



---

# Northern Oil and Gas Annual Report 1996

The management of oil and gas resources North of 60<sup>o</sup> latitude in the Northwest Territories and in Yukon is a federal responsibility. This responsibility is carried out by the Northern Oil and Gas Directorate of the Department of Indian Affairs and Northern Development.

Petroleum resource management on Crown lands north of 60<sup>o</sup> latitude is exercised under two federal statutes: the *Canada Petroleum Resources Act* (CPRA) and the *Canada Oil and Gas Operations Act* (COGOA). The CPRA governs the allocation of Crown lands to the private sector, tenure to the allocated rights, and the setting and collection of royalties. It is administered by the Minister of Indian Affairs and Northern Development. The COGOA regulates the industrial activities with respect to resource conservation, environmental protection and safety of workers. It is administered by the National Energy Board.

Published under the authority of the  
Honourable Jane Stewart, P.C., M.P.  
Minister of Indian Affairs and  
Northern Development  
Ottawa, 1997

© Minister of Supply and Services Canada

Ce document est également publié en français sous le titre :  
*Pétrole et gaz du Nord – Rapport annuel 1996*

To His Excellency  
The Right Honourable Romeo Leblanc,  
Governor General of Canada

May it please your Excellency:

As in accordance with the provisions of the *Canada Petroleum Resources Act*, I have the honour to present the 1996 Northern Oil and Gas Annual Report for the calendar year ending December 31, 1996.

Respectfully submitted,

Jane Stewart, P.C., M.P.,

**Canada's Northern Frontier Lands**



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

## Contents

<b>Overview of Northern Oil and Gas Activities</b> .....	3
<b>Discovered Resource Inventory</b> .....	4
<b>Northern Oil and Gas Resources</b> .....	5
<b>Oil and Gas Management</b>	
Rights Issuance .....	6
Northern Benefits .....	6
Environmental Considerations .....	6
Environmental Studies Research Funds .....	6
Expenditures & Royalties .....	7
Canada-Yukon Oil & Gas Accord .....	7
<b>Development and Production</b>	
Norman Wells .....	8
Oil and Gas Production (Chart) .....	8
Pointed Mountain .....	9
Kotaneelee .....	9
Bent Horn .....	9
<b>Statistical Overview</b>	
Activity Status .....	10
Oil and Gas Revenues Received .....	10
Land Status .....	11
Exploration Licences Issued Before 1996 .....	12
Exploration Licences Issued in 1996 .....	13
Regional Exploration Activity for the Mainland Territories .....	14
Regional Exploration Activity for the Mackenzie Delta & Beaufort Sea .....	15
Regional Exploration Activity for the Arctic Islands & Eastern Arctic Offshore .....	15
Well Activity-Drilling .....	16
Well Activity-Abandonments .....	17
<b>Sources of Information</b>	
Northern Oil and Gas Directorate .....	18
Other Sources of Information .....	19
<b>Maps</b>	
Canada's Northern Frontier Lands .....	1

## OVERVIEW OF NORTHERN OIL AND GAS ACTIVITIES

The last year has seen a continuation of the gradual reopening of Canada's frontier lands north of 60° to oil and gas exploration. The pace of reopening of lands north of 60° is a result of ongoing community consultations and involvement in the decision making that affects their economic aspirations.

One of the year's highlight was the spudding, in the southern Northwest Territories, of the first new exploratory well in many years. The well was drilled on one of the new exploration licences issued in 1995; the results will be reported next year.

The department is looking into the possibility of having the reporting year changed from the present calendar year to coincide with the rights issuance cycle (June 1 to May 31) so that major annual activity, such as drilling which occurs during the winter season, is reported on a timely basis.

Oil and gas activity south of 60°N, especially in northeastern British Columbia, has had an impact resulting in the growing interest and activity north of 60°. This interest has also been spurred by other factors such as the rights issuance activity, a profit-sensitive royalty regime, cost-reducing technology and support for exploration and development from Aboriginal communities which benefit from increased employment and business opportunities

The rights issuance cycle initiated in 1995 with two calls for nominations, one in the Central Mackenzie Valley and one in the

Southern Northwest Territories, (the Fort Liard area), concluded in 1996 with two Calls for Bids. A total value of \$29,660,131 in work expenditure bids was received for eleven of the thirteen parcels posted representing 520,344 hectares. Five exploration licences were issued in the Central Mackenzie Valley and six were issued for the Southern Northwest Territories. (See chart on page 13 for details.)

