

# YUKON OIL AND GAS OVERVIEW 2007

**B. Adilman<sup>1</sup>**

*Oil and Gas Resources*

*Energy, Mines and Resources, Government of Yukon*

Adilman, B., 2008. Yukon Oil and Gas Overview 2007. In: Yukon Exploration and Geology 2007, D.S. Emond, L.R. Blackburn, R.P. Hill and L.H. Weston (eds.), Yukon Geological Survey, p. 49-58.

## ABSTRACT

This summer, Oil and Gas Resources' (OGR) had its most successful oil and gas rights disposition process to date. The Government of Yukon awarded Northern Cross (Yukon) Ltd. with exploration rights for 13 locations in the Eagle Plain basin. Northern Cross bid a record \$20 million for these rights. In the second disposition process of 2007, in mid-December AustroCan Petroleum Corporation was awarded exploration rights for one location in the Peel Plateau-Plain area in north Yukon.

Production of natural gas yielded more than 80 000 10<sup>3</sup>m<sup>3</sup> of natural gas from two wells in southeast Yukon.

Other OGR activities in 2007 included the following: participation in the development of a Yukon Energy Strategy; continued participation in preparations for the Mackenzie Gas Project and the Alaska Highway Pipeline Project; participation in several offshore oil and gas initiatives; continued consultation and cooperation with affected First Nations on a variety of oil and gas issues; development of Oil and Gas Royalty Regulations; ensuring oil and gas interests are taken into account during the Land Use Planning process; and ongoing cooperation with the Yukon Geological Survey in field work and associated analytical work to discover potential source rocks and petroleum reservoir rocks.

## RÉSUMÉ

Cet été, la division des Ressources pétrolières et gazières (RPG) du gouvernement du Yukon a connu sa meilleure disposition des droits sur le pétrole et le gaz. Elle a accordé à la Northern Cross (Yukon) Ltd. les droits d'exploration pour 13 emplacements dans le bassin d'Eagle Plain au Yukon septentrional. La soumission de la Northern Cross pour l'obtention de ces droits atteint la somme inégalée de 20 millions de dollars. Lors du deuxième processus de vente de droits à la mi-décembre de 2007, la société pétrolière d'AustroCan s'est vue accorder des droits d'exploration pour un emplacement dans la région du plateau et de la plaine de Peel dans le nord du Yukon.

La production de gaz naturel de deux puits au sud-est du Yukon s'est élevée à plus de 80 000 10<sup>3</sup>m<sup>3</sup>.

Parmi les autres activités de RPG en 2007 mentionnons : la participation à l'élaboration de la stratégie du Yukon en matière d'énergie ; la poursuite de la participation aux préparatifs du Projet gazier Mackenzie et du Projet du gazoduc de la route de l'Alaska ; la participation à plusieurs initiatives pétrolières et gazières sur le talus continental ; la poursuite de consultations et de la collaboration avec plusieurs Premières nations concernées par toute une gamme de problèmes reliés au pétrole et au gaz ; l'élaboration du Règlement sur les redevances sur le pétrole et le gaz ; s'assurer que les intérêts pétroliers et gaziers soient pris en compte dans le processus de planification de l'utilisation des terres ; la collaboration permanente avec la Commission géologique du Yukon pour les travaux sur le terrain et les travaux d'analyse associés menés à la recherche de potentielles roches mères et roches réservoirs de pétrole

<sup>1</sup>bernie.adilman@gov.yk.ca

## INTRODUCTION

This was a busy year for the newly reorganized Oil and Gas Resources (OGR) branch of the Department of Energy, Mines and Resources. While industry activity was limited in 2007, much work was done by OGR staff in preparation for future exploration and development in Yukon's oil and gas sector. This work has already translated into significant interest by industry.

Yukon has eight onshore sedimentary basins containing an estimated 17 trillion cubic feet (Tcf) (480 billion m<sup>3</sup>) of natural gas and 770 million barrels (120 million m<sup>3</sup>) of oil (Government of Yukon, 2007, p. 25; Fig. 1). Offshore estimates in the Beaufort Sea north of Yukon consist of an additional 53 Tcf (1.5 trillion m<sup>3</sup>) of natural gas and 4.5 billion barrels (720 billion m<sup>3</sup>) of oil (Government of Yukon, 2007, p. 9), contributing to Yukon's vast and virtually untapped petroleum resources.

