

Impacts of hydraulic fracturing on Groton

Groton Resource Awareness Coalition

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Hydraulic Fracturing: What is it?

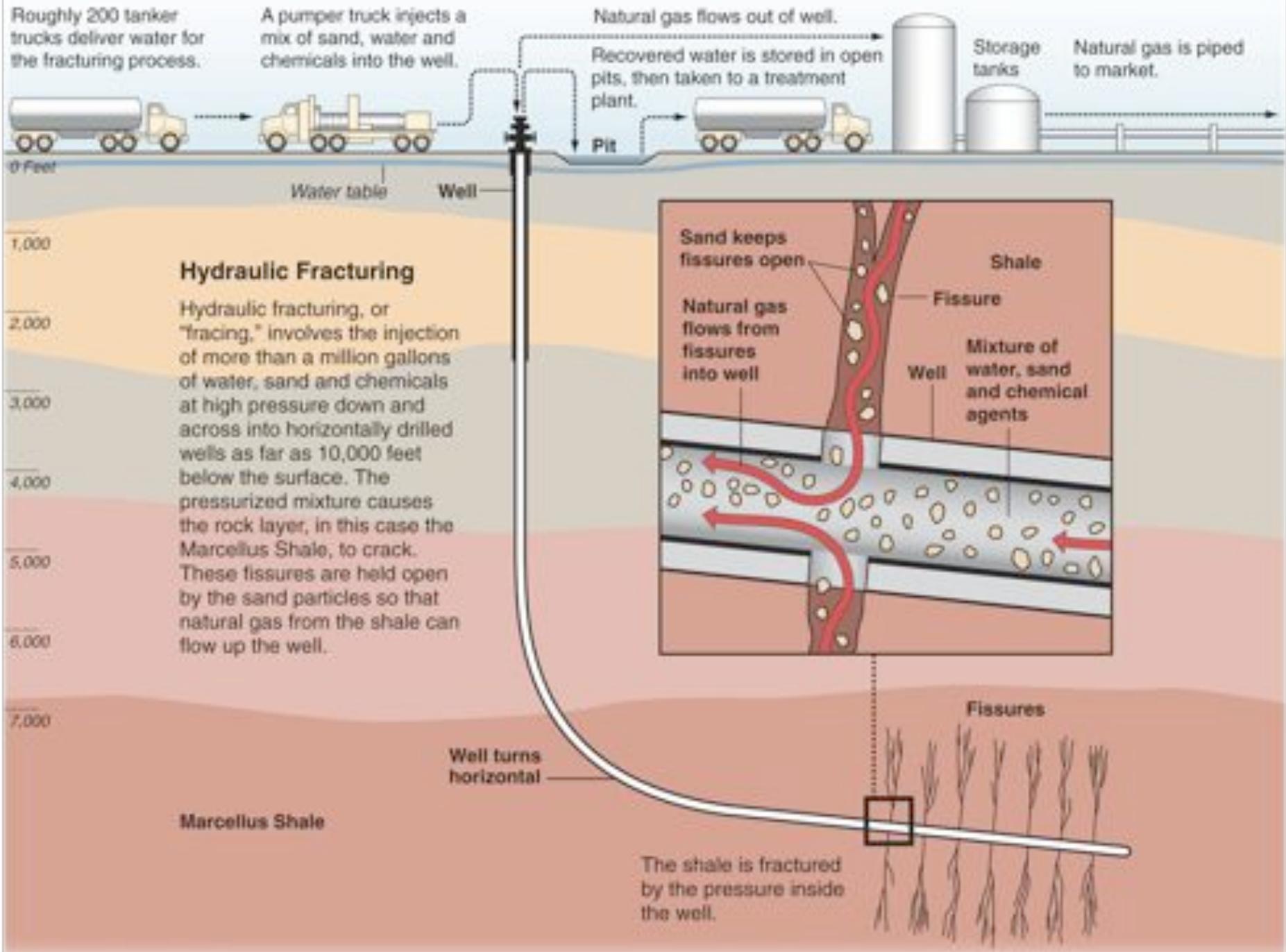
- Injection of fluid into well to break up producing formation and stimulate production
- Pioneered by Stanolind Oil and Halliburton