Two calls for nominations were issued in 1996: one for the Beaufort Sea-Mackenzie Delta region and one for the mainland Northwest Territories. The 1996 Call for Nominations in the Beaufort Sea and Mackenzie Delta did not result in new postings. The call in the Central Mackenzie Valley resulted in a Call for Bids for eleven parcels totalling approximately 1,070,572 hectares. The call for bids will close on May 1, 1997.

Work also continued on the exchange of four former exploration permits in the Cape Bathurst area for exploration licences in the Mackenzie Delta. Cape Bathurst is part of the land for which the Inuvialuit received title, including minerals, under the Inuvialuit Final Agreement (IFA) in 1984. The exchange allows government to honour its commitments under the IFA and deal with industry's exploration rights fairly. The exchange will be finalized in January 1997.

### Overview of Northern Oil and Gas Activities, 1996

Lands held under licence as of year-end (millions of hectares).....	3.1
Licences active as of year-end.....	165
(includes exploration, significant discovery and production licences)	
Licences issued during the year .....	11
Cumulative discovered natural gas resources as of year-end .....	811
(initial recoverable volumes in billions of cubic metres)	
Cumulative discovered crude oil resources as of year-end .....	345
(initial recoverable volumes in millions of cubic metres)	
Natural gas production (millions of cubic metres).....	607
Oil production (thousands of cubic metres) .....	1671
Exploration, development and production expenditures (\$millions).....	50
Oil and gas revenues received in 1996 (\$millions).....	14.6
(Royalties, rentals, fees, deposit forfeitures)	

### Discovered Resource Inventory

	Crude Oil (millions of m <sup>3</sup> )	Natural Gas (billions of m <sup>3</sup> )
<b>Mainland Territories</b>	<b>39</b>	<b>35</b>
<b>Mackenzie Delta and Beaufort Sea</b>	<b>240</b>	<b>360</b>
<b>Arctic Islands and Eastern Arctic Offshore</b>	<b>66</b>	<b>416</b>
<b>Total</b>	<b>345</b>	<b>811</b>

## Northern Oil and Gas Resources

Estimates of oil and gas resources discovered in the mainland Northwest Territories and Yukon, the Mackenzie Delta-Beaufort Sea, and the Arctic Islands (including the eastern Arctic offshore) amount to some 345 million cubic metres of oil and 811 billion cubic metres of natural gas.

Over time, and in the absence of new discoveries, the total remaining resources declines as fields are produced. As of the end of 1996, the North holds about 25 percent of Canada's remaining discovered conventional oil and 24 percent of remaining discovered gas. The importance of the northern basins is even more evident when one considers undiscovered conventional oil and gas resources (see table). The North is estimated to contain roughly 40 percent of both Canada's undiscovered conventional light crude oil potential and its undiscovered conventional gas potential.

One-third of northern Canada (north of 60°N latitude) is covered by sedimentary rock. Major basins with proven petroleum potential

lie beneath the mainland Northwest Territories and Yukon between the Canadian Shield in the East and the Rocky Mountains to the west (overlying the northern part of the Western Canada Sedimentary Basin); the Mackenzie Delta/Beaufort Sea, and the Arctic Islands (the Sverdrup and Franklinian basins).

In the far northwest, oil and gas have been found in the Eagle Plain of the Yukon, and in the east, gas/condensate has been discovered on the continental shelf southeast of Baffin Island. Between these geographic extremes lie numerous basins and subbasins with petroleum potential which remain largely unexplored.

The North has seen relatively little production of its oil and natural gas compared to southern Canada. To date, most oil production has been from the Norman Wells field in the central Mackenzie Valley (with some production from the much smaller Bent Horn field in the Arctic Islands). Gas is currently being produced from two fields close to the territorial border with British Columbia.

<b>Northern Remaining Resources as Percentage of Total Canadian Remaining Resources*</b>				
	Recoverable Conventional Light Crude Oil		Recoverable Conventional Natural Gas	
	Discovered	Undiscovered	Discovered	Undiscovered
Mainland Territories	2%	1%	1%	4%
Mackenzie Delta / Beaufort Sea	18%	21%	12%	15%
Arctic Islands/Eastern Arctic Offshore	5%	16%	13%	21%
<b>Northern Canada Total</b>	<b>25%</b>	<b>38%</b>	<b>26%</b>	<b>40%</b>

\* As of end 1996: source - National Energy Board



## OIL AND GAS MANAGEMENT

### Rights Issuance

Two calls for bids initiated in the fall of 1995 closed in 1996. The call for bids in the Central Mackenzie Valley closed on the 26th of March 1996 with work bids totalling \$9,343,000 being accepted for the five parcels posted. Five exploration licences were issued for 375,087 hectares of land northwest of Fort Good Hope and between Norman Wells and Fort Norman. The Southern Northwest Territories call for bids closed on April 9, 1996. Total work bids amounting to \$20,317,131 were received on six of the eight posted parcels resulting in the issuance of six exploration licences.

