



NWT Oil and Gas Annual Report 2016



Northwest Territories Oil and Gas Annual Report 2016

Minister's Message.....	2
Message du ministre.....	3
NORTHWEST TERRITORIES OIL AND GAS PROGRAM SUMMARY	4
OVERVIEW	4
PROGRAMME PÉTROLIER ET GAZIER DES TERRITOIRES DU NORD-OUEST.....	5
Résumé.....	5
2016 IN BRIEF	6
OIL AND GAS RESOURCES	7
Table 1: Discovered conventional resource volumes in the Northwest Territories	7
Table 2: Unconventional resource assessments of Canol and Bluefish Shale.....	7
Table 3: Natural gas resource estimates for the Liard Basin.....	8
OIL AND GAS MANAGEMENT	8
RIGHTS ISSUANCE	8
Table 4: Land Disposition as of December 31, 2016	9
Figure 1: Mackenzie Delta/Arctic Islands Petroleum Land Disposition Map	11
Figure 2: Liard Basin Land Disposition Map	12
Figure 3: Norman Wells Land Disposition Map	13
Figure 4: Cameron Hills Land Disposition Map	14
Table 5: Exploration Licences in the NWT	15
Table 6: Revenues from Administration of Interests (\$)	16
EXPLORATION ACTIVITIES IN THE NORTHWEST TERRITORIES	17
PRODUCTION	17
Table 7: Production Levels 2011-2015	18
Figure 7: NWT Production Volumes, 2011-2015	20



Minister's Message

I am pleased to present this report of oil and gas activity in the Northwest Territories (NWT) for the year ending December 31, 2016.

At a time of continued low activity, the Government of the Northwest Territories (GNWT) has focused its efforts on preparing for the future; on our extensive knowledge and experience; on what we want to achieve.

The Department of Industry, Tourism and Investment (ITI) continued working to develop the territorial oil and gas strategy, planning for and paving the way for the future of the sector in the short, medium and long term.

Work on the territorial Oil and Gas Strategy continued, ensuring that the final product will bring together the views of all stakeholders to create a clear path forward.

We also started our examination of the oil and gas legislation currently in place to try and identify the areas where we might be able to make changes to make the legislation work better for both us as a government and for the companies that choose to do business in the NWT.

We also continued to build our understanding of our true resource potential, and were given exciting news about the potential for the portion of the Liard Basin shale play that is located within our territorial borders and ideally located close to existing infrastructure.

Looking ahead, the GNWT will continue to support the development of our oil and gas sector for the benefit of all NWT residents, both now and in the future.

Wally Schumann
Minister, Industry, Tourism and Investment
September 2017



Message du ministre

Je suis très heureux de vous présenter ce rapport sur l'activité pétrolière et gazière aux Territoires du Nord-Ouest (TNO) pour l'année se terminant le 31 décembre 2016.

Le marché mondial du pétrole a connu, en 2016, de multiples difficultés et beaucoup d'instabilité. Les producteurs de pétrole du monde entier en ont ressenti les effets, et les TNO n'ont pas été épargnés.

Devant ce ralentissement persistant, le gouvernement des Territoires du Nord-Ouest (GTNO) en a profité pour préparer l'avenir. Son but : mettre en œuvre les changements nécessaires au chapitre des politiques et des procédures pour consolider et responsabiliser le secteur pétrolier et gazier des TNO.

C'est le ministère de l'Industrie, du Tourisme et de l'Investissement (MITI) qui a piloté ces initiatives. Que ce soit en élaborant la première stratégie pétrolière et gazière ténnoise et le plan de mise en œuvre connexe, en examinant la réglementation de ce secteur ou en recueillant des données géologiques sur le terrain pour mieux cerner notre véritable potentiel pétrolier, le GTNO a profité de cette période de transition pour placer le territoire en position avantageuse à court, moyen et long terme.

En contrôlant d'une main ferme les ressources pétrolières et gazières du territoire, nous pourrions modeler l'avenir de ce secteur à notre image pour en faire profiter tous les Ténos.

Nous ferons tout notre possible pour réaliser cette vision d'avenir et tirer le maximum des possibilités offertes par nos ressources.

Wally Schumann
Ministre de l'Industrie, du Tourisme et de l'Investissement
Septembre 2017



NORTHWEST TERRITORIES OIL AND GAS PROGRAM SUMMARY

OVERVIEW

The slowdown in the global oil and gas sector continued in 2016, impacting all operations and projects in the NWT for another year. The GNWT took advantage of the sector slowdown to focus its attention on behind-the-scenes projects, working to strengthen and revitalize the areas which could attract new investment and increased activity once the global marketplace begins to show signs of recovery.

