

Form 3160-3
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM0053434
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator LEGACY RESERVES OPERATING LP [240974]		8. Lease Name and Well No. LEA UNIT [302802] 68H
3a. Address	3b. Phone No. (include area code)	9. API Well No. 30-025-49499
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface SWSW / 235 FSL / 815 FWL / LAT 32.5810036 / LONG -103.5196813 At proposed prod. zone SENW / 2541 FNL / 1360 FWL / LAT 32.558885 / LONG -103.5179117		10. Field and Pool, or Exploratory LEA/BONE SPRING XXX [37570]
14. Distance in miles and direction from nearest town or post office* 15 miles		11. Sec., T, R, M. or Blk. and Survey or Area SEC 12/T20S/R34E/NMP
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	12. County or Parish LEA
235 feet	640.0	13. State NM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 33 feet	19. Proposed Depth 11000 feet / 18727 feet	17. Spacing Unit dedicated to this well 640.0
20. BLM/BIA Bond No. in file FED: NMB001300	21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3655 feet	22. Approximate date work will start* 11/18/2019
23. Estimated duration 45 days	24. Attachments	

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

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 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). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) LUKE GRONEMEYER / Ph: (432) 689-5287	Date 09/19/2019
Title Wildlife Specialist/Permitting Specialist		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575) 234-5959	Date 04/15/2020
Title Assistant Field Manager Lands & Minerals		
Office Carlsbad Field 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.

NGMP Rec 10/26/2021

SL

(Continued on page 2)

KZ
11/01/2021

*(Instructions on page 2)

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 1: 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 well, 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 directionally 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 well 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 will 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 collects this information to allow 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 Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

0. SHL: SWSW / 235 FSL / 815 FWL / TWSP: 20S / RANGE: 34E / SECTION: 12 / LAT: 32.5810036 / LONG: -103.5196813 (TVD: 0 feet, MD: 0 feet)
PPP: NENW / 0 FNL / 1362 FWL / TWSP: 20S / RANGE: 34E / SECTION: 24 / LAT: 32.565853 / LONG: -103.517912 (TVD: 10955 feet, MD: 16200 feet)
PPP: SENW / 1321 FNL / 1366 FWL / TWSP: 20S / RANGE: 34E / SECTION: 13 / LAT: 32.569486 / LONG: -103.517912 (TVD: 10932 feet, MD: 14900 feet)
PPP: NESW / 2637 FNL / 1367 FWL / TWSP: 20S / RANGE: 34E / SECTION: 13 / LAT: 32.573113 / LONG: -103.517913 (TVD: 10907 feet, MD: 13500 feet)
PPP: NENW / 104 FNL / 1367 FWL / TWSP: 20S / RANGE: 34E / SECTION: 13 / LAT: 32.58008 / LONG: -103.517911 (TVD: 10864 feet, MD: 11152 feet)
BHL: SENW / 2541 FNL / 1360 FWL / TWSP: 20S / RANGE: 34E / SECTION: 24 / LAT: 32.558885 / LONG: -103.5179117 (TVD: 11000 feet, MD: 18727 feet)

BLM Point of Contact

Name: TENILLE ORTIZ
Title: Legal Instruments Examiner
Phone: (575) 234-2224
Email: tortiz@blm.gov

CONFIDENTIAL

Review and Appeal Rights

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

CONFIDENTIAL

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) 746-1283 Fax: (575) 746-0720

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone: (505) 334-6170 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. Frances 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

API Number 30-025-49499	Pool Code 37570	Pool Name LEA;BONE SPRING
Property Code 302802	Property Name LEA UNIT	Well Number 68H
OGRID No. 240974	Operator Name LEGACY RESERVES OPERATING LP	Elevation 3655'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	12	20 S	34 E		235	SOUTH	815	WEST	LEA

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
F	24	20 S	34 E		2,541'	NORTH	1,360'	WEST	LEA

Dedicated Acres 240	Joint or Infill	Consolidation Code	Order No.
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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

NOTE:
1) Plane Coordinates shown hereon are Transverse Mercator Grid and Conform to the "New Mexico Coordinate System", New Mexico East Zone, North American Datum of 1983. Distances shown hereon are mean horizontal grid values.

SURFACE LOCATION
Plane Coordinate (NAD '83)
Y = 576,058.14
X = 791,960.04
Geodetic Coordinate (NAD '83)
Latitude = 32.58100366° N
Longitude = 103.51968134° W

FIRST TAKE POINT LOCATION
Plane Coordinate (NAD '83)
Y = 575,727.98
X = 792,507.63
Geodetic Coordinate (NAD '83)
Latitude = 32.58008471° N
Longitude = 103.51791194° W

LAST TAKE POINT LOCATION & BOTTOM HOLE LOCATION
Plane Coordinate (NAD '83)
Y = 568,015.20
X = 792,566.79
Geodetic Coordinate (NAD '83)
Latitude = 32.55888509° N
Longitude = 103.51791173° W

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.

[Signature] **28-AUG-19**
Signature Date

DAN L. BREEDING
Printed Name

[Email]
E-mail Address

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.

July 31, 2019
Date of Survey SC

[Signature]
Signature & Seal of Professional Surveyor

LINDSAY GYGAX
PROFESSIONAL W.D. Num. 2019-0417

Certificate No. Lindsay Gygax 23263

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

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

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description Effective May 25, 2021

I. Operator: Legacy Reserves Operating LP **OGRID:** 240974 **Date:** 07 / 20 / 2021

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Lea Unit #68H	N/A	M-12-T20S-R34E	235 FSL & 815 FWL	800	1,000	1,200
30-025-49499						

IV. Central Delivery Point Name: Lea Unit CTB Battery [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Lea Unit #68H	N/A	9/1/2021	9/18/2021	10/15/2021	10/25/2021	10/25/2021
30-025-49499						

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☐ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

If Operator checks this box, Operator will select one of the following:

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

Section 4 - Notices

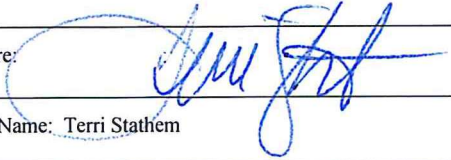
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: 
Printed Name: Terri Stathem
Title: Regulatory Compliance
E-mail Address: tstathem@legacyreserves.com
Date: 7/20/2021
Phone: (432) 221-6332

OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)

Approved By:
Title:
Approval Date:
Conditions of Approval:

Legacy Reserves Operating LP**Lea Unit # 68H****VI. Separation Equipment**

How Operator will size separation equipment to optimize gas capture:

All Legacy Reserves production facility equipment will be sized per industry standards (API 12J) with adequate retention time to effectively separate all phases of production. Each project will take into consideration the number of wells and type curves for each formation pool to ensure adequate facility capacity. Design considerations will also include review of all piping, tanks, VRU's and associated equipment to ensure optimized gas capture minimized risk of release.

VII. Operational Practices

Actions Operator will take to comply with the requirements below:

B. Drilling Operations

- During drilling, flare stacks will be located a minimum of 100 feet from the nearest surface hole location. All gas is captured or combusted. If an emergency or malfunction occurs, gas will be flared or vented for public health, safety, and the environment and be properly reported to the NMOCD pursuant to 19.15.27.8.G.
- Measure or estimate the volume of natural gas that is vented, flared or beneficially used during drilling, completion and production operations, regardless of the reason or authorization for such venting or flaring.

C. Completion Operations

- During completion operations, operator does not produce oil or gas but maintains adequate well control through completion operations.
- Individual well test separators will be set to properly separate gas and liquids. A temporary test separator will be utilized initially to process volumes. In addition, separators will be tied into flow back tanks which will be tied into the gas processing equipment for sales down a pipeline.

D. Venting and Flaring during Production Operations

- During each phase of well life (drilling, completion and production) of a Legacy Reserves well, Legacy personnel will follow all necessary procedures to ensure both the operation and the equipment are within the NMAC 19.15.27.8 Subsection D guidelines.
- During well operations that require unloading of the well to atmospheric pressure, all reasonable actions will be taken to minimize vented gas
- Through the life of the well all flaring shall be measured, and venting events quantified using the data available and industry best practice.

E. Performance Standards for Separation, Storage Tank and Flare Equipment

- All storage tanks and separation equipment are designed to minimize risk of liquid or vapor release and optimize gas capture. This includes automation for automatic gauging and pressure monitoring.
- All flare stacks are equipped with auto ignition devices and/or continuous pilots and are designed to operate at maximum combustion efficiency pursuant NMAC 19.15.27.8 Subsection E. Flares will follow Legacy spacing guidelines to ensure they are a safe distance from combustibles and operations equipment.
- Legacy personnel will conduct routine AVO inspections on a regular basis per NMAC 19.15.27.8 Subsection E guidelines.

F. Measurement of Vented and Flared Natural Gas

- Measurement equipment will be installed to quantify gas flared during drilling, completion and production of the well.
- All measurement devices installed will meet accuracy ratings per AGA and API standards.
- Measurement devices will be installed without manifolds that allow diversion of gas around the metering element, except for the sole purpose of inspection of servicing the measurement device.

VIII. Best Management Practices

- Operator will curtail or shut in production, within reasonable limits, during upset conditions to minimize venting and flaring.
- When feasible, Operator will use equipment to capture gas that would otherwise be vented or flared.
- During completions and production operations, Operator will minimize blowdowns to atmosphere.
- When feasible, Operator will use electric or air actuated equipment to reduce bleed emissions.



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

Application Data Report

10/19/2021

APD ID: 10400047352

Submission Date: 09/19/2019

Highlighted data
reflects the most
recent changes

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: LEA UNIT

Well Number: 68H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400047352

Tie to previous NOS? N

Submission Date: 09/19/2019

BLM Office: Carlsbad

User: LUKE GRONEMEYER

Title: Wildlife Specialist/Permitting
Specialist

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM0053434

Lease Acres:

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? Y

Permitting Agent? YES

APD Operator: LEGACY RESERVES OPERATING LP

Operator letter of designation:

Authorization_Letter_for_Reagan_Smith_Lea_Unit_68H_20190912082211.pdf

Operator Info

Operator Organization Name: LEGACY RESERVES OPERATING LP

Operator Address: 303 West Wall St., Ste 1800

Zip: 79701

Operator PO Box:

Operator City: Midland

State: TX

Operator Phone: (432)689-5287

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING

Master Development Plan name: Lea Unit Master Dev Plan

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: LEA UNIT

Well Number: 68H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: LEA

Pool Name: BONE SPRING
(OIL)

Operator Name: LEGACY RESERVES OPERATING LP**Well Name:** LEA UNIT**Well Number:** 68H**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?** Y **New surface disturbance?** N**Type of Well Pad:** MULTIPLE WELL**Multiple Well Pad Name:** LEA UNIT**Number:** 65H**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:** 15 Miles**Distance to nearest well:** 33 FT**Distance to lease line:** 235 FT**Reservoir well spacing assigned acres Measurement:** 640 Acres**Well plat:** Lea_Unit_68H_Location_Verification_Map_08_21_19_20190912090819.pdf

Lea_Unit_68H_SIGNED_20190919082735.pdf

ALP_Lea_Unit_68H_20190919133246.pdf

Well work start Date: 11/18/2019**Duration:** 45 DAYS**Section 3 - Well Location Table****Survey Type:** RECTANGULAR**Describe Survey Type:****Datum:** NAD83**Vertical Datum:** NAVD88**Survey number:****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	235	FSL	815	FW L	20S	34E	12	Aliquot SWS W	32.5810036	- 103.5196813	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 02127B	3655	0	0	N
KOP Leg #1	299	FSL	1369	FW L	20S	34E	12	Aliquot SESW	32.580992	- 103.517914	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 02127B	- 6732	10410	10387	N

Operator Name: LEGACY RESERVES OPERATING LP**Well Name:** LEA UNIT**Well Number:** 68H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twp	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	104	FNL	1367	FW L	20S	34E	13	Aliquot NENW	32.58008	-103.517911	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 053434	-7209	11152	10864	Y
PPP Leg #1-2	2637	FNL	1367	FW L	20S	34E	13	Aliquot NESW	32.573113	-103.517913	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 03085	-7252	13500	10907	Y
PPP Leg #1-3	1321	FNL	1366	FW L	20S	34E	13	Aliquot SENW	32.569486	-103.517912	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 053434	-7277	14900	10932	Y
PPP Leg #1-4	0	FNL	1362	FW L	20S	34E	24	Aliquot NENW	32.565853	-103.517912	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 01747	-7300	16200	10955	Y
EXIT Leg #1	2541	FNL	1360	FW L	20S	34E	24	Aliquot SENW	32.558885	-103.5179117	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 01747	-7345	18727	11000	Y
BHL Leg #1	2541	FNL	1360	FW L	20S	34E	24	Aliquot SENW	32.558885	-103.5179117	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 01747	-7345	18727	11000	Y



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

Drilling Plan Data Report

10/19/2021

APD ID: 10400047352

Submission Date: 09/19/2019

Highlighted data
reflects the most
recent changes

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: LEA UNIT

Well Number: 68H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
536524	MANZANITA	3655	0	0	GRANITE	USEABLE WATER	N
536525	RUSTLER	1975	1680	1680	LIMESTONE	USEABLE WATER	N
536526	TOP SALT	1935	1720	1720	ANHYDRITE, DOLOMITE, SALT, SANDSTONE	USEABLE WATER	N
536518	BOTTOM SALT	364	3291	3296	SALT	USEABLE WATER	N
536517	CAPITAN REEF	-269	3924	3931	LIMESTONE	USEABLE WATER	N
536520	QUEEN	-1072	4727	4737	DOLOMITE, SANDSTONE	USEABLE WATER	N
536519	LAMAR	-1939	5594	5608	LIMESTONE	USEABLE WATER	N
536521	BELL CANYON	-2064	5719	5733	LIMESTONE	USEABLE WATER	N
536522	CHERRY CANYON	-2817	6472	6489	SANDSTONE	USEABLE WATER	N
536523	BRUSHY CANYON	-3438	7093	7112	SANDSTONE	USEABLE WATER	N
536527	BONE SPRING	-4541	8196	8219	SANDSTONE, SHALE	NATURAL GAS, OIL	N
536528	AVALON SAND	-5125	8780	8804	SANDSTONE	NATURAL GAS, OIL	N
536529	BONE SPRING 1ST	-5803	9458	9482	SANDSTONE	NATURAL GAS, OIL	N
536530	BONE SPRING 2ND	-6365	10020	10044	SANDSTONE	NATURAL GAS, OIL	N
536531	BONE SPRING 3RD	-6845	10500	10525	SANDSTONE	NATURAL GAS, OIL	N
536532	BONE SPRING 3RD	-7175	10830	10993	SHALE	NATURAL GAS, OIL	Y
536533	WOLFCAMP	-7335	10990	18200	SHALE	NATURAL GAS, OIL	Y

Operator Name: LEGACY RESERVES OPERATING LP**Well Name:** LEA UNIT**Well Number:** 68H**Section 2 - Blowout Prevention****Pressure Rating (PSI):** 5M**Rating Depth:** 11000

Equipment: Legacy Reserves plans to use a 13-5/8 5,000-psi working pressure BOP system consisting of a double ram BOP with one ram being pipe and one ram being blind, a 5,000-psi annular type preventer, a 5,000-psi choke manifold and 80 gallon accumulator with rig floor and five remote operating stations and an auxiliary power system. A rotating head will be utilized below the surface interval. A drill string safety valve in the open position will be available on the rig floor. 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. A mud gas separator will be available on location, for use if needed.

