

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

State of New Mexico
Energy Minerals and Natural Resources

Form C-101
May 27, 2004

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

Submit to appropriate District Office

AMENDED REPORT

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

¹ Operator Name and Address Parallel Petroleum Corp. 1004 N. Big Spring Street, Suite 400, Midland, TX. 79701		² OGRID Number 230387
³ Property Code 36279	⁴ Property Name Hope Unit 1821-16 State	⁵ APT Number 015-35561 ⁶ Well No. 1Y
⁹ Proposed Pool 1 Wildcat; Wolfcamp		¹⁰ Proposed Pool 2

⁷ Surface Location

UL or lot no.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	18S	21E		760	South	200	East	Eddy

⁸ Proposed Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
M	16	18S	21E		760	South	660	West	Eddy

Additional Well Information

¹¹ Work Type Code N	¹² Well Type Code O & G	¹³ Cable/Rotary R	¹⁴ Lease Type Code P	¹⁵ Ground Level Elevation 4223'
¹⁶ Multiple No	¹⁷ Proposed Depth	¹⁸ Formation	¹⁹ Contractor NA	²⁰ Spud Date NA
Depth to Groundwater 690'		Distance from nearest fresh water well 6000'		Distance from nearest surface water 800'
Pit: Liner: Synthetic X 12 mils thick Clay <input type="checkbox"/> Pit Volume 25,000 bbls Drilling Method:				
Closed-Loop System <input type="checkbox"/> Fresh Water X Brine <input type="checkbox"/> Diesel/Oil-based <input type="checkbox"/> Gas/Air <input type="checkbox"/>				

²¹ Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
11"	8-5/8"	24#	1500'	325	Surface
7-7/8"	5-1/2"	17#	TVD 4549'	NA	Tie back to
			MD 8758'		Surface casing
					Verify by CBL or
					Temp Survey.

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

11" surface hole was lost due to stuck pipe on bottom at 380' and fish in the hole with top of fish at 204'. Intend to plug existing 11" hole and 16" conductor (set at 50') with cement to surface per NMOCD recommendations and move the rig over the second well on the location.

New surface coordinates and BHL for the Hope Unit 1821-16 State #1Y are:
SL 760' FSL and 200' FEL Sec 16, T18S, R21E
BHL 760' FSL and 660' FWL Sec 16, T18S, R21E Eddy County, New Mexico

See the attached directional plan, new plat and old plat.

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOCD guidelines X, a general permit , or an (attached) alternative OCD-approved plan .

Printed name: Deane Durham *Deane Durham*
Title: Engineer
E-mail Address: ddurham@p111.com
Date: 4-23-07 Phone: (432) 684-3727

OIL CONSERVATION DIVISION

Approved by: BRYAN G. ARRANT
DISTRICT II GEOLOGIST

Approval Date: APR 23 2007 Expiration Date: APR 23 2008

Conditions of Approval Attached

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

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

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015		Pool Code 97489	Pool Name WILDCAT, WOLFCAMP
Property Code 36279	Property Name HOPE UNIT 1821-16-STATE		Well Number 1 Y
GRID No. 230387	Operator Name PARALLEL PETROLEUM CORPORATION		Elevation GR - 4223

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	18S	21E		760	SOUTH	200	EAST	EDDY

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	County
M	16	18S	21E		760	SOUTH	660	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

16	Project Area ↗	Producing Area ↗	¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the district. <i>Deane Durham</i> 4-23-2007 Signature Date DEANE DURHAM Printed Name
			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 my supervision, and that the same is true and correct to the best of my belief. Date of Survey Signature and Seal of Professional Surveyor: Certificate Number

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AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 97489	Pool Name Wildcat; Wolfcamp
Property Code	Property Name HOPE UNIT 1821-16 STATE	Well Number 1
OGRD No.	Operator Name PARALLEL PETROLEUM CORPORATION	Elevation 4223'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	18 S	21 E		778	SOUTH	200	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	16	18 S	21 E		778	SOUTH	660	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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

<p>NOTE:</p> <p>1) Plane Coordinates shown hereon are Transverse Mercator Grid and Conform to the "New Mexico Coordinate System", New Mexico East Zone, North American Datum of 1927; Distances shown hereon are mean horizontal surface values.</p>				<p>OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interests in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Deane Durham</i> 1/6-07 Signature Date</p> <p>Deane Durham Printed Name</p>
<p>Bottom Hole Location Plane Coordinates X = 354,827.7 Y = 634,163.8 Geodetic Coordinates Lat. 32°44'33.08" N Long. 104°48'19.73" W (NAD '27)</p>	<p>Penetration Point Plane Coordinates X = 358,763.7 Y = 634,152.1 Geodetic Coordinates Lat. 32°44'33.13" N Long. 104°47'33.85" W (NAD '27)</p>	<p>Surface Location Plane Coordinates X = 359,223.6 Y = 634,150.8 Geodetic Coordinates Lat. 32°44'33.14" N Long. 104°47'28.26" W (NAD '27)</p>		<p>SURVEYOR CERTIFICATION</p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.</p> <p>January 5, 2007 Date of Survey</p> <p>Signature & Seal of Professional Surveyor <i>Macon McDonald</i></p>
				<p>W.O. Num. 2006-1285</p> <p>Certificate No. MACON McDONALD 12185</p>



