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 3160-3 APD form.

Operator Signature Date: 4/7/14
Well information:
Operator EnerVest, Well Name and Number Jicarilla Apache Tribal 124 #15
API# 30-039-31228, Section 24, Township 25 (N)S, Range 4 E/(W)

Conditions of Approval:
(See the below checked and handwritten conditions)

- ✓ Notify Aztec OCD 24hrs prior to casing & cement.
- ✓ Hold C-104 for directional survey & "As Drilled" Plat
- ✓ Hold C-104 for (NSL), NSP, DHC BHL must be 330' from Q/Q line
- o Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- o Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
  - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
  - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
  - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- o Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- o Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.

Charlie Perrin
NMOCD Approved by Signature

6-5-2014
Date

Form 3160-3
(March 2012)

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Farmington Field Office
Bureau of Land Management

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

OIL CONS. DIV DIST. 3
JUN 4 2014

5. Lease Serial No.: Jicarilla Contract 124

6. If Indian, Allottee or Tribe Name: Jicarilla Apache Tribe

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

8. Lease Name and Well No.: Jicarilla Apache Tribal 124 #15

1a. Type of Work: [X] DRILL [ ] REENTER

1b. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other [X] Single Zone [ ] Multiple Zone

2. Name of Operator: EnerVest Operating, L.L.C.

9. API Well No.: 30-039- 31228

3a. Address: 1001 Fannin St. Suite 800, Houston, Tx 77034

3b. Phone No. *(include area code)*: 713-790-1847

10. Field and Pool, or Exploratory: Lindreth Gallup-Dakota, West

4. Location of well *(Report location clearly and In accordance with any State requirements.*)*
At surface: 1586' FSL & 465' FWL (UL L) Sec.24, T25N, R04W
At proposed prod. zone: 1650' FSL, 700' FWL (UL L) Sec. 24, T25N, R04W

11. Sec., T., R., M., or Blk. And Survey or Area: Sec.24 T25N R04W

14. Distance in miles and direction from the nearest town or post office*: 9 miles NE from Lindreth, NM

12. County or Parish: Rio Arriba

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
465' SHL 700' BHL	2560	SW/4 - 160 acres
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/ BIA Bond No. on file**
2014'	7959'	RLB0007886
21. Elevations (Show whether DF. RT, GR, etc.)	**22. Aproximate date work will start***	**23. Estimated duration**
7024' GL	7/1/2014	5 weeks

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1 shall 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 shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by 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 a the BLM

25. Signature	Name *(Printed/ Typed)*	Date
Jeanie McMillan	Jeanie McMillan	4/7/2014
Title: Sr. Regulatory Analyst		
Approved By *(Signature)*: /s/ Stephen Mason	Name *(Printed/ Typed)*	Date: 6/4/14
Title: AFM	Office: FFO	

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 conduc 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.

* *(Instructions on page 2)*

NOTIFY AZTEC OCD 24HRS PRIOR TO CASING & CEMENT

SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

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

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

NMOCD

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED
APR 09 2014
Farmington Field Office
Bureau of Land Management

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-31228	39189	West Lindreth Gallup-Dakota

[4] Property Code	[5] Property Name	[6] Well Number
301276	JICARILLA APACHE TRIBAL 124	#15

[7] OGRID No.	[8] Operator Name	[9] Elevation
143199	ENERVEST OPERATING, LLC	7024'

[10] Surface Location

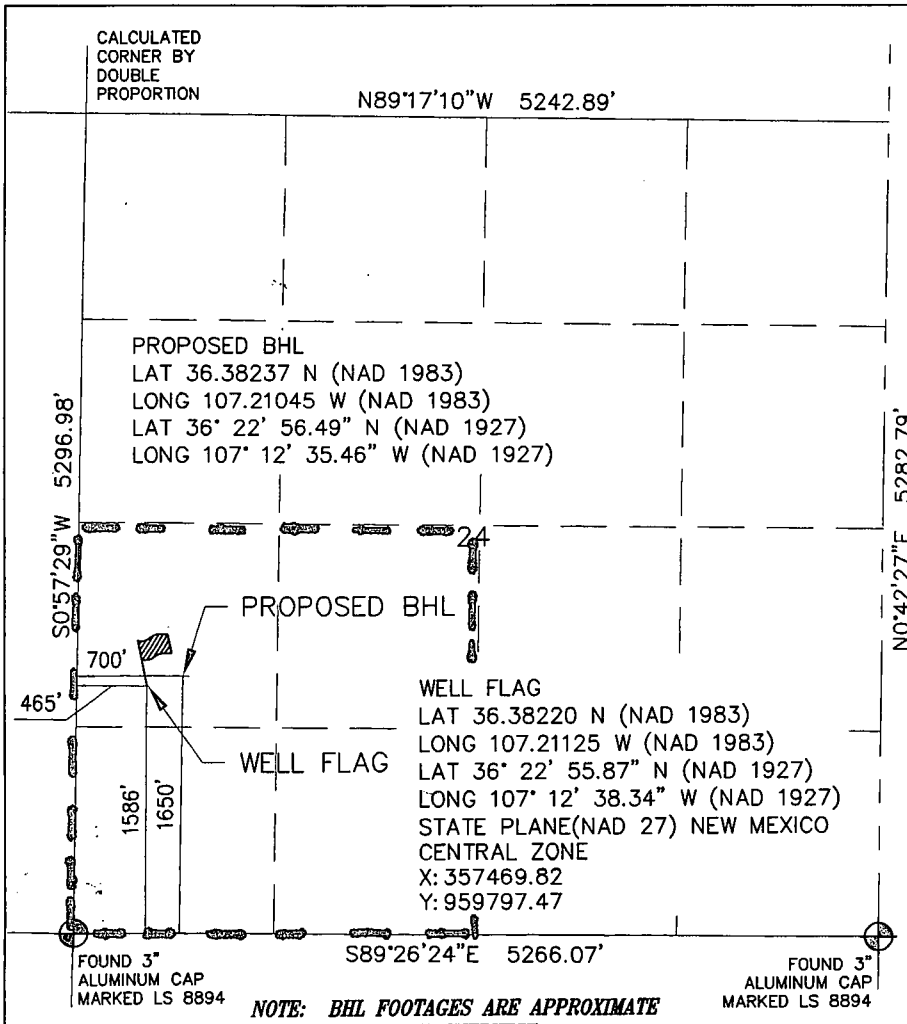
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	24	25N	4W		1586'	SOUTH	465'	WEST	RIO ARRIBA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	24	25N	4W		1650'	SOUTH	700'	WEST	RIO ARRIBA

