State of New Mexico
Energy, Minerals and Natural Resources Department

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: 12/17/13
Well information;
Operator EnerVest, Well Name and Number Apache 159

API# 30-039-31206, Section 2, Township 24 (N)S, Range 4 E(W)

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

- ✔ Notify Aztec OCD 24hrs prior to casing & cement.
- o Hold C-104 for directional survey & "As Drilled" Plat
- o Hold C-104 for NSL, NSP, DHC
- o Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ✔ 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

Chad Hensley
NMOCD Approved by Signature

1-6-2014 ca
Date

Form 3160-3
(March 2012)

RECEIVED
DEC 19 2013
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

5. Lease Serial No.
Jicarilla Contract 126

6. If Indian, Allotee or Tribe Name
Jicarilla Apache Tribe

1a. Type of work: ☑ DRILL ☐ REENTER

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

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

8. Lease Name and Well No.
Apache #159

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

9. API Well No.
30-039- 31206

3a. Address
1001 Fannin Street, Suite 800
Houston, TX 77002

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

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 2595' FSL & 770' FWL (UL L), Sec. 2 T24N R04W
At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 2 T24N R04W

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

12. County or Parish
Rio Arriba

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. 770'
(Also to nearest drig. unit line, if any)

16. No. of acres in lease
2560

17. Spacing Unit dedicated to this well
SW/4

RCVD JAN 2 '14

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1581'

19. Proposed Depth
7562'

20. BLM/BIA Bond No. on file
RLB0007886

OIL CONS. DIV.
DIST. 3

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
6880'

22. Approximate date work will start*
04/01/2014

23. Estimated duration
5 weeks

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.
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).
4. Bond to cover the operations unless covered by an 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 BLM.

25. Signature
Name *(Printed/Typed)* Bart Treviño
Date 12/17/2013

Title
Regulatory Analyst

Approved by *(Signature)*
Name *(Printed/Typed)*
Date 12/30/13

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 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)

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

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

NMOCD

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

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
DEC 19 2013
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
30-039-31206	39189	Lindrith Gallup-Dakota, West

4 Property Code	5 Property Name	6 Well Number
301266	APACHE	159

7 OGRID No.	8 Operator Name	9 Elevation
143199	ENERVEST OPERATING, LLC.	6880'

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	2	24-N	4-W	700	2595	SOUTH	770	WEST	RIO ARRIBA

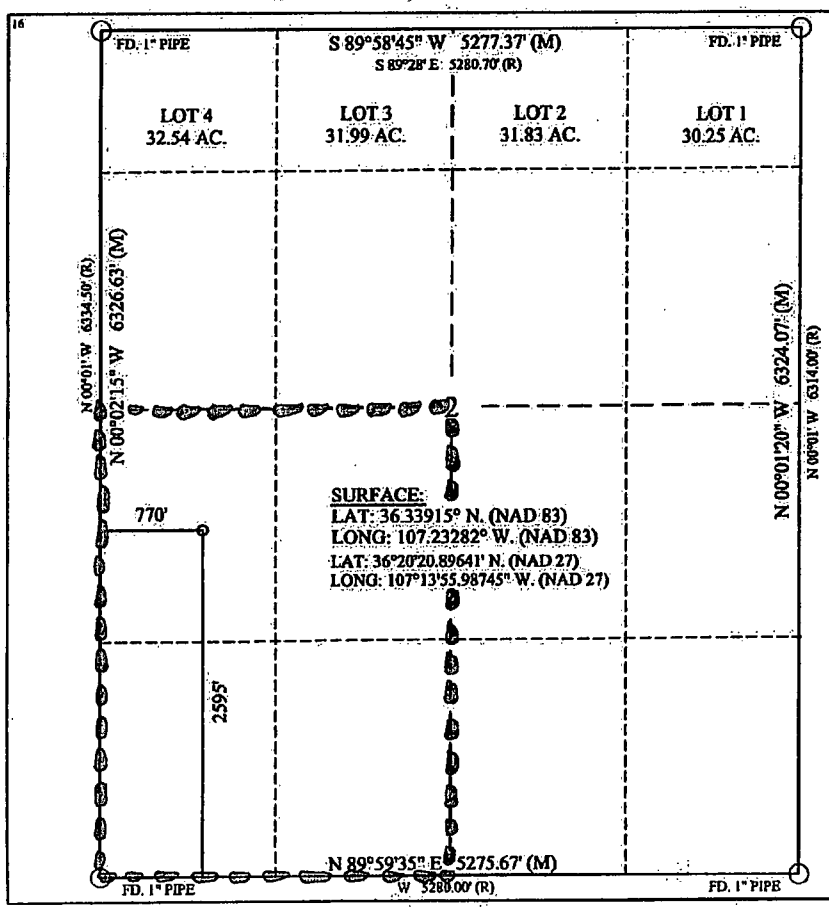
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
SW/4 - 160 acres			

