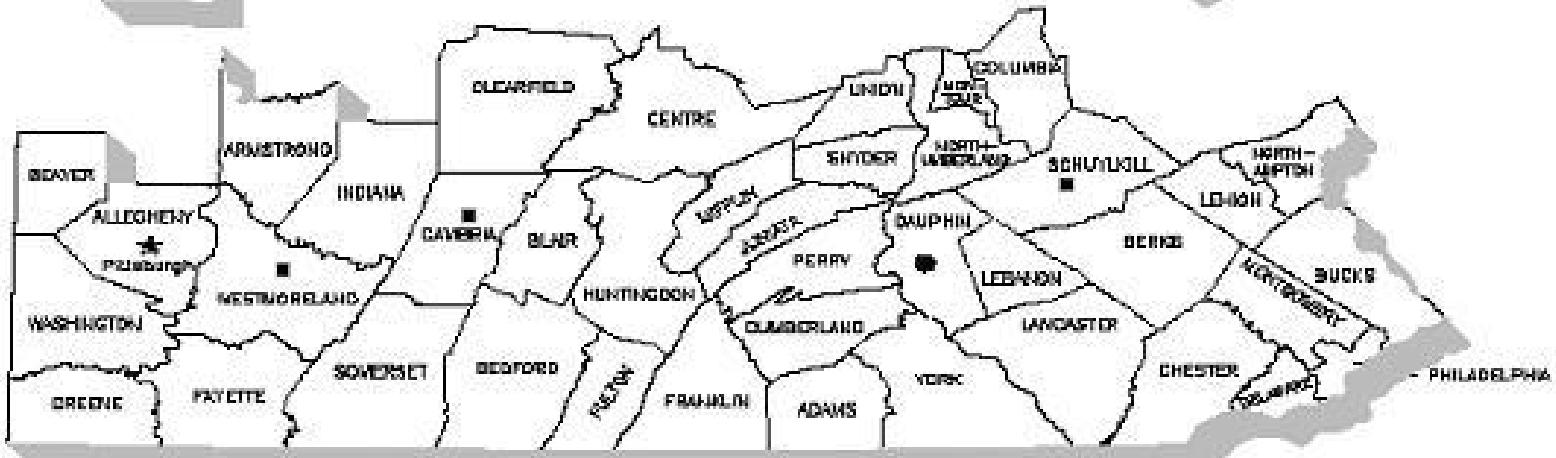




What's Involved in Drilling a Gas Well?

About the Bureau



About the Bureau

Northwest Region

230 Chestnut St.

Meadville, PA 16335

814 – 332 – 6860

Southwest Region

400 Waterfront Dr.

Pittsburgh, PA 15222

412 – 442 – 4024

Central Office

Bureau of Oil and Gas Management

PO Box 8765

Harrisburg, PA 17105

717 – 772 - 2199

Program Authority

- **Oil and Gas Act**
- 25 Pa Code Chapter 78 – Oil and Gas Wells

- **Oil and Gas Conservation Law**
- 25 Pa Code Chapter 79 – Oil and Gas Conservation

- **Coal and Gas Coordination Act**

Program Authority

Dam Safety and Encroachment Act

- 25 Pa Code 105 – Dams and Waterways Management
- 25 Pa Code 106 – Flood Management

