N.M. Oil Cons. DIV-Dist. 2
1301 W. Grand Avenue
Artesia, NM 88210

Form 3160-3
(April 2004)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NM-58023
6. If Indian, Allotee or Tribe Name
7. If Unit or CA Agreement, Name and No. 300817
8. Lease Name and Well No. EE FEDERAL 24 #3
9. API Well No. 30-015-34213
10. Field and Pool, or Exploratory Dagger Draw, U. Penn N.
11. Sec., T. R. M. or Blk. and Survey or Area Sec. 24, T-19S, R24E
12. County or Parish Eddy
13. State NM

1a. Type of work: [X] DRILL [ ] REENTER

1b. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other [ ] Single Zone [ ] Multiple Zone

2. Name of Operator Chaparral Energy, LLC 4115

3a. Address 701 Cedar Lake Blvd OKC 73114

3b. Phone No. (include area code) (405) 478-8770

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At surface 1880' FNL and 1650' FEL, "G" 15472'
At proposed prod. zone Same

14. Distance in miles and direction from nearest town or post office* 16 miles Southwest of Artesia, NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 760'

16. No. of acres in lease 160

17. Spacing Unit dedicated to this well

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 988'

19. Proposed Depth 8000'

20. BLM/BIA Bond No. on file

RECEIVED
JUL 07 2005
OCD-ARTESIA

21. Elevations (Show whether DF, KDB, RT, GL, etc.) GL 3598'

22. Approximate date work will start* Upon Approval

23. Estimated duration 20 Days

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

25. Signature Diana McKeys — Name (Printed/Typed) Diana Keys — Date 5/24/05

Title Engineering Technician Drilling

Approved by (Signature) /s/ Joe G. Lara — Name (Printed/Typed) /s/ Joe G. Lara — Date JUL 06 2005

Title ACTING FIELD MANAGER — Office CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR 1 YEAR

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on page 2)

Roswell Controlled Water Basin

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

Witness Surface Casing

French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

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

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Form C
Revised August 15,
Submit to Appropriate District O
State Lease - 4 c
Fee Lease - 3 c

☐ AMENDED REP

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
		Dagger Draw, U. Penn N.

[4] Property Code	[5] Property Name	[6] Well Number
	E E FEDERAL "24"	3

[7] OGRID No.	[8] Operator Name	[9] Elevation
	CHAPARRAL ENERGY, INC.	3598'

[10] Surface Location

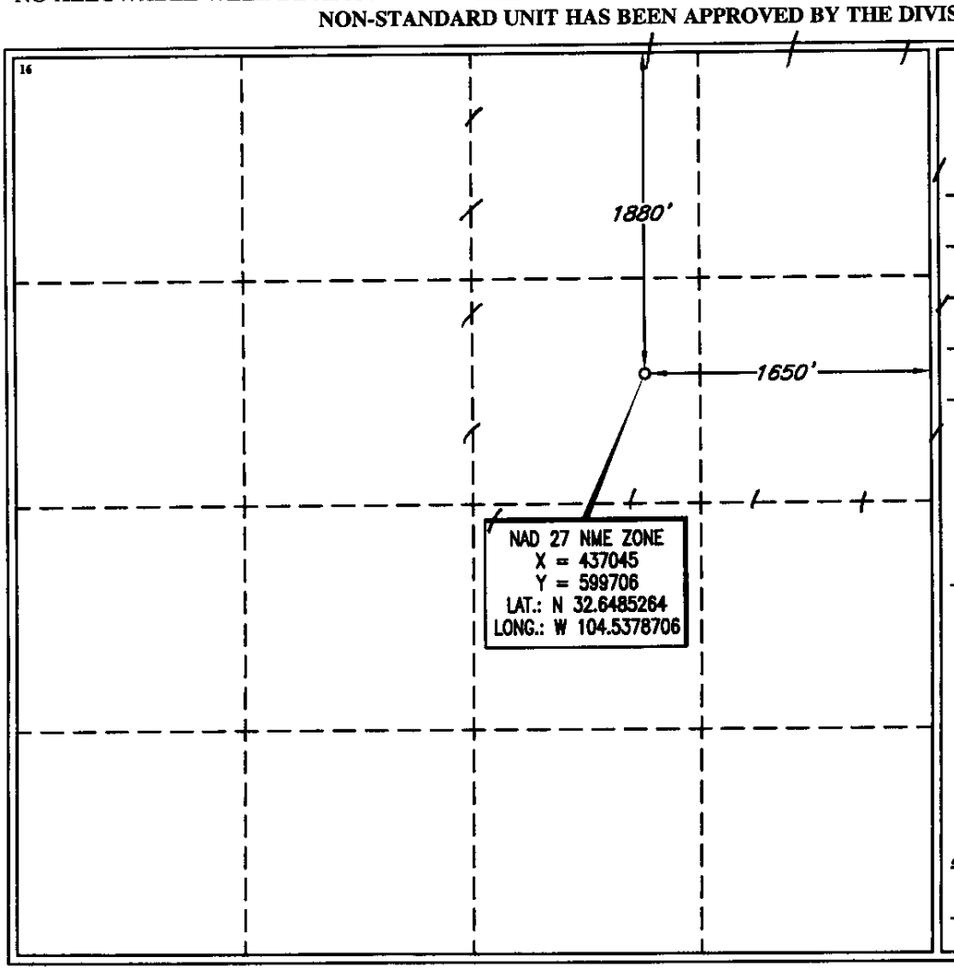
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	Cou
G	24	19 SOUTH	24 EAST, N.M.P.M.		1880'	NORTH	1650'	EAST	EDI

[11] Bottom Hole Location If Different From Surface

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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160			

NO ALLOWABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



[17] OPERATOR CERTIFICATION

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

Diana Keys
Signature

Diana Keys
Printed Name

Engr. Tech
Title

6-15-05
Date

[18] SURVEYOR CERTIFICATION

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

JUNE 8, 2005
Date of Survey

Signature and Seal of Professional Surveyor

STATE OF NEW MEXICO
V. LYNN BEZNER
NO. 7920
PROFESSIONAL LAND SURVEYOR

Certificate Number

V. L. BEZNER R.P.S. #79

JOB # 104066 / 76NE / J.C

EMENTING PROGRAM

Cementing Program

16" Conductor

Cement to Surface with 3 Yds construction quality Cement.

8 5/8" Surface

Cement to surface with 610 Sx Premium Lite + 8% Bentonite,+2%Calcium Chloride + 0.25pps Cello-flake mixed at 12 ppg & 2.27cf/sx yield. Pump time 4:00 hrs, 330 psi in 24 hr at 80°F And 425 psi in 72 hrs at 80° F.
Tail in with 200 Sx Class "G" with 2% Calcium Chloride with 0.25pps Cello-flake mixed 15.6PPG, 1.14cf/sx yield. 2:30 pump time, 4000 psi in 24 hrs at 80°F. Volumes based on Caliper Hole Plus 65% Excess.
Displace with Fresh Water to Float Collar.

*One-inch annulus at 100' with 50 sx Class "G" Neat Cement with 2% Calcium Chloride prior to nippling up BOP.

WOC minimum 6 hours prior to Cutoff and Nipple up BOP'S.

Use conventional guide shoe, float collar, and centralizers placed 20' from shoe, on float joint and each 4 joints up to surface. Thread lock guide shoe, float joint and second joint of surface casing.

5 1/2" Production Casing

Cement to surface (at a minimum into the surface casing) with 20Bbls Mud Clean 1 Spacer mixed at 8.4 PPG,10 Bbl fresh water Pre-Flush.
Lead with 250 sacks Premium Lite mixed at 11.0PPG, 3.18cf/sx with + 0.3% bwoc CD-32(chemical dispersant) + 2 lbs/sx Kol Seal+ 10% Gel,0.75% bwoc Sodium Metasilicate (extender) and 187.2% Fresh Water. Cement slurry designed for 2500' fill up in open hole & 1200' fill up in surface casing with 50% excess over gage hole conditions. (Review volumes after caliper is run in open-hole interval).
Tail-in with 770 Sx Class "G"+ 0.3% bwoc R-3,0.2% bwoc CD-32+ 0.7% bwoc FL-25+ 57.5% Fresh Water. Tail slurry mixed at 15.6 ppg and with a yield of 1.17cf/sx, 4:12 hr pump time, nil free water, Cement volume On tail slurry provides 4000' fillup-slurry with 30% excess over gage hole.

Have cement water evaluated for compatibility with above additives prior to job start.

Run Guide Shoe and Float Collar Centralize the casing across Abo, Wolfcamp and Canyon productive interval with "Turbulating" type centralizers each 40' intervals. Reciprocate casing throughout cementing job. Run "Bow" style centralizers spaced at 8 joint intervals from 4000' – 1200'.

Program:

Implement H2S Contingency Plan below 4000'

Intervals	Weight	Viscosity	Fluid Loss	Type Mud
0 – 1200'	8.4 – 8.8	28-40	NC	Fresh ~~Brine~~ Water
1200' – 7000'	8.4 – 8.9 8.9 – 9.2	28-30	NC	Cut Brine
7000' – 8000'	8.9 – 9.2	32-40	10 cc	Cut Brine

0-1200'
Water w/gel sweeps. Add Salt Gel to build mud properties. Lost circulation is expected while drilling surface hol
Add LCM as needed

1200 – 7000'
Change mud to cut Brine water w/gel sweeps, Raise chlorides to 75,000 ppm before drilling the ABO. Use LCM a
necessary

7000' – 8000'
Maintain pH for corrosion control. Possible H2S in Canyon Zone. Monifor for seepage and treat with LCM a
necessary. Continue gel and paper sweeps for hole cleaning. Keep the hole full at all times due to possib
dangerous gasses.

Surveys: Deviation surveys to be run at 250' intervals from surface to surface casing point with a maximu
deviation of 2^{o} at casing point. From surface casing point to TD, surveys shall be taken every 500' wi
a maximum deviation of 1^{o} between surveys and 5^{o} at TD. Surveys should also be run prior to bit trip
* Record surveys on tour sheets.

Logging Program: DIL/SP/GR CNL-FDC/GR ML

Anticipated Starting Dates and Notification of Operations.

A. Anticipated Starting Dates:
Anticipated Commencement Date: Upon Approval Of Permit
Drilling Days: Approximately 20 Days
Completion Days: Approximately 20 Days

B. Notification of Operations:

Bureau of Land Management
Carlsbad Office
620 E. Greene Street
Carlsbad, NM 88220
Phone: (505) 234-5972
Fax: (505) 885-9264

Supervision:

Drilling - R. R. St. Pierre
Drilling Manager
Office: (405) 478-8770 ext. 1110
Home: (405)
Mobile: (405) 830-9164
Fax: (405) 475-9939

Geological – Dave Matz
Office: (405) 478-8770 ext. 1159
Home: (918) 494-3920
Mobile: (918) 607-1264
Fax (405) 478-2034

Special Instructions:

1. Notify BLM Environmental Scientist at least 48 hours in advance of access road/well pad construction. Install a pit liner (synthetic) with less than 10-7 cm/sec permeability and with a burst strength equal to or exceeding 300 pounds per square inch, or puncture strength of 160 psi or greater and grab tensile of 150 psi or greater. Compact fill material (bedding material) below liner if pit is rocky. Design well pad to prevent runoff into reserve pit. Fence off 3 sides reserve pit prior to commence drilling operations. Close in 4th side at rig release.

   Contact BLM- Carlsbad (50) 234-5972, State of New Mexico 24 hours prior to spud and alert them to BOP and casing test.

