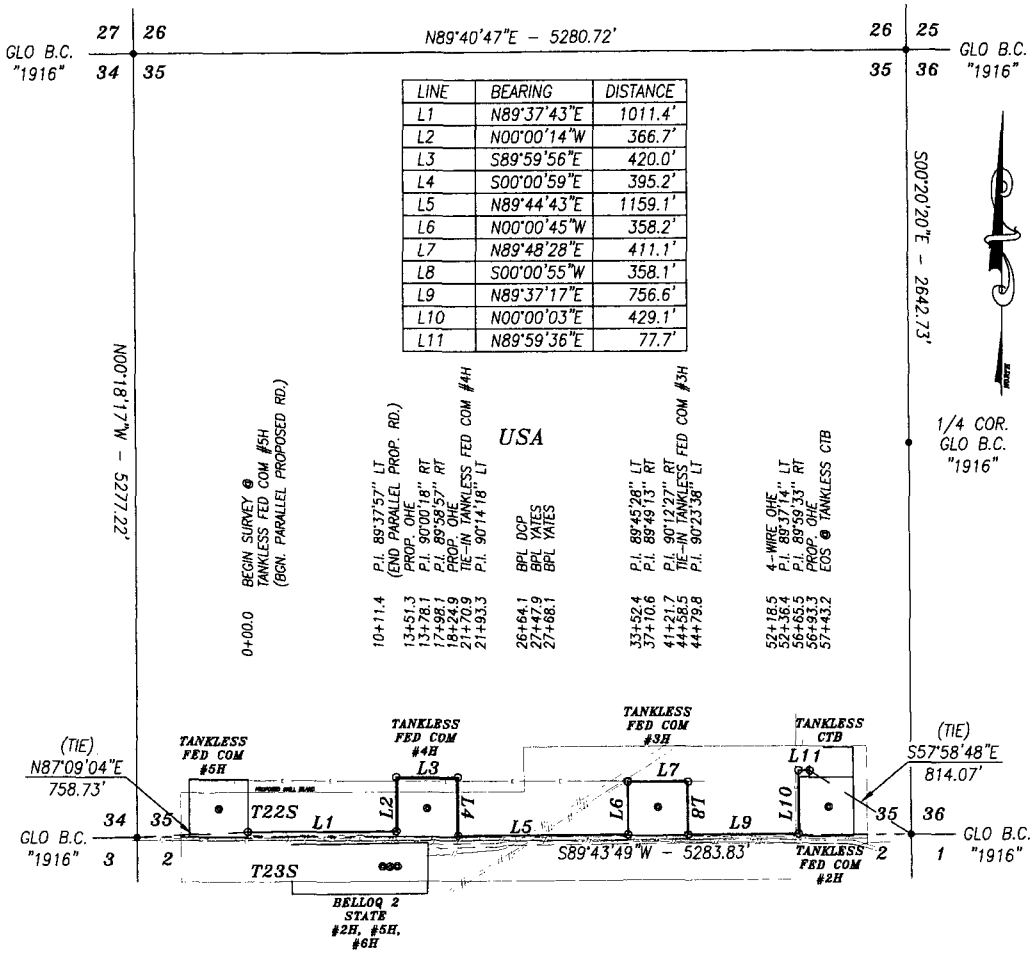
"I further certify that COG will comply with Rule 19.15.17 NMAC by using a Closed Loop System."

# *FLOWLINE PLAT*
# *COG PRODUCTION, LLC.*

A PROPOSED 3½" FLOWLINE AND A 4' POLY GAS LINE FROM THE TANKLESS FED COM #5H TO THE TANKLESS CTB IN

*SECTION 35, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M.,*

EDDY COUNTY, NEW MEXICO.




| LINE | BEARING | DISTANCE |
|---|---|---|
| L1 | N89°37'43"E | 1011.4' |
| L2 | N00°00'14"W | 366.7' |
| L3 | S89°59'56"E | 420.0' |
| L4 | S00°00'59"E | 395.2' |
| L5 | N89°44'43"E | 1159.1' |
| L6 | N00°00'45"W | 358.2' |
| L7 | N89°48'28"E | 411.1' |
| L8 | S00°00'55"W | 358.1' |
| L9 | N89°37'17"E | 756.6' |
| L10 | N00°00'03"E | 429.1' |
| L11 | N89°59'36"E | 77.7' |

## DESCRIPTION

*A STRIP OF LAND 30.0 FEET WIDE AND 5743.2 FEET OR 348.07 RODS OR 1.088 MILES IN LENGTH CROSSING USA LAND IN SECTION 35, TOWNSHIP 22 SOUTH, RANGE 31 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.*

