

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK

DRILL ☒DEEPEN ☐

b. TYPE OF WELL

OIL
WELL ☐GAS
WELL ☒

OTHER

SINGLE
ZONE ☒MULTIPLE
ZONE ☐

2. NAME OF OPERATOR

GRUY PETROLEUM MANAGEMENT COMPANY (ZENO FARRIS) 972-443-6489

3. ADDRESS AND TELEPHONE NO.

P.O. BOX 14097 IRVING, TEXAS 75014

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*

At surface

660' FSL & 660' FWL SEC 4 T26S-R37E LEA CO NM

At proposed prod. zone SAME

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

Approximately 5 miles South of Jal New Mexico

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.
(Also to nearest drg. unit line, if any)

660'

18. DISTANCE FROM PROPOSED LOCATION*
TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

1500'

16. NO. OF ACRES IN LEASE

160

17. NO. OF ACRES ASSIGNED
TO THIS WELL

160

19. PROPOSED DEPTH

3380'

20. ROTARY OR CABLE TOOLS

ROTARY

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

CAPTAIN CONTROLLED WATER BASIN
GR. 2984

22. APPROX. DATE WORK WILL START*

As soon as approved

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12 1/2"	K-55 8 5/8"	24	750'	600 Sx. circulate to surface
7 7/8"	K-55 4 1/2"	11.6	3380'	1000 Sx. circulate to surface

1. Drill 12 1/2" hole to 750'. Run and set 750' of 8 5/8" J-55 24# ST&C casing. Cement with 400 Sx. of Halco Light + additives, tail in with 200 Sx. of Class "C" + 1/2# flocele/Sx + 2% CaCl, circulate cement to surface.
2. Drill 7 7/8" hole to 3380'. Run and set 3380' of 4 1/2" J-55 11.6# LT&C casing. Cement in two stages. First stage cement with 400 Sx. of Class "C" cement + 3# of salt/Sx. + 1/2# flocele/Sx. Second stage cement with 600 Sx. of Class "C" Halco Light + 9# salt/Sx. + 1/2# flocele/Sx., circulate cement to surface.

OIL CONSERVATION DIVISION
HARTMAN EXHIBIT NO. 16
CASE NOS. 12015 & 12017APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

TITLE Agent

DATE

04/07/98

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

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:

(ORIG. SGD.) ARMANDO A. LOPEZ

APPROVED BY

TITLE

Acting AD

DATE

MAY 04 1998

*See Instructions On Reverse Side

STRICT I
Box 1980, Hobbs, NM 88241-1980

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

STRICT II
Drawer DD, Artesia, NM 88211-0719

STRICT III
80 Rio Brasos Rd., Artec, NM 87410

OIL CONSERVATION DIVISION

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

STRICT IV
Box 2088, Santa Fe, NM 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-34396	Pool Code 83810	Pool Name RHODES-YATES-7 RIVERS
Property Code 22321	Property Name RFU	Well Number 415
OGRID No. 162683	Operator Name GRUY PETROLEUM MANAGEMENT CO.	Elevation 2984

