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# Northern Oil and Gas Annual Report 1999

The management of oil and gas resources North of 60° N latitude in the Northwest Territories and Nunavut and the offshore is a federal responsibility 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° N 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 collecting of royalties. The COGOA regulates industrial activities with respect to resource conservation, environmental protection and the safety of workers. The CPRA is administered by the Minister of Indian Affairs and Northern Development, while the National Energy Board administers the COGOA.



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***Message from the Honourable Robert Nault  
Minister of Indian Affairs and Northern Development***

The rebirth of petroleum exploration in Canada's North is beginning to reap rewards. Companies released the results of two wells which focussed the spotlight on the north. One of these wells ranks among the best ever drilled in Canada in terms of initial production rates.

Lured by new rights issuance, a profit sensitive regime, cost reducing technology and increased participation by northerners, companies are now seeing their investment decisions vindicated by major success.


Oil and gas exploration and development is creating great opportunities for Northerners and Aboriginal communities. The economic benefits of renewed oil and gas exploration are already being realized. By providing access to training, employment and business opportunities, northern communities, including Aboriginal communities, are experiencing increased employment. For example, the Fort Liard community of the Northwest Territories has experienced virtually full employment resulting largely from gas exploration and development. This is a prime example of the goals outlined in *Gathering Strength – Canada's Aboriginal Action Plan*, particularly in our commitment to supporting strong communities, peoples and economies.

The oil and gas industry in Northern Canada has proven potential to become a major supplier of natural gas to the North American market. This year development plans have been submitted to bring these new gas fields into production in the southern Northwest Territories. Much has been accomplished this past year and I look forward to flows of natural gas from northern wells increasing many fold as early as next year.

It is with great pleasure I table before Parliament the 1999 Northern Oil and Gas Annual Report.

## *Canada's Frontier Lands*



 Area under the responsibility of the  
Minister of Indian and Northern Affairs Canada  
Zone qui relève de la compétence du ministre des  
Affaires indiennes et du nord canadien

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## OVERVIEW OF NORTHERN OIL AND GAS ACTIVITIES

In Canada's North, large exploration expenditures in the early 1980s, driven by government grants, gave way to minimal work in the early 1990s as subsidies ended, oil prices nose-dived and exploration rights issuance was frozen to permit time for Aboriginal land claims. Now, there is growing activity, driven by new rights issuance, a profit-sensitive royalty regime, cost-reducing technology and increasing participation by Northerners following land claim settlements.

With the North American demand for natural gas growing rapidly, Canadian exports to the United States are expected to rise by nearly 25 percent over the next five years. The outlook for prices is increasingly favourable, and economies in exploration and development of petroleum resources in Canada's North are improving. Consequently, Northern Canada, which has good potential as a major supply region for the continental gas market, is coming under intense scrutiny by the gas industry. The rising trend in crude oil prices through the second half of the year has also improved the outlook for upstream companies exploring for oil. In summary, we may anticipate increasing exploration budgets for both oil and gas, which should stimulate activity through much of the Mackenzie Valley and Delta.

Oil and gas resources discovered in the Mackenzie Valley and the Mackenzie Delta-Beaufort Sea regions of the Northwest Territories, in the Arctic Islands shared by the Northwest Territories and Nunavut, and in offshore eastern Nunavut total some  $268 \times 10^6$  cubic metres (17 billion barrels) of oil and  $690 \times 10^9$  cubic metres (24 trillion cubic feet) of natural gas. Most discoveries in the North have

remained undeveloped with the exception of Imperial Oil's Norman Wells oilfield in the central Mackenzie Valley, Amoco's Pointed Mountain gas field and Kotaneelee field operated by Anderson in the southern Northwest Territories and southeastern Yukon respectively, and oil production from the Bent Horn field on Cameron Island in Nunavut – now abandoned. To date, about  $29 \times 10^6$  cubic metres (182 million barrels) of oil have been produced from the Norman Wells field and  $9 \times 10^9$  cubic metres (320 billion cubic feet) of gas from Pointed Mountain.

Overall, the North is estimated to hold about 19 percent of Canada's remaining recoverable conventional light crude oil resources and some 30 percent of potential. In terms of natural gas, the North holds 25 percent of the remaining discovered resource and, conservatively, 30 percent of potential. (Source: new estimates in *Canadian Energy Supply and Demand to 2025*, National Energy Board, 1999.)

