

13.3 Oil

13.3.1 Reserves

At the end of 1973 Canada's proven reserves of recoverable conventional crude oil and natural gas liquids (propane, butanes and pentanes plus) amounted to 9.3 billion barrels (bbl) and reserves of recoverable natural gas were 52.5 trillion cubic feet (MMMMcf). Most of these reserves are located in Alberta and the estimates do not include reserves attributed to the Athabasca tar sands or recently discovered reserves in Canada's frontier areas. At current production levels these proven reserves are sufficient to continue to supply oil for 12 years and gas for 17 years.

There was a net drop in oil reserves in 1973 for the fourth successive year and for the second year there was a significant decline in proven reserves of gas. Canada's ultimate potentially recoverable reserves, as recently estimated by the Geological Survey of Canada, were placed at 99.2 billion bbl of oil and 782.9 MMMMcF of gas. Potential reserves include, in addition to amounts already produced and proven, amounts "yet to be discovered on the basis of geological predictions".

According to an appraisal of Alberta's oil sands completed this year by the Alberta Energy Resources Conservation Board, the ultimate recoverable reserves of synthetic crude oil from all of Alberta's bituminous deposits amount to 250 billion bbl. Of this amount, approximately 26.5 billion bbl is considered to be recoverable by open cast mining methods similar to the one now being employed by the Great Canadian Oil Sands Limited's plant near Fort McMurray. The remainder is expected to be eventually recovered by *in situ* techniques, which are still in the experimental stage for recovery of oil from the deeper formations.

13.3.2 Exploration and development

Exploration in the frontier areas in 1973 continued at a steady pace achieving several more major gas discoveries in the Arctic. As a result, the gas reserves base there has been enlarged to the point where it is now almost economically feasible to transport the gas to southern markets. In the southern areas, exploratory successes were minimal despite a significant increase in drilling activity. This factor, combined with high production rates, was responsible for the further decline in proven reserves of oil and gas. Details of drilling activity by region appear in Table 13.5.

Western provinces. Exploratory and development drilling increased in 1973 because of the incentive provided by the higher prices for oil. Despite this, no new oil discoveries of any substance were made.

The Alberta government introduced two incentive programs designed to encourage exploration. The first provided a system of deductions from royalties and rentals to cover a portion of the drilling costs for new field exploratory wells. Alberta also extended the remission of taxes and royalties on new oil field discoveries to ensure credits for a five-year period on any discovery prior to the end of 1977. In addition, to enhance the recoverable reserves, the province initiated or encouraged the implementation of several major secondary recovery schemes in 1972 and 1973.

The Saskatchewan government announced early in 1973 its intention to form a Crown corporation to explore for oil and gas, concentrating its efforts in the deeper prospects.

Northern regions. Large-scale exploratory efforts in the Mackenzie Delta began in 1969 and since then there have been two oil discoveries and several gas discoveries. Both oil discoveries are located on Tuktoyaktuk Peninsula and although the wells tested significant quantities of oil, subsequent step-out drilling was unsuccessful.

In the Arctic islands, Panarctic Oils Ltd. made its first oil discovery on Ellesmere Island in 1972 when its Romulus exploratory well encountered three separate oil zones. Shortly afterward, Panarctic reported a light oil show on the southern tip of Thor Island. Such indications have spurred the hope of outlining a field of significant dimensions in the near future.

Eastern off-shore region. The Sable Island area where an initial oil and gas discovery was made in 1971 remained promising during 1972 and 1973. Exploratory tests drilled in this area have established the presence of several gas producing zones and an oil zone which was tested at 300 barrels a day (b/d). The full potential of these zones will not be established until the current evaluation program is completed. During 1972, nine wells were drilled on the Grand