Duncan's First Nation Community Observations and Perspective on the Potential Impacts of the Nova Gas Transmission Ltd. North Corridor Expansion Project, North Central Corridor Loop Project and the NGTL Northern Corridor Pipeline System on the Treaty Right to Hunt Large Game and Associated Cultural Practices



November 2019

Prepared by Matthew General for the Duncan's First Nation

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Table of Contents

1.0 Report Objectives	1.0	Report Objectives
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- 1.1 Nova Gas Transmission Ltd. Pipeline (NGTL) Projects and North Central Corridor System within the Clear Hills Chinchaga Refuge
- 2.1 Nova Gas Transmission Ltd. North Central Corridor Loop Project
- 2.2 Nova Gas Transmission North Corridor Expansion Project
- 2.3 Ongoing Operational Impacts from NGTL's Pipeline Corridors on DFN Rights and Culture
- 3.0 Project Context: DFN Community Observations, Perspective and Rationale on Constraints to Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Development
- 3.1 The DFN 2009 Pilot Traditional Land Use Survey
 - Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Agricultural Development
 - Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Forestry Development
 - Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising From Oil and Gas Development and Existing Pipeline Infrastructure
 - Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Multiple Forms of Development

3.2 The DFN 2018/19 Indigenous Knowledge Survey

- Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Agricultural Development
- Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Forestry Development
- Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising From Oil and Gas Development and Existing Pipeline Infrastructure
- Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Multiple Forms of Development
- 4.0 DFN Community Observations, Perspectives and Rationale on Additional Constraints to Treaty Right to Hunt Large Game and Associated Cultural Practices Arising from the Projects
- 4.1 Qualitative Information Collected to Date
- 4.2 Quantitative / Geo-Spatial Information

- 4.3 Listing of Maps to Support Visual Quantitative Analysis
- 4.4 Tables / Matrices
- 4.5 Summary: Potential for Project Interactions with DFN Exercise of Rights, Practice of Culture and Land and Resource Use Activities
- 5.0 Understanding Project Impacts within a Context Appropriate to the DFN's on the Ground Reality
- 6.0 Supplementary Information
- 7.0 Appendices

1.0 Report Objectives

1.0 Report Objectives

The Duncan's First Nation (DFN) is participating in the engagement, consultation process and regulatory review being conducted for the Nova Gas Transmission Ltd. North Corridor Expansion Project, the North Central Corridor Loop Project and (collectively termed 'Projects'). It does so to raise its concerns about the potential of the Projects to exacerbate impacts that DFN members report in attempting to exercise their Treaty hunting rights to large game and practice their culture within DFN's Traditional Territory, and the Clear Hills—Chinchaga Refuge, the landscape that will play host to the Projects. As part of the engagement and consultation process, the DFN instructed the author to compile information to:

- a) confirm the DFN's ongoing exercise of its Treaty right to hunt large game within its Traditional Territory and the Clear Hills-Chinchaga Refuge;
- b) provide examples of where the DFN community members exercise their Treaty right to hunt large game and undertake associated cultural practices;
- c) confirm the ongoing and crucial role of large game and large game hunting within the culture and way of life of the Duncan's community;
- d) exhibit the important cultural connection of the DFN to its Traditional Territory, and the Clear Hills-Chinchaga Refuge, the landscape that will host the Projects and the Project areas;
- e) document DFN community member observations and perspective on the challenges, constraints and barriers they face in attempting to exercise their Treaty right to hunt large game and undertake associated cultural practices within their Traditional Territory, the Clear Hills Chinchaga Refuge, the landscape that will host the Projects and the Project areas;
- document initial DFN community views and perspective on the potential ramifications and consequences of constructing and operating the Projects in the Clear Hills-Chinchaga Refuge, the landscape that will host the Projects and the Project areas;
- g) present the above information sets to project assessors and Crown agencies to support enhanced Crown consultation in respect to direct, indirect and cumulative impacts on DFN's Treaty hunting rights and culture arising from the Projects, and
- h) act as an important source of information for Crown officials (federal / provincial) to take into account in respect to other land use and development activities within DFN's Traditional Territory and the Clear Hills-Chinchaga Refuge subsequent to this Project

