

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

Form C-101  
June 16, 2008

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

Submit to appropriate District Office

☐ AMENDED REPORT



NOV 14 2008

OCD-ARTESIA

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

|                                                                                                                      |                                            |                                           |
|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------|
| <sup>1</sup> Operator Name and Address<br>Enervest Operating LLC<br>1001 Fannin Street, Suite 800, Houston, TX 77002 |                                            | <sup>2</sup> OGRID Number<br>143199       |
| <sup>3</sup> Property Code<br>37486                                                                                  | <sup>4</sup> Property Name<br>WLH G4S UNIT | <sup>5</sup> API Number<br>30 - 015-36768 |
| <sup>9</sup> Proposed Pool 1<br>Loco Hills, Queen-Grayburg-SanAndres                                                 |                                            | <sup>10</sup> Proposed Pool 2<br>46       |

<sup>7</sup> Surface Location

| UL or lot no | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|--------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| P            | 11      | 18S      | 29E   |         | 1310          | SOUTH            | 10            | EAST           | EDDY   |

<sup>8</sup> 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

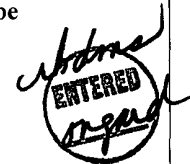
|                                   |                                       |                                                           |                                    |                                               |
|-----------------------------------|---------------------------------------|-----------------------------------------------------------|------------------------------------|-----------------------------------------------|
| <sup>11</sup> Work Type Code<br>N | <sup>12</sup> Well Type Code<br>PO    | <sup>13</sup> Cable/Rotary<br>R                           | <sup>14</sup> Lease Type Code<br>S | <sup>15</sup> Ground Level Elevation<br>3515' |
| <sup>16</sup> Multiple<br>No      | <sup>17</sup> Proposed Depth<br>2800' | <sup>18</sup> Formation<br>7 Rivers Queen Grayburg G4Sand | <sup>19</sup> Contractor<br>NA     | <sup>20</sup> Spud Date<br>NA                 |

<sup>21</sup> 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       |
|           |             |                    |               |                 |               |
|           |             |                    |               |                 |               |
|           |             |                    |               |                 |               |

<sup>22</sup> 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 BPO'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. H2S can be present in this area and an H2S contingency plan attached.



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

Signature:   
Printed name: Ronnie Young

Title: Regulatory Supervisor

E-mail Address: ryoung@enervest.net

Date: 11.4.08 Phone (713) 495-6530

OIL CONSERVATION DIVISION

Approved by

Title

Approval Date: 11/18/08

Expiration Date: 11/18/10

Conditions of Approval Attached ☐

DISTRICT I  
1625 N. FRENCH DR., HOBBS, NM 88240

State of New Mexico  
Energy, Minerals and Natural Resources Department

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

DISTRICT II  
1301 W. GRAND AVENUE, ARTESIA, NM 88210

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

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<br><b>30-015-36768</b> | Pool Code<br><b>39520</b>                       | Pool Name<br><b>Loco Hills - QH-GB-SA</b> |
| Property Code<br><b>37486</b>     | Property Name<br><b>WLH G4S UNIT</b>            | Well Number<br><b>46</b>                  |
| OGRID No.<br><b>143199</b>        | Operator Name<br><b>ENERVEST OPERATING, LLC</b> | Elevation<br><b>3515'</b>                 |

Surface Location

| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| P             | 11      | 18-S     | 29-E  |         | 1310          | SOUTH            | 10            | EAST           | EDDY   |

Bottom Hole Location If Different From Surface

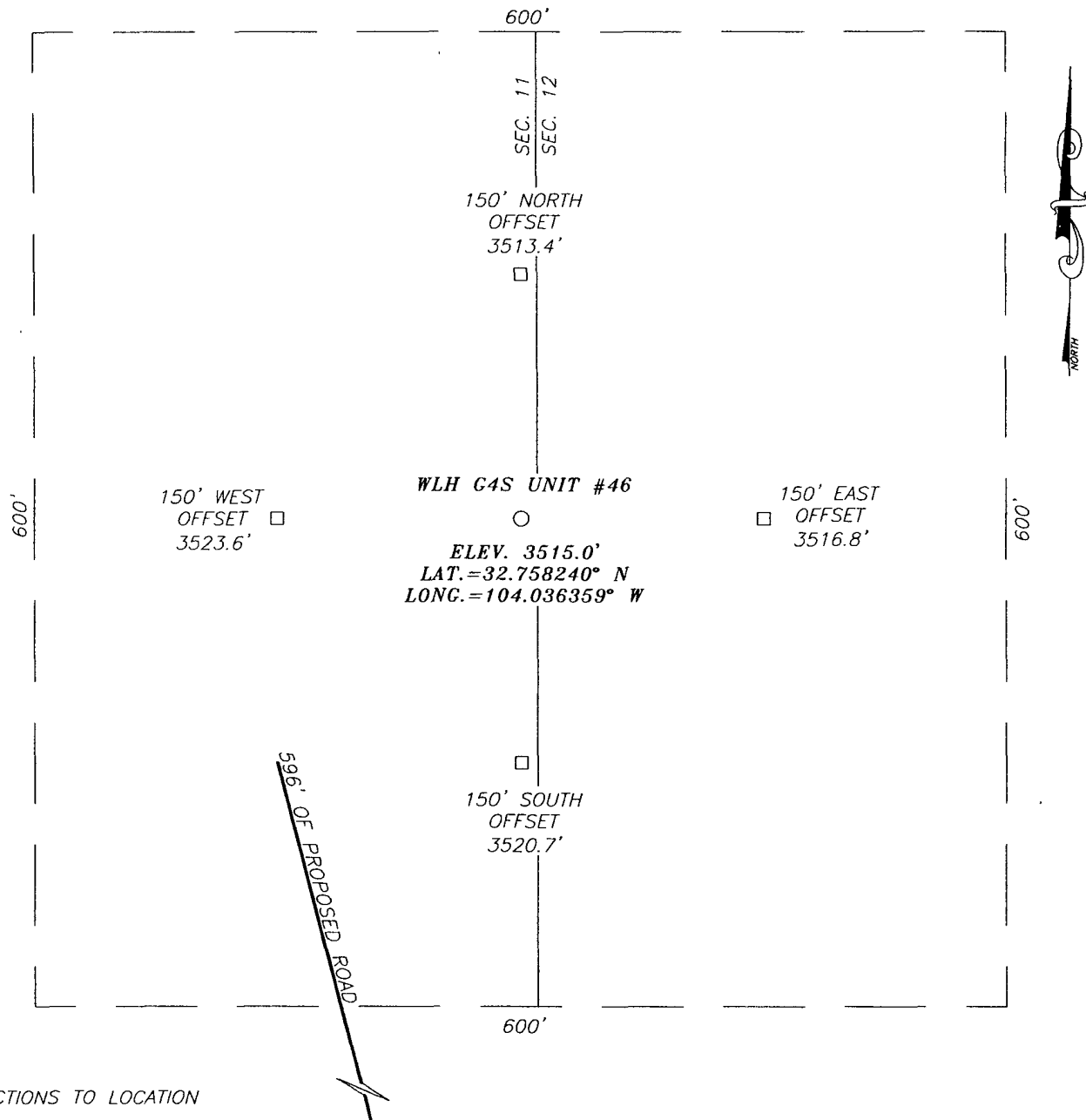
| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
|               |         |     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

|                                     |                               |                                |                            |
|-------------------------------------|-------------------------------|--------------------------------|----------------------------|
| Dedicated Acres<br><b>40.530773</b> | Joint or Infill<br><b>YES</b> | Consolidation Code<br><b>U</b> | Order No.<br><b>R-2178</b> |
|-------------------------------------|-------------------------------|--------------------------------|----------------------------|

