## Form 3160-3 (August 1999)

## CEMENT TO COVER ALL OIL, GAS AND WATER BEARING ZONES

Cons. DIV-Dist. 2
Grand Avenue
a, NM 88210

OMB No. 1004-0136 Expires November 30, 2000

# DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

**RECEIVED** 

5. Lease Serial No. **NM-96048** 

APPLICATION FOR PERMIT TO DRILL OR REENTER

6. If Indian, Allottee or Tribe Name

APPLICATION FOR PERMIT TO D	KILL OK	KEEN BOD	VII	EQM	Not Ap	plicab	le	
	ENTER				7. If Unit or CA Agre	ement, N	ame and N	lo.
					Not Ap	plicab	le 353	328
	_	_			8. Lease Name and W	Vell No.		
b. Type of Well:  Oil Well  Gas  Other Well	u	Single <b>x</b> Zone	Multi	ple Zone	Hackey Sack BH	V Fede	eral Con	n. #1
2. Name of Ownerston	_				9. API Well No.			
Yates Petroleum Corporation 25575					30 - 00s-			
3A. Address 105 South Fourth Street	3b. Phone	No. (include area cod	1		10. Field and Pool, or	Explorate	ory	
Artesia, New Mexico 88210	<u> </u>	(505) 748-147			Wildcat M			
4. Location of Well (Report location clearly and in accordance with any			9	73 <i>3</i> 8	11. Sec., T., R., M., o	r Blk, and	Survey or	· Area
At surface 990' FNL and 6	60' FWL,	Unit D	•	1000				
	as above	· · · · · · · · · · · · · · · · · · ·			Section 4			
14. Distance in miles and direction from nearest town or post office*					12. County or Parish		13. State	
Approximately 6 miles east of Hagerman, New Me					Chaves Cour	ity [	New Me	xico
I5. Distance from proposed* location to nearest property or lease line, ft.  660'	16. No. of	Acres in lease	17.	Spacing Ur	nit dedicated to this well			
(Also to nearest drig, unit line, if any)		317.87			320 acres			
<ol> <li>Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.</li> </ol>	19. Propos	sed Depth <b>8,005'</b>	20. I	BLM/BIA I	Bond No. on file NM-2811			
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Appro	ximate date work will	start*		23. Estimated duration	n		
3421' GL	ASAP			30 Days				
	24. At	tachments						
The following, completed in accordance with the requirements of Onshor	re Oil and Ga	s Order No. 1, shall b	e attac	hed to this	form:			
Well plat certified by a registered surveyor.		4. Bond to cove	r the	operations	unless covered by an ex	isting bon	nd on file (	see
2. A Drilling Plan.		Item 20 abov	e).					
3. A Surface Use Plan (if the location is on National Forest System Land	ds, the	5. Operator cert	ficatio	on.				
SUPO shall be filed with the appropriate Forest Service Office.		6. Such other sit	•	ific inform	ation and/or plans as ma	y be requi	ired by the	;
25. Signature 25. Colland	•	ame (Printed/Typed)  ebbie L. Caffall			iI	Date <b>11/</b>	16/2005	<del></del> 5
Title:		Jabio E. Ganan					10/2000	<u></u>
Regulatory Agent								
Approved by (Signature) /S/LARRY D. BRAY	Na	ame (Printed/Typed)	S/L	ARRY	D. BRAY	DEC	192	2005
Title Assistant Field Manager, Lands And Minerals	Of	ROSWELL 1				VED FO		

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

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

\*(Instructions on reverse)

Conditions of approval, if any, are attached.

operations thereon.

