HOBBS OCD
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Form 3160-3
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

# APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.
NMNM01747

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.
NMNM70976B

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

8. Lease Name and Well No. (302802)
LEA UNIT 42H

2. Name of Operator
LEGACY RESERVES OPERATING LP (240974)

9. API Well No.
30-025-44354

3a. Address
303 West Wall St., Ste 1800 Midland TX 7970

3b. Phone No. *(include area code)*
(432)689-5287

10. Field and Pool, or Exploratory (37570)
LEA / BONE SPRING

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NWSE / 2270 FSL / 1430 FEL / LAT 32.5576023 / LONG -103.5098117
At proposed prod. zone NWNE / 330 FNL / 1750 FEL / LAT 32.57945 / LONG -103.51084

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 24 / T20S / R34E / NMP

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

12. County or Parish
LEA

13. State
NM

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

16. No. of acres in lease
360

17. Spacing Unit dedicated to this well
160

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

19. Proposed Depth
9800 feet / 13222 feet

20. BLM/BIA Bond No. on file
FED: NMB001015

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3674 feet

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

23. Estimated duration
45 days

## 24. Attachments

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

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

| 25. Signature | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | Matt Dickson / Ph: (432)689-5204 | 06/23/2017 |

Title
Drilling Engineer

| Approved by *(Signature)* | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | Bobby Ballard / Ph: (575)234-2235 | 12/20/2017 |

| Title | Office |
|---|---|
| Natural Resource Specialist | CARLSBAD |

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

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

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

Approval Date: 12/20/2017

KZ
01/10/18

NSL order required from Santa Fe

Double Lined

OCD Hobbs 17-739

AFMSS

U.S. Department of the Interior
Bureau of Land Management

*Application for Permit to Drill*

## APD Package Report

Date Printed: 01/02/2018 06:48 AM

APD ID: 10400015356
APD Received Date: 06/23/2017 03:04 PM (240974)
Operator: LEGACY RESERVES OPERATING L

Well Status: AAPD
Well Name: LEA UNIT (302802)
Well Number: 42H

APD Package Report Contents mod 1 (375702)

- Form 3160-3

- Operator Certification Report

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- Application Report
- Application Attachments
  -- Well Plat: 1 file(s)

- Drilling Plan Report
- Drilling Plan Attachments
  -- Blowout Prevention Choke Diagram Attachment: 1 file(s)
  -- Blowout Prevention BOP Diagram Attachment: 1 file(s)
  -- Casing Taperd String Specs: 4 file(s)
  -- Casing Design Assumptions and Worksheet(s): 4 file(s)
  -- Hydrogen sulfide drilling operations plan: 1 file(s)
  -- Proposed horizontal/directional/multi-lateral plan submission: 1 file(s)
  -- Other Facets: 3 file(s)

- SUPO Report
- SUPO Attachments
  -- Existing Road Map: 1 file(s)
  -- Attach Well map: 1 file(s)
  -- Production Facilities map: 2 file(s)
  -- Water source and transportation map: 1 file(s)
  -- Well Site Layout Diagram: 1 file(s)
  -- Recontouring attachment: 2 file(s)
  -- Surface use plan certification document: 3 file(s)

- PWD Report
- PWD Attachments
  -- None

- Bond Report

AFMSS

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

# Application Data Report

01/02/2018

**APD ID:** 10400015356 **Submission Date:** 06/23/2017

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

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

Highlighted data reflects the most recent changes

Show Final Text

## Section 1 - General

**APD ID:** 10400015356 **Tie to previous NOS?** **Submission Date:** 06/23/2017

**BLM Office:** CARLSBAD **User:** Matt Dickson **Title:** Drilling Engineer

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

**Lease number:** NMNM01747 **Lease Acres:** 360

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

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

**Agreement number:** NMNM70976B

**Agreement name:** INT BONE SPRING PA B

**Keep application confidential?** NO

**Permitting Agent?** YES **APD Operator:** LEGACY RESERVES OPERATING LP

**Operator letter of designation:**

## 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 **Mater 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:** 42H **Well API Number:**

**Field/Pool or Exploratory?** Field and Pool **Field Name:** LEA **Pool Name:** BONE SPRING

**Is the proposed well in an area containing other mineral resources?** POTASH

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

**Describe other minerals:**

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

**Type of Well Pad:** MULTIPLE WELL **Multiple Well Pad Name:** LEA UNIT **Number:** 37H

**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:** 26 Miles **Distance to nearest well:** 50 FT **Distance to lease line:** 110 FT

**Reservoir well spacing assigned acres Measurement:** 160 Acres

**Well plat:** Lea_42H_Plat_20170905141559.pdf

**Well work start Date:** 08/01/2017 **Duration:** 45 DAYS

## Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

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

**Survey number:** 23263

| | NS-Foot | NS Indicator | EW-Foot | EW Indicator | Twsp | Range | Section | Aliquot/Lot/Tract | Latitude | Longitude | County | State | Meridian | Lease Type | Lease Number | Elevation | MD | TVD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHL Leg #1 | 2270 | FSL | 1430 | FEL | 20S | 34E | 24 | Aliquot NWSE | 32.5576023 | -103.5098117 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 01747 | 3674 | 0 | 0 |
| KOP Leg #1 | 2270 | FSL | 1430 | FEL | 20S | 34E | 24 | Aliquot NWSE | 32.5576023 | -103.5098117 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 01747 | -5410 | 9084 | 9084 |
| PPP Leg #1 | 2270 | FSL | 1430 | FEL | 20S | 34E | 24 | Aliquot NWSE | 32.5576023 | -103.5098117 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 01747 | 3674 | 0 | 0 |

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

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

**Choke Diagram Attachment:**

Lea_42H_Choke_06-23-2017.pdf

**BOP Diagram Attachment:**

Lea_42H_BOP_06-23-2017.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 | Y | 0 | 1800 | 0 | 1800 | 3674 | 1874 | 1800 | J-55 | 54.5 | STC | 1.42 | 3.86 | DRY | 2.59 | DRY | 2.59 |
| 2 | INTERMEDIATE | 12.25 | 9.625 | NEW | API | Y | 0 | 3901 | 0 | 3901 | 3674 | -227 | 3901 | J-55 | 40 | LTC | 1.25 | 1.41 | DRY | 1.6 | DRY | 1.6 |
| 3 | INTERMEDIATE | 12.25 | 9.625 | NEW | API | Y | 3901 | 5600 | 3901 | 5600 | | | 1699 | HCK-55 | 40 | LTC | 1.45 | 1.27 | DRY | 4.23 | DRY | 4.23 |
| 4 | PRODUCTION | 8.75 | 5.5 | NEW | API | Y | 0 | 17493 | 0 | 9800 | | | 17493 | P-110 | 20 | OTHER - BTC | 2.17 | 1.26 | DRY | 1.63 | DRY | 1.63 |

