

NTS-07-175

OCD-ARTESIA

Form 3160-3  
(August 1999)

Month - Year **267**  
**APR 26 2007**  
OCD - ARTESIA, NM

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RESUBMITTAL

0  
OMB No. 1004-0136  
Expires November 30, 2000


APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. <b>NM-0557142</b>
b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator <b>Yates Petroleum Corporation 25575</b>		7. If Unit or CA Agreement, Name and No. <b>12695</b>
3A. Address <b>105 South Fourth Street Artesia, New Mexico 88210</b>	3b. Phone No. (include area code) <b>(505) 748-1471</b>	8. Lease Name and Well No. <b>Ross EG Federal Com #11</b>
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface <b>Roswell Controlled Water Basin 1980' FSL &amp; 1980' FEL, Unit J</b> At proposed prod. Zone <b>same</b>		9. API Well No. <b>38-015-35566</b>
14. Distance in miles and direction from nearest town or post office* <b>Approximately 20 miles southwest of Artesia, New Mexico.</b>		10. Field and Pool, or Exploratory <b>N. Dagger Draw Upper Penn (15472)</b>
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) <b>1980'</b>	16. No. of Acres in lease	11. Sec., T., R., M., or Blk. and Survey or Area <b>Section 20, T19S-R25E</b>
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth <b>8300'</b>	12. County or Parish <b>Eddy County</b>
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>3542' GL</b>	22. Approximate date work will start* <b>ASAP</b>	13. State <b>NM</b>
20. BLM/BIA Bond No. on file <b>NMB000434</b>		
23. Estimated duration <b>30 days</b>		

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall 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 shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized office. |

25. Signature 	Name (Printed/Typed) <b>Cy Cowan</b>	Date <b>12/13/2006</b>
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Regulatory Agent

Regulatory Agent

Approved by (Signature)

Title <b>ACTING FIELD MANAGER</b>	Name (Printed/Typed) <b>/s/ James Stovall</b>	Date <b>APR 24 2007</b>
	Office <b>CARLSBAD FIELD OFFICE</b>	

Application apprc  
operations thereon  
Conditions of app  
Title 18 U.S.C. Sec  
States any false, fi

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

equitable title to those rights in the subject lease which would entitle the applicant to conduct

**APPROVAL FOR 1 YEAR**

or any person knowingly and willfully to make to any department or agency of the United  
utter within its jurisdiction.

\*(Instructions on reverse)

Previously Approved

C-144 attached

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPECIAL STIPULATIONS  
ATTACHED

Submit to Appropriate  
District Office  
State Lease - 4 copies  
Fee Lease - 3 copies

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised 1-1-89

OIL CONSERVATION DIVISION

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator <b>YATES PETROLEUM CORPORATION</b>			Lease <b>ROSS EG FEDERAL COM</b>		Well No. <b>11</b>
Unit Letter <b>J</b>	Section <b>20</b>	Township <b>19 SOUTH</b>	Range <b>25 EAST</b>	County <b>KDDY COUNTY, NM</b>	
Actual Footage Location of Well:					
1980 feet from the <b>SOUTH</b> line and		1980 feet from the <b>EAST</b> line			
Ground level Elev. <b>3542.</b>	Producing Formation <b>Cisco Canyon</b>	Pool <b>N. Dagger Draw Upper Penn</b>	Dedicated Acreage: <b>160 Acres</b>		

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.

2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, force-pooling, etc.?

☒ Yes ☐ No If answer is "yes" type of consolidation Communitization

If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary).

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interest, has been approved by the Division.

OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature

*Ken Beardemphl*  
Printed Name  
**Ken Beardemphl**

Position  
**Landman**

Company  
**YATES PETROLEUM CORPORATION**

Date  
**April 15, 1992**

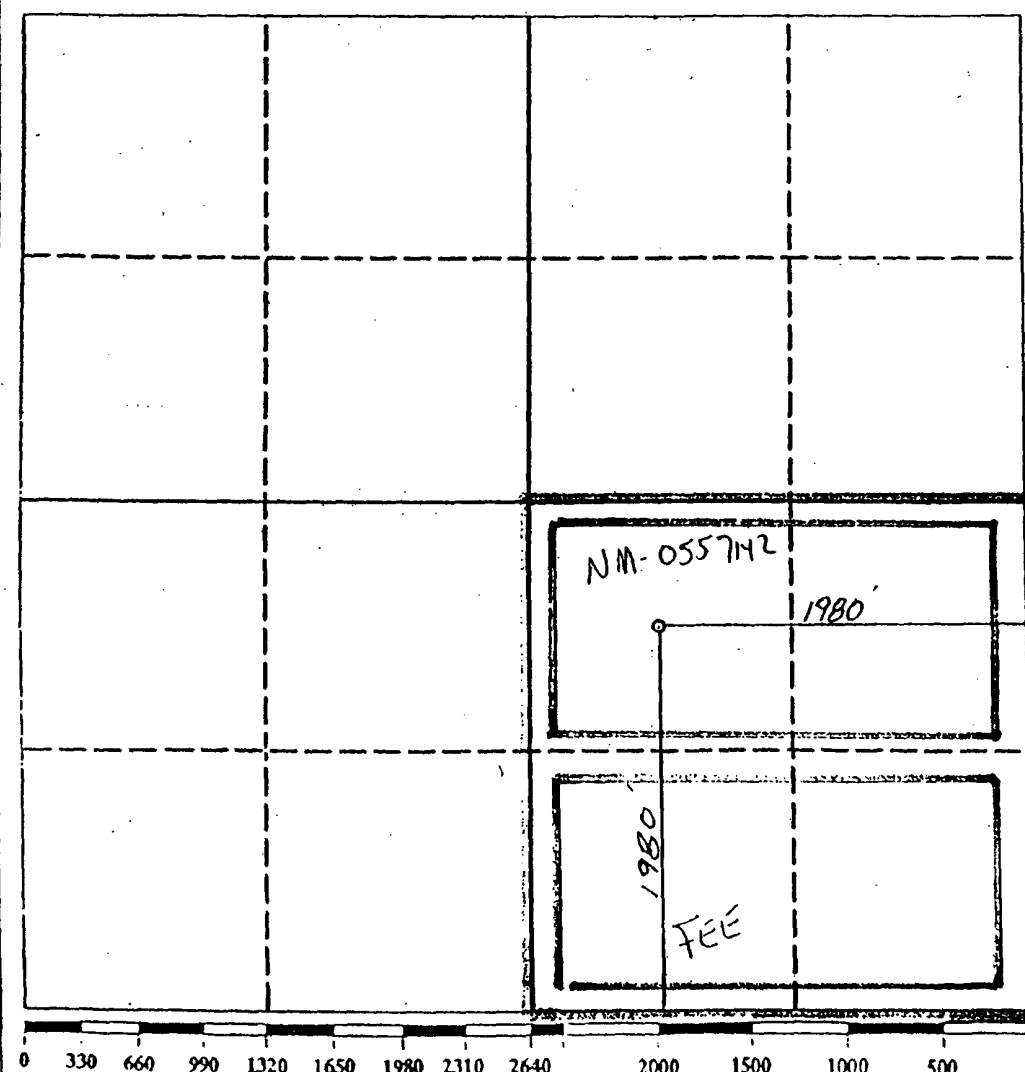
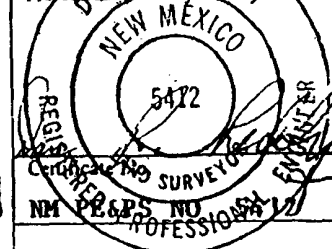
SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes actual surveys made by me or under my supervision, and that the same is true to the best of my knowledge and belief.

Date Surveyed

**APRIL 10, 1992**

Signature *StallBE DDY*  
Professional Surveyor



**YATES PETROLEUM CORPORATION**

**Ross "EG" Federal #11**

1980' FSL and 1980' FEL

Sec.20-T19S-R25E

Eddy County, New Mexico

1. The estimated tops of geologic markers are as follows:

San Andres	704'
Glorietta	2209'
Bone Spring Lime	3419'
3 <sup>rd</sup> Bone Spring Lime	4742'
Wolfcamp Lime	5509'
Canyon Lime	7602'
Canyon Dolomite Top	7683'
Base Canyon Dolomite	7943'
TD	8300'

2. The estimated depths at which anticipated water, oil or gas formations are expected to be encountered:

Water: Approximately 275'  
Oil or Gas: Canyon

3. Pressure Control Equipment: BOPE will be installed on the 9 5/8" casing and rated for 3000 BOP systems will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented in place. Blowout Preventor controls will be installed prior to drilling the surface plug and will remain in use until the well is completed or abandoned. Preventors will be inspected and operated at least daily to ensure good mechanical working order, and this inspection recorded on the daily drilling report. See Exhibit B.

**Auxiliary Equipment:**

- A. Auxiliary Equipment: Kelly cock, pit level indicators, flow sensor equipment and a sub with full opening valve to fit the drill pipe and collars will be available on the rig floor in the open position at all times for use when kelly is not in use.

4. THE PROPOSED CASING AND CEMENTING PROGRAM:

**A. Casing Program: (All New)**

<u>Hole Size</u>	<u>Casing Size</u>	<u>Wt./Ft</u>	<u>Grade</u>	<u>Coupling</u>	<u>Interval</u>
14 3/4"	9 5/8"	36#	J-55	ST&C	1100'
8 3/4"	7"	23-26#	J-55 & <del>N-80</del> N-80	ST&C LTC	0-8150'

Minimum Casing Design Factors: Collapse 1.125, Burst 1.0, Tensile Strength 1.8

B. CEMENTING PROGRAM:

Surface casing: 700 sx 'H', w/12% thicksad, 10# Gilsonite, 1/2# Cellosal 2% CaCl2 Tail with 200sacks, 2% CaCl2.

Production Casing: 500 sx Class H w/5# CSE, 5 # Gilsonite, 1/4# celloseal. DV tool @ 5900.

2<sup>nd</sup> Stage: 750 sx Lite, 5# salt, 5# Gilsonite, 1/4# celloseal. Tailed with 100 sacks 'H'.

5. Mud Program and Auxiliary Equipment:

<u>Interval</u>	<u>Type</u>	<u>Weight</u>	<u>Viscosity</u>	<u>Fluid Loss</u>
0-1100'	FW Gel/LCM	8.3 - 8.6	30	N/C
1100'-7600'	Cut Brine	8.8 - 9.2	29	N/C
7600'-TD	Cut Brine/Starch	9.0 - 9.2	30 - 34	<10cc

Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blow out will be available at the well site during drilling operations. Mud will be checked hourly by rig personnel.

