

RECEIVED

Form 3160-3
(February 2005)

JUL 28 2008

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

UNITED STATES Bureau of Land Management
DEPARTMENT OF THE INTERIOR Farmington Field Office
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM-113640
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator EnerVest Operating, LLC		7. If Unit or CA Agreement, Name and No. Bear Canyon Unit
3a. Address 201 N. Auburn Ave., Farmington, NM 87401		8. Lease Name and Well No. Bear Canyon Unit #6
3b. Phone No. (include area code) 505-325-0318		9. API Well No. 30-039-30557
4. Location of Well (Report location clearly and in accordance with any State requirements*) At surface 350' FNL x 665' FWL At proposed prod. zone 552' FNL X 959' FWL to TD (2250' FSL x 790' FEL)		10. Field and Pool, or Exploratory Gavilan Mameos
14. Distance in miles and direction from nearest town or post office* see attached maps		11. Sec., T. R. M. or Blk. and Survey or Area Sec.14, T.26N, R.2W, N.M.P.M.
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 552' from prod. zone to nearest lease line	16. No. of acres in lease 640/160	17. Spacing Unit dedicated to this well 640 acres
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1850' from prod. zone	19. Proposed Depth 11,789 MD	20. BLM/BIA Bond No. on file NMB000503
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7384' GL	22. Approximate date work will start* 08/01/2008	23. Estimated duration 14-30 days

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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 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) | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature <i>Tim G. Kelley</i>	Name (Printed/Typed) Tim G. Kelley	Date 07/23/2008
Title Agent, (970)-385-4722		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed)	Date 8/25/08
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

*(Instructions on page 2)

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

DRILLING OPERATIONS AUTHORIZED ARE 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

SEP 09 2008

NMOCD

aw

DISTRICT I
1825 N. French Dr., Hobbs, N.M. 88240

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

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

DISTRICT IV
1820 South St. Francis Dr., Santa Fe, NM 87505

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

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-30652	*Pool Code 27194	*Pool Name GAVILAN-MANERO
*Property Code 301267	*Property Name BEAR CANYON Unit	*Well Number OIL CONS. DIV.
*OGHD No. 143199	*Operator Name ENERVEST OPERATING, LLC	*Elevation 7384

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
D	14	26-N	2-W		350	NORTH	665	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
I	14	26-N	2-W		2250	SOUTH	790	EAST	RIO ARriba

*Dedicated Acres 640	*Joint or Infill	*Consolidation Code	*Order No.
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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

<p>16</p> <p>350'</p> <p>S 89°58'15" E 2633.00' (M)</p> <p>SET P&C LS No. 8894</p> <p>SET P&C LS No. 8894 1/2" REBAR ON CALC'D DBL. PROP.</p> <p>665'</p> <p>FD. 2 1/2" BC. 1916 G.L.O.</p> <p>N 00°00'13" E 2640.48' (M)</p> <p>FD. 2 1/2" BC. 1916 G.L.O.</p> <p>14</p> <p>SURFACE: LAT: 36°29'28.40908" N. (NAD 83) LONG: 107°01'34.57144" W. (NAD 83)</p> <p>BOTTOM HOLE: LAT: 36°29'01.87843" N. (NAD 83) LONG: 107°00'47.88306" W. (NAD 83)</p> <p>PRELIMINARY B.H.L. B.H.L. FOOTAGES ARE APPROXIMATE AND PROVIDED BY ENERVEST OPERATING, LLC CLIENT</p> <p>FD. 2 1/2" BC. 1916 G.L.O.</p> <p>N 89°50'59" W 2632.35' (C)</p> <p>2250'</p> <p>B.H.L.</p> <p>790'</p> <p>5283.78' (C)</p> <p>N 00°01'30" W</p> <p>WITNESS CORNER FD. 2 1/2" BC. 1916 G.L.O.</p>	<p>17 OPERATOR CERTIFICATION</p> <p>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 undivided 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.</p> <p><i>Bridget Helfrich</i> 8-28-08 Signature Date BRIDGET HELFRICH Printed Name</p>
	<p>18 SURVEYOR CERTIFICATION</p> <p>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 knowledge and belief.</p> <p>June 28, 2008 Date of Survey NEW MEXICO Professional Land Surveyor 8894 Certificate Number</p>

