Form 3160-3 (August 2007)

RCVD MAY 25'12 🧢

OIL CONS. DIV.

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

MAR 16 2012

UNITED STATES

Lease Serial No. DEPARTMENT OF THE INTERIOR Farmington Field Office Jicarilla Contract 110 BUREAU OF LAND MANAGEMEN Tureau of Land Managemen

If Indian, Allotee or Tribe Name APPLICATION FOR PERMIT TO DRILL OR REENTER Jicarilla Apache 7 If Unit or CA Agreement, Name and No. **✓** DRILL REENTER la. Type of work: 8. Lease Name and Well No. lb. Type of Well: Oil Well 🗸 Gas Well Single Zone Multiple Zone Jicarilla A No. 4M Name of Operator Enervest Operating, L.L.C. 9. API Well No. 30-039-29928 3a. Address 3b Phone No. (include area code) 10. Field and Pool, or Exploratory 1001 Fannin Street, Suite 800 713-495-6537 Houston, TX 77002 Blanco Mesaverde/Basin Dakota 11. Sec., T. R. M. or Blk. and Survey or Area 4. Location of Well (Report location clearly and in accordance with any State requirements:*) At surface 1780' FSL & 580' FWL Sec 19, T-26N, R-5W, UL L At proposed prod. zone 12. County or Parish 14 Distance in miles and direction from nearest town or post office* 13. State Rio Arriba 30 miles from Lindrith, NM NM 17 Spacing Unit dedicated to this well Distance from proposed* 16. No. of acres in lease location to nearest MV-320 W/2 DK-320 W/2 property or lease line, ft. (Also to nearest drig. unit line, if any) 20. BLM/BIA Bond No. on file 18. Distance from proposed location* to nearest well, drilling, completed, NMB000503 applied for, on this lease, ft Elevations (Show whether DF, KDB, RT, GL, etc.) 22. Approximate date work will start* 23. Estimated duration 6612' GL 04/01/2012 2-3 wks 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.

CASING & CEMENT

NOTIFY AZTEC OCD 24 HRS

- 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).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the

25. Signature Bridget Hellsich	Name (Printed/Typed) Bridget Helfrich	Date 03/13/2012
itle Regulatory Tech.		
Approved by (Signature)	Name (Printed/Typed)	Date 5/16/12
Title AFN	Office FFO	
Application approval does not warrant or certify that the applicant holds legi	al 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)

This action is subject to technical and

and appeal pursuant to 43 CFR 3165.4

procedural review pursuant to 43 CFR 3169.6

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

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

JUN 0 6 2012 ca

DISTRICT I 1625 N. French Dr., Hobbs, N.M. 88240

State of New Mexico
Energy, Minerals & Natural Resources Department

DISTRICT II 1301 W. Grand Ave., Artesia, N.M. 88210 DISTRICT III 1000 Rio Brazos Rd., Aztec, N.M. 87410

DK - W/ 319.16

OIL CONSERVATION DIVISION

1220 South St. Francis Dr. Santa Fe, NM 87505

Form C-102 Revised July, 16, 2010 Submit one copy to appropriate District Office

NSL-5428

DISTRICT IV 1220 South St. Francis Dr., Santa Fe, NM 87505

X AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code	³Pool Name	DAKOTA		
30-039-29928	72319/71599	BLANCO MESAVERDE/BASIN			
Property Code 306750	·	⁸ Property Name JICARILLA A			
⁷ OGRID No.	·	ator Name	Elevation		
143199		DPERATING, LLC	6612'		

¹⁰ Surface Location

MV - W/	319.16					,	NSI	-5428	ļ
12 Dedicated Acres			¹³ Joint or Inf	fill	¹⁴ Consolidation Cod	e ·	¹⁵ Order No.		
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
			,	m Hole		f Different Fro	om Surface		
L	19	26-N	5-W	3	1780	SOUTH	580	WEST	RIO ARRIBA
UL or lot no.	Section	i ownsnip	Kange	Lot form	rest from the	North/South line	Feet from the	East/West line	County

