

Hanehan No1 Well

• *Local gas for local use*

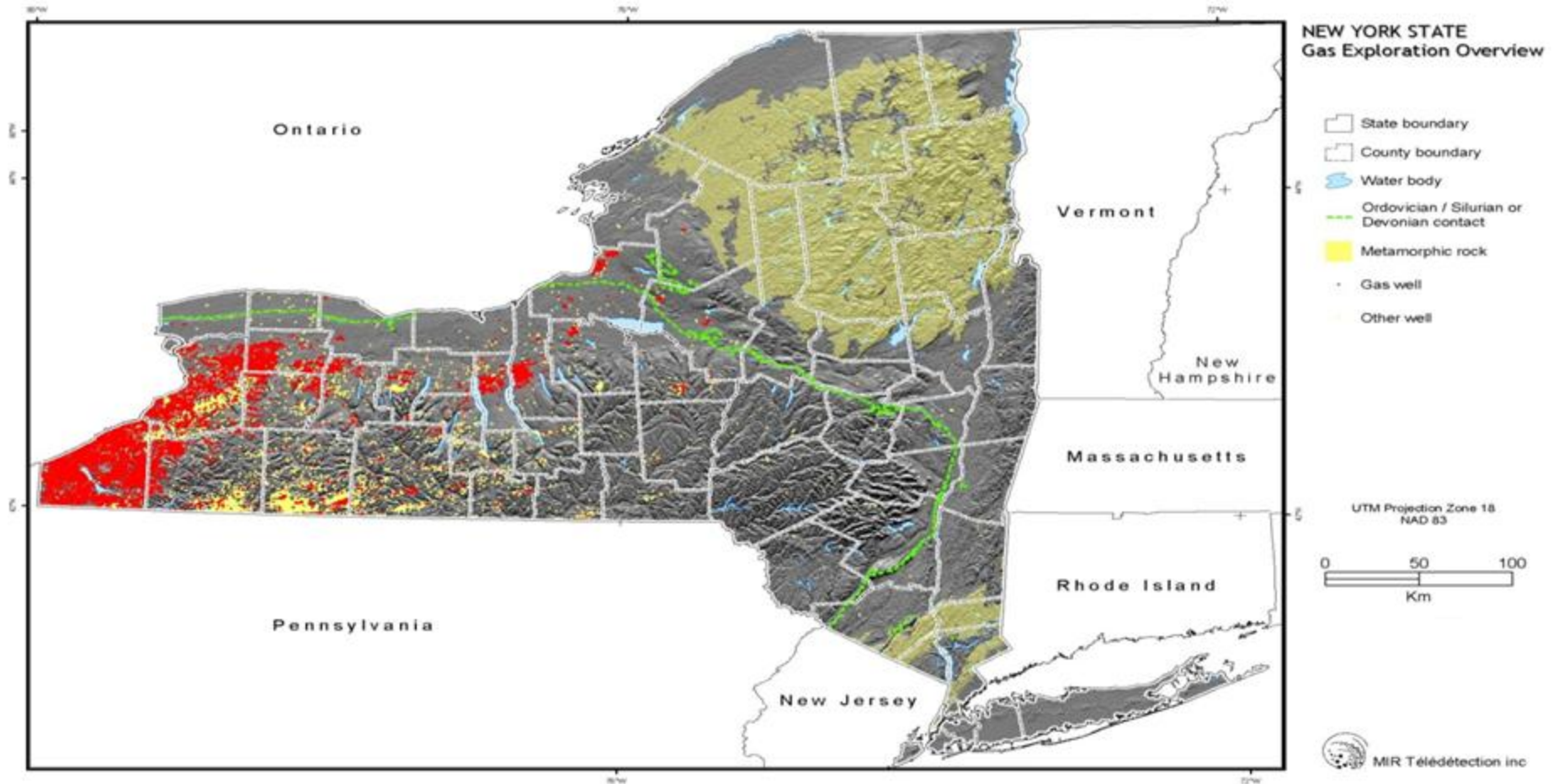


The Project

- **Gastem-USA is drilling an exploration well to evaluate the potential for conventional gas production in the greater Sidney area**
- **We believe that this area can produce large amounts of natural gas at low prices for the energy needs of its people, its businesses and its future**
- **The project is developed with local businesses to produce, distribute and market local, green, low-cost, clean natural gas**

«Local gas for local use»

Wells drilled and gas wells operational in New York State



- Oil and gas wells drilled in NYS: 75,000
- Active gas wells (2009): 6,628

Hanehan Property, East Guilford, Sidney area Chenango County



About Sidney ...

