

1625 N. French Drive
Hobbs, NM 88240FORM APPROVED
OMB No. 1004-0136
Expires November 30, 2000UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM-0559539
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Harvard Petroleum Corp.		7. If Unit or CA Agreement, Name and No.
3a. Address P.O. Box 936 Roswell, NM 88202		8. Lease Name and Well No. <u>135599</u> James 20 Federal, Well No. 2
3b. Phone No. (include area code) <u>505/ 523-1581</u>		9. API Well No. 30-025-38050
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 1980' FNL & 1980' FWL At proposed prod. zone same Unit		10. Field and Pool or Exploratory Triste Draw Delaware West Southwest
11. Sec., T., R., M., or Blk. and Survey or Area Sec. 20-T23S-R32E		12. County or Parish Lea
13. State NM		14. Distance in miles and direction from nearest town or post office* 36.5 miles east of Carlsbad, NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1980'	16. No. of Acres in lease 1440	17. Spacing Unit dedicated to this well 40
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1320'	19. Proposed Depth 8700'	20. BLM/BIA Bond No. on file NM-1109
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3671' GL	22. Approximate date work will start* February 6, 2006	23. Estimated duration 3 - 4 weeks

24. Attachments

Carlsbad Controlled Water Basin

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- | | |
|---|--|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <u>George R. Smith</u>	Name (Printed/Typed) George R. Smith	Date 11/30/05
Title Agent for: Harvard Petroleum Corp.		
Approved by (Signature) <u>/s/ Don Peterson</u>	Name (Printed/Typed) <u>/s/ Don Peterson</u>	Date AUG 02 2006
Title ACTING FIELD MANAGER		
Office BLM-CARLSBAD FIELD OFFICE		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR 1 YEAR

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

*(Instructions on reverse)

Lease Responsibility Statement: Harvard Petroleum Corp. accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof.

DECLARED WATER BASIN
CEMENT BEHIND THE 13 3/4"
CASING MUST BE CIRCULATED

WITNESS

DECLARED WATER BASIN
CEMENT BEHIND THE 8 5/8"
CASING MUST BE CIRCULATED
WITNESSKRS
George R. Smith, agentAPPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

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

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

Form C-102
Revised June 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-38050	² Pool Code 59943 96916	³ Pool Name Diamondtail Triste Draw Delaware, West Southwest
⁴ Property Code 35579	⁵ Property Name JAMES 20 FEDERAL	⁶ Well Number 2
⁷ OGRID No. 10155	⁸ Operator Name HARVARD PETROLEUM CORP.	⁹ Elevation 3671