In 1996, one call for nominations was launched for the mainland Northwest Territories. This call was in the Central Mackenzie Valley. Posting requests totalling 1,070,572 hectares were received for eleven parcels. A call for bids for the eleven parcels was launched on November 30, 1996 and will close on May 1, 1997.

The annual call for nominations in the Mackenzie Delta and Beaufort Sea area was launched in January, 1996. The call for nominations closed on April 12, 1996 with no new posting requests received.

### Northern Benefits

When exploration and development are undertaken in northern Canada, the proponent must ensure full and fair access to employment, training and business opportunities for northerners, and give first consideration to qualified individuals resident in regional communities. The gradual reopening of the mainland Northwest Territories to oil and gas

exploration is beginning to generate employment and business opportunities for northern communities. In particular, the community of Fort Liard has seen significant employment growth due to oil and gas exploration. As well, the Sahtu communities of Fort Norman and Norman Wells are beginning to capture economic benefits from renewed exploration activity.

### Environmental Considerations

Prior to issuing Calls for Nominations consultations are held with First Nations to identify areas of environmental sensitivity, including those holding special interest for cultural or spiritual reasons to First Nations. Some of these areas are then either excluded from the lands available for nomination or are flagged as being subject to certain terms and conditions at the activity permitting stage. Environmental considerations also play an important role in regard to the issuance of land use permits, water licences and all work authorizations.

### The 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. The program is funded through levies paid by interest holders on frontier lands which have not been imposed since 1994 as no new projects have been initiated in the last four years. Since its inception in 1983, the ESRF has

published 130 reports which are available from the National Energy Board. Four remaining studies will be published by mid-1997.

### Expenditures & Royalties

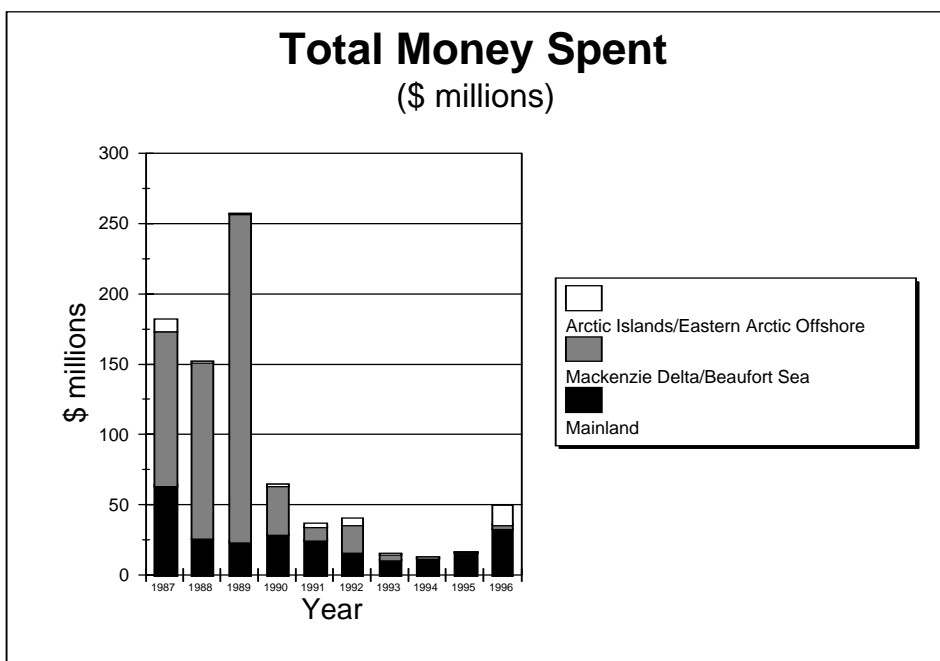
In 1996, expenditures on northern oil and natural gas exploration amounted to approximately \$33 million. Since rights issuance was reinstated in 1994, the expenditures have increased gradually from the 1994 level of \$5 million. The chart on this page includes money spent on abandonments, which is considered separate from exploration expenditures.

Royalties received from industry on northern oil and natural gas production amounted to about \$14 million during 1996. From this amount, the Sahtu and Gwich'in First Nations each received about \$240,000 in fulfilment of royalty sharing provisions in their land claim settlement agreements.

