STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

APPLICATION OF DEVON ENERGY PRODUCTION COMPANY, L.P TO EXPAND THE COTTON DRAW UNIT, EDDY AND LEA COUNTIES, NEW MEXICO.

Case No. 14590

AFFIDAVIT OF CARL BURDICK						
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COUNTY OF	OKLAHOMA)) ss.
STATE OF C	
Carl E	Burdick, being duly sworn upon his oath, deposes and states:
1.	I am over the age of 18, and have personal knowledge of the matters stated herein.
2.	I am a geologist for Devon Energy Production Company, L.P. ("Devon").
of the Cotton	Attached hereto as Exhibit 1 is the write-up I prepared for submittal to the Bureau agement and the Commissioner of Public Lands to support the proposed expansion Draw Unit (the "Unit"). It includes well and geological data which show that the roposed expansion area are productive from the same zones as adjoining Unit lands.
	The write-up states that four wells had been drilled which included Unit and non- nd one well was planned. The fifth well (Well No. 110) has now been drilled and is the Lower Brushy Canyon zone.
5. prevention of	The granting of this application is in the interests of conservation and the waste.
	Cal Budick
	Carl Burdick
SUBS Burdick.	CRIBED AND SWORN TO before me this A day of January, 2011 by Carl
My Commiss	ion Expires: 1/26// Sublic Notary Public
	Oil Conservation Division Case No. Exhibit No.

DEVON ENERGY PRODUCTION COMPANY, LP COTTON DRAW UNIT PROPOSED UNIT EXPANSION

LOCATION:

The proposed unit expansion consists of approximately 400 gross acres in T24S — R31E of Eddy County, New Mexico. Recommended acreage for inclusion in the expansion is the north half of Section 26 and the west half of the northwest of Section 25. The surrounding area consists of semi-arid rangeland with no organized drainage systems in the immediate area. Primary surface use is for grazing, though vegetation is sparse. The relevant acreage is within a Shinnery Oak habitat.

PETROLEUM GEOLOGY:

Summary

Recent drilling in and around the northwest portion of the Cotton Draw Unit has proven horizontal drilling to be an economic way to develop oil and gas reserves in the Lower Brushy Canyon Formation. Therefore, it is prudent to expand the Cotton Draw Unit in order to properly develop Devon's acreage in the immediate area.

Figure 1 displays the current unit boundaries and existing wells in and around the unit. The two eastern unit areas produce from the upper Delaware, while the western area was formed as a Devonian unit with subsequent PA's in the Morrow and Wolfcamp Formations. Bone Spring and Delaware completions in the western Cotton Draw Unit area have been uneconomic to date. Porosity mapping suggests this horizontal play is map be limited to the northwestern area of the unit. Therefore, the remainder of the figures will focus on this area.

Lower Brushy Canyon Horizontal Drilling

In 2009, Yates Petroleum drilled the Haracz AMO Federal #8H and 9H in the E2 of Section 23, T24S — R31E, just north of the Cotton Draw Unit (see Figure 2). These wells were drilled horizontally in the Lower Brushy Canyon and had initial potentials of 427 bopd and 535 bopd respectively.

In 2010, Devon Energy has drilled the Cotton Draw Unit 118H, 119H, 120H and 121H in Section 26, directly offsetting the Yates wells. The Cotton Draw Unit 118H well IP'd for over 355 bopd and 334 mcfg/d. The Cotton Draw Unit 119H IP'd for 370 bopd and 258 mcfg/d. The Cotton Draw Unit 120H is currently being completed and is testing similar or higher rates. The Cotton Draw Unit 121H is awaiting completion. It is very likely that all four wells will be economic.

Lower Brushy Canyon Geology

A type log for the Lower Brushy Canyon (the Haracz AMO Federal #8H pilot hole) is displayed in Figure 3. The Lower Brushy Canyon is approximately 300' thick in the area and is comprised of sandstone and siltstone. It lies conformably on the Bone Spring



Formation. Geological structure at the top of the Bone Spring (Figure 4) depicts an anticlinal nose in the expansion area, slightly altering the normal monoclinal dip to the east.