¹⁰ Surface Location

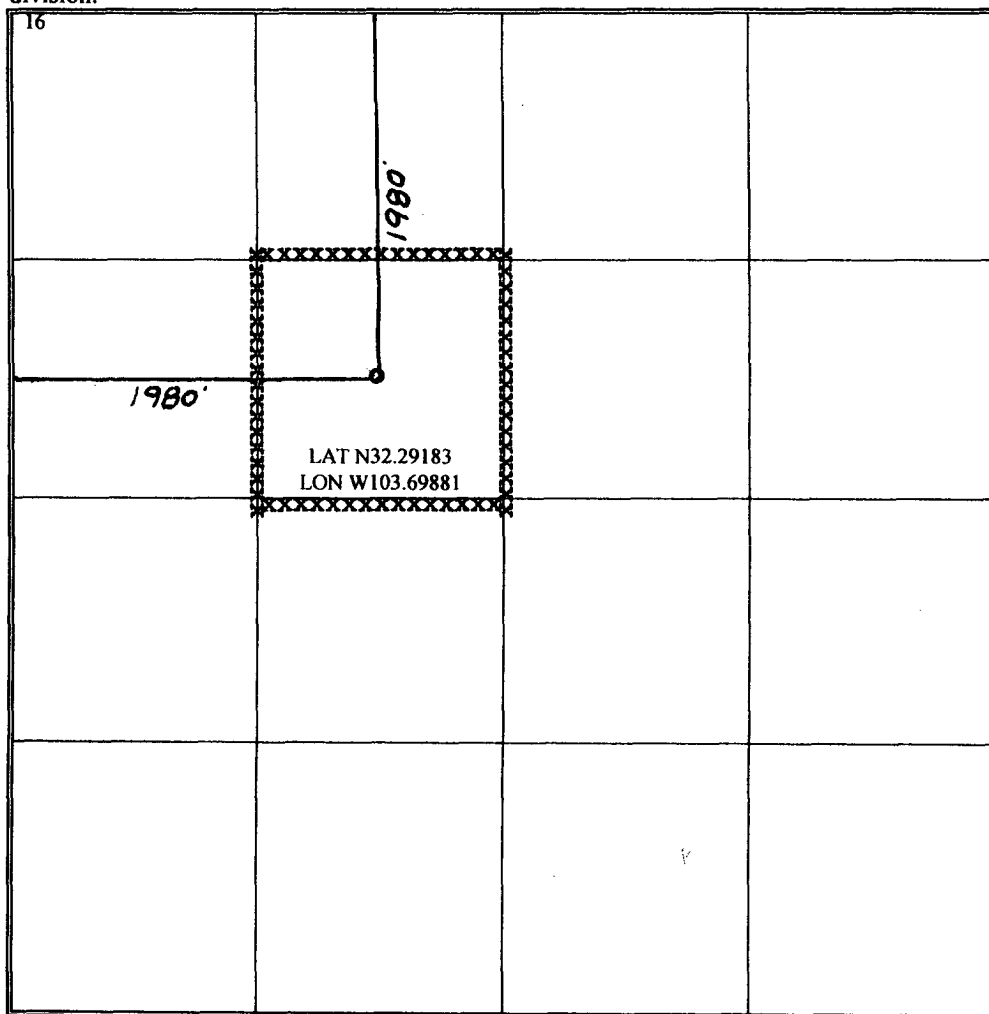
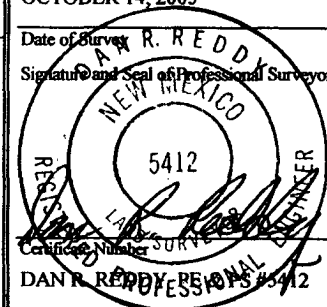
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	20	23-S	32-E		1980	NORTH	1980	WEST	LEA

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

¹² Dedicated Acre 40	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ 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.

¹⁶ 	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 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 working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature: <u>George R. Smith</u> Date: <u>11/30/05</u> George R. Smith, agent 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. OCTOBER 14, 2005 Date of Survey Signature and Seal of Professional Surveyor:  Certificate Number: <u>5412</u> DAN R. REDDY PROFESSIONAL SURVEYOR

APPLICATION FOR DRILLING

HARVARD PETROLEUM CORP.

James 20 Federal, Well No. 2
1980' FNL & 1980' FWL, Sec. 20-T23S-R32E
Lea County, New Mexico
Lease No.: NM-0559539
(Development Well)

In conjunction with Form 3160-3, Application for Permit to Drill subject well, Harvard Petroleum Corp. submits the following items of pertinent information in accordance with BLM requirements:

1. The geologic surface formation is recent Permian with quaternary alluvium and other surficial deposits.
2. The estimated tops of geologic markers are as follows:

Rustler	1220'	Lower Brushy Canyon	8220'
Salt	1470'	Bone Spring	8470'
Delaware	4640'	Bone Spring Sand	8560'
Cherry Canyon	5660'	T.D.	8700'
Brushy Canyon	7300'		

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

Water: Surface water between 120' - 300'.

Oil: Possible in the Delaware 4640 - 8500' and the Bone Spring below 8500'.

Gas: None expected.

4. Proposed Casing Program:

HOLE SIZE	CASING SIZE	WEIGHT	GRADE	JOINT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13 3/8"	54.5#	J-55	ST&C	550'	Circ. 400 sx "C"
12"	8 5/8"	24.0#	J-55	ST&C	2,500'	
12"	8 5/8"	32.0#	J-55	ST&C	4,500'	Circ. 1200 sx 35/65 Poz + 120 sx "H"
7 7/8"	5 1/2"	15.5#	K-55	LT&C	6,850'	450 sx 35/65/ Poz + 120 sx "C" neat
7 7/8"	5 1/2"	15.5#	K-55	LT&C	8,700'	400 sx 15/61/12 Poz-C-CSE, 2 stage

5. **Proposed Control Equipment:** A 12" 3000 psi wp Shaffer Type "E" BOP will be installed on the 13 3/8" casing and operated as a 2M system. Casing and BOP will be tested with the rig pump before drilling out with 12". Request waiver to test BOPE and the 8 5/8" casing to a maximum of 2000 psi wp in accordance with Onshore Oil & Gas Order No. 2. See Exhibit "E".