New dispositions of oil and gas rights in the Eagle Plain basin, opportunities in southeast Yukon, and the construction of the Mackenzie and/or Alaska Highway pipelines would significantly expand Yukon's oil and gas sector. The two producing natural gas wells in southeast Yukon continue to provide revenue for Yukon.

OGR continues to develop partnerships with other jurisdictions and governments, including First Nations. A unique and competitive oil and gas common regime, jointly crafted by Yukon and First Nation governments, is in place in preparation for potential expansion of exploration and production. Although Yukon resources are remote and pipeline infrastructure is presently lacking, OGR has created an attractive economic environment and legislative framework that bodes well for future activity.

## YUKON'S OIL AND GAS RIGHTS DISPOSITION PROCESS

In response to First Nations and the petroleum industry recommendations, Oil and Gas Resources has developed a more streamlined and efficient process to grant oil and gas rights. This new disposition process runs twice annually, and OGR's first process, initiated in February of this year, resulted in 25 expressions of interest that ultimately led to successful bids of \$20 million by Northern Cross for exploration and test production on 13 locations in the Eagle Plain basin in north Yukon (Fig. 2). It

was the largest single disposition of oil and gas rights in Yukon's history. The second disposition process of 2007 was completed on December 12. AustroCan Petroleum Corporation was the successful bidder on one location in the Peel Plateau and Plain oil and gas basin, with a bid of \$2.28 million (Fig. 3).

Pursuant to the Government of Yukon's *Oil and Gas Act* and *Oil and Gas Disposition Regulations*, rights to oil and gas are granted by the Minister through a competitive disposition process. The disposition process, which is designed to be completed in approximately five months, consists of the following:

- submission for consideration of Requests for Postings (RFP) for locations of interest to explore for oil and gas;
- review of the RFP, wherein the public, First Nations and government agencies may submit presentations on environmental, socio-economic and surface access concerns related to the requested locations;
- a Call for Bids, where persons or companies are invited to submit bids on posted locations; and
- issuance of oil and gas permits to successful bidders.

A successful bidder is required to submit a work deposit equal to 25% of their bid. The work deposit is returned proportionally as work is completed.

The initial term of the Permit is six years. Permits may be renewed for a further four-year term if a well is drilled during the initial term. Before any activity takes place, companies are required to obtain all regulatory approvals and undergo environmental screening through the *Yukon Environmental and Socio-Economic Assessment Act*. Companies are also encouraged to follow best management practices as outlined by OGR.

In summary, the Government of Yukon's oil and gas rights disposition process provides:

- an attractive investment climate for future development since it is efficient, streamlined and offers certainty;
- a two-year rolling schedule, providing companies with an opportunity to plan ahead; and
- a minimum work commitment which has been lowered from \$1 million to \$400 000.