Information in respect to Parts a), b), c), d) (noted above) is including in the companion report that identified the exercise of the Treaty right to hunt large game, associated cultural practices and current use of lands and resources by the DFN community entitled: "Duncan's First Nation 2019 Clear Hills – Chinchaga Refuge Indigenous Knowledge Survey Conducted in Relation to the Nova Gas Transmission Ltd., North Central Corridor Loop Project North Corridor Expansion Project and the Ongoing Operation of NGTL North Central Pipeline System". (Report#1)

This report relates to parts d), e), f) (noted above) (Report#2) in which DFN has instructed me to compile information relating to impacts and constraints DFN's ability to exercise its Treaty right to hunt large game and associated cultural practices within its Traditional Territory, the Clear Hills Chinchaga Refuge and the Project areas and areas in the vicinity of the Projects.

Report Authorship

This report is authored by Matthew General who has a had contractual relationship with the DFN dating back for approximately a decade. The author was contractually employed by the DFN between 2009-2012 to:

- plan and implement an initial tranche of research with the community to identify and document DFN land and resource use activities and cultural practices and the exercise of its rights;
- support the community in engagements and consultations on major projects and impact assessments including the Iron Stone Mine Project, Shell Canada's Carmon Creek Expansion Project, the proposed Bruce Nuclear Power Peace River facility, Enbridge's Northern Gateway Pipeline Project, the Site C Clean Energy Project and several NGTL pipeline projects proposed within north-western Alberta, and
- assist the DFN community building its in-house capacity, skills and expertise in undertaking land use research, consultation, engagement GIS mapping and cumulative impact analysis and research

In the period between 2009 and 2012, the author completed two pilot studies with the DFN entitled:

- "Duncan's First Nation: Consolidated Traditional Use Scoping Project of the Upper Peace" (DFN: 2009/11)
- "Duncan's First Nation 2012 Traditional Land and Resource Use Survey" (DFN: 2012)

In summary, the 2009/11 study's main objective was to determine key sustenance / large game hunting areas utilized by DFN members within living memory. Interviews were conducted with a small sample of DFN community members where these areas where discussed, identified and documented on manual base maps which were later converted into GIS file format and PDF maps. Accompanying interview summaries were prepared and validated by community members along with the maps. This study was funded by the Government of Alberta and was based upon approaches and best practices set out in Government of Alberta document entitled: 'Best Practices Handbook for Traditional Use Studies', 2003: Government of Alberta Aboriginal Affairs and Northern Development. A description of the approach and methodology employed can be found in the Appendices of this report.

The 2012 DFN research effort again sought to document examples of the exercise of rights and traditional land and resource use sites with a larger cross section of the DFN community. This study was funded in part by Trans Canada Pipelines Ltd. / Nova Gas Transmission Ltd and predicated upon the map biography approach and methodology advocated by traditional land and resource use researcher and author, Terry Tobias in his text entitled: 'Living Proof: The Essential Data-Collection Guide for Indigenous use-and-Occupancy Map Surveys': Union of BC Indian Chiefs and Ecotrust, 2009). Through this study, community members participated in interviews to document examples of site-specific large mammal kill sites, fish catch sites, earth material harvesting sites, overnight stay sites and other cultural use features. In 2018/19, the mapping for this study was updated with convex polygons that demarcates not only examples of site-specific features (identified in 2012) but the overall area in which participating community member's cultural use and large game hunting activities occur based on the outer most location of example sites. A description of the approach and methodology employed can be found in Appendices of this report.

Between 2013 and 2016, the author was retained by TCPL/NGTL management to provide advice and plan and implement a cross – Canada Indigenous Knowledge / Traditional Knowledge / Traditional Land and Resource Use program in relation to the proposed Energy East Pipeline Project involving an unprecedented number of Indigenous governments and organizations. The author did not work for the DFN in this period.

