

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

Form 3160-3
(August 1999)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

RECEIVED

APR 27 2006

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

1a. Type of Work: ☒ DRILL ☐ REENTER

b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☐ Single Zone ☒ Multiple Zone

5. Lease Serial No.

NM-14293

6. If Indian, Allottee or Tribe Name

Not Applicable

7. If Unit or CA Agreement, Name and No.

Not Applicable

8. Lease Name and Well No.

Jervis "AYB" Federal #5

A

2. Name of Operator

Yates Petroleum Corporation

25575

3A. Address 105 South Fourth Street

Artesia, New Mexico 88210

3b. Phone No. (include area code) 76130

(505) 748-1471

9. API Well No.

30-005-63820

10. Field and Pool, or Exploratory

Ranchy Pool - Permian

4. Location of Well (Report location clearly and in accordance with any State requirements. *)

At surface

1980' FSL and 1980' FWL

At proposed prod. Zone

same as above

11. Sec., T., R., M., or Blk. and Survey or Area

Section 24, T8S-R26E

14. Distance in miles and direction from nearest town or post office*

Approximately twenty (20) miles Northeast of Roswell, NM

12. County or Parish

Chaves County

13. State

New Mexico

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

660'

16. No. of Acres in lease

2520

17. Spacing Unit dedicated to this well

320 acres

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

19. Proposed Depth

6750'

20. BLM/BIA Bond No. on file

NM-2811

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

3960' GL

22. Approximate date work will start*

ASAP

23. Estimated duration

30 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 office.

25. Signature

Debbie Caffall

email: debbiec@ypcnm.com

Name (Printed/Typed)

Debbie Caffall/Land Department

Date

3/10/2006

Title: Regulatory Agent

Approved by (Signature)

/S/LARRY D. BRAY

Name (Printed/Typed)

/S/LARRY D. BRAY

Date

APR 26 2006

Title

Assistant Field Manager,
Lands And Minerals

Office

ROSWELL FIELD OFFICE

APPROVED FOR 1 YEAR

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.

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 reverse)

Previously Approved

C-144 attached

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

DISTRICT I
25 N. French Dr., Hobbs, NM 88240
DISTRICT II
211 South First, Artesia, NM 88210

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

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87505

STATE OF NEW MEXICO
Energy, Minerals and Natural Resources Department

Revised March 17, 1999
Instruction on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 76730	Pool Name Undes. Foor Ranch, Pre-Permian
Property Code	Property Name JERVIS "AYB" FEDERAL COM.	Well Number 5
OGRID No. 025575	Operator Name YATES PETROLEUM CORPORATION	Elevation 3979

Surface Location


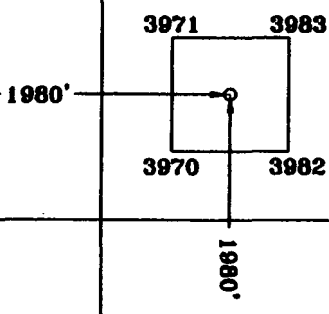
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	24	8S	26E		1980	SOUTH	1980	WEST	CHAVES

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

Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.
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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

				OPERATOR CERTIFICATION I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.  Signature Robert Asher Printed Name Regulatory Agent Title 5/20/2005 Date	
				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. 5/04/2005 Date Surveyed Signature Professional Surveyor Herschel L. Jones Certificate No. 3640 GENERAL SURVEYING COMPANY	
		N.33°36'12.3" W.104°15'08.3" N.947030.5 E.524828.2 (NAD-27)			
NM-14293				NM-20346	

0 330' 660' 990' 1650' 1980' 2310' 2310' 1980' 1650' 990' 660' 330' 0'

French Dr., Hobbs, NM 88240
District II
101 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-144
March 12, 2004

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

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

Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☒ No ☐

Type of action: Registration of a pit or below-grade tank ☒ Closure of a pit or below-grade tank ☐

Operator: Yates Petroleum Corporation Telephone: (505) 748-1471 e-mail address: debbiec@ypcnm.com
Address: 105 South 4th Street, Artesia, New Mexico 88210
Facility or well name: Jervis AYB Federal #5 API #: 30-005-63669 U/L or Qtr/Qtr L. Sec 24 T 8S R 26E
County: Chaves Latitude _____ Longitude _____ NAD: 1927 ☐ 1983 ☐ Surface Owner - Federal ☒ State ☐ Private ☐ Indian ☐