**Casing Attachments**

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

Lea_42H_Casing_Design_Assumptions_Surface_06-23-2017.docx

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

Lea_42H_Casing_Design_Assumptions_Surface_06-23-2017.docx

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

**Casing Attachments**

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

Lea_42H_Casing_Design_Assumptions_Intermediate_06-23-2017.docx

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

Lea_42H_Casing_Design_Assumptions_Intermediate_06-23-2017.docx

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

Lea_42H_Casing_Design_Assumptions_Intermediate_06-23-2017.docx

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

Lea_42H_Casing_Design_Assumptions_Intermediate_06-23-2017.docx

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

Lea_42H_Casing_Design_Assumptions_Production_06-23-2017.docx

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

Lea_42H_Casing_Design_Assumptions_Production_06-23-2017.docx

## Section 4 - Cement

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

| String Type | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft | Excess% | Cement type | Additives |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SURFACE | Lead | | 0 | 1800 | 1100 | 1.93 | 13.5 | 2123 | | Class C | 4% bwoc bentonite II + 2% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.005% bwoc Static Free + 0.005 gps FP-6L |
| SURFACE | Tail | | 0 | 1800 | 200 | 1.34 | 14.8 | 268 | | Class | 1.5% bwoc Calcium Chloride + 0.005 lbs/sack Static Free + 0.005 gps FP-6L |
| INTERMEDIATE | Lead | | 0 | 5600 | 1400 | 2.13 | 12.5 | 2982 | | Paz (fly ash) Class C | 4% bwoc bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL- 52 + 5 lbs/sack LCM-1 +0.125 lbs/sk cello flake + 0.005 lbs/sk defoamer + 0.005 gpsFP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride |
| INTERMEDIATE | Tail | | 0 | 5600 | 200 | 1.33 | 14.8 | 266 | | Class C | none |
| INTERMEDIATE | Lead | | 3901 | 5600 | 1400 | 2.13 | 12.5 | 2982 | | Poz (fly ash) Clas | 4% bwoc bentonite II + 5% bwoc MPA-5 + 0.25% bwoc FL- 52 + 5 lbs/sack LCM-1 +0.125 lbs/sk cello flake+ 0.005 lbs/sk defoamer + 0.005 gpsFP-6L + 1.2% bwoc Sodium Metasilicate + 5% bwow Sodium Chloride |
| INTERMEDIATE | Tail | | 3901 | 5600 | 200 | 1.33 | 14.8 | 266 | | Class C | none |
| PRODUCTION | Lead | | 0 | 17493 | 1600 | 2.38 | 11.9 | 3808 | | 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 | | 0 | 17493 | 1700 | 1.62 | 13.2 | 2754 | | 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 |

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

## 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.

**Describe the mud monitoring system utilized:** A Pason PVT system will be rigged up prior to spudding this well. A volume monitoring system that measures, calculates, and displays readings from the mud system on the rig to alert the rig crew of impending gas kicks and lost circulation. In order to effectively run 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5600 | 9800 | OTHER : Fresh water/brine | 8.4 | 8.6 | | | | | | | |
| 1800 | 5600 | OTHER : Brine water | 9.8 | 10 | | | | | | | |
| 0 | 1800 | SPUD MUD | 8.4 | 8.9 | | | | | | | |
| 9800 | 17493 | OTHER : Fresh water/brine | 8.9 | 9.1 | | | | | | | |

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

## Section 6 - Test, Logging, Coring

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

Mud logging, H2S plan, BOP and choke plans all in place for testing, equipment, safety

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

MUDLOG

**Coring operation description for the well:**

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

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 4312 **Anticipated Surface Pressure:** 2156

**Anticipated Bottom Hole Temperature(F):** 162

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

**Describe:**

**Contingency Plans geoharzards description:**

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations plan:**

Lea_42H_H2S_Plan_06-23-2017.pdf

## Section 8 - Other Information

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

Lea_42H_Horizontal_Drilling_Plan_06-23-2017.pdf

**Other proposed operations facets description:**

Legacy may use 1 or 2 DV tools in cementing the intermediate casing. See Other Facets attachment.

**Other proposed operations facets attachment:**

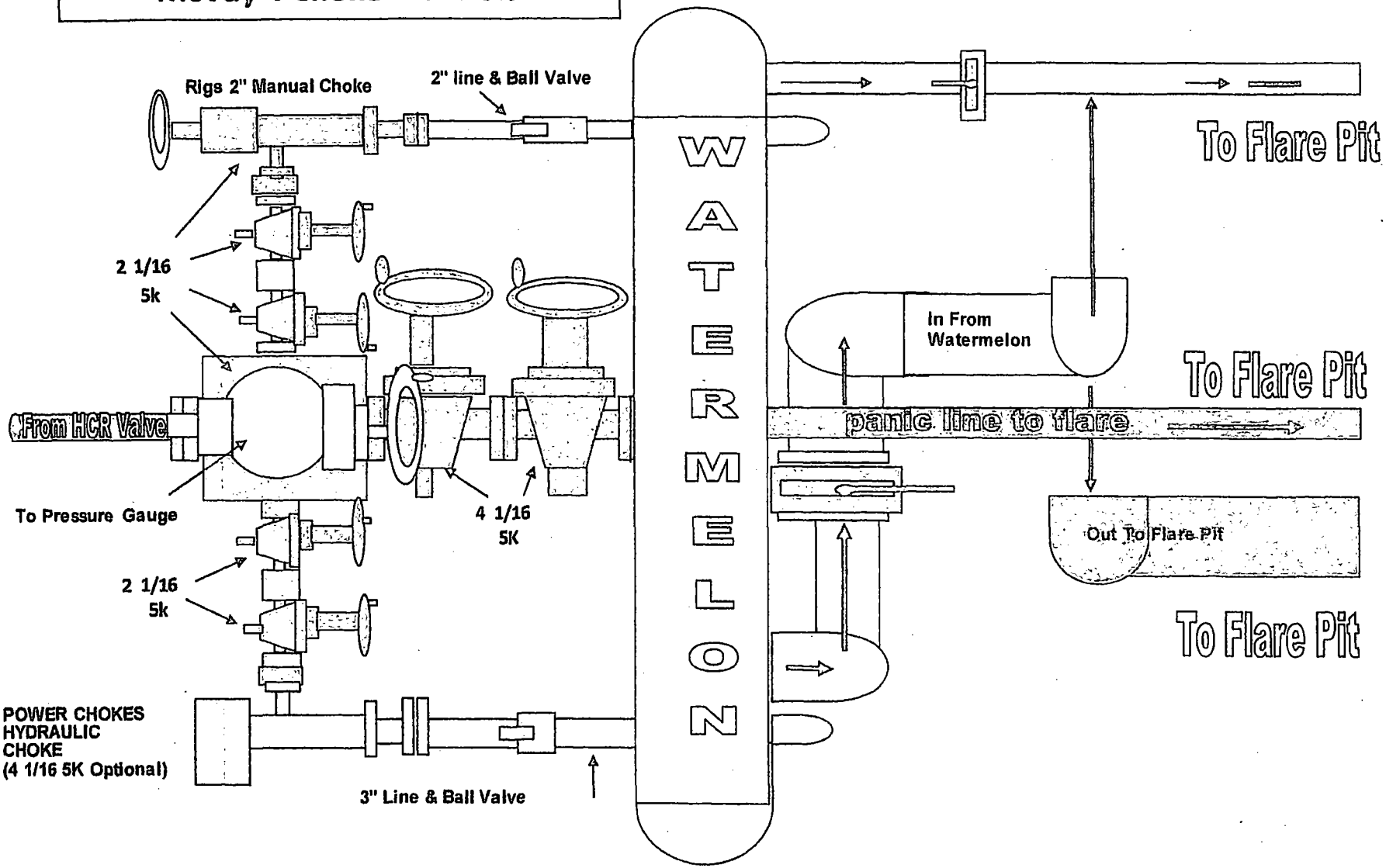
Lea_42H_Intermediate_Cement_Specs_DVTools_06-23-2017.docx