[12] Dedicated Acres	[13] Joint of Infill	[14] Consolidation Code	[15] Order No.
SW/4 - 160 ACRES			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



NOTE: BHL FOOTAGES ARE APPROXIMATE AND PROVIDED BY ENERVEST

[17] 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Jeanie McMillan 3-26-14
Signature Date

Jeanie McMillan
Printed Name

jmcmillan@enervest.net
E-mail Address

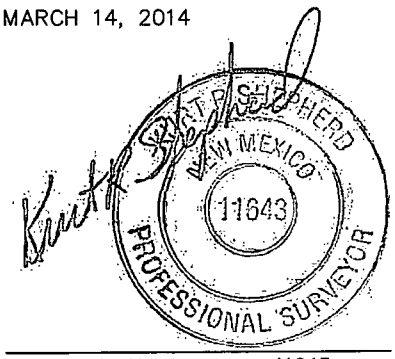
[18] SURVEYOR CERTIFICATION

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 behalf.

Survey Date: JANUARY 6, 2014

Signature and Seal of Professional Surveyor

MARCH 14, 2014



Certificate Number 11643

EnerVest Operating, LLC

Jicarilla Apache Tribal 124 # 15

Surface: 1586' FSL, 465' FWL Unit L, Sec. 24, T25N R04W
Lat: 36.38220, Long: 107.21125 NAD 83
Bottom Hole: 1650' FSL, 700' FWL Unit L, Sec 24, T25N, R04W
Lat: 36.38237, Long: 107.21045 NAD 83
Rio Arriba County, NM
GL Elev: 7024'

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 NMOCD rules. 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.

Formation Name	Depth (TVD)	Rock Type	Comments
San Jose	Surface	Sandstone	
Ojo Alamo	2902'	Sandstone	Possible Gas, Water
Kirtland	3112'	Shale	
Fruitland	3267'	Coal, Shale, Sandstone	Possible Lost Circ, Gas, Water
Pictured Cliffs	3348'	Sandstone	Possible Lost Circ, Gas, water
Lewis	3506'	Shale	Sloughing Shale
Chacra	4316'	Sandstone	Possible Gas, Water
Mesa Verde (Cliffhouse)	5082'	Sandstone	Possible Lost Circ, Gas, Water
Mesa Verde (Menefee)	5138''	Coal, Sandstone, Shale	Possible Lost Circ, Gas, Water
Mesa Verde (Point Lookout)	5595'	Sandstone	Possible Lost Circ, Gas, Water
Mancos	5760'	Shale	Sloughing Shale
Gallup	6737'	Sandstone	Gas, Oil
Greenhorn	7543'	Limestone	Gas, Oil
Graneros	7604'	Shale	Gas, Oil, Water
Dakota	7638'	Sandstone	Gas, Oil, Water
Proposed Total Depth	7959'		

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'. The well will be directionally drilled at a 75 degree azimuth to a point approx 244'east and north of the surface location. At an estimated MD of +/- 6000' the well will be drilled vertically from that point to the estimated TD.

EnerVest Operating, LLC
Jicarilla Apache Tribal 124 # 15
Surface: 1586' FSL, 465' FWL Unit L, Sec. 24, T25N R04W
Lat: 36.38220, Long: 107.21125 NAD 83
Bottom Hole: 1650' FSL, 700' FWL Unit L, Sec 24, T25N, R04W
Lat: 36.38237, Long: 107.21045 NAD 83
Rio Arriba County, NM
GL Elev: 7024'

4.3 PRESSURE CONTROL:

Maximum expected pressure is ~1751 (.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 preventers, 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.

EnerVest Operating, LLC
Jicarilla Apache Tribal 124 # 15
Surface: 1586' FSL, 465' FWL Unit L, Sec. 24, T25N R04W
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Bottom Hole: 1650' FSL, 700' FWL Unit L, Sec 24, T25N, R04W
Lat: 36.38237, Long: 107.21045 NAD 83
Rio Arriba County, NM
GL Elev: 7024'

4.4 PROPOSED CASING PROGRAM :

Hole/Casing Description	Hole Size	Casing OD	Weight lb/ft	Grade	Age	Connection	Top	Bottom
Surface	12 $^{1}/_{4}$"	8 $^{5}/_{8}$"	24	J-55	New	ST&C	0	500'
Prod Csg MD	7 $^{7}/_{8}$"	4 ½"	11.6	N-80	New	LT&C	0	7965'
TVD							0	7959'

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 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 297 sacks (413 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%-50% OH excess over gauge volume.

Stage 1 cement; mix and pump 531 sacks (1066 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 +/- 4747 ft. MD

Stage 2 Lead cement; mix and pump 280 sacks (596 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 (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.

DV tool at +/- 2801 ft. MD

Stage 3 Lead cement; mix and pump 394 sacks (840 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 (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 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.