Population: 6,109

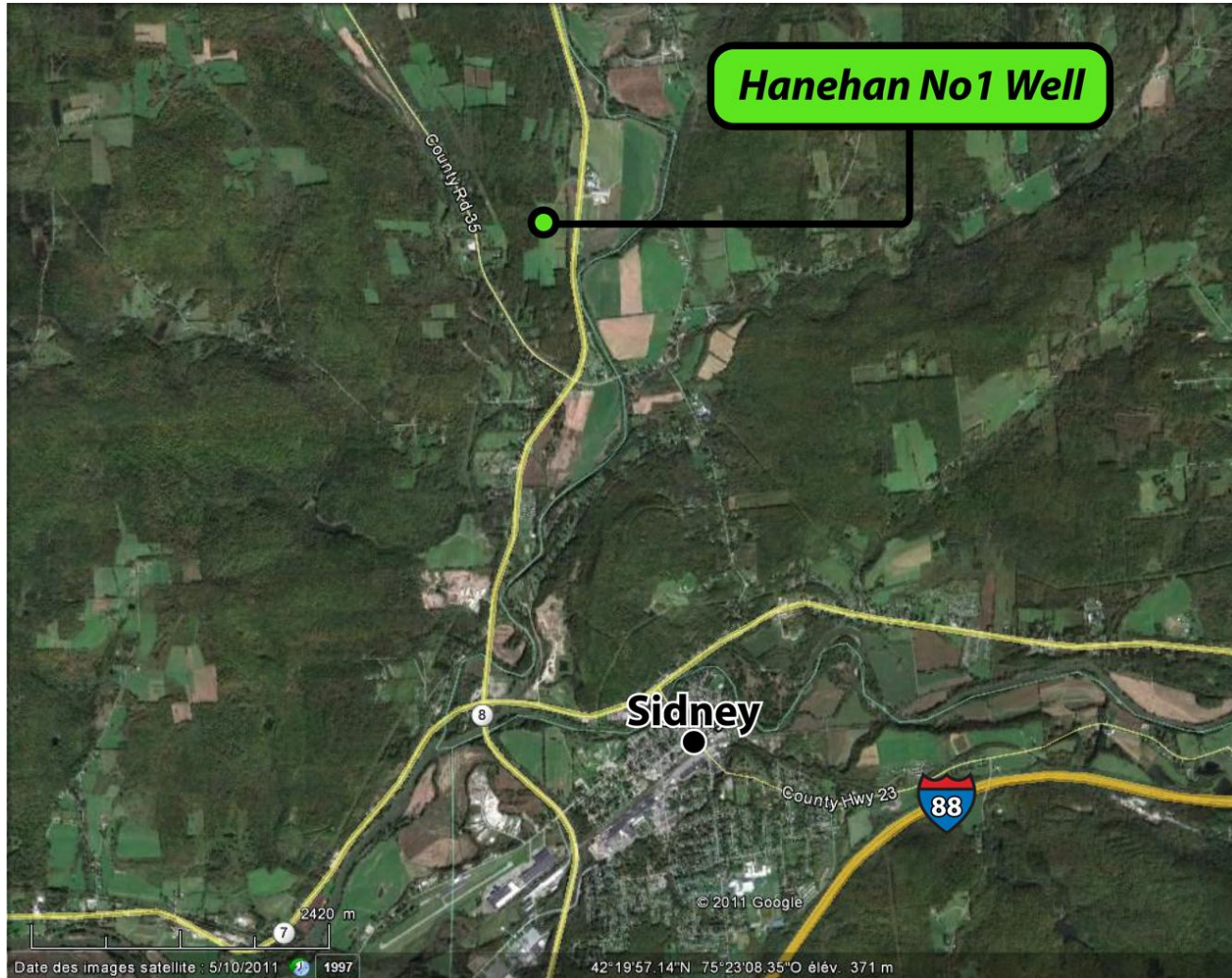
Area: 131.2 km²

Principal industries:

- *Amphenol Corporation*
- *Egli Machine Co.*
- *Huff Ice Cream Inc.*
- *MeadWestvaco*
- *Sidney Favorite Printing*
- *USA Custom Pad Corp.*
- *Unadilla Laminated Products (Una-Lam), Inc.*
- *Universal Forest Products Inc.*



Regional Setting



Project Description: Hanehan No1

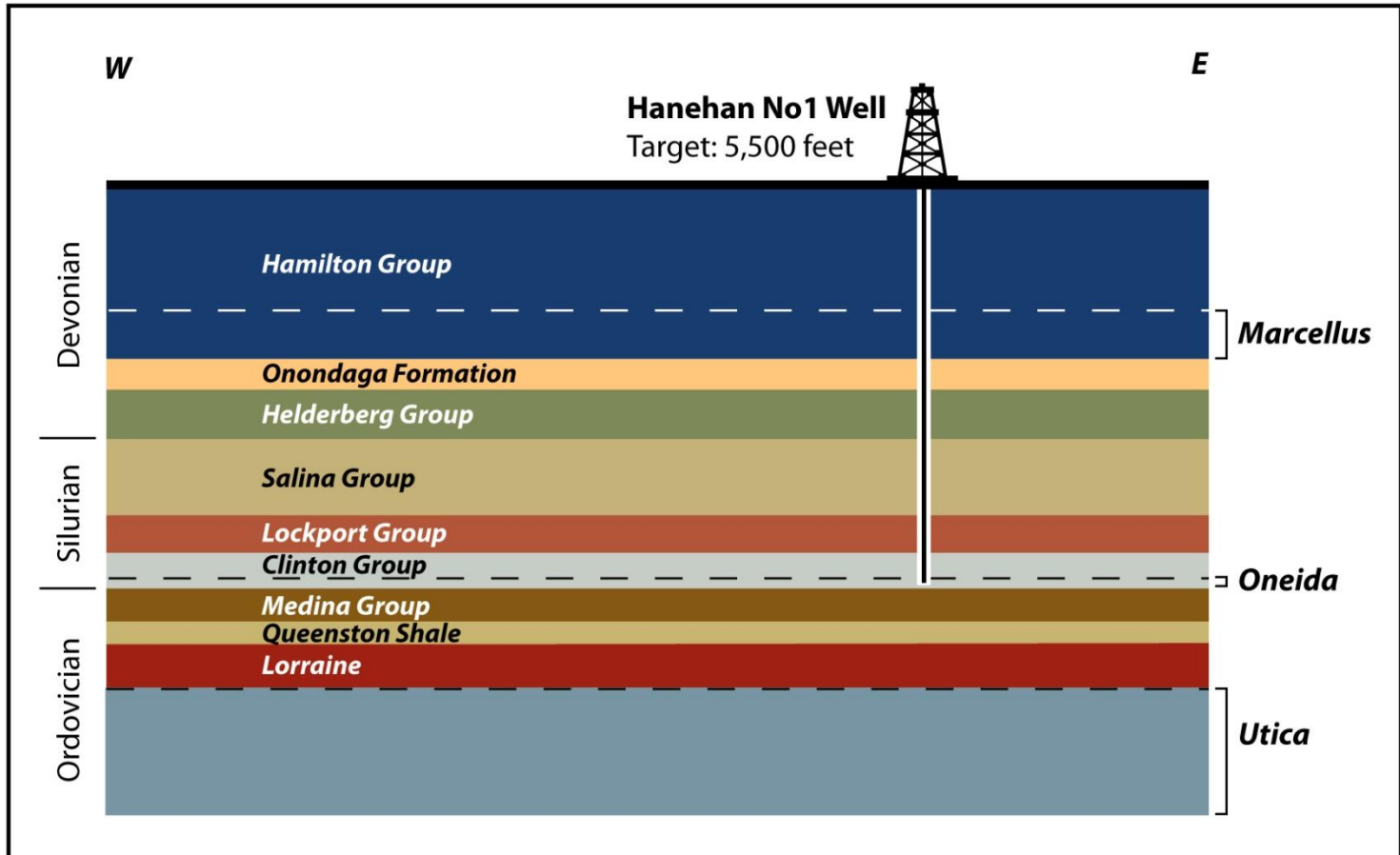
- **Drilling permit for one vertical well in the Oneida formation**
 - *Previous geological work indicates favourable structures for commercial production*
 - *Not a horizontal well and no fracking*
- **Target: Oneida Sandstone**
 - *Situated between the Marcellus and Utica formations*
 - *Objective: test commercial potential of the Oneida in this area*
- **Expected total depth is about 5,500 feet**
- **Drilling and coring, expected to take about 4 weeks**
- **Testing and evaluation, about 3 days**
- **Site restoration, expected to take 2 weeks**