2. Measure drill pipe at all casing points, test points, and TD.

3. Nipple-up 8 5/8" SOW X 11"-3000 psi starting head. Test weld to 1200psi Set test plug and pressure test BOP's and choke manifold to 3000 psi high and 250 psi low before drilling out for 30 minutes. Test Hydril to 1500 psi high and 250 psi low for 30 minutes. Test kelly cock, all floor safety valves, HCR, kill check valve, all choke and kill lines and choke manifold to 250 psi low and 3000 psi high. Test surface casing to 2500 psi for 30 min. prior to drill out shoe, (not to exceed 70% of internal yield of casing). All BOP equipment and accumulator will be in accordance with the requirements of Onshore Order No. 2. Install wear bushing in starting head. Note setup of 3M choke manifold and BOP stack as submitted with Federal Permit. It will be necessary to have crossovers readily available to stab full opening floor safety valves in all tool joints being used during drilling operations. A manual locking device (i.e hand wheels) and automatic locking devices shall be installed on the BOP Stack below surface casing depth.

   The choke manifold and BOP extension rods with hand wheels will be located outside the rig sub-structure. The hydraulic BOP closing unit will be located at least twenty five (25) feet from the well head but readily accessible to the driller as well as in the accumulator shed.

   File a Sundry Notice (Form 3160-5) along with a copy of the BOP test report within 5 days following the test.

   Note: Choke manifold will have both a manual and a hydraulic choke.

   All choke lines will be straight lines unless turns use tee blocks or are targeted with running tees, and will be anchored to prevent whip and vibration. The flare line will be installed after the choke manifold, extending 125 feet (minimum) from the center of the drill hole to a separate flare pit.

   The accumulator will have sufficient capacity to open the hydraulically-controlled choke line valve,

close all rams plus the annular preventer, and retain a minimum of 200 psi above the precharge on the closing manifold without the use of the closing unit pumps. The fluid reservoir capacity will be double the usable fluid volume of the accumulator system capacity and the fluid level of the reservoir will be maintained at the manufacturer's recommendations. The BOP system will have two (2) independent power sources to close the preventers. Nitrogen bottles will be one (1) of these independent power sources and will maintain a charge equal to the manufacturer's specifications. The accumulator precharge pressure test will be conducted prior to connecting the closing unit to the BOP stack and at least once every six (6) months thereafter. The accumulator pressure will be corrected if the measured precharge pressure is found to be above or below the maximum or minimum limits specified in Onshore Oil & Gas Order Number 2.

4. A pressure integrity test shall be run to to a 11 ppg equivalent mud weight. After drilling out 5-10' under surface casing shoe. Operator shall notify district office at least 24 hours in advance so they may witness the test. Results will be provided to this office within 24 hours.

5. Set gas monitoring equipment at shale shaker possum belly after drilling out surface casing.

6. Gas buster will be rigged up and operational at the time the BOP's are installed.

7. Operate pipe rams each day and blind rams on bit trips. Report in IADC Tour Book.

8. Fill hole every 5 stands on trips out below surface casing.

9. Have contractor's rig supervisor and crews completely familiar with blow out detection and kick control below the 8-5/8" casing depth. After everyone is trained, pit drills should be run each 24 hours. Slow pump rate and pressure will be taken and recorded daily with depth and current mud weight. Safety meeting will be held daily with each crew. Discussions to include well control. BOP Drill Flow Chart will be on rig floor for crew positions and shut-in procedure.

10. Install rotating head after drill out surface casing. All flare lines to burn pit will be secured with weights and lock-downs.

11. A Upper kelly cock will be used while drilling.

12. Have all crews and other contract personnel observe safety practices on rig site at all times.

13. Perform IADC safety check once BOP's are nippled up and drilling is underway. Review with drilling supervisor and tool pusher ASAP.

14. All drilling mud on location will be labeled in accordance with OSHA instruction CPL 2-2.38 "approval hazard warnings". It will be the foreman's and mud engineer's responsibility to have on location Material Safety Data Sheets for all products on site. MSDS forms will be posted. Have derrick hands and all roughnecks who will be involved in mixing mud read the MSDS sheets and sign off.

15. A complete mud inventory will be done each morning by the mud engineer prior to report time. All deliveries of mud will be inventoried by mud engineer and witnessed by the company drilling foreman. The company drilling foremen will perform his own inventory of mud on location at least once a week.

16. A location sign showing operator, lease name and legal description will be required at the entrance to the drill site at time of spud.

17. Note any special stipulations as attached to the Federal Permit to Drill.

18. Rat and mouse holes will be filled in from the bottom to the top and compacted once rig is off loc.

19. Only an approved (DEQ) septic system will be allowed on location consistent with both local and state regulations.

"Quick" Look Casing Design
EE Federal "24 #3

		*Collapse	*Burst	*Tension
Surface Casing	8 -5/8", 24.00#, J-55, R-3, STC, ERW	1370	2950	244K

Burst Design Limited to Shoe Integrity at 1200' Depth. Est. Frac Gradient at <14.9 PPG

= 0.052 X FG X Depth - Current Mud Weight In Hole. Worst Case = Evacuated.
= 0.052 X 14.9 ppg X 1200 ft - 0.08 psi/ft (Gas) X 1200 ft = 834 psi
Safety Factor = Rating/ Burst= 2950/1667 = 3.5
There are intervals down hole that will not handle high mud
Weights and will likely break down with much over 14.9 PPG.

Collapse = 0.052 X MW X Depth - 0.1 psi/ft X Depth
= 0.052 X 8.8 ppg X 1200- 0.08 psi/ft X 1200 ft = 453 psi
Safety Factor = Rating/ Collapse= 1370/969 = 3.02

Tension = Weight X Depth X (1- (MW/65.5))
= (24 ppf X 1200') X (1- (8.8/65.5)) = 24,769 lbs
Safety Factor = Rating (STC)/Tension=244/25 = 9.76
100K Overpull = 244/125 = 1.95

Production Casing	5 ½",17#, J-55 LT&C	4910	5320	247K

Burst = 0.052 X PP X D – 0.1 psi / ft depth or limiting to maximum anticipated surface pressure of 4500 psi.
Safety Factor = Rating / Burst 5320 / 4500 = 1.18
Maximum design surface pressure upon Completion at surface
= 0.463 psi / ft (8.9 ppg) x 7800' – 0.22 psi / ft x 7800 = 1895

Collapse = 0.052 x MW x D - 0.1 psi / ft x D
0.052 x 8.9 x 8000 - 0.1 psi / ft x 8000 = 3622
Safety Factor = Rating / Collapse = 4910 / 3622 = 1.35

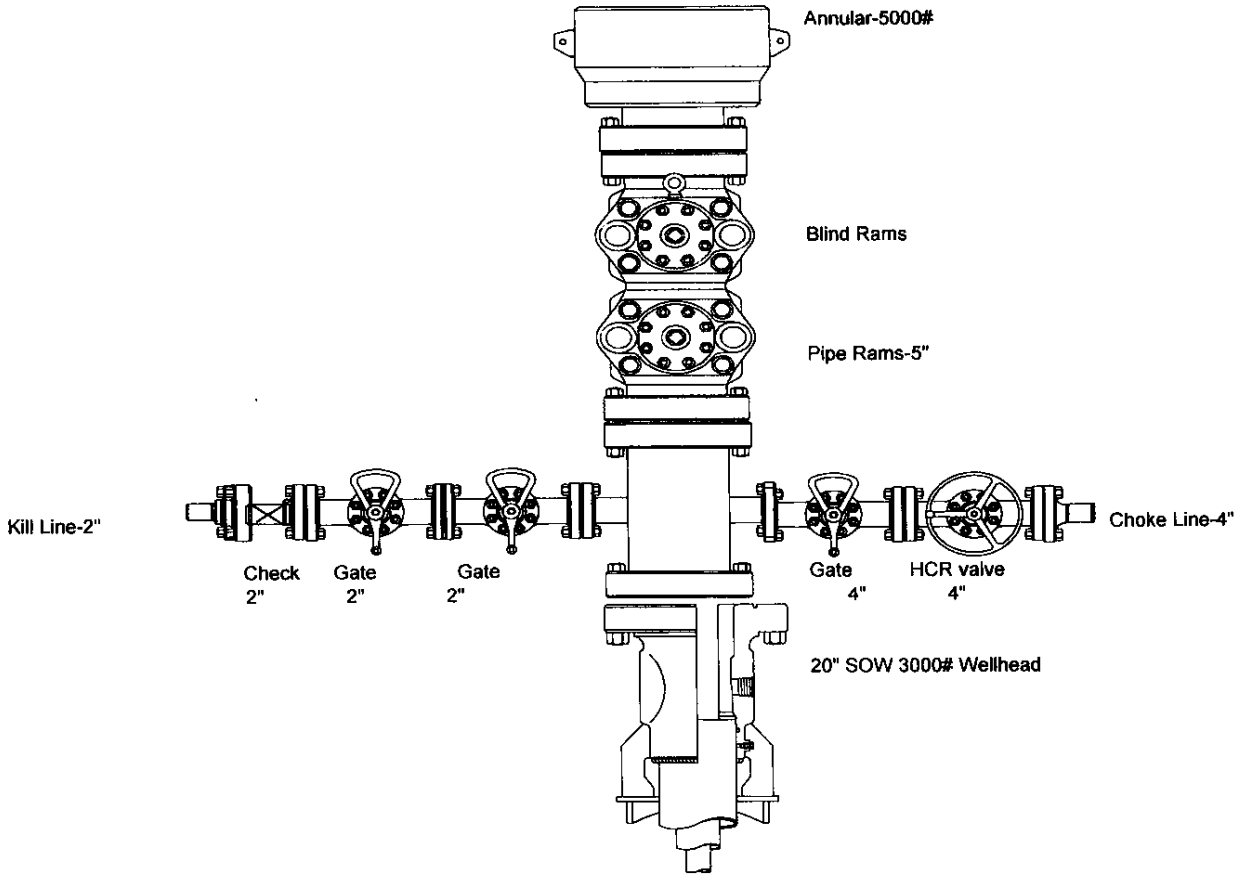
Tension = Wt X D X (1-MW / 65.5)
= 17 X 8000 X (1 – 8.9 / 65.5) = 117,520#
Safety Factor = Radius / Tension = 247 / 118 = 2.09
100K Overpull = 247 / 218 = 1.13

BOP Rating Design: Partially Evaculated Hole with a Pressure Gradient of 0.22 psi/ft=1776 psi (8.5 Pore P.) Will Proceed with a 3000 Psi Working Pressure Double Gate BOPE and all related Choke, Lines Safety Valves, Manifold, HCR, Check Valve. Pore Pressure Based On Area Records,

* Design Values Taken From Lone Star Steel 22nd Edition OCTG Products Manual

E. E. Federal 24 #3
Chaparral Energy, LLC

21 1/4" 3000# BOP Stack



HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

EE FEDERAL "24" WELL No. 3

RADIUS OF EXPOSURE

100 PPM: 423 feet

500 PPM: 194 feet

TRAINING

Every person involved in the wellsite operation will be informed of the characteristics of hydrogen sulfide, its danger, safe procedures to be used when it is encountered, use of detection equipment, use of protective breathing equipment, and first aid procedures for regular rig personnel.

On site training will be provided by Texaco prior to reaching Order 6 compliance depth. The Texaco Drilling Supervisor is responsible for insuring all persons working on location have been provided training.

