PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG OPERATING
LEASE NO.:	NMNM121958
WELL NAME & NO.:	DOMINATOR 25 FED 714H
SURFACE HOLE FOOTAGE:	280'/S & 862'/w
BOTTOM HOLE FOOTAGE	200'/N & 750'/w
LOCATION:	SECTION 25, T25S, R33E, NMPM
COUNTY:	LEA

Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	◉ Conventional	○ Multibowl	
Other	☐4 String Area	☐Capitan Reef	☐WIPP

A. Hydrogen Sulfide

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

B. CASING

1. The **10 3/4** inch surface casing shall be set at approximately **1135** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength,

whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

2. The minimum required fill of cement behind the **7 5/8** inch intermediate casing is:

   - Cement to surface. If cement does not circulate see B.1.a, c-d above.

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

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

C. PRESSURE CONTROL

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

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7 5/8** inch intermediate casing shoe shall be **10,000 (10M)** psi. **Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)**

D. SPECIAL REQUIREMENT(S)

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

MHH 04062018

GENERAL REQUIREMENTS

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

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

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

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

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

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

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

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

A. CASING

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

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

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

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

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

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

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

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

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

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

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

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

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

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after

installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

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

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

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

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WELL NAME & NO.:	DOMINATOR 25 FED COM 714H
SURFACE HOLE FOOTAGE:	280'/S & 862'/w
BOTTOM HOLE FOOTAGE	200'/N & 750'/w
LOCATION:	SECTION 25, T25S, R33E, NMPM
COUNTY:	LEA

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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.

Range

The operator must contact the allotment holder prior to construction to identify the location of the pipeline. The operator must take measures to protect the pipeline from compression or other damages. If the pipeline is damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the pipeline immediately. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

Watershed

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

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.

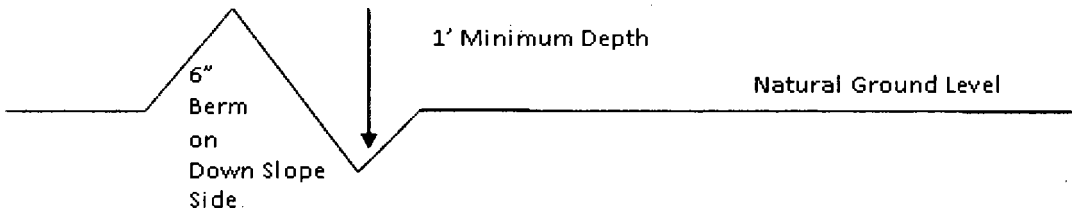
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

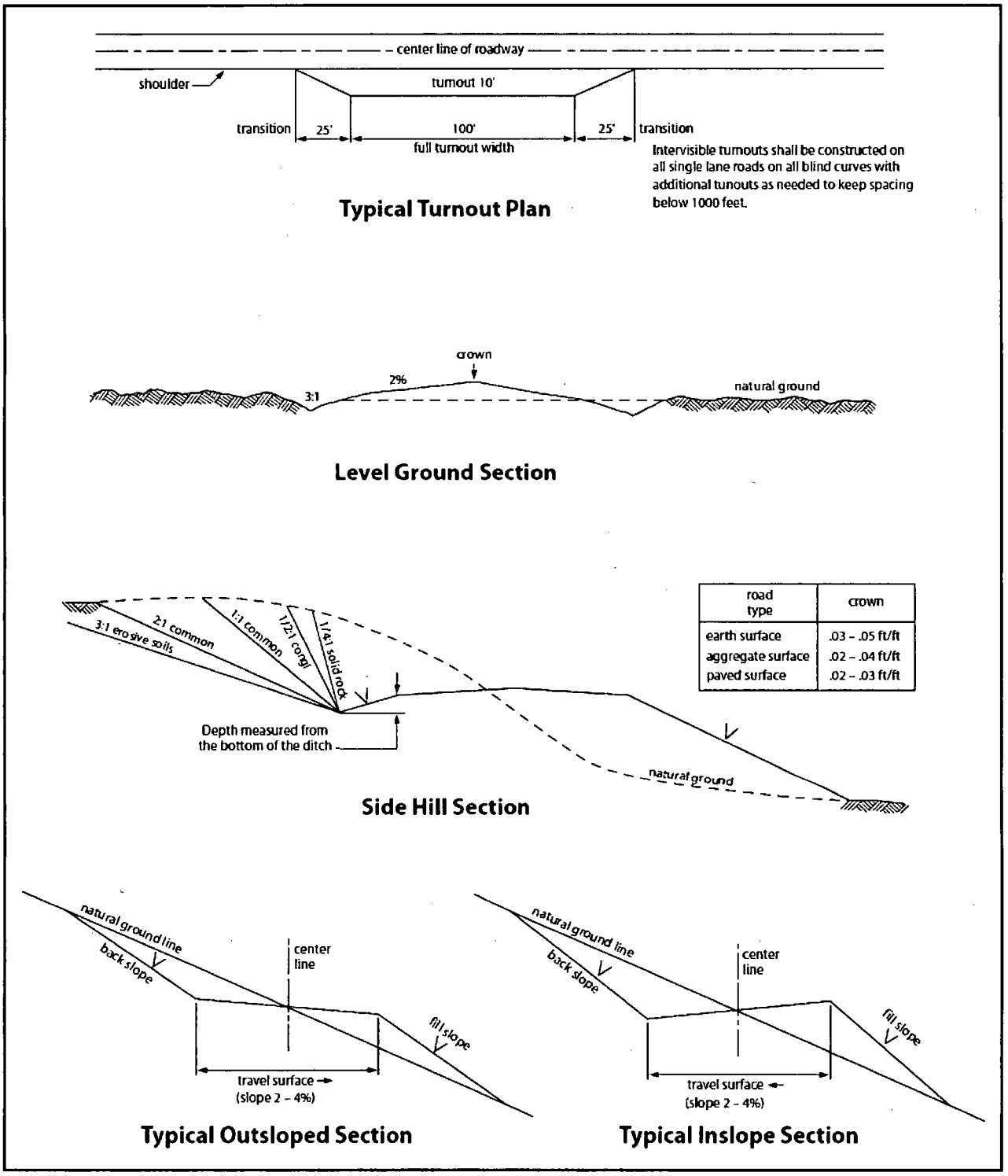


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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

04/10/2018

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:** 11/27/2017

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 Street

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

Phone: (575)748-6940

Email address: rfrench@concho.com

COG OPERATING 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 OPERATING 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.

WARNING

YOU ARE ENTERING AN H_2S AREA
AUTHORIZED PERSONNEL ONLY

1. ***BEARDS OR CONTACT LENSES NOT ALLOWED***
2. ***HARD HATS REQUIRED***
3. ***SMOKING IN DESIGNATED AREAS ONLY***
4. ***BE WIND CONSCIOUS AT ALL TIMES***
5. ***CK WITH COG OPERATING LLC FOREMAN AT MAIN OFFICE***

COG OPERATING LLC

1-575-748-6940

EMERGENCY CALL LIST

	OFFICE	MOBILE
COG OPERATING 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

CONCHO

COG Operating, LLC

Lea County, NM
Sec 25, T25S, R33E
Dominator 25 Federal #714H

Wellbore #1
Design #1

QES Anticollision Report

14 November, 2017

QES
DIRECTIONAL DRILLING

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Design #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0 usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 11/14/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	12,280.4	Design #1 (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro
12,280.4	17,583.0	Design #1 (Wellbore #1)	MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-Station Correction

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Sec 25, T25S, R33E						
Dominator 25 Federal #108H - Wellbore #1 - Design #1	3,313.0	3,313.0	42.4	19.6	1.864	CC
Dominator 25 Federal #108H - Wellbore #1 - Design #1	3,400.0	3,399.9	42.4	19.0	1.815	ES
Dominator 25 Federal #108H - Wellbore #1 - Design #1	3,500.0	3,499.1	43.5	19.5	1.810	SF
Dominator 25 Federal #308H - Wellbore #1 - Design #1	4,300.0	4,300.0	30.0	0.3	1.010	Level 2, CC, ES, SF
Dominator 25 Federal #408H - Wellbore #1 - Design #1	4,300.0	4,300.0	42.4	12.7	1.429	Level 3, CC, ES, SF
Dominator 25 Federal #609H - Wellbore #1 - Design #1	4,300.0	4,300.0	30.0	0.4	1.015	Level 2, CC
Dominator 25 Federal #609H - Wellbore #1 - Design #1	4,400.0	4,399.3	30.4	0.2	1.006	Level 2, ES, SF
Dominator 25 Federal #713H - Wellbore #1 - Design #1	4,300.0	4,300.0	29.9	0.3	1.011	Level 2, CC, ES, SF

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #108H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 9117-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-45.48	29.7	-30.2	42.4			
100.0	100.0	100.0	100.0	0.1	0.1	-45.48	29.7	-30.2	42.4	42.1	170.529	
200.0	200.0	200.0	200.0	0.5	0.5	-45.48	29.7	-30.2	42.4	41.4	44.677	
300.0	300.0	300.0	300.0	0.8	0.8	-45.48	29.7	-30.2	42.4	40.7	25.706	
400.0	400.0	400.0	400.0	1.2	1.2	-45.48	29.7	-30.2	42.4	40.0	18.044	
500.0	500.0	500.0	500.0	1.5	1.5	-45.48	29.7	-30.2	42.4	39.3	13.901	
600.0	600.0	600.0	600.0	1.9	1.9	-45.48	29.7	-30.2	42.4	38.6	11.305	
700.0	700.0	700.0	700.0	2.2	2.2	-45.48	29.7	-30.2	42.4	37.9	9.526	
800.0	800.0	800.0	800.0	2.6	2.6	-45.48	29.7	-30.2	42.4	37.2	8.231	
900.0	900.0	900.0	900.0	2.9	2.9	-45.48	29.7	-30.2	42.4	36.5	7.246	
1,000.0	1,000.0	1,000.0	1,000.0	3.3	3.3	-45.48	29.7	-30.2	42.4	35.8	6.471	
1,100.0	1,100.0	1,100.0	1,100.0	3.6	3.6	-45.48	29.7	-30.2	42.4	35.1	5.846	
1,200.0	1,200.0	1,200.0	1,200.0	4.0	4.0	-45.48	29.7	-30.2	42.4	34.4	5.331	
1,300.0	1,300.0	1,300.0	1,300.0	4.3	4.3	-45.48	29.7	-30.2	42.4	33.7	4.900	
1,400.0	1,400.0	1,400.0	1,400.0	4.7	4.7	-45.48	29.7	-30.2	42.4	33.0	4.533	
1,500.0	1,500.0	1,500.0	1,500.0	5.0	5.0	-45.48	29.7	-30.2	42.4	32.3	4.217	
1,600.0	1,600.0	1,600.0	1,600.0	5.4	5.4	-45.48	29.7	-30.2	42.4	31.6	3.943	
1,700.0	1,700.0	1,700.0	1,700.0	5.7	5.7	-45.48	29.7	-30.2	42.4	30.9	3.701	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #108H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 9117-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
1,800.0	1,800.0	1,800.0	1,800.0	6.1	6.1	-45.48	29.7	-30.2	42.4	30.2	3.488	
1,900.0	1,900.0	1,900.0	1,900.0	6.4	6.4	-45.48	29.7	-30.2	42.4	29.5	3.298	
2,000.0	2,000.0	2,000.0	2,000.0	6.8	6.8	-45.48	29.7	-30.2	42.4	28.8	3.128	
2,100.0	2,100.0	2,100.0	2,100.0	7.1	7.1	-45.48	29.7	-30.2	42.4	28.1	2.974	
2,200.0	2,200.0	2,200.0	2,200.0	7.5	7.5	-45.48	29.7	-30.2	42.4	27.4	2.835	
2,300.0	2,300.0	2,300.0	2,300.0	7.8	7.8	-45.48	29.7	-30.2	42.4	26.7	2.708	
2,400.0	2,400.0	2,400.0	2,400.0	8.2	8.2	-45.48	29.7	-30.2	42.4	26.0	2.592	
2,500.0	2,500.0	2,500.0	2,500.0	8.5	8.5	-45.48	29.7	-30.2	42.4	25.3	2.486	
2,600.0	2,600.0	2,600.0	2,600.0	8.9	8.9	-45.48	29.7	-30.2	42.4	24.6	2.388	
2,700.0	2,700.0	2,700.0	2,700.0	9.2	9.2	-45.48	29.7	-30.2	42.4	23.9	2.297	
2,800.0	2,800.0	2,800.0	2,800.0	9.6	9.6	-45.48	29.7	-30.2	42.4	23.2	2.213	
2,900.0	2,900.0	2,900.0	2,900.0	9.9	9.9	-45.48	29.7	-30.2	42.4	22.5	2.135	
3,000.0	3,000.0	3,000.0	3,000.0	10.3	10.3	-45.48	29.7	-30.2	42.4	21.8	2.062	
3,100.0	3,100.0	3,100.0	3,100.0	10.6	10.6	-45.48	29.7	-30.2	42.4	21.1	1.994	
3,200.0	3,200.0	3,200.0	3,200.0	11.0	11.0	-45.48	29.7	-30.2	42.4	20.4	1.931	
3,300.0	3,300.0	3,300.0	3,300.0	11.3	11.3	-45.48	29.7	-30.2	42.4	19.7	1.871	
3,313.0	3,313.0	3,313.0	3,313.0	11.4	11.4	-45.48	29.7	-30.2	42.4	19.6	1.864	CC
3,400.0	3,400.0	3,399.9	3,399.9	11.7	11.7	-45.50	29.7	-30.2	42.4	19.0	1.815	ES
3,500.0	3,500.0	3,499.1	3,499.1	12.0	12.0	-47.81	29.2	-32.2	43.5	19.5	1.810	SF
3,600.0	3,600.0	3,598.0	3,597.8	12.4	12.4	-53.37	27.9	-37.5	46.8	22.1	1.896	
3,700.0	3,700.0	3,697.3	3,696.8	12.7	12.7	-60.29	26.0	-45.5	52.5	27.1	2.069	
3,800.0	3,800.0	3,796.9	3,796.1	13.1	13.1	-65.95	24.0	-53.7	58.9	32.9	2.262	
3,900.0	3,900.0	3,896.6	3,895.3	13.4	13.5	-70.46	22.0	-61.9	65.8	39.1	2.462	
4,000.0	4,000.0	3,996.2	3,994.6	13.8	13.8	-74.10	20.0	-70.1	73.0	45.6	2.663	
4,100.0	4,100.0	4,095.9	4,093.9	14.1	14.2	-77.08	17.9	-78.2	80.5	52.4	2.864	
4,200.0	4,200.0	4,195.5	4,193.2	14.5	14.5	-79.55	15.9	-86.4	88.2	59.4	3.060	
4,300.0	4,300.0	4,295.1	4,292.5	14.9	14.9	-81.62	13.9	-94.6	95.9	66.4	3.252	
4,400.0	4,400.0	4,394.9	4,391.8	15.2	15.2	71.86	11.9	-102.8	103.3	73.1	3.420	
4,500.0	4,499.8	4,494.6	4,491.3	15.5	15.6	72.74	9.9	-111.0	109.6	78.7	3.545	
4,600.0	4,599.5	4,594.4	4,590.6	15.9	16.0	75.04	7.9	-119.2	115.1	83.4	3.639	
4,700.0	4,699.1	4,694.1	4,690.0	16.2	16.3	77.38	5.9	-127.4	120.6	88.3	3.731	
4,800.0	4,798.7	4,793.8	4,789.4	16.6	16.7	79.51	3.9	-135.6	126.4	93.3	3.824	
4,900.0	4,898.4	4,893.6	4,888.8	16.9	17.0	81.45	1.9	-143.8	132.3	98.5	3.917	
5,000.0	4,998.0	4,993.3	4,988.1	17.3	17.4	83.22	-0.1	-152.0	138.3	103.9	4.011	
5,100.0	5,097.6	5,093.0	5,087.5	17.6	17.7	84.85	-2.1	-160.2	144.5	109.3	4.105	
5,200.0	5,197.2	5,192.8	5,186.9	18.0	18.1	86.34	-4.1	-168.4	150.8	114.9	4.198	
5,300.0	5,296.8	5,292.5	5,286.2	18.4	18.5	87.71	-6.1	-176.6	157.2	120.5	4.290	
5,400.0	5,396.4	5,392.2	5,385.6	18.7	18.8	88.97	-8.1	-184.8	163.6	126.3	4.380	
5,500.0	5,496.1	5,491.9	5,485.0	19.1	19.2	90.14	-10.1	-193.0	170.1	132.1	4.469	
5,600.0	5,595.7	5,591.7	5,584.4	19.4	19.5	91.22	-12.1	-201.2	176.7	138.0	4.557	
5,700.0	5,695.3	5,691.4	5,683.7	19.8	19.9	92.22	-14.1	-209.4	183.4	143.9	4.643	
5,800.0	5,794.9	5,791.1	5,783.1	20.1	20.2	93.15	-16.1	-217.6	190.1	149.9	4.727	
5,900.0	5,894.5	5,890.9	5,882.5	20.5	20.6	94.02	-18.1	-225.8	196.8	155.9	4.809	
6,000.0	5,994.2	5,990.6	5,981.8	20.8	20.9	94.83	-20.1	-234.0	203.6	162.0	4.890	
6,100.0	6,093.8	6,090.3	6,081.2	21.2	21.3	95.59	-22.1	-242.2	210.5	168.1	4.969	
6,200.0	6,193.4	6,190.0	6,180.6	21.6	21.7	96.30	-24.1	-250.4	217.3	174.3	5.046	
6,300.0	6,293.0	6,289.8	6,280.0	21.9	22.0	96.97	-26.2	-258.6	224.2	180.4	5.122	
6,400.0	6,392.6	6,389.5	6,379.3	22.3	22.4	97.59	-28.2	-266.8	231.1	186.7	5.195	
6,500.0	6,492.3	6,489.2	6,478.7	22.6	22.7	98.18	-30.2	-275.0	238.1	192.9	5.267	
6,600.0	6,591.9	6,589.0	6,578.1	23.0	23.1	98.74	-32.2	-283.2	245.1	199.2	5.338	
6,700.0	6,691.5	6,688.7	6,677.4	23.3	23.4	99.27	-34.2	-291.4	252.1	205.4	5.406	
6,800.0	6,791.1	6,788.4	6,776.8	23.7	23.8	99.76	-36.2	-299.6	259.1	211.7	5.473	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #108H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 9117-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
6,900.0	6,890.7	6,888.1	6,876.2	24.0	24.1	100.24	-38.2	-307.8	266.1	218.1	5.539	
7,000.0	6,990.4	6,987.9	6,975.6	24.4	24.5	100.68	-40.2	-316.0	273.2	224.4	5.603	
7,100.0	7,090.0	7,087.6	7,074.9	24.7	24.9	101.11	-42.2	-324.2	280.2	230.8	5.665	
7,200.0	7,189.6	7,187.3	7,174.3	25.1	25.2	101.51	-44.2	-332.4	287.3	237.1	5.726	
7,300.0	7,289.3	7,287.1	7,273.7	25.4	25.6	101.84	-46.2	-340.6	294.3	243.4	5.783	
7,400.0	7,389.2	7,386.9	7,373.1	25.8	25.9	101.59	-48.2	-348.8	300.5	249.0	5.827	
7,500.0	7,489.1	7,486.6	7,472.4	26.1	26.3	-53.77	-50.2	-356.9	306.2	253.9	5.857	
7,600.0	7,589.1	7,586.2	7,571.7	26.5	26.6	-54.96	-52.2	-365.1	311.7	258.7	5.884	
7,700.0	7,689.1	7,685.8	7,671.0	26.8	27.0	-56.11	-54.2	-373.3	317.4	263.7	5.913	
7,800.0	7,789.1	7,785.5	7,770.3	27.2	27.3	-57.22	-56.2	-381.5	323.1	268.8	5.944	
7,900.0	7,889.1	7,885.1	7,869.6	27.5	27.7	-58.28	-58.2	-389.7	329.0	274.0	5.976	
8,000.0	7,989.1	7,984.8	7,968.9	27.9	28.1	-59.31	-60.2	-397.9	335.0	279.3	6.009	
8,100.0	8,089.1	8,084.4	8,068.1	28.2	28.4	-60.31	-62.2	-406.1	341.1	284.7	6.043	
8,200.0	8,189.1	8,184.0	8,167.4	28.6	28.8	-61.26	-64.2	-414.3	347.3	290.2	6.078	
8,300.0	8,289.1	8,283.7	8,266.7	28.9	29.1	-62.19	-66.2	-422.5	353.6	295.8	6.114	
8,400.0	8,389.1	8,383.3	8,366.0	29.3	29.5	-63.08	-68.2	-430.7	360.0	301.5	6.151	
8,500.0	8,489.1	8,483.0	8,465.3	29.6	29.8	-63.94	-70.2	-438.8	366.5	307.3	6.188	
8,600.0	8,589.1	8,582.6	8,564.6	30.0	30.2	-64.77	-72.2	-447.0	373.0	313.1	6.225	
8,700.0	8,689.1	8,682.3	8,663.9	30.3	30.5	-65.57	-74.2	-455.2	379.7	319.0	6.263	
8,800.0	8,789.1	8,781.9	8,763.1	30.7	30.9	-66.35	-76.3	-463.4	386.3	325.0	6.302	
8,900.0	8,889.1	8,881.5	8,862.4	31.0	31.2	-67.10	-78.3	-471.6	393.1	331.1	6.340	
9,000.0	8,989.1	8,981.2	8,961.7	31.3	31.6	-67.82	-80.3	-479.8	399.9	337.2	6.379	
9,100.0	9,089.1	9,080.8	9,061.0	31.7	32.0	-68.52	-82.3	-488.0	406.8	343.4	6.417	
9,200.0	9,189.1	9,165.9	9,145.7	32.0	32.1	-68.81	-81.8	-495.0	414.8	351.1	6.509	
9,300.0	9,289.1	9,239.7	9,218.3	32.4	32.1	-67.68	-70.5	-501.1	428.3	364.5	6.718	
9,400.0	9,389.1	9,308.5	9,283.7	32.7	32.1	-65.47	-50.0	-506.7	448.2	384.7	7.059	
9,500.0	9,489.1	9,370.3	9,339.4	33.1	32.1	-62.68	-23.7	-511.5	475.7	412.8	7.568	
9,600.0	9,589.1	9,425.0	9,385.5	33.4	32.1	-59.75	5.4	-515.5	511.4	449.6	8.276	
9,700.0	9,689.1	9,475.0	9,424.5	33.8	32.1	-56.80	36.5	-519.0	555.5	495.0	9.192	
9,800.0	9,789.1	9,511.0	9,450.4	34.1	32.1	-54.59	61.3	-521.3	607.5	548.9	10.366	
9,900.0	9,889.1	9,550.0	9,476.4	34.5	32.2	-52.15	90.3	-523.7	666.7	609.7	11.700	
10,000.0	9,989.1	9,575.0	9,491.7	34.8	32.2	-50.58	110.0	-525.1	731.9	676.8	13.281	
10,100.0	10,089.1	9,600.0	9,506.0	35.2	32.2	-49.03	130.5	-526.5	802.4	748.9	14.998	
10,200.0	10,189.1	9,625.0	9,519.2	35.5	32.2	-47.49	151.7	-527.7	877.2	825.0	16.820	
10,300.0	10,289.1	9,639.5	9,526.3	35.9	32.2	-46.61	164.3	-528.4	955.4	904.6	18.813	