Work also continued on getting a clearer picture of the true resource potential of the NWT that remains unexplored and untapped as the Northwest Territories Geological Survey (NTGS) conducted additional resource characterizations in the territory. In partnership with the Yukon Geological Survey, the British Columbia Oil and Gas Commission, the British Columbia Ministry of Oil and Gas Development, and the National Energy Board, the NTGS released an energy briefing note on the unconventional resource potential of the Liard Basin. Entitled *The Unconventional Gas Resources of Mississippi-Devonian Shales in the Liard Basin of British Columbia, the Northwest Territories, and Yukon*, the assessment indicated the potential gas reserves in the areas of the basin that are situated in the NWT are significant, with an estimate of 77 trillion cubic feet of marketable gas in the region.

A closer examination of the territorial oil and gas legislation – which was mirrored from the existing federal legislation following devolution – was also an area of increased focus for the GNWT, working to identify areas where small improvements could be made in the short term, particularly in the area of greater transparency.

The Oil and Gas Strategy project moved from the draft strategy to developing an implementation plan and evaluation plan, identifying how best to deliver on the goals and expected outcomes of the proposed strategy. Work will continue in 2017 on the Strategy, and the final product should be ready for release later in 2017.

PROGRAMME PÉTROLIER ET GAZIER DES TERRITOIRES DU NORD-OUEST

Résumé

Le ralentissement mondial du secteur pétrolier et gazier s'est poursuivi en 2016; les activités et projets des TNO dans le domaine en subiront les effets pendant une autre année encore.

Le GTNO a profité de ce ralentissement pour se concentrer sur des projets d'arrière-plan, par exemple pour renforcer et revitaliser les secteurs qui pourraient attirer de nouveaux investissements et générer un accroissement des activités lorsque le marché international montrera des signes de reprise.

L'évaluation du véritable potentiel toujours inexploré et inexploité des TNO s'est également poursuivie, la Commission géologique des Territoires du Nord-Ouest (CGTNO) ayant eu pour mandat de procéder à de nouvelles caractérisations des ressources du territoire.

En partenariat avec la Commission géologique du Yukon, la BC Oil and Gas Commission, le ministère britanno-colombien de la Mise en valeur du gaz naturel et l'Office national de l'énergie, la CGTNO a publié une note d'information sur l'énergie détaillant le potentiel en ressources non classiques du bassin de la Liard.

Intitulé *Les ressources gazières non classiques de la formation schisteuse du mississippien-dévonien dans le bassin de la Liard de la Colombie-Britannique, des Territoires du Nord-Ouest et du Yukon*, ce document indique la présence d'une réserve de gaz commercialisable de 2 180 milliards de m³ (77 trillions de pi³) dans les zones du bassin appartenant aux TNO; il s'agit de la plus importante découverte depuis celle de la formation schisteuse de Canol.

Le GTNO a aussi passé à la loupe la réglementation pétrolière et gazière du territoire – calquée sur la réglementation fédérale depuis le transfert des responsabilités – et tenté de cerner les améliorations qui pourraient y être apportées à court terme.

Le projet de Stratégie pétrolière et gazière a passé le stade préliminaire, et le groupe de travail élabore actuellement un plan de mise en œuvre ainsi qu'un plan d'évaluation. Il continuera de faire avancer la Stratégie en 2017, et la version finale devrait être publiée à la fin de l'année.



2016 IN BRIEF

Rights Management

There were no rights issuance processes conducted in 2016 in the onshore regions of the NWT.

Operations

There were no new wells drilled in the NWT between April 1 and December 31, 2016.

There was no seismic work conducted in the NWT between April 1 and December 31, 2016.

Production

The total aggregate oil production between January 1 and December 31, 2016 was 3.2 million barrels. The total aggregate natural gas production in the NWT was 144 million cubic feet between January 1 and December 31, 2016.

Northwest Territories Environmental Studies Research Fund (NWT ESRF)

The Environmental Studies Research Fund (ESRF) continued its work to support important scientific research in the territory, funding several projects in the areas of boreal caribou and groundwater monitoring. For more information on the work being accomplished by ESRF, please visit the fund's website at www.nwt-esrf.org.

Northwest Territories Oil and Gas Strategy

ITI continued its work on the Strategy, and in conjunction with a number of other GNWT departments completed a draft document. The final Strategy, along with an implementation plan and an evaluation framework, is expected to be publicly released in the later part of 2017.

