30

GEOLOGICAL SURVEY OF CANADA

DEPARTMENT OF MINES AND TECHNICAL SURVEYS

PAPER 65-30

THE SILURIAN OIL AND GAS FIELDS OF SOUTHWESTERN ONTARIO

(Report and 45 figures)

W. E. Koepke and B. V. Sanford

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Figure 44. Structure map on the base of the Rochester Formation, Niagara Peninsula and eastern Lake Erie, southwestern Ontario ..... (In pocket)

45. Silurian oil and gas fields of southwestern Ontario ..... (In pocket)

(Field numbers on Figure 45 are those of the Field Summaries and are listed in the index)

ABSTRACT

Silurian rocks of southwestern Ontario have been a constant source of natural gas since 1889. Oil production was sporadic during early years but has attained significant status since World War II as a result of developments in Lambton county. Production amounting to 638 billion cubic feet of natural gas and 5.5 million barrels of oil has been recorded from Silurian rocks up to December 31, 1964. This represents 97.5 per cent and 13.4 per cent respectively of the province's total output.

A total of 61 oil and gas fields including Lower, Middle, and Upper Silurian rocks have been discovered. Reservoirs are of three main types: (1) Blanket sandstones; (2) Bioherm reefs; and (3) Carbonate rocks in synchronous structures associated with underlying reefoid development. Blanket sandstones in the Niagara Peninsula and bioherm reefs–both patch and pinnacle types–bordering the eastern margin of the Michigan Basin have been the most prolific producers. Pinnacle reefs in Lambton county have acquired considerable economic importance in recent years as natural gas storage reservoirs.

This paper summarizes the geological and production data and illustrates the structure of each Silurian oil and gas field in Ontario with cross-sections and contour and isopachous maps.

LEGEND FOR STRUCTURE MAPS

Salt

Anhydrite

Bioherm reefs

Stromatolite mats

WELLS

Dry and abandoned . . . . . .

Show of oil . . . . . .

Show of gas and oil . . . . . .

Show of gas . . . . . .

Oil . . . . . .

Oil well with show of gas . . . . . .

Gas . . . . . .

Gas well with show of oil . . . . . .

Gas and oil . . . . . .

Water source or disposal . . . . . .

Status unknown or drilled for purposes other than gas or oil . . . . . .

Unconformity . . . . . .

Fault . . . . . .

International boundary . . . . . .

County boundary . . . . . .

Township boundary . . . . . .

Railway . . . . . .

Concession line, lot line . . . . . .

Depth of water (fathoms) 10

Concession number VI

Lot number 34

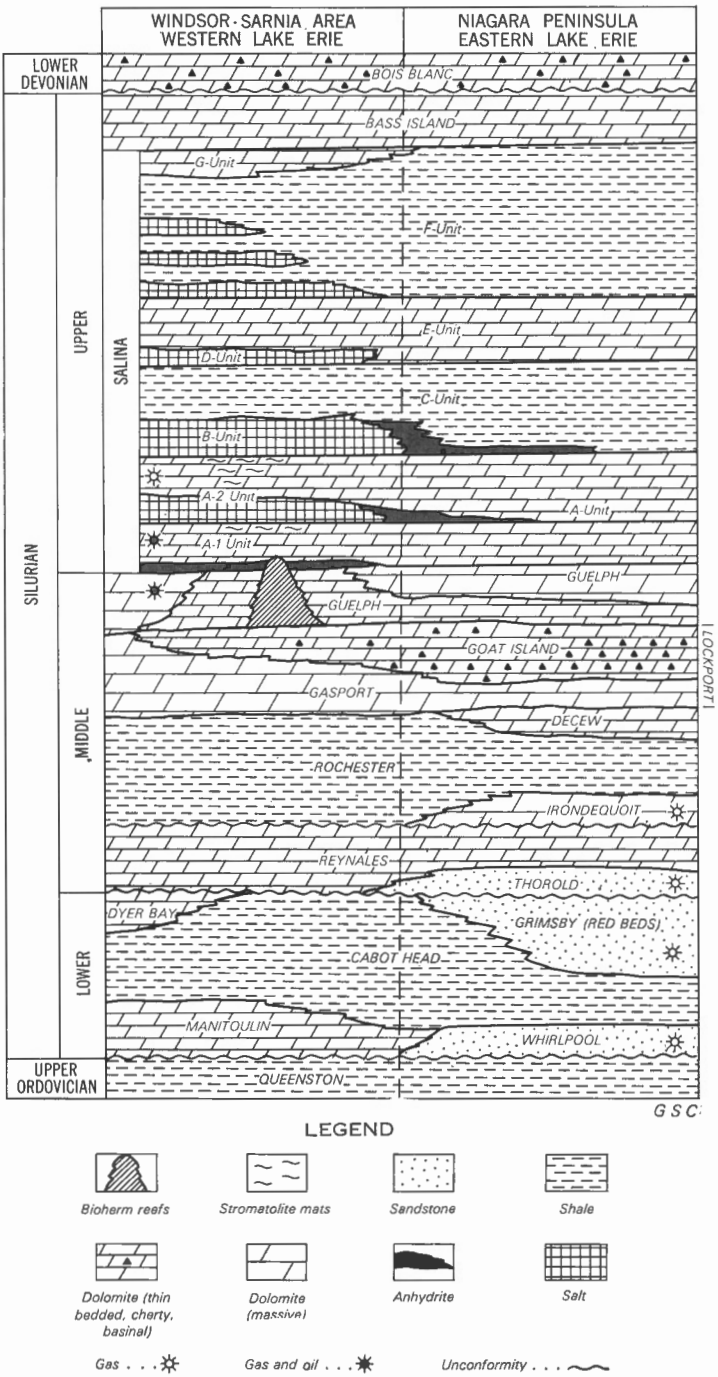

Figure 1. Generalized correlation of Silurian rocks, southern part of Ontario peninsula.

THE SILURIAN OIL AND GAS FIELDS OF SOUTHWESTERN ONTARIO

INTRODUCTION

The present paper summarizes the geological and production data and illustrates the structure of each of the Silurian oil and gas fields in southwestern Ontario. The contour and isopachous maps, and cross-sections, were prepared from information obtained by examination of well cuttings at the Geological Survey of Canada. Most of the information compiled in the field summary is from the files of the Geological Survey of Canada and the Ontario Department of Energy and Resources Management. Additional reservoir data were supplied through the courtesy of Imperial Oil Enterprises and Union Gas Company of Canada, Ltd., for their respective operating fields. Special thanks is extended to Messrs. W.D. Brittain and D.A. Sharp of the Ontario Department of Energy and Resources Management for assistance in compiling the data.

As of December 31, 1964, 61 oil and gas fields (see Fig. 45, in pocket) had been discovered in the Silurian rocks of Ontario. These fields are known to have yielded 638 billion cubic feet of natural gas and $5\frac{1}{2}$ million barrels of oil representing 97.5 per cent and 13.4 per cent respectively of the total production for the province.

RESERVOIR ROCKS

The Silurian fields produce from three types of reservoir (see Fig. 1) (1) blanket sandstones, (2) bioherm reefs, and (3) carbonate rocks in synchronous structures associated with underlying reefoid development.

(1) The blanket orthoquartzitic sandstone reservoirs are the Whirlpool, Grimsby, and Thorold Formations located in the Niagara Peninsula region. Within these rocks production is generally controlled by porosity and permeability pinchout and in stratigraphic traps locally. In this same area, the coarse-grained crinoidal dolomites of the Irondequoit Formation have also yielded substantial volumes of gas. Five fields: Norwich South, Bayham, Norfolk, Haldimand, and Welland (both onshore and offshore in Lake Erie), account for 30.8 per cent of the total Silurian gas production.

Although the Whirlpool sandstone was the first reservoir in Canada used for gas storage, only recently was an effort made to evaluate its potential for this purpose. This resulted in the designation of a gas storage area in Crowland township of Welland county.

(2) Bioherm reefs of the Guelph Formation account for most of the gas produced in Ontario. Perhaps the most prolific of these are the patch reefs such as Kingsville-Mersea, Tilbury, D'Clute, and to a lesser extent Staples, Cowal, Malahide, and Brownsville that lie along the outer margins of the Michigan Basin immediately bordering the thick Guelph biostromal complex (see Fig. 45). Farther northwestward in the lower structural part of the basin are the pinnacle reefs. These number 40 (Dec. 31, 1964) with production obtained from the following 23: Sombra, Bickford, Duthill, Dawn 47-49, Dawn 59-85, Dawn 156, Dawn 167, Waubuno, Kimball-Colinville (3 reefs), Payne, Seckerton-Seckerton North (2 reefs), Corunna, Enniskillen 28, Mandamin, Wanstead, Warwick, Grand Bend, Dashwood, Zurich, and Bayfield. Some of these reefs have proven to be excellent storage reservoirs; the Sombra, Bickford, Dawn 47-49, Dawn 59-85, Dawn 156, Waubuno, Payne, Seckerton-Seckerton North, Corunna, and Kimball-Colinville fields have been designated as gas storage areas. These have a total yearly working capacity of about 102 billion cubic feet.

Throughout the patch and pinnacle reef belts are numerous smaller incipient reefs of marginal commercial importance. Only a fraction of those recognized in subsurface have proven significant and they are as follows: Chatham-Dresden-Camden Gore (locally), East Becher, Avonry, Logierait, Talford, Sutorville, Dawn (eastern part), Doyles, Wheatley, New Wheatley, Comber, Oil Springs and Crumlin.

(3) The Salina A-1 and A-2 dolomites have yielded significant quantities of gas and in most cases these pools are directly related to underlying Guelph reefs, especially the highly dolomitized traps that fringe some of the pinnacle reefs. Examples of these are Dawn 59-85, Kimball-Colinville, and Corunna pools. In such fields as West Becher, eastern parts of Dawn and Tilbury, gas and oil production is obtained from the Salina A-1 unit in synchronous structural highs over Guelph reefs.

In the northern part of Kent county and the adjoining regions of Middlesex and Elgin counties, a productive Salina A-1 and A-2 gas trend coincides with a southwest plunging anticline. Although regional dip is to the northwest it is interrupted on the south by a major fault. The Chatham-Dresden-Camden Gore, Zone, and Mosald fields occur along this trend. Farther north, the Brigden and Enniskillen 26 fields occur along an anticlinal structure trending east-west through Moore and Enniskillen townships, Lambton county.

In the southern parts of Kent and Essex counties five gas fields, Malden, Guilds, Morpeth, Wolfe, and Botany, produce from reservoirs that are tentatively assumed to be stromatolite mat development within the Salina A-1 and A-2 units.

The Zone and Dawn No. 1 pools which produce from the Salina A-1 and A-2 units have been designated as gas storage areas.

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FIELD SUMMARY

No.: 1

Field: Malden

Year of Discovery: 1946

Producing Formation: Salina A-1 (Minor A-2 and Guelph)

Reservoir Type: Dolomite (micro-crystalline)

Type of Structure or Trap: Salina A-1 Stromatolite Development

Approximate Area: 176 acres

Depth to Reservoir: 834 feet

Average Thickness of Pay: 15 feet (Estimated)

Average Porosity: 10% (Estimated)

Initial Shut-in Well Head Pressure: 400 psig

Producing Wells Completed

Oil: nil
Gas: 14

Wells Producing as of December 31, 1964

Oil: nil
Gas: 5 idle

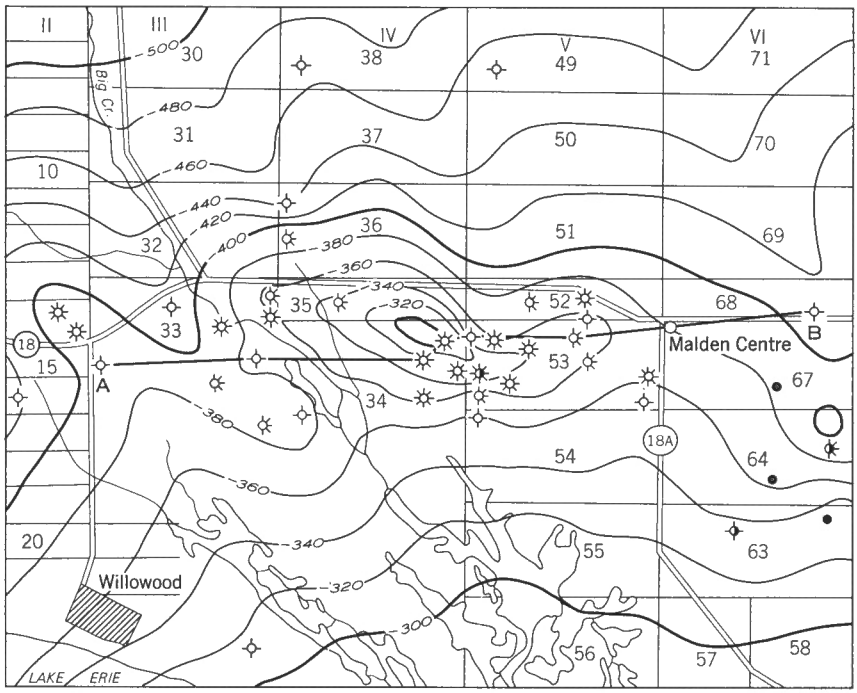
Cumulative Production as of December 31, 1964

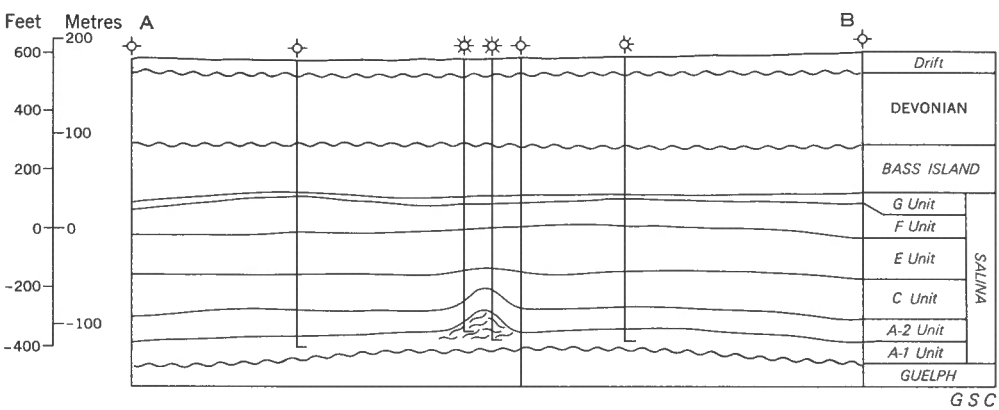
Oil: nil
Gas: nil

Estimated Ultimate Reserves

Oil: nil
Gas: unknown

This field has not been produced commercially. Average open flow was 200 Mcf/d. The gas-water contact is at -420 feet.





SECTION ALONG LINE A-B

Figure 2. Malden gas field, Malden township, Essex county.

FIELD SUMMARY

No.: 2

Field: Oxley

Year of Discovery: 1964

Producing Formation: Salina A-1 - Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Erosional Remnant

Approximate Area: 60 acres

Depth to Reservoir: 888-929 feet

Average Thickness of Pay: not available

Average Porosity: 8% (Est)

Initial Shut-in Well Head Pressure: 375 psig

Producing Wells Completed

Oil: nil

Gas: 1

Wells Producing as of December 31, 1964

Oil: nil

Gas: nil

Cumulative Production as of December 31, 1964

Oil: nil

Gas: nil

Estimated Ultimate Reserves

Oil: nil

Gas: unknown

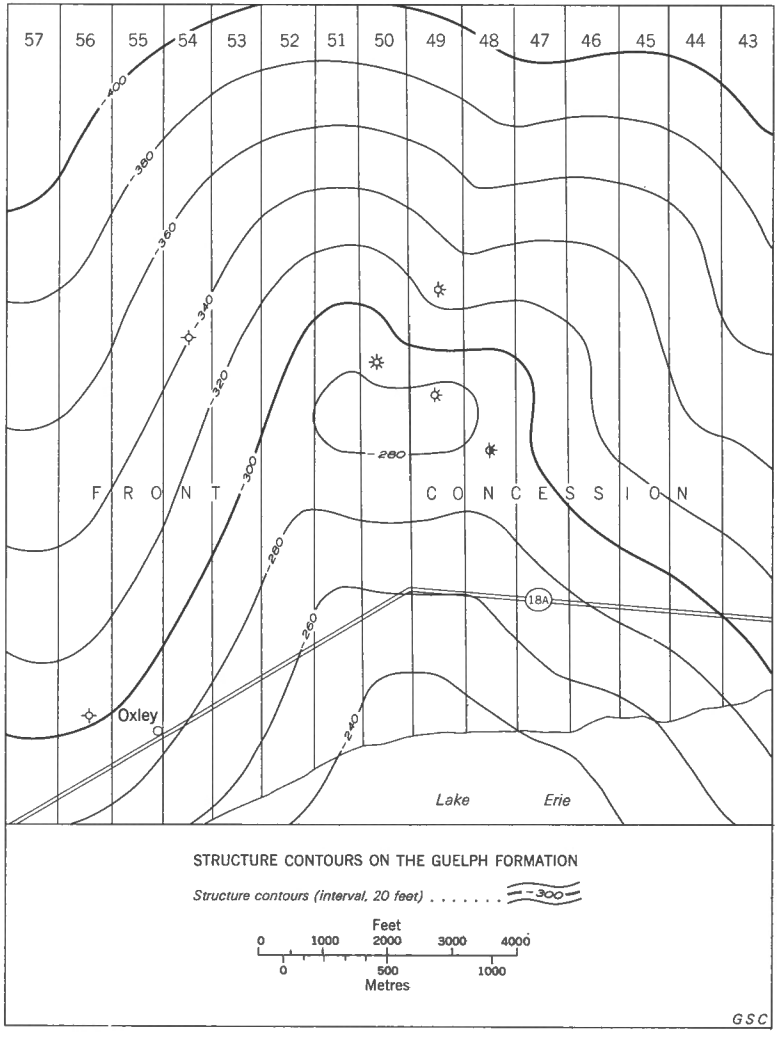


Figure 3. Oxley gas field, Colchester township, Essex county.

FIELD SUMMARY

No.: 3

Field: Kingsville-Leamington-Mersea

Year of Discovery: 1889 (gas) 1902 (oil)

Producing Formation: Guelph (some Salina)

Reservoir Type: Dolomite

Type of Structure or Trap: Bioherm Patch Reef

Approximate Area: 5,662 acres

Depth to Reservoir: 920-1,040 feet

Maximum Gross Thickness of Pay: 30 feet (estimated)

Average Porosity: 8 %

Initial Shut-in Well Head Pressure: 460 psi (Caley, 1945)

Producing Wells Completed

Oil: 80
Gas: 101

Wells Producing as of December 31, 1964

Oil: nil (abandoned prior to 1921)
Gas: 10

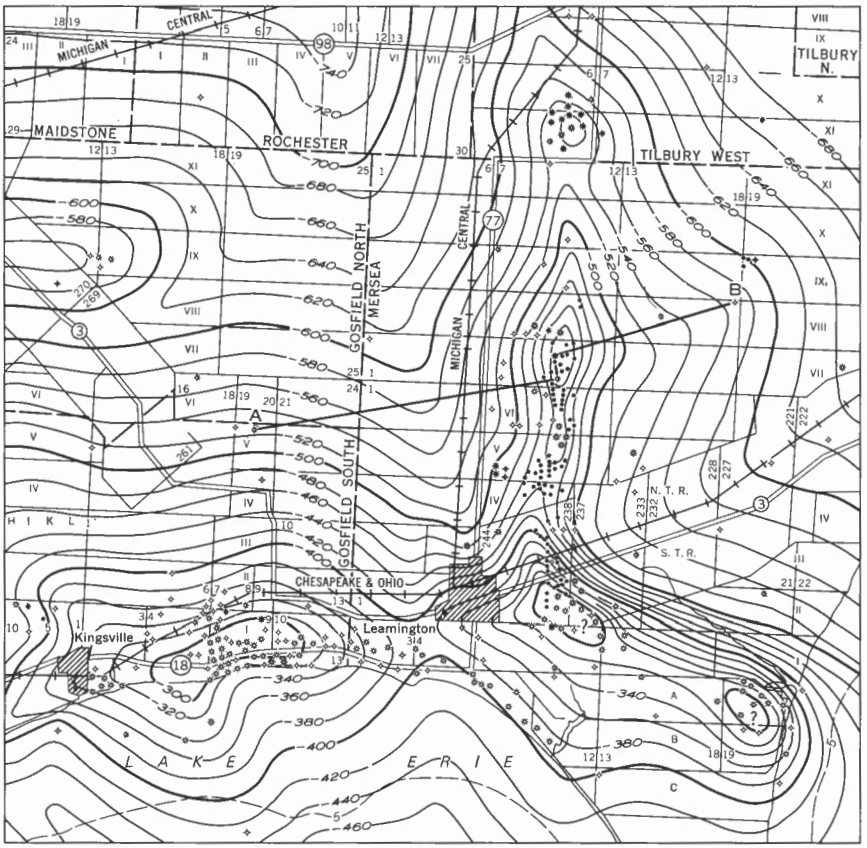
Cumulative Production as of December 31, 1964

Oil: 235,342 bbls
Gas: 23,589 MMcf

Estimated Ultimate Reserves

Oil: 235,342 bbls
Gas: 23,700 MMcf (MacKay and O'Shea, 1963)

The history of this field is summarized by Caley (1945, pp. 89-92).

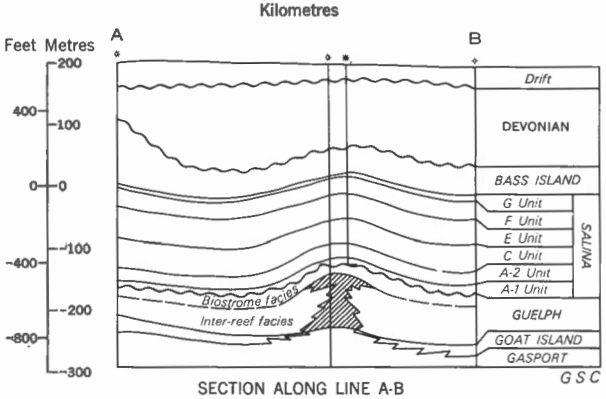


STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet) 500

Miles 0 1 2 3 4

Kilometres 0 2 4 6



SECTION ALONG LINE A-B

Figure 4. Kingsville-Leamington-Mersea, and Staples gas and oil fields, Gosfield North, Mersea, and Tilbury West townships, Essex county, southwestern Ontario.

FIELD SUMMARY

No.: 4

Field: Staples

Year of Discovery: 1948

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Bioherm Patch Reef

Approximate Area: 410 acres

Depth to Reservoir: 1,140-1,160 feet

Maximum Gross Thickness of Pay: 30 feet

Average Porosity: 8 % (est.)

Initial Shut-in Well Head Pressure: 550 psig

Producing Wells Completed

Oil: 1 plus 5 combined oil and gas producers

Gas: 4

Wells Producing as of December 31, 1964

Oil: nil

Gas: nil

Cumulative Production as of December 31, 1964

Oil: 4,605 bbls

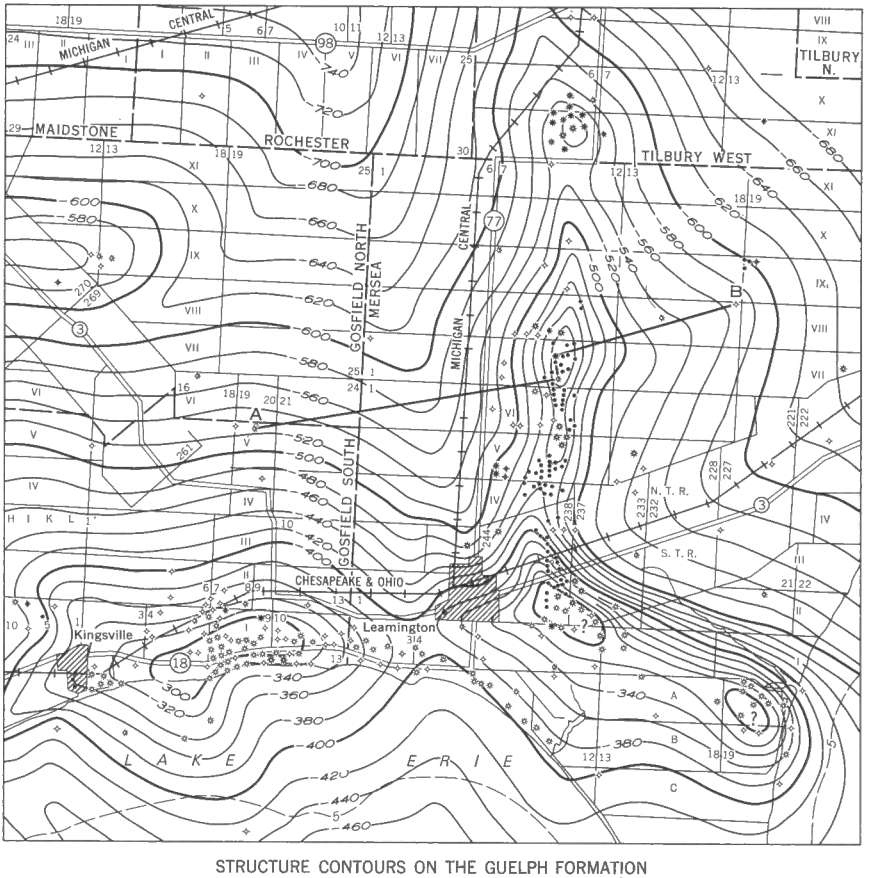
Gas: 115 MMcf

Estimated Ultimate Reserves

Oil: 4,605 bbls

Gas: 115 MMcf

This field has remained idle since 1963.



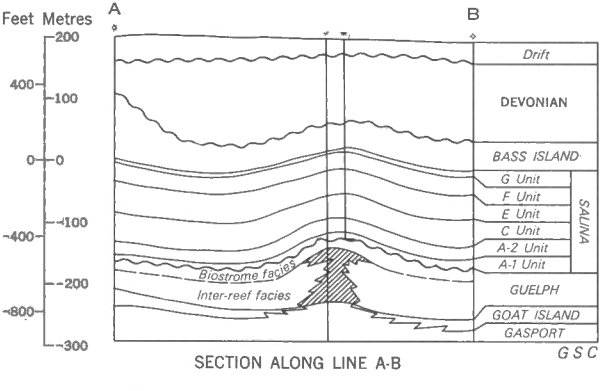


Figure 4. Kingsville-Leamington-Mersea, and Staples gas and oil fields, Gosfield North, Mersea, and Tilbury West townships, Essex county, southwestern Ontario.

FIELD SUMMARY

No.: 5

Field: Comber

Year of Discovery: 1902 (approx.)

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Bioherm Patch Reef

Approximate Area: 300 acres

Depth to Reservoir: 1,200 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: unknown

Producing Wells Completed

Oil: 10 (approx.)
Gas: nil

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

Cumulative Production as of December 31, 1964

Oil: unknown
Gas: nil

Estimated Ultimate Reserves

Oil: depleted
Gas: nil

The number of wells and cumulative production of this pool is unknown. It became abandoned in the early 1920s.

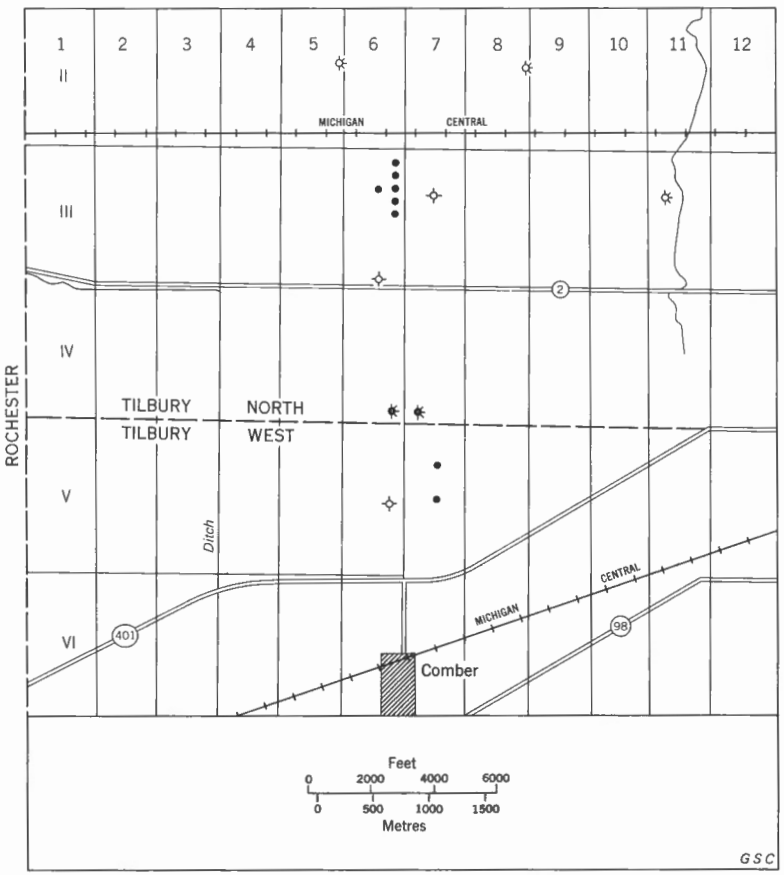


Figure 5. Field plan, Comber oil field, Tilbury west and Tilbury north townships, Essex county.

FIELD SUMMARY

No.: 6

Field: Pelee Island

Year of Discovery: 1895

Producing Formation: Salina-Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Erosional Remnant

Approximate Area: 320 acres

Depth to Reservoir: 740-760

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: unknown

Producing Wells Completed

Oil: 31* (all except 2 wells were abandoned prior to 1935)

Gas: nil

Wells Producing as of December 31, 1964

Oil: nil

Gas: nil

Cumulative Production as of December 31, 1964

Oil: not accurately recorded

Gas: nil

Estimated Ultimate Reserves

Oil: unknown

Gas: nil

Statistical information is lacking for this old abandoned oil field; the most reliable data available is contained in Caley (1945, pages 93-97).

*This total excludes the 1964 discovery, somewhat north of the old field.

GSC

Figure 6. Field plan, Pelee Island oil field, Pelee Island, Essex county.