C-144 Attached

States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

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

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

DISTRICT I DISTRICT II 611 South Pirel, Artesia, NM 88210

660'

1650' 1980' 2310'

5310, 1880,

1650

DISTRICT III 1000 Rio Brazos Rd., Aztec, NM 87416 DISTRICT IV 2040 South Pachece, Santa Pa, RM 87506

State of New Mexico Rangy, Minerale and Natural Resources Departm

Porm C-102 ed March 17, 1990 Instruction on back Submit to Appropriate Sistrict Office State Lease - 4 Copies Pec Loase - 3 Coples

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

AMENDED REPORT

		,	MELL TO	CATION	AND ACKEA	IGE DEDICATI	ON PLAT		
API	Number		9	7001 Code 7338	-		Pool Name Wildcat	Mississin	nian
Property (	Code	1					Yell Number		
	_	}	HACKEY SACK "BHV" FEDERAL COM.				1		
OGRID N	D		Operator Name			ie .	Elevation		
025575		L	YATES PETROLEUM CORPORATION			PORATION	3421		
					Surface Loca	ation			
UL or let No.	Section	Township	Range	Lot idn	Fort from the	North/South line	Post from the	East/West line	County
LOT 4	4	145	27E		990	NORTH	660	WEST	CHAVES
			Bottom	Hole Loc	ation If Diffe	rent From Sur	face		
UL or lot No.	Section	Township	Range	Lot idn	Post from the	North/South line	Feet from the	East/West line	County
Dedicated Acre	o Johnt o	r fofil Co	onsolidation (	ode Osc	ler No.	<u>.                                    </u>			1
w/2 320				L					
NO ALLO	OWABLE V					INTIL ALL INTE		en Consolid	ATED
				1			OPPRATO	R CERTIFICA	MON
	)			]	ì			CERTIFICA	

N.33°08'12.2" W.104°14'51.4" N.777222.0 E.526398.1 (NAD-27) -660'-Debbie L. Caffall 3422 3420 Printed Name Regulatory Agent NM-96048 Title 11/16/2005 Date SURVEYOR CERTIFICATION on this plat was plotted from field notes of ectual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief. 11/11/2005 Date Surveyed NM-96706 CONTRIES LANGUAN

. h Dr., Hobbs, NM 88240

i 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

March 12, 2004

Form C-144

For drilling and production facilities, submit to appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe office

Pit or Below-Grade Tank Registra	tion or Closure
Is pit or below-grade tank covered by a "general	plan"? Yes ⊠No 🗌

	egistration of a pit or below-grade tank of a pit or below-grade tank	· 🛮	
Operator: Yates Petroleum Corporation Telephone: (505) 748-	debbiec@ypcnm.com		
Facility or well name: Hackey Sack BHV Federal Com. #1 API #:			
County: Chaves Latitude Longitude	NAD: 1927 🗍 1983 🗍 Surface	Owner - Federal 🗌 State 🔲 Private 🛭 Indian 🗍	
Pit Type: Drilling Production Disposal	Below-grade tank		
Workover	Volume:bbl Type of fluid:		
Lined ☑ Unlined ☐	Construction material:		
Liner type: Synthetic X Thickness 12 mil	Double-walled, with leak detection?	Yes If not, explain why not.	
Clay Volume 24,000 bbl		RECEIVED	
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet  50 feet or more, but less than 100 100 feet or more	(20 points) DEC 2 0 2005  [10 points] CO-NATABLA  ( 0 points)	
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes	(20 points)  ( 0 points)	
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet 200 feet or more, but less than 1000 1000 feet or more	feet (20 points) (10 points) (0 points)	
	Ranking Score (Total Points)	10 points	
If this is a pit closure: (1) attach a diagram of the facility showing the pit's ronsite offsite If offsite, name of facility  date. (4) Groundwater encountered: No Yes If yes, show depth below	(3) Attach a general description o	fremedial action taken including remediation start date and end	
diagram of sample locations and excavations.  I hereby certify that the information above is true and complete to the best	of my knowledge and belief. I furthe	or cortify that the above described nit or below grade tank	
has been/will be constructed or closed according to NMOCD guideline	es [], a general permit [2], or an (att	tached) alternative OCD-approved plan .	
Date: November 11, 2005  Printed Name/TitleDebbie L. Caffall/Regulatory Agent/Land Department	nt Signature Wallie	2. Callaco.	
Email: <u>debbiec@ypcnm.com</u> Your certification and NMOCD approval of this application/closure does not otherwise endanger public health or the environment. Nor does it relieve to regulations.			
ApprovabEC 2 1 2005  Printed Name/Title  ApprovabEC 2 1 2005  Field Supervisor	Signature_		