Solid Waste Management Act

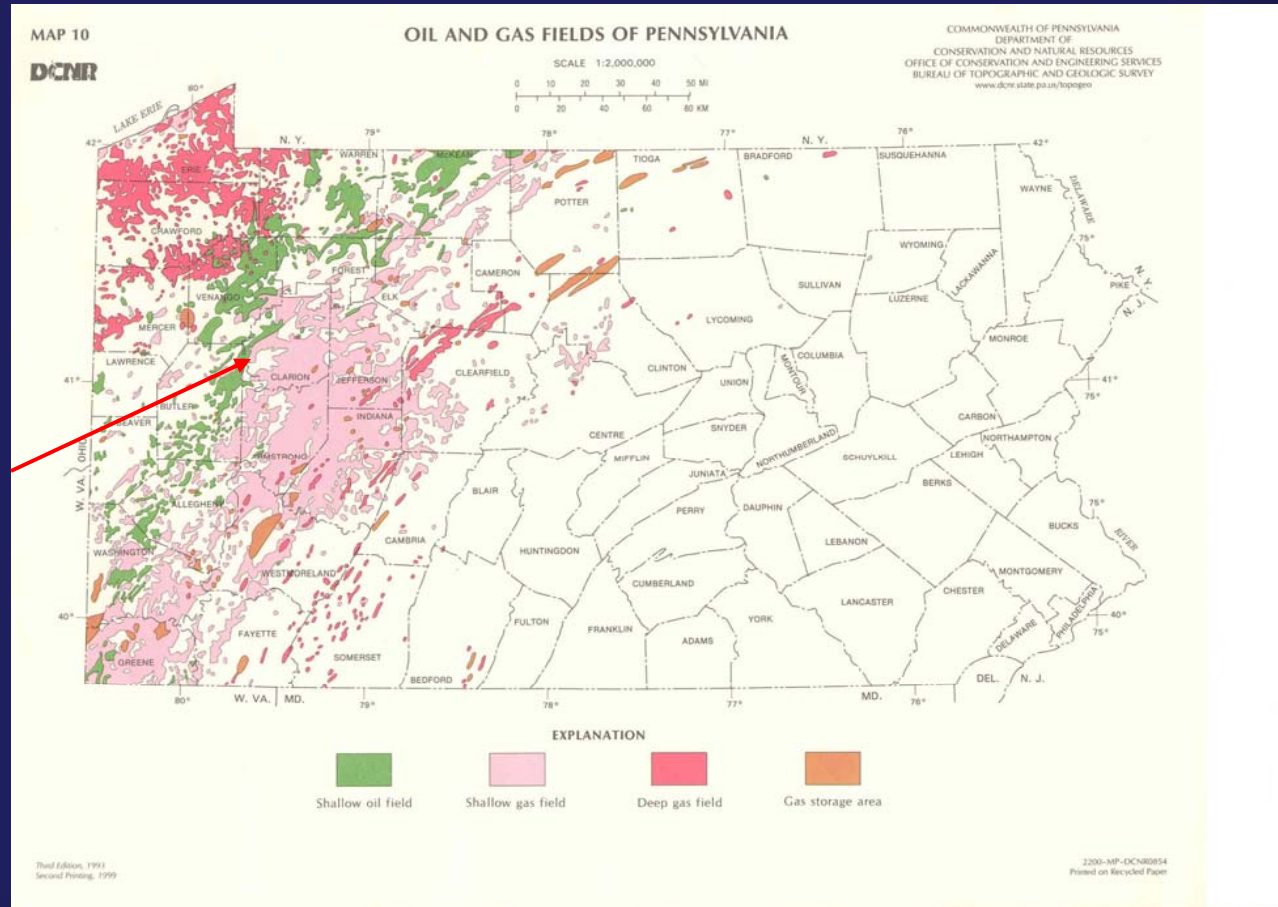
Program Authority

Clean Streams Law

- 25 Pa Code 102 – Erosion and Sediment Control
- 25 Pa Code 91 – General Provisions
- 25 Pa Code 92 – NPDES Permitting, Monitoring and Compliance
- 25 Pa Code 93 – Water Quality Standards
- 25 Pa Code 95 – Waste Water Treatment Requirements
- 25 Pa Code 96 – Water Quality Standards Implementation

Pennsylvania Oil & Gas Patch?

Titusville

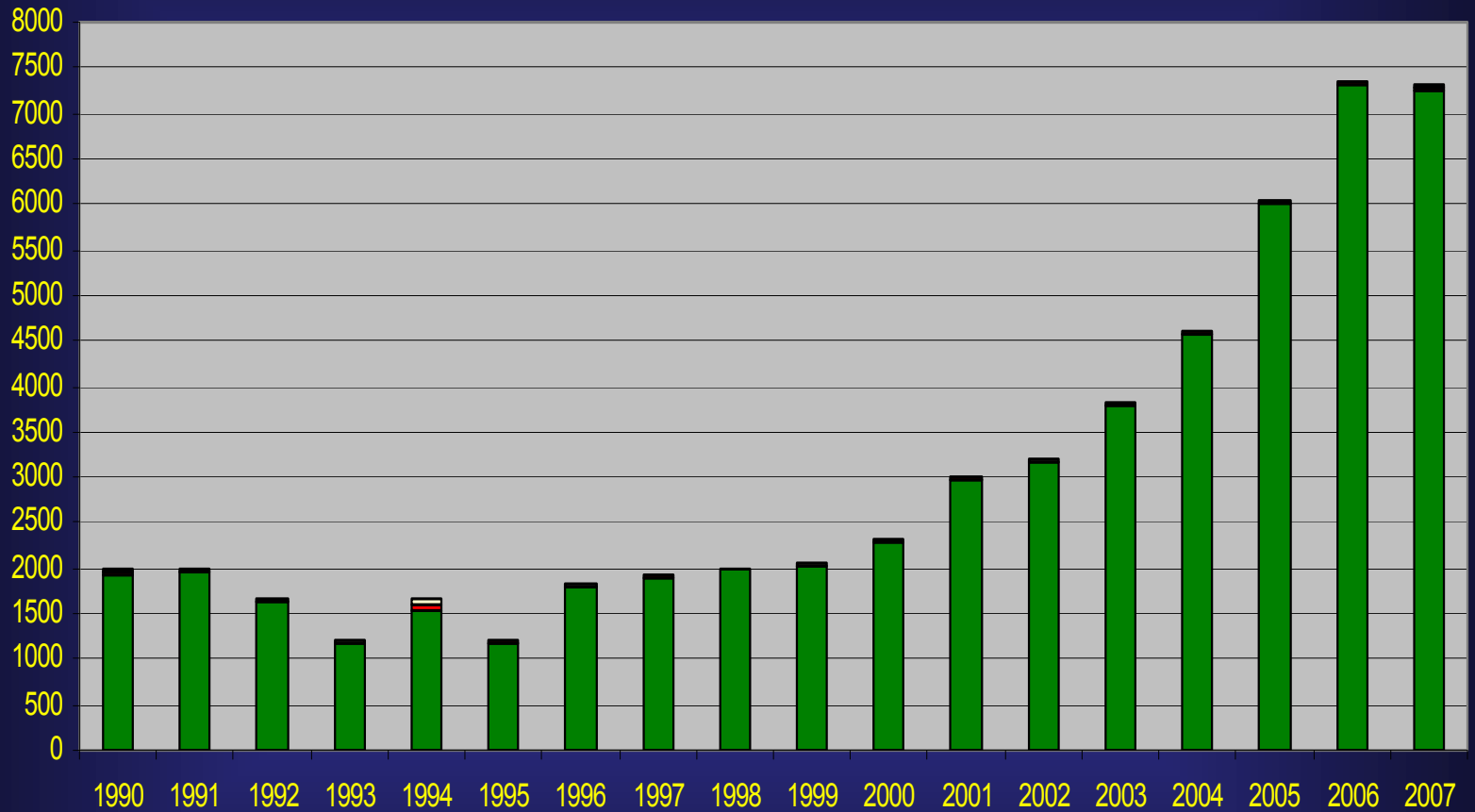


Pennsylvania currently produces 3.76 million barrels of oil and 163 BCF of natural gas (2004)

In 2007, 7,241 permits were issued.



Oil & Gas Well Permits Issued, 1990 - 2007



Permits, Etc.

To drill a gas well in Pennsylvania the operator needs...

- **a drilling permit**
- **an E & S plan**

Additional permits and/or approvals may be needed

- **PennDOT highway occupancy permit**
- **SRBC or DRBC Permit**
- **Chapter 105 encroachment permit**
- **Stormwater Management permit for projects affecting more than 5 acres**

Drilling Permit Applications include

- Application Fee
- Bond
- Any waiver or variance requests
- PNDI check
- Well plat
 - Political subdivision and county
 - Location of the well
 - Name of the surface owner and lessor
 - Name of all surface owners or water purveyors whose water supplies are within 1000 ft.
 - Name of owner or operator of all underlying workable coal seams
- Record of Notification
- **Marcellus Addendum**

The operator shall forward by certified mail a copy of the plat to:

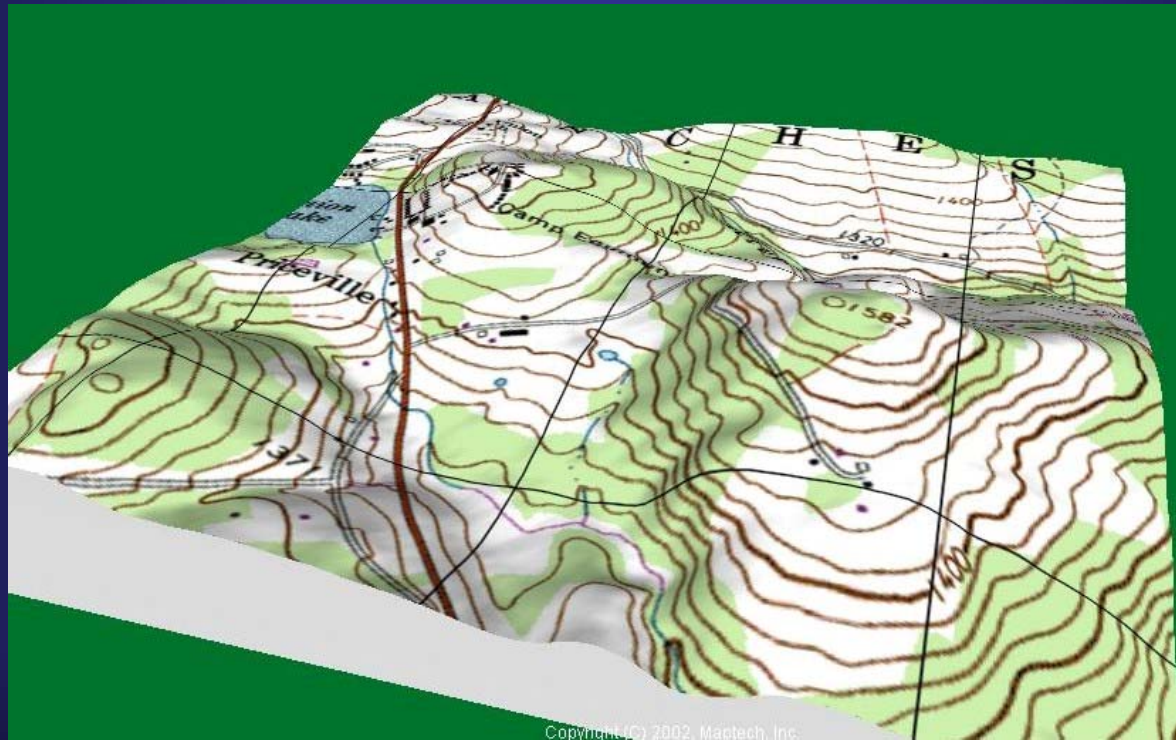
- the surface owner
- all surface owners with water supplies and water purveyors within 1000 ft
- all coal owners and lessee of any underlying workable coal seams
- all coal operators identified on the well plat.
- Gas Storage operators within 2000 ft.
- proof of the notification shall be sent to the Department

The operator must give 24 hr notice of the date the drilling

- the department
- the landowner
- political subdivision

Locating A Well Site

- Geology – drill where the gas is





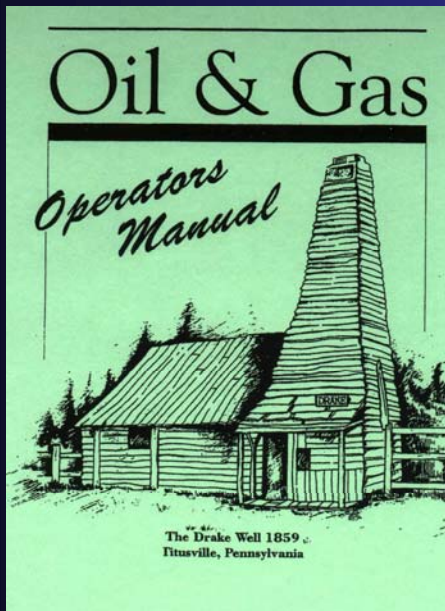
Survey the Site

Distance Restrictions:

- **100 ft. - stream, spring or body of water identified on the most current 7 ½ minute USGS topographic map.**
- **100 ft. must be maintained to any wetland greater than one acre in size.**
- **200 ft from an existing building or water well without written consent of the owner.**
- **The department may grant a waiver to the distance restriction.**

Let's Make a Plan, Stan.

Sept 29, 1972 – 25 PA Code Chapter 102 adopted. Oil & Gas Operators were required to prepare Erosion and Sediment Control plans.



1981 – Department's First Erosion and Sediment Control Manual for oil & gas well operations (Now incorporated in the Oil and Gas Operators Manual.)



Erosion and Sediment Control Plan

Erosion & Sediment Controls (BMPs)





