Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD
MAR 12 2019
RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

## SUNDRY NOTICES AND REPORTS ON WELLS

***Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.***

***SUBMIT IN TRIPLICATE*** – *Other instructions on page 2.*

| | |
|---|---|
| 1. Type of Well<br>☑ Oil Well ☐ Gas Well ☐ Other | 5. Lease Serial No.<br>NMNM 106916 |
| | 6. If Indian, Allottee or Tribe Name |
| | 7. If Unit of CA/Agreement, Name and/or No. |
| | 8. Well Name and No.<br>E. Livingston 31 Federal #8H |
| 2. Name of Operator<br>Regeneration Energy Corp. | 9. API Well No.<br>30-025-45286 |
| 3a. Address<br>PO Box 210<br>3b. Phone No. *(include area code)*<br>575 736-3535 | 10. Field and Pool or Exploratory Area<br>Sand Dunes; Bone Spring |
| 4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*<br>190 FSL 2310 FEL<br>Sec. 31 T22S R32E | 11. Country or Parish, State<br>Lea County, New Mexico |

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | | |
|---|---|---|---|---|
| ☐ Notice of Intent | ☐ Acidize | ☐ Deepen | ☐ Production (Start/Resume) | ☐ Water Shut-Off |
| | ☐ Alter Casing | ☐ Fracture Treat | ☐ Reclamation | ☐ Well Integrity |
| ☑ Subsequent Report | ☐ Casing Repair | ☐ New Construction | ☐ Recomplete | ☑ Other Change on APD |
| | ☐ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | |
| ☐ Final Abandonment Notice | ☐ Convert to Injection | ☐ Plug Back | ☐ Water Disposal | |

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Regeneration requests variance for the change in the production string cement and DV tool being set around 6550'. Enclosed is the new cement proposal. Thank you

Carlsbad Field Office
OCD Hobbs

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

All Previous COAs Still Apply Except For the Following:

| | |
|---|---|
| 14. I hereby certify that the foregoing is true and correct.<br>Name *(Printed/Typed)*<br>William Miller | Title Landman |
| Signature | Date 01/30/2019 |

## THIS SPACE FOR FEDERAL OR STATE OFFICE USE

| | | |
|---|---|---|
| Approved by | Title Petroleum Engineer | Date 2/15/2019 |
| Conditions of approval, if any, are attached. Approval of this notice 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. | Office CFO | |

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.

(Instructions on page 2)

**REGENERATION ENERGY**
**E LIVINGSTON 31 FEDERAL 8H**

# 5 1/2 2 Stage Production Casing

Well Name: E LIVINGSTON 31 FEDERAL 8H

| | |
|---|---|
| Intermediate Casing | 0 - 4575 ft (MD)<br>0- 4575 ft (TVD) |
| Outer Diameter | 9.625 in |
| Inner Diameter | 8.921 in |
| Linear Weight | 36 lbm/ft |
| Casing Grade | J-55 |
| Excess Factor | 10 % |
| Thread Type | BTC |
| 8 3/4 Open Hole | 4575 - 14863 ft (MD)<br>4575- 10290 ft (TVD) |
| Inner Diameter | 8.75 in |
| Excess Factor | 20 % |
| Production Casing | 0 - 14863 ft (MD)<br>0- 10290 ft (TVD) |
| Outer Diameter | 5.5 in |
| Inner Diameter | 4.892 in |
| Linear Weight | 17 lbm/ft |
| Casing Grade | P-110 |
| Shoe Joint Length | 40 ft |
| Thread Type | LTC |
| KOP | - 9750 ft (MD)<br>- 9750 ft (TVD) |
| EOC | - 10600 ft (MD)<br>- 10600 ft (TVD) |
| Multiple Stage Cementer | 6500 ft (MD) |

Pump Tuned Spacer, Pump Lead Cement, Tail Cement, Drop Plug, Displace, Bump Plug, Check Floats, Drop Bomb, Open Tool Circulate Clean, Wait 4 Hrs, 2nd Stage: Pump Fresh Water, Pump Lead Cement,Tail Cement, Drop Plug, Displace, Bump Plug.