6. EVALUATION PROGRAM:

Samples: 10' samples from 400' to TD.

Logging: CNL/LTD from TD to casing, with GR/CNL up to surface;

DLL with RXO from TD to casing.

Coring: None anticipated.

DST's: As warranted.

7. Abnormal Conditions, Bottom hole pressure and potential hazards:

Anticipated BHP:

From: 0 TO: 1500' Anticipated Max. BHP: 450 PSI

From: 1500' TO: 8300' Anticipated Max. BHP: 2300 PSI

Abnormal Pressures Anticipated: None

Lost Circulation Zones Anticipated: 0-1100'

H2S Zones Anticipated: Canyon

Maximum Bottom Hole Temperature: 127 F

8. ANTICIPATED STARTING DATE:

Plans are to drill this well as soon as possible after receiving approval. It should take approximately 30 days to drill the well with completion taking another 30 days.

# Yates Petroleum Corporation

Location Layout for Permian Basin

Up to 12,000'

## YATES PETROLEUM CORPORATION

105 South 4<sup>th</sup> Street

Artesia, NM 88210

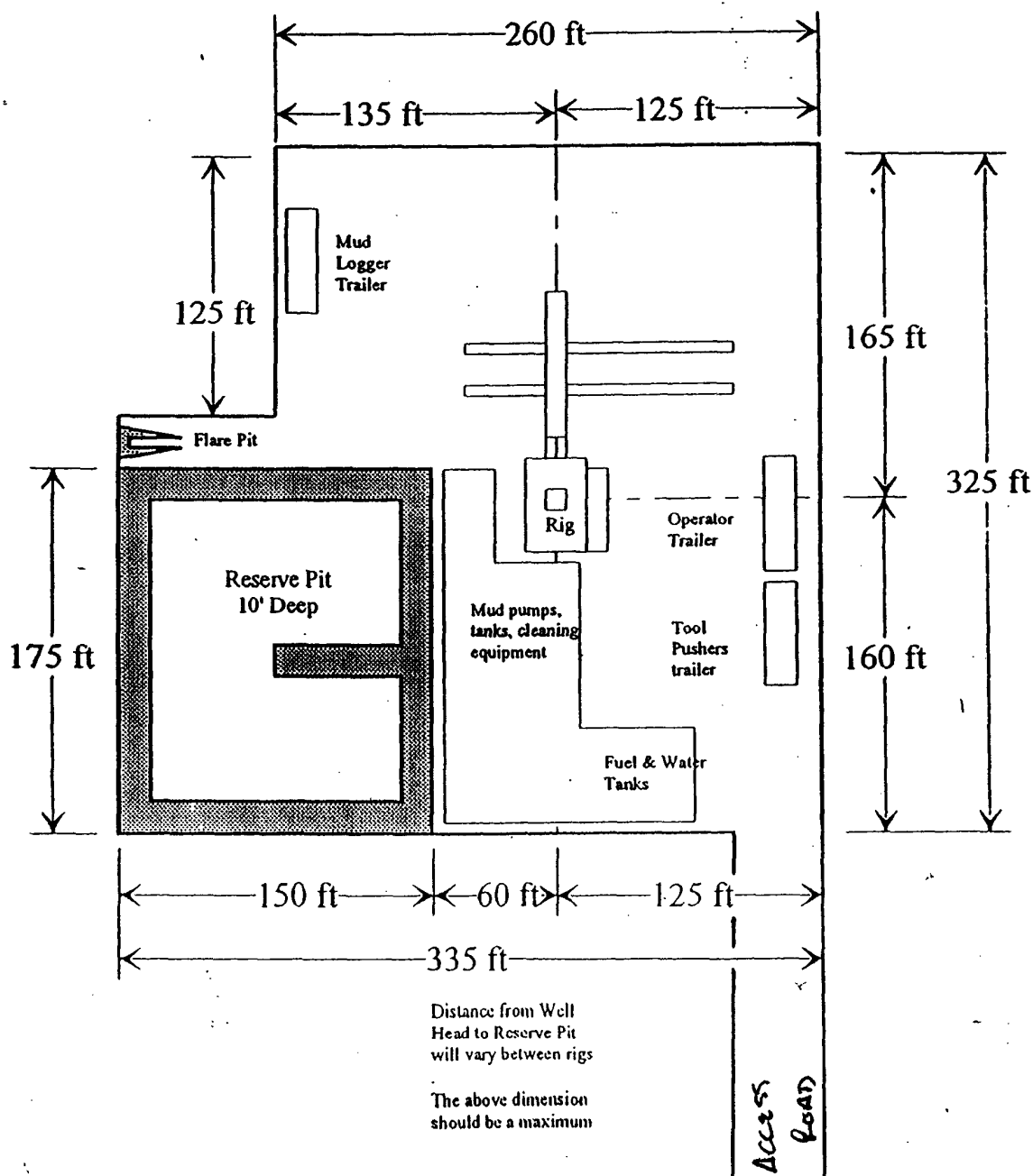
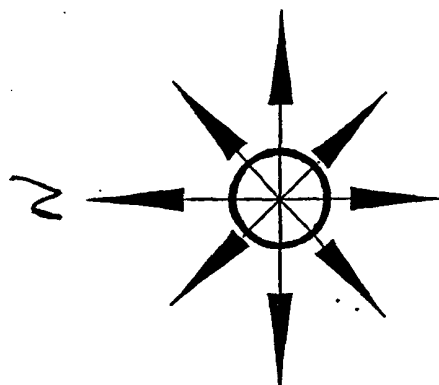
Ross "EG" Federal #11