Requesting Variance? NO**Variance request:****Testing Procedure:** The BOPs will be tested by an independent service company to 250 psi low and 5000 psi high.**Choke Diagram Attachment:**

5M_Choke_Manifold_Diagram_20190912133539.pdf

BOP Diagram Attachment:

5M_BOP_Diagram_20190912133448.pdf

5M_Cameron_Wellhead_Conventional_3_String_20190912133515.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	SURFACE	17.5	13.375	NEW	API	N	0	1800	0	1800	3655	1855	1800	J-55	54.5	ST&C	1.43	3.86	DRY	2.59	DRY	2.59
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4000	0	3993	3655	-338	4000	J-55	40	LT&C	1.25	1.98	DRY	1.6	DRY	1.6
3	INTERMEDIATE	12.25	9.625	NEW	API	N	4000	5600	3993	5587	-338	-1932	1600	HCK-55	40	LT&C	1.31	1.41	DRY	3.42	DRY	3.42
4	PRODUCTION	8.5	5.5	NEW	API	N	0	18727	0	11000		-7345	18727	P-110	20	BUTT	1.94	1.25	DRY	1.6	DRY	1.6

Casing Attachments

Operator Name: LEGACY RESERVES OPERATING LP**Well Name:** LEA UNIT**Well Number:** 68H**Casing Attachments**

Casing ID: 1 **String Type:** SURFACE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Lea_Unit_68H_Surface_Casing_Design_20190916090256.docx

Lea_Unit_68H_Drilling_Plan_20190919104116.docx

Casing ID: 2 **String Type:** INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Lea_Unit_68H_Intermediate_Casing_Design_20190916090353.docx

Casing ID: 3 **String Type:** INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Lea_Unit_68H_Intermediate_Casing_Design_20190919090840.docx

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: LEA UNIT

Well Number: 68H

Casing Attachments

Casing ID: 4 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Lea_Unit_68H_Production_Casing_Design_20190916090141.docx

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1600	1300	1.72	13.5	2236	100	Class C Cement	4% bwoc bentonite + 0.4 pps defoamer + 0.125 pps cellophane
SURFACE	Tail		1550	1800	200	1.32	14.8	264	100	Class C Neat	none
INTERMEDIATE	Lead		0	5500	1700	1.94	12.6	3298	80	poz (fly ash) Class C Cement	6% bwoc bentonite + 0.5% bwoc fluidloss + 0.15% bwoc retarder + 0.4 pps defoamer
INTERMEDIATE	Tail		5500	5600	200	1.18	15.6	236	80	Class H Cement	none
INTERMEDIATE	Lead		0	5500	1700	1.94	12.6	3298	80	poz (fly ash) Class C Cement	6% bwoc bentonite + 0.5% bwoc fluidloss + 0.15% bwoc retarder + 0.4 pps defoamer
INTERMEDIATE	Tail		5500	5600	200	1.18	15.6	236	80	Class H cement	none
PRODUCTION	Lead		0	7750	1300	2.47	11.9	3211	80	(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
PRODUCTION	Tail		7750	18727	1600	1.62	12.6	2592	20	Class H (15:61:11) poz (fly ash) CSE-2	+ 4% bwow sodium chloride + 3 pps LCM-1 + 0.6% bwoc FL-25 +

Operator Name: LEGACY RESERVES OPERATING LP**Well Name:** LEA UNIT**Well Number:** 68H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											0.005 gps FP-6L + 0.005% bwoc Static Free

Section 5 - Circulating Medium

Mud System Type: Closed**Will an air or gas system be Used?** NO**Description of the equipment for the circulating system in accordance with Onshore Order #2:****Diagram of the equipment for the circulating system in accordance with Onshore Order #2:**

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. An electronic 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 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.

Describe the mud monitoring system utilized: Mud logging program: 2 man unit from approximately 5600, after setting intermediate I casing. 6 vertical pilot hole to be drilled, with planned coring interval of ~10,000 TVD to ~11,000 TVD. Open-hole wireline logs will be ran after pilot-hole TD is reached at ~12,300 MD. In order to effectively run casing, the mud viscosity and fluid loss properties may be adjusted.

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
5587	10915	OTHER : Fresh Water / Brine Water	8.8	9.5							
10377	18727	OTHER : Brine Water	9	9.5							
1800	5587	OTHER : Brine water	10	10.2							
0	1800	SPUD MUD	8.4	9.2							

Operator Name: LEGACY RESERVES OPERATING LP**Well Name:** LEA UNIT**Well Number:** 68H

Section 6 - Test, Logging, Coring

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

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

Open-hole wireline logs will be ran after pilot-hole TD is reached at ~12,300 MD.

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

MUD LOG/GEOLOGIC LITHOLOGY LOG, OTHER,

Other log type(s):

Open-hole wireline logs will be ran after pilot-hole TD is reached at ~12,300 MD. 6 vertical pilot hole to be drilled, with planned coring interval of ~11,000 TVD to ~12,000 TVD.

Coring operation description for the well:

6 vertical pilot hole to be drilled, with planned coring interval of ~11,000 TVD to ~12,000 TVD.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5834**Anticipated Surface Pressure:** 3418**Anticipated Bottom Hole Temperature(F):** 192**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** YES**Describe:**

Lost circulation.

Contingency Plans geohazards description:

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.

Contingency Plans geohazards attachment:**Hydrogen Sulfide drilling operations plan required?** YES**Hydrogen sulfide drilling operations plan:**

H2S_Briefing_Areas_and_Alarm_Locations_20190916090805.pdf

H2S_Contingency_Plan_20190916090818.docx

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: LEA UNIT

Well Number: 68H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Lea_Unit_68H_STK_Planning_Report_Plan_1_20190916091024.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Lea_Unit_68H_STK_AC_Report_Plan_1_20190916091055.pdf

Lea_Unit_68H_STK_Plot_Plan_1_20190916091103.pdf

Other Variance attachment:

Flex_Hose_Specs_20190916091131.pdf

Surface Casing

Size	Grade	#/ft	Collapse	Burst (Internal Yield)	Tensile	Coupling	Length	Dry Weight	Mud Weight
13.375"	J-55	54.5	1130 psi	2730 psi	514 kips	STC	1800'	98.1 kip	8.5 ppg

Collapse: $DF_C = 1.25$

Base Assumptions

- Complete internal evacuation of the casing, utilizing a collapse force equivalent to the mud gradient (0.44 psi/ft) in which the casing will be ran.
- Cementing operations in which, utilizes a collapse force equivalent to the gradient of the planned cement slurry (0.77 psi/ft) and an internal force equivalent to the fresh water displacement fluid (0.433 psi/ft).

Collapse Calculations: Collapse Rating / Collapse Force

Complete Evacuation:

$$1,130\text{psi} / [(0.44\text{psi/ft})(1,800')] = \mathbf{1.43}$$

Cementing Operations:

$$1,130\text{psi} / [(0.77\text{psi/ft} - 0.433\text{psi/ft})(1800')] = \mathbf{1.86}$$

Burst: $DF_B = 1.25$

Base Assumption

- Casing pressure test as per Onshore Oil and Gas Order No. 2 (0.22 psi/ft or 1500 psi), utilizing an external force equivalent to the mud gradient (0.44 psi/ft) in which the casing will be ran.

Burst Calculations: Internal Yield Rating / Internal Force

Casing Pressure Test:

$$2,730\text{psi} / [(1500\text{psi}) - (0.44\text{psi/ft})(1,800')] = \mathbf{3.86}$$

Tensile: $DF_T = 1.6$

Base Assumption

- A force of 100,000 lb. overpull is applied at the base of the casing along with the weight and not considering the effects of buoyancy.

Tensile Calculations: Joint Strength / Axial Load

Overpull:

$$514\text{ kips} / (100,000\text{ lbs.} + 98,100\text{ lbs.}) = \mathbf{2.59}$$

Intermediate Casing

Size	Grade	#/ft	Collapse	Burst (Internal Yield)	Tensile	Coupling	Length	Dry Weight	Mud Weight
9.625"	J-55	40	2570 psi	3950 psi	520 kips	LTC	4000'	160 kip	10.0 ppg
9.625"	HCK-55	40	3810 psi	3950 psi	561 kips	LTC	1600'	64 kip	10.0 ppg

Collapse: $DF_C = 1.25$

Base Assumptions

- Complete internal evacuation of the casing, utilizing a collapse force equivalent to the mud gradient (0.52 psi/ft) in which the casing will be ran.
- Cementing operations in which, utilizes a collapse force equivalent to the gradient of the planned cement slurry (0.77 psi/ft) and an internal back-up force equivalent to the fresh water displacement fluid (0.433 psi/ft).

Collapse Calculations: Collapse Rating / Collapse Force

Complete Evacuation:

J-55: $2570\text{psi} / [(0.52\text{psi/ft})(4,000')] = \mathbf{1.25}$

HCK-55: $3810\text{psi} / [(0.52\text{psi/ft})(5,600')] = \mathbf{1.31}$

Cementing Operations:

J-55: $2570\text{psi} / [(0.77\text{psi/ft} - 0.433\text{psi/ft})(4000')] = \mathbf{1.91}$

HCK-55: $3810\text{psi} / [(0.77\text{psi/ft} - 0.433\text{psi/ft})(5600')] = \mathbf{2.02}$

Burst: $DF_B = 1.25$

Base Assumption

- Casing pressure test as per Onshore Oil and Gas Order No. 2 (0.22 psi/ft or 1500 psi), utilizing an internal force equivalent to the displacement fluid of 8.6 ppg and external force equivalent to 8.4 ppg.
- Gas kick at the casing shoe, in which a 0.7 psi/ft shoe test is assumed, and 0.2 psi/ft gas gradient is assumed.

Burst Calculations: Internal Yield Rating / Burst Force

Casing Pressure Test:

J-55: $3950\text{psi} / [(1500\text{psi} + 1789\text{psi}) - (1747\text{psi})] = \mathbf{2.56}$

HCK-55: $3950\text{psi} / [(1500\text{psi} + 2504\text{psi}) - (2446\text{psi})] = \mathbf{2.54}$

Gas Kick:

J-55: $3950\text{psi} / [(0.7\text{psi/ft})(4000') - (0.2\text{psi/ft})(4000')] = \mathbf{1.98}$

HCK-55: $3950\text{psi} / [(0.7\text{psi/ft})(5600') - (0.2\text{psi/ft})(5600')] = \mathbf{1.41}$

Tensile: $DF_T = 1.6$

Base Assumption

- A force of 100,000 lb. overpull is applied at the base of the casing along with the weight of the string and not considering the effects of buoyancy.

Tensile Calculations: Joint Strength / Axial Load

Overpull:

J-55: $520\text{ kips} / (100,000\text{ lbs.} + 224,00\text{ lbs.}) = \mathbf{1.6}$

HCK-55: $561\text{ kips} / (100,000\text{ lbs.} + 64,100\text{ lbs.}) = \mathbf{3.42}$

Production Casing

Size	Grade	#/ft	Collapse	Burst (Internal Yield)	Tensile	Coupling	Length	Dry Weight	Mud Weight
5.5"	P-110	20	11080 psi	12360 psi	641 kips	BTC	18,727'	375,000 lb	9.1 ppg

Collapse: $DF_C = 1.25$

Base Assumptions

- Cementing operations in which utilizes a collapse force equivalent to the gradient of the planned cement slurry (0.77 psi/ft) and an internal back-up force equivalent to the fresh water displacement fluid (0.433 psi/ft).
- Production operations in which the pipe is completely evacuated with an external force equivalent to the pore pressure gradient (0.52 psi/ft).

Collapse Calculations: Collapse Rating / Collapse Force

Cementing Operations:

$$11,080 \text{ psi} / [(0.66 \text{ psi/ft} - 0.433 \text{ psi/ft})(11,000' \text{ TVD})] = \mathbf{4.43}$$

Production Operations:

$$11,080 \text{ psi} / (11,000' \text{ TVD})(0.52 \text{ psi/ft}) = \mathbf{1.94}$$

Burst: $DF_B = 1.25$

Base Assumption

- Frac pressure utilizing an internal force of 9500 psi along with a frac fluid gradient equivalent to 0.468 psi/ft and an external force equal to the minimum fluid gradient (0.433 psi/ft) in which the casing will be ran.
- Production operations in which the casing is completely filled with a gas equivalent gradient of 0.2 psi/ft and an external force equivalent to pore pressure of 0.5 psi/ft.

Burst Calculations: Internal Yield Rating / Burst Force

Frac Pressure:

$$12,360 \text{ psi} / [(9500 \text{ psi}) + (0.468 - 0.433 \text{ psi/ft})(11,000' \text{ TVD})] = \mathbf{1.25}$$

Production Operations:

$$12,360 \text{ psi} / [(0.5 \text{ psi/ft} - 0.2 \text{ psi/ft})(11,000' \text{ TVD})] = \mathbf{3.75}$$

Tensile: $DF_T = 1.6$

Base Assumption

- A force of 100,000 lb. overpull is applied at the base of the casing along with the weight of the string and considering the effects of buoyancy (factor =0.86).

Tensile Calculations: Joint Strength / Axial Load

Overpull:

$$641,000 \text{ lbs} / [(100,000 \text{ lbs.}) + (375,000 \text{ lbs.})(0.86)] = \mathbf{1.6}$$

DRILLING PLAN
LEA UNIT 68H
 LEGACY RESERVES OPERATING
 SHL: UL M, Section 12
 BHL: UL F, Section 24
 T20S-R34E, Lea County, New Mexico
Matt Dickson – Drilling Engineer

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

1. **Location:** SHL: 235' FSL & 815' FWL, Sec. 12, T20S-R34E (First Take: 100' FNL & 1360' FWL, Sec. 13)
 BHL: 2541' FNL & 1360' FWL, Sec. 24, T20S-R34E (Last Take Point)

2. **Elevations:** 3,655' 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:**

Pilot-Hole : +/- 12,250' MD 12,250' TVD
 Horizontal: +/- 18,730' MD 11,000' TVD

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

Rustler	1,680'	Upper Avalon Shale	8,780'
Top Salt	1,720'	1 st Bone Spring	9,458'
Bottom Salt	3,291'	2 nd Bone Spring	10,020'
Top of Capitan Reef	3,924'	3 rd Bone Spring Carb	10,500'
Capitan Reef Bottom	4,710'	3 rd Bone Spring Shale	10,830'
Queen	4,727'	Wolfcamp	10,990'
Lamar	5,594'	Strawn	12,042'
Bell Canyon	5,719'	Pilot Hole TD	12,250'
Cherry Canyon	6,472'		
Brushy Canyon	7,093'		
Bone Spring	8,196'		

7. **Possible mineral bearing formations:**

Primary: Bone Spring (oil) Secondary: Wolfcamp (oil & gas); Delaware (oil), Avalon (oil), fresh water (~125')

8. **Proposed Mud System:**

Depth	Mud Wt.	Visc	Type Mud
0' - 1800'	8.4-9.2	28-40	Fresh Water/Spud Mud
1800' - 5600'	10.0-10.2	28-30	Brine Water
5600' - 12,250'	8.8-9.5	28-30	Fresh Water/Brine (Pilot-Hole)
10,400' - 18,727'	9.0 -9.5	28-30	Fresh Water/Brine

(Curve/Lateral)

*Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. An electronic 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 8-1/2" pilot hole to ~12,250' and run open-hole wireline logs through the Wolfcamp interval. Pump a cement isolation plug to the top of the Wolfcamp and spot a "kick-off" cement plug. Kick-off at approximately 10,410' MD and drill 8-1/2" hole to TD of ~18,727' MD. Set 5-1/2" production casing at TD (~18,727'). Cement 5-1/2" production casing back to surface.

10. **Casing & Cementing Information:**

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 I	12-1/4"	4000' MD	New 9-5/8"	LTC	40#	J-55
Intermediate II	12-1/4"	5600' MD	New 9-5/8"	LTC	40#	HCK-
55						
Production Liner	8-1/2"	18,727' MD	New 5-1/2"	BTC	20	P-110

13-3/8", 54.5#, J-55:

Collapse Factor:	1.43
Burst Factor:	3.86
Tension Factor:	2.59

9-5/8", 40#, J-55

Collapse Factor:	1.25
Burst Factor:	1.98
Tension Factor:	1.60

9-5/8", 40#, HCK-55

Collapse Factor:	1.31
Burst Factor:	1.41
Tension Factor:	3.42

5-1/2", 20#, P-110

Collapse Factor: 1.94
 Burst Factor: 1.25
 Tension Factor: 1.60

Cementing Information

Surface Casing (0 - 1,800': 13-3/8", 54.5#, J-55)

Lead: 1300 sxs class C cement + 4% bwoc bentonite + 0.4 pps defoamer + 0.125 pps cellophane
 (13.50 ppg, 1.72 cfps, 9.10 gps wtr)

Tail: 200 sxs class C Neat
 (14.80 ppg, 1.32 cfps, 6.30 gps wtr)

Intermediate I Casing (0 - 5,600': 9-5/8", 40#, J-55 / HCK-55)

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: 1700 sx (35:65) poz (fly ash) Class C cement+ 6% bwoc bentonite + 0.5% bwoc fluidloss + 0.15% bwoc retarder + 0.4 pps defoamer
 (12.6 ppg, 1.94 cfps, 10.54 gps wtr)

Tail: 200 sx Class H cement
 (15.6 ppg, 1.18 cfps, 5.22 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: 1700 sx (35:65) poz (fly ash) Class C cement+ 6% bwoc bentonite + 0.5% bwoc fluidloss + 0.15% bwoc retarder + 0.4 pps defoamer
 (12.6 ppg, 1.94 cfps, 10.54 gps wtr)

Tail: 200 sx class H cement
 (15.6 ppg, 1.18 cfps, 5.22 gps wtr)

***Stage 2**

Lead: 1200 sx (35:65) poz (fly ash) Class C cement+ 6% bwoc bentonite + 0.5% bwoc fluidloss + 0.15% bwoc retarder + 0.4 pps defoamer
(12.6 ppg, 1.94 cfps, 10.54 gps wtr)

Tail: 200 sx class H cement
(15.6 ppg, 1.18 cfps, 5.22 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 ~1900' but if the setting depths change, cement volumes will be adjusted proportionately.

