Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☐ DRILL ☐ REENTER

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

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

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

8. Lease Name and Well No.

2. Name of Operator

9. API Well No.

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface

At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area

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

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date

Title

Approved by *(Signature)*	Name *(Printed/Typed)*	Date

Title	Office

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 06/09/2020

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

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

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

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

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

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

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

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

Approval Date: 06/09/2020

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Centennial Resource Production LLC
LEASE NO.:	NMNM126971
COUNTY:	Lea County, NM

Wells:

Raider Federal Com 302H
Surface Hole Location: 433' FNL & 1272' FEL, Section 21, T. 24 S., R. 34 E.
Bottom Hole Location: 100' FSL & 990' FEL, Section 21, T. 24 S, R 34 E.

Raider Federal 401H
Surface Hole Location: 433' FNL & 1302' FEL, Section 21, T. 24 S., R. 34 E.
Bottom Hole Location: 100' FSL & 1650' FEL, Section 21, T. 24 S, R 34 E.

Raider Federal 402H
Surface Hole Location: 433' FNL & 1242' FEL, Section 21, T. 24 S., R. 34 E.
Bottom Hole Location: 100' FSL & 330' FEL, Section 21, T. 24 S, R 34 E.

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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.

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Approval Date: 06/09/2020

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

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See information below discussing NAGPRA.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

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

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)

Watershed:
The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

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.

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.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

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.

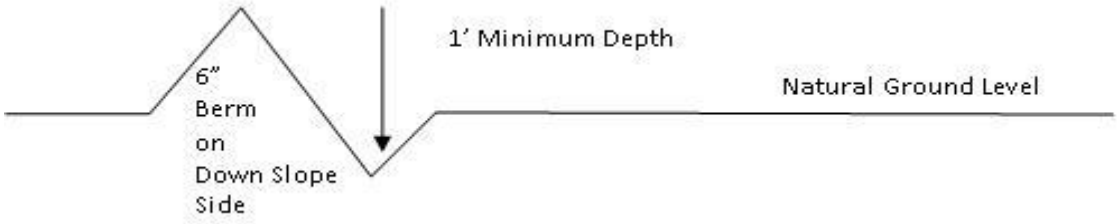
Ditching
Ditching shall be required on both sides of the road.

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:

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

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

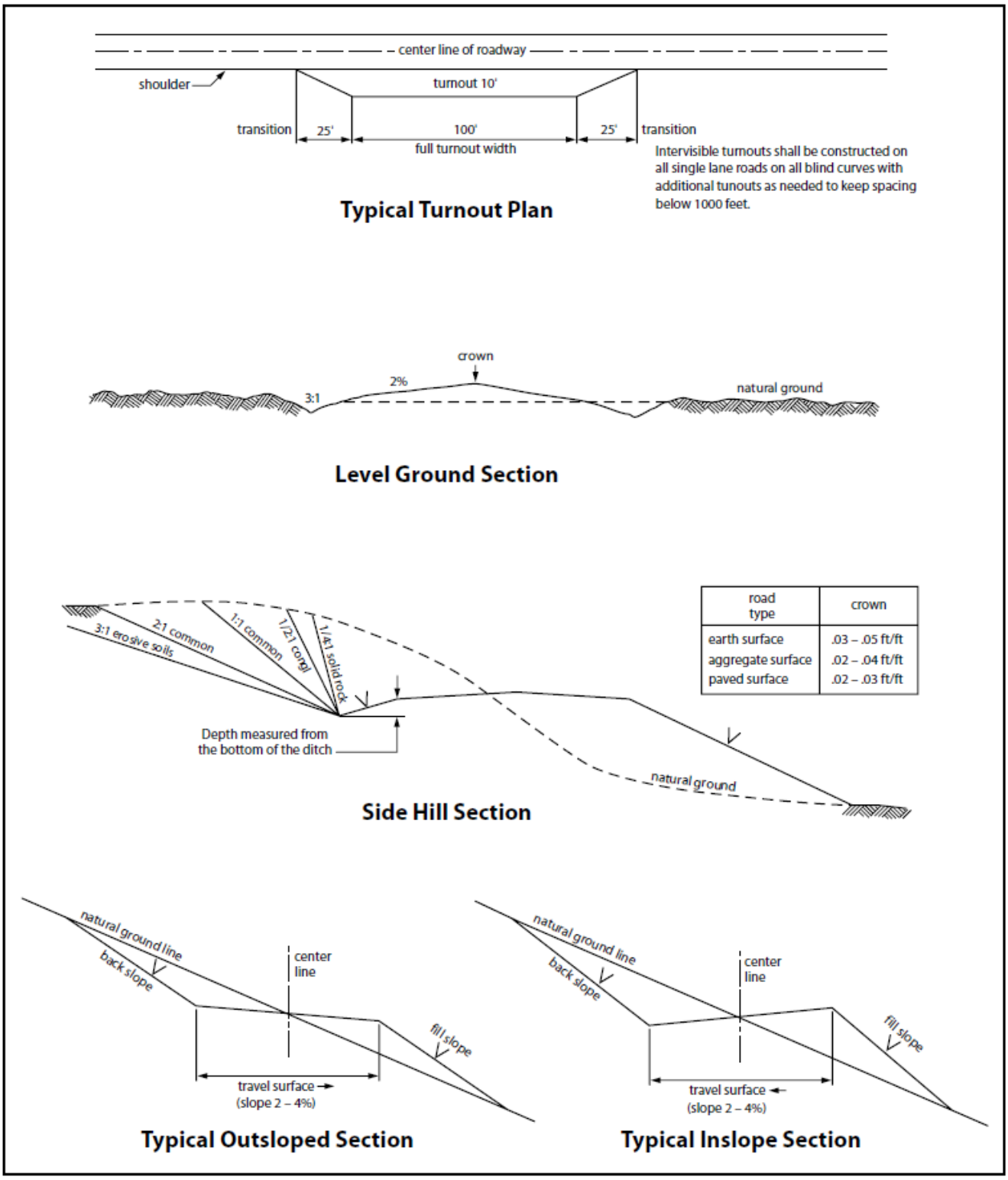


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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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).

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).

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 2, for Sandy Sites

The 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 will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will 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). The 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. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will 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
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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

Approval Date: 06/09/2020

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**CENTENNIAL RESOURCE PRODUCTION, LLC**
WELL NAME & NO.:	**RAIDER FEDERAL COM 402H**
SURFACE HOLE FOOTAGE:	**433'/N & 1242'/E**
BOTTOM HOLE FOOTAGE	**100'/S & 330'/E**
LOCATION:	**Section 21, T.24 S., R.34 E., NMPM**
COUNTY:	**Lea County, New Mexico**

COA

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

A. HYDROGEN SULFIDE

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 **13-3/8** inch surface casing shall be set at approximately **1350** feet (a minimum of **25 feet (Lea County)** 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

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include the lead cement)

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

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

   - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

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

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

C. PRESSURE CONTROL

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

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

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

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

GENERAL REQUIREMENTS

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

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

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

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

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

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

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

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

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

A. CASING

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

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

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

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

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

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

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

B. PRESSURE CONTROL

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

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

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

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

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.

c. Manufacturer representative shall install the test plug for the initial BOP test.
d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

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

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

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

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

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

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

JJP06082020

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

Operator Certification Data Report
06/10/2020

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: Kanicia Schlichting **Signed on:** 10/16/2019

Title: Sr. Regulatory Analyst

Street Address: 1001 17th Street, Suite 1800

City: Denver **State:** CO **Zip:** 80202

Phone: (720)499-1537

Email address: Kanicia.schlichting@cdevinc.com

Field Representative

Representative Name:

Street Address:

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

Phone: (720)499-1537

Email address: Kanicia.schlichting@cdevinc.com

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

Application Data Report
06/10/2020

APD ID: 10400049583 **Submission Date:** 10/17/2019

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400049583 **Tie to previous NOS?** N **Submission Date:** 10/17/2019

BLM Office: CARLSBAD **User:** Kanicia Schlichting **Title:** Sr. Regulatory Analyst

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

Lease number: NMNM126971 **Lease Acres:** 240

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

Agreement in place? YES **Federal or Indian agreement:**

Agreement number: NMNM139580

Agreement name:

Keep application confidential? Y

Permitting Agent? NO **APD Operator:** CENTENNIAL RESOURCE PRODUCTION LLC

Operator letter of designation:

Operator Info

Operator Organization Name: CENTENNIAL RESOURCE PRODUCTION LLC

Operator Address: 1001 17th Street, Suite 1800

Zip: 80202

Operator PO Box:

Operator City: Denver **State:** CO

Operator Phone: (720)499-1400

Operator Internet Address:

Section 2 - Well Information

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

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

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

Well Name: RAIDER FEDERAL COM **Well Number:** 402H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** 2ND BONE SPRING SHALE **Pool Name:** RED HILLS; BONE SPRING, NORTH

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

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

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

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** N **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** RAIDER PAD **Number:** 302

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

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 18 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 433 FT

Reservoir well spacing assigned acres Measurement: 160 Acres

Well plat: RAIDER_FEDERAL_COM_402H___C102_20191016132012.pdf

RAIDER_FEDERAL_COM_402H___Lease_C102_20191016132012.pdf

Well work start Date: 04/20/2020 **Duration:** 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 23782 **Reference Datum:** GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	433	FNL	1242	FEL	24S	34E	21	Aliquot NENE	32.209109	-103.470404	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 126971	3531	0	0	Y
KOP Leg #1	433	FNL	1242	FEL	24S	34E	21	Aliquot NENE	32.209109	-103.470404	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 126971	-6396	10018	9927	Y

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-1	100	FNL	330	FEL	24S	34E	21	Aliquot NENE	32.21002	-103.467457	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 126971	-6969	10918	10500	Y
EXIT Leg #1	100	FSL	330	FEL	24S	34E	21	Aliquot SESE	32.196064	-103.467438	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-6969	15409	10500	Y
BHL Leg #1	100	FSL	330	FEL	24S	34E	21	Aliquot SESE	32.196064	-103.467438	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-6969	15409	10500	Y

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	96434	Red Hills-Bone Spring, North

[4] Property Code	[5] Property Name	[6] Well Number
	RAIDER FEDERAL COM	402H

[7] OGRID No.	[8] Operator Name	[9] Elevation
372165	CENTENNIAL RESOURCE PRODUCTION, LLC	3530.7'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	21	24S	34E		433	NORTH	1242	EAST	LEA

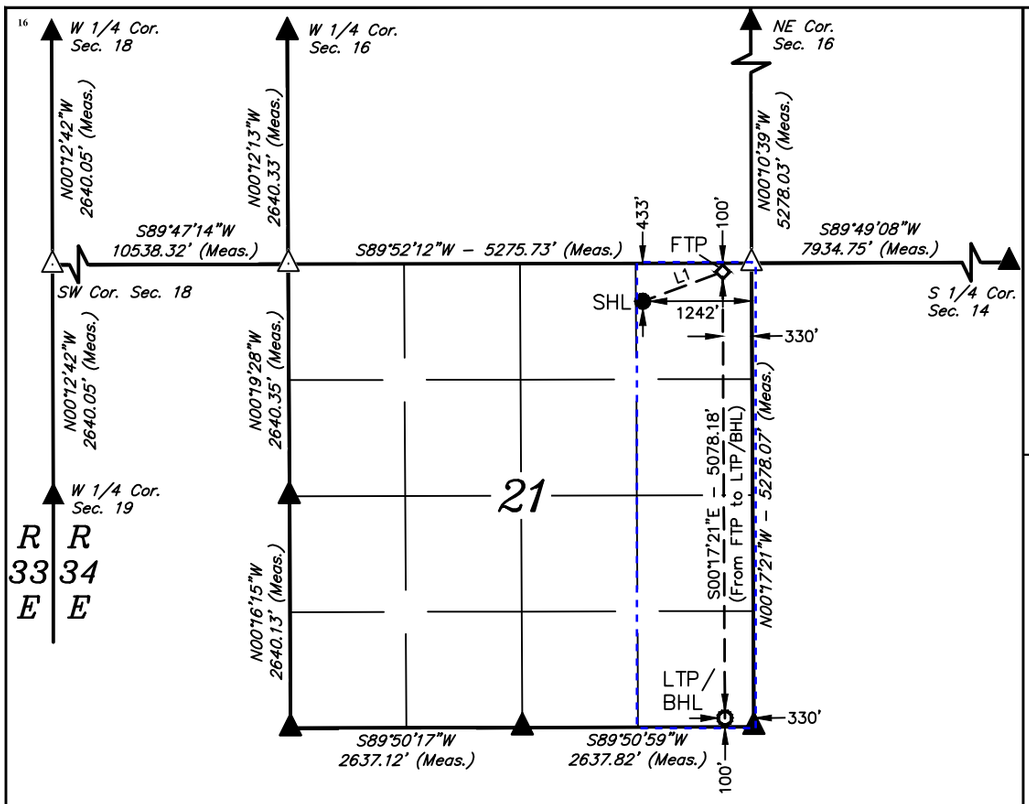
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	21	24S	34E		100	SOUTH	330	EAST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

[16]



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N69°47'33"E	970.07'

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°12'32.79" (32.209109°)
LONGITUDE = 103°28'13.46" (103.470404°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 440879.28' X: 808230.72'
UTM, NAD 83 (ZONE 13)
Y: 11694989.81' X: 2113372.02'

NAD 83 (FIRST TAKE POINT)
LATITUDE = 32°12'36.07" (32.210020°)
LONGITUDE = 103°28'02.85" (103.467457°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 441218.11' X: 809139.52'
UTM, NAD 83 (ZONE 13)
Y: 11695334.23' X: 2114278.58'

NAD 83 (LTP/BHL)
LATITUDE = 32°11'45.83" (32.196064°)
LONGITUDE = 103°28'02.78" (103.467438°)
STATE PLANE NAD 83 (N.M. EAST)
Y: 436140.96' X: 809186.39'
UTM, NAD 83 (ZONE 13)
Y: 11690258.14' X: 2114356.93'

NOTE:
- Distances referenced on plat to section lines are perpendicular.
- Basis of Bearing is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

2000' 1000' 0' 2000'

SCALE

DRAWN BY: J.N. 01-28-19

● = SURFACE HOLE LOCATION
◇ = FIRST TAKE POINT
○ = LAST TAKE POINT/ BOTTOM HOLE LOCATION
▲ = SECTION CORNER LOCATED
△ = SECTION CORNER RE-ESTABLISHED. (Not Set on Ground.)