| | |
|---|---|
| Mud Type | Brine |
| Mud Weight | 9.5 lbm/gal |

**REGENERATION ENERGY CORP**
**E LIVINGSTON 31 FEDERAL 8H**

## *5 1/2 2 Stage Production Casing*

**Stage 1**

| | |
|---|---|
| SPACER: (556 ft fill) | |
| 556 ft * 0.2526 ft3/ft * 20 % | = 168.44 ft3 |
| Total Spacer | = 168.44 ft3 |
| | = 30 bbl |
| CEMENT: (2915 ft fill) | |
| 2915 ft * 0.2526 ft3/ft * 20 % | = 883.58 ft3 |
| NeoCem™ PL2 | = 883.58 ft3 |
| | = 157.4 bbl |
| Total Lead | = 326.22 sack |
| CEMENT: (5448 ft fill) | |
| 5448 ft * 0.2526 ft3/ft * 20 % | = 1651.37 ft3 |
| VersaCem - H | = 1651.37 ft3 |
| | = 294.2 bbl |
| Shoe Joint Volume: ( 40 ft fill ) | |
| 40 ft * 0.1305 ft3/ft | = 5.22 ft3 |
| | = 0.9 bbl |
| Tail plus shoe joint | = 1656.86 ft3 |
| | = 295.1 bbl |
| Total Tail | = 1350.34 sack |
| Total Pipe Capacity: | |
| 4575 ft * 0.1305 ft3/ft | = 597.16 ft3 |
| 10288 ft * 0.1305 ft3/ft | = 1342.86 ft3 |
| | = 345.5 bbl |
| Displacement Volume to Shoe Joint: | |
| Capacity of Pipe - Shoe Joint | = 345.5 bbl - 0.9 bbl |
| | = 344.6 bbl |

**Stage 2**

| | |
|---|---|
| CEMENT: (5000 ft fill) | |
| 425 ft * 0.2526 ft3/ft * 20 % | = 128.82 ft3 |
| 4575 ft * 0.2691 ft3/ft * 10 % | = 1354.13 ft3 |
| NeoCem™ PL2 | = 1482.95 ft3 |
| | = 264.1 bbl |
| Total Lead | = 547.36 sack |

**REGENERATION ENERGY CORP**
**E LIVINGSTON 31 FEDERAL 8H,**

CEMENT: (1500 ft fill)

| | |
|---|---|
| 1500 ft * 0.2526 ft3/ft * 20 % | = 454.67 ft3 |
| VersaCem H | = 454.67 ft3 |
| | = 80.1 bbl |

Total Tail = 377.41 sack

Total Pipe Capacity:

| | |
|---|---|
| 4575 ft * 0.1305 ft3/ft | = 597.16 ft3 |
| 1925 ft * 0.1305 ft3/ft | = 251.26 ft3 |
| | = 151.1 bbl |

## *5 1/2 2 Stage Production Casing*

**Stage 1**

Fluid 1: Spacer Sweep

10.5 lbm/gal CleanSpacer III
4 lbm/bbl SEM-93P, 35 LB SACK
4 lbm/bbl SEM-94P, 35 LB SACK
0.50 gal/bbl D-AIR 3000L
112.9040 lbm/bbl Barite

| | |
|---|---|
| Fluid Density: | 10.5 lbm/gal |
| **Volume:** | **30 bbl** |

Fluid 2: Lead Slurry

NeoCem TM

| | |
|---|---|
| Fluid Weight: | 11 lbm/gal |
| Slurry Yield: | 2.709 ft3/sack |
| Total Mixing Fluid: | 16.63 Gal/sack |
| **Calculated Volume:** | **157.4 bbl** |
| Proposed Volume: | **157.4 bbl** |
| Top Of Fluid: | 6500 ft |
| Calculated Fill: | 2915 ft |
| Calculated sack: | 326.16 sack |
| Proposed sack: | 330 sack |

Fluid 3: Tail Slurry

VERSACEM (TM) SYSTEM
0.40 % Halad(R)-344
0.25 lbm/sk D-AIR 5000
0.20 % HR-800

| | |
|---|---|
| Fluid Weight: | 14.5 lbm/gal |
| Slurry Yield: | 1.227 ft3/sack |
| Total Mixing Fluid: | 5.6 Gal/sack |
| **Calculated Volume:** | **295.1 bbl** |
| Proposed Volume: | **295.1 bbl** |
| Top Of Fluid: | 9415 ft |
| Calculated Fill: | 5448 ft |
| Calculated sack: | 1350.11 sack |
| Proposed sack: | 1355 sack |

Fluid 4: Brine

Displacement Fluid

| | |
|---|---|
| Fluid Density: | 9.5 lbm/gal |
| **Volume:** | **344.6 bbl** |

Multiple Stage Cementer 6500 ft(MD)