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED

	R A NON-STANDARD UNIT HAS BEEN		THE DIVISION
FD 3 1/4" BC. 1957 BLM			OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a miteral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.
N 00°08'52" E 5331.34'(M)			Bridget Holfrich 6-5-12 Signature Date Bridget Helfrich Printed Name bhelfrich@enervest.net E-mail Address
LOT 3	SURFACE: LAT: 36.469917° N (NAD 83) LONG: 107.40822° W. (NAD 83) LAT: 36°28'11.66351" N. (NAD 27) LONG: 107°24'27.40805" W. (NAD 27)		SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. SEPTEMBER 7 2005 Date of Surgery
EOT 4 FD. 3 1/4" BC. 1957 BLM	N 89°01'00" E 5340.87' (C)	CALC'D COR BY DBL. PROP.	Signertum and Sear of Peorest Street,

RECEIVED

DISTRICT I 1625 N. French Dr., Hobbs, N.M. 88240

State of New Mexico

Form C-102

DISTRICT II 1301 W. Grand Ave., Artesia, N.M. 88210

Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 16 2012 Revised July, 16, 2010 one copy to appropriate

1220 South St. Francis Dr. Santa Fe, NM 87505Farmington Field Office

1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT III

Bureau of Land Managemer.

AMENDED REPORT

DISTRICT IV 1220 South St. Francis Dr., Santa Fe, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

'API Number 30-039-2	9928	² Pool Code 72319/71599	³ Pool Name BLANCO MESAVERDE/BASIN	DAKOTA
Property Code 33454		•	erty Name RILLA A	⁶ Well Number
OGRID No.		•	ator Name DPERATING, LLC	⁹ Elevation 6612'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
L	19	26-N	5-W	3	1780	SOUTH	580	WEST	RIO ARRIBA

11 Bottom Hole Location If Different From Surface

UL or lot no. Section Township	Range Lot Idn	Feet from the North/South lin	e Feet from the East/West line	County
12 Dedicated Acres MV - W/320 319.16 DK - W/320	¹³ Joint or Infill	14 Consolidation Code	¹⁵ Order No.	

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED THE DIVISION

`	16	OR A	NON-STAN	DARD	UNIT	HAS	BEEN	APPROVED	BY
	FD. 3 1/4" BC. 1957 BLM LOT I								
	N 000-008'52" E 5331.34 (M)		1	d					
7	LOT 3		SURFACE: LAT: 36.46 LONG: 107 LAT: 36°28 LONG: 107	i9917° N. 7.40822° 8'11.6635	W. (NA) 1" N. (N	D 83) AD 27)			
	. LOT 4								
	FD. 3 1/4" BC. 1957 BLM		N 89°01'00' \ E	5340.8	, 7' (C)			CALC'D C BY DBL. PR	
٣				\ <u> </u>					

OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land interest or unleased mineral mirest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a controct with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the

E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plot was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.



EnerVest Operating, LLC Jicarilla A # 4M

1780' FSL, 580' FWL Unit L Sec. 19, T26N R05W Rio Arriba County, NM GL Elev: 6612'

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 FORMATION TOPS (KB) and NOTABLE ZONES:

The following formation depths and proposed casing depths are used as an example only and will be furnished on a site-specific basis for each proposed well.

Formation Name	<u>Depth</u>	Rock Type	Comments .
San Jose	Surface	Sandstone	
Ojo Alamo	2230'	Sandstone	Possible Gas, Water
Kirtland	2575'	Shale	
Fruitland	2858'	Coal, Shale, Sandstone	Possible Lost Circ, Gas, Water
Pictured Cliffs	3004'	Sandstone	Possible Lost Circ, Gas, water
Lewis	3124'	Shale	Sloughing Shale
Huerfanito Bentonite	3457'	Shale	
Chacra	3897'	Siltstone	Gas, Water
Mesa Verde (Cliffhouse)	4671'	Sandstone	Possible Lost Circ, Gas, Water
Mesa Verde (Menefee)	4763'	Coal, Sandstone, Shale	Possible Lost Circ, Gas, Water
Mesa Verde (Point Lookout)	5238'	Sandstone	Possible Lost Circ, Gas, Water
Mancos	5426'	Shale	Sloughing Shale
Gallup	6730'	Siltstone, Shale	Gas, Oil
Greenhorn	7144'	Limestone	Gas, Oil
Graneros	7204'	Shale	Gas, Oil, Water
Dakota (Two Wells)	7229'	Sandstone	Gas, Oil, Water
Dakota (Paguate)	7327'	Sandstone	Gas, Oil, Water
Dakota (Upper Cubero)	7365'	Sandstone	Gas, Oil, Water
Dakota (Main Body)	7402'	Shale, Sandstone	Gas, Oil, Water
Dakota (Lower Cubero)	7451'	Shale, Sandstone	Gas, Oil, Water
Dakota (Burro Canyon)	7485'	Sandstone	Gas, Water
Proposed Total Depth	7480'		