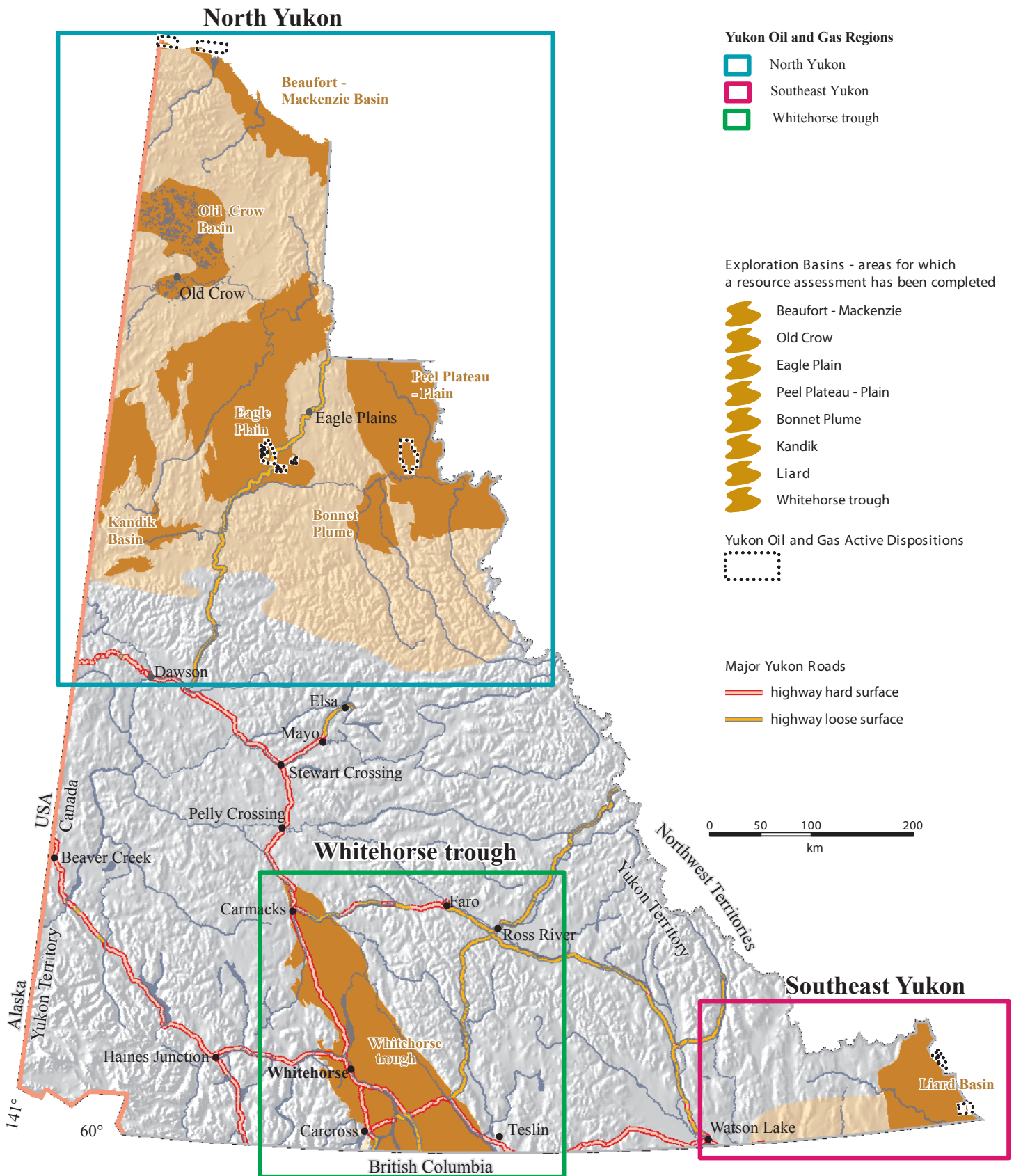
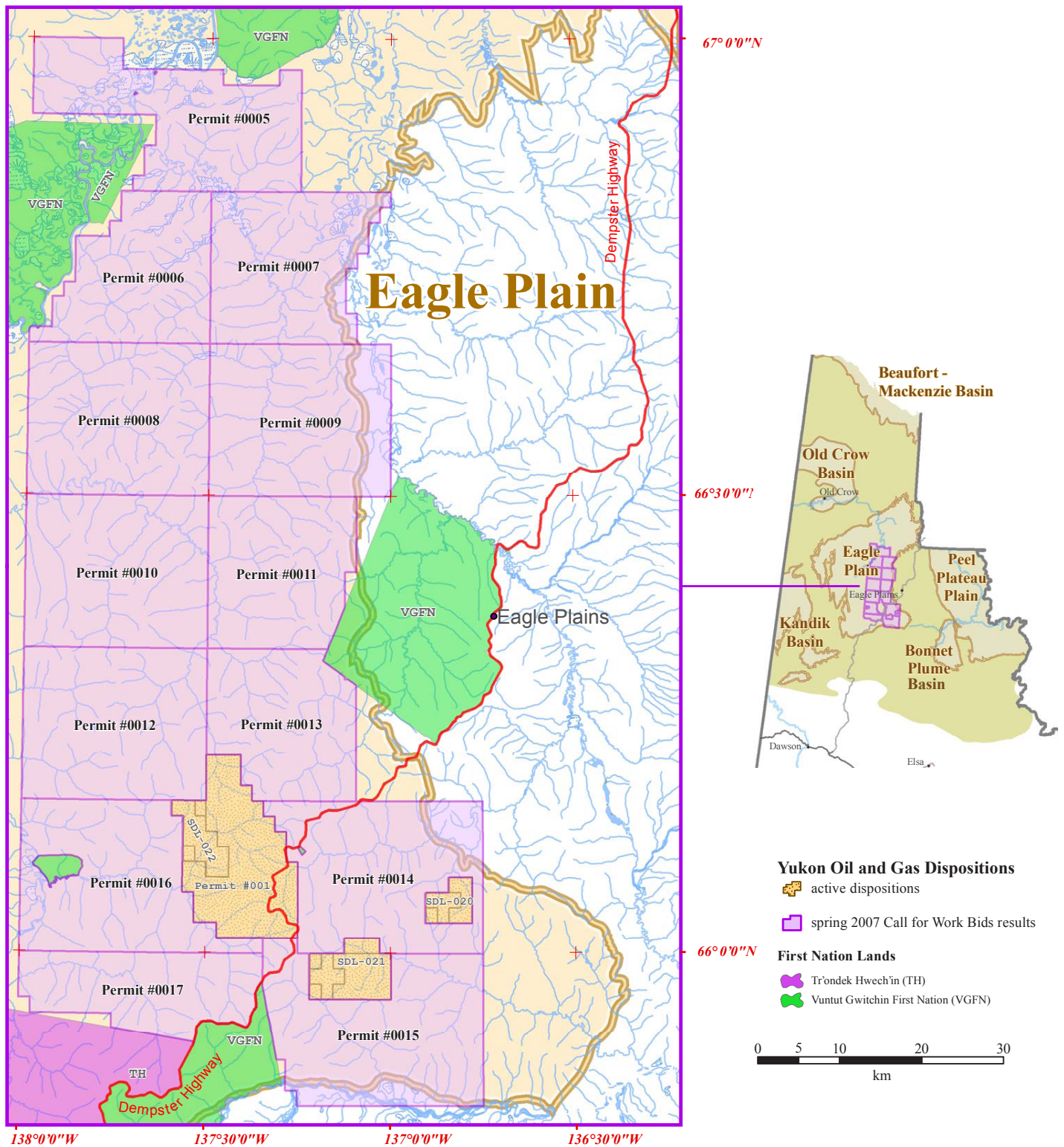