OIL AND GAS RESOURCES

Table 1: Discovered conventional resource volumes in the Northwest Territories

TYPE	NWT Onshore	Arctic Islands	TOTAL
Natural Gas			
billion m ³	213.8	75.2	289.0
(trillion ft ³)	(7.6)	(2.6)	(10.2)
Natural Gas Liquids			
million m ³	8.3	0.0	8.3
(million barrels)	(52.2)	(0.0)	(52.2)
Oil			
million m ³	84.1	4.9	89.0
(million barrels)	(529.0)	(30.8)	(559.8)

National Energy Board, *Assessment of Discovered Conventional Petroleum Resources in the Northwest Territories and Beaufort Sea*, November 2014

Table 2: Unconventional resource assessments of Canol and Bluefish shale

billion m ³ (billion barrels)	In-Place		
	Low	Expected	High
Bluefish	4.392 (27.624)	7.366 (46.331)	11.254 (70.786)
Canol	13.129 (82.579)	23.018 (144.779)	35.095 (220.741)

National Energy Board, *An Assessment of the Unconventional Petroleum Resources of the Bluefish Shale and the Canol Shale in the Northwest Territories*, June 2015

Table 3: Natural gas resource estimates for the Liard Basin

trillion m ³ (trillion ft ³)	In-Place		
	Low	Expected	High
Exshaw-Paltry	5.2 (184)	9.0 (318)	14.5 (514)
Horn River	2.6 (91)	5.3 (187)	9.0 (317)

National Energy Board, *The Unconventional Gas Resources of Mississippian-Devonian Shales in the Liard Basin of British Columbia, the Northwest Territories, and Yukon*, March 2016

OIL AND GAS MANAGEMENT

RIGHTS ISSUANCE

The GNWT made changes to its rights issuance process, moving away from the traditional Call for Nominations process to a more open, Expression of Interest-style of process. Beginning in 2016, companies with an interest in petroleum exploration in the NWT can nominate the lands which they would like to see included in a Call for Bids process at any time. Annual calls for expressions of interest are planned. Moving to an open call rights issuance process now means the NWT is operating much in the same way as many other Canadian jurisdictions, including Alberta, Saskatchewan, Yukon, and the offshore petroleum boards of Newfoundland and Nova Scotia.

Petroleum land disposition in the NWT

The following series of charts show the current petroleum land dispositions in the NWT, all of which were transferred over from the Government of Canada as a result of the devolution process in 2014.

Table 4: Land Disposition as of December 31, 2016

Region (number of interests)	Exploration Licence	Significant Discovery Licence	Production Licence	Petroleum Land Leases ¹
Mackenzie Delta and Arctic Islands	0	38	2	0
Central Mackenzie Valley	11	15	0	0
Southern Northwest Territories	0	31	21	8

Region (hectares)	Exploration Licence	Significant Discovery Licence	Production Licence	Petroleum Land Leases ¹
Arctic Islands	0	10,219	0	0
Mackenzie Delta	0	116,031	3,423	0
Central Mackenzie Valley	855,912	62,650	0	0
Southern Northwest Territories	0	65,729	32,842	21,107
TOTAL	855,912	254,629	36,265	21,107

¹These leases and licences were issued under former legislative regimes pursuant to Sections 99 and 101 of the *Petroleum Resources Act*.

Issuance and Terminations

There were four Exploration Licences terminated in 2016. There were also four Significant Discovery Licences (SDL) issued in 2016.

Exploration Licences

EL455, EL471 and EL472 terminated by expiration, having reached the end of Period 1 with no activity having been conducted on the lands under licence. EL466B reached the end of its full nine-year term in July, and thus became subject to termination by expiration.

Four other interests, EL474, EL475, EL468 and EL469 were also subject to termination by expiration in December 2016, but their interest holders submitted applications for Significant Discovery Licences (SDL), which were under review as of December 31, 2016

One remaining interest, EL467, was also subject to termination by expiration in December 2016, but was subject to the review and completion of a Claim for Allowable Expenditures that remained under review as of December 31, 2016.

Significant Discovery Licences

The GNWT issued its first Significant Discovery Licences (SDL) following the granting of a Significant Discovery Declaration for East Mackay I-78 well. SDL147, 148 and 149 were issued in February 2016, and SDL150 was issued in August 2016.



Oil and Gas Lease

The Petroleum Resources Division maintains a public registry of all petroleum interests and instruments registered under Part 8 of the *Petroleum Resources Act*. The registry stands as the official record of rights holders, and any transfers or changes of ownership are to be duly recorded. A monthly activity report is available at <http://www.itl.gov.nt.ca/en/services/oil-and-gas-rights-management/oil-and-gas-activity-reporting>.

The following series of maps show the locations of all current interests on petroleum lands that were held in the NWT both onshore and offshore as of December 31, 2016.

The following series of maps show the locations of all current interests on petroleum lands that were held in the NWT both onshore and offshore as of December 31, 2016.