EXHIBIT I

The wellsite layout contains the following information:

1. Drill rig orientation
2. Prevailing wind direction
3. Location of all briefing areas
4. Location of access road
5. Location of flare line
6. Location of windsocks

EXHIBIT II

Topographic map of location and surrounding area.

EXHIBIT III

Well Control Equipment

PROTECTIVE EQUIPMENT

4 - 30 minute SCBA's: 2 located at each Briefing Station. An additional SCBA will be located at the Tool Pusher's trailer, if used.

5 - 5 minute escape packs will be located in the Dog House.

Means of communication while using protective equipment will be hand signals.

H2S SENSORS

H2S sensors will be located at (1) Shale Shaker (2) Rotating Head and (3) Rig Floor.

A light will be located on the rig floor. It will be set to go off at 10 PPM. It will be visible from anywhere on the location.

A siren will be located on the rig floor. It will be set to go off at 15 PPM.

Texaco Drilling Supervisor will maintain a portable H2S monitor.

MUD PROGRAM

A Fresh Water system will be used. Ph will be maintained at 10 or higher if H2S is encountered. Sufficient quantities of H2S scavenger will be on location for use as required.

Drilling will be through an on site gas separator to separate gas from drilling fluid with gas vented down a flare line equipped with an igniter.

METALLURGY

All wellheads, trees, BOP's, rotating heads, choke manifolds and piping will be constructed/trimmed with materials suitable for H2S service.

All casing and tubing will be no greater than 80000 psi yield strength and no greater than a Rockwell C-22 hardness.

OTHER REQUIREMENTS OF ORDER 6

The flare line (item 4 of exhibit I) will be equipped with a propane ignition.

The flare gun and flares will be located at the primary briefing station.

Communications for the location will be by Rig Telephone.

Wind direction indicators will be on the rig floor and at one briefing station with at least one visible from all points on the location.

Caution/danger signs and flags will be maintained at all entrances into the location.

A remote controlled choke will be installed, tested, and operational prior to drilling below the surface casing.

WELL TESTING

No DST's are planned.

Chaparral Energy, LLC

SURFACE USE AND OPERATIONS PLAN
E.E. FEDERAL "24" #3
C/SW/NE, SEC 24-19S-24E
EDDY COUNTY, NEW MEXICO

Located: 15.5 miles Southwesterly of Artesia, New Mexico

Federal Lease Number: NM-58023

Located: 15.5 miles Southwesterly of Artesia, New Mexico

Acres in Lease: 160

Record Lessee: Chaparral Energy, LLC

Surface Ownership: BLM

Grazing Permittee: None

Pool: Cisco – Canyon (Dagger Draw, Upper North Penn)

Pool Rules: No well located closed than 330' to any quarter quarter Section. Must be 660' from lease line

EXHIBITS

A. Access Road & Facilities Map
B. Drilling Rig Layout Diagram
C. Well Location and Acreage Dedication Plat

Location and Access:

From jct. of Hwy 285 and County Road 21, Go west 8.0 miles on County Road 21, Then south 0.4 mile on County road, Then west 400' on Lease road to the existing #1, which is +/- 1320' east of this location.

1) EXISTING ROADS

(a) Refer to the topographic map for the location of the well and access route, and for the location of existing roads within a two mile radius of well.

(b) Location is 15 ½ miles in a Southwest direction from Artesia, NM

(c) County road provides access to this lease, therefore no federal right-of-way is required.

2) PLANNED RESOURCE ROAD:

(a) New road to be constructed crosses lands owned by BLM

(a) Length and Width: Approximately 1320' of new road will be built from the existing EE Federal 24 #1

Chaparral Energy, LLC
EE Federal 24 #3
Sec. 24, T-19S, R 24E
Eddy County, NM

RECEIVED
2005 JUN 10 AM 8:09

LESSEE'S OR OPERATOR'S REPRESENTATIVE AND CERTIFICATION

All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, *Onshore Oil & Gas Orders*, the approved plan of operations, and any applicable *Notice to Lessees*.

Chaparral Energy, LLC will be fully responsible for the actions of their subcontractors. A copy of these conditions will be furnished to the field representative(s) to ensure compliance. The dirt contractor will be provided with a copy of the Surface Use Plan from the approved Application for Permit to Drill.

This drilling permit will be valid for a period of one (1) year from the date of approval. After permit termination, a new application will be filed for approval for any future operations.

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 currently 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 Chaparral Energy, LLC, their 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.

Rene St. Pierre
Drilling Manager
Chaparral Energy, LLC

June 7, 2005
Date

CALLAWAY SAFETYEQUIPMENT CO, INC.
11020 W. Hwy. 80East
Odessa,Texas79765
(432)561-5049

(505)392-2973

Legals:
EE Federal 24 - 3
1880' FNL & 1650' FEL
Section 24, Township 19S, Range 24E
Eddy County, New Mexico

"CONTINGENCY PLAN"

Table Of Contents

I. H_2S CONTINGENCY PLAN SECTION

Scope

This contingency plan establishes guidelines for all company employees and contract employees whose work activities may involve exposure to Hydrogen Sulfide gas (H_2S).

Objective

1. Prevent any and all accidents, and prevent the uncontrolled release of H_2S into the atmosphere.
2. Provide proper evacuation procedures to cope with emergencies.
3. Provide immediate and adequate medical attention should an injury occur.

Discussion of Plan

Suspected Problem Zones: San Andres & Cisco Reef

Implementation: This plan, with all details, is to be fully implemented before drilling to the San Andres & Cisco Reef

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 prior to drilling into the San Andres & Cisco Reef Formations.

Emergency Call Lists: Included are the telephone numbers of all persons that would need to be contacted should an emergency exists.

Briefing: This section deals with the briefing of all people involved in the drilling operation.

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

CheckLists: Status Check Lists and Procedural Check Lists have been included to insure adherence to the plan.

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

II. EMERGENCY PROCEDURES SECTION

Emergency Procedures

I. In the event of any evidence of H_2S 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_2S 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 Texas Railroad Commission of the situation.
   - B. Remove all personnel to the Safe Briefing Area.
   - C. Notify public safety personnel for help with maintaining roadblocks and implementing evacuation.
   - D. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety procedures.

III. Responsibility
   - A. The Company Approved Supervisor shall be responsible for the total implementation of the plan.
   - B. The Company Approved Supervisor shall be in complete command during any emergency.
   - C. The Company Approved 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, don escape unit and report to upwind Safe Briefing Area.
      2. Check status of other personnel (buddy system).
      3. Secure breathing apparatus.
      4. Await orders from Supervisor.
   B. Drilling Foreman
      1. Report to the upwind Safe Briefing Area.
      2. Don Breathing Apparatus and return to the point of release with the Tool Pusher or Driller (buddy system).
      3. Determine the concentration of H2S.
      4. Assess the situation and take appropriate control measures.
   C. Tool Pusher
      1. Report to the upwind Safe Briefing Area.
      2. Don Breathing Apparatus and return to the point of release with the Drilling Foreman or Driller (buddy system).
      3. Determine the concentration of H2S.
      4. Assess the situation and take appropriate control measures.
   D. Driller
      1. Don escape unit.
      2. Check monitor for point of release.
      3. Report to the Safe Briefing Area.
      4. Check the status of other personnel (in a rescue attempt, always use the buddy system).
      5. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.
      6. Assume the responsibility of the Drilling Foreman and Tool Pusher until they arrive, in the event of their absence.
   E. Derrick Man
      1. Remain in the Safe Briefing Area until otherwise instructed by Supervisor.
   F. Mud Engineer
      1. Report to Safe Briefing Area.
      2. When instructed, begin check of mud for pH level and H2S level.
   G. Safety Personnel
      1. Don appropriate breathing apparatus.
      2. Check status of all personnel
      3. Await instructions from Drilling Foreman or Tool Pusher.

II. Taking A Kick
   A. All personnel report to 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 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 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 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. Record all data reported by the crew.
   g. 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 trams 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_2S 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 preventors 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 preventors 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 rig floor.
    b. Have a meeting with all crews.
    c. Compile and summarize all information.
    d. Calculate proper kill weight.
    e. 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 plans.

III. IGNITION PROCEDURES SECTION

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 attach a safety rope. One man must monitor the atmosphere for explosive gases with the Explosimeter, 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.

IV. TRAINING PROGRAM SECTION

Training Requirements

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

1. Hazards and characteristics of H_2S.
2. Physical effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4. H_2S detection.
5. Emergency rescue.
6. Resuscitators.
7. First aid and artificial resuscitation.
8. The effects of H_2S on metals.
9. Location safety.

Service company personnel and visiting personnel must be notified if the zone contains H2S, and each service company must provide adequate training and equipment for their employees before they arrive at the well site.

V. EMERGENCY EQUIPMENT SECTION

Emergency Equipment Requirements

I. Signs
   A. Located at the location entrance with the following information:
   (Lease)
   CAUTION-POTENTIAL POISON GAS
   HYDROGEN SULFIDE
   NO ADMITTANCE WITHOUT AUTHORIZATION

II. * Fresh air breathing equipment
   A. Air line units for all rig personnel on location.
   B. Cascade system with hose lines to rig floor and one to the derrick man and other operation areas. Spare cascade (trailer) on location

III. Wind socks or wind streamers
   A. Two 10" windsocks located at strategic locations at a height visible from the rig floor.
   B. Wind streamers (if preferred) to be placed at various locations on the well site to ensure wind consciousness at all times. (Corners of location).

IV. Hydrogen Sulfide detector and alarms.
   A. 1-four channel H_2S monitor with alarms.
   B. 4 sensors located at floor, bell nipple, shale shaker, and pits
   * C. Hand operated detectors with tubes.
   * D. H_2S monitor tester.

V. Condition sign and flags
   A. One each of green, yellow, and red condition flags to be displayed to denote conditions:
   GREEN--Normal Conditions
   YELLOW--Potential Danger
   RED--Danger, H2S Present
   B. The condition flag shall be posted at the location entrance.

VI. * Auxiliary rescue equipment
   A. Stretcher
   B. Two 100' lengths of 5/8" nylon rope.

VII. * Mud inspection devices
   A. Garrett Gas Train or Hach Tester for inspection of Hydrogen Sulfide concentration in the mud system.

VIII. Fire extinguishers
   A. Adequate fire extinguishers shall be located at strategic locations.

IX. Blowout prevention equipment
   A. The well shall have hydraulic BOP equipment for the anticipated BHP.
   B. Equipment must be tested upon installation.

X. * Combustible gas detectors
   A. There shall be one combustible gas detector on location at all times.

XI. BOP testing
   A. BOP, Choke Line and Kill Line will be tested as specified by operator.

XII. Audio system
   A. Radio communication shall be available at the rig.
   B. Radio communication shall be available at the rig floor or trailer.
   C. Radio communication shall be available on vehicles.

XIII. Special control equipment
   A. Hydraulic BOP equipment with remote control on ground.
   B. Rotating head at surface casing point.

XIV. Evacuation Plan
   A. Evacuation routes should be established prior to spudding each well.
   B. Should be discussed with all rig personnel.

XV. Designated Areas
   A. Parking and visitor area.
      1. All vehicles are to be parked at a pre-determined safe distance from the wellhead.
      2. Designated smoking area.
   B. Safe Briefing Area
      1. 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.
      2. Personal protective equipment should be stored in both protection centers or if a moveable trailer is used, it should be kept upwind of existing winds. When wind is from the prevailing direction, both protection centers should be accessible.

