



## **TAMEST Shale Task Force**

Oil and Gas Regulatory Overview

October 5, 2016

## RRC Mission

To serve Texas by our stewardship of natural resources and the environment, our concern for personal and community safety, and our support of enhanced development and economic vitality for the benefit of Texans.



# RRC History

## Established in 1891

- Texas' oldest regulatory agency
  - almost 100 years regulating oil and gas
- Led by three statewide elected officials



Commissioner Christi Craddick



Chairman David Porter



Commissioner Ryan Sitton



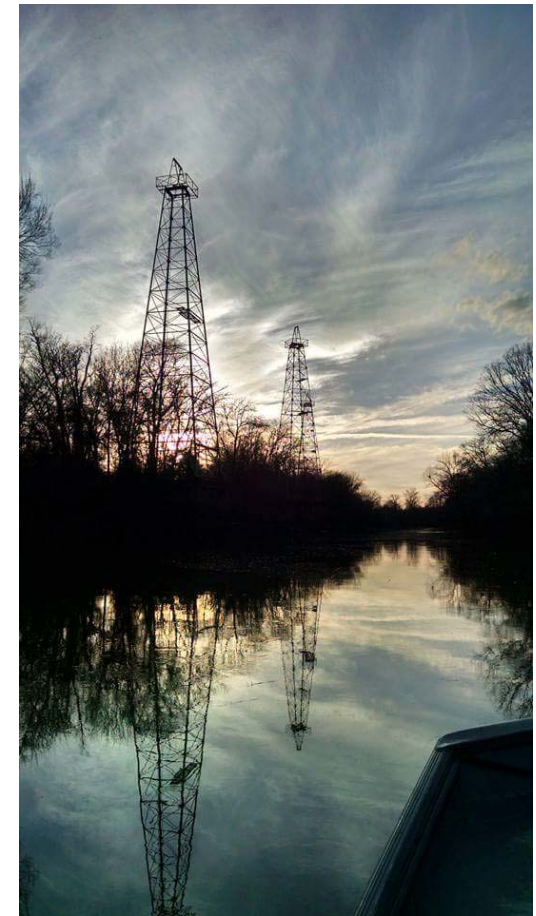
# RRC Jurisdiction

- Oil and natural gas exploration and production industry
- Intrastate pipelines, natural gas and hazardous liquid pipeline industry
- Liquefied Petroleum Gas (LPG), Compressed Natural Gas (CNG), and Liquid Natural Gas (LNG)
- Natural gas utilities
- Coal and uranium surface mining operations



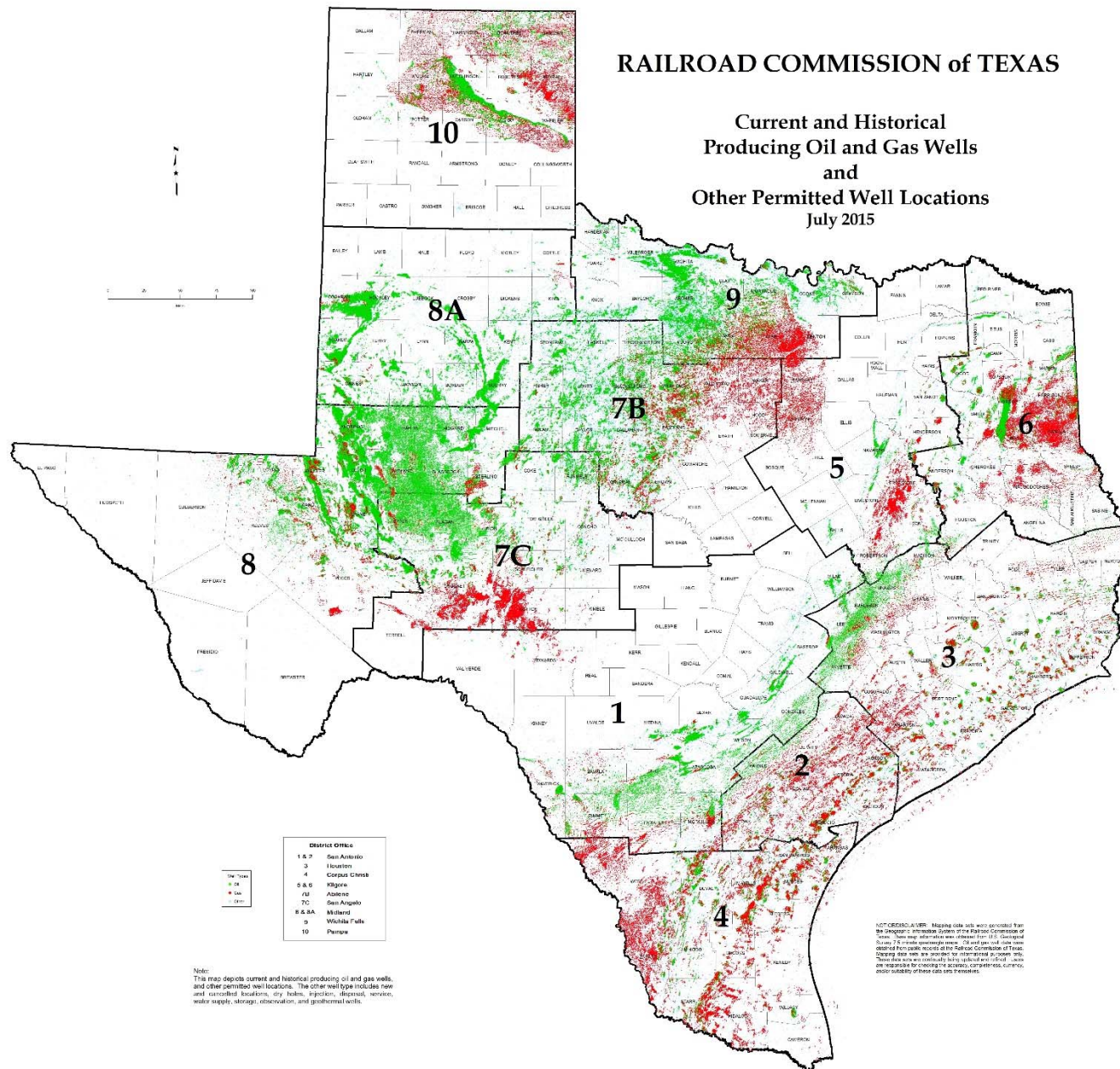
# Oil and Gas Activity

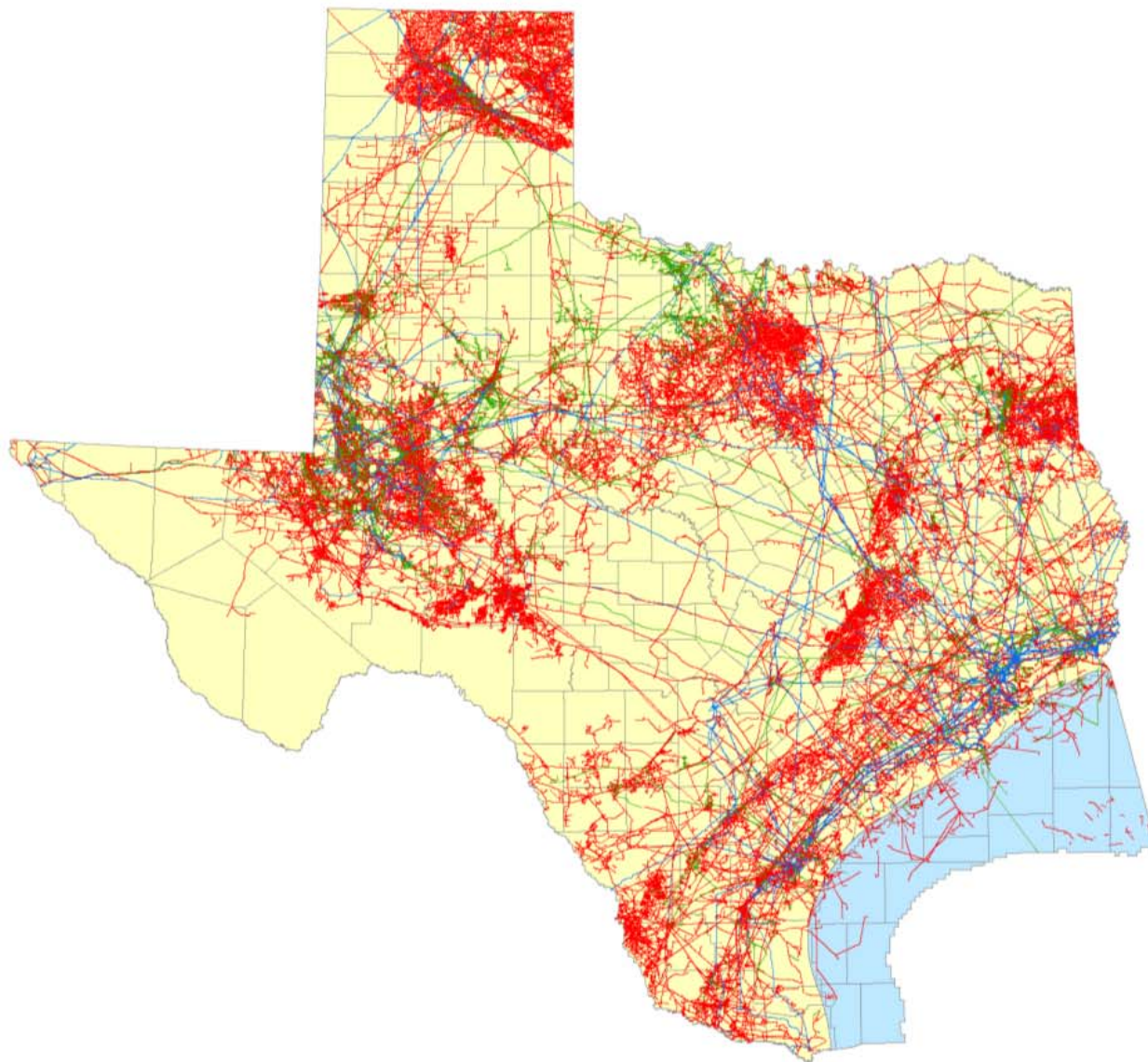
- As of August 31<sup>st</sup>, Texas has:
  - 436,309 oil and gas wells
    - 311,173 active wells
      - 183,052 producing oil wells
      - 83,086 producing gas wells
      - 45,035 service wells
    - 125,136 inactive wells
      - 10,161 “orphan”
- Approximately 2.7 million barrels of crude oil and 22 billion cubic feet of natural gas produced daily.



