PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Legacy Reserves Operating LP
LEASE NO.:	NMNM0001747
WELL NAME & NO.:	Lea Unit 66H
SURFACE HOLE FOOTAGE:	2270'/S & 1380'/E
BOTTOM HOLE FOOTAGE	330'/N & 1700'/E
LOCATION:	Section 24, T.20 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

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

A. Hydrogen Sulfide

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

B. CASING

1. The **13 3/8** inch surface casing shall be set at approximately **1800** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater (This is to include the lead cement).

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

whichever is greater.

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

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

Option 1:

- 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 Capitan Reef and Potash.**

Option 2:

Operator has proposed DV tool at depth of 3950', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:
   - Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef and Potash.**

Option 3:

Operator has proposed DV tool at depth of 3950' and 1850', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with third stage cement job.

c. Third stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Capitan Reef and potash.**

❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:

- Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.

- Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.

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

- Cement should tie-back at least **50 feet above the Capitan Reef** (Top of Capitan Reef estimated at 3150'). Operator shall provide method of verification.

C. PRESSURE CONTROL

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

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

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9 5/8** inch intermediate casing shoe shall be **5000 (5M)** psi.

D. SPECIAL REQUIREMENT(S)

Commercial Well Determination

A commercial well determination will need to be submitted after production has been established for at least six months.

Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

Waste Minimization Plan (WMP)

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

MHH 06222018

GENERAL REQUIREMENTS

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

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

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

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

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

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

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

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

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

A. CASING

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

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

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

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

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

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

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

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

B. PRESSURE CONTROL

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*)

In New Mexico, the lesser prairie-chicken (LPC) formerly occupied a range that encompassed the easternmost one-third of the state, extending to the Pecos River, and 48 km west of the Pecos near Fort Sumner. This covered about 38,000 km^2. By the beginning of the 20th Century, populations still existed in nine eastern counties (Union, Harding, Chaves, De Baca, Quay, Curry, Roosevelt, Lea, and Eddy). The last reliable records from Union County are from 1993. Currently, populations exist only in parts of Lea, Eddy, Curry, Chaves, and Roosevelt counties, comprising about 23% of the historical range.

LPC are found throughout dry grasslands that contained shinnery oak or sand sage. Currently, they most commonly are found in sandy-soiled, mixed-grass vegetation, sometimes with short-grass habitats with clayey or loamy soils interspersed. They occasionally are found in farmland and smaller fields, especially in winter. Shinnery oak shoots are used as cover and produce acorns, which are important food for LPC and many other species of birds, such as the scaled quail, northern bobwhite, and mourning dove. Current geographic range of shinnery oak is nearly congruent with that of the lesser prairie-chicken, and these species sometimes are considered ecological partners. Population densities of LPC are greater in shinnery oak habitat than in sand sage habitat.

LPC use a breeding system in which males form display groups. These groups perform mating displays on arenas called leks. During mating displays male vocalizations called booming, attract females to the lek. Leks are often on knolls, ridges, or other raised areas, but in New Mexico leks are just as likely to be on flat areas such as roads, abandoned oil drill pads, dry playa lakes or at the center of wide, shallow depressions. Leks may be completely bare, covered with short grass, or have scattered clumps of grass or short tufts of plants. An important physical requirement for location of leks is visibility of surroundings, but the most important consideration is proximity of suitable nesting habitat, breeding females and the ability to hear male vocalizations.

In the late 1980s, there were 35 documented active booming grounds known to exist within the CFO. Due to population decreases and unpredictable weather cycles the LPC is currently proposed for federal listing, and potentially may become extirpated from Eddy and southern Lea counties.

In June 1998, the US Fish and Wildlife Service (USFWS) issued a statement regarding their status review of the lesser prairie-chicken. It stated, "Protection of the lesser prairie-chicken under the Federal Endangered Species Act (ESA) is warranted but precluded which means that other species in greater need of protection must take priority in the listing process." Given the current Federal Candidate status of this species, the Bureau of Land Management is mandated to carry out management consistent with the principles of multiple use, for the conservation of candidate species and their habitats, and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as Threatened or Endangered (Bureau Manual 6840.06). On December 11, 2012 the USFWS proposed to list the lesser prairie-chicken as a threatened species under the ESA of 1973, as amended.

Dunes Sagebrush Lizard (*Sceloporus arenicolus*)

The Dunes Sagebrush Lizard (DSL) is a species with a limited geographic range including parts of Chaves, Eddy, Lea and Roosevelt Counties of southeastern New Mexico and 4 counties in Texas. The DSL is a habitat specialist, found exclusively in association with shinnery oak dune complexes. These complexes are patchworks of shinnery oak and scattered sandsage interspersed with areas of open sand and wind-created sandy blowouts. These complexes create ideal habitat for the DSL.

The DSL may also require specific sand particle size. Research has shown that there are significant differences in the composition of sand between sites that are occupied and unoccupied by DSL. Occupied sites have slightly coarser sand than unoccupied sites. This suggests that DSL may not occur in areas with high percentages of sand particles smaller than 250 micrometers (Fitzgerald et al, 1997).

The USFWS was petitioned on May 28, 2002 by The Center for Biological Diversity and Chihuahuan Desert Conservation Alliance to list the DSL as an endangered species under the Endangered Species Act. In May 2005 the USFWS issued a statement regarding their status review of the DSL. It stated, "Protection of the Dunes Sagebrush Lizard under the ESA is warranted but precluded, which means that other species in greater need of protection must take priority in the listing process." Given the current Federal Candidate status of this species, the Bureau of Land Management is mandated to carry out management, consistent with the principles of multiple use, for the conservation of candidate species and their habitats and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as Threatened or Endangered (Bureau Manual 6840.06). On December 14th 2010 the USFWS proposed to list the dunes sagebrush lizard as endangered under the ESA of 1973, as amended. On June 19th 2012, the USFWS withdrew the proposed rule to list the dunes sagebrush lizard as endangered under the Endangered Species Act of 1973, as amended. The lizard was not listed based on several conservation agreements in place and plans like the current BLM land use plan. The lizard is still considered a BLM special status species.

Add to references:

Fitzgerald L.A., Painter C.W., Sias D.S., Snell H.L. (1997). The range, distribution, and habitat of Sceloporus arenicolus in New Mexico: final report submitted to the New Mexico Department of Game and Fish (Contract #80-516.6-01).