***Stage 1**

Lead: 1700 sx (35:65) poz (fly ash) Class C cement+ 6% bwoc bentonite + 0.5% bwoc fluidloss + 0.15% bwoc Retarder + 0.4 pps defoamer
(12.6 ppg, 1.94 cfps, 10.54 gps wtr)

Tail: 200 sx class H cement
(15.6 ppg, 1.18 cfps, 5.22 gps wtr)

***Stage 2**

Lead: 1200 sx (35:65) poz (fly ash) Class C cement+ 6% bwoc bentonite + 0.5% bwoc fluidloss + 0.15% bwoc Retarder + 0.4 pps defoamer
(12.6 ppg, 1.94 cfps, 10.54 gps wtr)

Tail: 200 sx class H cement
(15.6 ppg, 1.18 cfps, 5.22 gps wtr)

***Stage 3**

Tail: 700 sxs class C Neat
(14.80 ppg, 1.32 cfps, 6.30 gps wtr)

Isolation Plug (12,250' – 11,000': 8-1/2" OH)

500 sx class H cement + 0.3% bwoc retarder
(15.6 ppg, 1.18 cfps, 5.22 gps wtr)

Kick-off Plug (11,000' – 10,200': 8-1/2" OH)

600 sx class H cement + 0.2% bwoc retarder + 0.5% bwoc dispersant
(17.5 ppg, 0.94 cfps, 3.36 gps wtr)

Production Casing (0' – 18,727': 5-1/2", 20#, P-110)

80% OH excess on lead & 20% OH excess on tail to design for cement top at surface

Lead: 1300 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)

11. Pressure Control Eqpt/BOP: $(9.5\text{ppg}_{\text{max mud weight}})(12,250' \text{ TVD})(.052) - (0.22\text{psi/ft})(12,250' \text{ TVD}) = \underline{\underline{3,357 \text{ psi}}}$

Legacy Reserves plans to use a 13-5/8" 5,000-psi working pressure BOP system consisting of a double ram BOP with one ram being pipe and one ram being blind, a 5,000-psi annular type preventer, a 5,000-psi choke manifold and 80 gallon accumulator with rig floor and five remote operating stations and an auxiliary power system. A rotating head will be utilized below the surface interval. A drill string safety valve in the open position will be available on the rig floor. 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. A mud gas separator will be available on location, for use if needed.

12. Testing, Logging, and Coring Program:

- A. Mud logging program: 2 man unit from approximately 5600', after setting intermediate I casing.
- B. 8-1/2" vertical pilot hole to be drilled to 12,250' MD.
- C. Open-hole wireline logs will be ran after pilot-hole TD is reached at **~12,250' MD.**

13. 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 Contingency 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.

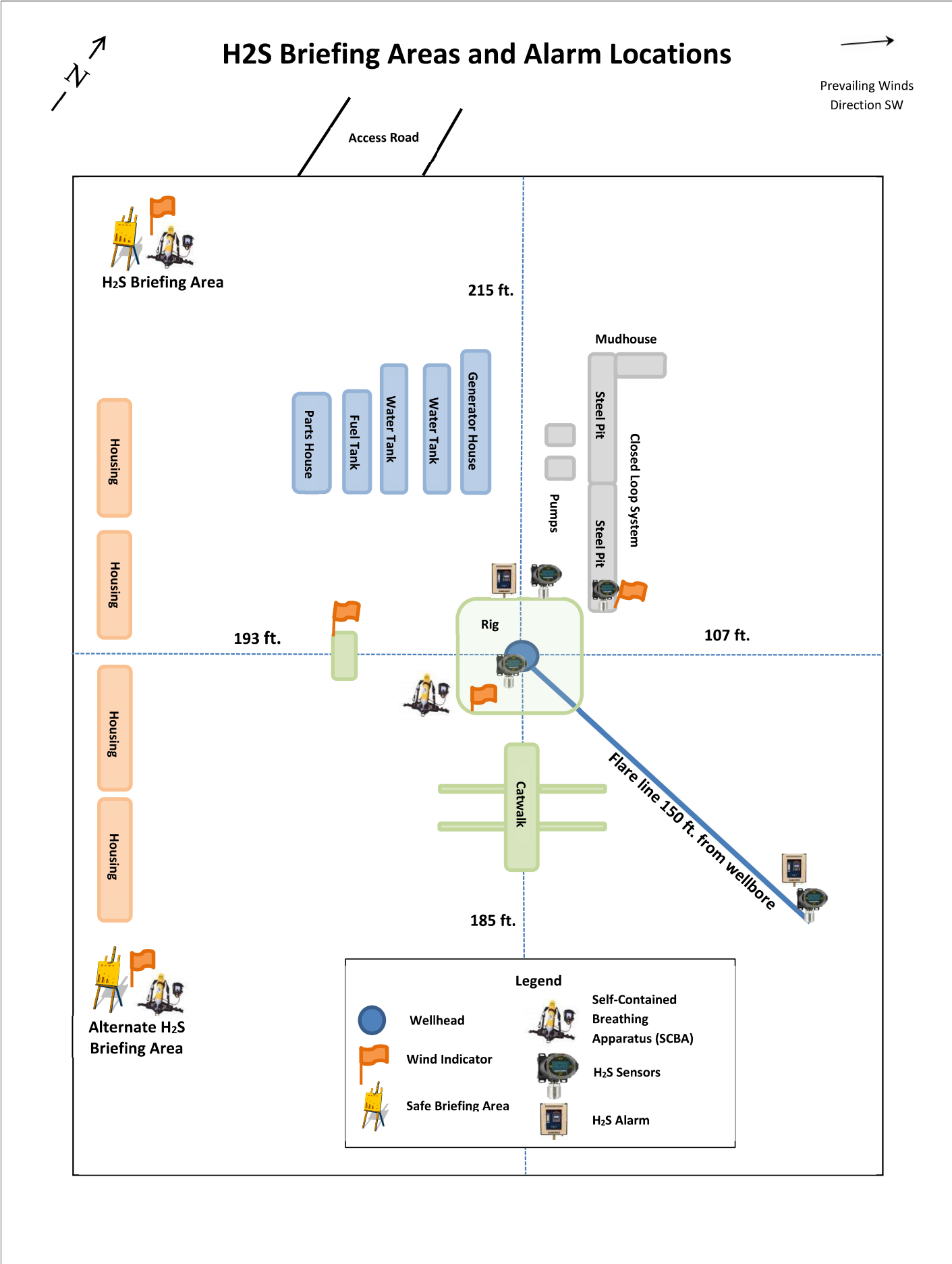
Estimated BHP: 5733 psi, estimated BHT: 192°F.

14. Road and Location:

Additional road and location construction will not be required for this well. The existing road and location for the Lea Unit #65H will be used for this well. Drilling is expected to take 30-35 days and an additional 10 days for the completion.

15. 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.





Internal Hydrostatic Test Graph

February 19, 2017

Customer: Hobbs

Pick Ticket #: 384842

Hose Specifications		Verification	
Hose Type	Length	Type of Fitting	Coupling Method
D	20'	4.175 SC	Swage
I.D.	O.D.	Bolt Size	Final O.D.
3.5"	5.03"	5.67"	5.55"
Working Pressure	Burst Pressure	Hose Serial #	Hose Assembly Serial #
5000 PSI	Standard Safety Factor: 4:1 (per)	10958	384842



Test Pressure: 5000 PSI
Time Held at Test Pressure: 20.274 Minutes

Actual Burst Pressure:

Peak Pressure: 7383 PSI

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

Tested By: Richard Evans

Approved By: Chris Ash



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Certificate

General Information		Hose Specifications	
Customer	HOBBS	Hose Assembly Type	Rotary/Vibrator
MWH Sales Representative	CHARLES ASH	Certification	API 7K/FSL LEVEL2
Date Assembled	2/19/2017	Hose Grade	D
Location Assembled	OKC	Hose Working Pressure	5000
Sales Order #	318810	Hose Lot # and Date Code	10958-08/13
Customer Purchase Order #	356945	Hose I.D. (Inches)	3.5"
Assembly Serial # (Pick Ticket #)	384842	Hose O.D. (Inches)	5.45"
Hose Assembly Length	20FT	Armor (yes/no)	NO
Fittings			
End A		End B	
Stem (Part and Revision #)	R3.5X64WB	Stem (Part and Revision #)	R3.5X64WB
Stem (Heat #)	13105653	Stem (Heat #)	13105653
Ferrule (Part and Revision #)	RF3.5X5330	Ferrule (Part and Revision #)	RF3.5X5330
Ferrule (Heat #)	34038185	Ferrule (Heat #)	3403818
Connection . Flange Hammer Union Part	4-1/16 5K	Connection (Part #)	4-1/16 5K
Connection (Heat #)		Connection (Heat #)	
Nut (Part #)		Nut (Part #)	
Nut (Heat #)		Nut (Heat #)	
Dies Used	5.62"	Dies Used	5.53"
Hydrostatic Test Requirements			
Test Pressure (psi)	7,500	Hose assembly was tested with ambient water temperature.	
Test Pressure Hold Time (minutes)	10 1/2		
Date Tested	Tested By	Approved By	
2/19/2017	<i>Richard Dier</i>	<i>Charles Ash</i>	

MHSI-008 Rev. 0.0 Proprietary



Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer: HOBBS	Customer P.O.# 356945
Sales Order # 318810	Date Assembled: 2/19/2017

Specifications

Hose Assembly Type: Rotary/Vibrator	Rig #
Assembly Serial # 384842	Hose Lot # and Date Code 10958-08/13
Hose Working Pressure (psi) 5000	Test Pressure (psi) 7500
Hose Assembly Description:	TRH56D-645KH-645KH-20.00' FT

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

Supplier:

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

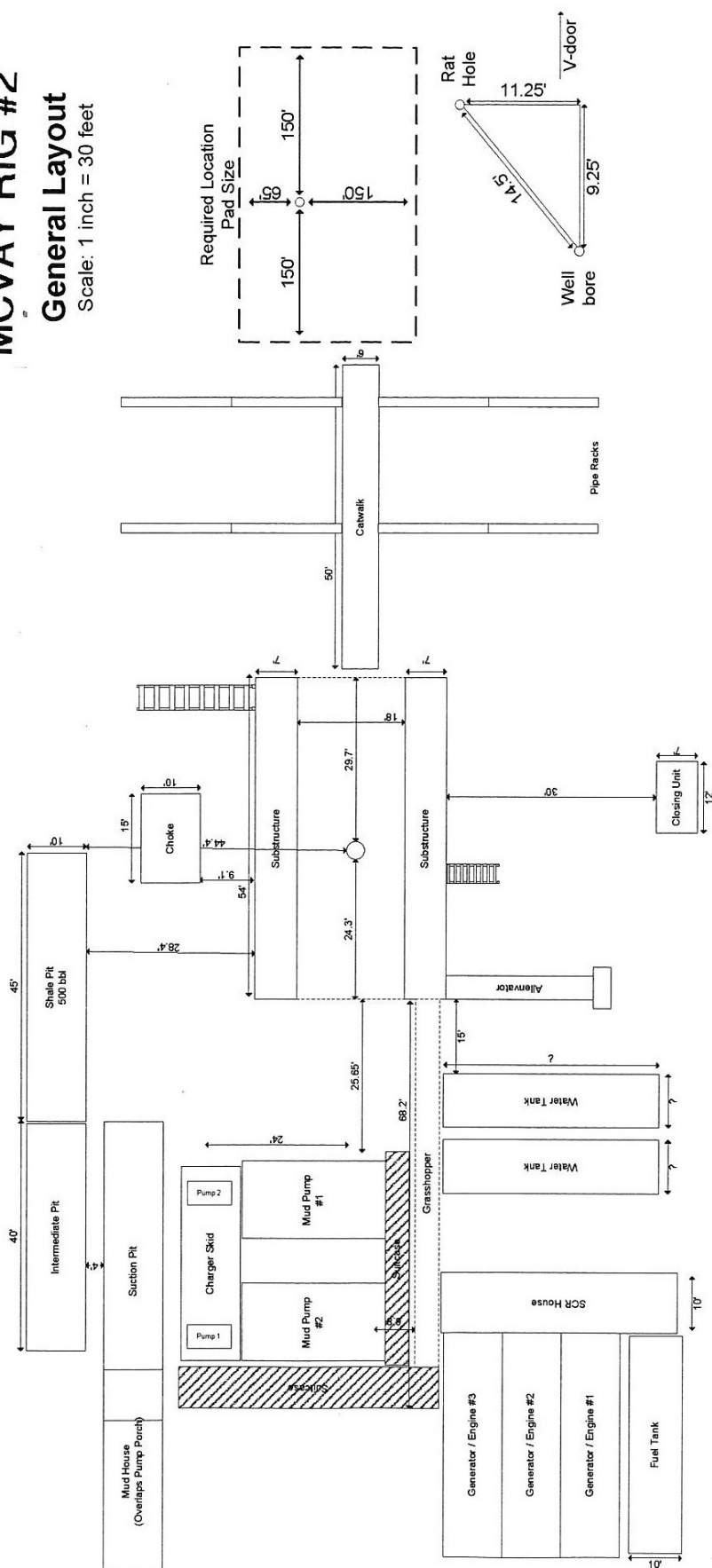
Comments:

Approved By	Date
<i>Charles Ash</i>	2/20/2017

MHSI-009 Rev.0.0 Proprietary

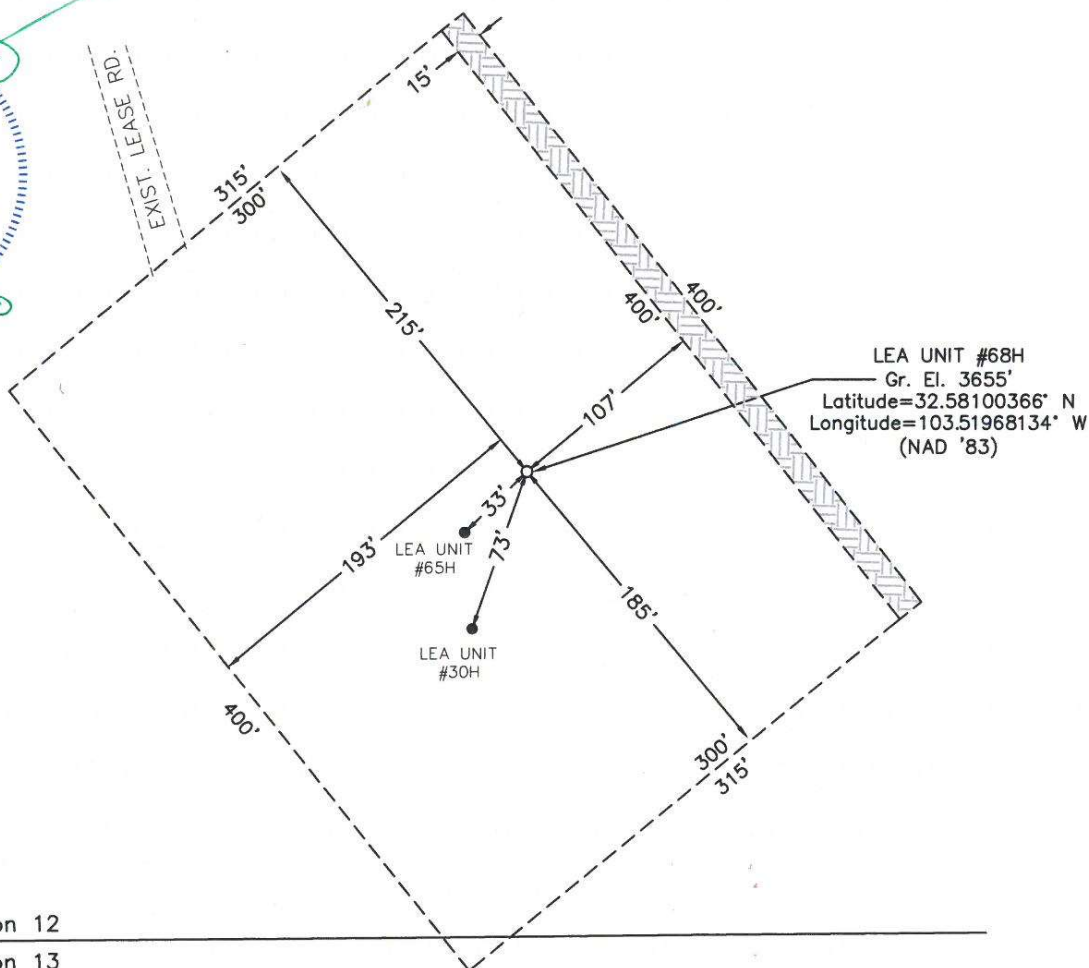
MCVAY RIG #2**General Layout**

Scale: 1 inch = 30 feet



SECTION 12, TOWNSHIP 20 SOUTH, RANGE 34 EAST, N.M.P.M. LEA COUNTY NEW MEXICO

2019-0417



Section 12

Section 13

DRIVING DIRECTIONS

FROM THE INTERSECTION OF STATE HIGHWAY 18 AND U.S. HIGHWAY 62-180 IN HOBBS, NEW MEXICO, GO WEST AND SOUTHWEST ON U.S. HIGHWAY 62-180 23.6 MILES TO MARATHON ROAD / CO. RD. 27-A ON SOUTH (LEFT) SIDE OF THE HIGHWAY. THEN GO SOUTH 3.5 MILES TO A LEASE ROAD ON THE WEST (RIGHT) SIDE OF THE ROAD, THEN GO WEST ON LEASE ROAD 0.3 MILES TO A LEASE ROAD ON THE SOUTH (LEFT) SIDE OF THE ROAD, CONTINUE SOUTH 0.3 MILES TO A POINT ON THE NORTH SIDE OF THE ABOVE PLATTED WELL PAD.

Note:

- 1) Coordinates, Bearings, Distances and Areas shown hereon conform to the New Mexico State Plane Coordinate System, New Mexico East Zone, North American Datum of 1983.
- 2) This is a topographic survey. This is not to be used, viewed or relied upon as a boundary survey.



SURVEYORS - ENGINEERS - PLANNERS
110 W. LOUISIANA AVE., SUITE 110
MIDLAND, TEXAS 79701
(432) 687-0865 - FAX (432) 687-0868

- Denotes 15' Topsoil Stockpile



LEGACY RESERVES OPERATING LP

WELL SITE LAYOUT DIAGRAM LEA UNIT #68H

Located 235' FSL & 815' FWL, Section 12
Township 20 South, Range 34 East, N.M.P.M.
Lea County, New Mexico

Drawn By: SC/LRG

Issued: Sept. 21, 2019

Scale: 1" = 100'

Surveyed: July 31, 2019

Revision Date:

Quadrangle: Lea

J:\2019\2019-0417\2019-0417 LEA UNIT 68H.DWG



Legacy Reserves

Lea County, NM (NAD83)

Lea

Lea Unit #68H

STK Wellbore

Plan: STK Plan 1

Standard Planning Report

03 September, 2019





Motive Drilling Technologies

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Lea Unit #68H
Company:	Legacy Reserves	TVD Reference:	RKB @ 3673.0usft
Project:	Lea County, NM (NAD83)	MD Reference:	RKB @ 3673.0usft
Site:	Lea	North Reference:	Grid
Well:	Lea Unit #68H	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK Wellbore		
Design:	STK 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:	567,587.00 usft
From:	Map	Easting:	797,256.10 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 33' 27.391 N
		Longitude:	103° 30' 9.733 W
		Grid Convergence:	0.45 °

Well	Lea Unit #68H		
Well Position	+N/-S	8,471.1 usft	Northing: 576,058.14 usft
	+E/-W	-5,296.1 usft	Easting: 791,960.04 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	3,668.0 usft
		Latitude:	32° 34' 51.613 N
		Longitude:	103° 31' 10.853 W
		Ground Level:	3,655.0 usft

Wellbore	STK Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/8/2019	6.72	60.37	47,932.15542924

Design	STK Plan 1				
Audit Notes:					
Version:	Phase:	PROTOTYPE		Tie On Depth:	5,300.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	175.69	

Plan Survey Tool Program	Date	9/3/2019			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	5,300.0	18,726.8	STK Plan 1 (STK Wellbore)	MWD	
			MWD - Standard		

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
5,300.0	5.00	90.00	5,288.1	0.0	276.7	0.00	0.00	0.00	0.00	
8,250.0	5.00	90.00	8,226.9	0.0	533.8	0.00	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,476.5	0.0	544.7	2.00	-2.00	0.00	180.00	
10,410.1	0.00	0.00	10,386.7	0.0	544.7	0.00	0.00	0.00	0.00	
11,151.6	88.97	179.56	10,864.1	-468.9	548.3	12.00	12.00	0.00	179.56	
18,727.1	88.97	179.56	11,000.0	-8,042.9	606.7	0.00	0.00	0.00	-42.76	BHL- Lea 68H



Motive Drilling Technologies

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Lea Unit #68H
Company:	Legacy Reserves	TVD Reference:	RKB @ 3673.0usft
Project:	Lea County, NM (NAD83)	MD Reference:	RKB @ 3673.0usft
Site:	Lea	North Reference:	Grid
Well:	Lea Unit #68H	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK Wellbore		
Design:	STK Plan 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	2.00	90.00	2,100.0	0.0	1.7	0.1	2.00	2.00	0.00
2,200.0	4.00	90.00	2,199.8	0.0	7.0	0.5	2.00	2.00	0.00
2,250.0	5.00	90.00	2,249.7	0.0	10.9	0.8	2.00	2.00	0.00
2,300.0	5.00	90.00	2,299.5	0.0	15.3	1.1	0.00	0.00	0.00
2,400.0	5.00	90.00	2,399.1	0.0	24.0	1.8	0.00	0.00	0.00
2,500.0	5.00	90.00	2,498.7	0.0	32.7	2.5	0.00	0.00	0.00
2,600.0	5.00	90.00	2,598.4	0.0	41.4	3.1	0.00	0.00	0.00
2,700.0	5.00	90.00	2,698.0	0.0	50.1	3.8	0.00	0.00	0.00
2,800.0	5.00	90.00	2,797.6	0.0	58.8	4.4	0.00	0.00	0.00
2,900.0	5.00	90.00	2,897.2	0.0	67.6	5.1	0.00	0.00	0.00
3,000.0	5.00	90.00	2,996.8	0.0	76.3	5.7	0.00	0.00	0.00
3,100.0	5.00	90.00	3,096.4	0.0	85.0	6.4	0.00	0.00	0.00
3,200.0	5.00	90.00	3,196.1	0.0	93.7	7.0	0.00	0.00	0.00
3,300.0	5.00	90.00	3,295.7	0.0	102.4	7.7	0.00	0.00	0.00
3,400.0	5.00	90.00	3,395.3	0.0	111.1	8.4	0.00	0.00	0.00
3,500.0	5.00	90.00	3,494.9	0.0	119.8	9.0	0.00	0.00	0.00
3,600.0	5.00	90.00	3,594.5	0.0	128.6	9.7	0.00	0.00	0.00
3,700.0	5.00	90.00	3,694.2	0.0	137.3	10.3	0.00	0.00	0.00
3,800.0	5.00	90.00	3,793.8	0.0	146.0	11.0	0.00	0.00	0.00
3,900.0	5.00	90.00	3,893.4	0.0	154.7	11.6	0.00	0.00	0.00
4,000.0	5.00	90.00	3,993.0	0.0	163.4	12.3	0.00	0.00	0.00
4,100.0	5.00	90.00	4,092.6	0.0	172.1	12.9	0.00	0.00	0.00
4,200.0	5.00	90.00	4,192.3	0.0	180.9	13.6	0.00	0.00	0.00
4,300.0	5.00	90.00	4,291.9	0.0	189.6	14.3	0.00	0.00	0.00
4,400.0	5.00	90.00	4,391.5	0.0	198.3	14.9	0.00	0.00	0.00
4,500.0	5.00	90.00	4,491.1	0.0	207.0	15.6	0.00	0.00	0.00
4,600.0	5.00	90.00	4,590.7	0.0	215.7	16.2	0.00	0.00	0.00
4,700.0	5.00	90.00	4,690.4	0.0	224.4	16.9	0.00	0.00	0.00
4,800.0	5.00	90.00	4,790.0	0.0	233.1	17.5	0.00	0.00	0.00
4,900.0	5.00	90.00	4,889.6	0.0	241.9	18.2	0.00	0.00	0.00
5,000.0	5.00	90.00	4,989.2	0.0	250.6	18.8	0.00	0.00	0.00
5,100.0	5.00	90.00	5,088.8	0.0	259.3	19.5	0.00	0.00	0.00
5,200.0	5.00	90.00	5,188.5	0.0	268.0	20.2	0.00	0.00	0.00



Motive Drilling Technologies

Planning Report



Database: EDM 5000.1 Single User Db
Company: Legacy Reserves
Project: Lea County, NM (NAD83)
Site: Lea
Well: Lea Unit #68H
Wellbore: STK Wellbore
Design: STK Plan 1

Local Co-ordinate Reference: Well Lea Unit #68H
TVD Reference: RKB @ 3673.0usft
MD Reference: RKB @ 3673.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
5,300.0	5.00	90.00	5,288.1	0.0	276.7	20.8	0.00	0.00	0.00
5,400.0	5.00	90.00	5,387.7	0.0	285.4	21.5	0.00	0.00	0.00
5,500.0	5.00	90.00	5,487.3	0.0	294.2	22.1	0.00	0.00	0.00
5,600.0	5.00	90.00	5,586.9	0.0	302.9	22.8	0.00	0.00	0.00
5,700.0	5.00	90.00	5,686.6	0.0	311.6	23.4	0.00	0.00	0.00
5,800.0	5.00	90.00	5,786.2	0.0	320.3	24.1	0.00	0.00	0.00
5,900.0	5.00	90.00	5,885.8	0.0	329.0	24.8	0.00	0.00	0.00
6,000.0	5.00	90.00	5,985.4	0.0	337.7	25.4	0.00	0.00	0.00
6,100.0	5.00	90.00	6,085.0	0.0	346.5	26.1	0.00	0.00	0.00
6,200.0	5.00	90.00	6,184.7	0.0	355.2	26.7	0.00	0.00	0.00
6,300.0	5.00	90.00	6,284.3	0.0	363.9	27.4	0.00	0.00	0.00
6,400.0	5.00	90.00	6,383.9	0.0	372.6	28.0	0.00	0.00	0.00
6,500.0	5.00	90.00	6,483.5	0.0	381.3	28.7	0.00	0.00	0.00
6,600.0	5.00	90.00	6,583.1	0.0	390.0	29.3	0.00	0.00	0.00
6,700.0	5.00	90.00	6,682.7	0.0	398.7	30.0	0.00	0.00	0.00
6,800.0	5.00	90.00	6,782.4	0.0	407.5	30.7	0.00	0.00	0.00
6,900.0	5.00	90.00	6,882.0	0.0	416.2	31.3	0.00	0.00	0.00
7,000.0	5.00	90.00	6,981.6	0.0	424.9	32.0	0.00	0.00	0.00
7,100.0	5.00	90.00	7,081.2	0.0	433.6	32.6	0.00	0.00	0.00
7,200.0	5.00	90.00	7,180.8	0.0	442.3	33.3	0.00	0.00	0.00
7,300.0	5.00	90.00	7,280.5	0.0	451.0	33.9	0.00	0.00	0.00
7,400.0	5.00	90.00	7,380.1	0.0	459.8	34.6	0.00	0.00	0.00
7,500.0	5.00	90.00	7,479.7	0.0	468.5	35.2	0.00	0.00	0.00
7,600.0	5.00	90.00	7,579.3	0.0	477.2	35.9	0.00	0.00	0.00
7,700.0	5.00	90.00	7,678.9	0.0	485.9	36.6	0.00	0.00	0.00
7,800.0	5.00	90.00	7,778.6	0.0	494.6	37.2	0.00	0.00	0.00
7,900.0	5.00	90.00	7,878.2	0.0	503.3	37.9	0.00	0.00	0.00
8,000.0	5.00	90.00	7,977.8	0.0	512.0	38.5	0.00	0.00	0.00
8,100.0	5.00	90.00	8,077.4	0.0	520.8	39.2	0.00	0.00	0.00
8,200.0	5.00	90.00	8,177.0	0.0	529.5	39.8	0.00	0.00	0.00
8,250.0	5.00	90.00	8,226.9	0.0	533.8	40.2	0.00	0.00	0.00
8,300.0	4.00	90.00	8,276.7	0.0	537.8	40.5	2.00	-2.00	0.00
8,400.0	2.00	90.00	8,376.6	0.0	543.0	40.8	2.00	-2.00	0.00
8,500.0	0.00	0.00	8,476.5	0.0	544.7	41.0	2.00	-2.00	0.00
8,600.0	0.00	0.00	8,576.5	0.0	544.7	41.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,676.5	0.0	544.7	41.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,776.5	0.0	544.7	41.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,876.5	0.0	544.7	41.0	0.00	0.00	0.00
9,000.0	0.00	0.00	8,976.5	0.0	544.7	41.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,076.5	0.0	544.7	41.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,176.5	0.0	544.7	41.0	0.00	0.00	0.00
9,300.0	0.00	0.00	9,276.5	0.0	544.7	41.0	0.00	0.00	0.00
9,400.0	0.00	0.00	9,376.5	0.0	544.7	41.0	0.00	0.00	0.00
9,500.0	0.00	0.00	9,476.5	0.0	544.7	41.0	0.00	0.00	0.00
9,600.0	0.00	0.00	9,576.5	0.0	544.7	41.0	0.00	0.00	0.00
9,700.0	0.00	0.00	9,676.5	0.0	544.7	41.0	0.00	0.00	0.00
9,800.0	0.00	0.00	9,776.5	0.0	544.7	41.0	0.00	0.00	0.00
9,900.0	0.00	0.00	9,876.5	0.0	544.7	41.0	0.00	0.00	0.00
10,000.0	0.00	0.00	9,976.5	0.0	544.7	41.0	0.00	0.00	0.00
10,100.0	0.00	0.00	10,076.5	0.0	544.7	41.0	0.00	0.00	0.00
10,200.0	0.00	0.00	10,176.5	0.0	544.7	41.0	0.00	0.00	0.00
10,300.0	0.00	0.00	10,276.5	0.0	544.7	41.0	0.00	0.00	0.00
10,400.0	0.00	0.00	10,376.5	0.0	544.7	41.0	0.00	0.00	0.00
10,410.1	0.00	0.00	10,386.7	0.0	544.7	41.0	0.00	0.00	0.00



Motive Drilling Technologies

Planning Report



Database: EDM 5000.1 Single User Db
Company: Legacy Reserves
Project: Lea County, NM (NAD83)
Site: Lea
Well: Lea Unit #68H
Wellbore: STK Wellbore
Design: STK Plan 1

