

District I
1625 N French Dr, Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

JUL 30 2009 Form C-101
June 16, 2008

RM

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit to appropriate District Office

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO **DRILL** RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address Enervest Operating LLC 1001 Fannin Street - Suite 800, Houston, TX 77002		² OGRID Number 143199
³ Property Code 305988	⁴ Property Name WLH G4S UNIT	⁵ API Number 30 - 015 - 37301
⁶ Well No. 54		
⁹ Proposed Pool 1 Loco Hills, Queen-Grayburg-San Andres		¹⁰ Proposed Pool 2

⁷ Surface Location

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	11	18S	29E		1309	SOUTH	1980	EAST	EDDY

⁸ Proposed 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

Additional Well Information

¹¹ Work Type Code N	¹² Well Type Code PO	¹³ Cable/Rotary R	¹⁴ Lease Type Code S	¹⁵ Ground Level Elevation 3511'
¹⁶ Multiple No	¹⁷ Proposed Depth 2800'	¹⁸ Formation 7 Rivers Queen Grayburg G4 Sand	¹⁹ Contractor N/A	²⁰ Spud Date N/A

²¹ Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
12-1/4"	8-5/8"	24#	400'	275	Surface
7-7/8"	5-1/2"	15.5#	2,800'	760	Surface

²² Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

1. Prepare surface location. Move in and rig up drilling rig, spud well and drill and set conductor. Install and test BOP's.
2. Drill 12-1/4" surface hole to a minimum depth of 400'. Set 8-5/8" casing and cement.
3. Drill 7-7/8" production hole 2,800' TD and evaluate DLL/LD/GR logs to TD.
4. Set 5-1/2" to TD and cement to surface. Perforate porosity and stimulate as necessary (specific procedure to be determined).
5. Place well on test.
6. The concentration of H2S of wells in this area from surface to TD are low enough that a contingency plan is not required, but we have attached a copy of our Hydrogen Sulfide Drilling Operation Plan.

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature: *Ronnie Young/bmh*

Printed name: Ronnie Young

Title: Regulatory Supervisor

E-mail Address: ryoung@enervest.net

Date: 7-22-09

Phone: (713) 4956530

OIL CONSERVATION DIVISION

Approved by

Title:

Approval Date: 8/11/2009

Expiration Date: 8/11/2011

Conditions of Approval Attached ☐

State of New Mexico

DISTRICT I

1625 N. FRENCH DR., HOBBS, NM 88240

Energy, Minerals and Natural Resources Department

Form C-102

Revised October 12, 2005

DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-37201	Pool Code 39520	Pool Name Loco Hills, Queen GB-3A
Property Code 37486	Property Name WLH G4S UNIT	Well Number 54
OGRID No. 143199	Operator Name ENERVEST OPERATING, LLC	Elevation 3511'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	11	18-S	29-E		2628	NORTH	1980	EAST	EDDY