Stream Crossings





Minimize the Disturbance

Build the Site



Stabilize as you go



Drill the well



Drilling the Well

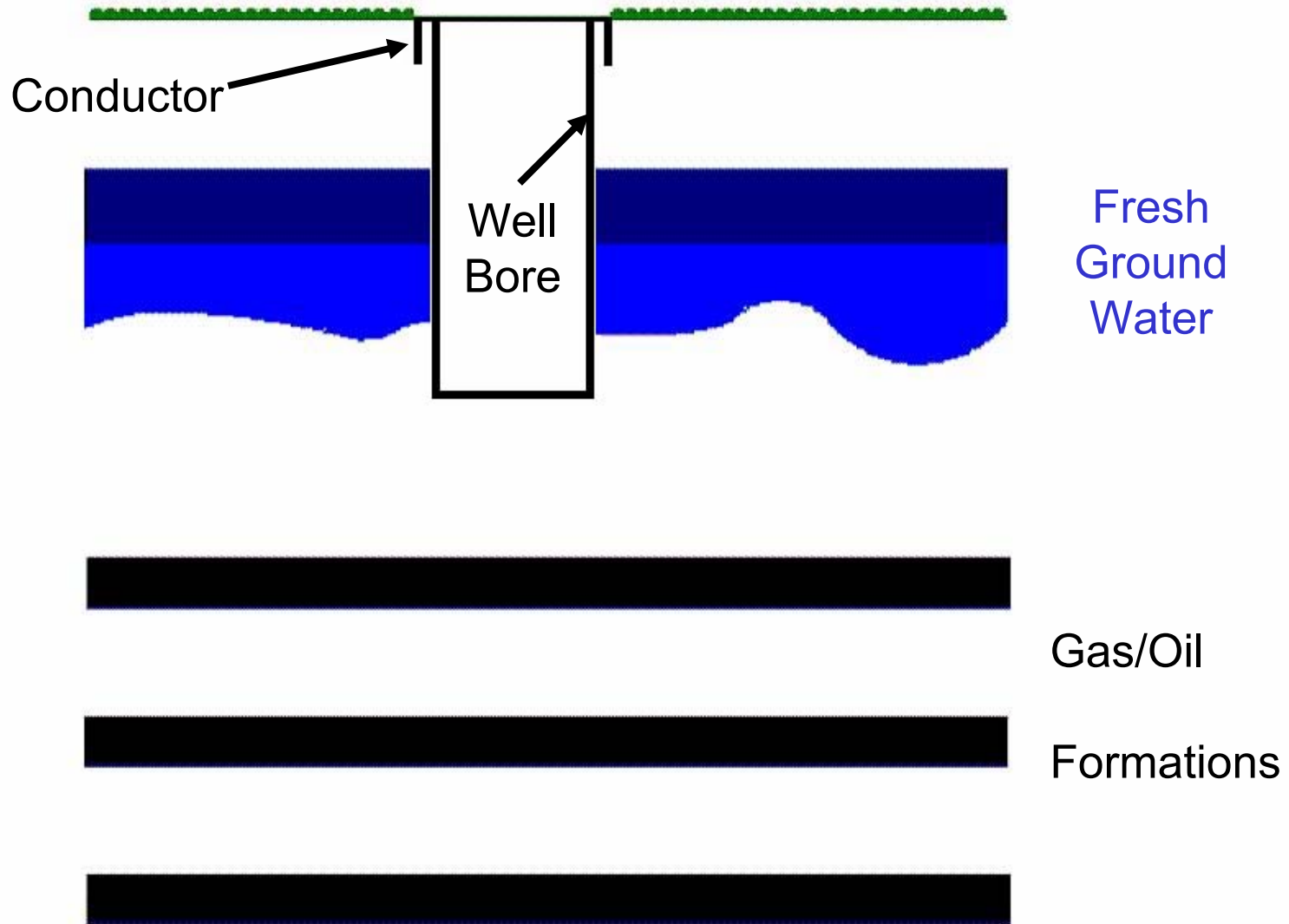


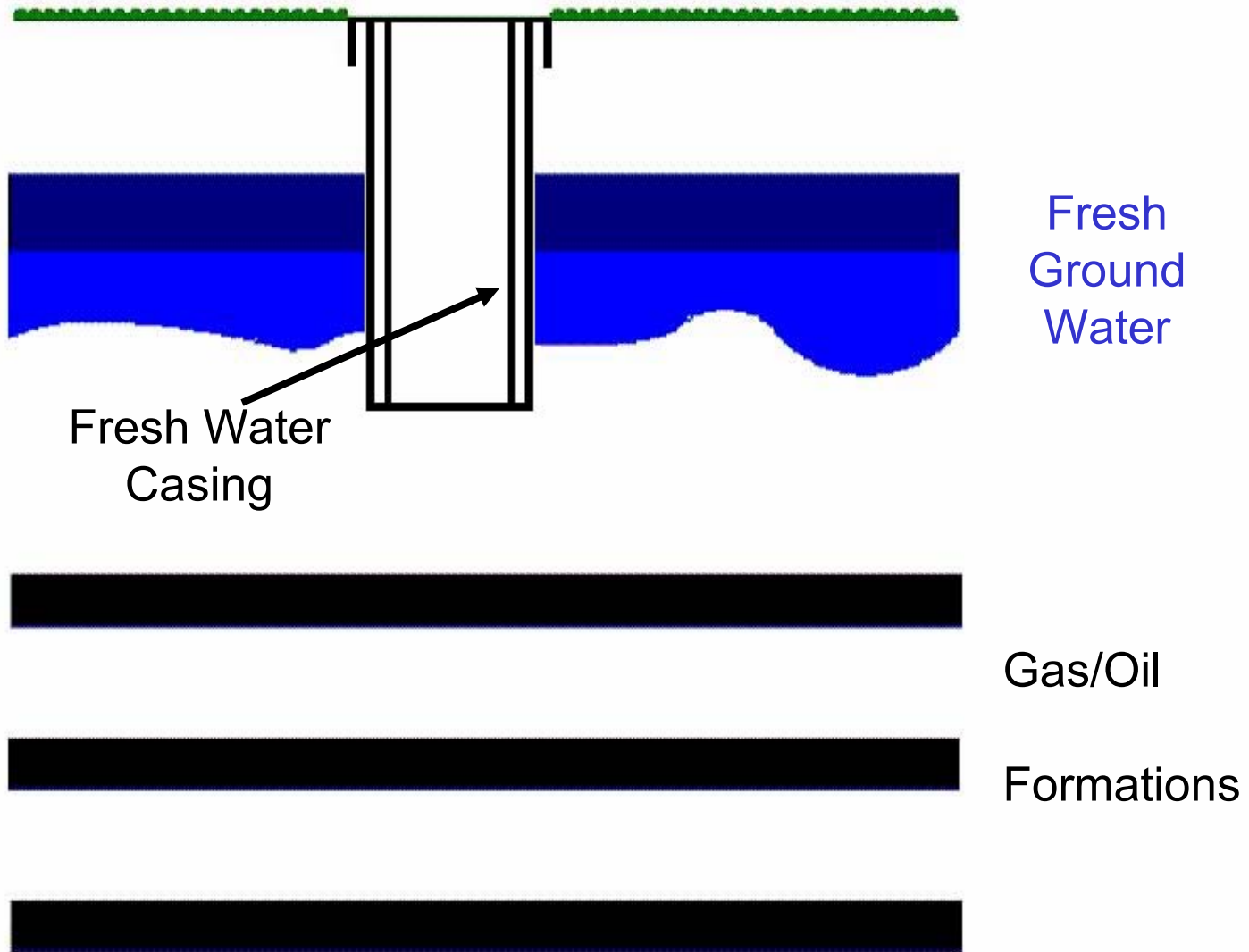
Gas/Oil

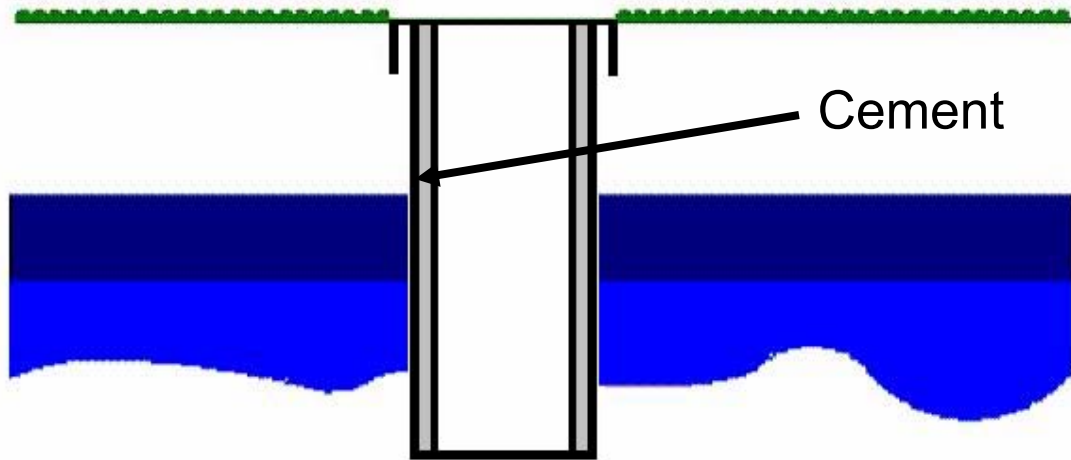