PARALLEL

PETROLEUM CORPORATION

SURVEY CALCULATION PROGRAM

OPERATOR:	Parallel Petroleum Corporation	Supervisors:	
WELL:	Hope Unit 1821-16 State #1		
SURF. LOCATION:	760 FSL, 200 FEL Sec. 16 T-18-S R-21-E		
BH LOCATION:	760 FSL, 660 FWL Sec. 16 T-18-S R-21-E		
COMMENTS:			
		MAG DEC. (-/+)	
		GRID CORR. (-/+)	
		TOTAL CORR. (-/+)	0.0

DATE: 04/23/07

TIME: 2:09 PM

TRUE TO GRID

MINIMUM CURVATURE CALCULATIONS(SPE-3362)						PROPOSED DIRECTION	270.0	TARGET TRACKING TO CENTER		
SVY NUM	MD	INC	GRID AZM	VERT TVD	VERT SECT	N-S	E-W	DLS/100	ABOVE(+) BELOW(-)	RIGHT(+) LEFT(-)
TIE	0	0.0	0.0	0.0	0.0	0.0	0.0			
1	4080	0.0	0.0	4080.0	0.0	0.0	0.0	0.0	470.0	0.0
2	4090	1.2	270.0	4090.0	0.1	0.0	-0.1	12.2	460.0	0.0
3	4100	2.4	270.0	4100.0	0.4	0.0	-0.4	12.2	450.0	0.0
4	4818	90.0	270.0	4549.8	469.8	0.0	-469.8	12.2	0.2	0.0
5	8758	90.0	270.0	4549.8	4409.8	0.0	-4409.8	0.0	0.2	0.0

KOP @ 4080' MD

BUR = 12.2 DEG per 100 FT

End Curve @ 4818' MD, 4550' TVD

BHL @ 8758' MD, 4550' TVD, 4410' VS

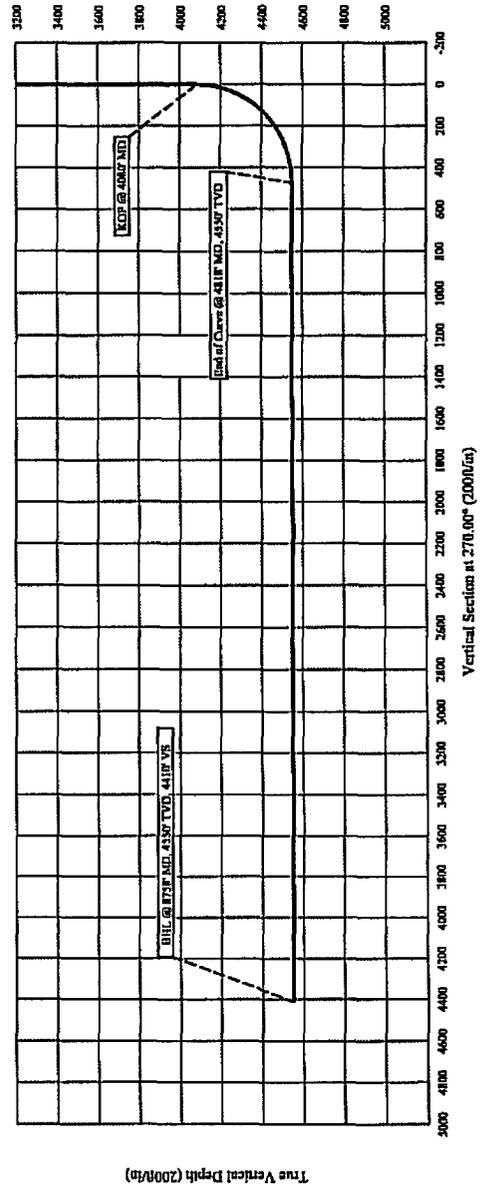
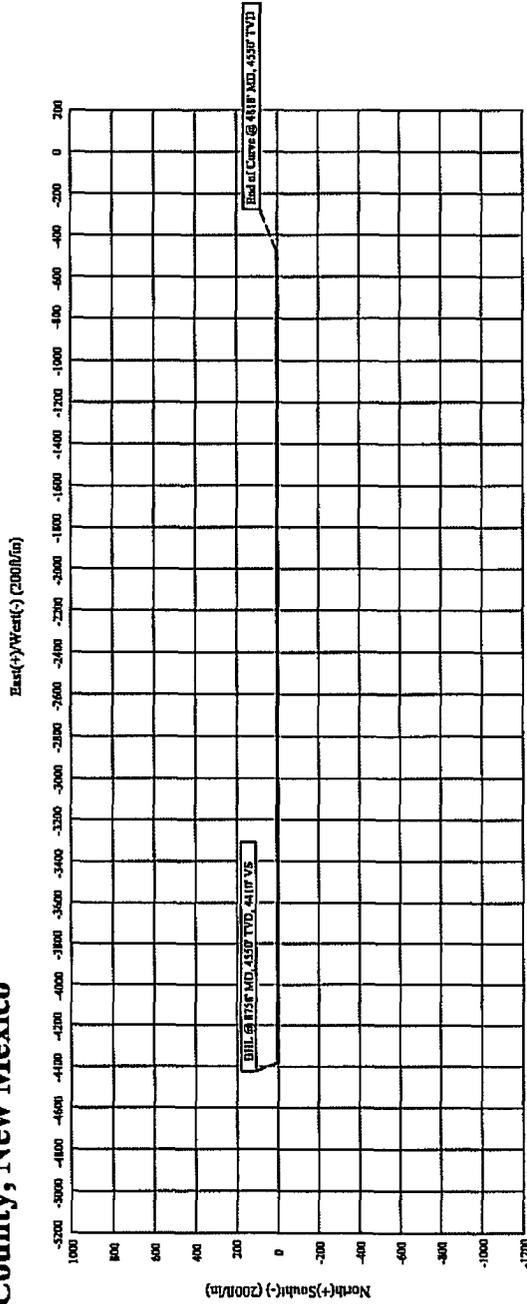
Parallel Petroleum Corp.