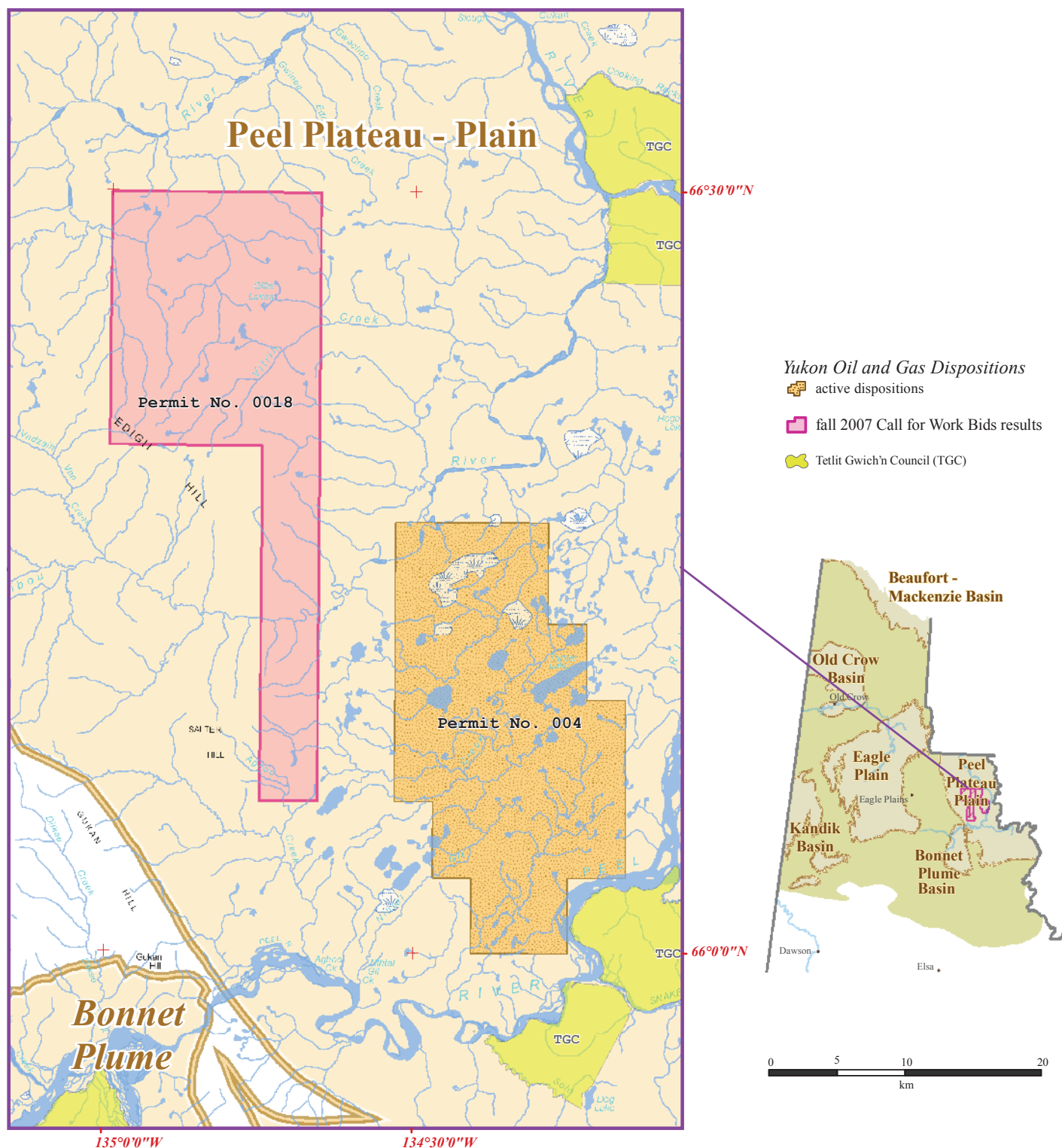