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

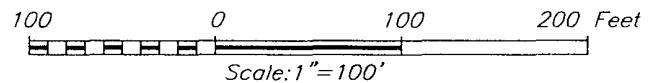
|                                                                                                                                  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|----------------------------------------------------------------------------------------------------------------------------------|--|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p>GEODETIC COORDINATES<br/>NAD 27 NME</p> <p>Y=639686.7 N<br/>X=591295.1 E</p> <p>LAT.=32 758240" N<br/>LONG.=104.036359" W</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> 11-12-08<br/>Signature Date<br/><i>Gary Miller - Agent</i><br/>Printed Name</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>OCTOBER 14 2008<br/>Date Surveyed<br/>NEW MEXICO<br/>Signature &amp; Seal of Professional Surveyor 3239<br/><i>[Signature]</i> 10/29/08<br/>Certificate No. GARY EIDSON 12641<br/>RONALD J. EIDSON 4639</p>                                                                                                                                                                      |  |

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



DIRECTIONS TO LOCATION

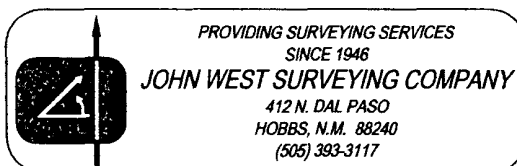
FROM THE INTERSECTION OF CO. RD. #217  
(HAGERMAN CUTOFF) AND CO. RD. #212 (VALLEY  
GAS), GO EAST ON CO. RD. #217 APPROX.  
0.45 MILES TO A LEASE ROAD. TURN RIGHT AND GO  
SOUTH APPROX. 0.3 MILES. TURN LEFT AND GO  
EAST APPROX. 0.15 MILES. TURN RIGHT AND GO  
SOUTH APPROX. 0.8 MILES TO A NEW LEASE ROAD.  
TURN LEFT AND GO EAST APPROX. 0.4 MILES TO A  
PROPOSED ROAD SURVEY. FOLLOW ROAD SURVEY  
APPROX. 596 FEET TO THIS LOCATION.



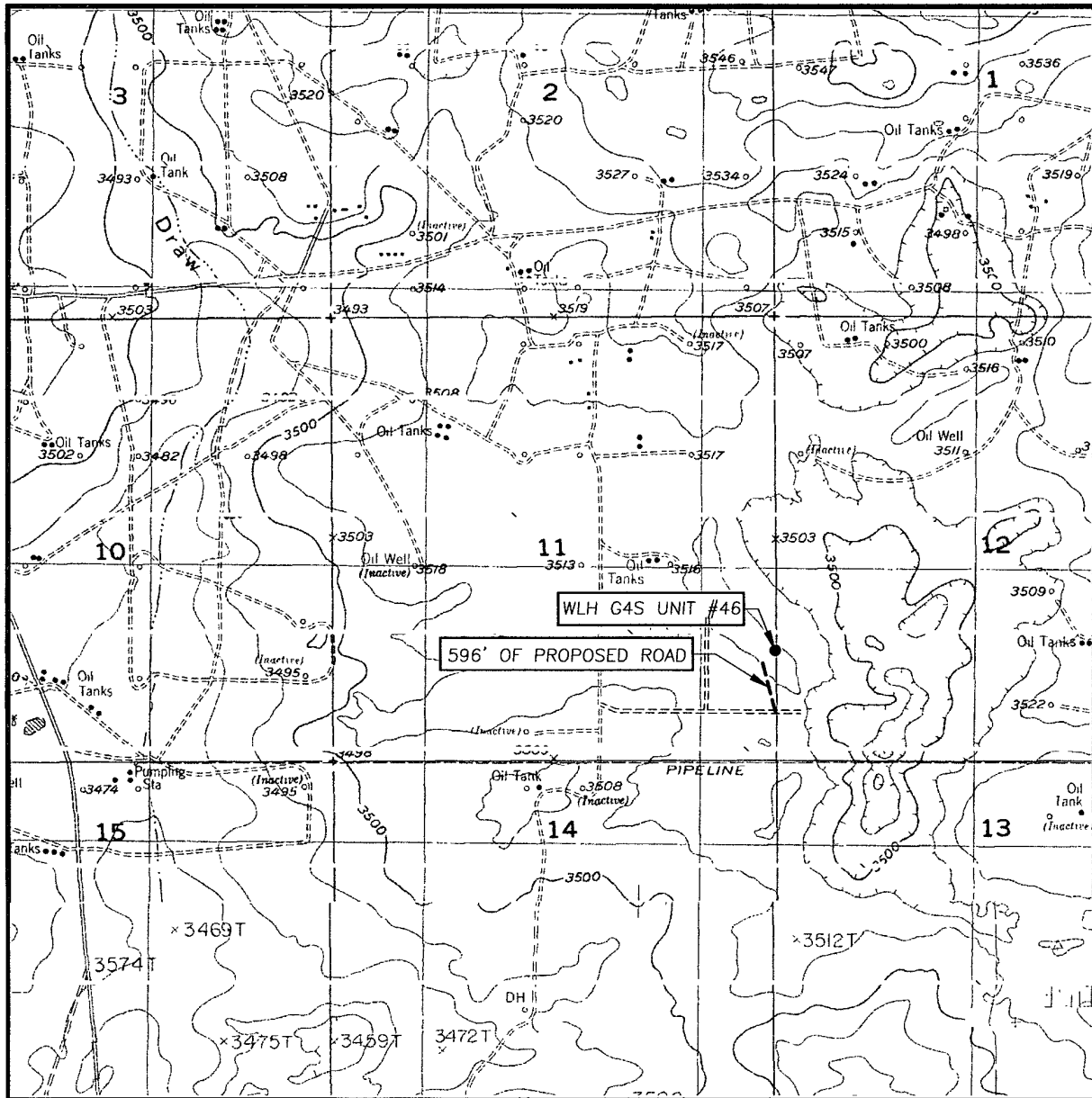
**ENERVEST OPERATING, LLC**

WLH G4S UNIT #46 WELL  
LOCATED 1310 FEET FROM THE SOUTH LINE  
AND 10 FEET FROM THE EAST LINE OF SECTION 11,  
TOWNSHIP 18 SOUTH, RANGE 29 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.

|                         |                     |           |                |
|-------------------------|---------------------|-----------|----------------|
| Survey Date: 10/15/08   | Sheet 1 of 1 Sheets |           |                |
| W.O. Number: 08.11.1716 | Dr By: AR           | Rev 1:N/A |                |
| Date: 10/28/08          | Disk:               | 08111716  | Scale: 1"=100' |



# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:  
RED LAKE SE, N.M. - 10'  
ILLINOIS CAMP SE, N.M. - 10'  
SUPPLEMENTAL-5'

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

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

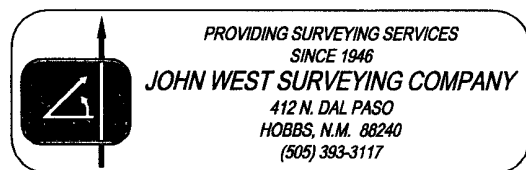
DESCRIPTION 1310' FSL & 10' FEL

ELEVATION 3515'