760' Hope Unit 1821-16 State #1
 778' FSL, 200 FEL Sec. 16, T-18-S, R-21-E
 778' FSL, 660 FWL Sec. 16, T-18-S, R-21-E
 760' Eddy County, New Mexico

B

COMPANY DETAILS

Parallel Petroleum Corp.
 1004 N. Big Spring, Ste 400
 Midland, Texas 79701



PARALLEL PETROLEUM CORPORATION
HOPE UNIT 1821-16 STATE #1
 SL: 118 1821-16 STATE #1, DEPT. 118 1821-16 STATE #1 500' FWL
SL: SEC 16, T18S, R21E, BHL: SEC 16, T18S, R21E
EDDY COUNTY, NEW MEXICO

Objective

Drill a horizontal in the Wolfcamp.

Expected Geologic Tops

GL: 4223', KB 4235'
 Glorieta 1825'
 Tubb 2835'
 Abo Shale 3425'
 Wolfcamp 4550'
 Wolfcamp Shale 4740'

Well Geometry

- 8 5/8" casing at 1500'
- kick-off at 4080' for horizontal zone of interest
- 5 1/2" casing through the horizontal Wolfcamp; Cement per completion.

Casing Program

<u>Hole</u>	<u>MD (ft)</u>	<u>Casing</u>	<u>Weight</u>	<u>Grade</u>	<u>Coupling</u>	<u>COMMENT</u>
11"	0 – 1500	8-5/8"	24	J55	ST&C	
7-7/8"	0 – 8758'	5-1/2"	17	N80	LT&C	Run through the horizontal lateral.

Casing Cementing Program

8-5/8" slurry: Lead: 125 sacks (50:50) Poz (Fly Ash): Class C + 5% bwow Sodium Chloride + 10% bwoc Bentonite + 151.7% fresh water. Tail: 200 sacks Class C + 1% bwoc Calcium Chloride + 56.3% fresh water

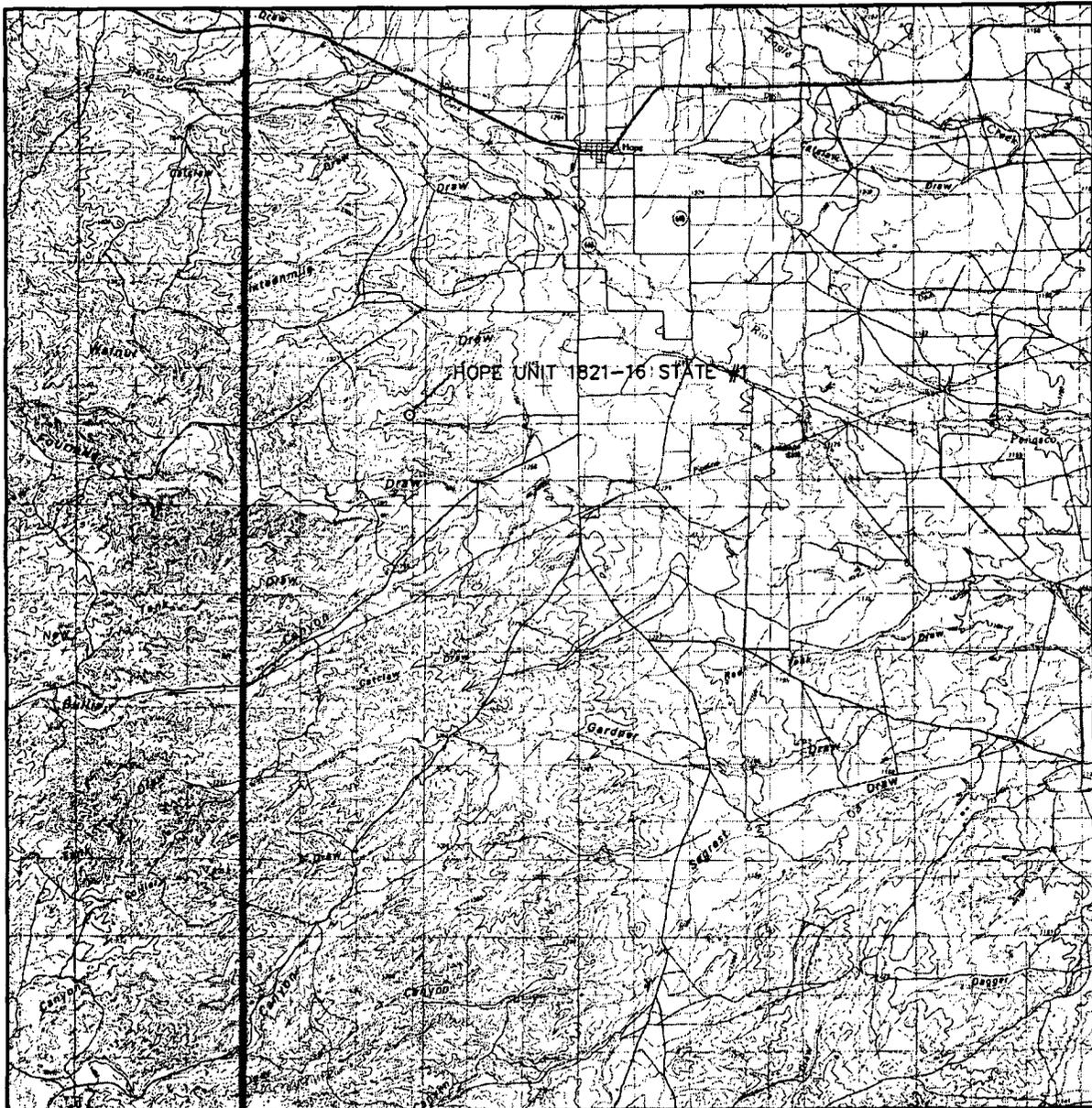
Note: If cement does not circulate to surface, notify OCD. A temperature survey will be required. Top out to surface with 1" pipe in the annulus.

