



# Northwest Territories Oil and Gas Annual Report

2021



*Cover Photo: Mackenzie Mountains (Benji Straker / GNWT)*

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# Minister's Message



Hon. Caroline Wawzonek,  
Minister of Industry, Tourism  
and Investment

This document is a public reporting of activity in the Northwest Territories (NWT) petroleum sector in 2021.

While such activity was limited, the NWT is notably home to large on and off-shore reserves of natural gas.

In addition to providing NWT residents a cleaner, local alternative to traditional heating fuels, these resources can contribute to the global energy transition required to approach NetZero by 2050.

Meanwhile, in the post-COVID economic environment, investor demand is rising, for projects with strong environmental, social and governance (ESG) performance which, alongside financial factors, are strongly influencing investment decision-makers.

As the Government of Canada promotes a “green-restart” to its economy following the pandemic, the NWT, thanks to its bountiful natural gas resources and collaborative, sustainable approach to resource development, is ready to be a full participant in this recovery.

**Caroline Wawzonek**

*Minister, Industry, Tourism and Investment*

*May 2022*

# Message de la ministre



Hon. Caroline Wawzonek,  
Ministre de l'Industrie, du  
Tourisme et de l'Investissement

Le présent document est un rapport public sur les activités du secteur pétrolier aux Territoires du Nord-Ouest (TNO) en 2021.

Bien que cette activité ait été limitée, les TNO abritent de grandes réserves de gaz naturel terrestres et extracôtières du monde.

En plus de fournir aux Ténos une alternative locale et propre aux combustibles de chauffage traditionnels, ces ressources peuvent contribuer à la transition énergétique mondiale nécessaire pour se rapprocher de l'objectif de la carboneutralité d'ici 2050.

Parallèlement, dans l'environnement économique post-pandémie, la demande des investisseurs s'accroît pour des projets ayant une solide performance sur les plans environnemental, social et de la gouvernance, qui, tout comme les facteurs financiers, influencent énormément les décideurs en matière d'investissements.

Alors que le gouvernement du Canada encourage un « redémarrage écologique » de son économie après la pandémie, les TNO, grâce à leurs ressources en gaz naturel abondants et leur approche collaborative et durable de l'exploitation des ressources, sont prêts à participer pleinement à cette reprise.

**Caroline Wawzonek**

*Ministre de l'Industrie, du Tourisme et de l'Investissement*

*Mai 2022*

# Northwest Territories Oil and Gas Program

## 2021 IN BRIEF

### Rights Management

There were no rights issuance processes conducted in 2021 in the onshore regions of the NWT. NWT has a policy of being open to Expressions of Interest from companies interested in gaining the right to explore for petroleum on GNWT subsurface lands.

### Operations

There were no new wells drilled in the NWT between January 1 and December 31, 2021.

There was no seismic work conducted in the NWT between January 1 and December 31, 2021.

### Production

The total aggregate oil production between January 1 and December 31, 2021 was 2,035,046 barrels. The total aggregate natural gas production in the NWT was 2,046 million ft<sup>3</sup> between January 1 and December 31, 2021.

### Northwest Territories Environmental Studies Research Fund (NWT ESRF)

The ESRF continues to support scientific research in the NWT, funding several projects related to boreal caribou, methane emissions, biodiversity monitoring and groundwater monitoring. For 2021, the abandonment and remediation of petroleum sites was also a research priority. For more information on work supported by the ESRF, visit [www.nwt-esrf.org](http://www.nwt-esrf.org)

### Petroleum Resources Strategy (PRS)

The NWT Petroleum Resources Strategy outlines actions and investments to promote and grow the territorial oil and gas sector; and to enable exports to international markets while supporting smaller-scale natural gas initiatives designed to meet the needs of residents and communities in the NWT.

Actions and investments in support of these outcomes included completing a desktop geological analysis of natural gas options for local use in the southern NWT, assisting the Inuvialuit Regional Corporation as it pursues development of its resources south of Tuktoyaktuk, and support for a pre-feasibility analysis of exporting Mackenzie Delta natural gas to Asia-Pacific markets to offset the use of coal as an energy source.

### Resources and Energy Development Information Project (REDI)

Launched in June 2017, the REDI initiative sees the presentation of information tradeshows and learning activities in communities across the NWT. These events work to provide NWT residents with the information and understanding they need to assess the benefits and risks associated with resource development. Since its inception, REDI has visited Inuvik, Hay River, Yellowknife, Fort Simpson, Fort Smith and Norman Wells. In respect to pandemic-related travel and gathering restrictions, no REDI events were scheduled in 2021.