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #308H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 9686-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-0.38	30.0	-0.2	30.0			
100.0	100.0	100.0	100.0	0.1	0.1	-0.38	30.0	-0.2	30.0	29.8	120.507	
200.0	200.0	200.0	200.0	0.5	0.5	-0.38	30.0	-0.2	30.0	29.1	31.572	
300.0	300.0	300.0	300.0	0.8	0.8	-0.38	30.0	-0.2	30.0	28.3	18.166	
400.0	400.0	400.0	400.0	1.2	1.2	-0.38	30.0	-0.2	30.0	27.6	12.751	
500.0	500.0	500.0	500.0	1.5	1.5	-0.38	30.0	-0.2	30.0	26.9	9.823	
600.0	600.0	600.0	600.0	1.9	1.9	-0.38	30.0	-0.2	30.0	26.2	7.989	
700.0	700.0	700.0	700.0	2.2	2.2	-0.38	30.0	-0.2	30.0	25.5	6.732	
800.0	800.0	800.0	800.0	2.6	2.6	-0.38	30.0	-0.2	30.0	24.8	5.816	
900.0	900.0	900.0	900.0	2.9	2.9	-0.38	30.0	-0.2	30.0	24.1	5.120	
1,000.0	1,000.0	1,000.0	1,000.0	3.3	3.3	-0.38	30.0	-0.2	30.0	23.4	4.573	
1,100.0	1,100.0	1,100.0	1,100.0	3.6	3.6	-0.38	30.0	-0.2	30.0	22.7	4.131	
1,200.0	1,200.0	1,200.0	1,200.0	4.0	4.0	-0.38	30.0	-0.2	30.0	22.0	3.768	
1,300.0	1,300.0	1,300.0	1,300.0	4.3	4.3	-0.38	30.0	-0.2	30.0	21.3	3.463	
1,400.0	1,400.0	1,400.0	1,400.0	4.7	4.7	-0.38	30.0	-0.2	30.0	20.6	3.203	
1,500.0	1,500.0	1,500.0	1,500.0	5.0	5.0	-0.38	30.0	-0.2	30.0	19.9	2.980	
1,600.0	1,600.0	1,600.0	1,600.0	5.4	5.4	-0.38	30.0	-0.2	30.0	19.2	2.786	
1,700.0	1,700.0	1,700.0	1,700.0	5.7	5.7	-0.38	30.0	-0.2	30.0	18.5	2.616	
1,800.0	1,800.0	1,800.0	1,800.0	6.1	6.1	-0.38	30.0	-0.2	30.0	17.8	2.465	
1,900.0	1,900.0	1,900.0	1,900.0	6.4	6.4	-0.38	30.0	-0.2	30.0	17.1	2.331	
2,000.0	2,000.0	2,000.0	2,000.0	6.8	6.8	-0.38	30.0	-0.2	30.0	16.4	2.210	
2,100.0	2,100.0	2,100.0	2,100.0	7.1	7.1	-0.38	30.0	-0.2	30.0	15.7	2.102	
2,200.0	2,200.0	2,200.0	2,200.0	7.5	7.5	-0.38	30.0	-0.2	30.0	15.0	2.003	
2,300.0	2,300.0	2,300.0	2,300.0	7.8	7.8	-0.38	30.0	-0.2	30.0	14.3	1.914	
2,400.0	2,400.0	2,400.0	2,400.0	8.2	8.2	-0.38	30.0	-0.2	30.0	13.6	1.832	
2,500.0	2,500.0	2,500.0	2,500.0	8.5	8.5	-0.38	30.0	-0.2	30.0	12.9	1.757	
2,600.0	2,600.0	2,600.0	2,600.0	8.9	8.9	-0.38	30.0	-0.2	30.0	12.2	1.687	
2,700.0	2,700.0	2,700.0	2,700.0	9.2	9.2	-0.38	30.0	-0.2	30.0	11.5	1.623	
2,800.0	2,800.0	2,800.0	2,800.0	9.6	9.6	-0.38	30.0	-0.2	30.0	10.8	1.564	
2,900.0	2,900.0	2,900.0	2,900.0	9.9	9.9	-0.38	30.0	-0.2	30.0	10.1	1.509	
3,000.0	3,000.0	3,000.0	3,000.0	10.3	10.3	-0.38	30.0	-0.2	30.0	9.4	1.457	Level 3
3,100.0	3,100.0	3,100.0	3,100.0	10.6	10.6	-0.38	30.0	-0.2	30.0	8.7	1.409	Level 3
3,200.0	3,200.0	3,200.0	3,200.0	11.0	11.0	-0.38	30.0	-0.2	30.0	8.0	1.364	Level 3
3,300.0	3,300.0	3,300.0	3,300.0	11.3	11.3	-0.38	30.0	-0.2	30.0	7.3	1.322	Level 3
3,400.0	3,400.0	3,400.0	3,400.0	11.7	11.7	-0.38	30.0	-0.2	30.0	6.6	1.283	Level 3
3,500.0	3,500.0	3,500.0	3,500.0	12.0	12.0	-0.38	30.0	-0.2	30.0	5.9	1.245	Level 2
3,600.0	3,600.0	3,600.0	3,600.0	12.4	12.4	-0.38	30.0	-0.2	30.0	5.2	1.210	Level 2
3,700.0	3,700.0	3,700.0	3,700.0	12.7	12.7	-0.38	30.0	-0.2	30.0	4.5	1.177	Level 2
3,800.0	3,800.0	3,800.0	3,800.0	13.1	13.1	-0.38	30.0	-0.2	30.0	3.8	1.145	Level 2
3,900.0	3,900.0	3,900.0	3,900.0	13.4	13.4	-0.38	30.0	-0.2	30.0	3.1	1.115	Level 2
4,000.0	4,000.0	4,000.0	4,000.0	13.8	13.8	-0.38	30.0	-0.2	30.0	2.4	1.087	Level 2
4,100.0	4,100.0	4,100.0	4,100.0	14.1	14.1	-0.38	30.0	-0.2	30.0	1.7	1.060	Level 2
4,200.0	4,200.0	4,200.0	4,200.0	14.5	14.5	-0.38	30.0	-0.2	30.0	1.0	1.034	Level 2
4,300.0	4,300.0	4,300.0	4,300.0	14.9	14.9	-0.38	30.0	-0.2	30.0	0.3	1.010	Level 2, CC, ES, SF
4,400.0	4,400.0	4,400.4	4,400.4	15.2	15.2	152.49	29.3	-1.8	30.9	0.5	1.016	Level 2
4,500.0	4,499.8	4,500.7	4,500.5	15.5	15.6	148.26	27.2	-6.6	33.7	2.6	1.083	Level 2
4,600.0	4,599.5	4,600.8	4,600.3	15.9	15.9	142.28	23.7	-14.6	38.3	6.5	1.205	Level 2
4,700.0	4,699.1	4,700.6	4,699.5	16.2	16.3	136.26	19.6	-23.8	43.4	10.9	1.336	Level 3
4,800.0	4,798.7	4,800.4	4,798.8	16.6	16.6	131.54	15.6	-33.1	48.9	15.7	1.473	Level 3
4,900.0	4,898.4	4,900.2	4,898.1	16.9	17.0	127.79	11.5	-42.3	54.6	20.7	1.611	
5,000.0	4,998.0	4,999.9	4,997.3	17.3	17.3	124.77	7.5	-51.5	60.6	26.0	1.750	
5,100.0	5,097.6	5,099.7	5,096.6	17.6	17.7	122.29	3.4	-60.7	66.7	31.3	1.887	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #308H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 9686-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
5,200.0	5,197.2	5,199.5	5,195.9	18.0	18.1	120.22	-0.6	-69.9	72.9	36.8	2.021	
5,300.0	5,296.8	5,299.3	5,295.1	18.4	18.4	118.49	-4.7	-79.1	79.1	42.4	2.153	
5,400.0	5,396.4	5,399.0	5,394.4	18.7	18.8	117.00	-8.7	-88.4	85.4	48.0	2.281	
5,500.0	5,496.1	5,498.8	5,493.7	19.1	19.1	115.73	-12.8	-97.6	91.8	53.6	2.405	
5,600.0	5,595.7	5,598.6	5,593.0	19.4	19.5	114.62	-16.8	-106.8	98.2	59.3	2.526	
5,700.0	5,695.3	5,698.4	5,692.2	19.8	19.9	113.64	-20.9	-116.0	104.7	65.1	2.643	
5,800.0	5,794.9	5,798.1	5,791.5	20.1	20.2	112.78	-24.9	-125.2	111.1	70.8	2.757	
5,900.0	5,894.5	5,897.9	5,890.8	20.5	20.6	112.02	-29.0	-134.4	117.6	76.6	2.868	
6,000.0	5,994.2	5,997.7	5,990.0	20.8	20.9	111.33	-33.0	-143.7	124.1	82.4	2.975	
6,100.0	6,093.8	6,097.5	6,089.3	21.2	21.3	110.71	-37.0	-152.9	130.7	88.2	3.079	
6,200.0	6,193.4	6,197.3	6,188.6	21.6	21.7	110.15	-41.1	-162.1	137.2	94.1	3.180	
6,300.0	6,293.0	6,297.0	6,287.8	21.9	22.0	109.65	-45.1	-171.3	143.8	99.9	3.278	
6,400.0	6,392.6	6,396.8	6,387.1	22.3	22.4	109.18	-49.2	-180.5	150.3	105.8	3.373	
6,500.0	6,492.3	6,496.6	6,486.4	22.6	22.7	108.76	-53.2	-189.7	156.9	111.6	3.465	
6,600.0	6,591.9	6,596.4	6,585.6	23.0	23.1	108.37	-57.3	-199.0	163.5	117.5	3.554	
6,700.0	6,691.5	6,696.1	6,684.9	23.3	23.5	108.01	-61.3	-208.2	170.1	123.4	3.641	
6,800.0	6,791.1	6,795.9	6,784.2	23.7	23.8	107.67	-65.4	-217.4	176.7	129.2	3.726	
6,900.0	6,890.7	6,895.7	6,883.4	24.0	24.2	107.36	-69.4	-226.6	183.3	135.1	3.808	
7,000.0	6,990.4	6,995.5	6,982.7	24.4	24.5	107.08	-73.5	-235.8	189.9	141.0	3.888	
7,100.0	7,090.0	7,095.3	7,082.0	24.7	24.9	106.81	-77.5	-245.0	196.5	146.9	3.965	
7,200.0	7,189.6	7,195.0	7,181.2	25.1	25.3	106.56	-81.6	-254.3	203.1	152.8	4.041	
7,300.0	7,289.3	7,294.8	7,280.5	25.4	25.6	106.21	-85.6	-263.5	209.5	158.5	4.110	
7,400.0	7,389.2	7,394.5	7,379.7	25.8	26.0	105.07	-89.7	-272.7	215.1	163.4	4.162	
7,500.0	7,489.1	7,494.1	7,478.8	26.1	26.3	-51.35	-93.7	-281.9	219.9	167.5	4.200	
7,600.0	7,589.1	7,593.6	7,577.8	26.5	26.7	-53.62	-97.7	-291.1	224.8	171.7	4.237	
7,700.0	7,689.1	7,693.1	7,676.8	26.8	27.1	-55.79	-101.8	-300.3	230.0	176.3	4.280	
7,800.0	7,789.1	7,792.6	7,775.8	27.2	27.4	-57.86	-105.8	-309.5	235.5	181.1	4.327	
7,900.0	7,889.1	7,892.1	7,874.7	27.5	27.8	-59.84	-109.8	-318.6	241.4	186.2	4.379	
8,000.0	7,989.1	7,991.6	7,973.7	27.9	28.1	-61.72	-113.9	-327.8	247.5	191.7	4.434	
8,100.0	8,089.1	8,091.1	8,072.7	28.2	28.5	-63.51	-117.9	-337.0	253.8	197.3	4.493	
8,200.0	8,189.1	8,190.5	8,171.7	28.6	28.8	-65.21	-121.9	-346.2	260.4	203.2	4.554	
8,300.0	8,289.1	8,290.0	8,270.7	28.9	29.2	-66.83	-126.0	-355.4	267.2	209.4	4.618	
8,400.0	8,389.1	8,389.5	8,369.6	29.3	29.6	-68.36	-130.0	-364.6	274.2	215.7	4.683	
8,500.0	8,489.1	8,489.0	8,468.6	29.6	29.9	-69.82	-134.1	-373.8	281.4	222.2	4.750	
8,600.0	8,589.1	8,588.5	8,567.6	30.0	30.3	-71.20	-138.1	-383.0	288.8	228.9	4.819	
8,700.0	8,689.1	8,688.0	8,666.6	30.3	30.6	-72.52	-142.1	-392.2	296.3	235.7	4.888	
8,800.0	8,789.1	8,787.5	8,765.6	30.7	31.0	-73.77	-146.2	-401.4	304.0	242.7	4.958	
8,900.0	8,889.1	8,887.0	8,864.6	31.0	31.4	-74.96	-150.2	-410.5	311.8	249.8	5.029	
9,000.0	8,989.1	8,986.5	8,963.5	31.3	31.7	-76.09	-154.2	-419.7	319.8	257.1	5.101	
9,100.0	9,089.1	9,086.0	9,062.5	31.7	32.1	-77.16	-158.3	-428.9	327.9	264.5	5.173	
9,200.0	9,189.1	9,185.4	9,161.5	32.0	32.4	-78.18	-162.3	-438.1	336.0	272.0	5.244	
9,300.0	9,289.1	9,284.9	9,260.5	32.4	32.8	-79.16	-166.3	-447.3	344.3	279.5	5.316	
9,400.0	9,389.1	9,384.4	9,359.5	32.7	33.2	-80.08	-170.4	-456.5	352.7	287.2	5.388	
9,500.0	9,489.1	9,483.9	9,458.5	33.1	33.5	-80.97	-174.4	-465.7	361.1	295.0	5.459	
9,600.0	9,589.1	9,583.4	9,557.4	33.4	33.9	-81.81	-178.4	-474.9	369.7	302.8	5.530	
9,700.0	9,689.1	9,682.9	9,656.4	33.8	34.1	-82.62	-182.5	-484.1	378.3	310.9	5.614	
9,800.0	9,789.1	9,772.8	9,745.8	34.1	34.1	-82.19	-178.5	-492.4	388.1	320.5	5.737	
9,900.0	9,889.1	9,857.9	9,828.2	34.5	34.1	-79.59	-159.3	-500.2	401.1	333.3	5.915	
10,000.0	9,989.1	9,934.2	9,898.1	34.8	34.1	-75.71	-129.8	-507.0	419.4	351.7	6.198	
10,100.0	10,089.1	10,000.0	9,954.0	35.2	34.1	-71.42	-95.7	-512.5	445.3	378.3	6.646	
10,200.0	10,189.1	10,054.6	9,996.5	35.5	34.2	-67.40	-61.7	-516.7	480.5	414.8	7.315	
10,300.0	10,289.1	10,100.0	10,028.8	35.9	34.2	-63.87	-29.9	-520.0	525.4	461.5	8.225	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #308H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 9686-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
10,400.0	10,389.1	10,138.0	10,053.3	36.2	34.2	-60.86	-1.1	-522.5	579.2	517.4	9.372	
10,500.0	10,489.1	10,175.0	10,074.9	36.6	34.2	-57.92	28.9	-524.8	640.9	581.1	10.707	
10,600.0	10,589.1	10,200.0	10,088.2	36.9	34.2	-55.96	50.0	-526.2	709.1	651.2	12.262	
10,700.0	10,689.1	10,225.0	10,100.4	37.3	34.2	-54.03	71.8	-527.5	782.5	726.4	13.943	
10,800.0	10,789.1	10,237.2	10,105.9	37.6	34.2	-53.11	82.7	-528.1	860.0	805.6	15.808	
10,900.0	10,889.1	10,250.0	10,111.4	38.0	34.2	-52.15	94.2	-528.7	941.1	888.0	17.741	