FIELD SUMMARY

No.: 7

Field: Wheatley

Year of Discovery: 1902

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Erosional Remnant

Approximate Area: 60 acres

Depth to Reservoir: 1,290-1,300 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: unknown

Producing Wells Completed

Oil: 4

Gas: nil

Wells Producing as of December 31, 1964

Oil: Field abandoned prior to 1919 (Williams, 1919)

Gas: nil

Cumulative Production as of December 31, 1964

Oil: 9,100 barrels (Roliff, 1949)

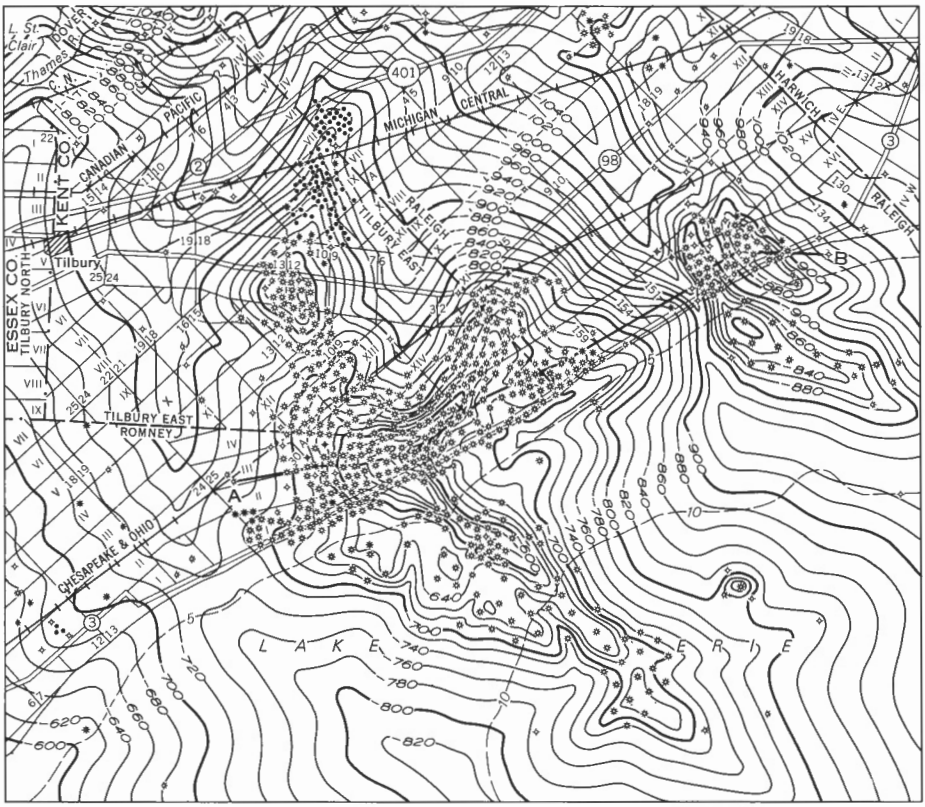
Gas: nil

Estimated Ultimate Reserves

Oil: 9,100 bbls

Gas: nil

This pool is located in lot 11, con. II, Romney tp., Kent co. (see Fig. 5).



STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet). . . 800

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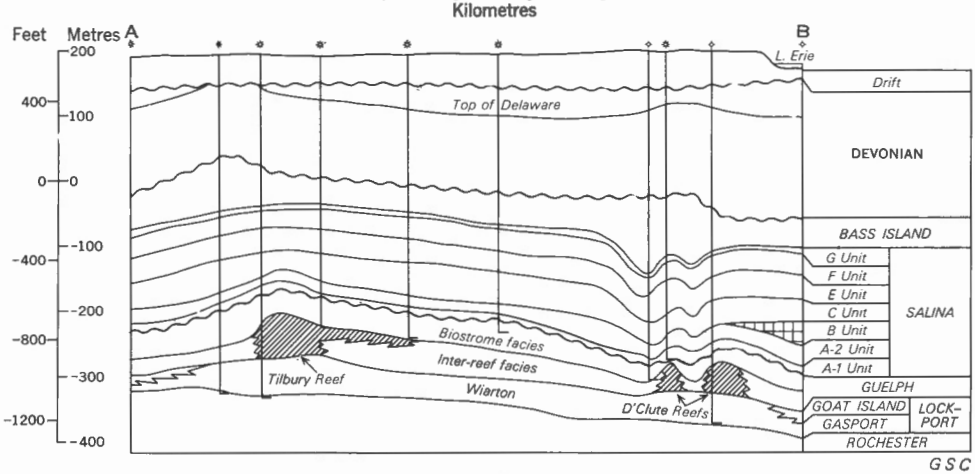
Kilometres 0 3 6 9



SECTION ALONG LINE A-B

Figure 7. Tilbury, D'Clute, Fletcher, Wheatley, New Wheatley, Glenwood, and Doyles gas and oil fields, Romney; Tilbury East, and Raleigh townships, and Lake Erie, Kent county, southwestern Ontario.

FIELD SUMMARY

No.: 8

Field: New Wheatley

Year of Discovery: 1948

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Erosional Remnant

Approximate Area: 60 acres

Depth to Reservoir: 1,200 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: not available

Producing Wells Completed

Oil: nil
Gas: 1

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

Cumulative Production as of December 31, 1964

Oil: nil
Gas: nil

Estimated Ultimate Reserves

Oil: nil
Gas: nil

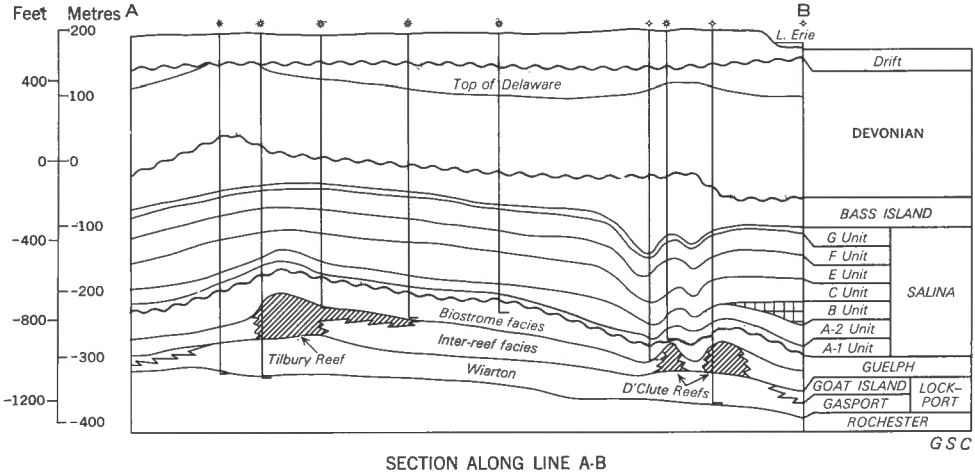
This one well gas pool, located in lot 10, con. III, Romney tp., Kent co. (see Fig. 5), has never produced.

STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet) . . . 800

Miles 0 2 4 6

Kilometres 0 3 6 9



SECTION ALONG LINE A-B

Figure 7. Tilbury, D'Clute, Fletcher, Wheatley, New Wheatley, Glenwood, and Doyles gas and oil fields, Romney, Tilbury East, and Raleigh townships, and Lake Erie, Kent county, southwestern Ontario.

FIELD SUMMARY

No.: 9

Field: Tilbury

Year of Discovery: 1906

Producing Formation: Guelph (Minor Salina)

Reservoir Type: Dolomite

Type of Structure or Trap: Bioherm Patch Reef

Approximate Area: 19,600 acres (onshore) 18,200 acres (offshore)

Depth to Reservoir: 1,170 to 1,400 feet

Maximum Gross Thickness of Pay: 55 feet

Average Porosity: 8 % (Guelph); 15 % (Salina)

Initial Shut-in Well Head Pressure: 600 psig

Producing Wells Completed

Oil: 1

Gas: 445 (onshore); 103 (offshore)

Wells Producing as of December 31, 1964

Oil: nil

Gas: 104 (onshore); 68 (offshore)

Cumulative Production as of December 31, 1964

Oil: 3,132 bbls

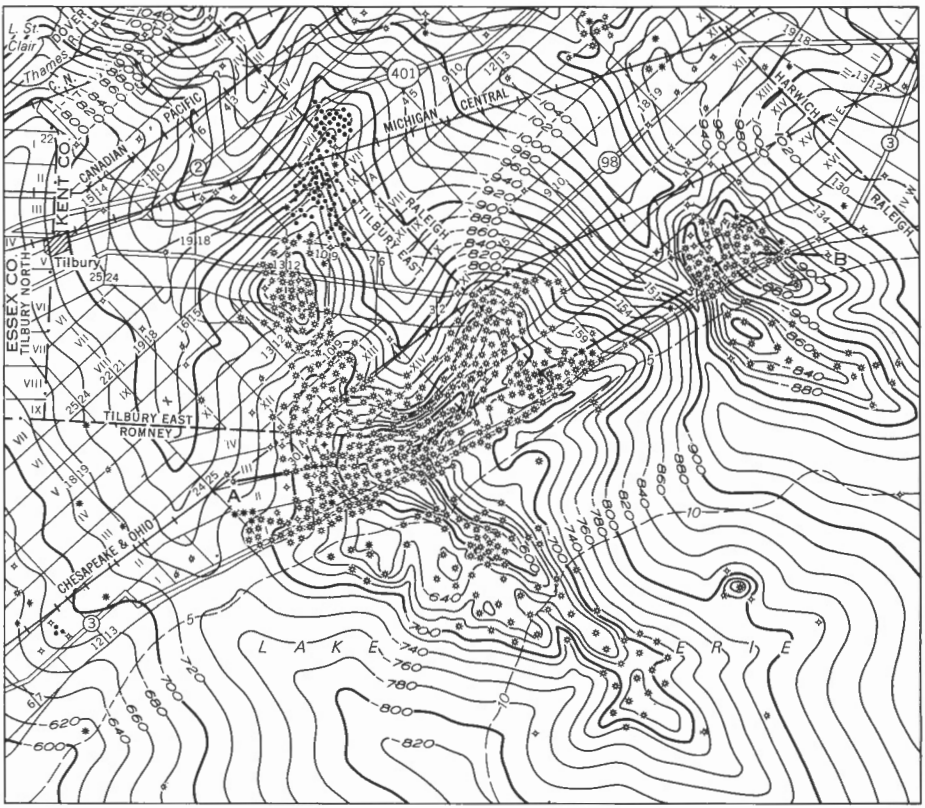
Gas: 204,526 MMcf (onshore); 41,290 MMcf (offshore)

Estimated Ultimate Reserves

Oil: 3,132 bbls

Gas: 260,000 MMcf

One well, located in lot 25, con. II, Romney tp., Kent co., was completed as an oil producer in 1957, and yielded 2,169 barrels of crude oil during that year; it was abandoned in 1959. A few other wells have yielded small oil recoveries.

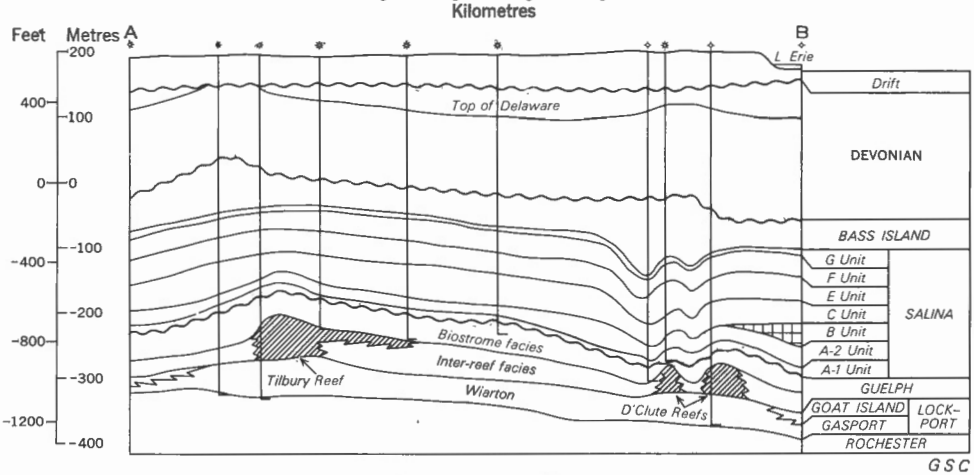


STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet). . . 800

Miles 0 2 4 6

Kilometres 0 3 6 9



SECTION ALONG LINE A-B

Figure 7. Tilbury, D'Clute, Fletcher, Wheatley, New Wheatley, Glenwood, and Doyles gas and oil fields, Romney, Tilbury East, and Raleigh townships, and Lake Erie, Kent county, southwestern Ontario.

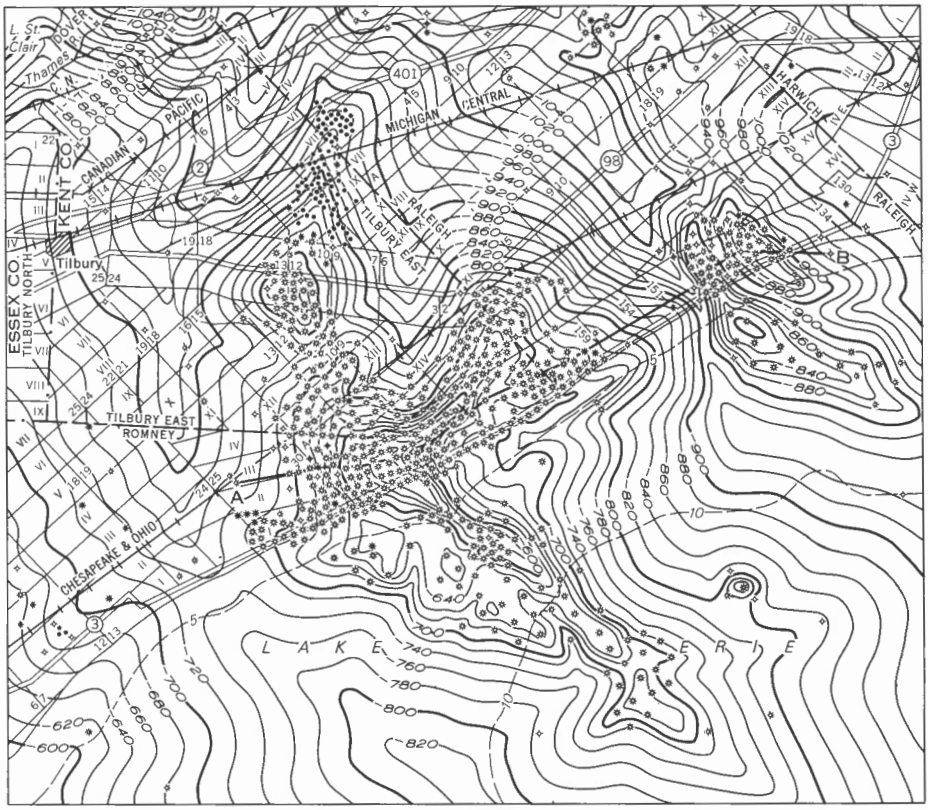
FIELD SUMMARY

No.:	10
Field:	Glenwood
Year of Discovery:	Approx. 1906
Producing Formation:	Guelph
Reservoir Type:	Dolomite
Type of Structure or Trap:	Bioherm Patch Reef
Approximate Area:	unknown
Depth to Reservoir:	1,385-1,408 feet
Average Thickness of Pay:	unknown
Average Porosity:	8%
Initial Shut-in Well Head Pressure:	not available
Producing Wells Completed	
Oil:	7 (approx.)
Gas:	nil
Wells Producing as of December 31, 1964	
Oil:	nil
Gas:	nil
Cumulative Production as of December 31, 1964	
Oil:	unknown
Gas:	nil
Estimated Ultimate Reserves	
Oil:	depleted
Gas:	nil

The number of wells completed and quantity of oil produced is uncertain; Williams (1919) indicated that 7 wells in lot 10, con. XIV, Tilbury East tp. yielded both oil and gas.

The pool was abandoned prior to 1921.

The exact locations are doubtful and the wells are not shown on Figure 5.

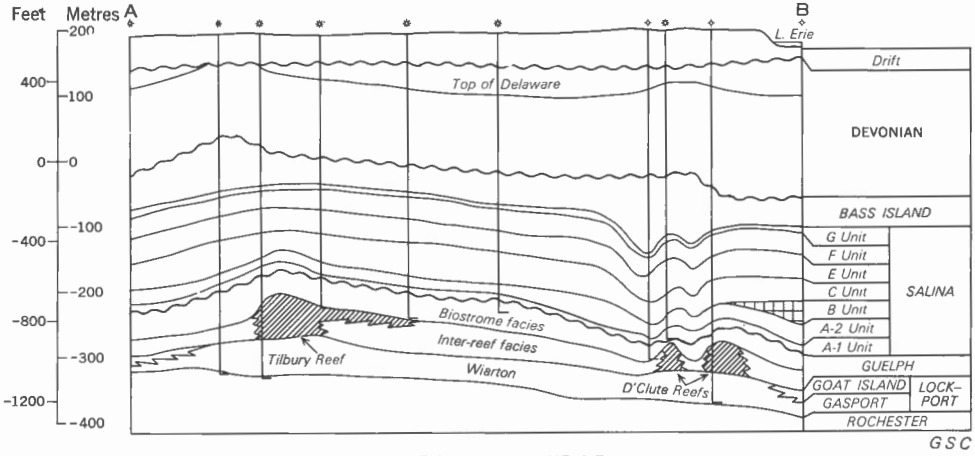


STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet). . . 800

Miles 0 2 4 6

Kilometres 0 3 6 9



SECTION ALONG LINE A-B

Figure 7. Tilbury, D'Clute, Fletcher, Wheatley, New Wheatley, Glenwood, and Doyles gas and oil fields, Romney, Tilbury East, and Raleigh townships, and Lake Erie, Kent county, southwestern Ontario.

FIELD SUMMARY

No.: 11

Field: Fletcher

Year of Discovery: 1905

Producing Formation: Salina A-1

Reservoir Type: Dolomite

Type of Structure or Trap: Bioherm Patch Reef

Approximate Area: 5,600 acres (Williams, 1919)

Depth to Reservoir: 1,400-1,500 feet

Average Thickness of Pay: unkown

Average Porosity: 8%

Initial Shut-in Well Head Pressure: not available

Producing Wells Completed

Oil: 276 (not all are shown on the map)
Gas: nil

Wells Producing as of December 31, 1964

Oil: nil (see remarks)
Gas: nil

Cumulative Production as of December 31, 1964

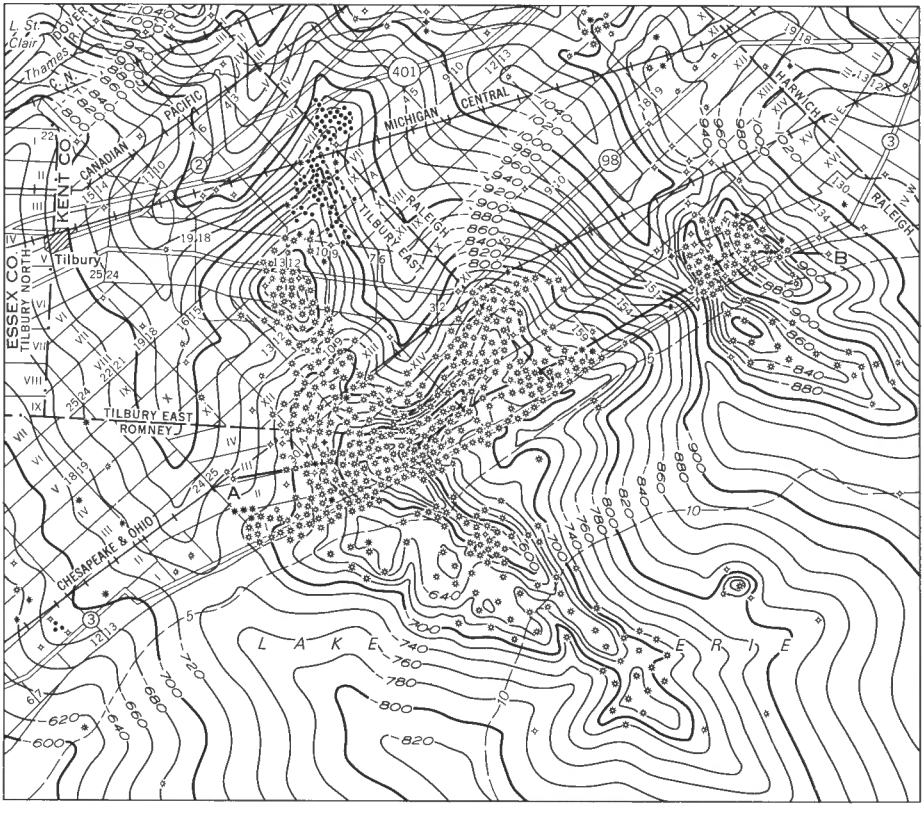
Oil: 1,200,000 barrels (Roliff, 1949)
Gas: nil

Estimated Ultimate Reserves

Oil: 1,200,000 bbls
Gas: nil

Williams (1919) reports that this field was entirely abandoned except for 9 wells in lot 1, con. VIII, Raleigh tp. prior to the date of publication.

Oil production was accompanied by much gas and salt water.

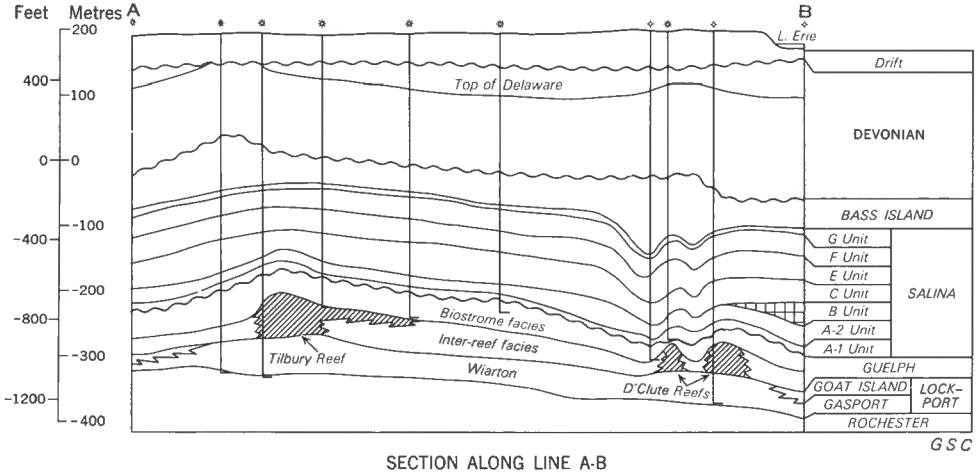


STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet). . . -800

Miles 0 2 4 6

Kilometres 0 3 6 9



SECTION ALONG LINE A-B

Figure 7. Tilbury, D'Clute, Fletcher, Wheatley, New Wheatley, Glenwood, and Doyles gas and oil fields, Romney, Tilbury East, and Raleigh townships, and Lake Erie, Kent county, southwestern Ontario.

FIELD SUMMARY

No.: 12

Field: D'Clute

Year of Discovery: 1929

Producing Formation: Guelph (Minor Salina)

Reservoir Type: Dolomite

Type of Structure or Trap: Bioherm Patch Reef

Approximate Area: 1,800 acres (onshore) 4,200 acres (offshore)

Depth to Reservoir: 1,500 to 1,580 feet (onshore)

Maximum Gross Thickness of Pay: 60 feet

Average Porosity: 8 %

Initial Shut-in Well Head Pressure: 658 psig

Producing Wells Completed

Oil: nil
Gas: 48 (onshore) 17 (offshore)

Wells Producing as of December 31, 1964

Oil: nil
Gas: 17 (onshore) 15 (offshore)

Cumulative Production as of December 31, 1964

Oil: 3,146 bbls
Gas: 19,258 MMcf (onshore); 2,725 MMcf (offshore)

Estimated Ultimate Reserves

Oil: 3,146 bbls
Gas: 27,000 MMcf

In the offshore portion of the field, the highest elevation of the main reservoir is about 1,365 feet below the lake surface.

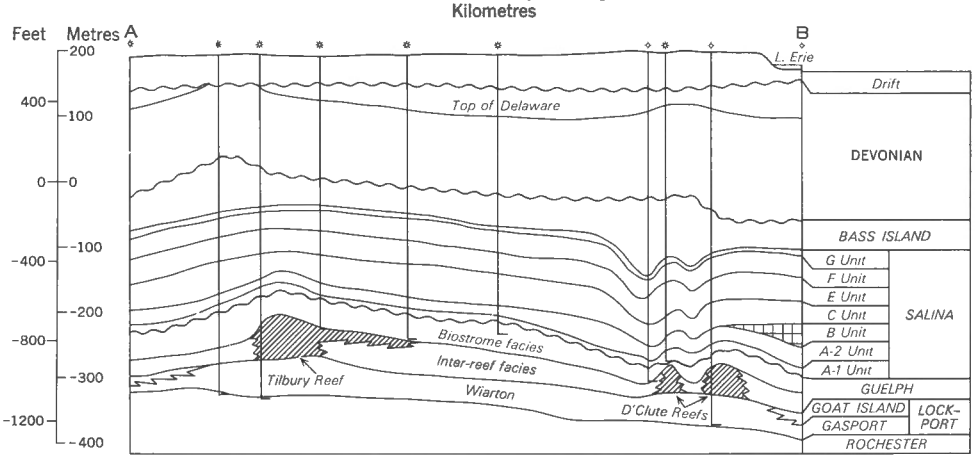
During 1943 and 1944 one well, located in lot 142, con. N.T.R., Raleigh tp., Kent co., yielded a total of 3,000 bbls of oil from the Guelph. Throughout the years a few other wells produced small quantities of oil.

STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet). . . 800

Miles 0 2 4 6

Kilometres 0 3 6 9



SECTION ALONG LINE A-B

Figure 7. Tilbury, D'Clute, Fletcher, Wheatley, New Wheatley, Glenwood, and Doyles gas and oil fields, Romney, Tilbury East, and Raleigh townships, and Lake Erie, Kent county, southwestern Ontario.

FIELD SUMMARY

No.: 13

Field: Doyles

Year of Discovery: 1917

Producing Formation: Salina-Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Bioherm Patch Reef

Approximate Area: 700 acres

Depth to Reservoir: 1,507-1,650 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: not available

Producing Wells Completed

Oil: 1
Gas: 8

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

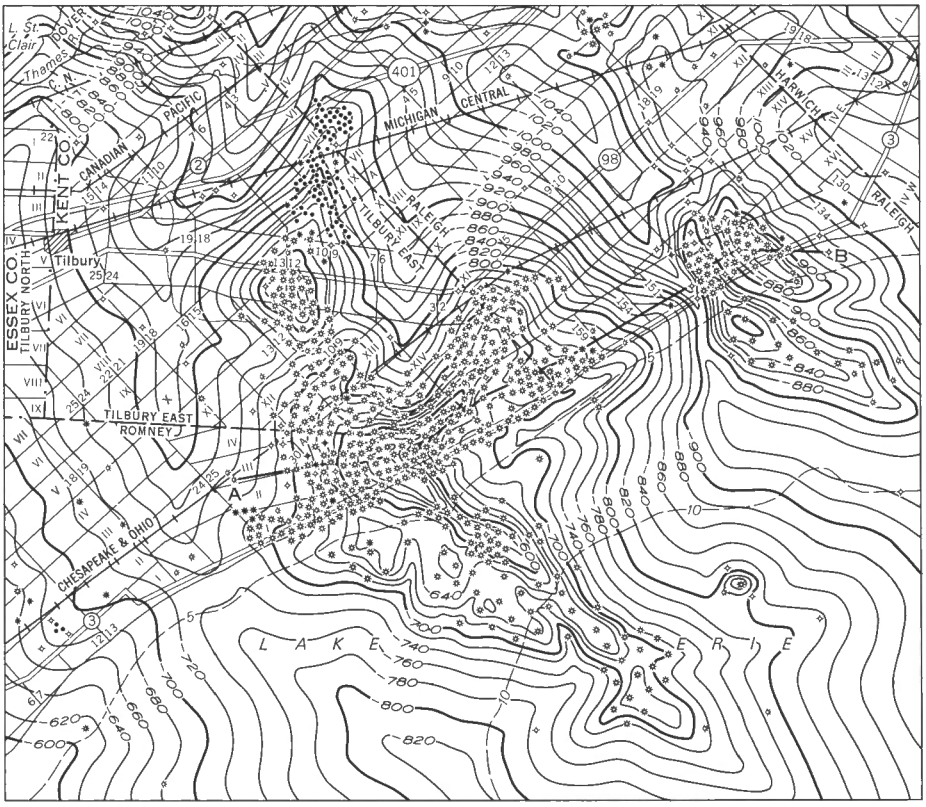
Cumulative Production as of December 31, 1964

Oil: nil
Gas: nil

Estimated Ultimate Reserves

Oil: nil
Gas: nil

There is no recorded oil or natural gas production from this pool.

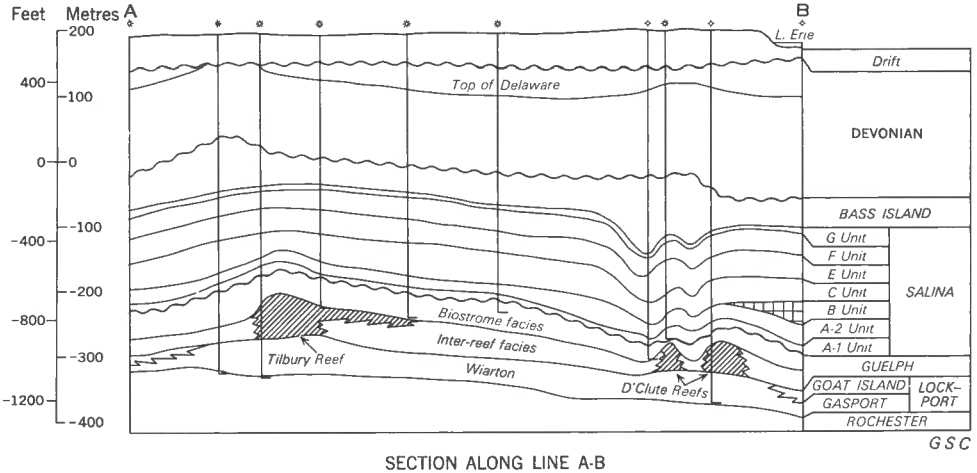


STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet) . . . 800

Miles 0 2 4 6

Kilometres 0 3 6 9



SECTION ALONG LINE A-B

Figure 7. Tilbury, D'Clute, Fletcher, Wheatley, New Wheatley, Glenwood, and Doyles gas and oil fields, Romney, Tilbury East, and Raleigh townships, and Lake Erie, Kent county, southwestern Ontario.