# YATES PETROLEUM CORPORATION Hackey Sack BHV Federal Com. #1

990' FNL and 660' FWL Section 4, T14S-R27E Chaves County, New Mexico

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

Yates	265'	Abo	4625'
Seven Rivers	405'	Wolfcamp	5725'
Queen	430'	Cisco	6520'
Penrose	550'	Lower ¢anyon	6985'
Grayburg	865'	Strawn	7135'
San Andres	1065'	Atoka	7260'
Glorieta	2440'	Morrow Clastics	7490'
Tubb	3830'	Chester	7805'
		TD	8005'

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

Water:

80'-300'

Oil or Gas: All potential formations.

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

## **Auxiliary Equipment:**

- A. Auxiliary Equipment: Kelly cock, pit level indicators, flow sensor equipment and a sub with full opening valve to fit the drill pipe and collars will be available on the rig floor in the open position at all times for use when kelly is not in use.
- 4. THE PROPOSED CASING AND CEMENTING PROGRAM:
  - A. Casing Program: (All New)

Hole Size	Casing Size	Wt./Ft	<u>Grade</u>	Caupling	Interval	Length
14.75	11.75	42#	J-55	ST&C	0-400'	400'
11	8.625	24#	J-55	st&c	0-1500'	1500'
7.875	5.5	15.5 & 17#	J-55	ST&C	0-8005'	8005'

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

3,000 psi BOP will be nippled up on the 8 5/8" casing and tested to 1000 psi. YPC requests a variance be granted in requiring the casing and BOPE to be tested to 2000 psi to testing the casing and BOPE to 1000 psi. The rigorumps will be used to test the casing and BOPE. Rig purpos used in this area cannot safely test above 1000 psi. We would have to go to the greater expense of hilting an independent sentce company to do the testing. Also, the bettom hole pressure in this field is proven to be near 1000 psi. A shut in surface pressure would be less than 1000 psi. We feel that a 1100 psi test will demonstrate that the BOPE is functioning properly, and in the unlikely event of a gas influx that the BOPE would be sufficient to control the well.

NO DES

## Hackey Sack BHV Federal Com. #1 Page 2

### **B. CEMENTING PROGRAM:**

Surface Casing:

Cement with 300 sx "C" + 2% (YLD 1.32 WT 15.6).

Intermediate Casing: Cement with 400 sx Lite (YLD 2.0 Wt 12.5) Tail in w/200 sx C

+ 2% Calcl2 (YLD 1.32 wt 15.6).

**Production Casing:** 

750 sx Lite "C" (YLD 2.0 WT 13.0). TOC 1000' Tail w/600 sx

Super H.

#### MUD PROGRAM AND AUXILIARY EQUIPMENT: 5.

<u>Interval</u>	<u>Type</u>	<u>Weight</u>	<u>Viscosity</u>	<u>Fluid Loss</u>
0-400'	FW /Native Mud	8.4-9.2	28-32	N/C
400'-1500'	FW	8.4-8.8	28	N/C
1500'-7100'	Cut Brine	8.8-9.4	28	N/C
7100'-TD	Salt Gel/Starch	9.4-9.8	30-38	<12

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

#### 6. **EVALUATION PROGRAM:**

Samples: 10' samples -Surface casing - TD.