1947



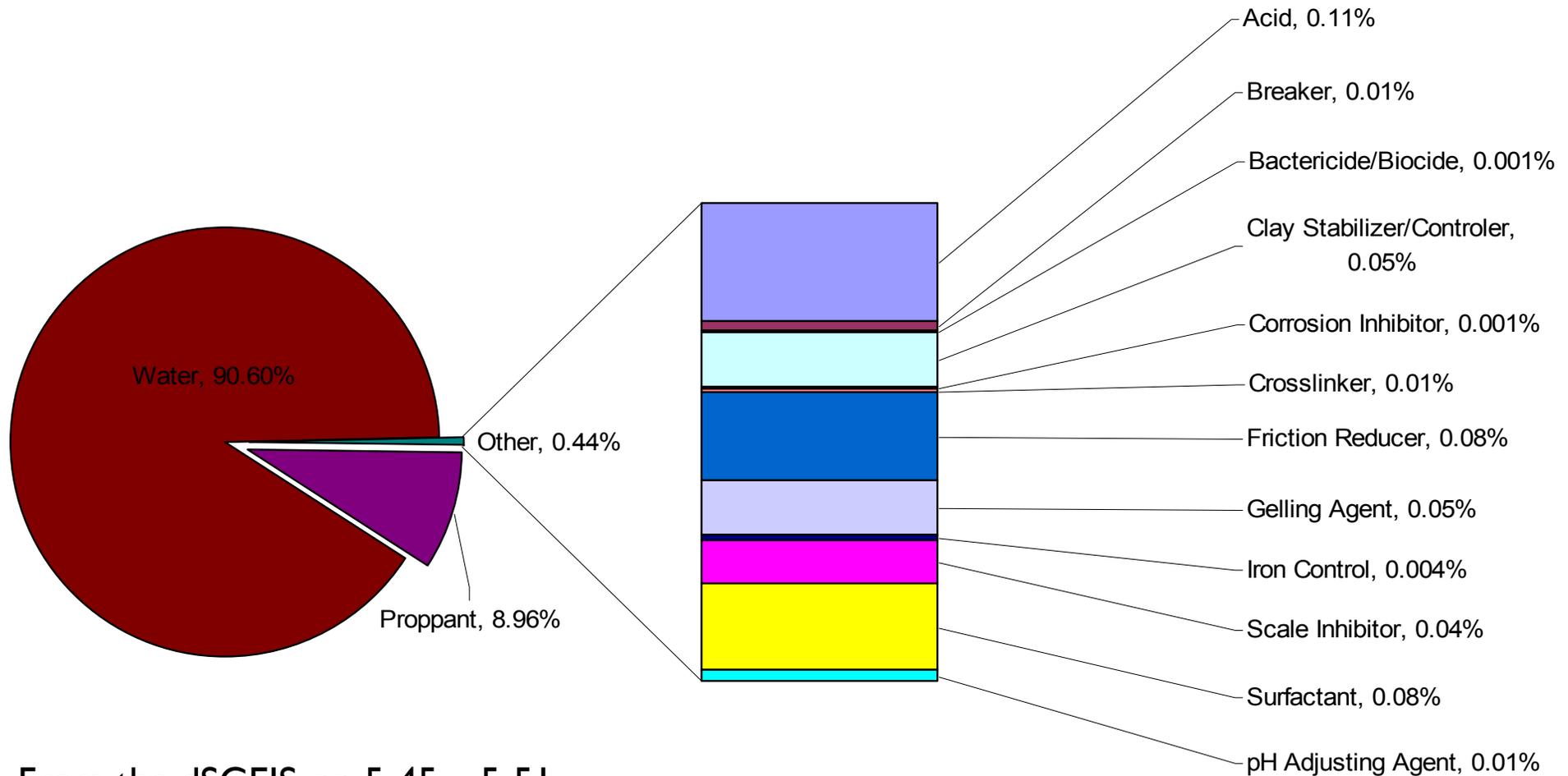
2011





Graphic by Al Granberg

Contents of hydrofracking fluid



From the dSGEIS, pp 5-45 – 5-51

Figure 5-3 - Sample Fracture Fluid Composition by Weight

Contents of hydrofracking fluid

- Benzene (carcinogen)
- Formaldehyde (carcinogen)
- Formaldehyde polymers with branched 4-nonylphenol, ethylene oxide and propylene oxide
- Butan-1-ol (aka lighter fluid)
- Nonylphenol Polyethoxylate (endocrine disrupter)
- Hydrochloric Acid / Hydrogen Chloride / muriatic acid
- Propane-1,2-diol, or propylene glycol
- Heavy aromatic petroleum naphtha (carcinogen)