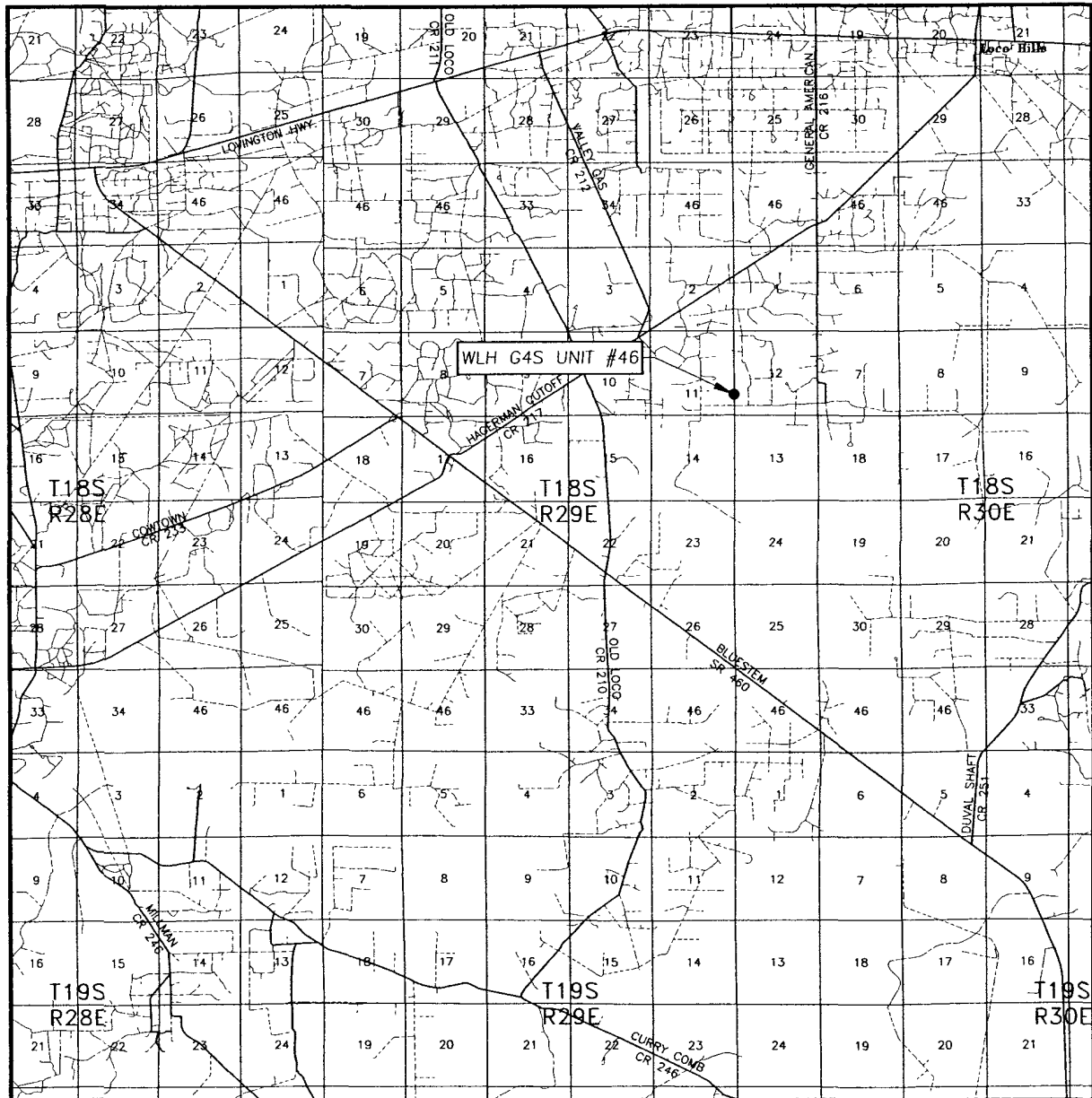
OPERATOR ENERVEST OPERATING, LLC

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.

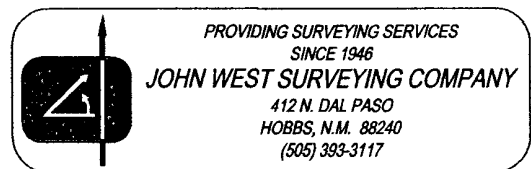
COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1310' FSL & 10' FEL

ELEVATION 3515'

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<br>100% XS | <b>BLEND</b> 275 Skts Class "C" 2% CaCl <sub>2</sub> (1.32 YLD, 14.8 PPG)                                                           |
| 5-1/2" Production Csg<br>20% XS  | <b>LEAD</b> 415 SKS 50:50 POZ:C & 2% CaCl <sub>2</sub> (11.8 PPG 2.56 CF/SK)<br><b>TAIL</b> 345 SKS CLASS "C" (14.8 PPG 1.33 CF/SK) |
| 4-1/2" Production Csg<br>20% XS  | <b>LEAD</b> 410 SKS 50:50 POZ:C & 2% CaCl <sub>2</sub> (11.8 PPG 2.56 CF/SK)<br><b>TAIL</b> 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 Auxillary 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

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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

H<sub>2</sub>S 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

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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**

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



## **EnerVest Operating, LLC**

### **H2S Contingency Plan**

**Field / Location: West Loco Hills Gas Unit**

**Well / Facility ID: #46**

**County: Eddy**

**State: New Mexico**

### **Surface Location**

**Section: 11**

**Township: 18 S**

**Range: 29 E**

**Feet From South Line: 1310**

**Feet From East Line: 10**

## **TABLE OF CONTENTS**

### **I. H2S Contingency Plan**

- A. Scope
- B. Objective
- C. Discussion of Plan
- D. Installation of H2S Equipment

### **II. Emergency Procedures**

- A. Emergency Procedures
- B. Emergency Reaction Steps
- C. Simulated Blowout Control Drills

### **III. Ignition Procedures**

- A. Responsibility
- B. Instructions

### **IV. Training Requirements**

### **V. Emergency Equipment**

### **VI. Check Lists**

- A. Status Check List
- B. Procedural Check List

### **VII. Briefing Procedures**

### **VIII. Evacuation Plan**

- A. General Plan
- B. Emergency Phone Lists

### **IX. Maps and Plats**

- A. Location Plat
- B. Map to Location
- C. Radius of Exposure

### **X. General Information**

- A. Drilling/Re-entry Permits
- B. New Mexico OCD Approval
- C. H2S Permissible Limits
- D. Toxicity Table
- E. Physical Properties
- F. Respirator Use
- G. Emergency Rescue

## **H2S CONTINGENCY PLAN SECTION**

### **Scope:**

This contingency plan provides an organized plan of action for alerting and protecting the public within an area of exposure prior to an intentional release, or following the accidental release of a potentially hazardous volume of hydrogen sulfide. The plan establishes guidelines for all personnel whose work activity may involve exposure to Hydrogen Sulfide Gas (H<sub>2</sub>S).

### **Objective:**

Prevent any and all accidents, and prevent the uncontrolled release of H<sub>2</sub>S into the atmosphere.

Provide proper evacuation procedures to cope with emergencies.