Local Co-ordinate Reference: Well Lea Unit #68H
TVD Reference: RKB @ 3673.0usft
MD Reference: RKB @ 3673.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
10,425.0	1.78	179.56	10,401.5	-0.2	544.7	41.2	12.00	12.00	0.00
10,450.0	4.78	179.56	10,426.5	-1.7	544.8	42.6	12.00	12.00	0.00
10,475.0	7.78	179.56	10,451.3	-4.4	544.8	45.4	12.00	12.00	0.00
10,500.0	10.78	179.56	10,476.0	-8.4	544.8	49.4	12.00	12.00	0.00
10,525.0	13.78	179.56	10,500.4	-13.7	544.8	54.7	12.00	12.00	0.00
10,550.0	16.78	179.56	10,524.5	-20.3	544.9	61.3	12.00	12.00	0.00
10,575.0	19.78	179.56	10,548.3	-28.2	545.0	69.1	12.00	12.00	0.00
10,600.0	22.78	179.56	10,571.6	-37.3	545.0	78.1	12.00	12.00	0.00
10,625.0	25.78	179.56	10,594.4	-47.5	545.1	88.4	12.00	12.00	0.00
10,650.0	28.78	179.56	10,616.6	-59.0	545.2	99.8	12.00	12.00	0.00
10,675.0	31.78	179.56	10,638.2	-71.6	545.3	112.4	12.00	12.00	0.00
10,700.0	34.78	179.56	10,659.1	-85.3	545.4	126.1	12.00	12.00	0.00
10,725.0	37.78	179.56	10,679.2	-100.1	545.5	140.9	12.00	12.00	0.00
10,750.0	40.78	179.56	10,698.6	-115.9	545.6	156.6	12.00	12.00	0.00
10,775.0	43.78	179.56	10,717.0	-132.7	545.8	173.4	12.00	12.00	0.00
10,800.0	46.78	179.56	10,734.6	-150.5	545.9	191.1	12.00	12.00	0.00
10,825.0	49.78	179.56	10,751.3	-169.2	546.0	209.8	12.00	12.00	0.00
10,850.0	52.78	179.56	10,766.9	-188.7	546.2	229.2	12.00	12.00	0.00
10,875.0	55.78	179.56	10,781.5	-209.0	546.3	249.5	12.00	12.00	0.00
10,900.0	58.78	179.56	10,795.0	-230.0	546.5	270.5	12.00	12.00	0.00
10,925.0	61.78	179.56	10,807.4	-251.7	546.7	292.1	12.00	12.00	0.00
10,950.0	64.78	179.56	10,818.6	-274.0	546.8	314.4	12.00	12.00	0.00
10,975.0	67.78	179.56	10,828.7	-296.9	547.0	337.2	12.00	12.00	0.00
11,000.0	70.78	179.56	10,837.5	-320.3	547.2	360.6	12.00	12.00	0.00
11,025.0	73.78	179.56	10,845.1	-344.1	547.4	384.3	12.00	12.00	0.00
11,050.0	76.78	179.56	10,851.5	-368.3	547.6	408.4	12.00	12.00	0.00
11,075.0	79.78	179.56	10,856.6	-392.8	547.8	432.9	12.00	12.00	0.00
11,100.0	82.78	179.56	10,860.4	-417.5	547.9	457.5	12.00	12.00	0.00
11,125.0	85.78	179.56	10,862.9	-442.3	548.1	482.3	12.00	12.00	0.00
11,151.6	88.97	179.56	10,864.1	-468.9	548.3	508.8	12.00	12.00	0.00
11,200.0	88.97	179.56	10,864.9	-517.3	548.7	557.1	0.00	0.00	0.00
11,300.0	88.97	179.56	10,866.7	-617.3	549.5	656.9	0.00	0.00	0.00
11,400.0	88.97	179.56	10,868.5	-717.3	550.2	756.6	0.00	0.00	0.00
11,500.0	88.97	179.56	10,870.3	-817.2	551.0	856.4	0.00	0.00	0.00
11,600.0	88.97	179.56	10,872.1	-917.2	551.8	956.1	0.00	0.00	0.00
11,700.0	88.97	179.56	10,873.9	-1,017.2	552.6	1,055.9	0.00	0.00	0.00
11,800.0	88.97	179.56	10,875.7	-1,117.2	553.3	1,155.6	0.00	0.00	0.00
11,900.0	88.97	179.56	10,877.5	-1,217.2	554.1	1,255.4	0.00	0.00	0.00
12,000.0	88.97	179.56	10,879.3	-1,317.1	554.9	1,355.2	0.00	0.00	0.00
12,100.0	88.97	179.56	10,881.1	-1,417.1	555.6	1,454.9	0.00	0.00	0.00
12,200.0	88.97	179.56	10,882.9	-1,517.1	556.4	1,554.7	0.00	0.00	0.00
12,300.0	88.97	179.56	10,884.7	-1,617.1	557.2	1,654.4	0.00	0.00	0.00
12,400.0	88.97	179.56	10,886.5	-1,717.1	557.9	1,754.2	0.00	0.00	0.00
12,500.0	88.97	179.56	10,888.3	-1,817.0	558.7	1,853.9	0.00	0.00	0.00
12,600.0	88.97	179.56	10,890.1	-1,917.0	559.5	1,953.7	0.00	0.00	0.00
12,700.0	88.97	179.56	10,891.9	-2,017.0	560.2	2,053.4	0.00	0.00	0.00
12,800.0	88.97	179.56	10,893.7	-2,117.0	561.0	2,153.2	0.00	0.00	0.00
12,900.0	88.97	179.56	10,895.5	-2,217.0	561.8	2,253.0	0.00	0.00	0.00
13,000.0	88.97	179.56	10,897.3	-2,317.0	562.5	2,352.7	0.00	0.00	0.00
13,100.0	88.97	179.56	10,899.1	-2,416.9	563.3	2,452.5	0.00	0.00	0.00
13,200.0	88.97	179.56	10,900.9	-2,516.9	564.1	2,552.2	0.00	0.00	0.00
13,300.0	88.97	179.56	10,902.7	-2,616.9	564.9	2,652.0	0.00	0.00	0.00
13,400.0	88.97	179.56	10,904.5	-2,716.9	565.6	2,751.7	0.00	0.00	0.00
13,500.0	88.97	179.56	10,906.3	-2,816.9	566.4	2,851.5	0.00	0.00	0.00



Motive Drilling Technologies

Planning Report



Database: EDM 5000.1 Single User Db
Company: Legacy Reserves
Project: Lea County, NM (NAD83)
Site: Lea
Well: Lea Unit #68H
Wellbore: STK Wellbore
Design: STK Plan 1

Local Co-ordinate Reference: Well Lea Unit #68H
TVD Reference: RKB @ 3673.0usft
MD Reference: RKB @ 3673.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
13,600.0	88.97	179.56	10,908.1	-2,916.8	567.2	2,951.2	0.00	0.00	0.00
13,700.0	88.97	179.56	10,909.8	-3,016.8	567.9	3,051.0	0.00	0.00	0.00
13,800.0	88.97	179.56	10,911.6	-3,116.8	568.7	3,150.7	0.00	0.00	0.00
13,900.0	88.97	179.56	10,913.4	-3,216.8	569.5	3,250.5	0.00	0.00	0.00
14,000.0	88.97	179.56	10,915.2	-3,316.8	570.2	3,350.3	0.00	0.00	0.00
14,100.0	88.97	179.56	10,917.0	-3,416.7	571.0	3,450.0	0.00	0.00	0.00
14,200.0	88.97	179.56	10,918.8	-3,516.7	571.8	3,549.8	0.00	0.00	0.00
14,300.0	88.97	179.56	10,920.6	-3,616.7	572.6	3,649.5	0.00	0.00	0.00
14,400.0	88.97	179.56	10,922.4	-3,716.7	573.3	3,749.3	0.00	0.00	0.00
14,500.0	88.97	179.56	10,924.2	-3,816.7	574.1	3,849.0	0.00	0.00	0.00
14,600.0	88.97	179.56	10,926.0	-3,916.6	574.9	3,948.8	0.00	0.00	0.00
14,700.0	88.97	179.56	10,927.8	-4,016.6	575.6	4,048.6	0.00	0.00	0.00
14,800.0	88.97	179.56	10,929.6	-4,116.6	576.4	4,148.3	0.00	0.00	0.00
14,900.0	88.97	179.56	10,931.4	-4,216.6	577.2	4,248.1	0.00	0.00	0.00
15,000.0	88.97	179.56	10,933.2	-4,316.6	578.0	4,347.8	0.00	0.00	0.00
15,100.0	88.97	179.56	10,935.0	-4,416.6	578.7	4,447.6	0.00	0.00	0.00
15,200.0	88.97	179.56	10,936.8	-4,516.5	579.5	4,547.3	0.00	0.00	0.00
15,300.0	88.97	179.56	10,938.6	-4,616.5	580.3	4,647.1	0.00	0.00	0.00
15,400.0	88.97	179.56	10,940.4	-4,716.5	581.0	4,746.8	0.00	0.00	0.00
15,500.0	88.97	179.56	10,942.1	-4,816.5	581.8	4,846.6	0.00	0.00	0.00
15,600.0	88.97	179.56	10,943.9	-4,916.5	582.6	4,946.4	0.00	0.00	0.00
15,700.0	88.97	179.56	10,945.7	-5,016.4	583.4	5,046.1	0.00	0.00	0.00
15,800.0	88.97	179.56	10,947.5	-5,116.4	584.1	5,145.9	0.00	0.00	0.00
15,900.0	88.97	179.56	10,949.3	-5,216.4	584.9	5,245.6	0.00	0.00	0.00
16,000.0	88.97	179.56	10,951.1	-5,316.4	585.7	5,345.4	0.00	0.00	0.00
16,100.0	88.97	179.56	10,952.9	-5,416.4	586.4	5,445.1	0.00	0.00	0.00
16,200.0	88.97	179.56	10,954.7	-5,516.3	587.2	5,544.9	0.00	0.00	0.00
16,300.0	88.97	179.56	10,956.5	-5,616.3	588.0	5,644.6	0.00	0.00	0.00
16,400.0	88.97	179.56	10,958.3	-5,716.3	588.8	5,744.4	0.00	0.00	0.00
16,500.0	88.97	179.56	10,960.1	-5,816.3	589.5	5,844.2	0.00	0.00	0.00
16,600.0	88.97	179.56	10,961.9	-5,916.3	590.3	5,943.9	0.00	0.00	0.00
16,700.0	88.97	179.56	10,963.7	-6,016.2	591.1	6,043.7	0.00	0.00	0.00
16,800.0	88.97	179.56	10,965.5	-6,116.2	591.8	6,143.4	0.00	0.00	0.00
16,900.0	88.97	179.56	10,967.2	-6,216.2	592.6	6,243.2	0.00	0.00	0.00
17,000.0	88.97	179.56	10,969.0	-6,316.2	593.4	6,342.9	0.00	0.00	0.00
17,100.0	88.97	179.56	10,970.8	-6,416.2	594.2	6,442.7	0.00	0.00	0.00
17,200.0	88.97	179.56	10,972.6	-6,516.2	594.9	6,542.4	0.00	0.00	0.00
17,300.0	88.97	179.56	10,974.4	-6,616.1	595.7	6,642.2	0.00	0.00	0.00
17,400.0	88.97	179.56	10,976.2	-6,716.1	596.5	6,742.0	0.00	0.00	0.00
17,500.0	88.97	179.56	10,978.0	-6,816.1	597.3	6,841.7	0.00	0.00	0.00
17,600.0	88.97	179.56	10,979.8	-6,916.1	598.0	6,941.5	0.00	0.00	0.00
17,700.0	88.97	179.56	10,981.6	-7,016.1	598.8	7,041.2	0.00	0.00	0.00
17,800.0	88.97	179.56	10,983.4	-7,116.0	599.6	7,141.0	0.00	0.00	0.00
17,900.0	88.97	179.56	10,985.2	-7,216.0	600.3	7,240.7	0.00	0.00	0.00
18,000.0	88.97	179.56	10,987.0	-7,316.0	601.1	7,340.5	0.00	0.00	0.00
18,100.0	88.97	179.56	10,988.7	-7,416.0	601.9	7,440.2	0.00	0.00	0.00
18,200.0	88.97	179.56	10,990.5	-7,516.0	602.7	7,540.0	0.00	0.00	0.00
18,300.0	88.97	179.56	10,992.3	-7,615.9	603.4	7,639.8	0.00	0.00	0.00
18,400.0	88.97	179.56	10,994.1	-7,715.9	604.2	7,739.5	0.00	0.00	0.00
18,500.0	88.97	179.56	10,995.9	-7,815.9	605.0	7,839.3	0.00	0.00	0.00
18,600.0	88.97	179.56	10,997.7	-7,915.9	605.8	7,939.0	0.00	0.00	0.00
18,700.0	88.97	179.56	10,999.5	-8,015.9	606.5	8,038.8	0.00	0.00	0.00
18,727.1	88.97	179.56	11,000.0	-8,042.9	606.7	8,065.8	0.00	0.00	0.00



Motive Drilling Technologies

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Lea Unit #68H
Company:	Legacy Reserves	TVD Reference:	RKB @ 3673.0usft
Project:	Lea County, NM (NAD83)	MD Reference:	RKB @ 3673.0usft
Site:	Lea	North Reference:	Grid
Well:	Lea Unit #68H	Survey Calculation Method:	Minimum Curvature
Wellbore:	STK Wellbore		
Design:	STK Plan 1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
FTP- Lea 68H	0.00	0.01	10,840.0	-330.2	547.6	575,727.98	792,507.63	32° 34' 48.305 N	103° 31' 4.483 W
- plan misses target center by 0.9usft at 11010.1usft MD (10840.8 TVD, -329.9 N, 547.3 E)									
- Point									
BHL- Lea 68H	0.00	0.01	11,000.0	-8,042.9	606.7	568,015.20	792,566.79	32° 33' 31.986 N	103° 31' 4.482 W
- plan hits target center									
- Point									



Legacy Reserves

Lea County, NM (NAD83)

Lea

Lea Unit #68H

STK Wellbore

STK Plan 1

Anticollision Summary Report

03 September, 2019





Motive Drilling Technologies

Anticollision Summary Report



Company:	Legacy Reserves	Local Co-ordinate Reference:	Well Lea Unit #68H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3673.0usft
Reference Site:	Lea	MD Reference:	RKB @ 3673.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Lea Unit #68H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	STK Wellbore	Database:	EDM 5000.1 Single User Db
Reference Design:	STK Plan 1	Offset TVD Reference:	Reference Datum

Reference	STK Plan 1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 30,000.0usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	9/3/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	5,300.0	Pilot Plan 1 (Pilot Wellbore)	MWD	MWD - Standard
5,300.0	18,726.8	STK Plan 1 (STK Wellbore)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Lea						
Lea Unit #30H - Original Wellbore - Original Wellbore	0.0	2.0	72.3			
Lea Unit #30H - Original Wellbore - Original Wellbore	700.0	701.5	76.4	71.8	16.819	ES
Lea Unit #30H - Original Wellbore - Original Wellbore	15,900.0	15,702.0	681.1	499.6	3.752	SF
Lea Unit #39H - Original Wellbore - Original Wellbore	9,584.6	17,348.0	734.2	617.6	6.300	CC, ES
Lea Unit #39H - Original Wellbore - Original Wellbore	9,600.0	17,348.0	734.3	617.8	6.300	SF
Lea Unit #65H - Original Wellbore - Original Wellbore	897.6	896.7	28.5	22.5	4.745	CC
Lea Unit #65H - Original Wellbore - Original Wellbore	1,100.0	1,098.9	29.0	21.6	3.904	ES
Lea Unit #65H - Original Wellbore - Original Wellbore	2,000.0	1,998.8	44.1	30.3	3.189	SF
Lea Unit #68H - Pilot Wellbore - Pilot Plan 1	5,600.0	5,598.9	15.7	14.2	11.035	CC, ES
Lea Unit #68H - Pilot Wellbore - Pilot Plan 1	12,000.0	11,128.6	231.6	188.5	5.369	SF

