

# **Exploration Potential for Coal Bed Methane in North Louisiana\***

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Search and Discovery Article #80042 (2008)

Posted December 15, 2008

\*Adapted from oral presentation AAPG Convention, San Antonio, TX, April 20-23, 2008.

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## **Abstract**

Coalbed methane (CBM) production has become well established in many basins of both the eastern and western United States. Exploration and production of CBM in the Tertiary Gulf Coast Basin has lagged behind these other basins, although the presence of lignitic coals in the Paleocene/Eocene Wilcox Formation has long been known. Some possible reasons for this lack of interest may be the perceptions that the Wilcox coals are immature (lignite) and that the extent and thicknesses of these coals is poorly known.

Recent and ongoing studies of Wilcox coals in northern Louisiana, by the Louisiana Geological Survey and by others, have refuted these perceptions and demonstrated the potential for CBM in northern Louisiana. Sixteen CBM wells were drilled in 2006, and 26 wells have been spudded in 2007 as of October 1, showing that industry interest in Louisiana's CBM is increasing. Production rates of Louisiana CBM wells are not high, averaging about 45 mcf/d per well. Nevertheless, shallow drilling depths, an in-place oil and gas infrastructure, and an increasing demand for natural gas demonstrate that there is still potential for more discoveries of CBM in this well-explored oil and gas province. Regional studies at the Louisiana Geological Survey to determine the extent and total reserves of Louisiana CBM are ongoing.

# EXPLORATION POTENTIAL FOR COAL BED METHANE IN NORTH LOUISIANA

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# Wilcox Holly Springs delta system (Galloway, 1968)