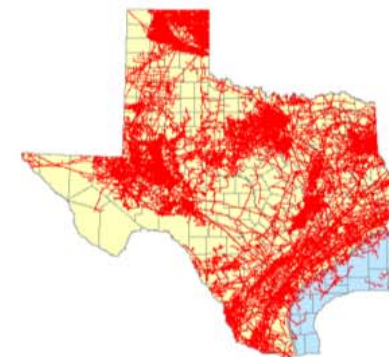


**Current and Historical  
Producing Oil and Gas Wells  
and  
Other Permitted Well Locations  
July 2015**





**Natural Gas, Crude, and Hazardous Liquids Pipelines**



**Natural Gas Pipelines**

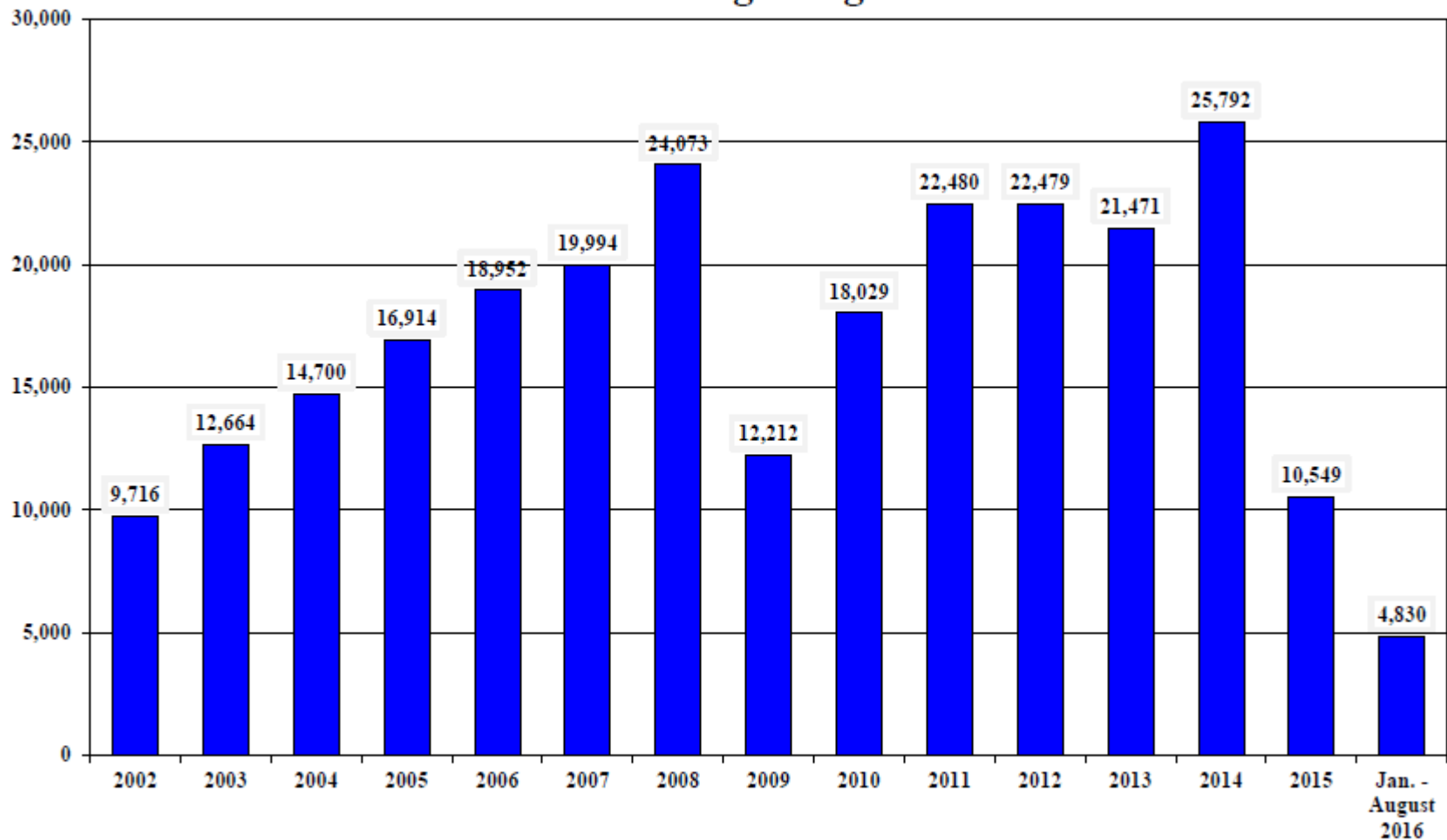


**Crude Pipelines**



**Hazardous Liquids Pipelines**

## Texas Drilling Permits Issued 2002 Through August 2016

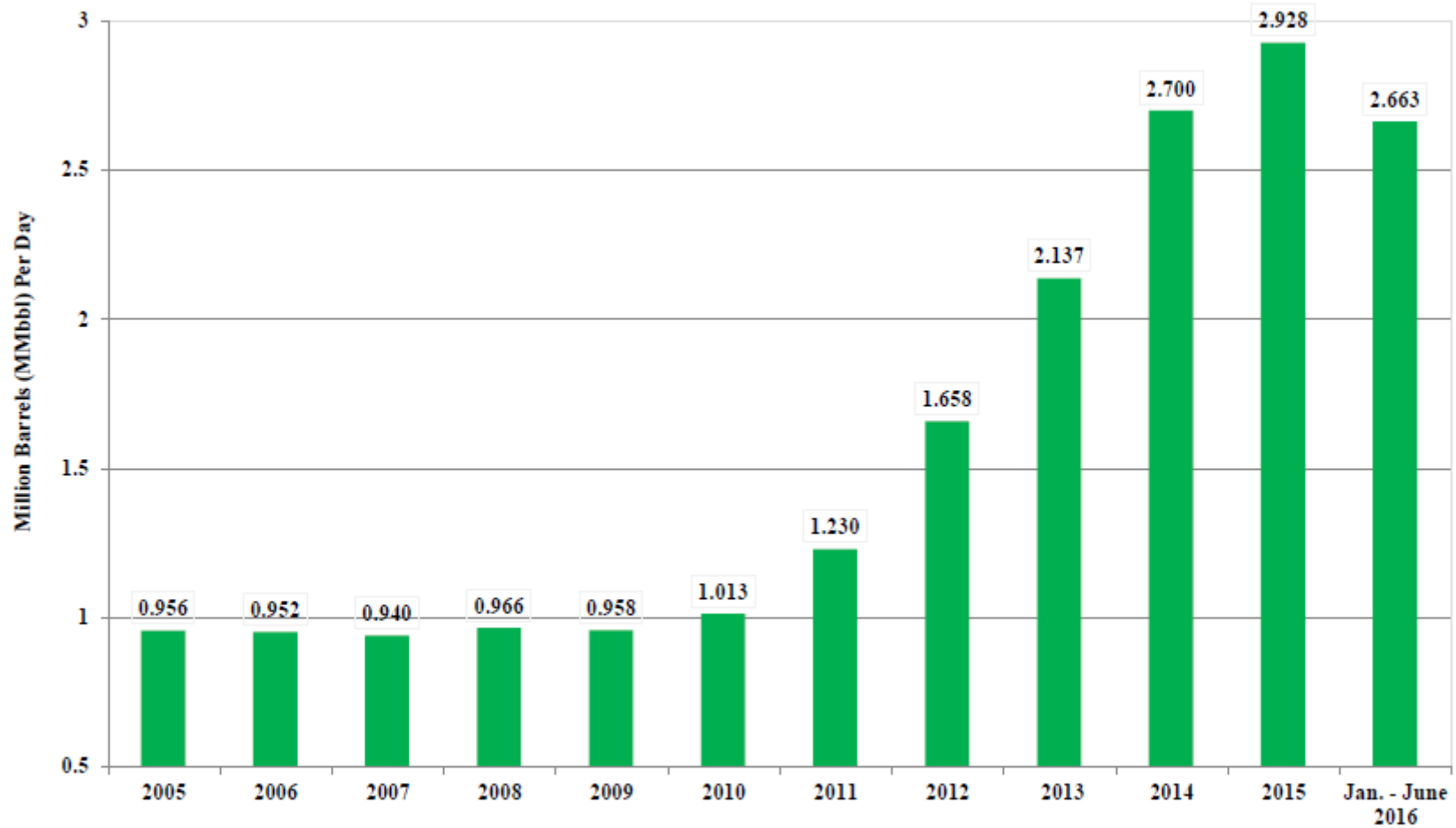


09/07/2016

Source: Railroad Commission of Texas Drilling Permit Online Query System (Includes New Drill, ReEnter&RecompletePermits)



