

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD-HOBBS

H-06-53

5/16/06

FORM APPROVED
OMB No. 1004-0136
Expires November 30, 2000

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

2. Name of Operator

Harvard Petroleum Corp.

3a. Address

P.O. Box 936 Roswell, NM 88202

3b. Phone No. (include area code)

505/ 523-1581

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

At surface 1980 FSL & 660' FWL

At proposed prod. zone same

CARLSBAD CONTROLLED WATER BASIN

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) 660'

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.)

3687' GL

22. Approximate date work will start*

September 15, 2006

23. Estimated duration

3 - 4 weeks

24. Attachments

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

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).

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

25. Signature

George R. Smith

Name (Printed/Typed)

George R. Smith

Date

5/17/06

Title

Agent for: Harvard Petroleum Corp.

Approved by (Signature)

/s/ Russell E. Sorensen

Name (Printed/Typed)

/s/ Russell E. Sorensen

Date

JUL 21 2006

Title **ACTING FIELD MANAGER**

Office

CARLSBAD FIELD OFFICE

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

Conditions of approval, if any, are attached.

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)

APPROVAL FOR 1 YEAR

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

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

George R. Smith
George R. Smith, agent

Witness Surface Casing

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 30-025-38027	² Pool Code 59945	³ Pool Name Triste Draw Delaware, West
⁴ Property Code 35574	⁵ Property Name JAMES 20 FEDERAL	⁶ Well Number 3
⁷ OGRID No. 10155	⁸ Operator Name HARVARD PETROLEUM CORP.	⁹ Elevation 3687

¹⁰ Surface Location

UL or lot no. L	Section 20	Township 23-S	Range 32-E	Lot Idn	Feet from the 1980	North/South line SOUTH	Feet from the 660	East/West line WEST	County LEA
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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
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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 LAT N32.28820 LON W103.70308 660' 1980'				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. George R. Smith 5/17/06 Signature Date 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 DAN R. REDDY 5412 REGISTERED PROFESSIONAL ENGINEER CERTEC 1000 SURVEY