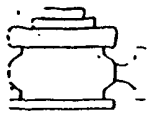
1980' FSL & 1980' FEL

Section 20-T19S-R25E

Eddy County, New Mexico

Exhibit "C"

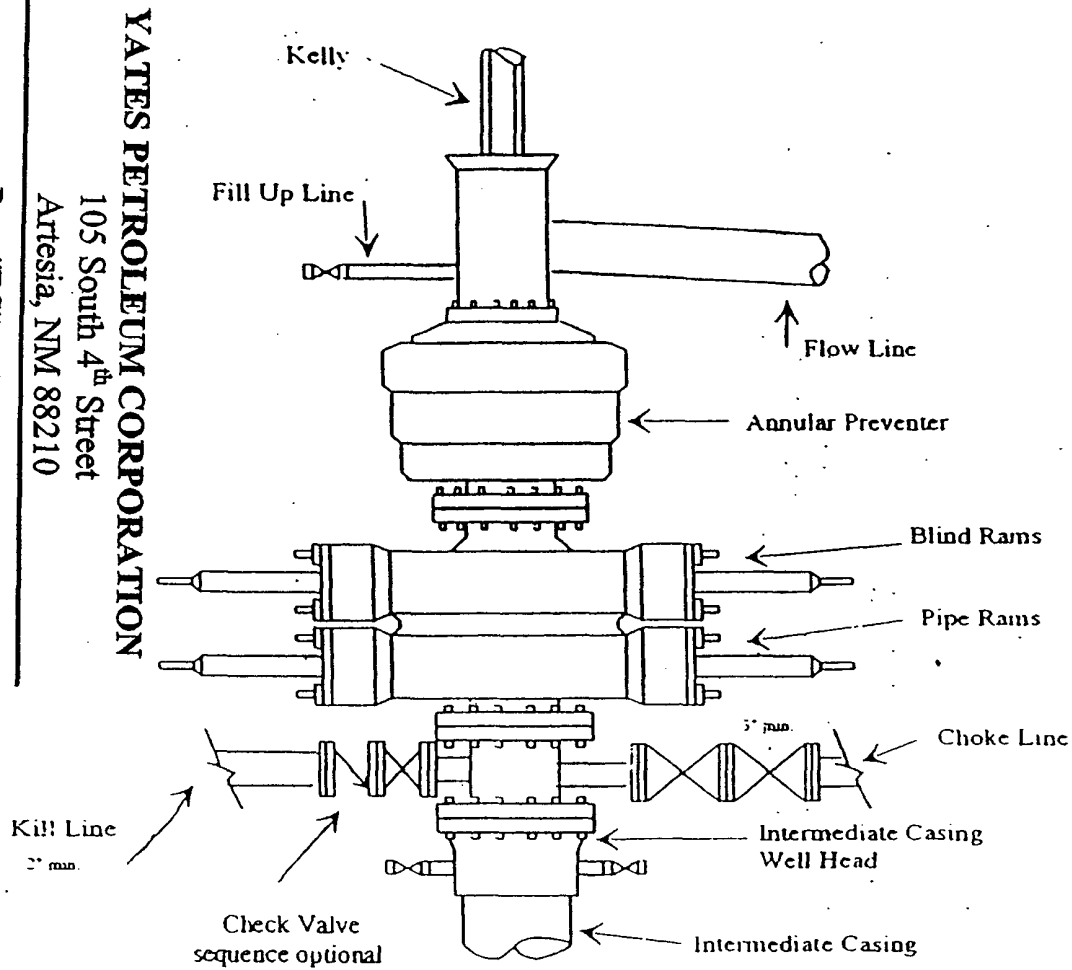




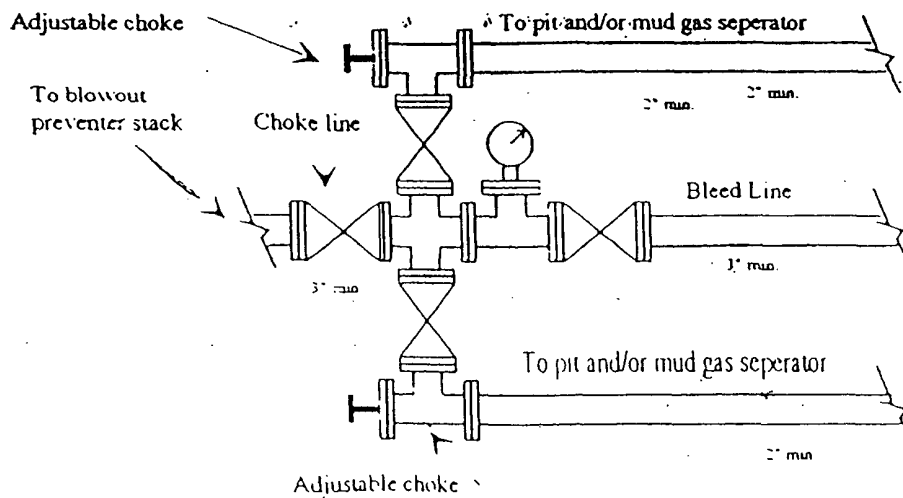
# Yates Petroleum Corporation

BOP-3

## Typical 3,000 psi Pressure System Schematic Annular with Double Ram Preventer Stack



## Typical 3,000 psi choke manifold assembly with at least these minimum features



YATES PETROLEUM CORPORATION  
105 South 4<sup>th</sup> Street  
Artesia, NM 88210  
Ross "EG" Federal #11  
1980' FSL & 1980' FEL  
Section 20-T19S-R25E  
Eddy County, New Mexico  
Exhibit "B"