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

16



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.

Signature — Date: 5/16/2013

Printed Name: Bart Treviño

E-mail Address: btrevino@enervest.net

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 belief.

Date of Survey: MARCH 20, 2013

Signature and Seal of Professional Surveyor: ROY A. RUSH, NEW MEXICO, 8894, REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate Number: 8894

EnerVest Operating, LLC

Apache 159

2595' FSL, 770' FWL Unit L, Sec. 2, T24N R04W Rio Arriba County, NM

GL Elev: 6880'

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 estimates only and may be modified as determined by well conditions while drilling.

Formation Name	Depth	Rock Type	Comments
San Jose	Surface	Sandstone	
Ojo Alamo	2382'	Sandstone	Possible Gas, Water
Kirtland	2686'	Shale	
Fruitland	2930'	Coal, Shale, Sandstone	Possible Lost Circ, Gas, Water
Pictured Cliffs	3053'	Sandstone	Possible Lost Circ, Gas, water
Lewis	3138'	Shale	Sloughing Shale
Mesa Verde (Cliffhouse)	4668'	Sandstone	Possible Lost Circ, Gas, Water
Mesa Verde (Menefee)	4708'	Coal, Sandstone, Shale	Possible Lost Circ, Gas, Water
Mesa Verde (Point Lookout)	5022'	Sandstone	Possible Lost Circ, Gas, Water
Mancos	5358'	Shale	Sloughing Shale
Gallup	6393'	Siltstone, Shale	Gas, Oil
Greenhorn	7182'	Limestone	Gas, Oil
Graneros	7224'	Shale	Gas, Oil, Water
Dakota	7246'	Sandstone	Gas, Oil, Water
Proposed Total Depth	7562'		

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.

4.3 PRESSURE CONTROL:

Maximum expected pressure is ~1664 (.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.

4.4 PROPOSED CASING PROGRAM :

Casing Design

Hole/Casing Description	Hole Size	Casing OD	Weight lb/ft	Grade	Age	Connection	Top MD	Bottom MD
Surface	12 1/4"	8 5/8"	24	J-55	New	ST&C	0	500'
Prod Casing	7 7/8"	4 ½"	11.6	N-80	New	LT&C	0	7562'

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% excess over OH gauge volume.

Stage 1 cement; mix and pump 530 sacks (1064 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).

DV tool at +/- 4350 ft.

Stage 2 Lead cement; mix and pump 263 sacks (561 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 +/- 2503 ft.

Stage 3 Lead cement; mix and pump 347 sacks (739 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.

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'- 7562'	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 and solids control 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.
2500' 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.

4.8 ANTICIPATED PRESSURES AND TEMPERATURES:

a.	Expected bottom hole pressure:	< 1664 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 late summer 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.

