

An Overview of Alabama's Coalbed Methane Industry

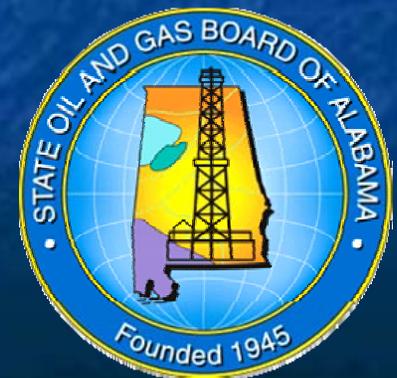
David E. Bolin, Ph.D.

Deputy Director

State Oil and Gas Board

U.S.-India Energy Dialogue:
Coal Working Group Meeting

June 5-7, 2007



State Oil and Gas Board

- State Regulatory Agency
 - Established in 1945
 - Mission: Conserve Resources
- Legislative Mandates
 - Prevent Waste
 - Protect Owners' Correlative Rights

State Oil and Gas Board

- Organization
 - 3-Member Board (Appointed by Governor)
 - Oil & Gas Supervisor
 - Technical Staff
 - Geologists
 - Engineers
 - Field Inspectors
 - Support Staff

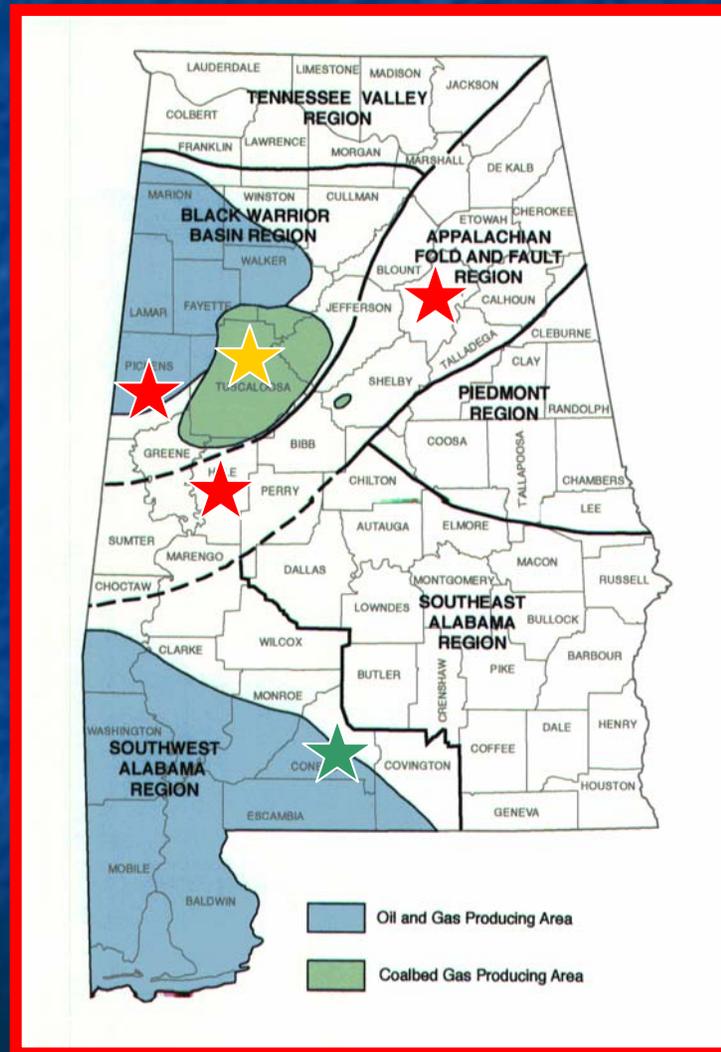
National Ranking Oil & Gas Production



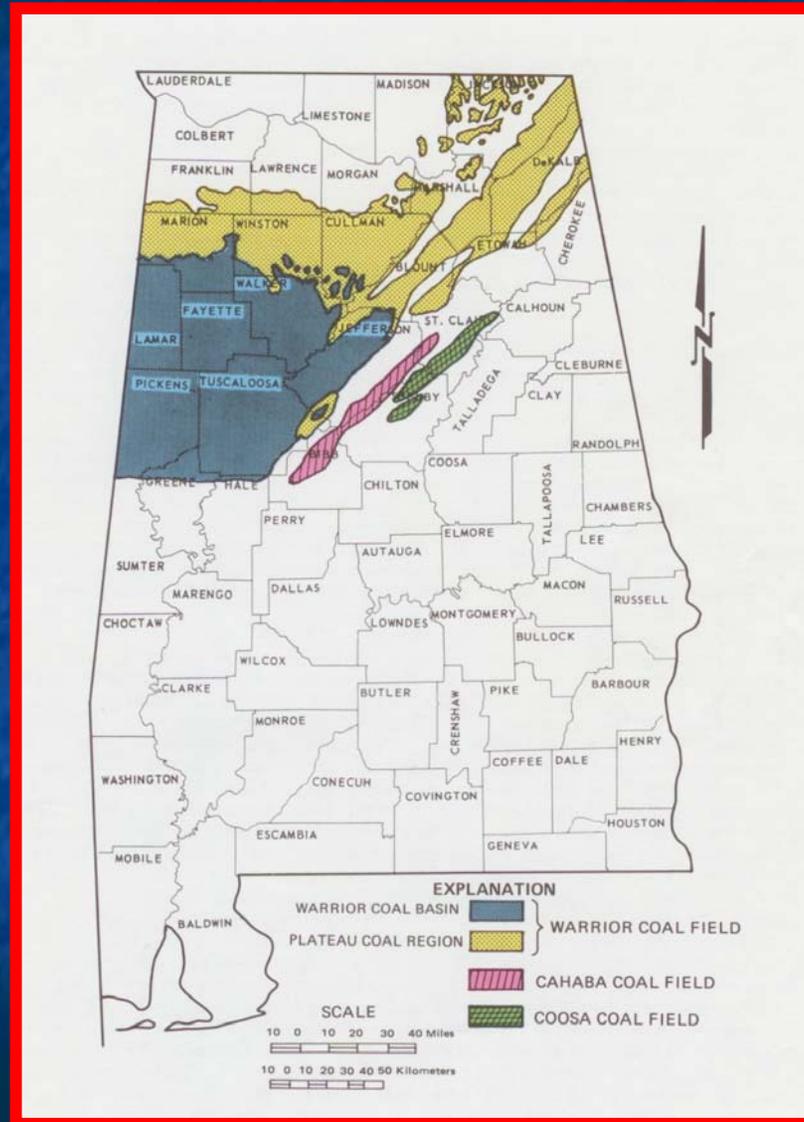
- Gas: 10th
- Liquids: 15th