Geological Overview of the Sidney Area

- **Multiple gas-bearing formations:**
 - **ONEIDA SANDSTONE:** *A high porosity, high permeability sandstone as demonstrated at the Ross well*
 - **MARCELLUS SHALE:** *The Marcellus is reasonably well developed in the area and possibly producible; a 30 Mcf/d natural flow was obtained at the Ross well further to the North*
 - **UTICA SHALE:** *The Utica is well developed in the Sidney area and gas-bearing based on the core tests*
- **Aeromagnetic and seismic data show the potential for conventional gas traps for the Oneida and enhanced natural fracturing for the low permeability Utica and Marcellus Shales**
- **There have been no wells in roughly a 25 mile area around Sidney, save and except three exploration wells drilled in the 1970s and the Ross well drilled by Gastem USA in 2010**

Hanehan No1 Well Drilling Target: cartoon



Regional Stratigraphy

Period	Group	Unit	Lithology	
Devonian	Upper	Genesee	Genesee Shale	
			Tully Limestone	
	Middle	Hamilton	Marcellus Shale	
			Onondaga Lst Oriskany Sst	
	Lower	Heldeberg	Manlius Lst Rondout Dol Akron Dol	
Silurian	Upper	Salina	Bertie Shale Syracuse Salt Vernon Dol	
		Lockport	Lockport Dol	
			Rochester Sh Irondequoit Lst	
	Lower	Clinton	Sodus Shale	
			Medina	Grimsby Sst
				Queenston Sst Lorraine Slst Utica Shale
Ordovician	Upper	Trenton/ Black River	Trenton Lst Black River Lst	
		Beeman- town	Tribes Hill Lst	
	Lower		Theresa Sst Little Falls Dol	
Cambrian	Upper		Potsdam Sst	
Precambrian Basement				