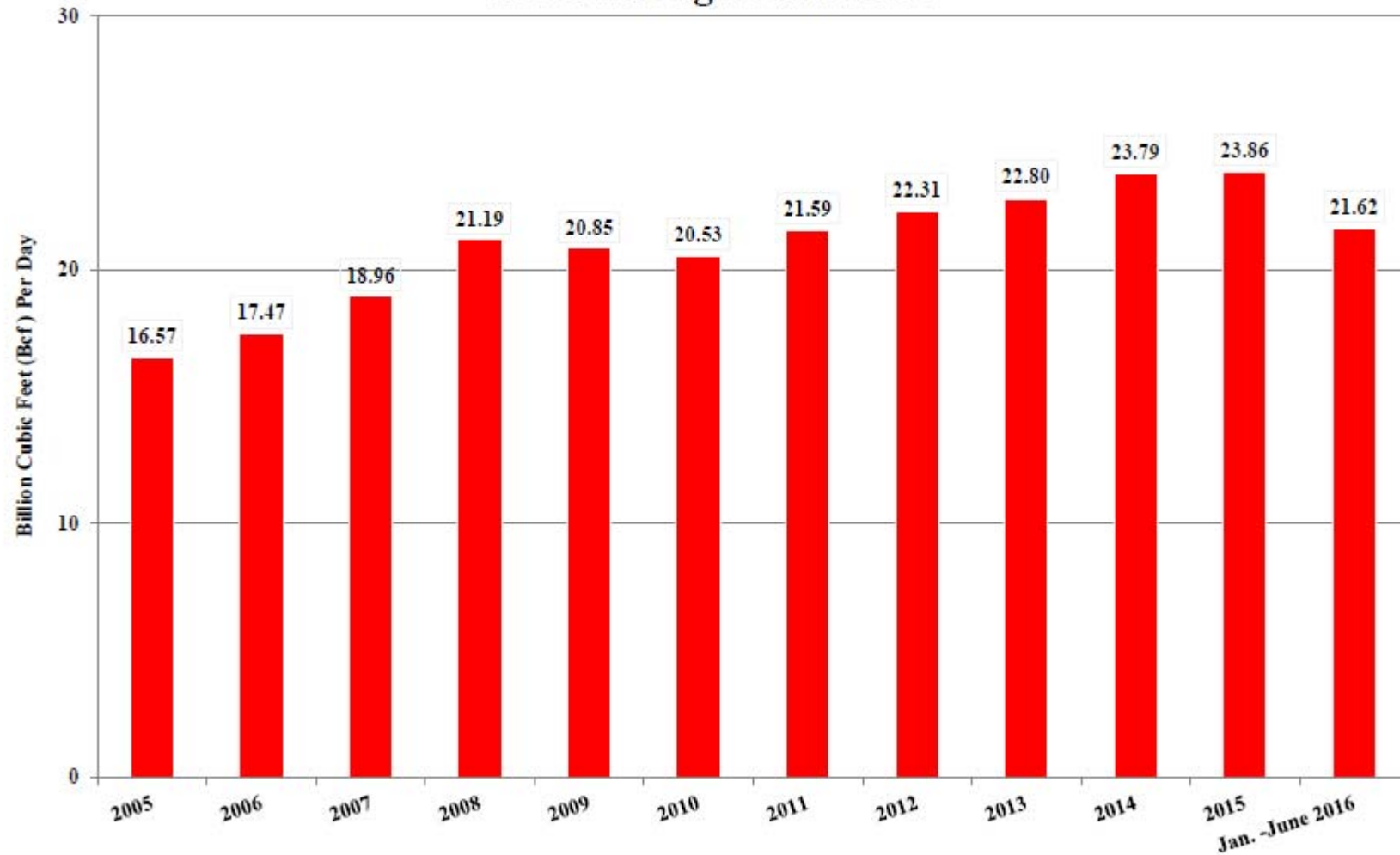
## Texas Oil Production 2005 through June 2016



08/22/2016

Source: Railroad Commission of Texas Production Data Query System (PDQ)

## Texas Total Natural Gas Production 2005 through June 2016



08/22/2016

Source: Railroad Commission of Texas Production Data Query System (PDQ)

# RRC Jurisdiction

- Activities associated with oil and gas exploration and production
  - drilling and production operations at well sites
  - transportation of crude, natural gas, and produced water by pipeline
  - oil and gas waste haulers on public roadways
  - oil and gas waste management facilities
- Memorandum of Understanding with TCEQ (Statewide Rule 30)



# RRC Jurisdiction

What does not fall under RRC jurisdiction?

- Roads and traffic
- Noise, odors and lighting
- Air quality
- Mineral interests/leases
- Property damages
- Pipeline siting
- Railroads



# RRC Jurisdiction

- Water protection
- Public safety
- Waste prevention





# Water Protection

- Casing and cementing of wells
- Prevention and cleanup of spills
- Management of wastes
- Well plugging/site remediation



# Public Safety

- Well control
- Spill prevention and response
- Hydrogen sulfide safety



- Pipeline and alternative fuels safety



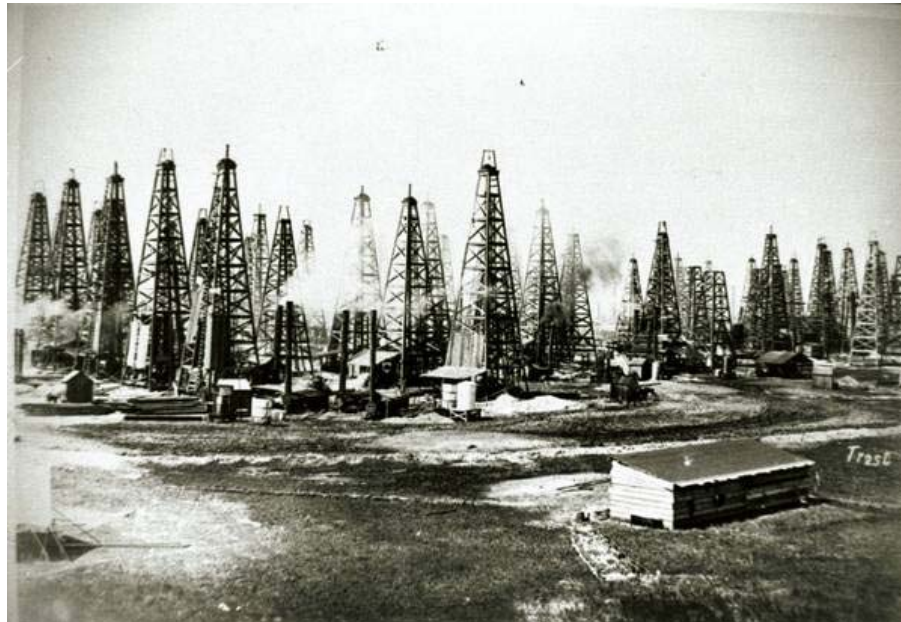
# Pipeline Safety

- 439,771 total pipeline miles in Texas
- 218,670 miles of pipeline under direct RRC oversight
  - RRC regulates intrastate pipelines in Texas
  - Interstate pipelines regulated by Pipeline Hazardous Materials and Safety Administration (PHMSA)



# Waste Prevention

- Spacing of wells
- Production allowables
- Controls on venting and flaring of gas



# Recent Developments

- Inactive wells
- Hydraulic fracturing
- Recycling
- Well construction
- Disposal wells
- Unconventional fracture-treated fields





# Inactive Wells

September 2010-July 2012: New and amended provisions of Statewide Rule 15

- Surface equipment removal requirements
- Inactive well plugging incentives
- Financial assurance requirements



# Hydraulic Fracturing

January 2012: New hydraulic fracturing fluid disclosure requirements (Statewide Rule 29)

- Information must be listed on FracFocus website: <http://fracfocus.org/>
  - Ground Water Protection Council
  - Interstate Oil and Gas Compact Commission
- Texas was one of the first states in the nation to require disclosure.



# Recycling

April 2013: Amended recycling rules  
(Statewide Rule 8/Chapter 4, Subchapter B)

- Encourage recycling in the oil field
- Reduce water use
- Create rules for authorized fluid recycling
- Streamline recycling permits



