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# Northern Oil and Gas Annual Report 2004

The management of oil and gas resources on Crown lands north of 60°N. latitude in the North west Territories, Nunavut and the northern offshore is a federal responsibility carried out by the Northern Oil and Gas Branch of the Department of Indian Affairs and Northern Development.

Petroleum resource management on Crown lands is exercised under federal legislation. The *Canada Petroleum Resources Act* and its regulations govern the granting and administration of Crown exploration and production rights and set the royalty regime. The *Canada Oil and Gas Operations Act* governs the regulation of petroleum operations and associated benefits requirements. Land, royalty and benefit matters are managed by the department on behalf of the Minister of Indian Affairs and Northern Development while the National Energy Board takes the lead role in approval of operations.

Information on the northern oil and gas regime may be found on the web at: <http://www.ainc-inac.gc.ca/oil/>



Indian and Northern Affairs Canada  
Affaires indiennes et du Nord Canada

Canada

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**Message from the Honourable Andy Scott, P.C., M.P.  
Minister of Indian Affairs and Northern Development and  
Federal Interlocutor for Métis and Non-Status Indians**

An important new step towards a major expansion into Canada's North by the oil and gas industry was taken in 2004.

On October 7, project proponents filed their first round of Mackenzie Gas Project applications. This is the largest northern energy project launched in a generation and could be the largest privately-funded infrastructure project ever undertaken in Canada. This project is estimated at over \$7 billion and could provide 20,000 direct jobs for Canadians.

These applications involve seven federal departments and agencies which are undertaking a closely coordinated effort to ensure a timely, thorough and fair review is delivered, one which balances the interests of Northerners, Aboriginal peoples, industry and all Canadians.

Development in the north passed a crucial milestone near the end of 2004. On December 14, the Prime Minister, in conjunction with the three northern premiers, announced the framework of the first ever jointly-developed Northern Strategy. This initiative is a key indicator of how much things have changed in the North in recent years. Northerners are taking larger roles on northern management boards, claims and self-government agreements continue to be settled, and partnerships between Northerners and industry are flourishing.

I am also pleased to note that overall investment exploration investment by the oil and gas sector was maintained through 2004. As a result, there were sustained opportunities for employment and business for residents of many remote Northern communities.

I invite you to consult this report for details on the exploration and development of Canada's northern oil and gas resources over the past year.

In accordance with section 109 of the *Canadian Petroleum Resources Act*, I am pleased to table before Parliament this annual report on the administration of oil and gas in the Northwest Territories, Nunavut and the northern offshore for the year ending December 31, 2004.

April 22, 2005

*Canada's Frontier Lands*



**Area under the responsibility of the  
Minister of Indian and Northern Affairs Canada**

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## NORTHERN OIL AND GAS ACTIVITIES

### Introduction

Oil and gas exploration has had a long history in the North, going back to the discovery well drilled at Norman Well in the 1920s with distinct cycles of exploration occurring from the 1960s to 1985.

Current interest in the North dates from the mid 1990s. Oil and gas exploration and investment began to return to the North in 1995 with the issuance of new exploration licences by the Crown in the southern North west Territories, closely followed by the central Mackenzie Valley. In 1999 and 2000 this interest extended north when companies acquired exploration rights to lands across much of the Mackenzie Delta and adjacent offshore. Although no interests have been issued in the southern North west Territories since 1996, oil and gas activities have been sustained through 2004 in the central Mackenzie Valley and in the Beaufort Sea - Mackenzie Delta regions.

The North is recognized as holding an important percentage of Canada's undeveloped oil and gas potential. Canada's North west Territories, Nunavut and Arctic Offshore host an estimated 33 percent of Canada's remaining conventionally recoverable resources of natural gas and 25 percent of the remaining recoverable light crude oil. About half of these potential resources are in the western Arctic -- strategically located north of existing infrastructure in the western Provinces. Today, with conventional crude and natural gas production entering decline in the traditional producing areas of the western provinces, northern resources are of keen

interest to oil and gas companies, an interest spurred by continuing high oil and gas prices. There have been two focal points of activity; in the Sahtu region of the central Mackenzie Valley and in the Mackenzie Delta. In contrast, the southern North west Territories has seen a rapid decline in exploration activity due to the expiry of exploration licences issued in the mid 1990s. While the potential for sustained growth in industry investment in this region is excellent, much depends on the issuance of new exploration rights following future resolution of matters outstanding between the Crown and First Nations in the southern North west Territories.

Given the potential of the western Arctic, continuing investment in new exploration can provide a source of sustainable long term growth in economic opportunities. However, much of this activity is contingent on the commitment to build the Mackenzie Gas Project (MGP), and the consequent opportunity to develop and produce new gas discoveries should they be made. The submission to regulators of the Environmental Impact Statement for the MGP by the Producers Group in the Fall 2004 was a significant step towards the realization of this important project. The MGP, initially based on production from three gas fields in the Mackenzie Delta, will serve to open up the western Arctic to investment in further petroleum exploration and development both onshore within the Territories and subsequently in the Arctic offshore.

The year 2004 saw the number of new exploratory wells maintained at 2003 levels in

the Mackenzie Delta (3 wells) and increasing marginally in the Sahtu region of the central Mackenzie Valley (6 wells). The Colville Hills of the central Mackenzie Valley was an area of continuing promise as a natural gas play. The encouraging initial response by companies to the 2004 call for industry nominations for new exploration lands in this region augurs sustained growth in activity over the coming years. Of note is that companies are exploring both Crown and private lands in this region.

Despite the decline in exploratory activity, companies drilled ten wells in the southern North west territories. Of these only two were classified as exploratory; the remainder were drilled to further develop gas and oil production from the Cameron Hills field, and

gas production from the Liard and west Liard fields.

At year end, seven oil and gas fields were on production in the North west Territories. No fields were producing from Nunavut or offshore Arctic waters. Of the producing fields, four gas fields and one oil and gas field are located in the southern North west Territories, the Norman wells oil field is in the central Mackenzie Valley, and the Ikhil gas field is in the Mackenzie Delta. Royalties for 2004 decreased by 16 percent due to lower gas production in the southern North west Territories. Higher prices for both oil and gas served to partially offset lower production in determining the royalty amount.

