

# Memo

To: Shale Gas & LNG - Spring 2015  
From: Prof. Sakmar  
Date: Jan. 23, 2015  
Re: 2<sup>nd</sup> Research Assignment - State Regulations & Environmental Issues  
Due Date: 2<sup>nd</sup> Class Sessions - Feb. 27/28 --- PART 2 OF 2

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Research and prepare a memo that answers the following questions. Please cite 1-2 major studies for each if available.

## 1. Fiscal/Commerical/Tax Issues

What type of severance tax or production tax structure exists in the US? Does the state get the revenue or does the local community? Should Atlantis impose an "impact fee?" What type of fiscal terms should Atlantis consider offering IOC's?

States: TX, PA

## 2. Water Acquisition

How much water is used in hydraulic fracturing? How does the drill site obtain water - piped, trucked etc.? How many trucks are needed for the average well? How do states manage water acquisition for hydraulic fracturing? Do states require that a water management plan be filed? Are any permits needed?

States: TX, PA

## 3. Flowback and Produced Water

How much of the water used in hydraulic fracturing comes back as flowback water? How is flowback water handled, treated, and stored? Do storage pits need to be lined? How is flowback water disposed of - what are the three main options for disposal of flowback water in the US?

States: TX, PA

## 4. Well Integrity

What are the general guidelines/regulations to ensure well integrity is maintained throughout the hydraulic fracturing process? What are the casing standards? Are blow out preventers required? Any other issues?

States: TX, PA

## 5. Induced Seismicity - Earthquakes

Does hydraulic fracturing cause earthquakes? What about disposal wells? How have states regulated seismic activity from a regulatory standpoint?

States: Texas, Ohio, United Kingdom (has had 2 earthquakes), USGS has done work on induced seismicity.

## 6. Emissions

What are the emissions from shale gas wells? Are they higher, lower or the same as unconventional? How are emissions regulated in the US? Do states allow flaring? Venting? How is this regulated or monitored?

TX, PA, North Dakota (Bakken)

## 7. Pavillion, Wyoming -- Possible links to contamination from HF

Have there been any cases where a link has been made between hydraulic fracturing (the process itself) and water contamination? What do we think? What do we know? Status?

## 8. Diesel

How is diesel used in hydraulic fracturing? How much diesel is being used? What are the issues/concerns? Should Atlantis allow the use of diesel? How is diesel regulated in the US? Do operators need a permit pending EPA guidelines?

## 9. Health Impacts

What are the public health and community impacts of shale gas development?  
States: Colorado, NY

## 10. Fracking Bans

Are there any states/countries/cities where fracking bans are in place or proposed? In the US, are these bans likely to withstand judicial scrutiny? What is the law in the US regarding fracking bans?

States: TX, NY, CO, Canada, Europe, Other?

### Key Sources:

Vinson & Elkins website  
Baker Botts website  
Haynes Boone website  
Other law firms? (many law firms have materials/presentations about shale gas related issues)  
State regulatory agency websites  
Resources for the Future  
CRS Reports for Congress  
EPA Study - assigned in class reading  
GAO Report - assigned in class reading

The LNG book Chapter 10 also provides an overview of these issues. This was not assigned reading but students might find it useful.