

Manzano, LLC

**HYDROGEN SULFIDE DRILLING OPERATIONS PLAN**

HOBBS OCD

OCT 11 2012

**I. HYDROGEN SULFIDE TRAINING**

RECEIVED

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:

- A. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S).
- B. The proper use and maintenance of personal protective equipment and life support systems.
- C. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- D. The proper techniques for first aid and rescue procedures.

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

- A. The effects of H<sub>2</sub>S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- B. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- C. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

**II. H<sub>2</sub>S SAFETY EQUIPMENT AND SYSTEMS**

Note: All H<sub>2</sub>S 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 reasonably expected to contain H<sub>2</sub>S.

A. Well Control Equipment:

All BOP and BOP equipment is shown in the attachments.

Flare line.

Choke manifold.

Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

B. Protective equipment for essential personnel:

Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

C. H<sub>2</sub>S detection and monitoring equipment:

2 - Portable H<sub>2</sub>S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H<sub>2</sub>S levels of 20 ppm are reached.

D. Visual warning systems:

Caution/Danger signs 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.

E. Mud Program: The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to the surface

F. Metallurgy:

All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.

G. Communication:

Company vehicles equipped with cellular telephone.

# **W A R N I N G**

**YOU ARE ENTERING AN H<sub>2</sub>S 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. CK WITH MANZANO FOREMAN AT MAIN OFFICE**

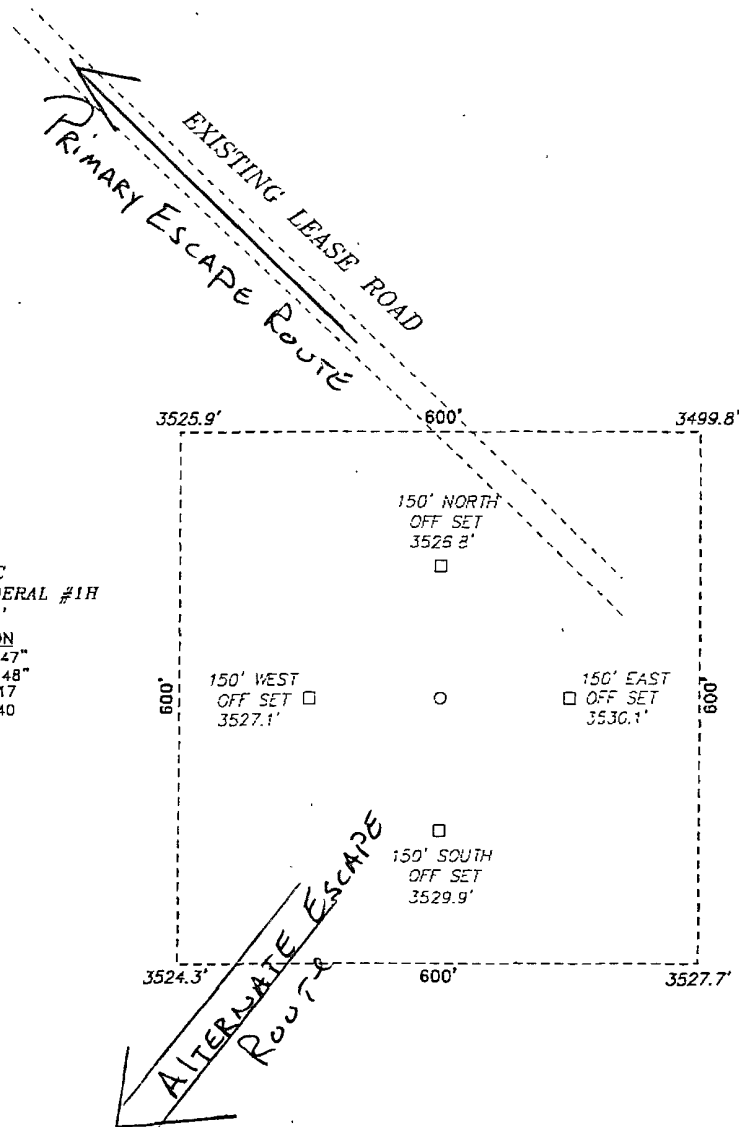
Manzano, LLC

575-623-1996

SECTION 18, TOWNSHIP 20 SOUTH, RANGE 33 EAST, N.M.P.M.,  
LEA COUNTY, NEW MEXICO.

H<sub>2</sub>S Escape Route

MANZANO, LLC  
GREEN FROG CAFE FEDERAL #1H  
ELEV. - 3529'  
SURFACE LOCATION  
Lat - N 32°34'41.47"  
Long - W 103°42'05.48"  
NMSPC- N 574653.17  
E 735953.40  
(NAD-83)



200 0 200 400 FEET  
SCALE: 1" = 200'

Directions to Location:

FROM THE JUNCTION OF ST. HWY. 62-180 AND  
HWY.55 LAGUNA GO NORTH ON LAGUNA 1.6 MILES  
TO TONTO THEN EAST ON TONTO 0.6 MILES TO  
BEGIN ROAD AT EXISTING ROAD.

**MANZANO, LLC**

REF: GREEN FROG CAFE FEDERAL #1H / WELL PAD TOPO

THE GREEN FROG CAFE FEDERAL #1H LOCATED 810'  
FROM THE NORTH LINE AND 2310' FROM THE EAST LINE OF  
SECTION 18, TOWNSHIP 20 SOUTH, RANGE 33 EAST,  
N.M.P.M., LEA COUNTY, NEW MEXICO.

**BASIN SURVEYS** P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 27013 Drawn By: D. JONES

Date: 07-10-2012 Disk: DAJ 27013

Survey Date: 07-09-2012 Sheet: 1 of 1 Sheets

MANZANO, LLC  
INTERIM RECLAMATION PLAN FOR GREEN FROG CAFE FED #1H