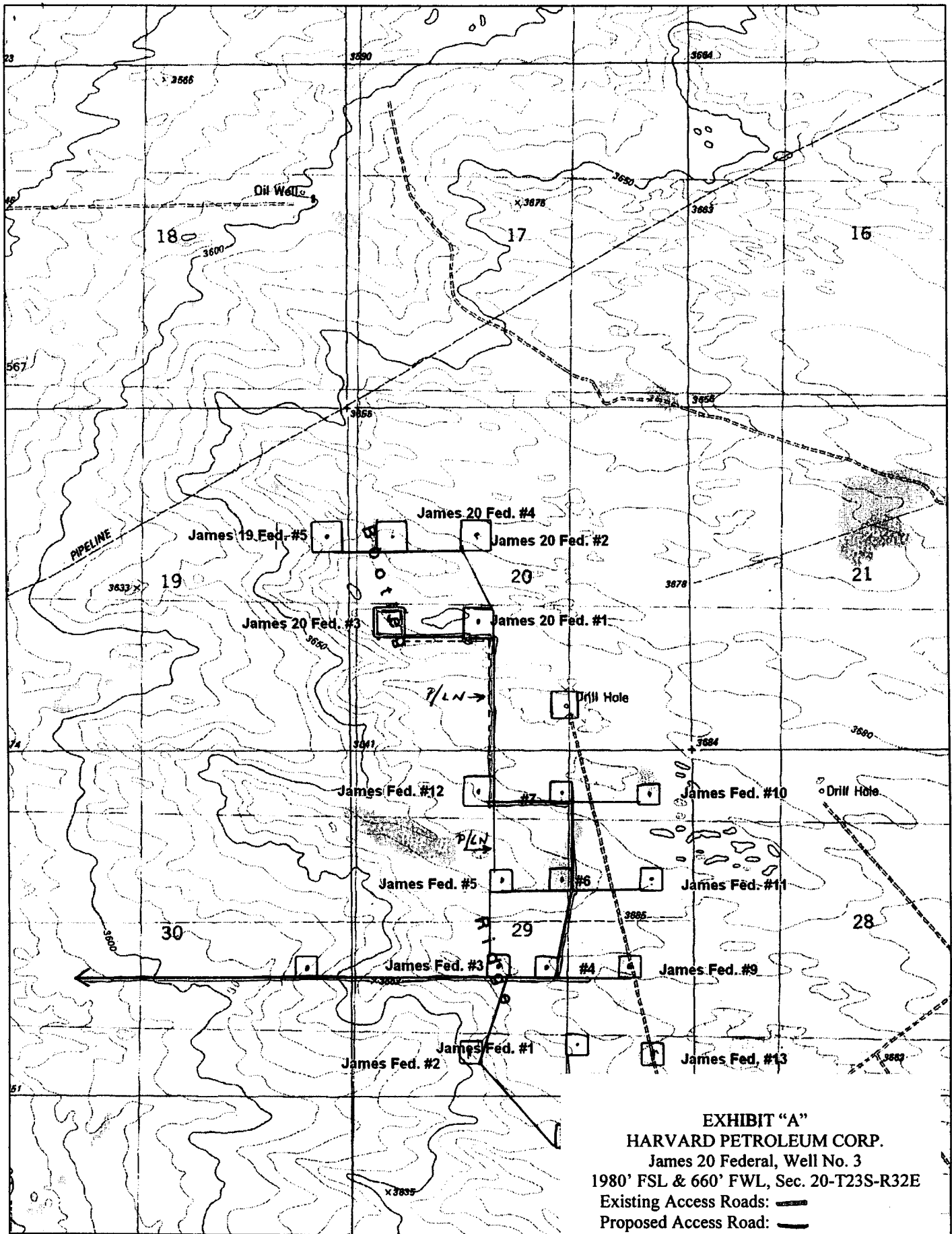


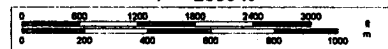


EXHIBIT "A"
HARVARD PETROLEUM CORP.

James 20 Federal, Well No. 3
 1980' FSL & 660' FWL, Sec. 20-T23S-R32E

Existing Access Roads: 
 Proposed Access Road: 

Scale 1 : 24,000
 1" = 2000 ft



DELORME

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 www.delorme.com



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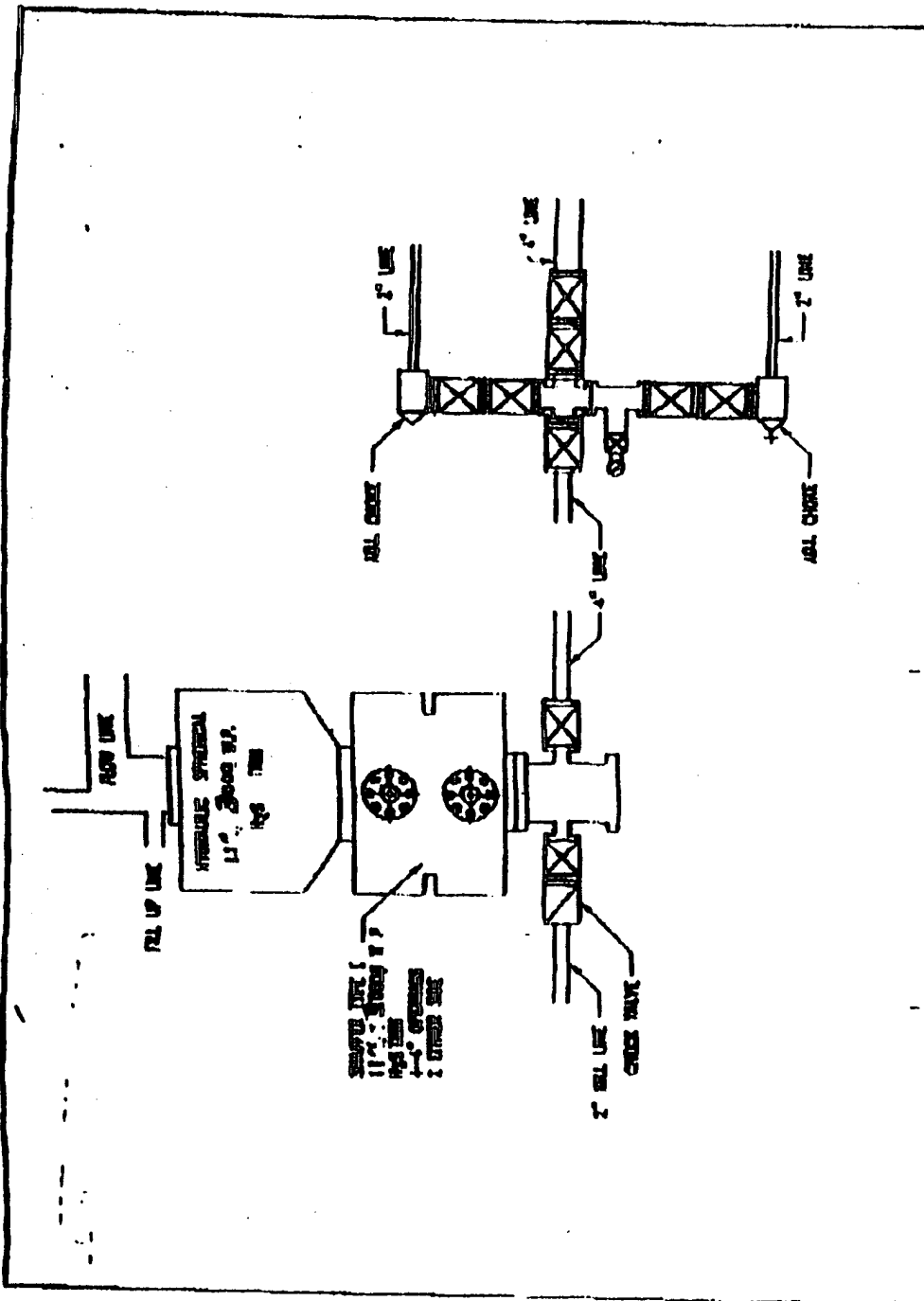