Devon Energy subdivides the Lower Brushy Canyon into six zones (A through F). In the Cotton Draw area, porous sands have been encountered in zones B through F. A PHIH map (Figure 5) was calculated over zones B through F using a 10% density porosity cutoff. The map shows a clear porosity development trending NE-SW over the northwest portion of the Cotton Draw Unit. All three of the existing horizontal wells were landed in the lowermost porosity of the B zone. Multiple frac's were initiated along the horizontal section to access in the upper porous intervals.

Figures 6 and 7 highlight Lower Brushy Canyon porosity development in the immediate area of the proposed unit expansion. Cross-section A-A' is flattened on the top of the Lower Brushy Canyon and shows how Lower Brushy Canyon porosity is distributed in the expansion area. Porosity in the B zone drops off in the southeastern wells, while the upper zones are more continuous in the proposed expansion area.

RECOMMENDATION:

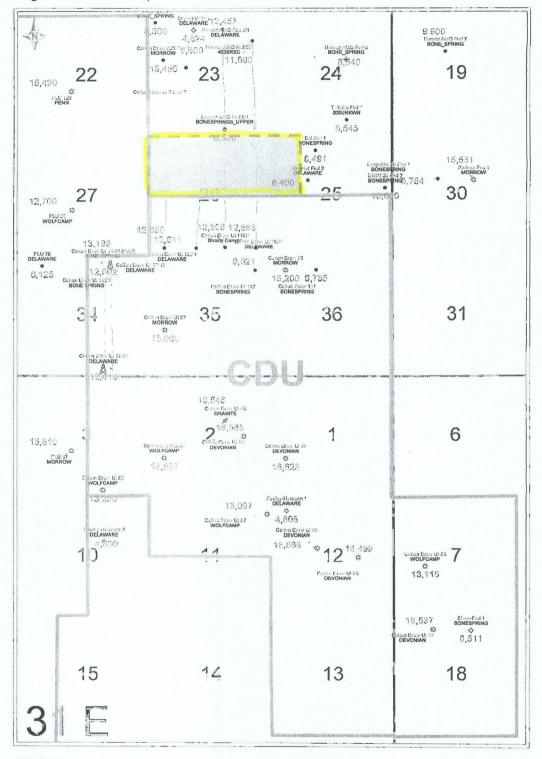
It is recommended to expand the Cotton Draw Unit as proposed. There are four wells, Cotton Draw Unit 119H – 121H, that have been drilled across the unit boundary (see Figure 6). The Cotton Draw Unit #110H to planned to be drilled from the unit into the W2 NW of Section 25.

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Figure 1 Base Map - Full Unit Area