**BASIS OF BEARING:**
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.

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

CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

*Chad Harcrow* 4/4/17

CHAD HARCROW N.M.P.S. NO. 17777 DATE


HARCROW SURVEYING, LLC
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PH: (575) 746-2158 FAX: (575) 746-2158
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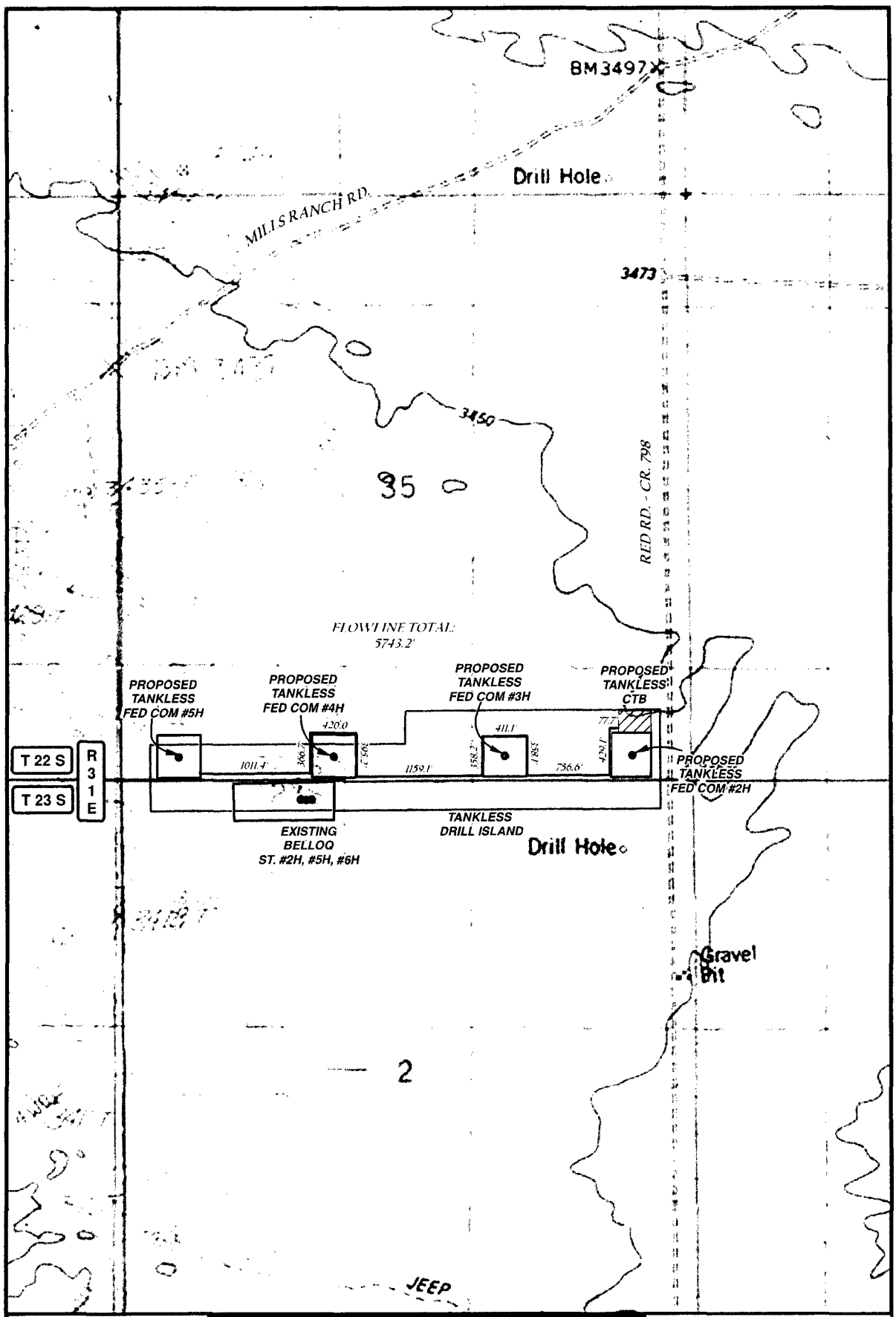
1000 0 1000 2000 FEET
SCALE: 1"=1000'

## COG PRODUCTION, LLC

SURVEY OF A PROPOSED FLOWLINE LOCATED IN SECTION 35, TOWNSHIP 22 SOUTH, RANGE 31 EAST, NMPM, EDDY COUNTY, NEW MEXICO

| | | |
|---|---|---|
| SURVEY DATE: DECEMBER 20, 2016 | | |
| DRAFTING DATE: DECEMBER 28, 2016 | | PAGE 1 OF 1 |
| APPROVED BY: CH | DRAWN BY: JH | FILE: 17-433 |




**LEGEND**

- FLOWLINE
- WELL
- WELLPAD
- TANKBATTERY
- DRILL ISLAND

**TANKLESS FED COM FLOWLINE**

| | | |
|---|---|---|
| SECTION: 35 | TOWNSHIP: 22 S. | RANGE: 31 E. |
| STATE: NEW MEXICO | COUNTY: EDDY | SURVEY: N.M.P.M |
| W.O. # 17-433 | LEASE: TANKLESS FED COM | |

0 2,500 FEET

0 0.05 0.1 0.2 Miles

1 IN = 1,000 FT

FLOWLINE OVERVIEW | TOPO | 12/28/2016 | J.H.