EnerVest Operating, LLC
Jicarilla Apache Tribal 124 # 15
Surface: 1586' FSL, 465' FWL Unit L, Sec. 24, T25N R04W
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Bottom Hole: 1650' FSL, 700' FWL Unit L, Sec 24, T25N, R04W
Lat: 36.38237, Long: 107.21045 NAD 83
Rio Arriba County, NM
GL Elev: 7024'

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'-7965'	LSND/Gel sweeps, LCM as needed	8.7-9.0	20-32	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.
2000' 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)

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.

4.8 ANTICIPATED PRESSURES AND TEMPERATURES:

a.	Expected bottom hole pressure:	< 1751 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.

4.9 OTHER INFORMATION:

The anticipated spud date is summer 2014. 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.

ENERVEST OPERATING, LLC

Jicarilla Apache Tribal 124 # 15 (Proposed)

TYPE	Dakota	RIG	TBD	DATE	12-Mar-2014
FIELD	San Juan	COUNTY	Rio Arriba	ELEVATION	GL=7024' , KB=7037'
GAS/OIL	Gas/Oil	MUD	LSND	BHT/BHP	165 deg / 1751 psi
LOCATION	SHL; 1586' FSL & 465' FWL Unit L, Sec 24, T25N, R4W			SHL; -107.21125 W, 36.38220 N (NAD 83)	
	BHL; 1650' FSL & 700' FWL Unit L, Sec 24, T25N, R4W			BHL; -107.21045 W, 36.38237 N, (NAD 83)	

COMMENTS: OBJECTIVE FORMATION: Dakota

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

	DEPTH TVD	
Surface Section	**Cemented to Surface**	
Inclination @ 500'	12 1/4" Hole >	Cement to surface
	8-5/8", 24#,J-55,ST&C	**500'**	Water based bentonite mud
			Drilled Tri-Cone Bit
Production Section	**Cemented to Surface with 3 Stages**		< < < < Start to drill directionally @ 600' 75 deg azimuth
	7 7/8" Hole from 500' to TD >		Drilled w/PDC, motor, 4-1/2" DP
			8.7-9.0 PPG LSND Bentonite Mud
		2,801'	< < < Stage Collar Cementing Tool
Fruitland Coal >		**3267'**	
Picture Cliffs >		**3348'**	
Lewis >		**3506'**	
			< < < Resume vertical hole @ +/- 6000 ' MD
			Vertical Section = +/- 244' E & N
		4747'	< < < Stage Collar Cementing Tool
Cliffhouse >		**5082'**	
Menefee >		**5138'**	
Point Lookout >		**5595'**	
Mancos >		**5760'**	
Regulatory Mancos		6095'	
			Logs: Triple Combo OH
Greenhorn >		**7543'**	GR / CBL cased hole
Graneros Shale >		**7604'**	
Dakota >		**7638'**	
4-1/2", 11.6# , N-80 LT&C - To Surface		**7959' TVD**	
		7965' MD	

AFE #	CO 1401-209	REGULATORY	B Trevino	713-495-5355	
EV #		ENGINEER	R Trueheart / L Diede	713-495-1561 / 505-334-8867	
API #		GEOLOGIST	G Kowalczyk	713-495-6590	

Scientific Drilling

Company: EnerVest Operating LLC
Project: Rio Arriba County, NM (NAD83)
Site: Jicarilla