To frack one well:

- 5.5 million gallons of water
- 24,200 gallons of chemicals (many toxic)
- 2.2 million gallons flowback fluid (40% return)
- 100,000 gallons of radioactive and toxic brine
- 1,570 truck trips for transporting fresh water
- 4 truck trips for transporting chemicals
- 312 truck trips for transporting flowback fluid
- 14 truck trips for transporting radioactive and toxic brine

HVSHF: a 21st century technique

- Marriage of hydraulic fracturing and horizontal drilling
- Exemption from the Safe Water Drinking Act

119 STAT. 694

PUBLIC LAW 109-58—AUG. 8, 2005

Subtitle C—Production

SEC. 122. HYDRAULIC FRACTURING.

Paragraph (1) of section 1421(d) of the Safe Drinking Water Act (42 U.S.C. 300h(d)) is amended to read as follows:

“(1) UNDERGROUND INJECTION.—The term ‘underground injection’—

“(A) means the subsurface emplacement of fluids by well injection; and

“(B) excludes—

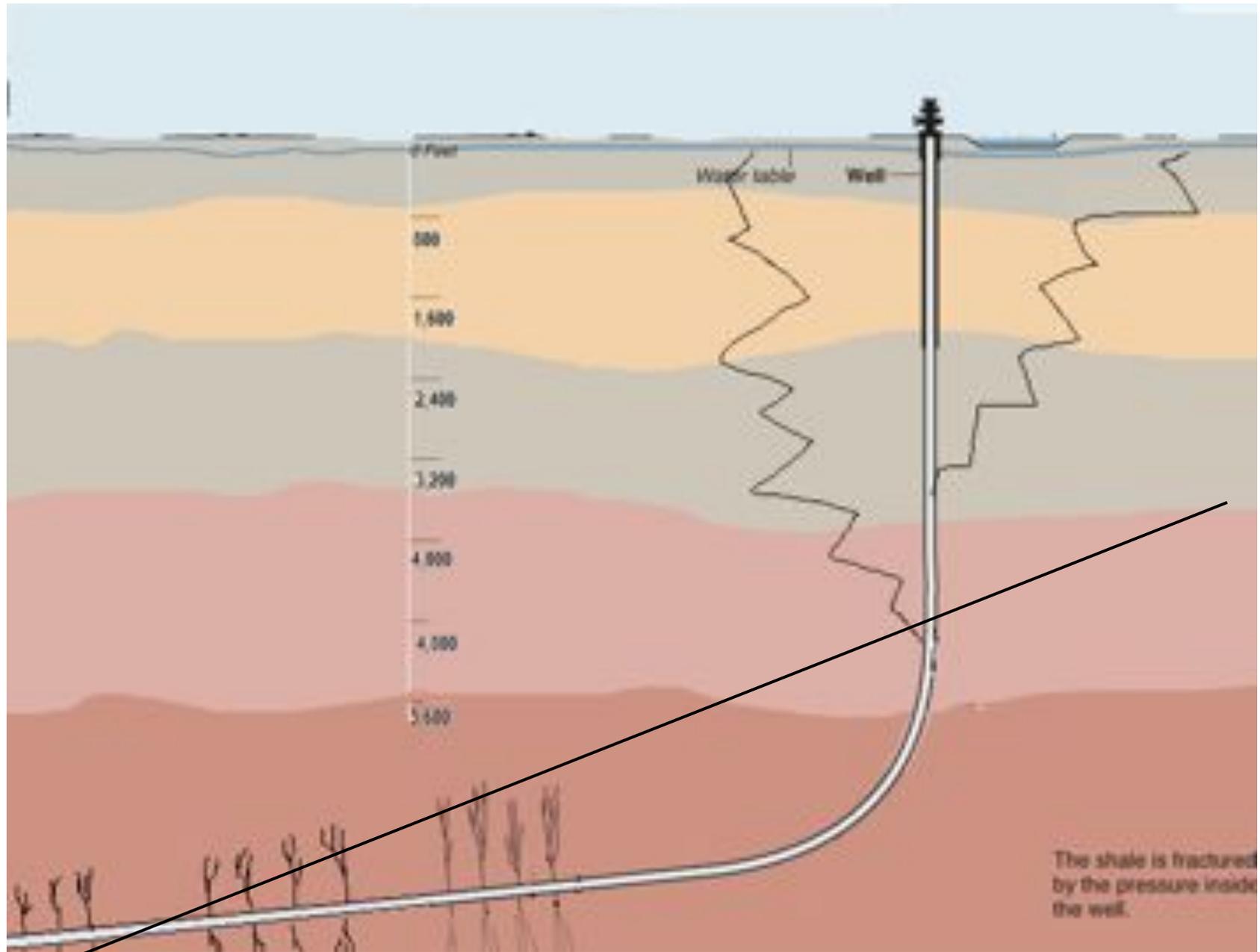
“(i) the underground injection of natural gas for purposes of storage; and