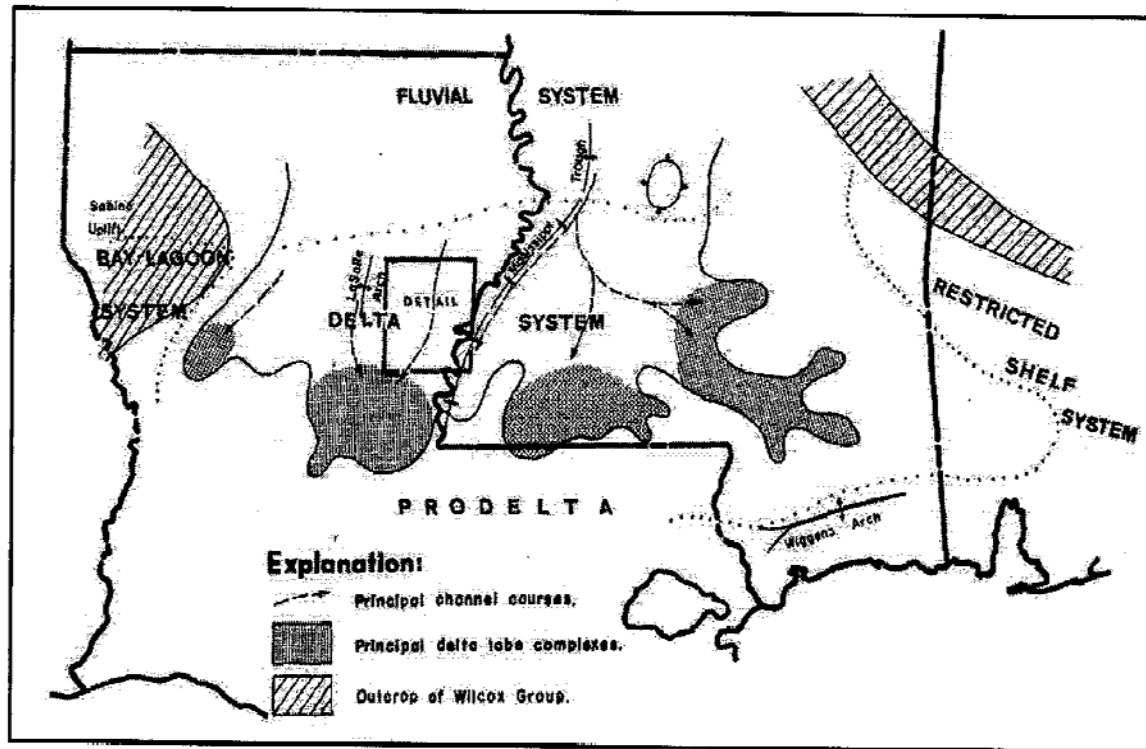


Figure 3: Approximate boundaries of recognized depositional systems and regional structural features associated with the Lower Wilcox Holly Springs Delta System (from Galloway, 1968).