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## Oil and Gas Resources

Canada's North west Territories, Nunavut, and Arctic Offshore hold an estimated 33 percent of Canada's remaining conventionally recoverable resources of natural gas and 25 percent of the remaining recoverable light crude oil (Drummond Consulting, 2002 – unpublished report).

Potential natural gas resources are roughly split between the North west Territories ( $2.3 \times 10^{12} \text{ m}^3$  or 82 trillion cubic feet – tcf) and Nunavut ( $2.0 \times 10^{12} \text{ m}^3$  or 71 tcf). (These numbers include the portion lying beneath offshore waters adjacent to the Territories). The Northwest Territories has an ultimate potential for crude oil estimated at  $0.9 \times 10^9 \text{ m}^3$  (5.7 billion barrels) and Nunavut has a potential of  $0.43 \times 10^9 \text{ m}^3$  (2.7 billion barrels).

Although remote from most existing production infrastructure, the most accessible of these potential resources lie between the border with the provinces at 60 degrees north

(60°N) and the Beaufort Sea in a broad corridor running between the Rocky Mountains and the Canadian Shield. This region, comprising much of the North west Territories and adjacent Arctic offshore, is estimated to contain 49 percent of the recoverable gas and 58 percent of the recoverable oil in the northern Canada with the Beaufort Sea-Mackenzie Delta Basin by far the largest potential contributor.

North of 60, the southern North west Territories is currently the largest producer of natural gas and the Norman Wells oil field in the central Mackenzie Valley continues to be the major oil producer. In the Beaufort Sea-Mackenzie Delta Basin, major gas fields at Taglu, Parsons Lake and Niglintgak are the expected anchor fields for the Mackenzie Gas Project. Some 50 other discoveries in this basin have potential for subsequent development, including Amauligak, a major offshore discovery of both oil and gas. Although not currently under consideration



for conventional development because they are so remote, resources in the Arctic Islands are comparable in natural gas potential to the Beaufort Sea-Mackenzie Delta region. The most promising discoveries are those in the

Sverdrup Basin, where past exploration efforts have proven the existence of major gas fields at Drake Point and nearby Hecla with combined resources on  $182 \times 10^9 \text{ m}^3$  (6.5 tcf).

**Table 1: Discovered Resource Inventory**

Region	Crude Oil $10^6 \text{ m}^3$	Million barrels	Natural gas $10^9 \text{ m}^3$	Trillion cubic feet
Northwest Territories	70.5	(443)	178.3	(6.3)
Nunavut	0.9	(6)	190.7	(6.7)
Arctic Offshore	193.0	(1214)	506.5	(17.9)
<b>Total</b>	<b>264.4</b>	<b>(1663)</b>	<b>875.5</b>	<b>(30.9)</b>

Compiled and integrated from several published sources which may underestimate or overestimate actual field resources

**Table 2: Commodity prices**

	January 2004	December 2004	Average 2004
Oil - C\$ per $\text{m}^3$ (Average at Edmonton)	274.13	322.97	333.87
Gas - C\$ per GJ (Average AECO)	6.58	7.47	6.52

Sources: Natural Resources Canada

## OIL AND GAS MANAGEMENT

### Rights Issuance

The department provides industry with an annual opportunity to obtain exploration rights in North west Territories and areas of Nunavut and the northern offshore. The exploration rights are made available on terms prescribed under the *Canada Petroleum Resources Act* and supported by northerners.

A Call for Nominations has preceded each Call for Bids. The Call for Nominations enables industry to specify blocks of land of interest. The department consults with Aboriginal groups to ensure that their views are considered in the rights issuance process. Crown rights are issued pursuant to an open, competitive bidding process. A single bid evaluation criterion - currently the total expenditure that a bidder would spend on exploration of the land block - is used to determine the successful bidder who is issued an exploration licence of up to nine years. The successful bidder is required to spend the dollar value of the proposed work during the first four or five years of the licence and drill one well during this first period.

In accordance with the provisions of land claims settlement agreements, the department seeks the views of aboriginal communities and organizations prior to rights issuance on the terms and conditions of the issuance and related matters. The department is also working towards establishing measures that would meet the needs and provide economic opportunities for those areas without a land claim settlement, primarily in the southern North west Territories.

In recent years, the Government of Canada and the North west Territories government approved the Protected Areas Strategy (PAS) for the North west Territories, to conserve the

biological diversity and associated natural and cultural resources in the North west Territories. During the consultations with Aboriginal groups on rights issuance, a review is also completed to ensure that lands that may have been nominated through the PAS process are not included in the calls.

Late in 2003, three Calls for Nominations were launched with closing dates of January 30, 2004. The call areas were the Central Mackenzie Valley, the Mackenzie Delta / Beaufort Sea and Arctic Islands of Nunavut and surrounding offshore areas.

The results of the Calls for Nominations were one parcel nominated in the Mackenzie Delta / Beaufort Sea and five parcels nominated in the Central Mackenzie Valley. No nominations were received for the Arctic Islands of Nunavut.

All six parcels were posted in a subsequent Call for Bids which closed on June 07, 2004. On June 08, 2004, the successful bidders were announced and five new Exploration Licences were issued; EL422 in the Mackenzie Delta / Beaufort Sea and EL423 to EL426 in the Central Mackenzie Valley. One parcel in the Central Mackenzie Valley did not receive a bid.

Three Calls for Nominations closed at calendar year-end (2004); one for the Central Mackenzie Valley and one for the Mackenzie Delta / Beaufort Sea (each of which closed on December 17, 2004); and one for the Arctic Islands of Nunavut and surrounding offshore areas (which closed on December 23, 2004). Nominated parcels would be subject to a Call for Bids launched in January 2005 which would be open for the statutory minimum of 120 days.

## Interests Issued in 2004

One new exploration licence - EL422 to Chevron Canada Resources and BP Canada Energy Company - was issued as a result of the successful Call for Bids in the Mackenzie Delta / Beaufort Sea;

Four new exploration licences were issued as a result of the successful Call for Bids in the Central Mackenzie Valley. These include: EL423 to Northrock Resources Ltd., Husky Oil Operations Limited, EOG Resources Canada Inc., International Frontier Resources Corporation and Pacific Roder Energy Inc.; EL424 to Paramount Resources Ltd.; EL425 to Petro-Canada and EL426 to Paramount Resources Ltd. and Apache Resources Ltd.