Pit Type: Drilling Production <input type="checkbox"/> Disposal <input type="checkbox"/> Workover <input type="checkbox"/> Emergency <input type="checkbox"/> Lined <input checked="" type="checkbox"/> Unlined <input type="checkbox"/> Liner type: Synthetic <input checked="" type="checkbox"/> Thickness <u>12</u> mil Clay <input type="checkbox"/> Volume _____ bbl	Below-grade tank Volume: _____ bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not: _____	
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet (20 points) 50 feet or more, but less than 100 feet (10 points) 100 feet or more (0 points)	RECEIVED MAY 20 2005 MOCD-ARTESIA
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) No (0 points)	
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet (20 points) 200 feet or more, but less than 1000 feet (10 points) 1000 feet or more (0 points)	
Ranking Score (Total Points) . (0 points)		

If this is a pit closure: (1) attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: onsite ☐ offsite ☐ If offsite, name of facility _____ (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☐ If yes, show depth below ground surface _____ ft. and attach sample results. (5) Attach soil sample results and a 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 further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☒, or an (attached) alternative OCD-approved plan ☐.

Date: March 16, 2005

Printed Name/Title Debbie L. Caffal/Regulatory Technician/Land Department Signature Debbie L. Caffal

Email: debbiec@ypcnm.com

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approved: MAY 23 2005

Date: _____

Printed Name/Title _____

Signature _____

YATES PETROLEUM CORPORATION

Jervis "AYB" Federal #5

1980' FNL and 660' FEL

Section 24-T8S-R26E

Chaves County, New Mexico

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

San Andres	1280'	Cisco	5915'
Glorieta	2570'	Strawn	6035'
Yeso	2495'	Mississippian	6270'
Tubb	3945'	Siluro-Devonian	6350'
Abo	4640'	Basement	6600'
Wolfcamp	5340'	TD	6750'

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

Water: 250'-350'
Oil or Gas: All potential formations.

3. Pressure Control Equipment: BOPE will be installed on the 8 5/8" casing and rated for 2000# BOP systems will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings, which are set and cemented in place. Blowout Preventor controls will be installed prior to drilling the surface plug and will remain in use until the well is completed or abandoned. Preventors will be inspected and operated at least daily to ensure good mechanical working order, and this inspection recorded on the daily drilling report. See Exhibit B.

Auxiliary Equipment:

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

4. THE PROPOSED CASING AND CEMENTING PROGRAM:

- A. Casing Program: (All New)

<u>Hole Size</u>	<u>Casing Size</u>	<u>Wt./Ft</u>	<u>Grade</u>	<u>Coupling</u>	<u>Interval</u>	<u>Length</u>
12 1/4"	8 5/8"	24#	J-55	ST&C	0-1000'	1000'
7 7/8"	5 1/2"	15.5#	J-55	ST&C	0-6750'	6750'

1. Minimum Casing Design Factors: Collapse 1.125, Burst 1.0, and Tensile Strength 1.8
2. A 2,000 psi BOP will be nipped 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 rig pumps will be used to test the casing and BOPE. Rig pumps used in this area cannot safely test above 1000 psi. We would have to go to the greater expense of hiring an independent service company to do the testing. Also, the bottom 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.

Jervis "AYB" Federal #5

Page 2

B. CEMENTING PROGRAM:

Surface Casing: Cement with 325 sx Lite "C" (YLD 2.0 WT 12.5). Tail in with 200 sx "C" + 2% CaCl₂ (YLD 1.33 WT 15.6).

Production Casing: 550 sx PVL (YLD 1.34 WT 13). TOC 4100'.

5. MUD PROGRAM AND AUXILIARY EQUIPMENT:

<u>Interval</u>	<u>Type</u>	<u>Weight</u>	<u>Viscosity</u>	<u>Fluid Loss</u>
0-1000'	FW GEL/Paper/LCM	8.6-9.6	32-36	N/C
1000'-4600'	Brine	10.0-10.2	28	N/C
4600'-6750'	Starch/Salt Gel	9.3-10.2	32-40	<6CC

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 out from under surface casing.

Logging: Platform Express, CNL/LDT W/NGT to TD to surface casing, w/ GR/CNL TD to surface, DLL/MSFL TD to surface casing, BHC Sonic TD to surface casing; FMI TD - top of Wolfcamp; CMR over Strawn Sands.