6. MUD PROGRAM:	MUD WEIGHT	VIS.	W/L CONTROL
0' - 550': Fresh water w/gel spud mud:	8.4 - 9.0 ppg	32 - 38	No W/L control
550' - 1400': Fresh water w/gel spud mud	8.4 - 9.0 ppg	32 - 38	No W/L control
1400' - 4500': Cut Brine w/gel & lime:	9.0 - 12.0 ppg	28 - 30	No W/L control
4500' - 8700': Fresh Wtr w/gel & starch:	8.4 - 8.8 ppg	29 - 31	W/L control 12-15 cc +/-

7. **Auxiliary Equipment:** Blowout Preventer, Kelly cock, flow sensors and stabbing valve.

8. Testing, Logging, and Coring Program:

Drill Stem Tests: None unless conditions warrant.

Logging: T.D. to 4500': GR-CNL-LDT-DLL

T.D. to Surface: GR-Neutron

Coring: Rotary sidewall as dictated by logs.

HARVARD PETROLEUM CORP.

James 20 Federal, Well No. 2

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9. No abnormal pressures or temperatures are anticipated. In the event abnormal pressures are encountered the proposed mud program will be modified to increase the mud weight. Estimated evacuated BHP = 3828 psi and a surface pressure of 1914 psi with a temperature of 147°.
12. H₂S: None expected. None in previous wells.
12. Anticipated starting date: February 6, 2006.
Anticipated completion of drilling operations: Approximately 45 days.