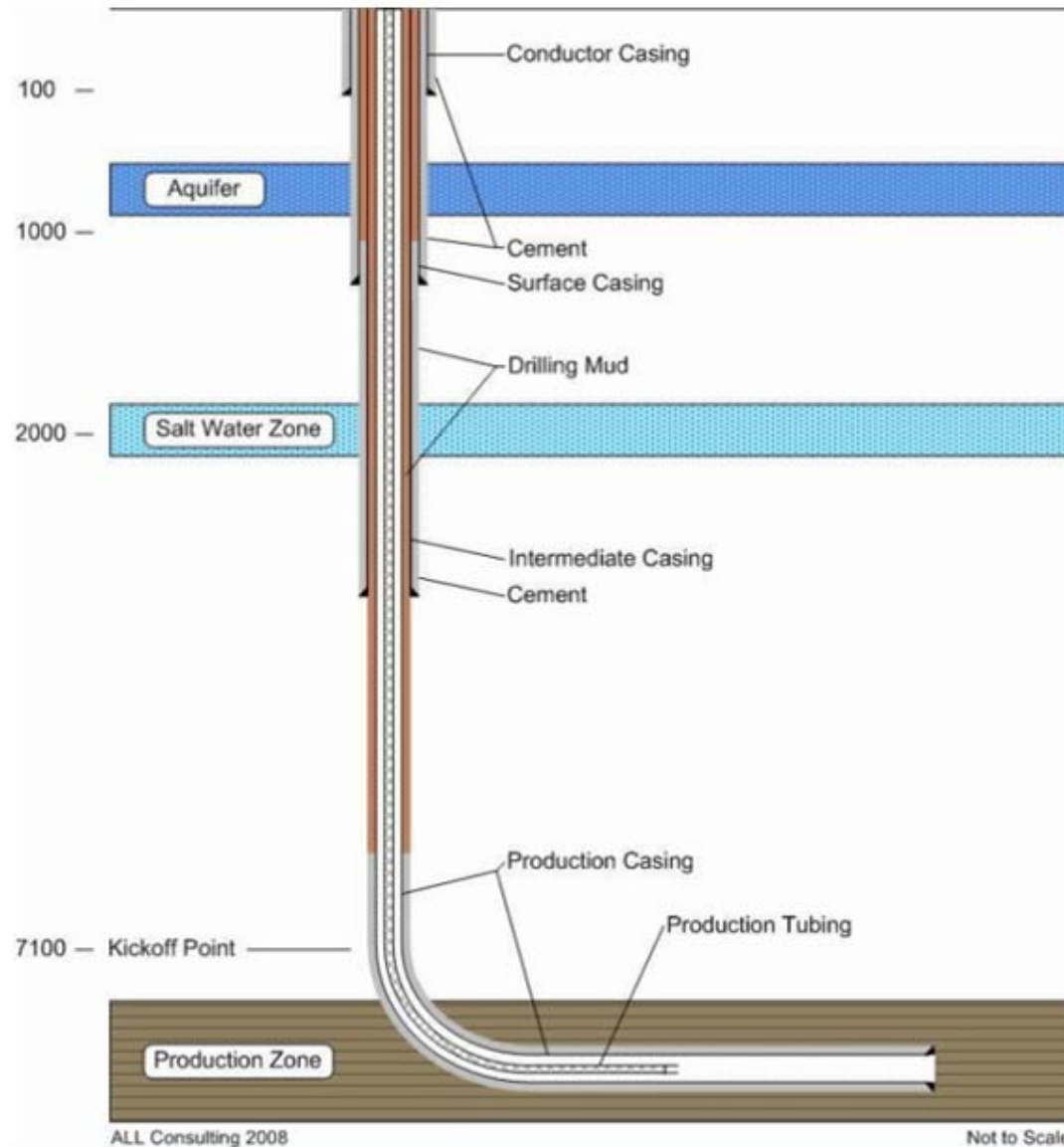
# Well Construction

## May 2013: Amended casing/ cementing requirements (Statewide Rule 13)

- Provide consistent and clear well construction regulations
- Update cementing requirements
- Require mechanical integrity testing prior to hydraulic fracturing
- Update requirements for well control and blowout preventers



# Well Casing Diagram





# Disposal Wells

Oct. 2014: Amended disposal well rules to address operations in areas of seismic activity

- Require applicants to provide additional data in permitting process
- Clarify RRC authority to modify, suspend or terminate a disposal well permit



# Communications

- Increased transparency and public outreach
  - Post-conference enforcement press release
  - Quarterly inspection and enforcement data
  - Monthly e-newsletter
  - Social media channels
  - 2015 Year In Review





## Online Research Queries

The links in the boxes allow users to research oil & gas production, drilling permits, well records, gas utility and pipeline information, surface coal/lignite mining permit information and other related queries.

**Note:** *The online research queries are intended for use by individuals needing specific information from the Railroad Commission of Texas. The use of automated tools to retrieve volumes of data can cause severe degradation of Railroad Commission of Texas systems. If the query system detects that data is being retrieved using an automated tool, the Railroad Commission of Texas will end the session for that user.*

### Requirements for Accessing Online Research Queries

The Railroad Commission of Texas recommends accessing the online research queries using a broadband Internet connection (Cable Modem, DSL, Fiber, Wireless, Satellite are common examples). A dial-up connection may work, but performance will not be desirable.

Adobe Acrobat Reader 9.5 or higher should be used AND one of the following browsers:

- Microsoft Internet Explorer 10 or higher
- Mozilla Firefox 10 or higher
- Google Chrome 20 or higher
- Apple Safari 5 or higher

#### Select a Query System to search:

[Oil & Gas](#)

[Natural Gas Services](#)

[Pipeline Safety](#)

[Surface Mining & Reclamation](#)

[Alternative Fuels](#)

## Oil & Gas

Type of Query		
Completions Query		<a href="#">Launch application</a>
Drilling Permit (W-1) Query		<a href="#">Launch application</a>
Electronic Document Management System	<a href="#">Learn more</a>	<a href="#">Launch application</a>
Field Rules Query		<a href="#">Launch application</a>
H-10 Annual Disposal/Injection Well Monitoring Report Query	<a href="#">Learn more</a>	<a href="#">Launch application</a>
Inactive Well Query		<a href="#">Launch application</a>



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## Frequently Asked Questions

### [Who Regulates Railroads in Texas?](#)

June 23, 2014

[Read More...](#)

### [Alternative Fuel FAQs](#)

May 13, 2014

[Read More...](#)

### [Gas Services FAQs](#)

May 13, 2014

[Read More...](#)

### [General FAQs](#)

August 05, 2014

[Read More...](#)

### [Mining & Exploration FAQs](#)

May 13, 2014

[Read More...](#)

### [Oil & Gas FAQs](#)

July 30, 2014

[Read More...](#)

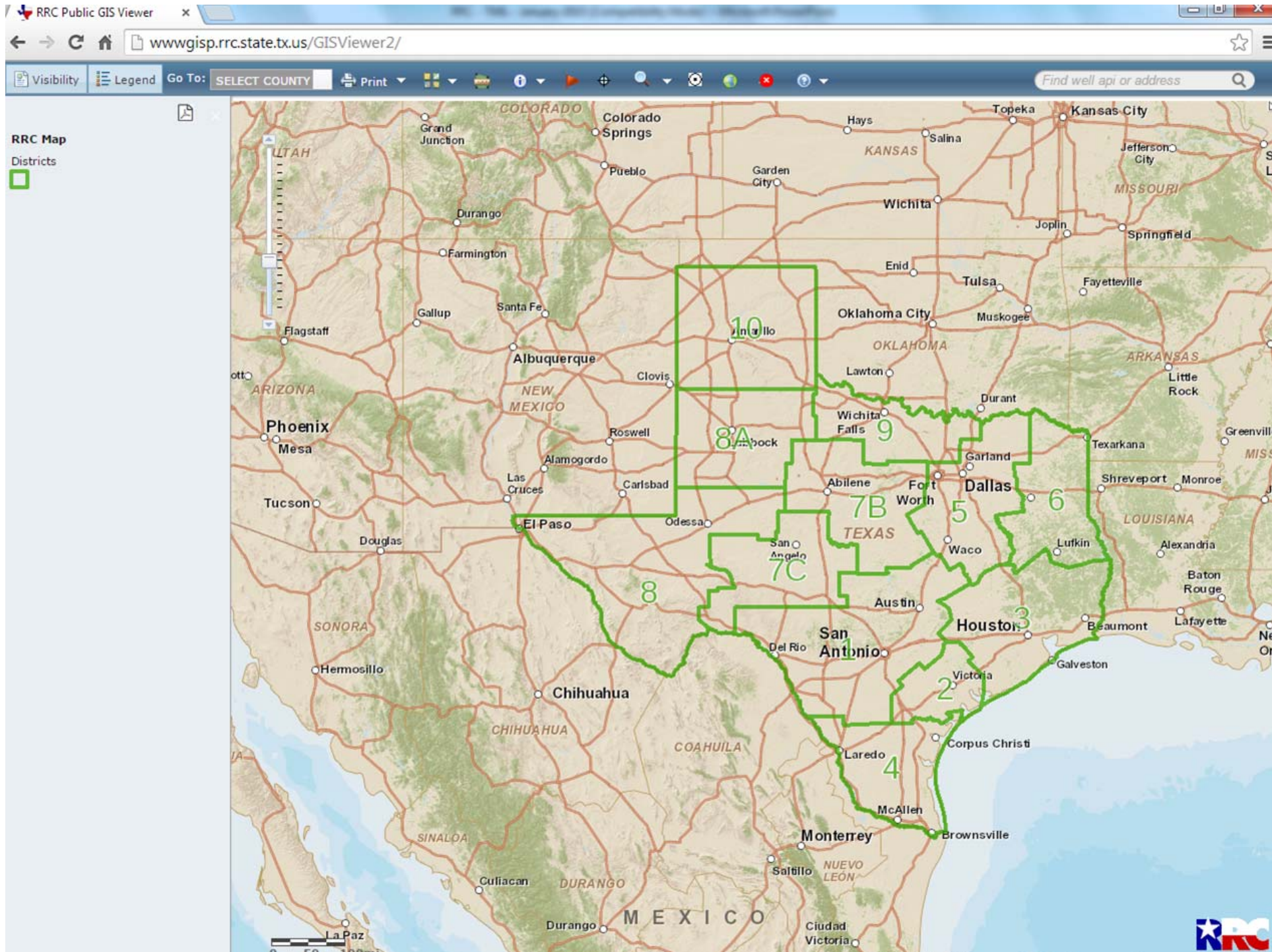
### [Oil & Gas Exploration and Surface Ownership](#)

November 12, 2014

[Read More...](#)