FIELD SUMMARY

No.: 14

Field: Lake St. Clair

Year of Discovery: 1955

Producing Formation: Guelph (small amount of A-2)

Reservoir Type: Dolomite

Type of Structure or Trap: Bioherm Patch Reef

Approximate Area: 340 acres

Depth to Reservoir: A-2 1,360-1,365; Guelph 1,455-1,478

Average Thickness of Pay: 10 feet

Average Porosity: 8%

Initial Shut-in Well Head Pressure: 625 psi

Producing Wells Completed

Oil: nil
Gas: 4

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

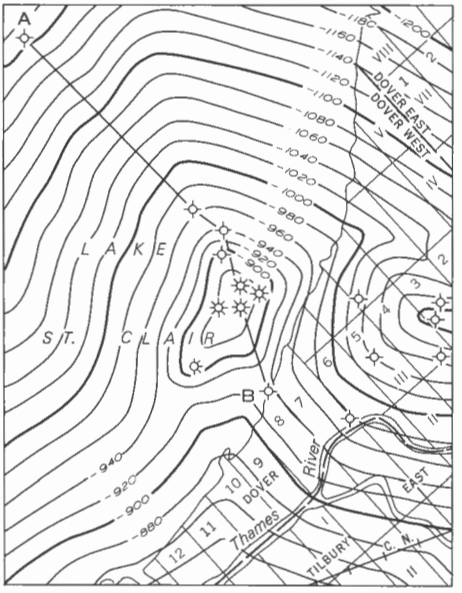
Cumulative Production as of December 31, 1964

Oil: nil
Gas: 29 MMcf

Estimated Ultimate Reserves

Oil: nil
Gas: 100 MMcf

This pool was produced only during the years 1961 to 1963 inclusive.

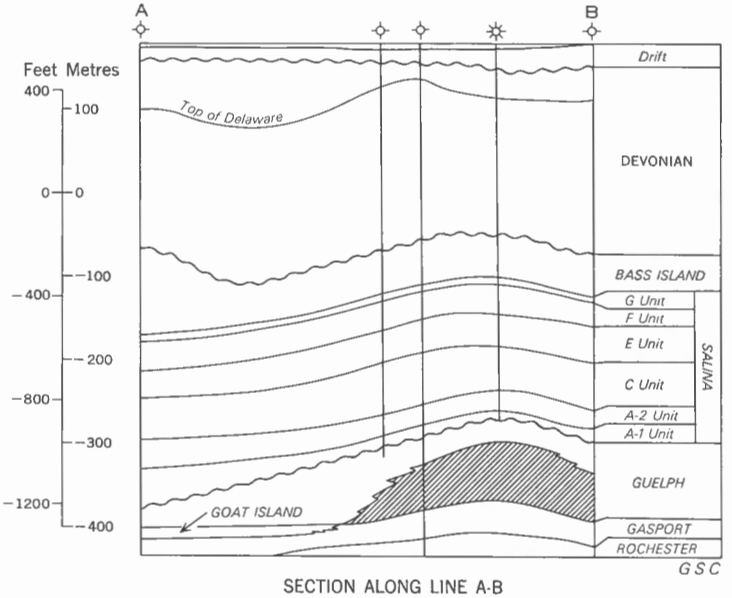


STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval, 20 feet) . . . . . -1000

Miles 0 1 2

Kilometres 0 1 2 3



SECTION ALONG LINE A-B

Figure 8. Lake St. Clair gas field, Lake St. Clair, Kent county.

FIELD SUMMARY

No.: 15

Field: Guilds

Year of Discovery: 1953

Producing Formation: Salina A-2 unit

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal

Approximate Area: 260 acres

Depth to Reservoir: 1,554-1,564 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 855 psi

Producing Wells Completed

Oil: nil
Gas: 5

Wells Producing as of December 31, 1964

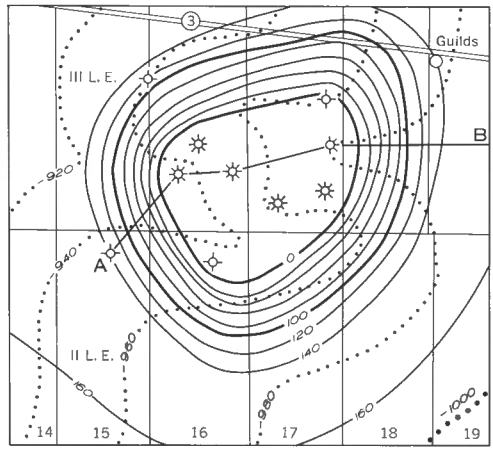
Oil: nil
Gas: 4

Cumulative Production as of December 31, 1964

Oil: nil
Gas: 223 MMcf

Estimated Ultimate Reserves

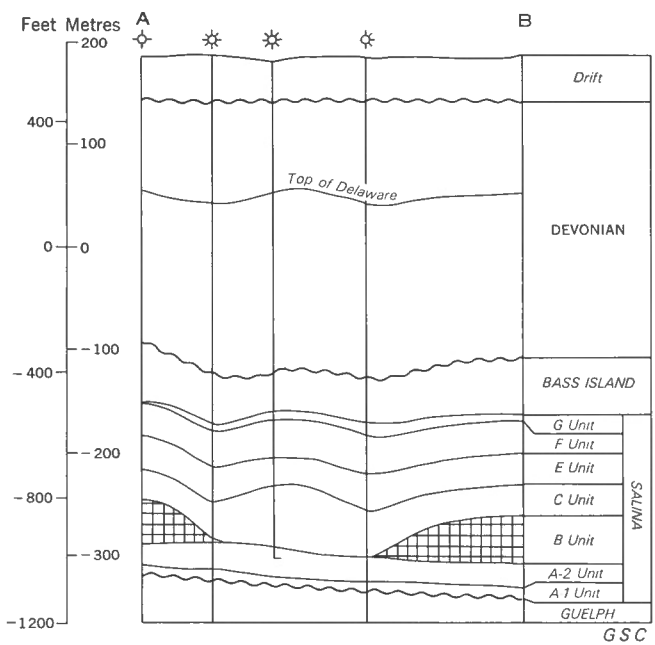
Oil: nil
Gas: 260 MMcf (Est.)



Structure contours on the Salina A-2 unit (interval 20 feet) . . . . . -1000

Isopachs of Salina B unit salt (interval 20 feet) 100

Feet
0 2500 5000
0 500 1000 1500
Metres



SECTION ALONG LINE A-B

Figure 9. Guilds gas field, Harwich township, Kent county.

FIELD SUMMARY

No.: 16

Field: Morpeth

Year of Discovery: 1954

Producing Formation: Salina A-2 unit

Reservoir Type: Dolomite

Type of Structure or Trap: Dome

Approximate Area: 980 acres (onshore) 370 acres (offshore)

Depth to Reservoir: 1,626-1,655 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 1,283 psig

Producing Wells Completed

Oil: nil

Gas: 13 (onshore) 4 (offshore)

Wells Producing as of December 31, 1964

Oil: nil

Gas: 11 (onshore) 4 (offshore)

Cumulative Production as of December 31, 1964

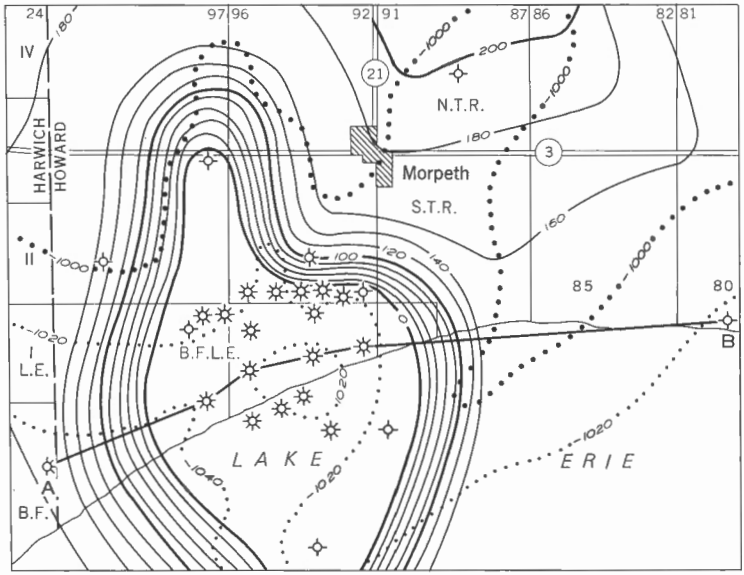
Oil: nil

Gas: 3,959 MMcf (onshore); 1,003 MMcf (offshore)

Estimated Ultimate Reserves

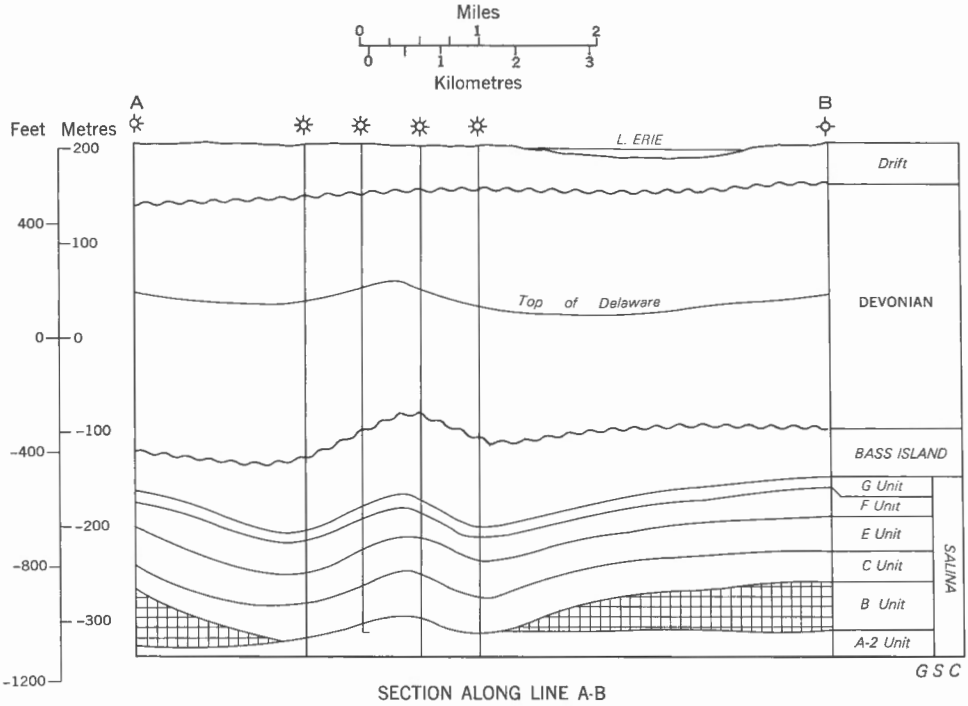
Oil: nil

Gas: 5,300 MMcf



Structure contours on the Salina A-2 unit (interval 20 feet) 1000

Isopachs of Salina B unit salt (interval 20 feet) 100



SECTION ALONG LINE A-B

Figure 10. Morpeth gas field, Howard township, Kent county.

FIELD SUMMARY

No.: 17

Field: Wolfe

Year of Discovery: 1952

Producing Formation: Salina A-2 unit

Reservoir Type: Dolomite

Type of Structure or Trap: Monoclinal

Approximate Area: 180 acres

Depth to Reservoir: 1,535-1,552 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 803 psig

Producing Wells Completed

Oil: nil
Gas: 1

Wells Producing as of December 31, 1964

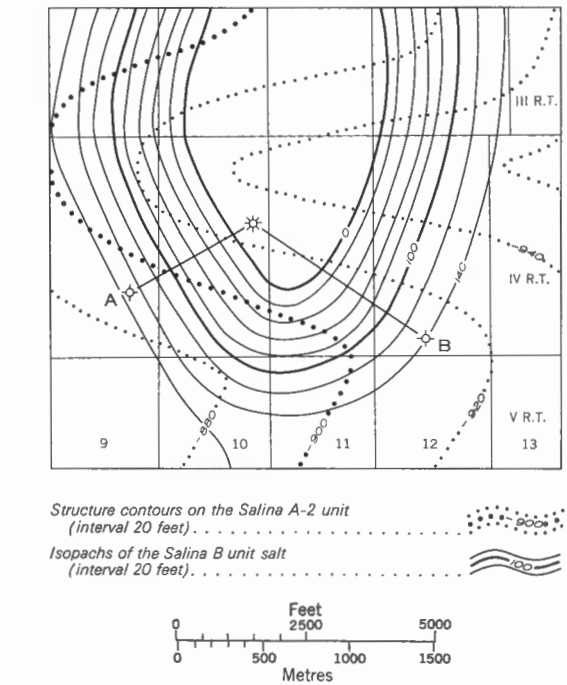
Oil: nil
Gas: 1

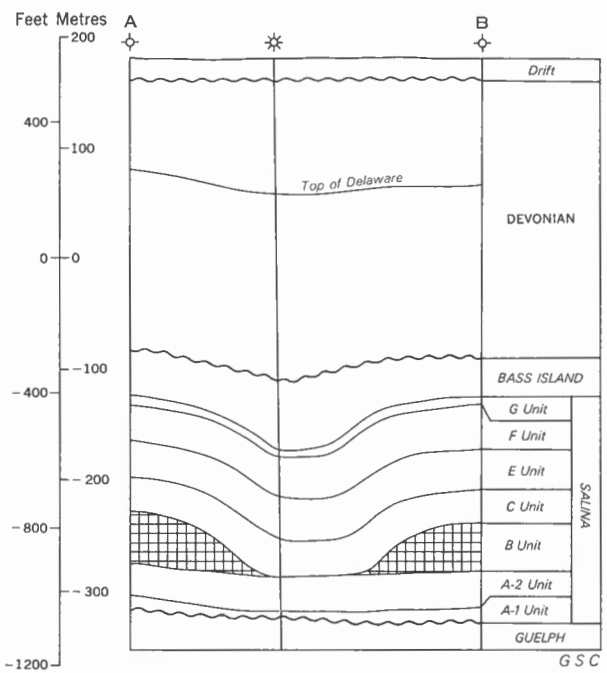
Cumulative Production as of December 31, 1964

Oil: nil
Gas: 89 MMcf

Estimated Ultimate Reserves

Oil: nil
Gas: 153 MMcf





SECTION ALONG LINE A-B

Figure 11. Wolfe gas field, Harwich township, Kent county.

FIELD SUMMARY

No.: 18

Field: Botany

Year of Discovery: 1958

Producing Formation: Salina A-1 unit

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal

Approximate Area: 600 acres

Depth to Reservoir: 1,654-1,681 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 869 psig

Producing Wells Completed

Oil: nil
Gas: 4

Wells Producing as of December 31, 1964

Oil: nil
Gas: 1

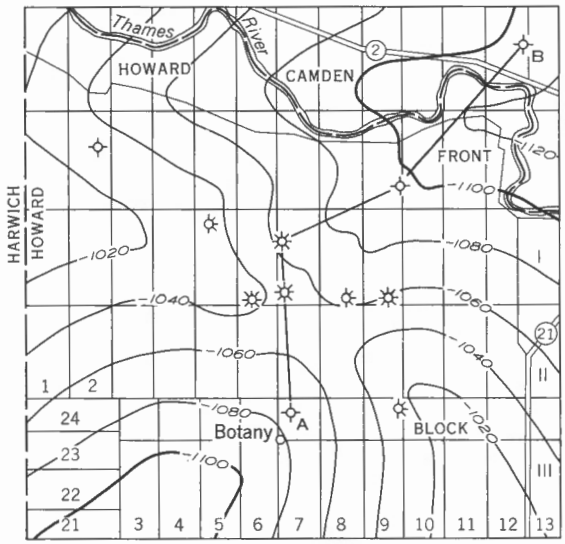
Cumulative Production as of December 31, 1964

Oil: nil
Gas: not recorded

Estimated Ultimate Reserves

Oil: nil
Gas: unknown

There has been no recorded commercial production from this small pool; the land owner uses a small amount for heating purposes.

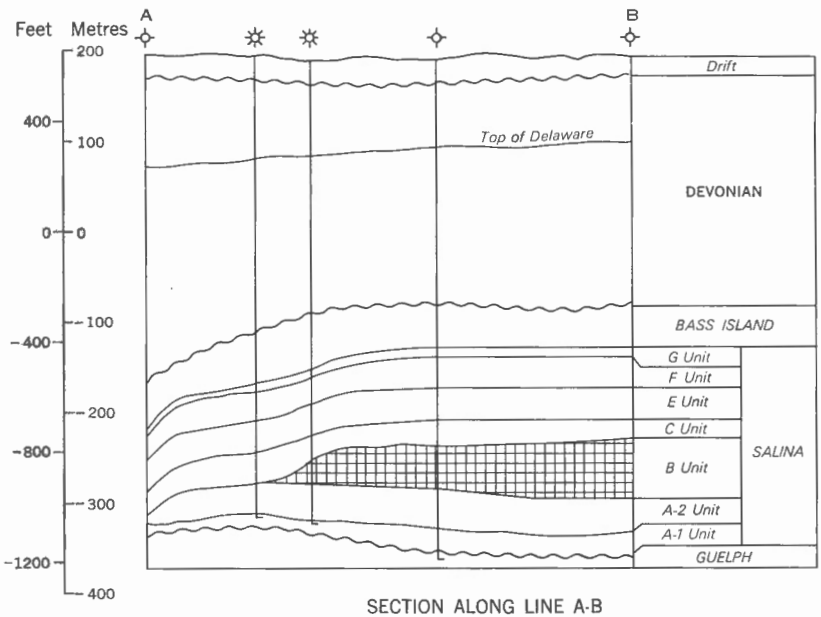


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) . . . . -300

Miles 0 1 2

Kilometres 0 1 2 3



SECTION ALONG LINE A-B

GSC

Figure 12. Botany gas field, Howard township, Kent county.

FIELD SUMMARY

No.: 19

Field: Chatham Gore

Year of Discovery: 1951

Producing Formation: Salina A-1 unit

Reservoir Type: Dolomite

Type of Structure or Trap: Monoclinal and dependent on degree of dolomitization

Approximate Area: 120 acres

Depth to Reservoir: 1,764-1,800 feet

Average Thickness of Pay: 18 feet

Average Porosity: 15%

Initial Shut-in Well Head Pressure: 758 psig

Producing Wells Completed

Oil: nil
Gas: 2

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

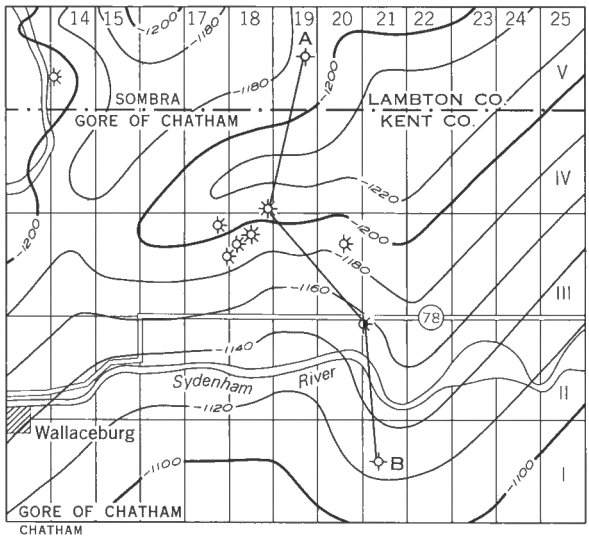
Cumulative Production as of December 31, 1964

Oil: nil
Gas: nil

Estimated Ultimate Reserves

Oil: nil
Gas: 500 MMcf (Estimated)

This pool has remained shut in since its discovery in 1951.

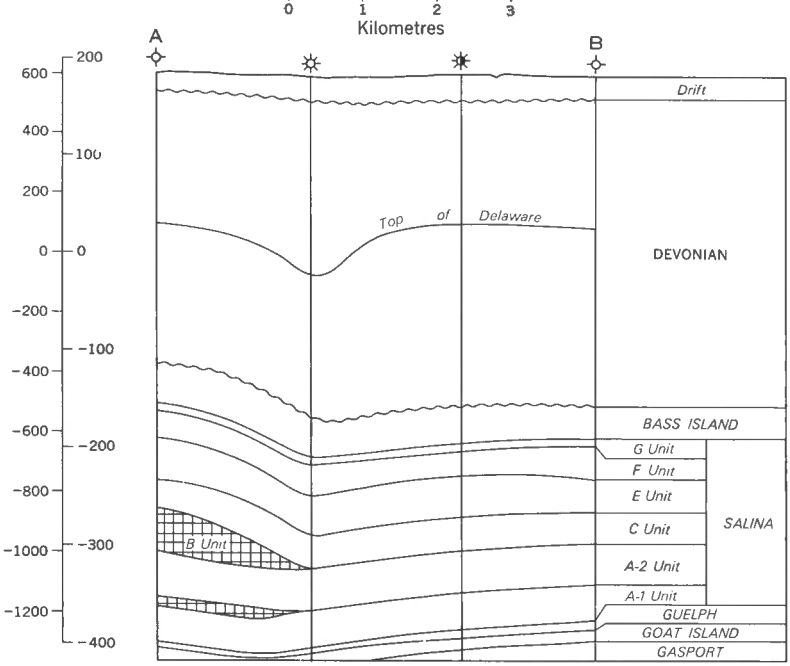


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) -1200

Miles 0 1 2

0 1 2 3 Kilometres



SECTION ALONG LINE A-B

GSC

Figure 13. Chatham Gore gas field, Gore of Chatham township, Kent county.

FIELD SUMMARY

No.: 20

Field: Chatham-Dresden-Camden Gore

Year of Discovery: 1936

Producing Formation: Salina A-1 (Some Salina A-2 and Guelph)

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal

Approximate Area: 4,300 acres (gas) 320 acres (oil)

Depth to Reservoir: 1,425 to 1,625 feet

Average Thickness of Pay: 12 feet

Average Porosity: 10%

Initial Shut-in Well Head Pressure: 750 psig

Producing Wells Completed

Oil: 5
Gas: 62

Wells Producing as of December 31, 1964

Oil: 3
Gas: 46

Cumulative Production as of December 31, 1964

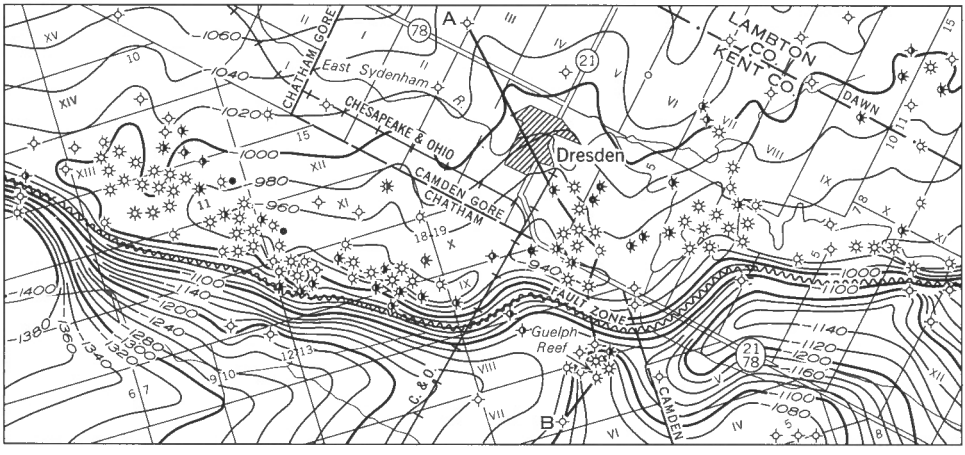
Oil: 50,066 bbls.
Gas: 6,965 MMcf

Estimated Ultimate Reserves

Oil: 75,000 bbls.
Gas: 8,700 MMcf

In most reports this field is classified as Chatham, Camden Gore and Dresden Pools. The cumulative gas production for the former to December 31, 1964, is 4,936 MMcf, with the remaining production recovered from the other two pools.

Although the structure in this field is generally anticlinal, there is a Guelph Pinnacle Reef located in lot 23, con. VII, Chatham tp., Kent co., as shown on Figure 13.

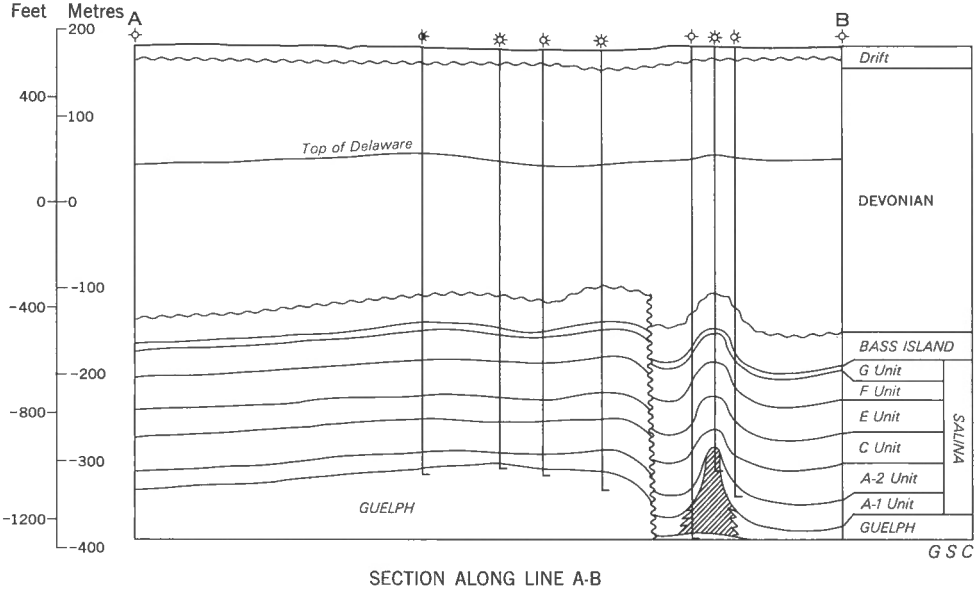


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval 20 feet) . . . . -1200

MAP SCALE
Miles
0 1 2 3
0 1 2 3 4
Kilometres

SECTION SCALE
Miles
0 1 2
0 1 2 3
Kilometres



SECTION ALONG LINE A-B

Figure 14. Chatham-Dresden-Camden Gore gas and oil fields, Chatham and Camden Gore townships, Kent county.

FIELD SUMMARY

No.: 21

Field: Zone

Year of Discovery: 1943

Producing Formation: Salina A-2 and A-1

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal

Approximate Area: 4,678 feet

Depth to Reservoir: 1,400-1,600 feet

Average Thickness of Pay: A-2 10 feet; A-1 3 feet (net)

Average Porosity: (Salina A-2) 18.6% (based on one well)

Initial Shut-in Well Head Pressure: 712 psig

Producing Wells Completed

Oil: nil
Gas: 52

Wells Producing as of December 31, 1964

Oil: nil
Gas: 46

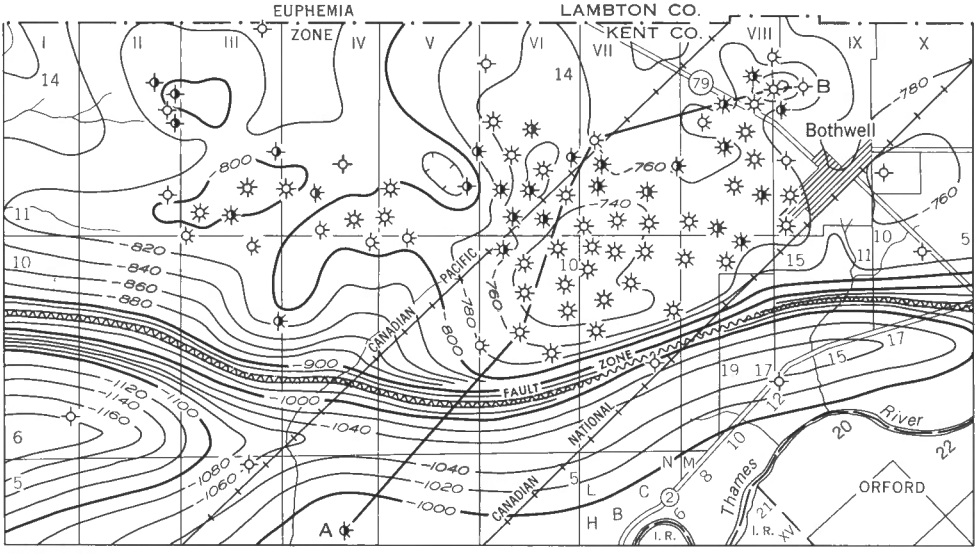
Cumulative Production as of December 31, 1964

Oil: nil
Gas: 7,405 MMcf

Estimated Ultimate Reserves

Oil: nil
Gas: 11,000 MMcf

This field was designated as a gas storage area on June 17, 1963.

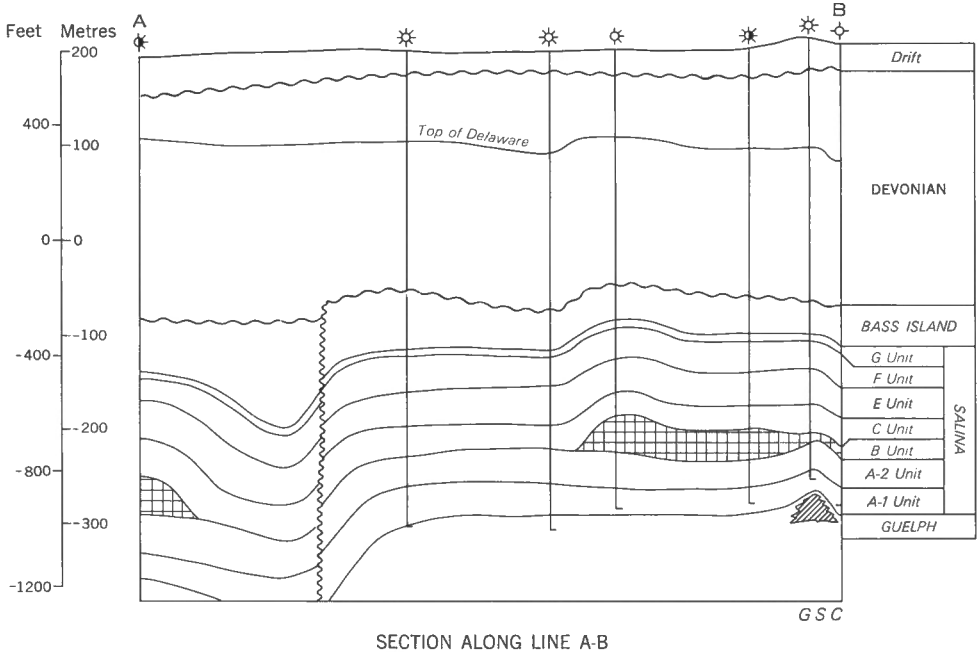


STRUCTURE CONTOURS ON THE SALINA A-2 UNIT

Structure contours (interval 20 feet) . . . . -800

Miles 0 1 2

Kilometres 0 1 2 3



SECTION ALONG LINE A-B

Figure 15. Zone gas field, Zone township, Kent county.