# Programme pétrolier et gazier des Territoires du Nord-ouest

## 2021 EN BREF

### Gestion des droits

En 2021, il n'y a eu aucun processus d'attribution de droits dans les régions continentales des TNO. Suivant sa politique, le GTNO est ouvert aux déclarations d'intérêt d'entreprises qui souhaitent obtenir les droits d'exploration pétrolière du sous-sol des terres territoriales.

### Opérations

Entre le 1er janvier et le 31 décembre 2021, aucun nouveau puits n'a été foré aux TNO. On n'a entrepris aucun travail de prospection sismique non plus au cours de la même période.

### Production

Le bilan total de la production pétrolière entre le 1er janvier et le 31 décembre 2021 a été de 2 035 146 barils. Le bilan total de la production de gaz naturel aux TNO a été de 2 046 millions de pieds cubes pour la même période.

### Fonds pour l'étude de l'environnement des Territoires du Nord-Ouest

Le Fonds pour l'étude de l'environnement continue de soutenir la recherche scientifique aux TNO. Il a permis de financer plusieurs projets de surveillance du caribou boréal, des émissions de méthane, de la biodiversité et des eaux souterraines. Pour 2021, le Fonds a ajouté à ses priorités de recherche la problématique de l'abandon et de la restauration des sites pétroliers. Pour en savoir plus sur les travaux soutenus par le Fonds, visitez son site Web au [www.nwt-esrf.org](http://www.nwt-esrf.org).

### Stratégie sur les ressources pétrolières

La Stratégie sur les ressources pétrolières des TNO fait état des mesures et des investissements visant à promouvoir et faire croître le secteur pétrolier et gazier, en favorisant les exportations sur le marché international tout en soutenant des projets de gaz naturel à plus petite échelle qui visent à répondre aux besoins des résidents et des collectivités des TNO.

En 2021, les mesures et les investissements à l'appui de ces résultats comprenaient la réalisation d'une analyse géologique assistée par ordinateur des options de gaz naturel pour une utilisation locale dans le sud des TNO, l'assistance de la Société régionale inuvialuite qui souhaitait poursuivre l'exploitation de ses ressources au sud de Tuktoyaktuk, et le soutien d'une analyse de pré faisabilité de l'exportation du gaz naturel du delta du Mackenzie vers les marchés de l'Asie-Pacifique afin de compenser l'utilisation du charbon comme source d'énergie.

### Initiative PRÊT

Lancée en juin 2017, l'initiative PRÊT (Préparation sur les ressources et l'énergie pour les Ténos) prévoit la présentation de salons d'information et d'activités d'apprentissage dans les collectivités des TNO. Ces événements visent à fournir aux Ténos les renseignements et connaissances dont ils ont besoin pour évaluer les avantages et les risques associés à l'exploitation des ressources. Depuis le début de l'initiative PRÊT, ses responsables ont visité Inuvik, Hay River, Yellowknife, Fort Simpson, Fort Smith et Norman Wells. Conformément aux restrictions relatives aux déplacements et aux rassemblements liées à la pandémie, aucun événement de l'initiative PRÊT n'a été programmé en 2021.

# Oil and Gas Resources

**Table 1: Discovered conventional petroleum resource volumes in the Northwest Territories**

| TYPE  | NWT Onshore     | Arctic Islands | TOTAL           |
|---|-----------------|----------------|-----------------|
| <b>Natural Gas</b><br>billion m3<br>(trillion cubic feet)     | 213.8<br>(7.6)  | 75.2<br>(2.6)  | 289.0<br>(10.2) |
| <b>Natural Gas Liquids</b><br>million m3<br>(million barrels) | 8.3<br>(52.1)   | 0.0<br>(0.0)   | 8.3<br>(52.1)   |
| <b>Oil</b><br>million m3<br>(million barrels)                 | 84.1<br>(529.4) | 4.9<br>(31.0)  | 89.0<br>(560.4) |

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

**Table 2: Oil resource assessments of Canol and Bluefish shales**

| billion cubic metres (billion barrels) | Oil In-Place       |                     |                     |
|--|--------------------|---------------------|---------------------|
|  | Low                | Expected            | High                |
| <b>Bluefish</b>                        | 4.392<br>(27.634)  | 7.366<br>(46.346)   | 11.254<br>(70.808)  |
| <b>Canol</b>                           | 13.129<br>(82.605) | 23.018<br>(144.825) | 35.095<br>(220.811) |