Surface Location

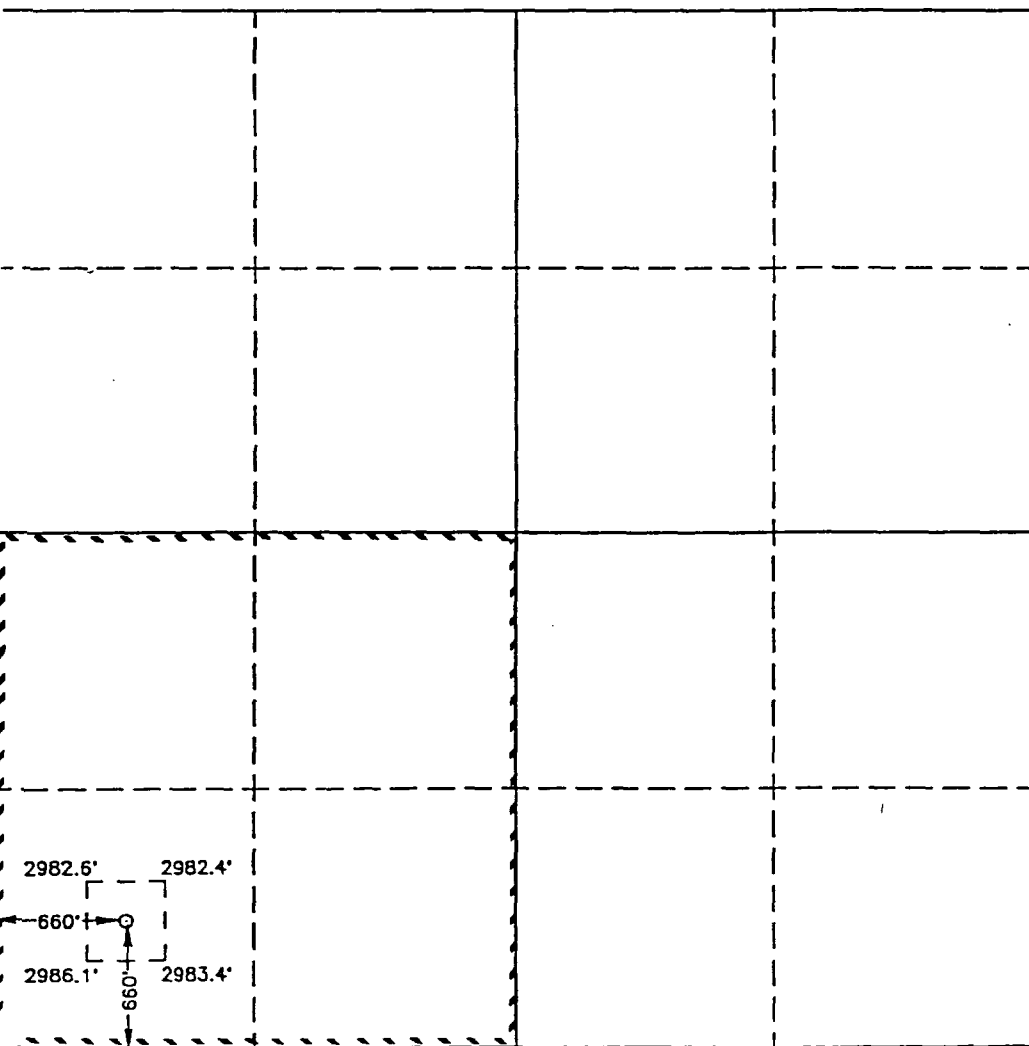
TL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	4	26 S	37 E		660	SOUTH	660	WEST	LEA

Bottom Hole Location If Different From Surface

TL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres 160	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.

Joe T. Janica
Signature
Joe T. Janica
Printed Name
Agent
Title
04/07/98
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.

MARCH 26, 1998

Date Surveyed JLP
Signature & Seal
Professional Surveyor
NEW MEXICO
3-31-98
P.W.O. Num. 98-150497
Certificate No. RONALD J. EIDSON, 3239
GARY C. EIDSON, 12641
MICHAEL McDONALD, 12165

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OPERATION COPY

FORM APPROVED
OMB No. 1004-0133
Expires July 31, 1996

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. LC-054668
2. Name of Operator Gruy Petroleum Management Co.		6. If Indian, Allottee or Tribe Name N/A
3a. Address P. O. Box 140907 Irving, TX 75014-0907	3b. Phone No. (include area code) 972-401-3111	7. If Unit or CA/Agreement, Name and/or No. 8920003820
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) 660' FSL & 660' FWL Sec. 4, T26S, R37E		8. Well Name and No. RHODES FEDERAL UNIT #415
		9. API Well No. 30-025-34396
		10. Field and Pool, or Exploratory Area Rhodes-Yates-7 Rivers Gas
		11. County or Parish, State Lea Co., NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other Spud & set surface casing.
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

3. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

06/12/98 Drilled 40' of 18" hole, ran 40' of 14" conductor pipe and cemented with Ready Mix to surface.

