Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

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

5. Lease Serial No.
NMNM12280

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☐ Oil Well ☐ Gas Well ☒ Other: INJECTION

8. Well Name and No.
NKATATA FEDERAL SWD 001

2. Name of Operator
ROSEHILL OPERATING COMPANY,LLC

Contact: ALVA FRANCO
E-Mail: afranco@rosehillres.com

9. API Well No.
30-025-44863

3a. Address
16200 PARK ROW, STE. 300
HOUSTON, TX 77084

3b. Phone No. (include area code)
Ph: 281-675-3420 Ext: 1610
Fx: 281-829-2676

10. Field and Pool or Exploratory Area
DEVONIAN-SILURIAN

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 11 T26S R35E SWSW 2006FNL 1156FEL
32.059531 N Lat, 103.333485 W Lon

11. County or Parish, State
LEA COUNTY, NM

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
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ 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.

Rosehill Operating Company, LLC respectfully requests permitsion to amend the field to Silurian-Devonian, casing, and total depth as listed below:

Amending the TD to 19,500'in the SWD (Devonian)Pool Name
The proposed disposal interval is in the Devonian-Silurian from 17,400 to 19,200, with an average 1,800 PSI, Max 3,400 and an average 20,000 BWPD, Max 30,000 BWPD.

Surface Casing: Please see attachment.

Formation tops:
Rustler: 757?
Lamar: 5094?

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #433328 verified by the BLM Well Information System
For ROSEHILL OPERATING COMPANY,LLC, sent to the Hobbs

Name *(Printed/Typed)* ALVA FRANCO — Title REGULATORY ADVISOR

Signature (Electronic Submission) — Date 08/30/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title _____ Date _____

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 _____

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)

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

KZ

Additional data for EC transaction #433328 that would not fit on the form

32. Additional remarks, continued

Bell Canyon: 5151?
Cherry Canyon: 6362?
Brushy Canyon: 7604?
Bonespring Lime: 8862?
Avalon: 8876?
1st Bonespring: 10066?
2nd Bonespring: 10448?
3rd Bonespring: 11857?
Wolfcamp A: 12108?
Wolfcamp B: 12446?
Wolfcamp C: 12917?
Strawn: 13575?
Atoka: 14254?
Morrow: 14920?
Barnett: 15435?
Mississippian: 16760?
Woodford: 17224?
Devonian: 17585?
Silurian 17950
Simpson: 19771?
Ellen: 20514?

Rosehill Operating
Nkatata SWD #1

1. **GEOLOGIC NAME OF SURFACE FORMATION:**
   Permian

2. **ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:**

Formation	TVD	MD
Rustler	760'	760'
Top salt	1140'	1140'
Lamar	5,096'	5096'
Top Delaware	5,967'	5967'
Top Bone Spring	9980'	9980'
Top Wolfcamp	12109'	12109'

3. **ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:**
   Upper Permian Sands 0- 400' Fresh Water

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 13.375" casing at 925' and circulating cement back to surface.

4. CASING PROGRAM - NEW

Csg Type	Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension	DF_{min} Coupling
Surface	17.5"	0 – 925'	13.375"	54.5#	J55	STC	1.125	1.25	1.6	1.6
Intermediate	12.25	0-12700'	9.625"	53.5#	HCP110	BTC	1.125	1.25	1.6	1.6
Liner	8.75"	12500'-17400	7 5/8"	39#	P110	FJL	1.125	1.25	1.6	1.6

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft^3/ft	Mix Water Gal/sk	Slurry Description
13 3/8" 925'	400	13.5	1.75	9.13	Class C + 4% bentonite + .6% CD-32 + .5% CaCl2 (TOC @ Surface)
	300	14.8	1.34	6.34	Class C + 0.1%C-45 econolite
9 5/8" 12700' Stage 1	900	11.5	2.73	15	8% gel + .25% C45 + .3% citric acid + .125% CSA1000 + 6 lb/sk kol seal + 1 lb/sk phenoseal + 4 lb/sk gypsum + 1% NaCl
	350	15.6	1.18	5	.1% C51 suspension agent + .45% C-20 retarder
9 5/8" 5,000 Stage 2	725	12.4	2.3	12.74	Class C + 5.0% Bentonite + 5.28#/sk salt + 1.25% C-45 econolite + .75% defoamer + .2% C-49 expansive additive (TOC @ Surface)
	200	14.8	1.34	6.35	Class C + 0.1%C-45 econolite + .2% C-49 expansive additive
7 5/8" 17400'	350	14.2	1.25	6	50:50 (Class H:Poz) + .08% CSA-1000 fluid loss + .3% C-47B fluid loss + .2% C-20 retarder

Note: Cement volumes based on bit size plus at least 15% excess.

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line).

Variance is also requested to use a 5,000 psi WP annular preventer.
The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5,000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and 4 ½" x 7" variable pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5,000/250 psig and the annular preventer to 5,000/250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal.
The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 925'	Fresh - Gel	8.6-8.8	28-34	N/c
925' – 12700'	Cut brine	8.7-9.4	28-34	N/c
12700'-17400'	OBM	12-15	50-80	<6
17400'-19200'	Cut brine	8.5-10	28-34	N/c

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.
Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

(A) A kelly cock will be kept in the drill string at all times.