Figure 1. Yukon's oil and gas exploration regions.



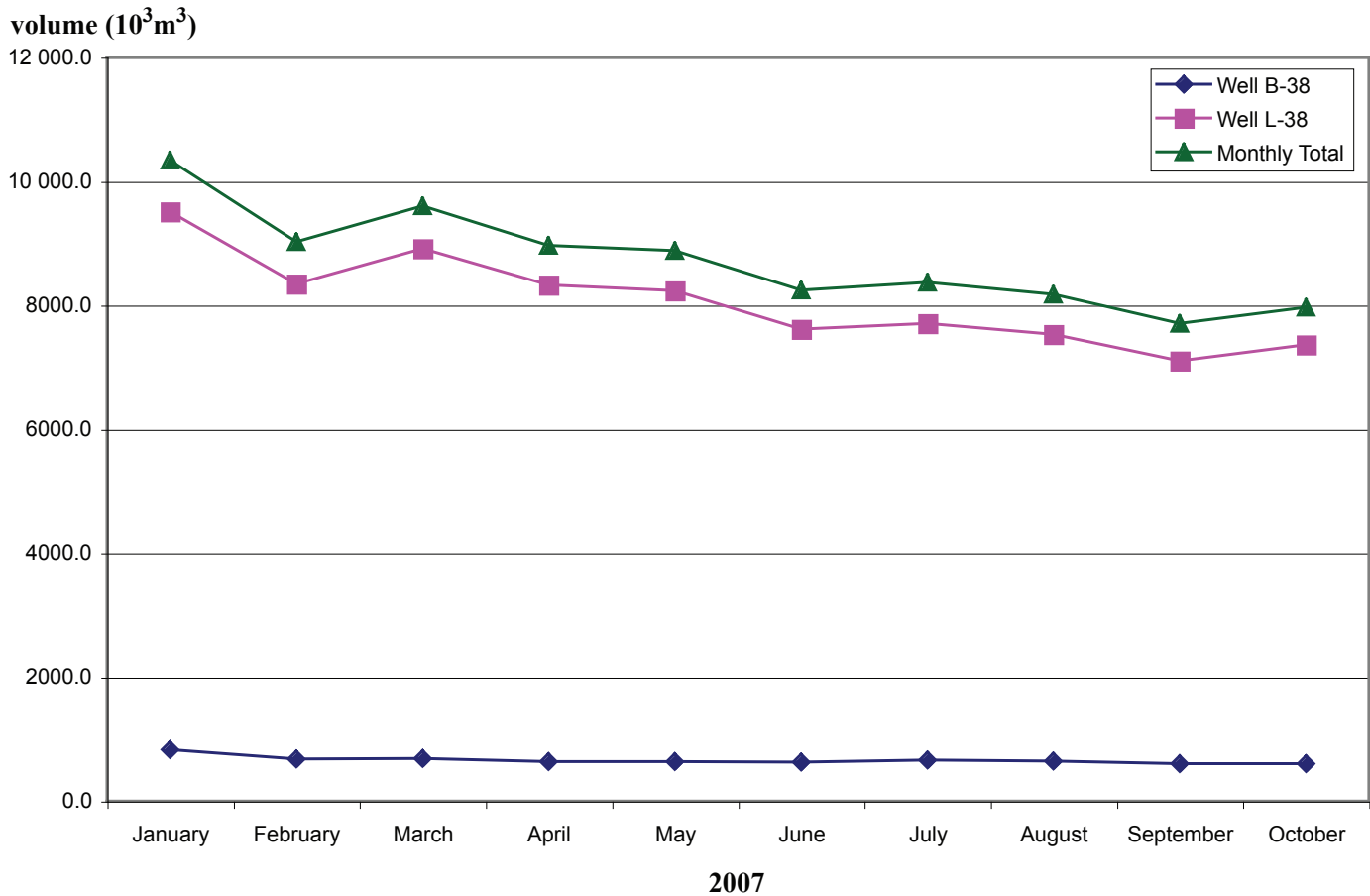
Request for Postings submissions are a result of an invitation from the Minister of Energy, Mines and Resources of Yukon for expressions of interest for the identification of locations for Oil and Gas Permits. For an explanation of the Yukon Oil and Gas Land Division System, refer to the Yukon Oil and Gas Disposition Regulations, sections 2 to 4. The Oil and Gas Land Division System Poster is available at <http://www.emr.gov.yk.ca/oilandgas/mapsdata.html>.