N

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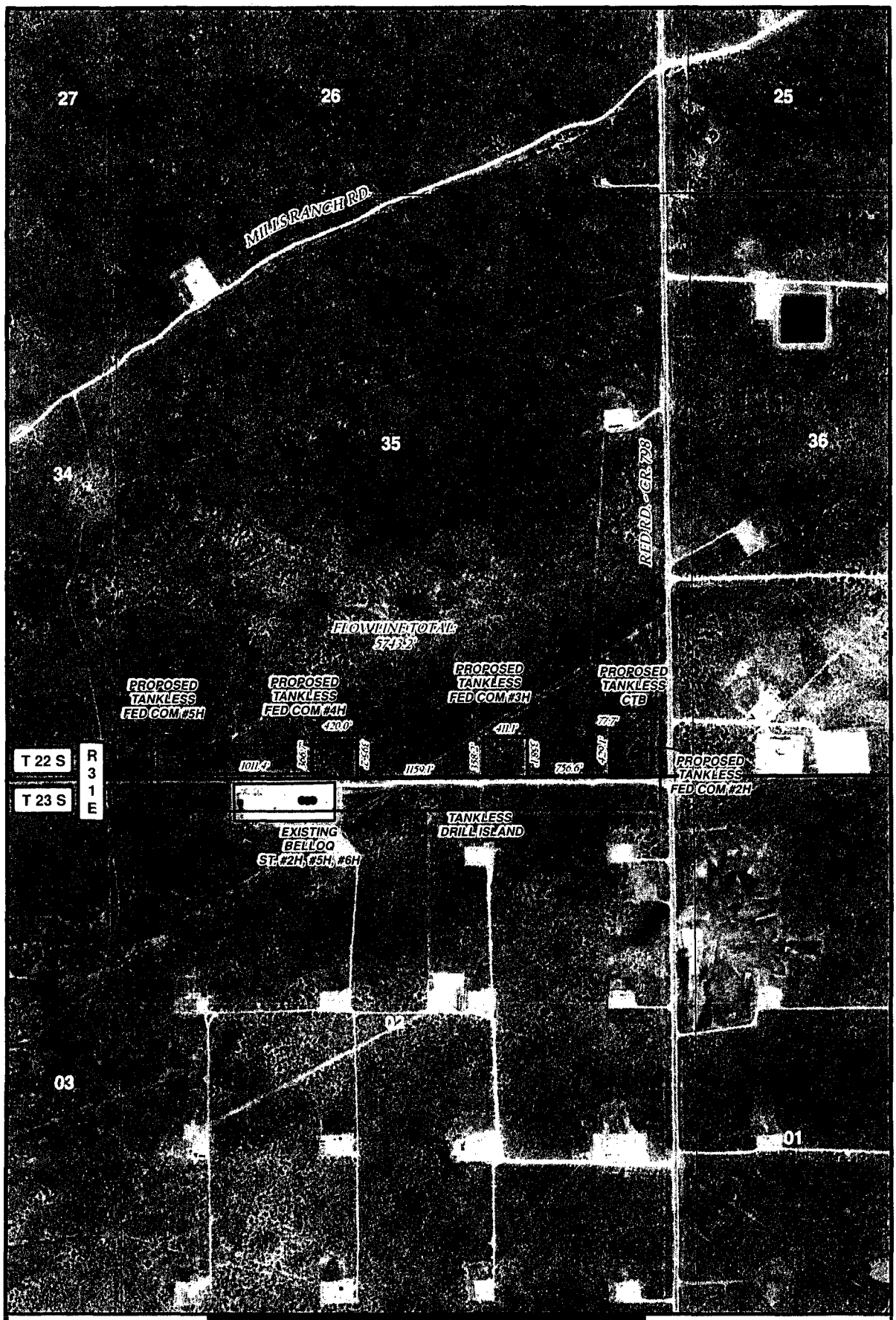


**LEGEND**

- FLOWLINE
- WELL
- WELLPAD
- TANKBATTERY
- DRILL ISLAND

**TANKLESS FED COM FLOWLINE**

| | | |
|---|---|---|
| SECTION: 35 | TOWNSHIP: 22 S. | RANGE: 31 E. |
| STATE: NEW MEXICO | COUNTY: EDDY | SURVEY: N.M.P.M |
| W.O. # 17-433 | | LEASE: TANKLESS FED COM |

0 2,500 FEET

0 0.05 0.1 0.2 Miles

1 IN = 1,000 FT

FLOWLINE OVERVIEW IMAGERY 12/28/2016 J.H.