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.

EnerVest Operating, LLC Jicarilla A # 4M

6

1780' FSL, 580' FWL Unit L Sec. 19, T26N R05W Rio Arriba County, NM GL Elev: 6612'

4.3 PRESSURE CONTROL:

Maximum expected pressure is ~1646 (.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" 3,000 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 3M systems. The pressure control equipment considerations include but will not be limited to:

- 1. Annular Preventer.
- 2. BOP will be a double gate ram preventer with a set of blind rams and a set of properly-sized pipe rams.
- 3. Accumulator will have sufficient capacity to close the BOP rams and annular preventer and retain 200 psi above pre charge.
- 4. Accumulator system will have 2 independent power sources to close the preventers.
- 5. Accumulator to have capacity of double the usable fluid volume and the fluid volume is to be maintained at manufacturer's recommendations.
- 6. BOP will also have manual closing handles available.
- 7. 2" minimum kill line and kill line valves (2).
- 8. Choke manifold (3" lines) with 2 adjustable chokes with valves and gauge.
- 9. Manually operated Kelly cocks available.
- 10. Safety valve and sub(s) with adequate opening for all drill strings used.
- 11. Fill line and flow line above the upper-most BOP rams.
- 12. Rotating Head installed when needed for air-drilled portion of the hole.
- 13. Blooie line installed when air drilling.

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 3000 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. Intermediate casing tested to 1500 psi prior to drilling out the shoe.
- c. Production casing tested to 5400 psi (0.70% of yield) prior to commencement of completion operations.

Jicarilla A # 4M

1780' FSL, 580' FWL Unit L Sec. 19, T26N R05W Rio Arriba County, NM GL Elev: 6612'

4.4 PROPOSED CASING PROGRAM:

The casings proposed in the following table are typical for this development area, if a different casing be required, it will be listed in the site specific APD.

Hole/Casing Description	Hole Size	Casing OD	Weight lb/ft	Grade	Age	Connection	Top MD	Bottom MD
Surface	12 ¹ / ₄ "	9 ⁵ / ₈ "	36	J-55	New	ST&C	0	350°
Intermediate	8 ³ / ₄ "	7"	23	J-55	New	LT&C	0	3380°
Prod Casing	6 ¹ / ₄ "	4 ¹ / ₂ "	11.6	N-80	New	LT&C	0	7480°

Surface and Intermediate casings are to be cemented to surface, production casing is to be cemented with a 200' overlap into the intermediate casing.

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 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 158 sacks (219 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.

Intermediate casing will be cemented to surface in 2 stages, stage tool to be set at +/-2475'. Cement will be designed to circulate to surface. Volumes will be based on 45% excess in OH.

Stage 1:

Lead cement; mix and pump 72 sacks (154 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).

Jicarilla A # 4M

1780' FSL, 580' FWL Unit L Sec. 19, T26N R05W Rio Arriba County, NM GL Elev: 6612'

Tail cement; mix and pump 31 sacks (44 cu ft) Type III cement (or equivalent) cement. Slurry density is to be 14.6 (yield = 1.39 cu ft/sx). or equivalent cement.

Stage 2:

Lead cement; mix and pump 201 sacks (429 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).

Tail cement; mix and pump50 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.

Two centralizers will be run on the shoe joint, one centralizer on every other joint for 14 joints and then one centralizer on every third joint thereafter.

The Intermediate casing will be pressure tested to 1500 psi prior to drilling out the shoe.

Production casing will be cemented into the intermediate casing with a minimum of 200 ft overlap. Volumes based on 45% excess in OH.