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

10/16/19
Signature Date

Kanicia Schlichting
Printed Name

kanicia.schlichting@cdevinc.com
E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

January 24, 2019
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number:

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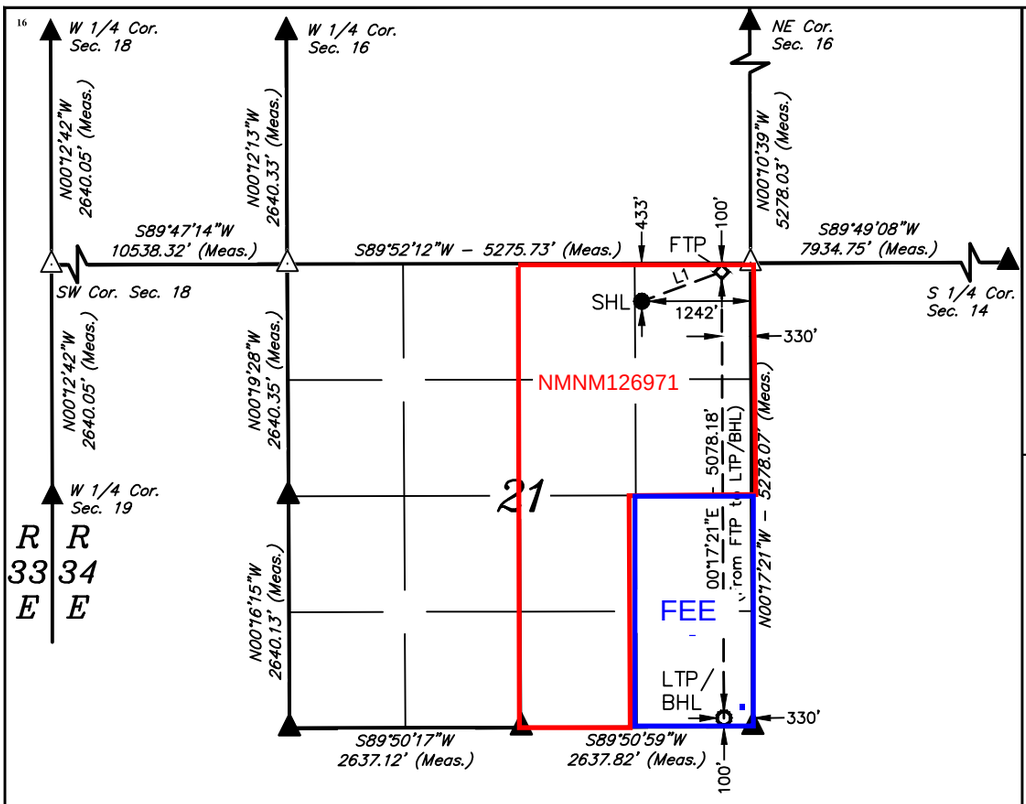

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DRAWN BY: J.N. 01-28-19

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10/16/19
Signature Date

Kanicia Schlichting
Printed Name

kanicia.schlichting@cdevinc.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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January 24, 2019
Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE NEW MEXICO 23782 PROFESSIONAL SURVEYOR 01-28-19

Certificate Number:

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

Drilling Plan Data Report
06/10/2020

APD ID: 10400049583 **Submission Date:** 10/17/2019

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
563941	RUSTLER	3531	1215	1215	SANDSTONE	NONE	N
563945	CAPITAN REEF	-1855	5386	5386	OTHER : CARBONATE	USEABLE WATER	N
563942	BELL CANYON	-1897	5428	5428	SANDSTONE	NATURAL GAS, OIL	N
563946	CHERRY CANYON	-2797	6328	6328	SANDSTONE	NATURAL GAS, OIL	N
563947	BRUSHY CANYON	-4196	7727	7727	SANDSTONE	NATURAL GAS, OIL	N
563948	BONE SPRING LIME	-5584	9115	9115	OTHER : CARBONATE	NATURAL GAS, OIL	N
563944	AVALON SAND	-5672	9203	9203	SHALE	CO2, NATURAL GAS, OIL	N
563943	FIRST BONE SPRING SAND	-6659	10190	10190	SANDSTONE	NATURAL GAS, OIL	N
563939	BONE SPRING 2ND	-6870	10401	10401	SANDSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 10500

Equipment: The BOP and related equipment will meet or exceed the requirements of a 5M-psi system as set forth in On Shore Order No. 2. See attached BOP Schematic. A. Casinghead: 13 5/8” – 5,000 psi SOW x 13” – 5,000 psi WP Intermediate Spool: 13” – 5,000 psi WP x 11” – 5,000 psi WP Tubinghead: 11” – 5,000 psi WP x 7 1/16" – 15,000 psi WP B. Minimum Specified Pressure Control Equipment • Annular preventer • One Pipe ram, One blind ram • Drilling spool, or blowout preventer with 2 side outlets. Choke side will be a 3-inch minimum diameter, kill line shall be at least 2-inch diameter • 3 inch diameter choke line • 2 – 3 inch choke line valves • 2 inch kill line • 2 chokes with 1 remotely controlled from rig floor (see Figure 2) • 2 – 2 inch kill line valves and a check valve • Upper kelly cock valve with handle available • When the expected pressures approach working pressure of the system, 1 remote kill line tested to stack pressure (which shall run to the outer edge of the substructure and be unobstructed) • Lower kelly cock valve with handle available • Safety valve(s) and subs to fit all drill string connections in use • Inside BOP or float sub available • Pressure gauge on choke manifold • All BOPE connections subjected to well pressure shall be flanged, welded, or clamped • Fill-up line above the uppermost preventer. C. Auxiliary Equipment • Audio and visual mud monitoring equipment shall be placed to detect volume changes indicating loss or gain of circulating fluid volume. (OOS 1, III.C.2) • Gas Buster will be used below intermediate casing setting depth. • Upper and lower kelly cocks with handles, safety valve and subs to fit all drill string connections and a pressure gauge installed on choke manifold.

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Requesting Variance? YES

Variance request: Centennial is requesting to use a flex hose on the choke manifold. Please see attachment for specs in section 8.

Testing Procedure: The BOP test shall be performed before drilling out of the surface casing shoe and will occur at a minimum: a. when initially installed b. whenever any seal subject to test pressure is broken c. following related repairs d. at 30 day intervals e. checked daily as to mechanical operating conditions. The ram type preventer(s) will be tested using a test plug to 250 psi (low) and 5,000 psi (high) (casinghead WP) with a test plug upon its installation onto the 13 surface casing. If a test plug is not used, the ram type preventer(s) shall be tested to 70% of the minimum internal yield pressure of the casing. The annular type preventer(s) shall be tested to 3500 psi. Pressure will be maintained for at least 10 minutes or until provisions of the test are met, whichever is longer. A Sundry Notice (Form 3160 5), along with a copy of the BOP test report, shall be submitted to the local BLM office within 5 working days following the test. If the bleed line is connected into the buffer tank (header), all BOP equipment including the buffer tank and associated valves will be rated at the required BOP pressure. The BLM office will be provided with a minimum of four (4) hours notice of BOP testing to allow witnessing. The BOP Configuration, choke manifold layout, and accumulator system, will be in compliance with Onshore Order 2 for a 5,000 psi system. A remote accumulator will be used. Pressures, capacities, and specific placement and use of the manual and/or hydraulic controls, accumulator controls, bleed lines, etc., will be identified at the time of the BLM 'witnessed BOP test. Any remote controls will be capable of both opening and closing all preventers and shall be readily accessible.

Choke Diagram Attachment:

HP650_10M_Choke_Manifold_20191010162831.pdf

BOP Diagram Attachment:

HP650_BOP_Schematic_CoFlex_Choke_5K_2019_1_29_20191010162910.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	CONDUCTOR	26	20.0	NEW	API	N	0	120	0	120	3531	3411	120	H-40	94	OTHER - Weld						
2	SURFACE	17.5	13.375	NEW	API	N	0	1350	0	1350	3531	2181	1350	J-55	54.5	OTHER - BTC	1.7	4.1	DRY	11.59	DRY	11.59
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5418	0	5350	3498	-1819	5418	J-55	40	LT&C	1.31	1.42	DRY	2.43	DRY	2.94
4	PRODUCTION	8.75	5.5	NEW	API	N	0	10018	0	9927	3498	-6396	10018	P-110	20	OTHER - TCBC-HT	2.15	2.45	DRY	3.23	DRY	3.23
5	PRODUCTION	8.5	5.5	NEW	API	N	10018	15409	9927	10500	-6396	-6969	5391	P-110	20	OTHER - TCBC-HT	2.03	2.31	DRY	3.05	DRY	3.05

Casing Attachments

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Casing Attachments

Casing ID: 1 **String Type:** CONDUCTOR

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing ID: 2 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20180920095914.pdf

Casing ID: 3 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20180920100112.pdf

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Casing Attachments

Casing ID: 4 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20190307121343.pdf

Technical_Data_Sheet_HIS_TCBC_HT_5.5_20_P110RY_20200428093158.pdf

Casing ID: 5 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20180920100203.pdf

Technical_Data_Sheet_HIS_TCBC_HT_5.5_20_P110RY_20200428093125.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0		0	0
CONDUCTOR	Lead		0	120	121	1.49	12.9	181	0	Grout	Bentonite 4% BWOC, Cellophane #/sx, CaCl2 2% BWOC.

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	850	679	1.74	13.5	1181	100	Class C Premium	Premium Gel Bentonite 4%, C-45 Econolite 0.25%, Phenoseal 0.25#/sk, CaCl 1%, Defoamer C-41P 0.75%
SURFACE	Tail		850	1350	518	1.34	14.8	695	100	Class C Premium	C-45 Econolite 0.10%, CaCl 1.0%
INTERMEDIATE	Lead		0	4918	1168	3.44	10.7	4018	150	TXI Lightweight	Salt 1.77/sk, C-45 Econolite 2.25%, STE 6.00%, Citric Acid 0.18%, C-19 0.10%, CSA-1000 0.20%, C-530P 0.30%, CTB-15 LCM 7#/sk, Gyp Seal 8#/sk
INTERMEDIATE	Tail		4918	5418	141	1.33	14.8	188	20	Class C Premium	C-45 Econolite 0.10%, Citric acid 0.05%, C503P 0.25%
PRODUCTION	Lead		0	10018	982	3.41	10.6	3347	30	TXI Lightweight	Salt 8.98#/sk, STE 6.00%, Citric acid 0.20%, CSA-1000 0.23%, C47B 0.10%, C-503P 0.30%
PRODUCTION	Tail		10018	15409	1245	1.24	14.2	1544	25	50:25:25 Class H: Poz: CPO18	Citric acid 0.03%, CSA-1000 0.05%, C47B 0.25%, C-503P 0.30%

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient quantities of mud materials will be on the well site at all times for the purpose of assuring well control and maintaining wellbore integrity. Surface interval will employ fresh water mud. The intermediate hole will utilize a diesel emulsified brine fluid to inhibit salt washout and prevent severe fluid losses. The production hole will employ oil base fluid to inhibit formation reactivity and of the appropriate density to maintain well control.

Describe the mud monitoring system utilized: Centrifuge separation system. Open tank monitoring with EDR will be used for drilling fluids and return volumes. Open tank monitoring will be used for cement and cuttings return volumes. Mud properties will be monitored at least every 24 hours using industry accepted mud check practices.

Circulating Medium Table

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
1350	5418	OTHER : Brine	9	10							
5418	15409	OTHER : OBM/Brine	8.8	10							
0	1350	OTHER : FW	8.6	9.5							

Section 6 - Test, Logging, Coring

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

Will utilize MWD/LWD (Gamma Ray logging) from intermediate hole to TD of the well.

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

OTHER,

Other log type(s):

GR

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5460 **Anticipated Surface Pressure:** 3150

Anticipated Bottom Hole Temperature(F): 170

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

H2S_Plan_Raider_Federal_Com_402H_20191016151509.docx

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

RAIDER_FEDERAL_COM_402H_Dir_AC_Plot_20191016151527.pdf

Other proposed operations facets description:

We are planning on using a spudder rig to preset surface casing. Please see attached batch drilling procedure. Gas Capture Plan is attached.

Other proposed operations facets attachment:

Raider_Federal_Com_502H_701H_702H_Gas_Capture_Plan_20190307124300.docx

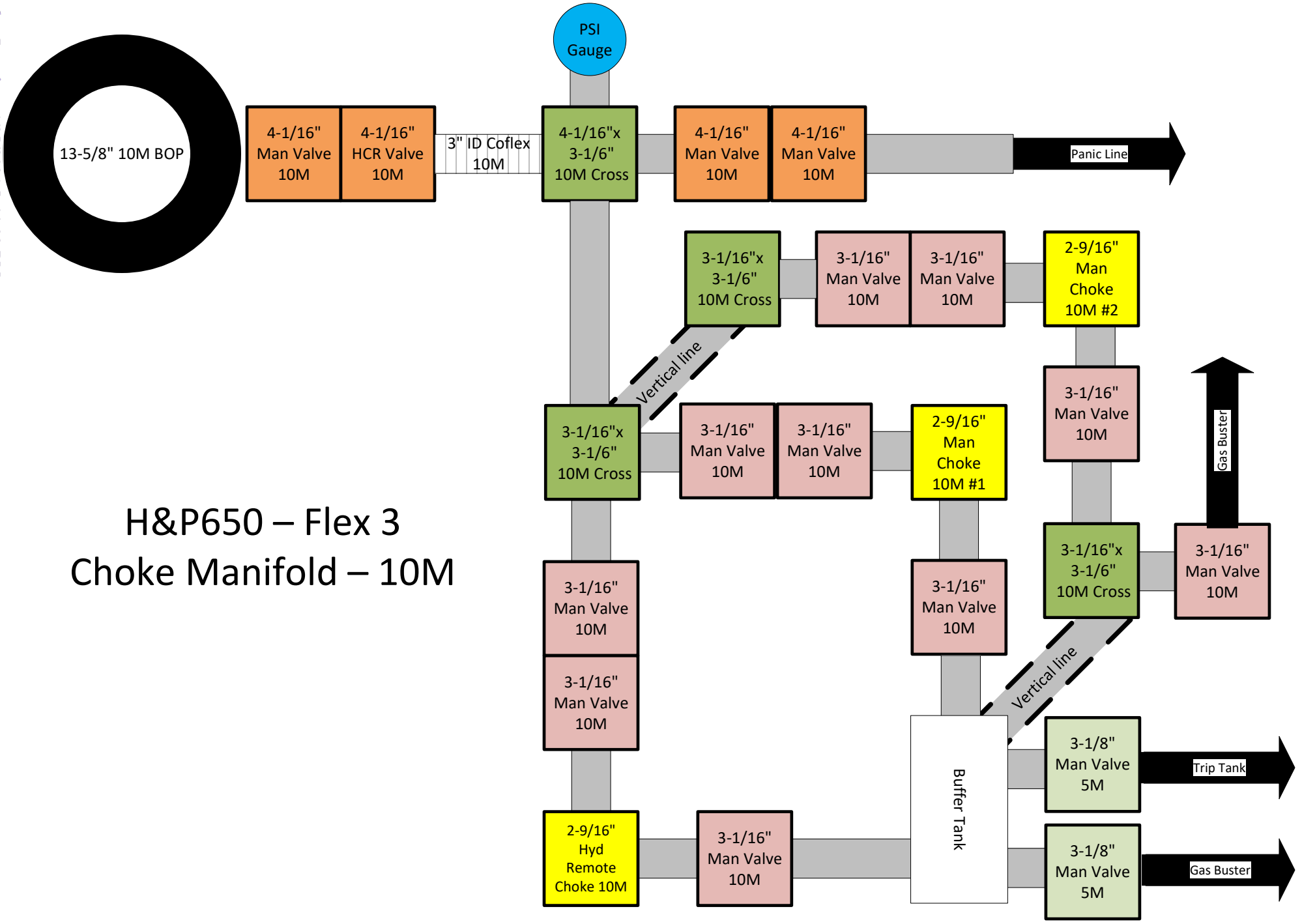
CRD_Batch_Setting_Procedures_20191010165234.pdf