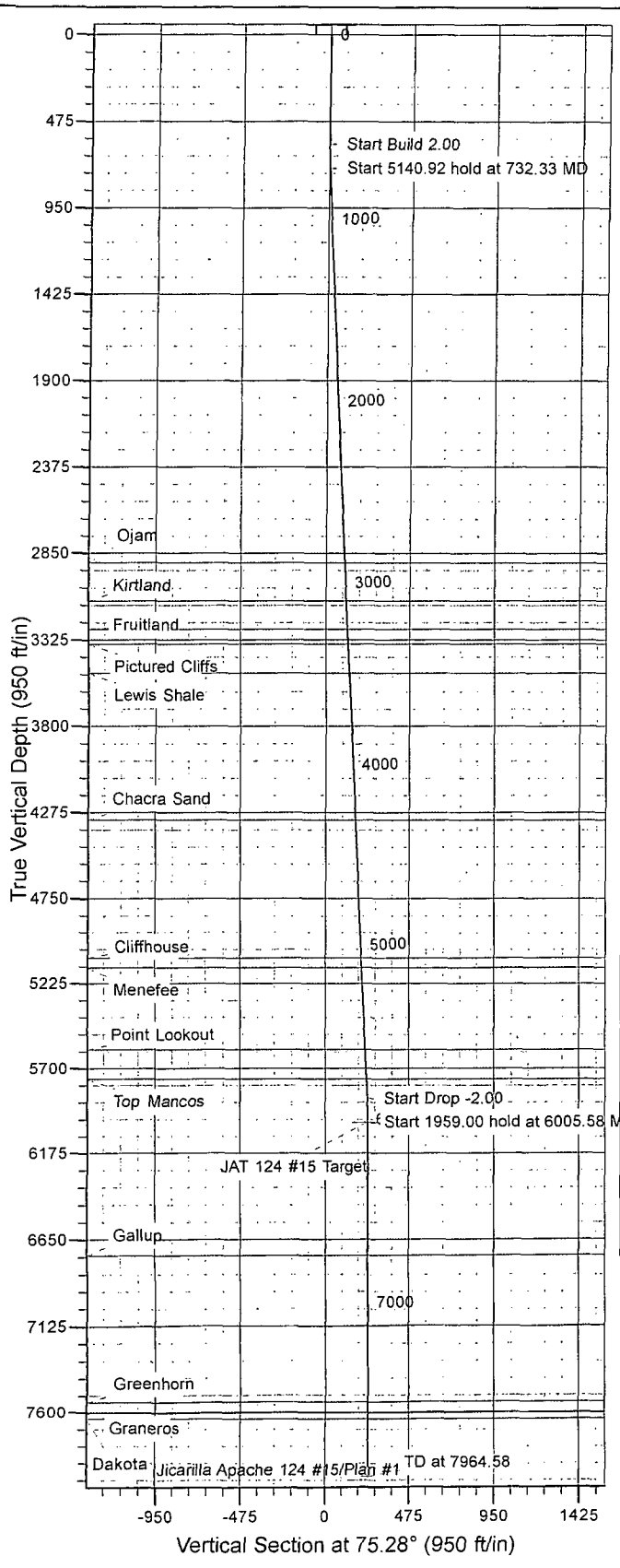
Well Details: Jicarilla Apache 124 #15

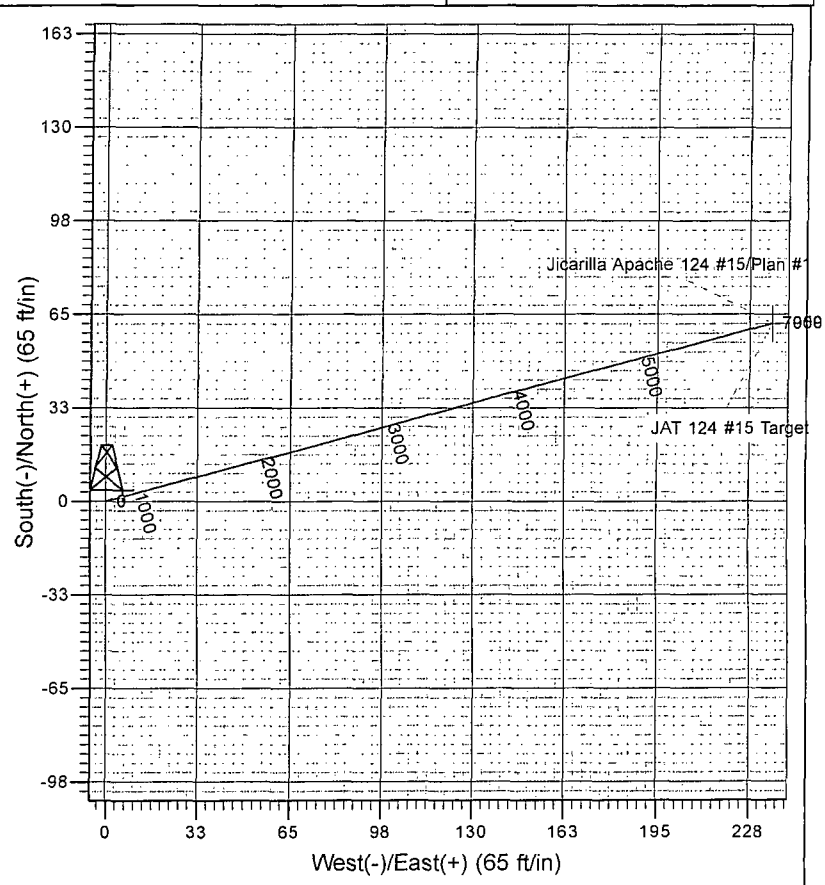
TVD Reference: GL 7024' & RKB 13' @ 7037.00ft Ground Level: 7024.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1959798.19	1357470.06	36° 22' 55.920 N	107° 12' 40.500 W	

T M Azimuths to True North
Magnetic North: 9.33°

Magnetic Field
Strength: 50259.5snT
Dip Angle: 63.20°
Date: 3/11/2014
Model: BGGM2013





FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2902.00	2904.36	Ojam
3112.00	3114.59	Kirtland
3267.00	3269.75	Fruitland
3348.00	3350.84	Pictured Cliffs
3506.00	3509.01	Lewis Shale
4316.00	4319.87	Chacra Sand
5082.00	5086.69	Cliffhouse
5138.00	5142.75	Menefee
5595.00	5600.24	Point Lookout
5760.00	5765.42	Top Mancos
6737.00	6742.58	Gallup
7543.00	7548.58	Greenhorn
7604.00	7609.58	Graneros
7638.00	7643.58	Dakota

Plan: Plan #1

11:13, March 12 2014
Created By: Janie Collins

PROJECT DETAILS: Rio Arriba County, NM (NAD83)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Central Zone

System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
3	732.33	2.65	75.28	732.28	0.78	2.96	2.00	75.28	3.06	
4	5873.25	2.65	75.28	5867.72	61.11	232.54	0.00	0.00	240.44	
5	6005.58	0.00	0.00	6000.00	61.89	235.50	2.00	180.00	243.50	JAT 124 #15 Target
6	7964.58	0.00	0.00	7959.00	61.89	235.50	0.00	0.00	243.50	

EnerVest Operating LLC

Rio Arriba County, NM (NAD83)
Jicarilla
Jicarilla Apache 124 #15

OH

Plan: Plan #1

Standard Planning Report

12 March, 2014

Scientific Drilling

www.scientificdrilling.com

Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well Jicarilla Apache 124 #15
Company:	EnerVest Operating LLC	**TVD Reference:**	GL 7024' & RKB 13' @ 7037.00ft
Project:	Rio Arriba County, NM (NAD83)	**MD Reference:**	GL 7024' & RKB 13' @ 7037.00ft
Site:	Jicarilla	**North Reference:**	True
Well:	Jicarilla Apache 124 #15	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project Rio Arriba County, NM (NAD83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site Jicarilla

Site Position:		**Northing:**	-274,017,644.35 usft	**Latitude:**	7° 5' 24.101 S
From:	Lat/Long	**Easting:**	372,015,898.75 usft	**Longitude:**	42° 3' 21.841 E
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.00 °