# **Yates Petroleum Corporation**

**105 S. Fourth Street**

**Artesia, NM 88210**

## **Hydrogen Sulfide (H<sub>2</sub>S) Contingency Plan**

**For**

**Ross EG Federal Com. #11**

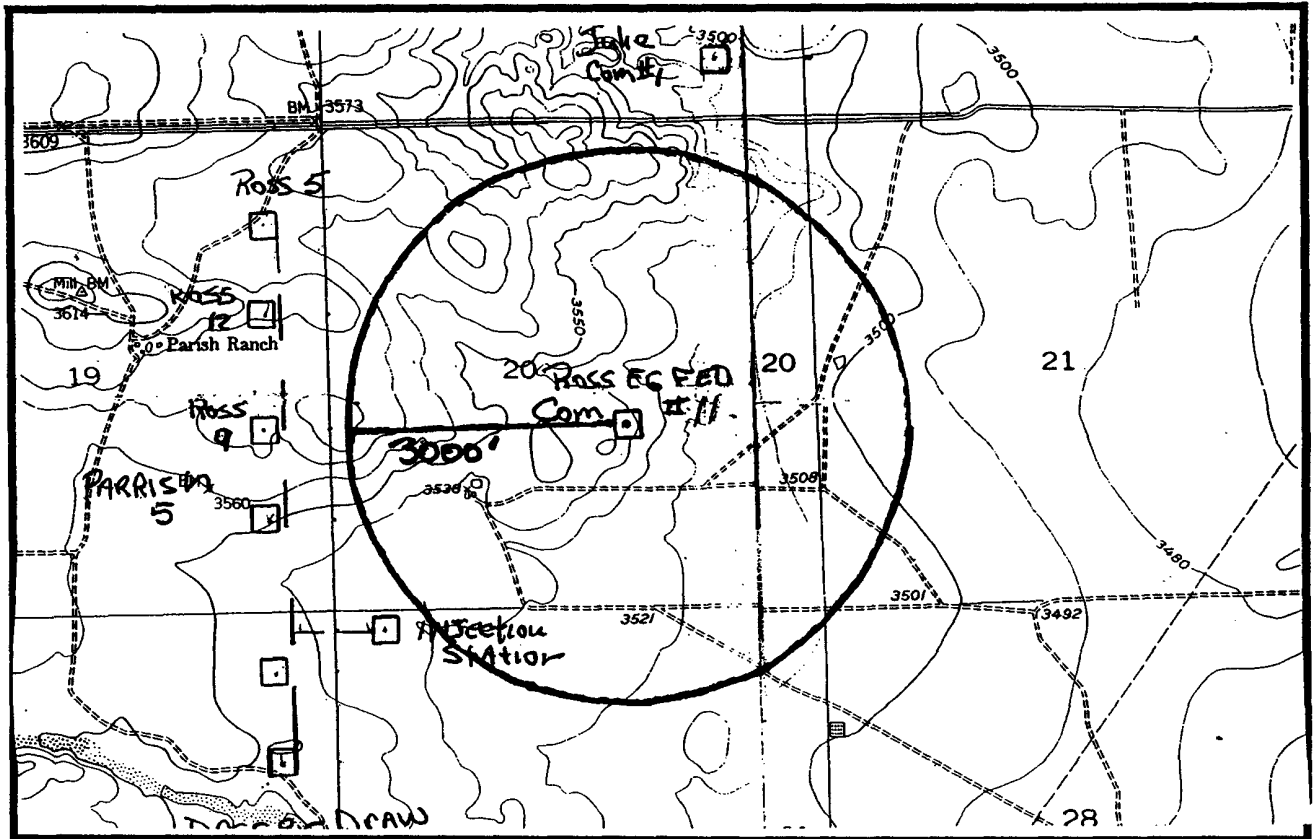
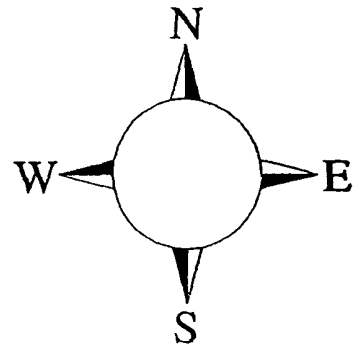
**1980' FSL, 1980' FEL**

**Section 20, T-19S, R-25E**

**Eddy County NM**

## Ross Federal Com. #11 Location

This is an open drilling site. H<sub>2</sub>S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H<sub>2</sub>S, including warning signs, wind indicators and H<sub>2</sub>S monitor.



ADDITIONAL ROE = 3000'  
 1000' radius of exposure for H<sub>2</sub>S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H<sub>2</sub>S, including warning signs, wind indicators and H<sub>2</sub>S monitor.



## Emergency Procedures

In the case of a release of gas containing H<sub>2</sub>S, the first responder(s) must isolate the area and prevent entry by other persons into the 100 ppm ROE. Additionally the first responder(s) must evacuate any public places encompassed by the 100 ppm ROE. First responder(s) must take care not to injure themselves during this operation. Company and/or local officials must be contacted to aid in this operation. Evacuation of the public should be beyond the 100 ppm ROE.

