

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey, Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions
listed below are made in accordance with OCD Rule 19.15.7.11
and are in addition to the actions approved by BLM on the
following 3160-4 or 3160-5 form.

Operator Signature Date: May 22, 2013

Well information:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf_Owner	UL	Sec	Twp	N/S	Rng	W/E
30-039-31170-00-00	JICARILLA B	003R	ENERVEST OPERATING L.L.C.	G	N	Rio Arriba	J	J	15	26	N	5	W

Conditions of Approval:

Hold C104 for Directional survey and As drilled Plat

JUN 27 2013

NMOCD Approved by Signature

Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

MAY 23 2013

FORM APPROVED
OMB No. 1004-0137
Expires: March 31, 2007

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 reverse side.

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

2. Name of Operator
EnerVest Operating, LLC

3a. Address
**1001 Fannin St, Suite 800
Houston, TX 77002-6707**

3b. Phone No. (include area code)
713-659-3500

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
**1930' FSL & 2300' FEL (Unit J)
Sec. 15 T26N R05W**

5. Lease Serial No.
Jicarilla Contract 109
6. If Indian (Allottee, or Tribe Name)
Jicarilla Apache

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

8. Well Name and No.

Jicarilla B #3R

9. API Well No.
30-039-31170

10. Field and Pool, or Exploratory Area
Blanco Mesaverde/Basin Dakota

11. County or Parish, State
Rio Arriba, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/ Resume)	<input type="checkbox"/> Water Shut-off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Altering Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug back	<input type="checkbox"/> Water Disposal	Change Casing Size

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 recompleat horizontally, give subsurface locations and measured and true vertical depths or pertinent markers and sands. Attach the Bond under which the work will performed or provide the Bond No. on file with the BLM/ BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notice shall be filed only after all requirements, including reclamantion, have been completed, and the operator has determined that the site is ready for final inspection.)

RCVD JUN 4 '13
OIL CONS. DIV.
DIST. 3

EnerVest Operating, L.L.C. intends to change the production casing strings from 5 1/2" 17# N-80 casing to 4 1/2" 11.6# N-80 casing. The cement volumes in the drilling plan have been revised to reflect this change.

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

Attachments: Revised Drilling Program, Proposed WBD

14. I hereby certify that the foregoing is true and correct.
Name (Printed/ Typed)

Bart Trevino

Title

Regulatory Analyst

Signature

Date

May 22, 2013

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by **William Tamboreau**

Title **Petroleum Engineer**

Date **05/24/2013**

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 **FFO**

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 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)

NMOCED 12

EnerVest Operating, LLC

Jicarilla B # 3R

Surface: 1930' FSL, 2300' FEL Unit J, Sec. 15, T26N R05W
Bottom Hole: 1930' FSL, 2000' FEL Unit J, Sec 15, T26N, R05W
Rio Arriba County, NM
GL Elev: 6610'

Revised Drilling Plan

All Lease and /or unit operations will be conducted in such a manner that full compliance is made with applicable laws, regulations, BLM Onshore orders and EnerVest's approved Further Development Project Plan. The operator is fully responsible for the actions of its subcontractors. A copy of the APD and Conditions of Approval will be available to the field representatives to ensure compliance.

4.1, 4.2 ESTIMATED (TVD) FORMATION TOPS (KB) and NOTABLE ZONES:

The following are estimates of formation and proposed casing depths.

<u>Formation Name</u>	<u>Depth (TVD)</u>	<u>Rock Type</u>	<u>Comments</u>
San Jose	Surface	Sandstone	
Ojo Alamo	2473'	Sandstone	Possible Gas, Water
Kirtland	2824'	Shale	
Fruitland	3092'	Coal, Shale, Sandstone	Possible Lost Circ, Gas, Water
Pictured Cliffs	3175'	Sandstone	Possible Lost Circ, Gas, water
Lewis	3305'	Shale	Sloughing Shale
Mesa Verde (Cliffhouse)	4800'	Sandstone	Possible Lost Circ, Gas, Water
Mesa Verde (Menefee)	4841''	Coal, Sandstone, Shale	Possible Lost Circ, Gas, Water
Mesa Verde (Point Lookout)	5364'	Sandstone	Possible Lost Circ, Gas, Water
Mancos	5525'	Shale	Sloughing Shale
Gallup	6524'	Siltstone, Shale	Gas, Oil
Greenhorn	7276'	Limestone	Gas, Oil
Graneros	7337'	Shale	Gas, Oil, Water
Dakota	7373'	Sandstone	Gas, Oil, Water
Proposed Total Depth	7672'		

Fresh water zones will be adequately protected by setting and cementing the surface casing.
All zones containing commercial quantities of oil or gas will be cased and cemented.

This well is to be drilled as a directionally drilled "S-shaped" well. The well is to be drilled vertically from surface to a kick off point at +/- 600 ft. The well will be directionally drilled at a 90 degree azimuth to a point 300 ft east of the surface location and at an estimated MD of +/- 2600 ft. The well will be drilled vertically from that point to the estimated TD.