Formations









Cement

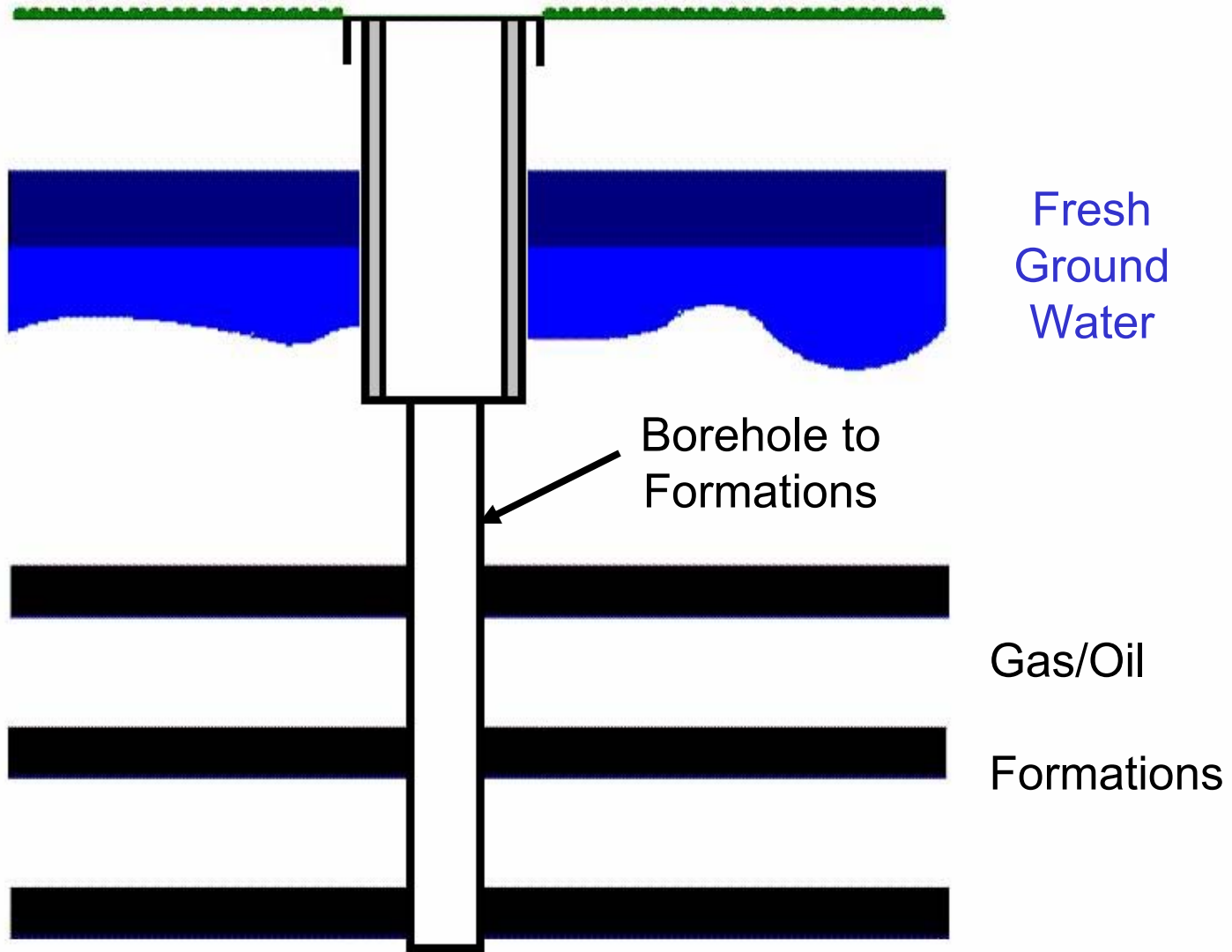
Fresh
Ground
Water

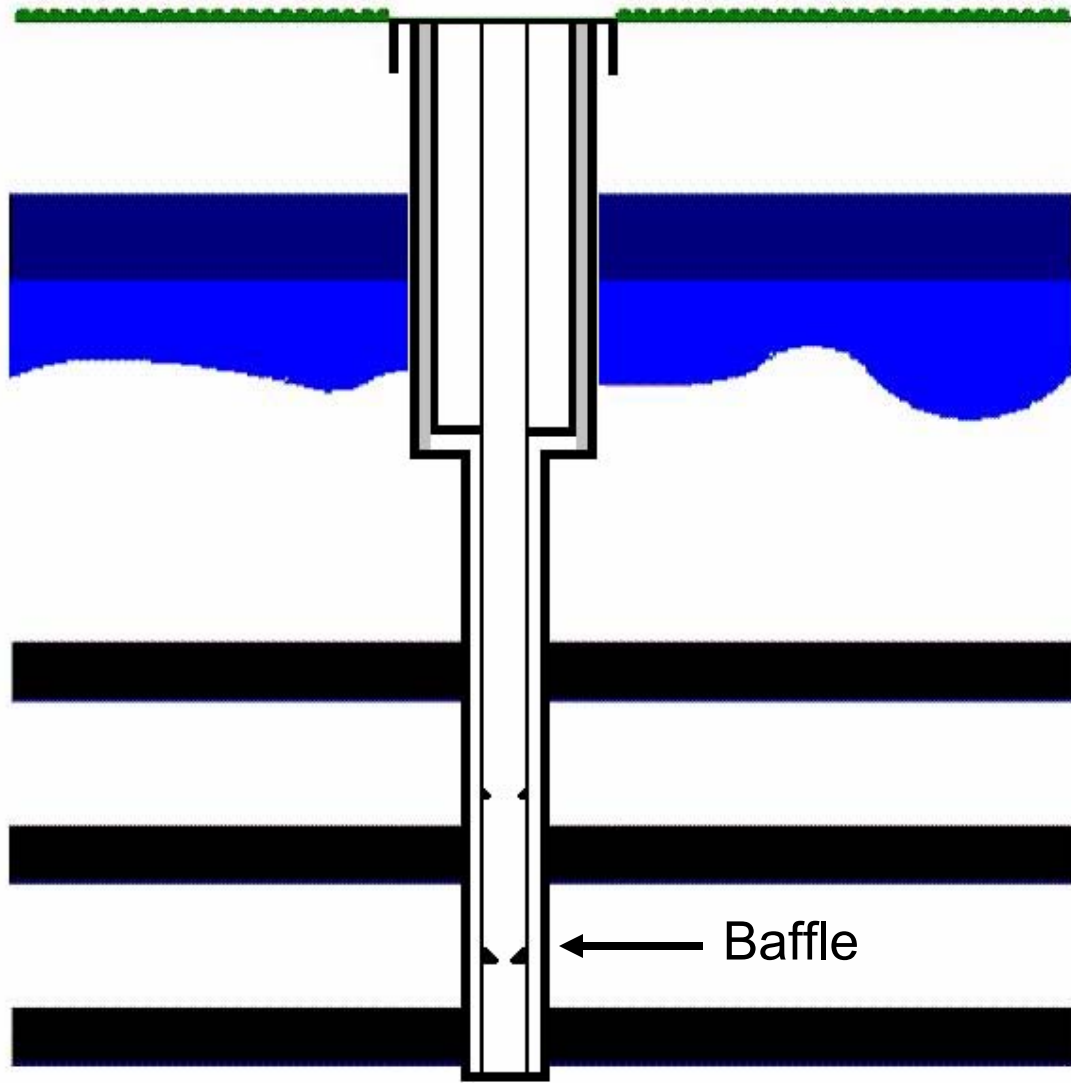
Gas/Oil

Formations

Cement Returns from the annular space





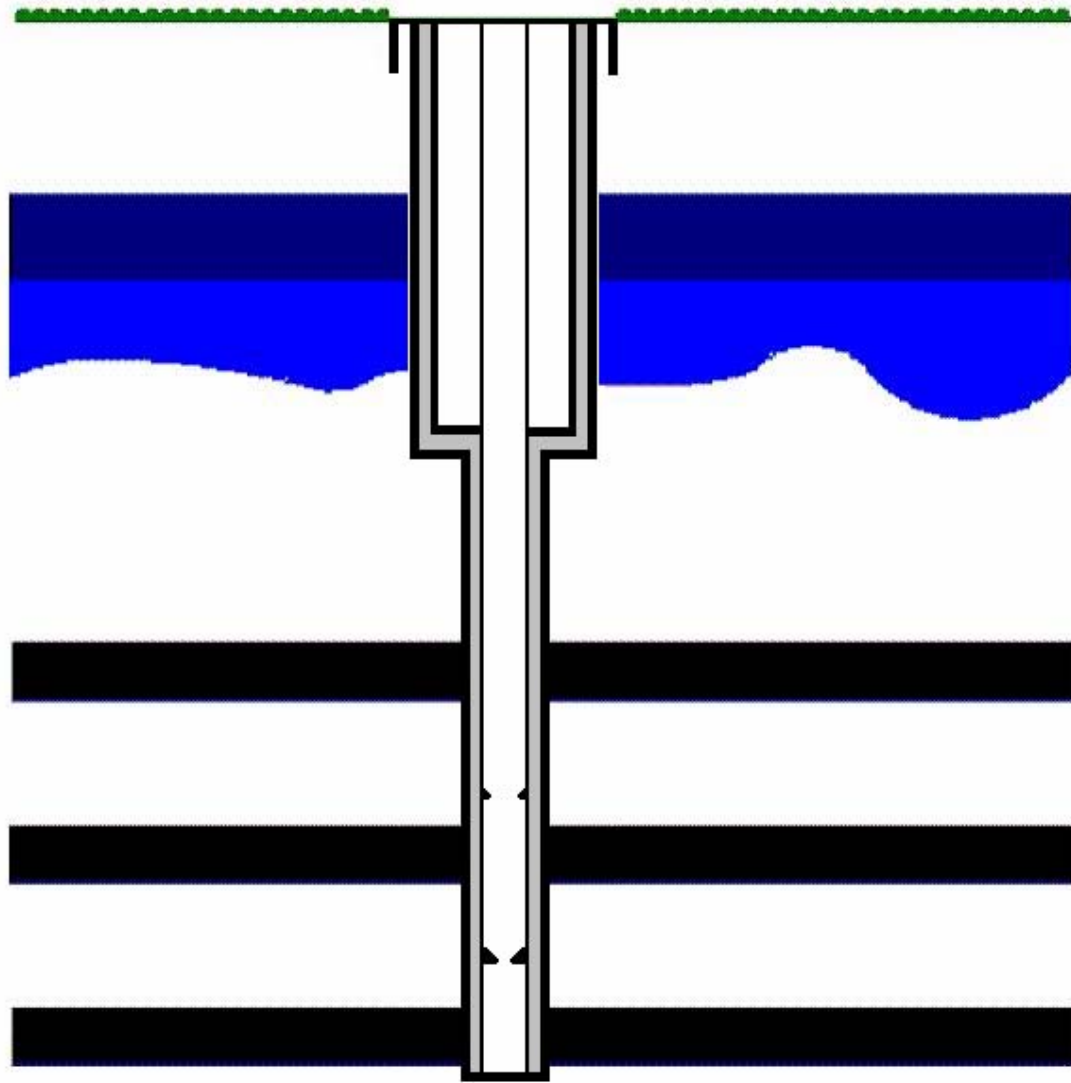


Fresh
Ground
Water

Gas/Oil

Formations