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

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Page 2

COMPASS 5000.15 Build 90



Motive Drilling Technologies

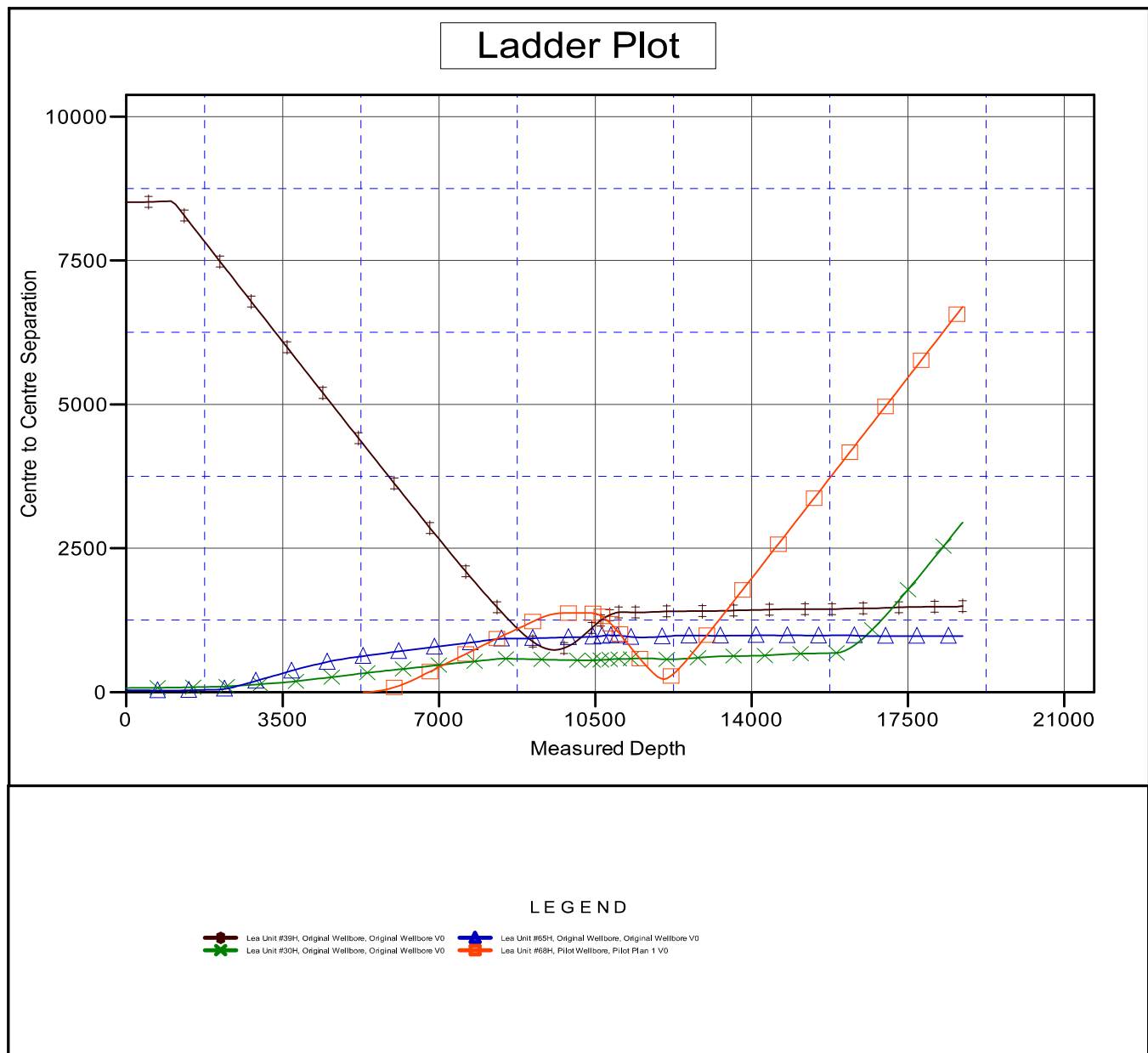
Anticollision Summary Report



Company:	Legacy Reserves	Local Co-ordinate Reference:	Well Lea Unit #68H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3673.0usft
Reference Site:	Lea	MD Reference:	RKB @ 3673.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Lea Unit #68H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	STK Wellbore	Database:	EDM 5000.1 Single User Db
Reference Design:	STK Plan 1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to RKB @ 3673.0usft
 Offset Depths are relative to Offset Datum
 Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Lea Unit #68H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.44°



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



Motive Drilling Technologies

Anticollision Summary Report



Company:	Legacy Reserves	Local Co-ordinate Reference:	Well Lea Unit #68H
Project:	Lea County, NM (NAD83)	TVD Reference:	RKB @ 3673.0usft
Reference Site:	Lea	MD Reference:	RKB @ 3673.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Lea Unit #68H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	STK Wellbore	Database:	EDM 5000.1 Single User Db
Reference Design:	STK Plan 1	Offset TVD Reference:	Reference Datum

Reference Depths are relative to RKB @ 3673.0usft

Offset Depths are relative to Offset Datum

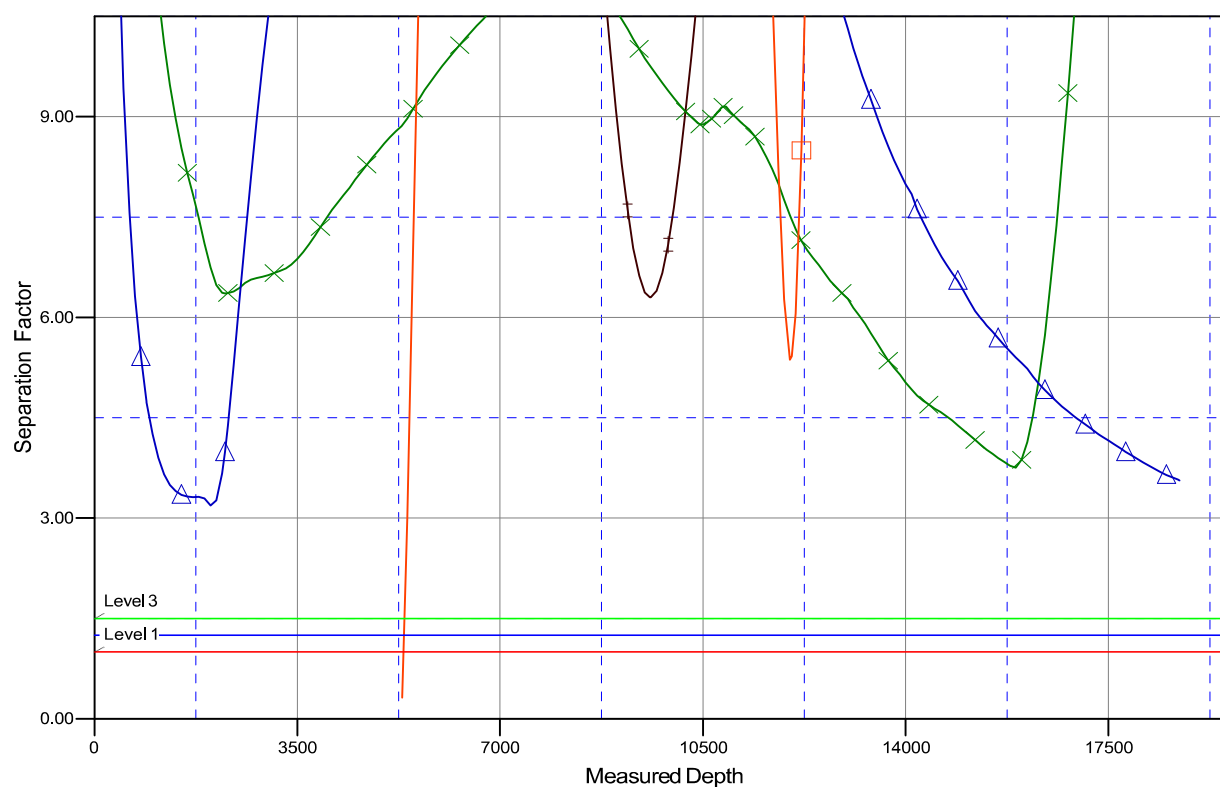
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Lea Unit #68H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.44°

Separation Factor Plot



LEGEND

- Lea Unit #39H, Original Wellbore, Original Wellbore V0
- Lea Unit #65H, Original Wellbore, Original Wellbore V0
- Lea Unit #30H, Original Wellbore, Original Wellbore V0
- Lea Unit #68H, Pilot Wellbore, Pilot Plan 1 V0

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



WELL DETAILS: Lea Unit #68H

RKB @ 3673.0usft		Ground Level: 3655.0	
+N/-S	+E/-W	Northing	Longitude
0.0	0.0	576058.14	103° 31' 10.853 W
		Easting	
		791960.04	32° 34' 51.613 N

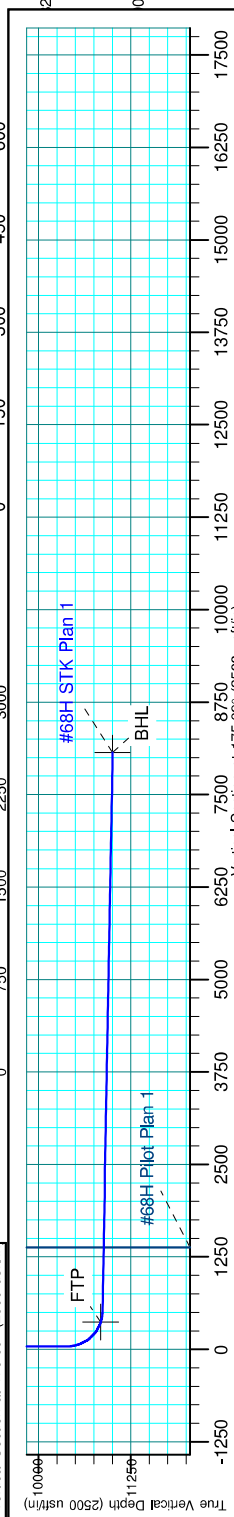
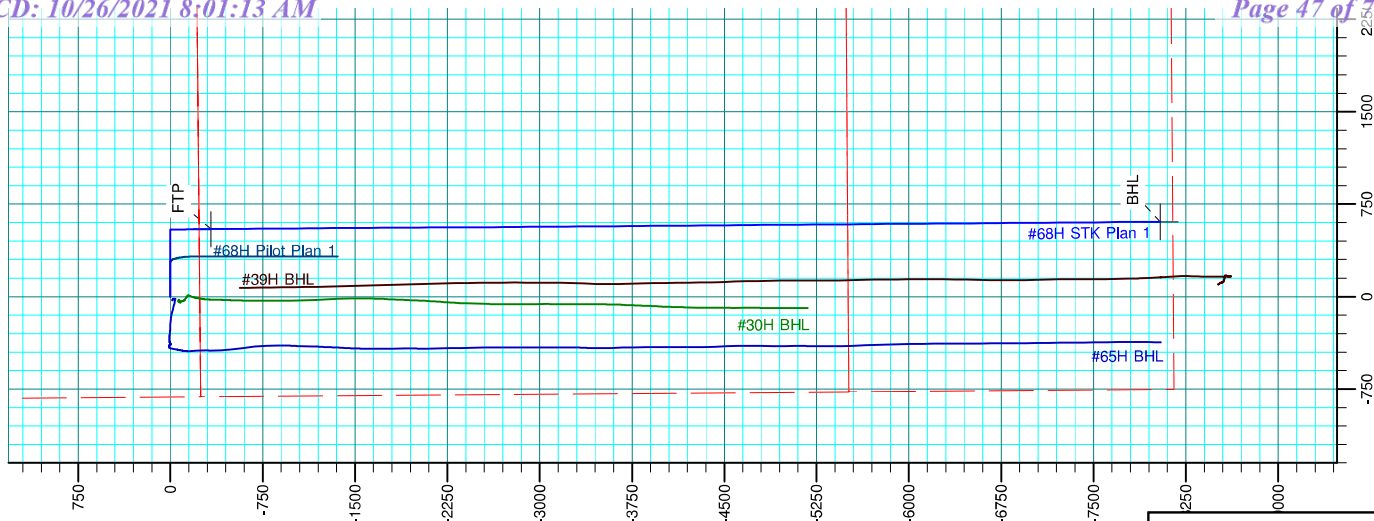
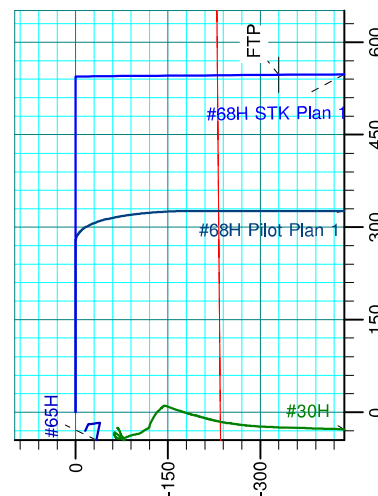
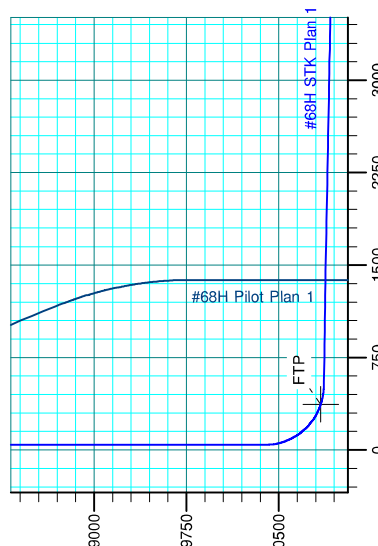
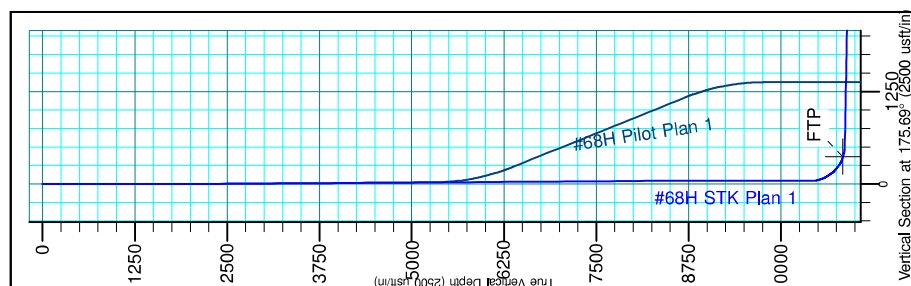
Project: Lea County, NM (NAD83)
 Site: Lea
 Well: Lea Unit #68H
 Geodetic Datum: North American Datum 1983
 Design: STK Plan 1

T G M
 Azimuths to Grid North
 True North: -0.44°
 Magnetic North: 6.28°
 Magnetic Field
 Strength: 47932.2nT
 Dip Angle: 60.37°
 Date: 8/8/2019
 Model: IGRF2015

DESIGN TARGET DETAILS				
Name	TVD	+N/-S	+E/-W	Northing
BHL	11000.0	-8042.9	606.7	568015.20
FTP	10840.0	-330.2	547.6	575727.98
				792507.63

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	5300.0	5.00	90.00	5288.1	0.0	276.7	0.00	0.00	20.8	
2	8250.0	5.00	90.00	8226.9	0.0	533.8	0.00	0.00	40.2	
3	8500.0	0.00	0.00	8476.5	0.0	544.7	2.00	180.00	41.0	
4	10410.1	0.00	0.00	10386.7	0.0	544.7	0.00	0.00	41.0	
5	11151.6	88.97	179.56	10864.1	-468.9	548.3	12.00	179.56	508.8	
6	18727.1	88.97	179.56	11000.0	-8042.9	606.7	0.00	-42.76	8065.8	BHL- Lea 68H



**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Legacy Reserves Operating LP
LEASE NO.:	NMNM0053434
COUNTY:	Lea County, NM

Wells:

Lea Unit 68H

Surface Hole Location: 235' FSL & 815' FWL, Section 12, T. 20 S., R. 34 E.

Bottom Hole Location: 2541' FNL & 1360' FWL, Section 24, T. 20 S., R. 34 E.

TABLE OF CONTENTS

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Watershed
 - Range
 - Lesser Prairie Chicken
 - VRM IV
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

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.

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.

Range:

Livestock Watering Requirement

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

Lesser Prairie Chicken:

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, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. 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 ft. from the source of the noise.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

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.

VRM IV:

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

V. 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.

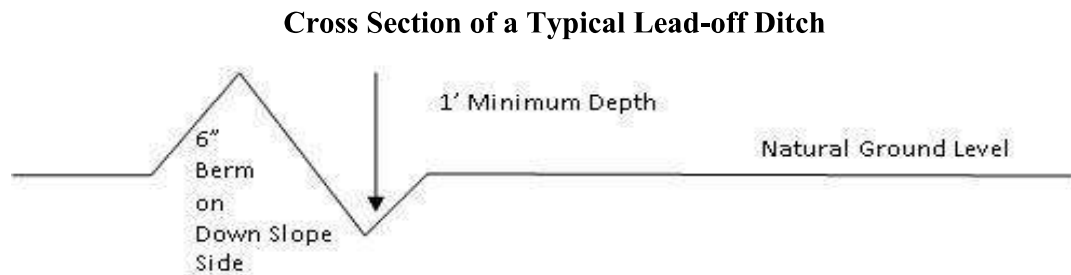
Turnouts

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 out sloping 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.