Provide immediate and adequate medical attention should an injury occur.

Install H<sub>2</sub>S equipment prior to drilling out under surface pipe.

### **Discussion of Plan:**

#### ***Suspected Problem Zones:***

***Implementation:*** This plan, with all details, is to be fully implemented 1000' before drilling into the first sour zone.

***Emergency Response Procedure:*** This section outlines the conditions and denotes steps to be taken in the event of an emergency.

***Emergency Equipment and Procedure:*** This section outlines the safety and emergency equipment that will be required for the drilling of this well.

***Training Provisions:*** This section outlines the training provisions that must be adhered to 1000' before drilling into the first sour zone.

***Emergency call lists:*** Included are the telephone numbers of all persons that would need to be contacted, should an H<sub>2</sub>S emergency occur.

***Briefing:*** This section deals with the briefing of all persons involved with the drilling of this well.

***Public Safety:*** Public Safety Personnel will be made aware of the drilling of this well.

***Check Lists:*** Status check lists and procedural check lists have been included to ensure adherence to the plan.

***General Information:*** A general information section has been included to supply support information.

## EMERGENCY PROCEDURES SECTION

- I. In the event of any evidence of H<sub>2</sub>S level above 10 ppm, take the following steps immediately:
  - A. Secure breathing apparatus.
  - B. Order non-essential personnel out of the danger zone.
  - C. Take steps to determine if the H<sub>2</sub>S level can be corrected or suppressed, and if so, proceed with normal operations.
- II. If uncontrollable conditions occur, proceed with the following:
  - A. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify necessary public safety personnel and the New Mexico Oil & Gas Division and/or the DOI - Bureau of Land Management of the situation based on one or both agency with jurisdiction.
  - B. Remove all personnel to the Safe Briefing Area.
  - C. Notify public safety personnel (New Mexico State Police / County Sheriff) for help with maintaining road blocks and implementing evacuation.
  - D. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety measures.
- III. Responsibility:
  - A. The Company Supervisor shall be responsible for the total implementation of the plan.
  - B. The Company Supervisor shall be in complete command during any emergency.
  - C. The Company Supervisor shall designate a back up Supervisor in the event that he/she is not available.

## **EMERGENCY PROCEDURE IMPLEMENTATION**

### **I. Drilling or Tripping**

#### **A. All Personnel**

1. When alarm sounds, put on assigned PPE escape equipment and report to upwind Safe Briefing Area.
2. Check status of other personnel (buddy system).
3. Secure breathing apparatus.
4. Wait for orders from supervisor.

#### **B. Drilling Foreman**

1. Report to the upwind Safe Briefing Area.
2. Put on assigned PPE breathing apparatus and return to the point of release with the Tool Pusher or Driller (buddy system).
3. Using a gas detector determine the concentration of H<sub>2</sub>S.
4. Assess the situation and take appropriate control measures.

#### **C. Tool Pusher**

1. Report to the upwind Safe Briefing Area.
2. Put on assigned PPE breathing apparatus and return to the point of release with the Drilling Foreman or the Driller (buddy system).
3. Verify the determination of the concentration of H<sub>2</sub>S indicated by the meter.
4. Assess the situation and take appropriate control measures.

#### **D. Driller**

1. Check the status of rig and service personnel (in a rescue attempt, always use the buddy system).
2. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.
3. Assume the responsibility of the Drilling Foreman and the Tool Pusher until they arrive, in the event of their absence.

E. Derrick Man and Floor Hands

1. Remain in the upwind Safe Briefing Area until otherwise instructed by a supervisor.

F. Mud Engineer

1. Report to the upwind Safe Briefing Area.
2. When instructed, wear H<sub>2</sub>S PPE and check mud for pH level and H<sub>2</sub>S level.

G. Safety Personnel

1. Don Breathing Apparatus.
2. Check status of all personnel.
3. Wait for instructions from Drilling Foreman or Tool Pusher.

**II. Taking a Kick**

- A. All personnel report to the upwind Safe Briefing Area.
- B. Follow standard BOP procedures.

**III. Open Hole Logging**

- A. All unnecessary personnel should leave the rig floor.
- B. Drilling Foreman and Safety Personnel should monitor the conditions and make necessary safety equipment recommendations.

**IV. Running Casing or Plugging**

- A. Follow "Drilling or Tripping" procedures.
- B. Assure that all personnel have access to protective equipment.

## **SIMULATED BLOWOUT CONTROL DRILLS**

All drills will be initiated by activating alarm devices (air horn). One long blast, on the air horn, for ACTUAL and SIMULATED Blowout Control Drills. This operation will be performed by the Drilling Foreman or Tool Pusher at least one time per week for each of the following conditions, with each crew:

|           |                     |
|-----------|---------------------|
| Drill # 1 | Bottom Drilling     |
| Drill # 2 | Tripping Drill Pipe |

In each of these drills, the initial reaction time to shutting in the well shall be timed as well as the total time for the crew to complete its entire pit drill assignment. The times must be recorded on the IADC Driller's Log as "Blowout Control Drill".

|                                    |          |  |          |
|------------------------------------|----------|--|----------|
| Drill No.:                         |          |  |          |
| Reaction Time to Shut-In:          | minutes, |  | seconds. |
| Total Time to Complete Assignment: | minutes, |  | seconds. |

### **I. Drill Overviews**

#### **A. Drill No. 1- Bottom Drilling**

1. Sound the alarm immediately.
2. Stop the rotary and hoist kelly joint above the rotary table.
3. Stop the circulatory pump.
4. Close the drill pipe rams.
5. Record casing and drill pipe shut-in pressures and pit volume increases.

#### **B. Drill No. 2 – Tripping Drill Pipe**

1. Sound the alarm immediately.
2. Position the upper tool joint just above the rotary table and set the slips.
3. Install a full opening valve or inside blowout preventor tool in order to close the drill pipe.
4. Close the drill pipe rams.
5. Record the shut-in annular pressure.



## II. Crew Assignments

### A. Drill No. 1 – Bottom Drilling

#### 1. Driller

- a) Stop the rotary and hoist kelly joint above the rotary table.
- b) Stop the circulatory pump.
- c) Check flow.
- d) If flowing, sound the alarm immediately.
- e) Record the shut-in drill pipe pressure.
- f) Determine the mud weight increase needed or other courses of action.

#### 2. Derrickman

- a) Open choke line valve at BOP.
- b) Signal Floor Man # 1 at accumulator that choke line is open.
- c) Close choke and upstream valve after pipe tams have been closed.
- d) Read the shut-in annular pressure and report readings to Driller.

#### 3. Floor Man # 1

- a) Close the pipe rams after receiving the signal from the Derrickman.
- b) Report to Driller for further instructions.

#### 4. Floor Man # 2

- a) Notify the Tool Pusher and Operator Representative of the H<sub>2</sub>S alarms.
- b) Check for open fires and, if safe to do so, extinguish them.
- c) Stop all welding operations.
- d) Turn-off all non-explosion proof lights and instruments.
- e) Report to Driller for further instructions.

5. Tool Pusher

- a) Report to the rig floor.
- b) Have a meeting with all crews.
- c) Compile and summarize all information.
- d) Calculate the proper kill weight.
- e) Ensure that proper well procedures are put into action.

6. Operator Representative

- a) Notify the Drilling Superintendent.
- b) Determine if an emergency exists and if so, activate the contingency plan.