FIELD SUMMARY

No.: 22

Field: Shetland

Year of Discovery: 1914

Producing Formation: Salina-Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal

Approximate Area: 480 acres

Depth to Reservoir: 1,560-1,675 feet

Average Thickness of Pay: unknown

Average Porosity: 9% Estimated

Initial Shut-in Well Head Pressure: 575 psig

Producing Wells Completed

Oil: nil
Gas: 7

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

Cumulative Production as of December 31, 1964

Oil: 479 bbls
Gas: not accurately recorded

Estimated Ultimate Reserves

Oil: 479 bbls
Gas: depleted

One well has yielded a small amount of oil from the Guelph.

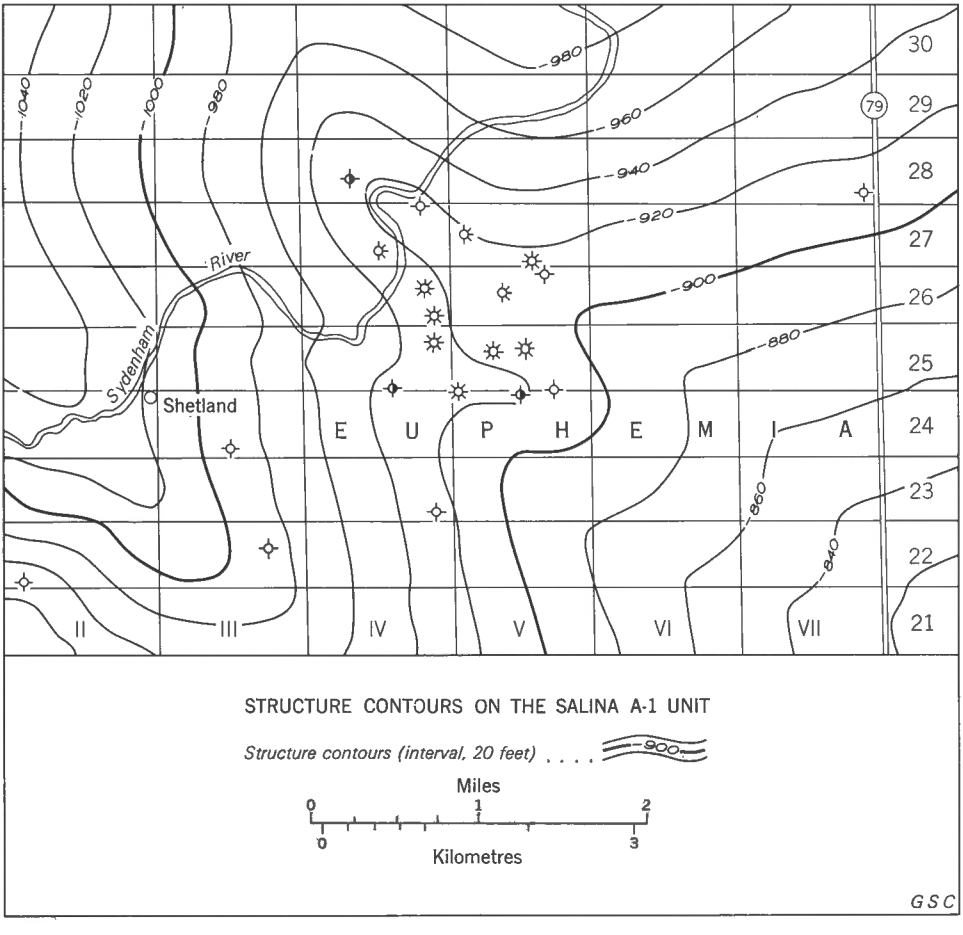


Figure 16. Shetland gas field, Euphemia township, Lambton county.

FIELD SUMMARY

No.: 23a

Field: Dawn #1 (Dawn #3 Storage Pool)

Year of Discovery: 1914

Producing Formation: Salina A-2 and A-1 units

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal

Approximate Area: 647 acres

Depth to Reservoir: 1,575 feet

Average Thickness of Pay: 30 feet

Average Porosity: 15 %

Initial Shut-in Well Head Pressure: 760 psig

Producing Wells Completed

Oil: nil
Gas: 12

Wells Producing as of December 31, 1964

Oil: nil
Gas: 6

Cumulative Production as of December 31, 1964

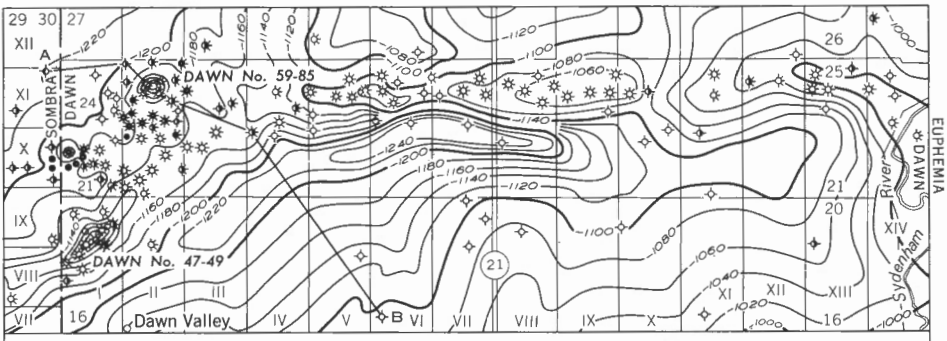
Oil: nil
Gas: 929 MMcf

Estimated Ultimate Reserves

Oil: nil
Gas: 1,995 MMcf

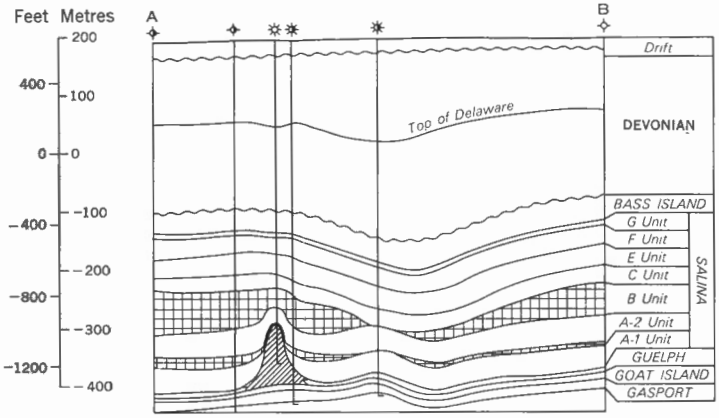
This reservoir is presently an inactive gas storage pool. Gas injection commenced on Oct. 1, 1954.

The boundaries of this pool are contained within the general area of lots 23 to 26, con. VII to X, Dawn tp., Lambton co. (see Fig. 16).



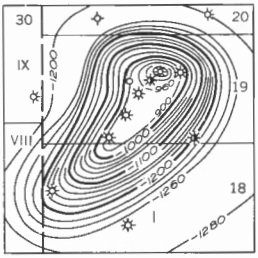
STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) . . . . . -1200



SECTION ALONG LINE A-B

DAWN NO. 59-85
(NO.1 STORAGE) GAS POOL



DAWN NO. 47-49
(NO.2 STORAGE) GAS POOL

STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet) . . . . . -1200

GSC

Figure 17. Dawn gas field, Dawn township, Lambton county (includes Dawn Nos. 59-85, Dawn Nos. 47-49, Dawn No. 1, and miscellaneous gas pools).

FIELD SUMMARY

No.: 23b

Field: Dawn #47-49 (Dawn #2 gas storage pool)

Year of Discovery: 1930

Producing Formation: Guelph (some Salina A-2)

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 187 acres

Depth to Reservoir: 1,600 feet (Reef Crest)

Maximum Gross Thickness of Pay: 238 feet

Average Porosity: 9 to 12.5 %

Initial Shut-in Well Head Pressure: 865 psig

Producing Wells Completed

Oil: nil
Gas: 9

Wells Producing as of December 31, 1964

Oil: nil
Gas: 6

Cumulative Production as of December 31, 1964

Oil: nil
Gas: 5,068 MMcf

Estimated Ultimate Reserves

Oil: nil
Gas: 5,331 MMcf

This reservoir is now being used as a gas storage pool. Gas injection commenced on Oct. 28, 1942.

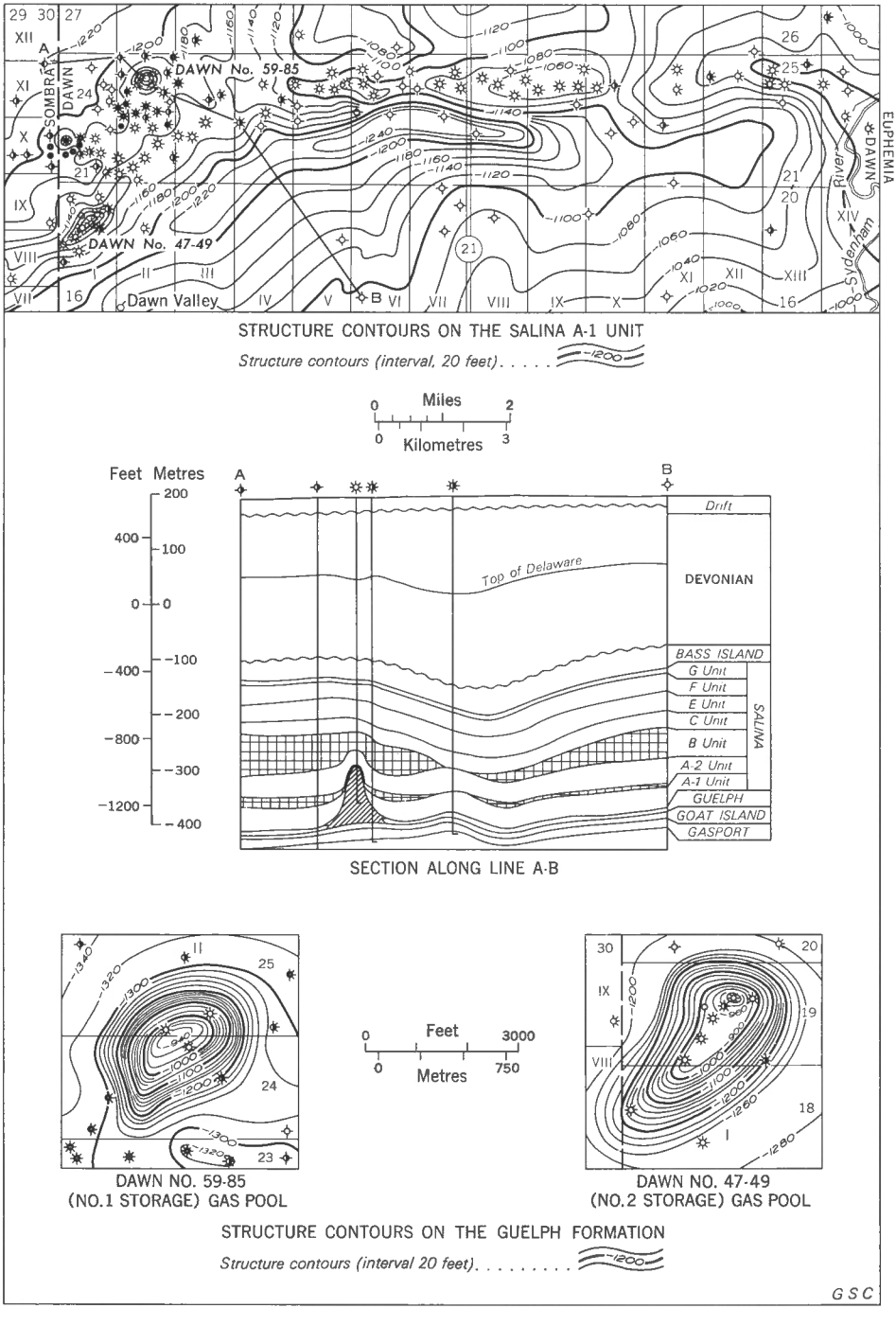


Figure 17. Dawn gas field, Dawn township, Lambton county (includes Dawn Nos. 59-85, Dawn Nos. 47-49, Dawn No. 1, and miscellaneous gas pools).

FIELD SUMMARY

No.: 23c

Field: Dawn #59-85 (Dawn #1 storage pool)

Year of Discovery: 1931

Producing Formation: Guelph (some Salina A-2)

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 163 acres

Depth to Reservoir: 1,579 feet (Reef Crest)

Maximum Gross Thickness of Pay: 297

Average Porosity: 9 to 12.5 %

Initial Shut-in Well Head Pressure: 865 psig

Producing Wells Completed

- **Oil:** nil
- **Gas:** 5

Wells Producing as of December 31, 1964

- **Oil:** nil
- **Gas:** 4

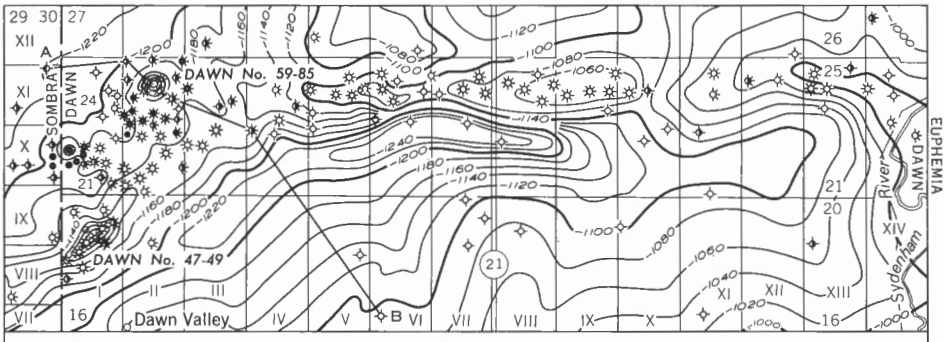
Cumulative Production as of December 31, 1964

- **Oil:** nil
- **Gas:** 8,233 MMcf

Estimated Ultimate Reserves

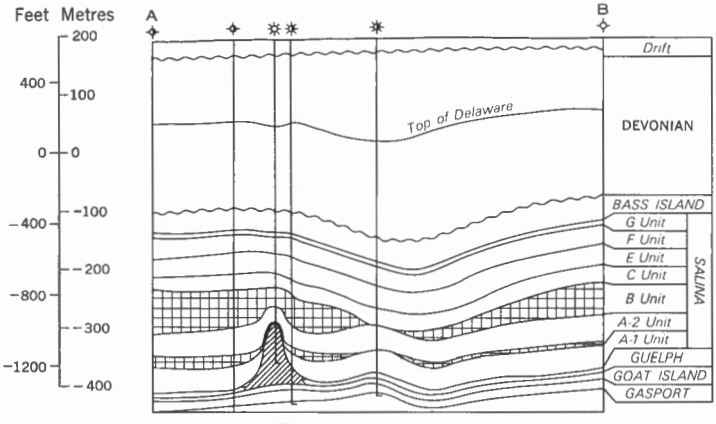
- **Oil:** nil
- **Gas:** 8,662 MMcf

This reservoir is now being used as a gas storage pool. Gas injection commenced on March 31, 1943.

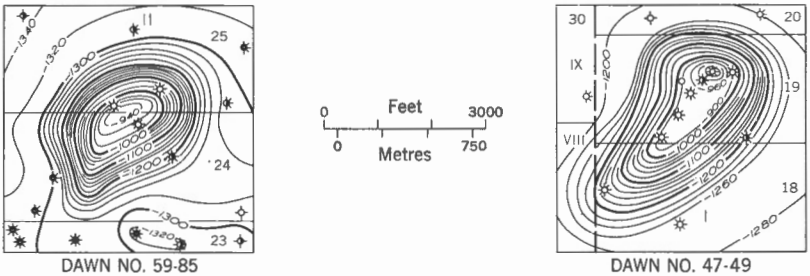


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet). . . . . -1200



SECTION ALONG LINE A-B



DAWN NO. 59-85
(NO.1 STORAGE) GAS POOL

DAWN NO. 47-49
(NO.2 STORAGE) GAS POOL

STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet). . . . . -1200

GSC

Figure 17. Dawn gas field, Dawn township, Lambton county (includes Dawn Nos. 59-85, Dawn Nos. 47-49, Dawn No. 1, and miscellaneous gas pools).

FIELD SUMMARY

No.: 23d

Field: Dawn Miscellaneous

Year of Discovery: 1921

Producing Formation: Salina A-2 and A-1 and Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal, dome and stratigraphic

Approximate Area: 2,250 acres

Depth to Reservoir: 1,530-1,955 feet

Average Thickness of Pay: 25 feet (Estimated)

Average Porosity: 8 to 15 %

Initial Shut-in Well Head Pressure: 760 psig

Producing Wells Completed

Oil: 15 (6 of these yield gas as well)
Gas: 23

Wells Producing as of December 31, 1964

Oil: 9
Gas: 13

Cumulative Production as of December 31, 1964

Oil: 132,311 bbls
Gas: 3,850 MMcf

Estimated Ultimate Reserves

Oil: 215,000 bbls
Gas: 4,700 MMcf

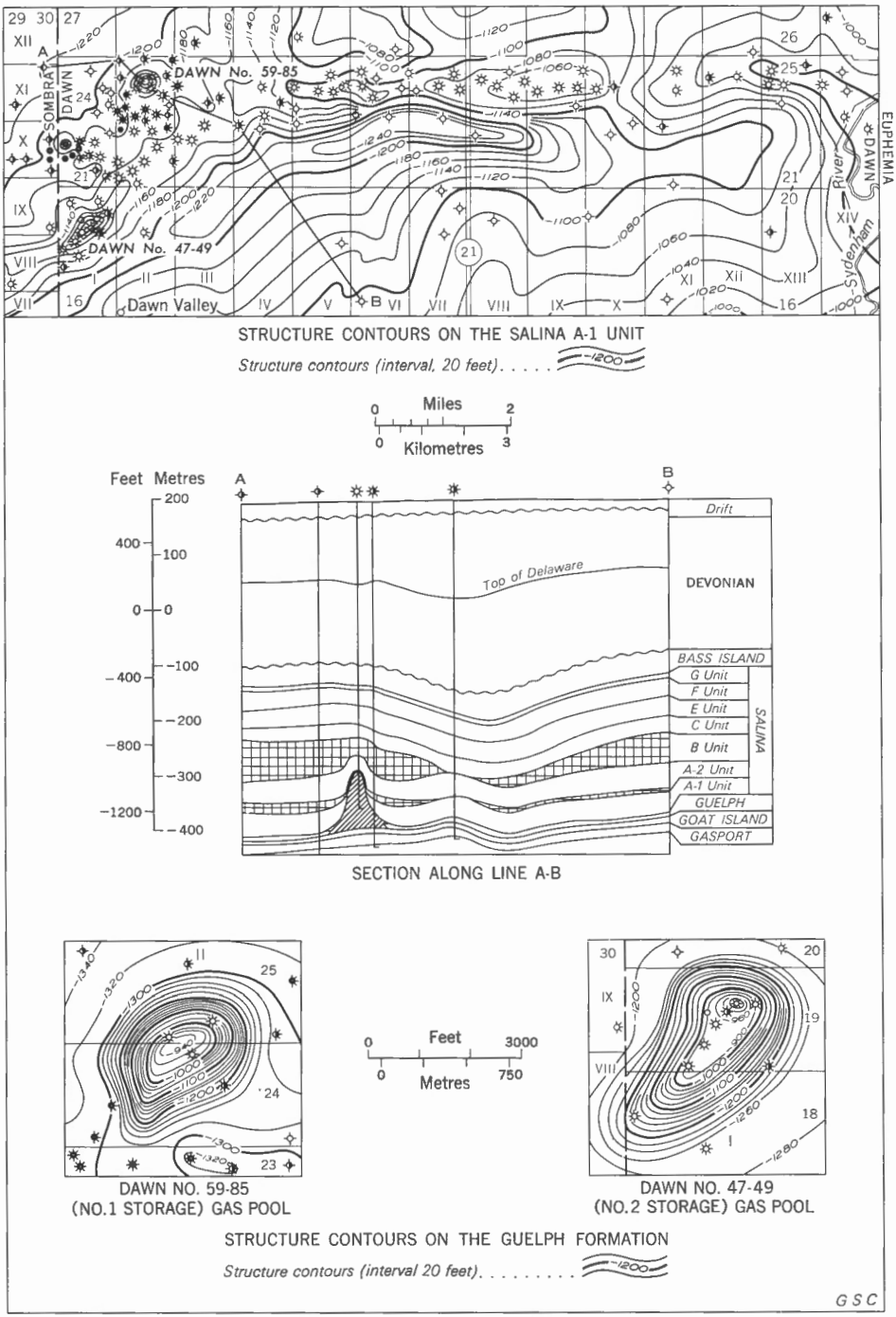


Figure 17. Dawn gas field, Dawn township, Lambton county (includes Dawn Nos. 59-85, Dawn Nos. 47-49, Dawn No. 1, and miscellaneous gas pools).

FIELD SUMMARY

No.: 24

Field: Dawn #167

Year of Discovery: 1952

Producing Formation: Guelph (Minor Salina A-2 and A-1)

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 280 acres

Depth to Reservoir: 1,498-1,765 feet

Maximum Gross Thickness of Pay: 193 feet

Average Porosity: 9 to 12.5 %

Initial Shut-in Well Head Pressure: 908 psig

Producing Wells Completed

Oil: nil
Gas: 5

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

Cumulative Production as of December 31, 1964

Oil: nil
Gas: nil

Estimated Ultimate Reserves

Oil: nil
Gas: 4,500 MMcf

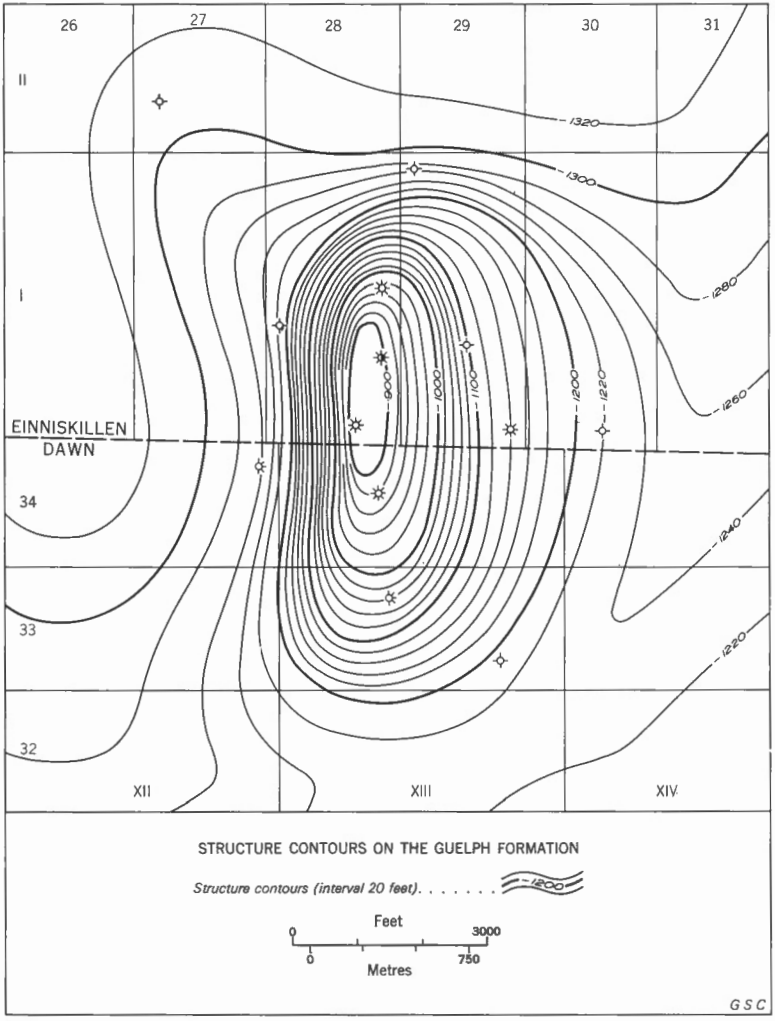
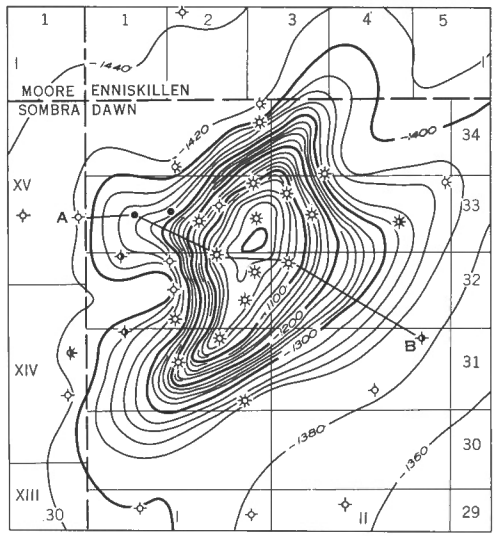


Figure 18. Dawn No. 167 gas field, Dawn and Enniskillen townships, Lambton county.

FIELD SUMMARY

No.:	25
Field:	Dawn #156
Year of Discovery:	1952
Producing Formation:	Guelph (some Salina A-2)
Reservoir Type:	Dolomite
Type of Structure or Trap:	Pinnacle Reef
Approximate Area:	823 acres
Depth to Reservoir:	1,621-2,004 feet
Maximum Gross Thickness of Pay:	348 feet
Average Porosity:	9 to 12.5 %
Initial Shut-in Well Head Pressure:	877 psig
Producing Wells Completed	
Oil:	2
Gas:	16
Wells Producing as of December 31, 1964	
Oil:	1
Gas:	10
Cumulative Production as of December 31, 1964	
Oil:	177,268 bbls
Gas:	14, 934 MMcf
Estimated Ultimate Reserves	
Oil:	315,000 bbls
Gas:	31,581 MMcf

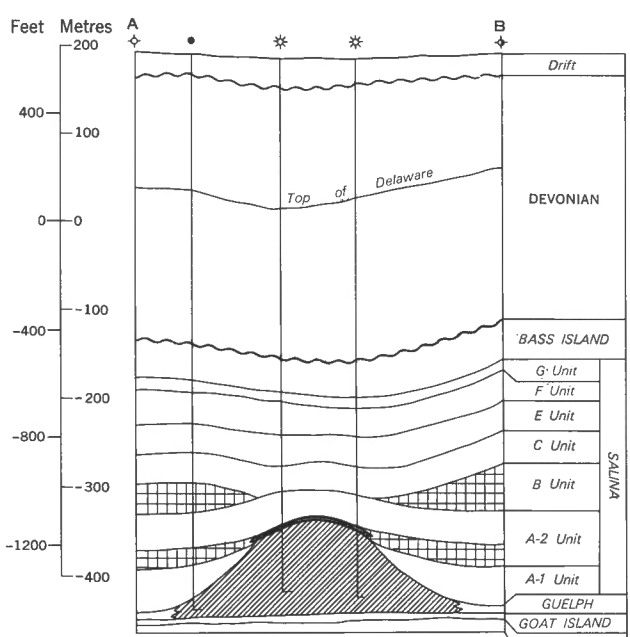
This reservoir is now being used as a gas storage pool. Gas injection commenced on August 1, 1962.



STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet) . . . . . -1200

Feet
0 2500 5000
0 500 1000 1500
Metres



SECTION ALONG LINE A-B

GSC

Figure 19. Dawn No. 156 gas field, Dawn township, Lambton county.

FIELD SUMMARY

No.: 26

Field: East Becher

Year of Discovery: 1946

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal and somewhat dependent on degree of dolomitization

Approximate Area: 160 acres

Depth to Reservoir: 1,908-1,931 feet

Average Thickness of Pay: 5 feet

Average Porosity: 6 % (Est)

Initial Shut-in Well Head Pressure: 921 psig

Producing Wells Completed

Oil: 1
Gas: 5

Wells Producing as of December 31, 1964

Oil: nil
Gas: 1

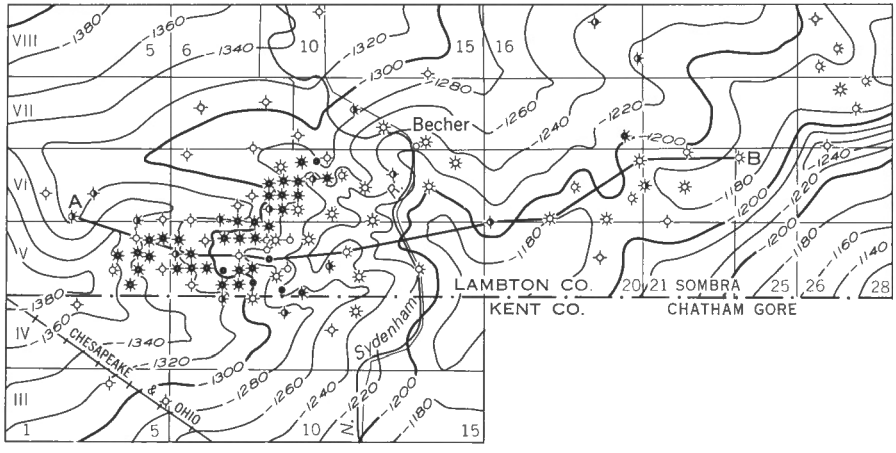
Cumulative Production as of December 31, 1964

Oil: nil
Gas: 799 MMcf

Estimated Ultimate Reserves

Oil: nil
Gas: 1,100 MMcf

The gas well show in lot 27, con. VII, Sombra tp., Lambton co., was completed in 1950 and was later abandoned as non-commercial.