(B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

(C) H_2S monitoring and detection equipment will be utilized from surface casing point to TD.

(D) A wear bushing will be installed in the wellhead prior to drilling out of the surface casing.

8. LOGGING, TESTING AND CORING PROGRAM:

GR–CCL-CNL Will be run in cased hole during completions phase of operations.

Open-hole logs are not planned for this well.

9. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS:

The estimated bottom-hole temperature (BHT) at TD is 140 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 3590 psig (based on 9.2 ppg MW). No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

The drilling operation should be finished in approximately 2 weeks. An additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

11. DISPOSAL/ENVIRONMENTAL CONCERNS

(A) Drilled cuttings will be hauled to and disposed of in a state-certified disposal site.

(B) Non-hazardous waste mud/cement from the drilling process will be also be hauled to and disposed of in a state-certified disposal site.

(C) Garbage will be hauled to the Pecos City Landfill.

(D) Sewage (grey water) will be hauled to the Carlsbad City Landfill.

12. WELLHEAD:

A multi-bowl wellhead system will be utilized.

After running the 13 3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 10,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5,000 psi pressure test. This pressure test will be repeated at least every 30 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5,000 psi.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Canary Multi-Bowl WH system has been sent to the BLM office in Carlsbad.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing string. After installation of the intermediate casing, the packoff and wellhead will be tested to 5000 psi.

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

Casing Assumptions Worksheet

The below table illustrates the proposed casing design, as well as the minimum acceptable design factors for casing loads per Rosehill Operating Standards.

Csg Type	Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension	DF_{min} Coupling
Surface	17.5"	0 – 925'	13.375"	54.5#	J55	STC	1.125	1.25	1.6	1.6
Inter	12.25"	0 – 12700'	9.625"	53.5#	HCP110	BTC	1.125	1.25	1.6	1.6
Liner	8.5"	12500'-17400'	7.625"	39#	P110	FJL	1.125	1.25	1.6	1.6

The actual safety factors specific to the Nkatata #1 well are listed in the table below.

Csg Type	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension	DF_{min} Coupling
Surface	2.8	1.8	9.2	5.5
Intermediate	1.3	1.25	2.5	2.5
Liner	1.16	1.25	4.7	4.7

These design factors are derived based on the following assumptions:

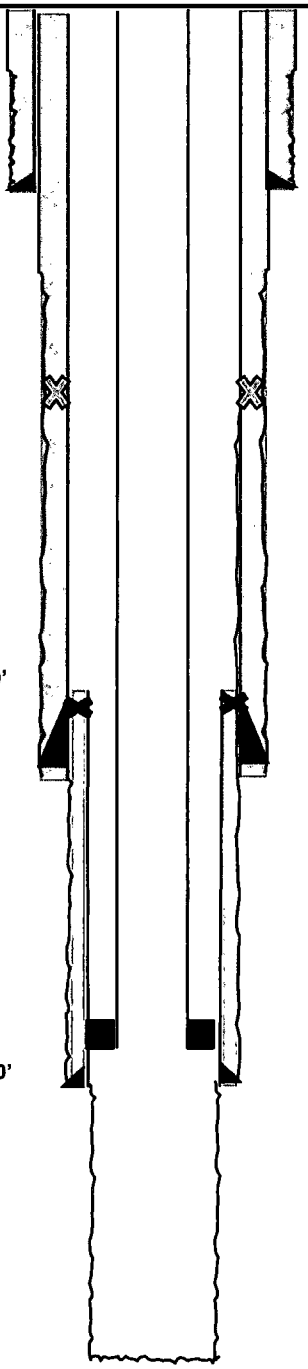
Surface:
Collapse – full evacuation
Burst – 1500 psi casing test
Tension – buoyant weight of casing at depth + 50,000 lb allowable overpull
Coupling– buoyant weight of casing at depth + 50,000 lb allowable overpull

Intermediate(0-12700'):
Collapse – half evacuation with minimum mud weight of 10#
Burst – max expected pore pressure minus gas column to surface
Tension – buoyant weight of casing at depth + 100,000 lb allowable overpull
Coupling– buoyant weight of casing at depth + 100,000 lb allowable overpull

Liner (12500'-17400'):
Collapse – half evacuation with minimum mud weight of 8.4#
Burst – max expected pore pressure minus gas column to surface
Tension – buoyant weight of casing at depth + 100,000 lb allowable overpull
Coupling - buoyant weight of casing at depth + 100,000 lb allowable overpull

Nkatata Federal SWD
#001
Lea County, New Mexico
Proposed Wellbore
API: 30-025-*****

2083' FNL
1753' FEL
Section 11
T-26-S, R-35-E



Bit Size: 17 1/2"

13 3/8" 54.5#, J-55, ST&C 0' - 925'

TOC on 13 3/8" - surface

Bit Size: 12 1/4"

DL packer stage collar w/ ECP @ 5000'

TOC on 9 5/8" - surface

9 5/8" 53.5# HCP110 BTC 0'-12700'

TOC on 7 5/8" – 12500'

Bit Size: 8 1/2"

4-1/2", 11.6#, P110 to 17,350'

7-5/8" x 4-1/2" AS1-X Packer @ 17,350'

7 5/8" 39# P110 FJL 12500'-17400'

6 ½" open hole 17400'-19200'

Rosehill Operating Well Control Plan

A. Component and Preventer Compatibility Table

The tables below outline the tubulars and compatible well control devices used in each hole section. A minimum of two barriers for well control will be in place at all times during the drilling of each hole section.