*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 cubic metres (trillion ft) | Gas In-Place |              |               |
|-------------------------------------|--------------|--------------|---------------|
|                                     | Low          | Expected     | High          |
| <b>Exshaw-Patry</b>                 | 5.2<br>(184) | 9.0<br>(318) | 14.5<br>(514) |
| <b>Horn River</b>                   | 2.6<br>(91)  | 5.3<br>(187) | 9.0<br>(317)  |

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



# Oil and Gas Management

## Rights Management

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. Having an open-call rights-issuance process means the NWT is operating in much the same way as 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, 2021*

| Region (number of interests)       | Exploration Licence | Significant Discovery Licence | Production Licence | Petroleum Land Leases <sup>1</sup> | TOTAL      |
|------------------------------------|---------------------|-------------------------------|--------------------|------------------------------------|------------|
| Mackenzie Delta and Arctic Islands | 0                   | 39                            | 2                  | 0                                  | 41         |
| Central Mackenzie Valley           | 0                   | 22                            | 0                  | 0                                  | 22         |
| Southern Northwest Territories     | 0                   | 31 <sup>1</sup>               | 21                 | 1                                  | 53         |
| <b>TOTAL</b>                       | <b>0</b>            | <b>92</b>                     | <b>23</b>          | <b>1</b>                           | <b>116</b> |

| Region (hectares)                  | Exploration Licence | Significant Discovery Licence | Production Licence | Petroleum Land Leases | TOTAL          |
|------------------------------------|---------------------|-------------------------------|--------------------|-----------------------|----------------|
| Mackenzie Delta and Arctic Islands | 0                   | 126,750                       | 3,423              | 0                     | 130,173        |
| Central Mackenzie Valley           | 0                   | 434,012                       | 0                  | 0                     | 434,012        |
| Southern Northwest Territories     | 0                   | 65,729                        | 32,842             | 321                   | 98,892         |
| <b>TOTAL</b>                       | <b>0</b>            | <b>626,491</b>                | <b>36,265</b>      | <b>321</b>            | <b>663,077</b> |

<sup>1</sup> SDL153 was signed in March 2021 but back dated to August 2020, therefore there were no ELs in 2021 and the SDL count was higher based on the conversion of EL494 to SDL153.

## Issuance and Terminations

### Exploration Licences

There were no new Exploration Licences (EL) issued in 2021.

### Significant Discovery Licences

There were no new Significant Discovery Licences issued for 2021.

### Pioneer Production Leases

The single remaining Pioneer Production Lease (PPL) is 838-70 which has undergone a reduction in size from 5132 ha to 312 ha to one section in size while the single remaining well goes from suspension to full abandonment. PPL 838-70 will be surrendered upon full well abandonment.

PPLs were originally issued between 1969 and 1970 under the Canada Oil and Gas Land Regulations with a successive 21-year term. With the surrender of the 7 leases there is one remaining PPL in the oil and gas registry.

## Oil and Gas Registry

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 duly recorded.

A monthly activity report is available at: <http://www.iti.gov.nt.ca/en/services/oil-and-gas-rights-management/oil-and-gas-activity-reporting>.

In addition to the monthly activity report, the Petroleum Resources Division has also made available the current licences, details such as: abstracts and title detail reports, for petroleum interests in the Northwest Territories. The Licences information is available at: <https://www.iti.gov.nt.ca/en/oil-and-gas-licences>

The following series of maps show the locations of all current interests on petroleum lands held in the NWT both onshore and offshore as of December 31, 2021.