Figure 2. Spring 2007 oil and gas disposition locations.



Request for Postings submissions are a result of an invitation from the Minister of Energy, Mines and Resources of Yukon for expressions of interest for the identification of locations for Oil and Gas Permits. For an explanation of the Yukon Oil and Gas Land Division System, refer to the Yukon Oil and Gas Disposition Regulations, sections 2 to 4. The Oil and Gas Land Division System Poster is available at <http://www.emr.gov.yk.ca/oilandgas/mapsdata.html>.

Figure 3. Fall 2007 oil and gas disposition locations.



**Figure 4.** Yukon natural gas production, from Kotaneelee field, southeast Yukon..

## NATURAL GAS PRODUCTION

In southeast Yukon, natural gas is produced from the Kotaneelee Field in the Liard Basin. The two producing wells (B-38 and L-38) yielded 87 265 10<sup>3</sup>m<sup>3</sup> of natural gas in the period from January 2007 to October 2007 (Fig. 4)<sup>1</sup>. The field is in the later stages of life, with gas production and reservoir pressure declining slowly and water cuts increasing. Recovery factor to date is 54% of initial gas-in-place, which is considerably better than similar nearby fields in the basin.

## FIRST NATIONS

OGR continues to build strong working relationships with First Nations through the ongoing development of a common oil and gas regime, and through regular consultation during the disposition and licensing processes. OGR supports the Aboriginal Pipeline

Coalition and believes it has a very important role in ensuring that First Nations, the Yukon and federal governments are prepared for the Alaska Highway Pipeline Project. First Nation engagement and participation is essential to the development and implementation of an efficient pipeline regulatory process. The Government of Yukon, Natural Resources Canada and the Aboriginal Pipeline Coalition are continuing to work cooperatively to establish work plans and conclude long-term funding arrangements.

## PIPELINES

Both the Mackenzie Gas Project (MGP) and the Alaska Highway Pipeline Project (AHPP) offer enormous economic opportunities for the north (Fig. 5). The Government of Yukon continues to work hard in order to ensure Yukon is pipeline-ready, benefits are maximized, and potential negative impacts are minimized. Work will

<sup>1</sup>[www.emr.gov.yk.ca/pdf/Non-Cofidential\\_Production.pdf](http://www.emr.gov.yk.ca/pdf/Non-Cofidential_Production.pdf)

also continue with our neighbouring jurisdictions – Alaska, BC, NWT and Alberta – to prepare for both projects.

AHPP will generate an estimated 375 000 person-years of employment over 24 years<sup>2</sup>, while MGP estimates are 181 000 person-years over the same 24-year span<sup>3</sup>. The construction of these two projects will also inject billions of dollars into the North American economy. These projects would provide access for the Government of Yukon natural gas to southern markets, which could earn the Government of Yukon more than \$40 million annually

<sup>2</sup>[www.emr.gov.yk.ca/pdf/informetrica\\_econreport\\_02.pdf](http://www.emr.gov.yk.ca/pdf/informetrica_econreport_02.pdf)

<sup>3</sup>[www.itc.gov.nt.ca/pipeline/pdf/wright\\_mansell2004.pdf](http://www.itc.gov.nt.ca/pipeline/pdf/wright_mansell2004.pdf)

in royalty revenues from the production of natural gas resources.

### ALASKA HIGHWAY PIPELINE PROJECT

OGR is encouraged by the recent response to the *Alaska Gasline Inducement Act (AGIA)*, State of Alaska legislation intended to encourage the construction of an Alaska natural gas pipeline. Five companies expressed interest under the AGIA by the November 30, 2007 deadline for application, including TransCanada Pipelines Ltd., whose proposal would follow the Alaska Highway through Yukon to southern markets. ConocoPhillips, a major



**Figure 5.** Northern natural gas pipeline options.

producer of natural gas in the North, submitted a bid that did not conform to AGIA's guidelines. Its proposed pipeline would also follow the Alaska Highway.