1st Intermediate Hole Section (12 ¼"): (<5M MASP)

Component	OD	Preventer	RWP
Drillpipe	5"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
HWDP	5"	Upper 4.5-7" VBR Upper 4.5-7" VBR	10M
Drill collars	6.5"	Upper 4.5-7" VBR Upper 4.5-7" VBR	10M
Drill collars	8"	Annular	5M
Mud Motor/NMDC	8"	Annular	5M
Intermediate Casing	9.625"	Annular	5M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

2nd Intermediate Hole Section (8 1/2"): (<10M MASP)

Component	OD	Preventer	RWP
Drillpipe	5"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
HWDP	5"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
Drill collars	6.5"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
Mud Motor/NMDC	6 3/4"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
Drilling Liner	7 5/8"	Annular	5M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

Production Hole Section (6 ½"): (<10M MASP)

Component	OD	Preventer	RWP
Drillpipe	4 1/2"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
HWDP	4 1/2"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
Drill collars	4 3/4"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
Mud Motor/NMDC	4 3/4"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

VBR = Variable Bore Ram. Compatible range listed in chart.
HWDP = Heavy Weight Drill Pipe
NMDC = Non magnetic drill collar

B. Well Control Procedures

These steps outline the proper method for shutting the well in during a well control event, based on the current activity.

General Procedure While Drilling

1. Space out drill string.
2. Shut down pumps and rotary.
3. Open HCR.
4. Close annular preventer. (choke already closed)
5. Confirm shut-in.
6. Notify tool pusher/company representative.
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan.
9. If pressure has built or is anticipated during the kill to reach 3500 psi, confirm spacing and swap to the upper pipe ram.

General Procedure While Tripping

1. Space out (get closest available tool joint to floor).
2. Stab full opening safety valve and close same.

3. Open HCR.
4. Close annular preventer. (choke already closed.)
5. Confirm shut-in.
6. Notify tool pusher/company representative.
7. Read and record the following
    a. SIDPP and SICP
    b. Pit gain
    c. Time
    d. Regroup and identify forward plan.
    e. If pressure has built or is anticipated during the kill to reach 3500 psi, confirm spacing and swap to the upper pipe ram.

General Procedure While Running Casing

1. Space out (get closest available tool joint to floor).
2. Stab crossover and safety valve and close same.
3. Open HCR
4. Close annular preventer. (choke already closed)
5. Confirm shut-in.
6. Notify tool pusher/company representative.
7. Read and record the following:
    a. SIDPP and SICP
    b. Pit gain
    c. Time
    d. Regroup and identify forward plan.

General Procedure With No Pipe In Hole (Open Hole)

1. Open HCR
2. Shut-in with blind rams. (choke already closed)
3. Confirm shut-in
4. Notify tool pusher/company representative
5. Read and record the following:
    a. SICP
    b. Pit gain
    c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA thru Stack

1. PRIOR to pulling last joint of drill pipe thru the stack.
    a. Perform flow check, if flowing:
    b. Stab full opening safety valve and close same.
    c. Open HCR.
    d. Space out drill string with tool joint just beneath the upper pipe ram.
    e. Shut-in using upper pipe ram. (choke already closed)
    f. Confirm shut-in.
    g. Notify tool pusher/company representative.
    h. Read and record the following:
        i. SIDPP and SICP

ii. Pit gain
iii. Time
iv. Regroup and identify forward plan

2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
    a. Stab crossover and full opening safety valve and close
    b. Space out drill string with upset just beneath the compatible pipe ram.
    c. Open HCR
    d. Shut-in using compatible pipe ram. (choke already closed)
    e. Confirm shut-in.
    f. Notify tool pusher/company representative
    g. Read and record the following:
        i. SIDPP and SICP
        ii. Pit gain
        iii. Time
        iv. Regroup and identify forward plan

3. With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.
    a. If possible to pick up high enough, pull string clear of the stack and follow "Open Hole" scenario.
    b. If impossible to pick up high enough to pull the string clear of the stack.
    c. Stab crossover, make up one joint/stand of drill pipe, and full opening safety valve and close.
    d. Space out drill string with tool joint just beneath the upper pipe ram.
    e. Open HCR
    f. Shut-in using upper pipe ram. (choke already closed).
    g. Confirm shut-in.
    h. Notify tool pusher/company representative.
    i. Read and record the following:
        i. SIDPP and SICP
        ii. Pit gain
        iii. Time

j. Regroup and identify forward plan