B. Drill No. 2 – Tripping Pipe

1. Driller

- a) Sound the alarm immediately when mud volume increase has been detected.
- b) Position the upper tool joint just above the rotary table and set slips.
- c) Install a full opening valve or inside blowout preventor tool to close the drill pipe.
- d) Check flow.
- e) Record all data reported by the crew.
- f) Determine the course of action.

2. Derrickman

- a) Come down out of derrick.
- b) Notify Tool Pusher and Operator Representative.
- c) Check for open fires and, if safe to do so, extinguish them.
- d) Stop all welding operations.
- e) Report to Driller for further instructions.

### 3. Floor Man # 1

- a) Pick up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 2).
- b) Tighten valve with back-up tongs.
- c) Close pipe rams after signal from Floor Man # 2.
- d) Read accumulator pressure and check for possible high pressure fluid leaks in valves or piping.
- e) Report to Driller for further instructions.

### 4. Floor Man # 2

- a) Pick-up full opening valve or inside blowout preventor tool and stab into tool joint above rotary table (with Floor Man # 1).
- b) Position back-up tongs on drill pipe.
- c) Open choke line valve at BOP.
- d) Signal Floor Man # 1 at accumulator that choke line is open.
- e) Close choke and upstream valve after pipe rams have been closed.
- f) Check for leaks on BOP stack and choke manifold.
- g) Read annular pressure.
- h) Report readings to the Driller.

### 5. Tool Pusher

- a) Report to the rig floor.
- b) Have a meeting with all of the crews.
- c) Compile and summarize all information.
- d) See that proper well kill procedures are put into action.

### 6. Operator Representative

- a) Notify Drilling Superintendent
- b) Determine if an emergency exists, and if so, activate the contingency plan

## **IGNITION PROCEDURES**

### **Responsibility:**

The decision to ignite the well is the responsibility of the DRILLING FOREMAN in concurrence with the STATE POLICE. In the event the Drilling Foreman is incapacitated, it becomes the responsibility of the RIG TOOL PUSHER. This decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope of controlling the blowout under the prevailing conditions.

If time permits, notify the main office, but do not delay if human life is in danger. Initiate the first phase of the evacuation plan.

### **Instructions for Igniting the Well:**

1. Two people are required for the actual igniting operation. Both men must wear self-contained breathing apparatus and must use a full body harness and attach a retrievable safety line to the D-Ring in the back. One man must monitor the atmosphere for explosive gases with the LEL monitor, while the Drilling Foreman is responsible for igniting the well.
2. The primary method to ignite is a 25mm flare gun with a range of approximately 500 feet.
3. Ignite from upwind and do not approach any closer than is warranted.
4. Select the ignition site best suited for protection and which offers an easy escape route.
5. Before igniting, check for the presence of combustible gases.
6. After igniting, continue emergency actions and procedures as before.
7. All unassigned personnel will limit their actions to those directed by the Drilling Foreman.

NOTE: After the well is ignited, burning Hydrogen Sulfide will convert to Sulfur Dioxide, which is also highly toxic. Do not assume the area is safe after the well is ignited.

## **TRAINING PROGRAM**

When working in an area where Hydrogen Sulfide ( $H_2S$ ) might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel at the well site have had adequate training in the following:

1. Hazards and Characteristics of Hydrogen Sulfide.
2. Physicals effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4.  $H_2S$  detection, emergency alarm and sensor location.
5. Emergency rescue.
6. Resuscitators.
7. First aid and artificial resuscitation.
8. The effects of Hydrogen Sulfide on metals.
9. Location safety.

Service company personnel and visiting personnel must be notified if the zone contains  $H_2S$ , and each service company must provide adequate training and equipment for their employees before they arrive at the well site.

## **EMERGENCY EQUIPMENT REQUIREMENTS**

### **Lease Entrance Sign:**

Should be located at the lease entrance with the following information:

CAUTION-POTENTIAL POISON GAS  
HYDROGEN SULFIDE  
NO ADMITTANCE WITHOUT AUTHORIZATION

### **Respiratory Equipment:**

- Fresh air breathing equipment should be placed at the safe briefing areas and should include the following:
- Two SCBA's at each briefing area.
- Enough air line units to operate safely, anytime the H<sub>2</sub>S concentration reaches the IDLH level (100 PPM).
- Cascade system with enough breathing air hose and manifolds to reach the rig floor, the derrickman and the other operation areas.

### **Windsocks or Wind Streamers:**

- A minimum of two 10" windsocks located at two different heights in strategic locations so that they may be seen from any point on location.
- Wind streamers (if preferred) should be placed at various locations on the well site to ensure wind consciousness at all times. (Corners of location).

### **Hydrogen Sulfide Detector and Alarms:**

- 1-Four channel H<sub>2</sub>S monitor with alarms.
- Four (4) sensors located as follows: # 1 – Rig Floor, # 2 – Bell Nipple, # 3 – Shale Shaker, # 4 – Mud Pits.
- Gastec or Draeger pump with tubes.
- Sensor test gas.

**Well Condition Sign and Flags:**

The Well Condition Sign w/flags should be placed a minimum of 150' before you enter the location. It should have three (3) color coded flags (green, yellow and red) that will be used to denote the following location conditions:

GREEN – Normal Operating Conditions  
YELLOW – Potential Danger  
RED – Danger, H2S Gas Present

**Auxiliary Rescue Equipment:**

- Stretcher
- 2 – 100' Rescue lines
- First Aid Kit properly stocked.

**Mud Inspection Equipment:**

Garret Gas Train or Hach Tester for inspection of Hydrogen Sulfide in the drilling mud system.

**Fire Extinguishers:**

Adequate fire extinguishers shall be located at strategic locations.

**Blowout Preventor:**

- The well shall have hydraulic BOP equipment for the anticipated BHP.
- The BOP should be tested upon installation.
- BOP, Choke Line and Kill Line will be tested as specified by Operator.

**Confined Space Monitor:**

There should be a portable multi-gas monitor with at least 3 sensors (O<sub>2</sub>, LEL & H<sub>2</sub>S). This instrument should be used to test the atmosphere of any confined space before entering. It should also be used for atmospheric testing for LEL gas before beginning any type of Hot Work. Proper calibration documentation will need to be maintained for calibration time limits.

**Communication Equipment:**

- Proper communication equipment such as cell phones or 2 – way radios should be available at the rig.
- Radio communication shall be available for communication between the company man's trailer, rig floor and the tool pusher's trailer.
- Communication equipment shall be available on the vehicles.

**Special Control Equipment:**

- Hydraulic BOP equipment with remote control on the ground.
- Rotating head at the surface casing point.

**Evacuation Plan:**

- Evacuation routes shall be established prior to spudding the well.
- Routes shall be discussed with all rig personnel.

**Designated Areas:*****Parking and Visitor area:***

- All vehicles are to be parked at a pre-determined safe distance from the wellhead.
- Designate a smoking area in a safe location.

***Safe Briefing Areas:***

- Two Safe Briefing Areas shall be designated on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds or they are at a 180 degree angle if wind directions tend to shift in the area.
- Personal protective equipment should be stored at both briefing areas or if a moveable cascade trailer is used, it should be kept upwind of existing winds. When wind is from the prevailing direction, both briefing areas should be accessible.
- Automatic Flare Igniters are recommended for installation on the rig.



