

Oil and Gas Exploration and Development Activity in Ontario in 2006

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INTRODUCTION

While there was an increase in drilling activity in Ontario in 2006 compared with 2005, it was not enough to offset an overall decline in production. This is despite continued strong world oil prices and natural gas prices higher than long-term averages. Production figures compiled from annual production reports submitted to the Petroleum Resources Centre indicate annual oil production declined 9% to 124,548 m³ valued at \$57.1 million in 2006, compared to 137,444 m³ (\$58.6 million) the previous year. Production of natural gas was down 2% from the previous year with total production of 340,254 10³ m³ valued at \$97.9 million in 2006, compared to 346,093 10³ m³ (\$134.8 million) in 2005.

EXPLORATION ACTIVITY

A total of 146 licences to drill and operate new wells were issued by the Ministry of Natural Resources in 2006, compared to 92 in 2004. In addition, 27 licences were issued for the plugging of orphan wells, 41 existing wells were licensed for oil production from historical oil fields and 18 existing wells were licensed for production as private gas wells.

At the time of writing, the drilling of 95 new wells was reported to be complete, compared to 75 wells drilled in 2005. These consisted of 39 exploratory wells and 56 development wells. Horizontal drilling accounted for only 4 of the total wells drilled in 2006. Exploratory drilling in 2006 resulted in 14 wells reported as gas producers (Table 1, Figure 1), however no wells were completed for production of oil. Development drilling was very successful with 4 wells reported to be oil producers, 25 as gas producers and 12 as private gas wells, compared with 8 oil producers, 22 gas producers and 6 private gas wells in 2005. Successful oil wells were completed in Ordovician and Silurian reef targets, while completions in Silurian sandstone reservoirs in Norfolk, Haldimand and Elgin counties and offshore Lake Erie dominated the gas-producing wells. Of the 25 wells drilled offshore Lake Erie in 2006, 22 wells were reported as gas producers.

The number of successful exploration wells drilled in Ontario in 2006 was up from 5 in 2005 to 14 in 2006. Talisman Energy Inc. continued to be the most active exploration company in Ontario's petroleum industry with 12 exploration wells drilled in 2006.

Cambrian Play

One development and three exploratory wells were drilled to test Cambrian targets for oil and natural gas potential in 2006. The one exploration well was reported as a capped gas well by

Echo Energy Canada Inc. in a deeper pool test beneath the Bayham Silurian sandstone natural gas pool.

Ordovician Play

One exploration and 3 development wells were drilled in Ordovician targets in 2006, compared to 7 development wells in 2005. The Ordovician development drilling resulted in 3 new oil producers for Talisman Energy. Successful oil wells were completed in the Romney 3-8-II, Wigle-Olinda and Goldsmith-Lakeshore Pools. All 3 of these wells were drilled horizontally in the reservoirs.

Silurian Sandstone Play

Exploration and development of Silurian sandstone targets was up from 2005, with a total of 30 exploration and 48 development wells compared to 9 and 27 respectively in 2005. Of the 30 exploration wells, 5 were completed as gas wells, 8 were capped and 11 were reported as potential producers.

There were 48 development wells drilled in Silurian sandstone targets in 2006. Of these, 1 was abandoned, 2 were suspended, 7 were capped, 7 were listed as potential gas producers and 31 were completed as gas producers. Successful gas wells were reported in the Houghton 5-8-ENR Pool, Haldimand Pool, Welland Pool, Bayham Pool, and Lake Erie Maitland and Clear Creek Pools. Capped wells were primarily from the Norfolk Pool and potential gas wells were reported from the Norfolk, South Walsingham 5-6-VI, and Lake Erie-Silver Creek Pools. Of the 31 completed wells, 12 were listed as private gas wells, producing from the Haldimand and Welland Pools.

Silurian Carbonate Play

Three exploratory wells were drilled to test Silurian Guelph reef and/or Salina Formation structural targets in 2006. One well was plugged and abandoned, one was suspended and one well was reported by Onco Petroleum as a potential oil/gas well.

There were 4 development tests of Silurian Guelph-Salina targets in 2006. Enbridge Gas Distribution Inc. completed 2 oil producers in the Corunna Pool, Lindross Holdings (Sarnia) Ltd. reported 1 oil and gas producer from the Dawn 6-28-IX Pool and 1031094 Ontario Ltd. reported 1 gas well in the Wardsville Pool.

Devonian Play

One exploratory well was drilled to test Devonian targets and was reported as a potential gas producer.

EXPLORATION TRENDS

Ordovician reservoirs are still the focus of exploration directed at discovery or development of oil reservoirs, but interest in Cambrian targets has increased. Exploration in the Ordovician play has declined considerably in the past four years with a focus on extension or development drilling of known trends. Essex County and southern Kent County are still the most attractive onshore locations for exploration for undiscovered oil resources. There is considerable remaining untested potential for natural gas in this play beneath the eastern basin of Lake Erie and onshore east and north from Kent County to the Niagara Escarpment. A recent reassessment of potential in this play by the Ministry of Natural Resources indicates potential remaining undiscovered resources totalling 201 bcf of natural gas and 16.6 million barrels of oil. There also may be potential for trapping of natural gas in sandy facies of the Ordovician Shadow Lake Formation over the crest of the Algonquin Arch.