A total of six production licences were issued in the Cameron Hills area of the NWT. Three

were issued to Paramount Resources Ltd. (PL19 to PL21) and three were issued to Paramount Resources Ltd. and Marathon Canada Limited (PL22 to PL24). With the issuance of these six new production licences, a total of 12 production licences have been issued for the Cameron Hills area during the last 3 years.

Although both Significant Discovery Declarations and Significant Discovery Licence applications have been received for land in the Fort Liard area, no significant discovery licences were issued during 2004.

During 2004, one licence (EL398) was surrendered and a partial surrender was processed for one other licence (EL419).

**Table 3: Exploration licences issued as a result of calls for bids**

Region	Number and date of licences issued	Licence time-limit (in years)
Southern NWT (Fort Liard)	4 - April 1996	7 (4+3)
Central Mackenzie Valley	7- May 1997	8 (4+4)
	6 - Aug. 2000	8 (4+4)
	5 - Sept. 2001	8 (4+4)
	1 - May 2003	8 (4+4)
	4 - June 2004	8 (4+4)
Beaufort Sea / Mackenzie Delta	2 - Jan. 1997	9 (5+4)
	4 - Sept. 1999	9 (5+4)
	6 - Aug. 2000	9 (5+4)
	2 - May 2002	9 (5+4)
	1 - June 2004	9 (5+4)

**Table 4: Land disposition (in hectares) as of December 31, 2004**

Region	Exploration Licence	Production Licence	Significant Discovery Licence	Total
Arctic Islands	0	1,224	395,965	397,189
Beaufort Sea	920,318	16,618	169,350	1,106,286
Eastern Arctic Offshore	931,640	0	11,184	1,805,324 <sup>1*</sup>
Hudson Bay	0	0	0	126,376 <sup>2*</sup>
Mackenzie Delta	786,429	2,506	112,037	900,972
Mackenzie Valley	1,360,136	32,842	87,906	1,509,675 <sup>3*</sup>

\* Former Permits and/or Pioneer Leases

<sup>1</sup> Includes 862,500 hectares in restricted area/under former rights

<sup>2</sup> Includes 126,376 hectares in restricted area/under former rights

<sup>3</sup> Includes 28,791 hectares under former rights

**Table 5: Land disposition interest type as of December 31, 2004**

Region	Exploration Licence	Production Licence	Significant Discovery Licence	Former Rights <sup>1</sup>
Arctic Islands	0	1	20	0
Beaufort Sea	4	1	31	0
Eastern Arctic Offshore	1	0	1	30
Hudson Bay	0	0	0	8 <sup>2</sup>
Mackenzie Delta	11	1	34	0
Mackenzie Valley	19	21	29	17

<sup>1</sup> Former Permits and/or Pioneer Leases

<sup>2</sup> Permits under the administration of the Minister of Indian Affairs and Northern Development but north of the administrative convenience line

## Administration of Interests

### Exploration licences

There were 35 exploration licences active at the end of 2004. This includes those exploration licences for which significant discovery licences have been applied for pending the National Energy Board's (NEB) decision or decisions on the application for significant discovery declaration(s) (SDD) based on the exploratory work conducted. The NEB reviews the data submitted by the applicant in support of its application for the SDD.

Each exploration licence issued as a result of a Call for Bids, requires the interest holder to submit 25 percent of the work expenditure bid as a deposit to ensure that the proponent fulfills the requirement to drill a well within

Period 1. During the remaining term of the licence (Period 2), rentals are paid.

Both the work deposit required for Period 1 and the rentals in Period 2 are refundable upon completion and approval of the work undertaken on the licence. Administration of the deposits includes the application of the allowable expenditures which are submitted as exploratory work is completed. Deposit administration is ongoing throughout the year as new deposits are received for the rentals due in Period 2 and / or amendments are made with respect to those already in the system.

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## Security deposits being administered as of December 31, 2004

Refundable work deposits of Period 1 (refunded at \$1 for each \$4 spent) = \$154,285,750.

Refundable rentals of Period 2 (refunded at \$1 for each \$1 spent) = \$5,745,536.

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## Benefits

Exploration activity in the north was maintained and Northerners and northern firms continued to respond positively and benefit from the opportunities arising from oil and gas activity. When oil and gas exploration and development are undertaken in the North west Territories, Nunavut and the northern offshore the proponent must ensure full and fair access to employment, training and business opportunities for Northerners and northern businesses, and provide first consideration to qualified Northerners and competitive northern businesses. The seasonal nature of employment in the oil and gas

industry's northern exploration activities fits well with the dual traditional economy/wage economy of many communities.

Higher levels of exploration in the Central Mackenzie Valley and, to a lesser extent, ongoing exploration in the Mackenzie Delta and development in the Southern Mackenzie Valley have created significant employment, training and procurement opportunities for Northerners and northern firms. The communities of Colville Lake, Fort Good Hope and Tulita continued to see significant oil and gas exploration activity and increased levels of local employment and business contracting.