In the southern Northwest Territories, new northern gas development is taking place in three new gas fields discovered in 1998 and 1999. A successful call for bids in the Mackenzie Delta region this year has sent a strong signal that development of the Mackenzie/Beaufort Basin with its major resource base is also beginning to attract substantial private exploration investment. Such investment lends credence to the view that demand and prices for natural gas will support the major pipeline development necessary to realize development in this Arctic region.

Oil and gas exploration and development is increasing the opportunities for northern

communities and Aboriginal people. Employment and businesses are spreading beyond the local centres of activity as northern companies expand to capture new opportunities. As capacity builds in the North, so will the improved economic advantages of a skilled and available work force which will encourage companies to increase investment further.

## Operations

The commissioning of the Ikhil project near Inuvik signalled the first new field to enter production from the Northwest Territories in several decades. Gas began flowing in July through a 50 km pipeline running from the Ikhil J-35 well south to the town of Inuvik. Although small, this development is of great significance for northerners as the community of Inuvik benefits from the development of a local energy resource. Natural gas – an efficient fuel for heating and electricity generation – will improve efficiencies and reduce energy costs for the community.

Ikhil production is the harbinger of major increases in natural gas production from the Northwest Territories. In March 1998, Ranger Oil Limited announced a discovery at the P-66A well in the foothills northwest of Fort Liard, NWT. In April of this year, Chevron Canada Resources Limited announced a prolific gas well, on a separate structure 15 km south of Ranger Oil Limited's well. Press reports quote Chevron as predicting flow rates on production of 70-100 mcf (million cubic feet of gas per day). Based on the company releases, the combined new resources discovered by these wells may amount to between 600 bcf (billion cubic feet) to over 1 tcf (trillion cubic feet).

Following hard on the Chevron announcement, Paramount Resources Ltd published results from its F-36 well, 15 km south of Fort Liard and 10 km north of the B.C. border, adjacent to activity in the Maxhamish Lake area of northeastern British Columbia. The company announced tests of sweet natural gas at rates up to 45 mmcf and estimated marketable gas reserves of at least 250 bcf. This well confirms the presence that a second geological formation in the Fort Liard area with exciting potential for highly productive gas pools.

Chevron, Ranger and Paramount, operating three separate discoveries on behalf of their partners, expect to begin production in April 2000, subject to regulatory approvals. The companies submitted development plans mid-year. An environmental assessment process (under the Mackenzie Valley Environmental Impact Review Board) was drawing to a conclusion by year end for a project combining the Chevron and Ranger fields into a common pipeline which would run to the existing terminus of the Westcoast Energy pipeline at Pointed Mountain, Northwest Territories. Plans call for 63 km of new pipeline. Also at year end, regulatory approvals by the National Energy Board for 25 km of new pipeline from the Paramount F-36 discovery running southwest from the Northwest Territories into British Columbia near Maxhamish Lake were still pending completion of environmental screening.

Spurred by news of discoveries near Fort Liard, activity levels jumped, with the main focus on the Fort Liard area of the southern Northwest Territories. As a result, industry expenditures nearly doubled over 1998 to \$98 million. In total, five exploration wells were completed in 1999 and six new exploration wells spudded and

drilled to total depth. Six delineation wells were begun on new and existing discoveries: one by Chevron as a follow-up to its K-29 well on SDL99, two by Paramount on EL381 to delineate the F-36 discovery and one by Suncor on SDL13 which holds the 1961 Netla discovery. Four were completed by year end. Eight reflection seismic programs were run; three of these were concentrated 3D programs covering 485 km<sup>2</sup>. These focussed on discoveries planned or considered for further delineation drilling. The remaining programs were conventional 2D seismic (381 km in total).

Several seismic operations used heli-portable techniques in mountainous terrain. One aeromagnetic survey was also conducted.

Exploration licences in the Central Mackenzie Valley from the Tulita area to northwest of Norman Wells provided a secondary focus. One exploration well, commenced in December 1998 was completed in January by Greywolf, operator for EL389. A second exploration well on this licence was completed. Imperial Oil operated a well on EL388, which was originally acquired by Murphy Oil. Two conventional 2D seismic programs were run using vibroseis methods for a total of 282 km.

No oil and gas exploration was conducted elsewhere in the Northwest Territories, Nunavut or northern offshore although companies successful in acquiring licences in the Mackenzie Delta/Beaufort call for bids were gearing up to conduct seismic operations early in 2000.