Although natural gas prices are lower than last year they are still high compared to 5 years ago. High natural gas prices greatly enhance the economics of all the gas plays in Ontario. There was a significant increase in drilling in the Lower Silurian sandstone play in 2006. There is potential for discovery of Cambrian gas or oil pools along the pinch-out edge of the Cambrian sandstone in the subsurface, or in fault-controlled structures. There may be considerable unrealised potential in fault-related structural traps in the Salina A-1 and A-2 Carbonate units in Kent, Elgin and Middlesex counties. There is also conceptual potential for a new unconventional gas play in the black shales of the Kettle Point Formation, analogous to the very successful Antrim shale play in Michigan and the Ohio shales in Ohio. Shows of natural gas have been reported in the Kettle Point Formation in Ontario but it has not been targeted for exploration and no scientific studies of its potential have been completed.

Table 1. Successful exploratory wells in southwestern Ontario in 2006 (see Figure 1 for well locations).

Well #	Well Name	Results	Target	TD	Latitude	Longitude	TD Date
1	NOG #2, Windham 1 - 5 - XI	GP - CAP	CLI	293.00	42.88543111	-80.35482306	2006/05/08
2	NOG #7, Windham 1 - 10 - XI	GP - CAP	CLI	315.00	42.87949111	-80.39124889	2006/12/20
3	NOG #8, Windham 2 - 1 - XI	GP - CAP	CLI	293.50	42.88986472	-80.32892722	2006/06/28
4	Leader No. 3, North Walsingham 8 - 10 - X	GP - CAP	CLI	405.40	42.71506944	-80.57543611	2006/08/24
5	Leader No. 4, North Walsingham 3 - 10 - IX	GP - CAP	CLI	407.00	42.70946389	-80.57522778	2006/11/06
6	Echo No.57, Bayham 3 - 1 - II	GP - CAP	CAM	1102.00	42.68610000	-80.85770278	2006/10/04
7	Leader No. 10, North Walsingham 2 - 2 - VII	GP - CAP	CLI	415.50	42.66696389	-80.61325833	2006/07/05
8	Leader No. 8, North Walsingham 6 - 1 - VII	GP - CAP	CLI	422.80	42.65975556	-80.61587778	2006/10/14
9	TLM Central, Lake Erie 183 - K-3A	GP - ACT	CLI	659.40	42.28851667	-81.01025000	2006/07/16
10	TLM Central, Lake Erie 157 - V-4D	GP - ACT	CLI	646.00	42.33618333	-80.85280000	2006/07/10
11	TLM Central, Lake Erie 93 - Q-2D	GP - ACT	CLI	531.00	42.52698333	-80.39403333	2006/08/26
12	TLM Central, Lake Erie 127 - F-4D	GP - ACT	CLI	563.00	42.46891667	-80.31941667	2006/09/09
13	TLM East, Lake Erie 130 - K-4C	GP - ACT	CLI	575.00	42.45326667	-80.00433333	2006/06/23
14	TLM East, Lake Erie 88 - N-4	GP - CAP	CLI	533.00	42.53578333	-79.96975000	2006/06/15

Notes:

ACT -Active
CAP -Capped
CAM -Cambrian

CLI -Silurian Clinton-Cataract
GP -Gas Producer
TD -Target Depth in metres

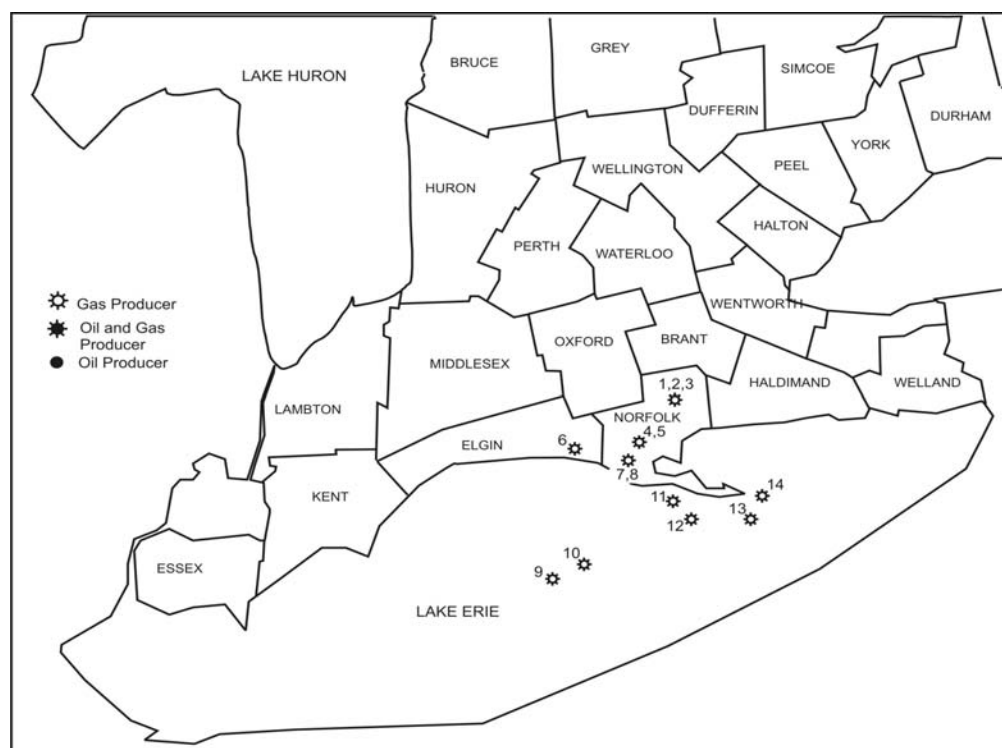


Figure 1. Successful exploratory wells in Ontario in 2006.