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

30-025-45154

OPERATOR'S NAME:	Legacy Reserves Operating LP
LEASE NO.:	NMNM0001747
WELL NAME & NO.:	Lea Unit 66H
SURFACE HOLE FOOTAGE:	2270'/S & 1380'/E
BOTTOM HOLE FOOTAGE	330'/N & 1700'/E
LOCATION:	Section 24, T.20 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

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

Approval Date: 07/11/2018

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

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

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.

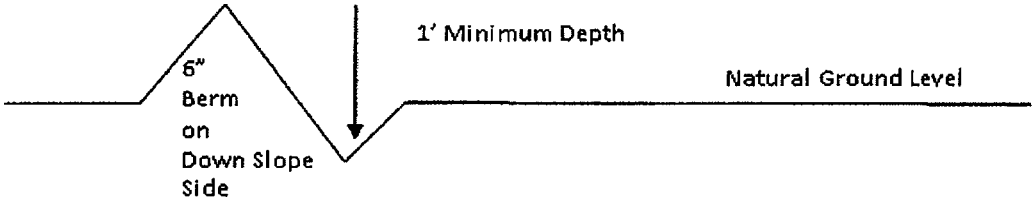
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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:

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

Cattle guards

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

Fence Requirement

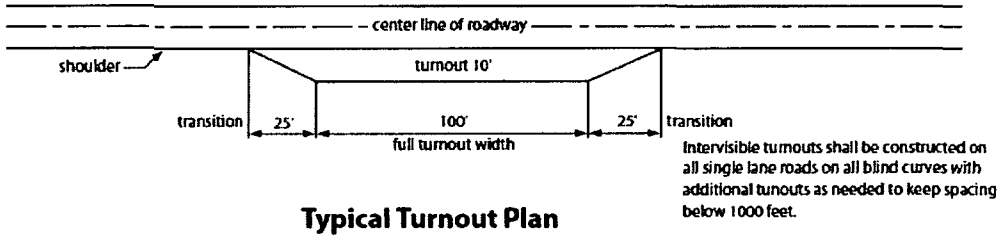
Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

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

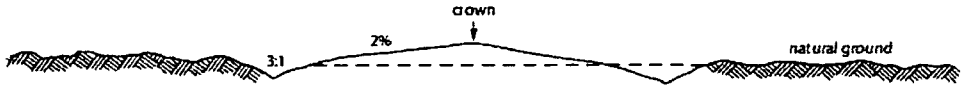
Construction Steps

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

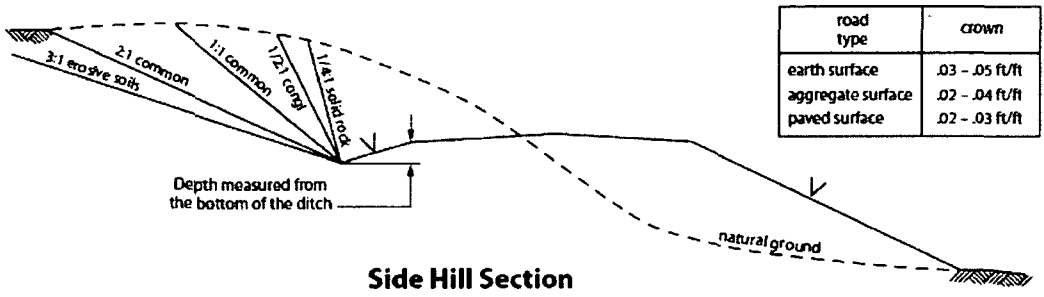


Intervisible turnouts shall be constructed on all single lane roads on all blind curves with additional turnouts as needed to keep spacing below 1000 feet.

Typical Turnout Plan

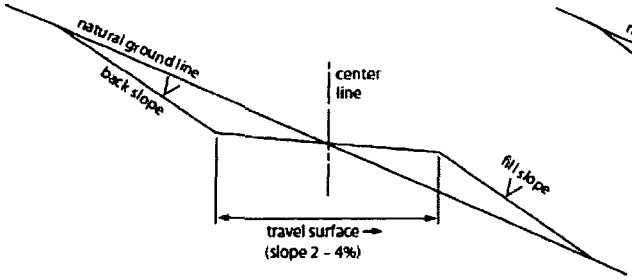


Level Ground Section

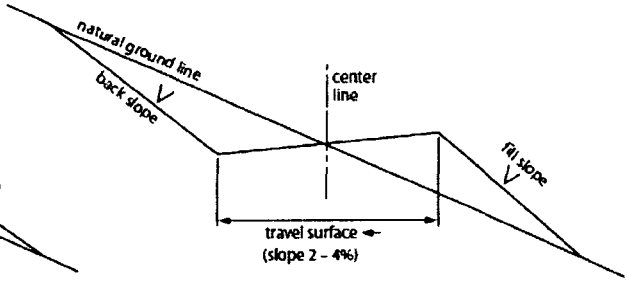


road type	crown
earth surface	.03 - .05 ft/ft
aggregate surface	.02 - .04 ft/ft
paved surface	.02 - .03 ft/ft

Side Hill Section



Typical Outsloped Section



Typical Inslope Section

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

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

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

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

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

B. PIPELINES

C. ELECTRIC LINES

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 1 for Loamy Sites

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

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

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

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

*Pounds of pure live seed:

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

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

30-025-45154

MOTIVE
DRILLING TECHNOLOGIES

Legacy Reserves

Lea County, NM (NAD83)
Lea
Lea Unit #66H

Original Wellbore

Plan: Plan 1

Standard Planning Report

05 March, 2018

LEGACY
RESERVES

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Lea Unit #66H
Company:	Legacy Reserves	**TVD Reference:**	RKB @ 3694.01ft
Project:	Lea County, NM (NAD83)	**MD Reference:**	RKB @ 3694.01ft
Site:	Lea	**North Reference:**	Grid
Well:	Lea Unit #66H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 1		

Project	Lea County, NM (NAD83)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Lea				
Site Position:		**Northing:**	567,587.000 usft	**Latitude:**	32.557609°N
From:	Map	**Easting:**	797,256.100 usft	**Longitude:**	-103.502704
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.45 °

Well	Lea Unit #66H					
Well Position	**+N/-S**	-18.90 ft	**Northing:**	567,568.100 usft	**Latitude:**	32.557602°N
	+E/-W	-2,140.00 ft	**Easting:**	795,116.100 usft	**Longitude:**	-103.509650
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	3,694.01 ft	**Ground Level:**	3,676.01 ft

Wellbore	Original Wellbore				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	3/5/2018	6.75	60.53	48,251