### Canada-Yukon Oil & Gas Accord

The Federal and Yukon governments signed the Canada-Yukon Oil and Gas Accord in May 1993. This agreement provides for the transfer to Yukon of the responsibilities for the administration and regulation of onshore oil and natural gas exploration and development in Yukon. This provincial-type responsibility will be exercised by the Yukon government once the agreement is implemented.

Bill C-50, the *Canada-Yukon Oil and Gas Accord Implementation Act*, was introduced into Parliament on June 14, 1996. The proposed legislation, once passed by Parliament, will implement the agreement.



## DEVELOPMENT AND PRODUCTION

### Norman Wells

Norman Wells lies in the central Mackenzie Valley just south of the Arctic Circle and approximately equidistant from the Beaufort Sea and the Alberta border. The field is the fourth largest producing oil field in Canada, in terms of remaining reserves. A little over half of the estimated ultimate recoverable reserves of  $37.5 \times 10^6$  cubic metres (236 million barrels) have now been produced. The field is in full production with output at about 4800 cubic metres per day. Oil flows through a 30 cm (12 inch) pipeline running south a distance of 866 km to a terminus at Zama, Alberta. The small refinery which has operated at Norman Wells since 1930 was finally closed and dismantled by Imperial Oil Limited in 1996.

A project to tap peripheral reserves at Norman Wells by the drilling of horizontal wells, began in 1995 and ended in 1996. Six wells additional to the three drilled in 1995 were completed this year. Four wells are now producing oil and the remainder are being used as injectors.

Additional production from this development program is expected to augment total production by some 300 cubic metres per day.

Norman Wells production in 1996 was an estimated  $1.632 \times 10^6$  cubic metres of oil and  $132.4 \times 10^6$  cubic metres of natural gas. Slightly lower than the previous year, 1996 production continues the shallow decline in annual production observed over the last five years.

Oil was discovered at Norman Wells in 1920. Limited field development occurred during the 1940s as part of the Canol project to supply oil for the war effort in the Pacific theatre. A much larger expansion project began in 1983 and involved the construction of the pipeline south to Alberta. Norman Wells was the first and remains the sole major hydrocarbon development project north of 60 degrees in Canada.

<b>Oil and Gas Production</b>					
	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
<b>Oil Production (thousands of m<sup>3</sup>)</b>					
Norman Wells	1850.0	1790.0	1730.0	1697.6	1631.8
Bent Horn	28.2	56.9	52.9	35.3	39.6
<b>Total</b>	<b>1878.2</b>	<b>1846.9</b>	<b>1782.9</b>	<b>1732.9</b>	<b>1671.4</b>
<b>Gas Production (millions of m<sup>3</sup>)</b>					
Pointed Mountain	86.7	99.6	63.6	65.9	47.2
Norman Wells	128.0	133.6	123.9	129.8	132.4
Kotaneelee	506.9	492.3	471.1	442.9	427.5
<b>Total</b>	<b>721.6</b>	<b>725.5</b>	<b>658.6</b>	<b>638.6</b>	<b>607.1</b>

### Pointed Mountain

Pointed Mountain gas field lies in the Northwest Territories 45 km north of the British Columbia border. Natural gas production enters a 50 cm diameter raw gas pipeline which runs south to Fort Nelson, B.C. In 1996, production was  $47.2 \times 10^6$  cubic metres ( $1.69 \times 10^9$  cubic feet), showing a significant 28% decline over 1995 figures.

## **Kotaneelee**

Kotaneelee gas field is in southeastern Yukon, about 12 km north of the Yukon boundary with British Columbia. Production resumed from Kotaneelee field in February 1991, following an 11 year shut-in. Natural gas production in 1996 was an estimated  $427.5 \times 10^6$  cubic metres ( $1.51 \times 10^{10}$  cubic feet) estimated to year-end, a 4% decline over the previous year. Production from this field joins the Pointed Mountain raw gas pipeline which runs south to Fort Nelson, B.C.

## **Bent Horn**

Oil production from the Bent Horn field on Cameron Island in the high Arctic totalled some  $39.6 \times 10^6$  cubic metres in 1996. A total of  $24.4 \times 10^3$  cubic metres ( $153 \times 10^3$  barrels) were shipped from Cameron Island during the summer in the M. V. Arctic, a double-hulled tanker. In early 1996, field operator Panarctic Oils Ltd. announced their intent to abandon the field. As of year end, wells in the field had been abandoned and the production facilities largely dismantled. A relatively small quantity of oil in tank storage awaits shipment in the next operating season.

## STATISTICAL OVERVIEW

The following statistics summarize oil and gas activities under the management of Northern Oil and Gas. A breakdown is also provided by region.