**Table 6: Exploration Licences**

Licence Number	Area (ha)	Representative <sup>1</sup>	Issue date (y.m.d)	Well to be drilled by (y.m.d)		Expiry date (y.m.d)	Work bid amount (in \$)
<b>Eastern Arctic Offshore</b>							
EL297 <sup>2</sup>	931,640	CanNat Resources Inc.	1998.07.14	2007.07.14		2007.07.14	
<b>Beaufort Sea/Mackenzie Delta</b>							
EL317 <sup>3</sup>	175,810	Talisman Energy Inc.	1986.10.05	n/a			n/a
EL329 <sup>3</sup>	349,982	BP Canada Energy Resources	1987.09.05	n/a			n/a
EL384 <sup>4</sup>	86,685	Encana West Ltd	1997.01.06	2006.01.05	?	2006.01.05	-
EL385 <sup>4</sup>	128,327	Encana West Ltd	1997.01.06	2006.01.05		2006.01.05	-
EL394	73,155	Burlington Resources Canada	1999.09.18	2004.09.17	?	2008.09.17	42,375,000.00
EL403	75,650	Shell Canada	2000.08.15	2005.08.14		2009.08.14	35,000,000.00
EL404	73,608	BP Canada Energy	2000.08.15	2005.08.14	?	2009.08.14	76,675,288.00
EL405	76,307	Petro-Canada	2000.08.15	2005.08.14	?	2009.08.14	46,454,620.66
EL406	72,523	Petro-Canada	2000.08.15	2005.08.14	?	2009.08.14	81,876,595.88
EL407	71,515	Anadarko Canada Corp	2000.08.15	2005.08.14		2009.08.14	2,421,350.84
EL417	18,912	Chevron Canada	2002.05.14	2007.05.13		2011.05.13	13,200,000.00
EL418	37,436	Devon ARL Corporation	2002.05.14	2007.05.13		2011.05.13	1,100,000.00
EL419 <sup>5</sup>	72,311	Petro-Canada	2002.04.18	2004.09.17	? <sup>7</sup>	2008.09.17	105,293,760.00
EL420 <sup>5</sup>	338,469	Devon ARL Corporation	2002.08.15	2005.08.15	<sup>7</sup>	2009.08.14	224,069,655.56
EL422	56 057	Chevron Canada	2004.06.08	2009.06.08		2013.06.07	61,883,000.00
<b>Mainland - Southern Northwest Territories</b>							
EL382 <sup>6</sup>	25 335	Paramount Resources	1996.04.10	2000.04.09	?	2003.04.09	1,100,000.00
EL383 <sup>6</sup>	25 515	Anadarko Canada Corp	1996.04.10	2000.04.09	?	2003.04.09	1,224,400.00

Licence Number	Area (ha)	Representative <sup>1</sup>	Issue date (y.m.d)	Well to be drilled by (y.m.d)	Expiry date (y.m.d)	Work bid amount (in \$)
<b>Mainland – Central Mackenzie Valley</b>						
EL386	117,650	Devlan Exploration	1997.05.05	2001.05.04 ?	2005.05.04	1,072,000.00
EL391	31,967	Northrock Resources	1997.05.05	2001.05.04 ?	2005.05.04	4,000,000.00
EL392	23,652	Encana West Ltd.	1997.05.05	2001.05.04 ?	2005.05.04	8,466,460.00
EL397	134,565	Northrock Resources Ltd.	2000.08.01	2004.07.31 ?	2008.07.31	16,580,000.00
EL399	120,496	Apache Oil	2000.08.01	2004.07.31 ?	2008.07.31	8,400,000.00
EL400	118,060	Canadian Natural Resources Limited	2000.08.01	2004.07.31 ?	2008.07.31	17,500,000.00
EL401	50,188	EOG Resources Canada Inc.	2000.08.01	2004.07.31 ?	2008.07.31	12,750,000.00
EL412	68,772	Canadian Forest Oil	2001.09.18	2005.09.17	2009.09.17	1,867,911.00
EL413	80,464	Devlan Exploration	2001.09.18	2005.09.17 ?	2009.09.17	2,000,000.00
EL414	84,880	Apache Oil	2001.09.18	2005.09.17	2009.09.17	10,750,000.00
EL415	83,216	Hunt Oil	2001.09.18	2005.09.17	2009.09.17	1,260,000.00
EL416	80,510	Northrock Resources Ltd.	2001.09.18	2005.09.17	2009.09.17	1,526,430.00
EL421	79,668	Cdn.Forest Oil Ltd.	2003.05.28	2007.05.28	2011.05.28	1,108,650.00
EL423	90,632	Northrock Resources	2004.06.08	2008.06.07	2012.06.07	24,800,000.00
EL424	80,608	Paramount Resources	2004.06.08	2008.06.07	2012.06.07	8,100,000.00
EL425	27,230	Petro-Canada	2004.06.08	2008.06.07	2012.06.07	22,000,000.00
EL426	36,728	Paramount Resources	2004.06.08	2008.06.07	2012.06.07	8,100,000.00

<sup>1</sup> These representatives are current to date of draft i.e. February 2005

<sup>2</sup> Amended per s. 26(4) of the CPRA, originally issued pursuant to the Canada Oil and Gas Land Regulations.

<sup>3</sup> Under work prohibition orders.

<sup>4</sup> Land exchange for Cape Bathurst former permits.

<sup>5</sup> Consolidation per s. 25(3) of the CPRA

<sup>6</sup> Pending SDD determination by NEB

<sup>7</sup> Note that on consolidated licences, one well may not be sufficient to hold all lands in the licence, depending on the terms and consolidation.

v Well requirement met as of year end. The drilling of one exploratory or delineation well prior to the end of Period 1 of the term is a condition precedent to obtaining tenure to Period 2. Other drilling requirements may be required for licences issued in exchange of former permits.

The Northern Oil and Gas Branch in the National Capital Region, works closely with the Petroleum Development Division (Division) in INAC's North west Territories Regional Office in Yellowknife. The Division has had the lead responsibility for the administration of benefits plans for exploration activities in the North west Territories. The Division maintains open communications with

the Inuvialuit, First Nations and northern communities and works to understand better their benefits issues and concerns and to increase public understanding of the benefits plan requirement. The Division is in the process of taking on the lead role in the annual rights issuance discussions with northern communities

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## Environmental Considerations

### Consultations

Before issuing a Call for Nominations, consultations are held with northern Aboriginal groups to identify areas of environmental sensitivity, including ones holding special interest for cultural or spiritual reasons. The Department of Indian Affairs and Northern Development also consults with

other federal departments, territorial governments, and agencies. Environmental considerations play an important role when issuing land use permits, water licences, and all work authorizations. The terms and conditions of a Call for Nominations and Bids reflect the results of this consultation process.

### Environmental Studies Research Funds (ESRF)

Under the *Canada Petroleum Resources Act*, the ESRF finances environmental and social studies related to the exploration and development of oil and gas resources on frontier lands.

Continuing with the resurgence of oil and gas activity in the North, as well as forecasting the

need for continuing state of the art research, the ESRF Management Board continued their study program for 2004, funded by a levy agreed to by industry representatives and approved by the minister. The study program approved for the North by the ESRF Management Board for 2004 amounts to \$547,043.