Design	Plan 1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	0.00	0.00	0.00	357.26	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	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	
2,099.28	8.99	356.76	2,096.82	46.84	-2.65	1.50	1.50	0.00	356.76	
3,421.88	8.99	356.76	3,403.18	253.16	-14.35	0.00	0.00	0.00	0.00	
4,021.16	0.00	0.00	4,000.00	300.00	-17.00	1.50	-1.50	0.00	180.00	
10,543.72	0.00	0.00	10,522.56	300.00	-17.00	0.00	0.00	0.00	0.00	
11,298.38	90.56	357.28	11,000.00	781.59	-39.88	12.00	12.00	0.00	357.28	
11,356.12	90.56	357.28	10,999.44	839.26	-42.62	0.00	0.00	0.00	0.00	
18,474.32	90.56	357.28	10,930.00	7,949.12	-380.00	0.00	0.00	0.00	0.00	BHL/LTP-66H

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Lea Unit #66H
Company:	Legacy Reserves	**TVD Reference:**	RKB @ 3694.01ft
Project:	Lea County, NM (NAD83)	**MD Reference:**	RKB @ 3694.01ft
Site:	Lea	**North Reference:**	Grid
Well:	Lea Unit #66H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	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	1.50	356.76	1,599.99	1.31	-0.07	1.31	1.50	1.50	0.00
1,700.00	3.00	356.76	1,699.91	5.23	-0.30	5.23	1.50	1.50	0.00
1,800.00	4.50	356.76	1,799.69	11.76	-0.67	11.77	1.50	1.50	0.00
1,900.00	6.00	356.76	1,899.27	20.89	-1.18	20.92	1.50	1.50	0.00
2,000.00	7.50	356.76	1,998.57	32.63	-1.85	32.68	1.50	1.50	0.00
2,099.28	8.99	356.76	2,096.82	46.84	-2.65	46.91	1.50	1.50	0.00
2,200.00	8.99	356.76	2,196.31	62.55	-3.54	62.65	0.00	0.00	0.00
2,300.00	8.99	356.76	2,295.08	78.15	-4.43	78.27	0.00	0.00	0.00
2,400.00	8.99	356.76	2,393.85	93.75	-5.31	93.90	0.00	0.00	0.00
2,500.00	8.99	356.76	2,492.62	109.35	-6.20	109.52	0.00	0.00	0.00
2,600.00	8.99	356.76	2,591.39	124.95	-7.08	125.15	0.00	0.00	0.00
2,700.00	8.99	356.76	2,690.17	140.55	-7.96	140.77	0.00	0.00	0.00
2,800.00	8.99	356.76	2,788.94	156.15	-8.85	156.39	0.00	0.00	0.00
2,900.00	8.99	356.76	2,887.71	171.75	-9.73	172.02	0.00	0.00	0.00
3,000.00	8.99	356.76	2,986.48	187.35	-10.62	187.64	0.00	0.00	0.00
3,100.00	8.99	356.76	3,085.25	202.95	-11.50	203.27	0.00	0.00	0.00
3,200.00	8.99	356.76	3,184.03	218.55	-12.38	218.89	0.00	0.00	0.00
3,300.00	8.99	356.76	3,282.80	234.15	-13.27	234.51	0.00	0.00	0.00
3,400.00	8.99	356.76	3,381.57	249.75	-14.15	250.14	0.00	0.00	0.00
3,421.88	8.99	356.76	3,403.18	253.16	-14.35	253.56	0.00	0.00	0.00
3,500.00	7.82	356.76	3,480.46	264.56	-14.99	264.97	1.50	-1.50	0.00
3,600.00	6.32	356.76	3,579.70	276.84	-15.69	277.28	1.50	-1.50	0.00
3,700.00	4.82	356.76	3,679.22	286.53	-16.24	286.98	1.50	-1.50	0.00
3,800.00	3.32	356.76	3,778.97	293.61	-16.64	294.07	1.50	-1.50	0.00
3,900.00	1.82	356.76	3,878.87	298.08	-16.89	298.55	1.50	-1.50	0.00
4,000.00	0.32	356.76	3,978.84	299.94	-17.00	300.41	1.50	-1.50	0.00
4,021.16	0.00	0.00	4,000.00	300.00	-17.00	300.47	1.50	-1.50	0.00
4,100.00	0.00	0.00	4,078.84	300.00	-17.00	300.47	0.00	0.00	0.00
4,200.00	0.00	0.00	4,178.84	300.00	-17.00	300.47	0.00	0.00	0.00
4,300.00	0.00	0.00	4,278.84	300.00	-17.00	300.47	0.00	0.00	0.00
4,400.00	0.00	0.00	4,378.84	300.00	-17.00	300.47	0.00	0.00	0.00
4,500.00	0.00	0.00	4,478.84	300.00	-17.00	300.47	0.00	0.00	0.00
4,600.00	0.00	0.00	4,578.84	300.00	-17.00	300.47	0.00	0.00	0.00
4,700.00	0.00	0.00	4,678.84	300.00	-17.00	300.47	0.00	0.00	0.00
4,800.00	0.00	0.00	4,778.84	300.00	-17.00	300.47	0.00	0.00	0.00
4,900.00	0.00	0.00	4,878.84	300.00	-17.00	300.47	0.00	0.00	0.00
5,000.00	0.00	0.00	4,978.84	300.00	-17.00	300.47	0.00	0.00	0.00
5,100.00	0.00	0.00	5,078.84	300.00	-17.00	300.47	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Lea Unit #66H
Company:	Legacy Reserves	**TVD Reference:**	RKB @ 3694.01ft
Project:	Lea County, NM (NAD83)	**MD Reference:**	RKB @ 3694.01ft
Site:	Lea	**North Reference:**	Grid
Well:	Lea Unit #66H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,200.00	0.00	0.00	5,178.84	300.00	-17.00	300.47	0.00	0.00	0.00
5,300.00	0.00	0.00	5,278.84	300.00	-17.00	300.47	0.00	0.00	0.00
5,400.00	0.00	0.00	5,378.84	300.00	-17.00	300.47	0.00	0.00	0.00
5,500.00	0.00	0.00	5,478.84	300.00	-17.00	300.47	0.00	0.00	0.00
5,600.00	0.00	0.00	5,578.84	300.00	-17.00	300.47	0.00	0.00	0.00
5,700.00	0.00	0.00	5,678.84	300.00	-17.00	300.47	0.00	0.00	0.00
5,800.00	0.00	0.00	5,778.84	300.00	-17.00	300.47	0.00	0.00	0.00
5,900.00	0.00	0.00	5,878.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,000.00	0.00	0.00	5,978.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,100.00	0.00	0.00	6,078.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,200.00	0.00	0.00	6,178.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,300.00	0.00	0.00	6,278.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,400.00	0.00	0.00	6,378.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,500.00	0.00	0.00	6,478.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,600.00	0.00	0.00	6,578.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,700.00	0.00	0.00	6,678.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,800.00	0.00	0.00	6,778.84	300.00	-17.00	300.47	0.00	0.00	0.00
6,900.00	0.00	0.00	6,878.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,000.00	0.00	0.00	6,978.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,100.00	0.00	0.00	7,078.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,200.00	0.00	0.00	7,178.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,300.00	0.00	0.00	7,278.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,400.00	0.00	0.00	7,378.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,500.00	0.00	0.00	7,478.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,600.00	0.00	0.00	7,578.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,700.00	0.00	0.00	7,678.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,800.00	0.00	0.00	7,778.84	300.00	-17.00	300.47	0.00	0.00	0.00