Coring: Sidewall

DST's: None

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

Anticipated BHP:

From: 0	TO: 1000'	Anticipated Max. BHP: 400 PSI
From: 1000'	TO: 6750'	Anticipated Max. BHP: 3000 PSI

Abnormal Pressures Anticipated: None

Lost Circulation Zones Anticipated: None.

H₂S Zones Anticipated: None Anticipated

Maximum Bottom Hole Temperature: 145 F

8. ANTICIPATED STARTING DATE:

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
Jervis "AYB" Federal #5
1980' FNL and 660' FWL
Section 24-T8S-R26E
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 20 miles northeast of Roswell, New Mexico and the access route to the location is indicated in red and green on Exhibit A.

DIRECTIONS:

Go northeast out of Roswell, NM on Hwy 70 to Ponderosa Road. Turn right, southeast, on Ponderosa Road and go approximately 1.1 miles to lease road. Turn right, southwest, and going approximately 2.2 miles to the El Paso Pipeline Road, turn right (northwest) and drive approx. 0.6 of a mile. The access road is staked on the right (north) for approx. 600' to the southwest corner of the location.

2. PLANNED ACCESS ROAD:

- A. The proposed new access will be approximately 600' in length from the point of origin to the southwest 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 production facilities on this lease at the present time.
- B. In the event that the well is productive, the necessary production facilities will be installed on the drilling pad. If the well is productive oil, a gas or diesel self-contained unit will be used to provide the necessary power. No power will be required if the well is productive of gas.

5. LOCATION AND TYPE OF WATER SUPPLY:

- A. It is planned to drill the proposed well with a fresh water system. The water will be obtained from commercial sources, possibly in Roswell, 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.

7. METHODS OF HANDLING WASTE DISPOSAL:

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

8. ANCILLARY FACILITIES: NONE

9. WELLSITE LAYOUT:

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

10. PLANS FOR RESTORATION:

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

11. SURFACE OWNERSHIP: Wes Runyun – Roswell, New Mexico

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.

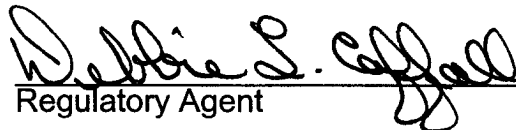
13. OPERATOR'S REPRESENTATIVE:

- | | |
|--|---|
| A. Through A.P.D. Approval:
Debbie Caffall, Regulatory Agent
Yates Petroleum Corporation
105 South Fourth Street
Artesia, New Mexico 88210
Phone (505) 748-1471 | B. Through Drilling, Completions & Prod.
Pinson McWhorter, Operations Manager
Yates Petroleum Corporation
105 South Fourth Street
Artesia, New Mexico 88210
Phone (505) 748-1471 |
|--|---|