In the summer of 2017, the author was re-retained by the DFN as a contractor to continue community research and community capacity building in relation to several proposed new major projects and other matters of community priority and importance. Efforts were directed at several major projects being advanced by NGTL including the NGTL 2021 System Expansion Project and the Project/s of focus within this report. This research undertaken in 2018/19 included undertaking a synthesis review of existing DFN research and studies and conducting supplementary mapping interviews and workshops with community members. This effort continues. As evident in a review of this report, the overall intent of the research is to compile information into an accessible format for the community, proponent, regulator and Crown and allowing the information put forward by the community, in essence, speak for itself. The author has avoided in arriving conclusions and opinions within this report and its companion piece.

In the fall of 2018, the author was also contracted by JFK Law based in Vancouver and Victoria to act as its First Nations Consultation and Advisory Services Manager. For clarity sake, when the author is working for DFN on DFN files, he takes functional direction from DFN is managed by DFN and not JFK. The author works for JFK in respect to other Indigenous clients on other matters and files and in that context, takes functional directional from and is managed by JFK legal file leads.

In summary the author's directly relevant and related work experience is as follows:

- BC Hydro Aboriginal Relations: 1991-1996. Worked to advance early forms of consultation
 agreements and conduct consultations with Indigenous Peoples on hydro-electric operations
 planning and major projects including BC Hydro major dam upgrade projects on the
 Columbia River. During this time I was also seconded to the Columbia Power Corporation to
 advance the Keenlyside Powerplant Project and supporting transmission projects.
- BC Environmental Assessment Office (BCEAO): 1998-2001. Worked to support Indigenous government engagement in the environmental assessment review of major projects subject to BC Environmental Assessment Act. This included water management, hydro-electric, mining, ski-resort and oil and gas projects. Functioned as secretariat to support the growth of the BC First Nations Environmental Assessment Working Group tasked with reviewing issues that serve to inhibit effective involvement in environmental assessment process and co-initiated the development of the BC First Nations Environmental Assessment Took Kit. For a time, I functioned as Acting Manager of the Aboriginal Relations group for the BCEAO.
- Treaty 8 First Nations: 2002- Present. Contracted to numerous Treaty 8 First Nations in north-eastern BC and north-western Alberta, including the Duncan's First Nation working to support the conduct of Indigenous Knowledge studies, third party review studies of major projects, support to negotiations, supporting First Nations in the review of major energy, oil and gas and mining projects and preparation for and participation in regulatory proceedings.
- Six Nations of the Grand River: 2005-06. Worked in the Litigation and Consultation Unit of the author's home community preparing responses in relation to proposed developments within southern Ontario and areas subject to unresolved claims and litigation.

- Trans Canada Pipelines Ltd: 2013-2016: Hired by Trans Canada Pipelines Ltd. (TCPL) to assist management in developing and implementing a cross-Canada Indigenous Knowledge / Traditional Knowledge / Traditional Land and Resource Use program. I reported directly to the Manager of engagement for the Project and worked directly with TCPL / Energy's East's project management group responsible for preparing the environmental assessment, the regulatory group that prepared regulatory submissions and TCPL's legal group that dealt with Aboriginal law and consultation related matters specific to the Project. In 2015, I began to conduct these functions under the administrative umbrella of Indigenous company contracted by TCPL.
- JFK Law: 2018 Present: Retained on a contractual basis by JFK Law as its First Nations
 Consultation and Advisory Services Manager. In this function I take functional and
 managerial direction from JFK file leads and provide support to Indigenous clients in largely
 in respect to consultation and rights impact assessment matters. Additional work is being
 undertaken to support the capacity building needs of JFK clients and Indigenous governments.