Should the route ultimately chosen follow the Alaska Highway, this will be important to the interests of the Government of Yukon. Yukon has seven well-documented Alaska Highway Pipeline Project interests: ensuring a net fiscal benefit to Yukon; enhancing positive socio-cultural impacts while mitigating negative socio-cultural impacts; promoting environmental stewardship; recognizing community and First Nation interests; advancing a clear and efficient regulatory process; supporting economic pipeline access for Yukon natural gas; and requiring gas take-off points.

OGR is also working closely with other jurisdictions that would be affected by an Alaska Highway pipeline. One initiative is the Strategic Action Plan Working Group, comprised of Yukon, BC and Alberta, which was created to deal with common issues expected to arise from the various inter-jurisdictional concerns over the Alaska project. Yukon continues to urge the Canadian government to demonstrate that they are prepared with a streamlined, efficient regulatory process.

### **MACKENZIE GAS PROJECT**

OGR's intervention in the Mackenzie Gas Project hearings is also important. Yukon's interest in the construction of this project is significant, as there are benefits for Yukon to be derived from this pipeline both during and after construction. During construction, supplies will be transported to the Northwest Territories through Yukon. Construction will also provide employment opportunities for Yukon residents. The presence of a pipeline provides a means for Yukon gas to be transported competitively to southern markets, which means that potential Yukon gas would no longer be stranded.

OGR's intervention included written submissions, representation and presentations at both the National Energy Board (NEB) and Joint Review Panel (JRP) hearings. The NEB hearings are likely on hold until the fall of 2008 while they await receipt of a final report from the JRP. The JRP hearings concluded in late November 2007 and the panel has begun writing its final report.

OGR's intervention in the JRP hearings has resulted in the proponent, Imperial Oil, committing to take actions intended to enhance potential positive effects from construction and operation of the project and to mitigate

potential adverse effects from the proposed project on Yukon's environment, communities and transportation infrastructure.

### **OFFSHORE**

Although the federal government transferred responsibility for onshore oil and gas to the Government of Yukon, it continues to have responsibility for oil and gas management and development in the Beaufort Sea. Imperial Oil/ExxonMobil's recent record \$585-million successful bid for exploration rights in the Beaufort Sea is clear indication that industry remains interested in the offshore, and that governments will need to respond to this renewed interest.

The Government of Yukon remains committed to finalizing a shared offshore oil and gas management regime and revenue-sharing arrangement with Canada in accordance with the Canada Yukon Oil and Gas Accord. As an interim step, Yukon is drafting with Canada a Memorandum of Agreement to identify Yukon's enhanced role in offshore management. OGR is developing an Offshore Strategy to advance Yukon's offshore interests, including the following: governance, economic benefits, resource revenues, financial considerations, infrastructure, capacity development and sustainable development.

OGR is actively participating with other governments and industry on a number of Beaufort Sea planning initiatives, with the most important from an oil and gas perspective being the Beaufort Sea Strategic Regional Plan of Action. Another is the Beaufort Sea Regional Coordination Committee, which is tasked with developing an integrated management plan for the offshore.

Taking an integrated management approach to all offshore planning is essential to ensuring an efficient and effective planning and decision process. OGR is jointly working with Indian and Northern Affairs Canada in undertaking a review of the call for nominations map for the Beaufort Sea to look at the possibility of including the area immediately off the Yukon coast in future disposition processes. Yukon is actively involved in the Frontier/Offshore Regulatory Renewal Initiative, which is a process to review and update the offshore oil and gas regulations. This is a federal/provincial/territorial government joint initiative, involving regulators such as the National Energy Board and the East Coast offshore petroleum boards.

Finally, Yukon is pleased that Canada has made northern sovereignty and security a national priority. Given the

significant oil and gas resources in the Beaufort Sea and international interest in the Northwest Passage, Canada's sovereignty in the region must be recognized.

Federal Indian and Northern Affairs Minister Chuck Strahl recently appointed an adviser to find ways to improve the northern regulatory system, which has long been criticized for being too complicated and costly. This will have implications to Yukon's interests in the Beaufort Sea and northern pipeline development. The goal is to strike a balance between economic development and environmental protection, while making the regulatory system more predictable.