Bottom Hole Location If Different From Surface

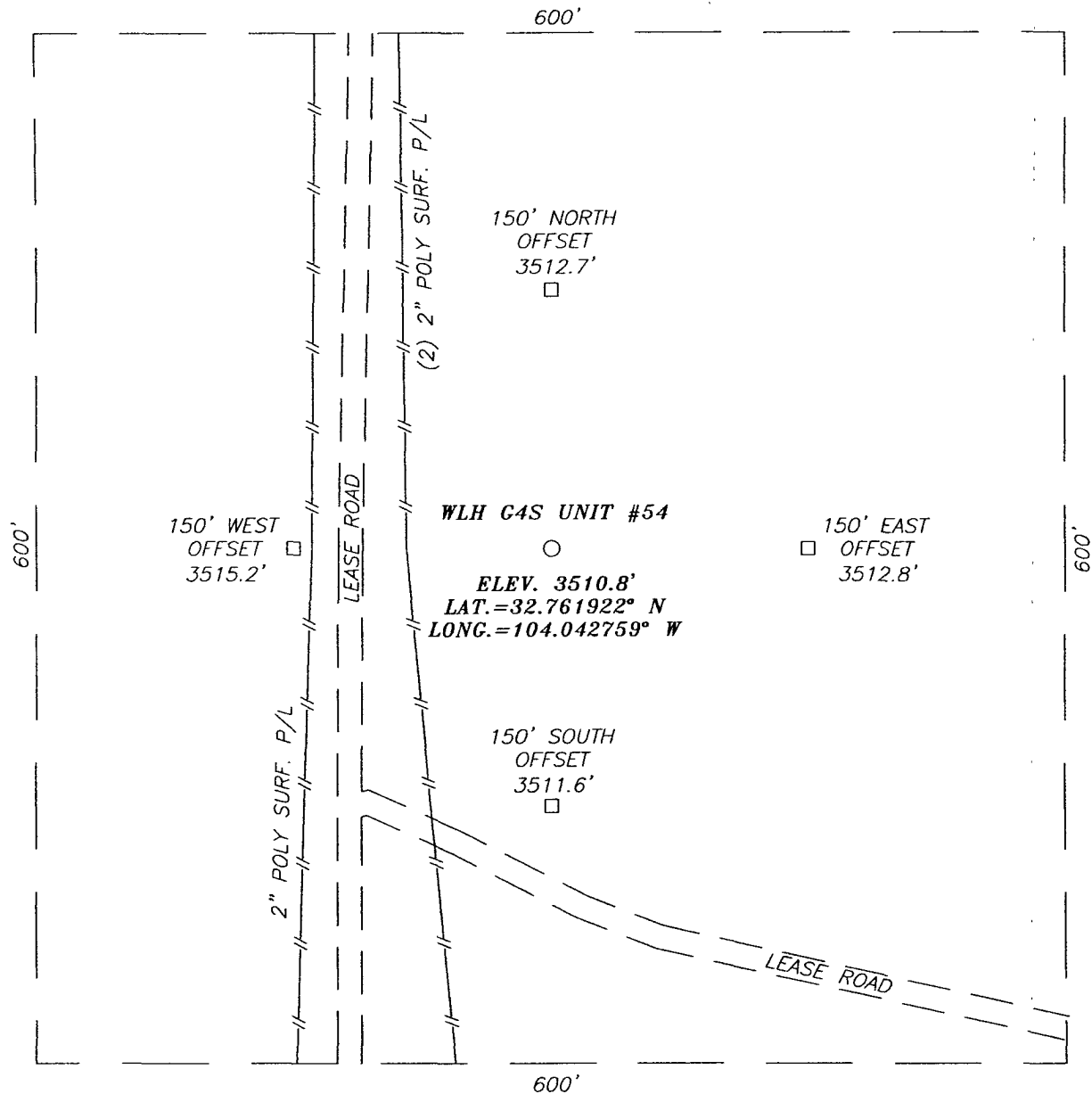
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres 5307.73	Joint or Infill YES	Consolidation Code U	Order No. R-2178
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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

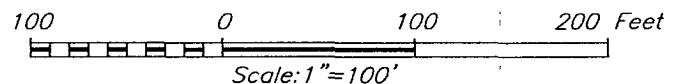
<p>GEODETIC COORDINATES NAD 27 NME</p> <p>Y=641020.9 N X=589323.7 E</p> <p>LAT.=32.761922° N LONG.=104.042759° W</p>	<p>2628'</p>		<p>1980'</p>	<p>OPERATOR CERTIFICATION</p> <p>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>[Signature]</i> 7-21-09 Signature Date</p> <p>Gary Miller Printed Name Agent</p>
	<p>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 belief.</p>			
	<p>Date Surveyed 7-21-09 LA</p> <p>Signature & Seal of Professional Surveyor <i>[Signature]</i> RONALD J. EIDSON 09/11/05</p>			
	<p>Certificate No. GARY EIDSON 12641 RONALD J. EIDSON 3239</p>			

SECTION 11, TOWNSHIP 18 SOUTH, RANGE 29 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