← Baffle



Fresh
Ground
Water

Gas/Oil

Formations

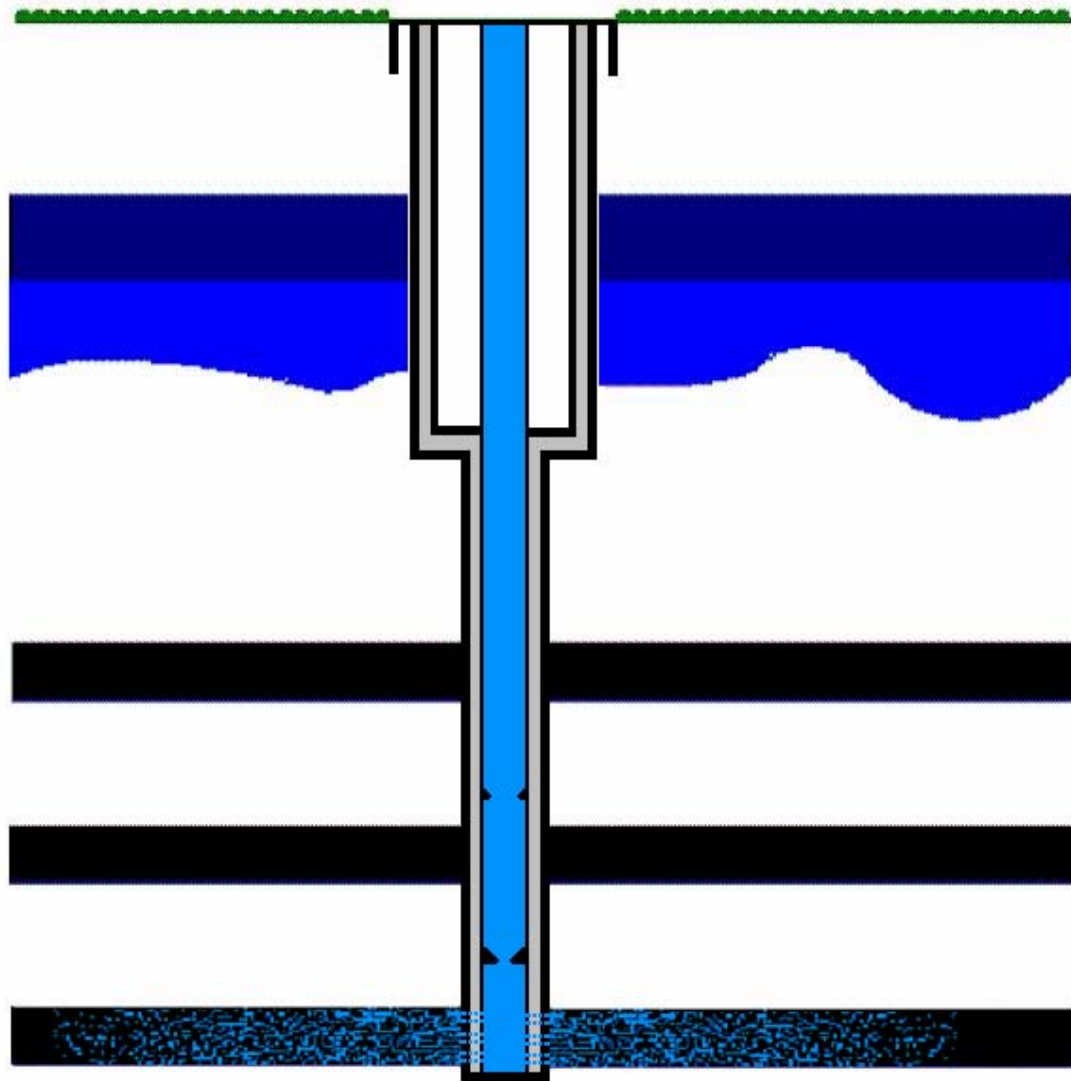
Fracing the Well



What is Fracing?

Hydraulic fracturing is the process in which fluid is pumped down a well and into a formation under pressure high enough to cause the