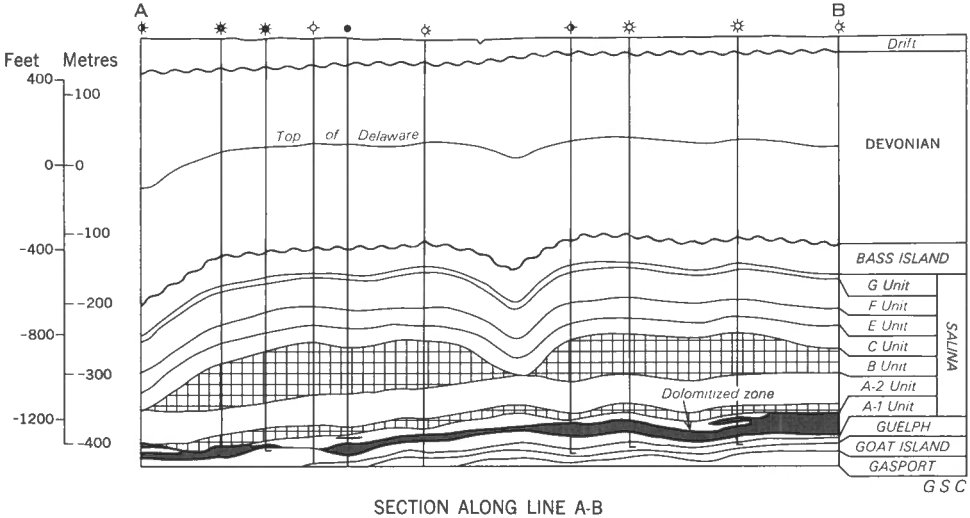


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) . . . . -1200

Miles 0 1 2 3

Kilometres 0 1 2 3 4



SECTION ALONG LINE A-B

Figure 20. East and west Becher oil and gas fields, Sombra township, Lambton county.

FIELD SUMMARY

No.: 27

Field: West Becher

Year of Discovery: 1946

Producing Formation: Salina A-1 unit (minor Guelph)

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal and somewhat dependent on degree of dolomitization

Approximate Area: 2,400 acres

Depth to Reservoir: 1,827-1,990 feet

Average Thickness of Pay: 11 feet

Average Porosity: not available

Initial Shut-in Well Head Pressure: 920 psig

Producing Wells Completed

Oil: 37 (31 of these had gas production as well)
Gas: 14

Wells Producing as of December 31, 1964

Oil: 28
Gas: 4

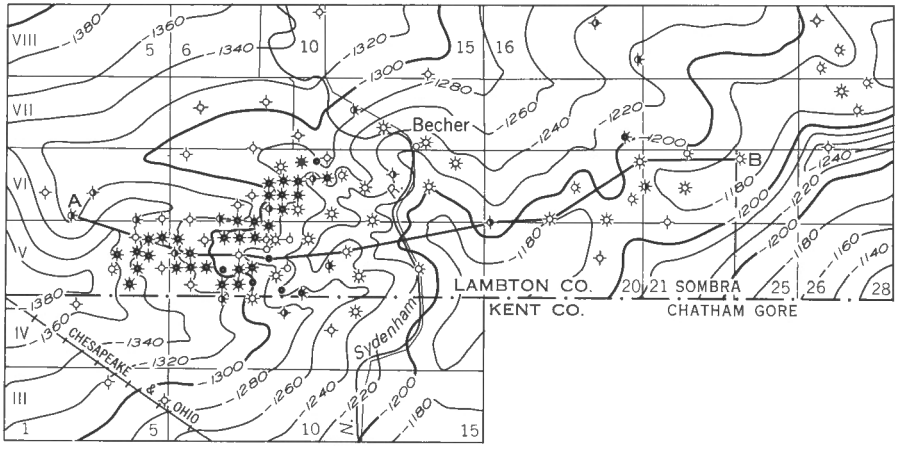
Cumulative Production as of December 31, 1964

Oil: 1,133,722 bbls
Gas: 3,600 MMcf

Estimated Ultimate Reserves

Oil: 2,000,000 bbls
Gas: 4,510 MMcf

Secondary recovery methods are now being employed to increase production. Although a pilot operation has been in existence since 1957, the actual water flood injection began in 1964.

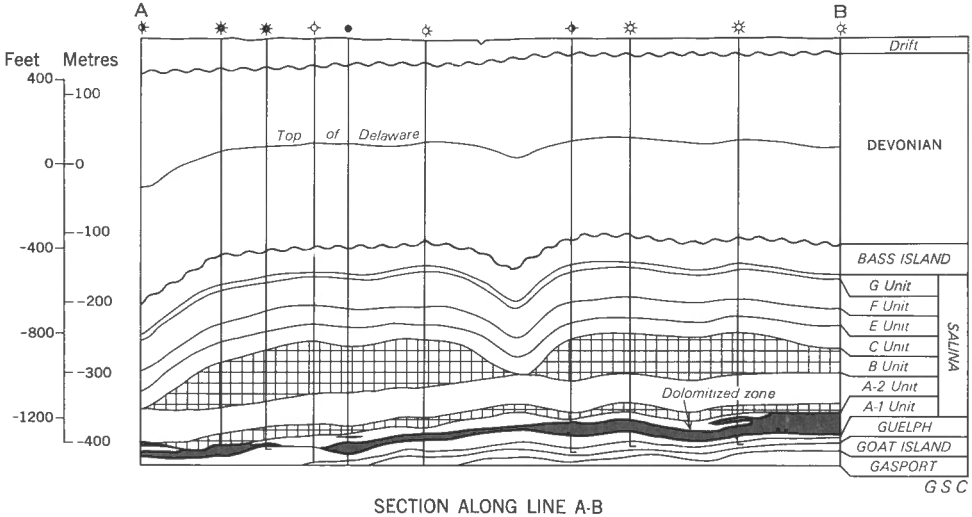


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) 1200

Miles 0 1 2 3

Kilometres 0 1 2 3 4



SECTION ALONG LINE A-B

Figure 20. East and west Becher oil and gas fields, Sombra township, Lambton county.

FIELD SUMMARY

No.: 28

Field: Duthill

Year of Discovery: 1950

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 60 acres

Depth to Reservoir: 1,691-1,700 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 760 psig

Producing Wells Completed

Oil: nil
Gas: 1

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

Cumulative Production as of December 31, 1964

Oil: nil
Gas: 5 MMcf

Estimated Ultimate Reserves

Oil: nil
Gas: 5 MMcf

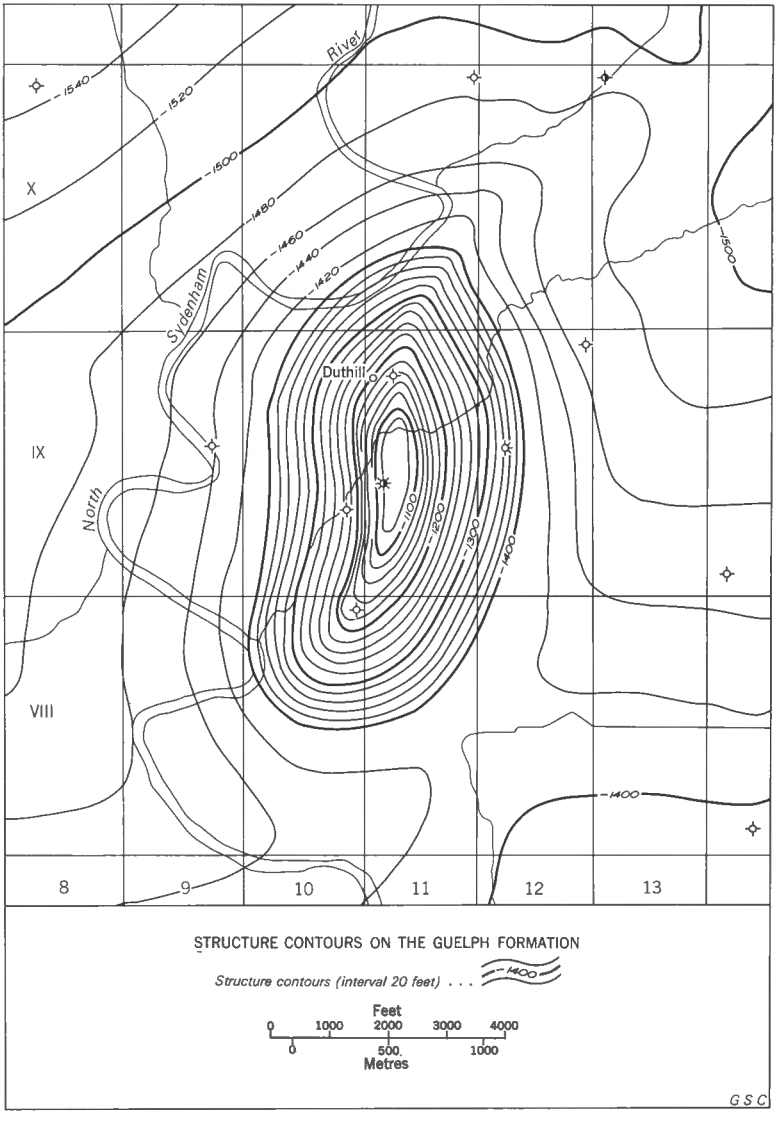


Figure 21. Duthill gas field, Sombra township, Lambton county.

FIELD SUMMARY

No.: 29

Field: Sombra

Year of Discovery: 1951

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 260 acres

Depth to Reservoir: 1,813-2,059 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 995 psig

Producing Wells Completed

Oil: nil

Gas: 3 (one well produced a small amount of oil)

Wells Producing as of December 31, 1964

Oil: nil

Gas: 2

Cumulative Production as of December 31, 1964

Oil: 572 bbls

Gas: 1,633 MMcf

Estimated Ultimate Reserves

Oil: 572 bbls

Gas: 2,460 MMcf

This pool was designated as a gas storage pool on December 14, 1962.

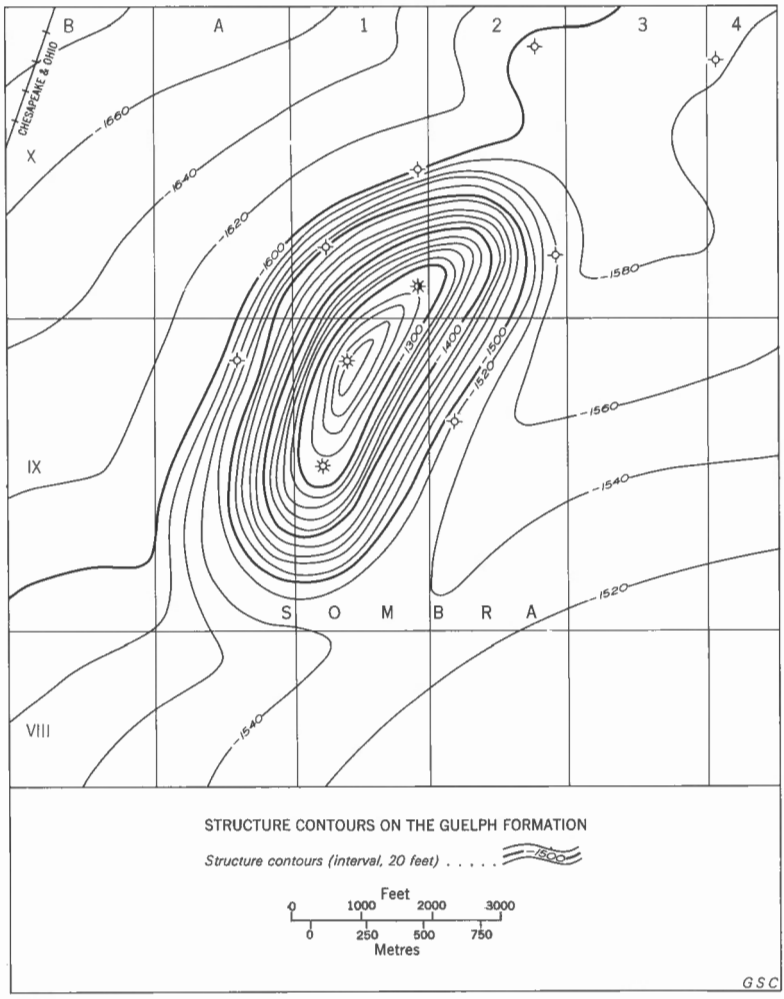


Figure 22. Sombra gas field, Sombra township, Lambton county.

FIELD SUMMARY

No.: 30

Field: Bickford

Year of Discovery: 1950

Producing Formation: Salina A-1 and Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 765 acres

Depth to Reservoir: 1,844-2,098 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 988 psia

Producing Wells Completed

Oil: nil
Gas: 12 (one well has produced some oil)

Wells Producing as of December 31, 1964

Oil: nil
Gas: 4

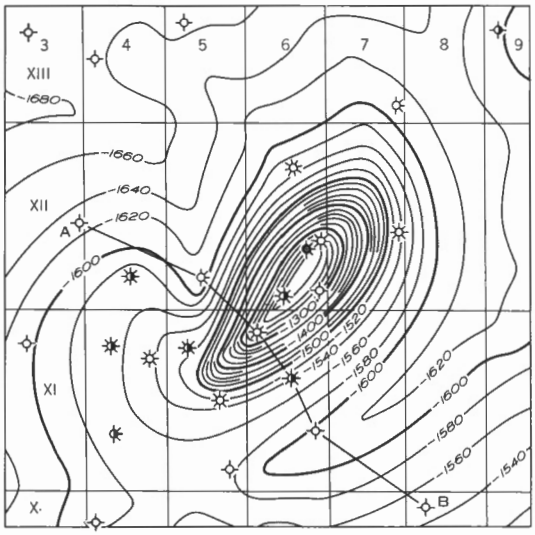
Cumulative Production as of December 31, 1964

Oil: 1,160 bbls
Gas: 15,115 MMcf

Estimated Ultimate Reserves

Oil: 1,160 bbls
Gas: 19,400 MMcf

This pool was designated as a gas storage area on December 14, 1962.

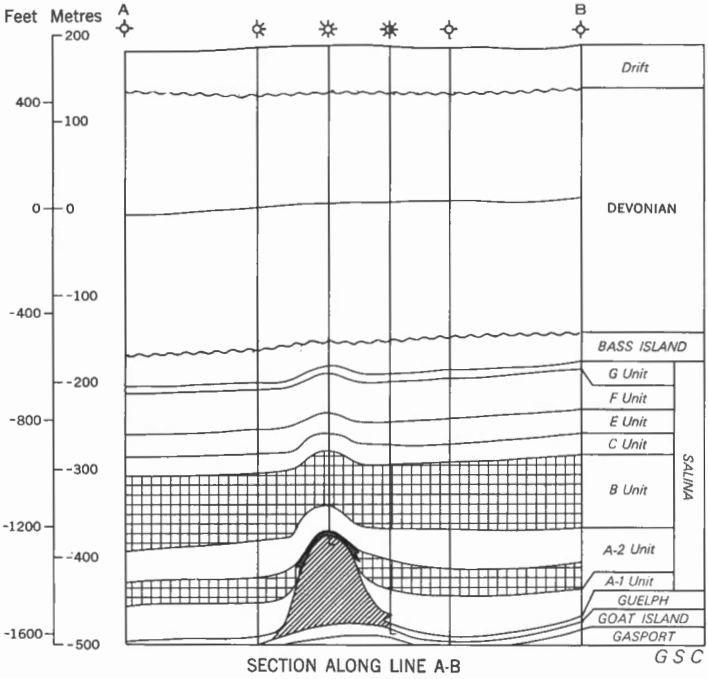


STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet) . . . . . -1400

Feet 0 2500 5000

0 500 1000 1500 Metres



SECTION ALONG LINE A-B

Figure 23. Bickford gas field, Sombra township, Lambton county.

FIELD SUMMARY

No.: 31

Field: Avonry

Year of Discovery: 1963

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Incipient Reef

Approximate Area: 50 acres

Depth to Reservoir: 2,167-2,196 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 1,038 psia

Producing Wells Completed

Oil: nil

Gas: 1

Wells Producing as of December 31, 1964

Oil: nil

Gas: 1

Cumulative Production as of December 31, 1964

Oil: nil

Gas: 31 MMcf

Estimated Ultimate Reserves

Oil: nil

Gas: unknown

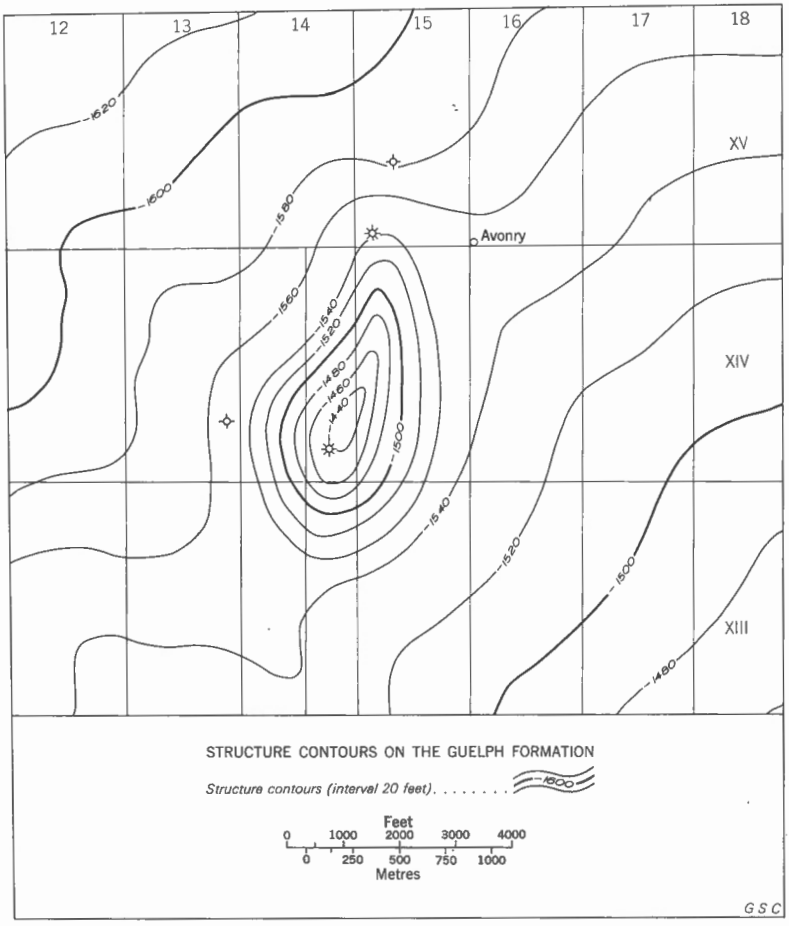


Figure 24. Avonry gas pool, Sombra township, Lambton county.

FIELD SUMMARY

No.: 32

Field: Waubuno

Year of Discovery: 1951

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 180 acres

Depth to Reservoir: 1,823-2,040 feet

Maximum Gross Thickness of Pay: 330

Average Porosity: 9 to 12.5 %

Initial Shut-in Well Head Pressure: 931 psig

Producing Wells Completed

Oil: 1
Gas: 7

Wells Producing as of December 31, 1964

Oil: nil
Gas: 6

Cumulative Production as of December 31, 1964

Oil: 1,984 bbls (Produced during 1959 and 1960)
Gas: 6,036 MMcf

Estimated Ultimate Reserves

Oil: 1,984 bbls
Gas: 9,247 MMcf

This reservoir is now being used as a gas storage pool. Gas injection commenced on August 18, 1960.

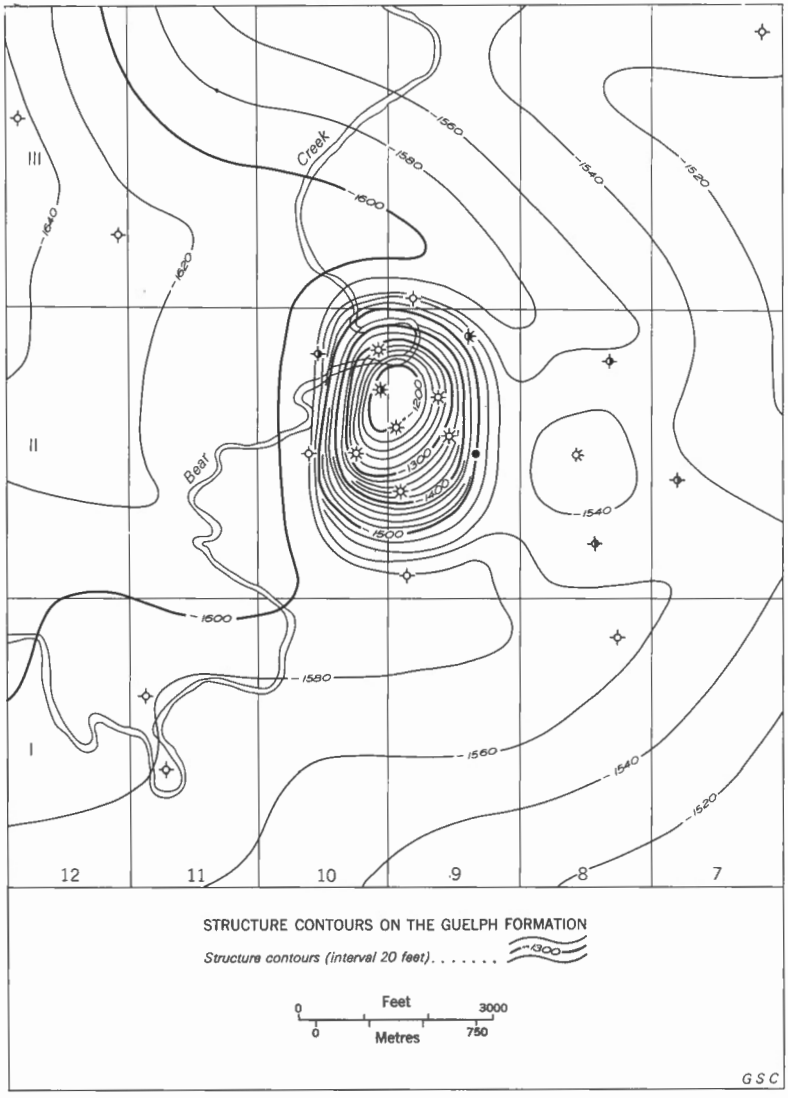


Figure 25. Waubuno gas field, Moore township, Lambton county.

FIELD SUMMARY

No.: 33

Field: Kimball-Colinville

Year of Discovery: 1947

Producing Formation: Salina A-1 and Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 1,660 acres

Depth to Reservoir: 1,985-2,378

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 910 psia

Producing Wells Completed

Oil: 6 (2 of these also yielded gas)
Gas: 24

Wells Producing as of December 31, 1964

Oil: 4
Gas: 23

Cumulative Production as of December 31, 1964

Oil: 91,193 bbls
Gas: 34,300 MMcf

Estimated Ultimate Reserves

Oil: 108,000 bbls
Gas: 42,000 MMcf

This field was designated as a gas storage pool on December 14, 1962. Gas injection commenced in 1965.

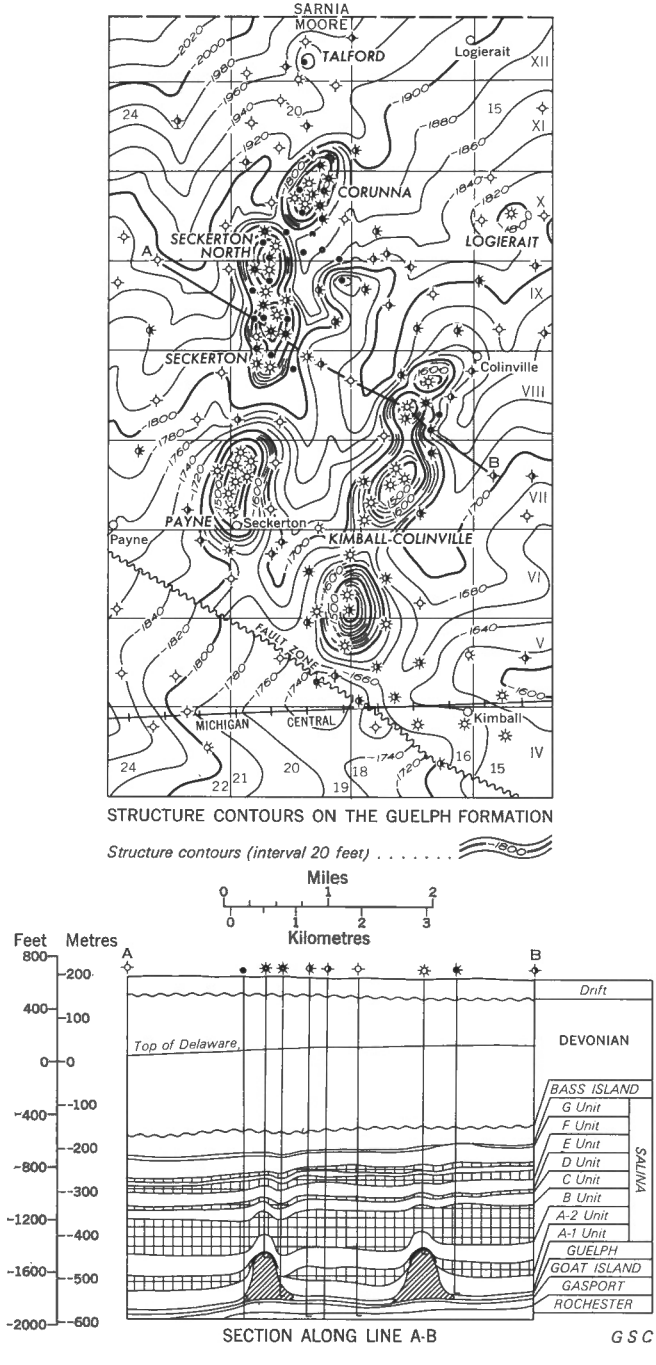


Figure 26. Payne, Seckerton, Seckerton North, Corunna, Kimball-Colinville, Logierait, and Talford gas and oil pools, Moore township, Lambton county..

FIELD SUMMARY

No.:	34
Field:	Payne
Year of Discovery:	1949
Producing Formation:	Guelph
Reservoir Type:	Dolomite
Type of Structure or Trap:	Pinnacle Reef
Approximate Area:	382 acres
Depth to Reservoir:	1,963-2,385 feet
Maximum Gross Thickness of Pay:	394 feet
Average Porosity:	9 to 12.5 %
Initial Shut-in Well Head Pressure:	877 psig
Producing Wells Completed	
Oil:	nil
Gas:	9
Wells Producing as of December 31, 1964	
Oil:	nil
Gas:	8
Cumulative Production as of December 31, 1964	
Oil:	nil
Gas:	9,623 MMcf
Estimated Ultimate Reserves	
Oil:	nil
Gas:	19,586 MMcf

This reservoir is now being used as a gas storage pool. Gas injection commenced on August 22, 1957.

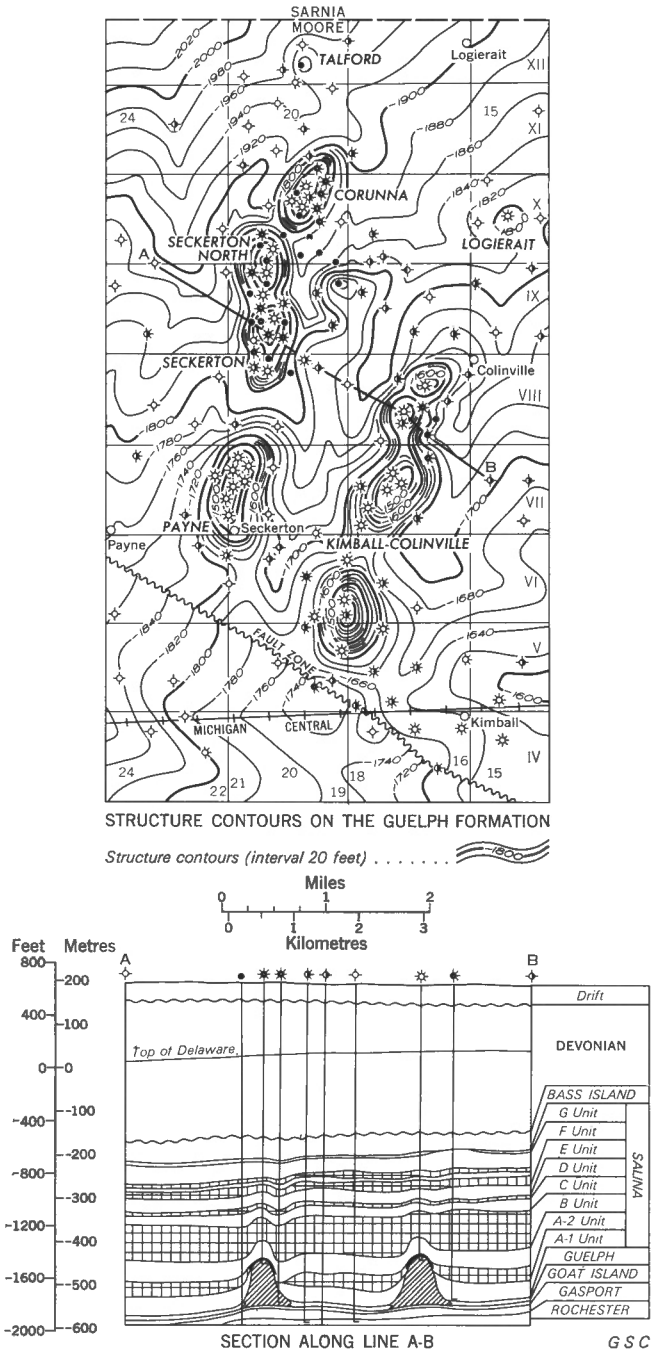


Figure 26. Payne, Seckerton, Seckerton North, Corunna, Kimball-Colinville, Logierait, and Talford gas and oil pools, Moore township, Lambton county.

FIELD SUMMARY

No.: 35

Field: Seckerton-Seckerton North

Year of Discovery: 1952

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 500 acres

Depth to Reservoir: 2,100-2,360 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 938 psig

Producing Wells Completed

Oil: 15
Gas: 8

Wells Producing as of December 31, 1964

Oil: 15
Gas: Solution gas from the oil wells

Cumulative Production as of December 31, 1964

Oil: 576,248 bbls
Gas: 6,671 MMcf

Estimated Ultimate Reserves

Oil: 1,030,000 bbls
Gas: 12,000 MMcf

This reservoir is now being used as a gas storage pool. Gas injection commenced in June, 1964.