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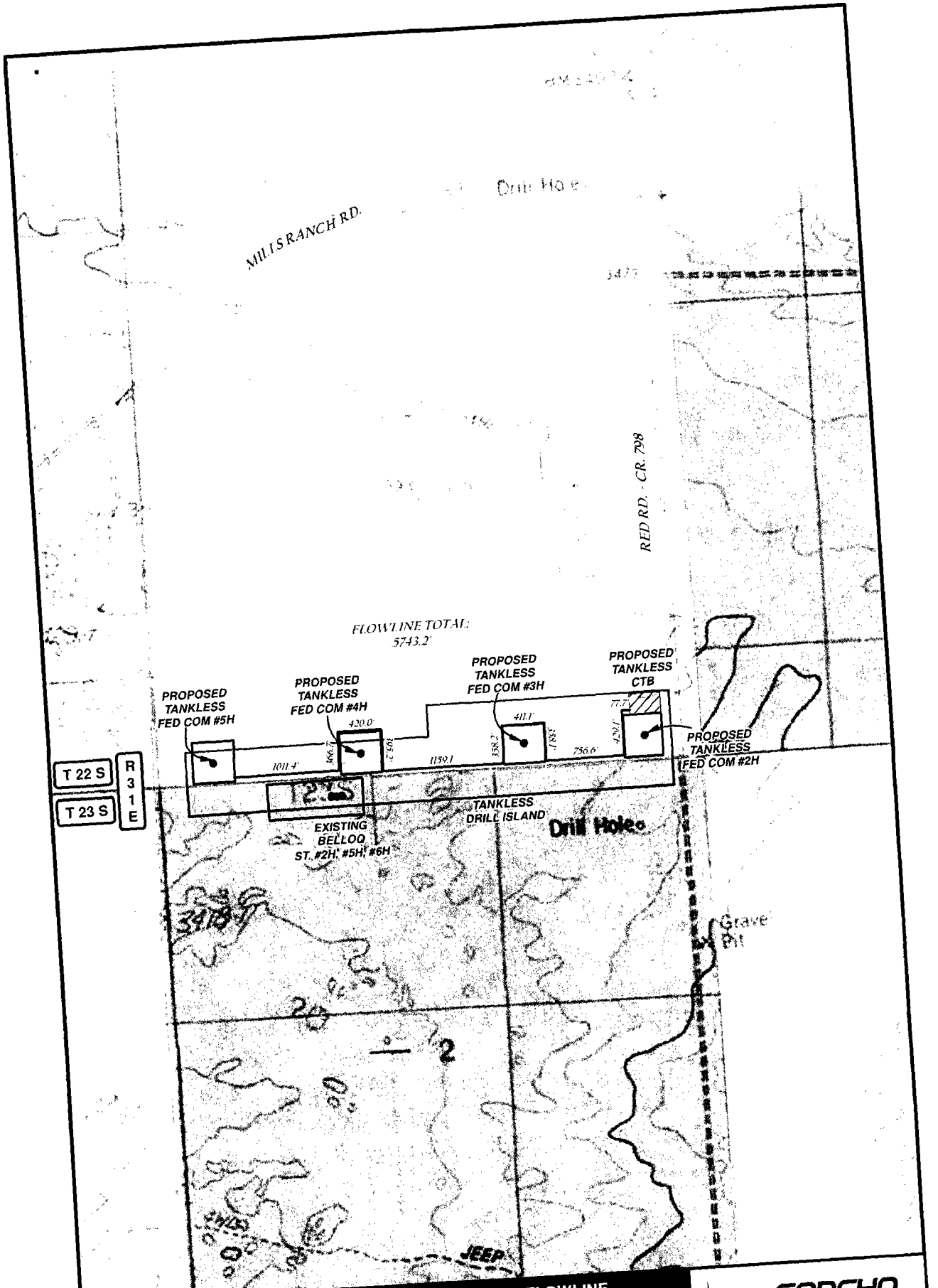


**LEGEND**

- FLOWLINE
- WELL
- WELLPAD
- TANKBATTERY
- DRILL ISLAND
- DEPT. OF ENERGY
- STATE OF NM
- US BLM

**TANKLESS FED COM FLOWLINE**

| | | |
|---|---|---|
| SECTION: 35 | TOWNSHIP: 22 S. | RANGE: 31 E. |
| STATE: NEW MEXICO | COUNTY: EDDY | SURVEY: N.M.P.M |
| W.O. # 17-433 | LEASE: TANKLESS FED COM | |

0 2,500 FEET

0 0.05 0.1 0.2 Miles

1 IN = 1,000 FT

FLOWLINE OVERVIEW | LAND STATUS | 12/28/2016 | J.H.

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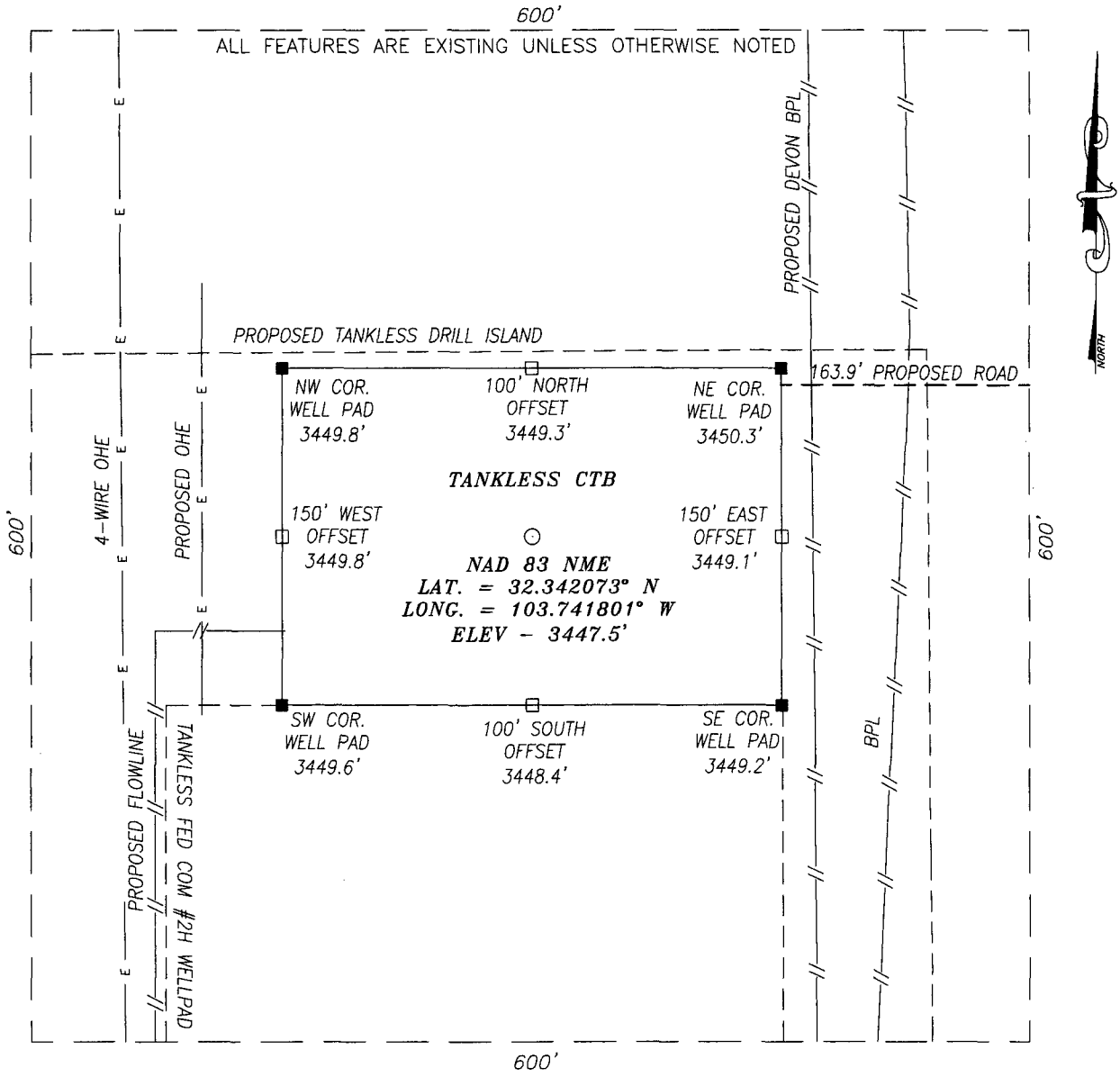
c.harcrow@harcrowsurveying.com