### [Pipeline Safety FAQs](#)







# Barnett Shale

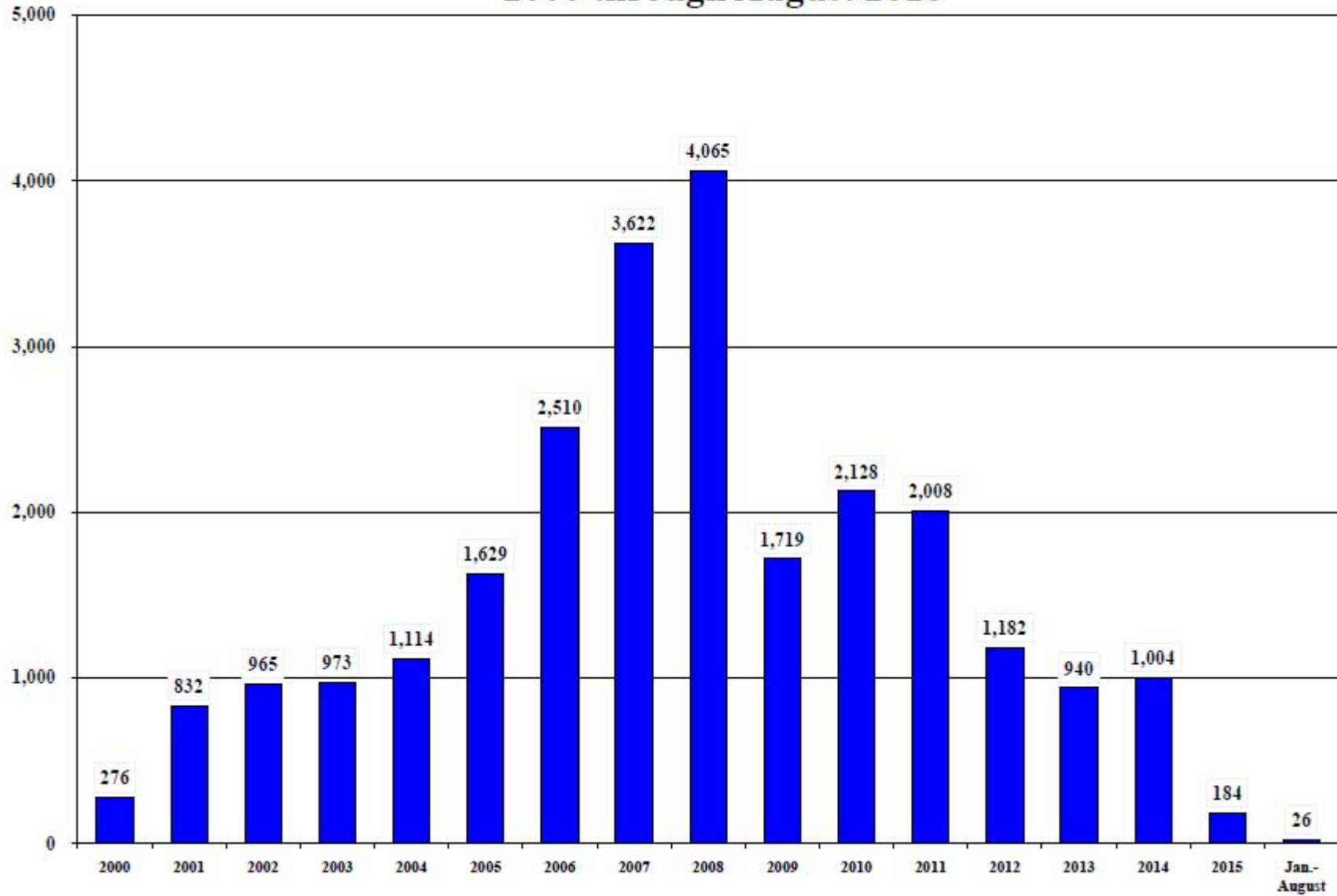
## Hydrocarbon-producing geological formation

- Designated as Newark, East Field by RRC
- Shaped 354 to 323 million years ago, in Mississippian age
- Productive formation estimated to cover 5,000 square miles





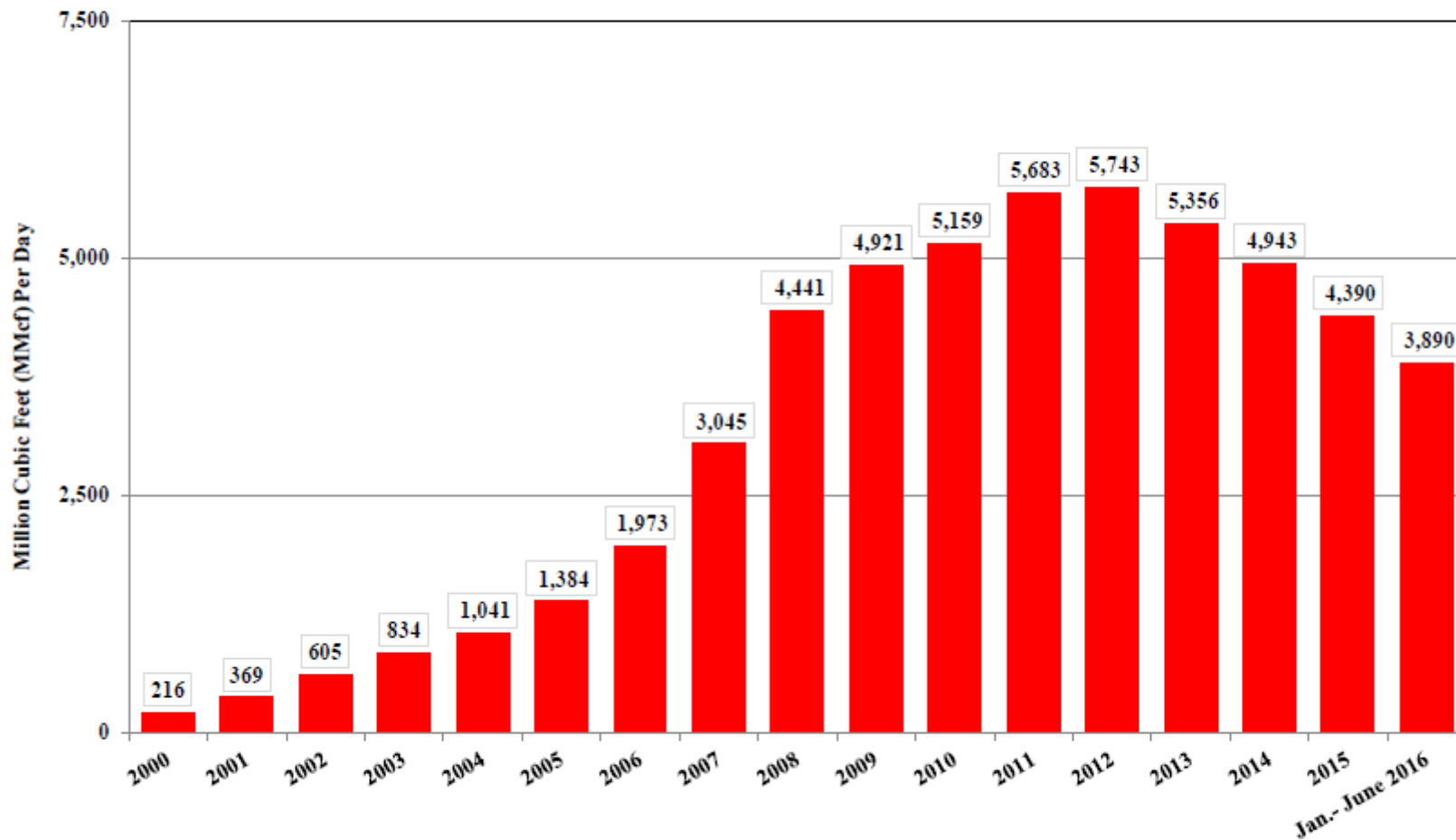
# Texas Newark, East (Barnett Shale) Drilling Permits Issued 2000 through August 2016



09/06/2016

Source: Texas Railroad Commission Drilling Permit Query (Includes New Drill & ReEnter Permits)

# **Texas Barnett Shale Total Natural Gas Production 2000 through June 2016**



08/22/2016

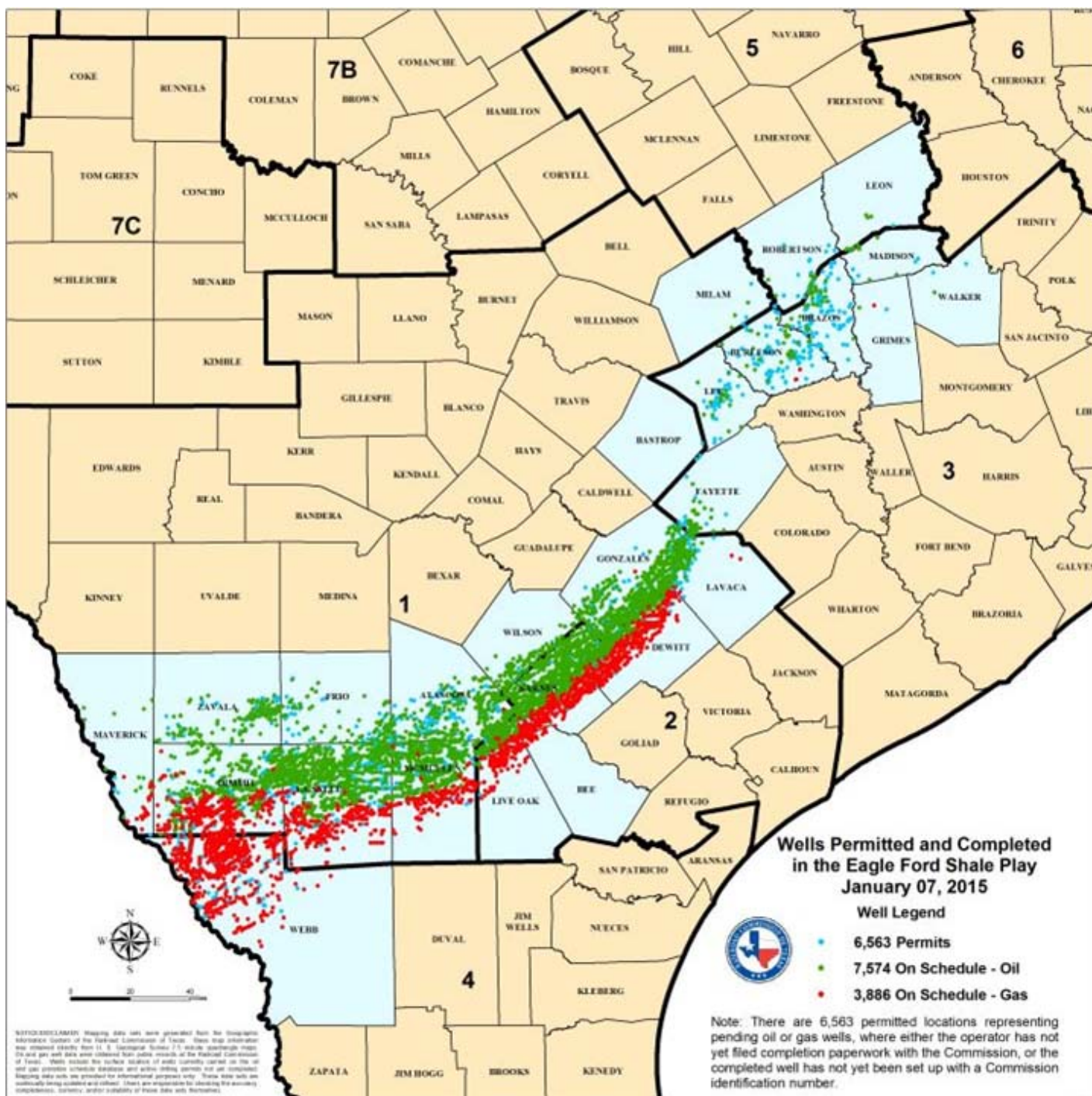
Source: Texas Railroad Commission Production Data Query System (PDQ)