Lea_Unit__42H_Gas_Capture_Plan_20170915091953.pdf

Legacy_Reserves_2017_Planned_Operations_for_the_Lea_Unit_2017POD_20170915092322.pdf

**Other Variance attachment:**

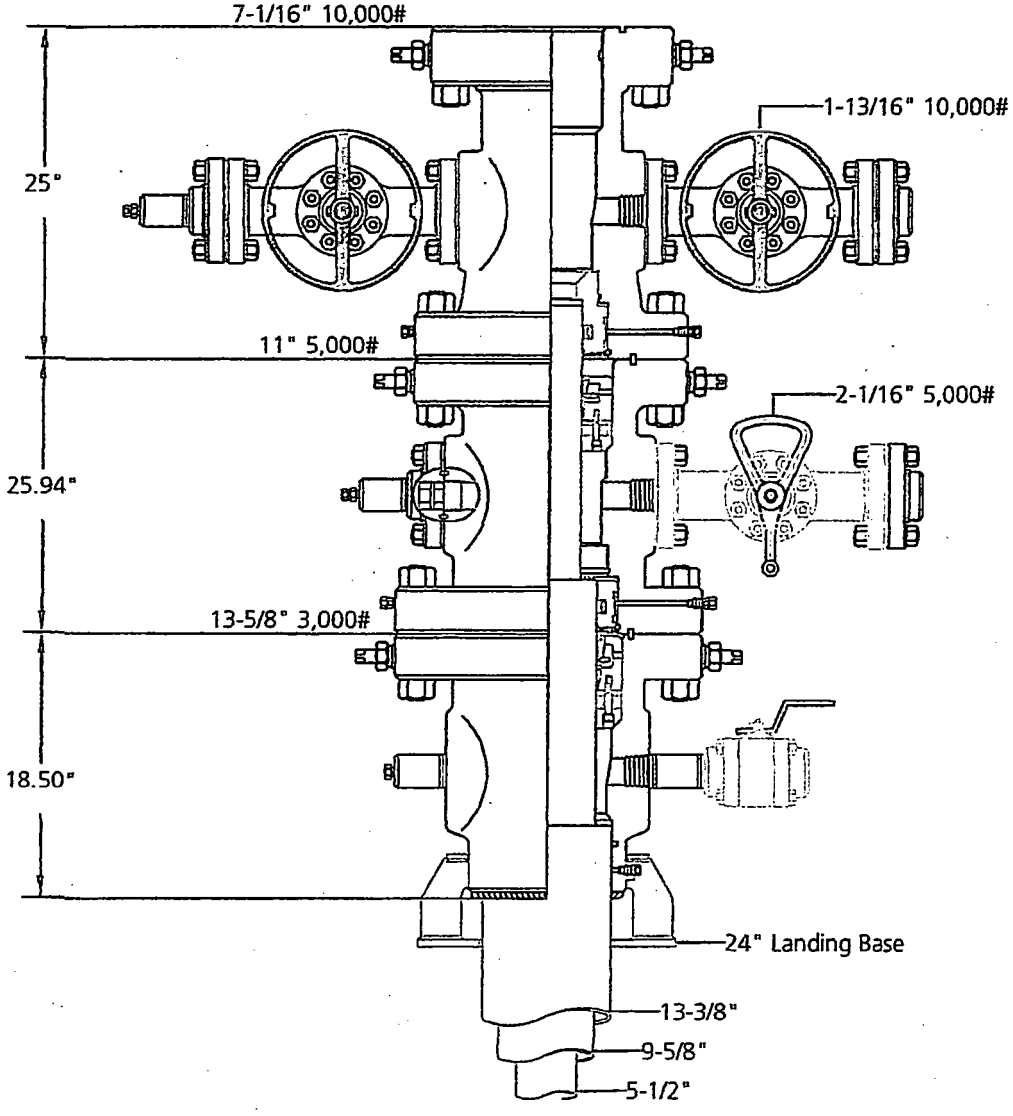
# McVay 4 Choke Manifold




*We use the same choke manifolds for all aspects of our operations & all are rated to 10K;

* All connections downstream from BOP thru chokes Are Flanged, All connections downstream from chokes are Flanged .

Note: Dimensional information reflected on this drawing are estimated measurements only.