# Depositional environments for Louisiana CBM

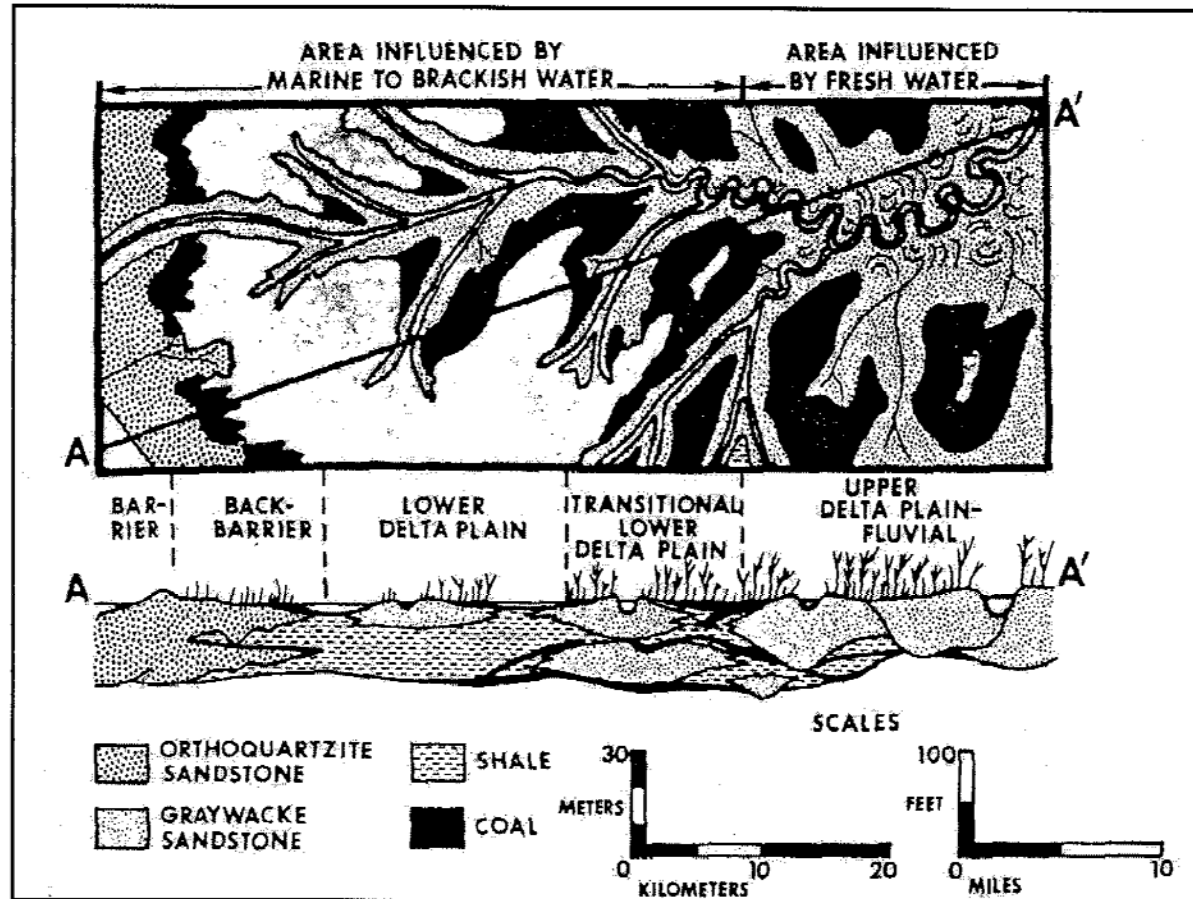
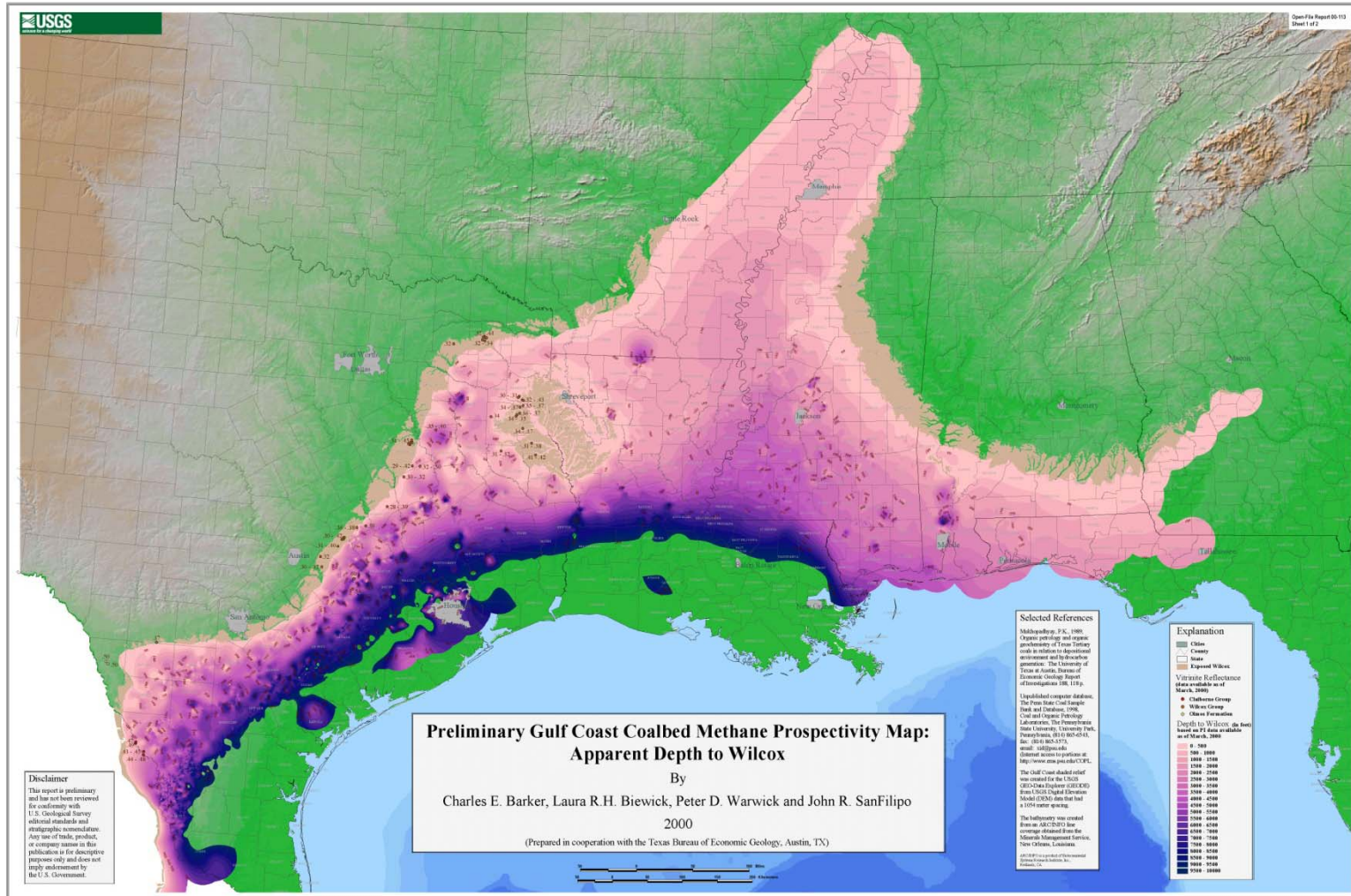


Figure 10: Depositional model for coal forming environments in coastal regions (from Horne et al., 1978).