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #408H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 10248-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	44.52	30.2	29.7	42.4			
100.0	100.0	100.0	100.0	0.1	0.1	44.52	30.2	29.7	42.4	42.1	170.517	
200.0	200.0	200.0	200.0	0.5	0.5	44.52	30.2	29.7	42.4	41.4	44.674	
300.0	300.0	300.0	300.0	0.8	0.8	44.52	30.2	29.7	42.4	40.7	25.704	
400.0	400.0	400.0	400.0	1.2	1.2	44.52	30.2	29.7	42.4	40.0	18.043	
500.0	500.0	500.0	500.0	1.5	1.5	44.52	30.2	29.7	42.4	39.3	13.900	
600.0	600.0	600.0	600.0	1.9	1.9	44.52	30.2	29.7	42.4	38.6	11.304	
700.0	700.0	700.0	700.0	2.2	2.2	44.52	30.2	29.7	42.4	37.9	9.525	
800.0	800.0	800.0	800.0	2.6	2.6	44.52	30.2	29.7	42.4	37.2	8.230	
900.0	900.0	900.0	900.0	2.9	2.9	44.52	30.2	29.7	42.4	36.5	7.245	
1,000.0	1,000.0	1,000.0	1,000.0	3.3	3.3	44.52	30.2	29.7	42.4	35.8	6.471	
1,100.0	1,100.0	1,100.0	1,100.0	3.6	3.6	44.52	30.2	29.7	42.4	35.1	5.846	
1,200.0	1,200.0	1,200.0	1,200.0	4.0	4.0	44.52	30.2	29.7	42.4	34.4	5.331	
1,300.0	1,300.0	1,300.0	1,300.0	4.3	4.3	44.52	30.2	29.7	42.4	33.7	4.900	
1,400.0	1,400.0	1,400.0	1,400.0	4.7	4.7	44.52	30.2	29.7	42.4	33.0	4.533	
1,500.0	1,500.0	1,500.0	1,500.0	5.0	5.0	44.52	30.2	29.7	42.4	32.3	4.217	
1,600.0	1,600.0	1,600.0	1,600.0	5.4	5.4	44.52	30.2	29.7	42.4	31.6	3.942	
1,700.0	1,700.0	1,700.0	1,700.0	5.7	5.7	44.52	30.2	29.7	42.4	30.9	3.701	
1,800.0	1,800.0	1,800.0	1,800.0	6.1	6.1	44.52	30.2	29.7	42.4	30.2	3.488	
1,900.0	1,900.0	1,900.0	1,900.0	6.4	6.4	44.52	30.2	29.7	42.4	29.5	3.298	
2,000.0	2,000.0	2,000.0	2,000.0	6.8	6.8	44.52	30.2	29.7	42.4	28.8	3.128	
2,100.0	2,100.0	2,100.0	2,100.0	7.1	7.1	44.52	30.2	29.7	42.4	28.1	2.974	
2,200.0	2,200.0	2,200.0	2,200.0	7.5	7.5	44.52	30.2	29.7	42.4	27.4	2.835	
2,300.0	2,300.0	2,300.0	2,300.0	7.8	7.8	44.52	30.2	29.7	42.4	26.7	2.708	
2,400.0	2,400.0	2,400.0	2,400.0	8.2	8.2	44.52	30.2	29.7	42.4	26.0	2.592	
2,500.0	2,500.0	2,500.0	2,500.0	8.5	8.5	44.52	30.2	29.7	42.4	25.3	2.485	
2,600.0	2,600.0	2,600.0	2,600.0	8.9	8.9	44.52	30.2	29.7	42.4	24.6	2.387	
2,700.0	2,700.0	2,700.0	2,700.0	9.2	9.2	44.52	30.2	29.7	42.4	23.9	2.297	
2,800.0	2,800.0	2,800.0	2,800.0	9.6	9.6	44.52	30.2	29.7	42.4	23.2	2.213	
2,900.0	2,900.0	2,900.0	2,900.0	9.9	9.9	44.52	30.2	29.7	42.4	22.5	2.135	
3,000.0	3,000.0	3,000.0	3,000.0	10.3	10.3	44.52	30.2	29.7	42.4	21.8	2.062	
3,100.0	3,100.0	3,100.0	3,100.0	10.6	10.6	44.52	30.2	29.7	42.4	21.1	1.994	
3,200.0	3,200.0	3,200.0	3,200.0	11.0	11.0	44.52	30.2	29.7	42.4	20.4	1.931	
3,300.0	3,300.0	3,300.0	3,300.0	11.3	11.3	44.52	30.2	29.7	42.4	19.7	1.871	
3,400.0	3,400.0	3,400.0	3,400.0	11.7	11.7	44.52	30.2	29.7	42.4	19.0	1.815	
3,500.0	3,500.0	3,500.0	3,500.0	12.0	12.0	44.52	30.2	29.7	42.4	18.3	1.762	
3,600.0	3,600.0	3,600.0	3,600.0	12.4	12.4	44.52	30.2	29.7	42.4	17.6	1.712	
3,700.0	3,700.0	3,700.0	3,700.0	12.7	12.7	44.52	30.2	29.7	42.4	16.9	1.665	
3,800.0	3,800.0	3,800.0	3,800.0	13.1	13.1	44.52	30.2	29.7	42.4	16.2	1.620	
3,900.0	3,900.0	3,900.0	3,900.0	13.4	13.4	44.52	30.2	29.7	42.4	15.5	1.578	
4,000.0	4,000.0	4,000.0	4,000.0	13.8	13.8	44.52	30.2	29.7	42.4	14.8	1.538	
4,100.0	4,100.0	4,100.0	4,100.0	14.1	14.1	44.52	30.2	29.7	42.4	14.1	1.500	
4,200.0	4,200.0	4,200.0	4,200.0	14.5	14.5	44.52	30.2	29.7	42.4	13.4	1.464	Level 3
4,300.0	4,300.0	4,300.0	4,300.0	14.9	14.9	44.52	30.2	29.7	42.4	12.7	1.429	Level 3, CC, ES, SF
4,400.0	4,400.0	4,400.0	4,400.0	15.2	15.2	-161.75	30.2	29.7	44.0	13.7	1.451	Level 3
4,500.0	4,499.8	4,499.8	4,499.8	15.5	15.6	-163.63	30.2	29.7	49.0	18.0	1.579	
4,600.0	4,599.5	4,599.5	4,599.5	15.9	15.9	-165.96	30.2	29.7	57.0	25.3	1.796	
4,700.0	4,699.1	4,699.1	4,699.1	16.2	16.3	-167.81	30.2	29.7	65.5	33.1	2.019	
4,800.0	4,798.7	4,798.7	4,798.7	16.6	16.6	-169.24	30.2	29.7	74.0	40.9	2.235	
4,900.0	4,898.4	4,898.4	4,898.4	16.9	16.9	-170.36	30.2	29.7	82.6	48.8	2.443	
5,000.0	4,998.0	4,998.0	4,998.0	17.3	17.3	-171.28	30.2	29.7	91.2	56.7	2.643	
5,100.0	5,097.6	5,097.6	5,097.6	17.6	17.6	-172.04	30.2	29.7	99.9	64.6	2.835	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #408H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 10248-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
5,200.0	5,197.2	5,197.2	5,197.2	18.0	18.0	-172.68	30.2	29.7	108.5	72.6	3.021	
5,300.0	5,296.8	5,296.8	5,296.8	18.4	18.3	-173.22	30.2	29.7	117.1	80.5	3.200	
5,400.0	5,396.4	5,396.4	5,396.4	18.7	18.7	-173.69	30.2	29.7	125.8	88.5	3.372	
5,500.0	5,496.1	5,496.1	5,496.1	19.1	19.0	-174.10	30.2	29.7	134.5	96.5	3.539	
5,600.0	5,595.7	5,595.7	5,595.7	19.4	19.4	-174.46	30.2	29.7	143.2	104.5	3.699	
5,700.0	5,695.3	5,695.3	5,695.3	19.8	19.7	-174.77	30.2	29.7	151.8	112.4	3.854	
5,800.0	5,794.9	5,794.9	5,794.9	20.1	20.1	-175.06	30.2	29.7	160.5	120.4	4.003	
5,900.0	5,894.5	5,894.5	5,894.5	20.5	20.4	-175.31	30.2	29.7	169.2	128.4	4.148	
6,000.0	5,994.2	5,994.2	5,994.2	20.8	20.8	-175.54	30.2	29.7	177.9	136.4	4.288	
6,100.0	6,093.8	6,093.8	6,093.8	21.2	21.1	-175.75	30.2	29.7	186.6	144.4	4.423	
6,200.0	6,193.4	6,193.4	6,193.4	21.6	21.5	-175.94	30.2	29.7	195.3	152.4	4.554	
6,300.0	6,293.0	6,293.0	6,293.0	21.9	21.8	-176.11	30.2	29.7	204.0	160.4	4.680	
6,400.0	6,392.6	6,392.6	6,392.6	22.3	22.2	-176.27	30.2	29.7	212.7	168.4	4.803	
6,500.0	6,492.3	6,492.3	6,492.3	22.6	22.5	-176.42	30.2	29.7	221.4	176.4	4.922	
6,600.0	6,591.9	6,591.9	6,591.9	23.0	22.9	-176.55	30.2	29.7	230.1	184.4	5.037	
6,700.0	6,691.5	6,691.5	6,691.5	23.3	23.2	-176.68	30.2	29.7	238.8	192.4	5.149	
6,800.0	6,791.1	6,791.1	6,791.1	23.7	23.6	-176.80	30.2	29.7	247.5	200.4	5.257	
6,900.0	6,890.7	6,890.7	6,890.7	24.0	23.9	-176.91	30.2	29.7	256.2	208.4	5.362	
7,000.0	6,990.4	6,990.4	6,990.4	24.4	24.3	-177.01	30.2	29.7	264.9	216.4	5.464	
7,100.0	7,090.0	7,090.0	7,090.0	24.7	24.6	-177.10	30.2	29.7	273.6	224.4	5.564	
7,200.0	7,189.6	7,189.6	7,189.6	25.1	25.0	-177.19	30.2	29.7	282.3	232.4	5.660	
7,300.0	7,289.3	7,289.3	7,289.3	25.4	25.3	-177.27	30.2	29.7	290.3	239.7	5.740	
7,400.0	7,389.2	7,389.2	7,389.2	25.8	25.7	-177.32	30.2	29.7	295.0	243.7	5.754	
7,500.0	7,489.1	7,489.1	7,489.1	26.1	26.0	28.20	30.2	29.7	296.3	244.3	5.701	
7,600.0	7,589.1	7,589.1	7,589.1	26.5	26.4	28.20	30.2	29.7	296.3	243.6	5.625	
7,700.0	7,689.1	7,689.1	7,689.1	26.8	26.7	28.20	30.2	29.7	296.3	242.9	5.551	
7,800.0	7,789.1	7,789.1	7,789.1	27.2	27.1	28.20	30.2	29.7	296.3	242.2	5.480	
7,900.0	7,889.1	7,889.1	7,889.1	27.5	27.4	28.20	30.2	29.7	296.3	241.5	5.410	
8,000.0	7,989.1	7,989.1	7,989.1	27.9	27.8	28.20	30.2	29.7	296.3	240.8	5.342	
8,100.0	8,089.1	8,090.8	8,090.8	28.2	28.1	28.17	30.2	29.5	296.2	240.0	5.273	
8,200.0	8,189.1	8,195.9	8,195.9	28.6	28.5	27.63	30.2	26.3	294.7	237.9	5.181	
8,300.0	8,289.1	8,300.6	8,300.3	28.9	28.9	26.42	30.1	19.3	291.7	234.1	5.065	
8,400.0	8,389.1	8,404.7	8,403.8	29.3	29.2	24.50	30.1	8.6	287.2	228.9	4.926	
8,500.0	8,489.1	8,507.9	8,506.0	29.6	29.6	21.85	30.0	-5.7	281.6	222.6	4.772	
8,600.0	8,589.1	8,609.9	8,606.4	30.0	30.0	18.42	29.9	-23.5	275.4	215.7	4.611	
8,700.0	8,689.1	8,710.4	8,704.8	30.3	30.4	14.17	29.7	-44.5	269.3	208.8	4.452	
8,800.0	8,789.1	8,808.6	8,800.1	30.7	30.8	9.25	29.6	-67.9	264.2	202.9	4.313	
8,900.0	8,889.1	8,905.6	8,894.3	31.0	31.2	4.16	29.5	-91.4	261.1	199.0	4.209	
8,987.6	8,976.7	8,990.6	8,976.7	31.3	31.5	-0.35	29.3	-111.9	260.2	197.5	4.150	
9,000.0	8,989.1	9,002.7	8,988.4	31.3	31.6	-1.00	29.3	-114.8	260.2	197.4	4.144	
9,100.0	9,089.1	9,099.7	9,082.6	31.7	32.0	-6.15	29.2	-138.3	261.6	198.1	4.117	
9,200.0	9,189.1	9,196.7	9,176.7	32.0	32.4	-11.20	29.0	-161.8	265.3	201.0	4.126	
9,300.0	9,289.1	9,293.7	9,270.8	32.4	32.9	-16.10	28.9	-185.3	271.0	206.0	4.169	
9,400.0	9,389.1	9,390.8	9,365.0	32.7	33.3	-20.77	28.7	-208.8	278.7	213.0	4.243	
9,500.0	9,489.1	9,487.8	9,459.1	33.1	33.7	-25.17	28.6	-232.2	288.3	221.9	4.345	
9,600.0	9,589.1	9,584.8	9,553.3	33.4	34.2	-29.28	28.4	-255.7	299.5	232.5	4.470	
9,700.0	9,689.1	9,681.9	9,647.4	33.8	34.7	-33.09	28.3	-279.2	312.2	244.5	4.615	
9,800.0	9,789.1	9,778.9	9,741.6	34.1	35.1	-36.60	28.2	-302.7	326.1	257.9	4.777	
9,900.0	9,889.1	9,875.9	9,835.7	34.5	35.6	-39.82	28.0	-326.2	341.3	272.4	4.953	
10,000.0	9,989.1	9,972.9	9,929.8	34.8	36.1	-42.77	27.9	-349.7	357.4	287.9	5.140	
10,100.0	10,089.1	10,070.0	10,024.0	35.2	36.6	-45.46	27.7	-373.1	374.4	304.3	5.336	
10,200.0	10,189.1	10,167.0	10,118.1	35.5	37.1	-47.92	27.6	-396.6	392.2	321.4	5.540	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #408H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 10248-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
10,300.0	10,289.1	10,258.5	10,206.9	35.9	37.5	-50.04	27.5	-418.7	410.7	339.5	5.766	
10,400.0	10,389.1	10,325.0	10,271.1	36.2	37.5	-50.83	33.5	-434.8	434.9	364.2	6.152	
10,500.0	10,489.1	10,380.4	10,323.6	36.6	37.5	-50.71	45.4	-448.0	466.7	397.0	6.699	
10,600.0	10,589.1	10,436.3	10,374.7	36.9	37.5	-49.96	63.7	-460.9	505.7	437.1	7.373	
10,700.0	10,689.1	10,487.2	10,419.2	37.3	37.5	-48.83	85.6	-472.2	551.4	484.1	8.192	
10,800.0	10,789.1	10,532.7	10,456.9	37.6	37.5	-47.52	109.3	-481.8	603.4	537.5	9.157	
10,900.0	10,889.1	10,575.0	10,489.8	38.0	37.5	-46.12	134.5	-490.3	661.3	596.8	10.255	
11,000.0	10,989.1	10,608.6	10,514.3	38.3	37.5	-44.91	156.6	-496.6	724.4	661.5	11.513	
11,100.0	11,089.1	10,639.8	10,535.6	38.7	37.5	-43.73	178.6	-502.1	792.2	730.7	12.883	
11,200.0	11,189.1	10,667.1	10,553.2	39.0	37.5	-42.66	199.1	-506.6	864.0	803.8	14.361	
11,300.0	11,289.1	10,691.2	10,567.6	39.3	37.6	-41.71	218.0	-510.4	939.2	880.3	15.931	