EXHIBIT "E"
 HARVARD PETROLEUM CORP.
 James 20 Federal, Well No. 3
 BOP Specifications

APPLICATION FOR DRILLING

HARVARD PETROLEUM CORP.

James 20 Federal, Well No. 3
1980' FSL & 660' 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	1120'	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 100' - 300'.

Oil: Possible in the Delaware 4640 - 8470' and the Bone Spring below 8470'.

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"
11"	8 5/8"	24.0#	J-55	ST&C	2,500'	
11"	8 5/8"	32.0#	J-55	ST&C	4,500'	Circ. 1200 sx 35/65 Poz + 100 sx "H"
7 7/8"	5 1/2"	15.5#	K-55	LT&C	6,850'	450 sx 35/65/ Poz + 100 sx "C" neat
7 7/8"	5 1/2"	15.5#	K-55	LT&C	8,700'	400 sx 15/61/11 Poz-C-CSE, 2 stage

5. **Proposed Control Equipment:** A 10" 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 11". 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 - 10.0 ppg	28 - 30	No W/L control
4500' - 8700': Fresh Wtr w/gel & starch:	8.4 - 8.8 ppg	29 - 31	W/L control 10-15 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. 3

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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°.
10. H₂S: None expected. No H₂S found in previous wells. However, the Mud Log Unit will be cautioned to use a gas trap to detect H₂S and if any is detected the mud weight will be increased along with H₂S inhibitors sufficient to control the gas.
11. Anticipated starting date: September 15, 2006
Anticipated completion of drilling operations: Approximately 4 weeks.

United States Department of the Interior
Bureau of Land Management
Roswell Field Office

Refer To: 3160-3

May 22, 2006

To: AFM, Lands and Minerals, RFO

From: Geologist, RFO

Subject: Geologic Review of Application for Permit to Drill

Operator: Harvard Petroleum Corporation

Well Name and Number: James 20 Federal No. 3

Location: 1980' FSL & 660' FWL

Section: 20, T. 23 S., R. 32 E., NMPM

County: Lea

State: NM

Lease No.: NMNM-0559539

Date APD Rec'd: 5/19/06

1. Surface Elevation **X** Surface Geology **X**

2. Geologic Marker Tops (from reports on surrounding wells):

<u>Geologic Marker</u>	<u>Depth</u>
Rustler	1170'
Salado	1500'
Castile	3683'
Lamar	4830'
Delaware	4885'

Marker tops taken from the James Federal No. 1 well located in the SW¼SE¼, sec. 29, T. 23 S., R. 32 E., NMPM

<u>Geologic Marker</u>	<u>Depth</u>
Bell Canyon	4818'
Cherry Canyon	5768'
Brushy Canyon	7311'
Basal Brushy	8253'
Bone Spring	9540'

Marker tops taken from the Falcon 32 State No. 1 well located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 32, T. 23 S., R. 32 E.