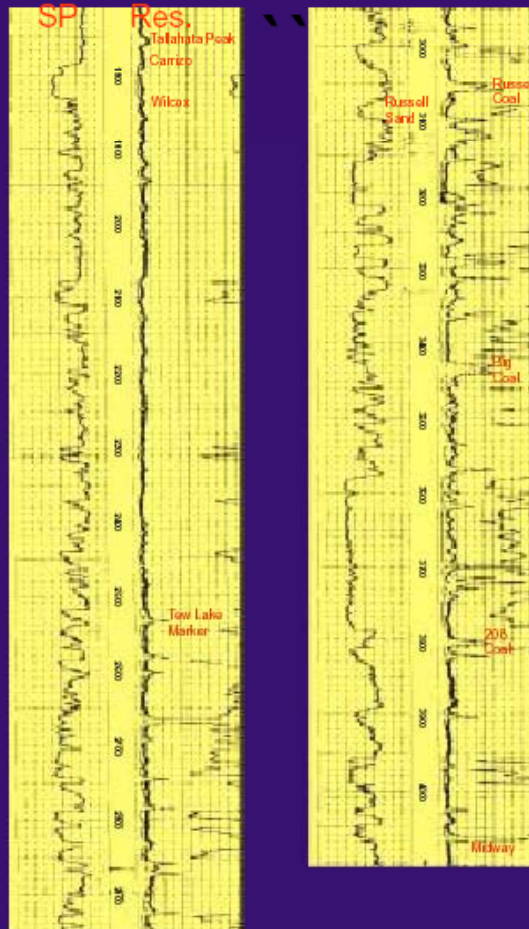
# Areal extent of the Wilcox formation (Barker et. al., 2000)