“(ii) the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities.”.

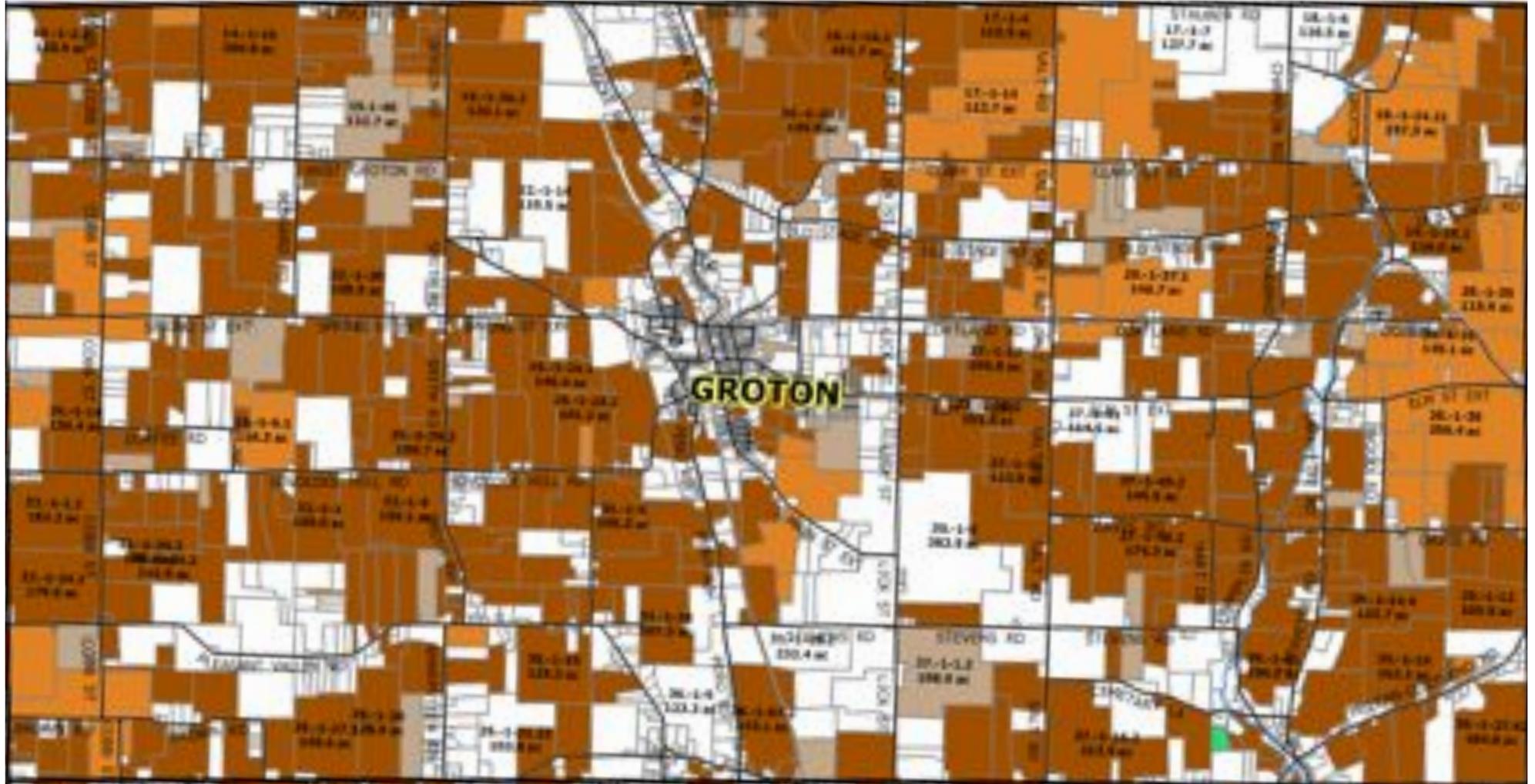
Is HVSHF a mature technology?