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #609H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 12027-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.38	-0.2	-30.0	30.0			
100.0	100.0	100.0	100.0	0.1	0.1	-90.38	-0.2	-30.0	30.0	29.8	121.050	
200.0	200.0	200.0	200.0	0.5	0.5	-90.38	-0.2	-30.0	30.0	29.1	31.714	
300.0	300.0	300.0	300.0	0.8	0.8	-90.38	-0.2	-30.0	30.0	28.4	18.247	
400.0	400.0	400.0	400.0	1.2	1.2	-90.38	-0.2	-30.0	30.0	27.7	12.809	
500.0	500.0	500.0	500.0	1.5	1.5	-90.38	-0.2	-30.0	30.0	27.0	9.867	
600.0	600.0	600.0	600.0	1.9	1.9	-90.38	-0.2	-30.0	30.0	26.3	8.025	
700.0	700.0	700.0	700.0	2.2	2.2	-90.38	-0.2	-30.0	30.0	25.6	6.762	
800.0	800.0	800.0	800.0	2.6	2.6	-90.38	-0.2	-30.0	30.0	24.9	5.843	
900.0	900.0	900.0	900.0	2.9	2.9	-90.38	-0.2	-30.0	30.0	24.2	5.143	
1,000.0	1,000.0	1,000.0	1,000.0	3.3	3.3	-90.38	-0.2	-30.0	30.0	23.5	4.594	
1,100.0	1,100.0	1,100.0	1,100.0	3.6	3.6	-90.38	-0.2	-30.0	30.0	22.8	4.150	
1,200.0	1,200.0	1,200.0	1,200.0	4.0	4.0	-90.38	-0.2	-30.0	30.0	22.1	3.784	
1,300.0	1,300.0	1,300.0	1,300.0	4.3	4.3	-90.38	-0.2	-30.0	30.0	21.4	3.478	
1,400.0	1,400.0	1,400.0	1,400.0	4.7	4.7	-90.38	-0.2	-30.0	30.0	20.7	3.218	
1,500.0	1,500.0	1,500.0	1,500.0	5.0	5.0	-90.38	-0.2	-30.0	30.0	20.0	2.994	
1,600.0	1,600.0	1,600.0	1,600.0	5.4	5.4	-90.38	-0.2	-30.0	30.0	19.3	2.799	
1,700.0	1,700.0	1,700.0	1,700.0	5.7	5.7	-90.38	-0.2	-30.0	30.0	18.6	2.628	
1,800.0	1,800.0	1,800.0	1,800.0	6.1	6.1	-90.38	-0.2	-30.0	30.0	17.9	2.476	
1,900.0	1,900.0	1,900.0	1,900.0	6.4	6.4	-90.38	-0.2	-30.0	30.0	17.2	2.341	
2,000.0	2,000.0	2,000.0	2,000.0	6.8	6.8	-90.38	-0.2	-30.0	30.0	16.5	2.220	
2,100.0	2,100.0	2,100.0	2,100.0	7.1	7.1	-90.38	-0.2	-30.0	30.0	15.8	2.111	
2,200.0	2,200.0	2,200.0	2,200.0	7.5	7.5	-90.38	-0.2	-30.0	30.0	15.1	2.012	
2,300.0	2,300.0	2,300.0	2,300.0	7.8	7.8	-90.38	-0.2	-30.0	30.0	14.4	1.922	
2,400.0	2,400.0	2,400.0	2,400.0	8.2	8.2	-90.38	-0.2	-30.0	30.0	13.7	1.840	
2,500.0	2,500.0	2,500.0	2,500.0	8.5	8.5	-90.38	-0.2	-30.0	30.0	13.0	1.764	
2,600.0	2,600.0	2,600.0	2,600.0	8.9	8.9	-90.38	-0.2	-30.0	30.0	12.3	1.695	
2,700.0	2,700.0	2,700.0	2,700.0	9.2	9.2	-90.38	-0.2	-30.0	30.0	11.6	1.631	
2,800.0	2,800.0	2,800.0	2,800.0	9.6	9.6	-90.38	-0.2	-30.0	30.0	10.9	1.571	
2,900.0	2,900.0	2,900.0	2,900.0	9.9	9.9	-90.38	-0.2	-30.0	30.0	10.2	1.516	
3,000.0	3,000.0	3,000.0	3,000.0	10.3	10.3	-90.38	-0.2	-30.0	30.0	9.5	1.464	Level 3
3,100.0	3,100.0	3,100.0	3,100.0	10.6	10.6	-90.38	-0.2	-30.0	30.0	8.8	1.416	Level 3
3,200.0	3,200.0	3,200.0	3,200.0	11.0	11.0	-90.38	-0.2	-30.0	30.0	8.1	1.371	Level 3
3,300.0	3,300.0	3,300.0	3,300.0	11.3	11.3	-90.38	-0.2	-30.0	30.0	7.4	1.328	Level 3
3,400.0	3,400.0	3,400.0	3,400.0	11.7	11.7	-90.38	-0.2	-30.0	30.0	6.7	1.288	Level 3
3,500.0	3,500.0	3,500.0	3,500.0	12.0	12.0	-90.38	-0.2	-30.0	30.0	6.0	1.251	Level 3
3,600.0	3,600.0	3,600.0	3,600.0	12.4	12.4	-90.38	-0.2	-30.0	30.0	5.3	1.215	Level 2
3,700.0	3,700.0	3,700.0	3,700.0	12.7	12.7	-90.38	-0.2	-30.0	30.0	4.6	1.182	Level 2
3,800.0	3,800.0	3,800.0	3,800.0	13.1	13.1	-90.38	-0.2	-30.0	30.0	3.9	1.150	Level 2
3,900.0	3,900.0	3,900.0	3,900.0	13.4	13.4	-90.38	-0.2	-30.0	30.0	3.2	1.120	Level 2
4,000.0	4,000.0	4,000.0	4,000.0	13.8	13.8	-90.38	-0.2	-30.0	30.0	2.5	1.092	Level 2
4,100.0	4,100.0	4,100.0	4,100.0	14.1	14.1	-90.38	-0.2	-30.0	30.0	1.8	1.065	Level 2
4,200.0	4,200.0	4,200.0	4,200.0	14.5	14.5	-90.38	-0.2	-30.0	30.0	1.1	1.039	Level 2
4,300.0	4,300.0	4,300.0	4,300.0	14.9	14.9	-90.38	-0.2	-30.0	30.0	0.4	1.015	Level 2, CC
4,400.0	4,400.0	4,399.3	4,399.3	15.2	15.2	64.67	-1.4	-31.2	30.4	0.2	1.006	Level 2, ES, SF
4,500.0	4,499.8	4,498.5	4,498.4	15.5	15.5	66.35	-5.2	-34.7	31.8	0.8	1.027	Level 2
4,600.0	4,599.5	4,598.5	4,598.1	15.9	15.9	70.44	-10.2	-39.5	33.2	1.5	1.048	Level 2
4,700.0	4,699.1	4,698.4	4,697.8	16.2	16.2	74.89	-15.3	-44.3	34.6	2.2	1.069	Level 2
4,800.0	4,798.7	4,798.4	4,797.5	16.6	16.6	78.96	-20.4	-49.1	36.2	3.2	1.095	Level 2
4,900.0	4,898.4	4,898.4	4,897.2	16.9	16.9	82.66	-25.4	-53.9	38.0	4.2	1.125	Level 2
5,000.0	4,998.0	4,998.3	4,996.9	17.3	17.3	86.02	-30.5	-58.8	40.0	5.4	1.158	Level 2
5,100.0	5,097.6	5,098.3	5,096.6	17.6	17.6	89.06	-35.5	-63.6	42.0	6.8	1.193	Level 2

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #609H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 12027-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
5,200.0	5,197.2	5,198.2	5,196.4	18.0	18.0	91.81	-40.6	-68.4	44.2	8.2	1.229	Level 2
5,300.0	5,296.8	5,298.2	5,296.1	18.4	18.3	94.29	-45.6	-73.2	46.5	9.8	1.267	Level 3
5,400.0	5,396.4	5,398.1	5,395.8	18.7	18.7	96.55	-50.7	-78.0	48.8	11.4	1.306	Level 3
5,500.0	5,496.1	5,498.1	5,495.5	19.1	19.1	98.59	-55.8	-82.8	51.2	13.1	1.344	Level 3
5,600.0	5,595.7	5,598.0	5,595.2	19.4	19.4	100.44	-60.8	-87.6	53.7	14.9	1.383	Level 3
5,700.0	5,695.3	5,698.0	5,694.9	19.8	19.8	102.13	-65.9	-92.4	56.2	16.7	1.422	Level 3
5,800.0	5,794.9	5,797.9	5,794.6	20.1	20.1	103.68	-70.9	-97.2	58.8	18.6	1.461	Level 3
5,900.0	5,894.5	5,897.9	5,894.3	20.5	20.5	105.09	-76.0	-102.0	61.4	20.4	1.499	Level 3
6,000.0	5,994.2	5,997.9	5,994.0	20.8	20.8	106.40	-81.0	-106.8	64.0	22.4	1.537	
6,100.0	6,093.8	6,097.8	6,093.8	21.2	21.2	109.21	-84.7	-110.3	66.7	24.4	1.575	
6,200.0	6,193.4	6,197.4	6,193.4	21.6	21.5	114.62	-85.9	-111.4	69.9	26.8	1.623	
6,300.0	6,293.0	6,297.0	6,293.0	21.9	21.9	120.75	-85.9	-111.4	73.9	30.2	1.691	
6,400.0	6,392.6	6,396.6	6,392.6	22.3	22.2	126.20	-85.9	-111.4	78.8	34.3	1.773	
6,500.0	6,492.3	6,496.2	6,492.3	22.6	22.6	130.98	-85.9	-111.4	84.2	39.1	1.867	
6,600.0	6,591.9	6,595.8	6,591.9	23.0	22.9	135.16	-85.9	-111.4	90.2	44.4	1.970	
6,700.0	6,691.5	6,695.5	6,691.5	23.3	23.2	138.80	-85.9	-111.4	96.6	50.1	2.078	
6,800.0	6,791.1	6,795.1	6,791.1	23.7	23.6	141.98	-85.9	-111.4	103.3	56.2	2.191	
6,900.0	6,890.7	6,894.7	6,890.7	24.0	23.9	144.77	-85.9	-111.4	110.3	62.5	2.306	
7,000.0	6,990.4	6,994.3	6,990.4	24.4	24.3	147.22	-85.9	-111.4	117.6	69.0	2.422	
7,100.0	7,090.0	7,093.9	7,090.0	24.7	24.6	149.38	-85.9	-111.4	125.0	75.8	2.539	
7,200.0	7,189.6	7,193.6	7,189.6	25.1	25.0	151.30	-85.9	-111.4	132.6	82.6	2.656	
7,300.0	7,289.3	7,293.2	7,289.3	25.4	25.3	152.91	-85.9	-111.4	139.6	89.0	2.759	
7,400.0	7,389.2	7,393.1	7,389.2	25.8	25.7	153.80	-85.9	-111.4	143.9	92.6	2.804	
7,500.0	7,489.1	7,493.1	7,489.1	26.1	26.0	-0.43	-85.9	-111.4	145.0	93.0	2.789	
7,600.0	7,589.1	7,593.1	7,589.1	26.5	26.4	-0.43	-85.9	-111.4	145.0	92.3	2.752	
7,700.0	7,689.1	7,693.1	7,689.1	26.8	26.7	-0.43	-85.9	-111.4	145.0	91.6	2.716	
7,800.0	7,789.1	7,793.1	7,789.1	27.2	27.1	-0.43	-85.9	-111.4	145.0	90.9	2.681	
7,900.0	7,889.1	7,893.1	7,889.1	27.5	27.4	-0.43	-85.9	-111.4	145.0	90.2	2.646	
8,000.0	7,989.1	7,993.1	7,989.1	27.9	27.8	-0.43	-85.9	-111.4	145.0	89.5	2.613	
8,100.0	8,089.1	8,093.1	8,089.1	28.2	28.1	-0.43	-85.9	-111.4	145.0	88.8	2.581	
8,200.0	8,189.1	8,193.1	8,189.1	28.6	28.5	-0.43	-85.9	-111.4	145.0	88.1	2.549	
8,300.0	8,289.1	8,293.1	8,289.1	28.9	28.8	-0.43	-85.9	-111.4	145.0	87.4	2.518	
8,400.0	8,389.1	8,393.1	8,389.1	29.3	29.2	-0.43	-85.9	-111.4	145.0	86.7	2.488	
8,500.0	8,489.1	8,493.1	8,489.1	29.6	29.5	-0.43	-85.9	-111.4	145.0	86.0	2.458	
8,600.0	8,589.1	8,593.1	8,589.1	30.0	29.9	-0.43	-85.9	-111.4	145.0	85.3	2.430	
8,700.0	8,689.1	8,693.1	8,689.1	30.3	30.2	-0.43	-85.9	-111.4	145.0	84.6	2.401	
8,800.0	8,789.1	8,793.1	8,789.1	30.7	30.6	-0.43	-85.9	-111.4	145.0	83.9	2.374	
8,900.0	8,889.1	8,893.1	8,889.1	31.0	30.9	-0.43	-85.9	-111.4	145.0	83.2	2.347	
9,000.0	8,989.1	8,993.1	8,989.1	31.3	31.3	-0.43	-85.9	-111.4	145.0	82.5	2.321	
9,100.0	9,089.1	9,093.1	9,089.1	31.7	31.6	-0.43	-85.9	-111.4	145.0	81.8	2.295	
9,200.0	9,189.1	9,193.1	9,189.1	32.0	32.0	-0.43	-85.9	-111.4	145.0	81.1	2.270	
9,300.0	9,289.1	9,293.1	9,289.1	32.4	32.3	-0.43	-85.9	-111.4	145.0	80.4	2.245	
9,400.0	9,389.1	9,393.1	9,389.1	32.7	32.7	-0.43	-85.9	-111.4	145.0	79.7	2.221	
9,500.0	9,489.1	9,493.1	9,489.1	33.1	33.0	-0.43	-85.9	-111.4	145.0	79.0	2.198	
9,600.0	9,589.1	9,593.1	9,589.1	33.4	33.4	-0.43	-85.9	-111.4	145.0	78.3	2.175	
9,700.0	9,689.1	9,693.1	9,689.1	33.8	33.7	-0.43	-85.9	-111.4	145.0	77.6	2.152	
9,800.0	9,789.1	9,793.1	9,789.1	34.1	34.1	-0.43	-85.9	-111.4	145.0	76.9	2.130	
9,900.0	9,889.1	9,893.1	9,889.1	34.5	34.4	-0.43	-85.9	-111.4	145.0	76.2	2.108	
10,000.0	9,989.1	9,993.1	9,989.1	34.8	34.8	-0.43	-85.9	-111.4	145.0	75.5	2.087	
10,100.0	10,089.1	10,093.1	10,089.1	35.2	35.1	-0.43	-85.9	-111.4	145.0	74.8	2.066	
10,200.0	10,189.1	10,193.1	10,189.1	35.5	35.5	-0.43	-85.9	-111.4	145.0	74.1	2.046	
10,300.0	10,289.1	10,293.1	10,289.1	35.9	35.8	-0.43	-85.9	-111.4	145.0	73.4	2.026	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #609H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 12027-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
10,400.0	10,389.1	10,393.1	10,389.1	36.2	36.2	-0.43	-85.9	-111.4	145.0	72.7	2.006	
10,500.0	10,489.1	10,493.1	10,489.1	36.6	36.5	-0.43	-85.9	-111.4	145.0	72.0	1.987	
10,600.0	10,589.1	10,593.1	10,589.1	36.9	36.9	-0.43	-85.9	-111.4	145.0	71.3	1.968	
10,700.0	10,689.1	10,693.1	10,689.1	37.3	37.2	-0.43	-85.9	-111.4	145.0	70.6	1.950	
10,800.0	10,789.1	10,793.1	10,789.1	37.6	37.6	-0.43	-85.9	-111.4	145.0	69.9	1.932	
10,900.0	10,889.1	10,893.1	10,889.1	38.0	37.9	-0.43	-85.9	-111.4	145.0	69.2	1.914	
11,000.0	10,989.1	10,993.1	10,989.1	38.3	38.3	-0.43	-85.9	-111.4	145.0	68.5	1.896	
11,100.0	11,089.1	11,093.1	11,089.1	38.7	38.6	-0.43	-85.9	-111.4	145.0	67.8	1.879	
11,200.0	11,189.1	11,193.1	11,189.1	39.0	39.0	-0.43	-85.9	-111.4	145.0	67.1	1.862	
11,300.0	11,289.1	11,293.1	11,289.1	39.3	39.3	-0.43	-85.9	-111.4	145.0	66.4	1.846	
11,400.0	11,389.1	11,393.1	11,389.1	39.7	39.7	-0.43	-85.9	-111.4	145.0	65.7	1.829	
11,500.0	11,489.1	11,493.1	11,489.1	40.0	40.0	-0.43	-85.9	-111.4	145.0	65.0	1.813	
11,600.0	11,589.1	11,593.1	11,589.1	40.4	40.4	-0.43	-85.9	-111.4	145.0	64.3	1.798	
11,700.0	11,689.1	11,693.1	11,689.1	40.7	40.7	-0.43	-85.9	-111.4	145.0	63.6	1.782	
11,800.0	11,789.1	11,793.1	11,789.1	41.1	41.1	-0.43	-85.9	-111.4	145.0	62.9	1.767	
11,900.0	11,889.1	11,893.1	11,889.1	41.4	41.4	-0.43	-85.9	-111.4	145.0	62.2	1.752	
12,000.0	11,989.1	11,993.1	11,989.1	41.8	41.8	-0.43	-85.9	-111.4	145.0	61.5	1.737	
12,000.9	11,990.0	11,994.0	11,990.0	41.8	41.8	-0.43	-85.9	-111.4	145.0	61.5	1.737	
12,100.0	12,089.1	12,075.0	12,071.0	42.1	41.9	-0.43	-83.5	-111.4	148.5	65.1	1.779	
12,200.0	12,189.1	12,150.0	12,144.7	42.5	41.9	-0.43	-70.1	-111.5	166.8	84.6	2.028	
12,300.0	12,289.1	12,219.9	12,210.7	42.8	41.9	0.01	-47.4	-111.7	199.2	119.0	2.484	
12,400.0	12,387.9	12,285.1	12,268.7	42.8	42.0	0.01	-17.7	-111.9	231.3	154.2	2.999	
12,500.0	12,481.5	12,350.0	12,321.9	42.8	42.0	0.01	19.4	-112.2	256.4	182.7	3.479	
12,600.0	12,565.8	12,412.4	12,367.8	42.8	42.0	0.01	61.5	-112.5	273.9	204.1	3.924	
12,700.0	12,637.2	12,475.0	12,408.0	42.9	42.0	0.01	109.5	-112.9	283.8	217.9	4.301	
12,800.0	12,692.5	12,537.7	12,441.6	42.9	42.0	0.01	162.3	-113.3	285.9	223.5	4.580	
12,900.0	12,729.3	12,600.0	12,467.9	42.9	42.0	0.01	218.8	-113.7	280.2	220.8	4.718	
13,000.0	12,746.0	12,663.2	12,486.8	43.0	42.1	0.01	279.1	-114.2	266.7	209.4	4.658	
13,100.0	12,746.4	12,725.0	12,497.5	43.0	42.1	0.01	339.9	-114.7	250.1	193.9	4.450	
13,180.9	12,745.8	12,780.4	12,500.3	43.1	42.1	0.01	395.2	-115.1	245.6	189.2	4.353	
13,200.0	12,745.7	12,793.1	12,500.0	43.1	42.1	0.01	407.8	-115.2	245.8	189.2	4.344	
13,300.0	12,744.9	12,893.0	12,496.6	43.2	42.1	0.01	507.7	-115.9	248.5	191.7	4.373	
13,400.0	12,744.1	12,993.0	12,493.2	43.3	42.2	0.01	607.6	-116.7	251.1	194.0	4.398	
13,500.0	12,743.4	13,092.9	12,489.8	43.4	42.3	0.01	707.5	-117.5	253.8	196.4	4.421	
13,600.0	12,742.6	13,192.9	12,486.3	43.5	42.4	0.01	807.4	-118.2	256.4	198.7	4.440	
13,700.0	12,741.8	13,292.8	12,482.9	43.7	42.5	0.01	907.3	-119.0	259.1	200.9	4.455	
13,800.0	12,741.1	13,392.8	12,479.5	43.8	42.7	0.01	1,007.2	-119.8	261.7	203.1	4.467	
13,900.0	12,740.3	13,492.8	12,476.1	44.0	42.8	0.01	1,107.1	-120.5	264.4	205.3	4.477	
14,000.0	12,739.5	13,592.7	12,472.7	44.2	43.0	0.00	1,207.0	-121.3	267.0	207.4	4.483	
14,100.0	12,738.8	13,692.7	12,469.3	44.4	43.2	0.00	1,306.9	-122.1	269.6	209.5	4.486	
14,200.0	12,738.0	13,792.7	12,465.9	44.6	43.4	0.00	1,406.8	-122.8	272.3	211.6	4.487	
14,300.0	12,737.2	13,892.6	12,462.5	44.8	43.6	0.00	1,506.7	-123.6	274.9	213.6	4.485	
14,400.0	12,736.5	13,992.6	12,459.0	45.1	43.8	0.00	1,606.6	-124.4	277.6	215.6	4.481	
14,500.0	12,735.7	14,092.6	12,455.6	45.3	44.0	0.00	1,706.6	-125.1	280.2	217.6	4.475	
14,600.0	12,734.9	14,192.5	12,452.2	45.6	44.3	0.00	1,806.5	-125.9	282.9	219.5	4.466	
14,700.0	12,734.2	14,292.5	12,448.8	45.8	44.5	0.00	1,906.4	-126.7	285.5	221.4	4.456	
14,800.0	12,733.4	14,392.5	12,445.4	46.1	44.8	0.00	2,006.3	-127.4	288.2	223.3	4.443	
14,900.0	12,732.6	14,492.4	12,442.0	46.4	45.1	0.00	2,106.2	-128.2	290.8	225.2	4.429	
15,000.0	12,731.8	14,592.4	12,438.6	46.7	45.4	0.00	2,206.1	-128.9	293.5	227.0	4.414	
15,100.0	12,731.1	14,692.4	12,435.2	47.0	45.7	0.00	2,306.0	-129.7	296.1	228.8	4.397	
15,200.0	12,730.3	14,792.3	12,431.7	47.3	46.0	0.00	2,405.9	-130.5	298.7	230.5	4.379	
15,300.0	12,729.5	14,892.3	12,428.3	47.7	46.3	0.00	2,505.8	-131.2	301.4	232.3	4.360	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #609H - Wellbore #1 - Design #1