All responders must have training in the detection of H<sub>2</sub>S, measures for protection against the gas, equipment used for protection and emergency response. Additionally, responders must be equipped with H<sub>2</sub>S monitors and air packs in order to control the release. Use the "buddy system" to ensure no injuries during the response.

## Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

## Characteristics of H<sub>2</sub>S and SO<sub>2</sub>

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air = 1	2 ppm	N/A	1000 ppm

## Contacting Authorities

YPC personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. YPC Company response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

## **Yates Petroleum Corporation Phone Numbers**

YPC Office ..... (505) 748-1471  
Pinson McWhorter/Operations Manager ..... (505) 748-4189  
Darrel Atkins/Production Manager ..... (505) 748-4204  
Ron Beasley/Prod Superintendent ..... (505) 748-4210  
Al Springer/Drilling ..... (505) 748-4225  
Paul Hanes/Prod. Foreman/Roswell ..... (505) 624-2805  
Jim Krogman/Drilling Superintendent ..... (505) 748-4215  
Artesia Answering Service ..... (505) 748-4302  
(During non-office hours)

### **Agency Call List**

#### **Eddy County (505)**

##### **Artesia**

State Police ..... 746-2703  
City Police..... 746-2703  
Sheriff's Office ..... 746-9888  
Ambulance..... 911  
Fire Department ..... 746-2701  
LEPC (Local Emergency Planning Committee) ..... 746-2122  
NMOCD..... 748-1283

##### **Carlsbad**

State Police ..... 885-3137  
City Police..... 885-2111  
Sheriff's Office..... 887-7551  
Ambulance..... 911  
Fire Department ..... 885-2111  
LEPC (Local Emergency Planning Committee)..... 887-3798  
US Bureau of Land Management..... 887-6544

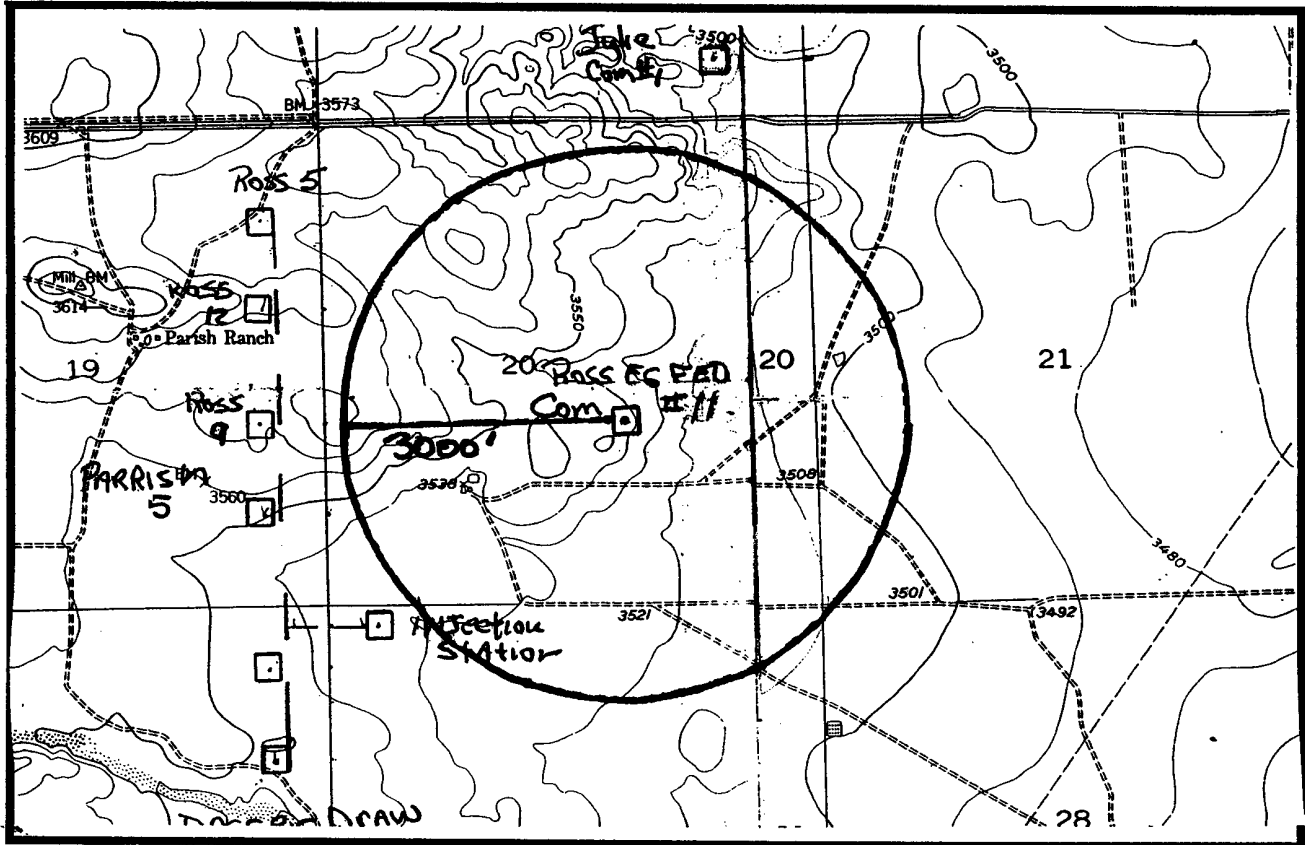
New Mexico Emergency Response Commission (Santa Fe) (505) 476-9600  
24 HR ..... (505) 827-9126  
New Mexico State Emergency Operations Center..... (505) 476-9635  
National Emergency Response Center (Washington, DC) ... (800) 424-8802