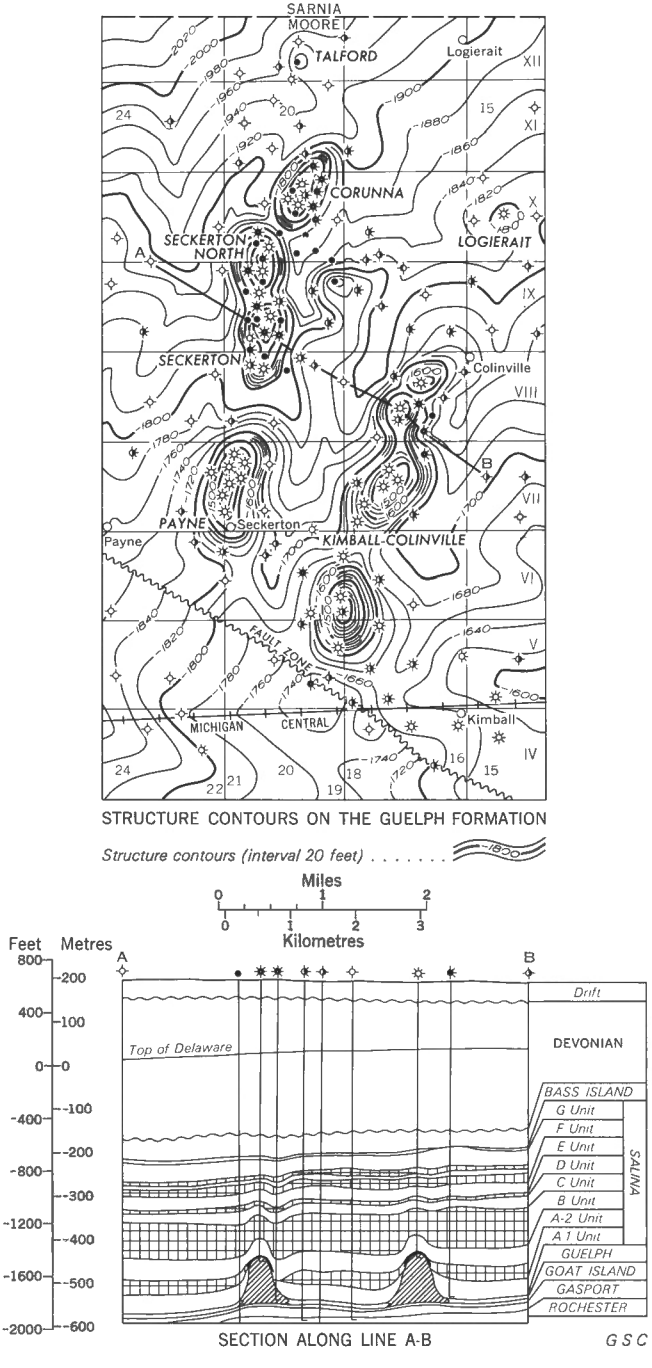


Figure 26. Payne, Seckerton, Seckerton North, Corunna, Kimball-Colinville, Logierait, and Talford gas and oil pools, Moore township, Lambton county.

FIELD SUMMARY

No.: 36

Field: Corunna

Year of Discovery: 1950

Producing Formation: Guelph and Salina A-1

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 350 acres

Depth to Reservoir: 2,150-2,450 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 938 psig

Producing Wells Completed

Oil: 13 (2 of these yielded gas as well)
Gas: 4

Wells Producing as of December 31, 1964

Oil: 10
Gas: Solution gas from the oil wells

Cumulative Production as of December 31, 1964

Oil: 866,951 bbls
Gas: 3,455 MMcf

Estimated Ultimate Reserves

Oil: 1,400,000 bbls
Gas: 5,000 MMcf

This reservoir is now being used as a gas storage pool. Gas injection commenced in June, 1964.

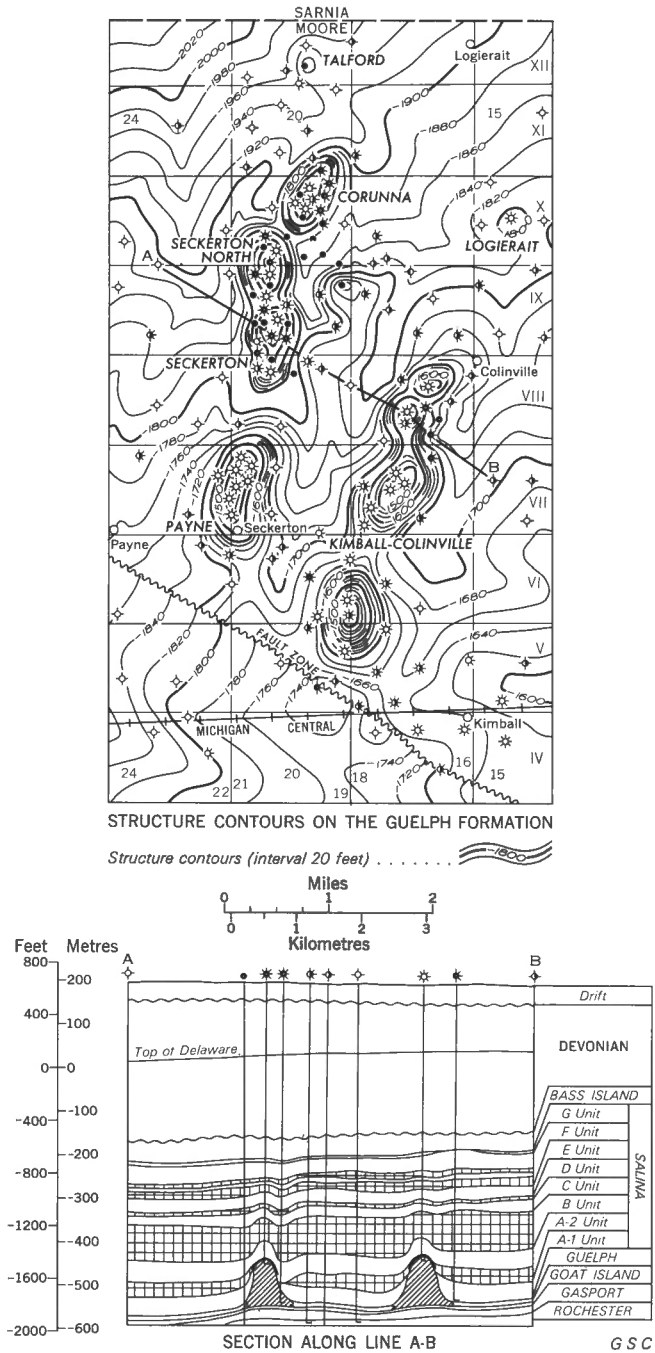


Figure 26. Payne, Seckerton, Seckerton North, Corunna, Kimball-Colinville, Logierait, and Talford gas and oil pools, Moore township, Lambton county.

FIELD SUMMARY

No.: 37

Field: Logierait

Year of Discovery: 1956

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Incipient Reef

Approximate Area: 40 acres

Depth to Reservoir: 2,455-2,460 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: 852 psig

Producing Wells Completed

Oil: nil
Gas: 1

Wells Producing as of December 31, 1964

Oil: nil
Gas: 1

Cumulative Production as of December 31, 1964

Oil: nil
Gas: not recorded

Estimated Ultimate Reserves

Oil: nil
Gas: 100 MMcf

There has been no recorded production from this pool, the land owner uses a small amount for heating purposes.

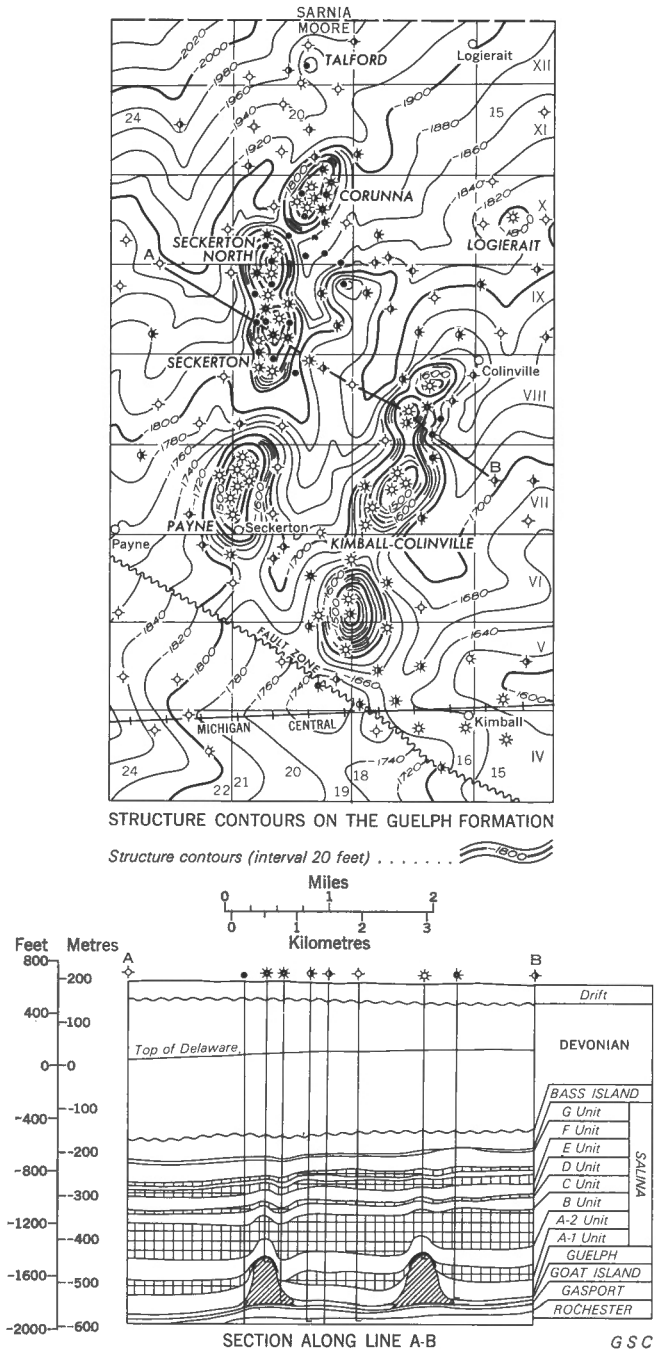


Figure 26. Payne, Seckerton, Seckerton North, Corunna, Kimball-Colinville, Logierait, and Talford gas and oil pools, Moore township, Lambton county.

FIELD SUMMARY

No.: 38

Field: Talford

Year of Discovery: 1959

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Incipient Reef

Approximate Area: 80 acres

Depth to Reservoir: 2,547-2,585 feet

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 940 psig

Producing Wells Completed

Oil: 1

Gas: nil

Wells Producing as of December 31, 1964

Oil: 1

Gas: nil

Cumulative Production as of December 31, 1964

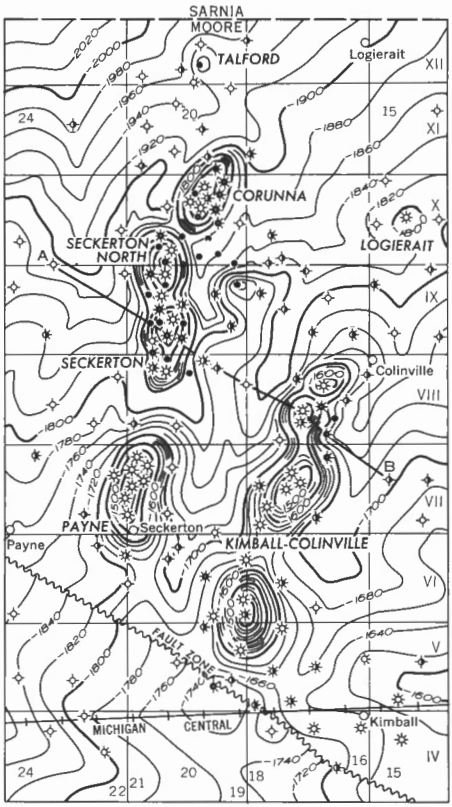
Oil: 10,324 bbls

Gas: nil

Estimated Ultimate Reserves

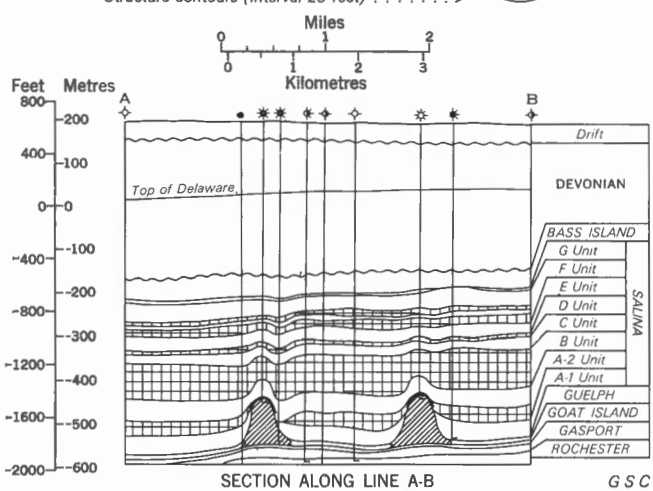
Oil: 37,000 bbls

Gas: nil



STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet) . . . . . .



SECTION ALONG LINE A-B

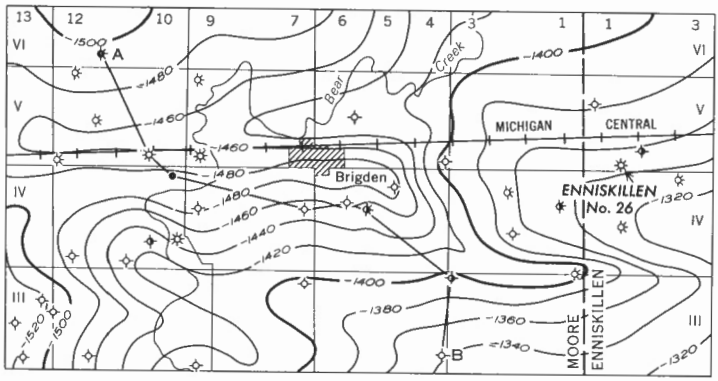
GSC

Figure 26. Payne, Seckerton, Seckerton North, Corunna, Kimball-Colinville, Logierait, and Talford gas and oil pools, Moore township, Lambton county..

FIELD SUMMARY

No.:	39
Field:	Brigden
Year of Discovery:	1963
Producing Formation:	Salina A-1
Reservoir Type:	Dolomite
Type of Structure or Trap:	Anticlinal
Approximate Area:	120 acres
Depth to Reservoir:	2,080-2,248 feet
Average Thickness of Pay:	22 feet (Est.)
Average Porosity:	7 % (Est.)
Initial Bottom Hole Pressure:	905 psia
Producing Wells Completed	
Oil:	2
Gas:	2
Wells Producing as of December 31, 1964	
Oil:	2
Gas:	nil
Cumulative Production as of December 31, 1964	
Oil:	9,100 bbls
Gas:	nil
Estimated Ultimate Reserves	
Oil:	35,000 bbls
Gas:	unknown

Also included in this field is the Moore #11-6 oil pool located in lot 11, con. VI. This well was completed as a Salina A-1 oil producer in 1964.

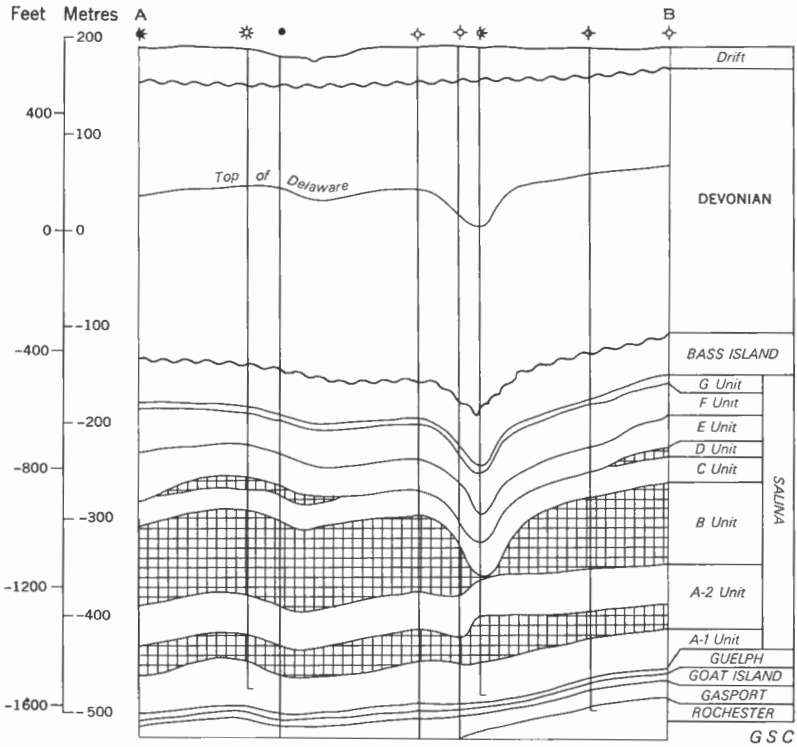


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval 20 feet) . . . . . -1500

Miles 0 1 2

0 1 2 3 Kilometres



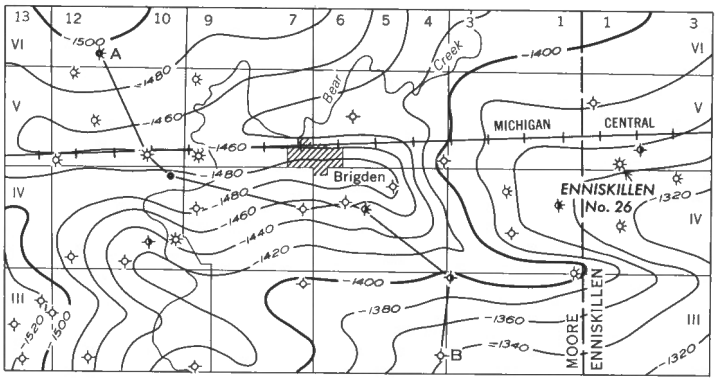
SECTION ALONG LINE A-B

Figure 27. Brigden oil and gas fields, Moore township, Lambton county. (includes Moore No. 11-6 oil pool and Enniskillen No. 26 gas pool).

FIELD SUMMARY

No.:	40
Field:	Enniskillen #26
Year of Discovery:	1952
Producing Formation:	Guelph and Gasport
Reservoir Type:	Dolomite
Type of Structure or Trap:	Anticlinal
Approximate Area:	125 acres
Depth to Reservoir:	2,118-2,188 feet
Average Thickness of Pay:	70 feet
Average Porosity:	7 %
Initial Shut-in Well Head Pressure:	854 psig
Producing Wells Completed	
Oil:	nil
Gas:	2
Wells Producing as of December 31, 1964	
Oil:	nil
Gas:	nil
Cumulative Production as of December 31, 1964	
Oil:	nil
Gas:	nil
Estimated Ultimate Reserves	
Oil:	nil
Gas:	500 MMcf (Estimated)

The second well of this pool was completed in January, 1965.

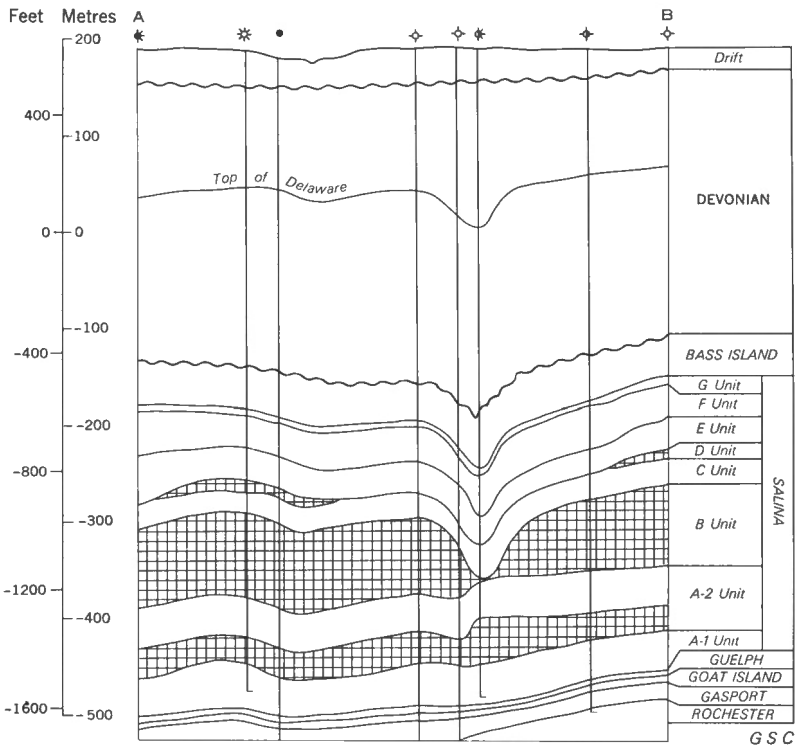


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval 20 feet) . . . . . -1500

Miles 0 1 2

0 1 2 3 Kilometres



SECTION ALONG LINE A-B

Figure 27. Brigden oil and gas fields, Moore township, Lambton county. (includes Moore No. 11-6 oil pool and Enniskillen No. 26 gas pool).

FIELD SUMMARY

No.:	41
Field:	Enniskillen #28
Year of Discovery:	1954
Producing Formation:	Guelph
Reservoir Type:	Dolomite
Type of Structure or Trap:	Pinnacle Reef
Approximate Area:	120 acres
Depth to Reservoir:	1,852-2,035 feet
Maximum Gross Thickness of Pay:	226 feet
Average Porosity:	9 to 12.5 %
Initial Shut-in Well Head Pressure:	767 psig
Producing Wells Completed	
Oil:	nil
Gas:	2
Wells Producing as of December 31, 1964	
Oil:	nil
Gas:	2
Cumulative Production as of December 31, 1964	
Oil:	nil
Gas:	128 MMcf
Estimated Ultimate Reserves	
Oil:	nil
Gas:	3,000 MMcf

This field came into production in December, 1964.

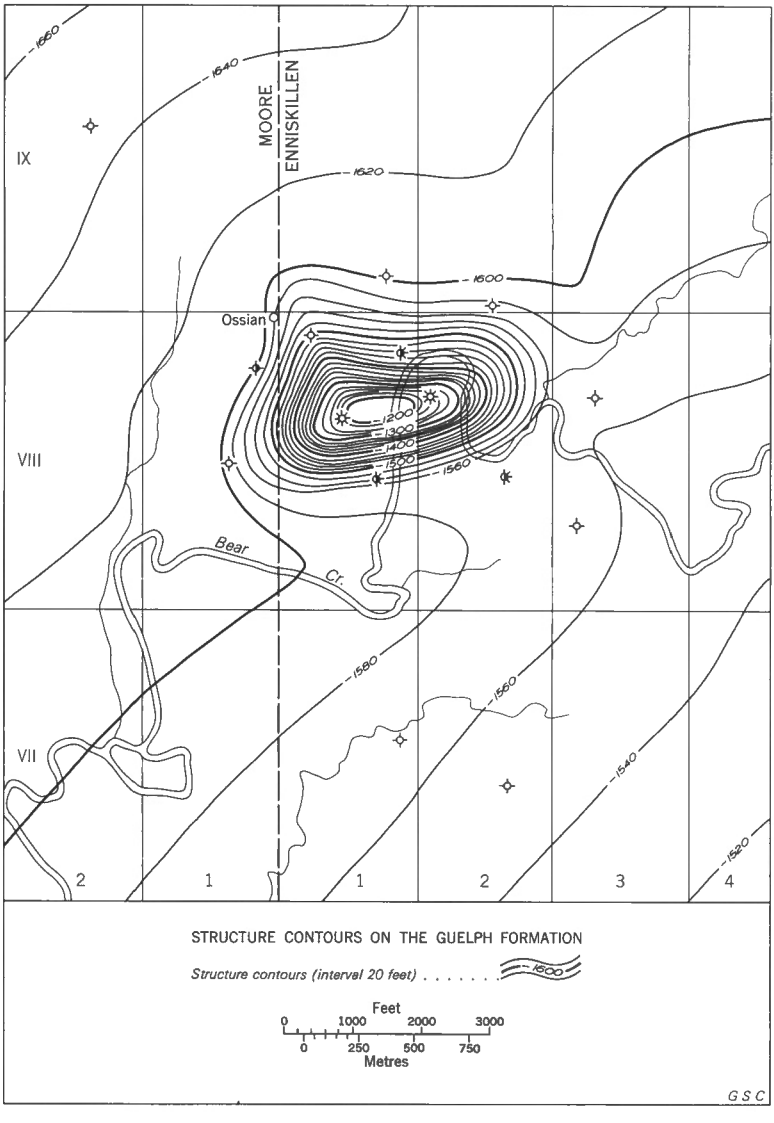


Figure 28. Enniskillen No. 28 gas field, Enniskillen township, Lambton county.

FIELD SUMMARY

No.: 42

Field: Oil Springs

Year of Discovery: 1913

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Incipient Reef and anticlinal

Approximate Area: 240 acres

Depth to Reservoir: 1,850-1,950 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: 900 psig

Producing Wells Completed

Oil: nil
Gas: 10

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

Cumulative Production as of December 31, 1964

Oil: nil
Gas: not accurately recorded

Estimated Ultimate Reserves

Oil: nil
Gas: depleted

Reference:

Caley, J.F. (1945), Palaeozoic Geology of the Windsor-Sarnia area, Ontario; Geol. Surv. Can., Mem. 240, p. 60.

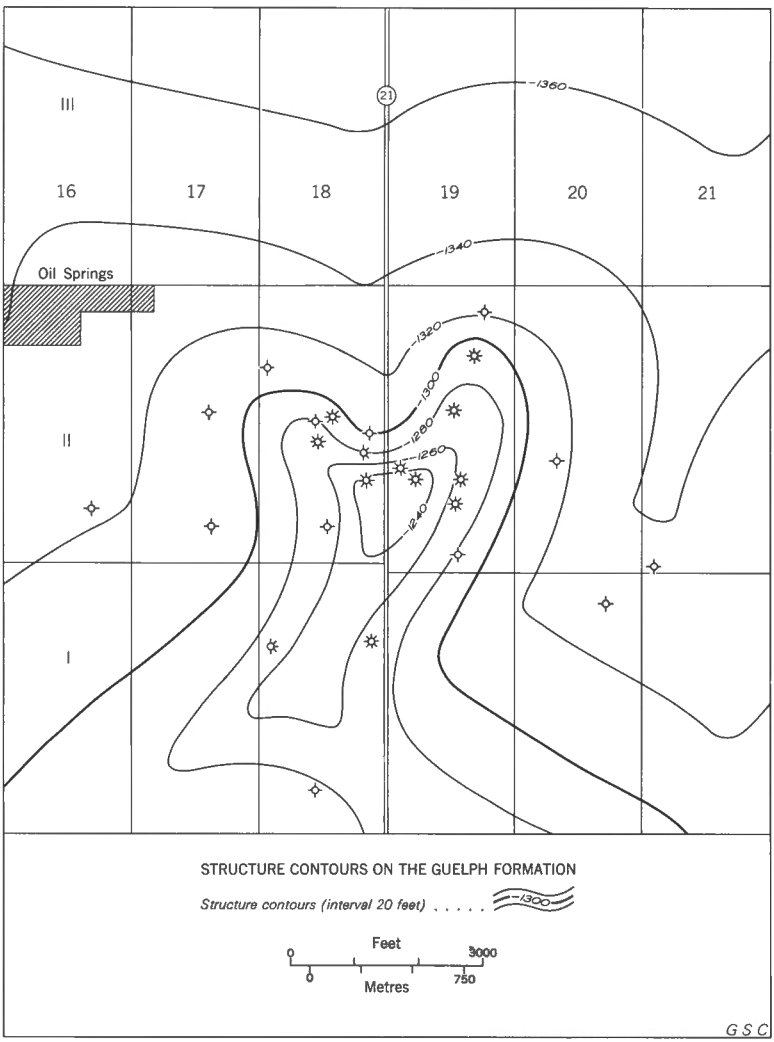


Figure 29. Oil Springs gas field, Enniskillen township, Lambton county.

FIELD SUMMARY

No.: 43

Field: Mandamin

Year of Discovery: 1956

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 75 acres

Depth to Reservoir: 2,169-2,235

Average Thickness of Pay: not available

Average Porosity: not available

Initial Shut-in Well Head Pressure: 692 psig

Producing Wells Completed

Oil: nil

Gas: 1

Wells Producing as of December 31, 1964

Oil: nil

Gas: 1

Cumulative Production as of December 31, 1964

Oil: nil

Gas: 1,638 MMcf

Estimated Ultimate Reserves

Oil: nil

Gas: 2,000 MMcf

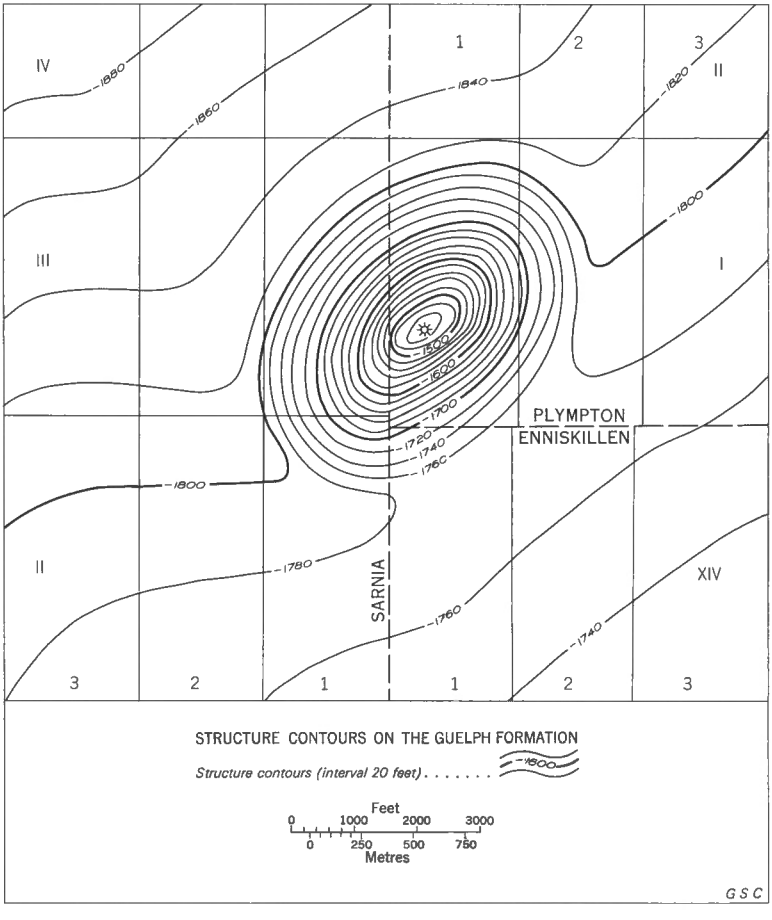


Figure 30. Mandamin gas field, Plympton township, Lambton county.