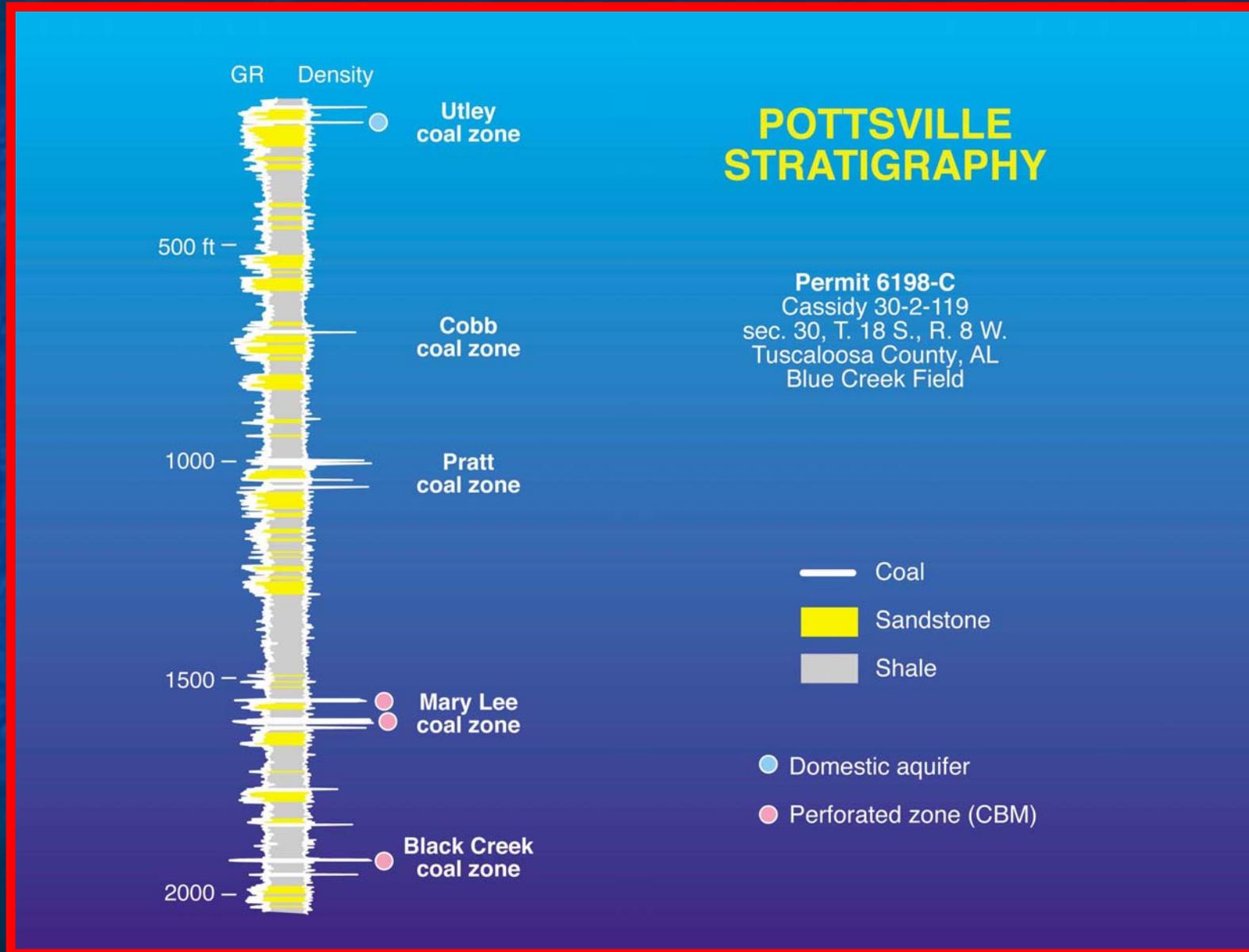
State of Alabama Significant Activity Areas

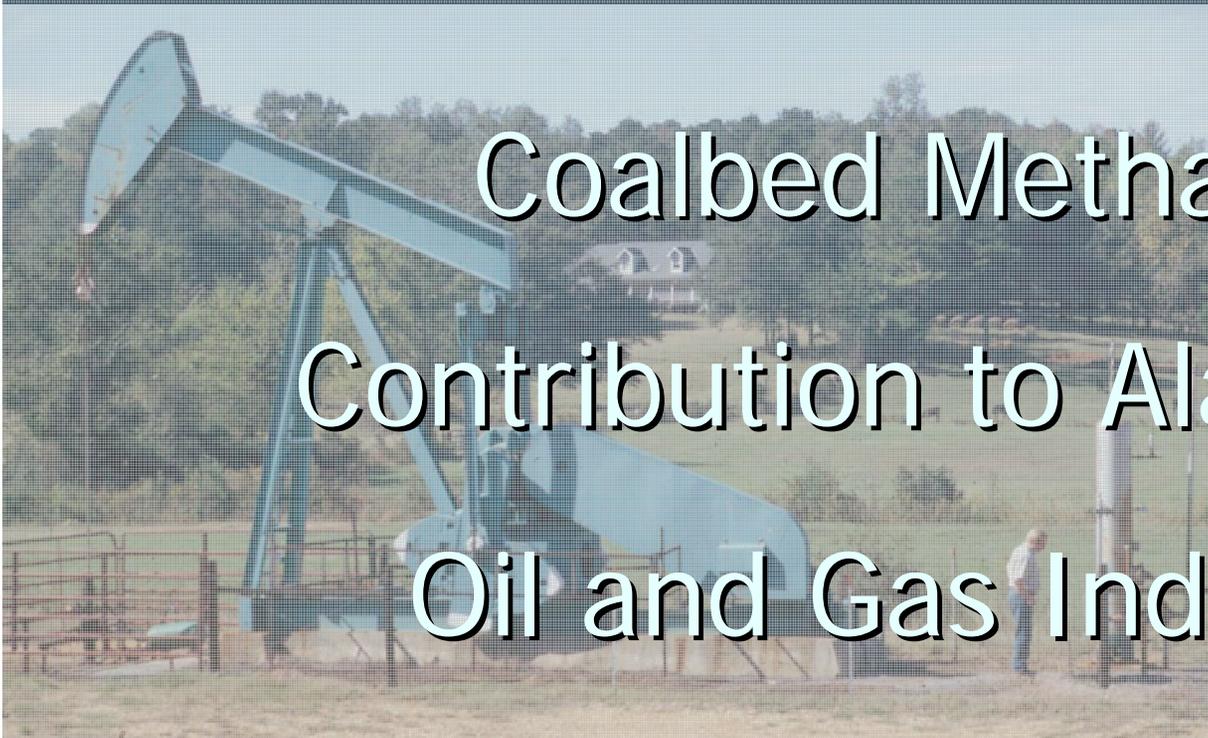


Occurrence of Coal in Alabama



Coal Geology



A photograph of a blue oil pumpjack in a rural landscape. The pumpjack is the central focus, with a person standing nearby for scale. In the background, there are trees and a house on a hill. The image is overlaid with a semi-transparent blue rectangle on the right side.

Coalbed Methane's Contribution to Alabama's Oil and Gas Industry:

A photograph of a construction site, likely for an industrial facility. The site is filled with scaffolding and structural steel. In the background, there are hills and a building under construction. The image is overlaid with a semi-transparent blue rectangle on the left side.