2.0 Nova Gas Transmission Ltd. Pipeline Projects (NGTL) within the Clear Hills – Chinchaga Refuge

2.0 Nova Gas Transmission Ltd. Projects within the Clear Hills-Chinchaga Refuge

Within the Duncan's First Nation (DFN) Traditional Territory, there is a sub-regional area that is known by the DFN community as the "Clear Hills – Chinchaga Refuge", a unique area of acute cultural importance and value to the community. The lands, forests, hills, muskeg and rivers between the Clear Hills and the Chinchaga watershed was historically used and occupied by the DFN. Many DFN members report that this area continues to support critical community livelihood, cultural, spiritual and sustenance needs and goals of the community. Further, this area is held as being unique within the DFN Traditional Territory and contains a unique set of circumstances, factors and cultural values that support the exercise of rights and practice of culture. The Clear – Hills Chinchaga Refuge appears to have taken on increased significance to DFN families given community observations and reports of increasing challenges, impediments, barriers and restrictions to the exercise of their rights and practice of culture elsewhere in their Traditional Territory.

The Traditional Territory of the DFN is traversed by a vast number of linear corridors and developments which includes transmission pipeline corridors. Pipelines have been a persistent feature on the landscape for decades according to community members. The area between the Clear Hills and the Chinchaga watershed hosts several of NGTL pipelines and NGTL's North Central Corridor Pipeline system general. NGTL's North Central Corridor Pipeline system has and continues to play an important role in serving, shaping natural and promoting natural gas exploration and development in the Montney, Duvernay and Alberta Deep Basin formations:



Western Canadian Sedimentary Basin Unconventional Formations: NEB, 2015 (Source: Roadmap to Recovery: Reviving Alberta's Natural Gas Industry –Natural Gas Advisory Panel to the Minister, 2018)

In parallel, shale oil exploration and development has and is expected to continue to increase in scope along the BC–Alberta border area, within DFN's Traditional Territory and the Clear Hills-Chinchaga Refuge:

"The ultimate potential for unconventional petroleum in the Montney Formation is estimated to be very large, with expected volumes of 12,719 billion m³ (449 Tcf) of marketable natural gas, 2,308 million m³ (14,521 million barrels) of marketable NGLs, and 179 million m³ (1,125 million barrels) of marketable oil... The Montney's marketable unconventional gas resource is one of the largest in the world".

(Source: Energy Briefing Note: The Ultimate Potential for Unconventional Petroleum from the Montney Formation of British Columbia and Alberta - Energy Briefing Note, 2013)

The integrated NGTL pipeline system has and will continue to play a key role in the build out of unconventional petroleum fields within north-eastern BC and north-western Alberta. The existing NGTL system in north-western Alberta and north eastern BC is depicted below:



NGTL Pipeline System Map: North Section (Source: TC Energy Website: 2019)

NGTL is currently proposing to increase the capacity of its north-central corridor system with two new proposed projects. Two of these projects fall within and traverse the DFN Traditional Territory and the Clear Hills-Chinchaga Refuge.

2.1 Nova Gas Transmission Ltd. North Central Corridor Loop Project

NGTL is proposing to construct, own and operate the North Central Corridor Loop (North Star Section 1) Pipeline Project (the Project). This important piece of infrastructure in the NGTL system is deemed by NGTL to be necessary to meet existing and incremental demand requirements in northeast Alberta and will support many natural gas consumers in northeast Alberta by providing access to natural gas supply.

The Project consists of a 48-inch diameter pipeline loop approximately 31 kilometers in length within the County of Northern Lights and Clear Hills County, approximately 25 kilometers northwest of Manning, Alberta. The majority of the pipeline will parallel the existing NPS 42 North Central Corridor (North Star Section) beginning at an existing valve site located in NW 36-93-24 W5M, and extending to the Meikle River Compressor Station located in NE 26-94-2 W6M.