Well Jicarilla Apache 124 #15

Well Position	**+N/-S**	460,376,581.20 ft	**Northing:**	1,959,798.19 usft	**Latitude:**	36° 22' 55.920 N
	+E/-W	40,068,406.94 ft	**Easting:**	1,357,470.06 usft	**Longitude:**	107° 12' 40.500 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	7,024.00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	3/11/2014	9.33	63.20	50,259

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	75.28

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
732.33	2.65	75.28	732.28	0.78	2.96	2.00	2.00	0.00	75.28	
5,873.25	2.65	75.28	5,867.72	61.11	232.54	0.00	0.00	0.00	0.00	
6,005.58	0.00	0.00	6,000.00	61.89	235.50	2.00	-2.00	0.00	180.00	JAT 124 #15 Target
7,964.58	0.00	0.00	7,959.00	61.89	235.50	0.00	0.00	0.00	0.00	

Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well Jicarilla Apache 124 #15
Company:	EnerVest Operating LLC	**TVD Reference:**	GL 7024' & RKB 13' @ 7037.00ft
Project:	Rio Arriba County, NM (NAD83)	**MD Reference:**	GL 7024' & RKB 13' @ 7037.00ft
Site:	Jicarilla	**North Reference:**	True
Well:	Jicarilla Apache 124 #15	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	2.00	75.28	699.98	0.44	1.69	1.75	2.00	2.00	0.00
732.33	2.65	75.28	732.28	0.78	2.96	3.06	2.00	2.00	0.00
800.00	2.65	75.28	799.88	1.57	5.98	6.18	0.00	0.00	0.00
900.00	2.65	75.28	899.77	2.74	10.44	10.80	0.00	0.00	0.00
1,000.00	2.65	75.28	999.67	3.92	14.91	15.42	0.00	0.00	0.00
1,100.00	2.65	75.28	1,099.56	5.09	19.38	20.03	0.00	0.00	0.00
1,200.00	2.65	75.28	1,199.45	6.27	23.84	24.65	0.00	0.00	0.00
1,300.00	2.65	75.28	1,299.35	7.44	28.31	29.27	0.00	0.00	0.00
1,400.00	2.65	75.28	1,399.24	8.61	32.77	33.89	0.00	0.00	0.00
1,500.00	2.65	75.28	1,499.13	9.79	37.24	38.50	0.00	0.00	0.00
1,600.00	2.65	75.28	1,599.03	10.96	41.70	43.12	0.00	0.00	0.00
1,700.00	2.65	75.28	1,698.92	12.13	46.17	47.74	0.00	0.00	0.00
1,800.00	2.65	75.28	1,798.81	13.31	50.64	52.36	0.00	0.00	0.00
1,900.00	2.65	75.28	1,898.71	14.48	55.10	56.97	0.00	0.00	0.00
2,000.00	2.65	75.28	1,998.60	15.66	59.57	61.59	0.00	0.00	0.00
2,100.00	2.65	75.28	2,098.49	16.83	64.03	66.21	0.00	0.00	0.00
2,200.00	2.65	75.28	2,198.39	18.00	68.50	70.83	0.00	0.00	0.00
2,300.00	2.65	75.28	2,298.28	19.18	72.97	75.44	0.00	0.00	0.00
2,400.00	2.65	75.28	2,398.17	20.35	77.43	80.06	0.00	0.00	0.00
2,500.00	2.65	75.28	2,498.07	21.52	81.90	84.68	0.00	0.00	0.00
2,600.00	2.65	75.28	2,597.96	22.70	86.36	89.30	0.00	0.00	0.00
2,700.00	2.65	75.28	2,697.85	23.87	90.83	93.91	0.00	0.00	0.00
2,800.00	2.65	75.28	2,797.75	25.04	95.30	98.53	0.00	0.00	0.00
2,900.00	2.65	75.28	2,897.64	26.22	99.76	103.15	0.00	0.00	0.00
2,904.36	2.65	75.28	2,902.00	26.27	99.96	103.35	0.00	0.00	0.00
Ojam									
3,000.00	2.65	75.28	2,997.53	27.39	104.23	107.77	0.00	0.00	0.00
3,100.00	2.65	75.28	3,097.43	28.57	108.69	112.38	0.00	0.00	0.00
3,114.59	2.65	75.28	3,112.00	28.74	109.35	113.06	0.00	0.00	0.00
Kirtland									
3,200.00	2.65	75.28	3,197.32	29.74	113.16	117.00	0.00	0.00	0.00
3,269.75	2.65	75.28	3,267.00	30.56	116.27	120.22	0.00	0.00	0.00
Fruitland									
3,300.00	2.65	75.28	3,297.21	30.91	117.63	121.62	0.00	0.00	0.00
3,350.84	2.65	75.28	3,348.00	31.51	119.90	123.97	0.00	0.00	0.00
Pictured Cliffs									
3,400.00	2.65	75.28	3,397.11	32.09	122.09	126.24	0.00	0.00	0.00
3,500.00	2.65	75.28	3,497.00	33.26	126.56	130.86	0.00	0.00	0.00
3,509.01	2.65	75.28	3,506.00	33.37	126.96	131.27	0.00	0.00	0.00
Lewis Shale									
3,600.00	2.65	75.28	3,596.89	34.43	131.02	135.47	0.00	0.00	0.00
3,700.00	2.65	75.28	3,696.79	35.61	135.49	140.09	0.00	0.00	0.00
3,800.00	2.65	75.28	3,796.68	36.78	139.96	144.71	0.00	0.00	0.00
3,900.00	2.65	75.28	3,896.57	37.95	144.42	149.33	0.00	0.00	0.00
4,000.00	2.65	75.28	3,996.47	39.13	148.89	153.94	0.00	0.00	0.00
4,100.00	2.65	75.28	4,096.36	40.30	153.35	158.56	0.00	0.00	0.00
4,200.00	2.65	75.28	4,196.25	41.48	157.82	163.18	0.00	0.00	0.00

Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well Jicarilla Apache 124 #15
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Project:	Rio Arriba County, NM (NAD83)	**MD Reference:**	GL 7024' & RKB 13' @ 7037.00ft
Site:	Jicarilla	**North Reference:**	True
Well:	Jicarilla Apache 124 #15	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,300.00	2.65	75.28	4,296.15	42.65	162.28	167.80	0.00	0.00	0.00
4,319.87	2.65	75.28	4,316.00	42.88	163.17	168.71	0.00	0.00	0.00
Chacra Sand									
4,400.00	2.65	75.28	4,396.04	43.82	166.75	172.41	0.00	0.00	0.00
4,500.00	2.65	75.28	4,495.93	45.00	171.22	177.03	0.00	0.00	0.00
4,600.00	2.65	75.28	4,595.83	46.17	175.68	181.65	0.00	0.00	0.00
4,700.00	2.65	75.28	4,695.72	47.34	180.15	186.27	0.00	0.00	0.00
4,800.00	2.65	75.28	4,795.61	48.52	184.61	190.88	0.00	0.00	0.00
4,900.00	2.65	75.28	4,895.51	49.69	189.08	195.50	0.00	0.00	0.00
5,000.00	2.65	75.28	4,995.40	50.87	193.55	200.12	0.00	0.00	0.00
5,086.69	2.65	75.28	5,082.00	51.88	197.42	204.12	0.00	0.00	0.00
Cliffhouse									
5,100.00	2.65	75.28	5,095.29	52.04	198.01	204.74	0.00	0.00	0.00
5,142.75	2.65	75.28	5,138.00	52.54	199.92	206.71	0.00	0.00	0.00
Menefee									
5,200.00	2.65	75.28	5,195.19	53.21	202.48	209.35	0.00	0.00	0.00
5,300.00	2.65	75.28	5,295.08	54.39	206.94	213.97	0.00	0.00	0.00
5,400.00	2.65	75.28	5,394.97	55.56	211.41	218.59	0.00	0.00	0.00
5,500.00	2.65	75.28	5,494.87	56.73	215.88	223.21	0.00	0.00	0.00
5,600.00	2.65	75.28	5,594.76	57.91	220.34	227.82	0.00	0.00	0.00
5,600.24	2.65	75.28	5,595.00	57.91	220.35	227.84	0.00	0.00	0.00
Point Lookout									
5,700.00	2.65	75.28	5,694.65	59.08	224.81	232.44	0.00	0.00	0.00
5,765.42	2.65	75.28	5,760.00	59.85	227.73	235.46	0.00	0.00	0.00
Top Mancos									
5,800.00	2.65	75.28	5,794.55	60.25	229.27	237.06	0.00	0.00	0.00
5,873.25	2.65	75.28	5,867.72	61.11	232.54	240.44	0.00	0.00	0.00
5,900.00	2.11	75.28	5,894.45	61.40	233.62	241.55	2.00	-2.00	0.00
6,000.00	0.11	75.28	5,994.42	61.89	235.50	243.49	2.00	-2.00	0.00
6,005.58	0.00	0.00	6,000.00	61.89	235.50	243.50	2.00	-2.00	0.00
JAT 124 #15 Target									
6,100.00	0.00	0.00	6,094.42	61.89	235.50	243.50	0.00	0.00	0.00
6,200.00	0.00	0.00	6,194.42	61.89	235.50	243.50	0.00	0.00	0.00
6,300.00	0.00	0.00	6,294.42	61.89	235.50	243.50	0.00	0.00	0.00
6,400.00	0.00	0.00	6,394.42	61.89	235.50	243.50	0.00	0.00	0.00
6,500.00	0.00	0.00	6,494.42	61.89	235.50	243.50	0.00	0.00	0.00
6,600.00	0.00	0.00	6,594.42	61.89	235.50	243.50	0.00	0.00	0.00
6,700.00	0.00	0.00	6,694.42	61.89	235.50	243.50	0.00	0.00	0.00
6,742.58	0.00	0.00	6,737.00	61.89	235.50	243.50	0.00	0.00	0.00
Gallup									
6,800.00	0.00	0.00	6,794.42	61.89	235.50	243.50	0.00	0.00	0.00
6,900.00	0.00	0.00	6,894.42	61.89	235.50	243.50	0.00	0.00	0.00
7,000.00	0.00	0.00	6,994.42	61.89	235.50	243.50	0.00	0.00	0.00
7,100.00	0.00	0.00	7,094.42	61.89	235.50	243.50	0.00	0.00	0.00
7,200.00	0.00	0.00	7,194.42	61.89	235.50	243.50	0.00	0.00	0.00
7,300.00	0.00	0.00	7,294.42	61.89	235.50	243.50	0.00	0.00	0.00
7,400.00	0.00	0.00	7,394.42	61.89	235.50	243.50	0.00	0.00	0.00
7,500.00	0.00	0.00	7,494.42	61.89	235.50	243.50	0.00	0.00	0.00
7,548.58	0.00	0.00	7,543.00	61.89	235.50	243.50	0.00	0.00	0.00
Greenhorn									
7,600.00	0.00	0.00	7,594.42	61.89	235.50	243.50	0.00	0.00	0.00
7,609.58	0.00	0.00	7,604.00	61.89	235.50	243.50	0.00	0.00	0.00
Graneros									

