Drilling Down Series

Drilling Down
Articles in the Drilling Down series from The New York Times examine the risks of natural-gas drilling and efforts to regulate this rapidly growing industry.

Dec. 31, 2011 | On Thirsty Ground

Liaan Pretorius for The New York Times

Chris Hayward, a South African farmer, says, “If our government lets these companies touch even a drop of our water, we’re ruined.”

Hunt for Gas Hits Fragile Soil, and South Africans Fear Risks
By Ian Urbina
A plan to drill for natural gas in the Karoo region of South Africa would use millions of gallons of water in a drought-stricken area.

Dec. 1, 2011 | Landowners and Landmen

Learning Too Late of Perils in Gas Well Leases
By Ian Urbina
Americans have signed millions of leases allowing companies to drill for oil and natural gas on their land in recent years. But some of these landowners — often in rural areas, and eager for quick payouts — are finding out too late what is, and what is not, in the fine print.

Oct. 19, 2011 | The Fine Print

Rush to Drill for Natural Gas Creates Conflicts With Mortgages
By Ian Urbina
Worried about property values, and landowners signing leases giving companies the rights to drill on their lands without clearance, lenders are reinforcing restrictions.

**Documents: Mortgages and Gas Leases**

**Graphic: Contamination From Drilling**

Aug. 3, 2011 | Evidence Surfaces

**A Tainted Water Well, and Concern There May Be More**

By Ian Urbina

Industry executives as well as regulators have said that fracking has never contaminated underground drinking water. But there is at least one documented case.

**Documents: A Case of Fracking-Related Contamination**

**Graphic: Contamination From Drilling**

June 27, 2011 | Widespread Skepticism

**Behind Veneer, Doubt on Future of Natural Gas**

By Ian Urbina

Energy companies have worked hard to promote natural gas as the fossil fuel of tomorrow, and they have found reliable allies in Washington. But not everyone agrees.

**S.E.C. Shift Leads to Worries of Overestimation of Reserves**

**Federal Officials Quietly Question Shale Gas**

June 26, 2011 | Natural Gas Investments

**Insiders Sound an Alarm Amid a Natural Gas Rush**

By Ian Urbina

As investment floods into shale wells, concerns about their productivity are spurring talk of a bubble.

**Sweet Spots, But Not Many**

**Overestimating Natural Gas Production**

**Industry Privately Skeptical of Shale Gas**

March 4, 2011 | An Agency’s Limits

**Politics Seen to Limit E.P.A. as It Sets Rules for Natural Gas**

By Ian Urbina
Amid pressure from the industry and Congress, federal regulators are divided over the scope of their powers, leading to limited enforcement and narrowed research.

**Timeline of Lax Rules for the Natural Gas Industry**

**The Debate Over the Hydrofracking Study’s Scope**

March 2, 2011 | An Imperfect Solution

**Wastewater Recycling No Cure-All in Gas Process**
By Ian Urbina

Though it has helped the natural gas industry reduce its wastewater, recycling has not eliminated all the hazards.

**Politics, Recycling and Tracking of Natural Gas Waste**

**Chemicals and Toxic Materials That Come With Hydrofracking**
By MIKA GRÖNDAHL, BILL MARSH and GRAHAM ROBERTS

An interactive graphic of waste disposal and other hazards in drilling for natural gas.

February 27, 2011 | The Waste Problem

**Regulation Lax as Gas Wells’ Tainted Water Hits Rivers**
By Ian Urbina

A method to extract more natural gas often produces wastewater laced with toxic substances.

**Natural Gas’s Toxic Waste**
**Contaminants in Samples From More Than 200 Wells (Microsoft Excel Spreadsheet)**
A method to extract more natural gas often produces wastewater laced with toxic substances.

Related Coverage
- Dec. 9, 2011 E.P.A. Links Tainted Water in Wyoming to Hydraulic Fracturing for Natural Gas
- Nov. 24, 2011 Officials Push for Clarity on Oil and Gas Leases
- Aug. 18, 2011 New York Subpoenas Energy Companies Over Claims About Gas Wells
- Aug. 11, 2011 Panel Seeks Stiffer Rules for Drilling of Gas Wells
- July 30, 2011 Regulators Seek Records on Claims for Gas Wells
- June 29, 2011 Lawmakers Seek Inquiry of Natural Gas Industry
- May 6, 2011 Chu Names Panel to Study Fracking
- April 16, 2011 Chemicals Were Injected Into Wells, Report Says
- April 7, 2011 Pennsylvania Calls for More Water Tests

Annotated Documents

DOCS

Natural Gas’s Toxic Waste
Over the past nine months, The Times reviewed more than 30,000 pages of documents obtained through open records requests of state and federal agencies and by visiting various regional offices that oversee drilling in Pennsylvania.
Politics, Recycling and Tracking of Natural Gas Waste
The most significant documents on wastewater recycling, with annotations from The Times.

The Debate Over the Hydrofracking Study's Scope
In 2010, Congress urged the Environmental Protection Agency to study the environmental impacts of hydrofracking. The study's findings may lead to changes to federal regulation of the industry.

Industry Privately Skeptical of Shale Gas
Leaked industry e-mails and reports show growing concerns about a shale gas bubble.

Federal Officials Quietly Question Shale Gas
Hundreds of industry e-mails, internal agency documents and reports by analysts show disagreement among government officials and public cheering despite private doubts.
Mortgages and Gas Leases
Questions have emerged from bankers, credit union officials, insurers, real estate experts and appraisers about the potential impacts that oil and gas leases on residential and farm mortgages.

DOCUMENTS
A Case of Fracking-Related Contamination
The Times reviewed several thousand pages of documents related to natural gas extraction, focusing on a case where hydraulic fracturing is believed to have contaminated a family's water well.

DOCUMENTS
Archive of Oil and Gas Leases
The Times collected over 110,000 oil and gas leases and related documentation through open records requests sent about hydraulic fracturing and land leases in more than six dozen counties in which the practice is common.