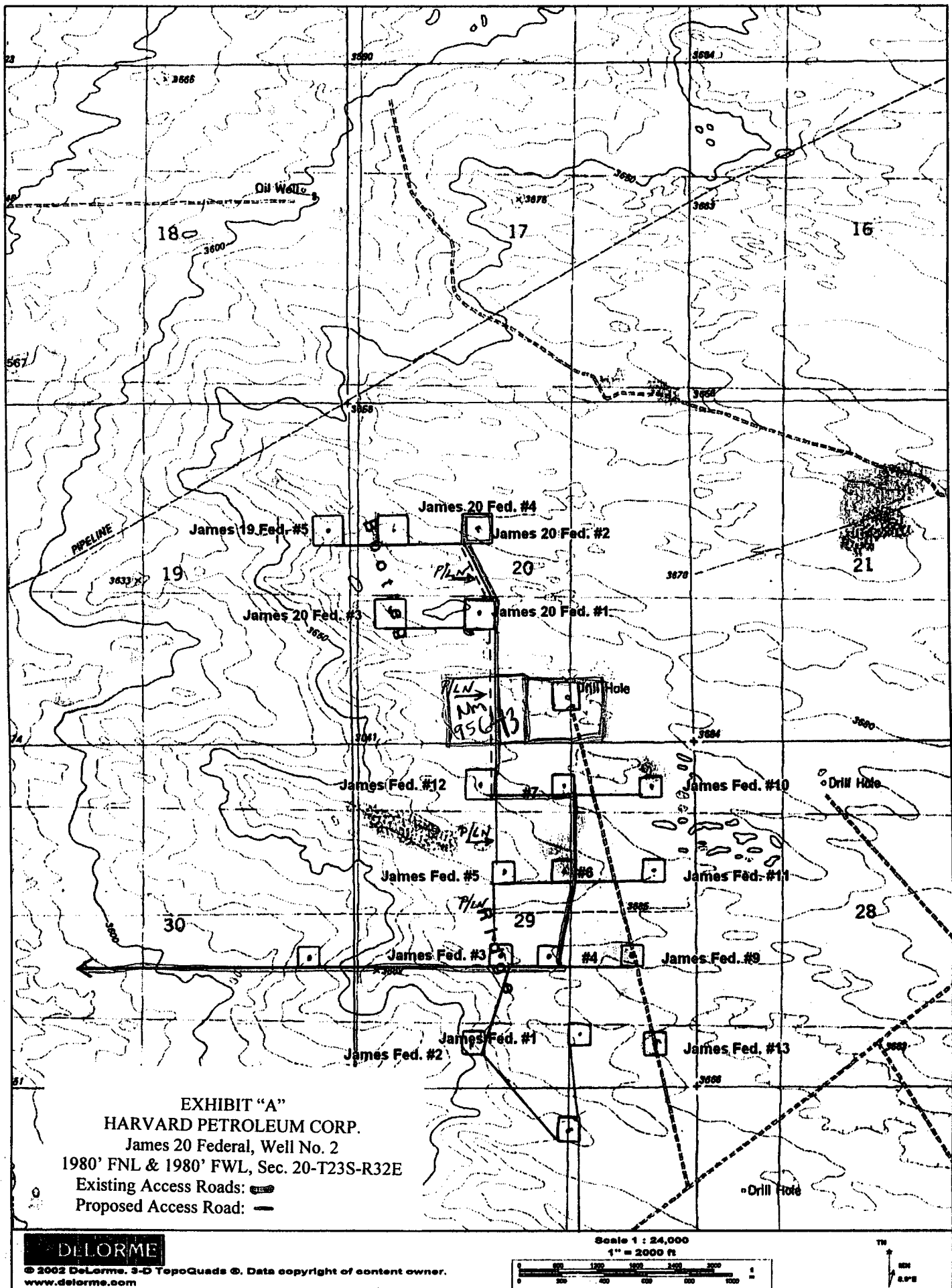




EXHIBIT "C"

HARVARD PETROLEUM CORP.

James 20 Federal, Well No. 2

180' FNL & 180' FWL, Sec. 20-T23S-R32E

Existing Wells

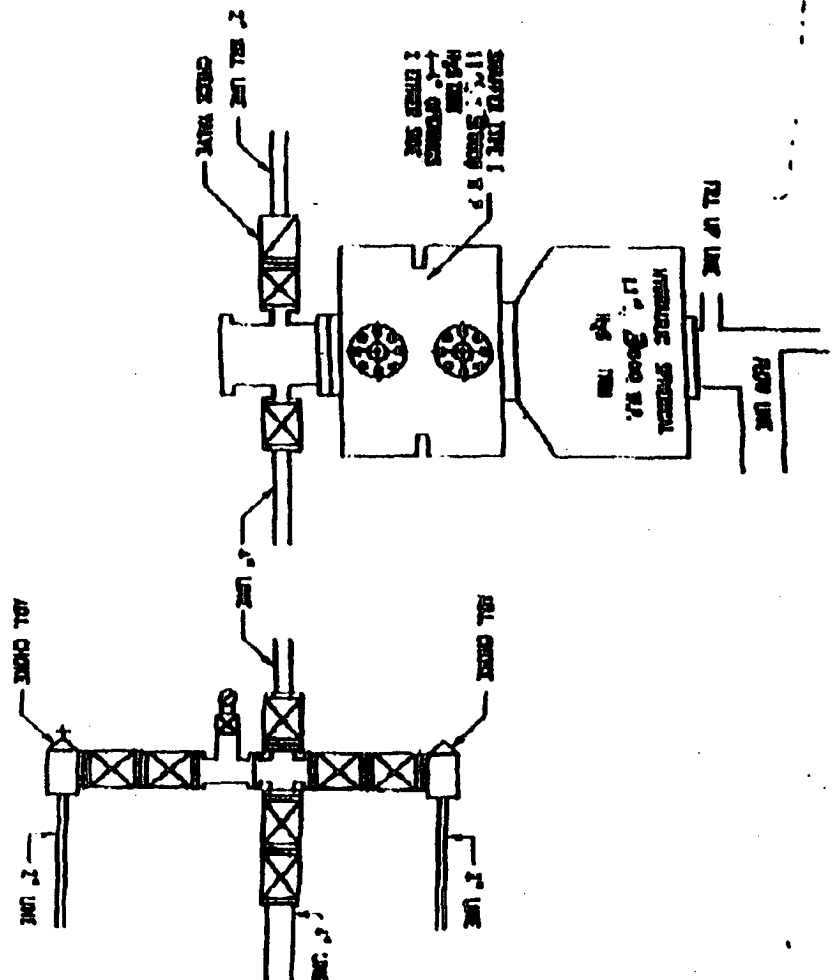


EXHIBIT "E"
HARVARD PETROLEUM CORP.
James 20 Federal, Well No. 2
BOP Specifications

CONDITIONS OF APPROVAL - DRILLING

Operator's Name: Harvard Petroleum Corporation Well No. 2 - James 20 Federal

Location: 1980' FNL & 1980' FWL sec. 20, T. 23 S., R. 32 E.