#### Overview of Northern Oil and Gas Activities, 1999

Lands held under licence as of year end (millions of hectares).....	4.0
Licences active as of year end.....	166
(includes exploration, significant discovery and production licences)	
Licences issued during the year .....	5
Natural gas production (millions of cubic metres).....	150.8
Oil production (thousands of cubic metres).....	1549.1
Oil and gas revenues received in 1999 (\$ millions).....	7.4
(royalties, rentals, fees, deposit forfeitures)	



## OIL AND GAS MANAGEMENT

### Rights Issuance

The Minister has province-like authority over oil and gas resources in the N.W.T, Nunavut and the offshore under the *Canada Petroleum Resources Act* (CPRA) and parts of the *Canada Oil and Gas Operations Act*. A primary objective of DIAND's management of northern oil and gas is the effective administration of exploration and development rights. Unlike provincial authorities, the federal frontier oil and gas regime provides for the creation of employment, training and business supply, and service contract opportunities for local communities.

There has been resurgent interest in the large discovered gas resources in Mackenzie Delta/Beaufort Sea region and the significant potential for new discoveries. This new commitment by industry was underlined by the highly successful rights issuance in 1999. Following the call for bids, four exploration licences were issued in September 1999 for work commitments of \$183 million. PetroCanada (with Anderson Resources) is carrying out seismic activity during the winter of 2000 with a view to drilling new exploratory wells in subsequent years.

Consultations with the Inuvialuit regarding the annual call for nominations were completed recently and the 2000 call will be issued early in the new year.

The Mackenzie Delta has also seen the first development of a gas field in the region. In 1999, gas began to flow from the Ikhil field through a 50 km pipeline to the Town of Inuvik where it is used for electricity generation and domestic heating. The Inuvialuit own the gas field and the pipeline.

The central Mackenzie Valley which contains the large Norman Wells oil field, has good potential for further discoveries of both oil and gas. In three rounds of rights issuance since 1994 convening 1,610,000 hectares, fourteen exploration licences were issued to companies between 1995 and 1997 for work proposal bids totalling \$48.7 million. Most of these are grouped along the Mackenzie Valley north and south of the Norman Wells oil field. Despite drilling nine new wells over the last two years, companies have yet to report success. As indicated above, it is important to sustain the interest of industry investors through the issuance of new exploration lands. Late in the fall of 1999 the department was completing consultations with the Sahtu Land Corporations and the Gwich'in Tribal Council, with plans for a call for nominations to be launched in January 2000.

### 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 residing in regional

communities.

Inuvik, Fort Liard and the Sahtu communities of Tulita and Norman Wells are realizing the economic benefits from renewed oil and gas exploration activity. Fort Liard, for instance, has virtually full employment largely due to gas exploration and development.

## **Environmental Considerations**

### **Consultations**

Before issuing calls for nominations, consultations are held with northern Aboriginal groups to identify areas of environmental sensitivity, including those holding special interest for cultural or spiritual reasons. Environmental considerations also play an important role when issuing land use permits, water licences and all work authorizations. DIAND also consults with other federal departments and territorial government agencies. The terms and conditions of the calls for nominations and bids reflect the results of this consultation process.

### **Environmental Studies Research Fund**

Under the *Canada Petroleum Resources Act*, the Environmental Studies Research Fund (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. Levies have not been imposed since 1994 as no new projects were initiated. Since its inception in 1983, the ESRF has published 135 reports which are available from the National Energy Board.

### **Regulatory Road Map**

A joint effort by government, industry and northern regulators to prepare a regulatory guide to land, water and associated drilling approvals is under way and should be available soon for the southern Northwest Territories. Similar guides are planned for the Mackenzie Valley and the Inuvialuit areas. These detailed regulatory road maps will be of particular interest to industry in the planning and preparation of proposed programs.

### **Bent Horn Abandonment**

The abandonment of the producing well and production facilities at the Bent Horn oil field on Cameron Island in the Arctic Islands was completed in 1998; the final site clean-up was done in 1999.

### **Expenditures & Royalties**

Exploration activities, well abandonments and field development drilling resulted in expenditures of \$98 million in 1999. Royalties from industry on northern oil and natural gas production amounted to about \$7.1 million during the same period. From this amount, the Sahtu and Gwich'in First Nations received a share in fulfilment of royalty-sharing provisions in their land claim settlement agreements.