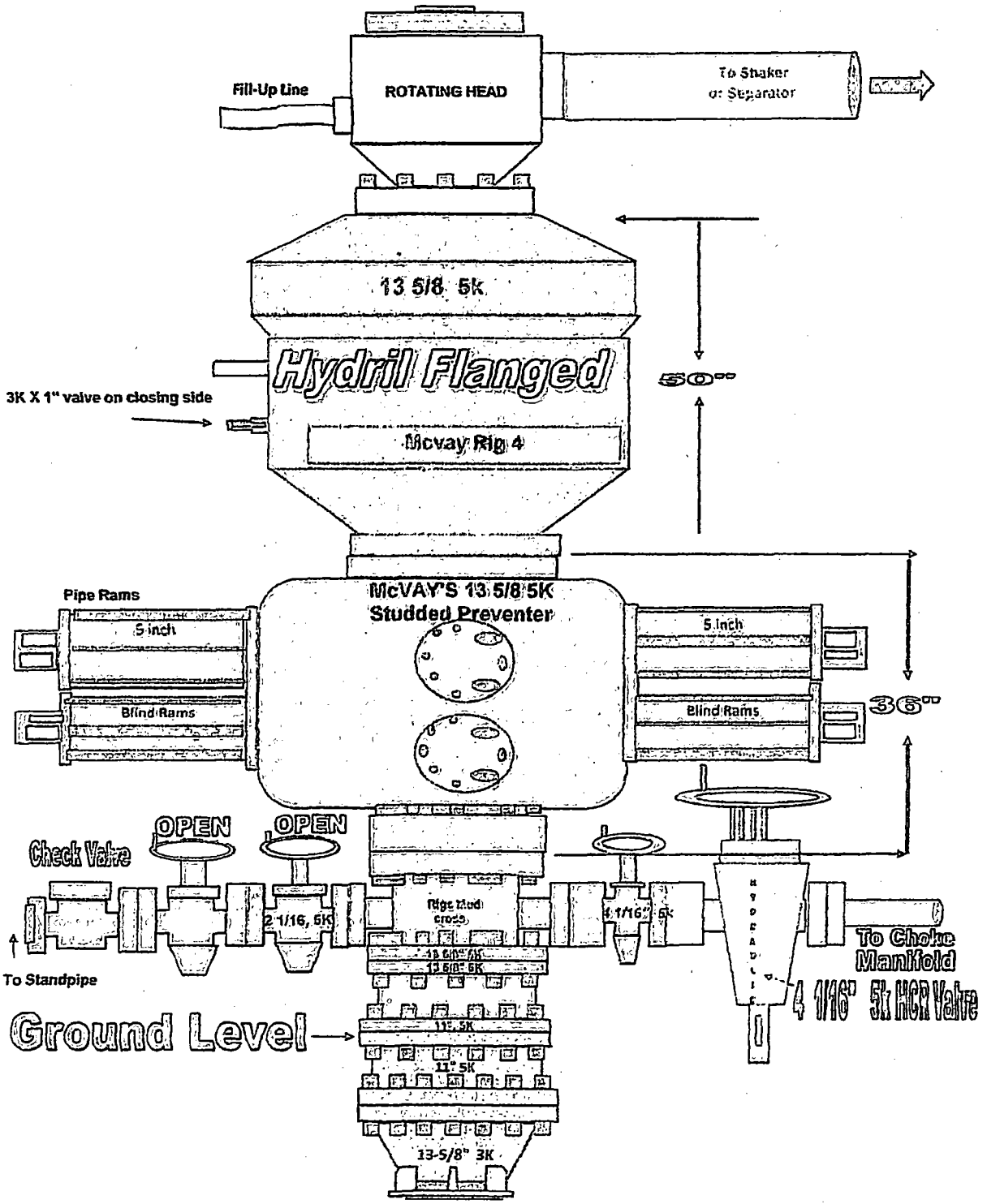



Legacy Reserves
Conventional 3- String

CAMERON

| Name: Jeanette | Date: 7-15-15 | Working Pressure: # | 1274616 |
|---|---|---|---|

# McVay Rig 4


Fill-Up Line
ROTATING HEAD
To Shaker
or Separator
13 5/8 5k
Hydril Flanged
Mcvay Rig 4
3K X 1" valve on closing side
50"
Pipe Rams
5 inch
Blind Rams
McVAY'S 13 5/8 5K
Studded Preventer
5 inch
Blind Rams
36"
OPEN
OPEN
Check Valve
2 1/16, 5K
4 1/16" 5K
To Choke
Manifold
To Standpipe
4 1/16" 5K HCR Valve
Ground Level
11" 5K
11" 5K
13-5/8" 3K

Midwest Hose & Specialty, Inc.

# Internal Hydrostatic Test Graph

February 19, 2017

Customer: Hobbs

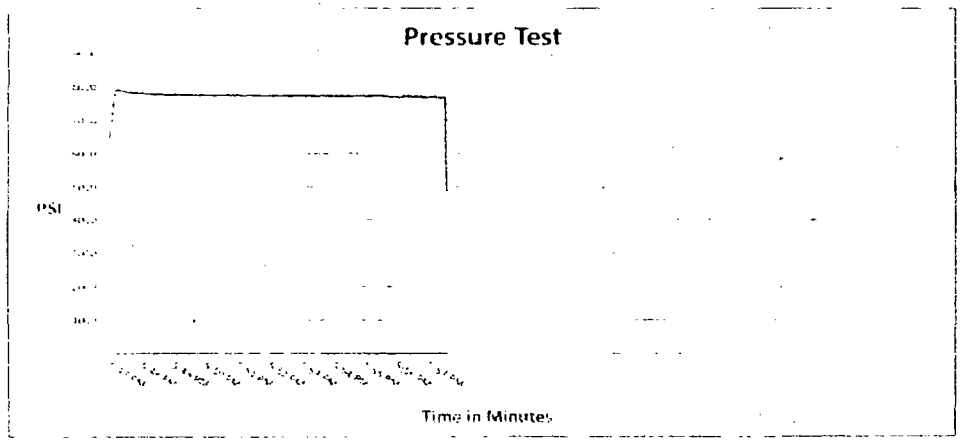
Pick Ticket #: 184842

## Hose Specifications

| Hose Type | Length |
|---|---|
| 4" | 28' |
| **I.D.** | **O.D.** |
| 4" | 5.03" |
| **Working Pressure** | **Burst Pressure** |
| 5000 PSI | Calculated Minimum Burst |

## Verification

| Type of Fitting | Coupling Method |
|---|---|
| 4 1/16 5K | Swage |
| **Die Size** | **Final O.D.** |
| 5.02" | 4.95" |
| **Hose Serial #** | **Hose Assembly Serial #** |
| 12958 | 184842 |




| Test Pressure | Time Held at Test Pressure | Actual Burst Pressure | Peak Pressure |
|---|---|---|---|
| 7500 PSI | 30 1/4 Minutes | | Failed PSI |

Comments: Hose assembly pressure tested with water at ambient temperature

Tested By: Richard Dove

Approved By: Charles Ayo

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* | Richard Dix | |

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* |
|---|---|
| | **2/20/2017** |