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:

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

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

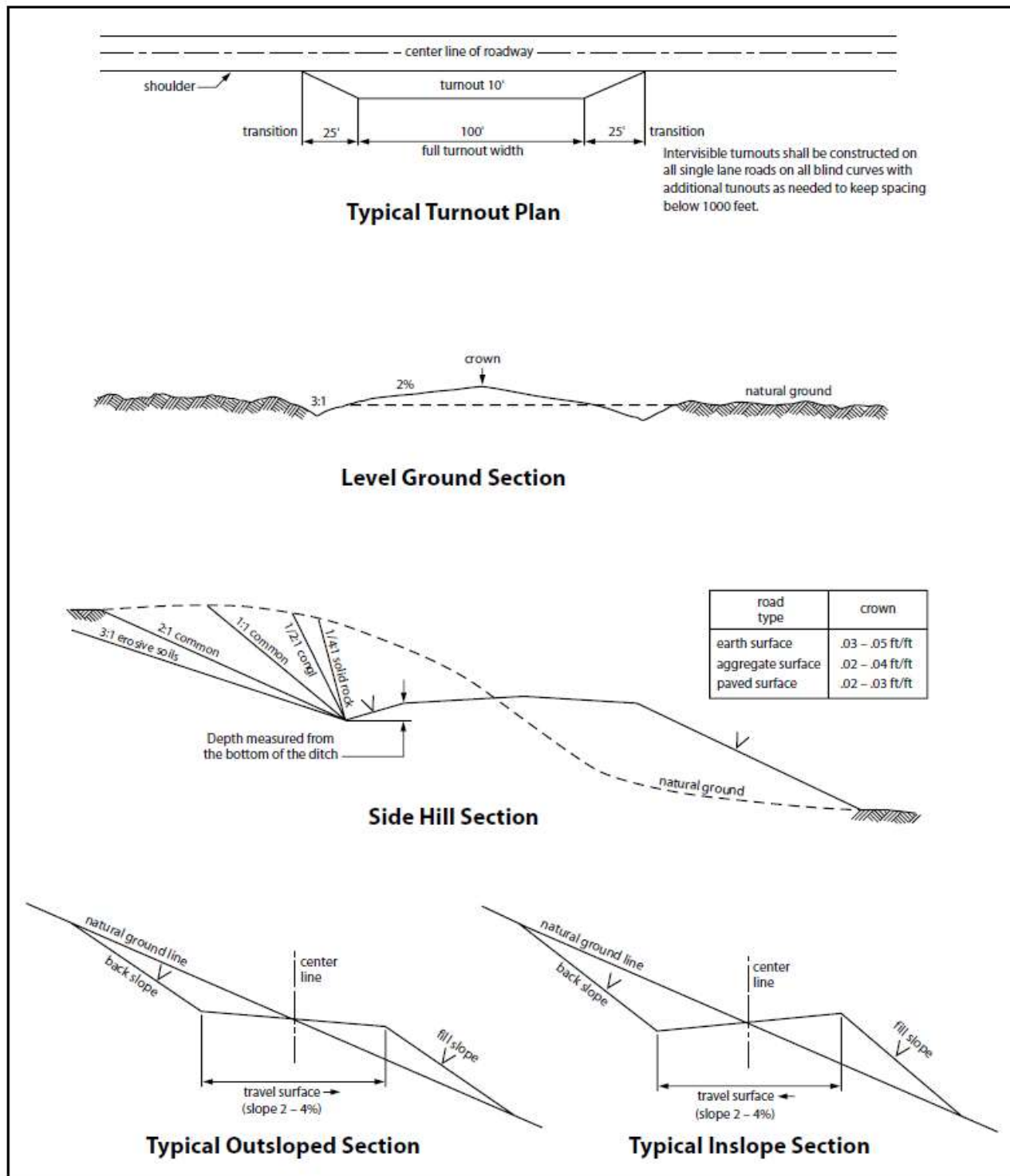


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VI. 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).

VII. 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).

VIII. 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 for LPC Sand/Shinnery Sites

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

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

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

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

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

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Legacy Reserves Operating LP
LEASE NO.:	NMNM0053434
WELL NAME & NO.:	Lea Unit 68H
SURFACE HOLE FOOTAGE:	235' S & 815' W
BOTTOM HOLE FOOTAGE:	2541' N & 1360' W
LOCATION:	Section 12, T.20 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

COA

H2S	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Potash	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Secretary	<input type="checkbox"/> R-111-P
Cave/Karst Potential	<input checked="" type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
Cave/Karst Potential	<input type="checkbox"/> Critical		
Variance	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Flex Hose	<input type="checkbox"/> Other
Wellhead	<input checked="" type="checkbox"/> Conventional	<input type="checkbox"/> Multibowl	<input type="checkbox"/> Both
Other	<input type="checkbox"/> 4 String Area	<input checked="" type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input checked="" type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input checked="" type="checkbox"/> Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Lea Pools** 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 (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 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 shall be set at approximately **5565 feet** is:

Option 1 (Single Stage):

- 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.

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.

Option 3:

Operator has proposed DV tool at depth of 3950' and 1900', 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 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.
 - 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.
- ❖ In Capitan Reef Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
- ❖ **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.

The pilot hole plugging procedure is approved as written. Note plug tops on subsequent drilling report. The BLM is to be contacted **(575-393-3612 Lea County)** when tagging the plugs.

Or,

Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted **(575-393-3612 Lea County)** prior to tag of bottom plug, which must be a minimum of 200' in length. Operator can set one plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug. Note plug tops on subsequent drilling report.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least **50 feet** on top of Capitan Reef top. 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.

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 **2000 (2M)** psi.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **5000 (5M)** psi.

D. SPECIAL REQUIREMENT (S)

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.

Commercial Well Determination

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

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 integrity 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 integrity 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.

**LEGACY RESERVES OPERATING, L. P.
HYDROGEN SULFIDE (H₂S) CONTINGENCY PLAN
LEA UNIT 68H**

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

This is an open drilling site. H₂S monitoring equipment and emergency response equipment will be rigged up and in use when the company drills out from under surface casing. H₂S 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.

H₂S Operations

Though no H₂S 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 H₂S 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 H₂S 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 (SO₂). 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 H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air = 1	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:

	<u>911 or</u>
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
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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 On Location:	Cell:(432)6318469
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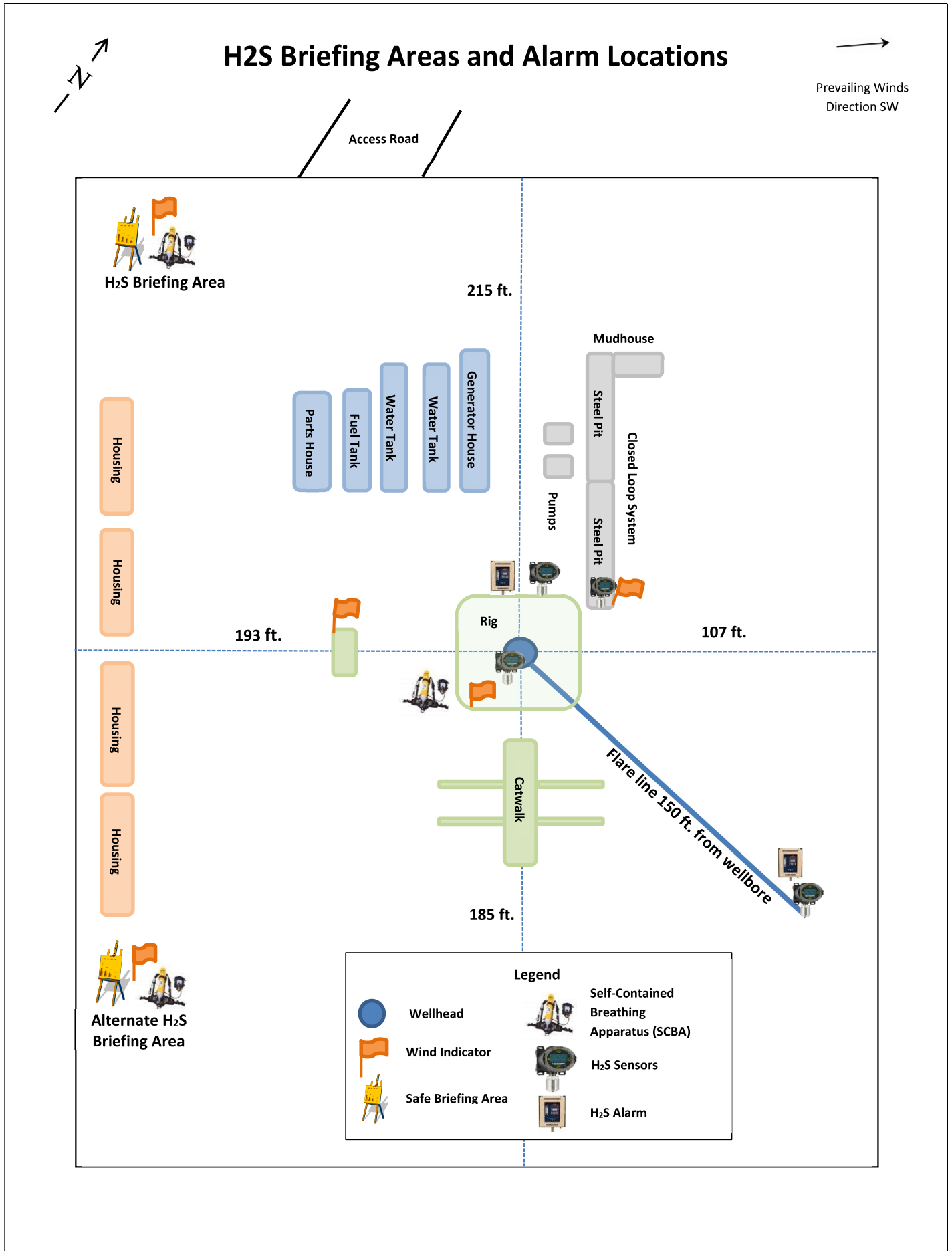
LEGACY SAFETY **Hobbs (575) 393-7233**

EHS Coordinator:
Field Operations Manager:
Randy Williams

Office: (432) 689-5200
Cell: (432) 260-5566

Evacuee Description:

Residents: THERE ARE NO RESIDENTS WITHIN 3000' ROE.



Intent ☒ As Drilled ☐

API #		
Operator Name: Legacy Reserves Operating LP	Property Name: Lea Unit	Well Number 68H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
C	13	20S	34E		104	North	1360	West	Lea
Latitude 32.580088473					Longitude -103.51791194				NAD 83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
C	13	20S	34E		100	North	1360	West	Lea
Latitude 32.58008471					Longitude -103.51791194				NAD 83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
F	24	20s	34e		2541	North	1360	West	Lea
Latitude 32.55888509					Longitude -103.51791173				NAD 83

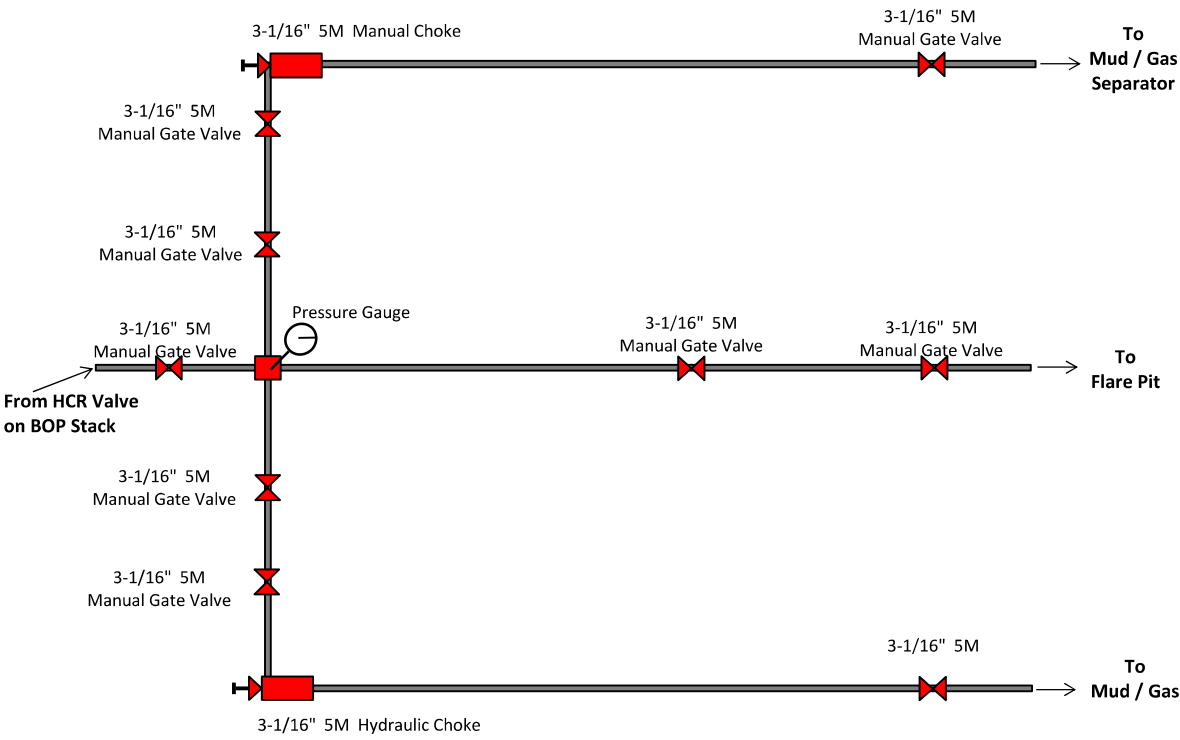
Is this well the defining well for the Horizontal Spacing Unit? Is this well an infill well?