Other Variance attachment:

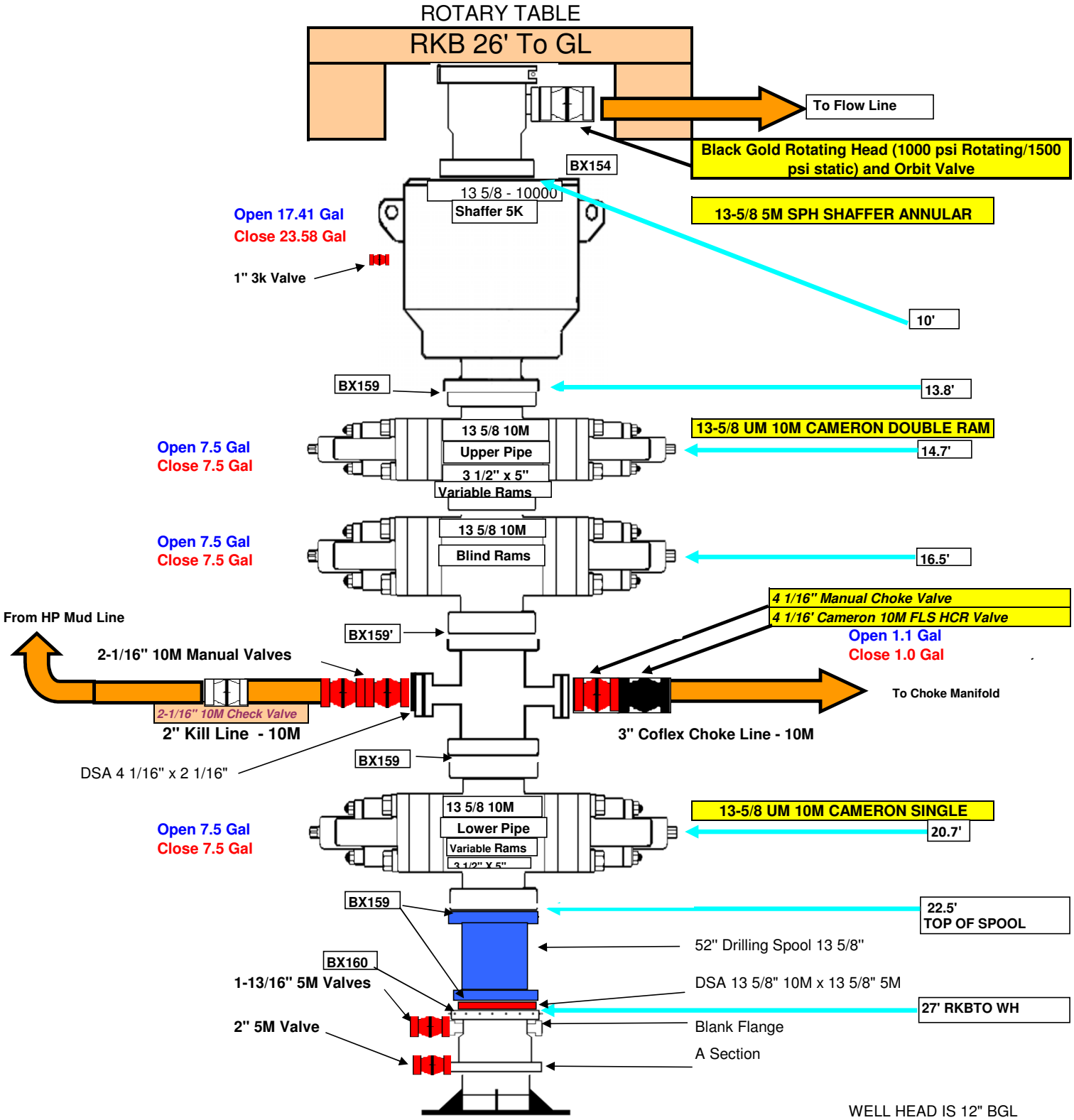
H_P650_Flex_Hose____Continental_Hose_PO_4500409659_SN_67255_20190307122906.pdf

CDEV_Multi_Bowl_Wellhead_Running_Procedure_3_String_Bonesprings_20191016125815.pdf

H&P650 – Flex 3
Choke Manifold – 10M



H&P 650


ROTARY TABLE
RKB 26' To GL
To Flow Line
Black Gold Rotating Head (1000 psi Rotating/1500 psi static) and Orbit Valve
BX154
13 5/8 - 10000
Shaffer 5K
13-5/8 5M SPH SHAFFER ANNULAR
Open 17.41 Gal
Close 23.58 Gal
1" 3k Valve
10'
BX159
13.8'
13 5/8 10M
Upper Pipe
3 1/2" x 5"
Variable Rams
13-5/8 UM 10M CAMERON DOUBLE RAM
14.7'
Open 7.5 Gal
Close 7.5 Gal
13 5/8 10M
Blind Rams
Open 7.5 Gal
Close 7.5 Gal
16.5'
4 1/16" Manual Choke Valve
4 1/16' Cameron 10M FLS HCR Valve
Open 1.1 Gal
Close 1.0 Gal
From HP Mud Line
BX159'
2-1/16" 10M Manual Valves
To Choke Manifold
2-1/16" 10M Check Valve
2" Kill Line - 10M
3" Coflex Choke Line - 10M
DSA 4 1/16" x 2 1/16"
BX159
13 5/8 10M
Lower Pipe
Variable Rams
3 1/2" X 5"
13-5/8 UM 10M CAMERON SINGLE
20.7'
Open 7.5 Gal
Close 7.5 Gal
BX159
22.5'
TOP OF SPOOL
52" Drilling Spool 13 5/8"
BX160
1-13/16" 5M Valves
DSA 13 5/8" 10M x 13 5/8" 5M
27' RKBTO WH
2" 5M Valve
Blank Flange
A Section
WELL HEAD IS 12" BGL

CASING ASSUMPTIONS WORKSHEET:

Centralizer Program:

Surface: - 3 welded bow spring centralizers, one on each of the bottom 3 joints, plus one on the shoe joint (4 minimum)
- No Cement baskets will be run

Production: - 1 welded bow spring centralizer on a stop ring 6' above float shoe
- 1 centralizer every other joint to the top of the tail cement
- 1 centralizer every 4 joints to 500' below the top of the lead cement
- The actual number and placement of centralizers will be determined from hole deviation and potential production zones. Centralizers will be run for maximum practical standoff and through all potential productive zones.

- All casing strings below the conductor shall be tested, prior to drilling out the casing shoe, to 0.22 psi/ft of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the internal yield pressure of the casing. If pressure declines more than 10 percent in 30 minutes, corrective action will be taken.

  No freshly hard banded pipe will be rotated in the surface casing

  - CENTENNIAL RESOURCE DEVELOPOMENT will not employ an air-drill rig for the surface casing. The casing shoe will be tested by drilling 5'-10' out from under the shoe and pressure testing to the maximum expected mud weight equivalent as shown in the mud program listed in the drilling plan.

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H.I.S.
HOUSTON INTERNATIONAL SPECIALTY, INC
PREMIUM CONNECTIONS

Size	5.5
Grade	P110 RY
Weight	20

TCBC-HT

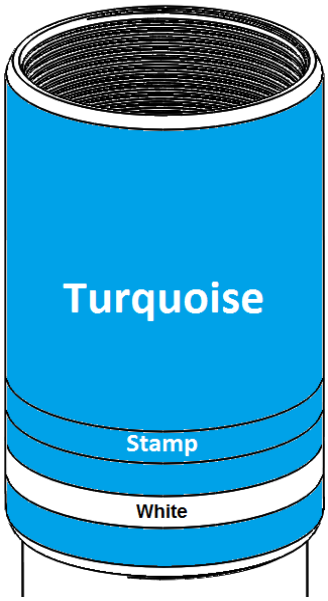
SeAH Steel

	Coupling and Pipe Dimensions (in)					
	Outer Diameter	Inner Diameter	Coupling Length	Make-up Loss	Wall Thickness	Drift Diameter
Coupling	6.300	5.383	8.250	4.125	0.361	4.653
Pipe		4.778				
Pin		4.778				

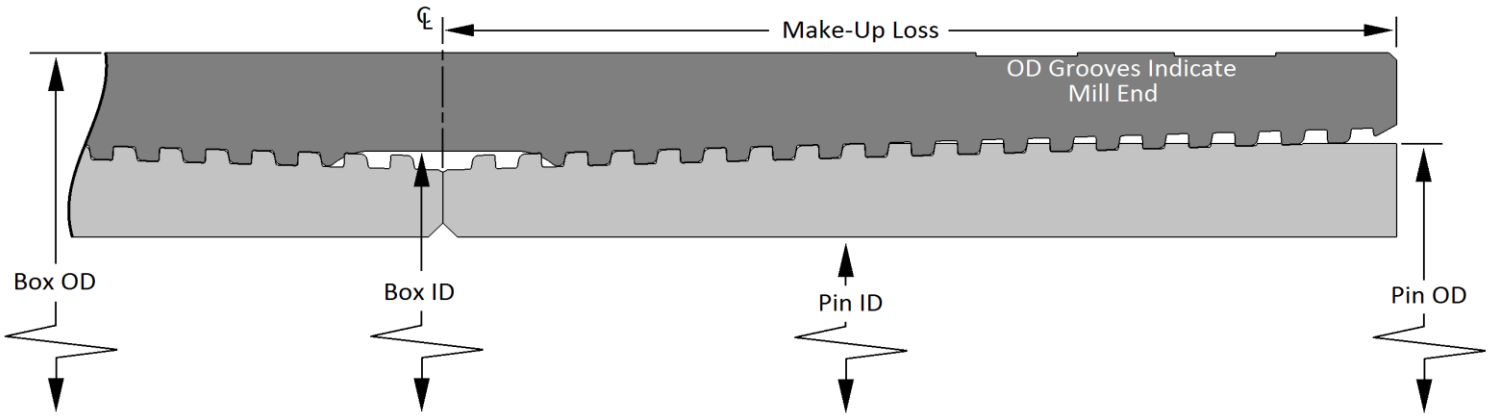
Torque Values (ft-lbs)				
Field End Make-Up			Max. Working Torque [1.]	Yield Torque
Minimum	Optimum [2.]	Maximum		
10,000	13,500	18,500	22,250	25,200

Yield Stress (x1000 lbs.)	
Tensile	Compressive
100%	100%

Maximum Pressure (psi)	
Internal	External
100%	100%



[1.] Max. Working Torque value is not to be exceeded during operation.
[2.] If Optimum Torque does not meet the Base of Triangle Stamp, M/U to the Base of Triangle.



*Data are for information purposes only. Though HIS has made efforts to ensure accuracy, HIS makes no warranty for loss or damage due to its use.

Rev 0

19996 Hickory Twig Way Spring, TX 77388
Phone: (281) 602-7550
Fax: (281) 602-7557

SeAH

5.5" 20# .361" P-110 Restricted Yield (RY)

Dimensions (Nominal)

Outside Diameter	5.500	in.
Wall	0.361	in.
Inside Diameter	4.778	in.
Drift	4.653	in.
Weight, T&C	20.000	lbs/ft
Weight, PE	19.830	lbs/ft

Performance Properties (Minimum)

Minimum Yield Strength	110000	psi
Maximum Yield Strength	125000	psi
Collapse, PE	11100	psi
Internal Yield Pressure		
PE	12630	psi
LTC	12360	psi
BTC	12360	psi
Yield Strength, Pipe Body	641	1000 lbs
Joint Strength		
LTC	548	1000 lbs
BTC	667	1000 lbs

CASING ASSUMPTIONS WORKSHEET:

Centralizer Program:

Surface: - 3 welded bow spring centralizers, one on each of the bottom 3 joints, plus one on the shoe joint (4 minimum)
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HOUSTON INTERNATIONAL SPECIALTY, INC
PREMIUM CONNECTIONS

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Grade	P110 RY
Weight	20

TCBC-HT

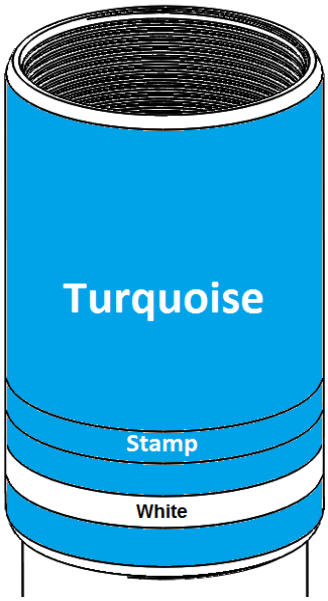
SeAH Steel

	Coupling and Pipe Dimensions (in)					
	Outer Diameter	Inner Diameter	Coupling Length	Make-up Loss	Wall Thickness	Drift Diameter
Coupling	6.300	5.383	8.250	4.125	0.361	4.653
Pipe		4.778				
Pin		4.778				

Torque Values (ft-lbs)				
Field End Make-Up			Max. Working Torque [1.]	Yield Torque
Minimum	Optimum [2.]	Maximum		
10,000	13,500	18,500	22,250	25,200