Logging:

Platform Express, CNL/LDT/NGT - TD - surface casing, CNL/GR - TD -

surface, DLL-MSFL - TD - surface casing, BHC - Sonic - TD - surface casing;

Coring: None DST's: None

#### 7. ABNORMAL CONDITIONS, BOTTOM HOLE PRESSURE, AND POTENTIAL HAZARDS:

Anticipated BHP:

From: From:

TO: 400' 0 400' TO: 1500'

Anticipated Max. BHP: Anticipated Max. BHP:

190 PSI 685 PSI

From:

1500'

TO: 8005'

Anticipated Max. BHP:

4080 PSI

Abnormal Pressures Anticipated: None

Lost Circulation Zones Anticipated: None.

H2S Zones Anticipated: None Anticipated

Maximum Bottom Hole Temperature: 140 F

#### ANTICIPATED STARTING DATE: 8.

Plans are to drill this well as soon as possible after receiving approval. It should take approximately 15 days to drill the well with completion taking another 15 days.

### MULTI-POINT SURFACE USE AND OPERATIONS PLAN YATES PETROLEUM CORPORATION Hackey Sack BHV Federal Com. #1 990' FNL and 660' FWL

Section 4-T14S-R27E Chaves County, New Mexico

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

#### 1. EXISTING ROADS:

Exhibit A is a portion of the BLM map showing the well and roads in the vicinity of the proposed location. The proposed well site is located approximately 6 miles east of Hagerman, New Mexico and the access route to the location is indicated in red and green on Exhibit A.

#### **DIRECTIONS:**

FROM THE EAST SIDE OF HAGERMAN, GO EAST ON HIGHWAY 249
UNTIL YOU REACH THE INTERSECTION OF ABERDEEN ROAD AND
MONO ROAD, TRAVEL EAST (EAST) ON ABERDEEN ROAD FOR
APPROXIMATELY 6.3 MILES TO CATTLEGUARD ON LEFT (NORTH) AND
TURN. TRAVEL EAST FOR APPROXIMATELY .5 OF MILE THEN TURN
LEFT (NORTH) AND CONTINUE FOR APPROXIMATELY .7 OF MILE TO THE LONG
ARROYO WH FEDERAL #1, TURN LEFT AND TRAVEL WEST FOR APPROXIMATELY
.3 OF MILE AND TURN RIGHT AND TRAVEL NORTHWESTERLY FOR
APPROXIMATLEY 2.2 MILES ON OLD TWO TRACK ROAD TO NEW LEASE ROAD ACCESS
TO THE LEFT.

#### PLANNED ACCESS ROAD:

- A. The proposed new access will be approximately 0.3 of a mile in length from the point of origin to the northeast corner of the drilling pad.
- B. The new road will be 14 feet in width (driving surface) and will be adequately drained to control runoff and soil erosion.
- C. The new road will be bladed with drainage on both sides. No traffic turnout will be built.
- D. The route of the road is visible.
- E. Existing roads will be maintained in the same or better condition.

## 3. LOCATION OF EXISTING WELL:

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

#### 4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

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

# Hackey Sack BHV Federal Com. #1 Page 2

#### LOCATION AND TYPE OF WATER SUPPLY:

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

#### 6. SOURCE OF CONSTRUCTION MATERIALS:

The dirt contractor will be responsible for finding a source of material for construction of road and pad and will obtain any permits which may be required.

#### METHODS OF HANDLING WASTE DISPOSAL:

A. Drill cuttings will be disposed of in the reserve pits.

B. Drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry.

C. Water produced during operations will be collected in tanks until hauled to an approved disposal system, or separate disposal application will be submitted.

D. Oil produced during operations will be stored in tanks until sold.

E. Current laws and regulations pertaining to the disposal of human waste will be complied with.

F. All trash, junk, and other waste materials will be contained in trash cages or bins to prevent scattering and will be removed and deposited in an approved sanitary landfill. Burial on site is not approved.