7,900.00	0.00	0.00	7,878.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,000.00	0.00	0.00	7,978.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,100.00	0.00	0.00	8,078.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,200.00	0.00	0.00	8,178.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,300.00	0.00	0.00	8,278.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,400.00	0.00	0.00	8,378.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,500.00	0.00	0.00	8,478.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,600.00	0.00	0.00	8,578.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,700.00	0.00	0.00	8,678.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,800.00	0.00	0.00	8,778.84	300.00	-17.00	300.47	0.00	0.00	0.00
8,900.00	0.00	0.00	8,878.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,000.00	0.00	0.00	8,978.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,100.00	0.00	0.00	9,078.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,200.00	0.00	0.00	9,178.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,300.00	0.00	0.00	9,278.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,400.00	0.00	0.00	9,378.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,500.00	0.00	0.00	9,478.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,600.00	0.00	0.00	9,578.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,700.00	0.00	0.00	9,678.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,800.00	0.00	0.00	9,778.84	300.00	-17.00	300.47	0.00	0.00	0.00
9,900.00	0.00	0.00	9,878.84	300.00	-17.00	300.47	0.00	0.00	0.00
10,000.00	0.00	0.00	9,978.84	300.00	-17.00	300.47	0.00	0.00	0.00
10,100.00	0.00	0.00	10,078.84	300.00	-17.00	300.47	0.00	0.00	0.00
10,200.00	0.00	0.00	10,178.84	300.00	-17.00	300.47	0.00	0.00	0.00
10,300.00	0.00	0.00	10,278.84	300.00	-17.00	300.47	0.00	0.00	0.00
10,400.00	0.00	0.00	10,378.85	300.00	-17.00	300.47	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Lea Unit #66H
Company:	Legacy Reserves	**TVD Reference:**	RKB @ 3694.01ft
Project:	Lea County, NM (NAD83)	**MD Reference:**	RKB @ 3694.01ft
Site:	Lea	**North Reference:**	Grid
Well:	Lea Unit #66H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,500.00	0.00	0.00	10,478.85	300.00	-17.00	300.47	0.00	0.00	0.00
10,543.72	0.00	0.00	10,522.56	300.00	-17.00	300.47	0.00	0.00	0.00
10,550.00	0.75	357.28	10,528.84	300.04	-17.00	300.51	12.00	12.00	0.00
10,575.00	3.75	357.28	10,553.82	301.02	-17.05	301.49	12.00	12.00	0.00
10,600.00	6.75	357.28	10,578.71	303.31	-17.16	303.78	12.00	12.00	0.00
10,625.00	9.75	357.28	10,603.45	306.89	-17.33	307.37	12.00	12.00	0.00
10,650.00	12.75	357.28	10,627.97	311.77	-17.56	312.25	12.00	12.00	0.00
10,675.00	15.75	357.28	10,652.20	317.92	-17.85	318.41	12.00	12.00	0.00
10,700.00	18.75	357.28	10,676.07	325.32	-18.20	325.82	12.00	12.00	0.00
10,725.00	21.75	357.28	10,699.52	333.97	-18.61	334.47	12.00	12.00	0.00
10,750.00	24.75	357.28	10,722.49	343.82	-19.08	344.34	12.00	12.00	0.00
10,775.00	27.75	357.28	10,744.91	354.87	-19.61	355.40	12.00	12.00	0.00
10,800.00	30.75	357.28	10,766.71	367.07	-20.19	367.62	12.00	12.00	0.00
10,825.00	33.75	357.28	10,787.85	380.40	-20.82	380.96	12.00	12.00	0.00
10,850.00	36.75	357.28	10,808.27	394.81	-21.50	395.38	12.00	12.00	0.00
10,875.00	39.75	357.28	10,827.90	410.27	-22.24	410.86	12.00	12.00	0.00
10,900.00	42.75	357.28	10,846.69	426.73	-23.02	427.34	12.00	12.00	0.00
10,925.00	45.75	357.28	10,864.59	444.16	-23.85	444.79	12.00	12.00	0.00
10,950.00	48.75	357.28	10,881.56	462.49	-24.72	463.15	12.00	12.00	0.00
10,975.00	51.75	357.28	10,897.54	481.69	-25.63	482.37	12.00	12.00	0.00
11,000.00	54.75	357.28	10,912.50	501.70	-26.58	502.40	12.00	12.00	0.00
11,025.00	57.75	357.28	10,926.38	522.46	-27.57	523.18	12.00	12.00	0.00
11,050.00	60.75	357.28	10,939.16	543.92	-28.59	544.66	12.00	12.00	0.00
11,075.00	63.75	357.28	10,950.80	566.02	-29.64	566.79	12.00	12.00	0.00
11,100.00	66.75	357.28	10,961.26	588.69	-30.72	589.49	12.00	12.00	0.00
11,125.00	69.75	357.28	10,970.53	611.89	-31.82	612.71	12.00	12.00	0.00
11,150.00	72.75	357.28	10,978.56	635.53	-32.94	636.38	12.00	12.00	0.00
11,175.00	75.75	357.28	10,985.34	659.56	-34.08	660.44	12.00	12.00	0.00
11,200.00	78.75	357.28	10,990.86	683.92	-35.24	684.82	12.00	12.00	0.00
11,212.43	80.25	357.28	10,993.12	696.13	-35.82	697.04	12.00	12.00	0.00
FTP-66H									
11,225.00	81.75	357.28	10,995.09	708.53	-36.41	709.46	12.00	12.00	0.00
11,250.00	84.75	357.28	10,998.03	733.32	-37.59	734.28	12.00	12.00	0.00
11,275.00	87.75	357.28	10,999.66	758.24	-38.77	759.22	12.00	12.00	0.00
11,298.38	90.56	357.28	11,000.00	781.59	-39.88	782.60	12.00	12.00	0.00
11,300.00	90.56	357.28	10,999.99	783.20	-39.96	784.22	0.00	0.00	0.00
11,356.12	90.56	357.28	10,999.44	839.26	-42.62	840.34	0.00	0.00	0.00
11,400.00	90.56	357.28	10,999.01	883.09	-44.70	884.21	0.00	0.00	0.00
11,500.00	90.56	357.28	10,998.03	982.97	-49.45	984.21	0.00	0.00	0.00
11,600.00	90.56	357.28	10,997.06	1,082.85	-54.19	1,084.20	0.00	0.00	0.00
11,700.00	90.56	357.28	10,996.08	1,182.73	-58.94	1,184.20	0.00	0.00	0.00
11,800.00	90.56	357.28	10,995.10	1,282.62	-63.68	1,284.19	0.00	0.00	0.00
11,900.00	90.56	357.28	10,994.12	1,382.50	-68.43	1,384.19	0.00	0.00	0.00
12,000.00	90.56	357.28	10,993.15	1,482.38	-73.17	1,484.18	0.00	0.00	0.00
12,100.00	90.56	357.28	10,992.17	1,582.26	-77.92	1,584.18	0.00	0.00	0.00
12,200.00	90.56	357.28	10,991.19	1,682.15	-82.66	1,684.18	0.00	0.00	0.00
12,300.00	90.56	357.28	10,990.21	1,782.03	-87.41	1,784.17	0.00	0.00	0.00