# SECTION 35, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M.,

EDDY COUNTY NEW MEXICO




DIRECTIONS TO LOCATION:
FROM THE INTERSECTION OF RED RD.–C.R. 798 AND MILLS RANCH RD. GO SOUTH ON RED RD. FOR APPROX. 1.2 MI.; THEN TURN RIGHT (WESTERLY) AND GO APPROX. 330'; PROPOSED CTB LIES APPROX. 630' RIGHT (NORTH).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100 0 100 200 Feet
Scale: 1"=100'

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

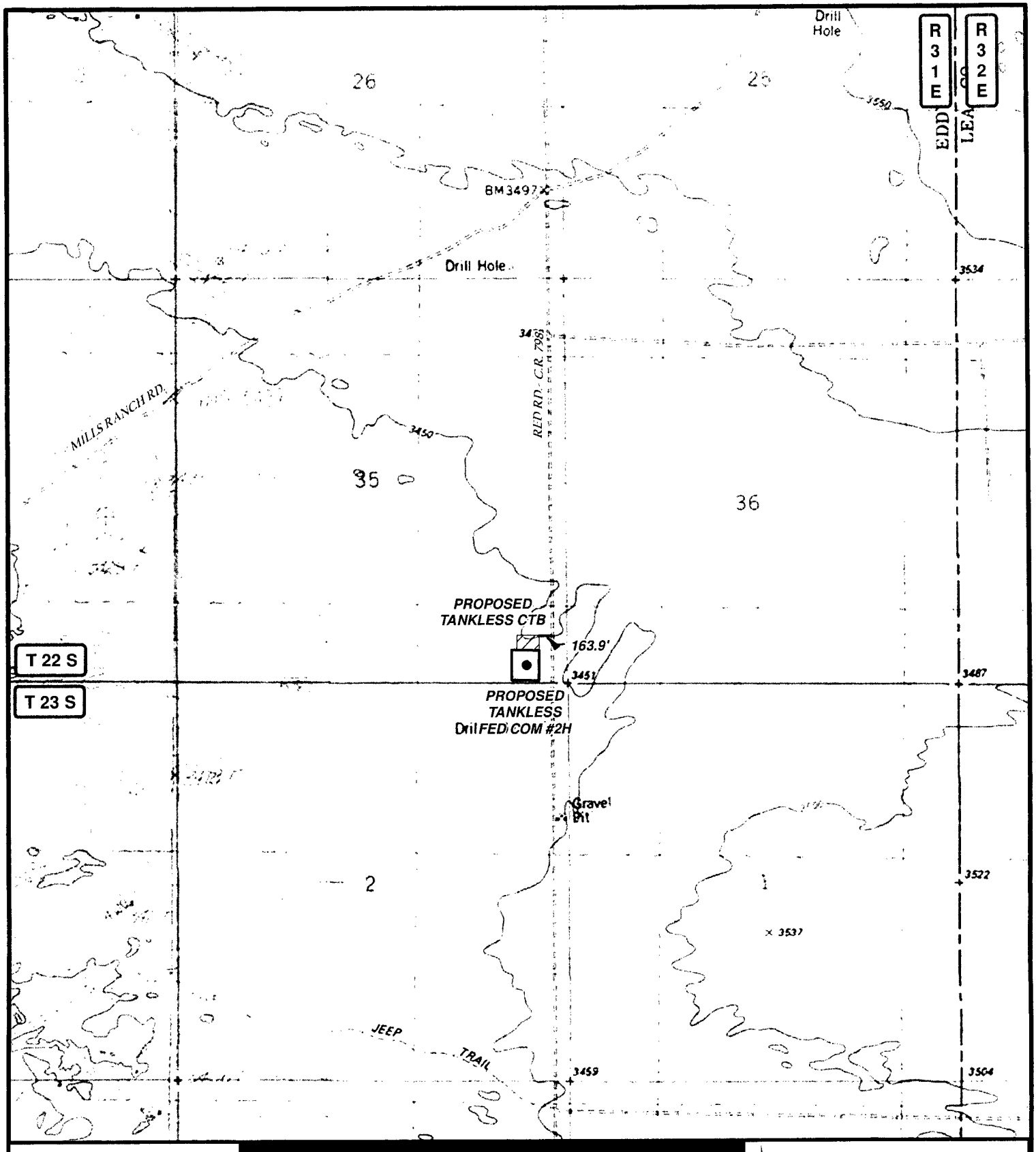
CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 4/4/17
CHAD HARCROW N.M.P.S. NO. 17777 DATE