← **Marcellus: Chittenango and Union Springs Members (TOC rich)**

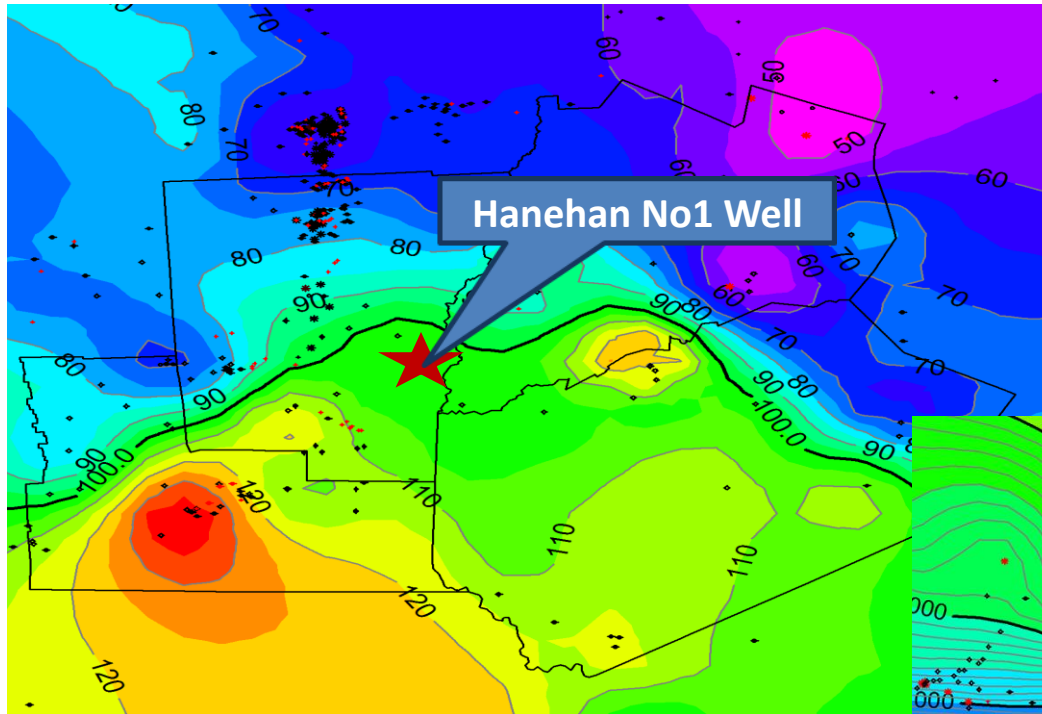
← **Herkimer Sandstone**

← **Oneida Sandstone**

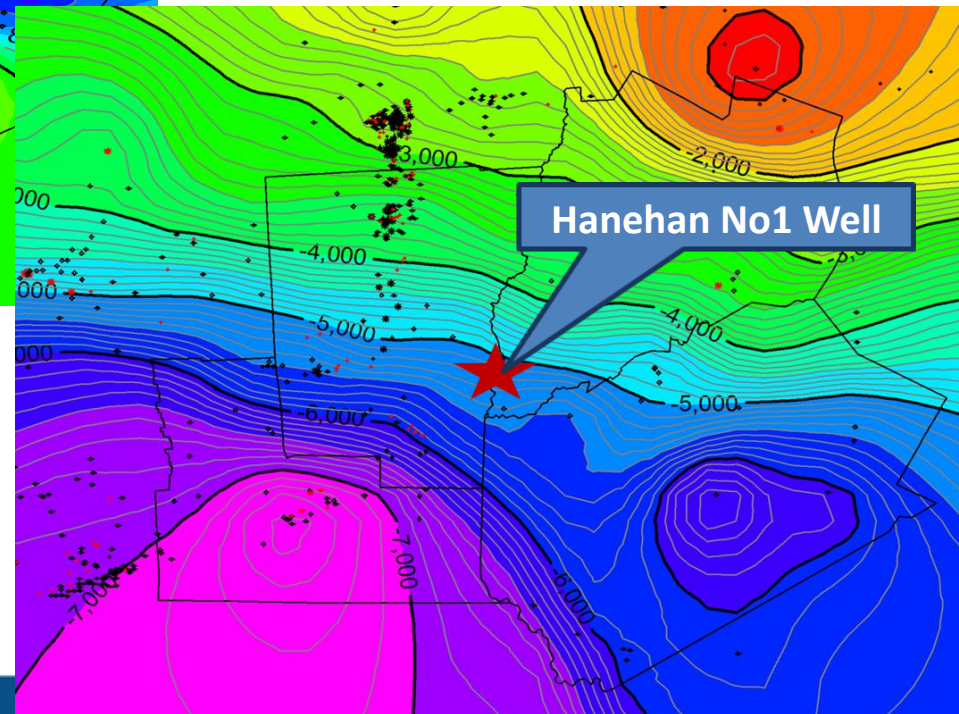
← **Oswego sandstone**

