# COMMUNITY-BASED RISK ASSESSMENT OF WATER CONTAMINATION FROM HIGH-VOLUME HORIZONTAL HYDRAULIC FRACTURING

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**ABSTRACT**

The risk of contaminating surface and groundwater as a result of shale gas extraction using high-volume horizontal hydraulic fracturing (fracking) has not been assessed using conventional risk assessment methodologies. Baseline (pre-fracking) data on relevant water quality indicators, needed for meaningful risk assessment, are largely lacking. To fill this gap, the nonprofit Community Science Institute (CSI) partners with community volunteers who perform regular sampling of more than 50 streams in the Marcellus and Utica Shale regions of upstate New York; samples are analyzed for parameters associated with HVHHF. Similar baseline data on regional groundwater comes from CSI's testing of private drinking water wells. Analytic results for groundwater (with permission) and surface water are made publicly available in an interactive, searchable database. Baseline concentrations of potential contaminants from shale gas operations are found to be low, suggesting that early community-based monitoring is an effective foundation for assessing later contamination due to fracking.

**Keywords**: high-volume horizontal hydraulic fracturing, groundwater contamination, certified baseline testing, volunteer stream monitoring partnerships, fracking