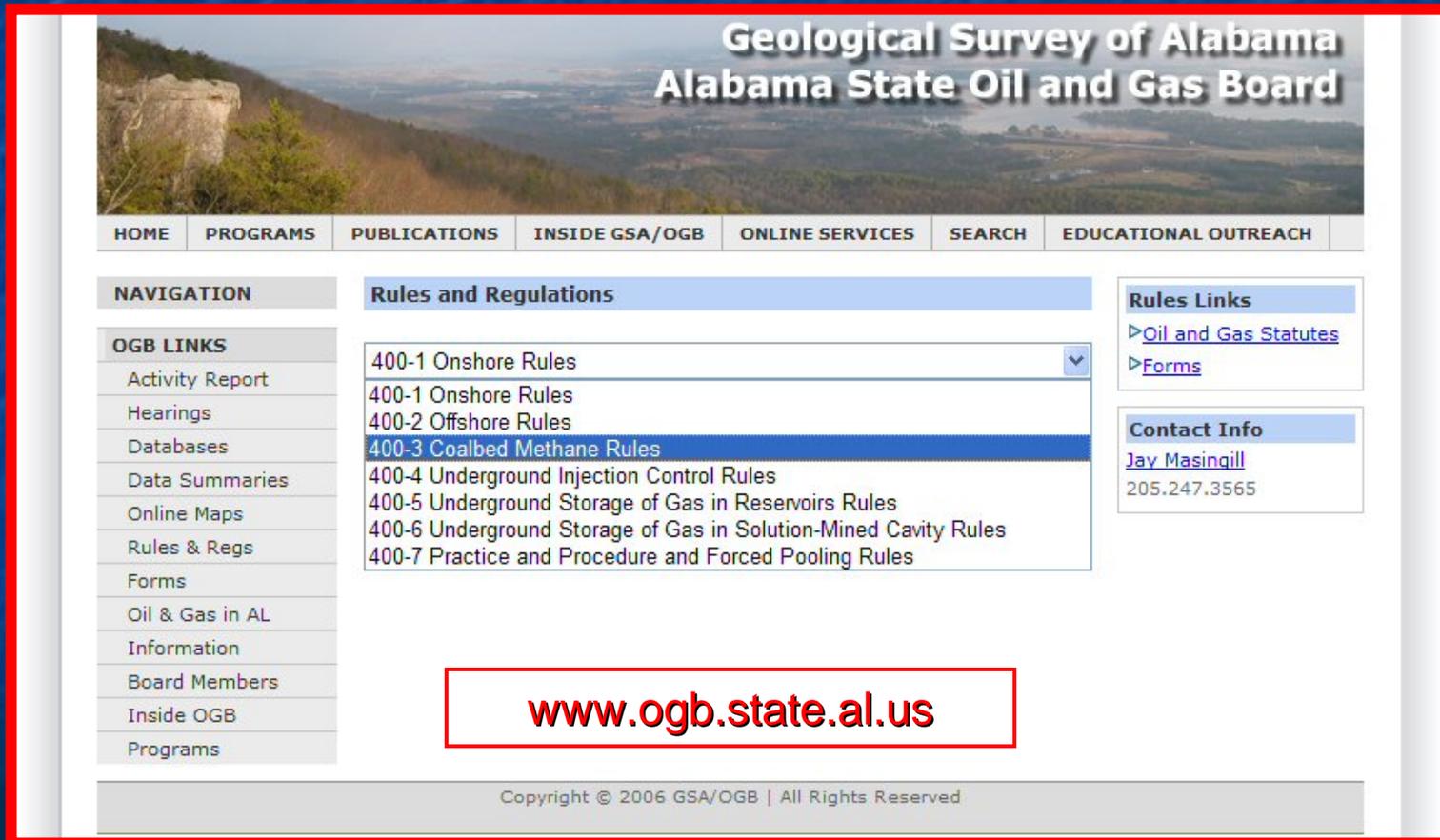
Historical Development

Coalbed Methane Development History

- May 1980 – First Permit to Drill
- 1980-1988 – Development Principally Associated with Underground Coal Mining
- 1989-1992 – Significantly Increased Drilling Activity Associated with Expiring Federal Tax Credit Beyond Coal Mining Areas
- 1993-1999 – Continued Expansion Beyond Coal Mining Areas
- 2000-2007 – Significantly Increased Drilling Activity Associated with Higher Gas Prices

Regulatory Framework

- Development of Rules & Regulations for Coalbed Methane Operations



The screenshot displays the website for the Geological Survey of Alabama and the Alabama State Oil and Gas Board. The header features a landscape image and the organization's name. A navigation menu includes links for HOME, PROGRAMS, PUBLICATIONS, INSIDE GSA/OGB, ONLINE SERVICES, SEARCH, and EDUCATIONAL OUTREACH. The main content area is titled "Rules and Regulations" and contains a dropdown menu with the following options: 400-1 Onshore Rules, 400-2 Offshore Rules, 400-3 Coalbed Methane Rules (highlighted), 400-4 Underground Injection Control Rules, 400-5 Underground Storage of Gas in Reservoirs Rules, 400-6 Underground Storage of Gas in Solution-Mined Cavity Rules, and 400-7 Practice and Procedure and Forced Pooling Rules. To the right, there are sections for "Rules Links" (with links to Oil and Gas Statutes and Forms) and "Contact Info" (listing Jay Masingill and the phone number 205.247.3565). A red box highlights the website address www.ogb.state.al.us. The footer contains the copyright notice: Copyright © 2006 GSA/OGB | All Rights Reserved.

Regulatory Framework

- Development of Rules & Regulations for Coalbed Methane Operations
 - Rule Sections
 - General
 - Permitting of Wells
 - Notification and Approval of Activities
 - Drilling
 - Testing and Allowables
 - Production
 - Transportation
 - Safety and Environment
 - Reports