# Eagle Ford Shale

## Hydrocarbon-producing geological formation

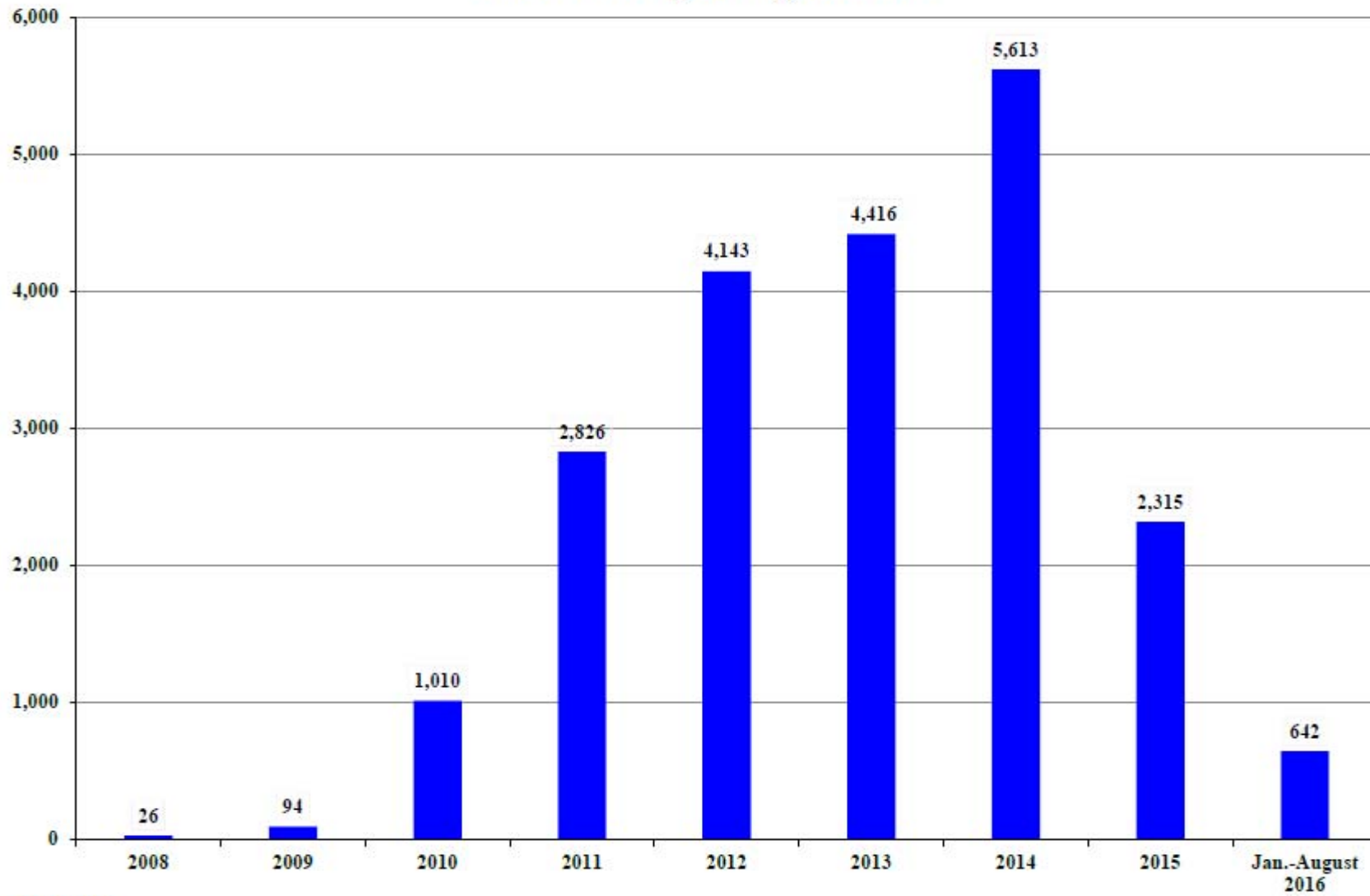
- Capable of producing both gas and oil
- Roughly 50 miles wide and 400 miles long
- High percentage of carbonate, upwards of 70%, makes it more brittle and “fracable”
- Found at a depth of 4,000 to 12,000 feet







## Texas Eagle Ford Shale Drilling Permits Issued 2008 through August 2016

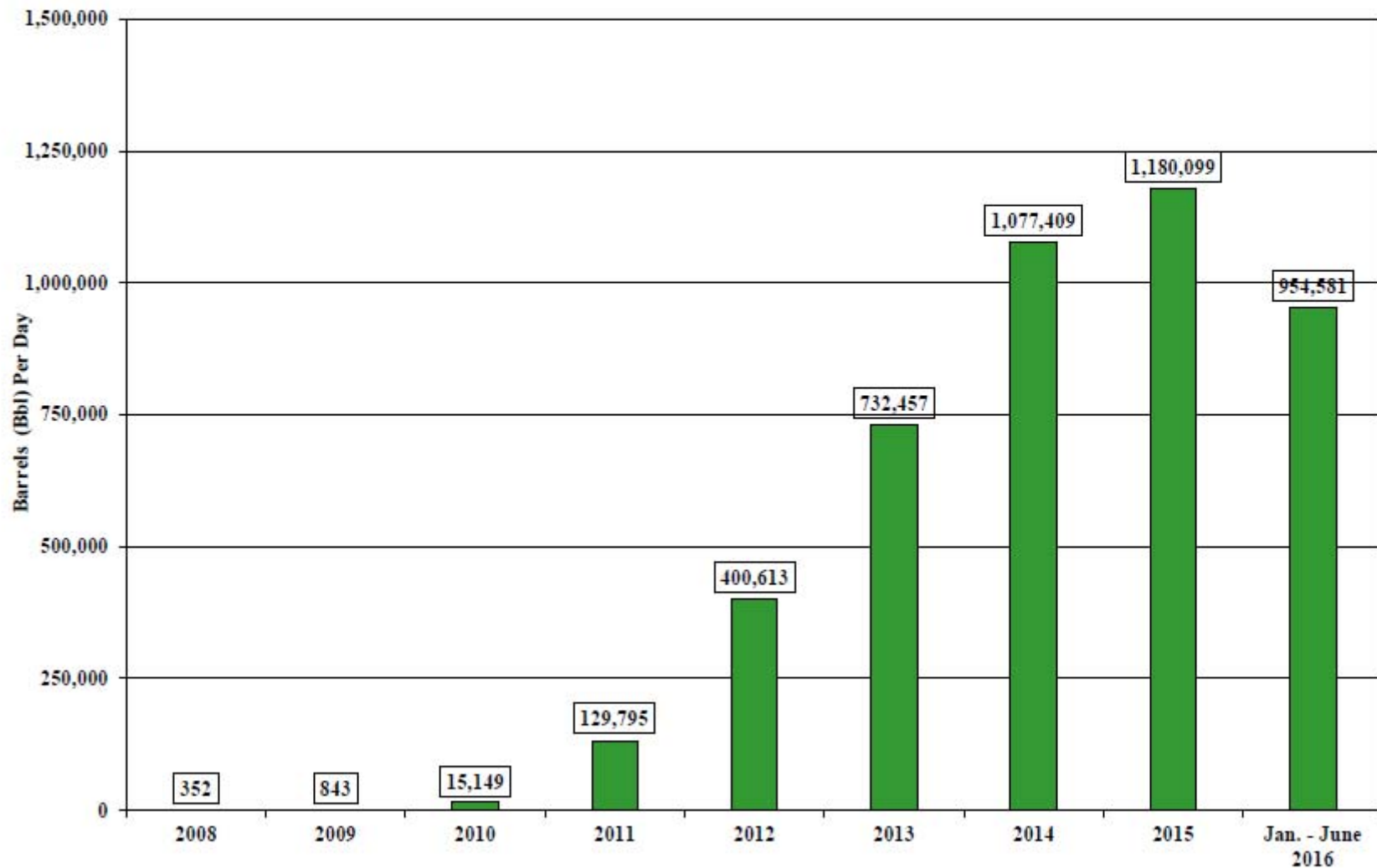


09/06/2016

Source: Texas Railroad Commission DrillingPermitQuery(Includes New Drill & ReEnter Permits)