## EXPLORATION ACTIVITY IN THE NORTH

### Northern Operations

Expenditures on oil and gas activities are estimated at \$184 million in 2004, compared with \$182 million in the previous year. The estimate includes costs for exploration, delineation and development drilling; well completion and abandonment; and geophysical and geological programs. Well costs amounted to \$132 million of this total with the balance largely made up by 3D seismic surveys. New drilling was down over the previous year, with only 19 new wells drilled, eleven of which were classified as exploratory. Overall, exploration activity was sustained in the Mackenzie Delta, increased in the Central Mackenzie (Sahtu) and declined sharply in the southern North west Territories. Field development activities were limited to the southern North west Territories, principally in the Cameron Hills Field.

There were no oil and gas operations in Nunavut or the northern offshore.

Drilling operations are summarized in the Drilling Statistics 2004 Table. Total metres drilled in the North west Territories fell to 28,418 m from a high of 52,725 m in 2003. In the central Mackenzie Valley, exploratory drilling was concentrated in the Colville Hills of the central Mackenzie (Sahtu) District (4 new wells), the Mackenzie Plain south of Tulita and west of the Mackenzie River (1 well), and east of the Mackenzie River north of Fort Good Hope (1 well). Two of the Colville Hills wells were drilled on Sahtu Private lands.

In the Mackenzie Delta, two exploratory wells

were drilled early in 2004, and one was commenced just before the end of the year, thanks to early freeze up.

The number of wells drilled in the entire North west Territories in 2004 was equalled last year by wells drilled in the southern North west Territories alone. This year, only two exploratory wells were drilled in the southern North west Territories – an abrupt decline which reflected the termination of exploration licences.

Drilling operations commenced on January 12, 2004 in the southern North west Territories, January 16 in the central Mackenzie Valley and on February 4 in the Mackenzie Delta. Winter well operations ended between March 21 and 24 in the southern and central NWT, except for operations supported by all weather roads. One summer well was drilled at an accessible location very close to the Mackenzie River. On the Mackenzie Delta, drilling operations were suspended on April 23.

Eight industry geophysical and geological programs were authorized by the National Energy Board in 2004. This total comprised four field seismic acquisition programs totalling 189 km of 2-dimensional (2D) in one program and 804 km<sup>2</sup> of 3D seismic. In addition, one geological/geochemical sampling program and two geological field parties were authorized. One program represents purchase and reprocessing of data with no related field component. The geological/geophysical programs are summarized in the table.

**Table 7: Drilling Statistics - 2004**

WELL NAME	LAT	LONG	CLASS <sup>1</sup>	Total Depth (m)	Meters drilled in 2004	Begun	Rig Released	STATUS <sup>2</sup>	RIG	LICENCE <sup>3</sup>
<b>Southern Northwest Territories</b>										
ANADARKO ARROWHEAD RIVER F-56	60.5917	-122.9295	D	2847	367	21-Jan-04	6-Feb-04	P&S	Shehtah 5E	EL383
ANADARKO ARROWHEAD RIVER K-35	60.5773	-122.8631	E	2812	2160	7-Feb-04	25-Feb-04	P&S	Shehtah 4	EL383
ANADARKO EMILE LAKE A-77	60.7693	-122.7261	E	2265	2265	2-Mar-04	21-Mar-04	P&S	Akita 37	SDL013
CHEVRON ET AL LIARD 3K-29 <sup>4</sup>	60.4784	-123.5845	D	3692.7	3692.7	12-Jan-04	23-Feb-04	P&S	Akita 58E	PL09
PARAMOUNT ET AL CAMERON B-38	60.1204	-117.6053	P	1652	1647.4	22-Feb-04	5-Mar-04	P&S	Precision 247	PL14
PARAMOUNT ET AL CAMERON C-16	60.0842	-117.5495	D	1454	1449.4	7-Mar-04	16-Mar-04	P&S	Precision 247	SDL103
PARAMOUNT ET AL CAMERON F-19	60.1385	-117.5543	D	1481	1476	4-Feb-04	11-Feb-04	P&S	Concord 31	PL05
PARAMOUNT ET AL CAMERON K-19	60.1439	-117.5519	D	1484	1478.5	12-Feb-04	20-Feb-04	P&S	Precision 247	PL05
PARAMOUNT ET AL CAMERON O-19	60.1463	-117.5445	D	1659	1659	13-Jan-04	25-Jan-04	P&S	Concord 31	PL05
CHEVRON ET AL LIARD 2M-25 <sup>5</sup>	60.4142	-123.5873	P	4324	4315	31-Mar-04	13-Jun-04	P&S	Akita 48UE	PL11
<b>Central Mackenzie Valley</b>										
APACHE PARAMOUNT LAC MAUNDIR C-34	67.2173	-125.1157	E	945	939.8	6-Feb-04	23-Feb-04	P&S	Akita 51	EL399
APACHE PARAMOUNT WEST NOGHA K-14	66.5609	-126.0508	E	1404	1398.3	1-Mar-04	21-Mar-04	P&S	Akita 51	SA
DEVLAN MOOSE LAKE D-07	66.3887	-125.9000	E	900	895	30-Aug-04	9-Sep-04	P&A	Akita 51	EL413
ECA ET AL BEGADÉH J-66	64.5919	-125.1996	E	1425	1420.6	28-Jan-04	15-Feb-04	P&A	Akita 55	EL392
NORTHROCK ET AL SUMMIT CREEK B-44	64.3840	-125.8896	E	3064	3057.8	16-Jan-04	24-Mar-04	P&S	Akita 40	EL397
PARAMOUNT APACHE NOGHA B-23	66.5349	-125.8259	E	1476	1471.5	9-Feb-04	19-Mar-04	P&S	Nabors 62	SA
<b>Mackenzie Delta</b>										
CHEVRON ET AL ELLICE I-48	69.1261	-135.9260	E	3806	3793.3	4-Feb-04	16-Apr-04	P&S	Akita Equetak 63	EL404
CHEVRON ET AL OLIVIER H-01	69.1719	-136.0040	E	3510	458	19-Dec-04			Akita 63	EL422
ENCANA ET AL UMIK N-16	69.4314	-134.3154	E	3101	3091.5	18-Feb-04	23-Apr-04	P&S	Akita Equetak 62	EL384

<sup>1</sup> Class E=exploratory, D=delineation, P=production

<sup>2</sup> Status P&S=plugged and suspended, P&A=plugged and abandoned, PR=production