## **CHECK LISTS**

### **Status Check List**

Note: Date each item as they are implemented.

1. Sign at location entrance.
2. Two (2) wind socks (in required locations).
3. Wind Streamers (if required).
4. SCBA's on location for all rig personnel and mud loggers.
5. Air packs, inspected and ready for use.
6. Spare bottles for each air pack (if required).
7. Cascade system for refilling air bottles.
8. Cascade system and hose line hook up.
9. Choke manifold hooked-up and tested. (Before drilling out surface casing.)
10. Remote Hydraulic BOP control (hooked-up and tested before drilling out surface casing).
11. BOP tested (before drilling out surface casing).
12. Mud engineer on location with equipment to test mud for H<sub>2</sub>S.
13. Safe Briefing Areas set-up.
14. Well Condition sign and flags on location and ready.
15. Hydrogen Sulfide detection system hooked-up & tested.
16. Hydrogen Sulfide alarm system hooked-up & tested.
17. Stretcher on location at Safe Briefing Area.
18. 2-100' Life Lines on location.
19. 1-20# Fire Extinguisher in safety trailer.
20. Confined Space Monitor on location and tested.

21. All rig crews and supervisor trained (as required).
22. Access restricted for unauthorized personnel.
23. Drills on H<sub>2</sub>S and well control procedures.
24. All outside service contractors advised of potential H<sub>2</sub>S on the well.
25. NO SMOKING sign posted.
26. H<sub>2</sub>S Detector Pump w/tubes on location.
27. 25mm Flare Gun on location w/flares.
28. Automatic Flare Ignitor installed on rig.

## **Procedural Check List**

Perform the following on each tour:

1. Check fire extinguishers to see that they have the proper charge.
2. Check Breathing equipment to insure that they have not been tampered with.
3. Check pressure on the supply air bottles to make sure they are capable of recharging.
4. Make sure all of the Hydrogen Sulfide detection systems are operative.

Perform the following each week:

1. Check each piece of breathing equipment to make sure that they are fully charged and operational. This requires that the air cylinder be opened and the mask assembly be put on and tested to make sure that the regulators and masks are properly working. Negative and Positive pressure should be conducted on all masks.
2. BOP skills.
3. Check supply pressure on BOP accumulator stand-by source.
4. Check all breathing air mask assemblies to see that straps are loosened and turned back, ready to use.
5. Check pressure on cascade air cylinders to make sure they are fully charged and ready to use for refill purposes if necessary.
6. Check all cascade system regulators to make sure they work properly.
7. Perform breathing drills with on-site personnel.
8. Check the following supplies for availability:
  - Stretcher
  - Safety Belts and ropes.
  - Spare air bottles.
  - Spare oxygen bottles (if resuscitator required).
  - Gas Detector Pump and tubes.
  - Emergency telephone lists.
9. Test the Confined Space Monitor to verify the batteries are good.

## **BRIEFING PROCEDURES**

The following scheduled briefings will be held to ensure the effective drilling and operation of this project:

### Pre-Spud Meeting

Date: Prior to spudding the well.

Attendance: Drilling Supervisor  
Drilling Engineer  
Drilling Foreman  
Rig Tool Pushers  
Rig Drillers  
Mud Engineer  
All Safety Personnel  
Key Service Company Personnel

Purpose: Review and discuss the well program, step-by-step, to insure complete understanding of assignments and responsibilities.

## **EVACUATION PLAN**

### **General Plan**

1. When the company approved supervisor (Drilling Foreman, Tool Pusher or Driller) determine that Hydrogen Sulfide gas cannot be limited to the well location, and the public will be involved, he will activate the evacuation plan. Escape routes are noted on the Area Map.
2. Company assigned safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and evacuation need to be implemented.
3. Company safety personnel that have been trained in the use of the proper emergency equipment will be utilized.
4. Law enforcement personnel (State Police, Local Police Department, Fire Department, and the Sheriff's Department) will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

**NOTE:** Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas.

CONTAMINATED AREAS WILL BE IDENTIFIED BY THE COMPANY.

5. After the discharge of gas has been controlled, Company assigned safety

## Emergency Assistance Telephone List

### **PUBLIC SAFETY:**

**911 or**

|                                                  |                                 |
|--------------------------------------------------|---------------------------------|
| County Sheriff Contact (Eddy)                    | (575) 885 4040                  |
| Local Fire Department                            | (575) 677 2349                  |
| County Fire Department (Eddy) Artesia / Carlsbad | (575) 746 5060 / (575) 628 1982 |
| Local Police Department (Artesia)                | (575) 746 5000                  |
| Local Emergency Planning Committee               | (575) 887 9511                  |
| Local Hospital                                   | (575) 622 1411 / (575) 734 5817 |
| Regional Hospital                                | (575) 748 8333                  |
| Life Flight Services                             | (800) 242 6129                  |
| State Police                                     | (575) 748 9718 / (575) 885 3137 |
| State DOT                                        | (575) 827 0376                  |
| Bureau of Land Management                        | (575) 234 5909                  |
| State Poison Center                              | (800) 222 1222                  |
| State Oil & Gas Agency                           | NMOCD (575) 393 6161            |
| State Oil & Gas Agency 24 Hour Number            | NMOCD (575) 370 7106            |

### **EnerVest Emergency Notification List**

|                                                 |                |
|-------------------------------------------------|----------------|
| EnerVest (Main No.)                             | (713) 659 3500 |
| Drilling Manager                                | (713) 495 6522 |
| Drilling Engineer                               | (713) 495 1523 |
| Regulatory                                      | (713) 495 6530 |
| Health, Safety & Environmental                  | (713) 495 6534 |
| Operations Manager                              | (713) 495 6558 |
| Area Production Foreman (Cellular Phone)        | (575) 365 8555 |
| Area Production Superintendent (Cellular Phone) | (903) 746 2806 |
| Field Office                                    | Pending        |

### **Drilling / Work Over Contractor(s)**

|                                          |                |
|------------------------------------------|----------------|
| United Drilling Safety Contact-Jorge Aho | (575) 910 2001 |
| United Drilling Office Number            | (575) 623 7730 |

### **Local Safety Equipment Vendors**

|                        |                |
|------------------------|----------------|
| Artesia Fire Equipment | (575) 748 1128 |
|------------------------|----------------|

## **Affected Notification List**

(within a \_\_\_\_\_' radius of exposure @100 ppm, or if unknown, a minimum of 3,000 feet at 100 ppm)

The geologic zones that will be encountered during drilling are known to contain hazardous quantities of H<sub>2</sub>S. The accompanying map illustrates the affected areas of the community. The residents within this radius will be notified via a hand delivered written notice describing the activities, potential hazards, conditions of evacuation, evacuation drill siren alarms and other precautionary measures.