formation to crack, or fracture, forming passages through which gas can flow into the well bore.

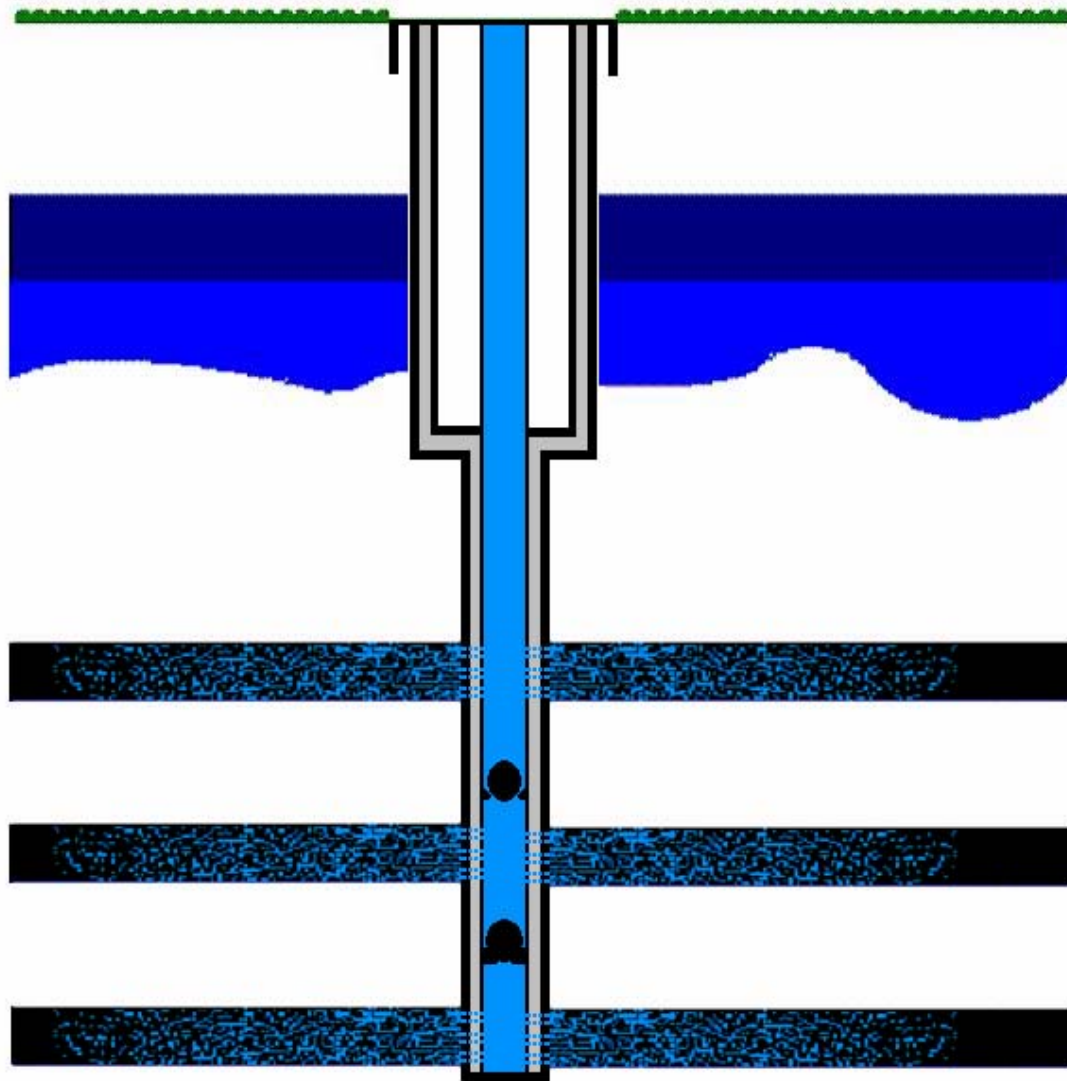
Upon completion of the frac this fluid is pumped from the formation into a lined sump and trucked to a permitted treatment facility.