Note: 5-1/2" Cement with acid-soluble CMT per completion procedure. Top of cement should be a tied-back to surface casing.

Mud Program

<u>Depth</u>	<u>Hole</u>	<u>MW</u>	<u>Visc.</u>	<u>WL</u>	<u>Synopsis</u>
0 - 1500	11"	8.4 – 8.6	28 - 29	No control	FRESH WATER mud only to 1500 ft. Severe loss potential. Circulate inner reserve. LCM: paper, fiber, cotton seed hulls.
1500 – 3400	7-7/8"	8.6 – 9.2	28 -29	No control	Cut brine. Start w/existing & add brine t/50K- 60K chlorides
3400 – KOP	7-7/8"	8.9 – 9.5	38 - 45	12-14	XCD/polymer as req'd for hole cleaning. Lubricants.
KOP – TD Horizontal	7-7/8"	8.9 – 9.5	38 - 45	12-14	XCD/polymer as req'd for hole cleaning. Lubricants.

VICINITY MAP



SCALE: 1" = 3 MILES

SEC. 16 TWP. 18-S RGE. 21-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 778' FSL & 200' FEL

ELEVATION 4223'

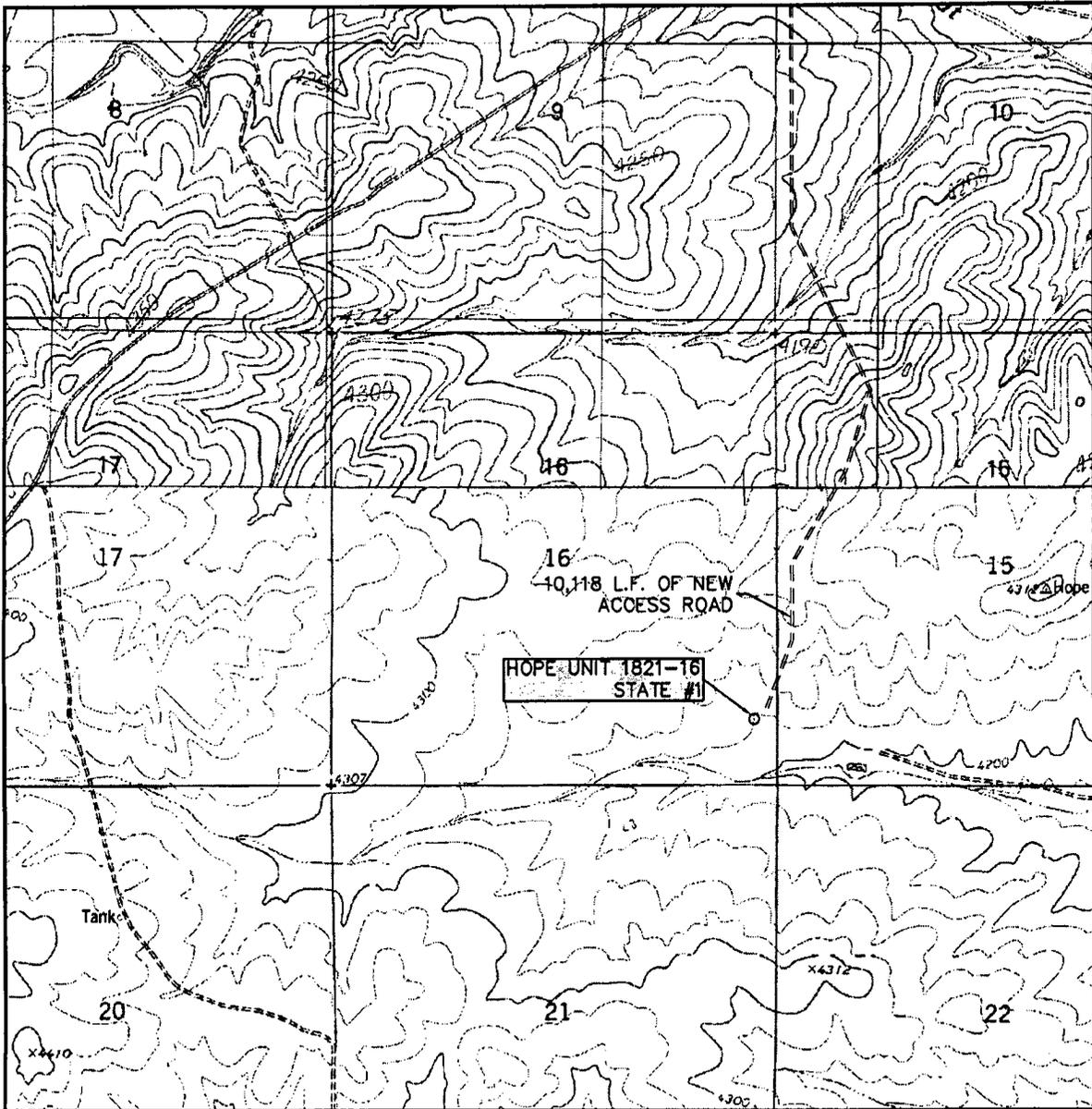
OPERATOR PARALLEL PETROLEUM CORPORATION

LEASE HOPE UNIT 1821-16 STATE



110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 - (432) 687-0868 FAX

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
HOLT TANK - 20'

SEC. 16 TWP. 18-S RGE. 21-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 778' FSL & 200' FEL

ELEVATION 4223'

OPERATOR PARALLEL PETROLEUM CORPORATION

LEASE HOPE UNIT 1821-16 STATE

U.S.G.S. TOPOGRAPHIC MAP
HOLT TANK, N.M.



110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(432) 687-0865 - (432) 687-0868 FAX



PARALLEL

Petroleum Corporation

1004 North Big Spring, Suite 400 • Midland, TX 79701 • Ph: 432-684-3727 • Fax: 432-685-6580

June 12, 2006

Mr. Bryan Arrant
New Mexico Oil Conservation Division
1301 W. Grand Ave.
Artesia, New Mexico 88210

Re: Hydrogen Sulfide Potential
South Hope Area Wolfcamp Program
SW Chaves and Eddy Counties, New Mexico

Dear Mr. Arrant:

Parallel Petroleum Corporation operates the Boxtop 1921-1 Federal #1 well located in Section 1, T-19-S, R-21-E. The well which was tested in the Wolfcamp formation did not have any indications of hydrogen sulfide from this formation. We believe the potential for it on locations in this area are negligible. There are no occupied dwellings in the area of these new drilling locations.

Should you need any additional information regarding this issue, please contact me at the address or phone number listed or email at ddurham@ppll.com.

Sincerely,

A. Deane Durham
Senior Engineer



Legals:
30 - 015 -
Hope Unit 1821-16 #1 and Hope Unit 1821-15 #2

Common Location

760' FSL & 200' FEL

Section 16

Township 18 South, Range 21 East

Eddy County, New Mexico