Yield Stress (x1000 lbs.)	
Tensile	Compressive
100%	100%

Maximum Pressure (psi)	
Internal	External
100%	100%



[1.] Max. Working Torque value is not to be exceeded during operation.
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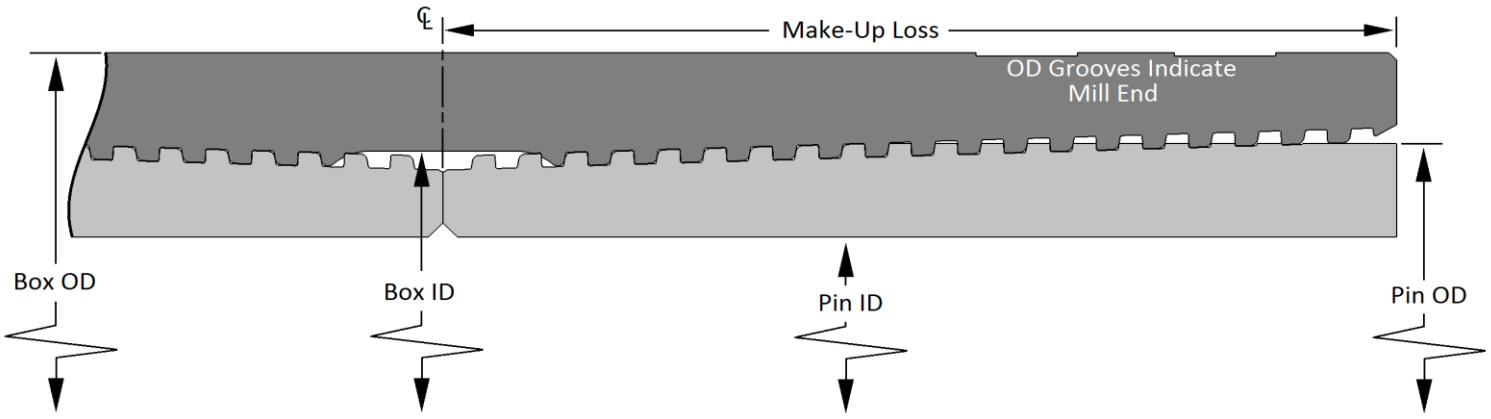

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19996 Hickory Twig Way Spring, TX 77388
Phone: (281) 602-7550
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SeAH

5.5" 20# .361" P-110 Restricted Yield (RY)

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Outside Diameter	5.500	in.
Wall	0.361	in.
Inside Diameter	4.778	in.
Drift	4.653	in.
Weight, T&C	20.000	lbs/ft
Weight, PE	19.830	lbs/ft

Performance Properties (Minimum)

Minimum Yield Strength	110000	psi
Maximum Yield Strength	125000	psi
Collapse, PE	11100	psi
Internal Yield Pressure		
PE	12630	psi
LTC	12360	psi
BTC	12360	psi
Yield Strength, Pipe Body	641	1000 lbs
Joint Strength		
LTC	548	1000 lbs
BTC	667	1000 lbs

NEW MEXICO

LEA
RAIDER FEDERAL
RAIDER FEDERAL COM 402H

RAIDER FEDERAL COM 402H

Plan: MAGVAR - PWP0

Standard Planning Report

10 July, 2019

CENTENNIAL
RESOURCE DEVELOPMENT, INC

Project: RAIDER FEDERAL
Site: RAIDER FEDERAL
Wells: 401H - 302H - 402H
Design: MAGVAR - PWP0
RKB: 3531.00

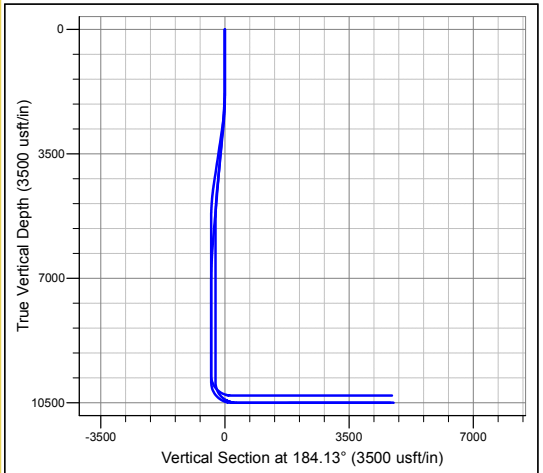
PROJECT DETAILS: LEA COUNTY

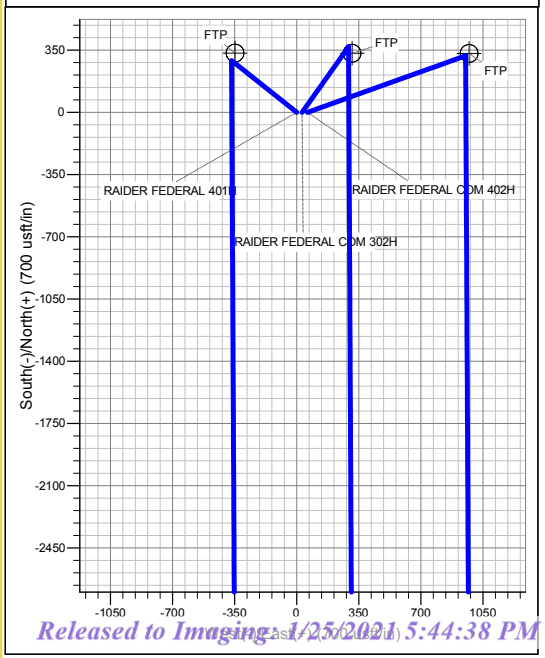
Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Zone 13N (108 W to 102 W)

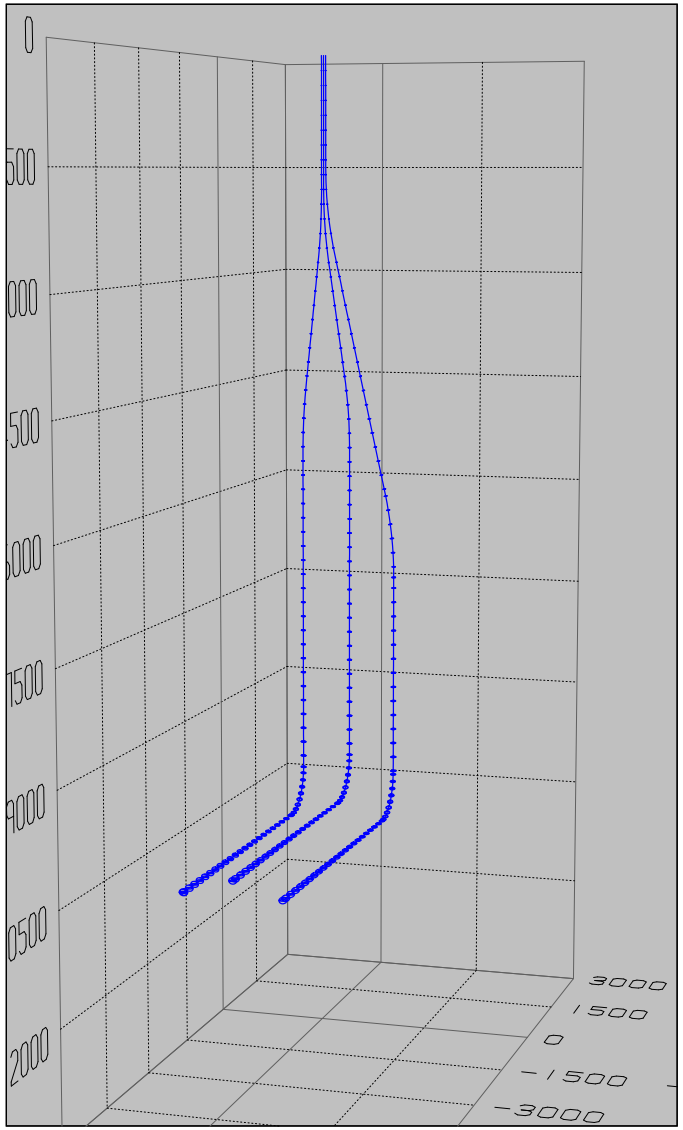
System Datum: Mean Sea Level

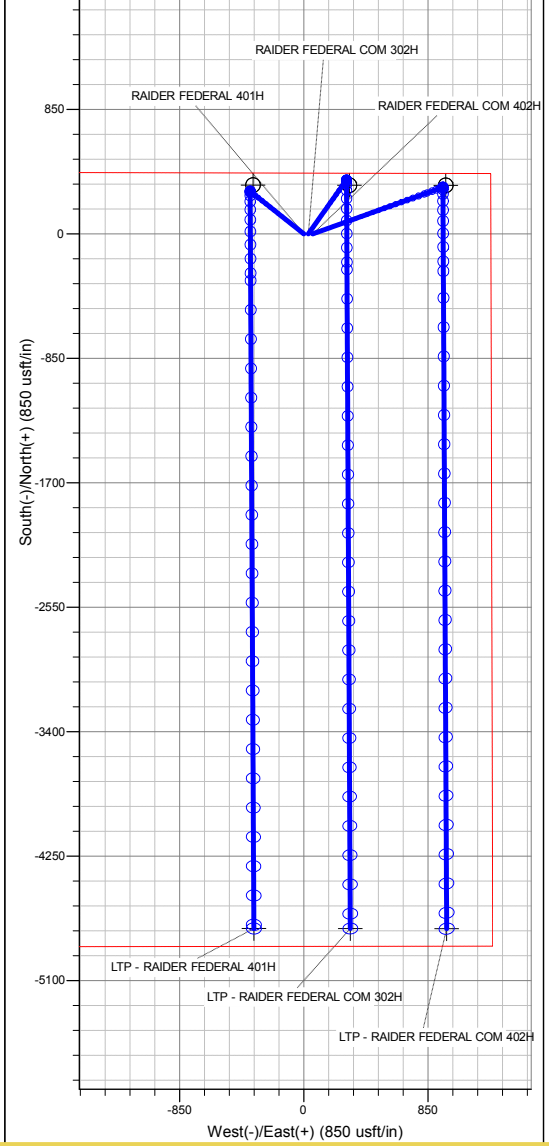
Azimuths to True North
Magnetic North: 6.68°

Magnetic Field
Strength: 47727.1snT
Dip Angle: 60.04°
Date: 7/9/2019
Model: IGRF2015









Planning Report

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well RAIDER FEDERAL COM 402H
Company:	NEW MEXICO	**TVD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Project:	LEA	**MD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Site:	RAIDER FEDERAL	**North Reference:**	True
Well:	RAIDER FEDERAL COM 402H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	RAIDER FEDERAL COM 402H		
Design:	MAGVAR - PWP0		

Project LEA

Map System:	Universal Transverse Mercator (US Survey Fee	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site RAIDER FEDERAL

Site Position:		**Northing:**	11,694,989.05 usft	**Latitude:**	32° 12' 32.793 N
From:	Map	**Easting:**	2,113,312.04 usft	**Longitude:**	103° 28' 14.154 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.82 °

Well RAIDER FEDERAL COM 402H

Well Position	**+N/-S**	-0.09 usft	**Northing:**	11,694,989.81 usft	**Latitude:**	32° 12' 32.792 N
	+E/-W	59.98 usft	**Easting:**	2,113,372.02 usft	**Longitude:**	103° 28' 13.455 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,531.00 usft

Wellbore RAIDER FEDERAL COM 402H

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/9/2019	6.68	60.04	47,727.12427427

Design MAGVAR - PWP0

Audit Notes:

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

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	169.06

Plan Survey Tool Program **Date** 7/10/2019

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	15,408.60	MAGVAR - PWP0 (RAIDER FED	MWD+IFR1+MS OWSG MWD + IFR1 + Mult	

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,700.00	12.00	70.35	2,691.25	42.10	117.91	1.00	1.00	0.00	70.35	
6,050.00	12.00	70.35	5,968.04	276.32	773.86	0.00	0.00	0.00	0.00	
7,250.00	0.00	0.00	7,159.29	318.42	891.77	1.00	-1.00	0.00	180.00	
10,018.00	0.00	0.00	9,927.29	318.42	891.77	0.00	0.00	0.00	0.00	
10,917.62	90.00	179.71	10,500.00	-254.28	894.67	10.00	10.00	0.00	179.71	
15,408.60	90.00	179.71	10,500.00	-4,745.21	917.47	0.00	0.00	0.00	0.00	LTP - RAIDER FEC

Planning Report

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well RAIDER FEDERAL COM 402H
Company:	NEW MEXICO	**TVD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Project:	LEA	**MD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Site:	RAIDER FEDERAL	**North Reference:**	True
Well:	RAIDER FEDERAL COM 402H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	RAIDER FEDERAL COM 402H		
Design:	MAGVAR - PWP0		

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	1.00	70.35	1,599.99	0.29	0.82	-0.13	1.00	1.00	0.00
1,700.00	2.00	70.35	1,699.96	1.17	3.29	-0.53	1.00	1.00	0.00
1,800.00	3.00	70.35	1,799.86	2.64	7.39	-1.19	1.00	1.00	0.00
1,900.00	4.00	70.35	1,899.68	4.69	13.14	-2.11	1.00	1.00	0.00
2,000.00	5.00	70.35	1,999.37	7.33	20.53	-3.30	1.00	1.00	0.00
2,100.00	6.00	70.35	2,098.90	10.55	29.56	-4.75	1.00	1.00	0.00
2,200.00	7.00	70.35	2,198.26	14.36	40.22	-6.47	1.00	1.00	0.00
2,300.00	8.00	70.35	2,297.40	18.75	52.51	-8.44	1.00	1.00	0.00
2,400.00	9.00	70.35	2,396.30	23.72	66.43	-10.68	1.00	1.00	0.00
2,500.00	10.00	70.35	2,494.93	29.27	81.98	-13.18	1.00	1.00	0.00
2,600.00	11.00	70.35	2,593.26	35.40	99.14	-15.94	1.00	1.00	0.00
2,700.00	12.00	70.35	2,691.25	42.10	117.91	-18.95	1.00	1.00	0.00
2,800.00	12.00	70.35	2,789.06	49.09	137.49	-22.10	0.00	0.00	0.00
2,900.00	12.00	70.35	2,886.88	56.09	157.07	-25.25	0.00	0.00	0.00
3,000.00	12.00	70.35	2,984.69	63.08	176.65	-28.40	0.00	0.00	0.00
3,100.00	12.00	70.35	3,082.51	70.07	196.24	-31.54	0.00	0.00	0.00
3,200.00	12.00	70.35	3,180.32	77.06	215.82	-34.69	0.00	0.00	0.00
3,300.00	12.00	70.35	3,278.13	84.05	235.40	-37.84	0.00	0.00	0.00
3,400.00	12.00	70.35	3,375.95	91.04	254.98	-40.99	0.00	0.00	0.00
3,500.00	12.00	70.35	3,473.76	98.04	274.56	-44.13	0.00	0.00	0.00
3,600.00	12.00	70.35	3,571.58	105.03	294.14	-47.28	0.00	0.00	0.00
3,700.00	12.00	70.35	3,669.39	112.02	313.72	-50.43	0.00	0.00	0.00
3,800.00	12.00	70.35	3,767.21	119.01	333.30	-53.58	0.00	0.00	0.00
3,900.00	12.00	70.35	3,865.02	126.00	352.88	-56.72	0.00	0.00	0.00
4,000.00	12.00	70.35	3,962.84	132.99	372.46	-59.87	0.00	0.00	0.00
4,100.00	12.00	70.35	4,060.65	139.98	392.04	-63.02	0.00	0.00	0.00
4,200.00	12.00	70.35	4,158.47	146.98	411.62	-66.17	0.00	0.00	0.00
4,300.00	12.00	70.35	4,256.28	153.97	431.20	-69.31	0.00	0.00	0.00
4,400.00	12.00	70.35	4,354.10	160.96	450.78	-72.46	0.00	0.00	0.00
4,500.00	12.00	70.35	4,451.91	167.95	470.36	-75.61	0.00	0.00	0.00
4,600.00	12.00	70.35	4,549.73	174.94	489.94	-78.76	0.00	0.00	0.00
4,700.00	12.00	70.35	4,647.54	181.93	509.52	-81.90	0.00	0.00	0.00
4,800.00	12.00	70.35	4,745.36	188.93	529.10	-85.05	0.00	0.00	0.00
4,900.00	12.00	70.35	4,843.17	195.92	548.68	-88.20	0.00	0.00	0.00
5,000.00	12.00	70.35	4,940.99	202.91	568.26	-91.35	0.00	0.00	0.00
5,100.00	12.00	70.35	5,038.80	209.90	587.84	-94.49	0.00	0.00	0.00
5,200.00	12.00	70.35	5,136.62	216.89	607.42	-97.64	0.00	0.00	0.00
5,300.00	12.00	70.35	5,234.43	223.88	627.00	-100.79	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well RAIDER FEDERAL COM 402H
Company:	NEW MEXICO	**TVD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Project:	LEA	**MD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Site:	RAIDER FEDERAL	**North Reference:**	True
Well:	RAIDER FEDERAL COM 402H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	RAIDER FEDERAL COM 402H		
Design:	MAGVAR - PWP0		