EnerVest Operating, LLC
Apache #159
2595' FSL, 770' FWL Unit L Sec 2, T24N, R04W Rio Arriba, NM

Surface Use Plan

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

The location is approximately 17 miles N of the intersection of US Hwy 550 and NM Hwy 537
Latitude: N 36.33915
Latitude: W 107.23282

From Intersection of US Hwy 550 and NM State Hwy 537: Turn north on Hwy 537 for 17 miles, turn right, go 1.9 mi, turn right, go 0.1 mi, the location road is on the left

2. ROAD TO BE BUILT OR UPGRADED

A. Drilling of this well will require the construction of 34' 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 a tie-in at the east side of the location to an existing Enterprise pipeline which runs adjacent to the location and the access road.
B. Width: 20 ft running surface; 40 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 nineteen existing wells within a one-mile radius of the proposed location as shown on the Vicinity map.

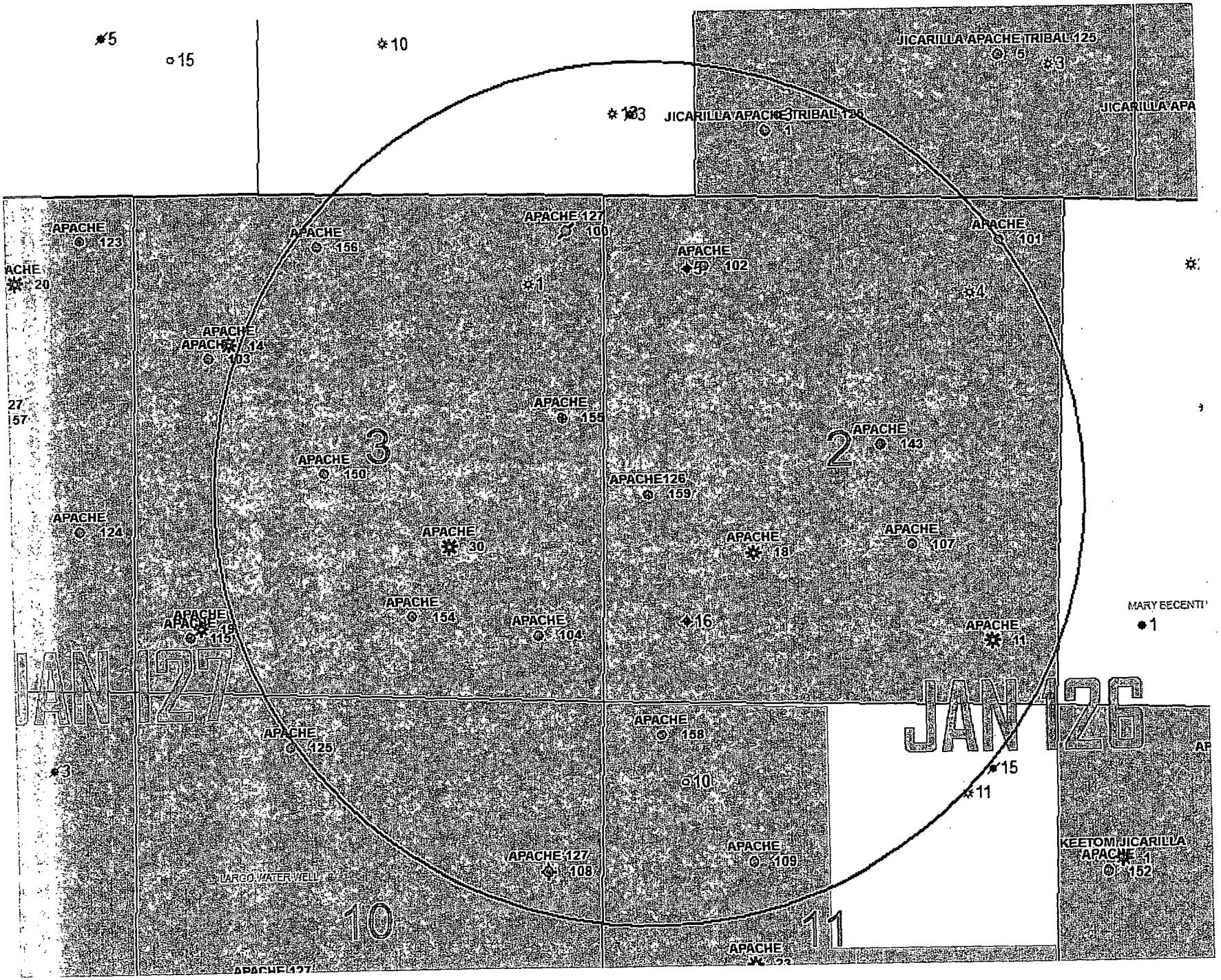
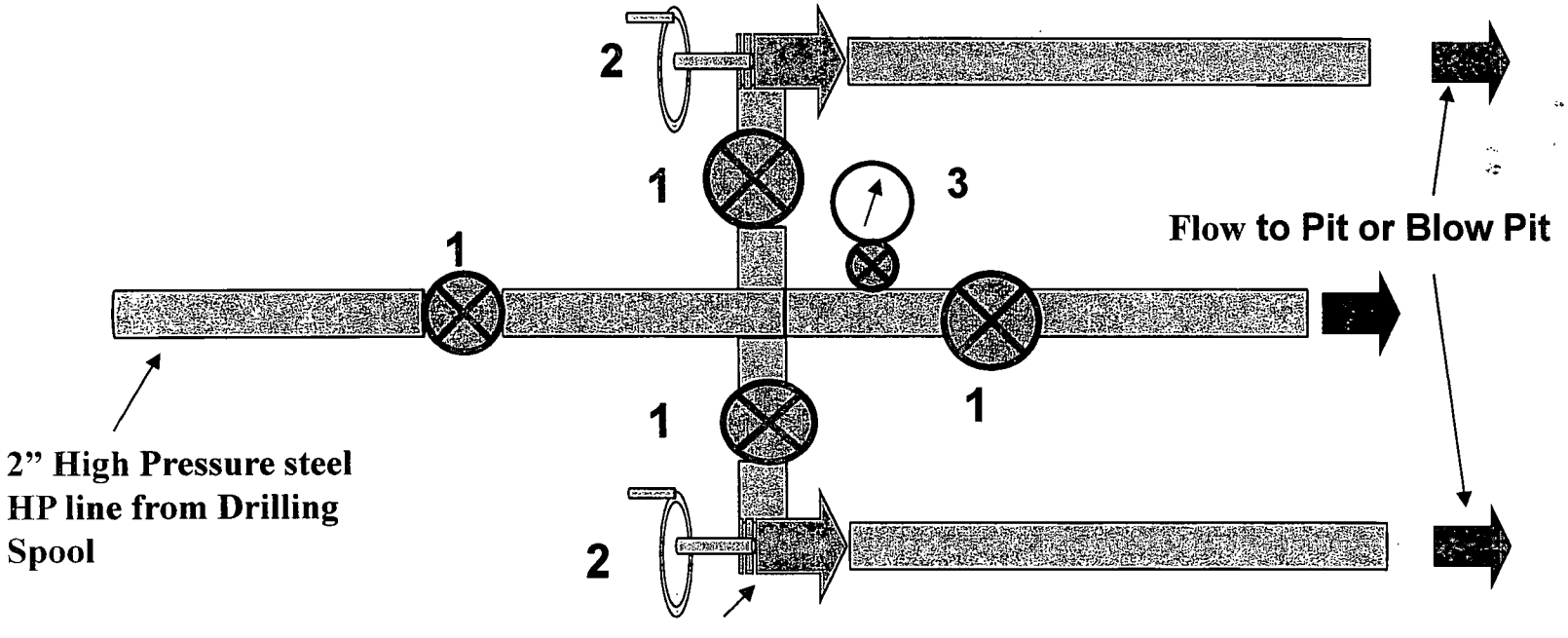