(Source: NGTL Summary Document, "Proposed Project: North Central Corridor Loop (North Star Section 1)

NGTL applied for this Project pursuant to Section 58 of the *National Energy Board Act* (NEB Act). Section 58 of the NEB Act permits the Board to make orders exempting certain facilities from any or all of the provisions of sections 29 to 33 and section 47 of the NEB Act:

58. (1) The Board may make orders exempting

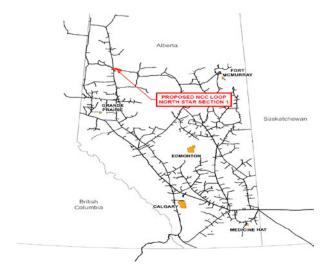
- (a) pipelines or branches of or extensions to pipelines, not exceeding in any case forty kilometres in length, and
- (b) such tanks, reservoirs, storage facilities, pumps, racks, compressors, loading facilities, interstation systems of communication by telephone, telegraph or radio, and real and personal property and works connected therewith, as the Board considers proper, from any or all of the provisions of sections 29 to 33 and 47.

While applications made under section 58 do not automatically trigger a public hearing, the Board will still assess the application with respect to:

- public consultation;
- engineering;
- environment and socio-economics;
- economics; and
- lands

(Source: NEB Website: https://www.neb-one.gc.ca/bts/ctrg/gnnb/flngmnl/fmgda-eng.html#s58a)

The location of the Project within Alberta and its components is depicted on the following page.



(Source: NGTL Project Application, 2018)

This project was approved by the NEB in the fall of 2019.

2.2 Nova Gas Transmission North Corridor Expansion Project

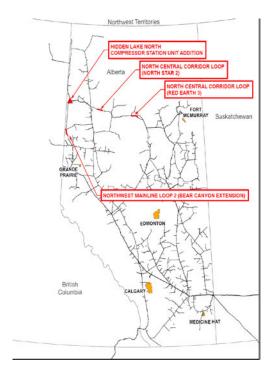
NGTL is proposing the North Corridor Expansion Project (Project) would transport gas from the Peace River Project Area to growing intra-basin markets located in the North of Bens Area. The Project consists of approximately 81 kilometers of pipeline, in three sections, with one compressor station unit addition.

This pipeline expansion project in northwestern Alberta is required to expand pipeline capacity for the

transportation of natural gas from the Peace River Project Area to growing markets located in northeastern Alberta. The expansion program is underpinned by approximately 1.1 billion cubic feet per day of new firm service contracts. The Project consists of the following components:

- The North Central Corridor (NCC) Loop (North Star section 2) is a 48-inch, 24 kilometre (km) pipeline located approximately 20 km north of Manning, Alberta in Northern Lights County.
- The NCC Loop (Red Earth section 3) is a 48-inch, 32 km pipeline located approximately 45 km north of Red Earth Creek, Alberta in Northern Lights County and the MD of Opportunity.
- The Northwest Mainline (NWML) Loop No. 2 (Bear Canyon North Extension) is a 36-inch, 25 km pipeline located 50 km southwest of Worsley, Alberta in Clear Hills County.
- NGTL is also proposing to construct a 30 megawatt unit addition at the **existing Hidden Lake North Compressor Station**, approximately 100 km north of Worsley, Alberta in Clear Hills County.
- NGTL has applied to the National Energy Board (Board or NEB) received NGTL's
 Application, pursuant to section 52 of the National Energy Board Act, to construct and
 operate pipeline facilities in Alberta that will become part of the existing NGTL System.

The location of the Project within Alberta and its components is depicted below:



(Source: NGTL: Project Pamphlet, 2018)

The NGTL North Central Corridor Loop (North Star Section 1) Project and North Central Corridor (NCC) Loop (North Star Section 2) being a component of the NGTL North Corridor Expansion Project is depicted below:



(Source Google Earth Projection: 2019 / Project Route Data Provided by NGTL: 2018)

The Hidden Lake North Compressor Station being a component of the NGTL North Corridor Expansion Project is depicted below:



(Source Google Earth Projection: 2019 / Project Route Data Provided by NGTL: 2018)