Scientific Drilling Planning Report



Database: EDM 2003.16 Single User Db
Company: Enervest Operating, LLC
Project: Rio Arriba County, NM (NAD83 NME)
Site: Bear Canyon Unit #8
Well: Bear Canyon Unit #8
Wellbore: OH
Design: Plan #4 - 8 3/4" Hole

Local Co-ordinate Reference:
TVD Reference: KB Elev. @ 7400.00ft (16 ft KB)
MD Reference: KB Elev. @ 7400.00ft (16 ft KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
10,000.00	90.36	124.65	7,357.38	-1,633.78	2,363.78	2,873.45	0.00	0.00	0.00
10,100.00	90.36	124.65	7,356.74	-1,690.64	2,446.05	2,973.45	0.00	0.00	0.00
10,200.00	90.36	124.65	7,356.11	-1,747.50	2,528.31	3,073.45	0.00	0.00	0.00
10,300.00	90.36	124.65	7,355.47	-1,804.35	2,610.57	3,173.45	0.00	0.00	0.00
10,400.00	90.36	124.65	7,354.83	-1,861.21	2,692.83	3,273.44	0.00	0.00	0.00
10,500.00	90.36	124.65	7,354.20	-1,918.07	2,775.09	3,373.44	0.00	0.00	0.00
10,600.00	90.36	124.65	7,353.56	-1,974.93	2,857.35	3,473.44	0.00	0.00	0.00
10,700.00	90.36	124.65	7,352.93	-2,031.78	2,939.61	3,573.44	0.00	0.00	0.00
10,800.00	90.36	124.65	7,352.29	-2,088.64	3,021.87	3,673.44	0.00	0.00	0.00
10,900.00	90.36	124.65	7,351.65	-2,145.50	3,104.14	3,773.43	0.00	0.00	0.00
11,000.00	90.36	124.65	7,351.02	-2,202.35	3,186.40	3,873.43	0.00	0.00	0.00
11,100.00	90.36	124.65	7,350.38	-2,259.21	3,268.66	3,973.43	0.00	0.00	0.00
11,200.00	90.36	124.65	7,349.74	-2,316.07	3,350.92	4,073.43	0.00	0.00	0.00
11,300.00	90.36	124.65	7,349.11	-2,372.92	3,433.18	4,173.43	0.00	0.00	0.00
11,400.00	90.36	124.65	7,348.47	-2,429.78	3,515.44	4,273.42	0.00	0.00	0.00
11,500.00	90.36	124.65	7,347.84	-2,486.64	3,597.70	4,373.42	0.00	0.00	0.00
11,600.00	90.36	124.65	7,347.20	-2,543.49	3,679.96	4,473.42	0.00	0.00	0.00
11,700.00	90.36	124.65	7,346.56	-2,600.35	3,762.22	4,573.42	0.00	0.00	0.00
11,788.57	90.36	124.65	7,346.00	-2,650.71	3,835.08	4,661.98	0.00	0.00	0.00

PBHL-BCU #6-14

Targets

Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N-S (ft)	+E-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL-BCU #6-14	- plan hits target - Point	0.00	6.12	7,346.00	-2,650.71	3,835.08	1,996,454.580	2,964,159.032	36° 29' 1.878 N	107° 0' 47.883 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,171.59	7,146.00	Gallup			
	7,388.00	Base of Gallup		0.63	
7,477.32	7,332.00	Top of Gallup		0.63	
3,741.00	3,741.00	Fruitland			
5,971.00	5,971.00	Point Lookout			
3,756.00	3,756.00	Pictured Cliffs			
6,086.00	6,086.00	Mancos			
3,453.00	3,453.00	Ojo Alamo			
5,622.00	5,622.00	Menefee			

Enervest Operating, LLC

Scientific Drilling for Enervest Operating, LLC
 Site: Rio Arriba County, NM (NAD83 NME)
 Well: Bear Canyon Unit #6
 Wellbore: OH
 Design: Plan #4 - 8 3/4" Hole



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	6800.00	0.00	0.00	6800.00	0.00	0.00	0.00	0.00	0.00	
3	7702.15	90.36	124.65	7372.00	-327.30	473.55	10.02	124.65	575.65	
4	11788.57	90.36	124.65	7346.00	-2650.71	3835.08	0.00	0.00	4661.98	PBHL-BCU #6-14

WELL DETAILS: Bear Canyon Unit #6-14

+N/-S	+E/-W	Ground Level:	7384.00	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1999105.286	2960323.950	36°29' 28.409 N	107° 1' 34.571 W			