Figure 1: Mackenzie Delta/Arctic Islands Petroleum Land Disposition Map

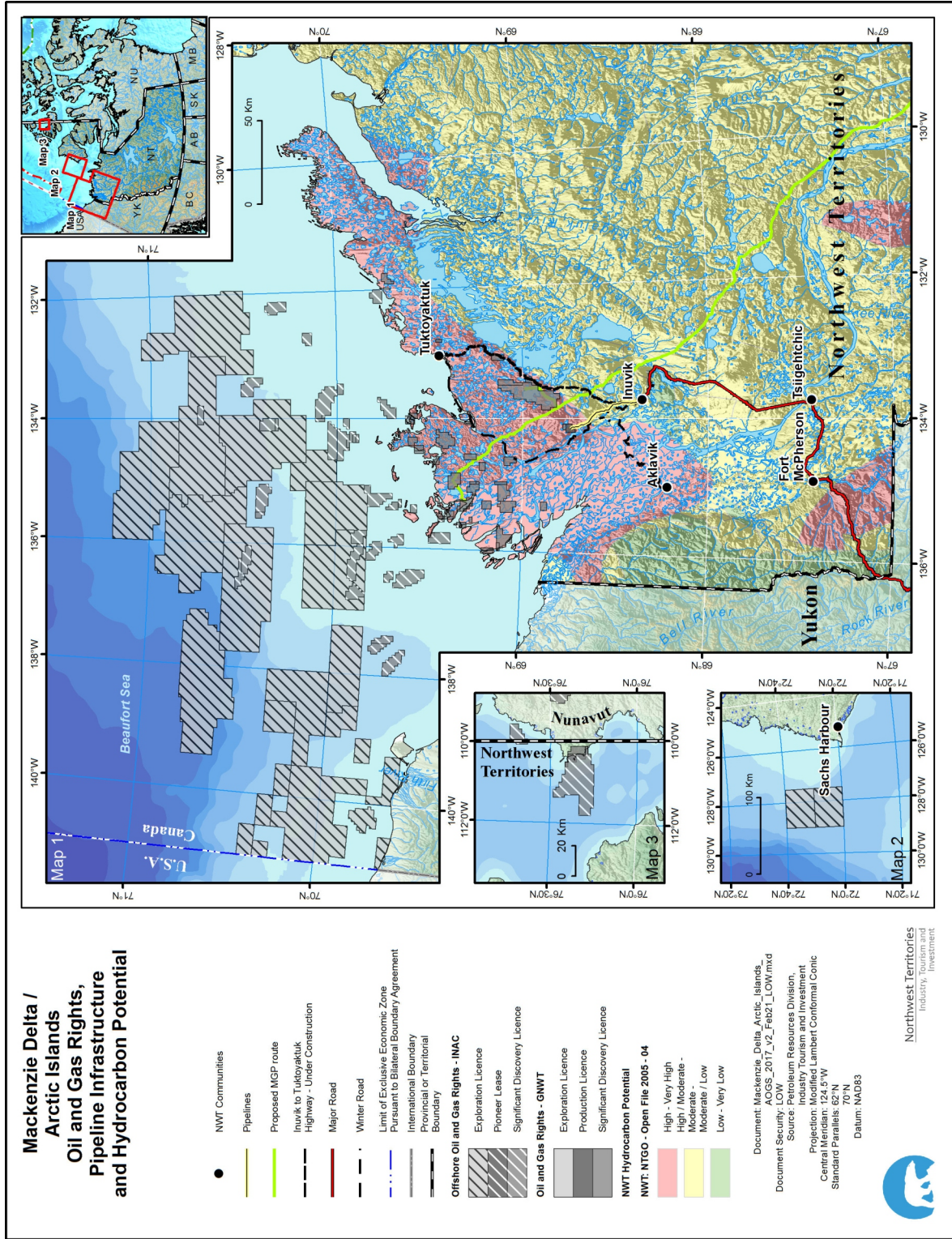


Figure 2: Liard Basin Land Disposition Map



Figure 3: Central Mackenzie Valley Land Disposition Map

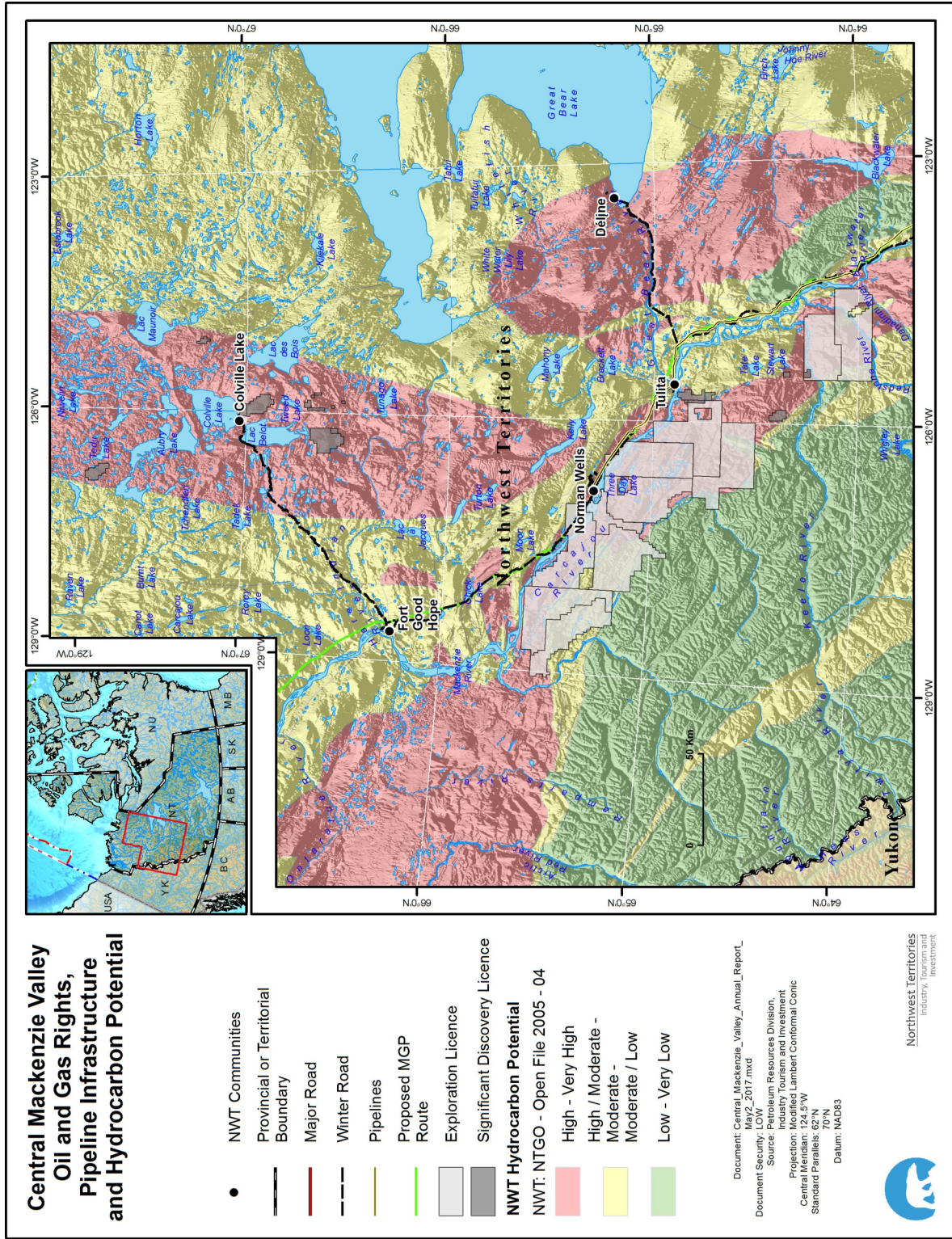


Figure 4: Cameron Hills Land Disposition Map

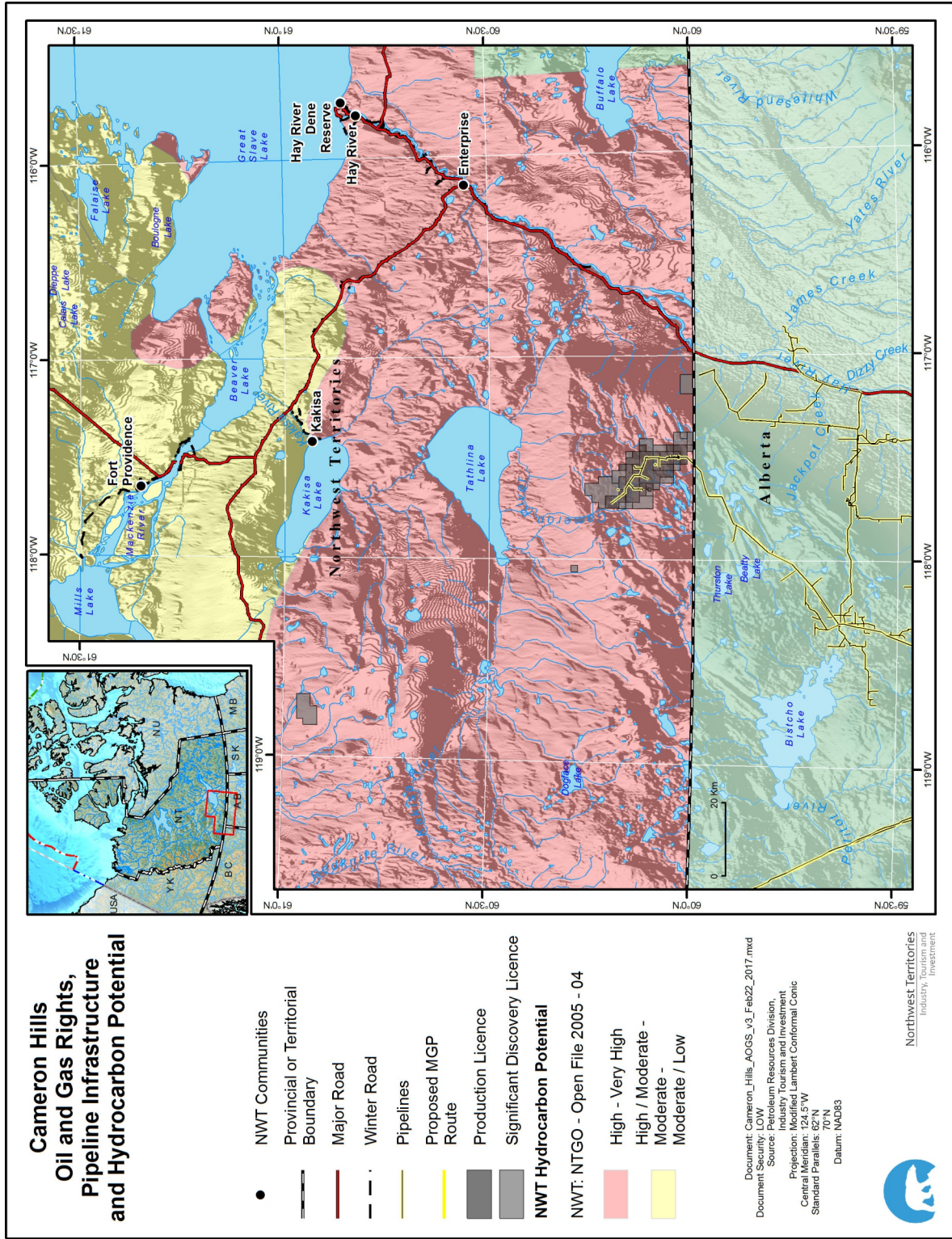


Table 5: Exploration Licences in the NWT

Licence	Hectares	Representative ¹	Issue Date	End of Period 1 ²	Expiry Date	Work Proposal Bid ³ (\$)
EL467	87,948	Shell Canada Limited	20/12/2011	19/12/2016	19/12/2020	18,296,208
EL468	87,117	Shell Canada Limited	20/12/2011	19/12/2016	19/12/2020	18,098,660
EL469	26,533	Shell Canada Limited	20/12/2011	19/12/2016	19/12/2020	7,049,269
EL470	87,495	ConocoPhillips Canada Resources Limited	20/12/2011	19/12/2016	19/12/2020	66,712,035
EL474	86,602	MGM Energy Corporation	20/12/2011	19/12/2016	19/12/2020	1,502,503
EL475	85,288	MGM Energy Corporation	20/12/2011	19/12/2016	19/12/2020	2,021,213
EL486	69,649	Shell Canada Limited	20/12/2011	17/12/2017	17/12/2021	76,864,864