- *Additional equipment will be available at Callaway Safety Midland, Texas.
- Additional personnel hydrogen sulfide monitors on location for all hands.
- Automatic Flare ignitor installed on rig

VI. CHECK LIST SECTION

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. 30 minute pressure demand air packs 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 and hose line hook up. _____
8. Cascade system for refilling air bottles. _____
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 Preventor tested (before drilling out surface casing.) _____
12. Mud engineer on location with equipment to test mud for Hydrogen Sulfide. _____
13. Safe Briefing Areas set-up. _____
14. Condition sign and flags on location and ready. _____
15. Hydrogen Sulfide detection system hooked-up. _____
16. Hydrogen Sulfide alarm system hooked-up. _____
17. Stretcher on location at Safe Briefing Area. _____
18. 1-100' length of 5/8" nylon rope on location. _____
19. 1-20 # or 30# ABC fire extinguisher in safety

trailer in addition to those on rig. _____

20. Combustible gas detector on location and tested. _____

21. All rig crews and supervisors trained (as required). _____

22. Access restricted for unauthorized personnel. _____

23. Drills on H_2S and well control procedures. _____

24. All outside service contractors advised of potential Hydrogen Sulfide on the well. _____

25. NO SMOKING sign posted. _____

26. Hand operated H_2S detector with tubes on location. _____

27. 25mm flare gun with 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 it has not been tampered with.
3. Check pressure on supply air bottles to see that 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 the demand regulator is working. This requires that the bottle be opened and the mask assembly be put on tight enough so that when you inhale, you get air.
2. Blowout preventor skills.
3. Check supply pressure on BOP accumulator stand-by source.
4. Check all work/escape units for operation: demand regulator, escape bottle air volumes, supply bottle of air volume.
5. Check breathing equipment mask assembly to see that straps are loosened and turned back, ready to put on.
6. Check pressure on breathing equipment air bottles to make sure they are charged to full volume.
7. Check breathing equipment air bottles to make sure all demand regulators are working. This requires that the bottles be opened and the mask assembly be put on tight enough so that when you inhale, you get air
8. Confirm pressure on all supply air bottles.
9. Perform breathing equipment drills with on-site personnel.
10. Check the following supplies for availability:
    a. Stretcher
    b. Safety belts and ropes
    c. Emergency telephone lists
    d. Spare air bottles
    e. Spare oxygen bottles (if resuscitator required)
    f. Hand operated H2S detectors and tubes
11. Test the Explosimeter to verify batteries are good.

VII. BRIEFING PROCEDURES SECTION

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 Pushers
Rig Driller
Mud Engineer
All Safety Personnel
Service Companies
Purpose: Review and discuss the well program, step-by-step, to insure complete understanding of assignments and responsibilities.

VIII. EVACUATION PLAN SECTION

General Plan

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

1. When the company approved supervisor (Drilling Foreman, Tool Pusher, Driller) determine 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 Hydrogen Sulfide detection equipment and self-contained breathing 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 Reaction Plan

Emergency Call List

Public Safety

911 is available in this area.

Agency/Person	Day Telephone Number	Evening Telephone Number
Eddy County Sheriff's Department	505-746-9888 (O)	Same
Artesia Fire Department Artesia, NM	505-746-5050 (O)	Same
Texas Highway Patrol Plains, Texas	806-456-6617 (O)	Same
Artesia Police Dept. Artesia, New Mexico	505-746-5000 (O)	Same
NM Environmental Department Santa Fe, New Mexico	505-827-2855 (O)	N/A
US OSHA, Dallas, TX	214-320-2400	N/A
NM Environmental Dept. Air Quality, Santa Fe, NM	505-827-1494 (O)	N/A
US Environmental Protection Agency, Dallas, Texas	214-655-6444	N/A
National Response Center	1-800-424-8802	Same
Eddy County, NM LEPC	505-887-9511 (O)	Same

Company Personnel	**Day Telephone Number**	**Evening Telephone Number**
Chaparral Energy, LLC. 701 Cedar Lake Blvd. Oklahoma City, OK 73114	405-478-8770 (O) 405-478-1947 (F) 1-866-478-8770 (O)	1-866-478-8770 (24-Hour)
Chaparral Energy, LLC. 11908 W. Highway 80 East Odessa, TX 79765	432-561-9462 (O) 432-561-9467 (F)	1-866-478-8770 (24-Hour)
James Miller Company Operations and Engineering Manager Oklahoma City, OK 73114	405-426-4480 (O) 405-479-5345 (F) 1-866-478-8770 (O)	405-348-0509 (H) 405-830-3190 (M)
Ron Brown Production Engineer Oklahoma City, OK 73114	405-426-4330 (O) 405-479-5345 (F) 1-866-478-8770	405-324-6812 (H) 405-830-4611 (M)
Ray Vestal Production Superintendent Oklahoma City, OK	405-426-4479 (O) 405-479-5345 (F) 1-866-478-8770 (O)	405-262-2897 (H) 405-620-5040 (M)

J.R. Willingham Production Foreman Odessa, TX	432-561-9462 (O) 432-561-9467 (F)	(H) 405-830-1217 (M)
Pumper	(M)	
Herman Steen Asst. Production Foreman	432-561-9462 (O) 432-561-9467 (F)	405-830-8381 (M)
Bob Lang E. H. & S. Manager Oklahoma City, OK 73114	405-426-4330 (O) 405-478-4162 (F)	405-330-1511 (H) 405-850-2732 (M)

Supplemental Equipment & Services

Service/Point of Contact	Day Telephone Number	Evening Telephone Number
H_2S Emergency Response Service:	**(O)**	Same
Champion Technologies Inc.	(O)	Same
A-1 Shiner Fire and Safety, Inc.	(O)	Same
Frac Tanks and Water: Key Well Services	(O)	Same
Heavy Equipment:	(O)	Same
Pump Trucks:	(O)	Same
Pump Trucks:	(O)	Same
H&R Machine Inc.	(O)	Same

Medical Support

911 is available in this area.

Agency/Person	Day Telephone Number	Evening Telephone Number
St. Joseph Regional Health Center		Same
B-C's Family Medical Clinic		Same
Ambulance Service	911	911
Eddy County Ambulance Service, , NM		Same

Safety Contractor

Callaway Safety Equipment **Hobbs (505) 392-2973**
Odessa (432) 561-5049

Cliff Strasner Cell (432) 661-4713

Affected Public Notification List
(within a 65' radius of exposure @100ppm)

The geologic zones that will be encountered during drilling are known to contain hazardous quantities of H_2S. 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 Oil Company will identify all home bound or highly susceptible individuals and make special evacuation preparations, interfacing with the local fire and emergency medical service as necessary.

IX. MAPS AND PLATS SECTION

X. GENERAL INOFRMATION SECTION

SURFACE USE AND OPERATIONS PLAN
E.E. FEDERAL "24" #3
C/SW/NE, SEC 24-19S-24E
EDDY COUNTY, NEW MEXICO

Located: 15.5 miles Southwesterly of Artesia, New Mexico

Federal Lease Number: NM-58023

Located: 15.5 miles Southwesterly of Artesia, New Mexico

Acres in Lease: 160

Record Lessee: Chaparral Energy, LLC

Surface Ownership: BLM

Grazing Permittee: None

Pool: Cisco – Canyon (Dagger Draw, Upper North Penn)

Pool Rules: No well located closed than 330' to any quarter quarter Section. Must be 660' from lease line

EXHIBITS

A. Access Road & Facilities Map
B. Drilling Rig Layout Diagram
C. Well Location and Acreage Dedication Plat

Location and Access:

From jct. of Hwy 285 and County Road 21, Go west 8.0 miles on County Road 21, Then south 0.4 mile on County road, Then west 400' on Lease road to the existing #1, which is +/- 1320' east of this location

1) **EXISTING ROADS**

(a) Refer to the topographic map for the location of the well and access route, and for the location of existing roads within a two mile radius of well.

(b) Location is 15 ½ miles in a Southwest direction from Artesia, NM

(c) County road provides access to this lease, therefore no federal right-of-way is required.

2) **PLANNED RESOURCE ROAD:**

(a) New road to be constructed crosses lands owned by BLM

(a) Length and Width: Approximately 1320' of new road will be built from the existing EE Federal 24 #1

Contingency Plan

for

Operating

the

E.E. Federal "24" #3
C/SW/NE
Sec. 24-19S-24E
Eddy County, New Mexico

in a

Hydrogen Sulfide (H_2S)

Environment

H_2S Contingency Plan

Forward

The importance of your personal safety and well being is of great importance to everyone associated with Chaparral Energy, LLC. This includes on-the-job as well as off-the-job safety. The plans, guidelines and other information contained within this document have been designed and written to help you perform your job on this lease is a safe manner. It has been put together as a result of years of industry experience, research into safety concerns, employee and insurance company input, and government regulation. Observation of this plan is essential to your well being and that of your fellow employee.

It is the intent of this plan to comply with the rules and regulations of all government safety agencies. Rules and regulations will change over time as employees and employers discover better and safer ways of operating. As better ways are found to help you work in a safer manner this plan will change accordingly. If you feel you have a better or safer way of doing things, or if you discover an unsafe operation, you are strongly encouraged to contact the undersigned, or any member of management, to discuss your concerns, safety related problems or other such item.

Failure to observe this plan and all other safety rules and regulations could result in property damage, serious injury and even death. Therefore, unsafe work practices may result in disciplinary action up to and including termination.

_____

Robert C. Lang IV, REM, CEA — Date
Environmental, Health & Safety Manager

I have reviewed the enclosed plan for this lease, approve of its content and concur it is to be implemented for this lease.

_____

James Miller, Southern District Manager — Date

Facility Name, Number and Legal Description

Facility Name and Number: E.E. Federal 24-3

Legal Description: C/SW/NE
Sec. 24-19S-24E
Eddy County, New Mexico.

Directions to the location

From the junction of Hwy 285 and County Road 21 south of Artesia, NM, go west 8.0 miles on County Road 21; thence south 0.4 mile on county road, the west 400' on lease road to the existing #1, which is +/- 1320' east of this location.

Supplemental Equipment & Services

Service/Point of Contact	Day Telephone Number	Evening Telephone Number
H_2S Emergency Response Service:	(O)	Same
Champion Technologies Inc.	(O)	Same
A-1 Shiner Fire and Safety, Inc.	(O)	Same
Frac Tanks and Water: Key Well Services	(O)	Same
Heavy Equipment:	(O)	Same
Pump Trucks:	(O)	Same
Pump Trucks:	(O)	Same
H&R Machine Inc.	(O)	Same

Medical Support

911 is available in this area.

Agency/Person	Day Telephone Number	Evening Telephone Number
St. Joseph Regional Health Center		Same
B-C's Family Medical Clinic		Same
Ambulance Service	911	911
Eddy County Ambulance Service, , NM		Same

H_2S Contingency Plan

Index

Safety Statement

It is the policy of Chaparral Energy, LLC. to do everything possible to ensure the safety of its employees, contractor's employees and any visitor to a company location, facility and job site, as well as to protect nearby residents and the environment to the fullest extent possible. This Plan is to outline the policy and procedures to be followed in the event Hydrogen Sulfide (H_2S) gas reaches the surface while operating the lease or working over the wellbore.

Hydrogen Sulfide (H_2S) gas may be encountered at levels that require the use of Personal Protective Equipment (PPE) while one is working on or around the lease. Being in an area where H_2S can be found requires one to be knowledgeable in the precautions that should be taken to provide oneself and one's co-workers with the maximum amount of safety possible. This Plan shall set out precautionary measures, required training, safety equipment, emergency procedures to be followed, along with the responsibilities and duties of all personnel associated with an encounter, or potential encounter, of H_2S.