- No.
- From the *Journal of Petroleum Engineering* (2011):
 - “The industry still does not completely understand the geomechanical effects of unconventional well fracturing.”
 - Dr. Antonin Settari, Professor of Chemical and Petroleum Engineering, University of Calgary

Serious challenges with HVSHF



Leased parcels in Groton



69% of the land is leased,
but only 6% of the residents are leasing!

440 wells
on 44 pads

Industrialization of the rural landscape

1900 trips/frack/well
x 10 wells/pad
x 2 fracks/well
= 38,000 trips/pad

Town of Groton:
38,000 trips/pad
x 44 pads
= 1,672,000 trips



Main street of Troy, PA

36 trucks in
20 minutes

Nov. 16, 2010



Effects on roads and bridges



SR 300 I, Tioga County, PA

PennDOT, March, 2010

Infant and child health issues

- Air pollution: diesel exhaust, heavy metals, emissions from drilling and fracking, e.g. benzene, VOCs (+ nitrogen oxides => ground-level ozone)
 - exposure is linked to respiratory illness, wheezing in infants, asthma, developmental delay (e.g. lower IQ), lowered life expectancy
- Water contamination: benzene, xylene, ethylene glycol, biocides, hydrochloric acid
 - linked to cancer, adverse effects on neurological, endocrine systems

Infant and child health issues

- Noise pollution

- increased noise and chaos linked to lower IQ, reduced school achievement in children
- All aspects of drilling and fracking exceed EPA and HUD standards, out to 500 feet.
- During hydraulic fracturing, which is a 24/7 activity, noise will exceed EPA and HUD standards out to 2000 feet.