06/16/98 MI & RU Key Energy rig #5. Spudded 12-1/4" hole @ 6:00 p.m. CDT.

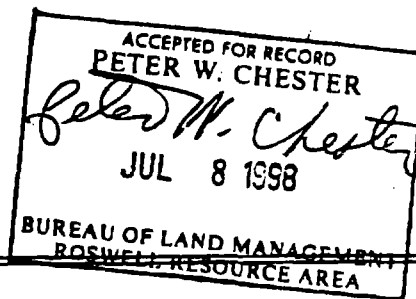
06/17/98 Drilled to 774' KB. Ran 18 jts. 8-5/8" 24# ST/C J-55 casing & set @ 770.9' KB. Cemented w/ 275 sx

'C' w/ 4% gel, 2% CaCl & 1/4# celloflake and tailed w/ 200 sx 'C' w/ 2% CaCl & 1/4# celloflake.

PD @ 1:10 p.m. CDT. WOC - 12 hrs. NU BOP & wellhead and test same to 1000 psi for 30 mins - ok.

(Witnessed by BLM representative.)

Note: Will run 5-1/2" production casing instead of 4-1/2".



4. I hereby certify that the foregoing is true and correct Name (Printed/Typed) Zeno Farris		Title Manager Operations Administration
Signature <i>Zeno Farris</i>		Date June 23, 1998

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by	Title	Date
Conditions of approval, if any, are attached. Approval of this notice 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.	Office	

Title 18 U.S.C. Section 1001, makes 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)

GRUY-0000292

OIL CONSERVATION DIVISION

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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator GRUY MANAGEMENT				Lease or Unit Name RHODES FED UNIT			
Type Test <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special				Test Date 7/28/98		Well No. 415	
Completion Date 7/28/98		Total Depth 3005		Plug Back TD 2975		Elevation 2984	
Casing Size 5 1/2		WC 15.5	d 4.950	Set At		Perforations:	
Tubg. Size 2-3/8		WC 4.7	d 1.995	Set At 2759		Perforations:	
Type Well - Single - Bradenhead - G.G. or G.Q. Multiple single				Packer Set At none		Formation VATES/7-Rivers	
Producing Thru tbq		Reservoir Temp. °F 85°	Mean Annual Temp. °F 60°		Baro. Press. P _a 13.2		Connection AIR
L 2759	II 2759	G _g .896	% CO ₂ 24.879	% N ₂ 1.146	% IL ₂ S 6" Poss. choke	Prover none	Taps none

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	Orifice X Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	
SI	6" Poss Choke					120			N/A	
1.	24/64	"				62	92°	78		60min
2.	20/64	"				75	90°	85		60min
3.	18/64	"				81	90°	87		60min
4.	16/64	"				86	89°	92		60min
5.										

RATE OF FLOW CALCULATIONS							
NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.	2.591		75.2	.9706	1.056	1.064	212
2.	1.771		88.2	.9723	1.056	1.056	169
3.	1.422		94.2	.9723	1.056	1.056	145
4.	1.112		99.2	.9752	1.056	1.056	119
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mc/ftbl
1.	.67	522	1.28	.884	N/A	
2.	.71	550	1.35	.896	A.P. L. Gravity of Liquid Hydrocarbons	N/A
3.	.71	550	1.35	.896	Specific Gravity Separator Gas	.896
4.	.71	549	1.35	.896	Specific Gravity Flowing Fluid	XXXXXX
5.					Critical Pressure	768
					Critical Temperature	406

P ₁ 120.1	P ₂ 14.42
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NO.	P ₁ ²	P ₂	P ₂ ²	P ₁ ² - P ₂ ²
1.	68.9	6.81	7.61	
2.	80.8	6.52	7.90	
3.	86.2	7.43	6.99	
4.	90.8	8.24	7.43	
5.				