EL487	84,504	Shell Canada Limited	18/12/2012	17/12/2017	17/12/2021	15,276,444
EL494A	87,748	Husky Oil Operations Limited	18/12/2012	29/08/2016	28/08/2020	188,000,000
EL494B	87,034	Husky Oil Operations Limited	29/08/2013	29/08/2016	28/08/2020	188,000,000
EL495	65,994	International Frontier Resources	29/08/2013	15/03/2019	15/3/2023	1,200,000
TOTAL:	855,912		16/3/2014			583,021,195

¹Current representative as of December 31, 2016

²This date is as per the terms and conditions of the original licence.

³All amounts rounded to the nearest dollar.

√ indicates that a well has been drilled on the lands under licence and are eligible to move into Period 2.

Revenues from Administration of Interests

Following the completion of a rights issuance process, successful bidders for Exploration Licences are required to post 25 percent of the Work Proposal Bid before the interest can be issued. Referred to as the Work Deposit, this amount is refundable as expenditures are incurred through the Period 1 term of the licence. Approved expenditures are refunded to the interest holders at the prorated amount of 25 percent of the total amount of expenditures. Any work balance remaining at the end of Period 1 of an Exploration Licence is forfeited.

Provided an interest holder meets all terms and conditions set out in the Exploration Licence and is able to maintain the licence for an additional four years, they are then required to pay rental fees. As with Work Deposits in Period 1, rental fees are refundable as expenditures are incurred, although on a dollar-for-dollar basis.

Financial deposits held for Period 1 work as of December 31, 2016 amounted to \$111,889,484.07.

In addition to the non-refundable rentals paid in 2016, ITI also received \$520,209 for EL494 in the form of a Period 1 Extension Fee. Husky Oil Limited, interest holder on EL494, paid a Period 1 extension fee equivalent of its first year of rental in Period 2 but retained its outstanding Work Bid Deposit in light of meeting its Period 1 drilling requirement. Both the Minister and Husky agreed upon the new conditions for EL494, which can be exercised on an annual basis by the interest holder for the remaining term of the EL.