← **Utica Flat Creek, Dolgeville and Indian Castle Members (TOC rich)**

Oneida Thickness and Depth

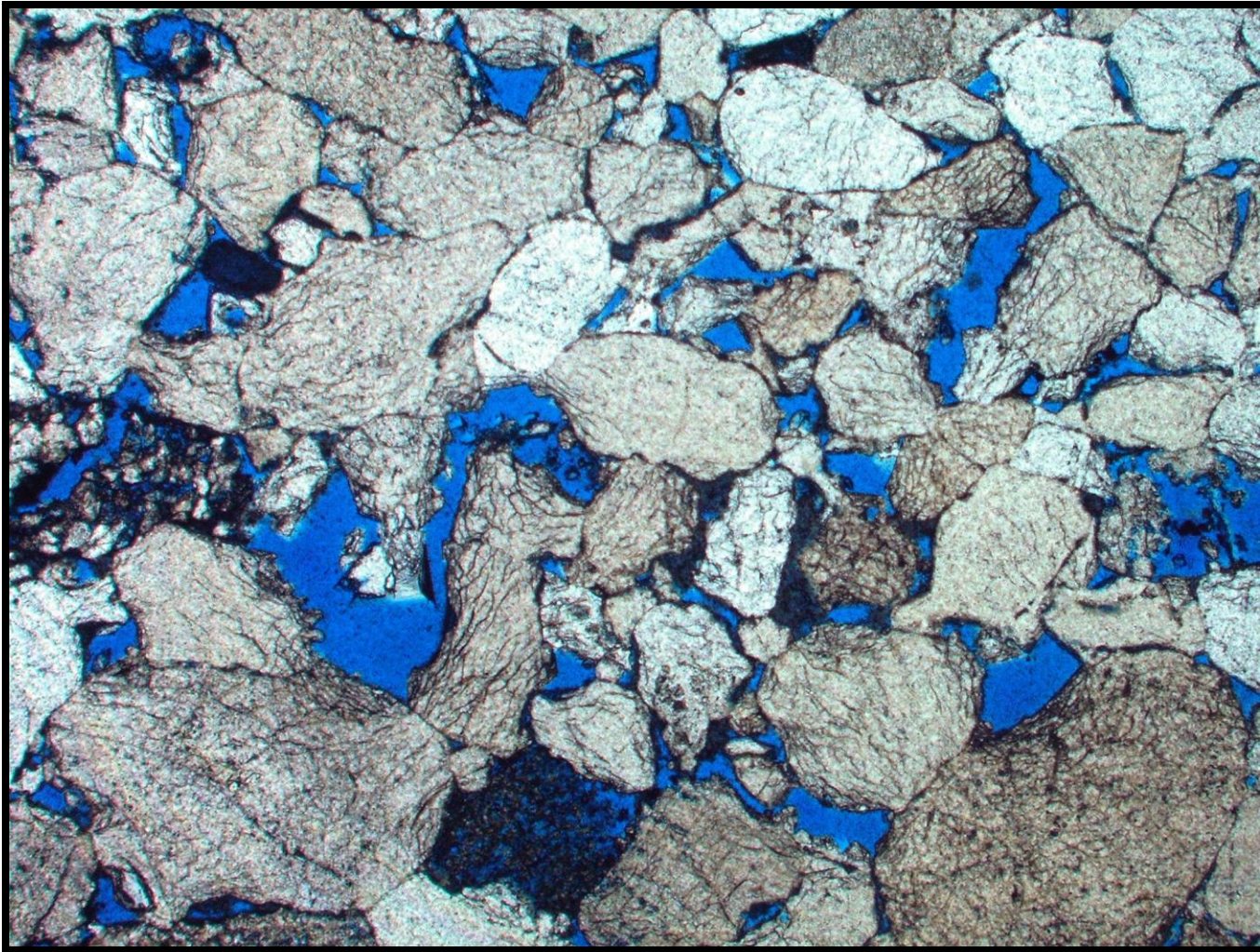


Thickness



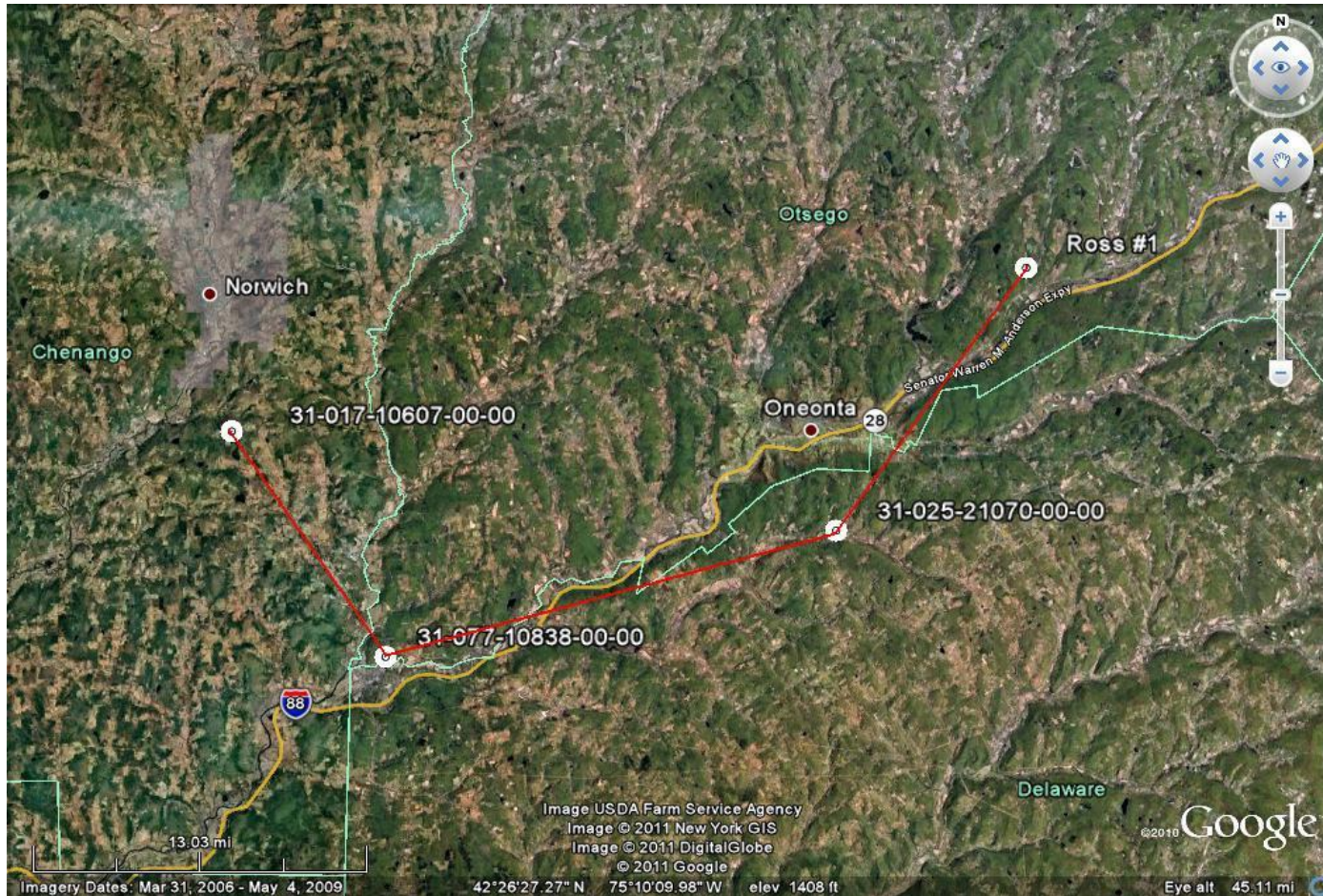
Depth