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4.3 PRESSURE CONTROL:

Maximum expected pressure is ~1681 (.22 pressure gradient) psi. The drilling contract has not yet been awarded, thus the exact BOP and Choke Manifold model to be used is not yet known. A typical 11" 2000 psi model is pictured in Exhibits A & B.

A remote accumulator will be used, the pressures, capacities location of the remote and manual controls will be identified at the time of the BLM supervised BOP test.

BOP equipment, accumulator, choke manifold and all accessories will meet or exceed BLM requirements as listed in Onshore Order #2 for the 2M systems. The pressure control equipment considerations include but will not be limited to:

1. BOP will be a double gate ram preventer with a set of blind rams and a set of properly-sized pipe rams.
2. Accumulator will have sufficient capacity to close the BOP rams and retain 200 psi above pre charge.
3. Accumulator fluid volume is to be maintained at manufacturer's recommendations.
4. BOP will also have manual closing handles available.
5. 2" minimum kill line and kill line valves (2).
6. Choke manifold (2" lines) with 2 adjustable chokes with valves and gauge.
7. Manually operated Kelly cocks available.
8. Safety valve and sub(s) with adequate opening for all drill strings used.
9. Fill line and flow line above the upper-most BOP rams.

BOPs will be pressure tested; after initial installation, before drilling out from under all set and cemented casing strings and any time a seal is broken. The BOPs will also be pressure tested a minimum of once every 21 days by a 3rd party. Additionally, the BOPs will be operationally checked every 24 hours.

All tests and pressure tests will be recorded on IADC log.

Ram type preventors, choke manifold and related pressure control equipment will be pressure tested to the rated working pressure of 2000 psi (high) and 250 psi (low).

The casing strings will be pressure tested per BLM Onshore Order #2 for 30 min as follows:

- a. Surface casing tested to 600 psi prior to drilling out the shoe.
- b. Production casing will be tested to 6000 psi at the commencement of completion operations.

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4.4 PROPOSED CASING PROGRAM:

The casings program is designed to use the hole and casing design below.

Casing Design								
Hole/Casing Description	Hole Size	Casing OD	Weight lb/ft	Grade	Age	Connection	Top	Bottom
Surface	12 1/4"	9 5/8"	36	J-55	New	ST&C	0	500'
Prod Csg (1) MD TVD	8 3/4"	4 1/2"	11.6	N-80	New	LT&C	0	3422' 3395'
Prod Csg (2) MD TVD	7 7/8"	4 1/2"	11.6	N-80	New	LT&C	3422' 3395'	7699' 7672'

Surface casing is to be cemented to surface. The production casing is to be cemented in 3 stages covering all zones of production potential and the 3rd stage is intended to circulate cement to surface.

4.5 CASING CEMENT:

A prototypical cementing program is listed as follows, site-specific cement designs will be produced for each well as the hole conditions warrant. The cement program will be designed to meet the BLM Onshore Order #2 and NMOCD requirements.

Surface casing will be cemented to the surface.

Cement and properties; Mix and pump 225 sacks (313 cu ft) Type III cement (or equivalent) cement. Slurry density is to be 14.6 (yield = 1.39 cu ft/sx). Volume will include 100% excess. Cement is to be displaced using a top plug.

Two centralizers will be run on the shoe joint, one centralizer each on the next two joints and then one centralizer on every third joint thereafter.

The surface casing will be pressure tested to 600 psi prior to drilling out the shoe.

Production casing will be cemented in 3 stages covering all zones of production potential and the 3rd stage is intended to circulate cement to surface. Volumes based on 45% OH excess cement for stage 1 and 50% for stages 2 and 3.

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Stage 1 cement; mix and pump 536 sacks (1077 cu ft) premium lite high strength cement with CaCl₂, cellophane, gilsonite and fluid loss agent. Slurry density is to be 12.5 (yield = 2.01 cu ft/sx).

DV tool at +/- 4450 ft. MD

Stage 2 Lead cement; mix and pump 312 sacks (664 cu ft) premium lite slurry with CaCl₂, cello flake and gilsonite. Estimated slurry density is to be 12.1 (yield = 2.13 cu ft/sx).

Stage 2 Tail cement; mix and pump 50 sacks (70 cu ft) Type III cement (or equivalent) cement. Slurry density is to be 14.6 (yield = 1.39 cu ft/sx). or equivalent cement.

DV tool at +/- 2590 ft. MD

Stage 3 Lead cement; mix and pump 496 sacks (1055 cu ft) premium lite slurry with CaCl₂, cello flake and gilsonite. Estimated slurry density is to be 12.1 (yield = 2.13 cu ft/sx).

Stage 3 Tail cement; mix and pump 50 sacks (69 cu ft) Type III cement (or equivalent) cement. Slurry density is to be 14.6 (yield = 1.39 cu ft/sx). or equivalent cement.

Two centralizers will be run on the shoe joint, one centralizer on every third joint into the surface casing.