FIELD SUMMARY

No.:	44
Field:	Wanstead
Year of Discovery:	1958
Producing Formation:	Guelph
Reservoir Type:	Dolomite
Type of Structure or Trap:	Pinnacle Reef
Approximate Area:	80 acres
Depth to Reservoir:	1,982-2,025 feet
Average Thickness of Pay:	40 feet (Est.)
Average Porosity:	8 % (Est.)
Initial Shut-in Pressure:	not recorded (normal)
Producing Wells Completed	
Oil:	4
Gas:	nil
Wells Producing as of December 31, 1964	
Oil:	3
Gas:	nil
Cumulative Production as of December 31, 1964	
Oil:	302,457 bbls
Gas:	nil
Estimated Ultimate Reserves	
Oil:	400,000 bbls
Gas:	nil

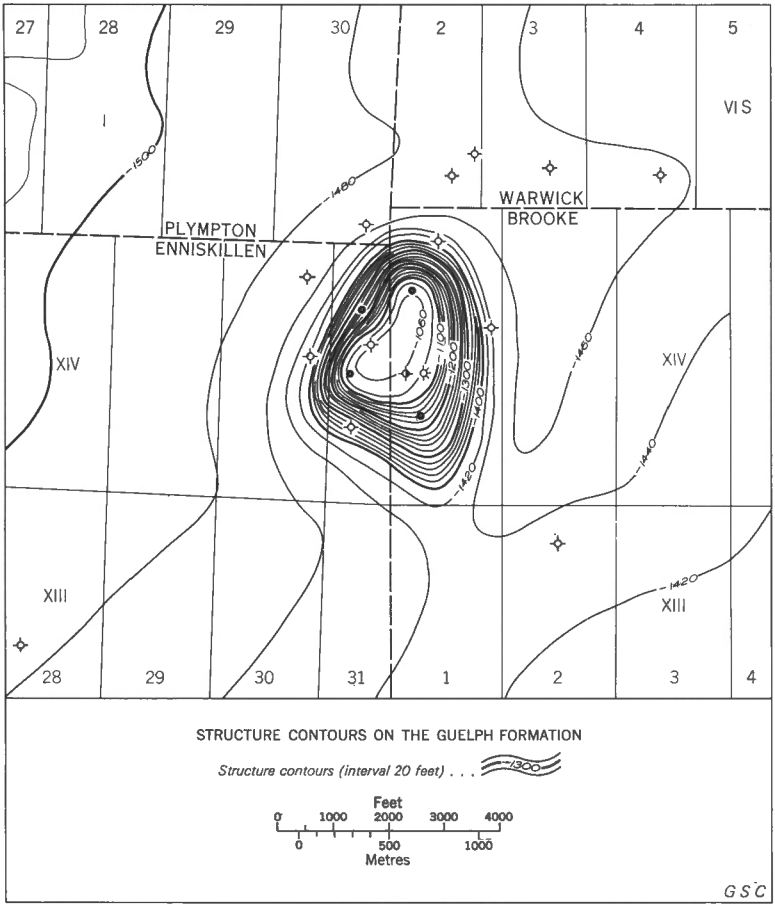


Figure 31. Wanstead oil field, Enniskillen and Brooke townships, Lambton county.

FIELD SUMMARY

No.: 45

Field: Sutorville

Year of Discovery: 1963

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Incipient Reef

Approximate Area: 40 acres

Depth to Reservoir: 1,968-2,058 feet

Average Thickness of Pay: 25 feet (Est.)

Average Porosity: 8 % (Est.)

Initial Shut-in Well Head Pressure: not recorded (normal)

Producing Wells Completed

Oil: 2
Gas: nil

Wells Producing as of December 31, 1964

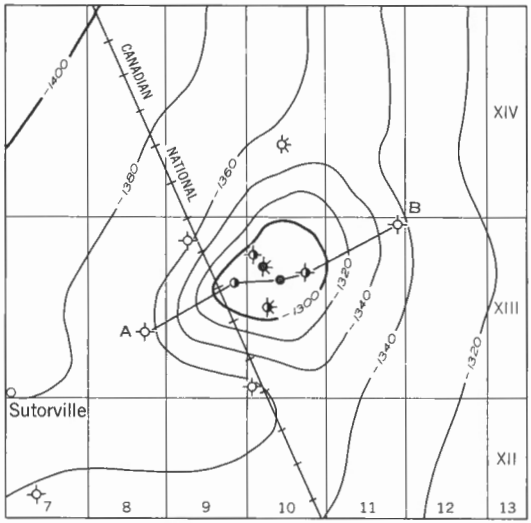
Oil: 2
Gas: nil

Cumulative Production as of December 31, 1964

Oil: 14,100 bbls
Gas: nil

Estimated Ultimate Reserves

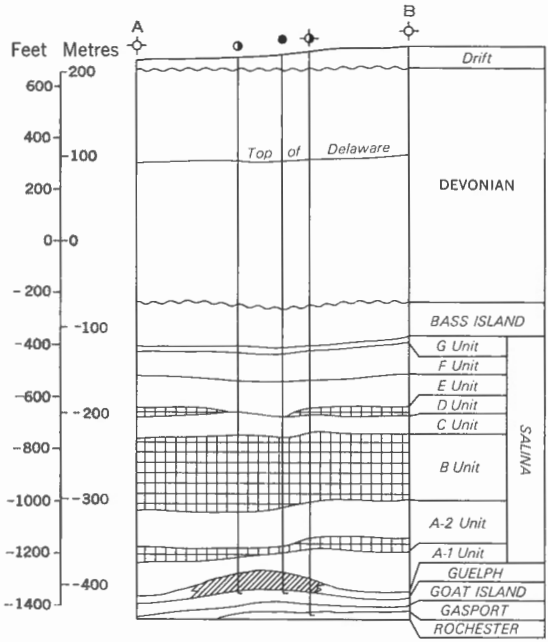
Oil: 65,000 bbls (Primary)
Gas: nil



STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet) . . . . . -1300

Feet
0 2500 5000
0 750 1500
Metres



SECTION ALONG LINE A-B

GSC

Figure 32. Sutorville oil field, Brooke township, Lambton county.

FIELD SUMMARY

No.: 46

Field: Warwick

Year of Discovery: 1953

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 80 acres

Depth to Reservoir: 1,760-1,881 feet

Average Thickness of Pay: 70 feet

Average Porosity: 8 % (Est.)

Initial Shut-in Well Head Pressure: 1,065 psig

Producing Wells Completed

Oil: 4

Gas: 2

Wells Producing as of December 31, 1964

Oil: 3

Gas: nil

Cumulative Production as of December 31, 1964

Oil: 437,466 bbls

Gas: nil

Estimated Ultimate Reserves

Oil: 550,000 bbls

Gas: nil

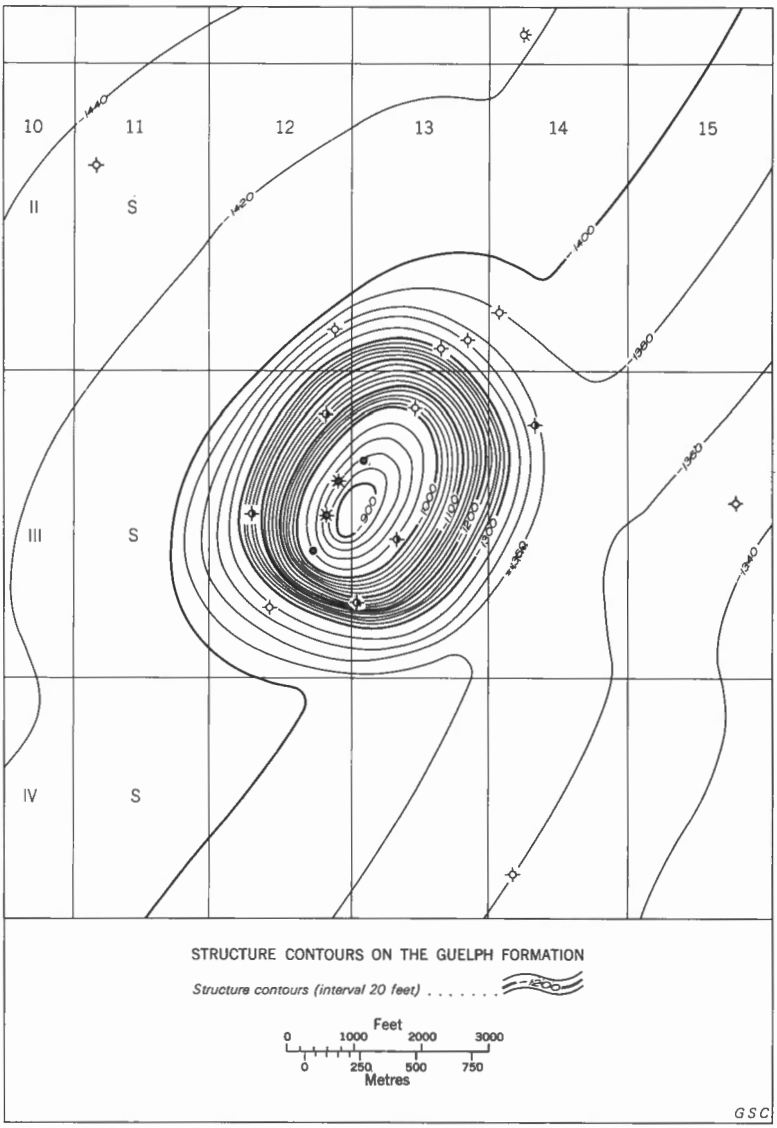


Figure 33. Warwick oil field, Warwick township, Lambton county.

FIELD SUMMARY

No.:	47
Field:	Grand Bend
Year of Discovery:	1955
Producing Formation:	Guelph
Reservoir Type:	Dolomite
Type of Structure or Trap:	Pinnacle Reef
Approximate Area:	100 acres
Depth to Reservoir:	1,764-1,862 feet
Average Thickness of Pay:	70 feet (gross); 50 feet (net)
Average Porosity:	7.5 %
Initial Reservoir Pressure:	765 psig
Producing Wells Completed	
Oil:	5
Gas:	nil
Wells Producing as of December 31, 1964	
Oil:	2
Gas:	nil
Cumulative Production as of December 31, 1964	
Oil:	328,356 bbls
Gas:	nil
Estimated Ultimate Reserves	
Oil:	400,000 bbls
Gas:	nil

The operators of this field began a waterflood program in March, 1962. Water injection has since been suspended pending further studies (personal communication). For further details refer to the reference given below.

Reference:

Andrews, D.P. (1962), Grand Bend Waterflood; Ont. Petrol. Institute, 1st Ann. Conference.

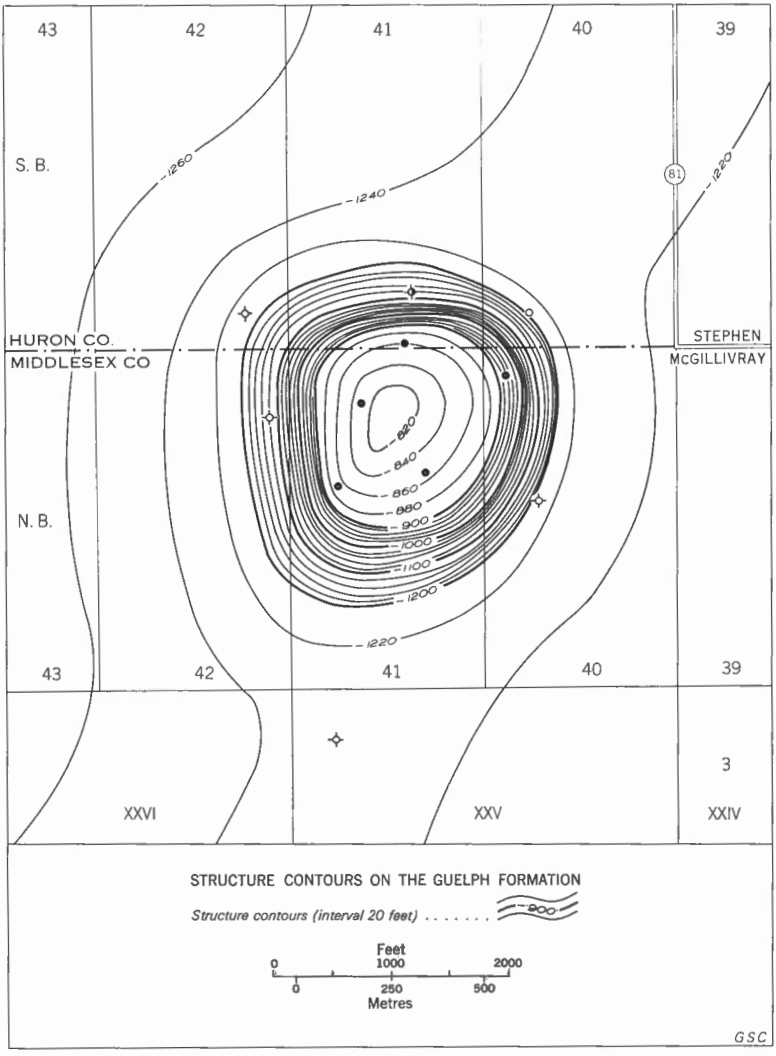


Figure 34. Grand Bend oil field, McGillivray township, Middlesex county and Stephen township, Huron county.

FIELD SUMMARY

No.: 48

Field: Dashwood

Year of Discovery: 1955

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 40 acres

Depth to Reservoir: 1,702-1,725 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: 431 psig

Producing Wells Completed

Oil: nil
Gas: 1

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

Cumulative Production as of December 31, 1964

Oil: nil
Gas: nil

Estimated Ultimate Reserves

Oil: nil
Gas: unknown

This pool has never produced any natural gas or oil and was abandoned in 1963 as non-commercial.

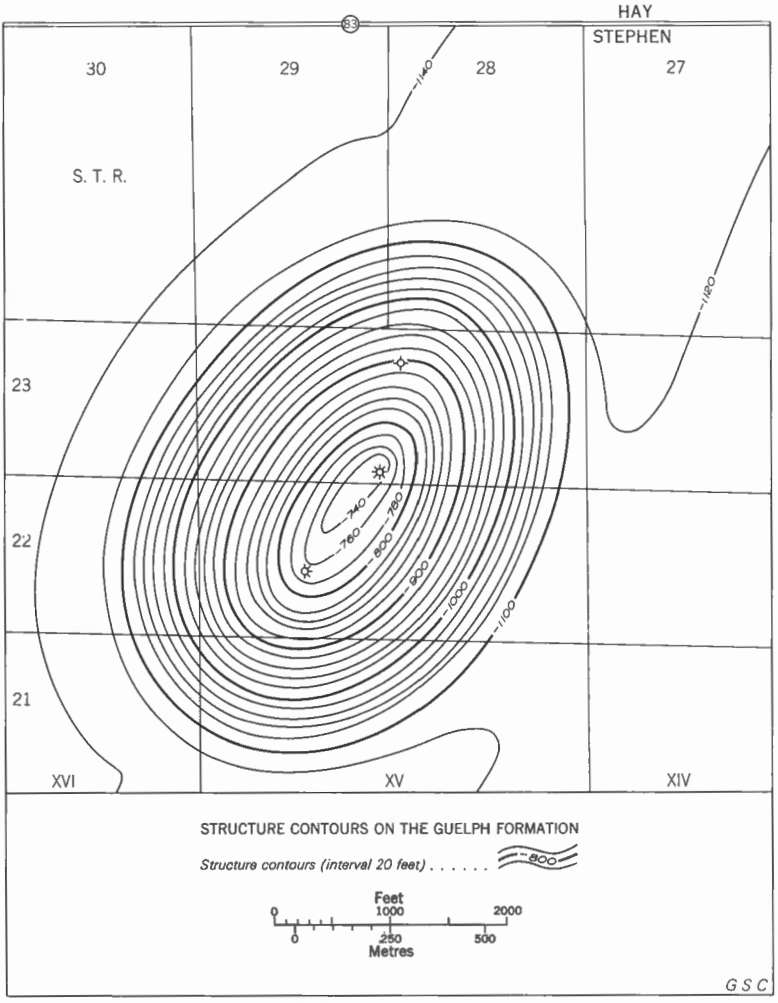


Figure 35. Dashwood gas field, Stephen township, Huron county.

FIELD SUMMARY

No.: 49

Field: Zurich

Year of Discovery: 1954

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 90 acres

Depth to Reservoir: 1,795-1,950 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: 442 psig

Producing Wells Completed

Oil: nil
Gas: 2

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

Cumulative Production as of December 31, 1964

Oil: nil
Gas: nil

Estimated Ultimate Reserves

Oil: nil
Gas: unknown

This pool has never produced any natural gas or petroleum and was abandoned in 1963 as non-commercial.

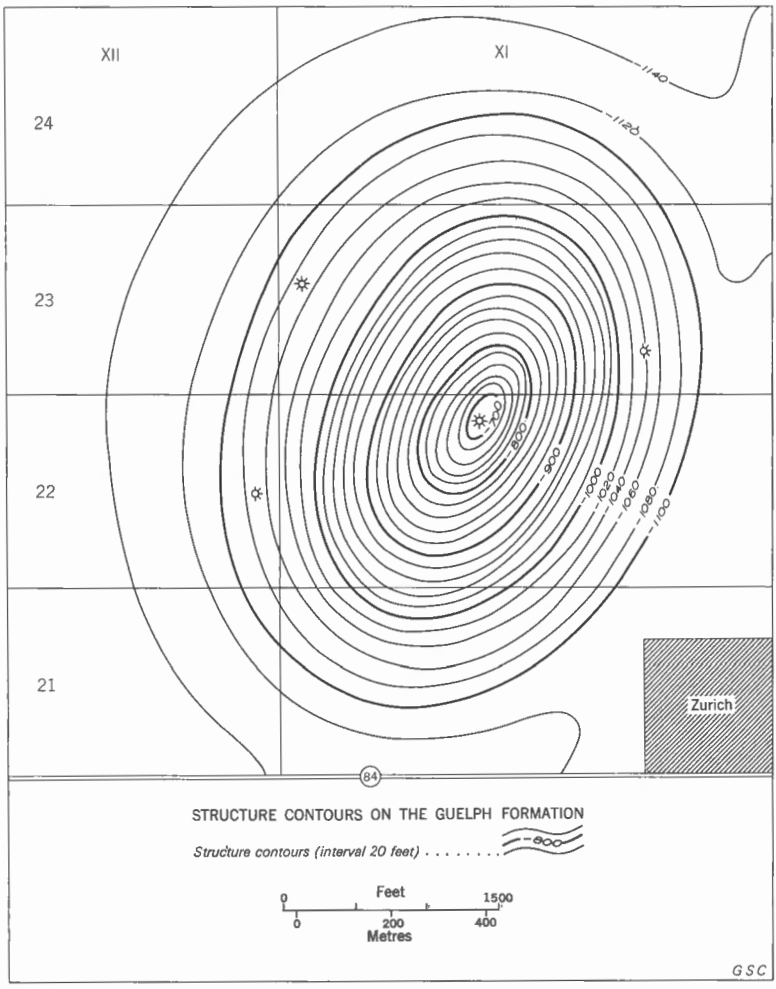


Figure 36. Zurich gas field, Hay township, Huron county.

FIELD SUMMARY

No.: 50

Field: Bayfield

Year of Discovery: 1956

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Pinnacle Reef

Approximate Area: 230 acres

Depth to Reservoir: 1,519-1,906 feet

Average Thickness of Pay: 160 feet (Gross)

Average Porosity: not available

Initial Shut-in Well Head Pressure: 443 psia

Producing Wells Completed

Oil: nil

Gas: 2

Wells Producing as of December 31, 1964

Oil: nil

Gas: 2

Cumulative Production as of December 31, 1964

Oil: nil

Gas: 1,321 MMcf

Estimated Ultimate Reserves

Oil: nil

Gas: 2,000 MMcf

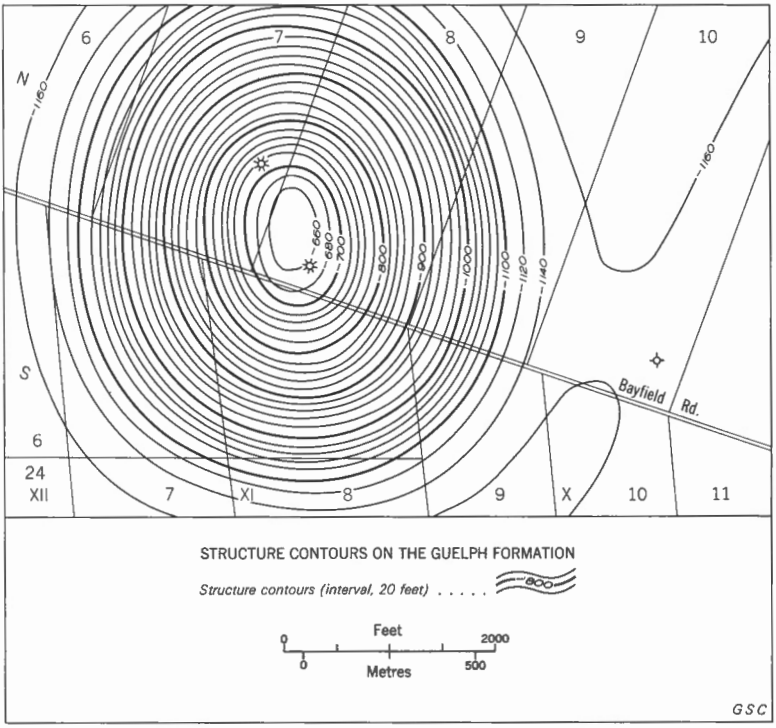


Figure 37. Bayfield gas field, Stanley township, Huron county.

FIELD SUMMARY

No.: 51a

Field: Newbury

Year of Discovery: 1930

Producing Formation: Salina A-1 and Grimsby

Reservoir Type: Dolomite and Sandstone

Type of Structure or Trap: Anticlinal and stratigraphic

Approximate Area: 240 acres

Depth to Reservoir: 1,510 and 1,865 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: A-1 740 psig; Grimsby 950 psig

Producing Wells Completed

Oil: nil
Gas: 5

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

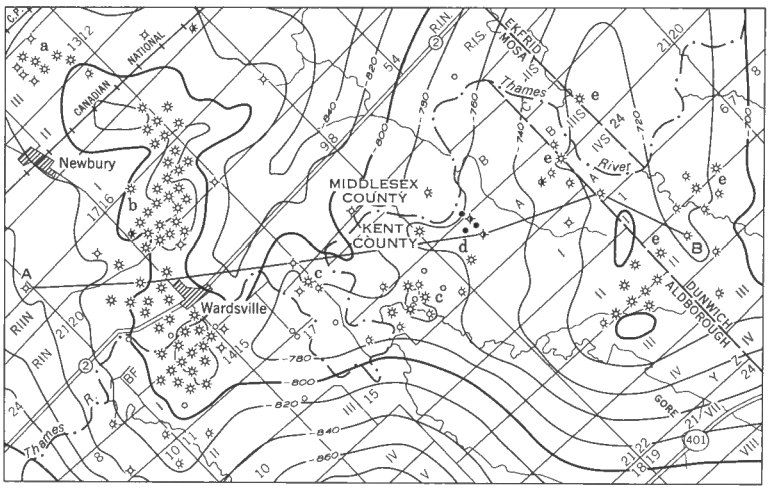
Cumulative Production as of December 31, 1964

Oil: nil
Gas: not recorded

Estimated Ultimate Reserves

Oil: nil
Gas: depleted

There is no recorded production from this pool.

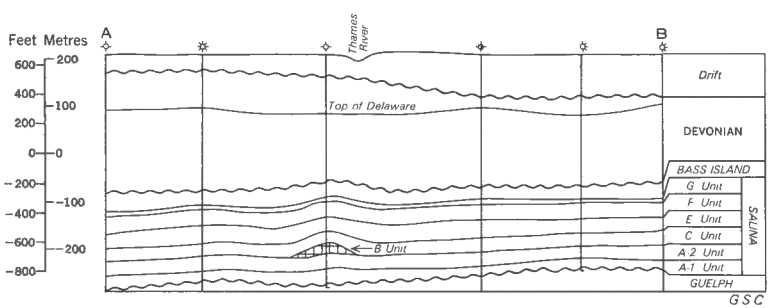


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) . . . -800

Miles 0 1 2 3

Kilometres 0 1 2 3 4

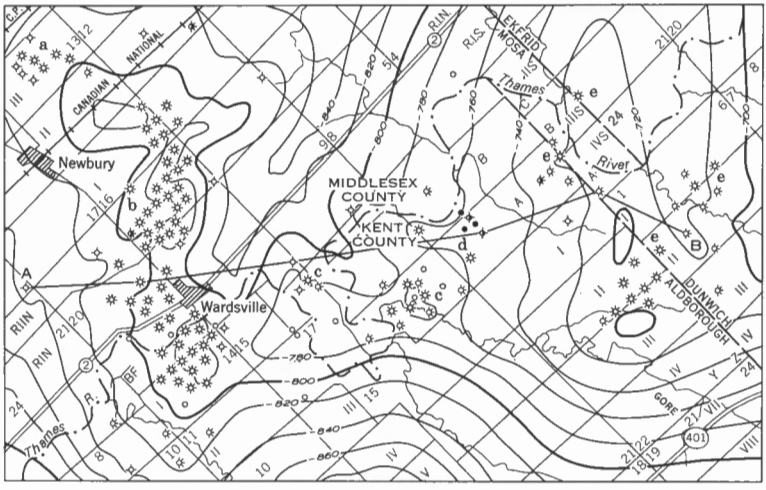


SECTION ALONG LINE A-B

Figure 38. Mosald gas field, Aldborough-Dunwich townships, Elgin county and Mosa-Ekfrid townships, Middlesex county: a, Newbury pool; b, Wardsville pool; c, Woodgreen pool; d, Crinan pool; e, Townline pool.

FIELD SUMMARY

No.:	51b
Field:	Wardsville
Year of Discovery:	1948
Producing Formation:	Salina A-1 unit
Reservoir Type:	Dolomite
Type of Structure or Trap:	Anticlinal
Approximate Area:	2,760 acres
Depth to Reservoir:	1,214-1,510 feet
Average Thickness of Pay:	10 to 12 feet
Average Porosity:	10 % (Estimated)
Initial Shut-in Well Head Pressure:	750 psig
Producing Wells Completed	
Oil:	nil
Gas:	55
Wells Producing as of December 31, 1964	
Oil:	nil
Gas:	20
Cumulative Production as of December 31, 1964	
Oil:	nil
Gas:	2,287 MMcf
Estimated Ultimate Reserves	
Oil:	nil
Gas:	2,400 MMcf

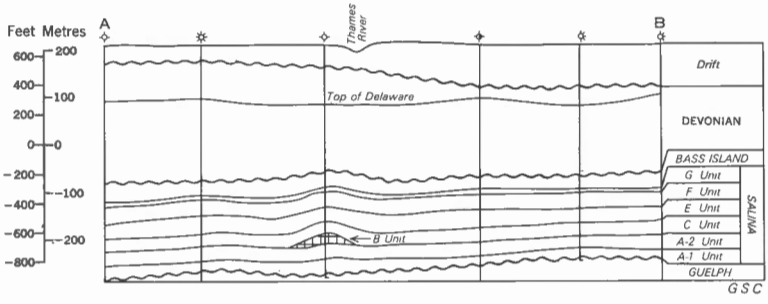


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) . . . -800-

Miles 0 1 2 3

Kilometres 0 1 2 3 4



SECTION ALONG LINE A-B

Figure 38. Mosald gas field, Aldborough-Dunwich townships, Elgin county and Mosa-Ekfrid townships, Middlesex county: a, Newbury pool; b, Wardsville pool; c, Woodgreen pool; d, Crinan pool; e, Townline pool.

FIELD SUMMARY

No.: 51c

Field: Woodgreen

Year of Discovery: 1948

Producing Formation: Salina A-1

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal

Approximate Area: 320 acres

Depth to Reservoir: 1,410-1,490 feet

Average Thickness of Pay: 12 feet

Average Porosity: 15 %

Initial Shut-in Well Head Pressure: 770 psig

Producing Wells Completed

Oil: nil
Gas: 5

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

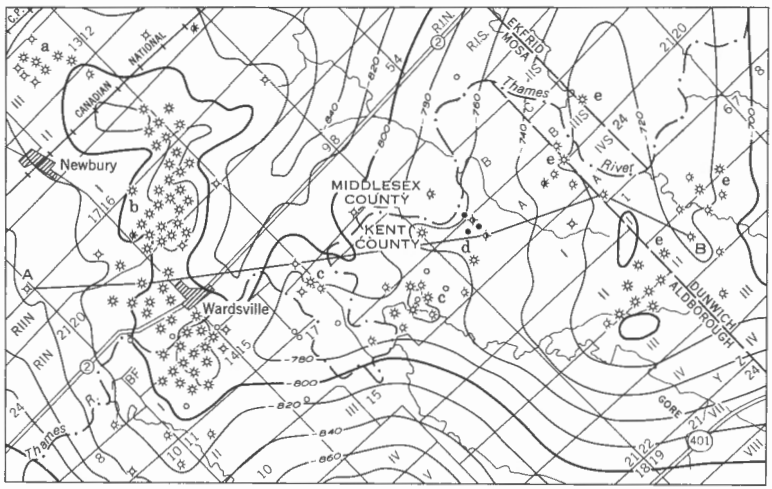
Cumulative Production as of December 31, 1964

Oil: nil
Gas: 600 MMcf (Est.)