1) $\frac{P_1^2}{P_1^2 - P_2^2} = 1.89$

2) $\left[\frac{P_1^2}{P_1^2 - P_2^2} \right]^2 = 1.89$

AOF = Q $\left[\frac{P_1^2}{P_1^2 - P_2^2} \right]^2 = 400.7$

Absolute Open Flow	400.7	Mcfd @ 15.025	Angle of Slope θ	45°	Slope, n	1.000
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Remarks: *CALCULATED FROM KNOWN BOTTOM PRESSURES
* NO LIQUID MADE DURING TEST

Approved By Division	Conducted By: PRO WELL TESTING	Calculated By: MB	Checked By: BM
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GRUY-0000744

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE*

(See other instructions on reverse side)

FOR APPROVED
OMB NO. 1004-0137
Expires: December 31, 1991

3. LEASE DESIGNATION AND SERIAL NO.

LC-054668

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8920003820

8. FARM OR LEASE NAME, WELL NO.
Rhodes Federal Unit # 415

9. API WELL NO.

30-025-34396

10. FIELD AND POOL, OR WILDCAT

Rhodes Yates- 7 Rivers Gas

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA

Sec 4 26S 37E

12. COUNTY OR PARISH

Lea

13. STATE

NM

14. PERMIT NO.

DATE ISSUED

5-4-98

1. TYPE OF WELL:

OIL WELL ☐

GAS WELL ☒

DEY ☐

Other

2. TYPE OF COMPLETION:

NEW WELL ☒

WORK OVER ☐

DEEP-EN ☐

PLUG BACK ☐

DIFF. REVR. ☐

Other

2. NAME OF OPERATOR

Gruy Petroleum Management Co.

3. ADDRESS AND TELEPHONE NO.

P O Box 140907 Irving Tx. 75014-0907

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*

At surface 660 FSL & 660 FWL

At top prod. interval reported below

At total depth

15. DATE SPUDDED

6-12-98

16. DATE T.D. REACHED

6-20-98

17. DATE COMPL. (Ready to prod.)

7-23-98

18. ELEVATIONS (DP, RKB, RT, GR, ETC.)*

2984 GR

19. ELEV. CASINGHEAD

20. TOTAL DEPTH, MD & TVD

3057'

21. PLUG, BACK T.D., MD & TVD

2980'

22. IF MULTIPLE COMPL., HOW MANY*

23. INTERVALS DRILLED BY

ROTARY TOOLS

CABLE TOOLS

All

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*

Yates - 2740-2837

25. WAS DIRECTIONAL SURVEY MADE

Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN

Sector Bond; Gamma Ray/CCL

27. WAS WELL CORED

No

28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
8 5/8" J-55	24 #	770.9'	12 1/4"	475 sx C w/ 2% CaCl, surface	-0-
5 1/2" J-55	15.5 #	3005'	7 7/8"	850 sx C Poz, surface	-0-

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	BACKS CEMENT*	SCREEN (MD)	SIZE	DEPTH SET (MD)	PACKER SET (MD)
					2 3/8	2759'	

30. TUBING RECORD

31. PERFORATION RECORD (Interval, size and number)

2740'-2837' 102 holes 2 spf

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
2740'-2837'	8000 gals 10% HCL
2740'-2837'	74,000 gals 50/50 CO2, 190,000 #
	16/30 Brady sand

33. PRODUCTION

DATE FIRST PRODUCTION 8-4-98		PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) Flowing				WELL STATUS (Producing or shut-in) Producing	
DATE OF TEST 7-28-98	HOURS TESTED 4 hours	CHOKER SIZE 24/64	PROD'N. FOR TEST PERIOD →	OIL—BSL. 0	GAS—MCF. 212	WATER—BSL. 0	GAS-OIL RATIO ---
FLOW, TUBING PRESS. 62	CASING PRESSURE 78	CALCULATED 24-HOUR RATE →	OIL—BSL. 0	GAS—MCF. 400.7	WATER—BSL. 0	OIL GRAVITY-API (CORR.) ---	

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)

Vented

TEST WITNESSED BY

35. LIST OF ATTACHMENTS

C-122 Back Pressure Test, electric log, and deviation summary

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Zeno Farris

TITLE Manager, Operations Adm.

DATE 8-19-98

*(See Instructions and Spaces for Additional Data on Reverse Side)

Title 18 U.S.C. Section 1001, makes 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.

GRUY-0000742