## DEVELOPMENT AND PRODUCTION

### Norman Wells

The Norman Wells oil field, operated by Imperial Oil, extends beneath the Mackenzie River at 65°20' N latitude. The town of Norman Wells occupies the eastern bank of the river adjoining the production facilities. The neighbouring communities are Tulita, 85 km upstream and Fort Good Hope, 147 km downstream. The field is the current terminus of the Norman Wells pipeline. The 30 cm (12") diameter line, operated by Enbridge Inc., is 866 km long and runs south from the Norman Wells field to Zama, Alberta.

Norman Wells production in 1999 was 1.549 x 10<sup>6</sup> cubic metres of crude oil, only fractionally less than in 1998. After re-evaluating the field, two new producing wells were drilled and brought on-stream in 1999. These new wells optimize recovery within the existing field thus reducing the rate of decline in field production.

### Pointed Mountain

The Pointed Mountain gas field, operated by BP Amoco, entered production in 1972. In the mid-1970s, production peaked at close to 1.0 x 10<sup>9</sup> cubic metres per year. By 1999, gas production had declined to 21.0 x 10<sup>6</sup> cubic metres, continuing the trend of previous years. Gas from the two remaining producing wells flows through a raw gas pipeline operated by Westcoast Energy Inc. to Fort Nelson, B.C.,

where it is processed and added to the main system.

### Ikhil Gas Field

The 1983 Ikhil K-35 gas discovery lies 50 km north of the town of Inuvik it is owned by Inuvialuit Petroleum Corporation and partners. The field entered production in June 1999 using a 6" pipeline operated by Enbridge Inc. to pump its initial production to the Northwest Territories Power Corporation to generate electricity for the town of Inuvik. Through the summer months, a gas distribution system was constructed and businesses and homes converted to natural gas. This is the first time a community in the North has been able to generate heat and electricity from natural gas. The fuel displaces diesel imported from western Canada.

### New Production Anticipated in the Southern Northwest Territories

Proposals to develop three gas fields in the southern Northwest Territories near Fort Liard were nearing the end of the regulatory review process at year end. For all three projects, construction of facilities and pipelines is planned for winter 1999/2000 with production beginning in April 2000.

Two developments are situated in the foothills northwest of Fort Liard. Ranger Oil and

Canadian Forest Oil submitted a development plan for the Ranger et al P-66A gas discovery in April, followed in June by a development plan from Chevron for the natural gas pool delineated by the Chevron et al Liard K-29 well. The Ranger/Canadian Forest plan was subsequently amended to allow production to flow through a pipeline linking both the Ranger and Chevron projects. Gas would flow to BP Amoco's Pointed Mountain facility at the current terminus of the Westcoast Energy's pipeline. The Chevron plan received approval by the National Energy Board on December 24 subject to Governor in Council consent which

pending at year end. Approval of the Ranger/Canadian Forest plan was also pending. Paramount Resources Ltd and Berkeley Petroleum Corp submitted a development plan in July for their Fort Liard F-36 gas discovery, announced earlier in the year. This well lies 25 km southeast of Fort Liard. The development concept called for the construction of a new pipeline to carry gas southward to a gas processing plant east of Maxhamish Lake in British Columbia. Approvals by the National Energy Board for the development (subject to Governor in Council consent) and for the pipeline under Section 58 of the *National Energy Board Act* were pending at year end.

Oil and Gas Production					
	1995	1996	1997	1998	1999
Oil Production (thousands of m <sup>3</sup> )					
Norman Wells	1697.6	1631.8	1584.6	1561.7	1549.1
Gas Production (millions of m <sup>3</sup> )					
Pointed Mountain	65.9	47.2	33.9	25.2	21.0
Norman Wells	129.8	132.4	135.5	132.8	126.5
Ikhil <sup>1*</sup>	-	-	-	-	3.3

<sup>1\*</sup> Ikhil production on line in 1999

Oil and Gas Revenues Received (\$)					
	1995	1996	1997	1998	1999
Royalty	7 633 984	13 967 952	9 887 982	6 967 456	7 138 169
Rentals	7 818	7 525	7 818	7 818	3 245
Issuance/Registration Fees	4 621	14 907	22 464	2 052	16 766
Work Deposit Forfeitures	10 576 840	649 000	0	0	289 874
<b>Total</b>	<b>18 223 263</b>	<b>14 639 384</b>	<b>9 918 264</b>	<b>6 977 326</b>	<b>7 448 054</b>