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Site:	Jicarilla	**North Reference:**	True
Well:	Jicarilla Apache 124 #15	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,643.58	0.00	0.00	7,638.00	61.89	235.50	243.50	0.00	0.00	0.00
Dakota									
7,700.00	0.00	0.00	7,694.42	61.89	235.50	243.50	0.00	0.00	0.00
7,800.00	0.00	0.00	7,794.42	61.89	235.50	243.50	0.00	0.00	0.00
7,900.00	0.00	0.00	7,894.42	61.89	235.50	243.50	0.00	0.00	0.00
7,964.58	0.00	0.00	7,959.00	61.89	235.50	243.50	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
JAT 124 #15 Target - plan hits target center - Point	0.00	0.00	6,000.00	61.89	235.50	1,959,857.73	1,357,706.16	36° 22' 56.532 N	107° 12' 37.620 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,904.36	2,902.00	Ojam		0.00	
3,114.59	3,112.00	Kirtland		0.00	
3,269.75	3,267.00	Fruitland		0.00	
3,350.84	3,348.00	Pictured Cliffs		0.00	
3,509.01	3,506.00	Lewis Shale		0.00	
4,319.87	4,316.00	Chacra Sand		0.00	
5,086.69	5,082.00	Cliffhouse		0.00	
5,142.75	5,138.00	Menefee		0.00	
5,600.24	5,595.00	Point Lookout		0.00	
5,765.42	5,760.00	Top Mancos		0.00	
6,742.58	6,737.00	Gallup		0.00	
7,548.58	7,543.00	Greenhorn		0.00	
7,609.58	7,604.00	Graneros		0.00	
7,643.58	7,638.00	Dakota		0.00	

EnerVest Operating, LLC
Jicarilla Apache Tribal 124 # 15

1586' FSL, 465' FWL Unit L Sec 24, T25N, R04W Rio Arriba, NM

Surface Use Plan

1. DIRECTIONS & EXISTING ROADS (See attached Vicinity map)

The location is approximately 19.5 miles N of the intersection of US Hwy 550 and NM Hwy 537
Latitude: N 36.38220
Latitude: W 107.21125

From Intersection of US Hwy 550 and NM State Hwy 537: Turn north on Hwy 537 for 19.5 miles, turn right and go 0.4 miles to JAT 124-4 location and follow road 0.4 miles to new location (well site).

2. ROAD TO BE BUILT OR UPGRADED

A. Drilling of this well will require the construction of 2030' of new access road from the existing access road as shown on the Access Plat. After the well is completed as a commercial producer, the need for a pipeline is ascertained, it is proposed to construct 321' of pipeline to tie-in at the west side of the location to an existing Williams pipeline which runs adjacent to the location and the access road.
B. Width: 20 ft running surface; 45 ft total ROW with is applied for to accommodate access and drainage installation along the road.
C. Maximum grade: 0-1%.
D. Turnouts: No turnouts are planned for this access road.
E. Drainage design: The drainage design for the proposed new access road will be in conformance with Jicarilla Apache Tribal and BIA standards – with the agreement of the of the Jicarilla Apache Tribe. It is proposed to build a drainage holding and diversion pond near location if needed to prevent location erosion and divert drainage around the location. Any area used in this fashion will have been reviewed and given clearance for the possible archaeological and environmental impact.
F. Location and size of culverts: None are required.
G. Surface Materials: No gates, cattle guards or fences to be installed along the access road or the location. Road base material may be used as necessary during the drilling and completion phases of this project.

3. SURFACE OWNERSHIP

The surface ownership of the well site location and access roads are all on Jicarilla Apache Nation land.

4. EXISTING WELLS (See the Vicinity map)

This is a development location. There are twenty-seven existing wells within a one-mile radius of the proposed location as shown on the Vicinity map.