Lease: NM-0559539

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I. DRILLING OPERATIONS REQUIREMENTS:

1. The Bureau of Land Management (BLM) is to be notified at (505) 393-3612 in sufficient time for a representative to witness:

A. Spudding

B. Cementing casing: 13-3/8 inch 8-5/8 inch 5-1/2 inch

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. Include the API No. assigned to well by NMOCD on the subsequent report of setting the first casing string.

II. CASING:

1. 13-3/8 inch surface casing should be set at approximately 1215 feet in the top of the Rustler Anhydrite or per the attached ALTERNATIVE CONDITIONS OF APPROVAL - DRILLING, below usable water and circulate cement to the surface. If cement does not circulate to the surface the Hobbs 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. Minimum required fill of cement behind the 8-5/8 inch intermediate casing is sufficient to circulate to the surface per the attached ALTERNATIVE CONDITIONS OF APPROVAL - DRILLING.

3. Minimum required fill of cement behind the 5-1/2 inch production casing is sufficient to tie back 500 feet above the uppermost perforation in the pay zone.

III. PRESSURE CONTROL:

1. Before drilling below the 13-3/8 inch surface casing, the blowout preventer assembly shall consist of a minimum of One Annular Preventer or Two Ram-Type Preventers and a Kelly Cock/Stabbing Valve.

2. Before drilling below the 13-3/8 inch surface casing, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 2000 psi.

3. Before drilling below the 8-5/8 inch intermediate casing string, the BOPE shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

A. The results of the test shall be reported to the BLM Hobbs Office at 414 West Taylor, Hobbs, New Mexico 88240.

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. The requested variance to test the BOPE to a pressure of 2000 psi before drilling below the 8-5/8 inch intermediate casing string is approved.

ALTERNATIVE CONDITIONS OF APPROVAL - DRILLING

Drilling Fluids, Casing and Cementing Requirements for Most of Lea County:

Casing and Cementing

Surface casing is to be set at a sufficient depth to protect useable water zones and cement circulated to surface. In areas where the salt section (Salado) is present, surface casing should be set at least 25 feet into the top of the Rustler Anhydrite and cement circulated to the surface.

As an alternative, surface casing may be set through the Santa Rosa Formation or other potable water bearing zones and circulate cement to surface. For wells requiring an intermediate casing string, such string shall be cemented to the ground surface. In the case where intermediate casing is not required the operator shall case and cement the production hole to the ground surface.

While drilling from the surface casing to the Rustler formation it is recommended that operators periodically sweep the hole with viscous low water loss pills to help build a filter cake across useable water zones in the redbeds.

Drilling Fluid

Fresh water or fresh water spud mud shall be used to drill to surface casing depth. If surface casing is set at a lesser depth than the top of the Rustler formation, fresh water spud mud must be used to drill down to the first salt in the Rustler Formation after which brine or fresh water may be used.

Non-toxic or biodegradable water based polymers, drilling paper, starch and gels may be used in the mud system in order to retard seepage into the redbeds.

Two to five percent diesel or crude oil may be used in the redbed section in order to control heaving shales and mudstones.

Caustics and Lime shall not be used in the red beds but may be added when the Rustler formation is reached. However, sodium carbonate may be used for alkalinity or pH control while drilling the redbeds above the Rustler formation.

Additionally, questions of whether an additive may be used should be referred to the Roswell Field office.

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State of New Mexico
Energy Minerals and Natural Resources

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

Form C-144
March 12, 2004

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: Harvard Petroleum Corp. Telephone: (505) 623-1581 e-mail address: _____
Address: P.O. Box 316 Roswell, NM 88202
Facility or well name: James 20 Federal, Well No. 2 API #: 30-025-38050 U/L or Qtr/Qtr SE4NW4 Sec 20 T_23S R 32E
County: Lea Latitude N 32°29'18.3" Longitude W 103°69'88.1" NAD: 1927 ☐ 1983X Surface Owner Federal ☐ State ☐ Private ☐ Indian ☐

Pit	Below-grade tank	
Type: Drilling <input checked="" type="checkbox"/> 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 type="checkbox"/> Thickness <u>12</u> mil Clay <input type="checkbox"/> Volume 10,000 +/- <u> </u> bbl	Volume: <u> </u> 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)
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-

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 X, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Date: November 30, 2005

Printed Name/Title Agent for Harvard Petroleum Corp. Signature George R. Smith

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.