## COG PRODUCTION, LLC

**TANKLESS CENTRAL TANK BATTERY**
**LOCATED 490 FEET FROM THE SOUTH LINE**
**AND 540 FEET FROM THE EAST LINE OF SECTION 35,**
**TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M.,**
**EDDY COUNTY, NEW MEXICO**

| | | |
|---|---|---|
| SURVEY DATE: 12/15/2016 | | PAGE: 1 OF 1 |
| DRAFTING DATE: 12/29/2016 | | |
| APPROVED BY: CH | DRAWN BY: JH | FILE: 17-433 |




## LEGEND

- WELL
- WELLPAD
- PROPOSED ROAD
- TANKBATTERY

## TANKLESS CENTRAL TANK BATTERY

| | | | |
|---|---|---|---|
| SEC: 35 | TWP: 22 S. | RGE: 31 E. | ELEVATION: 3447.5' |
| STATE: NEW MEXICO | | COUNTY: EDDY | 490' FSL & 540' FEL |
| W.O. # 17-433 | | LEASE: TANKLESS FED COM | SURVEY: N.M.P.M |

0 2,500 5,000 FEET

0 0.125 0.25 0.5 Miles

1 IN = 2,000 FT

LOCATION MAP | TOPO | 12/29/2016 | J.H.

N

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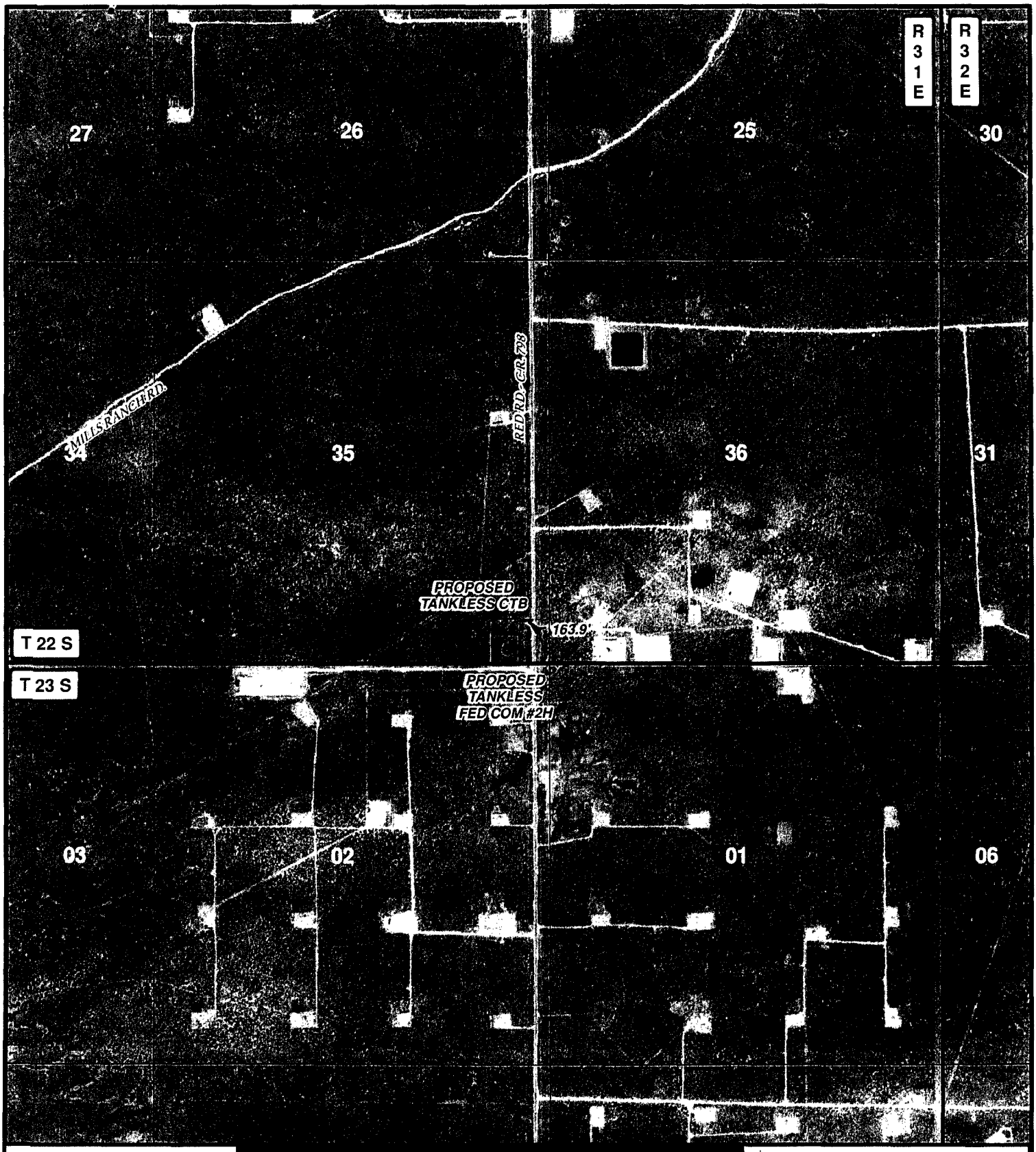