Figure 2: Liard Basin Land Disposition Map

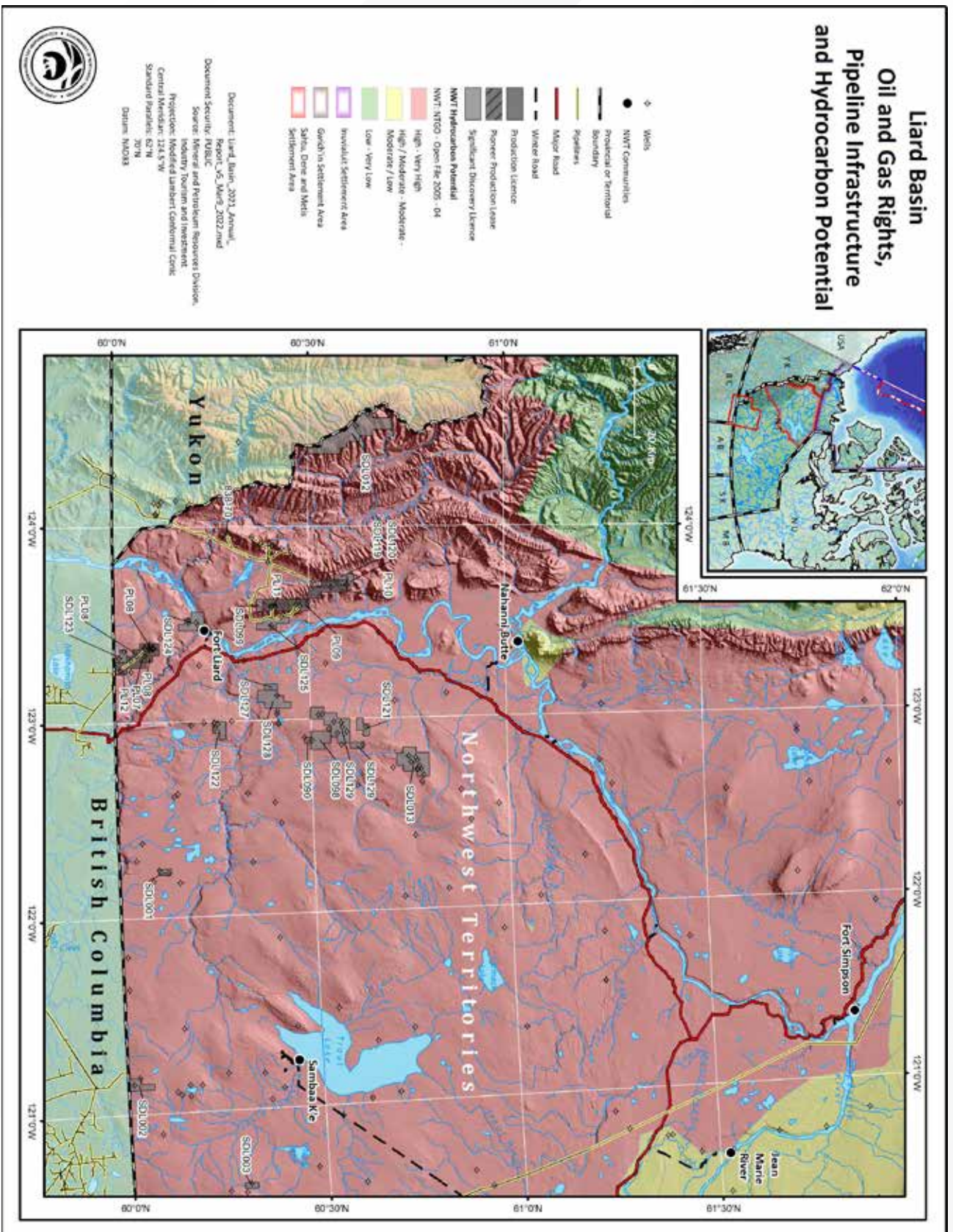


Figure 3: Central Mackenzie