Survey Program: 0-GYRO-NS, 12027-MWD+IFR1+MS

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
15,400.0	12,728.8	14,992.3	12,424.9	48.0	46.7	0.00	2,605.7	-132.0	304.0	234.0	4.340	
15,500.0	12,728.0	15,092.2	12,421.5	48.4	47.0	0.00	2,705.6	-132.8	306.7	235.7	4.320	
15,600.0	12,727.2	15,192.2	12,418.1	48.7	47.4	0.00	2,805.5	-133.5	309.3	237.4	4.298	
15,700.0	12,726.5	15,292.1	12,414.7	49.1	47.7	0.00	2,905.4	-134.3	312.0	239.0	4.276	
15,800.0	12,725.7	15,392.1	12,411.3	49.5	48.1	0.00	3,005.3	-135.1	314.6	240.6	4.253	
15,900.0	12,724.9	15,492.1	12,407.9	49.9	48.5	0.00	3,105.2	-135.8	317.3	242.3	4.230	
16,000.0	12,724.2	15,592.0	12,404.4	50.3	48.9	0.00	3,205.1	-136.6	319.9	243.9	4.206	
16,100.0	12,723.4	15,692.0	12,401.0	50.7	49.3	0.00	3,305.0	-137.4	322.6	245.4	4.182	
16,200.0	12,722.6	15,792.0	12,397.6	51.1	49.7	0.00	3,404.9	-138.1	325.2	247.0	4.158	
16,300.0	12,721.9	15,891.9	12,394.2	51.5	50.1	0.00	3,504.8	-138.9	327.8	248.5	4.134	
16,400.0	12,721.1	15,991.9	12,390.8	52.0	50.5	0.00	3,604.7	-139.7	330.5	250.1	4.109	
16,500.0	12,720.3	16,091.9	12,387.4	52.4	51.0	0.00	3,704.6	-140.4	333.1	251.6	4.085	
16,600.0	12,719.6	16,191.8	12,384.0	52.8	51.4	0.00	3,804.5	-141.2	335.8	253.1	4.060	
16,700.0	12,718.8	16,291.8	12,380.6	53.3	51.9	0.00	3,904.4	-142.0	338.4	254.6	4.035	
16,800.0	12,718.0	16,391.8	12,377.1	53.8	52.3	0.00	4,004.3	-142.7	341.1	256.0	4.011	
16,900.0	12,717.2	16,491.7	12,373.7	54.2	52.8	0.00	4,104.2	-143.5	343.7	257.5	3.986	
17,000.0	12,716.5	16,591.7	12,370.3	54.7	53.2	0.00	4,204.1	-144.2	346.4	258.9	3.962	
17,100.0	12,715.7	16,691.7	12,366.9	55.2	53.7	0.00	4,304.1	-145.0	349.0	260.4	3.938	
17,200.0	12,714.9	16,791.6	12,363.5	55.7	54.2	0.00	4,404.0	-145.8	351.7	261.8	3.914	
17,300.0	12,714.2	16,891.6	12,360.1	56.2	54.7	0.00	4,503.9	-146.5	354.3	263.2	3.890	
17,400.0	12,713.4	16,991.6	12,356.7	56.7	55.2	0.00	4,603.8	-147.3	356.9	264.6	3.866	
17,500.0	12,712.6	17,091.5	12,353.3	57.2	55.7	0.00	4,703.7	-148.1	359.6	266.0	3.843	
17,583.4	12,712.0	17,174.8	12,350.4	57.6	56.1	0.00	4,786.9	-148.7	361.8	267.3	3.830	

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #713H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 12159-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	89.62	0.2	29.9	29.9			
100.0	100.0	100.0	100.0	0.1	0.1	89.62	0.2	29.9	29.9	29.7	120.646	
200.0	200.0	200.0	200.0	0.5	0.5	89.62	0.2	29.9	29.9	29.0	31.609	
300.0	300.0	300.0	300.0	0.8	0.8	89.62	0.2	29.9	29.9	28.3	18.187	
400.0	400.0	400.0	400.0	1.2	1.2	89.62	0.2	29.9	29.9	27.6	12.766	
500.0	500.0	500.0	500.0	1.5	1.5	89.62	0.2	29.9	29.9	26.9	9.835	
600.0	600.0	600.0	600.0	1.9	1.9	89.62	0.2	29.9	29.9	26.2	7.998	
700.0	700.0	700.0	700.0	2.2	2.2	89.62	0.2	29.9	29.9	25.5	6.740	
800.0	800.0	800.0	800.0	2.6	2.6	89.62	0.2	29.9	29.9	24.8	5.823	
900.0	900.0	900.0	900.0	2.9	2.9	89.62	0.2	29.9	29.9	24.1	5.126	
1,000.0	1,000.0	1,000.0	1,000.0	3.3	3.3	89.62	0.2	29.9	29.9	23.4	4.578	
1,100.0	1,100.0	1,100.0	1,100.0	3.6	3.6	89.62	0.2	29.9	29.9	22.7	4.136	
1,200.0	1,200.0	1,200.0	1,200.0	4.0	4.0	89.62	0.2	29.9	29.9	22.0	3.772	
1,300.0	1,300.0	1,300.0	1,300.0	4.3	4.3	89.62	0.2	29.9	29.9	21.3	3.467	
1,400.0	1,400.0	1,400.0	1,400.0	4.7	4.7	89.62	0.2	29.9	29.9	20.6	3.207	
1,500.0	1,500.0	1,500.0	1,500.0	5.0	5.0	89.62	0.2	29.9	29.9	19.9	2.984	
1,600.0	1,600.0	1,600.0	1,600.0	5.4	5.4	89.62	0.2	29.9	29.9	19.2	2.789	
1,700.0	1,700.0	1,700.0	1,700.0	5.7	5.7	89.62	0.2	29.9	29.9	18.5	2.619	
1,800.0	1,800.0	1,800.0	1,800.0	6.1	6.1	89.62	0.2	29.9	29.9	17.8	2.468	
1,900.0	1,900.0	1,900.0	1,900.0	6.4	6.4	89.62	0.2	29.9	29.9	17.1	2.333	
2,000.0	2,000.0	2,000.0	2,000.0	6.8	6.8	89.62	0.2	29.9	29.9	16.4	2.213	
2,100.0	2,100.0	2,100.0	2,100.0	7.1	7.1	89.62	0.2	29.9	29.9	15.7	2.104	
2,200.0	2,200.0	2,200.0	2,200.0	7.5	7.5	89.62	0.2	29.9	29.9	15.0	2.006	
2,300.0	2,300.0	2,300.0	2,300.0	7.8	7.8	89.62	0.2	29.9	29.9	14.3	1.916	
2,400.0	2,400.0	2,400.0	2,400.0	8.2	8.2	89.62	0.2	29.9	29.9	13.6	1.834	
2,500.0	2,500.0	2,500.0	2,500.0	8.5	8.5	89.62	0.2	29.9	29.9	12.9	1.759	
2,600.0	2,600.0	2,600.0	2,600.0	8.9	8.9	89.62	0.2	29.9	29.9	12.2	1.689	
2,700.0	2,700.0	2,700.0	2,700.0	9.2	9.2	89.62	0.2	29.9	29.9	11.5	1.625	
2,800.0	2,800.0	2,800.0	2,800.0	9.6	9.6	89.62	0.2	29.9	29.9	10.8	1.566	
2,900.0	2,900.0	2,900.0	2,900.0	9.9	9.9	89.62	0.2	29.9	29.9	10.1	1.510	
3,000.0	3,000.0	3,000.0	3,000.0	10.3	10.3	89.62	0.2	29.9	29.9	9.4	1.459	Level 3
3,100.0	3,100.0	3,100.0	3,100.0	10.6	10.6	89.62	0.2	29.9	29.9	8.7	1.411	Level 3
3,200.0	3,200.0	3,200.0	3,200.0	11.0	11.0	89.62	0.2	29.9	29.9	8.0	1.366	Level 3
3,300.0	3,300.0	3,300.0	3,300.0	11.3	11.3	89.62	0.2	29.9	29.9	7.3	1.324	Level 3
3,400.0	3,400.0	3,400.0	3,400.0	11.7	11.7	89.62	0.2	29.9	29.9	6.6	1.284	Level 3
3,500.0	3,500.0	3,500.0	3,500.0	12.0	12.0	89.62	0.2	29.9	29.9	5.9	1.247	Level 2
3,600.0	3,600.0	3,600.0	3,600.0	12.4	12.4	89.62	0.2	29.9	29.9	5.2	1.211	Level 2
3,700.0	3,700.0	3,700.0	3,700.0	12.7	12.7	89.62	0.2	29.9	29.9	4.5	1.178	Level 2
3,800.0	3,800.0	3,800.0	3,800.0	13.1	13.1	89.62	0.2	29.9	29.9	3.8	1.147	Level 2
3,900.0	3,900.0	3,900.0	3,900.0	13.4	13.4	89.62	0.2	29.9	29.9	3.1	1.117	Level 2
4,000.0	4,000.0	4,000.0	4,000.0	13.8	13.8	89.62	0.2	29.9	29.9	2.4	1.088	Level 2
4,100.0	4,100.0	4,100.0	4,100.0	14.1	14.1	89.62	0.2	29.9	29.9	1.7	1.061	Level 2
4,200.0	4,200.0	4,200.0	4,200.0	14.5	14.5	89.62	0.2	29.9	29.9	1.0	1.036	Level 2
4,300.0	4,300.0	4,300.0	4,300.0	14.9	14.9	89.62	0.2	29.9	29.9	0.3	1.011	Level 2, CC, ES, SF
4,400.0	4,400.0	4,399.5	4,399.5	15.2	15.2	-115.89	-1.4	30.6	31.4	1.1	1.038	Level 2
4,500.0	4,499.8	4,498.9	4,498.8	15.5	15.5	-115.81	-6.0	32.9	35.9	5.0	1.160	Level 2
4,600.0	4,599.5	4,598.4	4,597.9	15.9	15.9	-115.73	-13.4	36.4	43.0	11.4	1.360	Level 3
4,700.0	4,699.1	4,698.1	4,697.2	16.2	16.2	-115.70	-21.3	40.2	50.6	18.2	1.562	
4,800.0	4,798.7	4,797.8	4,796.6	16.6	16.6	-115.68	-29.1	43.9	58.1	25.0	1.756	
4,900.0	4,898.4	4,897.5	4,895.9	16.9	16.9	-115.66	-36.9	47.7	65.6	31.8	1.942	
5,000.0	4,998.0	4,997.3	4,995.2	17.3	17.3	-115.65	-44.8	51.4	73.1	38.6	2.120	
5,100.0	5,097.6	5,097.0	5,094.6	17.6	17.6	-115.64	-52.6	55.2	80.6	45.4	2.290	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #713H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 12159-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
5,200.0	5,197.2	5,196.7	5,193.9	18.0	18.0	-115.63	-60.4	59.0	88.1	52.2	2.454	
5,300.0	5,296.8	5,296.4	5,293.3	18.4	18.3	-115.62	-68.3	62.7	95.7	59.0	2.612	
5,400.0	5,396.4	5,396.1	5,392.6	18.7	18.7	-115.61	-76.1	66.5	103.2	65.9	2.764	
5,500.0	5,496.1	5,495.8	5,491.9	19.1	19.1	-115.61	-83.9	70.2	110.7	72.7	2.910	
5,600.0	5,595.7	5,595.6	5,591.3	19.4	19.4	-115.60	-91.8	74.0	118.2	79.5	3.051	
5,700.0	5,695.3	5,695.3	5,690.6	19.8	19.8	-115.60	-99.6	77.7	125.7	86.3	3.187	
5,800.0	5,794.9	5,795.0	5,789.9	20.1	20.1	-115.59	-107.4	81.5	133.3	93.1	3.318	
5,900.0	5,894.5	5,894.7	5,889.3	20.5	20.5	-115.59	-115.3	85.2	140.8	99.9	3.444	
6,000.0	5,994.2	5,994.4	5,988.6	20.8	20.8	-115.59	-123.1	89.0	148.3	106.7	3.566	
6,100.0	6,093.8	6,094.2	6,088.0	21.2	21.2	-115.58	-130.9	92.7	155.8	113.5	3.684	
6,200.0	6,193.4	6,193.9	6,187.3	21.6	21.5	-115.58	-138.8	96.5	163.3	120.3	3.799	
6,300.0	6,293.0	6,293.6	6,286.6	21.9	21.9	-115.58	-146.6	100.2	170.8	127.1	3.909	
6,400.0	6,392.6	6,393.3	6,386.0	22.3	22.2	-115.58	-154.4	104.0	178.4	133.9	4.016	
6,500.0	6,492.3	6,493.0	6,485.3	22.6	22.6	-115.58	-162.3	107.8	185.9	140.8	4.120	
6,600.0	6,591.9	6,592.7	6,584.7	23.0	22.9	-115.57	-170.1	111.5	193.4	147.6	4.220	
6,700.0	6,691.5	6,692.5	6,684.0	23.3	23.3	-115.57	-177.9	115.3	200.9	154.4	4.318	
6,800.0	6,791.1	6,792.2	6,783.3	23.7	23.7	-115.57	-185.8	119.0	208.4	161.2	4.412	
6,900.0	6,890.7	6,891.9	6,882.7	24.0	24.0	-115.57	-193.6	122.8	215.9	168.0	4.504	
7,000.0	6,990.4	6,991.6	6,982.0	24.4	24.4	-115.57	-201.4	126.5	223.5	174.8	4.593	
7,100.0	7,090.0	7,091.3	7,081.3	24.7	24.7	-115.57	-209.3	130.3	231.0	181.6	4.680	
7,200.0	7,189.6	7,191.0	7,180.7	25.1	25.1	-115.57	-217.1	134.0	238.5	188.4	4.764	
7,300.0	7,289.3	7,293.6	7,283.0	25.4	25.4	-115.70	-224.2	137.4	245.3	194.5	4.829	
7,400.0	7,389.2	7,397.4	7,386.6	25.8	25.8	-115.88	-228.1	139.3	249.1	197.6	4.836	
7,500.0	7,489.1	7,499.9	7,489.1	26.1	26.1	89.54	-228.9	139.7	250.0	197.8	4.788	
7,600.0	7,589.1	7,599.9	7,589.1	26.5	26.5	89.54	-228.9	139.7	250.0	197.1	4.725	
7,700.0	7,689.1	7,699.9	7,689.1	26.8	26.8	89.54	-228.9	139.7	250.0	196.4	4.664	
7,800.0	7,789.1	7,799.9	7,789.1	27.2	27.2	89.54	-228.9	139.7	250.0	195.7	4.605	
7,900.0	7,889.1	7,899.9	7,889.1	27.5	27.5	89.54	-228.9	139.7	250.0	195.0	4.547	
8,000.0	7,989.1	7,999.9	7,989.1	27.9	27.9	89.54	-228.9	139.7	250.0	194.3	4.490	
8,100.0	8,089.1	8,099.9	8,089.1	28.2	28.2	89.54	-228.9	139.7	250.0	193.6	4.435	
8,200.0	8,189.1	8,199.9	8,189.1	28.6	28.6	89.54	-228.9	139.7	250.0	192.9	4.381	
8,300.0	8,289.1	8,299.9	8,289.1	28.9	28.9	89.54	-228.9	139.7	250.0	192.2	4.328	
8,400.0	8,389.1	8,399.9	8,389.1	29.3	29.3	89.54	-228.9	139.7	250.0	191.6	4.277	
8,500.0	8,489.1	8,499.9	8,489.1	29.6	29.6	89.54	-228.9	139.7	250.0	190.9	4.227	
8,600.0	8,589.1	8,599.9	8,589.1	30.0	30.0	89.54	-228.9	139.7	250.0	190.2	4.178	
8,700.0	8,689.1	8,699.9	8,689.1	30.3	30.3	89.54	-228.9	139.7	250.0	189.5	4.130	
8,800.0	8,789.1	8,799.9	8,789.1	30.7	30.7	89.54	-228.9	139.7	250.0	188.8	4.083	
8,900.0	8,889.1	8,899.9	8,889.1	31.0	31.0	89.54	-228.9	139.7	250.0	188.1	4.037	
9,000.0	8,989.1	8,999.9	8,989.1	31.3	31.3	89.54	-228.9	139.7	250.0	187.4	3.992	
9,100.0	9,089.1	9,099.9	9,089.1	31.7	31.7	89.54	-228.9	139.7	250.0	186.7	3.949	
9,200.0	9,189.1	9,199.9	9,189.1	32.0	32.0	89.54	-228.9	139.7	250.0	186.0	3.906	
9,300.0	9,289.1	9,299.9	9,289.1	32.4	32.4	89.54	-228.9	139.7	250.0	185.3	3.864	
9,400.0	9,389.1	9,399.9	9,389.1	32.7	32.7	89.54	-228.9	139.7	250.0	184.6	3.823	
9,500.0	9,489.1	9,499.9	9,489.1	33.1	33.1	89.54	-228.9	139.7	250.0	183.9	3.783	
9,600.0	9,589.1	9,599.9	9,589.1	33.4	33.4	89.54	-228.9	139.7	250.0	183.2	3.743	
9,700.0	9,689.1	9,699.9	9,689.1	33.8	33.8	89.54	-228.9	139.7	250.0	182.5	3.705	
9,800.0	9,789.1	9,799.9	9,789.1	34.1	34.1	89.54	-228.9	139.7	250.0	181.8	3.667	
9,900.0	9,889.1	9,899.9	9,889.1	34.5	34.5	89.54	-228.9	139.7	250.0	181.1	3.630	
10,000.0	9,989.1	9,999.9	9,989.1	34.8	34.8	89.54	-228.9	139.7	250.0	180.4	3.594	
10,100.0	10,089.1	10,099.9	10,089.1	35.2	35.2	89.54	-228.9	139.7	250.0	179.7	3.558	
10,200.0	10,189.1	10,199.9	10,189.1	35.5	35.5	89.54	-228.9	139.7	250.0	179.0	3.523	
10,300.0	10,289.1	10,299.9	10,289.1	35.9	35.9	89.54	-228.9	139.7	250.0	178.4	3.489	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #713H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