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

## STATISTICAL OVERVIEW

<b>Land Status</b>					
	1995	1996	1997	1998	1999
<b>Number of Licences Issued</b>					
Mainland Territories	10	11	7	0	0
Mackenzie Delta & Beaufort Sea	0	0	2	5	5
Arctic Islands & Eastern Arctic Offshore	0	0	0	0	0
<b>Total</b>	<b>10</b>	<b>11</b>	<b>9</b>	<b>2</b>	<b>5</b>
<b>Number of Licences Active</b>					
Mainland Territories	63	74	81	73	68
Mackenzie Delta & Beaufort Sea	69	68	70	70	75
Arctic Islands & Eastern Arctic Offshore	23	23	23	23	23
<b>Total</b>	<b>155</b>	<b>165</b>	<b>174</b>	<b>166</b>	<b>166</b>
<b>Lands Issued in Licences (in millions of hectares)</b>					
Mainland Territories	0.3	0.5	0.6	0	0
Mackenzie Delta & Beaufort Sea	0	0	0.2	0 <sup>1*</sup>	0.31
Arctic Islands & Eastern Arctic Offshore	0	0	0	0	0
<b>Total</b>	<b>0.3</b>	<b>0.5</b>	<b>0.8</b>	<b>0</b>	<b>0.31</b>
<b>Lands Relinquished or Surrendered (in millions of ha)</b>					
Mainland Territories	0	0	0	0.1 <sup>2*</sup>	0.4
Mackenzie Delta & Beaufort Sea	0.1	0.1	0	0	0
Arctic Islands & Eastern Arctic Offshore	0	0	0	0	0
<b>Total</b>	<b>0.1</b>	<b>0.1</b>	<b>0</b>	<b>0.1<sup>2*</sup></b>	<b>0.4</b>
<b>Lands Held Under Licence (in millions of ha)</b>					
Mainland Territories	0.5	1.0	1.6	1.6	1.4
Mackenzie Delta & Beaufort Sea	1	0.9	1.1	1.1	1.3
Arctic Islands & Eastern Arctic Offshore	1.3	1.3	1.3	1.3	1.2
<b>Total</b>	<b>2.8</b>	<b>3.2</b>	<b>4.0</b>	<b>4.0</b>	<b>3.9</b>

<sup>1\*</sup>Less than 0.1 million hectares.

<sup>2\*</sup> Adjustment to Mainland Territories by deletion of eight licences totalling 25 529 hectares in Yukon.

<b>Exploration Licences</b>						
<b>No.</b>	<b>Area (in ha)</b>	<b>Representative</b>	<b>Issue</b>	<b>Dates (y.m.d.) Well to be Drilled by</b>		<b>Work Bid \$</b>
<b>Eastern Arctic Offshore</b>						
EL 297 <sup>1*</sup>	931 640	CanNat Resources Inc.	1998.07.14	2008.07.14		2008.07.14
<b>Beaufort Sea/Mackenzie Delta</b>						
EL317 <sup>2*</sup>	175 810	Talisman Energy Inc.	1986.10.05	n/a		n/a
EL329 <sup>2*</sup>	349 982	Amoco Canada Resources	1987.09.05	n/a		n/a
EL384 <sup>3*</sup>	85 761	Husky Oil Operations	1997.01.06	2006.01.05		2006.01.05
EL385 <sup>3*</sup>	128 327	Husky Oil Operations	1997.01.06	2006.01.05		2006.01.05
EL393	72 474	Poco Petroleums Ltd.	1999.09.18	2004.09.17		2008.09.17 35 550 000
EL394	73 155	Poco Petroleums Ltd.	1999.09.18	2004.09.17		2008.09.17 42 375 000
EL395	72 311	Petro-Canada	1999.09.18	2004.09.17		2008.09.17 51 848 860
EL396	75 511	Petro-Canada	1999.09.18	2004.09.17		2008.09.17 53 444 900
<b>Mainland - Southern NWT</b>						
EL363	9 864	Ranger Oil Limited	1995.01.23	1999.01.22	T	2002.01.22 3 529 000
EL365	20 635	Ocelot Energy Inc.	1995.01.23	1999.01.22	T	2002.01.22 1 500 000
EL367	24 382	Shell Canada Limited	1995.01.23	1999.01.22	T	2002.01.22 1 768 600
EL368	23 085	Paramount Resources	1995.01.23	1999.01.22	T	2002.01.22 2 800 000
EL369	25 737	Shell Canada Limited	1995.01.23	1999.01.22	T	2002.01.22 8 765 580
EL378	23 145	Husky Oil Operations	1996.04.10	2000.04.09		2003.04.09 3 154 000
EL379	24 420	Norcen Energy Resources	1996.04.10	2000.04.09		2003.04.09 6 388 731
EL380	25 606	Paramount Resources	1996.04.10	2000.04.09	T	2003.04.09 2 200 000