## ***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'* | *98,100 lbs* | *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:*
1,130psi / [(0.44psi/ft)(1,800')] = **1.42**

*Cementing Operations:*
1,130psi / [(0.77psi/ft – 0.433psi/ft)(1800')] = **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:*
2,730psi / [(1500psi)-(0.44 psi/ft)(1,800')] = **3.86**

### *Tensile: $DF_T = 1.6$*

Base Assumption

- A downward 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 kips / (100,000 lbs. + 98,100 lbs.) = **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'* | *160,000 lb* | *10.0 ppg* |
| *9.625"* | *HCK-55* | *40* | *4230 psi* | *3950 psi* | *694 kips* | *LTC* | *1600'* | *64,000 lb* | *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: 2570psi / [(0.52psi/ft)(4,000')] = **1.25**
HCK-55: 4230psi / [(0.52psi/ft)(5,600')] = **1.45**

*Cementing Operations:*
J-55: 2570psi / [(0.77psi/ft – 0.433psi/ft)(4000')] = **1.91**
HCK-55: 4230psi / [(0.77psi/ft – 0.433psi/ft)(5600')] = **2.24**

### *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: 3950psi / [(1500psi +1789 psi) - (1747psi)] = **2.56**
HCK-55: 3950psi / [(1500psi +2504 psi) - (2446psi)] = **2.54**

*Gas Kick:*
J-55: 3950psi / [(0.7psi/ft)(5600')-(0.2psi/ft)(5600')] = **1.41**
HCK-55: 3950psi / [(0.7psi/ft)(5600')-(0.2psi/ft)(4000')] = **1.27**

### *Tensile: $DF_T$ = 1.6*

Base Assumption

- A downward 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 kips / (100,000 lbs. + 224,00 lbs.) = **1.6**
HCK-55: 694 kips / (100,000 lbs. + 64,100 lbs.) = **4.23**

## ***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* | *17,000'* | *340,000 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:*
11,080psi / [(0.66psi/ft-0.433 psi/ft)(9,800'TVD)] = **4.98**

*Production Operations:*
11080psi / (9,800' TVD)(0.52psi/ft) = **2.17**

### *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:*
12,360psi / [(9500 psi)+ (0.468 – 0.433psi/ft)(9,800'TVD)] = **1.26**

*Production Operations:*
12,360psi / [(0.5 psi/ft – 0.2 psi/ft)(9,800'TVD)] = **4.2**

### *Tensile: $DF_T = 1.6$*

Base Assumption

- A downward 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:*

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

**Existing Wells description:**

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

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

**Production Facilities description:**

**Production Facilities map:**

Lea_42H_Production_Diagram_06-23-2017.pdf

Lea_Unit_42H_Interim_Reclamation_06_28_2017_20170915091822.pdf

## Section 5 - Location and Types of Water Supply

### Water Source Table

**Water source use type:** INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING

**Water source type:** GW WELL

**Describe type:**

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** WATER WELL

**Source land ownership:** PRIVATE

**Water source transport method:** TRUCKING

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 18000

**Source volume (acre-feet):** 2.3200758

**Source volume (gal):** 756000

**Water source and transportation map:**

Lea_42H_Water_Source_Map_06-23-2017.pdf

**Water source comments:** Water will be obtained from commercial water stations in the area and hauled to the location by transport truck using the existing roads. No water well will be drilled on the location.

**New water well?** NO

### New Water Well Info

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

**Well target aquifer:**

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

**Aquifer comments:**

**Aquifer documentation:**

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

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

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

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

**Drilling method:** **Drill material:**

**Grout material:** **Grout depth:**

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

**Well Production type:** **Completion Method:**

**Water well additional information:**

**State appropriation permit:**

**Additional information attachment:**

## Section 6 - Construction Materials

**Construction Materials description:** CONSTRUCTION MATERIALS: CALICHE WILL BE USED TO CONSTRUCT THISWELL PAD Any construction material that may be required for surfacing of the drill pad will be from a contractor having a permitted source of materials within the general area. No construction materials will be removed from Federal lands without prior approval from the appropriate surface management agency. See attached for source information.
**Construction Materials source location attachment:**

## Section 7 - Methods for Handling Waste

**Waste type:** DRILLING

**Waste content description:** Drilling fluids (flowback, water, cuttings)

**Amount of waste:** 20000 barrels

**Waste disposal frequency :** Daily

**Safe containment description:** Drilling fluids will be contained in steel mud tanks.

**Safe containmant attachment:**

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

**Disposal location description:** NMOCD approved disposal site in Halfway, NM.

## Reserve Pit

**Reserve Pit being used?** NO

**Temporary disposal of produced water into reserve pit?**

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

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

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

**Reserve pit liner**

**Reserve pit liner specifications and installation description**

## Cuttings Area

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** YES

**Description of cuttings location** Drill cuttings will be held in roll-off style mud boxes and taken to an NMOCD approved disposal site in Halfway, NM.

**Cuttings area length (ft.)** **Cuttings area width (ft.)**

**Cuttings area depth (ft.)** **Cuttings area volume (cu. yd.)**

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

**WCuttings area liner**

**Cuttings area liner specifications and installation description**

## Section 8 - Ancillary Facilities

**Are you requesting any Ancillary Facilities?:** NO

**Ancillary Facilities attachment:**

**Comments:**

## Section 9 - Well Site Layout

**Well Site Layout Diagram:**

Lea_42H_Well_Site_Layout_06-23-2017.pdf

**Comments:**

## Section 10 - Plans for Surface Reclamation

**Type of disturbance:** No New Surface Disturbance **Multiple Well Pad Name:** LEA UNIT

**Multiple Well Pad Number:** 37H

**Recontouring attachment:**

Lea_42H_Recontour_Plat_06-23-2017.pdf

Lea_Unit_42H_Interim_Reclamation_06_28_2017_20170915092723.pdf

**Drainage/Erosion control construction:** Access road and well pad already exist - no construction needed. Any maintenance or improvement necessary will be according to BLM standards. Road has borrow ditches. Road and pad are surfaced with caliche.

**Drainage/Erosion control reclamation:** • The original landform will be restored for all disturbed areas including well pads,

production facilities, roads, pipelines, and utility corridors. • A self-sustaining, vigorous, diverse, native (or otherwise approved) plant community will be established on the site, with a density sufficient to control erosion and invasion by non-native plants and to re-establish wildlife habitat or forage production. At a minimum, the established plant community will consist of species included in the seed mix and/or desirable species occurring in the surrounding natural vegetation. • Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, headcutting, slumping, and deep or excessive rills (greater than 3 inches) are not observed. • The site will be free of state- or county-listed noxious weeds, oil field debris and equipment, and contaminated soil. Invasive and non-native weeds are controlled.