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BHL-BCU #6-14	7346.00	-2650.71	3835.08	1996454.580	2964159.032	36°29' 1.878 N	107° 0' 47.883 W	Point

PROJECT DETAILS: Rio Arriba County, NM (NAD83 NME)

Plan: Plan #4 - 8 3/4" Hole (Bear Canyon Unit #6-14/OH)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Western Zone
 System Datum: Mean Sea Level

Created By: Julio Pina

Date: 25-Jun-08

Checked:

Date:

Reviewed:

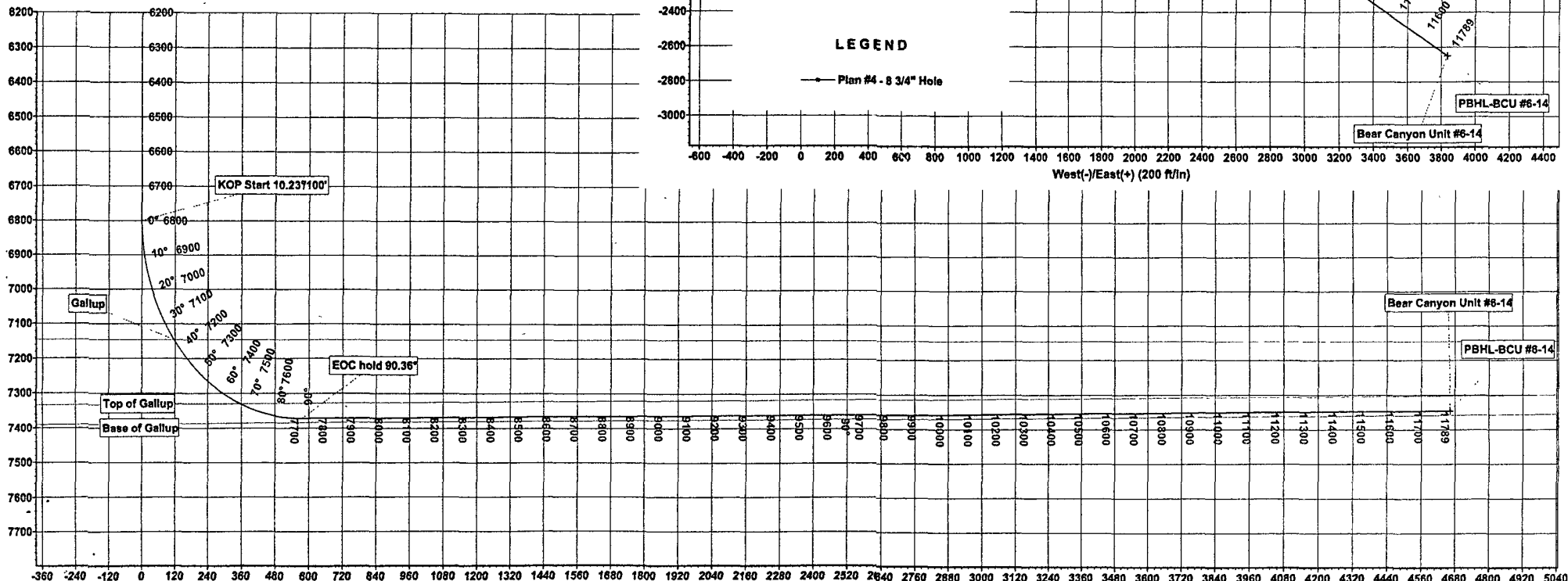
Date:

Approved:

Date:

AZIMUTH CORRECTIONS

ALL AZIMUTHS MUST BE CORRECTED TO GRID
 GRID CORRECTIONS MUST BE APPLIED BEFORE PLOTTING
 To convert a Magnetic Direction to a Grid Direction, Add 9.42°
 To convert a True Direction to a Grid Direction, Subtract 0.48°





EnerVest Operating, Ltd.
Drilling Plan
Bear Canyon Unit
350' FNL & 665' FWL Sec 14 T26N R2W
Rio Arriba County, NM

Rig Telephone #:
Rig FAX #:

GL = 7384 ft

BEAR CANYON UNIT # 6-14 - DRILLING PROGRAM - Rev. # 1

1 Location :

Surface location: 350' FNL & 665' FWL Sec 14 T26N R2W
Bottom Hole Location: 2250' FSL & 790' FEL Sec 14 T26N R2W