TO PROTECT THE SAFETY OF ALL PERSONNEL ON LOCATION, ALL PERSONNEL ON THE JOB SITE SHALL RIGIDLY FOLLOW THIS PLAN.

Any company employee, contractor employee, public service officer or visitor to this location who discovers a safety violation, item of safety equipment in need of repair or replacement, or other such item that pertains to the protection of employees, visitors to this location and to the surrounding environment, should contact the company field office or the company Safety Officer with this information in order that corrective action may be taken.

TO PROTECT THE SAFETY OF ALL PERSONNEL WITHIN THE AREA OF EXPOSURE, THE FOLLOWING STEPS SHALL BE TAKEN.

A plat detailing the area of exposure shall be included with this contingency plan. On this map, the locations shall be marked where private dwellings or residential areas and public facilities, such as schools, business locations, public roads, or other similar areas where the public might reasonably be expected. Should competent personnel issue an evacuation order, the plan shall include the names, address and telephone numbers of residents within the area of exposure along with a notation indicating those residents in need of assistance. Assistance shall include going to individual homes should the residents not have access to a telephone or are incapable of hearing a telephone, providing transportation out of the area, helping those who are bedridden or confined to a wheelchair, etc. Also included shall be a list of names, addresses and telephone numbers of the responsible parties for each of the possibly occupied public areas, such as schools, churches, businesses, or other public areas or facilities within the area of exposure, as well as an indication of those needing assistance in evacuating the area of exposure.

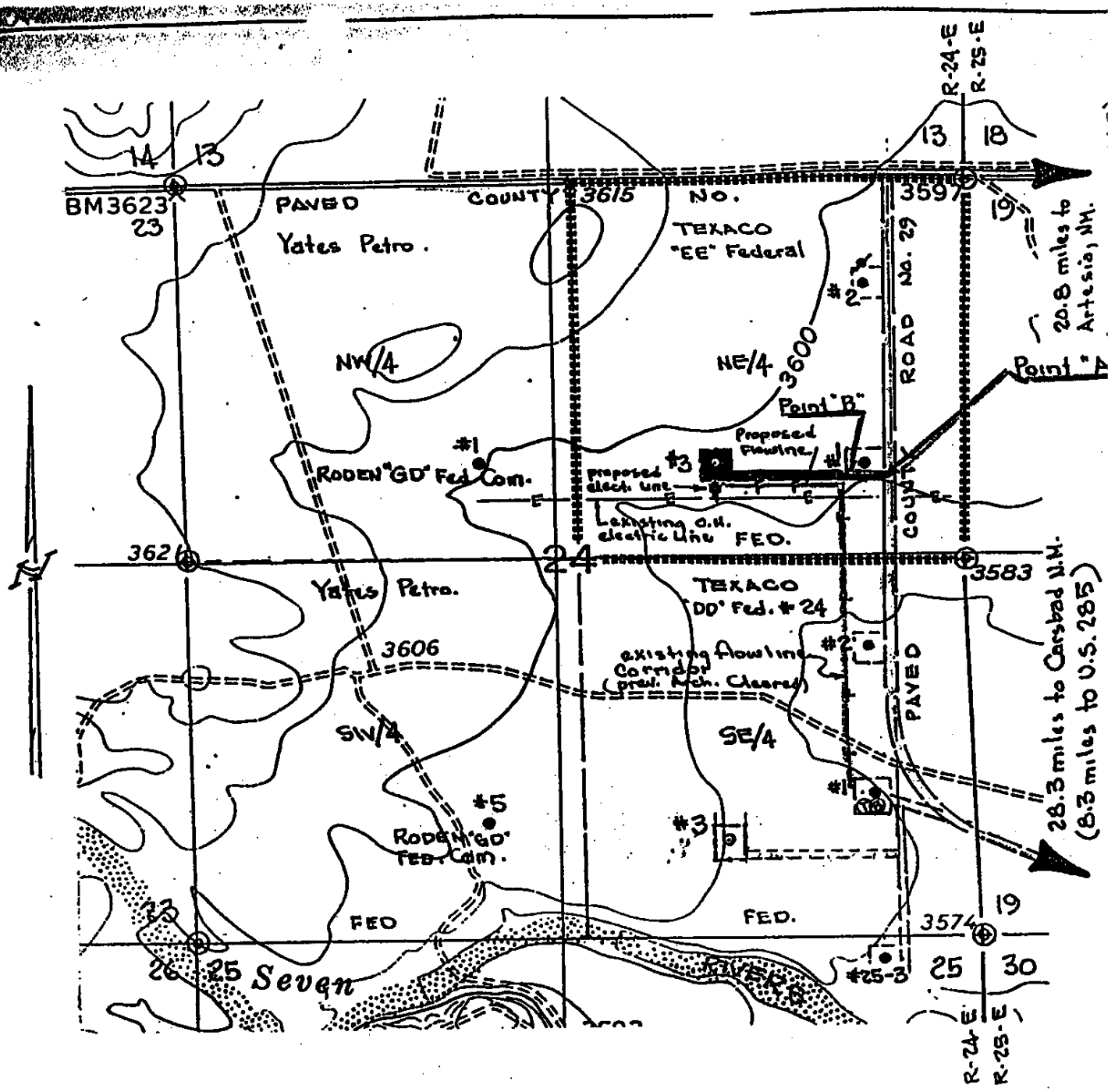
Should private or public facilities fall within the area of exposure all parties within this area shall be given an advanced briefing covering the following items:

1. The hazards and characteristics of hydrogen sulfide gas
2. The necessity of an emergency action plan
3. The possible sources of hydrogen sulfide gas within the area of exposure
4. Instructions on how to report a release of hydrogen sulfide, to include a Company Emergency Call List
5. How Chaparral Energy, LLC. will notify affected personnel within the area of exposure
6. The steps to be taken in case of an emergency
7. The locations of escape routes
8. The location of safety and life support equipment
9. The location of hydrogen sulfide containing facilities

10. The location of alternate means of communications
11. Any special instructions that may be required due to terrain, adverse weather or other such condition that may alter emergency evacuation plans.

State Highway Map

County Map with Well Spot



LEGEND OF SYMBOLS

- = Access Road (Yellow)
- = Resource Road on Subject Lease (Pink)
- = Proposed Resource Road on Lease (Red)
- = Proposed O.H. Electric Line (Orange)
- = Proposed Flowline (Green)
- Q = Staked Location
- ● = Producing Well
- ○ = Fd. 1" Iron Pipe w/GLO Brass Cap
- ◎ = Found 2 or 3" Iron Pipe w/GLO Brass cap
- = Lease Boundary Line

EXHIBIT "A"
ACCESS ROAD AND FACILITIES MAP

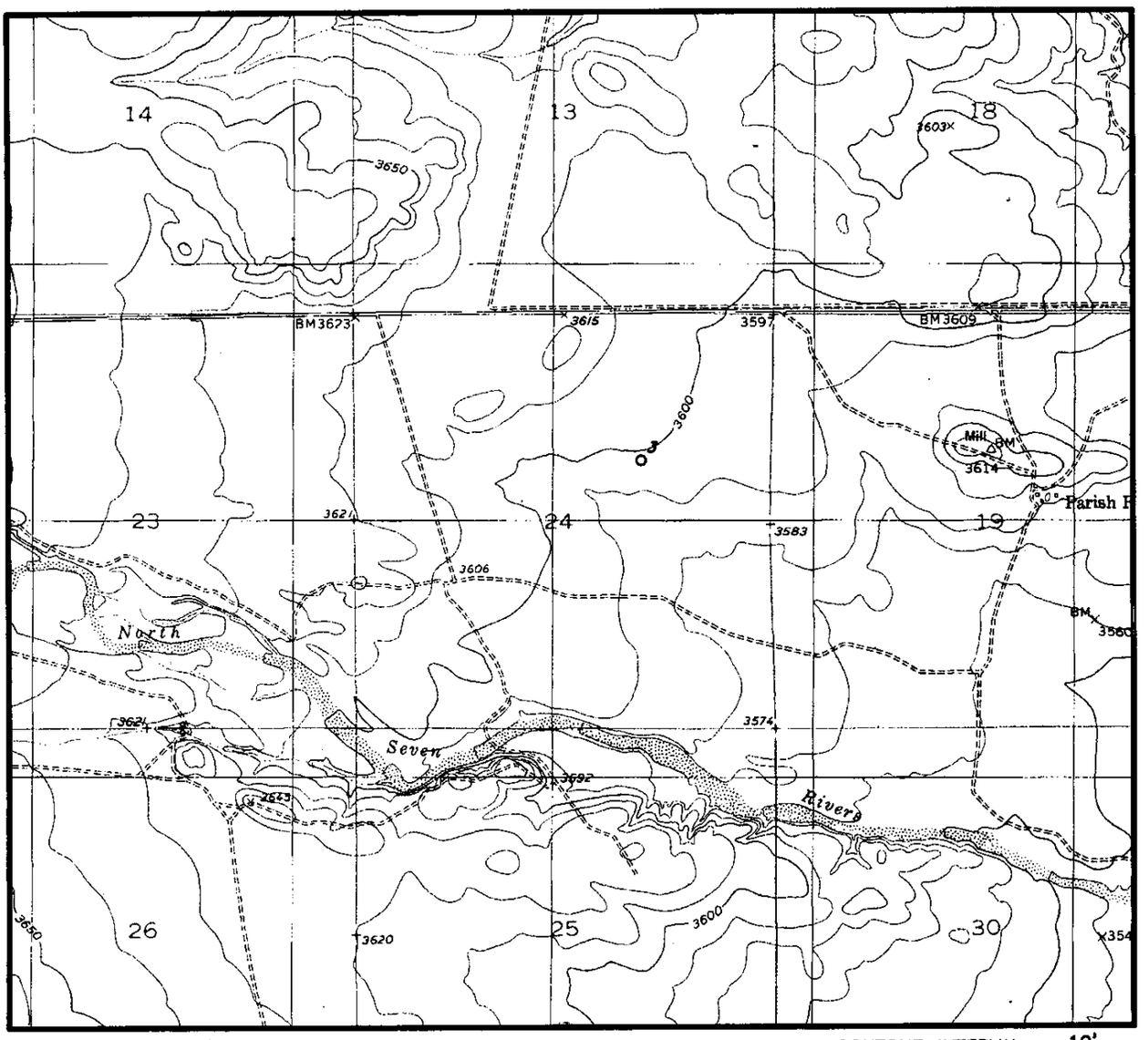
TEXACO EXPLORATION AND PRODUCTION, Inc.

EE Federal 24 #3
1880 FNL & 1650 FEL, Section 24, T-19-S, R-24-E, NMPM, Eddy County, New Mexico

Drawn by: J. S. Piper	Scale: 1" = 1000 Fee
Date: November 5, 1992	Checked by: D. Balle
Supervisor: R.D. Mariott	Sheet 6 of 8

Topographic Map with Well Spot

LOCATION & ELEVATION VERIFICATION MAP



SCALE : 1" = 2000'

CONTOUR INTERVAL 10'

SECTION 24 TWP 19-S RGE 24-E

SURVEY NEW MEXICO PRINCIPAL MERIDIAN

COUNTY EDDY STATE NM

DESCRIPTION 1880' FNL & 1650' FEL

ELEVATION 3598'

OPERATOR CHAPARRAL ENERGY, INC.