**Wellpad long term disturbance (acres):** 1.86
**Wellpad short term disturbance (acres):** 2
**Access road long term disturbance (acres):** 0.0913
**Access road short term disturbance (acres):** 0.0913
**Pipeline long term disturbance (acres):** 0
**Pipeline short term disturbance (acres):** 1.9772727
**Other long term disturbance (acres):** 0
**Other short term disturbance (acres):** 0
**Total long term disturbance:** 1.9513
**Total short term disturbance:** 4.0685725

**Reconstruction method:** Final reclamation to achieve restoration of the original landform and a natural vegetative community. The original landform will be restored for all disturbed areas including well pads, production facilities, roads, pipelines, and utility corridors.
**Topsoil redistribution:** Evenly

**Soil treatment:** Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, headcutting, slumping, and deep or excessive rills (greater than 3 inches) are not observed. The site will be free of state- or county-listed noxious weeds, oil field debris and equipment, and contaminated soil. Invasive and non-native weeds are controlled.
**Existing Vegetation at the well pad:**

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

**Existing Vegetation Community at the road:**

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

**Existing Vegetation Community at the pipeline:**

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

**Existing Vegetation Community at other disturbances:**

**Existing Vegetation Community at other disturbances attachment:**

**Non native seed used?**

**Non native seed description:**

**Seedling transplant description:**

**Will seedlings be transplanted for this project?**

**Seedling transplant description attachment:**

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

**Will seed be harvested for use in site reclamation?**

**Seed harvest description:**

**Seed harvest description attachment:**

## Seed Management

### Seed Table

**Seed type:** **Seed source:**

**Seed name:**

**Source name:** **Source address:**

**Source phone:**

**Seed cultivar:**

**Seed use location:**

**PLS pounds per acre:** **Proposed seeding season:**

### Seed Summary

**Total pounds/Acre:**

| Seed Type | Pounds/Acre |
|---|---|

**Seed reclamation attachment:**

## Operator Contact/Responsible Official Contact Info

**First Name:** **Last Name:**

**Phone:** **Email:**

**Seedbed prep:**

**Seed BMP:**

**Seed method:**

**Existing invasive species?** NO

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Weed treatment plan description:** Noxious weeds will be controlled