2 Estimated Tops of Important Geologic Markers

Formation	GL Depth	KB Depth	Elevation	Rock Type
Nacimiento	0	16	7380	Shale & Boulders
Ojo Alamo	3,441	3,457	3943	Sandstone
Fruitland	3,729	3,745	3655	Coal & Shale
Pictured Cliffs	3,744	3,760	3640	Sandstone
Lewis Shale	3,850	3,866	3534	Shale
Menefee	5,610	5,626	1774	Shale & Coal & Sandstone
Point Lookout	5,959	5,975	1425	Sandstone
Mancos	6,074	6,090	1310	Sandstone
Gallup	7,134	7,150	250	Sandstone & Shale
Lower Gallup	7,364	7,380	20	
TD Lateral	11,800	11,816	50	Gallup formation

3 Notable Anticipated Fresh Water, Oil and Gas Formations

The Picture Cliffs and Gallup are potential oil and gas zones. Water zones will be protected by setting 13 3/8" casing to 300' and circulating cement back to the surface. All zones containing commercial quantities of oil or gas will have cement circulated across them by cementing the 9 5/8" & 7" Intermediate casings; The 9 5/8" casing cement volumes will be pumped to provide cement back to surface. The 7" casing cement volumes will be pumped to provide cement back to the 9 5/8".

4 Casing Program (New Casing)

Hole Size	Interval	OD Casing	Weight	Grade	Connection	Section
17 1/2"	0-300	13 3/8"	54.5 #	J-55	STC	Surface
12 1/4"	0-4000	9 5/8"	40 #	N-80	LTC	Surface
8 3/4"	4000-7700	7"	26 #	N-80	LTC&Hydril	Intermediate
6 1/8"	7700-11800	4 1/2"	11.60#	N-80	LTC	Liner



EnerVest Operating, Ltd.
Drilling Plan
Bear Canyon Unit
350' FNL & 665' FWL Sec 14 T26N R2W
Rio Arriba County, NM

Rig Telephone #:
Rig FAX #:

GL = 7384 ft

5 Cement Program

Surface CSG:

Surface casing will be cemented to surface w/ 100% excess.

430 sacks Premium Cement + 2% Calcium Chloride + 0.125 lbm/sk Poly-E-Flake.

Mixed at 15.6 ppg, 1.21 cu ft/sx, 5.27 Gal/sk of water.

Two centralizers will be installed on the float joint and one every second joint thereafter.

9 5/8" Intermediate CSG:

Cement will be from 4000' to surface with 50% excess.

Lead cement: 520 sacks Premium Plus Type III + 3% Econolite + 7 lb/sx Gilsonite

Mixed at 11.5 ppg, 2.71 cu ft/sx, 15.34 Gal/sk of water.

Tail cement: 381 sx 50/50 poz standard + 5 lb/sx Gilsonite

Mixed at 13.5 ppg, 1.30 cu ft/sx, 5.15 Gal/sk of water.

Two centralizers will be installed on the float joint and one every second joint through all prospective pays.

7" Intermediate CSG:

Cement will be from 7700' to 4000' with 0% excess.

Lead cement: 166 sacks Premium Plus Type III + 3% Econolite + 7 lb/sx Gilsonite

Mixed at 11.5 ppg, 2.71 cu ft/sx, 15.34 Gal/sk of water.

Tail cement: 88 sx 50/50 poz standard + 5 lb/sx Gilsonite

Mixed at 13.5 ppg, 1.30 cu ft/sx, 5.15 Gal/sk of water.

Two centralizers will be installed on the float joint and one every second joint through all prospective pays.

4 1/2" Liner: Will not be cemented.

6 Pressure Control & Wellhead Equipment

The maximum expected bottom hole pressure will be +/- 500 psi.

The drilling contractor has not yet been found, thus the exact BOP model to be used is not yet known. A typical 5,000 psi model will be expected with double ram-type (3,000 psi WP) preventer and a rotating head as seen on Appendix A. This unit will be hydraulically operated and tested by a third party.

The BOPs will be equipped with the rotating head on top. The double rams will be below the rotating head with the 4-1/2" drill pipe rams on top and blind rams on the bottom.

The BOPE will be nipped up on the 13 3/8" surface casing and tested to 2,000 psi by a third party.