Fresh
Ground
Water

Gas/Oil

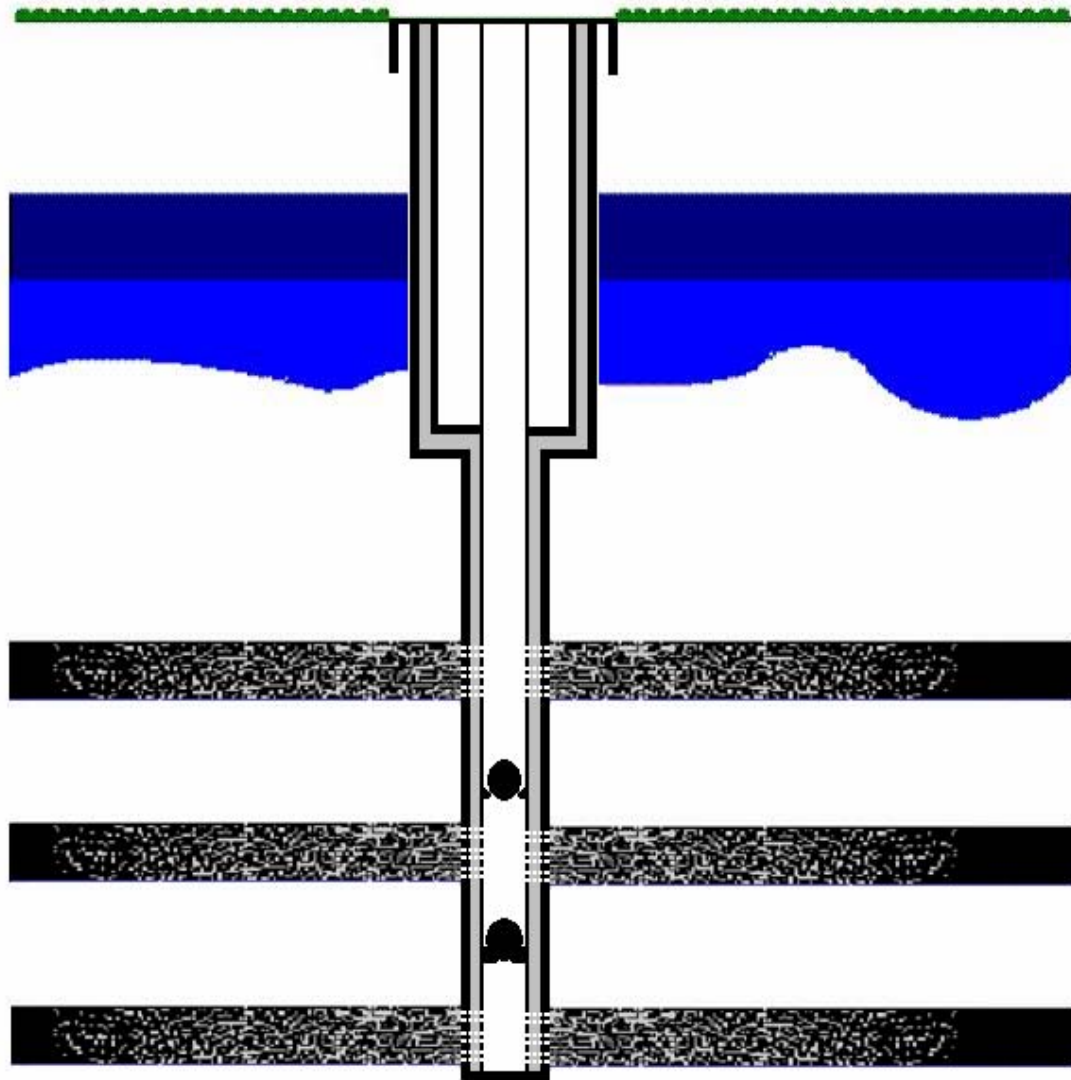
Formations



Fresh
Ground
Water

Gas/Oil

Formations



Fresh
Ground
Water

Gas/Oil

Formations



8' below the streambed

Pipeline Stream Crossings



220' bore length

The End Result



Stormwater Management



You might see this...



Common Questions



Protection of Water Supplies



“presumption of responsibility”

An operator is responsible for any degradation of a water supply within 1000 ft of the gas well that occurs within six months of the completion of drilling, unless the operator can prove otherwise.

Whenever a gas/oil well related water loss or degradation occurs it should be reported to the Bureau of Oil & Gas Mgmt. regional office for further investigation.

What happens to the fluids used during drilling and production?

All fluids encountered during the drilling and fracing of a gas well are collected in lined sumps.



Top Hole Water.



All other drilling, fracing and production fluid is hauled to a permitted treatment facility





- NPDES permit
- Specific discharge limits.
- Satisfies state as well as USEPA requirements.

Be Smart Out There



If you see something unusual...



Let Someone Know!



“Well mam, first,
I ask’n politely to
put in the BMPs,
and if that don’t
work...well, that’s
what this here
shootin’ iron’s fer.”

Great,Great Great Grand Pappy Umholtz

**Joe Umholtz
Chief**

**Division of Surface Activities
Bureau of Oil & Gas Management
717-772-2199**