**Weed treatment plan attachment:**

**Monitoring plan description:** On pumper visits

**Monitoring plan attachment:**

**Success standards:** To BLM standards

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

**Pit closure description:** N/A (closed loop)

**Pit closure attachment:**

## Section 11 - Surface Ownership

**Disturbance type:** EXISTING ACCESS ROAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT,PRIVATE OWNERSHIP

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

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

**Fee Owner:** Pat Sims **Fee Owner Address:** PO Box 1046 Eunice NM 88231

**Phone:** (575)390-2642 **Email:**

**Surface use plan certification:** YES

**Surface use plan certification document:**

Lea_42H_Surface_Use_Agreement_06-23-2017.pdf

**Surface access agreement or bond:** Agreement

**Surface Access Agreement Need description:** Ranch-wise surface use agreement

**Surface Access Bond BLM or Forest Service:**

**BLM Surface Access Bond number:**

**USFS Surface access bond number:**

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** PRIVATE OWNERSHIP

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

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

**Fee Owner:** Pat Sims **Fee Owner Address:** PO Box 1406 Eunice NM 88231

**Phone:** (575)390-2642 **Email:**

**Surface use plan certification:** YES

**Surface use plan certification document:**

Lea_42H_Surface_Use_Agreement_06-23-2017.pdf

**Surface access agreement or bond:** Agreement

**Surface Access Agreement Need description:** Ranch-wide surface use agreement

**Surface Access Bond BLM or Forest Service:**

**BLM Surface Access Bond number:**

**USFS Surface access bond number:**

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

**Disturbance type:** PIPELINE

**Describe:**

**Surface Owner:** PRIVATE OWNERSHIP

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

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

**Fee Owner:** Pat Sims **Fee Owner Address:** PO Box 1046

**Phone:** (575)390-2642 **Email:**

**Surface use plan certification:** YES

**Surface use plan certification document:**

Lea_42H_Surface_Use_Agreement_06-23-2017.pdf

**Surface access agreement or bond:** Agreement

**Surface Access Agreement Need description:** Ranch-wide surface use agreement

**Surface Access Bond BLM or Forest Service:**

**BLM Surface Access Bond number:**

**USFS Surface access bond number:**

## Section 12 - Other Information

**Right of Way needed?** NO **Use APD as ROW?**

**ROW Type(s):**

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

## ROW Applications

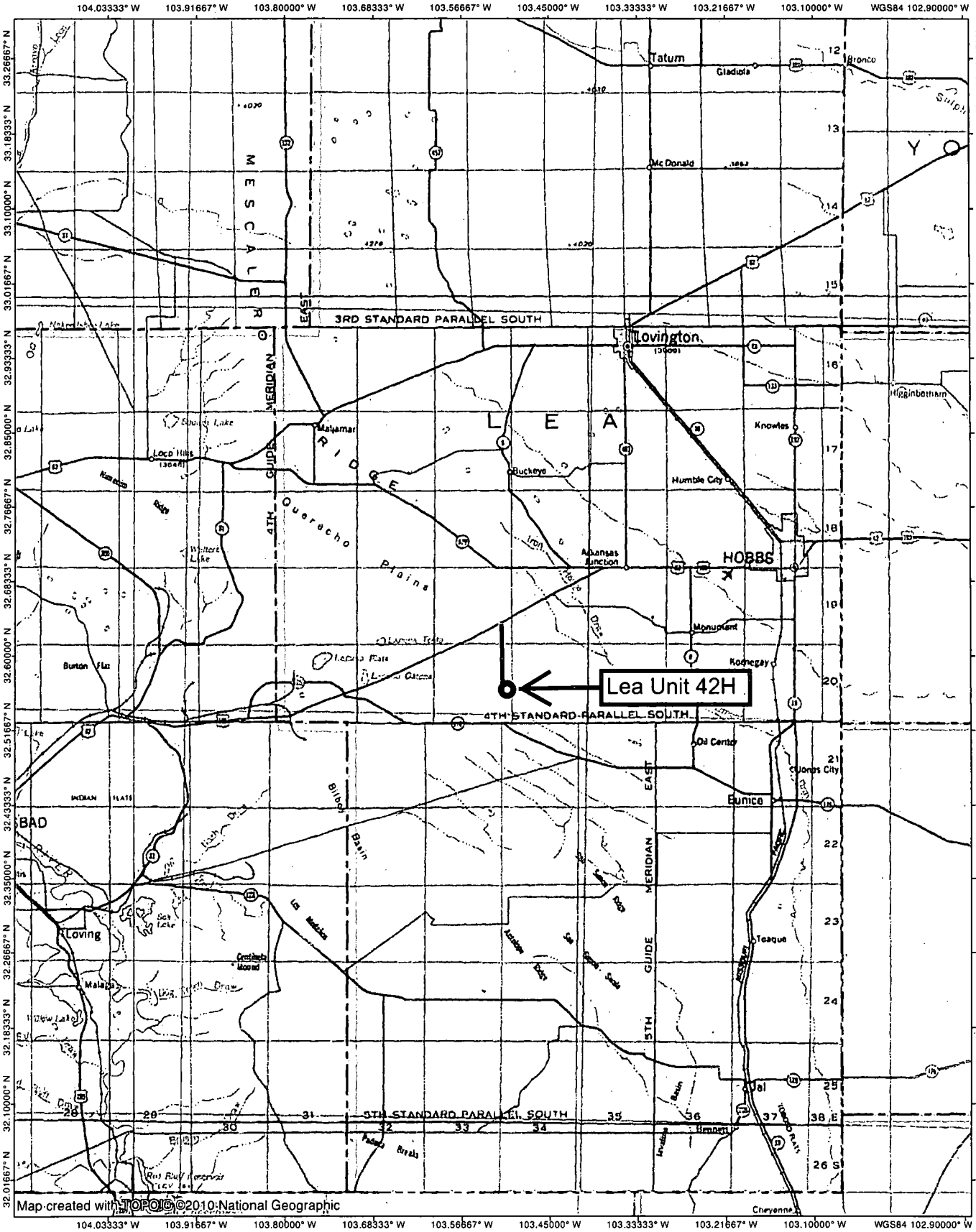
**SUPO Additional Information:**

**Use a previously conducted onsite?** YES

**Previous Onsite information:** ON-SITE PERFORMED ON 6/16/15 RESULTED IN PROPOSED LOCATION BEING OK WHERE STAKED. IT WAS AGREED TO TURN THE LOCATION TO A V-DOOR EAST. IT WAS ALSO AGREED TO MOVE AND PLACE THE TOP SOIL TO THE NORTH, AND THE INTERIM RECLAMATION WILL BE THE NORTH, EAST, SOUTH, AND WEST PORTION OF THIS PAD. PRESENT AT ON-SITE: CRAIG SPARKMAN-LEGACY RESERVES OPERATING, L.P. TRISH BADBEAR-BLM CASSANDRA BROOKS-BLM CHRISTOPHER FREEMAN-CEHMM DOUG BURGER-LEGACY LAND & ENVIRONMENTAL SOLUTIONS KELLY POINDEXTER-WEST COMPANY OF MIDLAND-SURVEYORS

## Other SUPO Attachment

TOPO! map printed on 04/24/17 from "Untitled.tpo"




Map created with TOPO!® ©2010 National Geographic

NATIONAL GEOGRAPHIC

0 5 10 15 20 miles
0 5 10 15 20 25 30 km

MAP 1

TN MN
7°
04/24/17

LEGACY
RESERVES

**December 14, 2016**

RE: LEGACY RESERVES – LEA UNIT #42H
S&S INC. & PEARL VALLEY LP SUA
SECTION 24, TOWNSHIP 20 SOUTH, RANGE 34 EAST

To whom it may concern:

This letter is to inform you that Legacy Reserves Operating LP successfully negotiated a ranch-wide surface use agreement with Pat Sims, on behalf of S&S Inc. and Pearl Valley Limited Partnership, for the purposes of building well pad locations and other necessary oil and gas operations on land owned by S&S and Pearl Valley. The agreement covers all of Section 24-20S-34E, among other lands held by Mr. Sims' two entities.

If there are any questions for Pat Sims, he can be reached by phone or mail by using the following information:

- Phone – (575) 390-2642
- Address – PO Box 1046
  Eunice, NM 88231

If you have any questions in regards to the Surface Use Agreement with S&S Inc. and Pearl Valley Limited Partnership please call Clay Roberts, Landman, at Legacy Reserves. He can be reached at 432-689-5206

Sincerely,

Cly Rob

303 W. Wall, Suite 1400 □ Midland, Texas 79701 □ P.O. Box 10848 □ Midland, Texas 79702
OFFICE 432-689-5200 □ FAX 432-684-3774

LEGACY
RESERVES

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LEGACY
RESERVES

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Sincerely,

Cly Rbts

303 W. Wall, Suite 1400 □ Midland, Texas 79701 □ P.O. Box 10848 □ Midland, Texas 79702
OFFICE 432-689-5200 □ FAX 432-684-3774

## Section 1 - General

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

## Section 2 - Lined Pits

**Would you like to utilize Lined Pit PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Lined pit PWD on or off channel:**