##### **Other**

Boots & Coots IWC ..... 1-800-256-9688 or (281) 931-8884  
Cudd Pressure Control..... (915) 699-0139 or (915) 563-3356  
Halliburton ..... (505) 746-2757  
B. J. Services..... (505) 746-3569

Flight For Life -4000 24th St, Lubbock, TX ..... (806) 743-9911  
Aerocare -Rr 3 Box 49f, Lubbock, TX ..... (806) 747-8923  
Med Flight Air Amb 2301 Yale Blvd SE #D3, Albuq, NM ..... (505) 842-4433  
S B Air Med Svc 2505 Clark Carr Loop SE, Albuq, NM ..... (505) 842-4949

This is an open drilling site. H<sub>2</sub>S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H<sub>2</sub>S, including warning signs, wind indicators and H<sub>2</sub>S monitor.



**MULTI-POINT SURFACE USE AND OPERATIONS PLAN**  
**Yates Petroleum Corporation**  
**Ross "EG" Federal #11**  
1980' FSL and 1980' FEL  
Sec.20-T19S-R25E  
Eddy County, New Mexico

This plan is submitted with Form 3160-3, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effect associated with the operations.

1. EXISTING ROADS:

Exhibit A is a portion of the BLM map showing the well and roads in the vicinity of the proposed location. The proposed well site is located approximately 20 miles southwest of Artesia, New Mexico and the access route to the location is indicated in red and green on Exhibit A.

DIRECTIONS:

Go south of Artesia, NM on Highway 285 for approximately 13 miles to Rockin R Red Road. Turn west and go approximately 6.5 miles. Turn south on caliche road for approximately 0.7 miles. New road starts here going east.

2. PLANNED ACCESS ROAD

- A. The proposed new access will be approximately 1300' in length from point of origin to the southwest edge of drilling pad. The road will lie in a west to east direction.
- B. The new road will be 14 feet in width (driving surface) and will be adequately drained to control runoff and erosion.
- C. The new road will be bladed with drainage on one side. No traffic turnout will be built.

3. LOCATION OF EXISTING WELL

- A. There is drilling activity within a one-mile radius of the well site.
- B. Exhibit D shows existing wells within a one-mile radius of the proposed well site.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES

- A. There are production facilities on this lease at the present time.
- B. In the event that the well is productive, the necessary production facilities will be installed on the drilling pad. If the well is productive oil, a gas or diesel self-contained unit will be used to provide the necessary power. No power will be required if the well is productive of gas.

5. LOCATION AND TYPE OF WATER SUPPLY:

- A. It is planned to drill the proposed well with a fresh water system. The water will be obtained from commercial sources and will be hauled to the location by truck over the existing and proposed roads shown in Exhibit A.

6. SOURCE OF CONSTRUCTION MATERIALS:

Federal pit located in Section 18, T19S-R25E.

7. METHODS OF HANDLING WASTE DISPOSAL:

- A. Drill cuttings will be disposed of in the reserve pits.
- B. Drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry.
- C. Water produced during operations will be collected in tanks until hauled to an approved disposal system, or separate disposal application will be submitted.
- D. Oil produced during operations will be stored in tanks until sold.
- E. Current laws and regulations pertaining to the disposal of human waste will be complied with.
- F. All trash, junk, and other waste materials will be contained in trash cages or bins to prevent scattering and will be removed and deposited in an approved sanitary landfill. Burial on site is not approved.

8. ANCILLARY FACILITIES:

- A. A 3" steel buried flow line to the Ross #3 battery, approximately 3300' in length (on topo) being 30' wide right-of-way.
- B. A 3" phase, 480 volt, rupture proof power line, 25' wide and approximately 1300' in length next to the new road right-of-way.

9. WELLSITE LAYOUT:

- A. Exhibit C shows the relative location and dimensions of the well pad, the reserve pits, the location of the drilling equipment, rig orientation and access road approach.
- B. The reserve pits will be plastic lined.
- C. A 400' x 400' area has been staked and flagged.

10. PLANS FOR RESTORATION

- A. After finishing drilling and/or completion operations, all equipment and other material not needed for further operations will be removed. The location will be cleaned of all trash and junk to leave the well site in as aesthetically pleasing a condition as possible.
- B. Unguarded pits, if any, containing fluids will be fenced until they have dried and been leveled.
- C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management will be complied with and will be accomplished as expeditiously as possible. All pits will be filled level after they have evaporated and dried.

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Per phone call to Cy Cowan  
4-16-07

11. SURFACE OWNERSHIP: Mr. Carl Ross - Yates Petroleum Corporation and Mr. Ross have made an agreement on surface damages.

PO Box 216

12. OTHER INFORMATION:

Lakewood NM 88254

Phone 505-457-2499

- A. Topography: Refer to the existing archaeological report for a description of the topography, flora, fauna, soil characteristics, dwellings, historical and cultural sites.  
B. The primary surface use is for grazing.

