

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD-HOBBS  
OFFICE  
OCD-HOBBS

FORM APPROVED  
Budget Bureau No. 1004-0135  
Expires: March 31, 1993

**SUNDRY NOTICES AND REPORTS ON WELLS**

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.  
Use "APPLICATION FOR PERMIT—" for such proposals

**SUBMIT IN TRIPLICATE**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

PRONGHORN MANAGEMENT CORPORATION

3. Address and Telephone No.

P. O. BOX 1772 HOBBS, NM 88241 505-392-2495

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

990' FNL & 1980' FWL  
S19-T23S-R33E

5. Lease Designation and Serial No.  
NMLC068848

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

8. Well Name and No.

MARSHALL FED. #7

9. API Well No.

30-025-25201

10. Field and Pool, or Exploratory Area  
CRUZ DELAWARE

11. County or Parish, State  
LEA

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

TYPE OF SUBMISSION

☒ Notice of Intent

☐ Subsequent Report

☐ Final Abandonment Notice

TYPE OF ACTION

☐ Abandonment

☐ Recompletion

☐ Plugging Back

☐ Casing Repair

☐ Altering Casing

☐ Other

☐ Change of Plans

☐ New Construction

☒ Non-Routine Fracturing

☐ Water Shut-Off

☐ Conversion to Injection

☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

1. Move in and rig up. POOH with rods and pump.
2. Swab well. Check production and fluid level.
3. Install B.O.P. POOH with tubing.
4. Rig up wireline and perforate additional Bell Canyon Ramsey Sand pay.
5. TIH with frac tubing and packer.
6. Rig up BJ. Frac well.
7. Swab and flow test well.
8. Put well on production.
9. Clean location. Rig down. Move out.



see conditions

Must be completed by 1/15/08  
CW-10/26/07

14. I hereby certify that the foregoing is true and correct

Signed

Title

President

(This space for Federal or State office use)

Approved by

Title

OC DISTRICT SUPERVISOR/GENERAL MANAGER

Conditions of approval, if any:

7/17/07  
ACCEPTED FOR RECORD  
OCT 26 2007  
AUG 8 2007  
WESLEY W. INGRAM  
PETROLEUM ENGINEER

# PRONGHORN MANAGEMENT CORPORATION

P. O. Box 1772

Hobbs, NM 88241

Ph. 505-392-2495 Fax: 505-392-2592

July 20, 2007

Bureau of Land Management  
620 E Greene  
Carlsbad, NM 88220  
Attn: Wesley Graham

Dear Sir:

The first phase of our project would start immediately upon approval. Successful work over would open up additional deepening, drilling and stimulation opportunities. We would continue operations until all wellbores are back in compliance.

Thank you for your patience and consideration. Call me with any questions.

Sincerely,



G. A. Baber  
505-392-2495 Office  
505-318-7521 Cell

cc: Steve Caffey Hobbs

Phase I.

1. Recomplete D.L. State #1
2. Add additional perfs and frac Marshall (2)
3. Add additional perfs and frac D.L. (1)
4. Add additional perfs and frac E.F. (1)
5. Add additional perfs and frac Fields (1)

RECEIVED  
JUL 23 PM 11:15  
BUREAU OF LAND MANAGEMENT

## **Revitalization Potential Cruz (Delaware) Field**

### History

The Cruz (Delaware) Field covers approximately 960 acres and is located in Lea County, New Mexico. Production is from the Ramsey sand member of the Bell Canyon Delaware formation at an average depth of approximately 5,100'. This field is part of a northeast-southwest trending channel deposit, typical of the Delaware, with the sand going from thin and tight on either edge of the channel to thick (up to 90+ feet) and porous (averaging 25%) in the middle of the channel. In addition to these stratigraphic constraints, the field appears to have an oil/water contact at -1,430' subsea and becomes wet down dip. Water saturation averages 47% in the oil zone. Solution gas drive is considered to be the primary drive mechanism.

The field has experienced three major development periods since its discovery by Exxon in the early 1960s. The first coincided with the initial field development. The second was in the mid-1970s, and the third occurred in the early 1980s. Production peaked in 1984 at 525 bopd with 18 wells producing. Since inception, the field has produced over 1.1 million barrels of oil and 1.9 Bcf of gas out of a total of 20 wells, of which 15 would be considered commercial and account for nearly all of the production. In addition, the field has produced over 5.3 million barrels of water during its life.