The exploration, development, production and resource inventory statistics are provided courtesy of the National Energy Board.

Discovered resource totals are estimates of original recoverable volumes and do not reflect production; totals have been rounded; crude oil includes condensates.

Licences include exploration, significant discovery and production licences as well as leases.

Activity Status					
	1992	1993	1994	1995	1996
Licences issued	5	2	0	10	11
Wells spudded	2	0	0	3	7
Metres drilled	2 560	0	0	4 850	12 677
Wells terminated	2	0	4	3	6
Geophysical programs run	4	2	0	3	15
Reflection seismic (km)	5 822	340	0	698	922
Rig-months	2	0	0	3	5

Oil and Gas Revenues Received (\$)					
	1992	1993	1994	1995	1996
Royalty	8 717 685	7 075 862	7 455 222	7 633 984	13 967 952
Rentals	25 755	25 755	7 818	7 818	7 525
Issuance/Registration Fees	2 348	886	17 897	4 621	14 907
Work Deposit Forfeitures	0	0	1 050 119	10 576 840	649 000
<b>Total</b>	<b>8 745 788</b>	<b>7 102 503</b>	<b>8 531 056</b>	<b>18 223 263</b>	<b>14 639 384</b>

## STATISTICAL OVERVIEW cont'd

<b>Land Status</b>					
	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
<b>Number of Licences Issued</b>					
<b>Mainland Territories</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>11</b>
<b>Mackenzie Delta &amp; Beaufort Sea</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Arctic Islands &amp; Eastern Arctic Offshore</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>10</b>	<b>11</b>
<b>Number of Licences Active</b>					
<b>Mainland Territories</b>	<b>53</b>	<b>53</b>	<b>53</b>	<b>63</b>	<b>74</b>
<b>Mackenzie Delta &amp; Beaufort Sea</b>	<b>73</b>	<b>73</b>	<b>72</b>	<b>69</b>	<b>68</b>
<b>Arctic Islands &amp; Eastern Arctic Offshore</b>	<b>23</b>	<b>23</b>	<b>23</b>	<b>23</b>	<b>23</b>
<b>Total</b>	<b>149</b>	<b>149</b>	<b>148</b>	<b>155</b>	<b>165</b>
<b>Lands Issued in Licences (in millions of hectares)</b>					
<b>Mainland Territories</b>	<b>0<sup>*1</sup></b>	<b>0</b>	<b>0</b>	<b>0.3</b>	<b>0.5</b>
<b>Mackenzie Delta &amp; Beaufort Sea</b>	<b>0<sup>*1</sup></b>	<b>0<sup>*1</sup></b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Arctic Islands &amp; Eastern Arctic Offshore</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>0<sup>*1</sup></b>	<b>0<sup>*1</sup></b>	<b>0</b>	<b>0.3</b>	<b>0.5</b>
<b>Lands Relinquished or Surrendered (in millions of hectares)</b>					
<b>Mainland Territories</b>	<b>0<sup>*1</sup></b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Mackenzie Delta &amp; Beaufort Sea</b>	<b>0.2</b>	<b>0<sup>*1</sup></b>	<b>0<sup>*1</sup></b>	<b>0.1</b>	<b>0.1</b>
<b>Arctic Islands &amp; Eastern Arctic Offshore</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>0.2</b>	<b>0</b>	<b>0<sup>*1</sup></b>	<b>0.1</b>	<b>0.1</b>
<b>Lands Held Under Licence (in millions of hectares)</b>					
<b>Mainland Territories</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.5</b>	<b>1.0</b>
<b>Mackenzie Delta &amp; Beaufort Sea</b>	<b>1.1</b>	<b>1.1</b>	<b>1.1</b>	<b>1.0</b>	<b>0.9</b>
<b>Arctic Islands &amp; Eastern Arctic Offshore</b>	<b>1.3</b>	<b>1.3</b>	<b>1.3</b>	<b>1.3</b>	<b>1.3</b>
<b>Total</b>	<b>2.6</b>	<b>2.6</b>	<b>2.6</b>	<b>2.8</b>	<b>3.2</b>