<b>Exploration Licences (cont'd)</b>							
<b>No.</b>	<b>Area (in ha)</b>	<b>Representative</b>	<b>Issue</b>	<b>Dates (y.m.d.) Well to be Drilled by</b>		<b>Expiry</b>	<b>Work Bid \$</b>
<b>Mainland - Southern NWT</b>							
EL381	21 236	Unocal Canada Exploration Limited	1996.04.10	2000.04.09	T	2003.04.09	6 250 000
EL382	25 335	Ocelot Energy Inc.	1996.04.10	2000.04.09	T	2003.04.09	1 100 000
EL383	25 515	Shell Canada Limited	1996.04.10	2000.04.09	T	2003.04.09	1 224 400
<b>Mainland - Central Mackenzie Valley</b>							
EL371	75 196	Foxboro Ltd.	1995.06.08	2000.06.07		2004.06.07	1 150 000
EL372	88 693	Ranger Oil Limited	1995.05.18	1999.05.17	T	2003.05.17	3 215 000
EL373	99 560	Grand River Resources	1996.03.27	2001.03.26		2005.03.26	1 226 000
EL374	138 170	Grand River Resources	1996.03.27	2001.03.26		2005.03.26	1 042 000
EL375	3 508	Murphy Oil Company	1996.03.27	2000.03.26	T	2004.03.26	2 806 000
EL376	86 156	Canadian 88 Resources	1996.03.27	2000.03.26		2004.03.26	1 200 000
EL377	47 693	Ranger Oil Limited	1996.03.27	2000.03.26		2004.03.26	3 069 000
EL386	114 737	Grand River Resources	1997.05.05	2001.05.04		2005.05.04	1 072 000
EL387	128 575	AEC West Ltd.	1997.05.05	2001.05.04		2005.05.04	9 482 688
EL388	30 696	Murphy Oil Company	1997.05.05	2001.05.04	T	2005.05.04	2 831 080
EL390	50 938	Ranger Oil Limited	1997.05.05	2001.05.04	T	2005.05.04	6 200 000
EL391	71 816	International Frontier Resources Ltd.	1997.05.05	2001.05.04		2005.05.04	4 000 000
EL392	133 518	AEC West Ltd.	1997.05.05	2001.05.04		2005.05.04	8 466 460

<sup>1\*</sup> Amended per s. 26 (4) of the CPRA, originally issued pursuant to the Canada Oil and Gas Land Regulations.

<sup>2\*</sup> Under work prohibition orders.

<sup>3\*</sup> Land exchange for Cape Bathurst former permits.

T 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.