**Stage 2**

Fluid 1: Spacer Sweep

10.5 lbm/gal CleanSpacer III
4 lbm/bbl SEM-93P, 35 LB SACK
4 lbm/bbl SEM-94P, 35 LB SACK
0.50 gal/bbl D-AIR 3000L

| | |
|---|---|
| Fluid Density: | 10.5 lbm/gal |
| **Volume:** | **20 bbl** |

112.9040 lbm/bbl Barite

Fluid 2: Lead Slurry

NeoCem TM

| | |
|---|---|
| Fluid Weight: | 11 lbm/gal |
| Slurry Yield: | 2.709 ft3/sack |
| Total Mixing Fluid: | 16.63 Gal/sack |
| **Calculated Volume:** | **264.1 bbl** |
| Proposed Volume: | **264.1 bbl** |
| Top Of Fluid: | 0 ft |
| Calculated Fill: | 5000 ft |
| Calculated sack: | 547.42 sack |
| Proposed sack: | 550 sack |

Fluid 3: Heavy Weight

VERSACEM (TM) SYSTEM
0.10 % HR-800
0.25 lbm/sk D-AIR 5000
0.40 % Halad(R)-344

| | |
|---|---|
| Fluid Weight: | 14.5 lbm/gal |
| Slurry Yield: | 1.205 ft3/sack |
| Total Mixing Fluid: | 5.33 Gal/sack |
| **Calculated Volume:** | **81 bbl** |
| Proposed Volume: | **81 bbl** |
| Top Of Fluid: | 5000 ft |
| Calculated Fill: | 1500 ft |
| Calculated sack: | 377.32 sack |
| Proposed sack: | 380 sack |

Fluid 4: Fresh Water

Displacement Fluid

| | |
|---|---|
| Fluid Density: | 8.33 lbm/gal |
| **Volume:** | **150.2 bbl** |

**REGENERATION ENERGY CORP**
**E LIVINGSTON 31 FEDERAL 8H**

## *5 1/2 2 Stage Production Casing*

**Calculations are used for volume estimation. Well conditions will dictate final cement job design.**
**Stage 1**

| Fluid # | Fluid Type | Fluid Name | Surface Density lbm/gal | Estimated Avg Rate bbl/min | Downhole Volume |
|---|---|---|---|---|---|
| 1 | SPACER | 10.5 lbm/gal CleanSpacer III | 10.5 | 5 | 30 bbl |
| 2 | CEMENT | NeoCem™ PL2 | 11 | | 159.2 bbl |
| 3 | CEMENT | VersaCem - H | 14.5 | 5 | 1355 sack |
| 4 | MUD | Displacement Fluid | 9.5 | 5 | 344.6 bbl |

**Stage 2**

| Fluid # | Fluid Type | Fluid Name | Surface Density lbm/gal | Estimated Avg Rate bbl/min | Downhole Volume |
|---|---|---|---|---|---|
| 1 | SPACER | 10.5 lbm/gal CleanSpacer III | 10.5 | | 20 bbl |
| 2 | CEMENT | NeoCem™ PL2 | 11 | 5 | 265.4 bbl |
| 3 | CEMENT | VersaCem H | 14.5 | 5 | 380 sack |
| 4 | MUD | Displacement Fluid | 8.33 | 5 | 150.2 bbl |

# PECOS DISTRICT
# DRILLING CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **Regeneration Energy Corp.** |
| **LEASE NO.:** | **NMNM106916** |
| **WELL NAME & NO.:** | **E. LIVINGSTON 31 FEDERAL #8H** |
| **SURFACE HOLE FOOTAGE:** | **190'/S & 2310'/E** |
| **BOTTOM HOLE FOOTAGE** | **330'/N & 2310'E** |
| **LOCATION:** | **Section 31, T.22 S., R.32 E., NMPM** |
| **COUNTY:** | **Lea County, New Mexico** |

COA

| | | | |
|---|---|---|---|
| H2S | ◉ Yes | ○ No | |
| Potash | ◉ None | ○ Secretary | ○ R-111-P |
| Cave/Karst Potential | ◉ Low | ○ Medium | ○ High |
| Variance | ◉ None | ○ Flex Hose | ○ Other |
| Wellhead | ◉ Conventional | ○ Multibowl | ○ Both |
| Other | ☐ 4 String Area | ☐ Capitan Reef | ☐ WIPP |

**All previous COAs still apply, except for the following:**

**A. CASING**

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

Operator has proposed DV tool at depth of **6550'**, 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 should tie-back at least **200 feet** into the previous casing. Operator shall provide method of verification. **Excess calculates to 18%, additional cement might be required.**

**JJP02152019**

# GENERAL REQUIREMENTS

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

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

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

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

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

A. CASING

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

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

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

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

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

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

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

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