Unit Acreage in Green

Figure 2: Base Map



Well Name Formation at TD TD Measured Depth

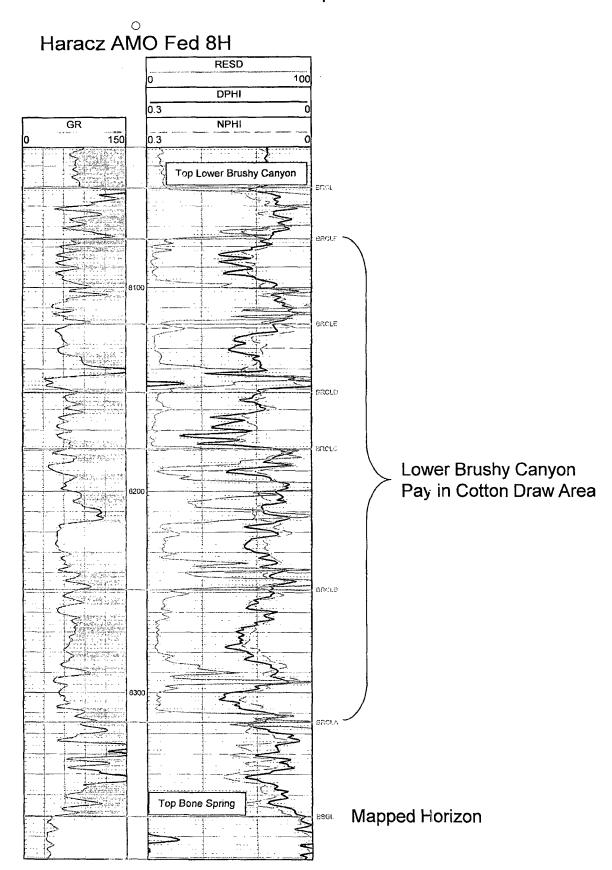
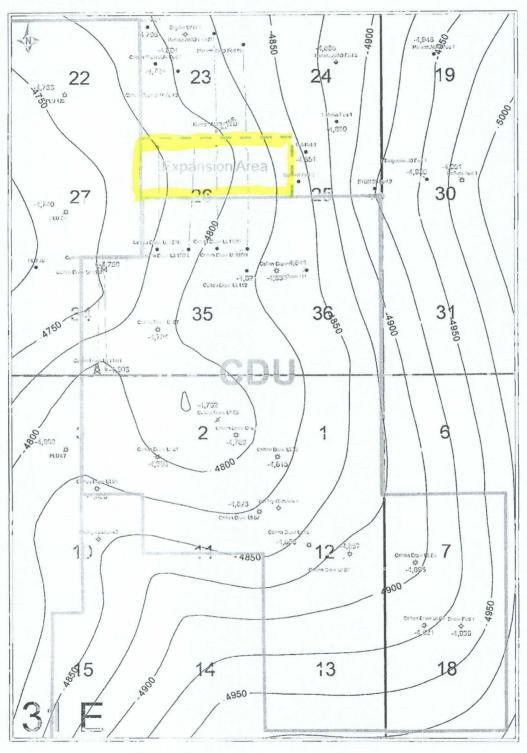
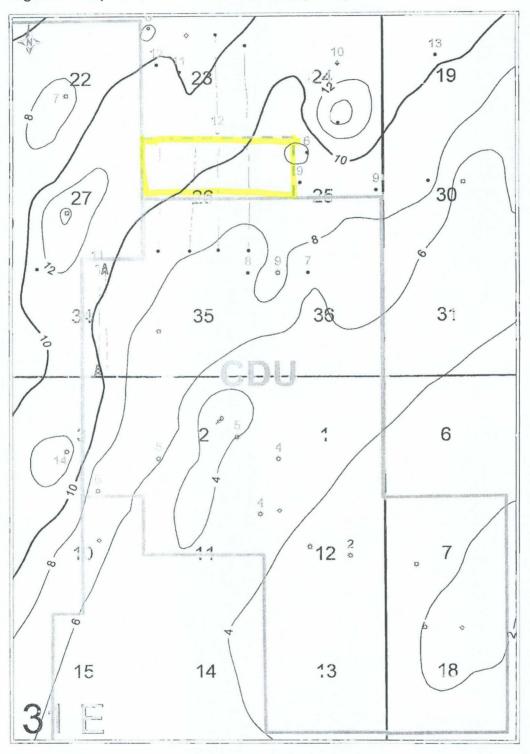


Figure 4. Structure Top Bone Spring Formation



Contour Interval: 25' (TVDSS)

Figure 5 Isopach of PHIH for Lower Brushy Canyon



Contour Interval: 2 Porosity Feet

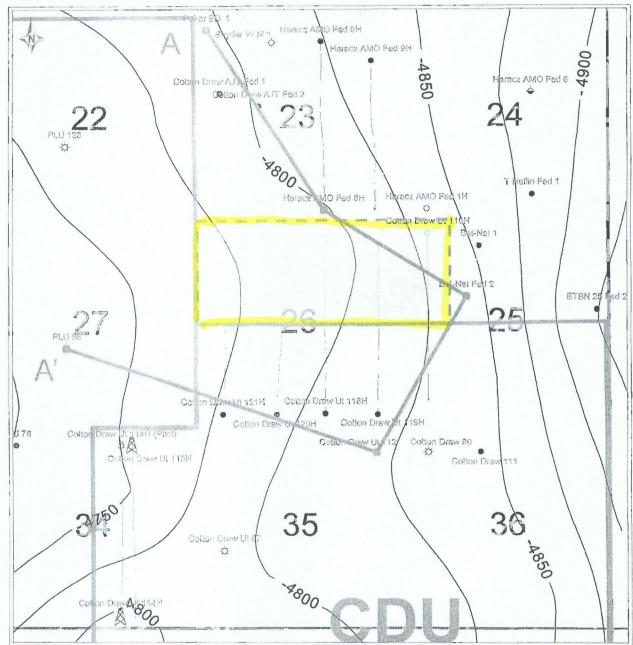


Figure 6. Line of Section in Expansion Area

Bone Spring Structure Contour Interval: 25' (TVDSS)

Figure 7 Stratigraphic Section Flattened on Top Lower Brushy Canyon