## Well Activity

Well Name	Spud/ Rig Release	Latitude Longitude	Class <sup>*1</sup> Status <sup>*2</sup>	Well Depth	Rig/ Licence <sup>*3</sup>
<b>Southern Territories</b>					
CANADIAN FOREST FLETT RAPIDS I-61	98.11.13 99.01.18	60°40'40.94"N 123°26'33.96" W	EX P&S	2660	Nabors #24E EL365
CANADIAN FOREST FLETT RAPIDS N-61	99.03.21 99.09.19	60°30'46.69"N 123°42'32.51"W	EX P&S	3383	Akita #58 EL363
CANADIAN FOREST FORT LIARD K-32	99.02.19 99.03.21	60°1'39.00"N 123°21'49.00"W	EX P&S	1695	Nabors #6 EL381
CHEVRON ET AL LIARD K-29	99.03.03 99.03.30	60°28'42.1"N 123°35'1.8"W	DL P&S	3000	Akita #48 SDL099
CHEVRON ET AL LIARD M-25	99.09.29 99.12.21	60°24'50.80"N 123°35'12.50"W	DL P&S	3770	Akita #48 SDL099
CHEVRON ET AL McKAY LAKES O-80	99.08.24 99.09.08	60°19'49.96"N 123°29'3.46"W	EX P&S	1028	Akita #48 EL380
PARAMOUNT BERKLEY ARROWHEAD C-02	99.03.11 99.03.29	60°31'12.09"N 123°1'10.43"W	EX P&S	694	Precision #507 EL383
PARAMOUNT BERKLEY ARROWHEAD O-15	99.01.18 99.03.06	60°24'53.70"N 123°02'31.20"W	EX P&S	3301	Precision #507 EL369
PARAMOUNT BERKLEY NETLA M-23	98.12.17 99.01.22	60°42'58.40"N 123°05'12.10"W	EX P&S	2280	Precision #379 EL368
PARAMOUNT BOVIE C-76A	99.02.06 99.02.23	60°15'14.83"N 122°59'22.34"W	EX P&S	3463	Cenalta #42 EL369
PARAMOUNT BOVIE C-76A	98.12.14 99.01.10	60°15'14.83"N 122°59'22.34"W	EX P&S	3464	Precision #507 EL369
PARAMOUNT ET AL I-46	99.11.12 00.01.15	60°5'32.47"N 123°22'53.61"W	DL P&S	2055	Precision #379 EL381
PARAMOUNT ET AL LIARD A-01	99.02.09 99.03.24	60°0'4.64"N 123°15'4.86"W	EX P&S	2046	Precision #373 EL381
PARAMOUNT ET AL LIARD F-36	98.12.23 99.02.05	60°05'27.50"N 123°22'0.60"W	EX P&S	2110	Akita #15 EL381
PARAMOUNT ET AL LIARD F-36	99.02.19 99.03.20	60°05'27.50"N 123°22'0.60"W	EX P&S	2090	Cenalta #42 EL381



Well Name	Spud/ Rig Release	Latitude Longitude	Class <sup>*1</sup> Status <sup>*2</sup>	Well Depth	Rig/ Licence
PARAMOUNT ET AL NETLA P-57	99.01.27 99.03.02	60°46'50.68"N 122°39'25.09"W	EX P&S	2408	Precision #379 EL367
PARAMOUNT ET AL O-35	99.11.02 99.12.29	60°4'48.08"N 123°21'22.80"W	DL P&S	2121	Akita #32 EL381
SUNCOR NETLA K-77	99.02.07 99.03.16	60°46'30.72"N 122°44'23.95"W	DL P&S	2118	Alberta Gold #235 SDL013
SUNCOR NETLA P-16	99.12.21 00.01.13	60°45'57.56"N 122°47'7.16"W	DL P&A	2099	Akita #37 SDL013
<b>Central Mackenzie Valley</b>					
GREY WOLF-CANAXAS DEH CHO-1 B-25	98.12.16 99.01.08	65°14'1.23"N 126°34'32.26"W	EX P&A	785	Shetah #7 EL389
GREY WOLF-CANAXAS DEH CHO-2 B-14	99.01.17 99.01.31	65°13'9.27"N 126°32'47.28"W	EX P&A	800	Shetah #7 EL389
IMP MURPHY DISCOVERY RIDGE D-04	99.01.14 99.01.24	65°23'12.64"N 126°46'46.78"W	EX P&A	520	Shetah #1 EL388
IMP NORMAN WELLS E-39X	99.07.18 99.07.18	65°16'56.31"N 126°51'03.74"	DV PR	915	Akita#51 PAA
IMP NORMAN WELLS G-35X	99.07.20 99.08.05	65°16'59.52"N 126°51'40.07"N	DV PR	1186	Akita#51 PAA
NORTHROCK ET AL EAST MACKAY I-77	99.12.21 00.01.24	64°46'41.61"N 125°43'10.28"W	EX P&A	2400	Akita #51 EL391

\*1 Class: EX=exploratory; DL=delineation; DV=development.

\*2 Status: P&S=plugged and suspended; P&A=plugged and abandoned; PR=production.

\*3 Licence: EL=Exploration Licence; SDL=Significant Discovery Licence;  
PAA=Proven Area Agreement-Norman Wells.

## **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: Rights Issuance and Policy - Telephone (819) 953-8529.**

**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.**

**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/oil/index.html>**

## **Other Sources of Information**

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

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

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

**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:**

**Institute of Sedimentary and Petroleum Geology  
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**