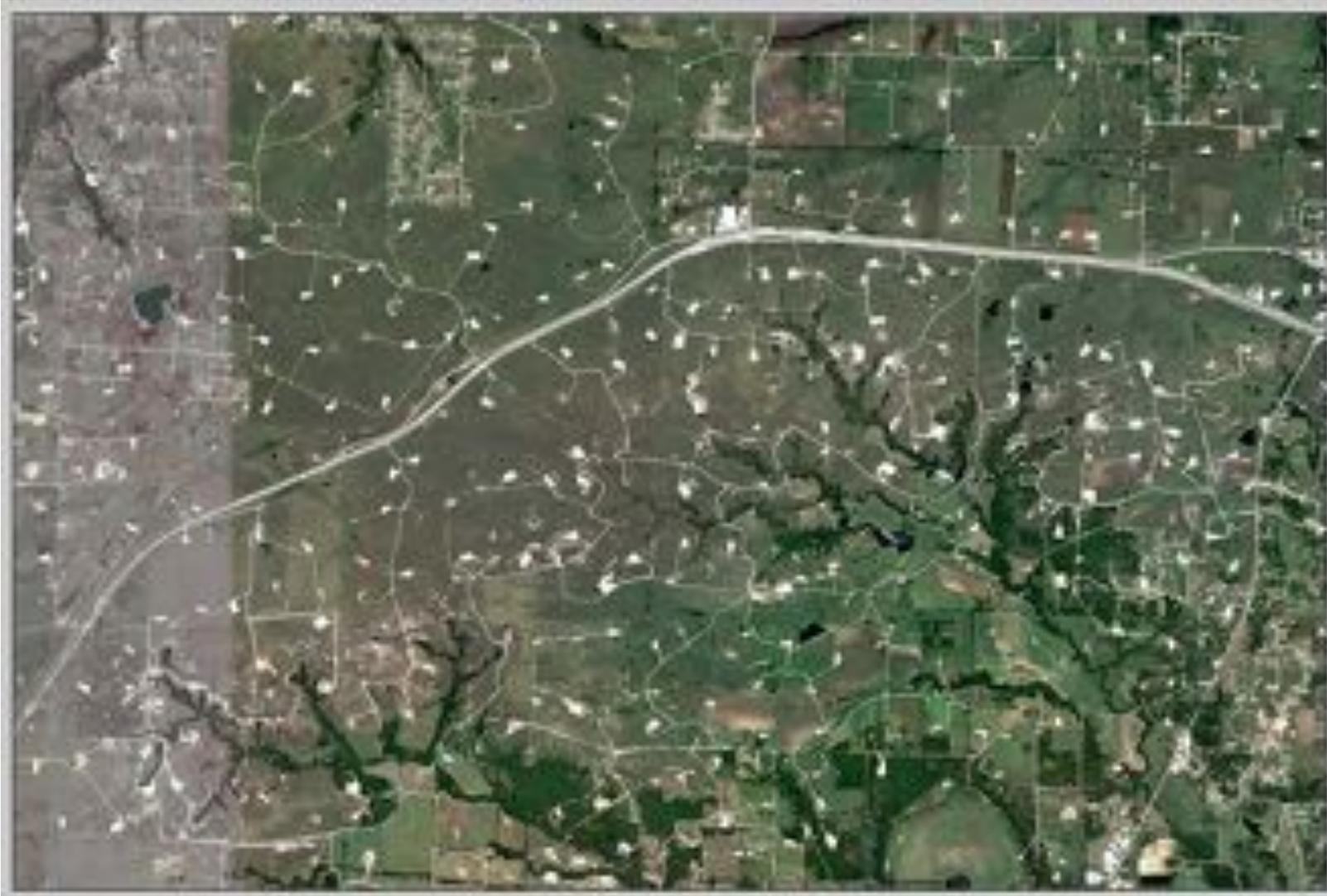
Drilling in the village

ball fields

church



Typical gas field



Dish, Texas

Hydrofracking in Franklin Forks, PA



Economic impacts

- Jobs

- number of hires versus new jobs created
- skilled workers come from out of state

- Crime

- Increases in DUI, assault, public intoxication
- Wellsboro police chief Jim Bodine: “There’s been a heavy, heavy influx of people from out of the state, out of the area. We’ve seen a lot of those folks get into trouble.”

- Housing

Reactions to the data

- In and near Tompkins County:
 - Danby, Ithaca, Ulysses, Dryden, (ban), Freeville, Moravia (moratorium)
 - Enfield, Lansing, Caroline (considering a ban)
 - Hector (holding public hearings), Cortlandville (ban)
- New York:
 - Buffalo (ban), Binghampton, Dewitt, Tully, Marcellus and Skaneateles (moratorium), Otsego, Brighton, Conesus, Oneonta, Middlefield (ban), Sullivan, Tompkins, Ulster Counties (bans on county land)

Where do we go from here?

- What do Groton residents value?
 - 97.5%: preserving scenic quality and natural beauty of the area is "Important" or "Essential."
 - 97.5%: preserving the rural, peaceful character of the community is "Important" or "Essential."
 - 81.8%: volume of heavy truck traffic through residential areas is an "Important" or "Essential" issue
 - 98.6%: Maintaining existing roads was "Important" or "Essential"

Where do we go from here?

- What is GRAC doing?
 - sponsor public forums with experts to discuss in detail the impact of HVSHF on Groton
 - petition drive to gauge level of interest of Groton residents in pursuing a ban on HVSHF
- Coming events:
 - Effects on farming and animal health (TBA)

What can the Groton Town Board do?

- Engage with Tompkins County Council of Government task force on drilling
- Invite expert speakers to address the board
 - liabilities that Groton may incur as a result of hydrofracking; future courses of action
- Sponsor a public hearing on whether Groton should allow hydrofracking