## LEGEND

- WELL
- WELLPAD
- PROPOSED ROAD
- TANKBATTERY

## TANKLESS CENTRAL TANK BATTERY

| | | | |
|---|---|---|---|
| SEC: 35 | TWP: 22 S. | RGE: 31 E. | ELEVATION: 3447.5' |
| STATE: NEW MEXICO | | COUNTY: EDDY | 490' FSL & 540' FEL |
| W.O. # 17-433 | LEASE: TANKLESS FED COM | | SURVEY: N.M.P.M |

0 2,500 5,000 FEET

0 0.125 0.25 0.5 Miles

1 IN = 2,000 FT

LOCATION MAP IMAGERY 12/29/2016 J.H.

N

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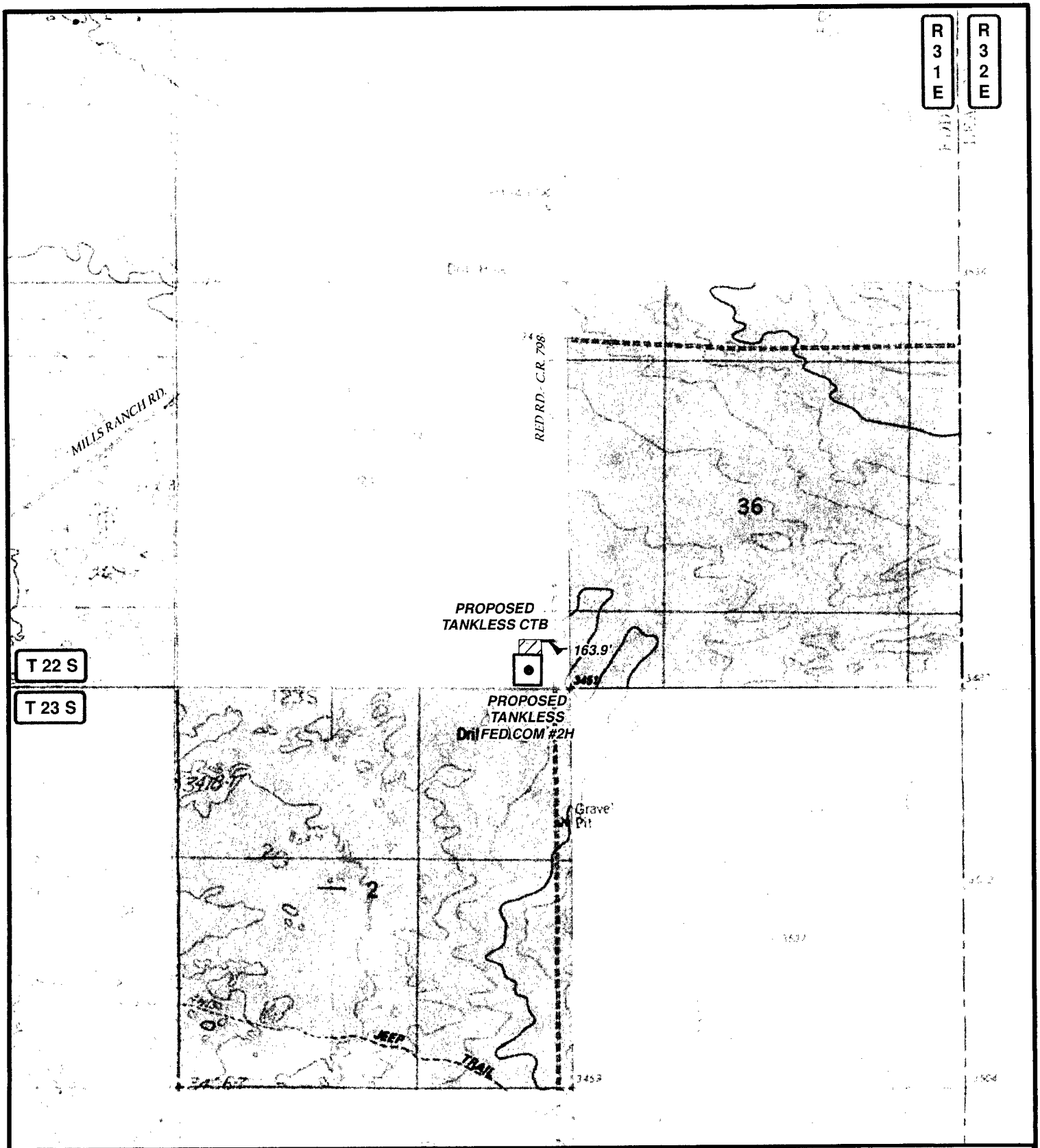


## LEGEND

- WELL
- WELLPAD
- PROPOSED ROAD
- TANKBATTERY
- STATE OF NM
- US BLM
- DEPT. OF ENERGY

# TANKLESS CENTRAL TANK BATTERY

| | | | |
|---|---|---|---|
| SEC: 35 | TWP: 22 S. | RGE: 31 E. | ELEVATION: 3447.5' |
| STATE: NEW MEXICO | | COUNTY: EDDY | 490' FSL & 540' FEL |
| W.O. # 17-433 | LEASE: TANKLESS FED COM | | SURVEY: N.M.P.M |

0 2,500 5,000 FEET

0 0.125 0.25 0.5 Miles

1 IN = 2,000 FT

LOCATION MAP | LAND STATUS | 12/29/2016 | J.H.