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

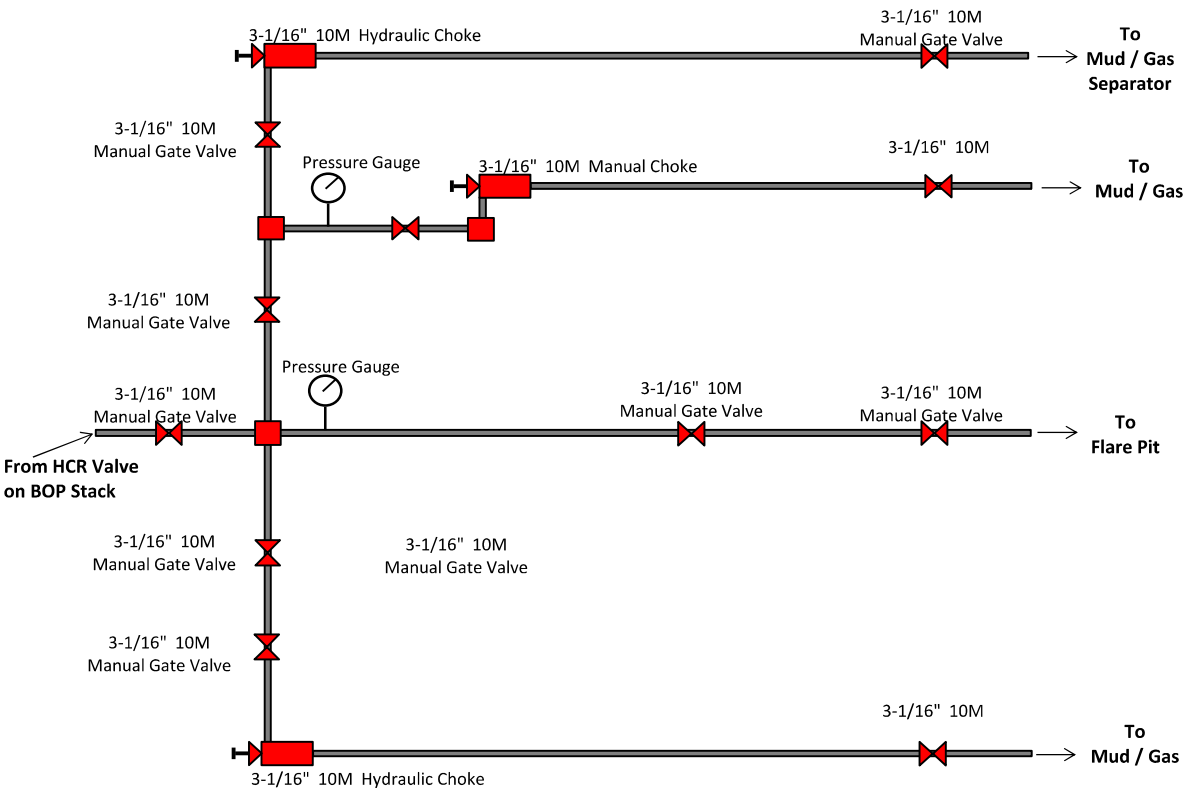
API #		
Operator Name:	Property Name:	Well Number

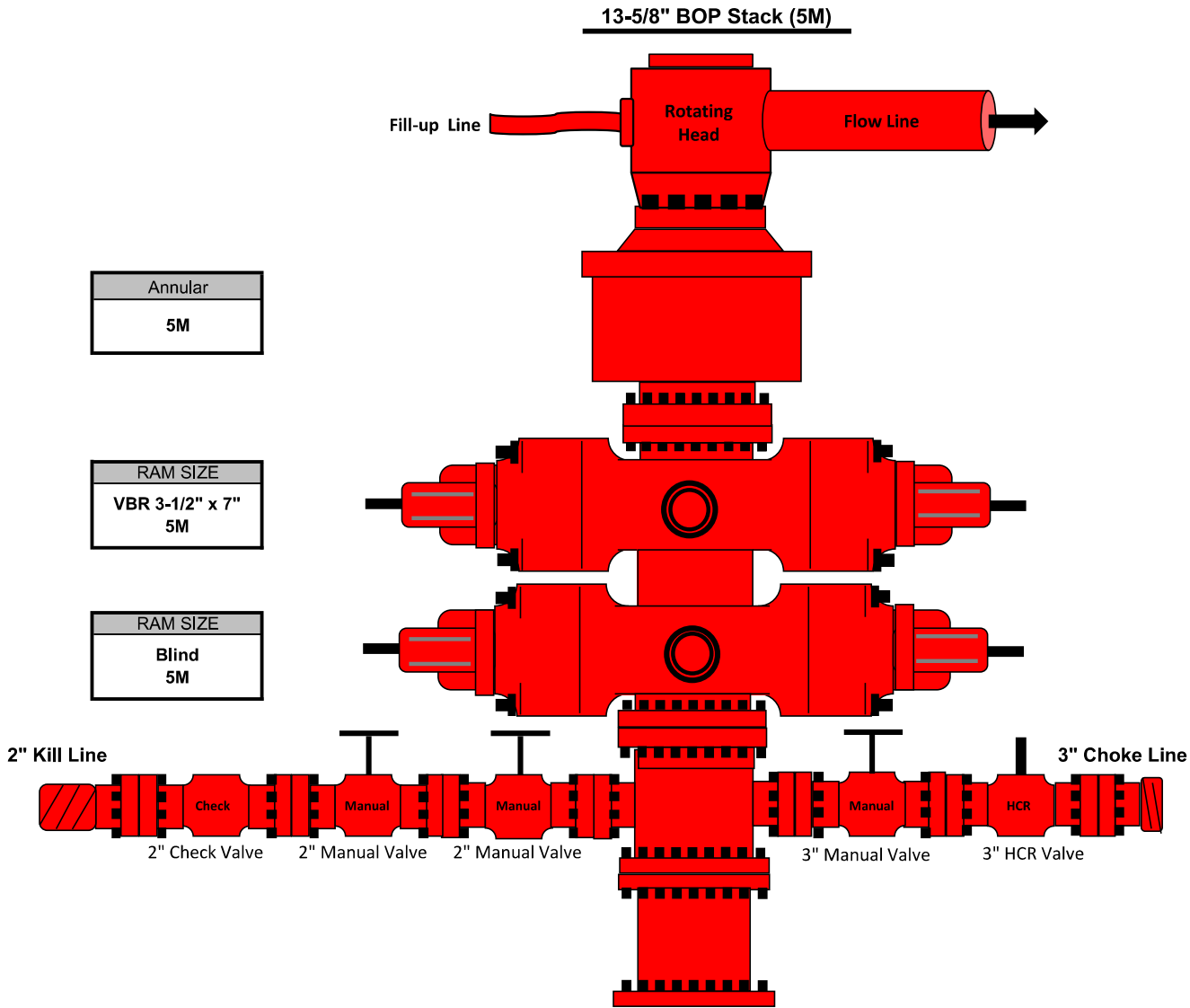
KZ 06/29/2018

Choke Manifold (5M)



Choke Manifold (10M)



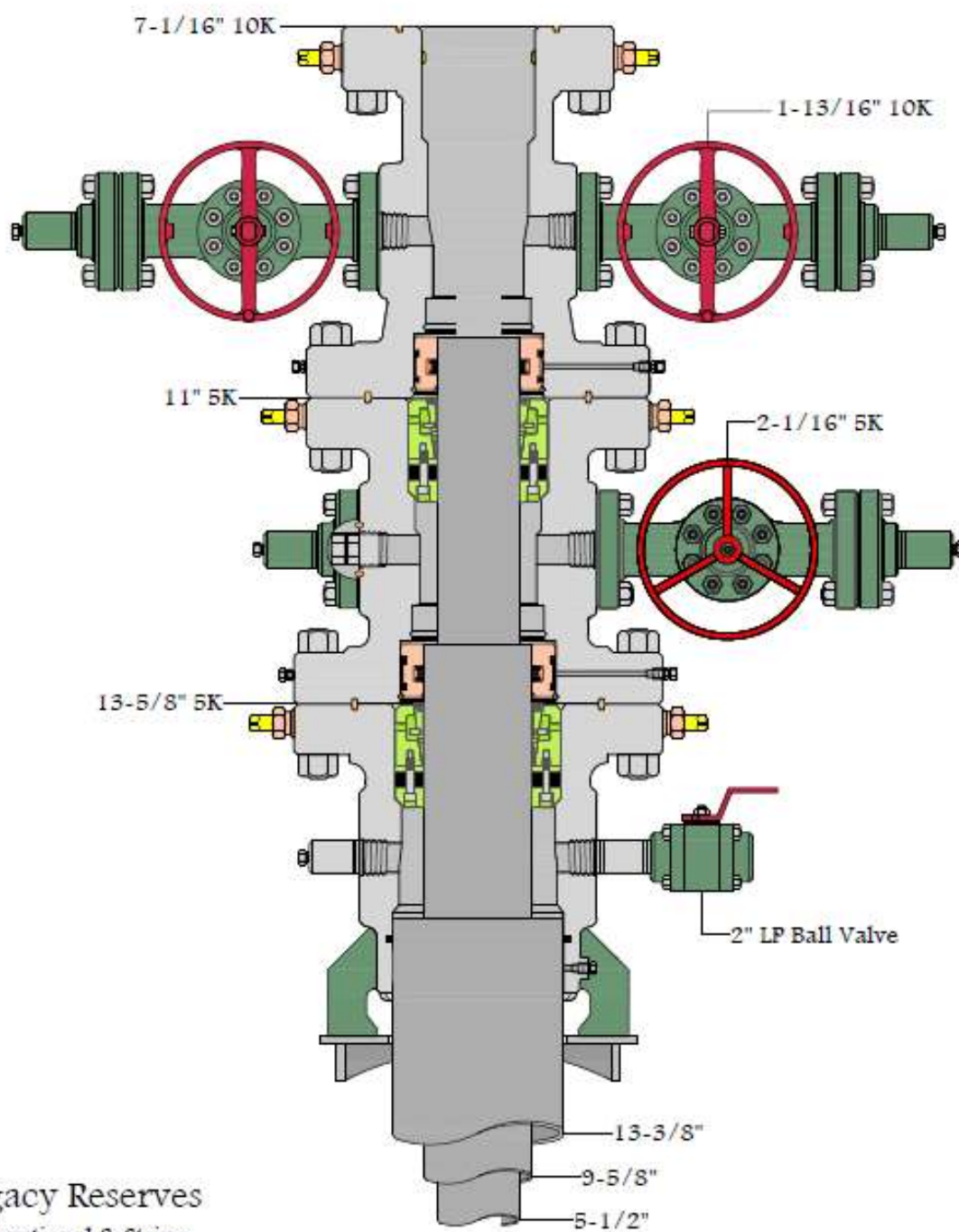




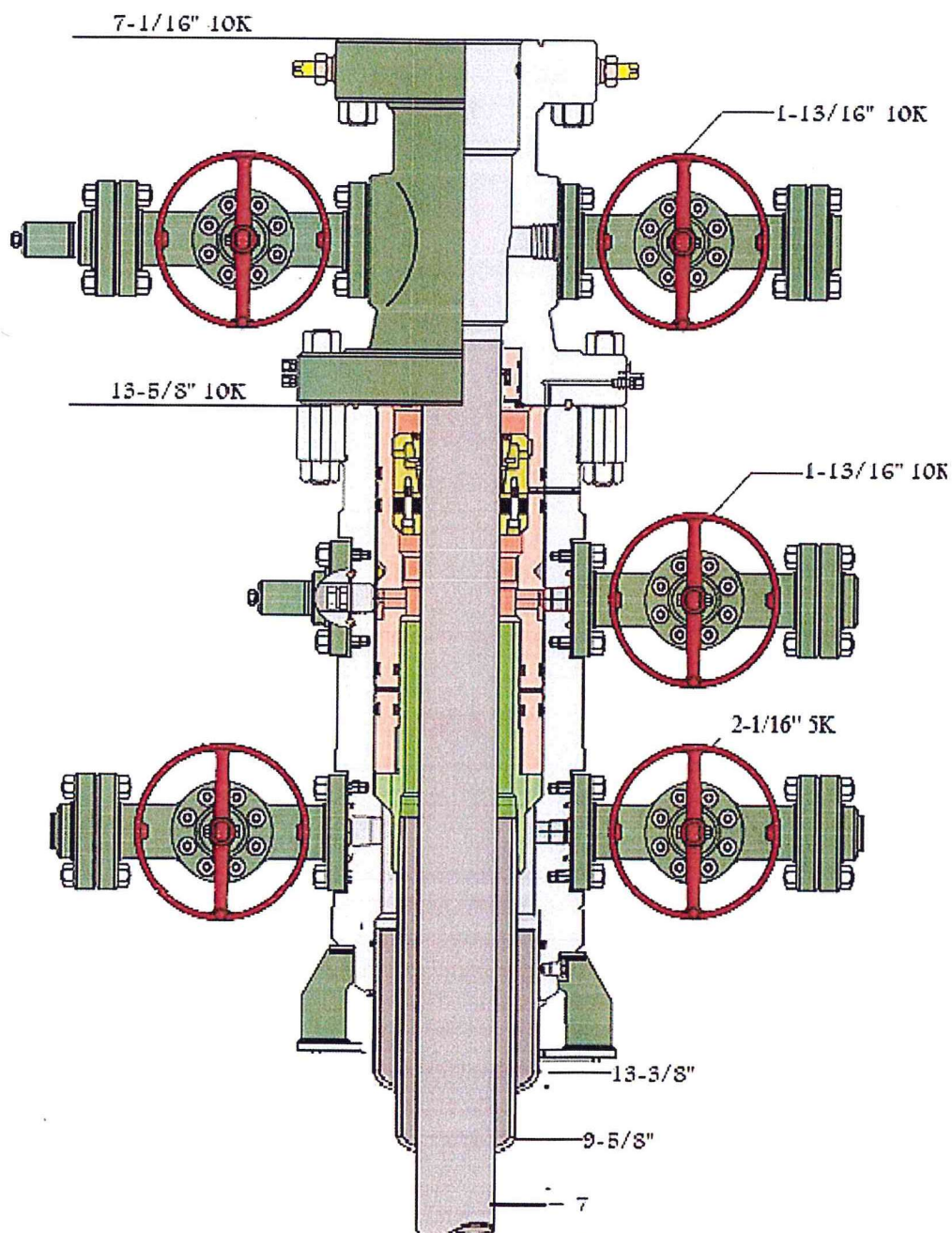
CAMERON

A Schlumberger Company

System/Equipment



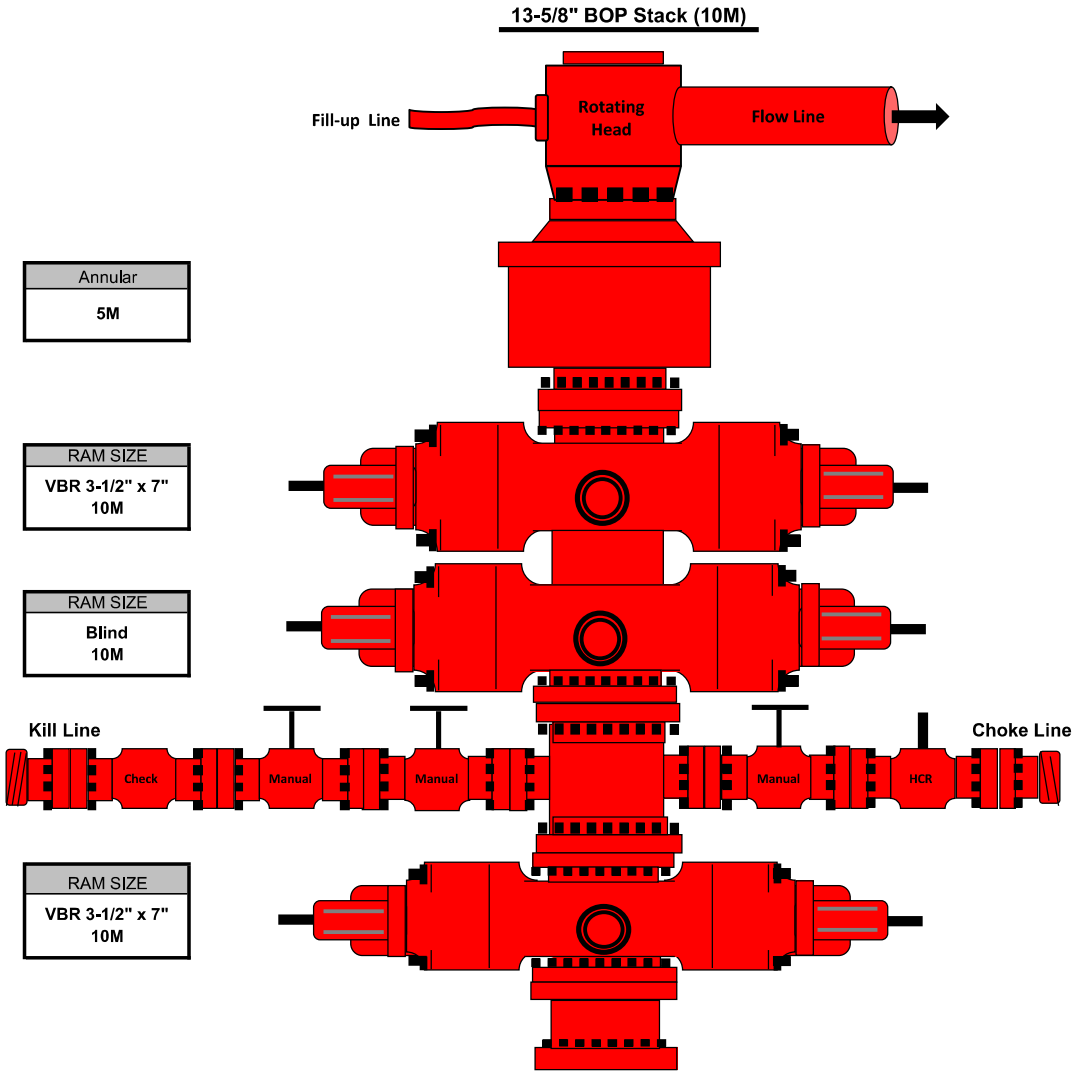
Legacy Reserves
Conventional 3-String



LEGACY RESERVES
 Matt Dickson
 Well: Lea Unit 65h

CAMERON
 A Schlumberger Company

Rev.	1	Working Pressure	#	1598854
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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 56658

CONDITIONS

Operator: LEGACY RESERVES OPERATING, LP 15 Smith Road Midland, TX 79705	OGRID: 240974
	Action Number: 56658
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	11/1/2021
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	11/1/2021
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	11/1/2021
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	11/1/2021