LEASE E E FEDERAL "24" #3

U.S.G.S. TOPOGRAPHIC MAP

PARISH RANCH, NEW MEXICO

SCALED LAT. LAT.: N 32.6485264

LONG. LONG.: W 104.5378706

-N-

TOPOGRAPHIC LAND SURVEYOR

Surveying & Mapping for the Oil & Gas Industry

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Facility Layout Description

1. The entrance to the location shall be designed so that it can be barricaded if H_2S is encountered under emergency conditions. An auxiliary exit or entrance shall be available in case of a wind shift or a catastrophe. This entrance shall also be designed so that it can be barricaded in emergency situations. A shift in the wind direction would not preclude escape, but being able to exit without doing so in the H_2S plume decreases the chance of accidental exposure. Appropriate warning signs, flags and/or lights and alarms shall be placed at all location entrances.

2. Once H_2S safety procedures have been established on location, no one working on the job site shall have beards or facial hair, which could interfere with the face seal of a mask. Failure to keep hair off the face and head that would interfere with the proper use of PPE shall be considered grounds for requiring one to leave location.

3. In the event of an uncontrolled release of H_2S, a minimum of two briefing or assembly areas shall be established on location, neither being more than 250 feet from the wellhead. Their position shall be established so that at least one will always be upwind from the wellhead. Upon recognition of an emergency situation, all personnel shall assemble at the designated briefing/assembly area for a head count, instructions and determination if medical attention is needed.

4. At least one windsock shall be installed so as to be easily visible from the main location entrance, the tank battery and the service rig. If this requires two windsocks, one shall be visible from the rig floor and one shall be visible from the main entryway gate. All personnel on location should develop wind direction consciousness.

5. Electrical switch boxes, breaker panels, service disconnect points and other means to cut off electrical power (if any) to the wellhead and/or the tank battery shall be provided as far from the wellbore and tank battery as possible so that they may be used under emergency conditions. A breaker box or switch panel may be installed closer to the wellhead and/or tank battery for everyday use and safety purposes. Attempts shall be made to install this box or panel in a position that is normally upwind from the wellhead, using the prevailing wind as a guide.

6. Smoking shall not be allowed anywhere on location.

7. Parking areas shall be designated in an area that is normally up wind of the wellbore. Alternate areas will be marked should the prevailing winds alter direction.

8. Should the well need to be blown-down, the wellhead will be equipped to vent gas to the saltwater tank or other such vessel in such a manner that the person blowing-down the well is not put in harm's way. The catch tank will have at least two vent lines coming from the tank, passing through separate vent line back pressure valves and on to a vent line release point that is at least 100 feet from both the catch tank and the wellhead. This vent line release point shall be in a position that is normally downwind of the facility.

Wellsite Sketch

Blowout Prevention Equipment

1. During workover operations a blowout prevention stack sufficient in strength to contain 1.25 times the expected maximum bottom hole pressure shall be installed and tested to the maximum expected surface pressure and at one-half that pressure to ensure all seals, flanges, gaskets and connections are secure and work properly. The last measured Wellhead Shut-in Pressure for this well was XXX psia. This is below the normal working pressure of most BOPs. Therefore, before workover operations begin, determine the maximum expected working/pump pressure and size the BOP accordingly. This BOP shall be hydraulically operated from a remote-closing unit.

2. A kill line of ample strength and length shall be laid to a safe point to allow pumping into the well in an emergency situation. A control valve shall be set away from the wellhead and on this line so that a person can open and close the kill line without going to the wellhead.

3. There shall be a closing unit on the service rig floor, or as close to the wellhead as safely possible, and another unit located a minimum of 150 feet from the wellbore. The second unit shall be positioned for maximum utilization based on the prevailing wind direction. Both units shall be tested before pulling rods or tubing and whenever the BOP's rams are changed out or re-tested. All BOP testing shall be in accordance with standard industry practice.

4. All BOP sections, valves, flanges, etc. shall have H_2S trim in accordance with industry practice.

5. The blowout prevention equipment shall be capable of diverting all gas and fluids to the blow down containment vessel(s) or to the production facility vessels for gas/oil/water separation, containment and venting. Should expected pressures and/or volumes exceed the ratings of the production facility vessels, a choke and kill manifold shall be installed of sufficient size, wall strength and durability so as to allow the diversion of fluids and gas from the choke and kill manifold to a pit flare. All piping, valves, chokes, and flare lines shall be securely anchored and protected against their moving should they be used under pressure situations.

Blowout Preventer and Valve Configuration Diagram

(To be provided by well servicing company prior to rigging up on location.)

Detection of H_2S

The odor of "rotten eggs" is not a reliable or accurate measure of the amount of H_2S present. It cannot be used as a warning device. As one inhales H_2S one's sense of smell is destroyed, especially at higher concentrations, leading one to believe the H_2S has gone away. This failure to properly detect H_2S can lead to you, or others, inhaling a lethal concentration. The only reliable, positive and accurate means to determine the concentration of H_2S on location is by testing with an approved and properly calibrated H_2S detector. **TO RELY ON ANYTHING ELSE CAN KILL YOU!**

Human response to H_2S at various concentrations is summarized below. **DO NOT DEPEND ON YOUR SENSE OF SMELL!** Use this chart below to help you understand what is on location and react accordingly.

PPM	Olfactory Response (Smell)
0.02	No odor detectable by smell.
0.13	Minimal odor perceived.
0.77	Faint odor easily perceived.
4.60	Easily detectable odor.
10.00	Obvious unpleasant odor with eye irritation. Respiratory protection threshold.
27.00	Strong, unpleasant odor, but not intolerable. This level and higher requires respiratory protection! Eyes, nose and throat may be irritated.
100.00	Kills smell in 15 minutes or less! May sting eyes, nose and throat.
200.00	Kills smell quickly! Stings eyes, nose and throat.
300.00	Sense of smell killed! May cause death if effected person is not removed from the area. **IDLH Level!**
Above 300.00	All sense of smell is gone.
	Last recorded concentration of H_2S for this well.

Special Equipment for Workovers and Well Servicing

NOTE: This lease does not have an H_2S sensor system in place. The only warning system is a windsock that is located at the tank battery on the walkway furthest from the wellhead.

1. An electronic H_2S monitor shall be carried by at least one member of the service rig crew, the company pumper or assistant pumper, or by the company representative on location. The monitor shall have a combination visual and audible alarm system that can be seen and/or heard while making rounds or throughout the location when the well is being worked upon. Once a concentration of 10-ppm H_2S is reached or exceeded respiratory protection equipment MUST be worn!

2. The H_2S monitoring system shall be calibrated to actuate a low alarm at a concentration of 10-ppm H_2S in the atmosphere and with the high alarm at a concentration of 15-ppm H_2S in the atmosphere.

3. Should venting gas be flared, an SO_2 monitor shall be carried by at least one member of the service rig crew, the company pumper or assistant pumper, or by the company representative on location. Should SO_2 levels exceed 2-ppm respiratory protection equipment MUST be worn!

4. Mechanical blowers shall be used over the rig floor when H_2S is detected at 5 ppm or higher.

5. The following equipment shall be utilized while working over the well:

    a. Remote control choke control panel for a hydraulically operated BOP.
    b. Remote kill line with a remote operating valve.

c. A Double E or similar device shall be used when pulling rods and pump if the well is so equipped.
d. Vent line to vent pit/area.
e. 30 minute rescue units for;
    i. Each member of the rig crew, and
    ii. The company engineer/representative on location.
f. Well condition signs for each point of entry/exit for the location.
g. At least one windsock.
h. At least two briefing/assembly area signs and two parking area signs.
i. Hand-held H_2S detector capable of reading from a minimum of 5 ppm to a maximum of the expected H_2S or 250 ppm whichever is greater. The Cannae #1 has been tested and found to have 803 ppm H_2S.

Special Equipment for Daily Operations

1. The following equipment shall be utilized while gauging tanks and maintaining equipment around the well:

    a. 10-minute escape pack for;
        i. The pumper
        ii. The assistant pumper
        iii. Mechanic(s) or roustabout(s)
    b. 30-min SCBA apparatus for;
        i. Safety observer/backup safety man
        ii. Rescue personnel, if any

2. The following equipment shall be utilized while maintaining any compressor equipment around the well:

    a. 10-minute escape pack for;
        i. The compressor maintenance personnel
        ii. The pumper if he/she is present
        iii. Mechanic(s) or roustabout(s)
    b. 30-min SCBA apparatus for;
        i. Safety observer/backup safety man
        ii. Rescue personnel, if any

3. When storage tanks or production facility equipment are being cleaned out, Confined Space Permit Required operating procedures shall apply to all personnel involved.

Personal Protective Breathing Equipment

1. Personnel who will be working on location shall be provided with personal protective breathing equipment.

2. Anyone who may use personal protective breathing equipment shall be trained in its proper use and care. Instruction shall include how to ensure a proper fit of the face piece to one's face. Facial hair, to include beards, moustaches, long sideburns, and long hair can interfere with a proper seal and shall not be allowed on those personnel who may be required to wear personal protective breathing equipment. Personnel who wear glasses shall be issued special headgear to allow for vision correction. Contact lenses shall not be worn.

3. All company personnel who may don respirators shall undergo a Pulmonary Fitness Test (PFT) prior to being fit tested for the respiratory mask they will use.

4. Respirators shall be inspected frequently at random to ensure they are properly used, cleaned and maintained.

5. Maintenance and care of respirators:

    a. A program for maintenance and care of respirators shall include the following:
        i. Inspections for defects in equipment
        ii. Inspections for leaks
        iii. Cleanliness
        iv. Repair
        v. Proper disinfecting prior to storage
        vi. Proper storage
    b. Monthly inspections of self-contained breathing apparatus for emergency use shall be conducted for the following equipment and permanent records shall be kept of these inspections:
        i. All fully charged cylinders
        ii. All regulators and warning devices
        iii. The condition of masks and their connections
        iv. Elastomer or rubber parts shall be stretched or massaged to keep them pliable and prevent deterioration
    c. Routinely used respirators shall be collected, cleaned and disinfected as frequently as is necessary to ensure proper protection is provided.

6. A person assigned a continuing task that requires the use of a self-contained breathing apparatus on an ongoing basis shall have an annual medical examination to ensure they are physically fit.

7. Respirators shall be worn:

    a. When breaking out any line where H_2S can be reasonably expected.
    b. When sampling air in areas to determine if toxic concentrations of H_2S exist.
    c. When working in areas where over 10 ppm of H_2S have been detected.
    d. At any time there is a doubt as to the H_2S concentrations in the zone to be encountered.
    e. When working on any natural gas compressor, separator, heater treater or liquids storage tank affiliated with this well.
    f. When repairing wellhead equipment.
    g. During workovers or rod/tubing pulling jobs.

8. When a service rig is operating on this location, personal protective breathing equipment shall be located:

    a. On the rig floor or within 10 feet of one's workstation
    b. On the monkeyboards (in the derrick)
    c. In the crew change trailer
    d. In each briefing/assembly area

9. When the pumper or assistant pumper assigned to this lease inspects or gauges the storage tanks he/she will carry a properly operating and calibrated H_2S monitor with an audible alarm set for 10 ppm.

10. When the pumper or assistant pumper assigned to this lease inspects or gauges the storage tanks he/she will carry, as a minimum, a 10-minute escape pack and will don this equipment should his/her H_2S monitor detect H_2S in quantities in excess of 10 ppm.