12,400.00	90.56	357.28	10,989.24	1,881.91	-92.15	1,884.17	0.00	0.00	0.00
12,500.00	90.56	357.28	10,988.26	1,981.79	-96.90	1,984.16	0.00	0.00	0.00
12,600.00	90.56	357.28	10,987.28	2,081.68	-101.64	2,084.16	0.00	0.00	0.00
12,700.00	90.56	357.28	10,986.30	2,181.56	-106.39	2,184.15	0.00	0.00	0.00
12,800.00	90.56	357.28	10,985.33	2,281.44	-111.13	2,284.15	0.00	0.00	0.00
12,900.00	90.56	357.28	10,984.35	2,381.33	-115.88	2,384.14	0.00	0.00	0.00
13,000.00	90.56	357.28	10,983.37	2,481.21	-120.62	2,484.14	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Lea Unit #66H
Company:	Legacy Reserves	**TVD Reference:**	RKB @ 3694.01ft
Project:	Lea County, NM (NAD83)	**MD Reference:**	RKB @ 3694.01ft
Site:	Lea	**North Reference:**	Grid
Well:	Lea Unit #66H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,100.00	90.56	357.28	10,982.40	2,581.09	-125.37	2,584.13	0.00	0.00	0.00
13,200.00	90.56	357.28	10,981.42	2,680.97	-130.12	2,684.13	0.00	0.00	0.00
13,300.00	90.56	357.28	10,980.44	2,780.86	-134.86	2,784.12	0.00	0.00	0.00
13,400.00	90.56	357.28	10,979.46	2,880.74	-139.61	2,884.12	0.00	0.00	0.00
13,500.00	90.56	357.28	10,978.49	2,980.62	-144.35	2,984.11	0.00	0.00	0.00
13,600.00	90.56	357.28	10,977.51	3,080.50	-149.10	3,084.11	0.00	0.00	0.00
13,700.00	90.56	357.28	10,976.53	3,180.39	-153.84	3,184.10	0.00	0.00	0.00
13,800.00	90.56	357.28	10,975.55	3,280.27	-158.59	3,284.10	0.00	0.00	0.00
13,900.00	90.56	357.28	10,974.58	3,380.15	-163.33	3,384.09	0.00	0.00	0.00
14,000.00	90.56	357.28	10,973.60	3,480.03	-168.08	3,484.09	0.00	0.00	0.00
14,100.00	90.56	357.28	10,972.62	3,579.92	-172.82	3,584.08	0.00	0.00	0.00
14,200.00	90.56	357.28	10,971.64	3,679.80	-177.57	3,684.08	0.00	0.00	0.00
14,300.00	90.56	357.28	10,970.67	3,779.68	-182.31	3,784.08	0.00	0.00	0.00
14,400.00	90.56	357.28	10,969.69	3,879.56	-187.06	3,884.07	0.00	0.00	0.00
14,500.00	90.56	357.28	10,968.71	3,979.45	-191.80	3,984.07	0.00	0.00	0.00
14,600.00	90.56	357.28	10,967.73	4,079.33	-196.55	4,084.06	0.00	0.00	0.00
14,700.00	90.56	357.28	10,966.76	4,179.21	-201.29	4,184.06	0.00	0.00	0.00
14,800.00	90.56	357.28	10,965.78	4,279.09	-206.04	4,284.05	0.00	0.00	0.00
14,900.00	90.56	357.28	10,964.80	4,378.98	-210.79	4,384.05	0.00	0.00	0.00
15,000.00	90.56	357.28	10,963.83	4,478.86	-215.53	4,484.04	0.00	0.00	0.00
15,100.00	90.56	357.28	10,962.85	4,578.74	-220.28	4,584.04	0.00	0.00	0.00
15,200.00	90.56	357.28	10,961.87	4,678.62	-225.02	4,684.03	0.00	0.00	0.00
15,300.00	90.56	357.28	10,960.89	4,778.51	-229.77	4,784.03	0.00	0.00	0.00
15,400.00	90.56	357.28	10,959.92	4,878.39	-234.51	4,884.02	0.00	0.00	0.00
15,500.00	90.56	357.28	10,958.94	4,978.27	-239.26	4,984.02	0.00	0.00	0.00
15,600.00	90.56	357.28	10,957.96	5,078.15	-244.00	5,084.01	0.00	0.00	0.00
15,700.00	90.56	357.28	10,956.98	5,178.04	-248.75	5,184.01	0.00	0.00	0.00
15,800.00	90.56	357.28	10,956.01	5,277.92	-253.49	5,284.00	0.00	0.00	0.00
15,900.00	90.56	357.28	10,955.03	5,377.80	-258.24	5,384.00	0.00	0.00	0.00
16,000.00	90.56	357.28	10,954.05	5,477.68	-262.98	5,483.99	0.00	0.00	0.00
16,100.00	90.56	357.28	10,953.07	5,577.57	-267.73	5,583.99	0.00	0.00	0.00
16,200.00	90.56	357.28	10,952.10	5,677.45	-272.47	5,683.98	0.00	0.00	0.00
16,300.00	90.56	357.28	10,951.12	5,777.33	-277.22	5,783.98	0.00	0.00	0.00
16,400.00	90.56	357.28	10,950.14	5,877.21	-281.96	5,883.97	0.00	0.00	0.00
16,500.00	90.56	357.28	10,949.16	5,977.10	-286.71	5,983.97	0.00	0.00	0.00
16,600.00	90.56	357.28	10,948.19	6,076.98	-291.45	6,083.97	0.00	0.00	0.00
16,700.00	90.56	357.28	10,947.21	6,176.86	-296.20	6,183.96	0.00	0.00	0.00
16,800.00	90.56	357.28	10,946.23	6,276.75	-300.95	6,283.96	0.00	0.00	0.00
16,900.00	90.56	357.28	10,945.26	6,376.63	-305.69	6,383.95	0.00	0.00	0.00
17,000.00	90.56	357.28	10,944.28	6,476.51	-310.44	6,483.95	0.00	0.00	0.00
17,100.00	90.56	357.28	10,943.30	6,576.39	-315.18	6,583.94	0.00	0.00	0.00
17,200.00	90.56	357.28	10,942.32	6,676.28	-319.93	6,683.94	0.00	0.00	0.00
17,300.00	90.56	357.28	10,941.35	6,776.16	-324.67	6,783.93	0.00	0.00	0.00
17,400.00	90.56	357.28	10,940.37	6,876.04	-329.42	6,883.93	0.00	0.00	0.00
17,500.00	90.56	357.28	10,939.39	6,975.92	-334.16	6,983.92	0.00	0.00	0.00
17,600.00	90.56	357.28	10,938.41	7,075.81	-338.91	7,083.92	0.00	0.00	0.00
17,700.00	90.56	357.28	10,937.44	7,175.69	-343.65	7,183.91	0.00	0.00	0.00
17,800.00	90.56	357.28	10,936.46	7,275.57	-348.40	7,283.91	0.00	0.00	0.00
17,900.00	90.56	357.28	10,935.48	7,375.45	-353.14	7,383.90	0.00	0.00	0.00
18,000.00	90.56	357.28	10,934.50	7,475.34	-357.89	7,483.90	0.00	0.00	0.00
18,100.00	90.56	357.28	10,933.53	7,575.22	-362.63	7,583.89	0.00	0.00	0.00
18,200.00	90.56	357.28	10,932.55	7,675.10	-367.38	7,683.89	0.00	0.00	0.00
18,300.00	90.56	357.28	10,931.57	7,774.98	-372.12	7,783.88	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Lea Unit #66H
Company:	Legacy Reserves	**TVD Reference:**	RKB @ 3694.01ft
Project:	Lea County, NM (NAD83)	**MD Reference:**	RKB @ 3694.01ft
Site:	Lea	**North Reference:**	Grid
Well:	Lea Unit #66H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,400.00	90.56	357.28	10,930.59	7,874.87	-376.87	7,883.88	0.00	0.00	0.00
18,474.32	90.56	357.28	10,930.00	7,949.12	-380.00	7,958.19	0.00	0.00	0.00
BHL/LTP-66H									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL/LTP-66H - plan hits target center - Point	0.00	0.00	10,930.00	7,949.12	-380.00	575,517.200	794,736.100	32.579458°N	-103.510683
FTP-66H - plan misses target center by 1.13ft at 11212.43ft MD (10993.12 TVD, 696.13 N, -35.82 E) - Point	0.00	0.00	10,993.00	696.20	-34.70	568,264.300	795,081.400	32.559517°N	-103.509745