<sup>3</sup> Licence EL=Exploration Licence, SDL=Significant Discovery Licence, PL=Production Licence, SA=Sahtu Lands

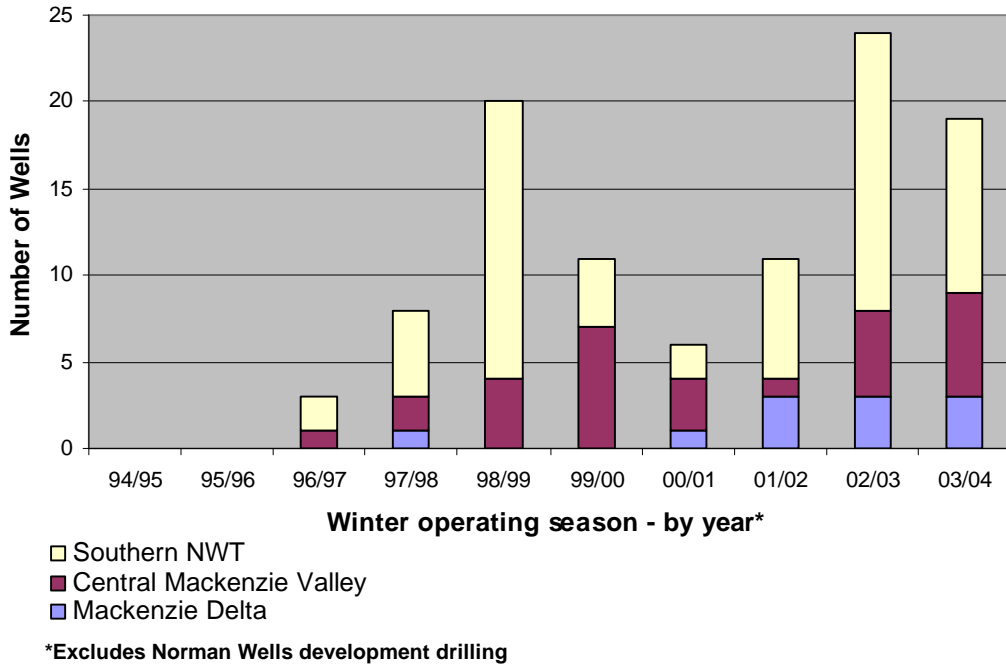
<sup>4</sup> Changed to Paramount et al Liard 3K-29 during the year

<sup>5</sup> Changed to Paramount et al Liard 2M-25 during the year

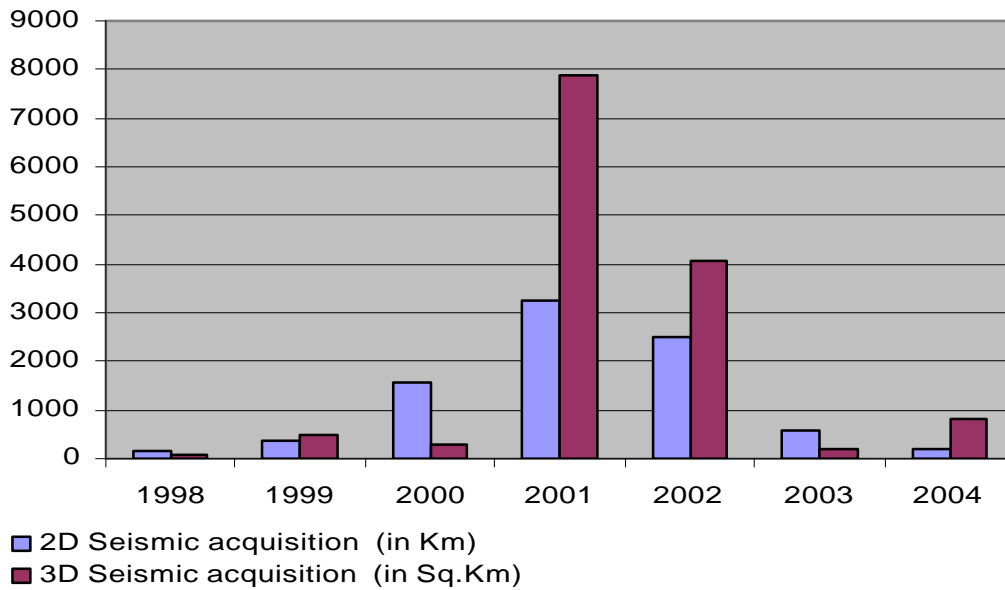
**Table 8: Seismic acquisition**

	1998	1999	2000	2001	2002	2003	2004
2D Seismic (in Km)	171.0	381.0	1554.0	3251.0	2506.0	586.0	189.0
3D Seismic (in Sq.Km)	94.5	485.0	307.0	7893.0	4060.0	194.0	804.0

**Figure 1: Wells drilled**



**Figure 2: Seismic acquisition**



## DEVELOPMENT AND PRODUCTION

At year-end, seven oil and gas fields were on production in the Northwest Territories. No fields were producing from Nunavut or offshore Arctic waters. Of the producing fields, four gas fields and one oil and gas field are located in the southern Northwest Territories, the Norman Wells oil field in the central Mackenzie Valley, and the Ikhil gas field on the Mackenzie Delta.

Total natural gas production in the Northwest Territories was  $713.0 \times 10^6 \text{ m}^3$  in 2004,

27 percent lower than the previous year. This can be mainly attributed to a large decline in rates from the Fort Liard "K-29" field.

Total oil production was  $1235.3 \times 10^3 \text{ m}^3$  (7.8 million barrels), a drop of 4 percent over the previous year. Of this amount, 96 percent was from Imperial Oil's Norman Wells field. Paramount's Cameron Hills field in the southern Northwest Territories provided the remaining four percent.