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)
5,400.00	12.00	70.35	5,332.24	230.87	646.58	-103.94	0.00	0.00	0.00
5,500.00	12.00	70.35	5,430.06	237.87	666.16	-107.08	0.00	0.00	0.00
5,600.00	12.00	70.35	5,527.87	244.86	685.74	-110.23	0.00	0.00	0.00
5,700.00	12.00	70.35	5,625.69	251.85	705.33	-113.38	0.00	0.00	0.00
5,800.00	12.00	70.35	5,723.50	258.84	724.91	-116.52	0.00	0.00	0.00
5,900.00	12.00	70.35	5,821.32	265.83	744.49	-119.67	0.00	0.00	0.00
6,000.00	12.00	70.35	5,919.13	272.82	764.07	-122.82	0.00	0.00	0.00
6,050.00	12.00	70.35	5,968.04	276.32	773.86	-124.39	0.00	0.00	0.00
6,100.00	11.50	70.35	6,016.99	279.74	783.45	-125.93	1.00	-1.00	0.00
6,200.00	10.50	70.35	6,115.15	286.16	801.42	-128.82	1.00	-1.00	0.00
6,300.00	9.50	70.35	6,213.63	292.00	817.77	-131.45	1.00	-1.00	0.00
6,400.00	8.50	70.35	6,312.40	297.26	832.50	-133.82	1.00	-1.00	0.00
6,500.00	7.50	70.35	6,411.43	301.94	845.61	-135.93	1.00	-1.00	0.00
6,600.00	6.50	70.35	6,510.68	306.04	857.08	-137.77	1.00	-1.00	0.00
6,700.00	5.50	70.35	6,610.13	309.55	866.93	-139.35	1.00	-1.00	0.00
6,800.00	4.50	70.35	6,709.75	312.48	875.14	-140.67	1.00	-1.00	0.00
6,900.00	3.50	70.35	6,809.50	314.83	881.71	-141.73	1.00	-1.00	0.00
7,000.00	2.50	70.35	6,909.37	316.59	886.63	-142.52	1.00	-1.00	0.00
7,100.00	1.50	70.35	7,009.30	317.76	889.92	-143.05	1.00	-1.00	0.00
7,200.00	0.50	70.35	7,109.29	318.35	891.56	-143.31	1.00	-1.00	0.00
7,250.00	0.00	0.00	7,159.29	318.42	891.77	-143.35	1.00	-1.00	0.00
7,300.00	0.00	0.00	7,209.29	318.42	891.77	-143.35	0.00	0.00	0.00
7,400.00	0.00	0.00	7,309.29	318.42	891.77	-143.35	0.00	0.00	0.00
7,500.00	0.00	0.00	7,409.29	318.42	891.77	-143.35	0.00	0.00	0.00
7,600.00	0.00	0.00	7,509.29	318.42	891.77	-143.35	0.00	0.00	0.00
7,700.00	0.00	0.00	7,609.29	318.42	891.77	-143.35	0.00	0.00	0.00
7,800.00	0.00	0.00	7,709.29	318.42	891.77	-143.35	0.00	0.00	0.00
7,900.00	0.00	0.00	7,809.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,000.00	0.00	0.00	7,909.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,100.00	0.00	0.00	8,009.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,200.00	0.00	0.00	8,109.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,300.00	0.00	0.00	8,209.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,400.00	0.00	0.00	8,309.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,500.00	0.00	0.00	8,409.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,600.00	0.00	0.00	8,509.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,700.00	0.00	0.00	8,609.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,800.00	0.00	0.00	8,709.29	318.42	891.77	-143.35	0.00	0.00	0.00
8,900.00	0.00	0.00	8,809.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,000.00	0.00	0.00	8,909.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,100.00	0.00	0.00	9,009.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,200.00	0.00	0.00	9,109.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,300.00	0.00	0.00	9,209.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,400.00	0.00	0.00	9,309.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,500.00	0.00	0.00	9,409.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,600.00	0.00	0.00	9,509.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,700.00	0.00	0.00	9,609.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,800.00	0.00	0.00	9,709.29	318.42	891.77	-143.35	0.00	0.00	0.00
9,900.00	0.00	0.00	9,809.29	318.42	891.77	-143.35	0.00	0.00	0.00
10,000.00	0.00	0.00	9,909.29	318.42	891.77	-143.35	0.00	0.00	0.00
10,018.00	0.00	0.00	9,927.29	318.42	891.77	-143.35	0.00	0.00	0.00
10,100.00	8.20	179.71	10,009.01	312.56	891.80	-137.59	10.00	10.00	0.00
10,200.00	18.21	179.71	10,106.24	289.75	891.92	-115.17	10.00	10.00	0.00
10,300.00	28.21	179.71	10,198.03	250.39	892.11	-76.48	10.00	10.00	0.00
10,400.00	38.22	179.71	10,281.59	195.68	892.39	-22.72	10.00	10.00	0.00

Planning Report

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well RAIDER FEDERAL COM 402H
Company:	NEW MEXICO	**TVD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Project:	LEA	**MD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Site:	RAIDER FEDERAL	**North Reference:**	True
Well:	RAIDER FEDERAL COM 402H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	RAIDER FEDERAL COM 402H		
Design:	MAGVAR - PWP0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,500.00	48.22	179.71	10,354.37	127.29	892.74	44.49	10.00	10.00	0.00
10,600.00	58.22	179.71	10,414.16	47.30	893.14	123.11	10.00	10.00	0.00
10,700.00	68.23	179.71	10,459.15	-41.87	893.59	210.74	10.00	10.00	0.00
10,800.00	78.23	179.71	10,487.97	-137.49	894.08	304.72	10.00	10.00	0.00
10,900.00	88.24	179.71	10,499.73	-236.67	894.58	402.19	10.00	10.00	0.00
10,917.62	90.00	179.71	10,500.00	-254.28	894.67	419.50	10.00	10.00	0.00
11,000.00	90.00	179.71	10,500.00	-336.67	895.09	500.46	0.00	0.00	0.00
11,100.00	90.00	179.71	10,500.00	-436.67	895.59	598.74	0.00	0.00	0.00
11,200.00	90.00	179.71	10,500.00	-536.66	896.10	697.01	0.00	0.00	0.00
11,300.00	90.00	179.71	10,500.00	-636.66	896.60	795.29	0.00	0.00	0.00
11,400.00	90.00	179.71	10,500.00	-736.66	897.11	893.57	0.00	0.00	0.00
11,500.00	90.00	179.71	10,500.00	-836.66	897.62	991.84	0.00	0.00	0.00
11,600.00	90.00	179.71	10,500.00	-936.66	898.12	1,090.12	0.00	0.00	0.00
11,700.00	90.00	179.71	10,500.00	-1,036.66	898.63	1,188.40	0.00	0.00	0.00
11,800.00	90.00	179.71	10,500.00	-1,136.66	899.13	1,286.67	0.00	0.00	0.00
11,900.00	90.00	179.71	10,500.00	-1,236.66	899.64	1,384.95	0.00	0.00	0.00
12,000.00	90.00	179.71	10,500.00	-1,336.65	900.15	1,483.22	0.00	0.00	0.00
12,100.00	90.00	179.71	10,500.00	-1,436.65	900.65	1,581.50	0.00	0.00	0.00
12,200.00	90.00	179.71	10,500.00	-1,536.65	901.16	1,679.78	0.00	0.00	0.00
12,300.00	90.00	179.71	10,500.00	-1,636.65	901.67	1,778.05	0.00	0.00	0.00
12,400.00	90.00	179.71	10,500.00	-1,736.65	902.17	1,876.33	0.00	0.00	0.00
12,500.00	90.00	179.71	10,500.00	-1,836.65	902.68	1,974.61	0.00	0.00	0.00
12,600.00	90.00	179.71	10,500.00	-1,936.65	903.18	2,072.88	0.00	0.00	0.00
12,700.00	90.00	179.71	10,500.00	-2,036.65	903.69	2,171.16	0.00	0.00	0.00
12,800.00	90.00	179.71	10,500.00	-2,136.64	904.20	2,269.44	0.00	0.00	0.00
12,900.00	90.00	179.71	10,500.00	-2,236.64	904.70	2,367.71	0.00	0.00	0.00
13,000.00	90.00	179.71	10,500.00	-2,336.64	905.21	2,465.99	0.00	0.00	0.00
13,100.00	90.00	179.71	10,500.00	-2,436.64	905.71	2,564.27	0.00	0.00	0.00
13,200.00	90.00	179.71	10,500.00	-2,536.64	906.22	2,662.54	0.00	0.00	0.00
13,300.00	90.00	179.71	10,500.00	-2,636.64	906.73	2,760.82	0.00	0.00	0.00
13,400.00	90.00	179.71	10,500.00	-2,736.64	907.23	2,859.10	0.00	0.00	0.00
13,500.00	90.00	179.71	10,500.00	-2,836.63	907.74	2,957.37	0.00	0.00	0.00
13,600.00	90.00	179.71	10,500.00	-2,936.63	908.25	3,055.65	0.00	0.00	0.00
13,700.00	90.00	179.71	10,500.00	-3,036.63	908.75	3,153.93	0.00	0.00	0.00
13,800.00	90.00	179.71	10,500.00	-3,136.63	909.26	3,252.20	0.00	0.00	0.00
13,900.00	90.00	179.71	10,500.00	-3,236.63	909.76	3,350.48	0.00	0.00	0.00
14,000.00	90.00	179.71	10,500.00	-3,336.63	910.27	3,448.76	0.00	0.00	0.00
14,100.00	90.00	179.71	10,500.00	-3,436.63	910.78	3,547.03	0.00	0.00	0.00
14,200.00	90.00	179.71	10,500.00	-3,536.63	911.28	3,645.31	0.00	0.00	0.00
14,300.00	90.00	179.71	10,500.00	-3,636.62	911.79	3,743.58	0.00	0.00	0.00
14,400.00	90.00	179.71	10,500.00	-3,736.62	912.29	3,841.86	0.00	0.00	0.00
14,500.00	90.00	179.71	10,500.00	-3,836.62	912.80	3,940.14	0.00	0.00	0.00
14,600.00	90.00	179.71	10,500.00	-3,936.62	913.31	4,038.41	0.00	0.00	0.00
14,700.00	90.00	179.71	10,500.00	-4,036.62	913.81	4,136.69	0.00	0.00	0.00
14,800.00	90.00	179.71	10,500.00	-4,136.62	914.32	4,234.97	0.00	0.00	0.00
14,900.00	90.00	179.71	10,500.00	-4,236.62	914.83	4,333.24	0.00	0.00	0.00
15,000.00	90.00	179.71	10,500.00	-4,336.62	915.33	4,431.52	0.00	0.00	0.00
15,100.00	90.00	179.71	10,500.00	-4,436.61	915.84	4,529.80	0.00	0.00	0.00
15,200.00	90.00	179.71	10,500.00	-4,536.61	916.34	4,628.07	0.00	0.00	0.00
15,300.00	90.00	179.71	10,500.00	-4,636.61	916.85	4,726.35	0.00	0.00	0.00
15,400.00	90.00	179.71	10,500.00	-4,736.61	917.36	4,824.63	0.00	0.00	0.00
15,408.60	90.00	179.71	10,500.00	-4,745.21	917.47	4,833.09	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well RAIDER FEDERAL COM 402H
Company:	NEW MEXICO	**TVD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Project:	LEA	**MD Reference:**	RKB = 3531 + 26.5 @ 3557.50usft
Site:	RAIDER FEDERAL	**North Reference:**	True
Well:	RAIDER FEDERAL COM 402H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	RAIDER FEDERAL COM 402H		
Design:	MAGVAR - PWP0		

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 - RAIDER FEDEI - plan hits target center - Point	0.00	0.00	10,500.00	-4,745.21	917.47	11,690,258.14	2,114,356.93	32° 11' 45.831 N	103° 28' 2.777 W
FTP - RAIDER FEDEI - plan misses target center by 247.30usft at 10466.33usft MD (10331.21 TVD, 151.73 N, 892.61 E) - Circle (radius 50.00)	0.00	0.00	10,500.00	331.48	911.37	11,695,334.23	2,114,278.58	32° 12' 36.073 N	103° 28' 2.847 W

NEW MEXICO

LEA
RAIDER FEDERAL
RAIDER FEDERAL COM 402H

RAIDER FEDERAL COM 402H
Magvar PWP0

Anticollision Summary Report

10 July, 2019

LGC

Anticollision Summary Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RAIDER FEDERAL COM 402H
Project:	LEA	**TVD Reference:**	HP650 @ 3557.5usft (HP650 26.5 + 3531)
Reference Site:	RAIDER FEDERAL	**MD Reference:**	HP650 @ 3557.5usft (HP650 26.5 + 3531)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	RAIDER FEDERAL COM 402H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	RAIDER FEDERAL COM 402H	**Database:**	Centennial EDM SQL Server
Reference Design:	Magvar PWP0	**Offset TVD Reference:**	Reference Datum