The production casing will be pressure tested for 30 minutes at the commencement of completion operations as outlined above

Where cement has not been circulated to surface (or to planned depth) a CBL or temperature survey will be run to determine the TOC for that casing string. A CBL log will be run in the production casing prior to the commencement of completion operations.

Cement specifications may vary slightly due to cement type and cement contractor availability.

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4.6 MUD PROGRAM

Depth	Type	Wt / pp	Visc	Fluid Loss
0-500'	FW gel/Lime Spud Mud	8.4-9.0	30-40	N/C
500'-3422'	LSND/Gel sweeps, LCM as needed	8.7-9.0	28-32	4-6 cc
3422'- 7672'	LSND/Gel sweeps, LCM as needed	8.7-9.0	28-32	4-6 cc

The well will be drilled utilizing a closed loop mud handling system. The closed loop system will comply with the NMOCD pit rules pertaining to the use of the system and disposal of the drill cuttings and waste. Drilling mud will be moved for re-use to drill subsequent wells whenever possible.

Viscosity, mud weight and other physical and chemical characteristics of the drilling mud will be varied as required to keep the hole clean, circulate drill cuttings, prevent caving, prevent lost circulation and maximize penetration rate.

Sufficient mud and materials will be kept on site to maintain mud properties and meet lost circulation or mud weight requirements at all times.

Mud design may change depending on well conditions, LCM, fluid loss and viscosity will be determined by the EnerVest representative and the mud engineer on site.

4.7 CORING, TESTING, & LOGGING

No cores or drill stem tests are planned. Well logs to be run are:

Surface to TD; GR/ Cement Bond Log, at the commencement of completion operations.
500' to TD; Cased hole GR/Neutron

This well will be directionally drilled and a record of the deviation will be run while drilling. A deviation survey will be submitted at the conclusion of the well completion.

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4.8 ANTICIPATED PRESSURES AND TEMPERATURES:

- | | | |
|----|---|------------|
| a. | Expected bottom hole pressure: | < 1681 psi |
| b. | Anticipated abnormal pressure: | None |
| c. | Anticipated abnormal temperatures: | None |
| d. | Anticipated hazardous gas (H ₂ S): | None |

If any of the foregoing conditions are unexpectedly encountered, suitable steps will be taken to mitigate according to accepted industry best practices.

4.9 OTHER INFORMATION:

The anticipated spud date is spring 2013. The spud date will be dependent on the weather conditions, road conditions and the Conditions of Approval.

The dirt work for road and well pad construction will commence upon approval of the APD and will be dependent on weather conditions.

The well will be spud after well pad construction is complete and a suitable rig becomes available. The duration of drilling operations is expected to be from two to three weeks. The drilling rig and associated equipment will be removed and preparations will be made for the completion of the well.

Completion will start about one to four weeks after the finish of the drilling operations. A completion rig will be moved in for the completion phase. The completion phase of the well is expected to +/- two weeks. The completion phase will include; perforating, acidizing, fracture stimulation and well testing.

Some events/situations may arise that could potentially change the starting date or project duration that are out of EnerVest's control. If such events/situations arise, the proper officials will be promptly notified.

Jicarilla B # 3R (2 Casing Strings)

NOTES: This well will be drilled as an "S" shaped well

Inclination @ 500' 12 1/4" Hole >
9-5/8", 36# J-55, LT&C

Cement to surface
Water based bentonite mud
Drilled Tri-Cone Bit

8-3/4" Hole from 500 to 3422' MD >

< < < < Start to drill directionally @ 600' 90 deg azimuth

8.7-9.0 PPG LSND Bentonite Mud

Ojo Alamo >

2473'

< < < Resume vertical hole @ +/- 2600 ' MD

2563' TVD
2590' MD

< Stage Collar Cementing Tool

- Fruitland Coal >
- Picture Cliffs >
- Lewis >

3092'
3175'
3305'

POSSIBLE LOST RETURNS (Mix 20-25% LCM sweeps as needed)

7 7/8" hole from 3422' MD to TD >

3395' TVD
3422' MD

< Stage Collar Cementing Tool

Cliffhouse >

4800'

Drilled w/PDC or Tri-Cone, motor, 4-1/2" DP
8.7-9.0 PPG LSND Bentonite Mud

Menefee >

4841'

POSSIBLE LOST RETURNS (Mix 20-25% LCM sweeps as needed)

Point Lookout >

5364'

Mancos >

5525'

Gallup >

6524'

Greenhorn >
Graneros Shale >

7276'
7337'

Logs: As Directed By Geologist
Dual Induction Spectra GR
Litho Density Neutron

Dakota >

7373'

4-1/2", 11.6, N-80 LT&C - To Surface

7699 MD
7672' TVD

AFE #	CO-1212-683	REGULATORY	B Trevino	713-495-5355
EV #		ENGINEER	R Trueheart / L Diede	713-495-1561 / 505-334-8867
API #	30-039-31170	GEOLOGIST	G Kowalczyk	713-495-6590