Personal Protective Breathing Equipment Training

All personnel working in any capacity on or in close proximity to the wellbore/service rig shall be required to review these emergency procedures and participate in the H_2S training program. Chaparral Energy,

LLC. shall arrange for the training personnel to provide the instruction and indoctrination necessary for the proper use of the safety equipment.

Training personnel shall work with each individual until the trainer is satisfied that each crew member is familiar with the emergency procedures and the use of safety equipment. This shall be accomplished prior to an individual reporting to the worksite.

Training shall include hands-on use of all equipment that will be on location and available to each worker in order to familiarize them with the safety equipment, its use and capabilities.

Safety Training

1. H_2S safety training shall be provided to all personnel prior to working on or around the well. The training sessions shall cover, but not be limited to, the following:

    a. General information on H_2S and SO_2
    b. The hazards of H_2S and SO_2
    c. The safety equipment on location
    d. The proper use and care of personnel protective equipment
    e. Operational procedures in dealing with H_2S and SO_2
    f. Evacuation procedures
    g. First aid, treating H_2S victims, calling for medical evacuation
    h. Toxic, physical and chemical affects of H_2S
    i. Designated briefing/assembly areas and alternate areas
    j. Sign in / Sign out procedures and personnel accountability
    k. Personnel drills
    l. Well control procedures while drilling and working over the well.

2. Once an H_2S or SO_2 alarm is activated all personnel will:

    a. Mask up
    b. Install TIW valve if necessary
    c. Raise tool joints above tubing slips if necessary
    d. Close the hydrill/pipe rams
    e. Go to the safe briefing area
    f. Account for all personnel
    g. Make shut in pressure checks
    h. Prepare for a kick if pressures so indicate
    i. Prepare to operate in an H_2S environment
    j. Report the alarm to the company office/operations engineer
    k. Implement the well control plan as appropriate.

Emergency Response Actions
By

Company Employees, Service Personnel and Visitors

IN THE EVENT OF AN ACCIDENTAL RELEASE OF A POTENTIALLY HAZARDOUS VOLUME OF H_2S, THE FOLLOWING PROCEDURES WILL BE TAKEN:

1. All personnel will immediately proceed upwind to the nearest designated safe area and don their protective breathing apparatus, if they have not done so already. The senior Chaparral Energy, LLC. representative on location will assess the situation and implement this plan of action by taking the necessary and proper steps to contain any gas and notify the appropriate people and agencies. Should a representative of Chaparral Energy, LLC. not be on location or is incapacitated, this responsibility shall pass to the senior representative of the service company on location. Either responsible party shall have complete responsibility and shall take whatever action is deemed necessary to ensure the safety of all personnel, to protect the well and all equipment.

2. All personnel on location will be accounted for and an emergency search shall be conducted for any missing. Use the sign in/sign out sheet in the assembly area.

3. The "buddy system" will be implemented.

4. All search missions shall be conducted under fresh air masks in teams of two. Should a search team approach the well, safety harnesses and lifelines shall be used. "Buddies" shall be tied together if they are to separate by more than an arm's length away from one another and at least one member of the team shall be attached to a lifeline that consists of 400-pound test, soft, fire resistant rope. This lifeline shall be played out from a safe position and monitored by back-up safety personnel.

5. The senior person on location shall ensure all contractors' personnel, visitors and any public safety officials are advised upon entering the site that H_2S may be encountered in hazardous concentrations. During hazardous operations the number of personnel on location shall be kept to the minimum needed to regain control of the well.

6. All service personnel who are needed to control the well shall provide their own safety equipment as required by OSHA and Chaparral Energy, LLC. These personnel shall be trained by their employers in the proper use of their personnel protective equipment. Their employers shall provide Chaparral Energy, LLC. with written verification that their employees have been trained in the proper use of their PPE under H_2S conditions.

7. The entrance, or entrances, to the location shall be blockaded. No unauthorized personnel shall be allowed entry into the location.

8. The Chaparral Energy, LLC. designated representative on location shall begin attempts to regain control of the well.

9. **The Robertson County Sheriff's office shall be contacted and informed about the release and about the need to start the evacuation of nearby residents and the blocking of roads downwind of the well.**

10. All individuals, companies and agencies shall be contacted according to the Emergency Call List. **The Texas Railroad Commission District Office shall be notified immediately in the case of an accidental release.**

11. The Chaparral Energy, LLC. designated representatives will begin evacuation of those in need of medical assistance, those in immediate danger, and those who are not needed on location.

12. Release of information concerning the release of H_2S shall be made only by representatives of Chaparral Energy, LLC., with the exception that, should a company representative not be on location, the senior service company representative on location will cooperate with the Public Safety Officers on location in the course of their duties.

13. The senior Chaparral Energy, LLC. representative on location shall have the full responsibility to make the decision to ignite the well. This decision will be made **ONLY** as a last resort.

Treatment of H_2S Poisoning

H_2S can enter into the body through the lungs, eyes, skin and intestinal tract. Inhalation is the most common and easiest means of entry. Prompt action is necessary to lessen the affects of contact with H_2S and prevent permanent disability or death. The following treatment shall be used should exposure to H_2S comes about.

INHALATION

Since H_2S in the bloodstream oxidizes rapidly, symptoms of acute poisoning pass off when inhalation of the gas ceases. It is important, therefore, to get the victim of H_2S poisoning to fresh air as quickly as possible. The victim should be kept at rest. Chilling should be prevented. If respiration is slow, labored or impaired, artificial respiration may be necessary. Most victims of H_2S may be revived if artificial respiration is applied before heart action ceases. Victims of poisoning should be under the care of a physician as soon as possible. Subacute poisoning may lead to serious complications such as pneumonia. Under these conditions, treatment by a physician will necessarily be symptomatic. The victim should be given fresh air and hygienic conditions as soon as possible and watched for any complications.

CONTACT WITH THE EYES

Eye contact with a liquid or a gas that contains H_2S can cause painful irritation (conjunctivitis). Immediate flushing of the eyes, followed by keeping the patient in a darkened room should be attempted. Apply ice compresses to the eyes and forehead. Remove the victim to a physician's care as quickly as possible. The victim should see an eye specialist for further treatment and care. Recovery in these cases is usually very good.

CONTACT WITH THE SKIN

Absorption through the skin is very low. Skin discoloration is possible should it come into contact with a liquid that contains H_2S. If such an exposure occurs the contact area should be thoroughly washed and the victim checked by a physician.

INTESTINAL TRACT CONTACT

It is possible to ingest liquids that contain dissolved H_2S. However, this is rare and the amount of H_2S swallowed is normally very small. Vomiting may ensue after ingestion. Remove the victim to a physician's care as quickly as possible.

H_2S Characteristics

1. Extremely toxic (poisonous).

2. Heavier than air and colorless.

3. In small amounts it has the odor of rotten eggs.

4. Burns with a blue flame and produces SO_2 gas. SO_2 is very irritating to the eyes and lungs. While SO_2 is as toxic like H_2S, its severe irritation to humans at low concentrations acts as a deterrent to human exposure to toxic levels of this gas. When in contact with water, SO_2 can combine with the water to form sulfuric acid.

5. H_2S is soluble in water, but less so when the water temperature increases.

6. H_2S forms an explosive mixture with air at concentrations of 4.3 and 46% by volume.

7. H_2S produces an eye, throat and respiratory tract irritation.

8. The toxicity of H_2S is second only to Hydrogen Cyanide and is between 5 to 6 times more toxic than carbon monoxide.

Effects of H_2S on Metal

H_2S dissolves in water to form a weak acid that, in the presence of oxygen and/or carbon dioxide, can cause pitting in metals. The worst affect H_2S has on metal is to cause hydrogen embrittlement known as Sulfide Stress Cracking. Sulfide Stress Cracking is a result of metals being subjected to high stress or cyclic levels in a corrosive environment where H_2S is present. The stress cracking of steel is dependent upon and determined by:

1. The strength (hardness) of the steel. The higher the strength, the greater the susceptibility to the sulfide stress cracking. Steels having yield strengths below 95,000 psi and hardness below Rc22 are generally resistant to sulfide stress cracking. These limitations can be extended slightly higher for properly quenched and tempered materials.

2. Total member stress (load): A higher stress level (load) will produce greater susceptibility to sulfide stress cracking.

3. Corrosive environment: The effects of corrosive reactions, acids, bacterial action, and thermal degradation due to low pH fluid environments will accelerate initiation of stress cracking.

Emergency Conditions

There are three levels of potential danger on location. Colored flags shall be used whenever possible to warn all personnel as to the level of danger from H_2S. These levels, and the possible conditions that cause them, are:

1. **GREEN**

Normal Operations. Either the green flag is out, or no flag is used. No H_2S alarms have sounded. H_2S has not been detected in levels of 10 ppm or higher. Any party on location that will need to stay after an H_2S alarm sounds will be required to have in their immediate possession a current (not more than one year old) certification card attesting to the fact they have successfully completed a formal course in H_2S Safety. Furthermore, all parties who will remain on location after an H_2S alarm sounds must be physically ready and able to don personal protective equipment. No person shall have a beard, moustache, long sideburns or long hair that will interfere with a good face seal.

2. **YELLOW**

Potential or Moderate Danger. The yellow flag and/or yellow light are on display. H_2S has been detected in the atmosphere in concentrations of 10 to 20 ppm. Any party on location that will need to stay after an H_2S alarm sounds shall be required to have in their immediate possession a current (not more than one year old) certification card attesting to the fact they have successfully completed a formal course in H_2S Safety. Furthermore, all parties who will remain on location after an H_2S alarm sounds shall be physically ready and able to don personal protective equipment. No person shall have a beard, moustache, long sideburns or long hair that will interfere with a good face seal. Report to the briefing/assembly area for instructions. Note wind direction and possible escape route. Go over the safety plans and check your safety equipment. Keep your safety equipment with you. **Do not smoke!**

Yellow conditions can be caused by:

a. Circulating up produced liquids and gas
b. Trip gas after tripping rods or tubing
c. Production Testing
d. Partial or total failure of production equipment
e. Partial or total failure of a gas pipeline or pipelines

3. **RED**

Extreme Danger. The Red Flag and/or light are on display. H_2S is present in concentrations greater than 20 ppm, or the well is not in control. When well servicing operations are underway, all rig personnel who stay with the rig shall immediately mask and prepare to take the necessary action to regain control of the well. All nonessential personnel, especially those without PPE, will immediately leave the location by traveling upwind to a safe location. When normal lease operations are underway, the pumper, assistant pumper, mechanic or other such personnel on location shall immediately mask and prepare to take the necessary action to regain control of the well or production equipment, if it is within their ability to do so. All nonessential personnel, especially those without PPE, will immediately leave the location by traveling upwind to a safe location.

Red Conditions can be caused by:

a. An uncontrolled flow from the well with lethal concentrations of H_2S.
b. A controlled flow from the well with lethal concentrations of H_2S.
c. Production testing of a zone that contains H_2S at any concentration, known or unknown.
d. Failure of production equipment that causes a release of lethal concentrations of H_2S.

Calculating the 100, 300 and 500 ppm Exposure Radius

The following equations are to be used to calculate the 100, 300 and 500 ppm exposure radius with the following constants and givens:

Atmospheric Pressure = 14.5 psia
Wind Velocity = 1 mph
X = Radius of Exposure, Ft.