N

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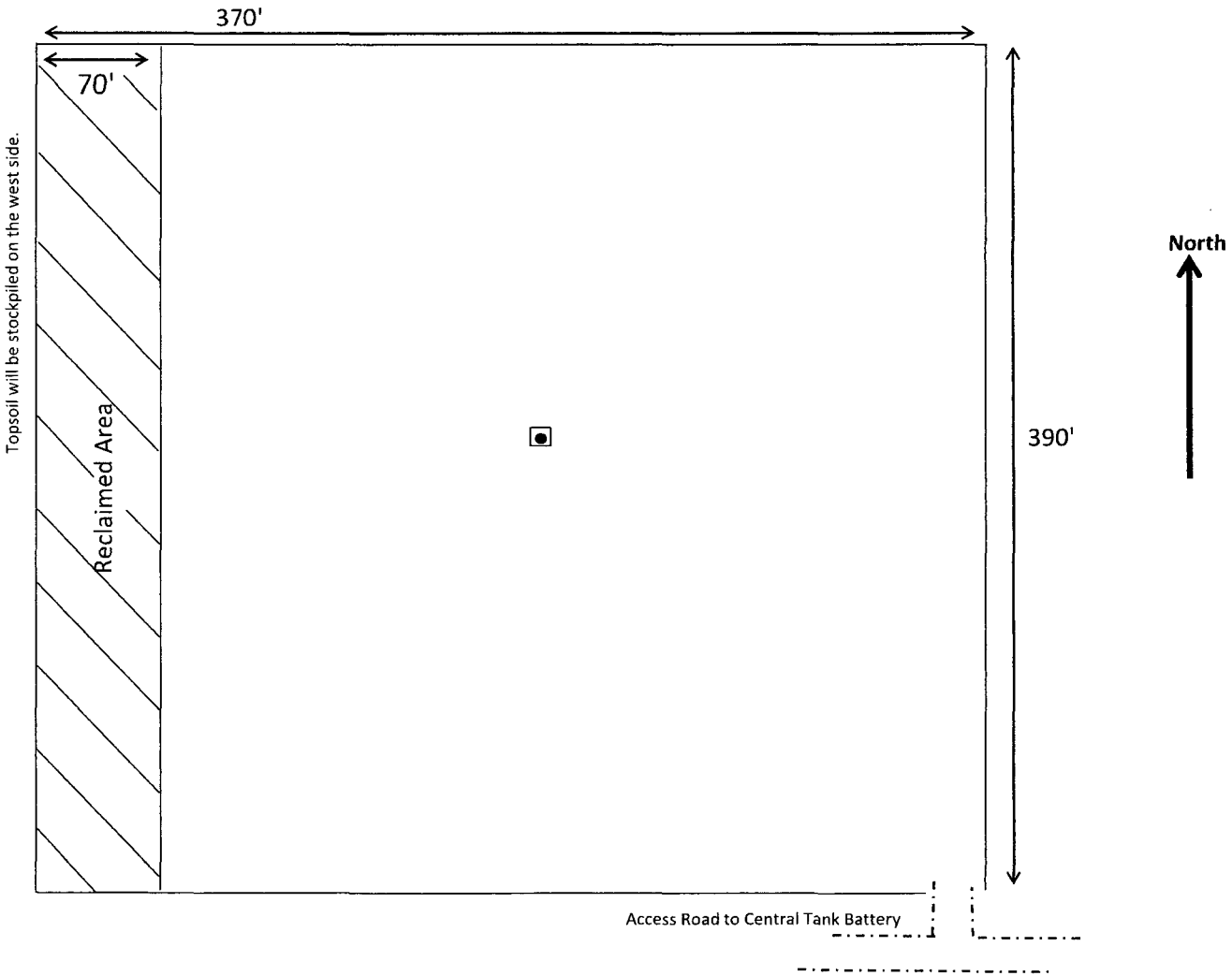
CONCHO

COG Production LLC
2208 West Main Street
Artesia, NM 88210

# Well SIte Layout
# Production Facility Layout

Tankless Federal Com #2H
Section 35 - T22S - R31E

# Exhibit 3



## OPERATOR CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently 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 COG Production LLC, 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 7th day of APRIL, 2017.

Signed: Mayte Reyes

Printed Name: Mayte Reyes
Position: Regulatory Analyst
Address: 2208 W. Main Street, Artesia, NM 88210
Telephone: (575) 748-6945
E-mail: mreyes1@concho.com
Field Representative (if not above signatory): Rand French
E-mail: rfrench@concho.com

## 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
08/31/2017

## Bond Information

**Federal/Indian APD:** FED

**BLM Bond number:** NMB000860

**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:**