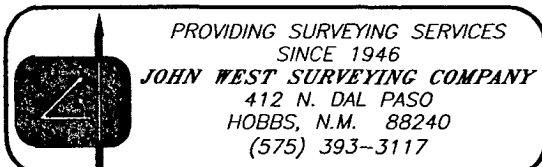
FROM THE INTERSECTION OF CO. RD. #217
 (HAGERMAN CUTOFF) AND CO. RD. #212 (VALLEY
 GAS) GO EAST ON CO. RD. #217 APPROX. 0.5
 MILES. TURN RIGHT AND GO SOUTH APPROX. 0.3
 MILES. TURN LEFT AND GO EAST APPROX. 0.2
 MILES. TURN RIGHT AND GO SOUTH APPROX. 0.5
 MILES. THIS LOCATION IS EAST APPROX. 117 FEET.



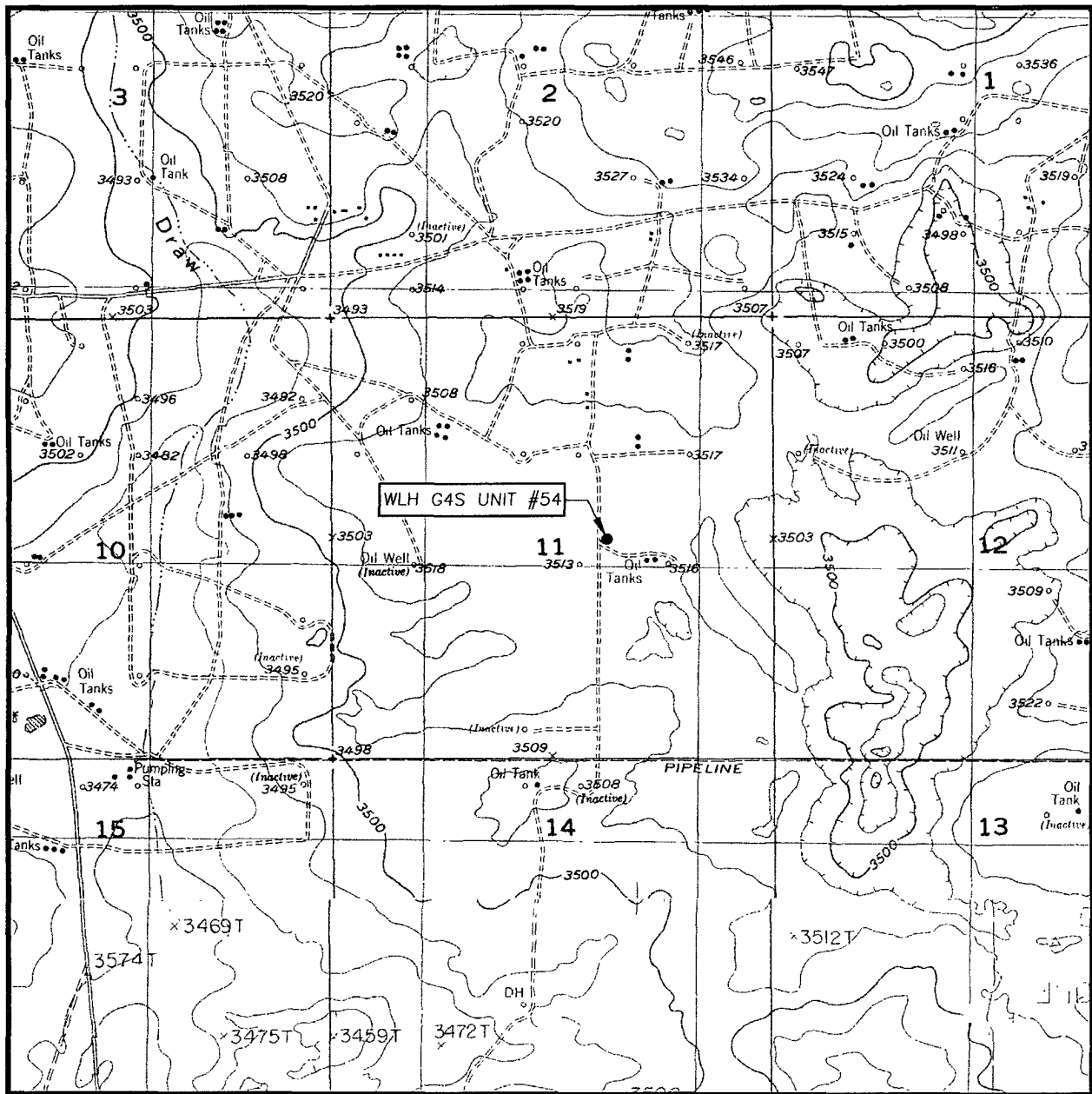
ENERVEST OPERATING, LLC

WLH GAS UNIT #54 WELL
 LOCATED 2625 FEET FROM THE NORTH LINE
 AND 1980 FEET FROM THE EAST LINE OF SECTION 11,
 TOWNSHIP 18 SOUTH, RANGE 29 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO.

Survey Date: 6/25/09	Sheet 1 of 1 Sheets
W.O. Number: 09.11.0554	Dr By: LA
Date: 6/30/09	Rev 1:N/A
09110554	Scale: 1"=100'



LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
RED LAKE SE, N.M. - 10'

SEC. 11 TWP. 18-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

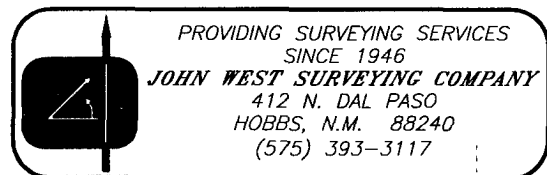
DESCRIPTION 2628' FNL & 1980' FEL

ELEVATION 3511'