H2S

“Contingency Plan”

CALLAWAY SAFETY EQUIPMENT CO. INC.
1020 W. Hwy. 80 East 3229 Industrial Drive
Odessa, Texas 79765 Hobbs, New Mexico 88240
(432) 561-5049 (877) 422-6345 (505) 392-2973

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H₂S CONTINGENCY PLAN SECTION

Scope:

This contingency plan provides an organized plan of action for alerting and protecting the public within an area of exposure prior to an intentional release, or following the accidental release of a potentially hazardous volume of hydrogen sulfide. The plan establishes guidelines for all personnel whose work activity may involve exposure to Hydrogen Sulfide Gas (H₂S).

Objective:

Prevent any and all accidents, and prevent the uncontrolled release of H₂S into the atmosphere.

Provide proper evacuation procedures to cope with emergencies.

Provide immediate and adequate medical attention should an injury occur.

Discussion of Plan:

Suspected Problem Zones:

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

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

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

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

Emergency call lists: Included are the telephone numbers of all persons that would need to be contacted, should an H₂S emergency occur.

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

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

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

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

EMERGENCY PROCEDURES SECTION

- I. In the event of any evidence of H₂S 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 H₂S level can be corrected or suppressed, and if so, proceed with normal operations.
- II. If uncontrollable conditions occur, proceed with the following:
 - A. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify necessary public safety personnel and the New Mexico Oil Conservation Division.
 - 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 measures.
- 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. Wait for 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 the Driller (buddy system).
3. Determine the concentration.
4. Assess the situation and take appropriate control measures.

D. Driller

1. Check the status of other personnel (in a rescue attempt, always use the buddy system).
2. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.

3. Assume the responsibility of the Drilling Foreman and the Tool Pusher until they arrive, in the event of their absence.