# Placid Oil Co., # 214 Louisiana O & G Co., Sec 15, T10N, R3E (after Echols, 2001)

## WILCOX TYPE LOG



# The first CBM completion in Louisiana, 1989 (after Echols, 2001)

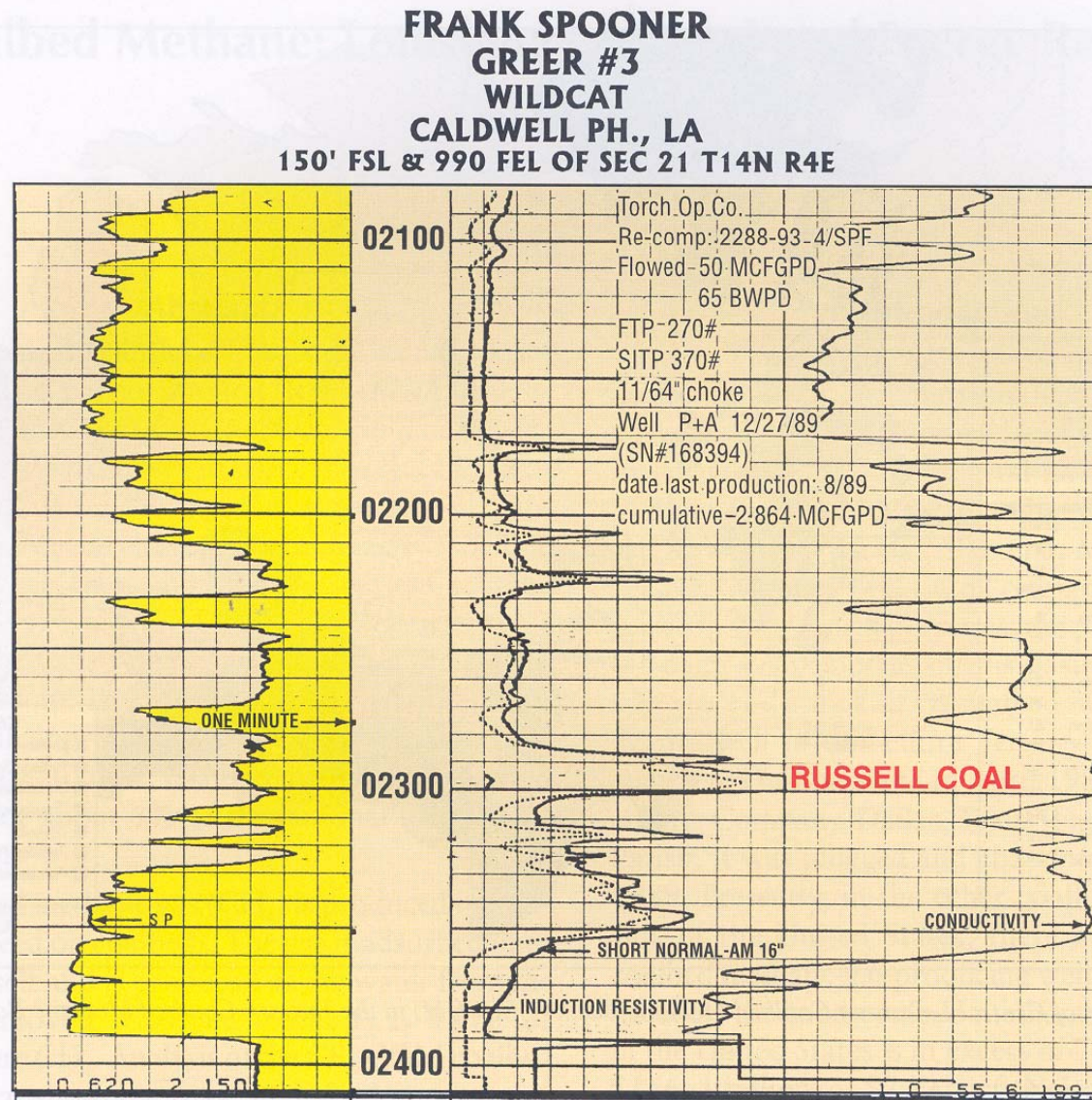
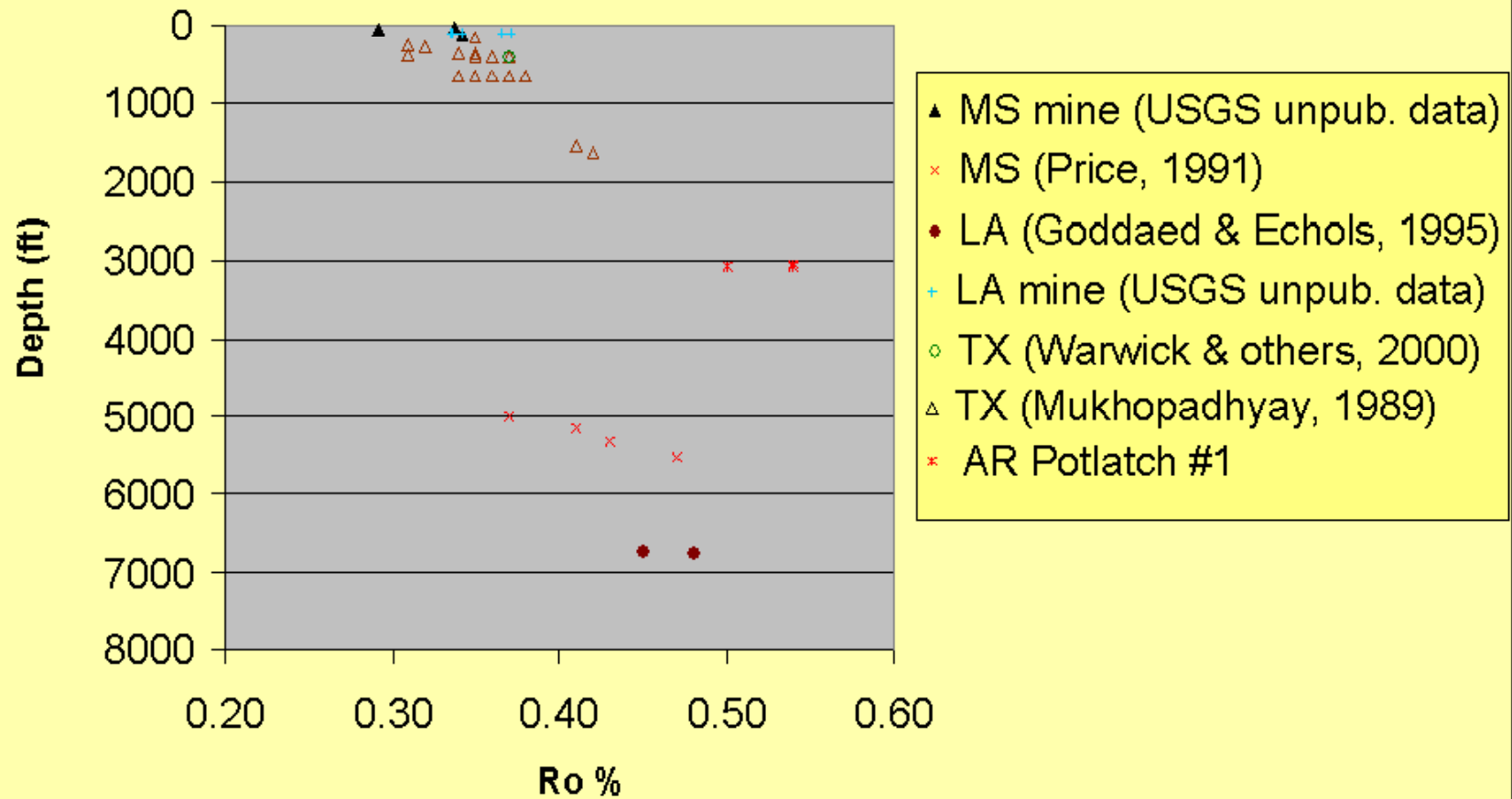