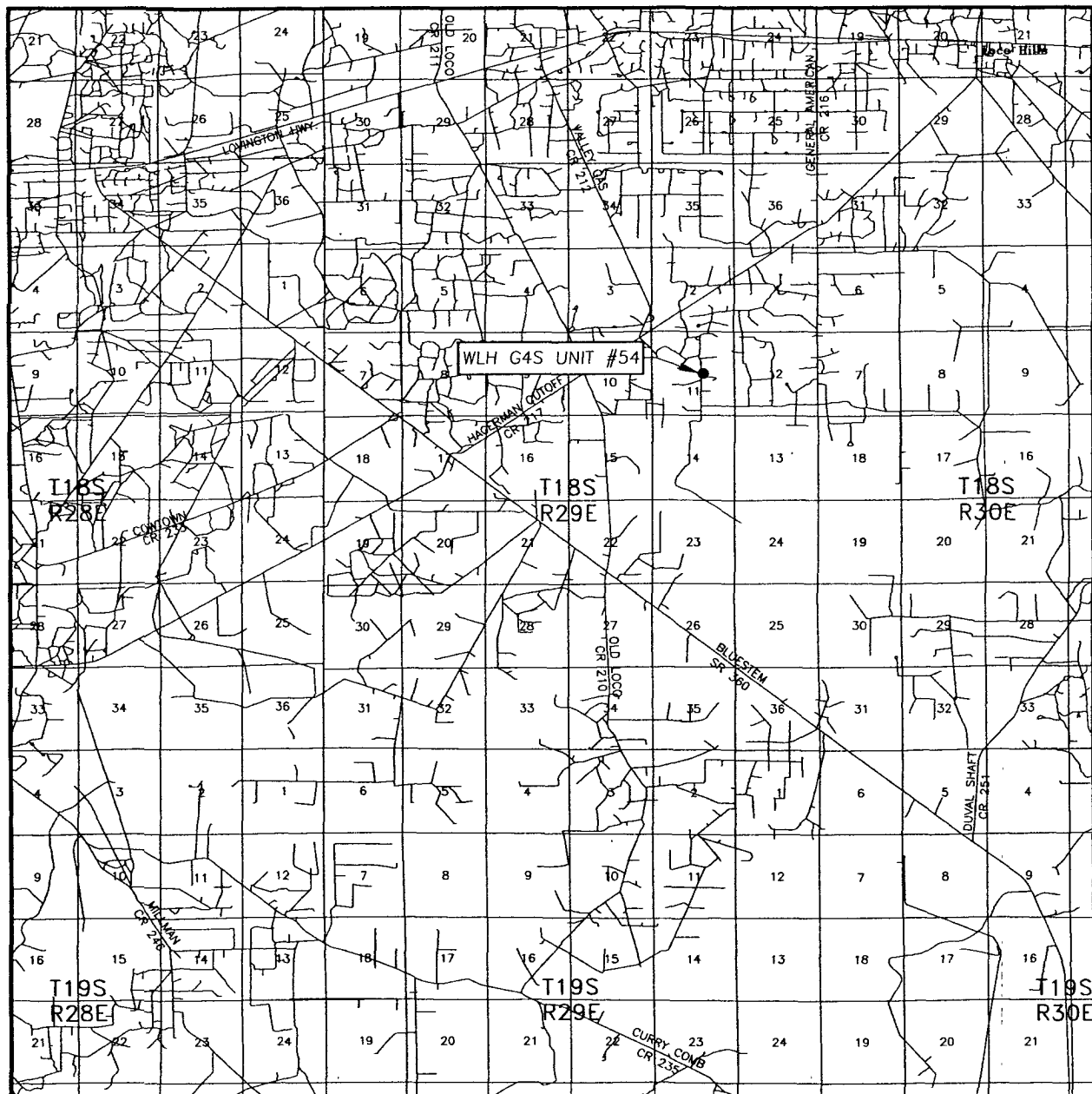
OPERATOR ENERVEST OPERATING, LLC

LEASE WLH G4S UNIT

U.S.G.S. TOPOGRAPHIC MAP
RED LAKE SE, N.M.

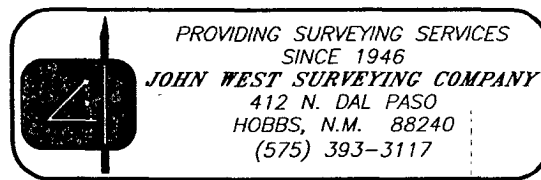


VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 11 TWP. 18-S RGE. 29-E
 SURVEY N.M.P.M.
 COUNTY EDDY STATE NEW MEXICO
 DESCRIPTION 2628' FNL & 1980' FEL
 ELEVATION 3511'
 OPERATOR ENERVEST OPERATING, LLC
 LEASE WLH G4S UNIT





EnerVest Operating, Ltd.
Master Drilling Plan
West Loco Hills Field
Location - NA
Eddy County, NM

Rig - TBD
Rig Telephone # - TBD

West Loco Hills - MASTER DRILLING PROGRAM

1 Geologic Name of Surface Formation & Directions to Well

Quaternary

Directions to well: NA

2 Estimated Tops of Important Geologic Markers

MD	SS	Formation	Objective	Rock Type
400	3,100	Salt		Salt
920	2,580	Base Salt		Salt
1,045	2,455	Yates		Anhydrite & Limestone
1,925	1,575	7 Rivers		Anhydrite & Dolomite
2,135	1,365	Queen		Anhydrite & Dolomite
2,510	990	Grayburg		Limestone & Sandstone
2,635	865	G4 Sand	Primary	Sandstone

3 Estimated Depths of Anticipated Fresh Water, Oil and Gas

MD	SS	Formation	Objective	Fluid Type
150	3,350	Quaternary		(Fresh Water)
2,635	865	G4 Sand	Primary	(Oil)

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 8-5/8" casing to 400' and circulating cement back to the surface will protect the surface fresh water sand.

Cement volumes will be pumped to provide cement back to surface.

4 Casing Program (With alternate casing plans for 5-1/2" or 4-1/2" casing)

Hole Size	Interval	OD Casing	Weight	Grade	Conn./New?	Bur/Col/Tens
12-1/4"	0-400'	8-5/8"	24#	J-55	STC/New	14.02 / 4.44 / 39.73
7-7/8"	0-2,800'	5-1/2"	15.50#	J-55	LTC/New	3.27 / 1.87 / 5.72
7-7/8"	0-2,800'	4-1/2"	9.50#	J-55	LTC/New	2.98 / 1.54 / 5.72