#### 8. ANCILLARY FACILITIES: NONE

#### WELLSITE LAYOUT:

- A. Exhibit C shows the relative location and dimensions of the well pad, the reserve pits, the location of the drilling equipment, rig orientation and access road approach. Note: Pits to Southwest
- B. The reserve pits will be plastic lined. Yates Petroleum Corporation is in full compliance with the OCD General Plan for Drilling Pits approved on April 15, 2004.
- C. A 600' x 600' area has been staked and flagged.

#### 10. PLANS FOR RESTORATION:

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

# Hackey Sack BHV Federal Com. #1 Page 3

11. SURFACE OWNERSHIP: Private surface belonging to LJ Wiggins Ranch LTD, (Jean Wiggins) 7525 Wiggins Lane, Hagerman, New Mexico, 88232, (505) 752-3377. Yates Petroleum Corporation certifies that Ms. Wiggins and Yates have reached an agreement as to Yate's operations on this well.

#### 12. OTHER INFORMATION:

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

#### 13. OPERATOR'S REPRESENTATIVE:

A. Through A.P.D. Approval: B. Debbie L. Caffall, Regulatory Agent Yates Petroleum Corporation 105 South Fourth Street Artesia, New Mexico 88210 Phone (505) 748-1471

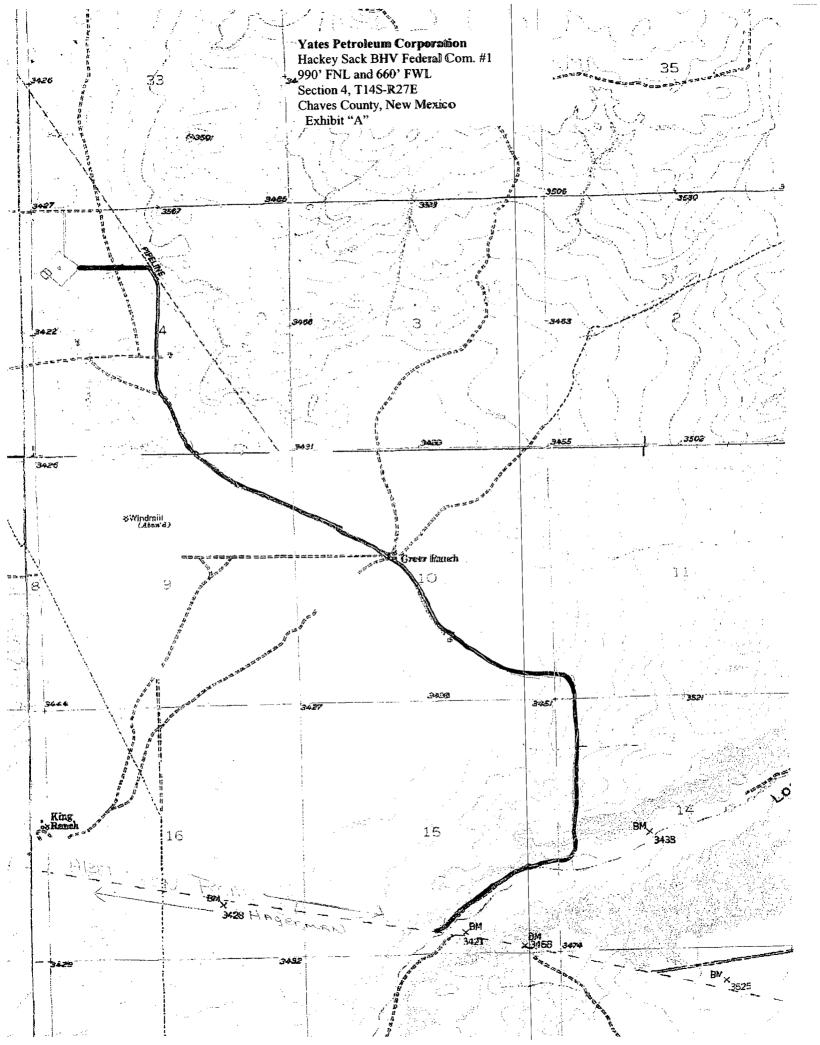
Through Drilling, Completions & Prod. Pinson McWhorter, Operations Manager Yates Petroleum Corporation 105 South Fourth Street Artesia, New Mexico 88210 Phone (\$05) 748-1471