Reference	Magvar PWP0		
Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
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 1,740.9 usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 7/10/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	15,408.6	Magvar PWP0 (RAIDER FEDERAL COM	MWD+IFR1+MS	OWSG_Rev2_ 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
PIRATE FEDERAL						
PIRATE FEDERAL COM 102H - PIRATE FEDERAL COM	9,400.0	14,440.4	648.4	563.4	7.630	SF
PIRATE FEDERAL COM 102H - PIRATE FEDERAL COM	9,434.2	14,440.4	647.5	562.7	7.640	CC, ES
PIRATE STATE						
PIRATE STATE 101H - PIRATE STATE 101H - ACTUAL	8,873.4	8,786.2	479.2	416.8	7.681	CC
PIRATE STATE 101H - PIRATE STATE 101H - ACTUAL	8,900.0	8,811.4	479.2	416.7	7.659	ES
PIRATE STATE 101H - PIRATE STATE 101H - ACTUAL	9,000.0	8,888.1	481.4	418.2	7.621	SF
PIRATE STATE 302H - PIRATE STATE 302H - ACTUAL	10,290.3	15,205.0	305.6	238.4	4.548	CC, ES
PIRATE STATE 302H - PIRATE STATE 302H - ACTUAL	10,300.0	15,205.0	305.8	238.5	4.539	SF
PIRATE STATE 302H - PIRATE STATE 302H - TOTAL -	10,314.8	15,186.0	331.4	257.9	4.507	CC, ES, SF
PIRATE STATE 401H - PIRATE STATE 401H - ACTUAL	10,382.2	15,340.0	849.0	765.8	10.209	CC, ES
PIRATE STATE 401H - PIRATE STATE 401H - ACTUAL	10,400.0	15,340.0	849.3	766.0	10.195	SF
PIRATE STATE 401H - PIRATE STATE 401H - TOTAL -	10,386.9	15,372.3	856.8	771.5	10.054	CC, ES
PIRATE STATE 401H - PIRATE STATE 401H - TOTAL -	10,400.0	15,372.3	856.9	771.6	10.041	SF
RAIDER FEDERAL						
RAIDER FEDERAL 401H - RAIDER FEDERAL 401H - M	1,500.0	1,500.0	60.0	49.7	5.823	CC, ES
RAIDER FEDERAL 401H - RAIDER FEDERAL 401H - M	1,700.0	1,700.0	63.3	51.6	5.400	SF
RAIDER FEDERAL COM 101H - RAIDER FEDERAL CO	6,225.5	6,151.9	195.3	151.0	4.405	CC
RAIDER FEDERAL COM 101H - RAIDER FEDERAL CO	8,800.0	8,722.7	212.5	150.2	3.412	ES, SF
RAIDER FEDERAL COM 302H - RAIDER FEDERAL CO	1,500.0	1,500.0	30.0	19.7	2.912	CC, ES
RAIDER FEDERAL COM 302H - RAIDER FEDERAL CO	1,600.0	1,600.0	30.8	19.8	2.798	SF
RAIDER FEDERAL COM 502H - RAIDER FEDERAL CO	14,900.0	14,900.0	1,150.0	1,051.0	11.616	SF
RAIDER FEDERAL COM 502H - RAIDER FEDERAL CO	15,402.3	10,482.4	1,039.5	950.7	11.705	CC, ES
RAIDER FEDERAL COM 503H - RAIDER FEDERAL CO	15,156.5	10,489.7	114.4	26.4	1.300	Level 3, CC, ES, SF
ROMEO						
ROMEO FED COM 705H - ROMEO FED COM 705H - P	10,302.2	10,257.1	865.9	793.3	11.923	CC, ES
ROMEO FED COM 705H - ROMEO FED COM 705H - P	10,400.0	10,335.9	868.6	795.4	11.871	SF
ROMEO FEDERAL COM 1H - ROMEO FEDERAL COM	9,748.7	9,694.1	700.3	631.6	10.197	CC
ROMEO FEDERAL COM 1H - ROMEO FEDERAL COM	9,800.0	9,741.2	700.4	631.4	10.147	ES
ROMEO FEDERAL COM 1H - ROMEO FEDERAL COM	15,300.0	15,843.0	1,032.2	918.0	9.035	SF

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

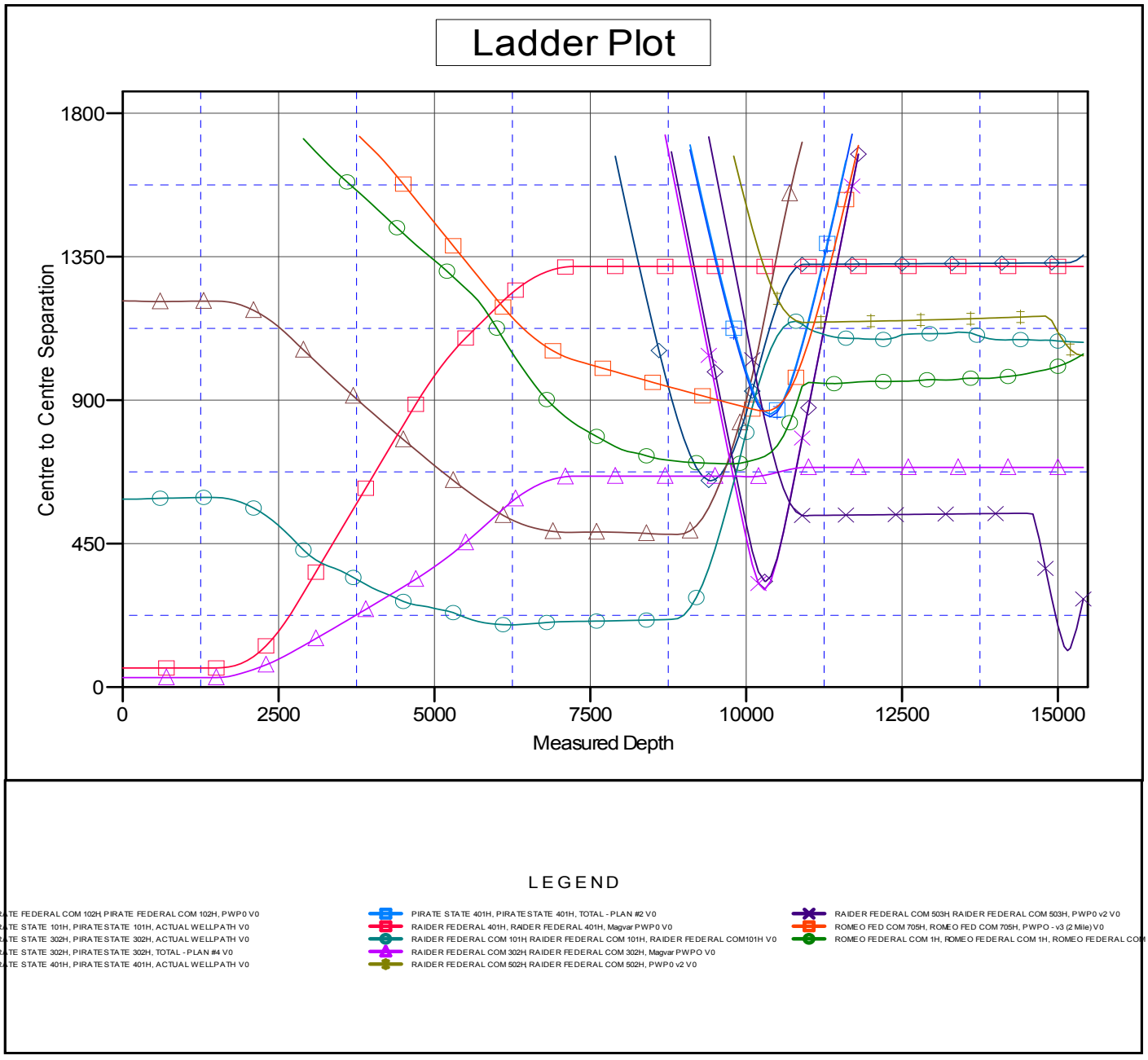
LGC

Anticollision Summary Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RAIDER FEDERAL COM 402H
Project:	LEA	**TVD Reference:**	HP650 @ 3557.5usft (HP650 26.5 + 3531)
Reference Site:	RAIDER FEDERAL	**MD Reference:**	HP650 @ 3557.5usft (HP650 26.5 + 3531)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	RAIDER FEDERAL COM 402H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	RAIDER FEDERAL COM 402H	**Database:**	Centennial EDM SQL Server
Reference Design:	Magvar PWP0	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to HP650 @ 3557.5usft (HP650 26.5 + 3
Offset Depths are relative to Offset Datum
Central Meridian is 105° 0' 0.000 W

Coordinates are relative to: RAIDER FEDERAL COM 402H
Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N
Grid Convergence at Surface is: 0.82°



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

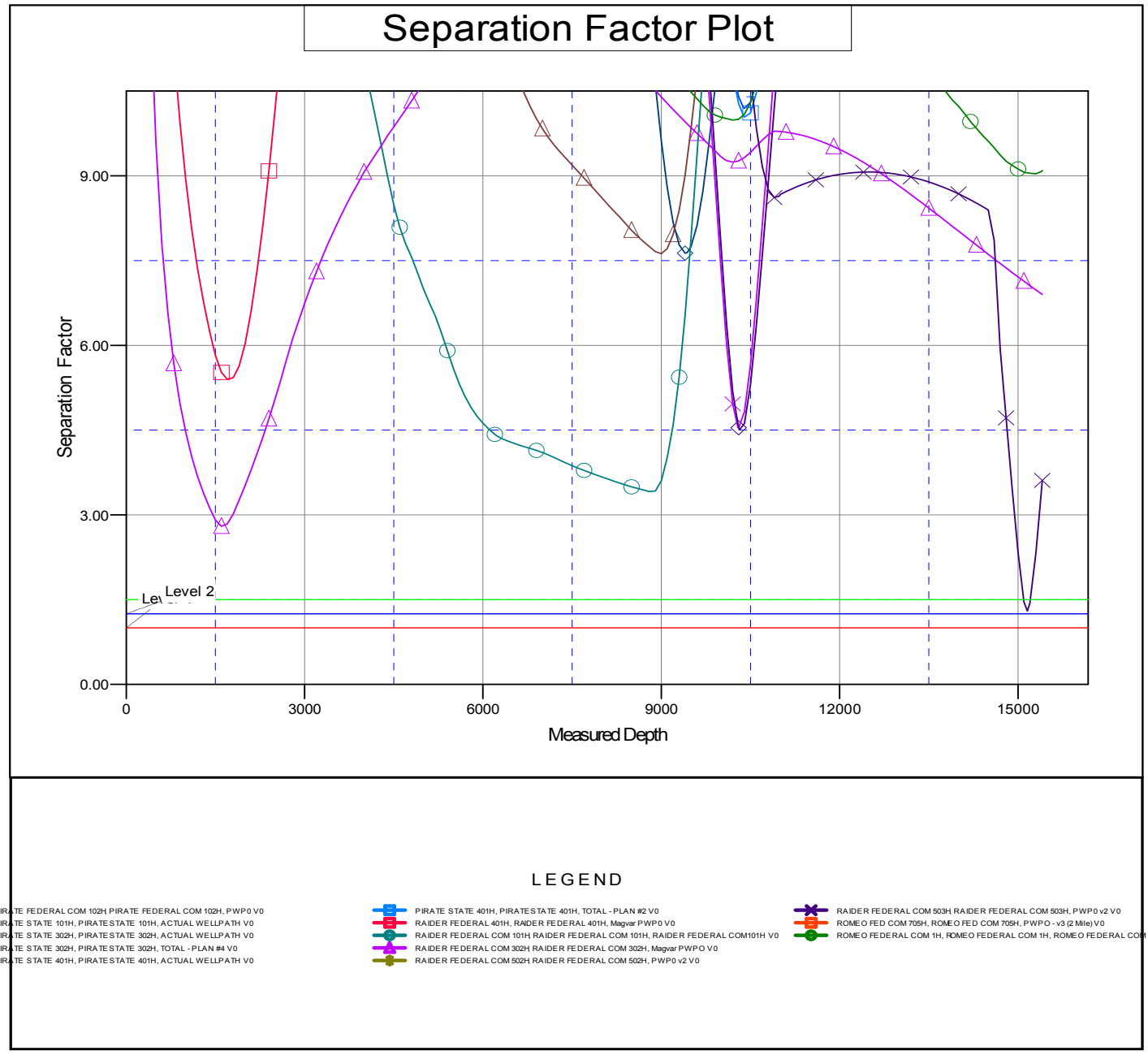
LGC

Anticollision Summary Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RAIDER FEDERAL COM 402H
Project:	LEA	**TVD Reference:**	HP650 @ 3557.5usft (HP650 26.5 + 3531)
Reference Site:	RAIDER FEDERAL	**MD Reference:**	HP650 @ 3557.5usft (HP650 26.5 + 3531)
Site Error:	0.0 usft	**North Reference:**	True
Reference Well:	RAIDER FEDERAL COM 402H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	RAIDER FEDERAL COM 402H	**Database:**	Centennial EDM SQL Server
Reference Design:	Magvar PWP0	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to HP650 @ 3557.5usft (HP650 26.5 + 3
Offset Depths are relative to Offset Datum
Central Meridian is 105° 0' 0.000 W

Coordinates are relative to: RAIDER FEDERAL COM 402H
Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N
Grid Convergence at Surface is: 0.82°



Centennial Resource Development
New Mexico Multi-Well Pad Drilling
Batch Setting Procedures

➢ Avalon and Bone Springs Formations

13-3/8" Surface Casing - CRD intends to preset 13-3/8" casing to a depth approved in the APD. 17-1/2" Surface Holes will be batch drilled by a Surface Preset rig. Appropriate notifications will be made prior to spudding the well, running and cementing casing and prior to skidding to the rig to the next well on pad.

1. Drill 17-1/2" Surface hole to Approved Depth with Surface Preset Rig and perform wellbore cleanup cycles. Trip out and rack back drilling BHA.
2. Run and land 13-3/8" 54.5# J55 BTC casing to depth approved in APD.
3. Cement 13-3/8" casing with cement to surface and floats holding.
4. Cut / Dress 20" Conductor and 13-3/8" casing as needed, weld on Cameron Multi-bowl system with baseplate supported by 20" conductor (see Illustration 1-1 Below). Weld performed per Cameron weld procedure.
5. Test Weld to 70% of 13-3/8" casing collapse or ~ 790psi.
6. Install nightcap with Pressure Gauge on wellhead. Nightcap is shown on final wellhead Stack up Illustration #2-2 page 3.
7. Skid Rig to adjacent well to drill Surface hole.
8. Surface casing test will be performed by the Big Rig in order to allow ample time for Cement to develop 500psi compressive strength. Casing test to 0.22 psi/ft or 1500 psi whichever is greater - not to exceed 70% casing burst.