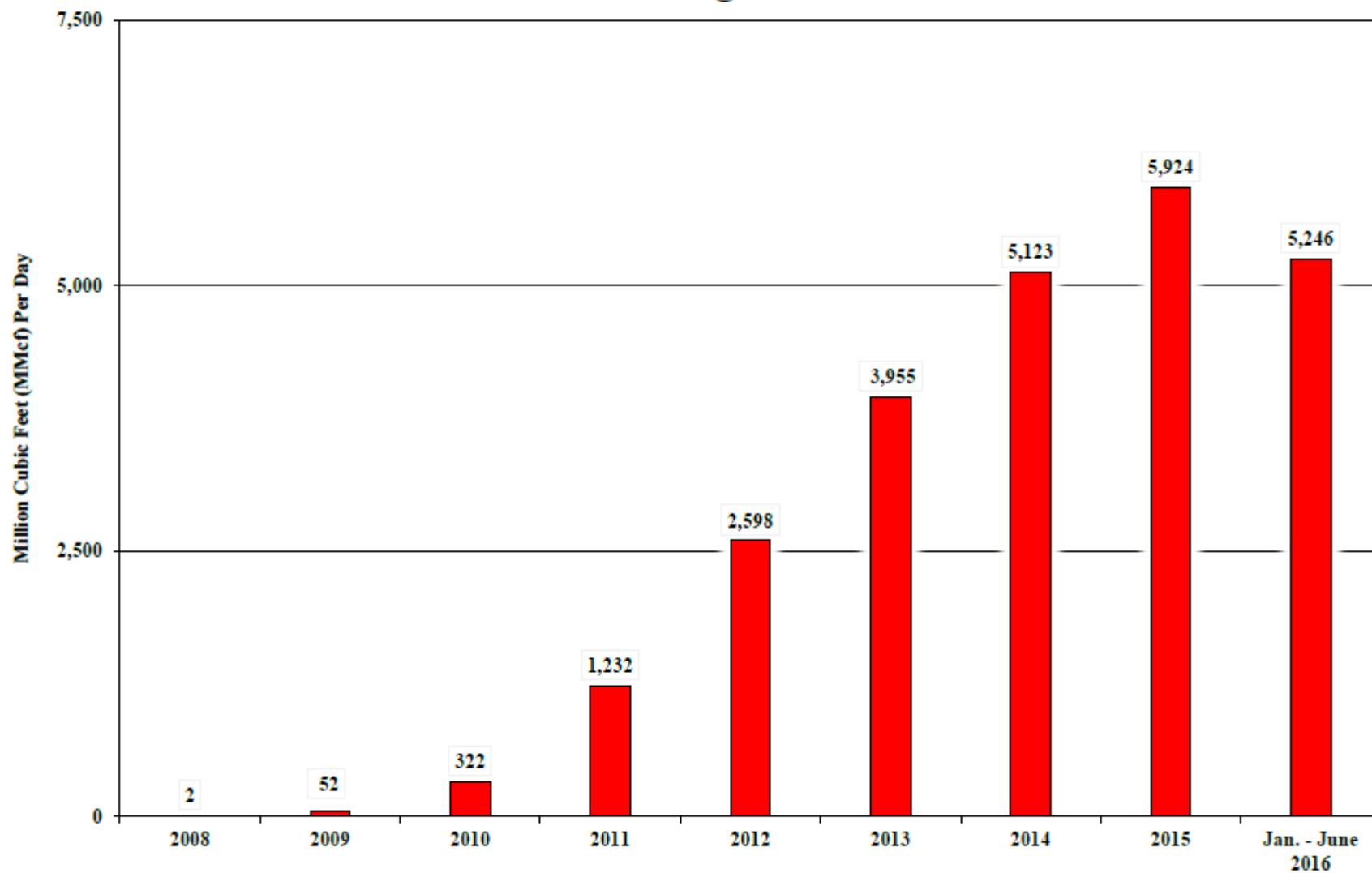
# Texas Eagle Ford Shale Oil Production 2008 through June 2016



08/22/2016

Source: Railroad Commission of Texas Production Data Query System (PDQ)

# **Texas Eagle Ford Shale Total Natural Gas Production 2008 through June 2016**

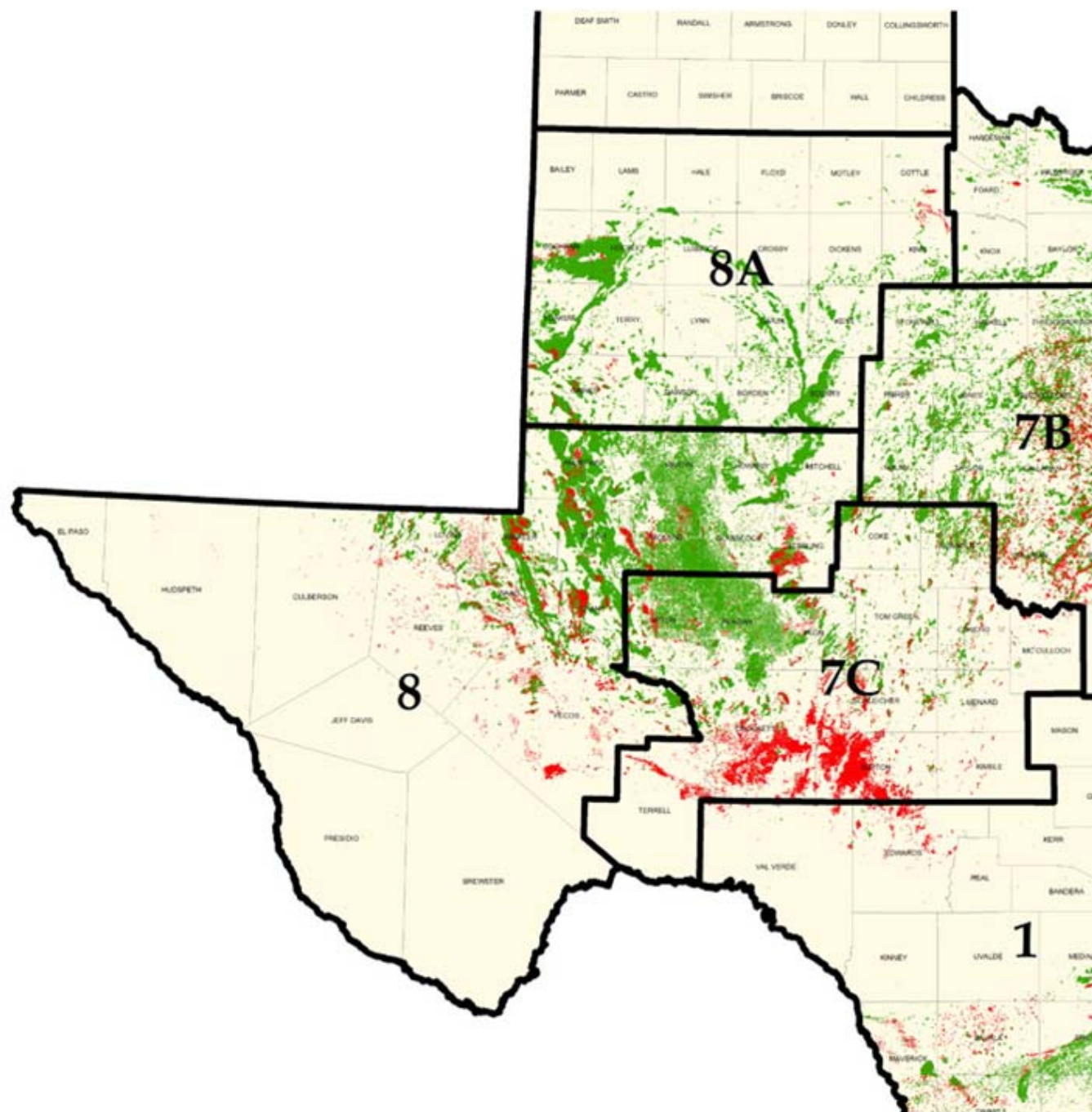


# Permian Basin

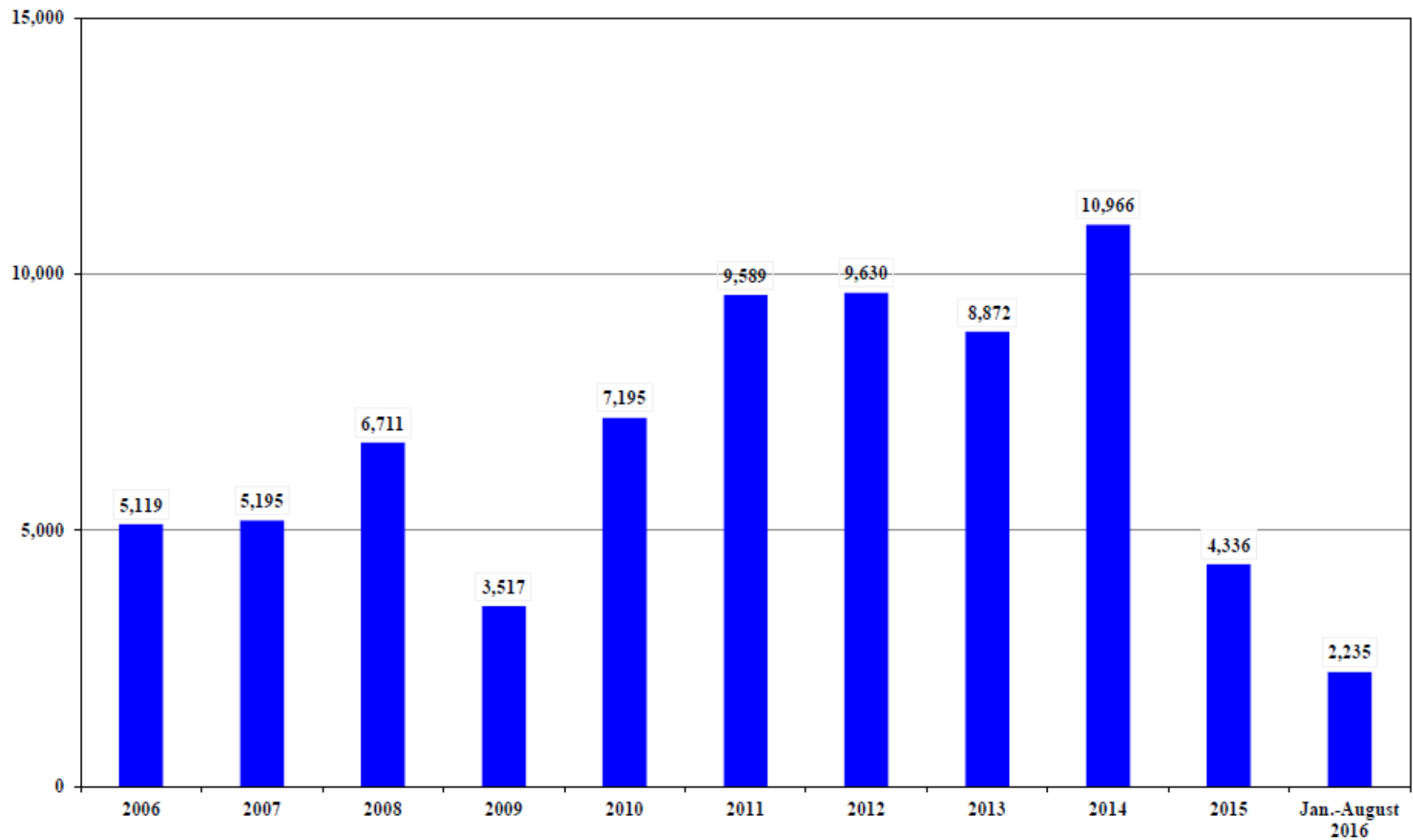
Located in West Texas and southeastern New Mexico