### Workover Potential (Stimulation)

Most of the wells in the Cruz Field were completed naturally. Recently, operators in other Delaware fields in the Permian Basin have proven that restimulating existing wells, even those that have been fraced previously, can be an economically viable method of increasing production. Our plan is to obtain bottomhole pressure information on as many of the shut-in wells as possible and then choose several candidates to frac using state-of-the-art technology. If successful, these techniques could then be expanded field-wide.

### Workover Potential (Deeper Delaware Pays)

A number of "deep" wells have been drilled in the vicinity of the Cruz Field since its discovery. As a result, production has now been established out of several different zones throughout the entire Delaware section, not just the Ramsey which is the highest sand member. Following the drilling of the initial well in the northern portion of the

field, which was a deep test, the remaining Cruz Field wells were TD'd at a much shallower depth just below the Ramsey. As a result, that well was the only well in the field to penetrate the entire Delaware section. Recently, several companies have developed techniques that apply artificial intelligence to information obtained from old log suites to identify potentially productive behind-pipe zones, which is then presented graphically in the form of a "new" log. This has been done on the deep well. Based on those results, combined with an assessment of zones producing from other wells in the immediate area, it appears there may be several Delaware pays below the Ramsey that are worth testing in this wellbore. Our plan is to selectively test several of these pays. In the event one or more of them prove productive, it is conceivable that a number of the inactive shallow wells could be deepened to and completed in these same zones. This could also lead to additional development drilling.

#### Development Drilling Potential (Undrilled 40 Acre Locations)

Based on current geologic mapping, there are at least five undrilled 40 acre locations left to develop within the known field limits. In addition, it appears that one of the original wells did not perform as well as anticipated and therefore is a candidate to be re-drilled. Our plan is to drill at least four of these locations, possibly taking two of them horizontal (see below).

#### Development Drilling Potential (20 Acre Infill Potential / Horizontal Drilling)

Based on a volumetric analysis of the field, it appears that drainage areas may be considerably less than the 40 acre proration units assigned to individual wells due to water coning. A review of available core analyses and individual well performance indicates the field has a fairly distinct oil/water contact at approximately -1,430' subsea. A volumetric estimate of Original-Oil-In-Place ("OOIP") was made for the productive portion of the reservoir above the oil/water contact. It is estimated that the field contains at least 19 million barrels of OOIP above the oil/water contact. Based on its cumulative recovery to date, the current field-wide recovery efficiency stands at approximately 6%, much lower than one would expect from a properly developed solution gas drive reservoir exhibiting similar rock and fluid properties. Production performance shows increasing water cuts with decreasing total fluid volumes over time, suggestive of coning.