Ambient Temperature = 60°F
Gas Volume = Q, Ft^3

For the 500 ppm Radius of Exposure:

$$X = [(0.4546)(14.65/14.5)(\text{Mole Fraction of } H_2S)(\text{Rate of Escape})]^{0.6258}$$
$$X = [(0.4546)(14.65/14.5)(\text{PPM } H_2S \div 10^6)\ (Q \text{ X } 10^3\ Ft^3)]^{0.6258}$$

For the 300 ppm Radius of Exposure:

$$X = [(0.6743)(14.65/14.5)(\text{Mole Fraction of } H_2S)(\text{Rate of Escape})]^{0.6258}$$
$$X = [(0.6743)(14.65/14.5)(\text{PPM } H_2S \div 10^6)\ (Q \text{ X } 10^3\ Ft^3)]^{0.6258}$$

For the 100 ppm Radius of Exposure:

$$X = [(1.589)(14.65/14.5)(\text{Mole Fraction of } H_2S)(\text{Rate of Escape})]^{0.6258}$$
$$X = [(1.589)(14.65/14.5)(\text{PPM})(Q \text{ in MCFD})]^{0.6258}$$

EXAMPLE (using last known production data for this well):

H_2S concentration = ppm

Q = 2 MMCFD

For the 500 ppm Radius of Exposure:

$\mathbf{X_{500}} = [(0.4546)(14.65/14.5)(803 \div 10^6)(2000 \text{ X } 10^3)]^{0.6258} = 194$ **Ft.**

For the 300 ppm Radius of Exposure:

$\mathbf{X_{300}} = [(0.6743)(14.65/14.5)(803 \div 10^6)(2000 \text{ X } 10^3)]^{0.6258} =$ **Ft.**

For the 100 ppm Radius of Exposure:

$\mathbf{X_{100}} = [(1.5890)(14.65/14.5)(803 \div 10^6)(2000 \text{ X } 10^3)]^{0.6258} = 423$ **Ft.**

Emergency Evacuation Plan

The following general plan has been developed in the event that public evacuation becomes necessary. The senior Chaparral Energy, LLC. representative in conjunction with Public Safety Officers will determine when and who needs to be evacuated.

1. In the event there is a need to enlist Public Safety Support the senior Chaparral Energy, LLC. representative on location shall call the Robertson County Sheriff's Department at (979) 828-3299 and advise them of an **ALERT STATUS**.

2. **ALERT STATUS** will require the Sheriff's Department to call in those support personnel that will be needed for emergency response and evacuation. These people will work under the direction of the Sheriff's Department.

3. The Robertson County Sheriff's Department shall conduct any emergency evacuation.

4. Assistance from other public safety organizations may be requested as necessary.

5. The maps included within this Plan detail the area of the well site, escape routes, location of area residents who may need to be evacuated and areas that may be exposed to H_2S.

6. Included in this Plan is a form on which to list the name, address and telephone numbers of all nearby residents and workers who will need to be evacuated. A part of this list is an indicator of those persons who may need assistance in reaching safety, medical needs, etc. Presently, there are two families living within a mile of the wellhead.

7. Should isolation and evacuation be deemed necessary, the Sheriff's Department or their designated representatives shall blockade roads in order to preclude unauthorized personnel from entering the danger zone surrounding the location and from interfering with the duties of emergency workers. The senior Chaparral Energy, LLC. representative on location, shall provide a map indicating the danger zone, location of roadblocks and other such information deemed necessary.

8. Evacuation teams shall proceed to the sectors to be evacuated, keeping in mind the procedures to follow in the presence of H_2S. Chaparral Energy, LLC., in cooperation with the Sheriff's Department, will telephone those residents who will need to evacuate, telling them which route to use to leave the area. A Sheriff's Deputy, or their designated representative, will visit those residents who cannot be contacted via telephone to ensure the resident is in fact no longer present in their home.

9. The H_2S safety service contractor or a representative of Chaparral Energy, LLC. shall establish a safe perimeter using appropriate H_2S detectors. This perimeter shall be marked in a fashion that is easily recognizable from the ground. They shall also mark this perimeter on a map of the area and provide this information to the senior Chaparral Energy, LLC. representative on location. The senior Chaparral Energy, LLC. representative on location shall provide this information with the senior representative of the Sheriff's Department on location.

10. The Texas Railroad Commission District Office and the Texas Natural Resources Conservation Commission shall be notified immediately.

Emergency Notification Call List – Residents and Workers

List Number	*Name & Address*	# of Occupants	Need Help?	Telephone Number(s)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

The persons listed above are all residents within the 100-ppm Radius of Exposure known to Chaparral Energy Inc. at the time this plan was written. Blanks are left on the form should others move into the area. Their names will be added to the list and all affected persons notified.

People Who Will Need Help To Evacuate

List Number	Name	Reason for need or other remarks.

Due to the fact no one lives or works within one mile of the location the **People Who Will Need Help To Evacuate** list is bank. Should anyone who may need assistance move into or start working in the area their name or names shall be added to this list.

Evacuation and Roadblocks Map
(Show 100 ppm Radius of Exposure.)

‡ = Road block location
Numbers on map correspond to Residents needing notification listed above.

Instructions for Igniting the Well

(To be used when well servicing operations are the cause of the release.)

THE DECISION TO IGNITE THE WELL IS THE RESPONSIBILITY OF Chaparral Energy, LLC.'s SENIOR REPRESENTATIVE ON LOCATION. In the event that representative is incapacitated or unavailable, it becomes the responsibility of the Service Company's Rig Superintendent to make this decision. This decision should be made only after consultation with representatives of Chaparral Energy, LLC., representatives from the service rig company, well control service representatives and public safety officials.

The decision to ignite the well should be made **ONLY** as a last resort and when it is absolutely clear that:

1. Human life is in danger.

2. There is no hope of controlling the well under current conditions.

Once the decision to ignite the well has been made, all unnecessary personnel shall be removed from the location. Once the location has been cleared, the following procedure shall be followed:

1. Four (4) people, wearing self-contained breathing apparatus shall be chosen to due the actual lighting of the well. These people shall be in good physical condition, knowledgeable of well conditions and the proper procedure to ignite the well.

2. When conditions are favorable to ignite the well the team shall select a point upwind of the wellhead. This point shall have a clear, unobstructed path to the wellhead and should offer the maximum protection possible from any effects of ignition.

3. Each member of the ignition team shall have safety belts and lanyards attached and manned before attempting to ignite the well.

4. Determine the Lower Explosive Level (LEL) of the firing point. If the LEL is exceeded, move upwind to a point where the LEL is not exceeded.

5. Once the firing point is deemed a safe place from which to start operations a flare shall be fired into the gas plume over the wellbore. If the plume is not ignited on the first attempt, move in 20 to 30 feet and fire again. If this should fail to ignite the well, try firing to the left or right of the plume. Should the well fail to ignite, return to the safe area for further planning.

6. After the well ignites, or fails to ignite, the extent of any toxic gases shall be determined. If necessary, further evacuations will be carried out until such time as the well is controlled.

REMEMBER: After the well is ignited, burning H_2S will convert to Sulfur Dioxide (SO_2), which is also a highly toxic gas!

NEVER ASSUME THE AREA AROUND THE WELLSITE IS SAFE AFTER THE WELL IS IGNITED!!!!

Toxic Effects of Hydrogen Sulfide Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 20 ppm, which is .002% by volume. Hydrogen Sulfide is heavier than air (specific gravity-1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is between five and six times more toxic than Carbon Monoxide. Toxicity data for Hydrogen Sulfide and various other gases are compared below in Table I. Physical effects at various Hydrogen Sulfide levels are shown in Table II.

Table I
Toxicity of Various Gases

Common Name	Chemical Formula	Specific Gravity	Threshold Limit (A)	Hazardous Limit (B)	Lethal Concentration C)
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Hydrogen Sulfide	H2S	1.18	10 ppm (D) 20 ppm (E)	250 ppm/hr	600 ppm
Sulfur Dioxide	SO2	2.21	5 ppm		1000 ppm
Chlorine	CL2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO2	1.52	5000 ppm	5%	10%
Methane	CH4	0.55	90,000 ppm	(9%)	Combustible above 5% in air

A. Threshold Limit--Concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.
B. Hazardous Limit--Concentration that may cause death.
C. Lethal Concentration--Concentration that will cause death with short-term exposure.
D. Threshold Limit--10 ppm, 1972 ACGIH (American Conference of Governmental industrial Hygienists)
E. Threshold Limit--20 ppm, 1966 ANSI acceptable ceiling concentration for eight-hour exposure (based on 40-hour week) is 20 ppm. OSHA Rules and Regulations (Federal

Register, Volume 37, No. 202, Part II, dated 10/18/72).

Table II
Physical Effects of Hydrogen Sulfide

Percent %	ppm	Physical Effects
0.001	10	Obvious and unpleasant odor.
0.002	20	Safe for 8 hrs. exposure
0.01	100	Kills smell in 3 to 5 minutes; may sting eyes and throat.
0.02	200	Kills smell shortly; stings eyes and throat.
0.03	300	IDLH (Immediately Dangerous to Life & Health) Level
0.05	500	Dizziness; breathing ceases in a few minutes
0.07	700	Unconscious quickly; death will result if not rescued.
0.10	1000	Unconscious at once; followed by death within minutes.

*Caution: Hydrogen Sulfide is a colorless and transparent gas and is highly flammable. It is heavier than air and may accumulate in low places.

Use of Self-Contained Breathing Apparatus

I. 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.

II. Respirators shall be inspected frequently, at random, to insure that they are properly used, cleaned, and maintained.

III. Anyone who may use respirators shall be 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.

IV. Maintenance and care of respirators

A. A program of maintenance and care of respirators shall include the following:

1. Inspection for defects, including leak checks.
2. Cleaning and disinfecting.
3. Repair.
4. Storage.

B. Inspection: Self-Contained Breathing Apparatus for emergency use shall be inspected monthly, and records maintained, for the following:

1. Fully charged cylinders.
2. Regulator and warning device operation.
3. Condition of face piece and connection.
4. Elastomer or rubber parts shall be stretched or massaged to keep them pliable and prevent deterioration.

C. Routinely used respirators shall be collected, cleaned, and disinfected as frequently as necessary to insure proper protection is provided.

V. Persons assigned tasks that require the use of Self-Contained Breathing Equipment shall be certified physically fit for breathing equipment usage by the local company physician at least annually.

VI. Respirators should 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 H2S.

B. When breaking out any line where H2S can reasonably be expected.

C. When sampling air in areas to determine if toxic concentrations of H2S exist.

D. When working in areas where over 20 ppm H2S has been detected.

E. At any time where there is a doubt as to the H2S level in the area to be entered.

Rescue-First Aid for Hydrogen Sulfide Poisoning

Do Not Panic!!!

Remain Calm--THINK

1. Hold your breath (Do not inhale; stop breathing.) and go to Briefing area.

2. Put on breathing apparatus.

3. Remove victim(s) to fresh air as quickly as possible. (Go upwind from the source or at right angles to the wind; NOT downwind.)

4. Briefly apply chest pressure--arm lift method of artificial respiration to clear the victim's lungs and to avoid inhaling any toxic gas directly from the victim's lungs

5. Provide for prompt transportation to the hospital, and continue giving artificial respiration if needed.

6. Hospital(s) or medical facilities need to be informed, beforehand, of the possibility of H2S gas poisoning, no matter how remote the possibility.

7. Notify emergency room personnel that the victim(s) have been exposed to H2S gas.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration, as well as first aid for eyes and skin contact with liquid H2S. Everyone needs to master these necessary skills.