Approval:

Date: AUG 07 2006
PETROLEUM ENGINEER

Printed Name/Title _____ Signature [Signature]

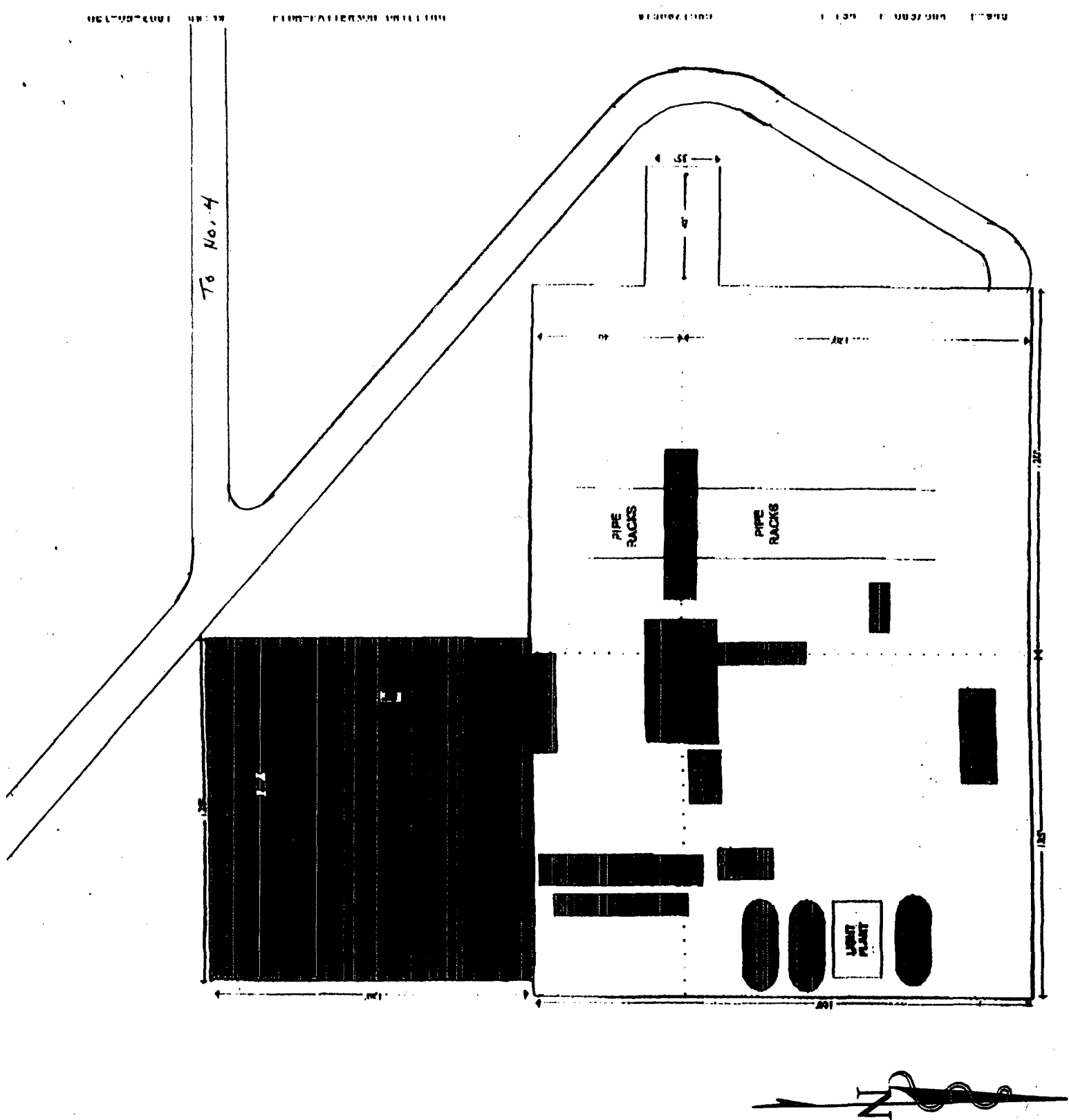


EXHIBIT "D"
 HARVARD PETROLEUM CORP.
 James 20 Federal, Well No. 2
 Pad & Pit Layout