Valley Land Disposition Map

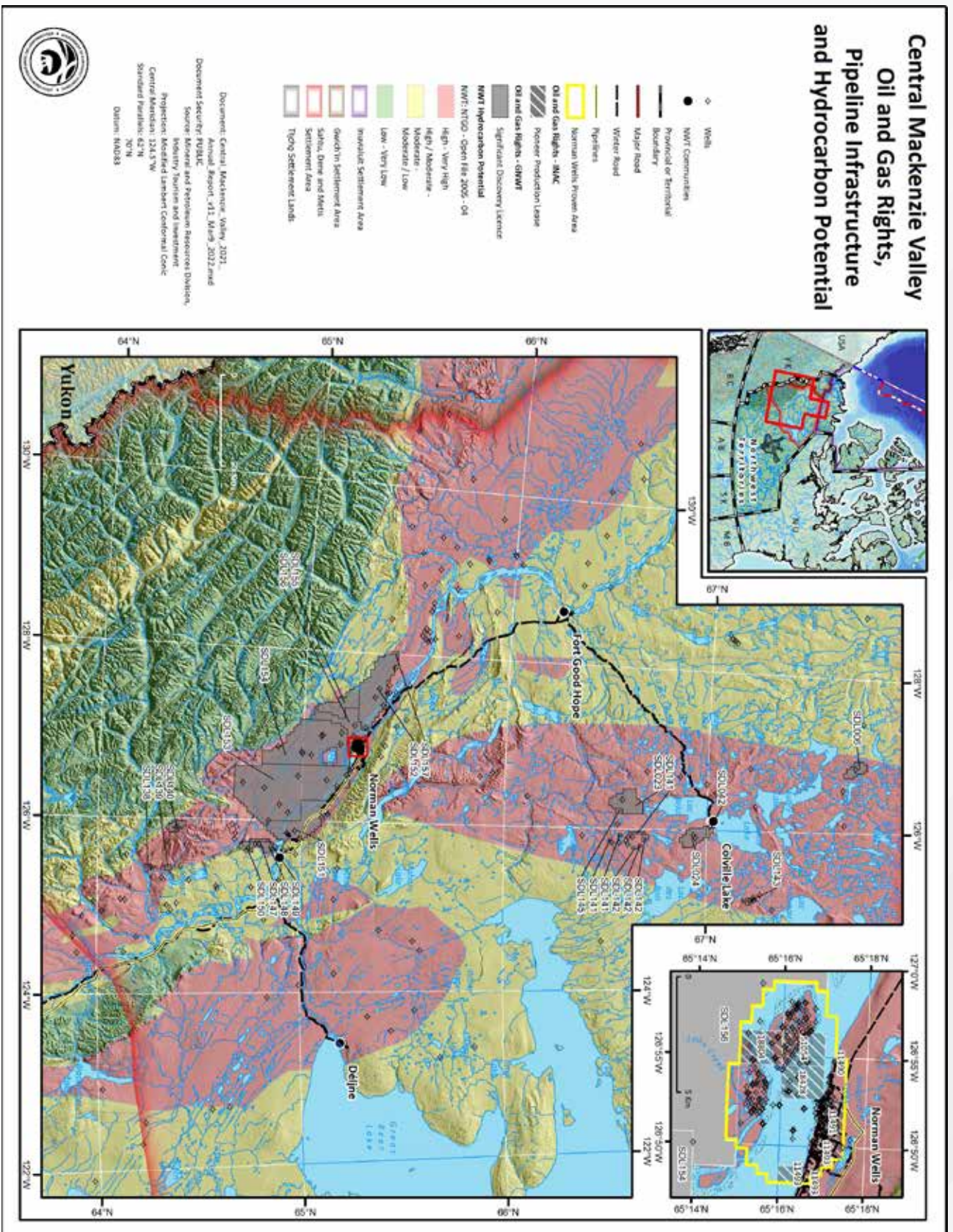
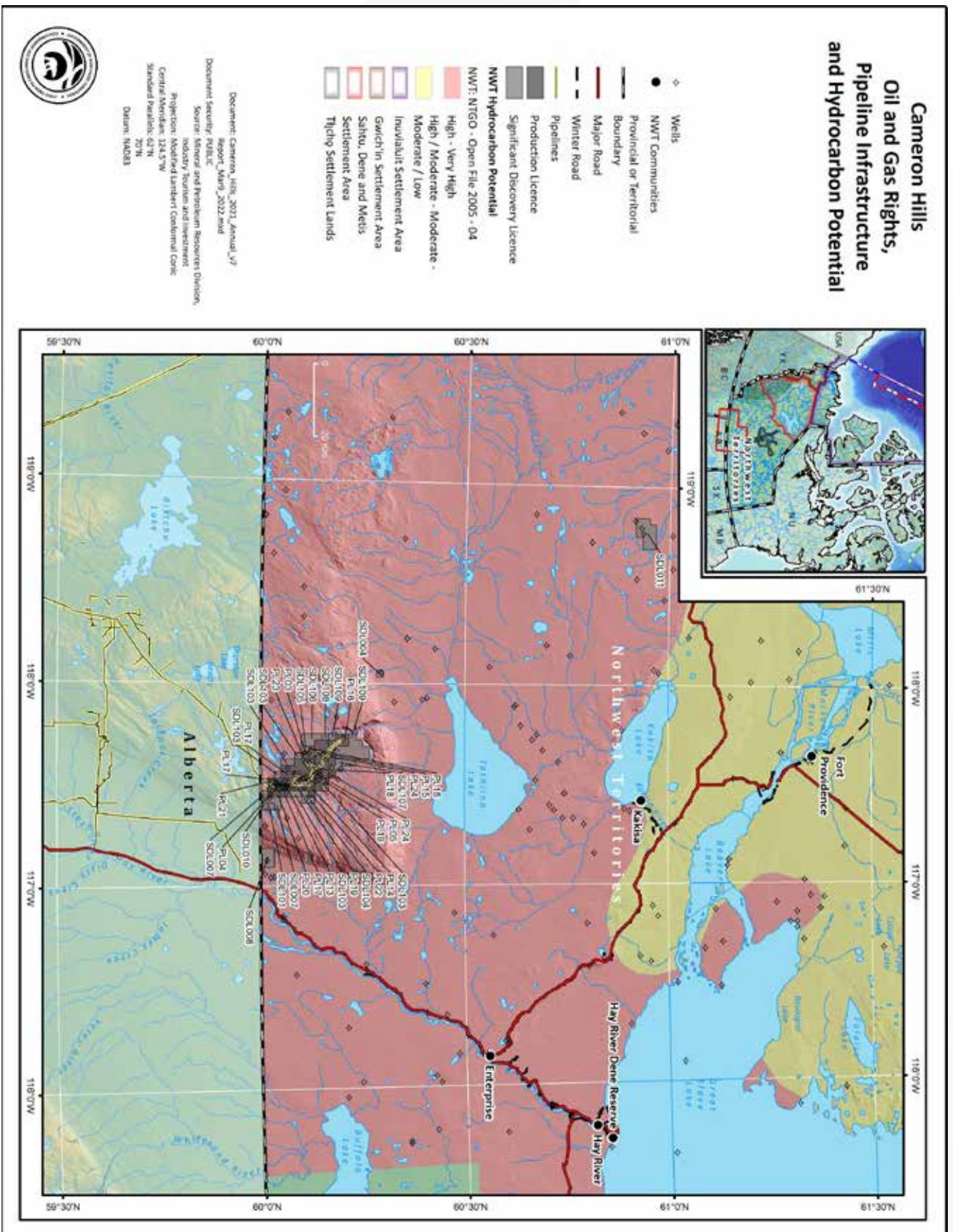