E. Derrick Man and Floor Hands

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

F. Mud Engineer

1. Report to the upwind Safe Briefing Area.
2. When instructed, begin check of mud for pH level and H₂S level.

G. Safety Personnel

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

II. Taking a Kick

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

III. Open Hole Logging

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

IV. Running Casing or Plugging

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

SIMULATED BLOWOUT CONTROL DRILLS

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

Drill # 1 Bottom Drilling

Drill # 2 Tripping Drill Pipe

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

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

I. Drill Overviews

A. Drill No. 1- Bottom Drilling

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

B. Drill No. 2 – Tripping Drill Pipe

1. Sound the alarm immediately.
2. Position the upper tool joint just above the rotary table and set the slips.

3. Install a full opening valve or inside blowout preventor tool in order to close the drill pipe.
4. Close the drill pipe rams.
5. Record the shut-in annular pressure.

II. Crew Assignments

A. Drill No. 1 – Bottom Drilling

1. Driller
 - a) Stop the rotary and hoist kelly joint above the rotary table.
 - b) Stop the circulatory pump.
 - c) Check flow.
 - d) If flowing, sound the alarm immediately.
 - e) Record the shut-in drill pipe pressure.
 - f) Determine the mud weight increase needed or other courses of action.
2. Derrickman
 - a) Open choke line valve at BOP.
 - b) Signal Floor Man # 1 at accumulator that choke line is open.
 - c) Close choke and upstream valve after pipe rams have been closed.
 - d) Read the shut-in annular pressure and report readings to Driller.
3. Floor Man # 1
 - a) Close the pipe rams after receiving the signal from the Derrickman.
 - b) Report to Driller for further instructions.
4. Floor Man # 2

- a) Notify the Tool Pusher and Operator Representative of the H₂S alarms.
- b) Check for open fires and, if safe to do so, extinguish them.
- c) Stop all welding operations.
- d) Turn-off all non-explosion proof lights and instruments.
- e) Report to Driller for further instructions.

5. Tool Pusher

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

6. Operator Representative

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

B. Drill No. 2 – Tripping Pipe

1. Driller

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

f) Determine the course of action.

2. Derrickman

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

3. Floor Man # 1

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

4. Floor Man # 2

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

h) Report readings to the Driller.

5. Tool Pusher

a) Report to the rig floor.

b) Have a meeting with all of the crews.

c) Compile and summarize all information.

d) See that proper well kill procedures are put into action.

6. Operator Representative

a) Notify Drilling Superintendent

b) Determine if an emergency exists, and if so, activate the contingency plan.

IGNITION PROCEDURES

Responsibility:

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

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

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

Instructions for Igniting the Well:

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

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

TRAINING PROGRAM

When working in an area where Hydrogen Sulfide (H₂S) might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel, at the well site, have had adequate training in the following:

1. Hazards and Characteristics of Hydrogen Sulfide.
2. Physicals effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4. H₂S detection, emergency alarm and sensor location.
5. Emergency rescue.
6. Resuscitators.
7. First aid and artificial resuscitation.
8. The effects of Hydrogen Sulfide on metals.
9. Location safety.

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

EMERGENCY EQUIPMENT REQUIREMENTS

Lease Entrance Sign:

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

CAUTION-POTENTIAL POISON GAS
HYDROGEN SULFIDE
NO ADMITTANCE WITHOUT AUTHORIZATION

Respiratory Equipment:

- Fresh air breathing equipment should be placed at the safe briefing areas and should include the following:
- Two SCBA's at each briefing area.
- Enough air line units to operate safely, anytime the H₂S concentration reaches the IDLH level (100 PPM).
- Cascade system with enough breathing air hose and manifolds to reach the rig floor, the derrickman and the other operation areas.

Windssocks or Wind Streamers:

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

Hydrogen Sulfide Detector and Alarms:

- 1-Four channel H₂S monitor with alarms.
- Four (4) sensors located as follows: # 1 – Rig Floor, # 2 – Bell Nipple, # 3 – Shale Shaker, # 4 – Mud Pits.
- Gastec or Draeger pump with tubes.
- Sensor test gas.

Well Condition Sign and Flags:

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

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

Auxiliary Rescue Equipment:

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

Mud Inspection Equipment:

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

Fire Extinguishers:

Adequate fire extinguishers shall be located at strategic locations.

Blowout Preventor:

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

Confined Space Monitor:

There should be a portable multi-gas monitor with at least 3 sensors (O₂, LEL & H₂S). This instrument should be used to test the atmosphere of any confined space before entering. It should also be used for atmospheric testing for LEL gas before beginning any type of Hot Work. Proper calibration documentation will need to be provided.

Communication Equipment:

- Proper communication equipment such as cell phones or 2 – way radios should be available at the rig.

- Radio communication shall be available for communication between the company man's trailer, rig floor and the tool pusher's trailer.
- Communication equipment shall be available on the vehicles.

Special Control Equipment:

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

Evacuation Plan:

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

Designated Areas:

Parking and Visitor area:

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

Safe Briefing Areas:

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

NOTE:

- Additional equipment will be available at the nearest Callaway Safety Office.
- Additional personal H₂S monitors are available for all employees on location.

- Automatic Flare Igniters are recommended for installation on the rig.