EnerVest Operating, Ltd.
Master Drilling Plan
West Loco Hills Field
Location - NA
Eddy County, NM

Rig - TBD
Rig Telephone # - TBD

5 Cement Program

8-5/8" Surface Casing 100% XS	BLEND 275 Sks Class "C" 2% CaCl ₂ (1.32 YLD, 14.8 PPG)
5-1/2" Production Csg 20% XS	LEAD 415 SKS 50:50 POZ:C & 2% CaCl ₂ (11.8 PPG 2.56 CF/SK) TAIL 345 SKS CLASS "C" (14.8 PPG 1.33 CF/SK)
4-1/2" Production Csg 20% XS	LEAD 410 SKS 50:50 POZ:C & 2% CaCl ₂ (11.8 PPG 2.56 CF/SK) TAIL 340 SKS CLASS "C" (14.8 PPG 1.33 CF/SK)

6 Minimum Specifications for Pressure Control & Wellhead Equipment

The blowout preventer equipment (BOPE) shown in the BOPE Diagram will consist of an annular preventer (5000 psi WP). This unit will be hydraulically operated and will be nipped up on the 8 5/8" surface casing and tested to 2000 psi by a third party. The BOPE will be checked daily and these checks will be noted in the tour sheets. Other accessories to the BOPE will include a kelly cock and floor safety valve, choke lines and a choke manifold and will have a 2000 psi WP rating.

A 2,000 psi WP Larkin Type Wellhead will be used.

7 Types and Characteristics of the Proposed Mud System

The surface hole will be drilled with native.
The production hole will be drilled with saturated brine water.

DEPTH	TYPE	WEIGHT	VISCOSITY	WATER LOSS
0 - 400'	Native	8.4-8.6	28-30	N.C.
400' - TD	Brine	9.8-10.1	28-30	12 cc

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 Auxiliary Well Control and Monitoring Equipment

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



EnerVest Operating, Ltd.
Master Drilling Plan
West Loco Hills Field
Location - NA
Eddy County, NM

Rig - TBD
Rig Telephone # - TBD

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 GR-Dual Laterolog Litho Density log run from TD to the surface casing shoe.
- B. A GR-Neutron will be run to surface.
- C. No mud logger will be used.
- D. No conventional coring is anticipated.

10 Abnormal conditions, Pressure, Temperatures and Potential Hazards

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 95°F and the estimated maximum bottom hole pressure is 1,000 psi. This well is to be drilled in a pre-existing water flood.

11 Anticipated Starting Date and Duration of Operations

Road and location work will not begin until approval has been received from the BLM. Anticipated Start Date is January 10, 2009. Once commenced, drilling operations should be finished in approximately 5 days. An additional 30 days will be required for completion, testing and installation of permanent production facilities.

12 Safety

Conduct Tour Safety Meetings with all crews and record topics of these meetings on the IADC and morning reports. Document all personnel in attendance and topics of these Safety Meetings. Keep these documents on file in company representative's office for inspection.

13 Notes

Stamp, Code and Sign all Invoices

H₂S Area? If yes, attach contingency plan.

Inclinations: Survey every 500' or bit trip
Drop Totco every trip out to check the angle. Max inclination = 3°



EnerVest Operating, Ltd.
Master Drilling Plan
West Loco Hills Field
Location - NA
Eddy County, NM

Rig - TBD
Rig Telephone # - TBD

Call Houston if survey is $\geq 3^\circ$

Mud Disposal: Closed Loop system will be used. Haul off all cuttings and fluids.

BHA #1 Surface Slick

BHA #2 Production Slick

BIT PROGRAM

			RPM	WOB
Surface	12-1/4"	SEC EBXSC1C	80-100	35k
Production	7-7/8"	SEC EBXS20SR	80-90	40k

EnerVest Operating, Ltd

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H₂S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H₂S on metal components. If high tensile tubular are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H₂S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan. **The concentrations of H₂S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

1. Well Control Equipment:

- A. Flare line.
- B. Choke manifold.
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
- D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. Protective equipment for essential personnel:

- A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

- A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. Visual warning systems:

- A. Wind direction indicators as shown on well site diagram (Exhibit #8).
- B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

5. Mud program:

- A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

6. Metallurgy:

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
- B. All elastomers used for packing and seals shall be H₂S trim.