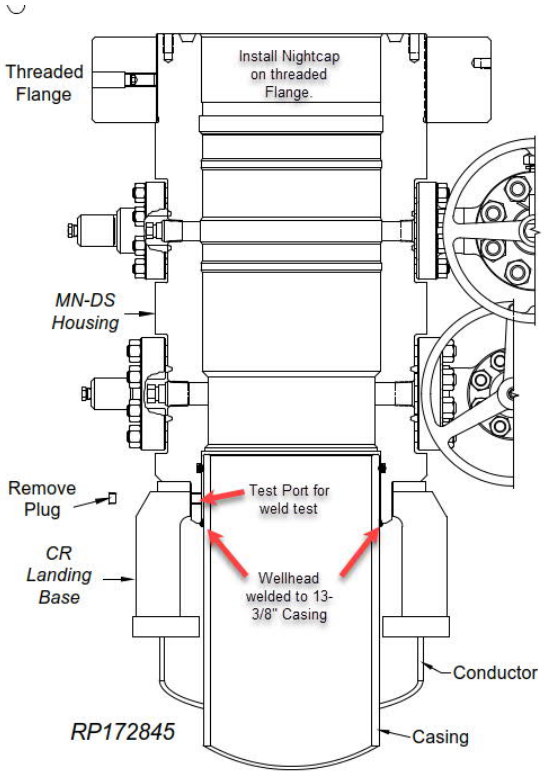


Illustration 1-1

- Intermediate and Production Casing – For all subsequent Intermediate and Production Casing Strings, the Big Rig will remove the nightcap and install and test BOPE. Prior to drill out the 13-3/8" Casing will be tested to 0.22psi/ft or 1500psi whichever is greater. The well will be drilled below 13-3/8" to its intended final TD in the Avalon or Bonesprings formations. Batch drilling will not be executed for casing strings below the 13-3/8". Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings. The

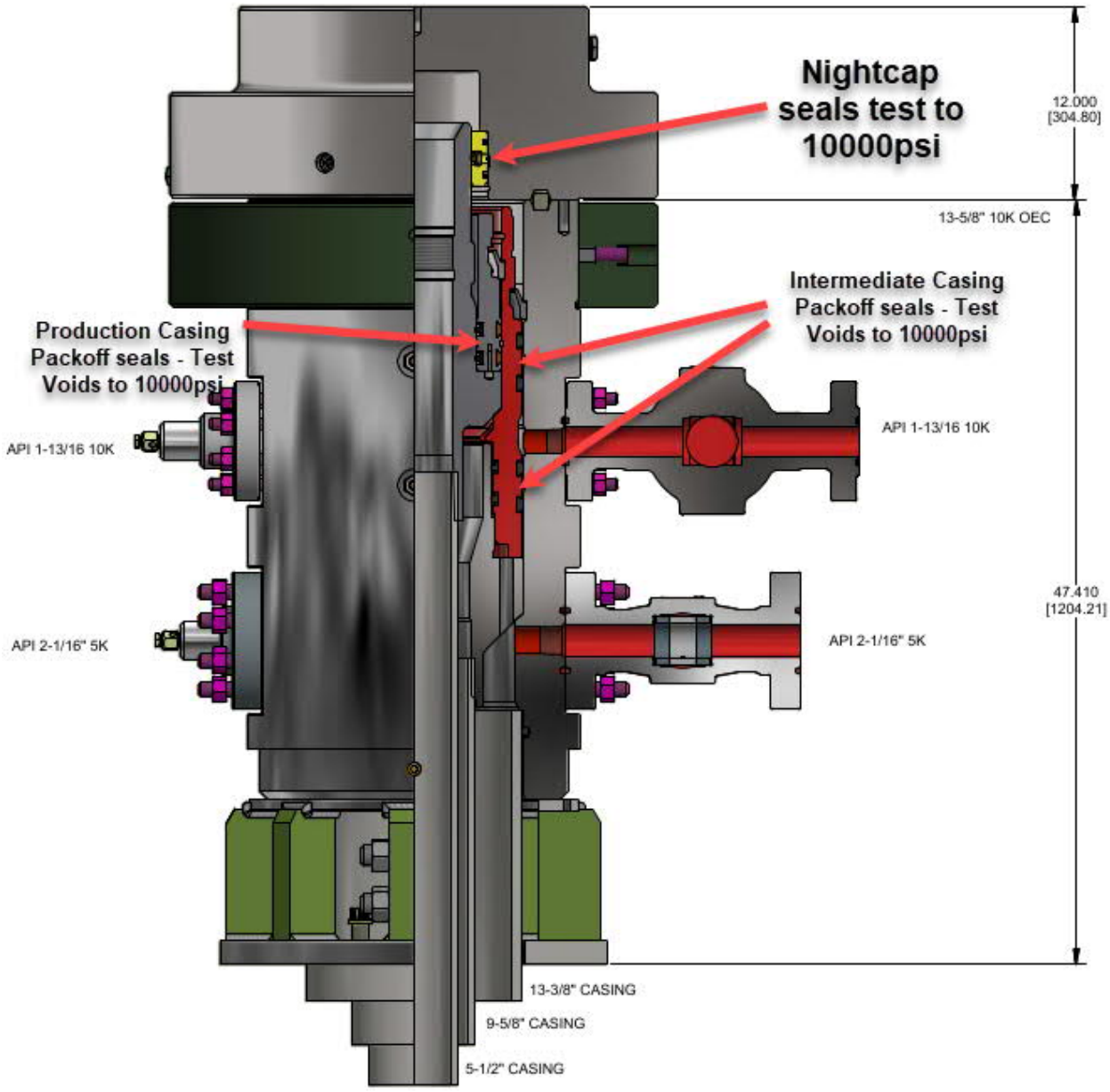
➢ Wolfcamp Formations

13-3/8" Surface Casing - CRD intends to preset 13-3/8" casing to a depth approved in the APD. Surface Holes will be batch set by a Surface Preset rig. Appropriate notifications will be made prior to spudding the well, running and cementing casing and prior to skidding to the rig to the next well on pad.

1. Drill 17-1/2" Surface hole to Approved Depth with Surface Preset Rig and perform wellbore cleanup cycles. Trip out and rack back drilling BHA.
2. Run and land 13-3/8" 54.5# J55 BTC casing to depth approved in APD.
3. Cement 13-3/8" casing with cement to surface and floats holding.
4. Cut / Dress 20" Conductor and 13-3/8" casing as needed, weld on Cameron Multi-bowl system with baseplate supported by 20" conductor (see Illustration 1-1). Weld performed per Cameron weld procedure.
5. Test Weld to 70% of 13-3/8" casing collapse or ~ 790psi.
6. Install nightcap with Pressure Gauge on wellhead. Nightcap is shown on final wellhead Stack up Illustration #2-2 on page 3.
7. Subsequent casing test will be performed by the Big Rig in order to allow ample time for Cement to develop 500psi compressive strength. Casing test to 0.22 psi/ft or 1500 psi whichever is greater - not to exceed 70% casing burst.

Intermediate Casing – CRD intends to Batch set all intermediate casing strings to a depth approved in the APD, typically set 100' above KOP in the 3rd Bonesprings Carbonate. For the last intermediate section drilled on pad, the associated production interval will immediately follow. Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings.

1. Big Rig will remove the nightcap and install and test BOPE.
2. Test Surface casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
3. Install wear bushing then drill out 13-3/8" shoe-track plus 20' and conduct FIT to minimum of the MW equivalent anticipated to control the formation pressure to the next casing point.
4. Drill Intermediate hole to approved casing point. Trip out of hole with BHA to run Casing.
5. Remove wear bushing then run and land Intermediate Casing with mandrel hanger in wellhead.
6. Cement casing to surface with floats holding.
7. Washout stack then run wash tool in wellhead and wash hanger and pack-off setting area.
8. Install pack-off and test void to 10000 psi for 15 minutes. Nightcap shown on final wellhead stack up illustration 2-2 on page 3.
9. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
10. Install nightcap – skid rig to adjacent well to drill Intermediate hole.



WITH CAP

Illustration 2-2

Production Casing – CRD intends to Batch set all Production casings, except for the last intermediate hole. In this case the production interval will immediately follow the intermediate section on that well. Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings.

1. Big Rig will remove the nightcap and install and test BOPE.
2. Install wear bushing then drill Intermediate shoe-track plus 20' and conduct FIT to minimum MW equivalent to control the formation pressure to TD of well.
3. Drill Vertical hole to KOP – Trip out for Curve BHA.
4. Drill Curve, landing in production interval – Trip for Lateral BHA.

5. Drill Lateral / Production hole to Permitted BHL, perform cleanup cycles and trip out to run 5-1/2" Production Casing.
6. Remove wear bushing then run 5-1/2" production casing to TD landing casing mandrel in wellhead.
7. Cement 5-1/2" Production string to surface with floats holding.
8. Run in with wash tool and wash wellhead area – install pack-off and test void to 10000psi for 15 minutes.
9. Install BPV in 5-1/2" mandrel hanger – Nipple down BOPE and install nightcap.
10. Test nightcap void to 10000psi for 30 minutes per illustration 2-2 page 3.
11. Skid rig to adjacent well on pad to drill production hole.

Continental
ContiTech

CONTITECH RUBBER Industrial Kft.	No:QC-DB- 210/ 2014
	Page: 9 / 113

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE					CERT. N°:	504	
PURCHASER:	ContiTech Oil & Marine Corp.				P.O. N°:	4500409659	
CONTITECH RUBBER order N°:	538236		HOSE TYPE:	3" ID		Choke and Kill Hose	
HOSE SERIAL N°:	67255		NOMINAL / ACTUAL LENGTH:			10,67 m / 10,77 m	
W.P. 68,9 MPa	10000 psi		T.P. 103,4 MPa	15000 psi	Duration:	60	min.

Pressure test with water at
ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.
→ 10 mm = 20 MPa

COUPLINGS Type	Serial N°		Quality	Heat N°
3" coupling with	9251	9254	AISI 4130	A0579N
4 1/16" 10K API b.w. Flange end			AISI 4130	035608

Not Designed For Well Testing **API Spec 16 C**

Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

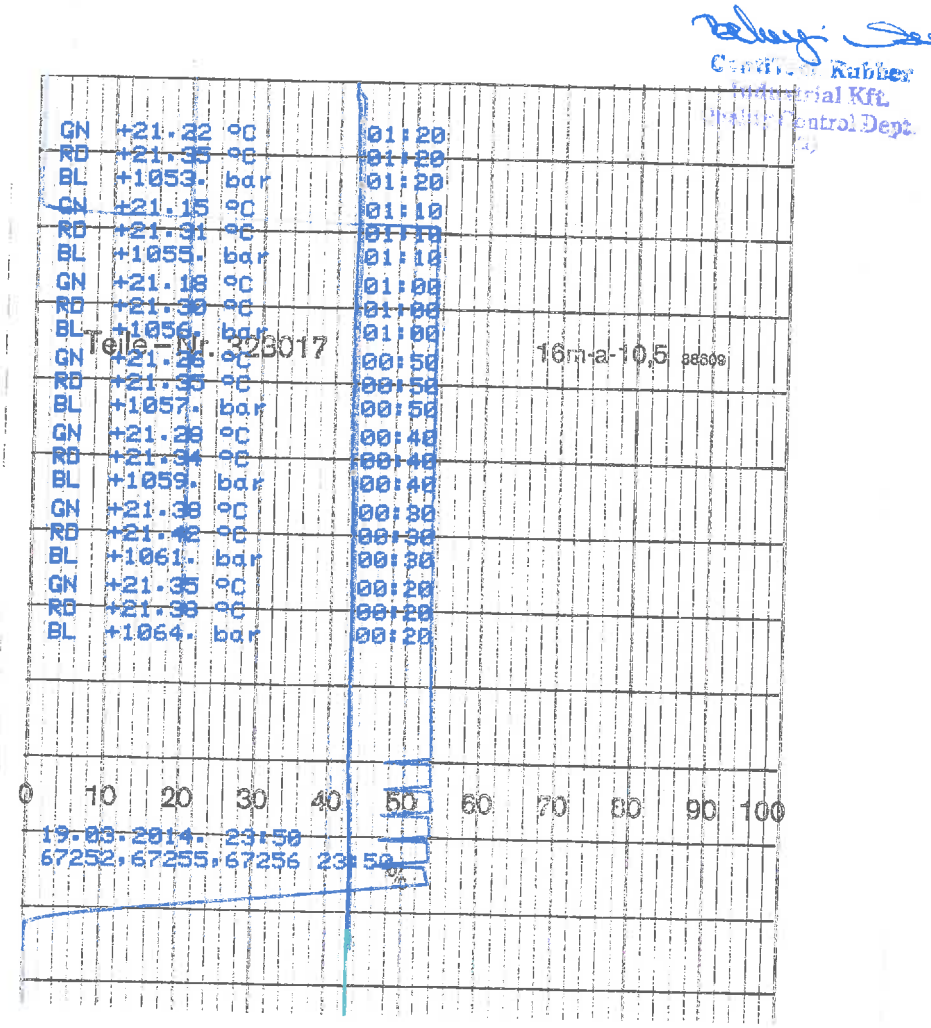
STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
20. March 2014.		ContiTech Rubber Industrial Kft. Quality Control Dept.