3. Fresh Water Information: Water wells are obtaining water for stock use from the Chinle and Santa Rosa Formations.

Additionally, research of the State Engineers water quality lists and the O&G historical a well files in Lea County indicates that there are many citations of usable water in the Santa Rosa and some few in the Dewey Lake Formations. Furthermore, it appears that whenever useable water is unavailable from the Quaternary Alluviums and the Ogallala Formation, water wells are then drilled to the first water encountered in the Chinle, Santa Rosa and/or the Dewey Lake Formations.

It was also noted during my research that some of the water encountered and listed as Santa Rosa is actually obtained from the Dewey Lake Formation. This apparent ambiguity is due to the similiar lithologies of the Dewey Lake and Santa Rosa Formations which in a lot of areas are indistinguishable from each other.

Regardless of the ambiguity and in keeping with the statement made by Nicholson and Clebsch (1961), A The top of the Rustler Formation should be regarded as the effective boundary below which no waters of presently useful quality can be found. The exception is the extreme west edge and the southern most portion of the county where useable water occurs in the top of the Rustler Formation. An additional point to be made here is the fact that all the red beds above the Rustler Anhydrite are basically incompetent for cementing the casing shoe in place and are more than likely washing out around the shoe due to turbulence. Therefore, surface casing should be set in the top of the Rustler Formation. This protective measure will adequately protect the potential for all useable waters in the redbeds.

At this location the depth to the Rustler Formation should be about 1190 ft. as shown on the well log for the Tomcat Federal No. 5 well located in the NE $\frac{1}{4}$ SE $\frac{1}{4}$, sec. 20, T. 23 S., R. 32 E., NMPM.

Deepest Expected Fresh Water: above 1190 ft.

Does Surface Casing cover all anticipated usable fresh water zones? Yes, operator is using the Lea County Alternative.

If no, set surface casing to feet.

Controlled Water Basin: Yes

Capitan Carlsbad X Roswell Lea No basin

Remarks: Witness Surface Casing.

4. Geologic Hazards? Yes

H2S X Karst X Abnormal Pressures Other X

Remarks: H2S has been reported in a Siete Oil & Gas Corporation, Continental Federal lease wildcat well, located in the NE1/4NW1/4 of Sec. 18, T. 23 S., R. 32 E., NMPM Lea County; no measurements given. H2S has also been reported in a Texaco Exploration and Production Inc., Federal Sand lease well in Undesig. Delaware, located in the NE1/4SE1/4 of Sec. 18, T. 23 S., R. 32 E., NMPM; measuring 2,000 in STVs. Possible lost circulation in the Delaware and Bone Springs. Possible water flows in the Salado, Castile, Delaware, and Bone Springs. There is a low potential for the occurrence of karst type features in the area.

5. Other Mineral Deposits: Possible Halite and other associated salts in the Rustler Formation, and the Castile and Salado Groups. Possible potash in the Salado Group.

6. Potash:

Secretary's
Oil-Potash Area R-111-P Area Not Applicable X

7. References:

New Mexico State Engineer's Water Well Listings;

Lea County H2S List;

Nicholson, A., Jr., and Clebsch, A., Jr., 1961, Geology and Ground-Water Conditions of Southern Lea County, New Mexico; Ground-Water Report No. 6, New Mexico Bureau of Mines and Mineral Resources, Campus Station, Socorro, New Mexico.

8. No active mining claims are located in this vicinity.

Geologist Signature: /s/ J. S. Simitz

Date: 5/22/06

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

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 936 Roswell, NM 88202

Facility or well name: James20 Federal, Well No. 3 API #: 30-025-38027 U/L or Qtr/Qtr NW4SW4 _____ Sec 20 _____ T 23S _____ R 32E _____

County: Lea Latitude N 32.28820 Longitude W 103.70308 NAD: 1927 ☐ 1983X Surface Owner Federal ☐ State ☐ Private ☐ Indian ☐

Pit

Type: Drilling ☒ Production ☐ Disposal ☐

Workover ☐ Emergency ☐

Lined ☒ Unlined ☐

Liner type: Synthetic ☐ Thickness 12 mil Clay ☐ Volume 10,000

+/- _____ bbl

Below-grade tank

Volume: _____ bbl Type of fluid: _____

Construction material: _____

Double-walled, with leak detection? Yes ☐ 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 ☒ a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Date: May 18, 2006

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: 7/27/06

Printed Name/Title CHRIS WILLIAMS/DIST. 34PV Signature Chris Williams