

After the Fracking Ban:
Why Keep On Monitoring?

“What’s In Your Watershed”

A Public Forum

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Tompkins County Public Library

Pollution and the Federal Clean Water Act: A Brief Review

Federal Clean Water Act of 1972 divides pollution into two general categories: 1) Point sources, and 2) Non-point sources

Examples of facilities classified as [point sources](#) of pollution

Waste water (sewage) treatment plants

Factories that discharge to water bodies

Confined Animal Feedlot Operations (CAFOs)

Lake Source Cooling facility

Landfills

Regulation of Point Sources of Pollution

- Under the Clean Water Act, states created the State Pollution Discharge Elimination System (SPDES)
- Facilities deemed to be potential point sources of pollution are required to apply to the state for SPDES permits
- A SPDES permit specifies the concentrations and the quantities of each pollutant that a facility is allowed to discharge legally to a water body such as a stream or a lake

Reducing point source inputs has resulted in dramatic improvements in water quality in streams and lakes and is considered a signature success of the CWA.

Caveats:

- 1) Some chemicals may enter public waste streams unrecognized and unregulated by SPDES permits, for example: Personal care products, pharmaceuticals
- 2) Some waste streams are classified as non-hazardous that could contain hazardous chemicals, example: Drill cuttings from HVHF gas wells

Non-Point Source Pollution: The Elephant in the Watershed

Examples of [non-point sources](#) of water quality degradation

Agriculture

- Phosphorus and nitrogen nutrients – algae blooms, seasonal “dead zones” in lakes, estuaries, bays, seas
- Soil erosion resulting in siltation of streams and lakes, ecosystem damage
- Pathogenic, drug-resistant bacteria

Residential and commercial development

- Household waste: Lawn fertilizer, pesticides, plastics, petroleum products, car wash/wax chemicals, other detritus
- Soil disturbance and erosion, siltation of streams and lakes
- Road salt infiltrating groundwater
- Invasive species, example: Hydrilla

Elephant in the Watershed, cont'd

Stormwater runoff potentiates non-point source pollution due to:

- Impervious surfaces: Roads, parking lots, roofs
- Channelization of streams, elimination of meanders
- Loss of riparian corridors and wetlands that act as physical and chemical buffer zones for streams and lakes

Stormwater runoff accounts for ~80% - 90% of all non-point source pollution of streams, lakes

- ❖ Non-point source pollution now exceeds point source pollution
- ❖ Non-point source pollution is difficult to measure and regulate
- ❖ Degradation of water quality is ongoing in the U.S. and world-wide

How Will A Fracking Ban Reduce Risks to Water Quality?

1. No construction of gas well pads
 - Eliminates a source of non-point source pollution of streams due to soil erosion and resulting turbidity in stormwater runoff
2. No high volume hydraulic fracturing (HVHF)
 - Eliminates risk of accidental spills of toxic fracking chemicals and flowback at drill pads that can run off into streams and lakes
 - Eliminates risk of groundwater contamination due to leaks in well casing, geological fissures and “orphan wells”

A fracking ban will result in significant reductions in risk to surface water and groundwater quality in New York.

Do Fracking-Related Risks Remain?

- ❑ Yes, due to **industrial infrastructure**
- ❑ Despite ban, New York indirectly supports fracking in other states
 - **Landfills** accept drill cuttings from Pennsylvania
 - **Waste water treatment plants** accept leachate from these landfills
 - **Gas pipelines** are being upgraded and new ones constructed
 - **Compressor stations** will be built along the new pipelines
 - **Salt caverns** are being used to store natural gas; they could possibly be used to store liquefied petroleum gas (LPG)
 - **Trucks and trains** transport oil, LPG across New York
 - **Water may be diverted** for fracking operations in other states

What Kinds of Risks Are Posed by Industrial Infrastructure Related to Fracking?

- **Landfills** that accept drill cuttings
 - Naturally Occurring Radioactive Material (NORM) that may be in drill cuttings could leak out of landfill into surface water or groundwater
 - **Waste water treatment plants** that accept leachate
 - NORM passes through plant and is discharged to the receiving water body; risk depends on level of NORM
- Note: Flowback from frack wells is not currently disposed of in New York

Types of Risks Posed by Industrial Infrastructure, cont'd

- **Gas pipelines**
 - Construction disturbs soil, potentiates erosion and siltation in streams; leaks can result in explosions, fires
- **Compressor stations**
 - Air quality degradation, noise pollution
- **Salt caverns**
 - Leaks of gas and LPG, explosions, fires
- **Trucks and trains**
 - Accidents resulting in spills, explosions, fires
- **Water diversions**
 - Depletion of streams and groundwater aquifers resulting in disruption of hydrologic cycle, impacts on aquatic life

Tentative Evaluation of Risks and Impacts from Industrial Infrastructure

❖ **Water quality**

- Risks: Cumulative contamination from leaking landfills and high NORM in Teachate (relatively low risks assuming adequate regulation by state and federal governments)

❖ **Water quantity**

- Risks: Cumulative depletion of streams and aquifers (relatively low risks assuming adequate oversight by local governments)

❖ **Storage and transport of gas, liquefied gas and oil**

- Unacceptable risk: Catastrophic accidents resulting in loss of life

❖ **Pipelines, compressor stations**

- Risks: Contribute to non-point source pollution of streams; degrade local air quality; noise pollution (moderate to high risks)

Recommendations for Action by Concerned Citizens

- 1) Monitor landfills and waste water treatment plants for possible releases of NORM and other hazardous chemicals into the environment
 - a. Samples of water and sediment collected by trained volunteers, analyses performed by certified lab
- 2) Monitor turbidity and BMI in streams potentially impacted by pipeline construction
 - b. Samples of water and BMI collected by trained volunteers and analyzed with lab support
- 3) Continue to highlight to regulatory agencies and elected representatives the catastrophic risks of storing and transporting gas and liquefied gas

CSI-Volunteer Monitoring Partnerships

- ❖ CSI currently partners with about 150 volunteers organized in some 35 groups and teams to monitor water quality in streams draining over 2,000 square miles in the Great Lakes and Chesapeake Bay watersheds in New York.
- ❖ Descriptions of CSI's volunteer-based monitoring programs as well as a database containing over 60,000 certified water quality results are at www.communityscience.org.
- ❖ The CSI-volunteer monitoring partnership model could be adapted to monitor potential water quality impacts of fracking infrastructure in New York, such as waste disposal and pipeline construction.