CHECK LISTS

Status Check List

Note: Date each item as they are implemented.

1. Sign at location entrance. _____
2. Two (2) wind socks (in required locations). _____
3. Wind Streamers (if required). _____
4. SCBA's on location for all rig personnel and mud loggers. _____
5. Air packs, inspected and ready for use. _____
6. Spare bottles for each air pack (if required). _____
7. Cascade system for refilling air bottles. _____
8. Cascade system and hose line hook up. _____
9. Choke manifold hooked-up and tested.
(Before drilling out surface casing.) _____
10. Remote Hydraulic BOP control (hooked-up and tested before drilling out surface casing). _____
11. BOP tested (before drilling out surface casing). _____
12. Mud engineer on location with equipment to test mud for H₂S. _____
13. Safe Briefing Areas set-up. _____
14. Well Condition sign and flags on location and ready. _____
15. Hydrogen Sulfide detection system hooked-up & tested. _____
16. Hydrogen Sulfide alarm system hooked-up & tested. _____
17. Stretcher on location at Safe Briefing Area. _____
18. 2-100' Life Lines on location. _____

-
- 19. 1-20# Fire Extinguisher in safety trailer. _____
 - 20. Confined Space Monitor on location and tested. _____
 - 21. All rig crews and supervisor trained (as required). _____
 - 22. Access restricted for unauthorized personnel. _____
 - 23. Drills on H₂S and well control procedures. _____
 - 24. All outside service contractors advised of potential H₂S on the well. _____
 - 25. NO SMOKING sign posted. _____
 - 26. H₂S Detector Pump w/tubes on location. _____
 - 27. 25mm Flare Gun on location w/flares. _____
 - 28. Automatic Flare Ignitor installed on rig. _____

Procedural Check List

Perform the following on each tour:

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

Perform the following each week:

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

9. Test the Confined Space Monitor to verify the batteries are good.

BRIEFING PROCEDURES

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

Pre-Spud Meeting

Date: Prior to spudding the well.

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

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

EVACUATION PLAN

General Plan

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

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

NOTE: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

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

See Emergency Action Plan

Emergency Assistance Telephone List

PUBLIC SAFETY:

Chavez Co. Sheriff	911 or (505) 624-6770
Fire Department	(505) 624-6800
Hospital/Roswell,N.M.	(505) 622-8170

Life Flight:
Southwest Air-Med E Vac. **(800) 242-6199**

Lat: 33°01'17.73"N.
Long: 104°26'42.18" W.

New Mexico D.O.T.	(505) 827-5100
Bureau of Land Management	(505) 393-3612
U. S. Dept. of Labor	(505) 248-5302
New Mexico OCD	(505) 393-6161
New Mexico/After Hours	(505) 370-7106

Parallel Petroleum Corporation

Parallel Petroleum Corporation/Midland, TX	Office (432) 684-3727
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Superintendent: Donnie Hill	Office (432) 684-3727 Cell (432) 934-7164
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Drilling Engineer: Deane Durham	Office (432) 684-3727 Cell (432) 413-9701
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Callaway Safety Equipment

Odessa	Office (432) 561-5049
Hobbs	Office (877) 422-6345

Affected Notification List

(within a _____' radius of exposure @100ppm)

The geologic zones that will be encountered during drilling are not known to contain hazardous quantities of H₂S. The accompanying map illustrates the affected areas of the community. The residents within this radius will be notified via a hand delivered written notice describing the activities, potential hazards, conditions of evacuation, evacuation drill siren alarms and other precautionary measures.

Evacuee Description:

Residents: **THERE ARE NO RESIDENTS WITHIN 3000' ROE.**

Notification Process:

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

Evacuation Plan:

All evacuees will migrate lateral to the wind direction.

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

MAPS AND PLATS
(Maps & Plats Attached)

GENERAL INFORMATION

Toxic Effects of H₂S Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity-1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen sulfide and other gasses are compared below in Table I. Toxicity table for H₂S and physical effects are shown in Table II.

Table 1
Permissible Exposure Limits of Various Gasses

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

Definitions

- A. TLV – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists and regulated by OSHA.
- B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H₂S is 19 PPM.
- C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H₂S is 100 PPM.

- D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed to based on an TWA.

TABLE II
Toxicity Table of H₂S

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

PHYSICAL PROPERTIES OF H₂S

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

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

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

COLOR – TRANSPARENT

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

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs". For this reason it earned its common name "sour gas". However, H₂S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H₂S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.3% TO 46%

Mixed with the right proportion of air or oxygen, H₂S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO₂), another hazardous gas that irritates the eyes and lungs.

SOLUBILITY – 4 TO 1 RATIO WITH WATER

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H₂S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H₂S may release the gas into the air.

BOILING POINT – (-76 degrees Fahrenheit)

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

RESPIRATOR USE

The Occupational Safety and Health Administration (OSHA) regulates the use of respiratory protection to protect the health of employees. OSHA's requirements are written in the Code of Federal Regulations, Title 29, Part 1910, Section 134, Respiratory Protection. This regulation requires that all employees who might be required to wear respirators, shall complete a OSHA mandated medical evaluation questionnaire . The employee then should be fit tested prior to wearing any respirator while being exposed to hazardous gasses.