Figure 4: Cameron Hills Land Disposition Map



## 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 first (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 balance remaining at the end of Period 1 of an Exploration Licence is forfeited.

If 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 required to pay rental fees. Rental fees are refundable as expenditures as incurred on a dollar-for-dollar basis.

**Table 5: Revenues from Administration of Interests (\$)**

|                                 | 2016         | 2017         | 2018        | 2019        | 2020     | 2021         |
|---------------------------------|--------------|--------------|-------------|-------------|----------|--------------|
| Non-refundable rentals (leases) | \$52,202     | \$52,202     | \$52,202    | \$52,202    | \$52,202 | \$52,202     |
| Fees                            | \$118        | \$136        | \$0         | \$0         | \$0      | \$0          |
| Forfeitures                     | \$12,084,465 | \$31,036,250 | \$0         | \$0         | \$0      | \$45,251,480 |
| Period 1 Extension Fees         | \$520,209    | \$953,716    | \$1,387,224 | \$1,387,224 | \$0      | \$0          |

## Fees

There were no forfeitures paid for the year ending December 31, 2021. During this same period, a total of \$52,202 in non-refundable fees on lands under Petroleum Land Leases was paid.

Administrative fees, generally related to information requests made to the NWT Registry and other transactions, totalled \$0.

There were no rental fees on ELs or SDLs paid between January 1 and December 31, 2021.

## Benefits Plans

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, a Benefits Plan means training and employment opportunities for residents and new opportunities for Northern businesses by ensuring that as much of the economic spin-off as possible from work in the NWT stays within the territory.

The Benefits Guidelines have been revised to ensure consistency with the new transparency and confidentiality requirements under the PRA and OGOA. To ensure the Guidelines protect confidential information, it has been clarified that no commercially confidential or sensitive information will be included in the Benefits Plans or Benefits Plan Reports submitted to the GNWT.

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 of ITI 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*.

Section 18 of the *Oil and Gas Operations Act* outlines all guideline and interpretation notes for a Benefits Plan and states that the Regulator may issue and publish the guidelines and interpretation notes with respect to the application and administration for any part of the Act or the regulations.

Additionally, the Minister may issue and publish guidelines and interpretation notes with respect to the application and administration of section 17.