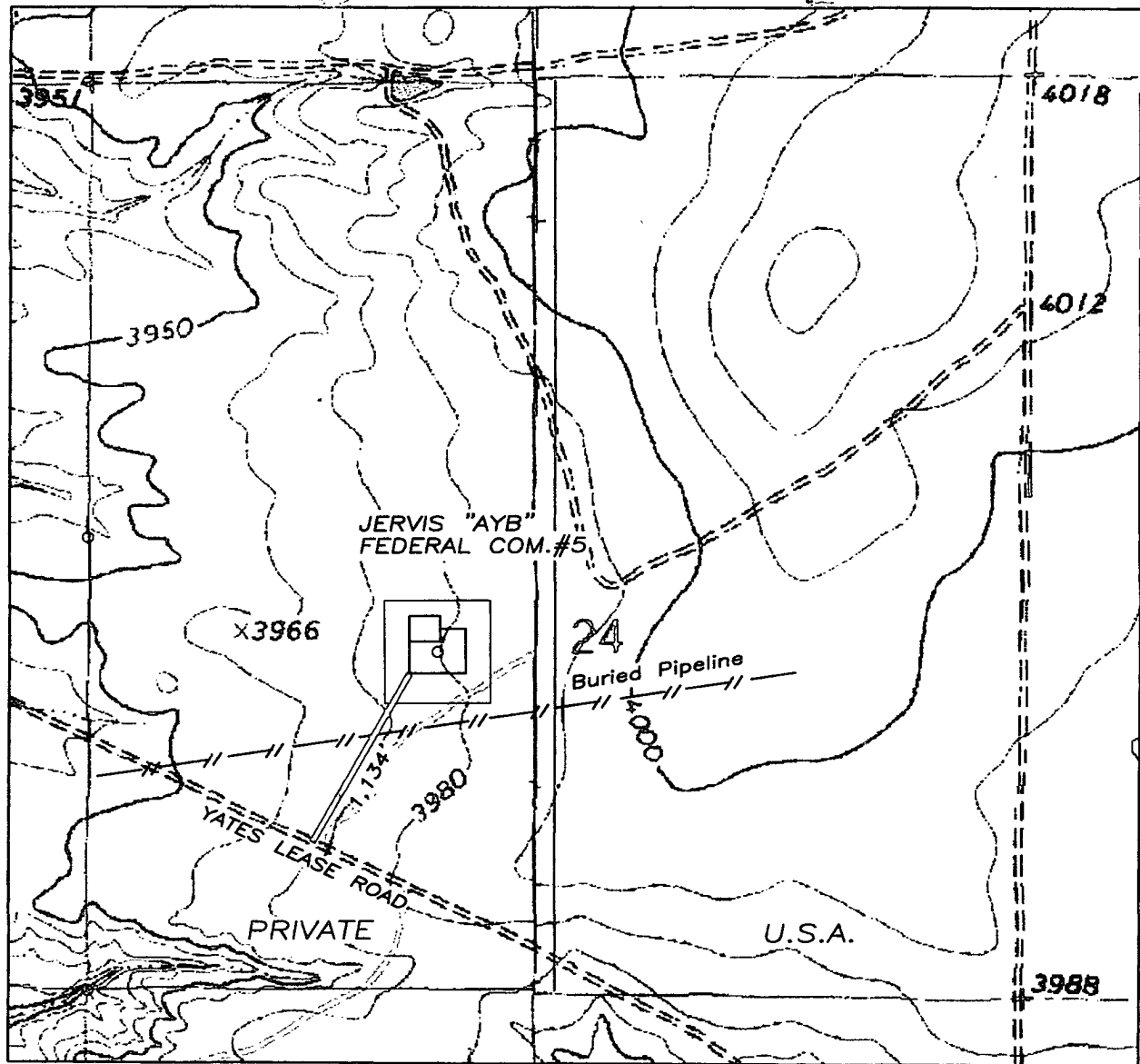
14. CERTIFICATION:

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

03/10/06

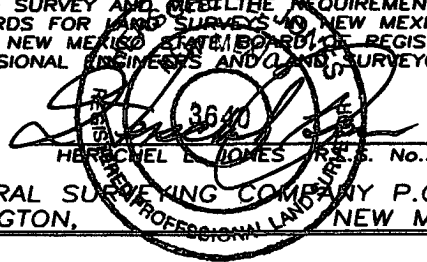

Regulatory Agent

ON 24, TOWNSHIP 8 S, R. 26 E, NMPM, CHAVES COUNTY, NEW MEXICO.



1000' 0 1000' 2000'
Scale 1" = 1000'

THE PREPARATION OF THIS PLAT AND THE PERFORMANCE OF THE SURVEY UPON WHICH IT IS BASED WERE DONE UNDER MY DIRECTION AND THE PLAT ACCURATELY DEPICTS THE RESULTS OF SAID SURVEY AND MEET THE REQUIREMENTS OF THE STANDARDS FOR LAND SURVEYS IN NEW MEXICO AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS.



HERSCHEL E. JONES R.S. No. 3640

GENERAL SURVEYING COMPANY P.O. BOX 1928
LOVINGTON, NEW MEXICO 88260

YATES PETROLEUM CORP.		
LEASE ROAD TO ACCESS THE YATES JERVIS "AYB" FEDERAL COM. #5 LOCATED IN SECTION 24, TOWNSHIP 8 SOUTH, RANGE 26 EAST, NMPM, CHAVES COUNTY, NEW MEXICO.		
Survey Date: 5/04/2005	Sheet 1 of 1	Sheets
Drawn By: Ed Blevins	W.O. Number	
Date: 5/04/05	Scale 1" = 1000' JERVIS 5	