<sup>\*1</sup> less than 0.1 million hectares

## STATISTICAL OVERVIEW cont'd

Exploration Licences Issued Before 1996							
	AREA (in ha)	REPRESENTATIVE	DATES (y. m. d)			WORK BID	LOCATION*
			Effective	A Well to be Completed by	Expiry		
EL 297	931 640	Sceptre	1986.07.15	n/a	1998.07.14		EA
EL 317 <sup>1*</sup>	175 810	Pembina	1986.10.05	n/a	n/a		BS\MD
EL 329 <sup>1*</sup>	349 982	Amoco	1987.09.05	n/a	n/a		BS\MD
EL 344 <sup>2*</sup>	7 787	Imperial Oil	1987.06.01	n/a	n/a		BS\MD
EL 355 <sup>2*</sup>	15 351	Imperial Oil	1990.08.01	n/a	n/a		BS\MD
EL 362	20 918	Ranger Oil	1995.01.23	1999.01.22	2002.01.22	\$1 838 075	Main.SNWT
EL 363	9 864	Ranger Oil	1995.01.23	1999.01.22	2002.01.22	\$3 529 000	Main.SNWT
EL 364	13 357	Amoco	1995.01.23	1999.01.22	2002.01.22	\$1 278 934	Main.SNWT
EL 365	20 635	Ocelot	1995.01.23	1999.01.22	2002.01.22	\$1 500 000	Main.SNWT
EL 366	11 839	Chevron	1995.01.23	1999.01.22	2002.01.22	\$1 201 200	Main.SNWT
EL 367	24 382	Shell	1995.01.23	1999.01.22	2002.01.22	\$1 768 600	Main.SNWT
EL 368	23 085	Paramount	1995.01.23	1999.01.22	2002.01.22	\$2 800 000	Main.SNWT
EL 369	25 737	Shell	1995.01.23	1999.01.22	2002.01.22	\$8 765 580	Main.SNWT
EL 371	75 196	Foxboro	1995.06.08	2000.06.07	2004.06.07	\$1 150 000	Main.CMV
EL 372	88 693	Ranger Oil	1995.05.18	1999.05.17	2003.05.17	\$3 215 000	Main.CMV

\* LOCATION:   EA           = Eastern Arctic Offshore  
                   BS\MD       = Beaufort Sea Mackenzie Delta  
                   Main.CMV   = Mainland - Central Mackenzie Valley  
                   Main.SNWT = Mainland - Southern Northwest Territories

<sup>1\*</sup> Under work prohibition orders

<sup>2\*</sup> Maintained under applications for significant discovery

## STATISTICAL OVERVIEW cont'd

<b>Exploration Licences Issued in 1996</b>							
	AREA (in ha)	REPRESENTATIVE	DATES ( y. m. d.)			WORK BID	LOCATION*
			Effective	A Well to be Completed by	Expiry		
EL 373	99 560	Grand River	1996.03.27	2001.03.26	2005.03.26	\$ 1 226 000	Main.CMV
EL 374	138 170	Grand River	1996.03.27	2001.03.26	2005.03.26	\$ 1 042 000	Main.CMV
EL 375	3 508	Murphy Oil	1996.03.27	2000.03.26	2004.03.26	\$ 2 806 000	Main.CMV
EL 376	86 156	Canadian 88	1996.03.27	2000.03.26	2004.03.26	\$ 1 200 000	Main.CMV
EL 377	47 693	Ranger Oil	1996.03.27	2000.03.26	2004.03.26	\$ 3 069 000	Main.CMV
EL 378	23 145	Husky Oil	1996.04.10	2000.04.09	2003.04.09	\$ 3 154 000	Main.SNWT
EL 379	24 420	Norcen Energy	1996.04.10	2000.04.09	2003.04.09	\$ 6 388 731	Main.SNWT
EL 380	25 606	Paramount	1996.04.10	2000.04.09	2003.04.09	\$ 2 200 000	Main.SNWT
EL 381	21 236	Unocal Canada	1996.04.10	2000.04.09	2003.04.09	\$ 6 250 000	Main.SNWT
EL 382	25 335	Ocelot Energy Ltd.	1996.04.10	2000.04.09	2003.04.09	\$ 1 100 000	Main.SNWT
EL 383	25 515	Shell Canada Ltd.	1996.04.10	2000.04.09	2003.04.09	\$ 1 224 400	Main.SNWT

\* LOCATION:   BS\MD       = Beaufort Sea Mackenzie Delta  
                   Main.CMV = Mainland - Central Mackenzie Valley  
                   Main.SNWT = Mainland - Southern Northwest Territories