Survey Program: 0-GYRO-NS, 12159-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
10,400.0	10,389.1	10,399.9	10,389.1	36.2	36.2	89.54	-228.9	139.7	250.0	177.7	3.456	
10,500.0	10,489.1	10,499.9	10,489.1	36.6	36.6	89.54	-228.9	139.7	250.0	177.0	3.423	
10,600.0	10,589.1	10,599.9	10,589.1	36.9	36.9	89.54	-228.9	139.7	250.0	176.3	3.390	
10,700.0	10,689.1	10,699.9	10,689.1	37.3	37.3	89.54	-228.9	139.7	250.0	175.6	3.359	
10,800.0	10,789.1	10,799.9	10,789.1	37.6	37.6	89.54	-228.9	139.7	250.0	174.9	3.328	
10,900.0	10,889.1	10,899.9	10,889.1	38.0	38.0	89.54	-228.9	139.7	250.0	174.2	3.297	
11,000.0	10,989.1	10,999.9	10,989.1	38.3	38.3	89.54	-228.9	139.7	250.0	173.5	3.267	
11,100.0	11,089.1	11,099.9	11,089.1	38.7	38.7	89.54	-228.9	139.7	250.0	172.8	3.238	
11,200.0	11,189.1	11,199.9	11,189.1	39.0	39.0	89.54	-228.9	139.7	250.0	172.1	3.209	
11,300.0	11,289.1	11,299.9	11,289.1	39.3	39.3	89.54	-228.9	139.7	250.0	171.4	3.180	
11,400.0	11,389.1	11,399.9	11,389.1	39.7	39.7	89.54	-228.9	139.7	250.0	170.7	3.152	
11,500.0	11,489.1	11,499.9	11,489.1	40.0	40.0	89.54	-228.9	139.7	250.0	170.0	3.125	
11,600.0	11,589.1	11,599.9	11,589.1	40.4	40.4	89.54	-228.9	139.7	250.0	169.3	3.098	
11,700.0	11,689.1	11,699.9	11,689.1	40.7	40.7	89.54	-228.9	139.7	250.0	168.6	3.072	
11,800.0	11,789.1	11,799.9	11,789.1	41.1	41.1	89.54	-228.9	139.7	250.0	167.9	3.046	
11,900.0	11,889.1	11,899.9	11,889.1	41.4	41.4	89.54	-228.9	139.7	250.0	167.2	3.020	
12,000.0	11,989.1	11,999.9	11,989.1	41.8	41.8	89.54	-228.9	139.7	250.0	166.5	2.995	
12,100.0	12,089.1	12,099.9	12,089.1	42.1	42.1	89.54	-228.9	139.7	250.0	165.8	2.970	
12,107.4	12,096.5	12,107.3	12,096.5	42.2	42.2	89.54	-228.9	139.7	250.0	165.8	2.968	
12,200.0	12,189.1	12,199.8	12,189.0	42.5	42.4	89.13	-227.1	139.7	250.0	165.3	2.950	
12,300.0	12,289.1	12,296.1	12,283.4	42.8	42.4	85.52	-209.2	139.5	250.8	165.8	2.949	
12,400.0	12,387.9	12,387.1	12,367.7	42.8	42.4	80.31	-175.2	139.3	253.8	168.9	2.990	
12,500.0	12,481.5	12,475.0	12,441.6	42.8	42.4	75.65	-127.7	138.9	258.4	173.9	3.060	
12,600.0	12,565.8	12,559.7	12,503.3	42.8	42.4	71.71	-70.0	138.5	263.7	180.0	3.153	
12,700.0	12,637.2	12,642.6	12,553.0	42.9	42.4	68.56	-3.8	138.0	268.9	186.3	3.255	
12,800.0	12,692.5	12,725.0	12,590.3	42.9	42.5	66.20	69.6	137.4	273.4	191.8	3.348	
12,900.0	12,729.3	12,804.4	12,613.9	42.9	42.5	64.73	145.3	136.8	276.5	195.6	3.418	
13,000.0	12,746.0	12,884.2	12,624.5	43.0	42.5	64.06	224.3	136.2	278.0	197.3	3.446	
13,100.0	12,746.4	12,974.4	12,623.4	43.0	42.6	63.79	314.5	135.5	278.7	197.9	3.451	
13,200.0	12,745.7	13,074.4	12,620.4	43.1	42.7	63.39	414.4	134.8	279.6	198.9	3.461	
13,300.0	12,744.9	13,174.3	12,617.5	43.2	42.7	62.99	514.3	134.0	280.6	199.8	3.471	
13,400.0	12,744.1	13,274.3	12,614.5	43.3	42.8	62.59	614.2	133.2	281.6	200.7	3.480	
13,500.0	12,743.4	13,374.3	12,611.5	43.4	43.0	62.19	714.2	132.5	282.7	201.6	3.488	
13,600.0	12,742.6	13,474.3	12,608.6	43.5	43.1	61.80	814.1	131.7	283.7	202.5	3.494	
13,700.0	12,741.8	13,574.2	12,605.6	43.7	43.3	61.41	914.0	130.9	284.8	203.4	3.500	
13,800.0	12,741.1	13,674.2	12,602.6	43.8	43.4	61.02	1,014.0	130.2	285.8	204.3	3.504	
13,900.0	12,740.3	13,774.2	12,599.6	44.0	43.6	60.63	1,113.9	129.4	286.9	205.1	3.508	
14,000.0	12,739.5	13,874.2	12,596.7	44.2	43.8	60.25	1,213.8	128.6	288.0	205.9	3.510	
14,100.0	12,738.8	13,974.1	12,593.7	44.4	44.0	59.87	1,313.7	127.9	289.1	206.7	3.511	
14,200.0	12,738.0	14,074.1	12,590.7	44.6	44.2	59.49	1,413.7	127.1	290.2	207.5	3.511	
14,300.0	12,737.2	14,174.1	12,587.8	44.8	44.4	59.12	1,513.6	126.3	291.3	208.3	3.511	
14,400.0	12,736.5	14,274.1	12,584.8	45.1	44.7	58.75	1,613.5	125.6	292.5	209.1	3.509	
14,500.0	12,735.7	14,374.0	12,581.8	45.3	44.9	58.38	1,713.5	124.8	293.6	209.9	3.506	
14,600.0	12,734.9	14,474.0	12,578.8	45.6	45.2	58.02	1,813.4	124.1	294.8	210.6	3.502	
14,700.0	12,734.2	14,574.0	12,575.9	45.8	45.4	57.66	1,913.3	123.3	295.9	211.3	3.498	
14,800.0	12,733.4	14,674.0	12,572.9	46.1	45.7	57.30	2,013.2	122.5	297.1	212.0	3.492	
14,900.0	12,732.6	14,773.9	12,569.9	46.4	46.0	56.94	2,113.2	121.8	298.3	212.7	3.486	
15,000.0	12,731.8	14,873.9	12,567.0	46.7	46.3	56.59	2,213.1	121.0	299.5	213.4	3.479	
15,100.0	12,731.1	14,973.9	12,564.0	47.0	46.6	56.24	2,313.0	120.2	300.7	214.1	3.471	
15,200.0	12,730.3	15,073.9	12,561.0	47.3	47.0	55.89	2,413.0	119.5	302.0	214.8	3.462	
15,300.0	12,729.5	15,173.8	12,558.0	47.7	47.3	55.54	2,512.9	118.7	303.2	215.4	3.453	
15,400.0	12,728.8	15,273.8	12,555.1	48.0	47.6	55.20	2,612.8	117.9	304.5	216.0	3.443	

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

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 25, T25S, R33E - Dominator 25 Federal #713H - Wellbore #1 - Design #1 — **Offset Site Error:** 0.0 usft

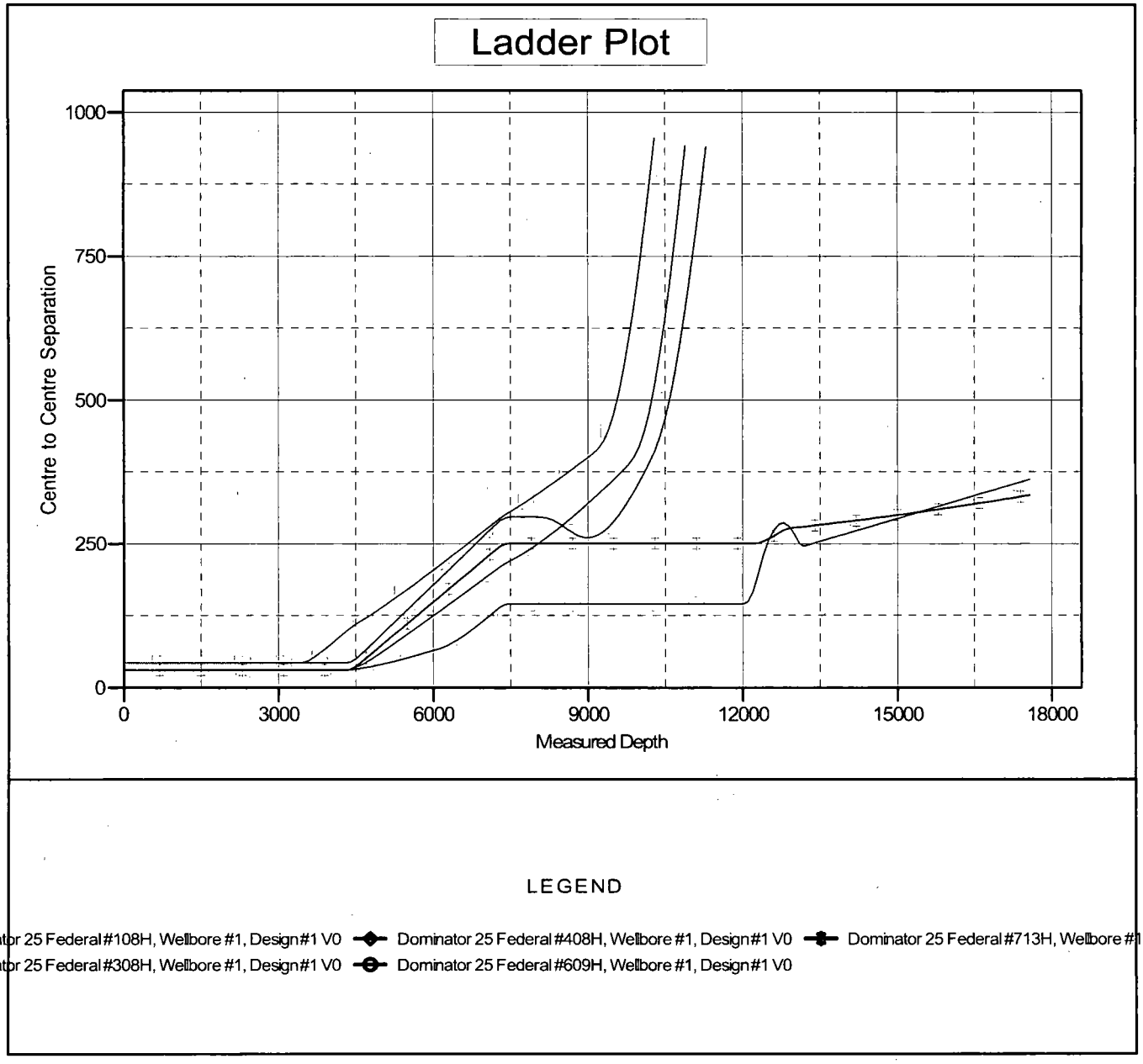
Survey Program: 0-GYRO-NS, 12159-MWD+IFR1+MS — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
15,500.0	12,728.0	15,373.8	12,552.1	48.4	48.0	54.86	2,712.7	117.2	305.7	216.7	3.432	
15,600.0	12,727.2	15,473.8	12,549.1	48.7	48.4	54.53	2,812.7	116.4	307.0	217.3	3.421	
15,700.0	12,726.5	15,573.7	12,546.2	49.1	48.7	54.19	2,912.6	115.6	308.3	217.9	3.409	
15,800.0	12,725.7	15,673.7	12,543.2	49.5	49.1	53.86	3,012.5	114.9	309.6	218.4	3.397	
15,900.0	12,724.9	15,773.7	12,540.2	49.9	49.5	53.53	3,112.5	114.1	310.9	219.0	3.384	
16,000.0	12,724.2	15,873.7	12,537.2	50.3	49.9	53.21	3,212.4	113.4	312.2	219.6	3.370	
16,100.0	12,723.4	15,973.7	12,534.3	50.7	50.3	52.89	3,312.3	112.6	313.5	220.1	3.357	
16,200.0	12,722.6	16,073.6	12,531.3	51.1	50.7	52.57	3,412.2	111.8	314.9	220.7	3.343	
16,300.0	12,721.9	16,173.6	12,528.3	51.5	51.2	52.25	3,512.2	111.1	316.2	221.2	3.328	
16,400.0	12,721.1	16,273.6	12,525.3	52.0	51.6	51.94	3,612.1	110.3	317.6	221.7	3.314	
16,500.0	12,720.3	16,373.6	12,522.4	52.4	52.0	51.62	3,712.0	109.5	318.9	222.2	3.299	
16,600.0	12,719.6	16,473.5	12,519.4	52.8	52.5	51.31	3,812.0	108.8	320.3	222.8	3.283	
16,700.0	12,718.8	16,573.5	12,516.4	53.3	52.9	51.01	3,911.9	108.0	321.7	223.3	3.268	
16,800.0	12,718.0	16,673.5	12,513.5	53.8	53.4	50.70	4,011.8	107.2	323.1	223.7	3.252	
16,900.0	12,717.2	16,773.5	12,510.5	54.2	53.9	50.40	4,111.7	106.5	324.5	224.2	3.236	
17,000.0	12,716.5	16,873.4	12,507.5	54.7	54.4	50.10	4,211.7	105.7	325.9	224.7	3.220	
17,100.0	12,715.7	16,973.4	12,504.5	55.2	54.8	49.81	4,311.6	104.9	327.3	225.2	3.204	
17,200.0	12,714.9	17,073.4	12,501.6	55.7	55.3	49.52	4,411.5	104.2	328.7	225.6	3.188	
17,300.0	12,714.2	17,173.4	12,498.6	56.2	55.8	49.22	4,511.5	103.4	330.2	226.1	3.172	
17,400.0	12,713.4	17,273.3	12,495.6	56.7	56.3	48.94	4,611.4	102.6	331.6	226.5	3.156	
17,500.0	12,712.6	17,373.3	12,492.7	57.2	56.8	48.65	4,711.3	101.9	333.1	227.0	3.139	
17,583.4	12,712.0	17,456.6	12,490.2	57.6	57.3	48.41	4,794.6	101.2	334.3	227.4	3.127	

Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 3370.0usft (Noram 21)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

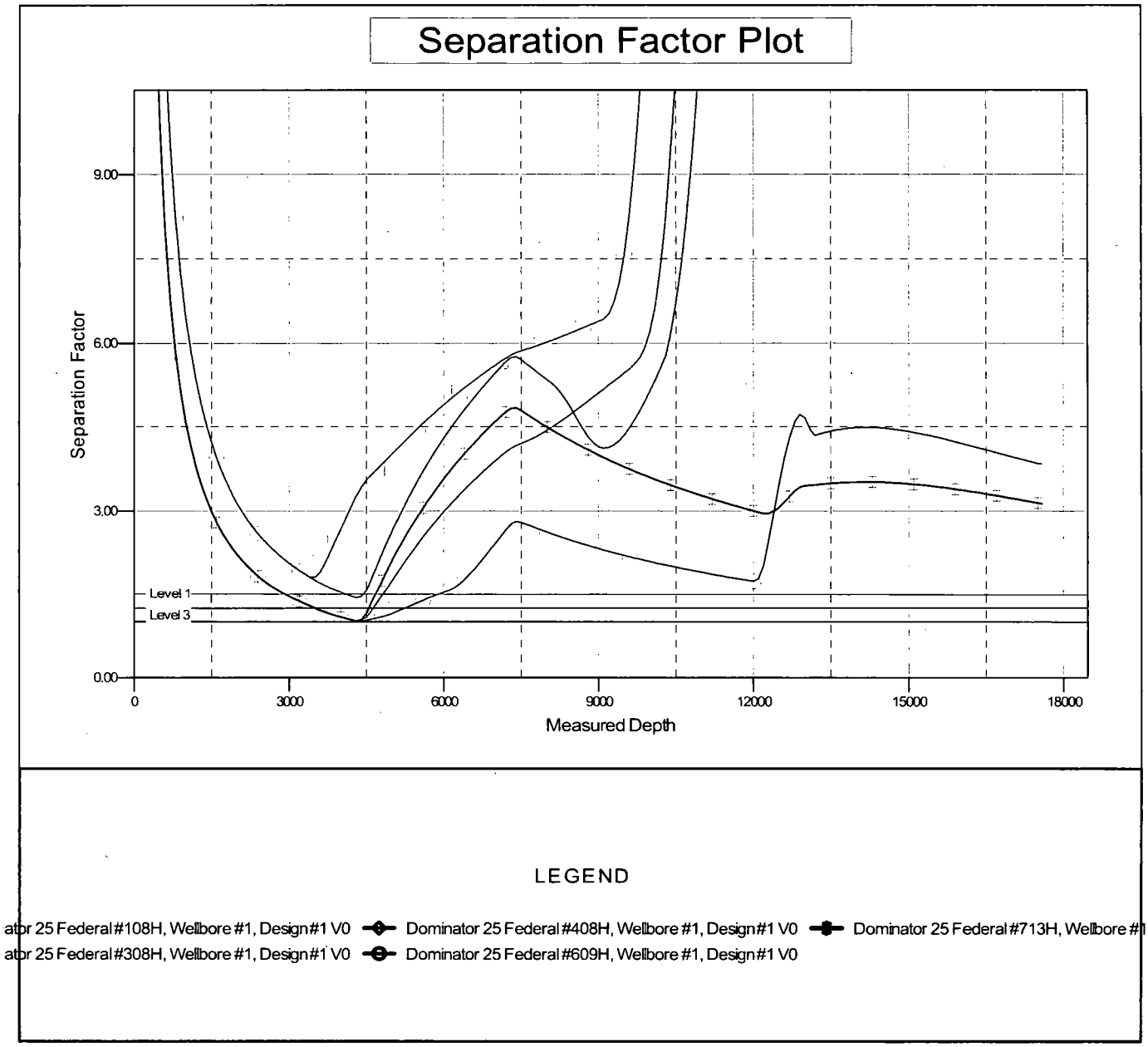
Coordinates are relative to: Dominator 25 Federal #714H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.43°



Company:	COG Operating, LLC	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Project:	Lea County, NM	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Reference Site:	Sec 25, T25S, R33E	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Design #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 3370.0usft (Noram 21)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Dominator 25 Federal #714H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.43°



CONCHO

COG Operating, LLC

Lea County, NM
Sec 25, T25S, R33E
Dominator 25 Federal #714H

Wellbore #1

Plan: Design #1

QES Well Planning Report

14 November, 2017

QES
DIRECTIONAL DRILLING

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Company:	COG Operating, LLC	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Project:	Lea County, NM	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site:	Sec 25, T25S, R33E	**North Reference:**	Grid
Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea County, NM		
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 25, T25S, R33E				
Site Position:		**Northing:**	399,200.40 usft	**Latitude:**	32° 5' 41.926 N
From:	Map	**Easting:**	748,329.70 usft	**Longitude:**	103° 31' 53.183 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.43 °

Well	Dominator 25 Federal #714H				
Well Position	**+N/-S**	-29.7 usft	**Northing:**	399,170.70 usft	**Latitude:**	32° 5' 41.630 N
	+E/-W	30.2 usft	**Easting:**	748,359.90 usft	**Longitude:**	103° 31' 52.835 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,341.0 usft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	11/14/2017	6.88	59.94	47,823.97964458

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	358.22

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	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,550.0	5.00	205.54	4,549.7	-9.8	-4.7	2.00	2.00	0.00	205.54	
7,235.3	5.00	205.54	7,224.8	-221.0	-105.6	0.00	0.00	0.00	0.00	
7,485.4	0.00	0.00	7,474.5	-230.9	-110.3	2.00	-2.00	0.00	180.00	
12,280.4	0.00	0.00	12,269.5	-230.9	-110.3	0.00	0.00	0.00	0.00	
13,034.0	90.44	359.56	12,747.0	250.2	-114.0	12.00	12.00	-0.06	359.56	
17,583.0	90.44	359.56	12,712.0	4,798.9	-148.8	0.00	0.00	0.00	0.00	PBHL D25F #714H

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Company:	COG Operating, LLC	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Project:	Lea County, NM	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site:	Sec 25, T25S, R33E	**North Reference:**	Grid
Well:	Dominator 25 Federal #714H	**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
700.0	0.00	0.00	700.0	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
Rustler									
1,108.0	0.00	0.00	1,108.0	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
TOS									
1,509.0	0.00	0.00	1,509.0	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
Build 2°/100'									
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	2.00	205.54	4,400.0	-1.6	-0.8	-1.6	2.00	2.00	0.00
4,500.0	4.00	205.54	4,499.8	-6.3	-3.0	-6.2	2.00	2.00	0.00
Hold 5.00° Inc., 205.54° Azm									
4,550.0	5.00	205.54	4,549.7	-9.8	-4.7	-9.7	2.00	2.00	0.00
4,600.0	5.00	205.54	4,599.5	-13.8	-6.6	-13.6	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Company:	COG Operating, LLC	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Project:	Lea County, NM	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site:	Sec 25, T25S, R33E	**North Reference:**	Grid
Well:	Dominator 25 Federal #714H	**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)
4,700.0	5.00	205.54	4,699.1	-21.6	-10.3	-21.3	0.00	0.00	0.00
4,800.0	5.00	205.54	4,798.7	-29.5	-14.1	-29.0	0.00	0.00	0.00
4,900.0	5.00	205.54	4,898.4	-37.4	-17.9	-36.8	0.00	0.00	0.00
5,000.0	5.00	205.54	4,998.0	-45.2	-21.6	-44.5	0.00	0.00	0.00
BOS (Fletcher)									
5,071.7	5.00	205.54	5,069.4	-50.9	-24.3	-50.1	0.00	0.00	0.00
5,100.0	5.00	205.54	5,097.6	-53.1	-25.4	-52.3	0.00	0.00	0.00
LMAR (Top Delaware)									
5,190.2	5.00	205.54	5,187.5	-60.2	-28.8	-59.3	0.00	0.00	0.00
5,200.0	5.00	205.54	5,197.2	-61.0	-29.1	-60.0	0.00	0.00	0.00
BLCN									
5,232.4	5.00	205.54	5,229.5	-63.5	-30.3	-62.5	0.00	0.00	0.00
5,300.0	5.00	205.54	5,296.8	-68.8	-32.9	-67.8	0.00	0.00	0.00
5,400.0	5.00	205.54	5,396.4	-76.7	-36.6	-75.5	0.00	0.00	0.00
5,500.0	5.00	205.54	5,496.1	-84.6	-40.4	-83.3	0.00	0.00	0.00
5,600.0	5.00	205.54	5,595.7	-92.4	-44.2	-91.0	0.00	0.00	0.00
5,700.0	5.00	205.54	5,695.3	-100.3	-47.9	-98.8	0.00	0.00	0.00
5,800.0	5.00	205.54	5,794.9	-108.2	-51.7	-106.5	0.00	0.00	0.00
5,900.0	5.00	205.54	5,894.5	-116.0	-55.4	-114.2	0.00	0.00	0.00
6,000.0	5.00	205.54	5,994.2	-123.9	-59.2	-122.0	0.00	0.00	0.00
6,100.0	5.00	205.54	6,093.8	-131.8	-63.0	-129.7	0.00	0.00	0.00
6,200.0	5.00	205.54	6,193.4	-139.6	-66.7	-137.5	0.00	0.00	0.00
CYCN									
6,235.8	5.00	205.54	6,229.1	-142.4	-68.1	-140.3	0.00	0.00	0.00
6,300.0	5.00	205.54	6,293.0	-147.5	-70.5	-145.2	0.00	0.00	0.00
6,400.0	5.00	205.54	6,392.6	-155.3	-74.2	-153.0	0.00	0.00	0.00
6,500.0	5.00	205.54	6,492.3	-163.2	-78.0	-160.7	0.00	0.00	0.00
6,600.0	5.00	205.54	6,591.9	-171.1	-81.7	-168.5	0.00	0.00	0.00
6,700.0	5.00	205.54	6,691.5	-178.9	-85.5	-176.2	0.00	0.00	0.00
6,800.0	5.00	205.54	6,791.1	-186.8	-89.3	-184.0	0.00	0.00	0.00
6,900.0	5.00	205.54	6,890.7	-194.7	-93.0	-191.7	0.00	0.00	0.00
7,000.0	5.00	205.54	6,990.4	-202.5	-96.8	-199.4	0.00	0.00	0.00
7,100.0	5.00	205.54	7,090.0	-210.4	-100.5	-207.2	0.00	0.00	0.00
7,200.0	5.00	205.54	7,189.6	-218.3	-104.3	-214.9	0.00	0.00	0.00
Drop 2°/100'									
7,235.3	5.00	205.54	7,224.8	-221.0	-105.6	-217.7	0.00	0.00	0.00
7,300.0	3.71	205.54	7,289.3	-225.5	-107.7	-222.0	2.00	-2.00	0.00
7,400.0	1.71	205.54	7,389.2	-229.7	-109.8	-226.2	2.00	-2.00	0.00
Hold Vertical									
7,485.4	0.00	0.00	7,474.5	-230.9	-110.3	-227.4	2.00	-2.00	0.00
7,500.0	0.00	0.00	7,489.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
7,600.0	0.00	0.00	7,589.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
7,700.0	0.00	0.00	7,689.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
7,800.0	0.00	0.00	7,789.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
BYCN									
7,820.6	0.00	0.00	7,809.7	-230.9	-110.3	-227.4	0.00	0.00	0.00
7,900.0	0.00	0.00	7,889.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
8,000.0	0.00	0.00	7,989.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
8,100.0	0.00	0.00	8,089.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
8,200.0	0.00	0.00	8,189.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
8,300.0	0.00	0.00	8,289.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
8,400.0	0.00	0.00	8,389.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
8,500.0	0.00	0.00	8,489.1	-230.9	-110.3	-227.4	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Company:	COG Operating, LLC	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Project:	Lea County, NM	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site:	Sec 25, T25S, R33E	**North Reference:**	Grid
Well:	Dominator 25 Federal #714H	**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)
8,600.0	0.00	0.00	8,589.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
8,700.0	0.00	0.00	8,689.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
8,800.0	0.00	0.00	8,789.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
8,900.0	0.00	0.00	8,889.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,000.0	0.00	0.00	8,989.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,100.0	0.00	0.00	9,089.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,200.0	0.00	0.00	9,189.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
Bone Sprg (BSGL)									
9,286.6	0.00	0.00	9,275.7	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,300.0	0.00	0.00	9,289.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
U Avalon Sh									
9,360.6	0.00	0.00	9,349.7	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,400.0	0.00	0.00	9,389.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,500.0	0.00	0.00	9,489.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,600.0	0.00	0.00	9,589.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,700.0	0.00	0.00	9,689.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,800.0	0.00	0.00	9,789.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
9,900.0	0.00	0.00	9,889.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
L Avalon Sh									
9,971.6	0.00	0.00	9,960.7	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,000.0	0.00	0.00	9,989.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,100.0	0.00	0.00	10,089.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
Basal Avalon									
10,121.6	0.00	0.00	10,110.7	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,200.0	0.00	0.00	10,189.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,300.0	0.00	0.00	10,289.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
FBSG_sand									
10,318.6	0.00	0.00	10,307.7	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,400.0	0.00	0.00	10,389.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,500.0	0.00	0.00	10,489.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,600.0	0.00	0.00	10,589.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,700.0	0.00	0.00	10,689.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,800.0	0.00	0.00	10,789.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
SBSG_sand									
10,836.6	0.00	0.00	10,825.7	-230.9	-110.3	-227.4	0.00	0.00	0.00
10,900.0	0.00	0.00	10,889.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,000.0	0.00	0.00	10,989.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,100.0	0.00	0.00	11,089.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,200.0	0.00	0.00	11,189.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,300.0	0.00	0.00	11,289.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
SBSG_sand base									
11,356.6	0.00	0.00	11,345.7	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,400.0	0.00	0.00	11,389.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,500.0	0.00	0.00	11,489.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,600.0	0.00	0.00	11,589.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,700.0	0.00	0.00	11,689.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,800.0	0.00	0.00	11,789.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
11,900.0	0.00	0.00	11,889.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
TBSG_sand									
11,960.6	0.00	0.00	11,949.7	-230.9	-110.3	-227.4	0.00	0.00	0.00
12,000.0	0.00	0.00	11,989.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
12,100.0	0.00	0.00	12,089.1	-230.9	-110.3	-227.4	0.00	0.00	0.00
12,200.0	0.00	0.00	12,189.1	-230.9	-110.3	-227.4	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Company:	COG Operating, LLC	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Project:	Lea County, NM	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site:	Sec 25, T25S, R33E	**North Reference:**	Grid
Well:	Dominator 25 Federal #714H	**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)
KOP: Build 12°/100' @ 12280.4' MD									
12,280.4	0.00	0.00	12,269.5	-230.9	-110.3	-227.4	0.00	0.00	0.00
12,300.0	2.36	359.56	12,289.1	-230.5	-110.3	-227.0	12.00	12.00	0.00
12,325.0	5.36	359.56	12,314.1	-228.8	-110.3	-225.3	12.00	12.00	0.00
12,350.0	8.36	359.56	12,338.9	-225.8	-110.4	-222.3	12.00	12.00	0.00
WFMP									
12,370.1	10.76	359.56	12,358.7	-222.5	-110.4	-219.0	12.00	12.00	0.00
12,375.0	11.36	359.56	12,363.5	-221.5	-110.4	-218.0	12.00	12.00	0.00
12,400.0	14.36	359.56	12,387.9	-216.0	-110.4	-212.5	12.00	12.00	0.00
12,425.0	17.36	359.56	12,411.9	-209.1	-110.5	-205.6	12.00	12.00	0.00
12,450.0	20.36	359.56	12,435.6	-201.1	-110.6	-197.5	12.00	12.00	0.00
12,475.0	23.36	359.56	12,458.8	-191.8	-110.6	-188.2	12.00	12.00	0.00
12,500.0	26.36	359.56	12,481.5	-181.3	-110.7	-177.7	12.00	12.00	0.00
12,525.0	29.36	359.56	12,503.6	-169.6	-110.8	-166.1	12.00	12.00	0.00
12,550.0	32.36	359.56	12,525.0	-156.8	-110.9	-153.2	12.00	12.00	0.00
12,575.0	35.36	359.56	12,545.8	-142.8	-111.0	-139.3	12.00	12.00	0.00
12,600.0	38.36	359.56	12,565.8	-127.8	-111.1	-124.3	12.00	12.00	0.00
12,625.0	41.36	359.56	12,585.0	-111.8	-111.2	-108.3	12.00	12.00	0.00
12,650.0	44.36	359.56	12,603.3	-94.8	-111.4	-91.3	12.00	12.00	0.00
12,675.0	47.36	359.56	12,620.7	-76.9	-111.5	-73.4	12.00	12.00	0.00
12,700.0	50.36	359.56	12,637.2	-58.1	-111.6	-54.6	12.00	12.00	0.00
12,725.0	53.36	359.56	12,652.6	-38.4	-111.8	-34.9	12.00	12.00	0.00
12,750.0	56.36	359.56	12,667.0	-18.0	-112.0	-14.5	12.00	12.00	0.00
12,775.0	59.36	359.56	12,680.3	3.2	-112.1	6.7	12.00	12.00	0.00
12,800.0	62.36	359.56	12,692.5	25.0	-112.3	28.5	12.00	12.00	0.00
12,825.0	65.36	359.56	12,703.5	47.5	-112.5	50.9	12.00	12.00	0.00
12,850.0	68.36	359.56	12,713.3	70.5	-112.6	73.9	12.00	12.00	0.00
12,875.0	71.36	359.56	12,721.9	93.9	-112.8	97.4	12.00	12.00	0.00
12,900.0	74.36	359.56	12,729.3	117.8	-113.0	121.3	12.00	12.00	0.00
12,925.0	77.36	359.56	12,735.4	142.1	-113.2	145.5	12.00	12.00	0.00
12,950.0	80.36	359.56	12,740.2	166.6	-113.4	170.0	12.00	12.00	0.00
12,975.0	83.36	359.56	12,743.8	191.3	-113.6	194.8	12.00	12.00	0.00
13,000.0	86.36	359.56	12,746.0	216.2	-113.7	219.6	12.00	12.00	0.00
13,025.0	89.36	359.56	12,746.9	241.2	-113.9	244.6	12.00	12.00	0.00
EOC: 13034.0' MD, 90.44° Inc, 359.56° Azm									
13,034.0	90.44	359.56	12,747.0	250.2	-114.0	253.6	12.00	12.00	0.00
13,100.0	90.44	359.56	12,746.4	316.2	-114.5	319.6	0.00	0.00	0.00
13,200.0	90.44	359.56	12,745.7	416.2	-115.3	419.6	0.00	0.00	0.00
13,300.0	90.44	359.56	12,744.9	516.2	-116.0	519.5	0.00	0.00	0.00
13,400.0	90.44	359.56	12,744.1	616.2	-116.8	619.5	0.00	0.00	0.00
13,500.0	90.44	359.56	12,743.4	716.2	-117.6	719.5	0.00	0.00	0.00
13,600.0	90.44	359.56	12,742.6	816.2	-118.3	819.4	0.00	0.00	0.00
13,700.0	90.44	359.56	12,741.8	916.2	-119.1	919.4	0.00	0.00	0.00
13,800.0	90.44	359.56	12,741.1	1,016.2	-119.9	1,019.4	0.00	0.00	0.00
13,900.0	90.44	359.56	12,740.3	1,116.2	-120.6	1,119.4	0.00	0.00	0.00
14,000.0	90.44	359.56	12,739.5	1,216.1	-121.4	1,219.3	0.00	0.00	0.00
14,100.0	90.44	359.56	12,738.8	1,316.1	-122.2	1,319.3	0.00	0.00	0.00
14,200.0	90.44	359.56	12,738.0	1,416.1	-122.9	1,419.3	0.00	0.00	0.00
14,300.0	90.44	359.56	12,737.2	1,516.1	-123.7	1,519.2	0.00	0.00	0.00
14,400.0	90.44	359.56	12,736.5	1,616.1	-124.5	1,619.2	0.00	0.00	0.00
14,500.0	90.44	359.56	12,735.7	1,716.1	-125.2	1,719.2	0.00	0.00	0.00
14,600.0	90.44	359.56	12,734.9	1,816.1	-126.0	1,819.1	0.00	0.00	0.00
14,700.0	90.44	359.56	12,734.2	1,916.1	-126.7	1,919.1	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Company:	COG Operating, LLC	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Project:	Lea County, NM	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site:	Sec 25, T25S, R33E	**North Reference:**	Grid
Well:	Dominator 25 Federal #714H	**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)
14,800.0	90.44	359.56	12,733.4	2,016.1	-127.5	2,019.1	0.00	0.00	0.00
14,900.0	90.44	359.56	12,732.6	2,116.1	-128.3	2,119.1	0.00	0.00	0.00
15,000.0	90.44	359.56	12,731.8	2,216.1	-129.0	2,219.0	0.00	0.00	0.00
15,100.0	90.44	359.56	12,731.1	2,316.1	-129.8	2,319.0	0.00	0.00	0.00
15,200.0	90.44	359.56	12,730.3	2,416.1	-130.6	2,419.0	0.00	0.00	0.00
15,300.0	90.44	359.56	12,729.5	2,516.1	-131.3	2,518.9	0.00	0.00	0.00
15,400.0	90.44	359.56	12,728.8	2,616.1	-132.1	2,618.9	0.00	0.00	0.00
15,500.0	90.44	359.56	12,728.0	2,716.1	-132.9	2,718.9	0.00	0.00	0.00
15,600.0	90.44	359.56	12,727.2	2,816.1	-133.6	2,818.8	0.00	0.00	0.00
15,700.0	90.44	359.56	12,726.5	2,916.0	-134.4	2,918.8	0.00	0.00	0.00
15,800.0	90.44	359.56	12,725.7	3,016.0	-135.2	3,018.8	0.00	0.00	0.00
15,900.0	90.44	359.56	12,724.9	3,116.0	-135.9	3,118.8	0.00	0.00	0.00
16,000.0	90.44	359.56	12,724.2	3,216.0	-136.7	3,218.7	0.00	0.00	0.00
16,100.0	90.44	359.56	12,723.4	3,316.0	-137.5	3,318.7	0.00	0.00	0.00
16,200.0	90.44	359.56	12,722.6	3,416.0	-138.2	3,418.7	0.00	0.00	0.00
16,300.0	90.44	359.56	12,721.9	3,516.0	-139.0	3,518.6	0.00	0.00	0.00
16,400.0	90.44	359.56	12,721.1	3,616.0	-139.8	3,618.6	0.00	0.00	0.00
16,500.0	90.44	359.56	12,720.3	3,716.0	-140.5	3,718.6	0.00	0.00	0.00
16,600.0	90.44	359.56	12,719.6	3,816.0	-141.3	3,818.5	0.00	0.00	0.00
16,700.0	90.44	359.56	12,718.8	3,916.0	-142.0	3,918.5	0.00	0.00	0.00
16,800.0	90.44	359.56	12,718.0	4,016.0	-142.8	4,018.5	0.00	0.00	0.00
16,900.0	90.44	359.56	12,717.2	4,116.0	-143.6	4,118.4	0.00	0.00	0.00
17,000.0	90.44	359.56	12,716.5	4,216.0	-144.3	4,218.4	0.00	0.00	0.00
17,100.0	90.44	359.56	12,715.7	4,316.0	-145.1	4,318.4	0.00	0.00	0.00
17,200.0	90.44	359.56	12,714.9	4,416.0	-145.9	4,418.4	0.00	0.00	0.00
17,300.0	90.44	359.56	12,714.2	4,516.0	-146.6	4,518.3	0.00	0.00	0.00
17,400.0	90.44	359.56	12,713.4	4,615.9	-147.4	4,618.3	0.00	0.00	0.00
17,500.0	90.44	359.56	12,712.6	4,715.9	-148.2	4,718.3	0.00	0.00	0.00
TD @ 17583.0' MD/12712.0' TVD									
17,583.0	90.44	359.56	12,712.0	4,798.9	-148.8	4,801.2	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 D25F #714H - plan misses target center by 4671.2usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E) - Point	0.00	0.00	0.0	4,668.9	-147.8	403,839.56	748,212.14	32° 6' 27.842 N	103° 31' 54.149 W
FTP D25F #714H - plan misses target center by 122.8usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E) - Point	0.00	0.00	0.0	49.3	-112.5	399,219.96	748,247.42	32° 5' 42.126 N	103° 31' 54.138 W
PBHL D25F #714H - plan hits target center - Point	0.00	0.00	12,712.0	4,798.9	-148.8	403,969.60	748,211.10	32° 6' 29.129 N	103° 31' 54.150 W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Dominator 25 Federal #714H
Company:	COG Operating, LLC	**TVD Reference:**	KB @ 3370.0usft (Noram 21)
Project:	Lea County, NM	**MD Reference:**	KB @ 3370.0usft (Noram 21)
Site:	Sec 25, T25S, R33E	**North Reference:**	Grid
Well:	Dominator 25 Federal #714H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,108.0	1,108.0	Rustler		-0.44	358.22
1,509.0	1,509.0	TOS		-0.44	358.22
5,071.7	5,069.4	BOS (Fletcher)		-0.44	358.22
5,190.2	5,187.5	LMAR (Top Delaware)		-0.44	358.22
5,232.4	5,229.5	BLCN		-0.44	358.22
6,235.8	6,229.1	CYCN		-0.44	358.22
7,820.6	7,809.7	BYCN		-0.44	358.22
9,286.6	9,275.7	Bone Sprg (BSGL)		-0.44	358.22
9,360.6	9,349.7	U Avalon Sh		-0.44	358.22
9,971.6	9,960.7	L Avalon Sh		-0.44	358.22
10,121.6	10,110.7	Basal Avalon		-0.44	358.22
10,318.6	10,307.7	FBSG_sand		-0.44	358.22
10,836.6	10,825.7	SBSG_sand		-0.44	358.22
11,356.6	11,345.7	SBSG_sand base		-0.44	358.22
11,960.6	11,949.7	TBSG_sand		-0.44	358.22
12,370.1	12,358.7	WFMP		-0.44	358.22