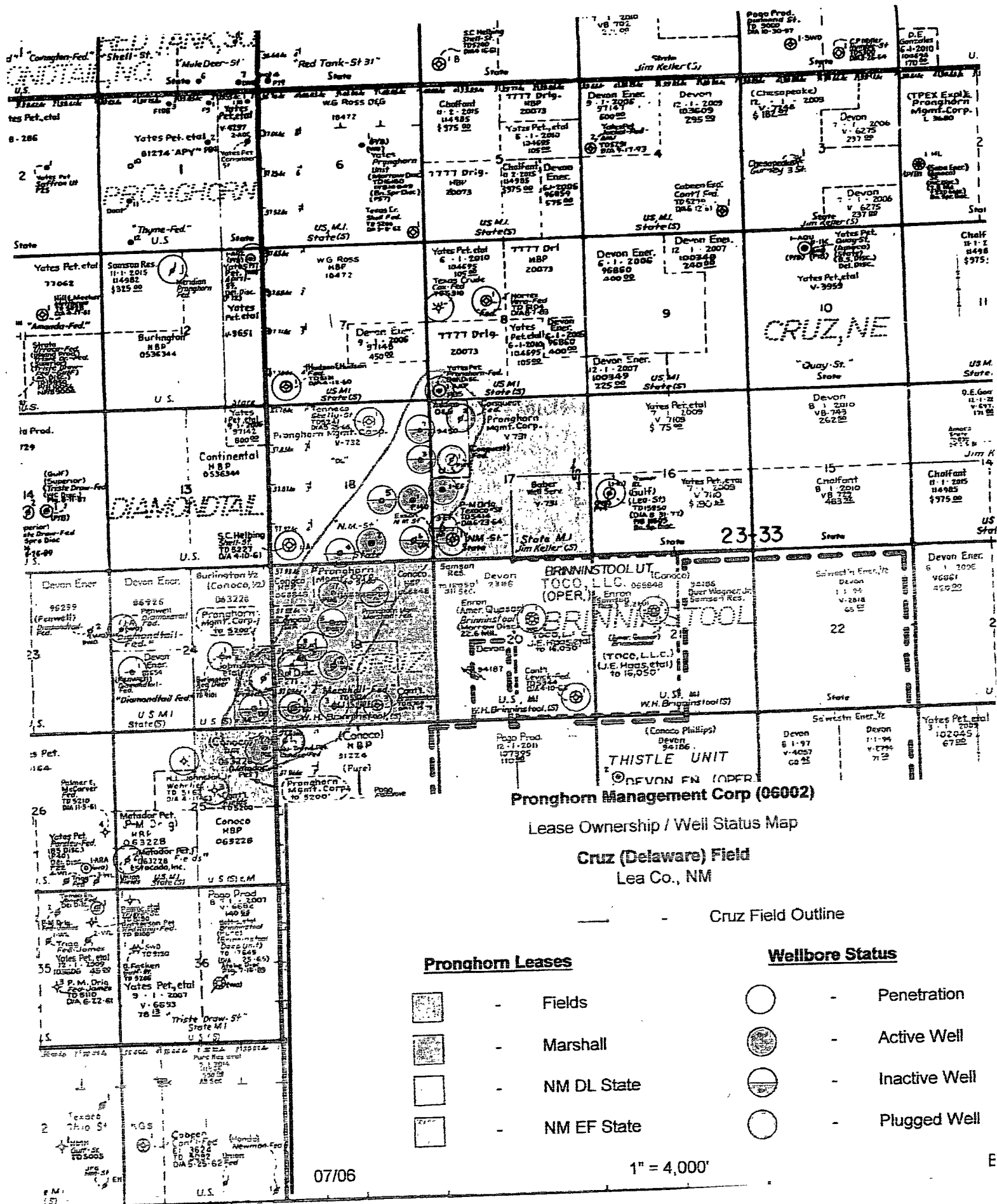
A number of Permian Basin fields have been downspaced as high product prices influence development economics. Based on its low recovery efficiency, the Cruz Field appears to be a candidate for infill drilling to 20 acre spacing. There is some precedence for this potential within the field itself. The Marshall #8 was drilled in late 1977 as a replacement well for the Marshall #4 which went down in 1975. It is situated such that it is essentially a 20 acre infill location. Although the cumulative production attributable to the #8 is somewhat suspect due to allocation issues, it appears this well has produced at least 37,000 bo. Our plan would be to selectively drill at least two additional 20 acre infill locations to test the economic viability of developing the field on denser spacing.