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

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

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

Respirators shall be worn during the following conditions:

- A. Any employee who works near the top or on the top of any tank unless tests reveal less than 20 ppm of H₂S.
- B. When breaking out any line where H₂S can reasonably be expected.
- C. When sampling air in areas where H₂S may be present.
- D. When working in areas where the concentration of H₂S exceeds the Threshold Limit Value for H₂S (10 ppm).
- E. At any time where there is a doubt as to the H₂S level in the area to be entered.

EMERGENCY RESCUE PROCEDURES

DO NOT PANIC!!!

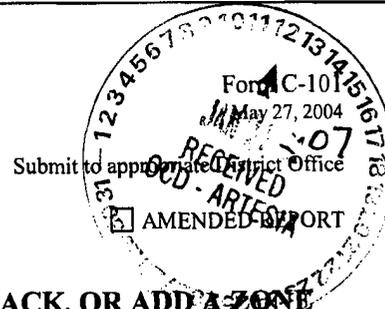
Remain Calm - THINK

1. Before attempting any rescue you must first get out of the hazardous area yourself. Go to a safe briefing area.
2. Sound an alarm and activate the 911 system.
3. Put on breathing apparatus. At least two persons should do this, when available use the buddy system.
4. Rescue the victim and return them to a safe briefing area.
5. Perform an initial assessment and begin proper First Aid/CPR procedures.
6. Keep the victim lying down with a blanket or coat, etc..., under the shoulders to keep airway open. Conserve body heat and do not leave unattended.
7. If the eyes are affected by H₂S, wash them thoroughly with potable water. For slight irritation, cold compresses are helpful.
8. In case a person has only minor exposure and does not lose consciousness totally, it's best if he doesn't return to work until the following day.
9. Any personnel overcome by H₂S should always be examined by medical personnel. They should always be transported to a hospital or doctor.

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

State of New Mexico
Energy Minerals and Natural Resources

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



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

¹ Operator Name and Address Parallel Petroleum Corp. 1004 N. Big Spring Street, Suite 400, Midland, TX. 79701		² Well ID Number 230387
³ Property Code 36279	⁴ Property Name Hope Unit 1821-16 State	⁵ API Number 30-015-35377
⁹ Proposed Pool 1 Wildcat		¹⁰ Proposed Pool 2 Wolfcamp

⁷ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	18S	21E		778	South	200'	East	Eddy

⁸ Proposed Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	16	18S	21E		778'	South	660'	West	Eddy

Additional Well Information

¹¹ Work Type Code N	¹² Well Type Code O & G	¹³ Cable/Rotary R	¹⁴ Lease Type Code P	¹⁵ Ground Level Elevation 4223'
¹⁶ Multiple No	¹⁷ Proposed Depth 8758MD, 4549TVD	¹⁸ Formation Wolfcamp	¹⁹ Contractor NA	²⁰ Spud Date NA
Depth to Groundwater 690'		Distance from nearest fresh water well 6000'		Distance from nearest surface water 800'
Pit: Liner: Synthetic X 12_mils thick Clay <input type="checkbox"/>		Pit Volume: 25,000 bbls		Drilling Method:
Closed-Loop System <input type="checkbox"/>		Fresh Water <input checked="" type="checkbox"/> Brine <input type="checkbox"/> Diesel/Oil-based <input type="checkbox"/> Gas/Air <input type="checkbox"/>		

²¹ Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
11"	8-5/8"	24#	1500'	325	Surface
7-7/8"	5-1/2"	17#	TVD 4549'	NA	* Tie back to Surface casing
			MD 8758'		

Verify by CBL or Temp Survey

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

Well to be Drilled as a Horizontal Wolfcamp test. The attached drilling plan will be utilized for this test and contains details on the cement and mud programs as well as the directional information. The following is a summary of this plan.

1. Prepare surface location. Move in and rig up drilling rig, spud well and drill and set conductor. Install and test BOP's.
2. Drill 11" Surface hole to a minimum depth of 1500'. Set 8 5/8" casing and cement.
3. Drill 7 7/8" production hole to 5500' TD and evaluate running mud logs as well as DLL/CNL/LDT/CAL/GR to TD.
4. Plug back hole and set kickoff point at 4080' drill and advance 7-7/8" hole to a Wolfcamp penetration point at approximately 778' FSL and 660' FEL of the section and continue drilling to BHL. (8758' MD & 4549' TVD)
5. Set 5 1/2" to TD and tie cement back to the surface casing. Perforate porosity and stimulate as necessary (specific procedure to be determined).
6. Place well on test.
7. No H2S if anticipated during the drilling of this well.

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOCD guidelines X, a general permit , or an (attached) alternative OCD-approved plan .

OIL CONSERVATION DIVISION

Approved by: **BRYAN G. ARRANT**
DISTRICT II GEOLOGIST

Title: _____

Approval Date: **JAN 19 2007** Expiration Date: **JAN 19 2008**

Printed name: Deane Durham *Deane Durham*

Title: Drilling Engineer

E-mail Address: ddurham@p1ll.com

Date: **1-16-07** Phone: 432-684-3727

Conditions of Approval Atta

NOTIFY OCD OF SPUD & TIME TO WITNESS CEMENTING OF SURFACE CASING