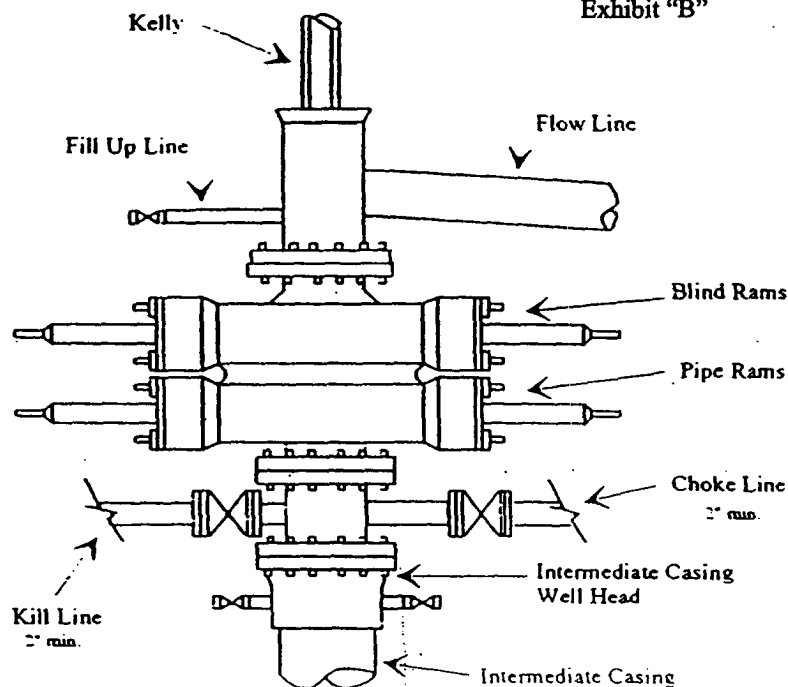
Yates Petroleum Corporation

BOP-2

Typical 2,000 psi Pressure System Schematic

Double Ram Preventer Stack

Yates Petroleum Corporation
Jervis "AYB" Federal Com. #5
1980' FSL & 660' FWL
Section 24-T8S-R26E
Chaves County, New Mexico
Exhibit "B"