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE No: 501, 504, 505

Page: 1 / 1

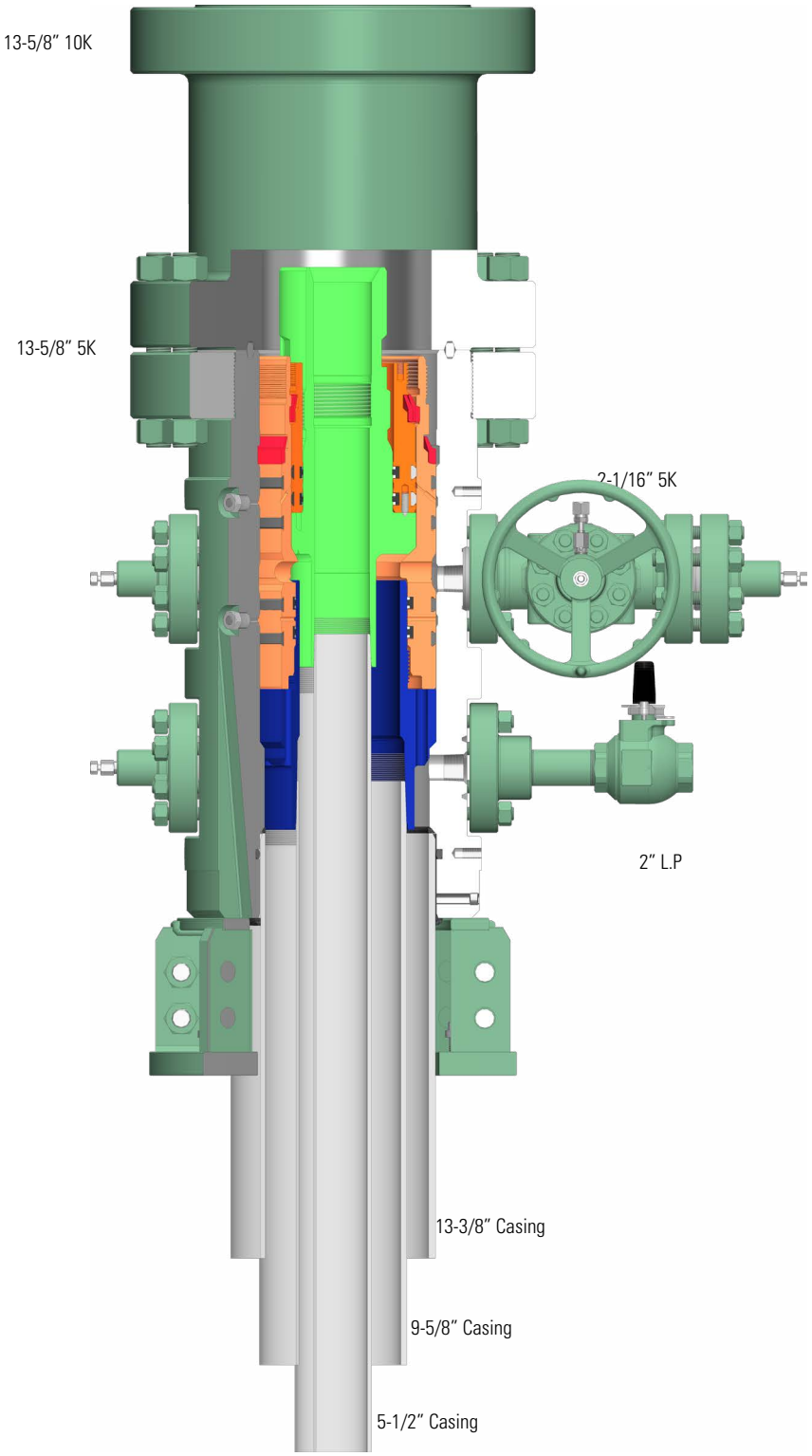


Hose Data Sheet

CRI Order No.	538236
Customer	ContiTech Oil & Marine Corp.
Customer Order No	4500409659
Item No.	1
Hose Type	Flexible Hose
Standard	**API SPEC 16 C**
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
Type of coupling other end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL + GAS RESISTANT SOUR
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
Min. Bend Radius operating [m]	0,90
Min. Bend Radius storage [m]	0,90
Electrical continuity	The Hose is electrically continuous
Type of packing	WOODEN CRATE ISPM-15

Centennial Wellhead Running Procedure 3 String Bone Springs Design

1. Drill 17-1/2" surface hole to Total Depth and perform wellbore cleanup cycles.
2. Remove wear bushing then Run and land 13-3/8" casing with mandrel hanger in wellhead.
3. Cement 13-3/8" casing – cement to surface.
4. Dress Conductor and 13-3/8" casing as needed, weld on Cameron Multi-bowl system with baseplate supported by 20" conductor.
5. Test Weld to 70% of 13-3/8" casing collapse.
6. Nipple up and test BOPE with test plug per Onshore Order 2..
7. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst.
8. Install wear bushing then drillout 13-3/8" shoetrack plus 20' and conduct FIT to minimum of the MW equivalent anticipated to control the formation pressure to the next casing point.
9. Drill 12-1/4" Intermediate hole to 9-5/8" casing point. (Base Capitan Reef).
10. Remove wear bushing then Run and land 9-5/8" Intermediate with mandrel hanger in wellhead.
11. Cement 9-5/8 casing – cement to surface.
12. Washout stack, Run wash tool in wellhead and wash hanger and packoff setting area.
13. Install packoff and test to 5000 psi for 15 minutes.
    a. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst.
14. Install wear bushing then drillout 9-5/8" shoetrack plus 20' and conduct FIT to minimum MW equivalent to control the formation pressure to TD of well.
15. Drill 8-3/4" Vertical hole to KOP – Trip out for Curve BHA.
16. Drill 8-3/4" Curve, landing in production interval – Trip for Lateral BHA.
17. Drill 8-1/2" Lateral to Permitted BHL, perform cleanup cycles and trip out to run 5-1/2" Production Casing.
18. Remove wear bushing then run 5-1/2" production casing to TD landing casing mandrel in wellhead.
19. Cement 5-1/2" Production string to surface.
20. Run in with wash tool and wash wellhead area – install packoff and test to 5000psi for 15 minutes.
21. Install BPV in 5-1/2" mandrel hanger – Nipple down BOPE and install nightcap.
22. Test nightcap void to 5000psi for 30 minutes.



CENTENNIAL
RESOURCE DEVELOPMENT, INC

CAMERON CONFIDENTIAL INFORMATION			
DO NOT SCALE		CAMERON A Schlumberger Company	Surface Systems
Drawn by: C.Moore	Date: 7/1/19		
Checked by: V.Atwell	Date: 7/1/19	13-5/8" 10k MN-DS	Rev: 02
Drawing No: 1655807-A			

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

SUPO Data Report
06/10/2020

APD ID: 10400049583 **Submission Date:** 10/17/2019

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

RAIDER_FEDERAL_COM_Existing_Road_plats_20191016092937.pdf

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

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Existing_Road_Improvement_20180920102027.pdf

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

RAIDER_FEDERAL_COM_Access_Road_maps_20191016093515.pdf
RAIDER_FEDERAL_CTB_New_Road_PLATS_20191016093530.pdf

New road type: RESOURCE

Length: 796 Feet **Width (ft.):** 65

Max slope (%): 2 **Max grade (%):** 8

Army Corp of Engineers (ACOE) permit required? N

ACOE Permit Number(s):

New road travel width: 20

New road access erosion control: Drainage and erosion will be constantly monitored to prevent compromising the road integrity and to protect the surrounding native topography

New road access plan or profile prepared? N

New road access plan attachment:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Access road engineering design? N

Access road engineering design attachment:

Turnout? N

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 4

Offsite topsoil source description:

Onsite topsoil removal process: Equipment will be used to strip 4 inches in depth and stockpile, utilizing berms for run-off

Access other construction information:

Access miscellaneous information:

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

Drainage Control

New road drainage crossing: CULVERT

Drainage Control comments: Will be monitored and repaired as necessary

Road Drainage Control Structures (DCS) description: Will be monitored and repaired as necessary

Road Drainage Control Structures (DCS) attachment:

TYPICAL_ACCESS_CROSS_SECTIONS_20180920102337.pdf

Access Additional Attachments

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

RAIDER_FEDERAL_COM_Well_Proximity_Map_20191016095606.pdf
Raider_Federal_Com_302H_Existing_Wells_list_20191016095910.xlsx

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

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: Handles/Separates Gas, Oil, and Water

Production Facilities map:

RAIDER_FEDERAL_CTB___Location_Layout_PLATS_20191016100045.pdf
Raider_Federal_401H_302H_402H_Comingle_FAC_Layout_20191016100023.pdf

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: GW WELL

Water source use type: OTHER **Describe use type:** 3rd party procurement for construc control

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Water source transport method: PIPELINE

Source land ownership: PRIVATE

Source transportation land ownership: OTHER **Describe transportation land ownership:** Private

Water source volume (barrels): 450000 **Source volume (acre-feet):** 58.00189335

Source volume (gal): 18900000

Water source and transportation map:

water_route___Raider_Fed_20191016100512.pdf

Water source comments: Temporary surface lines will be used to transport water for drilling and completion operations from private pit to Raider development.Sec 16, T24S-R34E, NENE
New water well? N

New Water Well Info

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

Well target aquifer:

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

Aquifer comments:

Aquifer documentation:

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

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

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

Drilling method: **Drill material:**

Grout material: **Grout depth:**

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

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: Caliche will be hauled from the existing Quail Ranch fee pit in NW4 NE4 Section 6-T25S-R35E. Pit has been identified for use in the attached exhibit. Any native caliche on the proposed site can be used by "flipping" the location and using all native soils.

Construction Materials source location attachment:

caliche_route___Raider_Fed_20191016100825.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Brine water based drilling fluid

Amount of waste: 1500 barrels

Waste disposal frequency : Monthly

Safe containment description: Steel tanks with plastic-lined containment berms

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Haul to commercial facility

Waste type: DRILLING

Waste content description: Fresh water based drilling fluid

Amount of waste: 1500 barrels

Waste disposal frequency : Weekly

Safe containment description: Steel tanks with plastic-lined containment berms

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Haul to commercial facility

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Waste type: SEWAGE

Waste content description: Grey Water/Human Waste

Amount of waste: 5000 gallons

Waste disposal frequency : Weekly

Safe containment description: Approved waste storage tanks with containment

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Haul to commercial facility

Waste type: GARBAGE

Waste content description: General trash/garbage

Amount of waste: 5000 pounds

Waste disposal frequency : Weekly

Safe containment description: Enclosed trash trailer

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Haul to commercial facility

Reserve Pit

Reserve Pit being used? N

Temporary disposal of produced water into reserve pit? NO

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? Y

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Description of cuttings location Approximately 9771 cubic feet, stored in Steel tanks. Will be hauled to commercial facility per well.

Cuttings area length (ft.)

Cuttings area width (ft.)

Cuttings area depth (ft.)

Cuttings area volume (cu. yd.)

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: N

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

RAIDER_FEDERAL_COM_Location_Layout_20191016101452.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: RAIDER PAD

Multiple Well Pad Number: 302

Recontouring attachment:

RAIDER_FEDERAL_COM_Reclamation_plat_20191016101552.pdf

Drainage/Erosion control construction: Drainage and erosion will be constantly monitored to prevent compromising the well site integrity, and to protect the surrounding native topography.

Drainage/Erosion control reclamation: Upon reclamation, well site will be returned to its native contour. Water breaks will be added if needed, to prevent unnatural erosion and loss of vegetation.

Well pad proposed disturbance (acres): 4.434

Well pad interim reclamation (acres): 2.53

Well pad long term disturbance (acres): 1.904

Road proposed disturbance (acres): 1.187

Road interim reclamation (acres): 0

Road long term disturbance (acres): 1.187

Powerline proposed disturbance (acres): 0

Powerline interim reclamation (acres): 0

Powerline long term disturbance (acres): 0

Pipeline proposed disturbance (acres): 0

Pipeline interim reclamation (acres): 0

Pipeline long term disturbance (acres): 0

Other proposed disturbance (acres): 0

Other interim reclamation (acres): 0

Other long term disturbance (acres): 0

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Total proposed disturbance: 5.621 **Total interim reclamation:** 2.53 **Total long term disturbance:** 3.091

Disturbance Comments: Onsite done for this pad on 4/25/19 with Paul Murphy.

Reconstruction method: Come back in with heavy equipment, remove caliche in the reclamation area, and replace with native topsoil. Reconstruction of pad will occur once all wells on location have been drilled and completed.
Topsoil redistribution: Surface disturbance will be limited to well site surveyed dimensions. Topsoil will be stored along the west edge of the pad site.
Soil treatment: Native caliche will be used in the initial construction of the well pad. Pad will be compacted using fresh water, dust control measures will be implemented as needed.
Existing Vegetation at the well pad: Surface disturbance will be limited to well site surveyed dimensions. Topsoil will be stored along the East edge of the pad site.
Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Will be windrowed to the edge of the disturbance and be utilized as a barrier from water run-off.
Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Surface disturbance will be limited.

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: N/A

Existing Vegetation Community at other disturbances attachment:

Non native seed used? N

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? N

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? N

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed Summary **Total pounds/Acre:**

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: **Last Name:**

Phone: **Email:**

Seedbed prep: Prepare a 3-5 inch deep seedbed, with the top 3-4 inches consisting of topsoil.

Seed BMP: Seeding will be done in the proper season, and monitored for the re-establishment of native vegetation.

Seed method: Broadcast

Existing invasive species? N

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Spray for noxious weeds and bare ground as needed.

Weed treatment plan attachment:

Monitoring plan description: All disturbed areas will be closely monitored for any primary or secondary noxious weeds. Should any be found, chemical spraying in accordance with state regulations will be implemented.
Monitoring plan attachment:

Success standards: No primary or secondary noxious weed will be allowed. Vegetation will be returned to its native standard.
Pit closure description: No open pits will be constructed.

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Other Local Office:

USFS Region:

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

Disturbance type: WELL PAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Disturbance type: PIPELINE

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Disturbance type: OTHER

Describe: Power Line

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Section 12 - Other Information

Right of Way needed? N **Use APD as ROW?**

ROW Type(s):

ROW Applications

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

SUPO Additional Information: See attached SUPO.

Use a previously conducted onsite? Y

Previous Onsite information: Onsite conducted with Paul Murphy on 4/25/19

Other SUPO Attachment

RAIDER_FEDERAL_COM_Arch_Survey_20191016103249.pdf
Raider_302H__401H__402H_SUPO_20191016114455.pdf

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BUREAU OF LAND MANAGEMENT

PWD Data Report
06/10/2020

APD ID: 10400049583 **Submission Date:** 10/17/2019

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

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

Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? N

Produced Water Disposal (PWD) Location:

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

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? N

Produced Water Disposal (PWD) Location:

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

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? N

Produced Water Disposal (PWD) Location:

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

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? N

Produced Water Disposal (PWD) Location:

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

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? N

Produced Water Disposal (PWD) Location:

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

Other PWD discharge volume (bbl/day):

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

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

Bond Info Data Report
06/10/2020

APD ID: 10400049583 **Submission Date:** 10/17/2019

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: RAIDER FEDERAL COM **Well Number:** 402H

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

Highlighted data reflects the most recent changes

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001471

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

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

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Submit Original to Appropriate District Office

GAS CAPTURE PLAN

Date: 10/10/2019

☒ Original Operator & OGRID No.: Centennial Resource Production, LLC 372165
☐ Amended - Reason for Amendment: _____

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

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

Well(s)/Production Facility – Name of facility

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

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Raider Federal Com 302H	Pending	A-21-24S-34E	433 FNL & 1272 FEL	2400 MCF/D	Neither	New Well
Raider Federal 401H	Pending	A-21-24S-34E	433 FNL & 1302 FEL	1350 MCF/D	Neither	New Well
Raider Federal Com 402H	Pending **30-025-48393**	A-21-24S-34E	433 FNL & 1242 FEL	1380 MCF/D	Neither	New Well

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated Lucid Energy Group low/high pressure gathering system located in Lea County, New Mexico. It will require 0' of pipeline to connect the facility to low/high pressure gathering system. Centennial Resource Production, LLC provides (periodically) to Lucid Energy Group a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Centennial Resource Production, LLC and Lucid Energy Group have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Red Hills Plant located in Sec. 13, Twn. 24S, Rng. 33E, Lea County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

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

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

Alternatives to Reduce Flaring

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

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

- NGL Removal – On lease
    - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 14477

CONDITIONS OF APPROVAL

Operator:			OGRID:	Action Number:	Action Type:
CENTENNIAL RESOURCE PRODUCTION	1001 17th Street, Suite 1800	Denver, CO80202	372165	14477	FORM 3160-3

OCD Reviewer	Condition
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string