## STATISTICAL OVERVIEW cont'd

<b>Regional Exploration Activity for the Mainland Territories</b>					
	1992	1993	1994	1995	1996
<b>Wells spudded</b>					
Exploratory/delineation	0	0	0	0	1
Development	0	0	4	3	6
<b>Total</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>3</b>	<b>7</b>
<b>Wells terminated*1</b>					
Exploratory/delineation	0	0	0	0	0
Development	0	0	4	3	6
<b>Total</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>3</b>	<b>6</b>
<b>Metres drilled</b>					
Exploratory/delineation	0	0	0	0	1 309
Development	0	0	0	4850	11 368
<b>Rigs active</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>Geophysical programs run</b>					
Reflection seismic (km)	1 1867*2	1 55	0 0	8 698	15*3 921.5*2
<b>Money spent (millions of \$)</b>					
Geophysical/geological	1.1	0.5	0	10.5	20.7*5
Exploratory/delineation/ Workovers	7.7	4.9	0	0	0
Development drilling	0	0	4	5.9	12.4
Production facilities	8.6	5.6	8.8	0	0
Abandonments	0	0	0	0.07	0.15*4
<b>Total money spent (millions of \$)</b>	<b>17.4</b>	<b>11.1</b>	<b>12.8</b>	<b>16.47</b>	<b>33.25</b>

\*1 In the Mainland Territories, where exploratory operations are generally restricted to the winter months, a well is deemed to be terminated in the year in which it reaches total depth, even though it may be re-entered in the following year for testing.

\*2 Includes three-dimensional seismic equivalent.

\*3 Includes three aeromagnetic surveys and two re-processing programs.

\*4 One well in NWT.

\*5 Includes two geological programs.

## STATISTICAL OVERVIEW cont'd

<b>Regional Exploration Activity for the Mackenzie Delta &amp; Beaufort Sea</b>					
	1992	1993	1994	1995	1996
Wells spudded	2	0	0	0	0
Wells terminated* <sup>1</sup> Exploratory/delineation	2	0	0	0	0
Metres drilled Exploratory/delineation	2560	0	0	0	0
Rigs active	1	0	0	0	0
Rig-months	2	0	0	0	0
Geophysical programs run Reflection seismic (km)	3 3955 <sup>*2</sup>	1 285	0 0	0 0	0 0
Money spent (millions of \$ )					
Geophysical/geological	8.8	4	0	0	0
Exploratory/delineation/workovers	10.1	0	0	0	0
Abandonments	n/a	n/a	n/a	0.04	3.5 <sup>*3</sup>
<b>Total money spent (millions of \$)</b>	<b>18.9</b>	<b>4</b>	<b>0</b>	<b>0.04</b>	<b>3.5</b>

\*<sup>1</sup> In the Beaufort Sea, where operations are seasonal and could take place over a number of seasons for a given well, a well is deemed to be terminated in the year in which it reaches total depth.

\*<sup>2</sup> Includes three-dimensional seismic equivalent.

\*<sup>3</sup> Estimated costs of abandoning ten wells in Mackenzie Delta.

<b>Regional Exploration Activity for the Arctic Islands &amp; Eastern Arctic Offshore</b>					
	1992	1993	1994	1995	1996
Money spent (millions of \$)					
Geophysical/geological	0	0.4	0	0	0
Exploratory/delineation/workovers	4.2	n/a	0	0	0
Production facilities	0	0	0	0	0
Abandonments	0.2	0	0	0.1	13.0*
<b>Total money spent (millions of \$)</b>	<b>4.4</b>	<b>0.4</b>	<b>0</b>	<b>0.1</b>	<b>13.0</b>

\* Estimated cost of abandoning four wells, including two at the Bent Horn Field.

## STATISTICAL OVERVIEW cont'd

<b>Well Activity - Drilling</b>			
Well Name	Surface Location Latitude/ Longitude	Status / Result	Total Depth
<b>Mainland Territories</b>			
Imp Norman Wells F-52X	65°16'19" N/ 126°50'49" W	COMPLETED: Producer spud 1996.01.01; rig release 1996.02.19 (Shehtah #1)	2000 m
Imp Norman Wells H-52X	65°16'19.3" N/ 126°50'48.7" W	COMPLETED: Injector spud 1996.02.25; rig release 1996.04.01 (Shehtah #1)	2059 m
Imp Norman Wells P-48X	65°15'11.16" N/ 126°52'13.48" W	COMPLETED: Injector spud 1996.04.14; rig release 1996.05.09 (Shehtah #1)	1845 m
Imp Norman Wells M-50X	65°15'19.30" N/ 126°51'46.73" W	COMPLETED: Producer spud 1996.06.14; rig release 1996.07.09 (Shehtah #1)	1880 m
Imp Norman Wells L-52X	65°15'37.37" N/ 126°51'08.24" W	COMPLETED: Injector spud 1996.07.29; rig release 1996.08.15 (Shehtah #1)	1612 m
Imp Norman Wells J-52X	65°15'37.37" N/ 126°51'08.71" W	COMPLETED: Producer spud 1996.08.17; rig release 1996.09.13 (Shehtah #1)	1972 m
UCEL Liard K-02	60°11'33.85" N/ 123°31'10.24" W	DRILLING: Exploratory spud 1996.12.14 (Cactus #1)	1309 m
(Note: The wells in the Norman Wells field are all horizontal development wells)			