Porosity: Oneida Thin Section



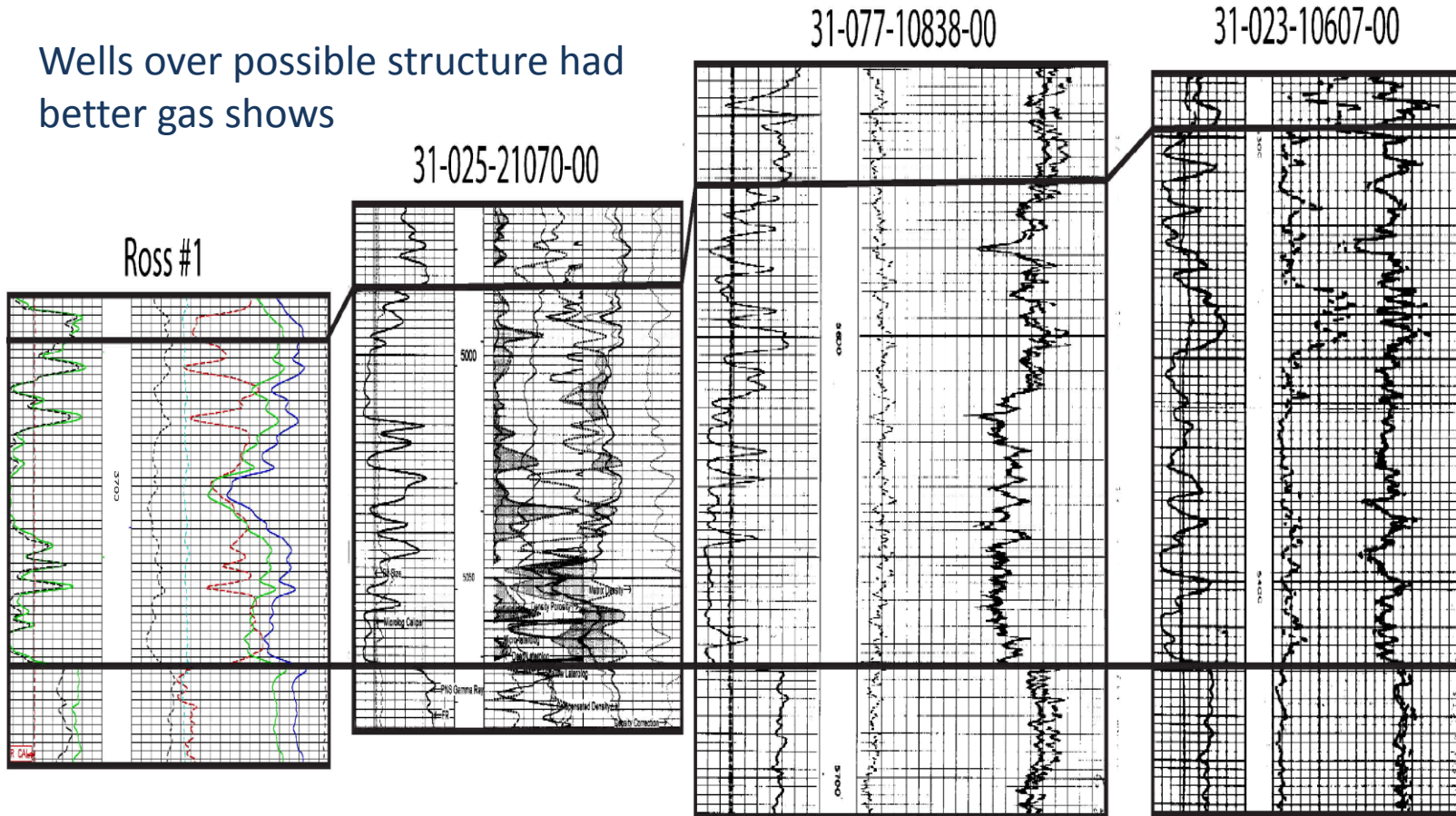
Porosity (in blue) is about 10%, voids are connected

Key Wells drilled in the area



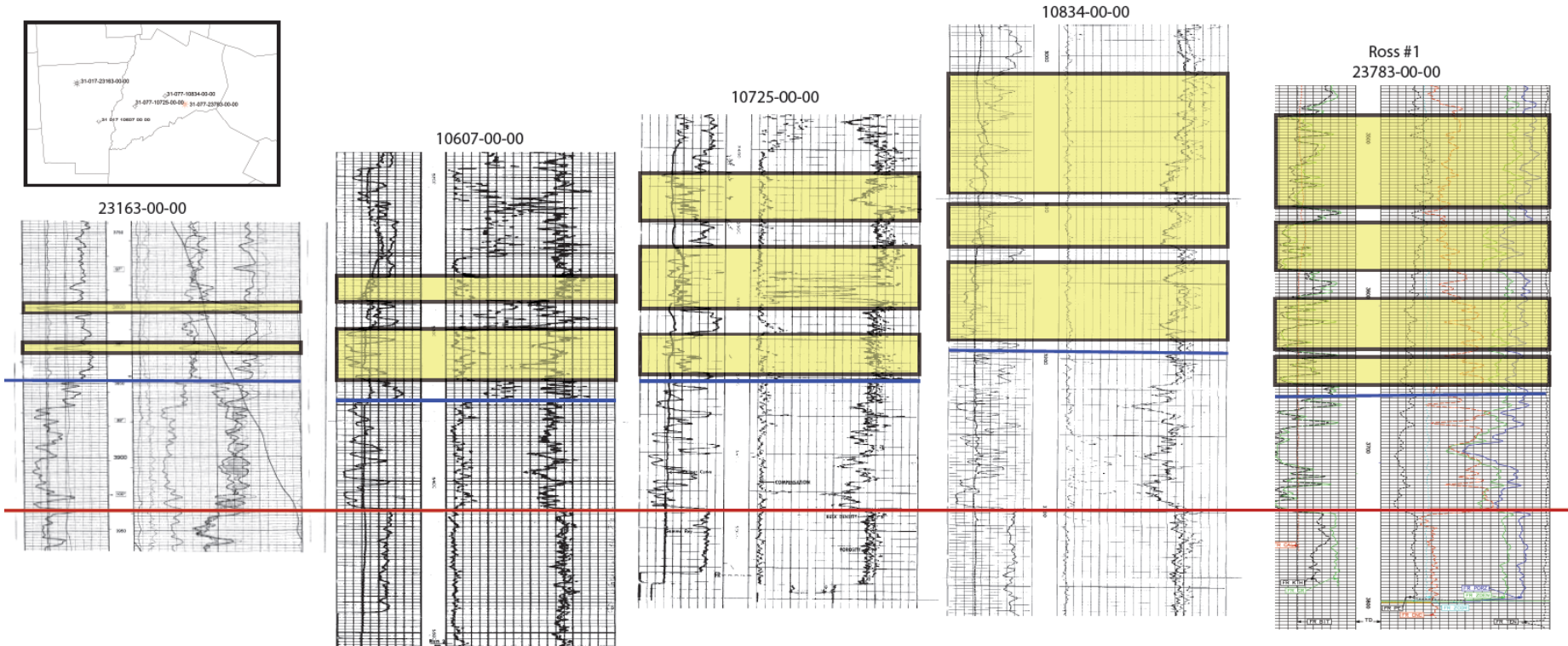
Key Oneida Logs (East to West)

