

# Natural Methane Occurrence in Water Wells of South-Central New York State- Evaluation of Topographic Position and Hydrogeologic Setting



In Cooperation with The New York State Energy Research and Development Authority (NYSERDA)

## INTRODUCTION

Naturally occurring methane has been noted at some locations in the upper Devonian shale bedrock and in overlying glacial deposits in parts of Broome, Tioga, and Chemung Counties in south-central New York State (Williams, 2010). Systematic sampling of water wells for dissolved methane is needed to determine if the topographic and hydrogeologic setting of a well is related to methane occurrence.

**Objective and Study Area** - The objective of this study is to characterize the natural occurrence of dissolved methane gas in groundwater from water wells within four different topographic and hydrogeologic settings (upland and major valley areas where bedrock is confined or unconfined by glacial deposits). Areas within 1 mile of existing conventional gas wells and exploratory wells will be excluded. The study area covers 1,810 square miles across all or part of five counties in south-central New York State (fig. 1)

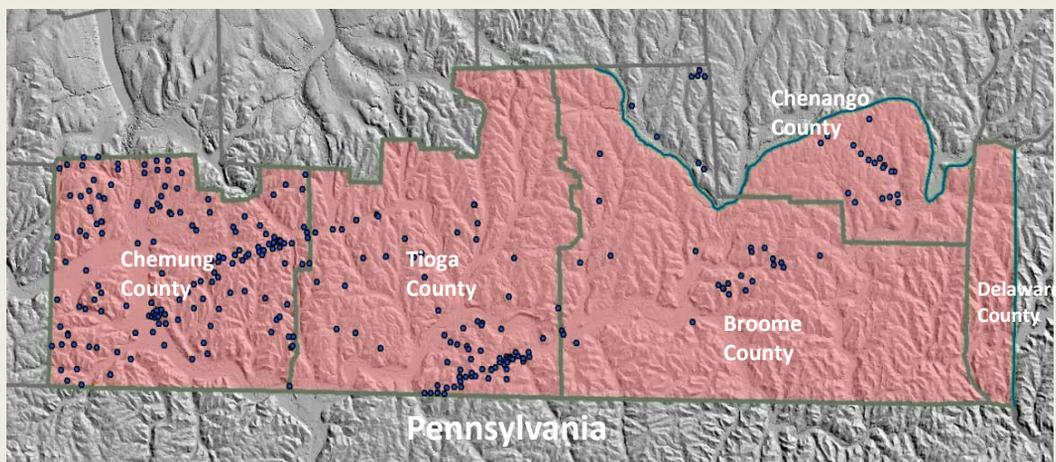


Figure 1. Study area extent with existing gas wells and exploratory wells indicated with blue dots.

**Approach** - An inventory of wells from the New York State Department of Environmental Conservation well-permit database will be conducted and wells will be classified by topographic / hydrogeologic settings. Approximately 60 water wells representative of these four settings will be sampled and analyzed for field parameters and dissolved gases, including methane. If methane is detected and concentrations are sufficient, carbon and hydrogen isotopic analyses of the methane will be included in an effort to determine the origin of the methane.

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USGS Water Science Center Website <http://ny.usgs.gov>

Project Website <http://ny.cf.er.usgs.gov/nyprojectsearch/projects/LK00-METH-00.html>