Figure 2—Torch Operating Co., No. 3 Greer, is the only known coalbed methane completion in the Tertiary Coalbed Methane Basin.

# Reflectance vs. depth of some Louisiana-area coals (Warwick et. al., 2004)

## Louisiana-area Coals: Ro and Depth

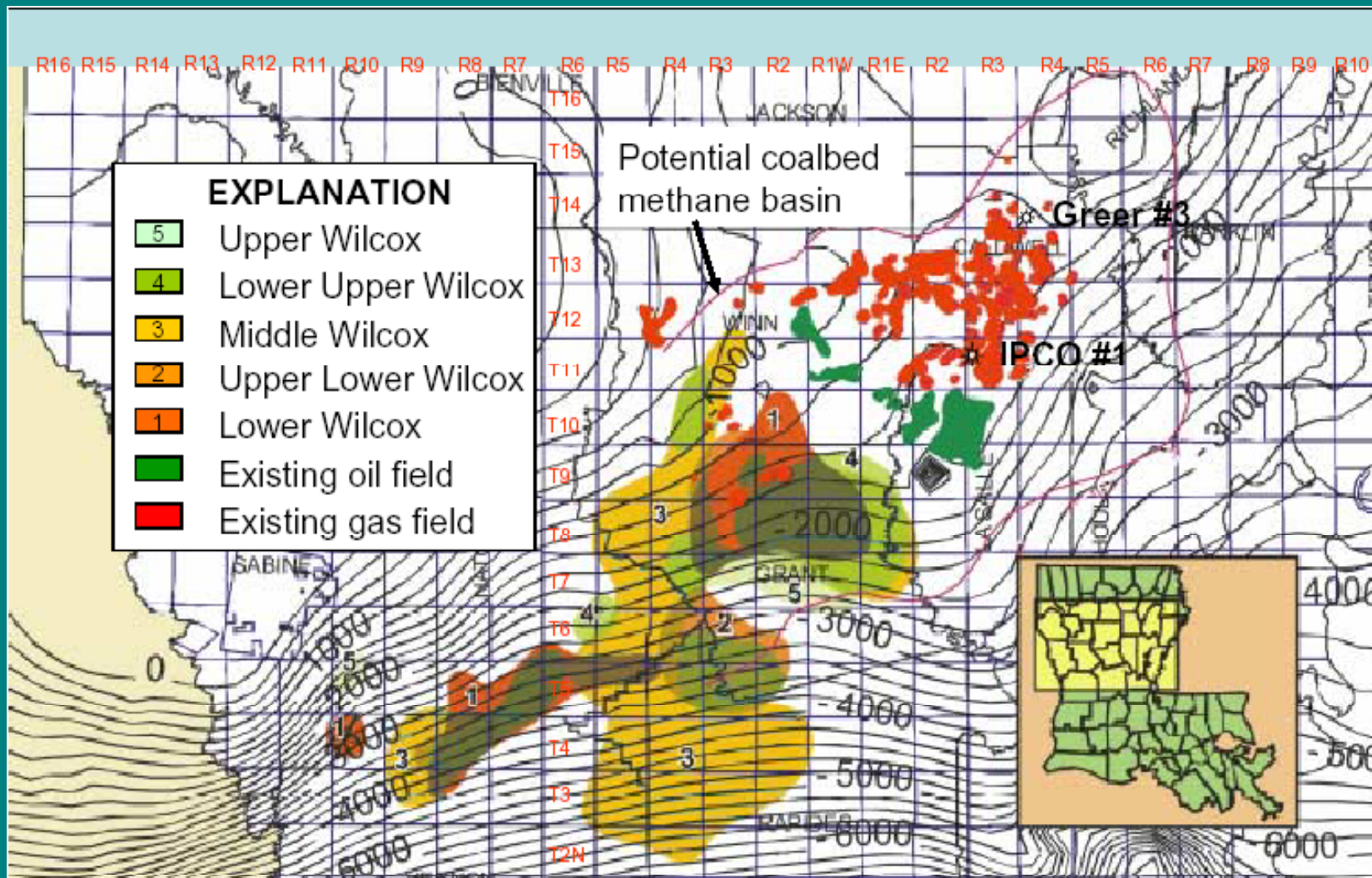




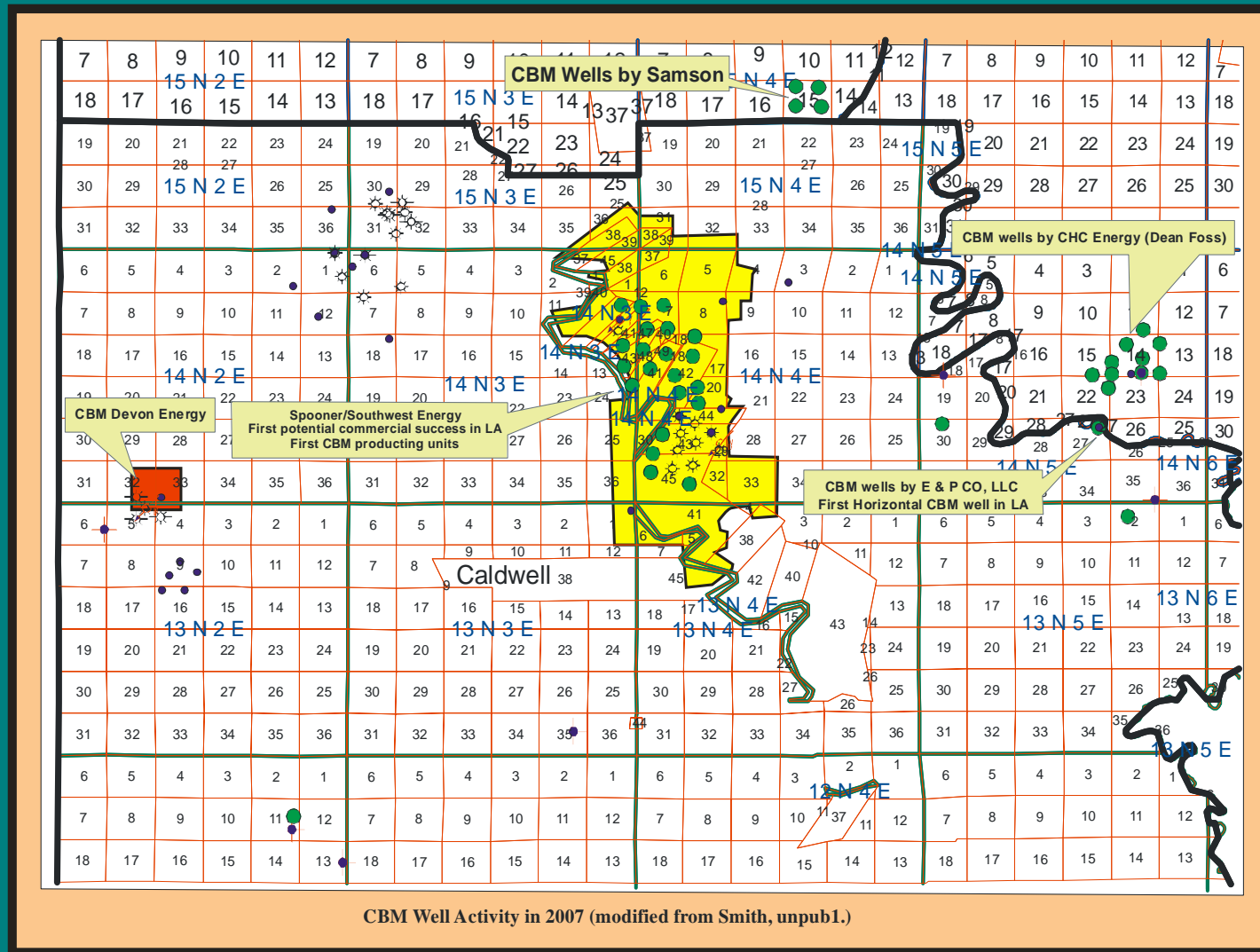
# Summary of Louisiana CBM prospects (Warwick, 2005)

Age/ Structure:	Paleocene, locally deformed (faults, regional dip into Gulf Basin)
Depth:	1,500 ft to 6,000 ft
Permeability:	2-18 md
Pres-Temp:	Brine hydrostatic gradient at 90-130°F
Net Coal & Rank:	20 to 100 ft of subC - hvCb
Gas Content:	60 to 200 SCF/ton, d.a.f. basis
Gas Saturation:	under-saturated to saturated
Gas composition:	biogenic (CO <sub>2</sub> reduction)
Production:	7-229 MCFGPD with 25-550 BWPD for ~12 wells
Salinity:	7,000 to 16,000 TDS NaCl dominated brine
Water Disposal:	Reinjection into old oil/gas fields
Gas in Place:	~ 8 to ??? TCF

# Top of Wilcox structure map (Echols, 2000)



# 2007 CBM drilling activity



# WHY EXPLORE FOR CBM IN LOUISIANA?

- Established Oil & Gas province (in-place infrastructure)
- Relatively shallow drilling depths (<6000 ft., most current wells <3000 ft.)
- CBM prospects (thickest coals) are separate from conventional Wilcox targets (thicker sands); acreage should be available



## References

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**THE END**