EnerVest Operating, Ltd.
Drilling Plan
Bear Canyon Unit
350' FNL & 665' FWL Sec 14 T26N R2W
Rio Arriba County, NM

Rig Telephone #:
Rig FAX #:

GL = 7384 ft

BOPs will be operationally checked each 24 hour period. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented, anytime a seal is broken.

Additional safety equipment will include a safety valve and sub with a full opening valve to fit the drill pipe and collars. The choke lines and a choke manifold will have at least a 3,000 psi WP rating.

7 Types and Characteristics of the Proposed Mud System

The surface hole will be drilled with a fresh water mud.

The intermediate hole will be drilled with a gel/polymer mud.

The second intermediate hole will be drilled on Air.

The production hole will be drilled with KCl/Air and possibly gel/polymer mud.

DEPTH	TYPE	WEIGHT	VISCOSITY	WATER LOSS
0-300'	Gel	8.4-8.6	60-75	NC
300'-4000'	Gel/Polymer	8.6-9.2	33-38	6
4000'-7700'	KCl/Air/Mist	0.25-0.5	30-34	NC
7700'-TD	KCl/Air/Mist	0.25-0.5	30-34	NC

Sufficient mud materials will be kept at the well site to maintain mud properties and meet minimum lost circulation and weight increase requirements at all times.

8 Auxillary Well Control and Monitoring Equipment

- A. Upper Kelly cock will be kept in the drill string at all times.
- B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

9 Logging, Testing and Coring Program

- A. The electric logging program will consist of a Gamma Ray & Induction log from KOP (6900') to the surface casing shoe.
- B. Gamma ray only will be run from KOP (6900') to TD.
- C. Mud logger will be present from 5000' to TD.

WELL	Bear Canyon Unit # 6-14				ENERVEST			
TYPE	Horizontal REV. 1	RIG	Nabors		DATE	6/30/2008		
FIELD	San Juan	COUNTY	Rio Arriba, New Mexico		ELEVATION	7380' est		
GAS/OIL	Gas/Oil	MUD	Water/Mud/3% KCl Air		CEMENT	TBD from Caliper Log		
LOCATION	350 FNL & 665 FWL of SEC 14 T26N R2W				BHT/BHP	170 F/500 psi		
COMMENTS: OBJECTIVE FORMATION: Gallup								
NOTE:								

HOLE SECTIONS	SURVEYS	WOB/GPM BIT	FORMATION TOPS HOLE SIZES	DEPTH TVD	MUD WEIGHT	OPEN HOLE LOGS	CEMENT	WELLHEAD	REMARKS
Surface Section Inclination @ 400' 17-1/2" HOLE > 13-3/8" 54.5# J55 STC @ 325' 325' 8.4 - 8.6 PPG NATIVE 50-60 Vis.									
Intermediate Section Inclination every 500' Nacimiento > 12-1/4" HOLE > <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Ojo Alamo > Fruitland Coal > Picture Cliffs > Lewis Shale > 9 5/8" 40 # N-80 LTC @ 4000' 8-3/4" HOLE > Menefee > Point Lookout > Mancos > </div> <div style="width: 10%; text-align: center;"> 3,437' 3,725' 3,740' 5,606' 5,955' 6,070' </div> <div style="width: 45%;"> 8.6 - 9.2 PPG Clean Faze System POSSIBLE LOST RETURNS (Mix 20-25% LCM if needed) 0.5 PPG 3% KCl/Mist/Air Air Package Needed </div> </div>									
Curve Section AZMITH = 126 Deg 900' Curve / 500' Vertical Section Gallup > 7" 26# LTC & N-80 Hydril @ 7700' MD 7,130' LOST RETURNS DUE TO FRACTURED FORMATION									
Horizontal Section AZMITH = 124.65 Deg 4000' Lateral @ 90 Deg 6-1/8" HOLE > 4600' Vertical Section Lower Gallup > 4 1/2" 11.6 # N-80 LTC 7,376' 4 1/2" Packers Plus System TD @ 7346 TVD TD @ 11,800 MD <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"></div> <div style="width: 10%; text-align: center;"> 3% KCl/Mist/Air 0.5 PPG </div> <div style="width: 45%;"></div> </div>									

			OFFICE
AFE #	REGULATORY	Tim Kelley & Ronnie Young	(970)-385-4722
EV #	ENGINEER	Alex Zazzi	(713) 495-6543
API #	GEOLOGIST	Gary Kowalczyk	(713) 495-6590