#### 14. CERTIFICATION:

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

11/11/2005

Regulatory Agent

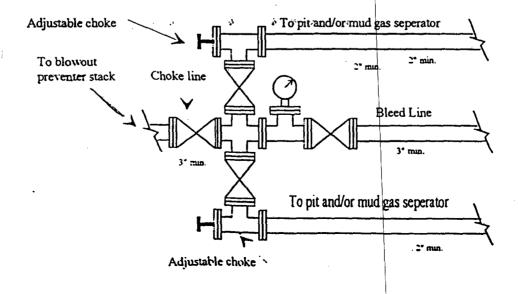


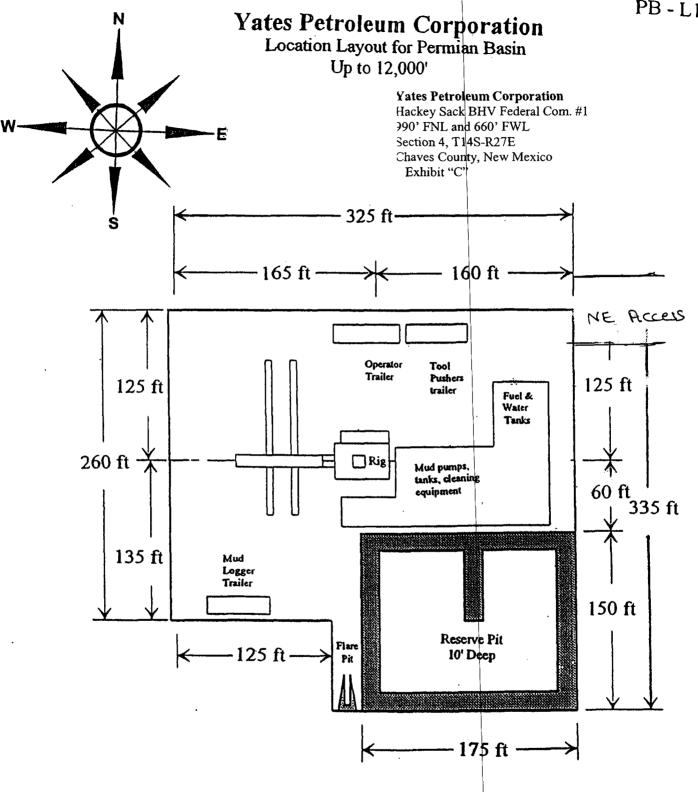
# Yates Petroleum Corporation

Typical 3.000 psi Pressure System Schematic

Annular with Double Ram Preve Yates Petroleum Corporation Hackey Sack BHV Federal Com. #1 990' FNL and 660' FWL Kelly Section 4, T14S-R27E Chaves County, New Mexico Exhibit "B" Fill Up Line Annular Preventer Blind Rams Pipe Rams Choke Line Kill Line Intermediate Casing Well Head 3° min. Check Valve Intermediate Casing sequence optional