JICARILLA APACHE TRIBAL 125
JICARILLA APACHE TRIBAL 126
APACHE 123
APACHE 156
APACHE 127
APACHE 100
APACHE 101
APACHE 102
APACHE 103
APACHE 155
APACHE 150
APACHE 143
APACHE 126
APACHE 159
APACHE 124
APACHE 30
APACHE 18
APACHE 107
APACHE 154
APACHE 104
APACHE 11
APACHE 115
APACHE 125
APACHE 158
APACHE 109
APACHE 127
APACHE 108
APACHE 152
JICARILLA APACHE
KEETOM
MARY BECENTI
LARGO WATER WELL #1
JAN 127
JAN 126
3
2
10
11

Exhibit B

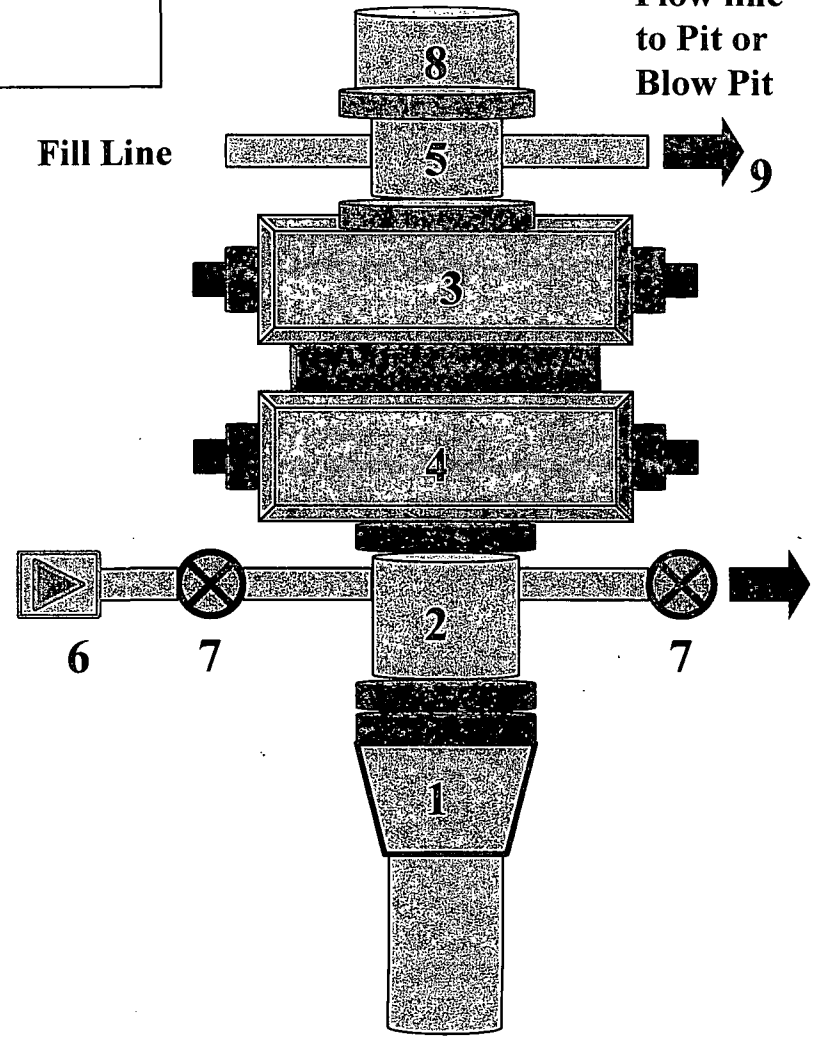
EnerVest
Jicarilla 2014 Drilling Program
2000 psi Choke Manifold

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



EnerVest
Jicarilla 2014
Drilling Program
Blowout Preventer
2000 psi

Exhibit A



Components

1. Wellhead 8 5/8"
2. Drilling Spool
3. Pipe Rams
4. Blind Rams
5. Bell Nipple
6. 2" Check Valve
7. 2" Manual Valves
8. Rotating Head, when needed if air drilling
9. Blooie Line will be used if air drilling