DRILLING PLAN

LEA UNIT 66H

LEGACY RESERVES OPERATING LP

SHL: UL J, Section 24

BHL: UL B, Section 13

T20S-R34E, Lea County, New Mexico

To satisfy requirements of Onshore Oil and Gas Order No. 1, Legacy Reserves Operating LP submits the following for your consideration:

1. ***Location:*** SHL: 2270' FSL & 1380' FEL, Sec. 24, T20S-R34E (First Take: 2310' FNL & 1410' FEL, Sec. 24)
   BHL: 330' FNL & 1700' FEL, Sec. 13, T20S-R34E (Last Take Point)

2. ***Elevations:*** 3,676' GL

3. ***Geological Name of Surface Formation:*** Quaternary alluvium deposits

4. ***Drilling Tools and Associated Equipment:*** Rotary drilling rig using fluid as a means for removal of solid cuttings from the well.

5. ***Proposed Drilling Depth:***
   Horizontal: 18,500' MD 10,980' TVD

6. ***Estimated Tops of Geological Markers:***

Rustler	1,680'	Delaware	5,666'
Top Salt	1,720'	Bone Spring Lime	8,205'
Bottom Salt	3,150'	Avalon	8,760'
Top of Capitan Reef	3,150'	1st Bone Spring	9,500'
Capitan Reef Bottom	4,710'	2nd Bone Spring	10,000'
San Andres	4,710'	3rd Bone Spring	10,900'

7. ***Possible mineral bearing formations:***
   Primary: Bone Spring (oil); Secondary: Delaware (oil), Avalon (oil), fresh water (~125')

8. ***Proposed Mud System:***

Depth	Mud Wt.	Visc	Fluid Loss	Type Mud
0' to 1800'	8.4-8.9	30-32	NC	Fresh water gel spud mud
1800' to 5600'	9.8-10	28-29	NC	Brine water
5600' to 10,500'	8.4-8.6	28-29	NC	Fresh water/brine, use hi-viscosity
10,500' to 18,500'	8.9-9.1	28-29	18-20	Fresh water/brine

*Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. A Pason PVT system will be rigged up prior to spudding this well. A volume monitoring system that measures, calculates and displays readings from the mud system on the rig to alert the rig crew of impending gas kicks and lost circulation. In order to effectively run open hole logs and casing, the mud viscosity and fluid loss properties may be adjusted

9. ***Proposed Drilling Plan:***

Set surface and intermediate casing and cement to surface. Drill 8-3/4" to ~10,500', Kick off and drill 8-3/4" hole to TD of ~18,500'. Set 5-1/2" casing from surface to TD (~ 18,500'). Cement 5-1/2" production casing back to surface.