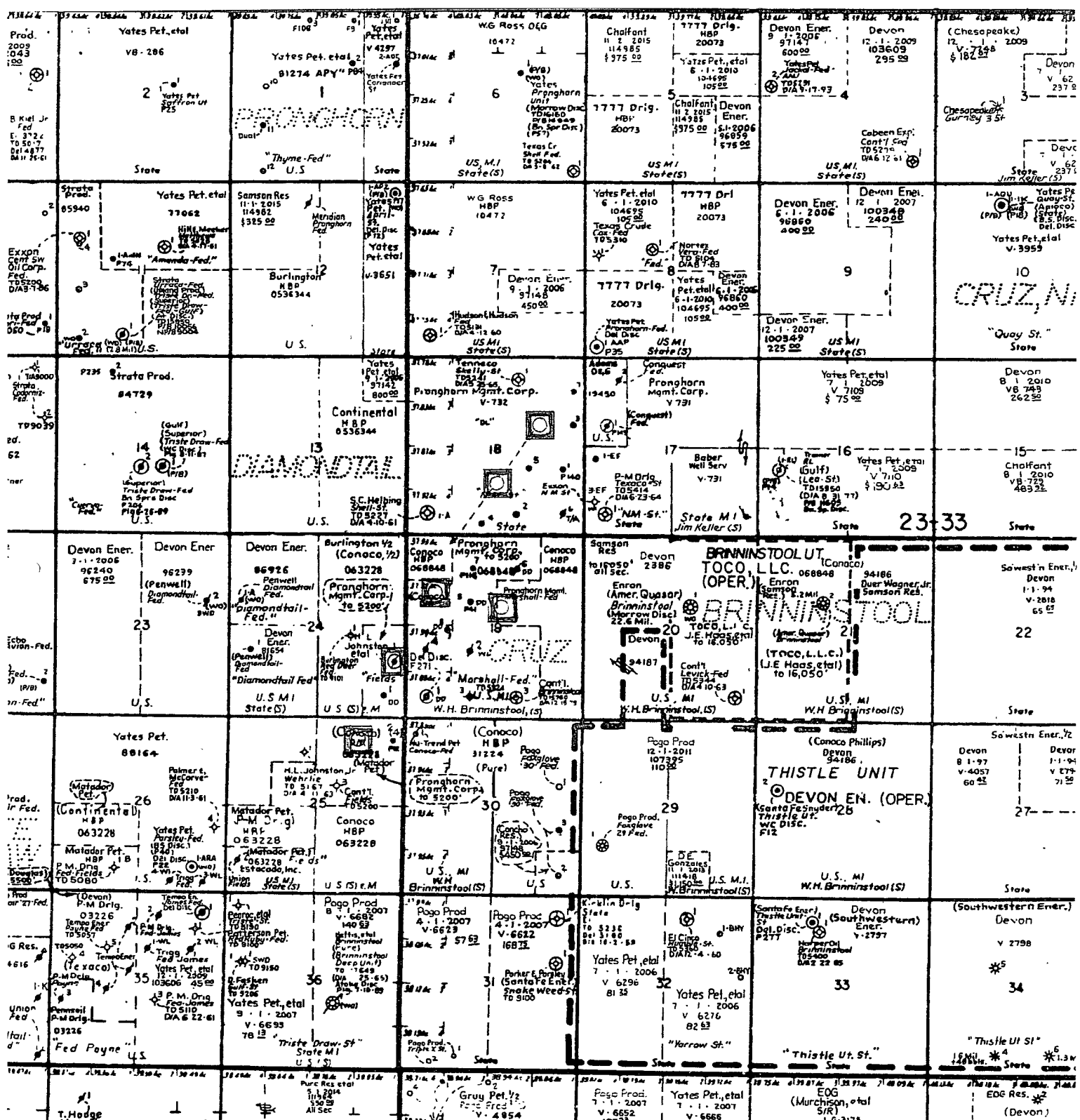
This field may also be a good candidate for horizontal drilling. It contains a distinct, continuous pay interval and evidence suggests it suffers from coning. Delaware sands have now been successfully exploited using horizontal drilling in other parts of the Permian Basin. Our plan would be to drill two of the updip locations as horizontals. Depending on those results, we would also study the feasibility of drilling horizontal laterals out of existing wellbores within the main portion of the field.

#### Improved Recovery (Waterflooding)

Case studies have shown that a significant improvement in oil recovery can be achieved through waterflooding high water-cut fields such as the Cruz, even though they may not possess all the traditional reservoir and fluid parameters associated with a prime waterflood candidate. At today's oil prices, even a moderate improvement in recovery could prove to be economic. Our plan is to initiate a pilot waterflood to determine the potential improvement in recovery that would result from a field wide waterflood project.

During the field's last development stage, Exxon turned one of the downdip wells into a disposal well and for a period of several years injected 50% – 75% of the produced water from the field downdip into the lower portion of the reservoir well below the oil-water contact. It is difficult to see any direct benefit that resulted from this action, but it was more likely simply a method of cheap water disposal rather than an attempt to improve production, and should therefore not condemn any future waterflood plans for the field.





**Pronghorn Management Corp (06002)**

**40 Acre Development Location Map**

Cruz (Delaware) Field  
Lea Co., NM



- Location

08/06

1" = 4,000'

BKL

**Marshall Federal #5, #6, #7, #8  
Pronghorn Management Corporation  
August 6, 2007  
Conditions**

**It has come to my attention that Pronghorn Management Corporation is currently under a shut-in order.**

**Therefore, until the bond conditions required in the shut-in order have been met and the assessments paid, the proposed plan for these wells can't be approved.**

**After the bond has been increased to \$150,000 and proper documentation submitted to the Carlsbad Field Office, the program for these wells can be resubmitted and will be reviewed again.**

**The plan to reduce the spacing to 20 acres will have to be reviewed by NMOCD as a non-standard spacing unit. 19.15.3.104.D.2.**

**WWI 080607**