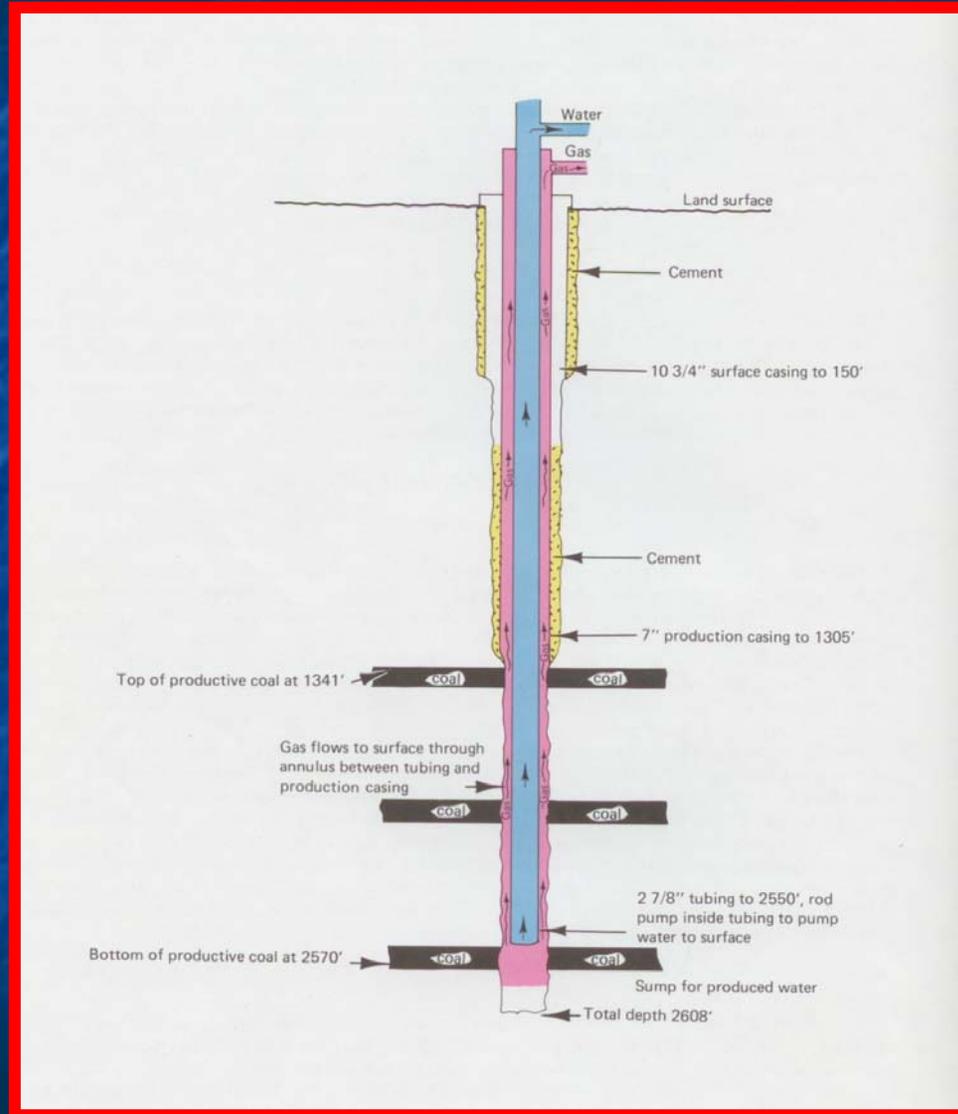
Regulatory Framework

- Special Field Rules
 - Well Types
 - Well Construction Options
 - Variable Well Spacing
 - Partial Fieldwide Unitization
 - Allowable Production Rates
 - Coal Mining Requirements

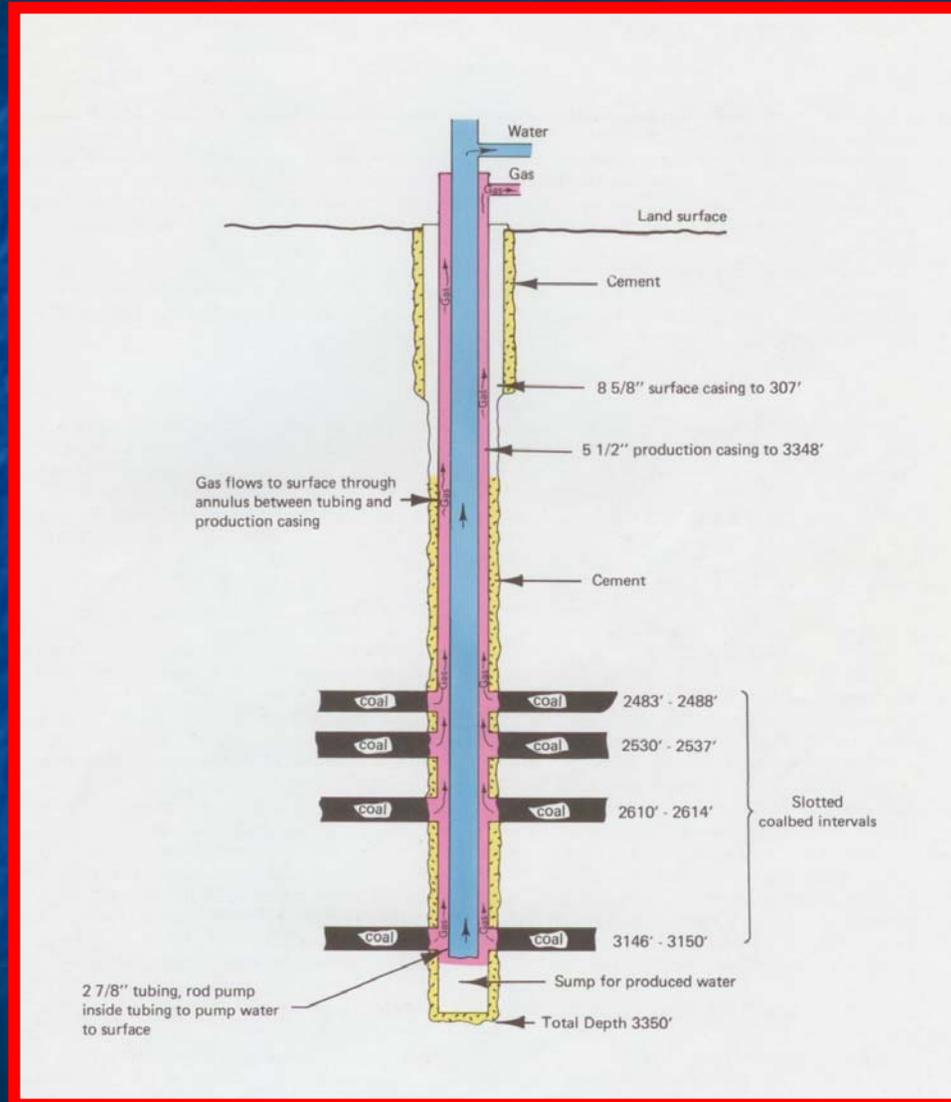
Well Types & Construction

- Conventional Wells (Vertically Drilled)
 - Open Hole
 - Cased Hole
 - Combination