Evacuee Description:

Residents:

Notification Process:

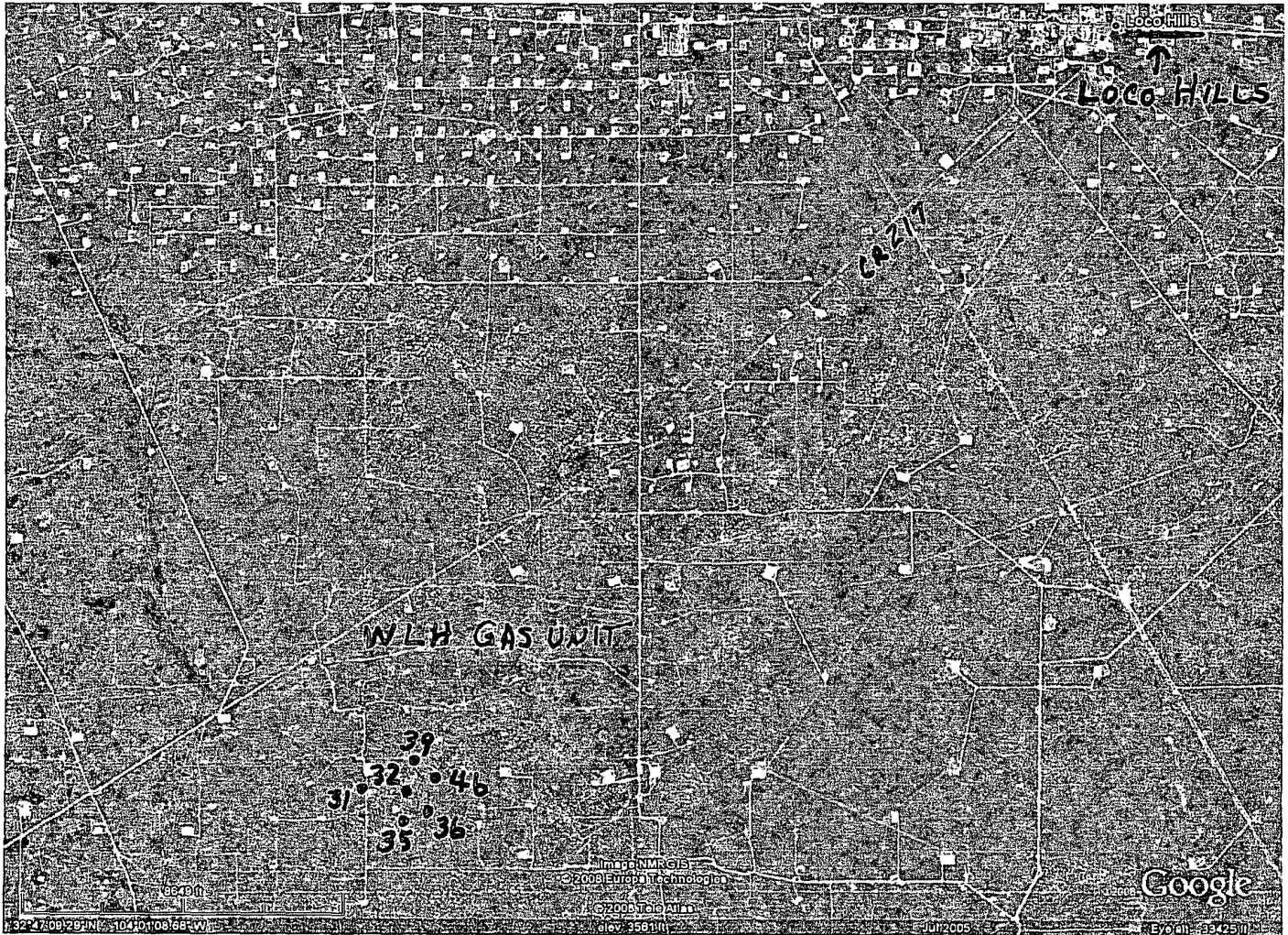
A continuous siren audible to all residence will be activated, signaling evacuation of previously notified and informed residents.

Evacuation Plan:

All evacuees will migrate lateral to the wind direction.

The Company will identify all home bound or highly susceptible individuals and make special evacuation preparations, interfacing with the local law enforcement and emergency medical services as necessary.

MAPS AND PLATS



## GENERAL INFORMATION

### Toxic Effects of H<sub>2</sub>S Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity-1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen sulfide and other gasses are compared below in Table 1. Toxicity table for H<sub>2</sub>S and physical effects are shown in Table II.

**Table 1**  
Permissible Exposure Limits of Various Gasses

| Common Name      | Symbol           | Sp. Gravity | TLV      | STEL       | IDLH    |
|------------------|------------------|-------------|----------|------------|---------|
| Hydrogen Cyanide | HCN              | .94         | 4.7 ppm  | C          |         |
| Hydrogen Sulfide | H <sub>2</sub> S | 1.192       | 10 ppm   | 15 ppm     | 100 ppm |
| Sulfide Dioxide  | SO <sub>2</sub>  | 2.21        | 2 ppm    | 5 ppm      |         |
| Chlorine         | CL               | 2.45        | .5 ppm   | 1 ppm      |         |
| Carbon Monoxide  | CO               | 0.97        | 25 ppm   | 200 ppm    |         |
| Carbon Dioxide   | CO <sub>2</sub>  | 1.52        | 5000 ppm | 30,000 ppm |         |
| Methane          | CH <sub>4</sub>  | 0.55        | 4.7% LEL | 14% UEL    |         |

### Definitions

- A. TLV – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists and regulated by OSHA.
- B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H<sub>2</sub>S is 19 PPM.
- C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H<sub>2</sub>S is 100 PPM.
- D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed to based on an TWA.



**TABLE II**  
Toxicity Table of H<sub>2</sub>S

| Percent % | PPM  | Physical Effects                                                                            |
|-----------|------|---------------------------------------------------------------------------------------------|
| .0001     | 1    | Can smell less than 1 ppm.                                                                  |
| .001      | 10   | TLV for 8 hours of exposure                                                                 |
| .0015     | 15   | STEL for 15 minutes of exposure                                                             |
| .01       | 100  | Immediately Dangerous to Life & Health.<br>Kills sense of smell in 3 to 5 minutes.          |
| .02       | 200  | Kills sense of smell quickly, may burn<br>eyes and throat.                                  |
| .05       | 500  | Dizziness, cessation of breathing begins<br>in a few minutes.                               |
| .07       | 700  | Unconscious quickly, death will result<br>if not rescued promptly.                          |
| .10       | 1000 | Death will result unless rescued<br>promptly. Artificial resuscitation may be<br>necessary. |

## **PHYSICAL PROPERTIES OF H<sub>2</sub>S**

The properties of all gasses are usually described in the context of seven major categories:

COLOR  
ODOR  
VAPOR DENSITY  
EXPLOSIVE LIMITS  
FLAMMABILITY  
SOLUBILITY (IN WATER)  
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

### **COLOR – TRANSPARENT**

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence. a fact that makes the gas extremely dangerous to be around.

### **ODOR – ROTTEN EGGS**

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs". For this reason it earned its common name "sour gas". However, H<sub>2</sub>S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

### **VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192**

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H<sub>2</sub>S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

### **EXPLOSIVE LIMITS – 4.3% TO 46%**

Mixed with the right proportion of air or oxygen, H<sub>2</sub>S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

### **FLAMMABILITY**

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO<sub>2</sub>), another hazardous gas that irritates the eyes and lungs.

## **SOLUBILITY – 4 TO 1 RATIO WITH WATER**

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H<sub>2</sub>S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H<sub>2</sub>S may release the gas into the air.