EnerVest
Jicarilla Apache Tribal 124 #15

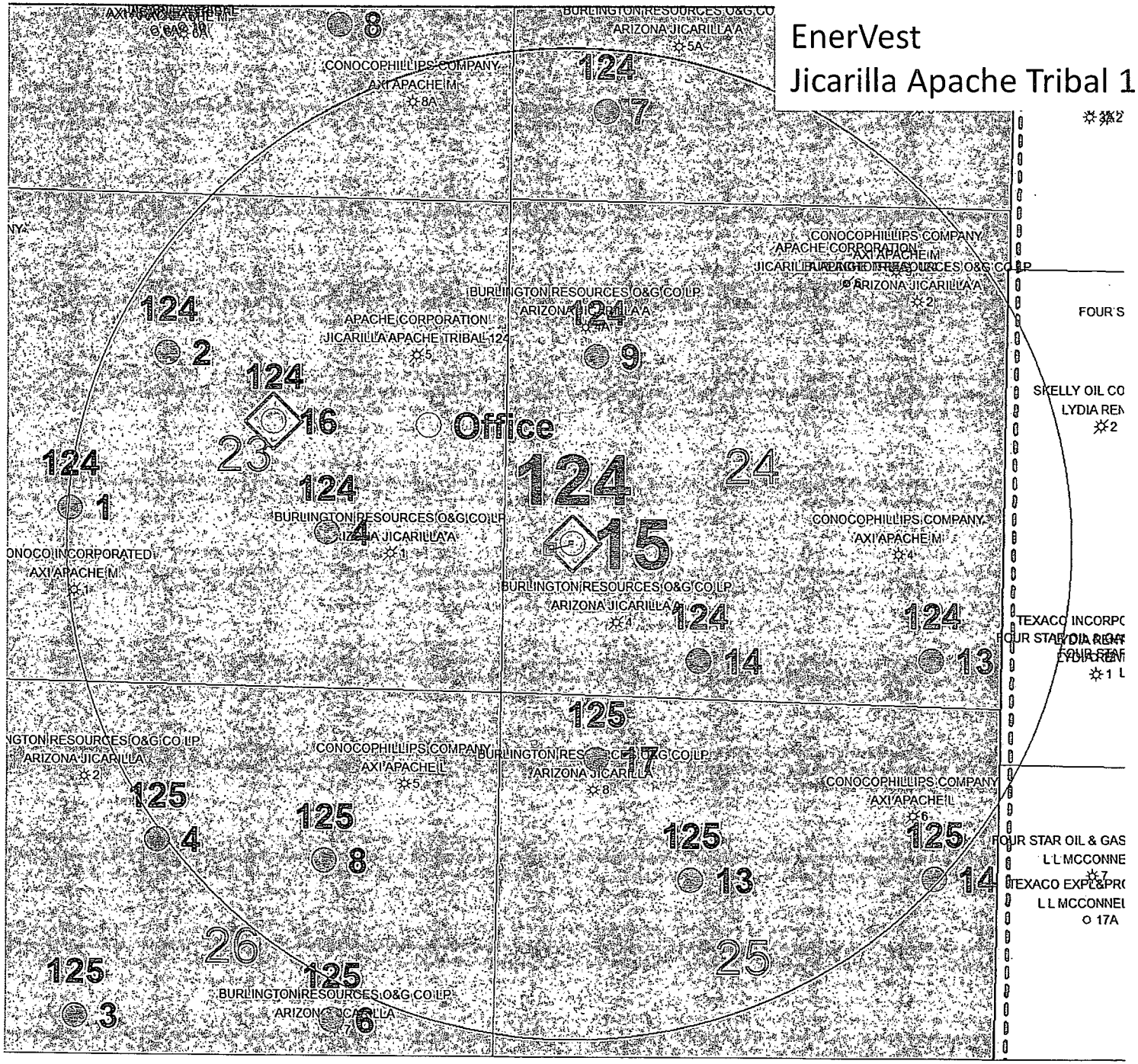
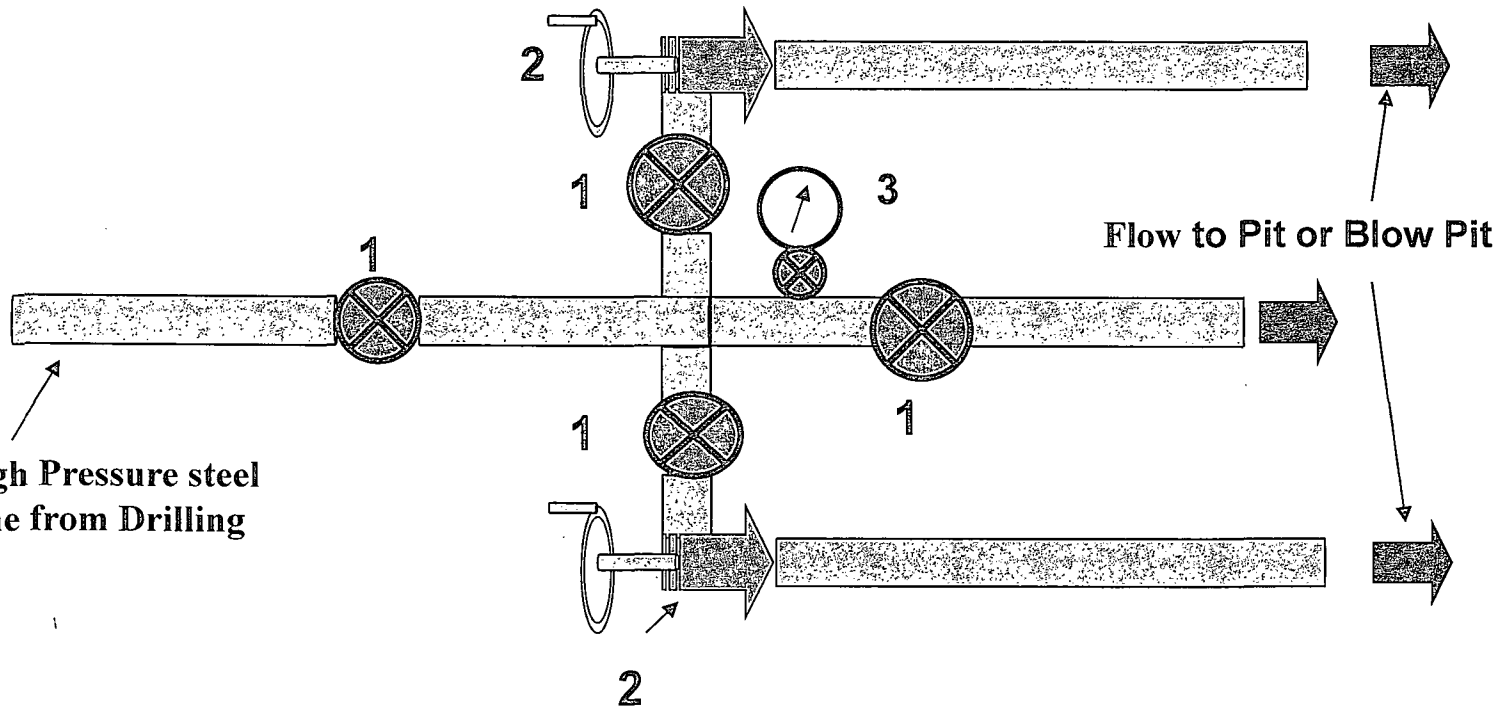


Exhibit B

EnerVest
Jicarilla 2014 Drilling Program
2000 psi Choke Manifold

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



EnerVest
Jicarilla 2014
Drilling Program
Blowout Preventer
2000 psi

Exhibit A

Components

1. Wellhead 9 5/8"
2. Drilling Spool
3. Pipe Rams
4. Blind Rams
5. Spool
6. 2" Check Valve
7. 2" Manual Valves