## STATISTICAL OVERVIEW cont'd

<b>Well Activity-Abandonments</b>		
<b>Well Name</b>	<b>Surface Location : Latitude/Longitude</b>	<b>Date of Abandonment</b>
<b>Mainland Territories</b>		
Paramount HB et al Cameron Hills M-31	60°00'55.97" N / 117°07'22.30" W	1996.01.26
<b>Mackenzie Delta &amp; Beaufort Sea</b>		
Shell Niglintgak H-30	69°19'21.19" N / 135°20'35.29" W	1996.02.05
Shell Kumak E-58	69°17'29.48" N / 135°14'55.28" W	1996.02.10
Shell Niglintgak M-19	69°18'49.00" N / 135°19'26.00" W	1996.02.12
Shell Niglintgak B-19	69°18'11.00" N / 135°18'19.00" W	1996.02.15
Shell Titalik O-15	69°04'58.00" N / 135°03'12.00" W	1996.02.23
Shell Kumak K-16	69°15'32.93" N / 135°03'58.20" W	1996.02.26
Shell Unipkat B-12	69°11'00.75" N / 135°18'25.03" W	1996.02.29
Shell Unipkat I-22	69°11'37.38" N / 135°20'27.43" W	1996.03.03
Shell Kugpiq O-13	68°52'50.00" N / 135°18'15.00" W	1996.03.04
Shell Unipkat N-12	69°11'54.77" N / 135°19'07.66" W	1996.03.06
<b>Arctic Islands &amp; Eastern Arctic Offshore</b>		
Panarctic Drake F-76	76°25'22.40" N / 108°28'47.80" W	1996.01.08
Panarctic Rea Pt. Strat K-32	75°21'33.60" N / 105°43'38.10" W	1996.07.29
Panarctic et al W. Bent Horn I-01A	76°20'33.26" N / 104°00'35.80" W	1996.10.07
Panarctic et al W. Bent Horn A-02	76°21'05.70" N / 104°00'53.10" W	1996.10.09

## SOURCES OF INFORMATION

### Northern Oil and Gas Directorate

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.

#### Northern Oil and Gas Directorate

Department of Indian Affairs and Northern Development  
OTTAWA, Ontario, Canada K1A 0H4

Information on the resource management regime, calls for nominations and bids and other related information is available from:

**Chief, Rights Issuance and Policy**-Telephone (819) 994-1606.

Information on registration procedures and regulations, exploration, significant discovery and production licences, transfers, notices and maps is available from:

**Rights Administrator/ Registrar**-Telephone (819) 953-8490.

Information on northern exploration history and geological/geophysical activities is available from:  
**Staff Geologist** -Telephone (819) 953-8722.

Other relevant departmental information and publications such as *Land Use Regulations*, *Environmental Operating Guideline Handbooks* and land claim settlement agreements are available from the department's **Enquiries Kiosk**, by calling (819) 997-0380 or by Fax (819) 953-3017.

### Northern Oil and Gas Directorate Department of Indian Affairs and Northern Development

Street Address: 6th Floor, 10 Wellington Street, Hull, Quebec  
Telephone: (819) 997-0877  
Fax: (819) 953-5828  
Internet: <http://www.inac.gc.ca>

## Other Sources of Information

### **National Energy Board (NEB)**

Energy Plaza  
311-6th Ave. SW,  
Calgary AB T2P 3H2  
Telephone: (403) 292-4800 Fax: (403) 292-5503

Through the offices of the NEB, 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; and
- the **Environmental Directorate** has information relating to the Environmental Studies Research Funds.

The Geological Survey of Canada's **Institute of Sedimentary and Petroleum Geology**, provides public viewing and sampling facilities for cores and samples, and information on wells drilled North of 60° at its offices at 3303-33rd 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,**

Atlantic Geoscience Centre, Bedford Institute of Oceanography,  
Dartmouth NS B2Y 4A2  
Telephone: (902) 426-6127 Fax: (902) 426-6186

Information concerning Program on Energy Research and Development (PERD) is available from:

### **Office of Energy Research and Development,**

Natural Resources Canada,  
580 Booth Street, Ottawa ON K1A 0E4  
Telephone: (613) 995-8860 Fax: (613) 995-6146