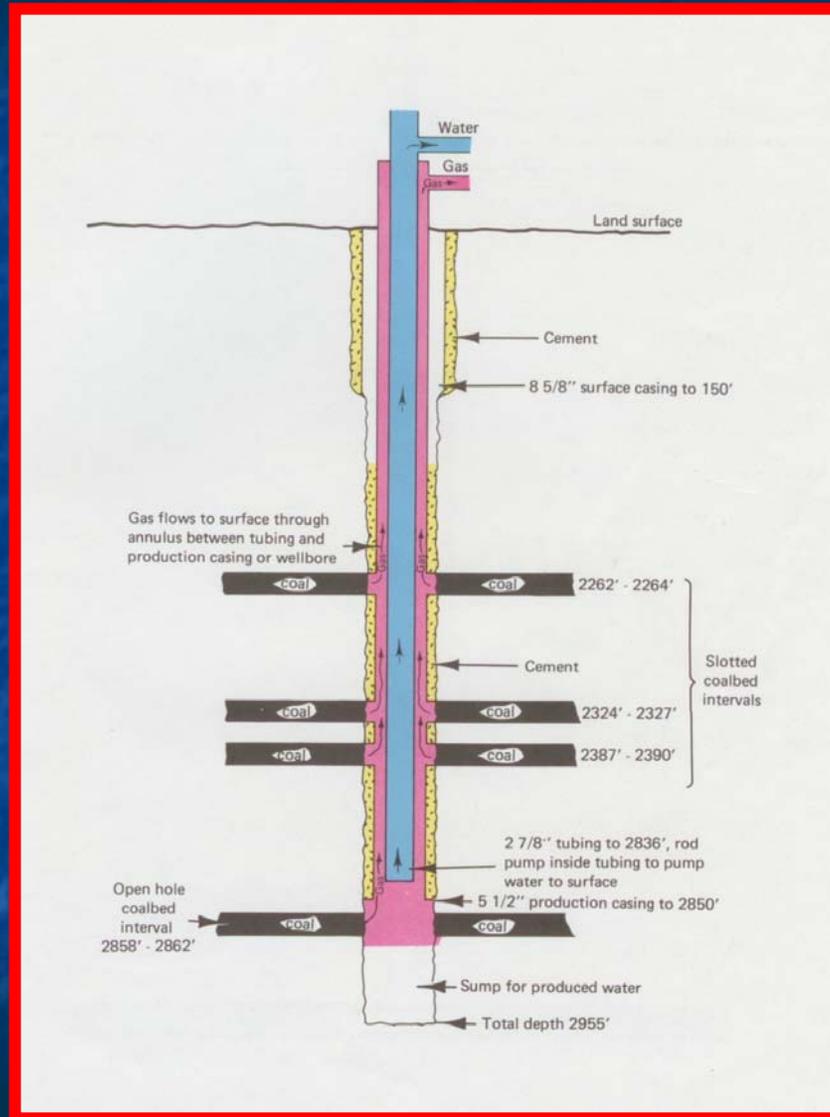
Open Hole Completion



Cased Hole Completion



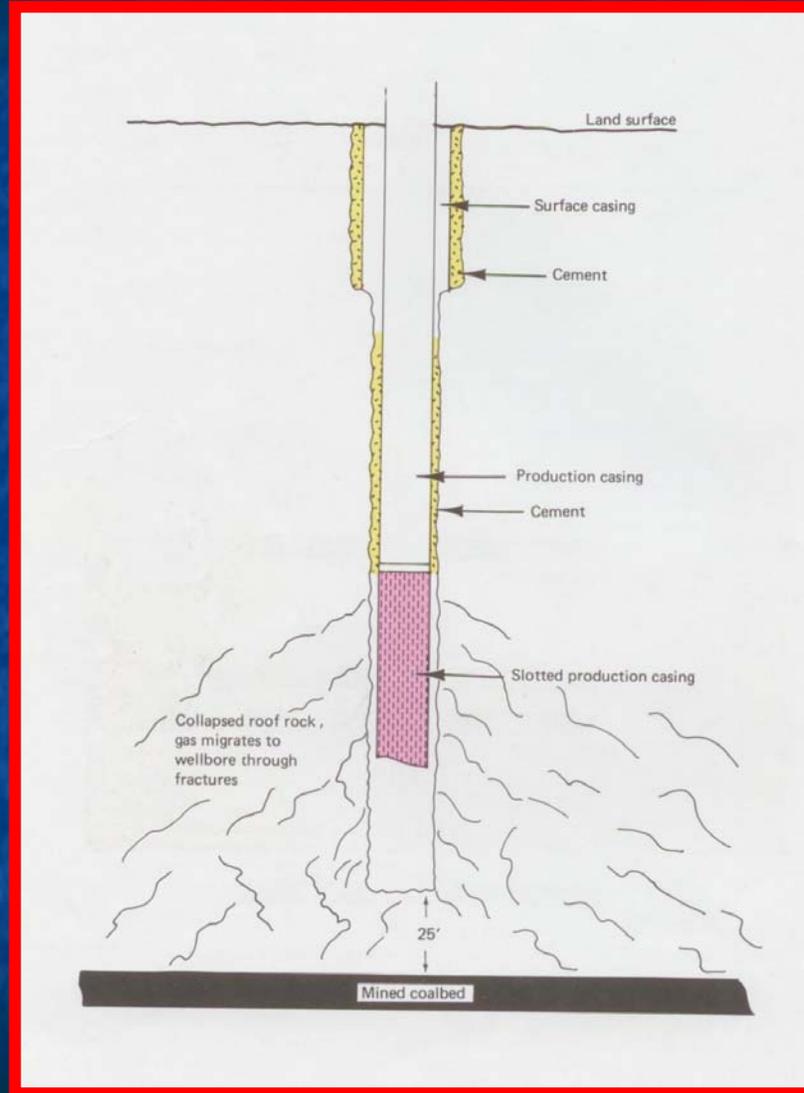
Open/Cased Hole Completion



Well Types & Construction

- Wells Associated w/ Underground Mines
 - GOB Wells
 - Horizontal Boreholes

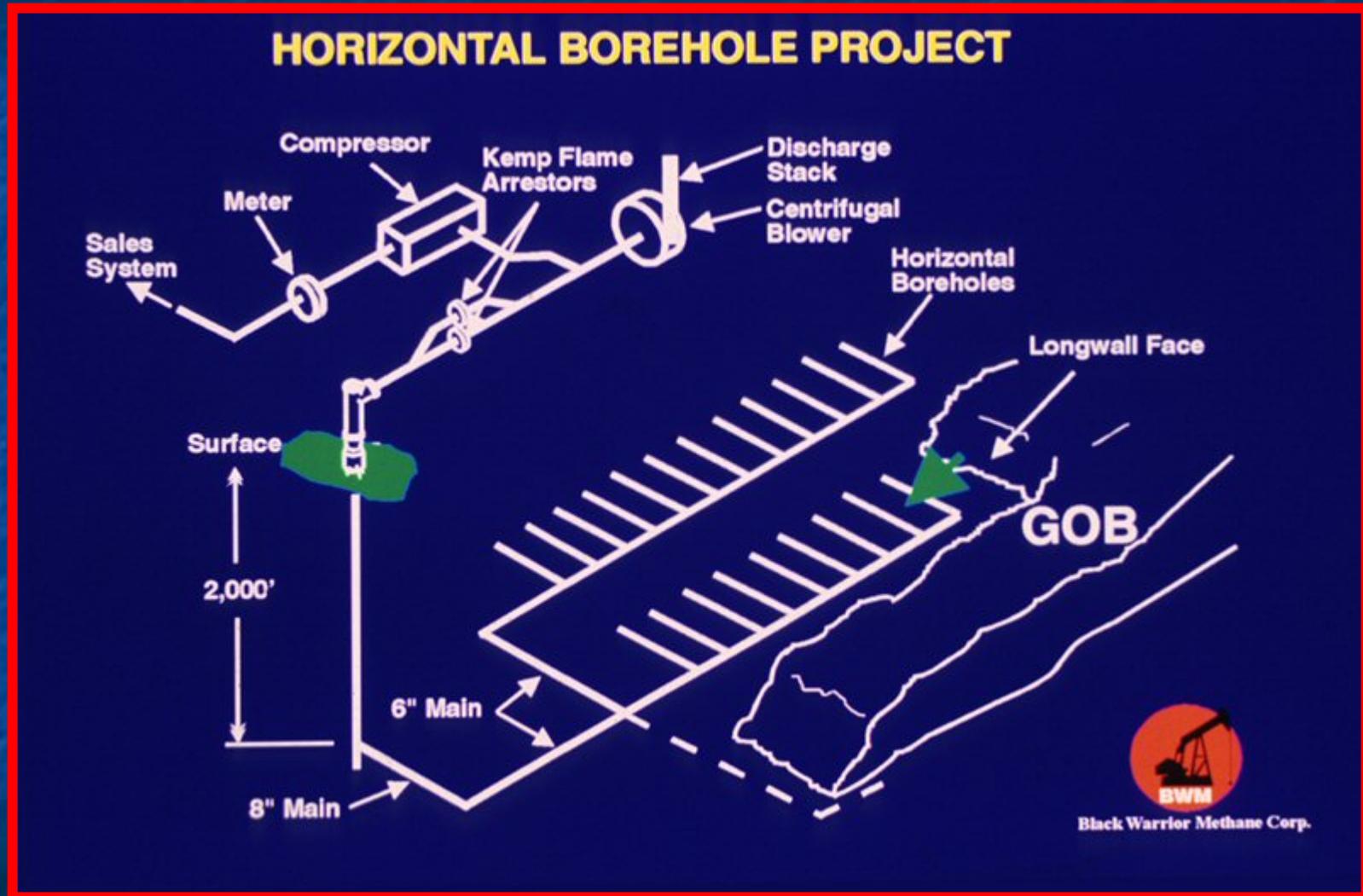
"Gob" Well



Horizontal Boreholes



Horizontal Boreholes

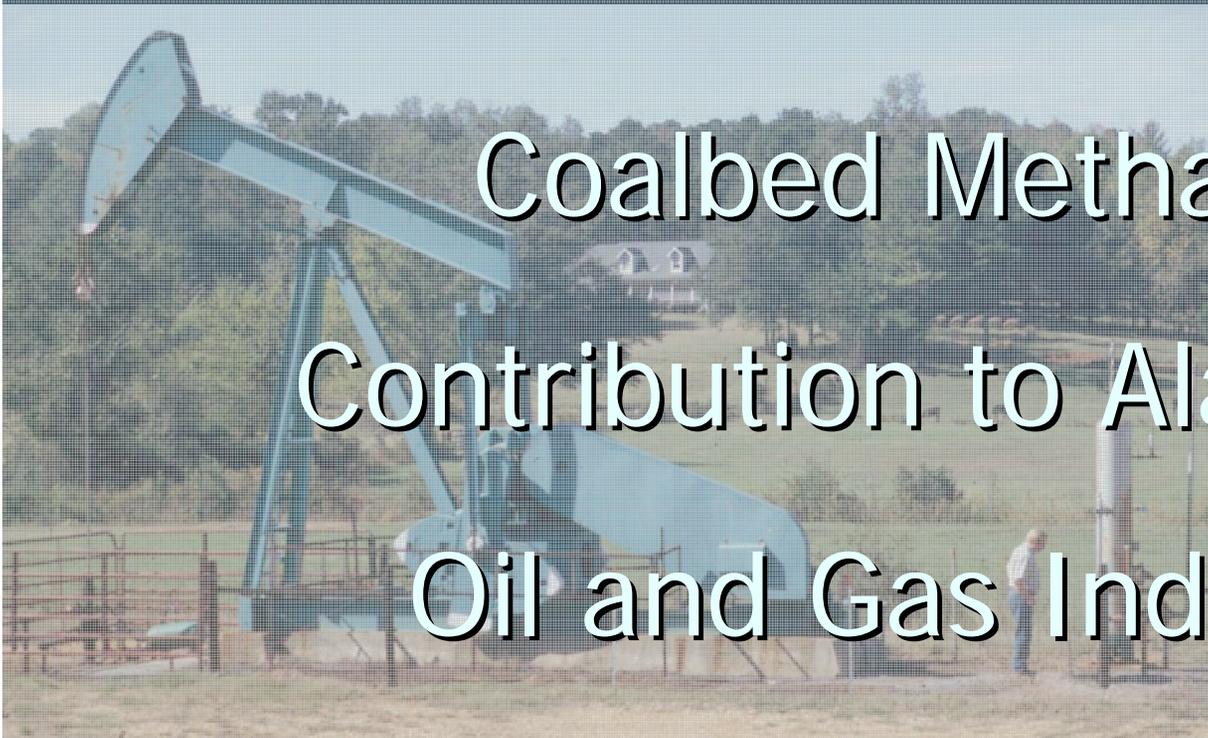


Well Spacing & Units

- Well Spacing Requirements
 - Diverse Mineral Ownership
 - 40 or 80 Acres – Gov. Quarter-Quarter Sections
 - Common Mineral Ownership
 - 10 to 80 Acres – Contiguous Acres
 - GOB Wells – Exempt
 - Horizontal Boreholes – Exempt
- Partial Fieldwide Units
 - No Spacing Requirements

Coalbed Methane Production & Coal Mining

- Coal Mining Takes Precedence
- Coalbed Methane Production
 - No Maximum Production Allowable
 - Production May Be Permanently Discontinued
- Design of Wells To Enhance Mine Ventilation After Coal Mined Out

A photograph of a blue oil pumpjack in a rural landscape. The pumpjack is the central focus, with a person standing nearby for scale. In the background, there are trees and a house on a hill.

Coalbed Methane's Contribution to Alabama's Oil and Gas Industry:

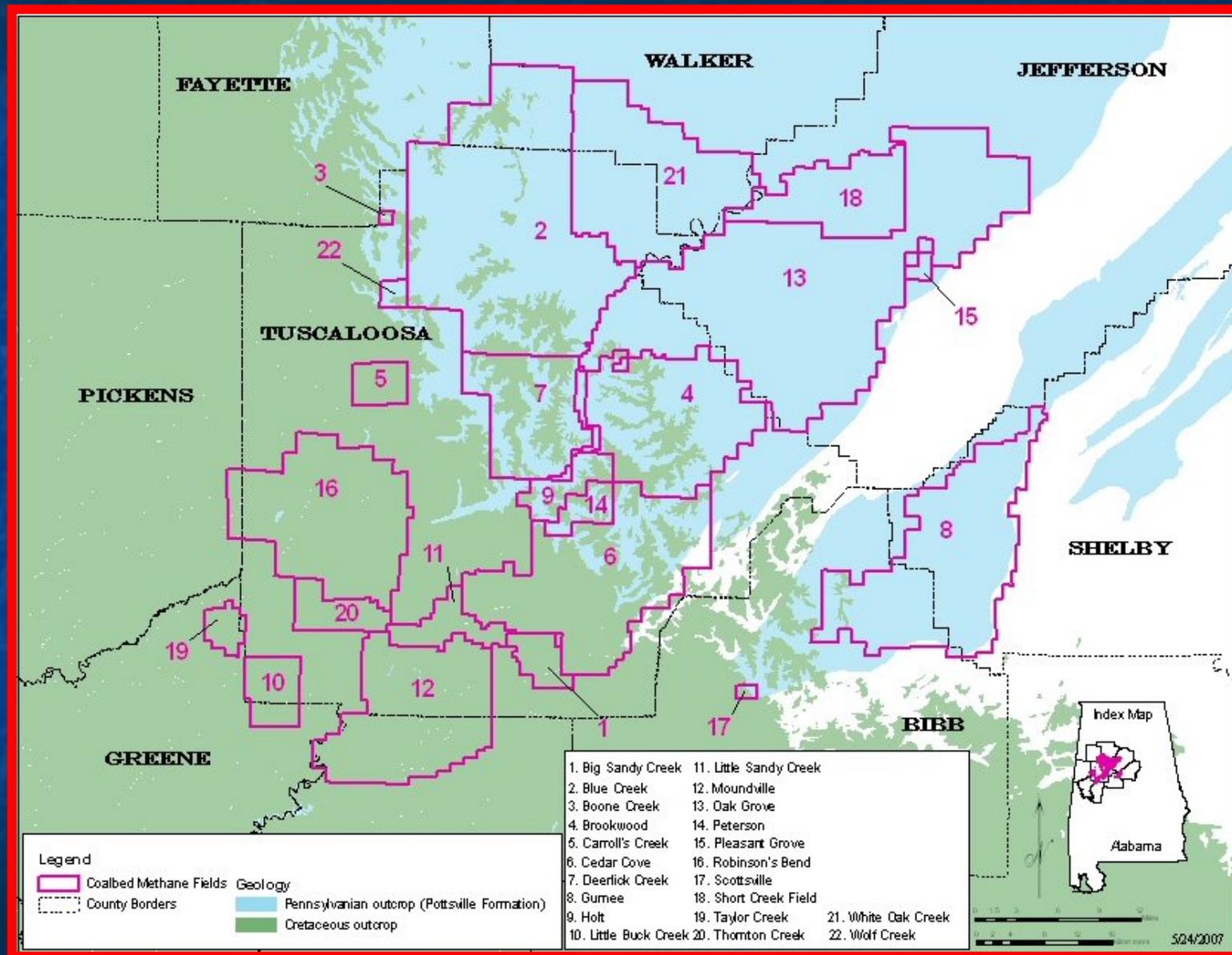
A photograph of a large-scale construction site. The image shows a complex network of steel beams and scaffolding, indicating the early stages of a large building or industrial facility.

Current Status

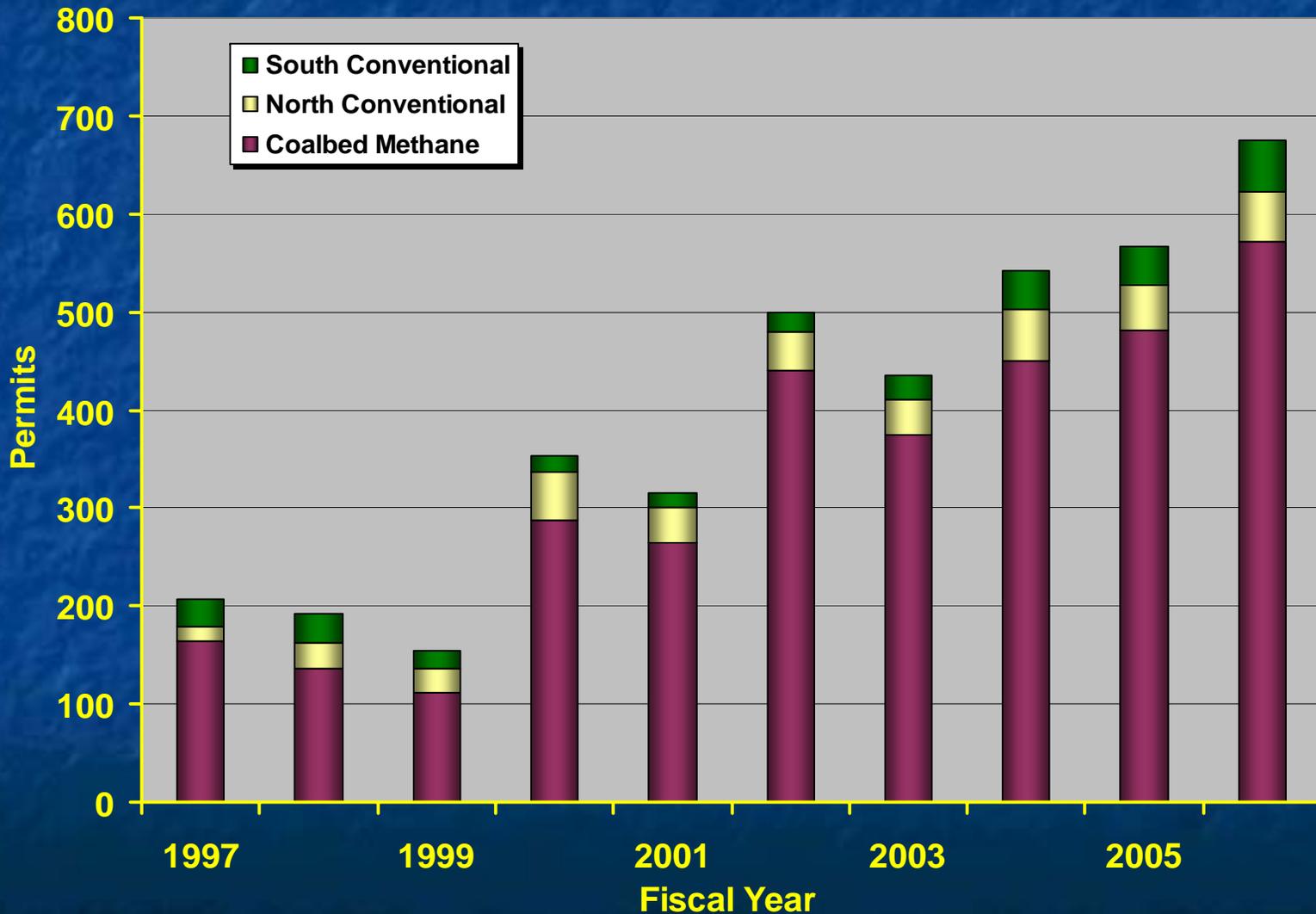
Coalbed Methane Activity

- Wells
 - ~ 8,700 Permitted
 - ~ 5,800 Currently Active
- Gas Production
 - ~ 100 Mcfd (Thousand Cubic Feet/Day) (2,832 Cubic Meters/Day) Average Daily Rate
 - 1.94 Tcf (Trillion Cubic Feet) (54.9 Billion Cubic Meters) Cumulative Total
- Fields
 - 22 Established
 - 15 Currently Active