Table 6: Revenues from Administration of Interests (\$)

	2011	2012	2013	2014	2015	2016
Non-refundable rentals (leases)	53,195	53,195	53,195	52,202	52,202	52,202
Fees	35,487	43,497	8,832	106	1,432	118
Forfeitures	25,784,658	1,631,597	50,000	0	0	12,084,465

Fees

Forfeitures for the year ending December 31, 2016 totaled \$12,084,465. During this same period, a total of \$52,202 in non-refundable fees on lands under Petroleum Land Leases were paid.

Administrative fees, generally related to information requests made to the NWT Registry and other transactions, totaled \$118.

Rentals

There were no rental fees paid between January 1 and December 31, 2016.



Benefits

By definition, a Benefits Plan refers to an employment plan for Canadians that also provides Canadian companies with opportunities to supply goods and services to the oil and gas industry. In the NWT, Benefits Plans means training and employment opportunities for residents and new opportunities for Northern businesses by ensuring that as much of the economic spin-offs from work in the NWT stays within the territory.

Section 17 of the *Oil and Gas Operations Act* outlines all requirements of a Benefits Plan – and states that no approval for a proposed work plan can begin until the Minister has approved the Benefits Plan. Reference to the need for a Benefits Plan – as well as the need for ministerial approval – is also referenced in Section 20 of the *Petroleum Resources Act*.

EXPLORATION ACTIVITIES IN THE NORTHWEST TERRITORIES

There was no new exploration drilling in the NWT in 2016, nor was there any development drilling for the same period. Additionally, there were no seismic programs conducted in the NWT during this period.

PRODUCTION

The Cameron Hills field and the Ikhil gas field, while both located in onshore regions of the NWT, are subject to regulation under two distinct bodies – Cameron Hills under the Office of the Regulator of Oil and Gas Operations and Ikhil under the National Energy Board.

Production information in this report spans the period from January 1-December 31, 2016.

Ikhil

Production levels at Ikhil J-35 continue to decline year over year as efforts to conserve reservoir pressure remain in place, with approximately 4.1 million cubic metres (144 million cubic feet) of natural gas produced during 2016. Gas from this field is used as a back-up system for power generation in Inuvik.

Cameron Hills

The Cameron Hills field only produced during the first two months of the year, and has been shut-in since February 2015 due to low oil prices and lack of an all-season access road. In early 2016, Strategic Oil and Gas, the owners and operators of the facilities at Cameron Hills, produced a small amount of natural gas and ran it through the existing pipeline infrastructure. In all, 268 million cubic feet (7.589 million cubic metres) was produced.

Table 7: Production Levels 2011-2015

<i>Oil thousands of cubic metres (barrels) (000s)</i>	Cameron Hills	Norman Wells	Ikhil
2011	20.4 (128)	588 (3,698)	N/A
2012	15.5 (97)	741 (4,661)	N/A
2013	16.4 (103)	638 (4,013)	N/A
2014	8.2 (52)	630 (3,963)	N/A
2015	18 (113)	576 (3,623)	N/A
2016	N/A	522 (3,283)	N/A
<i>Gas Production cubic metres (000,000s) (cubic feet) (000,000s)</i>	Cameron Hills	Norman Wells	Ikhil
2011	59.4 (2,098)	86.4 (3,051)	17 (600)
2012	60.9 (2,150)	100 (3,531)	10 (353)
2013	44.5 (1,572)	83.8 (2,959)	4 (141)
2014	24.3 (858)	83.8 (2,959)	2.3 (81)
2015	28.8 (1,017)	79.7 (2,815)	2.8 (98)
2016	7.6 (268)	78.5 (2,772)	4.1 (144)

¹Data for Ikhil and Norman Wells courtesy National Energy Board

²Data for Cameron Hills from NEB (2011-2014) and Office of the Regulator of Oil and Gas operations for 2015-2016