Estimated Ultimate Reserves

Oil: nil
Gas: 600 MMcf

This pool is now abandoned.

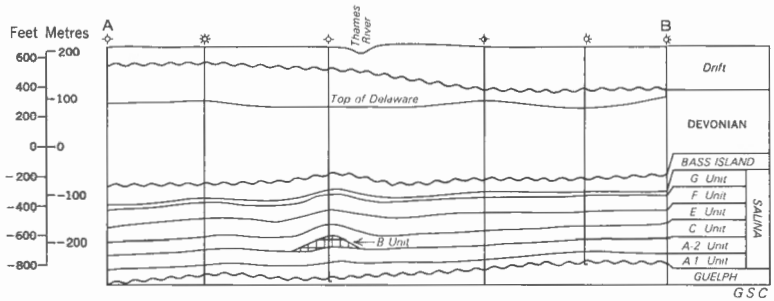


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) . . . 800

Miles 0 1 2 3

Kilometres 0 1 2 3 4



SECTION ALONG LINE A-B

Figure 38. Mosald gas field, Aldborough-Dunwich townships, Elgin county and Mosa-Ekfrid townships, Middlesex county: a, Newbury pool; b, Wardsville pool; c, Woodgreen pool; d, Crinan pool; e, Townline pool.

FIELD SUMMARY

No.: 51d

Field: Crinan

Year of Discovery: 1954

Producing Formation: Salina A-1 unit

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal

Approximate Area: 340 acres

Depth to Reservoir: 1,448-1,475 feet

Average Thickness of Pay: unknown

Average Porosity: unknown

Initial Shut-in Well Head Pressure: 825 psig

Producing Wells Completed

Oil: 3

Gas: 2

Wells Producing as of December 31, 1964

Oil: nil

Gas: nil

Cumulative Production as of December 31, 1964

Oil: 2,495 bbls

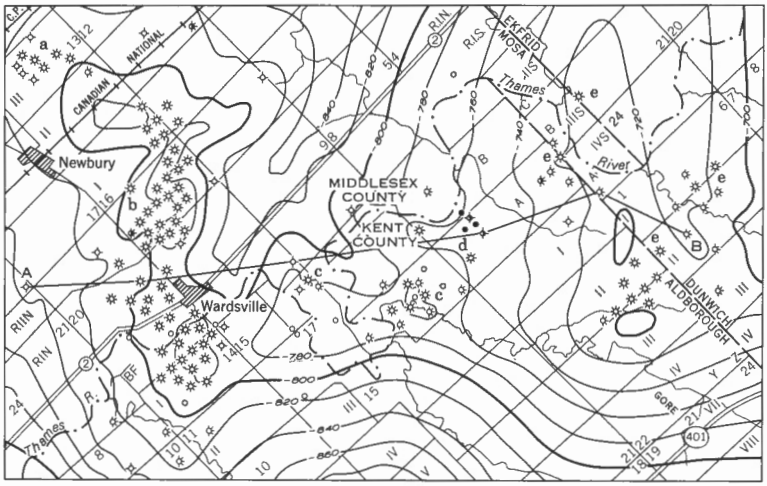
Gas: nil

Estimated Ultimate Reserves

Oil: 2,495 bbls

Gas: nil

The gas wells in this pool have never been produced.

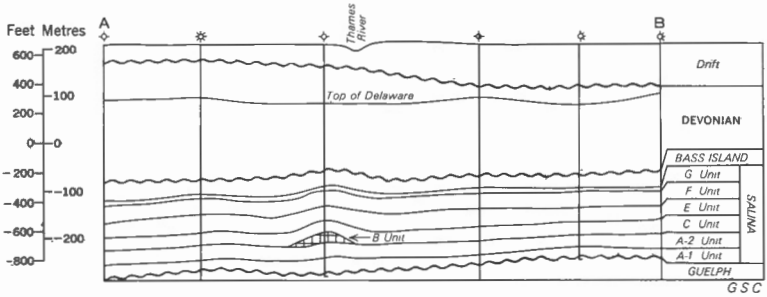


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) . . . -800

Miles 0 1 2 3

0 1 2 3 4 Kilometres



SECTION ALONG LINE A-B

Figure 38. Mosald gas field, Aldborough-Dunwich townships, Elgin county and Mosa-Ekfrid townships, Middlesex county: a, Newbury pool; b, Wardsville pool; c, Woodgreen pool; d, Crinan pool; e, Townline pool.

FIELD SUMMARY

No.: 51e

Field: Townline

Year of Discovery: 1948

Producing Formation: Salina A-2 and A-1

Reservoir Type: Dolomite

Type of Structure or Trap: Anticlinal

Approximate Area: 1,000 acres

Depth to Reservoir: 1,320-1,445 feet

Average Thickness of Pay: 10 to 12 feet

Average Porosity: 12-15 %

Initial Shut-in Well Head Pressure: 770 psig

Producing Wells Completed

Oil: nil

Gas: 12

Wells Producing as of December 31, 1964

Oil: nil

Gas: 11

Cumulative Production as of December 31, 1964

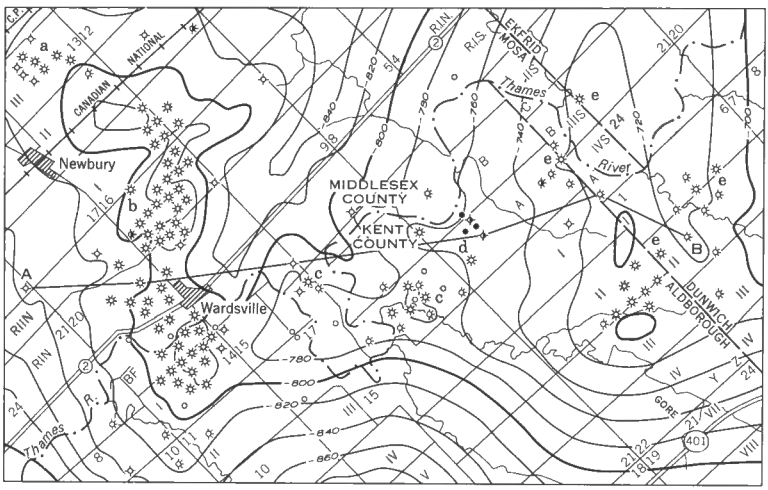
Oil: nil

Gas: 1,680 MMcf

Estimated Ultimate Reserves

Oil: nil

Gas: 3,000 MMcf

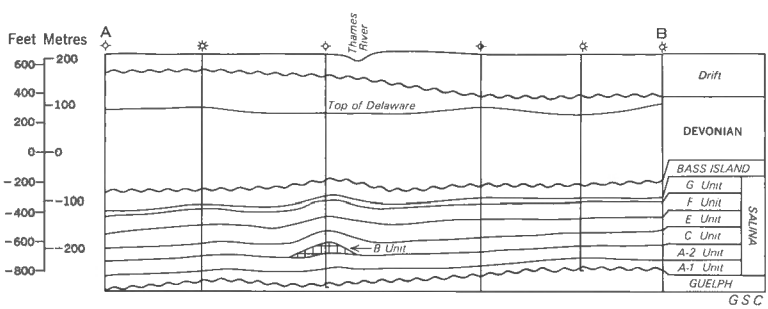


STRUCTURE CONTOURS ON THE SALINA A-1 UNIT

Structure contours (interval, 20 feet) . . . 800

Miles 0 1 2 3

Kilometres 0 1 2 3 4

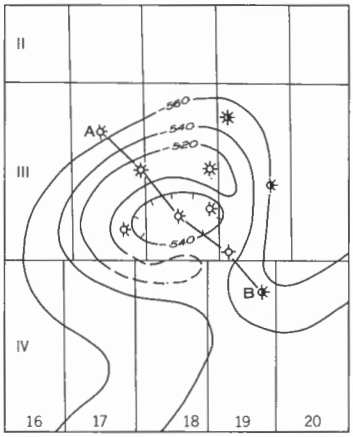


SECTION ALONG LINE A-B

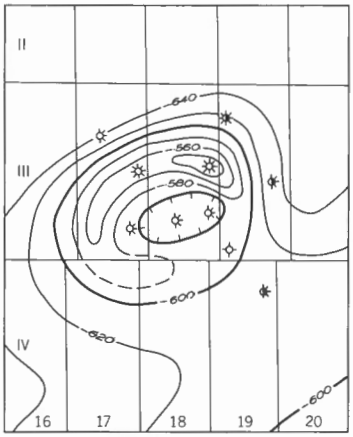
Figure 38. Mosald gas field, Aldborough-Dunwich townships, Elgin county and Mosa-Ekfrid townships, Middlesex county: a, Newbury pool; b, Wardsville pool; c, Woodgreen pool; d, Crinan pool; e, Townline pool.

FIELD SUMMARY

No.:	52
Field:	Cowal
Year of Discovery:	1950
Producing Formation:	Salina (A-2 and A-1) - Guelph
Reservoir Type:	Dolomite
Type of Structure or Trap:	Bioherm Patch Reef
Approximate Area:	250 acres
Depth to Reservoir:	1,150 to 1,250
Maximum Gross Thickness of Pay:	52 feet
Average Porosity:	8 %
Initial Shut-in Well Head Pressure:	630 psig
Producing Wells Completed	
Oil:	nil
Gas:	3
Wells Producing as of December 31, 1964	
Oil:	nil
Gas:	3
Cumulative Production as of December 31, 1964	
Oil:	nil
Gas:	205 MMcf
Estimated Ultimate Reserves	
Oil:	nil
Gas:	484 MMcf



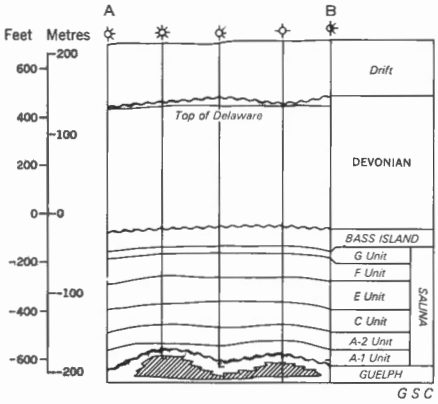
STRUCTURE CONTOURS ON THE SALINA A-1 UNIT



STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval 20 feet) 600

Feet 0 2500 5000
Metres 0 750 1500



SECTION ALONG LINE A-B

Figure 39. Cowal gas field, Dunwich township, Elgin county.

FIELD SUMMARY

No.:	53
Field:	Port Talbot
Year of Discovery:	1918
Producing Formation:	Thorold
Reservoir Type:	Sandstone
Type of Structure or Trap:	Stratigraphic
Approximate Area:	60 acres
Depth to Reservoir:	1,500-1,530 feet
Average Thickness of Pay:	unknown
Average Porosity:	unknown
Initial Shut-in Well Head Pressure:	930 psig
Producing Wells Completed	
Oil:	nil
Gas:	1
Wells Producing as of December 31, 1964	
Oil:	nil
Gas:	nil
Cumulative Production as of December 31, 1964	
Oil:	nil
Gas:	not recorded
Estimated Ultimate Reserves	
Oil:	nil
Gas:	depleted or unknown

Although this single well pool has never yielded any commercial production, it was reported to have an initial flow of 6,000 Mcf/d.

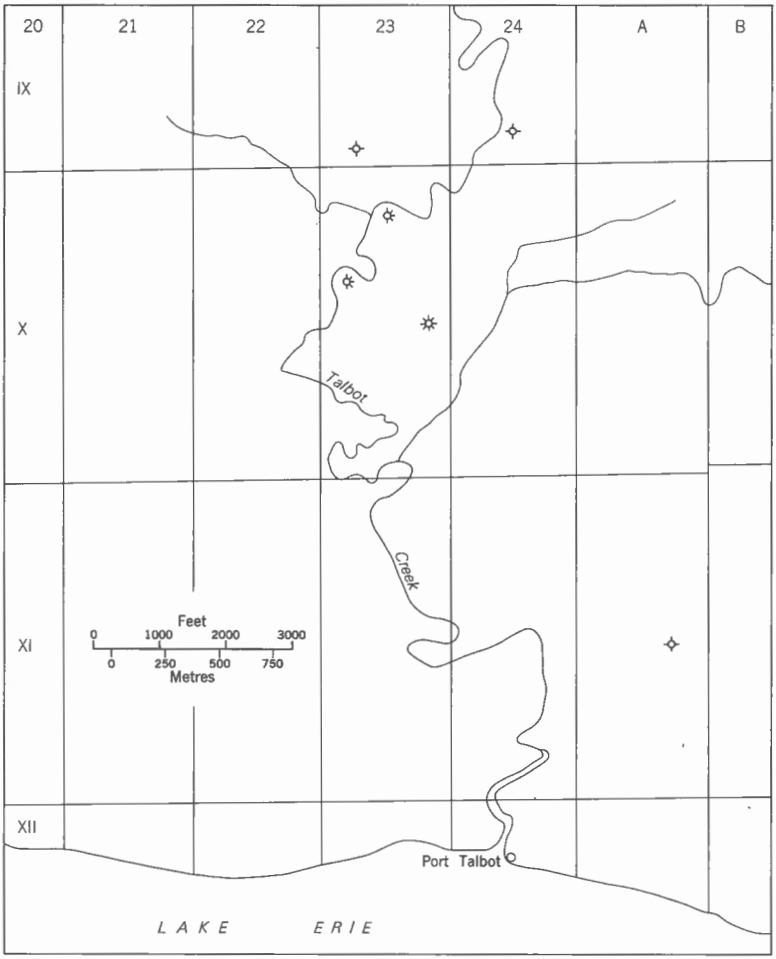


Figure 40. Field plan, Port Talbot gas field, Dunwich township, Elgin county.

FIELD SUMMARY

No.:	54
Field:	Crumlin
Year of Discovery:	1915
Producing Formation:	Guelph
Reservoir Type:	Dolomite
Type of Structure or Trap:	Bioherm Patch Reef
Approximate Area:	80 acres
Depth to Reservoir:	925 feet
Average Thickness of Pay:	unknown
Average Porosity:	unknown
Initial Shut-in Well Head Pressure:	200 psig
Producing Wells Completed	
Oil:	nil
Gas:	5
Wells Producing as of December 31, 1964	
Oil:	nil
Gas:	nil
Cumulative Production as of December 31, 1964	
Oil:	nil
Gas:	15.4 MMcf
Estimated Ultimate Reserves	
Oil:	nil
Gas:	15.4 MMcf

This field was abandoned about the year 1931 (Caley, 1943).

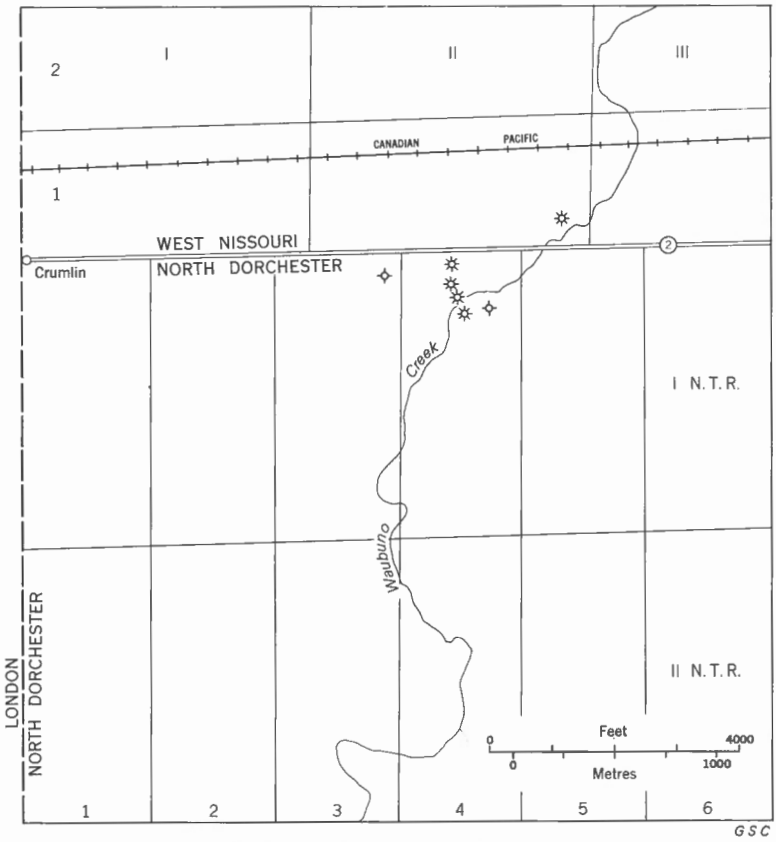


Figure 41. Field plan, Crumlin gas field, North Dorchester and West Nissouri townships, Middlesex county.

FIELD SUMMARY

No.: 55

Field: Malahide

Year of Discovery: 1938

Producing Formation: Guelph

Reservoir Type: Dolomite

Type of Structure or Trap: Bioherm Patch Reef

Approximate Area: 4,000 acres

Depth to Reservoir: 1,100 feet

Average Thickness of Pay: 20 feet

Average Porosity: 9 to 12.5 %

Initial Shut-in Well Head Pressure: 550 psig

Producing Wells Completed

Oil: nil
Gas: 88

Wells Producing as of December 31, 1964

Oil: nil
Gas: nil

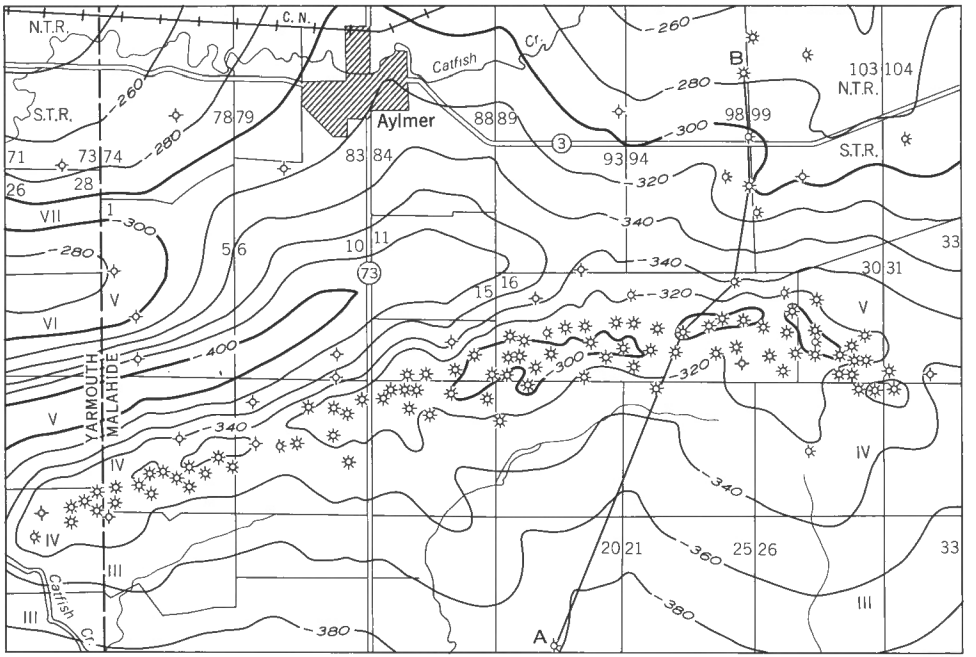
Cumulative Production as of December 31, 1964

Oil: nil
Gas: 4,235 MMcf

Estimated Ultimate Reserves

Oil: nil
Gas: 4,500 MMcf

There has been no production from this field since 1954 and it is now abandoned.

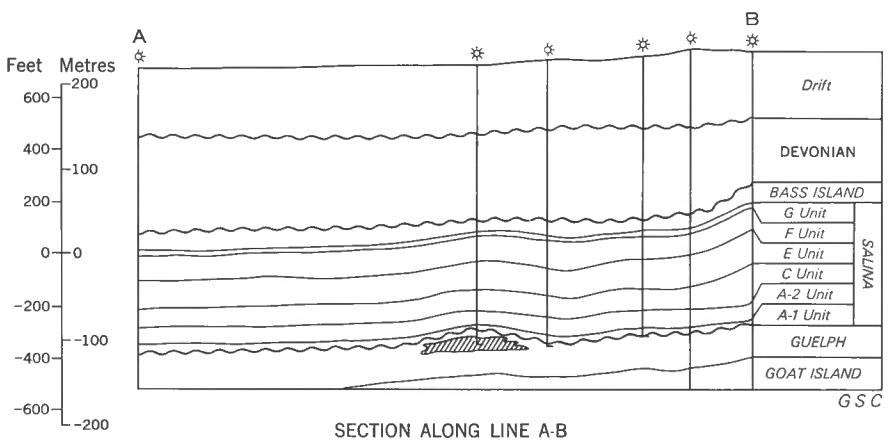


STRUCTURE CONTOURS ON THE GUELPH FORMATION

Structure contours (interval, 20 feet) . . . . . -400

Miles 0 1 2

Kilometres 0 1 2 3



SECTION ALONG LINE A-B

Figure 42. Malahide gas field, Malahide and Yarmouth townships, Elgin county.

FIELD SUMMARY

No.:	56
Field:	Brownsville
Year of Discovery:	1935
Producing Formation:	Guelph
Reservoir Type:	Dolomite
Type of Structure or Trap:	Bioherm Patch Reef
Approximate Area:	2,500 acres
Depth to Reservoir:	910 feet
Maximum Gross Thickness of Pay:	20 feet
Average Porosity:	9 to 12.5 %
Initial Shut-in Well Head Pressure:	455 psig
Producing Wells Completed	
Oil:	nil
Gas:	98
Wells Producing as of December 31, 1964	
Oil:	nil
Gas:	nil
Cumulative Production as of December 31, 1964	
Oil:	nil
Gas:	3,964.7 MMcf
Estimated Ultimate Reserves	
Oil:	nil
Gas:	4,000 MMcf

This field has been abandoned since 1959. Its history is summarized by C.S. Evans in Vol. 46, pt. 5 (1937) at the Ont. Dept. of Mines 46th Ann. Report.

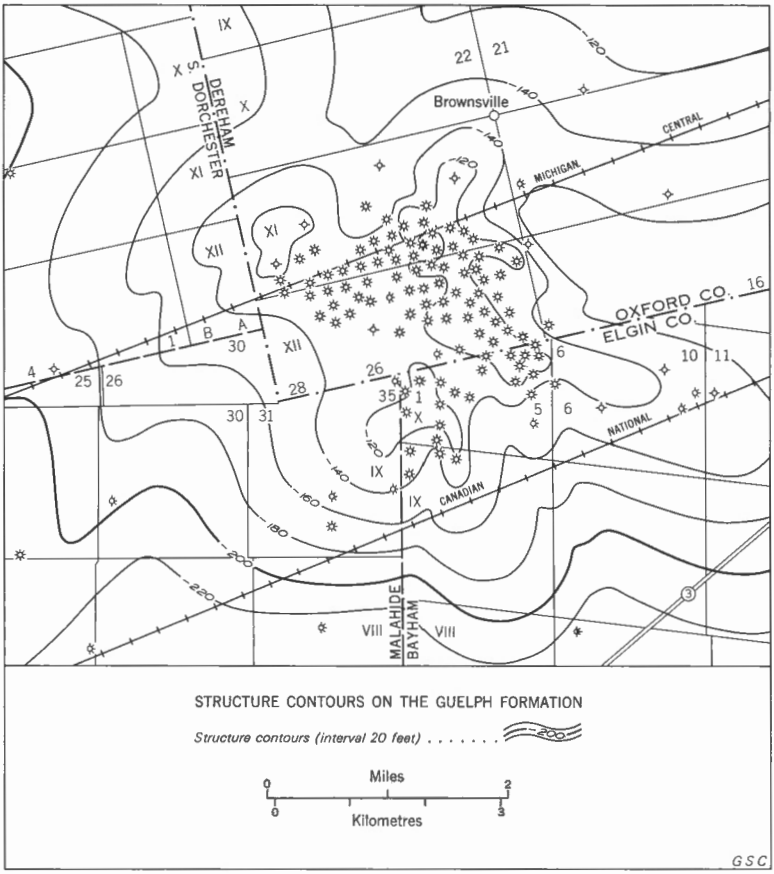


Figure 43. Brownsville gas field, Dereham township, Oxford county, and Bayham and Malahide townships, Elgin county.

FIELD SUMMARY

See pocket figure

No.: 57

Field: Norwich South

Year of Discovery: 1944

Producing Formation: Irondequoit

Reservoir Type: Calcitic Dolomite

Type of Structure or Trap: Porosity development

Approximate Area: 500 acres

Depth to Reservoir: 1,029-1109 feet

Average Thickness of Pay: 5 feet (Est.)

Average Porosity: 8% (Est.)

Initial Shut-in Well Head Pressure: 550 psig

Producing Wells Completed

- Oil: nil
- Gas: 11

Wells Producing as of December 31, 1964

- Oil: nil
- Gas: 6

Cumulative Production as of December 31, 1964

- Oil: nil
- Gas: 351 MMcf

Estimated Ultimate Reserves

- Oil: nil
- Gas: 438 MMcf

FIELD SUMMARY

See pocket figure

No.: 58

Field: Bayham*

Year of Discovery: 1910

Producing Formation: Irondequoit-Thorold-Grimsby

Reservoir Type: Calcitic Dolomite and Blanket Sandstones

Type of Structure or Trap: Stratigraphic and porosity - permeability pinchouts

Approximate Area: 6,400 acres

Depth to Reservoir: 1,178-1,430 feet

Average Thickness of Pay: 10 feet (Est.)

Average Porosity: 10% (Est.)

Initial Shut-in Well Head Pressure: 500-720 psig

Producing Wells Completed

Oil: nil

Gas: 120

Wells Producing as of December 31, 1964

Oil: nil

Gas: 28

Cumulative Production as of December 31, 1964

Oil: nil Gas: 4,205 MMcf**

Estimated Ultimate Reserves

Oil: nil Gas: 4,500 MMcf

*The Bayham field consists of the following four pools: a. Vienna – general area of lots 10-24, con. I-III, Bayham tp., Elgin co.; discovered in 1910. b. Richmond – general area of lots 1-5, con. IV and V, Bayham tp., Elgin co.; discovered in 1916. c. Griffin – general area of lot 16, con. V, Bayham tp., Elgin co.; discovered in 1961. d. Eden – general area of lots 23-28, con. VIII, Bayham tp., Elgin co., and extending slightly eastward into Middleton tp., Norfolk co.; discovered in 1934.

**Cumulative figure includes a small amount of production from 9 wells in the Fairground pool in Houghton tp., Norfolk co.

FIELD SUMMARY

See pocket figure

No.: 59

Field: Norfolk*

Year of Discovery: 1906

Producing Formation: Irondequoit-Grimsby

Reservoir Type: Calcitic Dolomite and blanket Sandstone

Type of Structure or Trap: Stratigraphic and Porosity - Permeability Pinchout

Approximate Area: 41,000 acres (onshore); 6,500 acres (offshore)

Depth to Reservoir: 850-1,700 feet

Average Gross Thickness of Pay: 12 feet (Est.)

Average Porosity: 10% (Est.)

Initial Shut-in Well Head Pressure: 487 psig

Producing Wells Completed

Oil: nil
Gas: 914 (onshore); 38 (offshore)

Wells Producing as of December 31, 1964

Oil: nil
Gas: 570 (onshore); 18 (offshore)

Cumulative Production as of December 31, 1964

Oil: 54 bbls**
Gas: 28,912 MMcf (onshore); 159 MMcf (offshore)

Estimated Ultimate Reserves

Oil: 54 bbls
Gas: 37,900 MMcf

*This field includes the Cultus' pool in lots 7 and 8, Cons. IV and V. Houghton tp., Norfolk co.

**During 1958, one well, Spooner Mines and Oils Ltd. No. 2 Dover, yielded a total of 54 bbls of crude oil from the Whirlpool Formation.

FIELD SUMMARY

See pocket figure

No.: 60

Field: Haldimand

Year of Discovery: 1891

Producing Formation: Irondequoit-Thorold-Grimsby-Whirlpool

Reservoir Type: Calcitic Dolomite and blanket Sandstones

Type of Structure or Trap: Stratigraphic and Porosity - Permeability Pinchout

Approximate Area: 217,860 acres (onshore); 25,860 acres (offshore)

Depth to Reservoir: 500-1,200 feet

Average Gross Thickness of Pay: 15 feet (Est.)

Average Porosity: 10% (Est.)

Initial Shut-in Well Head Pressure: 100-500 psig (dependent on depth)

Producing Wells Completed

Oil: 25 (all in Brant county)
Gas: 4,506 (onshore); 84 (offshore)

Wells Producing as of December 31, 1964

Oil: nil
Gas: 788 (onshore); 90 (offshore)

Cumulative Production as of December 31, 1964

Oil: 41,400 bbls
Gas: 105,651 MMcf (onshore); 5,419 MMcf (offshore)

Estimated Ultimate Reserves

Oil: 41,400 bbls
Gas: 126,000 MMcf

This field includes all the Silurian natural gas and oil production from the bordering counties of Brant, Lincoln, and Wentworth.

The Onondaga Oil Field, named from the township in which it occurs, was discovered in 1910; it accounts for all the crude oil production.
About 60% of this total volume was produced during the first 5 years of operation, and the last record of sales was in 1952.

FIELD SUMMARY

See pocket figure

No.: 61

Field: Welland

Year of Discovery: 1889

Producing Formation: Irondequoit-Thorold-Grimsby-Whirlpool

Reservoir Type: Calcitic Dolomite and blanket Sandstones

Type of Structure or Trap: Stratigraphic and Porosity - Permeability Pinchout

Approximate Area: 92,700 acres (onshore); 200 acres (offshore)

Depth to Reservoir: 760-850 feet

Average Gross Thickness of Pay: 8 feet (Est.)

Average Porosity: 10% (Est.)

Initial Shut-in Well Head Pressure: 525 psig

Producing Wells Completed

Oil: nil
Gas: 962 (onshore); 3 (offshore)

Wells Producing as of December 31, 1964

Oil: nil
Gas: 480 (onshore); 1 (offshore)

Cumulative Production as of December 31, 1964

Oil: nil
Gas: 50,885 MMcf (onshore); 48 MMcf (offshore)

Estimated Ultimate Reserves

Oil: nil
Gas: 54,400 MMcf

The general area contained within lots 8-14, con. V, and the northern portions of lots 10-16, con. IV, Humberstone tp., Welland co., was authorized as the Crowland gas storage pool on February 12, 1965.

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