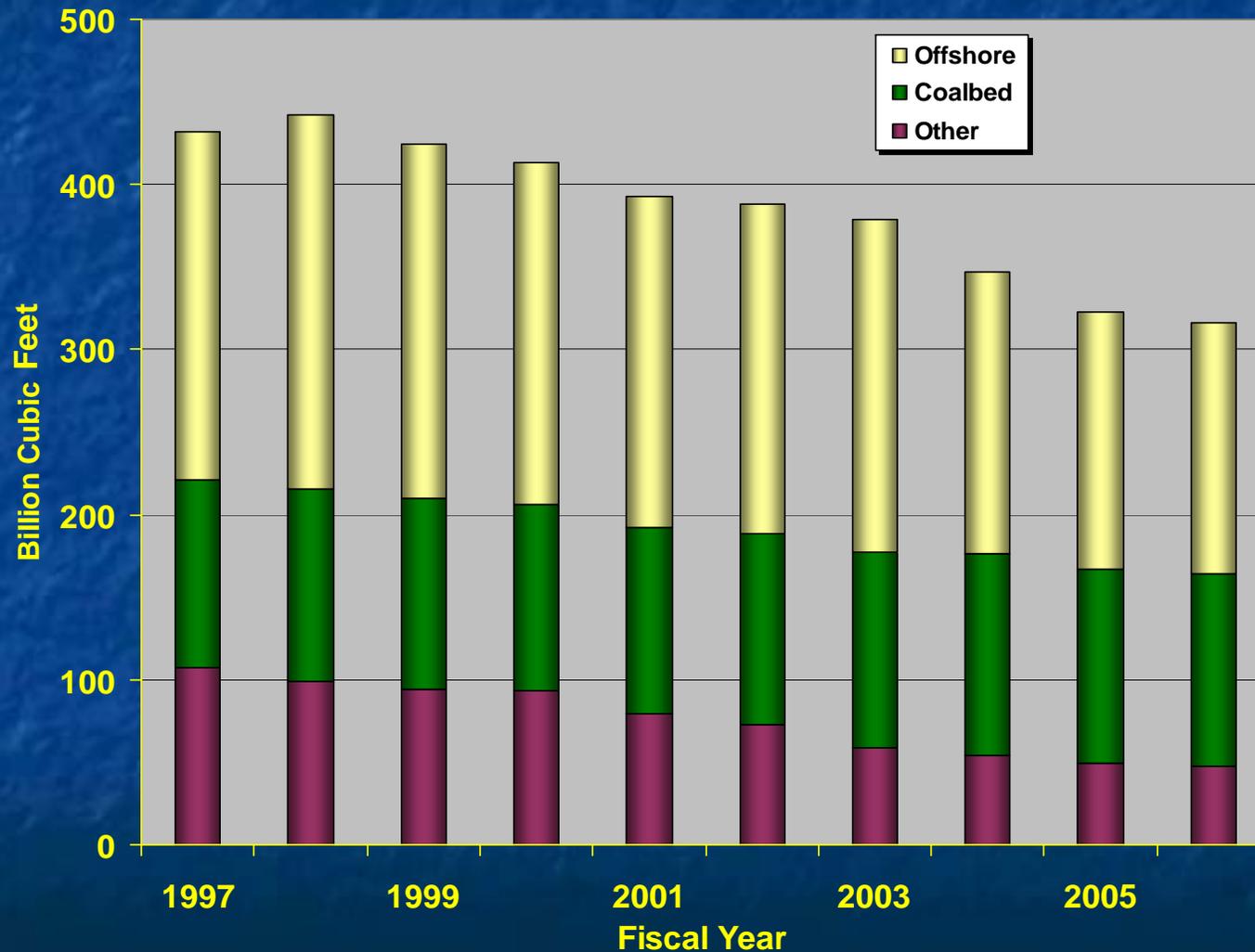
Alabama Coalbed Methane Fields



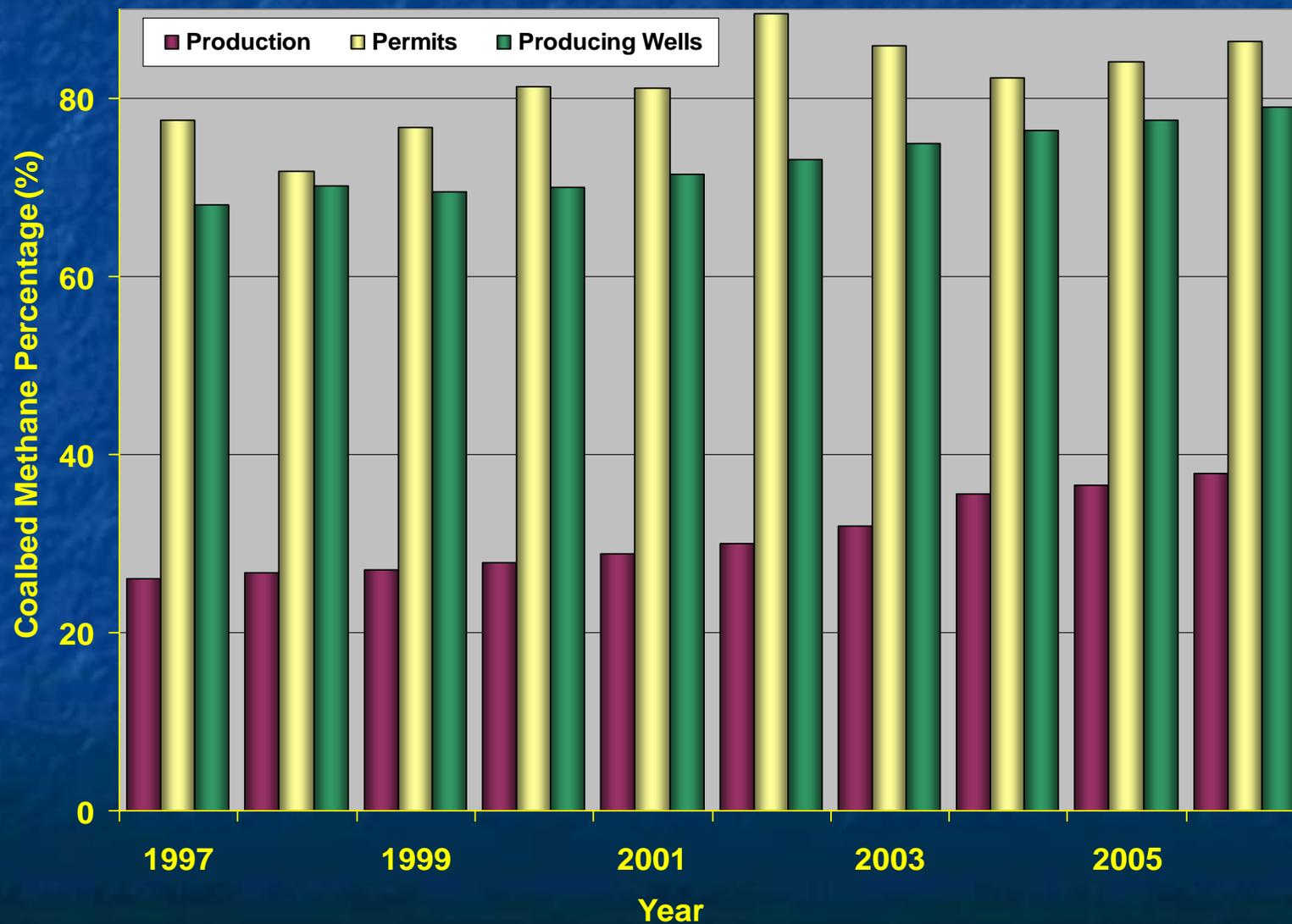
State of Alabama Oil & Gas Drilling Permits



State of Alabama Natural Gas Production by Well Type



Coalbed Methane Contribution



Contact Information

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