“Wolfberry”—Wolfcamp/Spraberry: How It Started*

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Making an Uneconomic Play Economic

- Improved Drilling Technology - PDC bits and 2 string csg. design decreased 30-day wells to 12 days, saving significant capital expenditure.
- Multistage high rate frac technology allowed us to contact more reservoir than traditional acid jobs or fracs.
- Ability to comingle previously uneconomic producing zones into a combined flowstream.
- Sustained higher oil price makes play economic. We need about $70/bbl.

Henry Results

Leases Acquired
- Economic 110,000 acres
- Uneconomic 220,000 acres
- Total 330,000 acres

Reserves Found
- Henry proved up a total of 400 million barrels of oil equivalent – about 13% of the total reserves.

Wolfberry

The Wolfberry trend will ultimately recover about 3 billion barrels of oil -- making it the largest discovery in the Permian Basin in the last 50 years.
References


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**Fig. 2**

- **Carbonate Facies**
- **Mixed Facies**
- **Silica Facies**
- **Shale Facies**

**Wolfcamp**

**Spraberry**

**Clearfork**

**Target Interval**
The rock column is comprised primarily of thinly bedded turbidites and debris flows.
Depositional Model – Wolfcamp Carbonates

Coarse Grained

High Stand - Sea Level

Fine-Grained

Areas 2 & 3
Sweetie Peck Chickadee

Central Basin Platform

Lithofacies 7 Proximal Debris Flows
Lithofacies 6 Medial Debris Flows
Lithofacies 5 Distal Debris Flows
Lithofacies 3/4 Proximal/Medial Turbidities
Lithofacies 2 Distal Turbidities
Lithofacies 1 Basin

Platform Margin
Proximal Debris Apron
Slope
Distal Debris Apron
Basin

Area 1 ARCO + CMS

ARCO + CMS

Fig. 4
Wolfberry Play Area

Wolfberry Trend

Midland Basin

Central Basin Platform

Eastern Shelf

1  ARCO & CMS
2  Sweetie Peck
3  Chickadee
Wolfberry Chronicle

- Wolfcamp producers drilled before 1997 (316 wells)
- Wolfberry producers drilled 1997-2002 (554 wells)
Wolfberry Chronicle

- Wolfcamp producers
  - Drilled before 1997
    - (316 wells)
  - Wolfberry producers
  - Drilled 1997-2002
    - (554 wells)
  - Wolfberry producers
  - Drilled 2003-2011
    - (2866 wells)
Typical Decline Curve

WOLFBERRY FAIRWAY PRODUCTION

BBLS of OIL EQUIVALENT per DAY

Months on Production
HENRY RESULTS

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  – Economic 110,000 acres
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