13. OPERATOR'S REPRESENTATIVE

A. Through A.P.D. Approval:

B. Through Drilling Operations,  
Completions and Production:

Cy Cowan, Regulatory Agent  
Yates Petroleum Corporation  
105 South Fourth Street  
Artesia, New Mexico 88210  
Phone (505) 748-1471

Pinson McWhorter, Operations Manager  
Yates Petroleum Corporation  
105 South Fourth Street  
Artesia, New Mexico 88210  
Phone (505) 748-1471

14. CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route, that I am familiar with the conditions which presently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Yates Petroleum Corporation and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

12/13/2006

  
Regulatory Agent

## CONDITIONS OF APPROVAL - DRILLING

Operator's Name: Yates Petroleum Corporation  
Well Name & No. 11-Ross EG Federal Com  
Location: 1980FSL, 1980FEL, Section 20, T-19-S, R-25-E, Eddy County, NM  
Lease: NM-0557142

.....

### I. DRILLING OPERATIONS REQUIREMENTS:

- A. The Bureau of Land Management (BLM) is to be notified a minimum of 4 hours in advance for a representative to witness:
1. Spudding well
  2. Setting and/or Cementing of all casing strings
  3. BOPE tests
- Eddy County call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (505) 361-2822
- B. A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan should be activated 500 feet prior to drilling into the Canyon formation. **Hydrogen Sulfide reported in Sections 11 and 14 from the Canyon formation and in Section 17 from the Upper Penn. Measurements in Section 18 and 19 from the North Dagger Draw Penn and Upper Penn were 10+ in STVs. Also reported in Penasco Draw San Andres in Section 6 measuring 10,000+ ppm in the gas stream and 14 ppm in STVs.**
- C. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
- D. If floor controls are required, (3M or Greater) controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

### II. CASING:

- A. The 9-5/8 inch surface casing shall be set at approximately 1100 feet (possible usable water to 1100 feet) and cemented to the surface.
1. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
  2. Wait on cement (WOC) time for a primary cement job will be a minimum of 12 hours for a non-water basin, 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compression strength, whichever is greater. (This is to include the lead cement)

3. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compression strength, whichever is greater.
4. If cement falls back, remedial action will be done prior to drilling out that string.

**Possible lost circulation in the Grayburg and San Andres formations.  
Medium potential for karst features.**

**B.** The minimum required fill of cement behind the 7 inch production casing is **cement to circulate to surface. Cement for first stage to circulate to DVT. Cement for second stage to circulate to surface.** If cement does not circulate see A.1 thru 4.

**C.** If hardband drill pipe is rotated inside casing; returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

**III. PRESSURE CONTROL:**

- A.** All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53.
- B.** Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) PSI**.
- C.** The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  1. The tests shall be done by an independent service company.
  2. The results of the test shall be reported to the appropriate BLM office.
  3. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
  4. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi in accordance with API RP 53. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.
  5. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

**IV. DRILLING MUD:**

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

**Engineer on call phone: 505-706-2779**

**WWI 122706**



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, H<sub>2</sub>S 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 provided.

**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 should be established prior to spudding the well.
- Should 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.
- Designated smoking area.

***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.

**NOTE:**

- Additional equipment will be available at the nearest Callaway Safety Office.
- Additional personal H<sub>2</sub>S monitors are available for all employees on location.

- 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**

The direct lines of action prepared by CALLAWAY SAFETY EQUIPMENT CO., INC., to protect the public from hazardous gas situations are as follows:

1. When the company approved supervisor (Drilling Foremen, 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 safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and evacuation need to be implemented.
3. Company approved 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. Constant radio contact will be maintained with them.

5. After the discharge of gas has been controlled, "Company" safety personnel will determine when the area is safe for re-entry.

**See Emergency Action Plan**

## Emergency Assistance Telephone List

### **PUBLIC SAFETY:**

**911 or**

Chavez Co. Sheriff

(505) 624-6770

Fire Department

(505) 624-6800

Hospital/Roswell, N.M.

(505) 622-8170

Life Flight:

Southwest Air-Med E Vac.

(800) 242-6199

Lat: 33°01'17.73"N.

Long: 104°26'42.18" W.

New Mexico D.O.T.

(505) 827-5100

Bureau of Land Management

(505) 393-3612

U. S. Dept. of Labor

(505) 248-5302

New Mexico OCD

(505) 393-6161

New Mexico/After Hours

(505) 370-7106

### **Parallel Petroleum Corporation**

Parallel Petroleum Corporation/Midland, TX

Office (432) 684-3727

Superintendent:

Donnie Hill

Office (432) 684-3727

Cell (432) 934-7164

Drilling Engineer:

Deane Durham

Office (432) 684-3727

Cell (432) 413-9701

### **Callaway Safety Equipment**

Odessa

Office (432) 561-5049

Hobbs

Office (877) 422-6345

### **Affected Notification List**

(within a \_\_\_\_\_' radius of exposure @100ppm)

The geologic zones that will be encountered during drilling are not 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: **THERE ARE NO RESIDENTS WITHIN 3000' ROE.**

#### **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 Oil Company will identify all home bound or highly susceptible individuals and make special evacuation preparations, interfacing with the local and emergency medical service as necessary.

**MAPS AND PLATS**  
**(Maps & Plats Attached)**

## **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 I. 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
Sulfur 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. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins <b>in a few minutes.</b>
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be 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 a OSHA mandated medical evaluation questionnaire . The employee then should be fit tested prior to wearing any respirator while being exposed to hazardous gasses.

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. Contact lenses should not be allowed.

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 or coat, etc..., under the shoulders 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.