**Table 9: Oil and Gas Production**

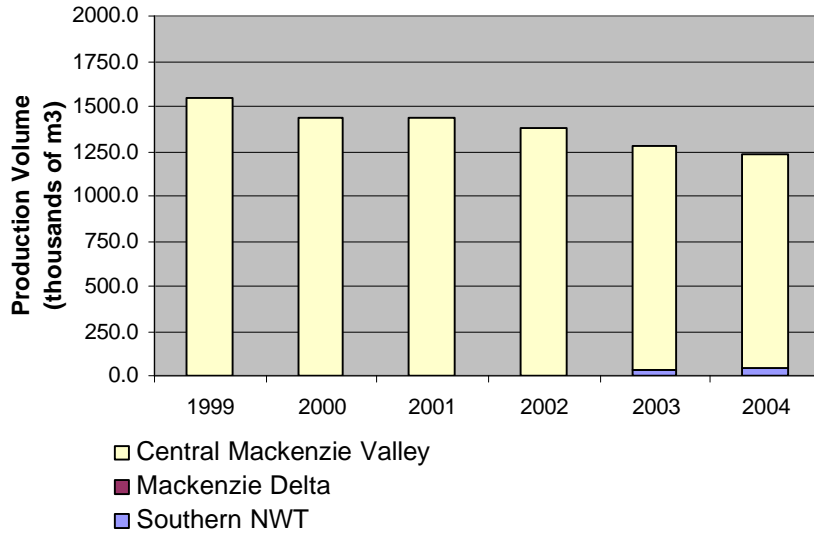
	1999	2000	2001	2002	2003	2004
<b>Oil Production (thousands of m<sup>3</sup>)</b>						
Norman Wells* (G001 - Imperial Oil)	1549.1	1434.3	1432.2	1375.4	1254.6	1186.7
Cameron Hills (G010 - Paramount)				1.1	28.5	48.6
<b>Total</b>	<b>1549.1</b>	<b>1434.3</b>	<b>1432.2</b>	<b>1376.5</b>	<b>1283.1</b>	<b>1235.3</b>
<b>Gas Production (millions of m<sup>3</sup>)</b>						
Norman Wells* (G001 - Imperial Oil)	126.5	125.6	130.2	123.3	108.6	103.7
Pointed Mountain (G003 - Canadian Forest Oil)	21.0	17.1	9.2	Shut-in	Shut-in	Shut-in
Ikhil (G005 - AltaGas)	3.3	10.0	13.2	14.8	15.2	16.1
Fort Liard (G-006 - "F-36" - Paramount)		66.3	71.8	38.8	16.5	11.2
Fort Liard (G007 - "K-29" - Paramount**)		490.1	1213.6	834.1	680.3	465.4
Fort Liard (G008 - "P-66A" - CNRL)		60.1	1.8	Shut-in	9.8	Shut-in
Southeast Fort Liard (G009 - "N-01" - Paramount)			33.2	61.9	51.1	48.1
Cameron Hills (G010 - Paramount)				124.1	98.9	68.5
<b>Total</b>	<b>150.8</b>	<b>769.2</b>	<b>1472.9</b>	<b>1197.0</b>	<b>980.4</b>	<b>713.0</b>

Notes:

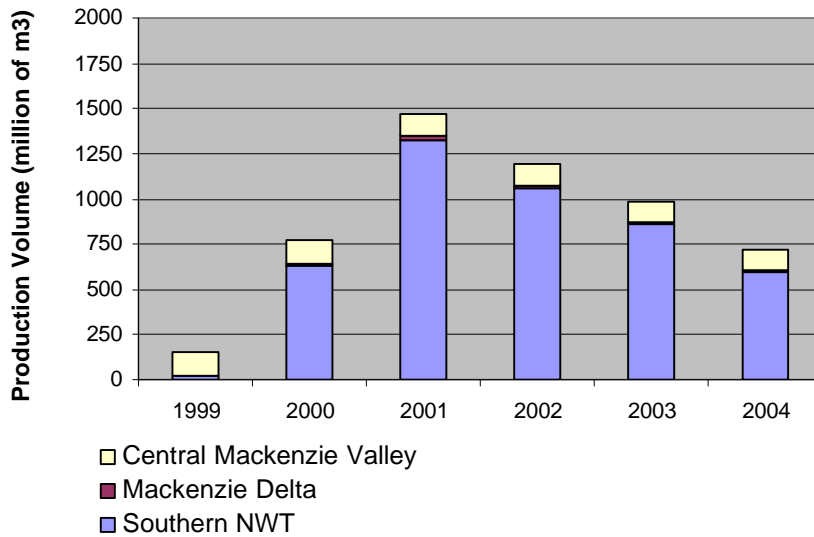
\* Field Code "G00\_" assigned by the National Energy Board