Wells over possible structure had better gas shows



Wells not over structure were dry holes

Log Comparison of Oneida (West to East)



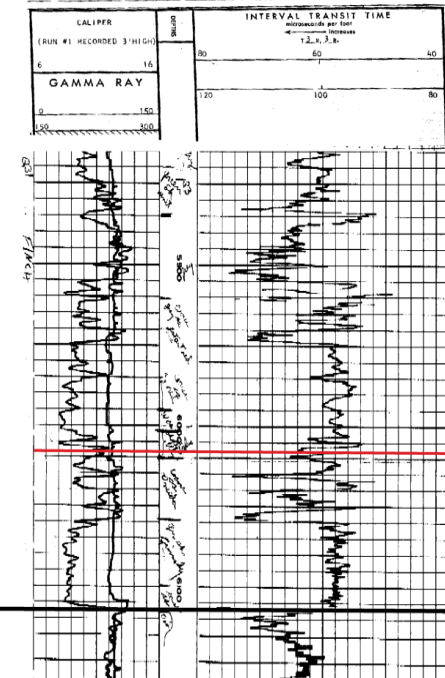
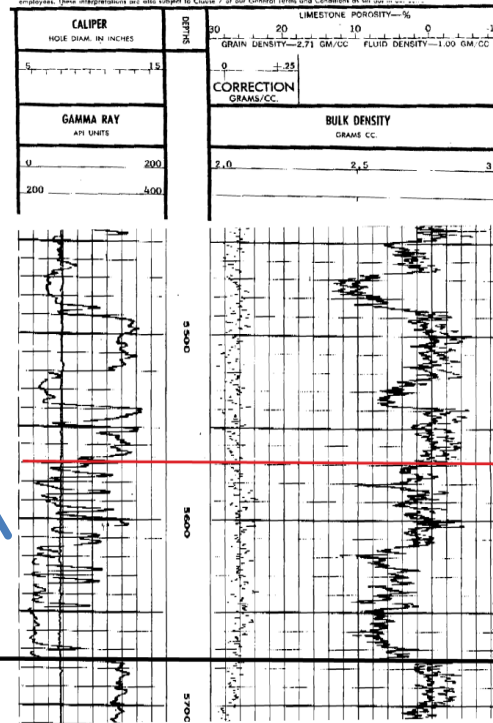
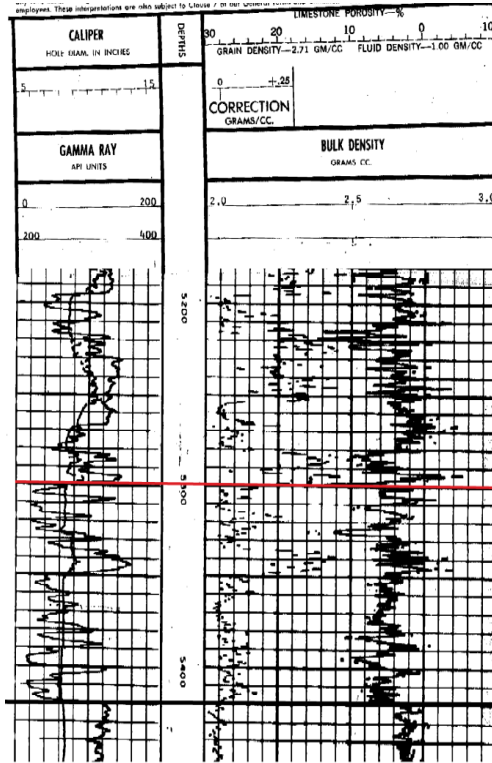
Red line is the bottom part of the Oneida overlying the Oswego in well 23163 in the west and overlying the Lorraine to the east. In the west, the Oneida is sealed by the Sodus and Sauquoit shales and, in the east, is overlain by the interbedded Otsquago shale and siltstone that interfingers with Sauquoit shale in the east. Blue line is the top of the Oneida.