- More than 7,000 RRC fields in 59 counties
- Roughly 250 miles wide and 300 miles long
- Oil and natural gas production ranging to depths of five miles below the surface
- Estimated to contain recoverable oil and natural gas resources exceeding what has been produced over the last 90 years





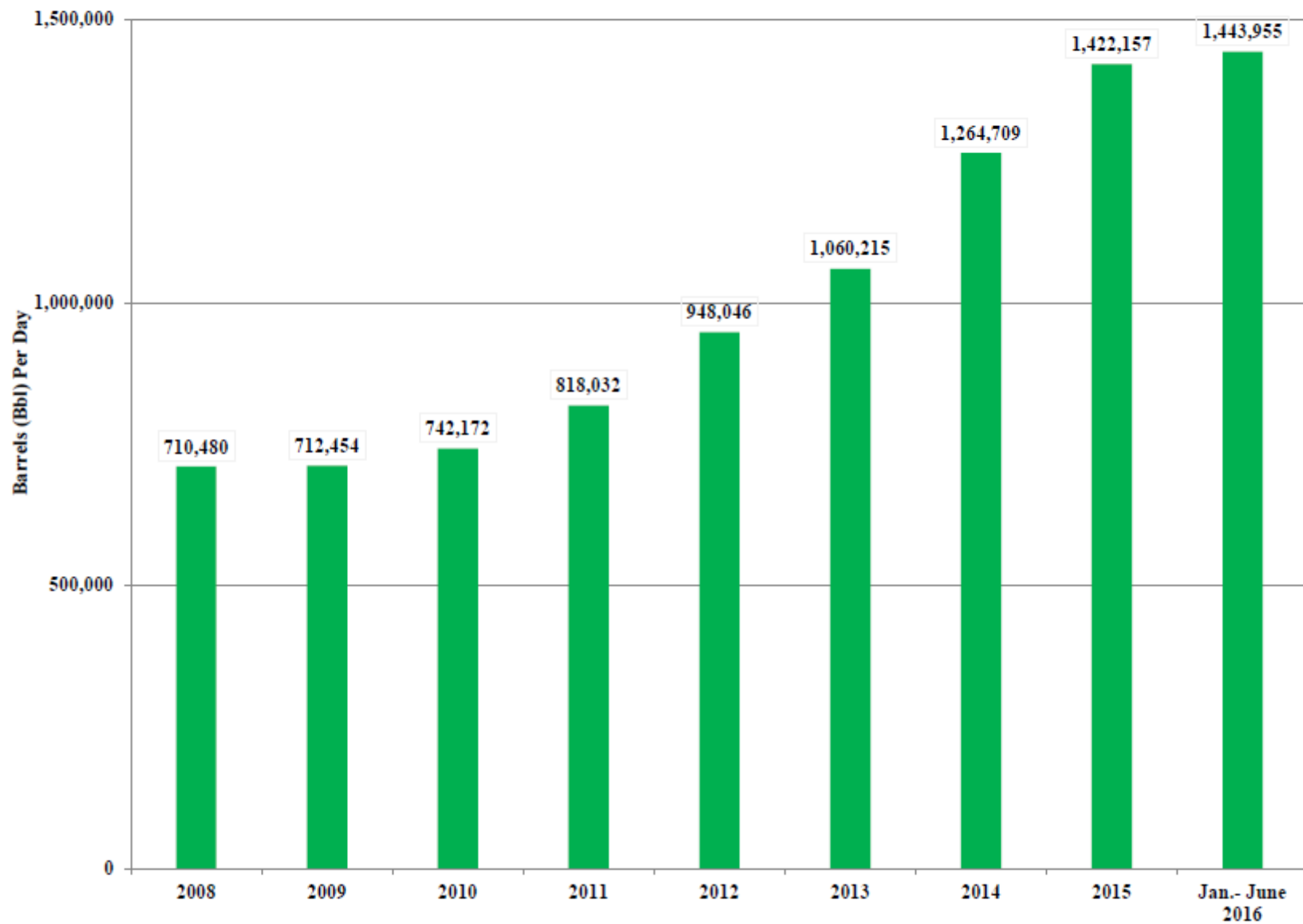
# **Texas Permian Basin (District 7C, 08, & 8A) Drilling Permits Issued**



09/06/2016

Source: Railroad Commission of Texas Drilling Permit Online Query System (Includes New Drill & ReEnter Permits)

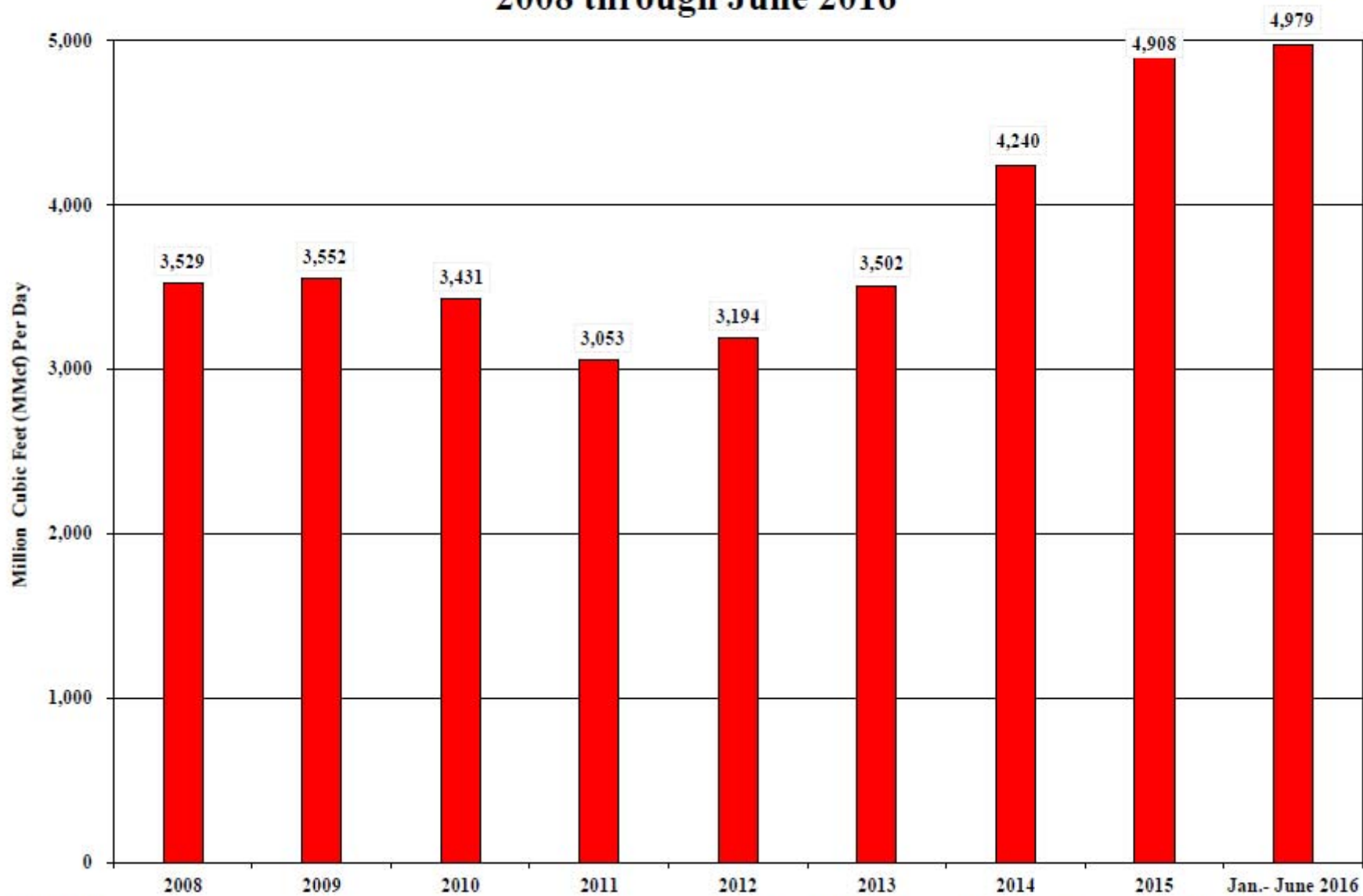
# Texas Permian Basin Oil Production 2008 through June 2016



08/22/2016

Source: Railroad Commission of Texas Production Data Query System (PDQ)

# **Texas Permian Basin Total Natural Gas Production 2008 through June 2016**



08/22/2016

Source: Texas Railroad Commission Production Data Query System (PDQ)



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