7. Communication:

- A. Radio communications in company vehicles including cellular telephone and 2-way radio.
- B. Land line (telephone) communication at Office.

8. Well testing:

- A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H₂S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

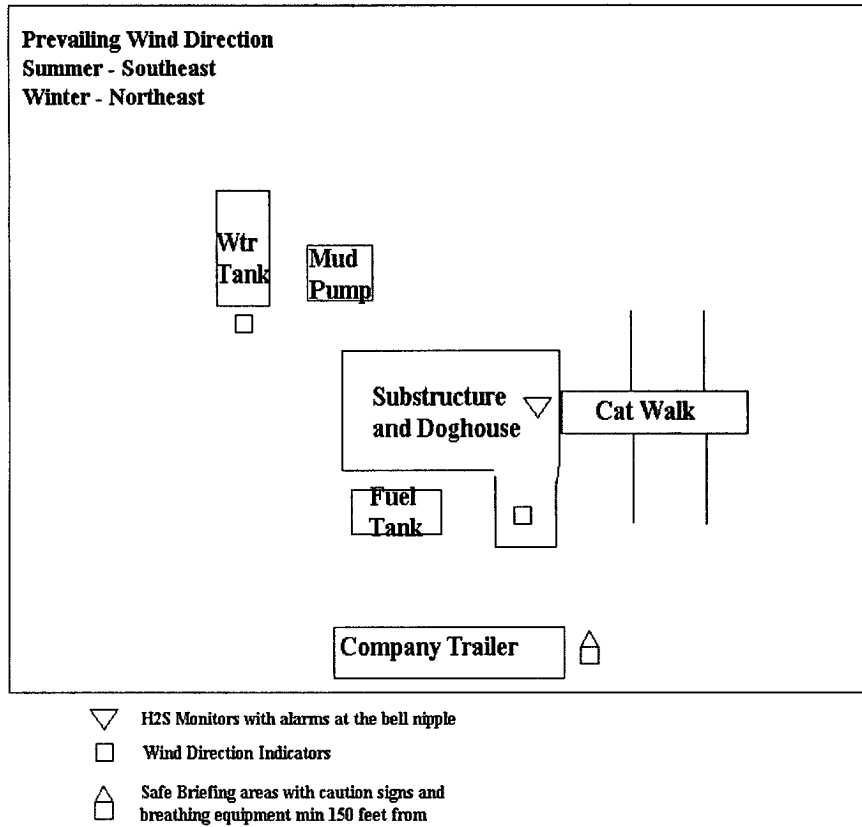
EXHIBIT #7

WARNING
YOU ARE ENTERING AN H₂S AREA
AUTHORIZED PERSONNEL ONLY

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED
- 2. HARD HATS REQUIRED
- 3. SMOKING IN DESIGNATED AREAS ONLY
- 4. BE WIND CONSCIOUS AT ALL TIMES
- 5. CHECK WITH ENERVEST DRILLING MANAGER AT

EnerVest Operating, Ltd
1-713-659-3500

DRILLING LOCATION H₂S SAFETY EQUIPMENT Exhibit # 8





TETRA TECH

JUL 30 2009

RM

July 28, 2009

New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division – District 2
1301 W. Grand Avenue
Artesia, NM 88210

Subject: Application to Drill – Form C-101
Enervest Operating LLC – WLH G4S Unit Well #54
Eddy County, New Mexico

I have enclosed the drilling permit package for the above referenced well.

Tetra Tech is acting as agent on behalf of Enervest Operating, LLC on this project. Please let me know if you have any questions, or if you require any additional information to approve this permit. Otherwise, please contact me upon approval. I can be contacted at (432) 682-4559, or my e-mail address at victoria.inman@tetrattech.com.

Your assistance is greatly appreciated.

Sincerely,

Vickie A. Inman
Regulatory Compliance Specialist

enc.

cc: Gary Miller, Tetra Tech
Ronnie Young, Enervest Operating, LLC