Hanehan No1 Well Drilling Target

10607-00

10838-00

04364-00



Hanehan well

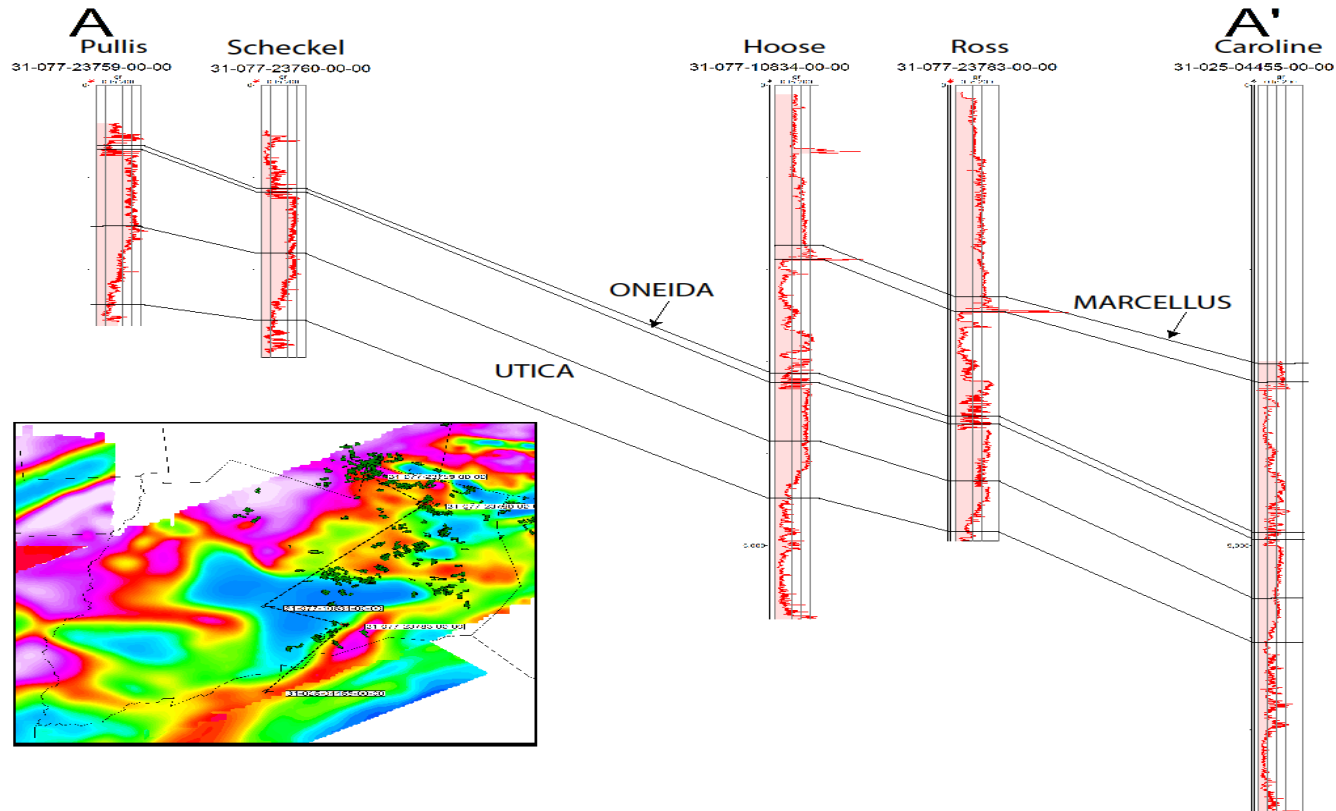
Oneida sandstone is thickest between 10607 and 10838, west of 10607 it thins, and east of the Hanehan well it also thins.

Oneida Tests on the Ross #1

- Tests were performed on penetrating the Oneida formation on the Ross #1 well
- The formation had a deliverable rate of 2.00 mmcf per day on an 11/32” choke
- Permeability on this reservoir was calculated at 270 milli-darcies
- Oneida formation at Ross #1 was in a restricted compartment



Gastem USA Acreage : Oneida formation charged by Utica formation



Projected Timetable

Dec. 5th 2011

- **Drilling permit**

Dec. 15th 2011

- **Site preparation underway**

February 2012

- **Spud**

March 2012

- **Production testing**

March 2012

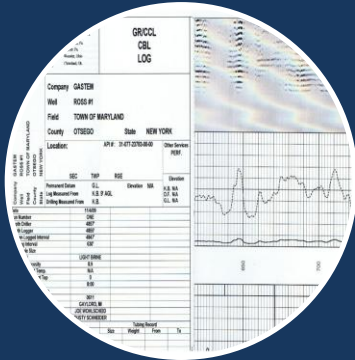
- **Resource evaluation**

Spring 2012

- **Permitting for production ?**



Natural Gas: essential for tomorrow



Gastem USA has a “Best Practices” ethic, collaborates with the DEC and other State Regulations and also addresses local, specific environmental and social concerns



Natural gas used as a source of energy will reduce CO₂ emissions significantly and provides a much cleaner energy source, and is touted by many as being the bridge to renewable energy uses



Gas is a clean, valuable and growing energy source now used increasingly in industry, transport, public buildings and numerous other sectors. It is, fortunately, a low cost energy natural resource found locally

Responsible

Local Energy for

Local Initiatives

Soil Protection

- **Gastem USA adopts “Best Practices” for soil protection and erosion control :**
 - *We reduce impact by limiting the area that is compacted and constructed with aggregate to a minimal access and egress and to the immediate wellhead area*
 - *Locally produced hemlock board matting to stabilize 100% of the temporary workspace. The matting is removed after drilling operations are completed, natural growth returns quickly*



Aquifer & Environmental Awareness Provides Local Protections

- **Gastem USA supports the NYSDEC requirement for a bond log and maintains a strict company policy to verifiably cement all casing to surface**
- **By identifying local water conditions, a baseline for environmental monitoring is established**
- **Total water use for entire operation is about 500 m³ (17,650 ft³), including water for crew**
- **All water, drill residue and waste stored in a double container (bathtub in a bathtub approach)**
- **“Best Practices” for the environment constantly being used and improved**



Water and Water Table Protection

- **Gastem uses operation formulas required by the exploratory nature of our program. We use a minimum of 2,640 ft radius (NYSDEC standard: 2,000 ft) for baseline test water analysis of surface stream, ponds and private water wells**
- **Water analysis process by third party professionals, quantifies the baseline of the existing hydrological and soil conditions**
- **Care and procedures to protect the environment and the water are priorities at all times**