\*\* Change in operator from Chevron to Paramount during 2004

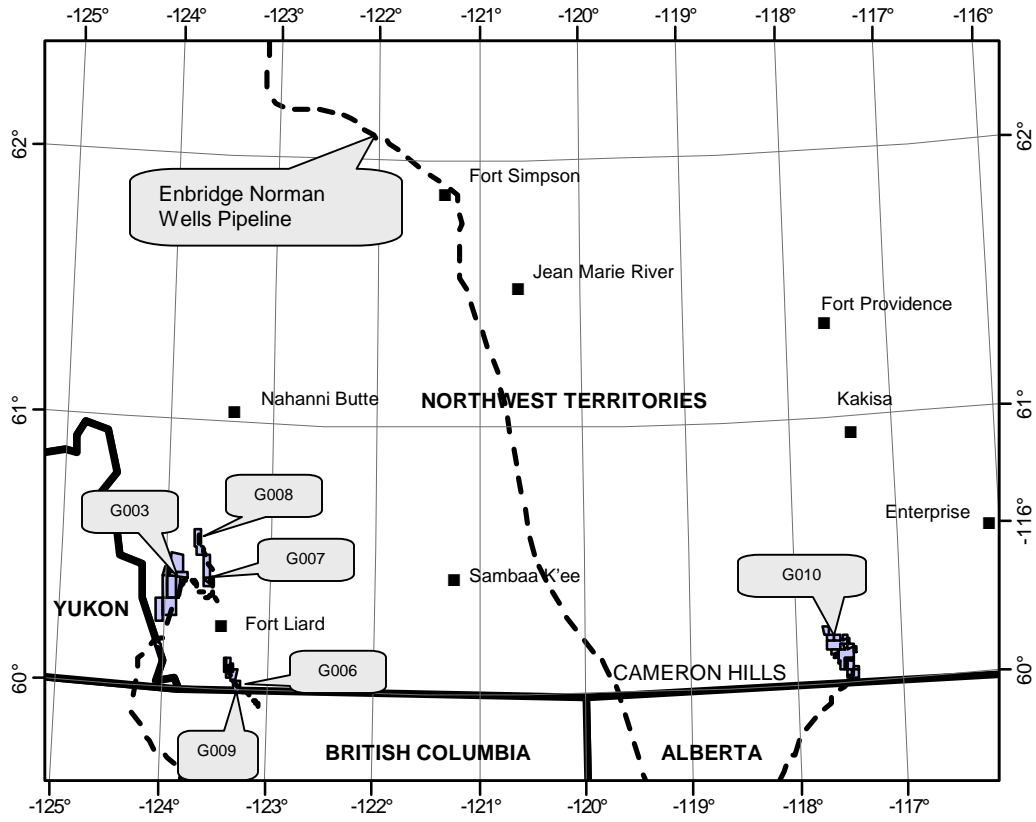
**Figure 3: Oil production**



**Figure 4: Gas production**



**Figure 5: Production fields – Southern Northwest Territories**



Field Code	Field Name	Licenses
G003	Pointed Mountain	PPL 01- 09
G006	Paramount Fort Liard "F-36"	PL 07, PL08
G007	Chevron Fort Liard "K-29"	PL08, PL11
G008	Canadian Natural Resources Limited Fort Liard "P-66A"	PL10
G009	Paramount Southeast Fort Liard "N-01"	PL12
G010	Paramount Cameron Hills	PL03-05, PL13-18

## ROYALTIES

Royalties paid from northern oil and gas production for the calendar year 2004 were \$20,558,915 with total revenues of \$37,562,000. This is a 16 percent decrease in royalties from 2003 and is mainly attributable to lower gas

production from the southern Northwest Territories. Higher prices for both oil and gas served to partially offset lower production in determining royalty.

**Table 10: Oil and gas revenues & forfeitures (C\$)**

	1999	2000	2001	2002	2003	2004
Royalty	7,138,169	13,433,264	24,656,709	21,751,369	24,492,180	20,558,915
Rentals	3,245	2,800	993	2,621	978	61,111
Issuance/ Registration Fees	16,766	51,589	12,733	17,800	5,471	8,600
Work Deposit Forfeitures	289,874	1,342,385	0	2,392,150	954,812	16,933,374
<b>Total</b>	<b>7,448,054</b>	<b>14,830,038</b>	<b>24,670,435</b>	<b>24,163,940</b>	<b>25,453,441</b>	<b>37,562,000</b>

## Regulatory Amendments

A project is underway to review and modernize Frontier Lands Petroleum Royalty Regulations. The project's objectives are to identify areas where the regulations could be modernized to better meet today's operating

practicalities, to strengthen royalty accountability and assurance, improve fairness, and streamline royalty administration.

## Audits and Assessments

One audit, first initiated in 2003, was completed and finalized in the year. One new audit was initiated in 2004 and was still outstanding at the end of the year.

## FURTHER INFORMATION

### Northern Oil and Gas Branch

Please check our website first at [www.ainc-inac.gc.ca/oil](http://www.ainc-inac.gc.ca/oil)

Many sources of information on oil and gas, environmental, and land use matters originate with the Department of Indian Affairs and Northern Development. To obtain specific information, please include the appropriate contact listed in the sources below with the general mailing address for the department.

**Mailing address:**

Northern Oil and Gas Branch  
Oil and Gas Management Directorate  
Department of Indian and Northern Affairs  
Ottawa, ON K1A 0H4

**Courier only:**

Northern Oil and Gas Branch  
Oil and Gas Management Directorate  
6<sup>th</sup> Floor, 10 Wellington Street  
GATINEAU, QC K1A 0H4  
Telephone: (819) 997-0877  
Fax: (819) 953-5828  
Internet: <http://www.ainc-inac.gc.ca/oil>

Information on the resource management regime, calls for nominations and bids, and other related information: Land Tenure – Telephone: (819) 997-0221

Information on registration procedures and regulations, exploration, significant discovery and production licences, transfers, notices, and maps: Rights Administration/Registrar – Telephone (819) 953-8529

Information on northern exploration history and geological / geophysical activities: Senior Petroleum Geologist – Telephone: (819) 953-8722

Information on Benefits Plan requirements associated with new exploration programs on land in the North west Territories is available from the department's North west Territories Regional office – Telephone (867) 669-2618; and for Nunavut and northern offshore, the information is available from the Oil and Gas Management Directorate – Telephone (819) 994-0348.

Information on royalty policy and royalty submissions: Manager, Fiscal Policy and Royalty Administration – Telephone: (819) 953-9488

Petroleum Development and Benefits Division  
North west Territories Regional Office  
Department of Indian and Northern Affairs  
4914-50<sup>th</sup> Street, P.O. Box 1500  
YELLOWKNIFE NT X1A 2R3  
Telephone: (867) 669-2618  
Fax: (867) 669-2409



## Other Source of Information

Through the offices of the National Energy Board at the address below, information on the following is available

- ? The Regulatory Support Office has information on exploration, development, production, pipeline transportation, and export.
- ? The Frontier Information Office provides access to maps, technical information, geological and geophysical reports, well history reports and records.
- ? The Environmental Directorate provides the Secretariat for the Environmental Studies Research Funds Management Board.

National Energy Board (NEB)  
444 Seventh Avenue SW  
CALGARY AB T2P 0X8  
Telephone: (403) 292-4800  
Fax: (403) 292-5503

Geological Survey of Canada Calgary provides public viewing and sampling facilities for cores and samples, and information on wells drilled north of 60°N at its offices at:

Geological Survey of Canada Calgary  
3303-33<sup>rd</sup> Street NW  
CALGARY AB T2L 2A7  
Telephone: (403) 292-7000  
Fax: (403) 292-5377

Information on wells drilled in the Baffin Bay – Davis Strait region is available from:

Core Storage and Laboratory  
Geological Survey of Canada Atlantic  
Bedford Institute of Oceanography  
P.O. Box 1006  
DARTMOUTH NS B2Y 4A2  
Telephone: (902) 426-6127  
Fax: (902) 426-4465  
Email: hardy@agc.bio.ns.ca