

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., 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 and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Form C-101

APPLICATION FOR PERMIT TO DRILL

Operator Name and Address Mack Energy Corporation PO Box 960 Artesia, NM 88211-0960		OGRID Number 13837
		API Number 30-15-32844
Property Code 18731	Property Name WILLOW STATE	Well No. 004

Surface Location

UL or Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
P	16	17S	31E		1190	S	330	E	Eddy

Proposed Pools

FREN;PADDOCK 26770

Work Type New Well	Well Type Oil	Cable/Rotary	Lease Type State	Ground Level Elevation 3854
Multiple N	Proposed Depth 6400	Formation Paddock	Contractor	Spud Date 6/15/2003

Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	48	300	350	0
Int1	12.25	8.625	24	1700	800	0
Prod	7.875	5.5	17	6400	1900	0

Casing/Cement Program: Additional Comments

Mack Energy Corporation proposes to drill to 300, run 13 3/8 casing and cement. Drill to 1700, run 8 5/8 casing and cement. Drill to 6400 and test Paddock formation, if commercial will run 5 1/2 casing and cement, put on production. Note: On production string, fluid caliper will be run, will figure cement with 25% excess, attempt to circ cement to surface.

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	2000	2000	

I hereby certify that the information given above is true and complete to the best of my knowledge and belief.		OIL CONSERVATION DIVISION	
Electronically Signed By: Jerry Sherrell		Electronically Approved By: Bryan Arrant	
Title: Production Clerk		Title: Geologist	
Approval Date: 6/19/2003		Expiration Date: 6/19/2004	
Date: 6/5/2003	Phone: 505-748-1288	Conditions of Approval: There are conditions. See Attached.	

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Energy, Minerals and Natural Resources

Form C-102

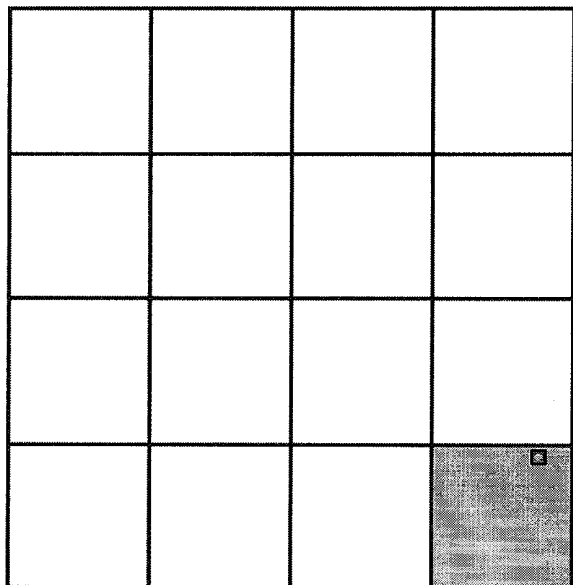
Oil Conservation Division
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WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-15-32844	Pool Name FREN;PADDOCK	Pool Code 26770
Property Code 18731	Property Name WILLOW STATE	Well No. 004
OGRID No. 13837	Operator Name Mack Energy Corportation	Elevation 3854

Surface And Bottom Hole Location

UL or Lot P	Section 16	Township 17S	Range 31E	Lot Idn	Feet From 1190	N/S Line S	Feet From 330	E/W Line E	County Eddy
Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.						

**OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Electronically Signed By: Jerry Sherrell

Title: Production Clerk

Date: 6/5/2003

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.

Electronically Signed By: Ronald Eidson

Date of Survey: 1/24/1997

Certificate Number: 3239

APD Conditions Of Approval

Operator: 13837 Mack Energy Corportation

Well: WILLOW STATE 004

OCD Reviewer	Condition
BARRANT	NSL-3789
BARRANT	Operator to set surface casing in anhydrite section of Rustler. Rustler comes in @ 370-420. Please refer to off-set logs for further information.

OCD Rule 118

Bryan, This is the sheet for the Willow State #4

Pasquill-Gifford Equation for Calculating Radius of Exposure (ROE) of Hydrogen Sulfide (H₂S)

Enter H₂S in PPM

H₂S in gas stream →

enter Data in green shaded area:

Enter Gas flow in mcf/day

Willow State Lease Aug. →

Constant for 500 ppm ROE	0.4948	constant
Constant for 300 ppm ROE	0.77	constant
Constant for 100 ppm ROE	1.588	constant
Multi factor for 500 ppm ROE	546.52	formula
Multi factor for 300 ppm ROE	924	formula
Multi factor for 100 ppm ROE	1906.8	formula

Flow Rate of Pure H ₂ S in Gas Stream (Actual Volume Fraction)	1.2	mcf/day
H ₂ S Concentration Volume Fraction	0.006	decimal equivalent
H ₂ S Concentration Volume Fraction in percent %	0.60%	percent

500 ppm radius of exposure (public road)	52	feet	ANSWER
300 ppm radius of exposure	74	feet	ANSWER
100 ppm radius of exposure (public area)	113	feet	ANSWER

Conversions:

To convert H₂S in percent to parts per million (ppm)
Put H₂S in % in blue shaded area; read answer to the right
in the yellow shaded area in ppm

Input H₂S in % below

ppm

0.6

6000

ANSWER