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
4,300.0	4,300.0	0.0	0.0	Build 2°/100'
4,550.0	4,549.7	-9.8	-4.7	Hold 5.00° Inc., 205.54° Azm
7,235.3	7,224.8	-221.0	-105.6	Drop 2°/100'
7,485.4	7,474.5	-230.9	-110.3	Hold Vertical
12,280.4	12,269.5	-230.9	-110.3	KOP: Build 12°/100' @ 12280.4' MD
13,034.0	12,747.0	250.2	-114.0	EOC: 13034.0' MD, 90.44° Inc, 359.56° Azm
17,583.0	12,712.0	4,798.9	-148.8	TD @ 17583.0' MD/12712.0' TVD

CONCHO

QES
DIRECTIONAL DRILLING

PROJECT DETAILS:	Lea County, NM
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

Dominator 25 Federal #714H
Lea County, NM
Q171*** & WT-171***
Design #1

Company Name: COG Operating, LLC
Dominator 25 Federal #714H
Lea County, NM
Rig: Noram 21
Created By: Shelly Peterkin
Date: 15:50, November 14 2017

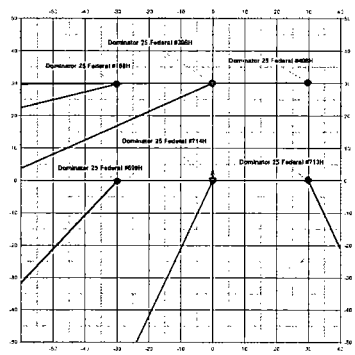
WELL DETAILS: Dominator 25 Federal #714H

Ground Level: 3341.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	399176.70	748359.96	32° 5' 41.630 N	103° 31' 52.835 W	

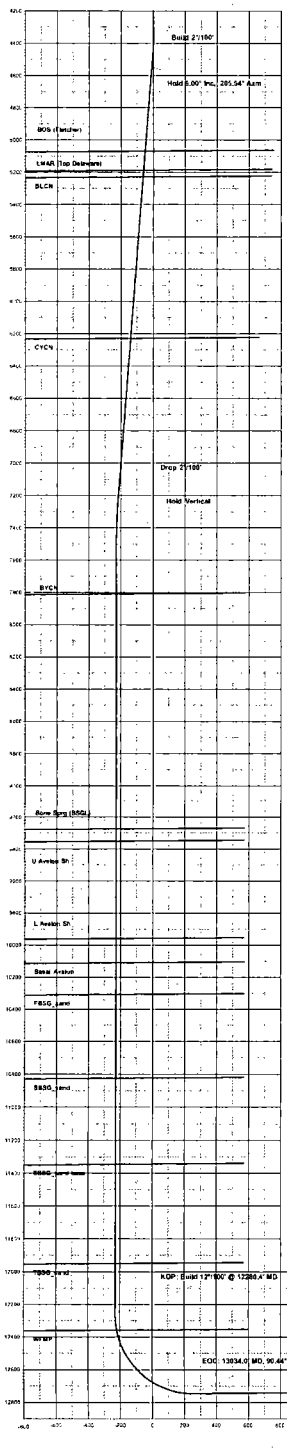
DESIGN TARGET DETAILS

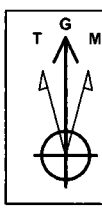
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP D25F #714H	0.0	49.3	-112.5	399318.86	748247.43	32° 5' 42.126 N	103° 31' 54.136 W
LTP D25F #714H	0.0	4988.9	-147.8	403839.56	748212.15	32° 6' 27.842 N	103° 31' 54.149 W
PBHL D25F #714H	12712.0	4798.8	-148.8	403968.50	748211.10	32° 6' 29.129 N	103° 31' 54.150 W



ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
4200.0	0.00	0.00	4300.0	0.0	0.0	0.0	0.0	Build 2°/100'
4850.0	5.00	205.54	4849.7	-9.8	-4.7	-9.7	10.9	Hold 5.00° Inc., 205.54° Azm
7235.3	5.00	205.54	7224.8	-221.0	-105.6	-217.7	245.8	Drop 2°/100'
7485.4	0.00	0.00	7474.5	-230.9	-110.3	-227.4	255.9	Hold Vertical
12280.4	0.00	0.00	12269.5	-230.9	-110.3	-227.4	255.9	KOP: Build 12°/100' @ 12280.4' MD
13034.0	90.44	359.56	12747.0	250.2	-114.6	253.5	737.0	EOC: 13034.0' MD, 90.44° Inc, 359.56° Azm
17583.0	90.44	359.56	12712.0	4798.8	-148.8	4801.2	5285.8	TD @ 17583.0' MD/12712.0' TVD

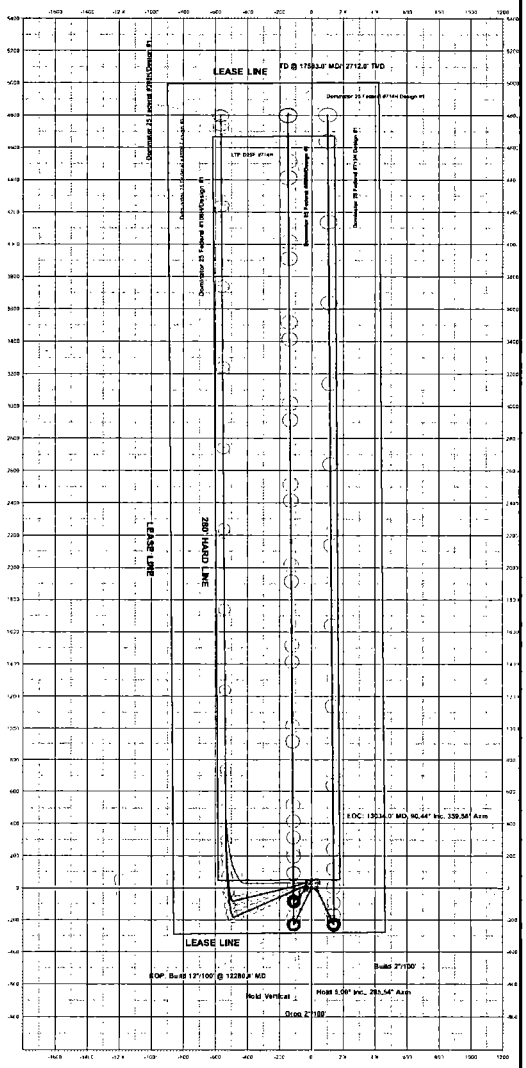




Azimuths to Grid North

Magnetic North: 6.45°

Magnetic Field
Strength: 47824.0snT
Dip Angle: 59.94°
Date: 11/14/2017
Model: IGRF2015



COG Operating, LLC - Dominator 25 Federal #714H

1. Geologic Formations

TVD of target	12,747' EOL	Pilot hole depth	NA
MD at TD:	17,583'	Deepest expected fresh water:	142'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	1108	Water	
Top of Salt	1509	Salt	
Base of Salt	5069	Salt	
Lamar	5187	Salt Water	
Bell Canyon	5229	Salt Water	
Cherry Canyon	6228	Oil/Gas	
Brushy Canyon	7808	Oil/Gas	
Bone Spring Lime	9274	Oil/Gas	
U. Avalon Shale	9348	Oil/Gas	
L. Avalon Shale	9959	Oil/Gas	
1st Bone Spring Sand	10109	Oil/Gas	
2nd Bone Spring Sand	10306	Oil/Gas	
3rd Bone Spring Sand	11948	Oil/Gas	
Wolfcamp	12357	Target Oil/Gas	
Strawn	14184	Not Penetrated	

2. Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Body
13.5"	0	1135	10.75"	45.5	N80	BTC	4.76	1.18	20.14
9.875"	0	11975	7.875"	29.7	P110	BTC	1.27	1.03	3.05
6.75"	0	11475	5.5"	23	P110	BTC	1.83	1.89	3.18
6.75"	11475	17,583	5"	18	P110	BTC	1.83	1.89	3.18
			BLM Minimum Safety Factor				1.125	1	1.6 Dry 1.8 Wet

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

The 5" casing will be run back 500' into the intermediate casing to ensure the coupling OD clearance is greater than .422" for the cement bond tie in.