Norman Wells Proven Area

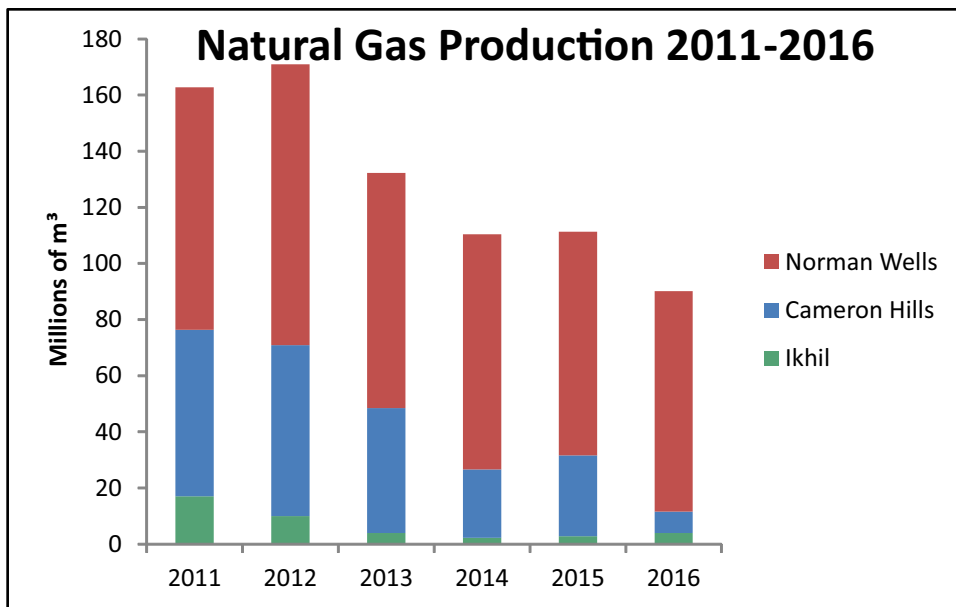
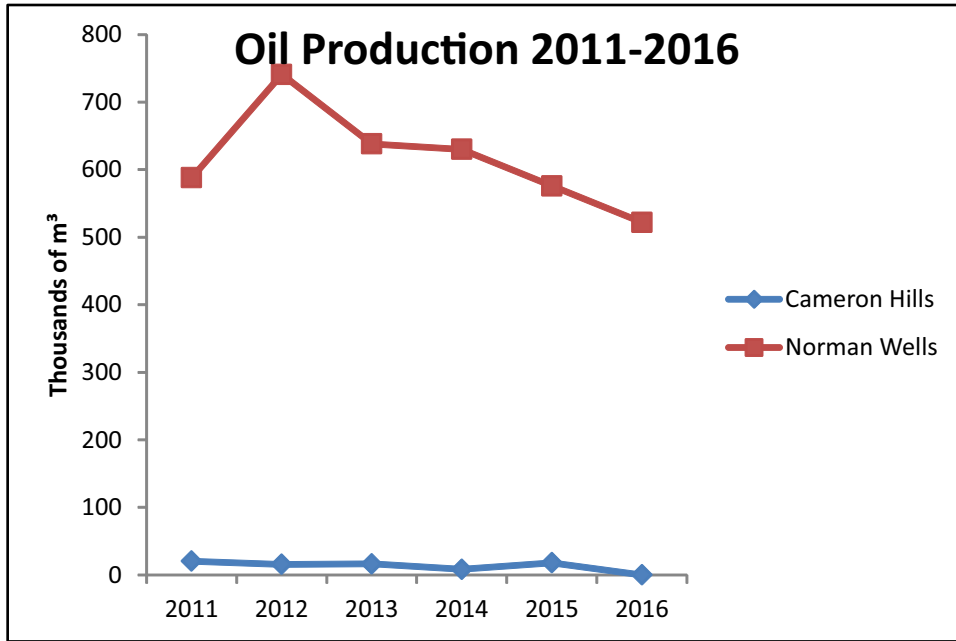
Production continued to decline year after year at Norman Wells, with output in 2016 totaling 3.28 million barrels (521,992.3 cubic metres). Following the discovery of a leak in the Enbridge Line 21 pipeline and its subsequent shut-down until repairs could be made, oil production at Norman Wells was halted in November. This area is still administered by the Government of Canada.

Offshore Oil and Gas Activity

The offshore petroleum resources remain under the administration of the Government of Canada. On December 20, 2016, Prime Minister Justin Trudeau announced that no new licences would be issued in the Arctic Ocean for the next five years, at which time the decision would be reviewed. The fate of the existing interests in the region, the first of which will reach the end of Period 1 in July 2017, remains unclear.

Prior to this announcement, the Government of the Northwest Territories had indicated its interest in resuming discussions with the federal government regarding the transfer of the offshore regions of the NWT to the management and care of the territorial government, as per Canada's commitment in the 2014 Devolution Agreement.

Figure 7: NWT Production Volumes, 2011-2016





FURTHER INFORMATION

PETROLEUM RESOURCES DIVISION

Please visit our website at www.nwtpetroleum.com

To obtain further information, please contact the appropriate individual below by telephone or in writing:

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Information on the resource management regime, rights issuance process and other related information: Manager, Oil and Gas Rights: Telephone (867) 777-7484

Information on registration procedures and regulations, exploration, significant discovery and production licences, transfers and notices: Registrar, Oil and Gas Rights: Telephone (867) 777-7476

Information on Petroleum Resources Division maps and Geographic Information System (GIS) data: Telephone (867) 777-7483

Information on royalty policy and royalty submissions: Manager, Petroleum Royalty Administration: Telephone (867) 767-9207 ext. 63139





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