## **OIL AND GAS ROYALTY REGULATIONS**

In conjunction with Yukon First Nations and industry representatives, the Government of Yukon has just completed development of Oil and Gas Royalty Regulations and expects to bring them into effect shortly. The purpose of the draft regulations is to provide compensation to the Yukon for the use and depletion of a public resource. The proposed regulations are fair, competitive and simple to administer, and will provide economic certainty to industry.

The Government of Yukon is proposing a royalty rate of between 10 to 25% of the gross value of oil and gas production. The actual royalty rate will vary depending on the price of oil and gas, but it is important to note that a lower rate of only 2.5% will apply to the initial production from each well.

## **OIL AND GAS CONSENT AND ECONOMIC DEVELOPMENT AGREEMENT IN SOUTHEAST YUKON**

There continues to be interest in oil and gas prospects in southeast Yukon. This region is of high interest to industry because there is existing pipeline infrastructure. If the area is further developed, it will also mean a significant economic boost to the residents in the area.

Discussions continue between affected Yukon First Nations and the Government of Yukon toward concluding a Consent and Economic Development agreement. OGR believes significant progress has been made, and looks forward to the conclusion of these discussions. If an agreement is reached, the Government of Yukon will begin consultations with all six First Nations who assert

claims within the southeast Yukon and work with them to arrive at a common goal. Throughout the licensing process, the Government of Yukon will be consulting with affected First Nations about proposed oil and gas activities. The agreement contains provisions that facilitate economic development, as well as providing the certainty needed by industry. Once concluded, the agreement will be made public.

## **YUKON GEOLOGICAL SURVEY**

Yukon Geological Survey geologists continued oil and gas related research studies on three projects. Two of these projects are located in northern Yukon, and one is located in southern Yukon.

Grant Lowey completed a short reconnaissance field investigation of Mesozoic and Tertiary sedimentary rocks in the Bonnet Plume basin as a precursor to a more detailed study in the 2008 field season.

The Government of Yukon continued its partnership with the Geological Survey of Canada, the Northwest Territories Geoscience Office, and industry and university affiliates to form a working relationship under the title 'Regional Geoscience Studies and Petroleum Potential, Peel Plateau and Plain, Northwest Territories and Yukon'. This four-year endeavour began in 2005. The project aims to gain a better understanding of the petroleum potential of the Peel Plateau and Plain in north Yukon. Tammy Allen and Tiffani Fraser are studying Upper Paleozoic and Cretaceous strata to better determine their potential as source rocks and reservoir rocks as part of this partnership (Allen and Fraser, this volume).

Stratigraphic (Grant Lowey) and structural (Maurice Colpron) studies are continuing in the Whitehorse trough (Lowey, this volume; Colpron and Friedman, this volume).

## **OTHER ACTIVITIES**

OGR is assisting in the development of an over-arching Yukon Energy Strategy, designed to provide direction for the sustainable development, management and use of energy in Yukon. The scope of the strategy includes Government of Yukon roles and responsibilities in all aspects of energy development, management and use in the territory.

OGR also continues to ensure the Government of Yukon's oil and gas interests are taken into account during the land use planning process.

## REFERENCES

- Allen, T. and Fraser, T., 2007 (this volume). Summary of the stratigraphy, sedimentology and hydrocarbon potential of the Laberge Group (Lower-Middle Jurassic), Whitehorse trough, Yukon. *In: Yukon Exploration and Geology 2007*, D.S. Emond, L.R. Blackburn, R.P. Hill and L.H. Weston (eds.), Yukon Geological Survey, p. 91-114.
- Colpron, M. and Friedman, R.M., 2007 (this volume). U-Pb zircon ages for the Nordenskiöld formation (Laberge Group) and Cretaceous intrusive rocks, Whitehorse trough, Yukon. *In: Yukon Exploration and Geology 2007*, D.S. Emond, L.R. Blackburn, R.P. Hill and L.H. Weston (eds.), Yukon Geological Survey, p. 139-147.
- Government of Yukon, 2007. Yukon Oil and Gas – A Northern Investment Opportunity. Oil and Gas Resources, Energy, Mines and Resources, June, 2007.
- Lowey, G., 2007 (this volume). Summary of the stratigraphy, sedimentology and hydrocarbon potential of the Laberge Group (Lower-Middle Jurassic), Whitehorse trough, Yukon. *In: Yukon Exploration and Geology 2007*, D.S. Emond, L.R. Blackburn, R.P. Hill and L.H. Weston (eds.), Yukon Geological Survey, p. 179-197.