10. ***Casing Information:***

String	Hole size	Depth	Casing OD	Collar	Weight	Grade
Surface	17-1/2"	1800' MD	New 13-3/8"	STC	54.5#	J-55
Intermediate	12-1/4"	3901' MD	New 9-5/8"	LTC	40#	J-55
Intermediate	12-1/4"	5600' MD	New 9-5/8"	LTC	40#	HCK-55
Production	8-3/4"	18,500' MD	New 5-1/2"	BTC	20#	P-110

13-3/8", J-55:		9-5/8", J-55	
Collapse Factor:	1.42	Collapse Factor:	1.25
Burst Factor:	3.86	Burst Factor:	1.41
Tension Factor:	2.59	Tension Factor:	1.6

9-5/8", HCK-55		5-1/2", P-110	
Collapse Factor:	1.45	Collapse Factor:	1.94
Burst Factor:	1.27	Burst Factor:	1.25
Tension Factor:	4.23	Tension Factor:	1.6

11. ***Cementing Information:***

Surface Casing (75% excess on lead & 75% excess on tail to design for cement top at surface):

Lead: 1100 sxs class C cement + 4% bwoc bentonite II + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.005% bwoc Static Free + 0.005 gps FP-6L (13.50 ppg, 1.93 cfps, 9.71 gps wtr).

Tail: 200 sxs class C cement + 1.5% bwoc Calcium Chloride + 0.005 lbs/sack Static Free + 0.005 gps FP-6L (14.80 ppg, 1.34 cfps, 6.35 gps wtr).

Intermediate Casing

In the event that circulation is lost (> 50%) while drilling the 12-1/4" intermediate hole in the Capitan Reef at +/-4000', we will plan to install a DV tool and external casing packer within 200' of the top depth where lost circulation occurred and will pump a two-stage cement job with the potential to add an additional DV tool for a three-stage cement job. If there is no lost circulation a single stage cementing procedure will be followed. Legacy plans to cement to surface regardless of whether a single stage, 2-stage or 3-stage procedure is implemented.

No DV tool ***(80% excess on lead & 80% excess on tail to design for cement top at surface)***

Lead: 1400 sx (35:65) poz (fly ash) class C cement+ 4% bwoc bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL- 52 + 5 lbs/sack LCM-1 + 0.125 lbs/sk cello flake+ 0.005 lbs/sk defoamer + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride (12.5 ppg, 2.13 cfps, 8.81 gps wtr)
Tail: 200 sx class C cement (14.80 *ppg*, 1.33 cfps, 6.35 *gps* wtr)

With (1) DV Tool ***(100% excess on lead & 100% excess on tail to design for cement top at surface)***

Assuming DV tool set at 3950' but if the setting depth changes, cement volumes will be adjusted proportionately.

Stage 1

Lead: 400 sx (35:65) paz (fly ash) class C cement+ 4% bwoc Bentonite II+ 5% bwoc MPA-5 + 0,25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sk cello flake+ 0.005 lbs/sk defoamer + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride (12.5 ppg, 2.13 cfps, 8.81 gps wtr)
Tail: 200 sx class C cement (14.80 ppg, 1.33 cfps, 6.35 gps wtr)

Stage 2

Lead: 1100 sx (35:65) paz (fly ash) class C cement+ 4% bwoc bentonite II + 5% bwoc MPA-5 + 0,25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sk Cello Flake+ 0.005 lbs/sk Static Free+ 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride (12.5 ppg, 2.13 cfps, 8.81 gps wtr)
Tail: 200 sx class C cement (14.80 ppg, 1.33 cfps, 6.35 gps wtr)

With (2) DV Tools ***(100% excess on lead & 100% excess on tail to design for cement top at surface)***

Assuming one DV tool set at 3950' and one DV tool set at 1800' but if the setting depths change, cement volumes will be adjusted proportionately.

Stage 1

Lead: 400 sx (35:65) paz (fly ash) class C cement+ 4% bwoc Bentonite II+ 5% bwoc MPA-5 + 0,25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sk cello flake+ 0.005 lbs/sk defoamer + 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride (12.5 ppg, 2.13 cfps, 8.81 gps wtr)
Tail: 200 sx class C cement (14.80 ppg, 1.33 cfps, 6.35 gps wtr)

Stage 2

Lead: 600 sx (35:65) paz (fly ash) class C cement+ 4% bwoc bentonite II + 5% bwoc MPA-5 + 0,25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sk Cello Flake+ 0.005 lbs/sk Static Free+ 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride (12.5 ppg, 2.13 cfps, 8.81 gps wtr)
Tail: 200 sx class C cement (14.80 ppg, 1.33 cfps, 6.35 gps wtr)

Stage 3

Lead: 600 sx (35:65) paz (fly ash) class C cement+ 4% bwoc bentonite II + 5% bwoc MPA-5 + 0,25% bwoc FL-52 + 5 lbs/sack LCM-1 + 0.125 lbs/sk Cello Flake+ 0.005 lbs/sk Static Free+ 0.005 gps FP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride (12.5 ppg, 2.13 cfps, 8.81 gps wtr)
Tail: 200 sx class C cement (14.80 ppg, 1.33 cfps, 6.35 gps wtr)

Production Casing (80% excess on lead & 20% excess on tail to design for cement top at surface):

Lead: 1500 sxs (50:50) poz (fly ash) class H cement + 10% bwoc bentonite II + 5% bwow sodium chloride + 5 pps LCM-1 + 0.005 lbs/sk Static Free + 0.005 gps FP-6L (11.90 ppg, 2.47 cf/sx, 13.85 gps wtr).

Tail: 1600 sxs Class H (15:61:11) poz (fly ash): class H cement: CSE-2 + 4% bwow sodium chloride + 3 pps LCM-1 + 0.6% bwoc FL-25 + 0.005 gps FP-6L + 0.005% bwoc Static Free (12.60 ppg, 1.62 cf/sx, 8.62 gps wtr).

12. ***Pressure Control Eqpt/BOP:***

Legacy Reserves plans to use a 13-5/8" 5000-psi working pressure BOP system consisting of a double ram BOP with one ram being pipe and one ram being blind, a 5000-psi annular type preventer, a 5000-psi choke manifold and 80 gallon accumulator with floor, five remote operating stations and an auxiliary power system. A rotating head will be utilized as needed. A drill string safety valve in the open position will be available on the rig floor. A mud gas separator will be available for use if needed.