# Exploration Activities in the Northwest Territories

There was no new exploration drilling in the NWT in 2021, 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 Canada Energy Regulator (formerly the National Energy Board).

Production information in this report spans the period from January 1-December 31, 2021.

### ***Ikhil***

Production levels at Ikhil J-35 continue to be low year over year as efforts to conserve reservoir pressure remain in place, with approximately 4.45 million m<sup>3</sup> (157.1 million ft<sup>3</sup>) of natural gas produced during 2021. Gas from this field is used as a back-up system for power generation in Inuvik.

### ***Cameron Hills***

There was no production at the Cameron Hills for the year ending December 31, 2021.

**Table 6: Production Levels 2016-2021**

| <b>Oil Production cubic metres (000s) (barrels) (000s)</b>            | <b>Cameron Hills</b> | <b>Norman Wells</b>  | <b>Ikhil</b>     |
|---|----------------------|----------------------|------------------|
| 2016  | N/A                  | 521.99<br>(3,283.23) | N/A              |
| 2017  | N/A                  | 16.62<br>(104.54)    | N/A              |
| 2018  | N/A                  | 98.42<br>(619.01)    | N/A              |
| 2019  | N/A                  | 435.29<br>(2,737.95) | N/A              |
| 2020  | N/A                  | 309.50<br>(1,946.72) | N/A              |
| 2021  | N/A                  | 323.55<br>(2,035.05) | N/A              |
| <b>Gas Production cubic metres (000,000s) (cubic feet) (000,000s)</b> | <b>Cameron Hills</b> | <b>Norman Wells</b>  | <b>Ikhil</b>     |
| 2016  | 0.01<br>(0.27)       | 78.55<br>(2,773.89)  | 4.08<br>(133.42) |
| 2017  | 0.001<br>(0.035)     | 4.11<br>(144.97)     | 4.79<br>(169.08) |
| 2018  | 0<br>(0)             | 11.13<br>(393.04)    | 3.42<br>(120.78) |
| 2019  | 0<br>(0)             | 70.67<br>(2,410)     | 1.41<br>(48.14)  |
| 2020  | 0<br>(0)             | 46.98<br>(1,659)     | 4.24<br>(149.60) |
| 2021  | 0<br>(0)             | 53.5<br>(1,889.0)    | 4.45<br>(157.1)  |