Typical 2,000 psi choke manifold assembly with at least these minimum features

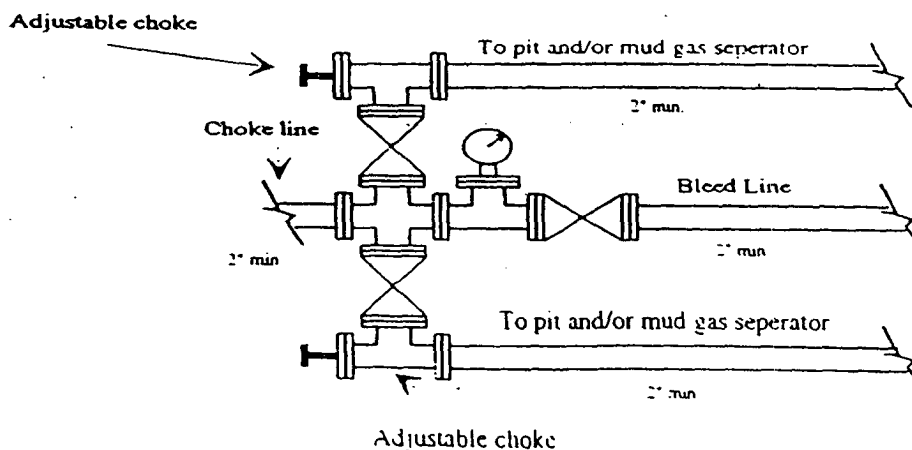
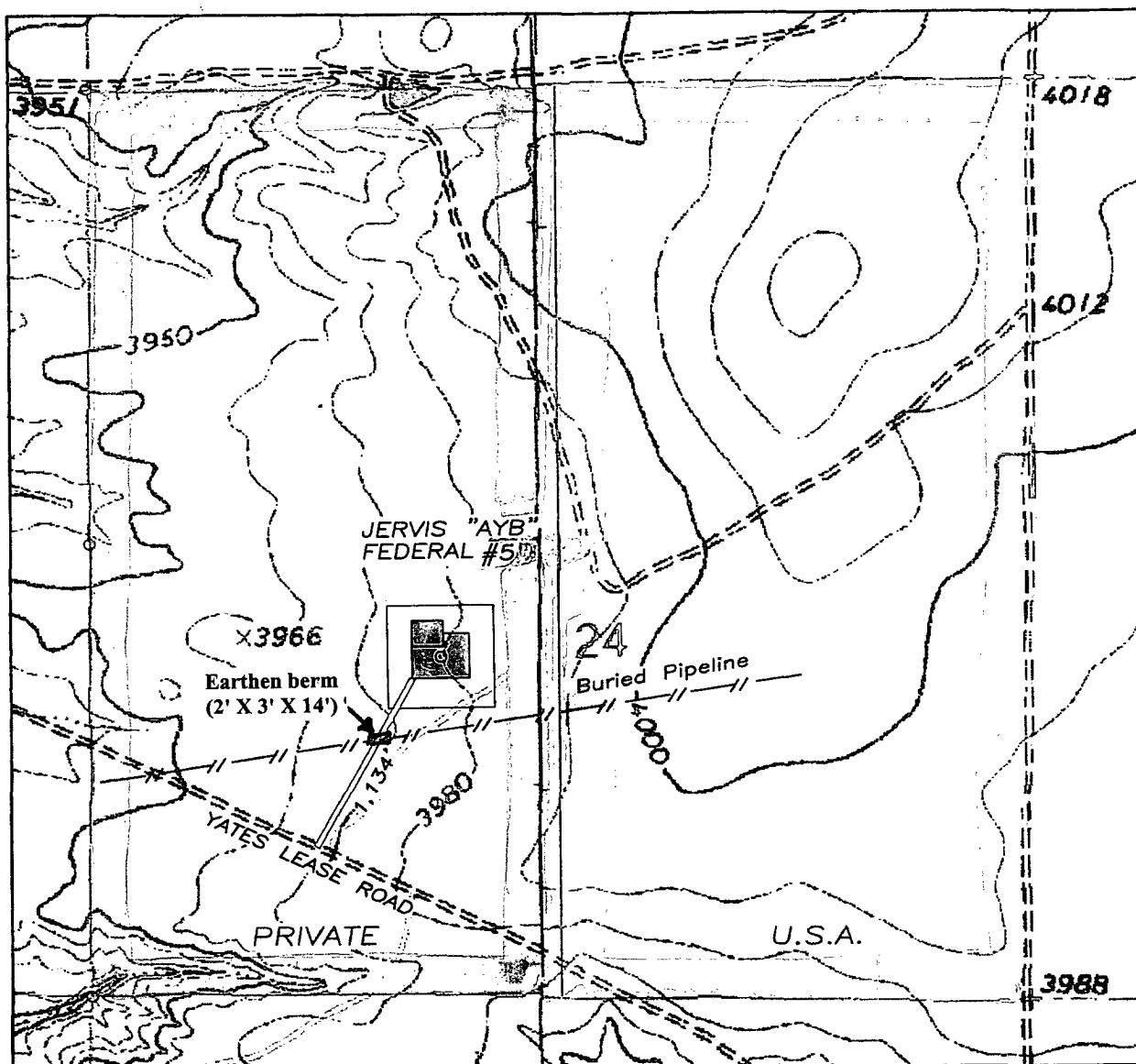


EXHIBIT A

OPERATORS NAME: Yates Petroleum Corporation LEASE NO.: NM-14293
WELL NAME & NO: Jervis "AYB" Federal #5
QUARTER/QUARTER & FOOTAGE: NE¼SW¼ - 1980' FSL & 1980' FWL
LOCATION: Section 24, T. 8 S., R. 26 E., NMPM
COUNTY: Chaves County, New Mexico



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: 8 $\frac{5}{8}$ inch 5 $\frac{1}{2}$ 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.

B. CASING:

1. The 8 $\frac{5}{8}$ inch surface casing shall be set at 1000' and cement circulated to the surface. If cement 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 5 $\frac{1}{2}$ inch intermediate casing is cement shall extend upward a minimum of 500 feet above the uppermost perforation.

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 8 $\frac{5}{8}$ 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 2000 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.
- C. Use of drilling mud for testing is not permitted since it can mask small leaks.
- D. Testing must be done in a safe workman-like manner. Hard line connections shall be required.
- E. BOPE shall be tested before drilling into the Wolfcamp formation.

C. 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.