**Lined pit PWD discharge volume (bbl/day):**

**Lined pit specifications:**

**Pit liner description:**

**Pit liner manufacturers information:**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal permit:**

**Lined pit precipitated solids disposal schedule:**

**Lined pit precipitated solids disposal schedule attachment:**

**Lined pit reclamation description:**

**Lined pit reclamation attachment:**

**Leak detection system description:**

**Leak detection system attachment:**

**Lined pit Monitor description:**

**Lined pit Monitor attachment:**

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

**Is the reclamation bond a rider under the BLM bond?**

**Lined pit bond number:**

**Lined pit bond amount:**

**Additional bond information attachment:**

## Section 3 - Unlined Pits

**Would you like to utilize Unlined Pit PWD options?** NO

**Produced Water Disposal (PWD) Location:**

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

**Unlined pit PWD on or off channel:**

**Unlined pit PWD discharge volume (bbl/day):**

**Unlined pit specifications:**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal permit:**

**Unlined pit precipitated solids disposal schedule:**

**Unlined pit precipitated solids disposal schedule attachment:**

**Unlined pit reclamation description:**

**Unlined pit reclamation attachment:**

**Unlined pit Monitor description:**

**Unlined pit Monitor attachment:**

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

**Beneficial use user confirmation:**

**Estimated depth of the shallowest aquifer (feet):**

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

**TDS lab results:**

**Geologic and hydrologic evidence:**

**State authorization:**

**Unlined Produced Water Pit Estimated percolation:**

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

**Is the reclamation bond a rider under the BLM bond?**

**Unlined pit bond number:**

**Unlined pit bond amount:**

**Additional bond information attachment:**

## Section 4 - Injection

**Would you like to utilize Injection PWD options?** NO

**Produced Water Disposal (PWD) Location:**

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

**Injection PWD discharge volume (bbl/day):**

**Injection well mineral owner:**

**Injection well type:**

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

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

**Injection well new surface disturbance (acres):**

**Minerals protection information:**

**Mineral protection attachment:**

**Underground Injection Control (UIC) Permit?**

**UIC Permit attachment:**

## Section 5 - Surface Discharge

**Would you like to utilize Surface Discharge PWD options?** NO

**Produced Water Disposal (PWD) Location:**

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

**Surface discharge PWD discharge volume (bbl/day):**

**Surface Discharge NPDES Permit?**

**Surface Discharge NPDES Permit attachment:**

**Surface Discharge site facilities information:**

**Surface discharge site facilities map:**

## Section 6 - Other

**Would you like to utilize Other PWD options?** NO

**Produced Water Disposal (PWD) Location:**

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

**Other PWD discharge volume (bbl/day):**

**Other PWD type description:**

**Other PWD type attachment:**

**Have other regulatory requirements been met?**

**Other regulatory requirements attachment:**

AFMSS

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

# Bond Info Data Report

01/02/2018

## Bond Information

**Federal/Indian APD:** FED

**BLM Bond number:** NMB001015

**BIA Bond number:**

**Do you have a reclamation bond?** NO

**Is the reclamation bond a rider under the BLM bond?**

**Is the reclamation bond BLM or Forest Service?**

**BLM reclamation bond number:**

**Forest Service reclamation bond number:**

**Forest Service reclamation bond attachment:**

**Reclamation bond number:**

**Reclamation bond amount:**

**Reclamation bond rider amount:**

**Additional reclamation bond information attachment:**

**APD ID:** 10400015356 **Submission Date:** 06/23/2017

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

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

Highlighted data reflects the most recent changes

Show Final Text

## Section 1 - Existing Roads

**Will existing roads be used?** YES

**Existing Road Map:**

Lea_42H_Road_Map_06-23-2017.pdf

**Existing Road Purpose:** ACCESS,FLUID TRANSPORT **Row(s) Exist?** YES

### ROW ID(s)

**ID:**

**Do the existing roads need to be improved?** NO

**Existing Road Improvement Description:**

**Existing Road Improvement Attachment:**

## Section 2 - New or Reconstructed Access Roads

**Will new roads be needed?** NO

## Section 3 - Location of Existing Wells

**Existing Wells Map?** YES

**Attach Well map:**

Lea_42H_Well_Map_06-23-2017.pdf

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT **Well Number:** 42H

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PPP Leg #1 | 0 | FSL | 1551 | FEL | 20S | 34E | 13 | Aliquot SWSE | 32.56586 | -103.5102 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 03085 | -6126 | 12584 | 9800 |
| PPP Leg #1 | 2640 | FSL | 1657 | FEL | 20S | 34E | 13 | Aliquot SWNE | 32.57309 | -103.51054 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 053434 | -6126 | 13214 | 9800 |
| EXIT Leg #1 | 330 | FNL | 1750 | FEL | 20S | 34E | 13 | Aliquot NWNE | 32.57945 | -103.51084 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 053434 | -6126 | 13222 | 9800 |
| BHL Leg #1 | 330 | FNL | 1750 | FEL | 20S | 34E | 13 | Aliquot NWNE | 32.57945 | -103.51084 | LEA | NEW MEXICO | NEW MEXICO | F | NMNM 053434 | -6126 | 13222 | 9800 |

**APD ID:** 10400015356

**Submission Date:** 06/23/2017

Highlighted data reflects the most recent changes

Show Final Text

**Operator Name:** LEGACY RESERVES OPERATING LP

**Well Name:** LEA UNIT

**Well Number:** 42H

**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 |
|---|---|---|---|---|---|---|---|
| 1 | — | 3674 | 0 | 0 | OTHER : Quaternary | USEABLE WATER | No |
| 2 | RUSTLER ANHYDRITE | 2000 | 1680 | 1680 | ANHYDRITE | NONE | No |
| 3 | TOP SALT | 1960 | 1720 | 1720 | SALT | NONE | No |
| 4 | BOTTOM SALT | 530 | 3150 | 3150 | SALT | NONE | No |
| 5 | CAPITAN REEF | 530 | 3150 | 3150 | | USEABLE WATER | No |
| 6 | SAN ANDRES | -1030 | 4710 | 4710 | LIMESTONE | NATURAL GAS,CO2,OIL | No |
| 7 | CAPITAN REEF | -1030 | 4710 | 4710 | | USEABLE WATER | No |
| 8 | DELAWARE SAND | -1986 | 5666 | 5666 | SANDSTONE | NATURAL GAS,CO2,OIL | No |
| 9 | BONE SPRING LIME | -4525 | 8205 | 8205 | LIMESTONE | NATURAL GAS,CO2,OIL | No |
| 10 | AVALON SAND | -5080 | 8760 | 8760 | SHALE | NATURAL GAS,CO2,OIL | No |
| 11 | BONE SPRING 1ST | -5821 | 9501 | 9530 | | NATURAL GAS,OIL | Yes |

## Section 2 - Blowout Prevention

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

**Rating Depth:** 11000

**Equipment:** Legacy Reserves plans to use a 13-5/8" 5000-psi working pressure BOP system consisting of a double ram BOP with one ram being pipe and one ram being blind, a 5000-psi annular type preventer, a 5000-psi choke manifold and 80 gallon accumulator with floor, five remote operating stations and an auxiliary power system. A rotating head will be utilized as needed. A drill string safety valve in the open position will be available on the rig floor. A mud gas separator will be available for use if needed. A 3M BOP will be used to drill from the surface casing shoe (~1800') to the intermediate casing shoe (~5600'). The BOP will be a 5M system, however the "A" section wellhead will be a 3M wellhead (see attached BOP Diagram). 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.
**Requesting Variance?** YES

**Variance request:** Legacy Reserves requests a variance to use a co-flex hose. (See BOP attachment)

AFMSS

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

# Operator Certification Data Report

01/02/2018

## Operator Certification

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** Matt Dickson **Signed on:** 06/23/2017

**Title:** Drilling Engineer

**Street Address:** 303 West Wall St., Ste 1800

**City:** Midland **State:** TX **Zip:** 79701

**Phone:** (432)689-5204

**Email address:** mdickson@legacylp.com

## Field Representative

**Representative Name:**

**Street Address:**

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

**Phone:**

**Email address:**