A 20 bbl sweep of 10.5 ppg scavenger slurry will be pumped ahead of the cement to wet and condition the air-drilled hole.

Lead cement; mix and pump 89 sacks (189 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).

Tail cement; mix and pump221 sacks (443 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).

Two centralizers will be run on the shoe joint, one centralizer on every other joint into the intermediate casing, then every 3rd joint to surface.

The production casing will be pressure tested to 5400 psi for 30 minutes prior to commencement of completion operations.

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 and cement contractor availability.

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Jicarilla A # 4M

1780' FSL, 580' FWL Unit L Sec. 19, T26N R05W Rio Arriba County, NM GL Elev: 6612'

4.6 <u>MUD PROGRAM</u>

Depth	Туре	Wt/pp	Visc	Fluid Loss
0-350'	FW gel/Lime Spud Mud	8.4-9.0	30-40	N/C
350'-3380'	LSND/Gel sweeps, LCM as needed	8.5-9.4	40-60	20-40 сс
3380'- 7480'	Nitrogen	NA	NA	

The well will be drilled utilizing a reserve pit. If a reserve pit cannot be permitted due to NMOCD pit rules, a closed loop system will be used. The NMOCD pit permit shall state the type of pit and specifications of the pit to be used on each specific well pad.

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.

Nitrogen will be used to drill the $6^{1}/4$ " section of the hole to reduce the hydrostatic pressure while drilling the pay zones. It is planned to drill the hole from the base of the intermediate casing to TD with an air hammer and $6^{1}/4$ " bit. An alternate plan will be in place to drill this section of the hole with mud should the hole conditions necessitate drilling this section with mud.

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.

4.8 CORING, TESTING, & LOGGING

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

350' to 3380'; GR/ Cement Bond Log, if cement is not circulated to surface.

3380' to TD; GR/Induction/Density Neutron. (Cased hole GR/Neutron will be run if the hole conditions do not allow the use of the open hole logs)

Deviation surveys will be run at 500 ft intervals and at the base of each hole section prior to setting casing.

EnerVest Operating, LLC Jicarilla A # 4M

11

1780' FSL, 580' FWL Unit L Sec. 19, T26N R05W Rio Arriba County, NM GL Elev: 6612'

4.9 <u>ANTICIPATED PRESSURES AND TEMPERATURES:</u>

a. Expected bottom hole pressure: < 1646 psi

b. Anticipated abnormal pressure: None

c. Anticipated abnormal temperatures: None

d. Anticipated hazardous gas (H2S): None

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

5.0 OTHER INFORMATION:

The anticipated spud date is spring 2012. 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 two 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.

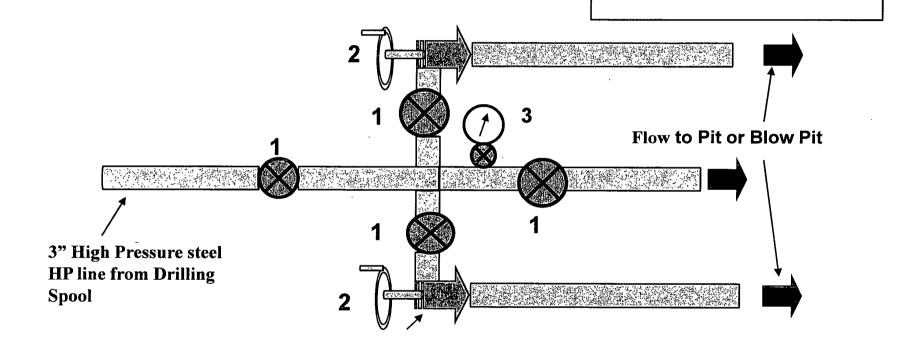
Some events/situations may arise that could potentially change the starting date or project duration that are out of EnerVest's control. If such events/situations arise, the proper officials will be promptly notified.

EnerVest Jicarilla A # 4M 3000 psi Choke Manifold

Exhibit B

Components

- 1. 3" Valves (3M)
- 2. Adjustable Chokes
- 3. Gauge



Jicarilla A#4M



Idealized Location Diagram/ Drilling (Fig A)