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





Distance from Well Head to Reserve Pit will vary between rigs

The above dimension should be a maximum

# **EXHIBIT A**

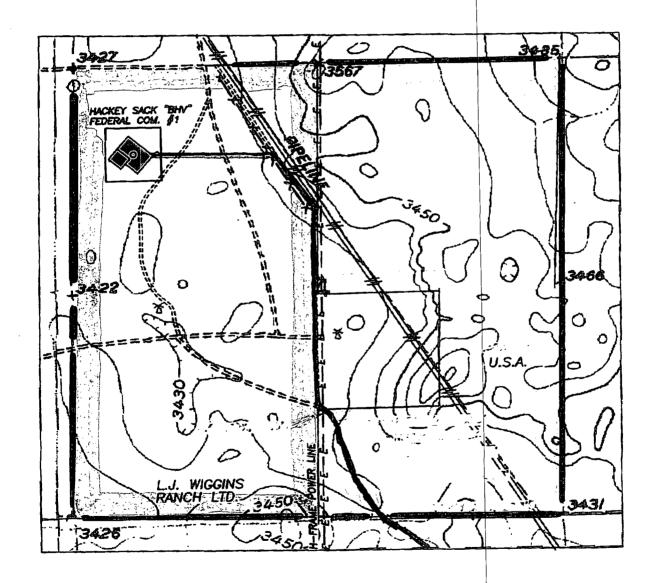
OPERATORS NAME: Yates Petroleum Corporation LEASE NO.: NM-96048

WELL NAME & NO: Hackey Sack "BHV" Federal Com. #1

QUARTER/QUARTER & FOOTAGE: NW1/4NW1/4 - 990' FNL & 660' FWL

LOCATION: Section 4, Lot 4, T. 14 S., R. 27 E., NMPM

COUNTY: Chaves County, New Mexico



### WELL DRILLING REQUIREMENTS

### 3 of 6 pages

### III. DRILLING OPERATION REQUIREMENTS:

#### A. GENERAL DRILLING REQUIREMENTS:

- 1. The Bureau of Land Management (BLM) is to be notified at the Roswell Field Office, 2909 West Second St., Roswell NM 88201, (505) 627-0272, in sufficient time for a representative to witness:
- A. Spudding B. Cementing casing: 11<sup>3</sup>/<sub>4</sub> inch 8<sup>5</sup>/<sub>6</sub> inch 5<sup>1</sup>/<sub>2</sub> inch C. BOP tests
- 2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
- 3. Submit a Sundry Notice (Form 3160-5, one original and five copies) for each casing string, describing the casing and cementing operations. Include pertinent information such as; spud date, hole size, casing (size, weight, grade and thread type), cement (type, quantity and top), water zones and problems or hazards encountered. The Sundry shall be submitted within 15 days of completion of each casing string. The reports may be combined into the same Sundry if they fall within the same 15 day time frame.
- 4. The API No. assigned to the well by NMOCD shall be included on the subsequent report of setting the first casing string.
- 5. A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

#### B. CASING:

- 1. The 11½ inch surface casing shall be set at 400' and cement circulated to the surface. If dement does not circulate to the surface the appropriate BLM office shall be notified and a temperature survey or cement bond log shall be run to verify the top of the cement. Remedial cementing shall be completed prior to drilling out that string.
- 2. The minimum required fill of cement behind the 8% inch intermediate casing if run is with sufficient amount of cement bring it up at least 200 above 11% shoe.
- 3. The minimum required fill of cement behind the 5½ inch production casing is cement shall extend upward a minimum of 200 feet above the Glorieta formation.

#### C. PRESSURE CONTROL:

- 1. All BOP systems and related equipment shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2. The BOP and related equipment shall be installed and operational before drilling below the 11½ inch casing shoe and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.
- 2. Minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 3000 psi.
- 3. The appropriate BLM office shall be notified in sufficient time for a representative to witness the tests.
- A. The results of the test shall be reported to the appropriate BLM office.
- B. Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.
- C. Testing must be done in a safe workman-like manner. Hard line connections shall be required.
- D. BOPE shall be tested before drilling into the Wolfcamp formation.

#### D. DRILLING MUD:

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the wolfcamp formation, and shall be used until production casing is run and cemented. Monitoring equipment shall consist of the following:

- A. Recording pit level indicator to indicate volume gains and losses.
- B. Mud measuring device for accurately determining the mud volumes necessary to fill the hole during trips.
- C. Flow-sensor on the flow-line to warn of abnormal mud returns from the well.