## **BOILING POINT – (-76 degrees Fahrenheit)**

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

## **RESPIRATOR USE**

The Occupational Safety and Health Administration (OSHA) regulates the use of respiratory protection to protect the health of employees. OSHA's requirements are written in the Code of Federal Regulations, Title 29, Part 1910, Section 134, Respiratory Protection. This regulation requires that all employees who might be required to wear respirators **shall complete an OSHA mandated medical evaluation questionnaire**. The employee then should be fit tested prior to wearing any respirator while being exposed to hazardous gasses. **The respirator use documentation as required by OSHA for respirator use shall be available to the Company Supervisor by the rig company and verified within OSHA stipulated testing time limits shall be verified or the Company will insure testing and documentation is performed prior to employees working in a potential H<sub>2</sub>S atmosphere.**

Written procedures shall be prepared covering safe use of respirators in dangerous atmospheric situations, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators.

Respirators shall be inspected prior to and after each use to make sure that the respirator has been properly cleaned, disinfected and that the respirator works properly. The unit should be fully charged prior to being used.

Anyone who may use respirators shall be properly trained in how to properly seal the face piece. They shall wear respirators in normal air and then in a test atmosphere. (Note: Such items as facial hair (beard or sideburns) and eyeglass temple pieces will not allow a proper seal.) Anyone that may be expected to wear respirators should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses. Wearing of contact lenses shall not be allowed due to the potential for H<sub>2</sub>S eye intrusion.

Respirators shall be worn during the following conditions:

- A. Any employee who works near the top or on the top of any tank unless tests reveal less than 20 ppm of H<sub>2</sub>S.
- B. When breaking out any line where H<sub>2</sub>S can reasonably be expected.

- C. When sampling air in areas where H<sub>2</sub>S may be present.
- D. When working in areas where the concentration of H<sub>2</sub>S exceeds the Threshold Limit Value for H<sub>2</sub>S (10 ppm).
- E. At any time where there is a doubt as to the H<sub>2</sub>S level in the area to be entered.

## **EMERGENCY RESCUE PROCEDURES**

### **DO NOT PANIC!!!**

#### **Remain Calm - THINK**

1. Before attempting any rescue you must first get out of the hazardous area yourself. Go to a safe briefing area.
2. Sound an alarm and activate the 911 system.
3. Put on breathing apparatus. At least two persons should do this, when available use the buddy system.
4. Rescue the victim and return them to a safe briefing area.
5. Perform an initial assessment and begin proper First Aid/CPR procedures.
6. Keep the victim lying down with a blanket, coat or any material that will elevate the shoulders higher than the head to keep airway open. Conserve body heat and do not leave unattended.
7. If the eyes are affected by H<sub>2</sub>S, wash them thoroughly with potable water. For slight irritation, cold compresses are helpful.
8. In case a person has only minor exposure and does not lose consciousness totally, it's best if he doesn't return to work until the following day.
9. Any personnel overcome by H<sub>2</sub>S should always be examined by medical personnel. They should always be transported to a hospital or doctor.



Certified Mail/Return Receipt

October 13, 2008

Bogle Ltd.  
Attn: Louis Derrick  
P. O. Box 460  
Dexter, New Mexico 88231-0460

Surface Use and Compensation Agreement  
West Loco Hills Grayburg #4 Sand Unit  
Eddy County, New Mexico

Bogle Ltd. is the lessee of the surface estate on the following State of New Mexico land:

S/2SW/4 of Section 36, Township 17 South, Range 29 East  
Section 2; SW/4 of Section 1; E/2SW/4 of Section 10 and the E/2 of Section 11, all in  
Township 18 South, Range 29 East

EnerVest Operating, LLC as Operator of the West Loco Hills Grayburg #4 Sand Unit will be conducting operations on the unit which includes all of the above described state land. It is contemplated by the parties that the operations by Operator will be done in several phases and both parties wish to establish a compensation schedule whereby Operator can reimburse Bogle Ltd. for surface damages.

By this Surface Use and Compensation Agreement (SUCA), Bogle Ltd. hereby grants to EnerVest Operating, LLC, (Operator), its successors and assigns, the rights and privileges to utilize the above described lands as maybe reasonably necessary and convenient to perform operations upon the above described lands and for roads and pipelines across said lands. As the lands are part of an established unit that includes other lands not described above, it is agreed that roads and pipelines will be used for access to other parts of the unit as well as access to the above described lands. Operations will include drilling, maintenance, building and servicing the facilities of the unit, electric lines, pipelines, other rights of way and abandonment of wells and facilities. Both parties understand that this is an established waterflood unit and this agreement is intended to cover the new and increased activity on the above described lands. Further both parties understand and agree that as both state and federal lands are included within the unit, Operator will have to conduct operations in compliance with the regulations established by both governmental entities.

Operator, its agents, contractors and assigns will conduct operations in compliance with its current "Planned Operations" and provides the tentative plan map as an exhibit hereto. Operator will provide Bogle Ltd. future versions of approved plans by the various governmental agencies when received. These plans will be used to calculate the amounts that will be due under the below listed rate schedule. This agreement is for all new roads, right of ways and pad sites and does not include any existing roads, rights of ways and pad sites as of the date of this agreement. Operator will have the right, but not the obligation to exclude Bogle Ltd. from pad sites, but Bogle Ltd. will have the right to use any new roads as long as it does not interfere with Operator's operations. In constructing pipelines Operator agrees to place them on the surface whenever safety and governmental requirements allow. Upon reasonable request by Bogle Ltd. or government requirement, pipelines will be buried.

All surface restoration or remediation on areas disturbed by Operator will be Operator's sole responsibility. Operator will indemnify and hold Bogle Ltd. harmless from all claims resulting from Operator's disturbance of the surface or resulting from any operations on the lands described above or neighboring lands within the unit.

#### FEE SCHEDULE

|                       |            |         |              |
|-----------------------|------------|---------|--------------|
| Locations and/or pads | \$3,000.00 | Each    | one time fee |
| Roads                 | \$ 10.00   | Per Rod | one time fee |
| Rights of Way Surface | \$ 10.00   | Per Rod | one time fee |
| Rights of Way Buried  | \$ 50.00   | Per Rod | one time fee |

At Bogle Ltd.'s option, fees may be renegotiated at every fifth year anniversary of the effective date of this agreement.

This SUCA is a clarifying and confirming document and shall not be construed as a waiver of any rights Operator has under any other agreement or instrument pertaining to the above described lands. Should circumstances require Operator to change planned operations for which fees have been paid, the excess payment will be applied to future fees as they accrue. The terms of this SUCA will be effective as of the date it is fully executed and shall continue for as long as Operator conducts operations on the West Loco Hills Grayburg #4 Sand Unit, provided, however, that any obligation or liability of either party that arises or accrues during the term of this SUCA shall survive such termination. Should either party assign their interest in this SUCA, the assignees shall be bound by and subject to the terms and provisions contained herein.

ENERVEST OPERATING, LLC

ATTACHMENTS

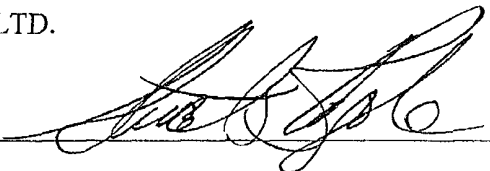
Copy of New Mexico Surface Protection Act

Map of Unit with Phase I wells marked

AGREED TO AND ACCEPTED

THIS 22nd DAY OF oct, 2008

BOGLE LTD.

By: 

Print Name: Stuart Bogle

Its: C.O.O.

Tax ID No. 85-0425010