Note 2: Regulator of Oil and Gas Operations for 2016-2021

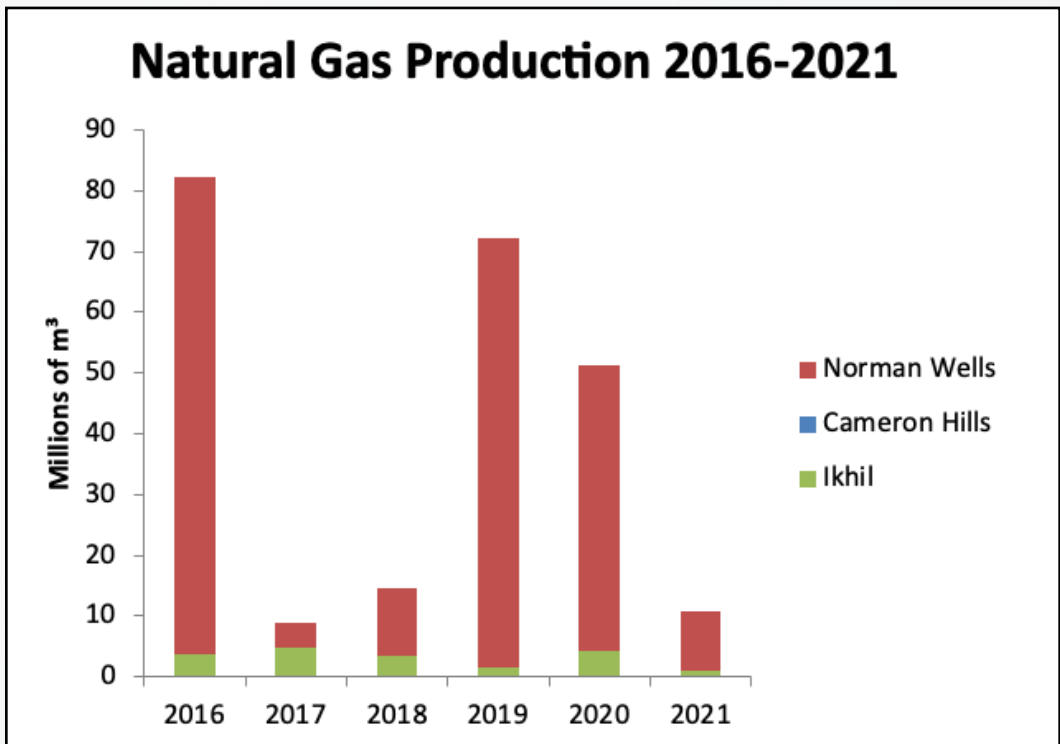
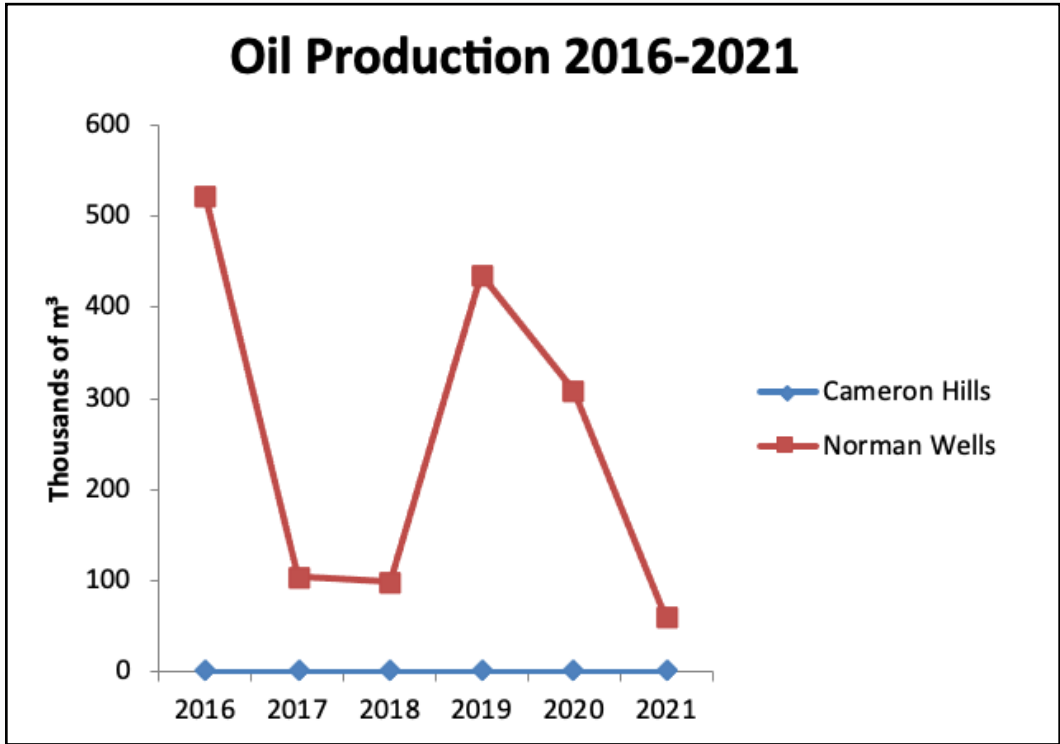
<sup>1</sup> Data for Ikhil and Norman Wells courtesy Canadian Energy Regulator

<sup>2</sup> Data for Cameron Hills from NEB (2013-2014) and Office of the Regulator of Oil and Gas Operations for 2015-2020

### Norman Wells Proven Area

Production at Norman Wells saw full production results in 2021, 323.55 thousand m<sup>3</sup> (2,035,046 barrels) of oil and 53.5 million m<sup>3</sup> (1,889 million ft<sup>3</sup>) of gas.

Figure 5: NWT Production Volumes, 2016-2021



# Further Information

## **Petroleum Resources Division**

Please visit our website at  
**[www.nwtpetroleum.com](http://www.nwtpetroleum.com)**

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

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Email: **[oilandgasrights@gov.nt.ca](mailto:oilandgasrights@gov.nt.ca)**

Information on the resource management regime, rights issuance process and other related information:

Manager, Oil and Gas Rights: **(867) 777-7477**

Information on registration procedures and regulations, exploration, significant discovery and production licences, transfers and notices:

Registrar, Oil and Gas Rights **(867) 777-7476**

Information on Petroleum Resources Division maps and Geographic Information System (GIS) data:

Petroleum Geomatics Officer: **(867) 777-7483**