A 3M BOP will be used to drill from the surface casing shoe (~1800') to the intermediate casing shoe (~5600'). The BOP will be a 5M system, however the "A" section wellhead will be a 3M wellhead (see attached BOP Diagram and Wellhead Schematic).

The BOP unit will be hydraulically operated. The BOP will be operated at least once per day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling.

The BOPs will be tested by an independent service company to 250 psi low and 5000 psi high.

13. ***Testing, Logging, and Coring Program:***

A. Mud logging program: 2 man unit from approximately after setting intermediate casing.

B. No open hole logs, DST's or cores are planned.

14. ***Potential Hazards***

No abnormal pressures or temperatures are expected during the drilling of this well. If H2S is encountered the operator will comply with provisions of Onshore Order 6. Since there will be an H2S Safety package on location, attached is an "H2S Drilling Operations Plan". Adequate flare lines will be installed on the mud/gas separator so gas may be flared safely. All personnel will be familiar with all aspects of safe operations of equipment being used. Lost circulation may occur and a cement contingency plan is included in this plan along with mud materials to be kept on location at all times in order to combat lost circulation or unexpected kicks. Estimated BHP: 4620 psi, estimated BHT: 162°F.

15. ***Road and Location***

Road and location construction will begin after BLM approval of the APD. Drilling is expected to take 20-25 days and an additional 10 days for the completion.

16. ***Additional Requirements of Project:***

Completion: The targeted Bone Spring pay zone will be perforated and stimulated in multiple stages using acid and hydraulic fracturing treatments. Fresh water used in the drilling and completion of this well will be transferred from off-site via temporary flowlines and stored in frac tanks on the location.

LEGACY RESERVES OPERATING, L. P.
HYDROGEN SULFIDE (H2S) CONTINGENCY PLAN
LEA UNIT 66H
Assumed 100 ppm ROE = 3000'

100 ppm H2S concentration shall trigger activation of this plan.

This is an open drilling site. H_2S monitoring equipment and emergency response equipment will be rigged up and in use when the company drills out from under surface casing. H_2S monitors, warning signs, wind indicators and flags will be in use.

A. All personnel shall receive proper H2S training in accordance with Onshore Order 6 III.C.3.a

B. Briefing Area: Two perpendicular areas will be designated by signs and readily accessible.

C. Required Emergency Equipment:

- Well control equipment
  a. Flare line 150' from wellhead to be ignited by flare gun.
  b. Choke manifold with a remotely operated choke.
  c. Mud/Gas Separator.

- Protective Equipment for essential personnel.
  Breathing apparatus:
  a. Rescue Packs (SCBA) – 1 unit shall be placed at each briefing area. 2 units shall be stored in the safety trailer.
  b. Work/Escape packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
  c. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

  Auxiliary Rescue Equipment:
  a. Stretcher
  b. Two OSHA full body harness
  c. 100 ft. 5/8" OSHA approved rope
  d. One 20# class ABC fire extinguisher

- H2S detection and monitoring Equipment:
  The stationary detector with three sensors will be placed in the upper doghouse, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor, Bell nipple, end of flare line or where well bore fluid is being discharged (Gas sample tubes will be stored in the safety trailer).

- Visual warning systems.
  a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
  b. A colored condition flag will be on display, reflecting the current condition, at the drilling site.
  c. Two wind socks will be placed in strategic locations being visible from all angles.

- Mud Program:
  The mud program has been designated to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.

- Metallurgy:
  a. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, shall be suitable for H2S service.
  b. All elastomers used for packing and seals shall be H2S trim.

- Communication:
  Communication will be via two way radio in emergency and company vehicles. Cell phones and land lines where available.

H_2S Operations

Though no H_2S is anticipated during the drilling operation, this contingency plan will provide for methods to ensure the well is kept under control in the event an H_2S reading of 100 ppm or more are encountered. Once personnel are safe and the proper protective gear is in place and on personnel, the operator and rig crew essential personnel will ensure the well is under control, suspend drilling operations and shut-in the well (unless pressure build up or other operational situations dictate suspending operations will prevent well control), increase the mud weight and circulate all gas from the hole utilizing the mud/gas separator downstream of the choke, the choke manifold and the emergency flare system located 150' from the well. Bring the mud system into compliance and the H_2S level below 10 ppm, then notify all emergency officers that drilling ahead is practical and safe.

Proceed with drilling ahead only after all provisions of Onshore Order 6, Section III.C. have been satisfied.

Ignition of Gas source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the

NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever this is an ignition of the gas.

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = I	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = I	2 ppm	N/A	1000 ppm

Contacting Authorities

Legacy Reserves Operating's personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Legacy's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

Emergency Assistance Telephone List

PUBLIC SAFETY:	***911 or***
Lea County Sheriff or Police	**(575) 396-3611**
Fire Department	**(575) 397-9308**
Hospital	**(575) 492-5000**
Ambulance	**911**
Department of Public Safety	**(392) 392-5588**
Oil Conservation Division	**(575) 748-1823**
New Mexico Energy, Minerals & Natural Resources Department	**(575) 748-1283**

LEGACY RESERVES OPERATING LP	
Legacy Reserves Operating LP	**Office: (432) 689-5200**
Drilling Manager:	**Office: (432) 689-5200**
Dan Breeding	**Cell: (432) 853-1680**
Drilling Engineer:	**Office: (432) 689-5200**
Matt Dickson	**Cell: (432) 212-5698**
Operations Manager:	**Office: (432) 689-5200**
Gregg Skelton	

Legacy Company Representative: **Cell: (432) 631-8469**

DRILLING CONTRACTOR-McVAY

Tool Pusher:
Olin Vaught **Cell: (575) 631-7799**

Drilling Manager: **Office: (575) 397-3311**
Michael McVay **Cell: (575) 602-1839**

LEGACY SAFETY ***Hobbs (575) 393-7233***

EHS Coordinator:
Field Operations Manager: **Office: (432) 689-5200**
Randy Williams **Cell: (432) 260-5566**

Field Safety Technician: **Office: (432) 689-5200**
Randy Turner **Cell: (432) 536-6473**

Evacuee Description:
Residents: THERE ARE NO RESIDENTS WITHIN 3000' ROE.

H2S Briefing Areas and Alarm Locations