The Northwest Mainline (NWML) Loop No. 2 (Bear Canyon North Extension) being a component of the NGTL North Corridor Expansion Project is depicted below:



(Source Google Earth Projection: 2019 / Project Route Data Provided by NGTL: 2018)

2.3 Ongoing Operational Impacts from NGTL's Pipeline Corridors on DFN Rights and Culture

Based on past experience with pipeline consultation and review processes, the DFN's (as other Indigenous People have found) concerns related to the long term operational impact of pipeline corridors (in their own right or acting cumulatively with other linear developments, other forms of development and human activity) on its rights and culture are generally held to be out of scope or not germane to the more narrow confines of the environmental assessment and regulatory review process. With this past experience in mind, the DFN submits this report to make the appropriate regulatory authority aware of the community's significant issues and concerns on how DFN's Treaty right to hunt large game and associated cultural practices are impacted by the ongoing operation of the pipeline corridors through time. A key issue is how the long term operation of NGTL North Central Corridor Pipeline system requires large persistent corridor to be maintained over decades. This contributes to increased human access and the increased hunting and killing of large game by humans. It also facilitates ease of movement for predatory wildlife resulting in increased mortality for large game relied upon by the DFN.

In addition, the DFN has noted how NGTL pipelines projects are advanced on an incremental basis. Whereas NGTL is advancing the two referenced Projects at this time, it is highly probable that other NGTL projects (e.g. additional looping, spur lines, compression, facilities etc.) will be advanced along the same North Central Corridor Pipeline system and the information presented here may have application in such a scenario. The report may also be relevant and deemed applicable given more recent pipeline proposals and policy calls for the establishment of a strategic energy corridor that could very end up paralleling NGTL's North Central Corridor Pipeline system that bisects the Clear Hills – Chinchaga Refuge.

3.0 Project Context: DFN Community Observations, Perspective and Rationale on Constraints to Right to Hunt Large Game and Associated Cultural Practices Arising from Land Use and Development

3.0 Project Context: DFN Community Observations, Perspective and Rationale on Constraints to Right to Hunt Large Game and Associated Cultural Practices Arising from Land Use and Development

Within the companion report entitled, "Duncan's First Nation 2019 Clear Hills – Chinchaga Refuge Indigenous Knowledge Survey Conducted in Relation to the Nova Gas Transmission Ltd., North Central Corridor Loop Project North Corridor Expansion Project and the Ongoing Operation of NGTL North Central Pipeline System". (Report#1), the DFN provided information in respect to the exercise of its rights, historical, ongoing and current land and resource use by some of its community members.

This information was derived from DFN community research conducted in 2009/11, 2012 and 2018/19. In summary, Report#1 provides a review of the DFN's exercise of Treaty rights, livelihood and cultural practices, and ongoing and current use of lands and resources by DFN community members within its Traditional Territory, the Clear Hills-Chinchaga Refuge, the Project(s) areas and areas in the vicinity of the Projects.

Qualitative information and observations about the state of the DFN Traditional Territory, the host landscape and Project(s) area, as witnessed and experienced by DFN members are set out in this report. Directly relevant and applicable qualitative information from the 2009 and 2018/19 research initiatives are synthesized and brought forward into this report. Further, directly relevant and applicable quantitative geo-spatial information is considered and depicted in this report.

In summary, this report focuses on and presents information about the interface between the DFN's exercise of its Treaty right to hunt large game and associated cultural practices and the Projects. It does so within a context appropriate to the DFN given the land use constraints and on the ground realities the community report they must contend with. From the community's perspective, it makes little sense to talk about the potential impacts of the Projects without considering the current state of their Traditional Territory and the state of the landscape that will play host to the Projects. In short, that is an impact assessment baseline that makes sense to the community, governs their reality and plays a determinative role in how, when and where the community can hunt large game and practice their culture.

3.1The DFN 2009/11 Pilot Traditional Land Use Survey

The following section includes excerpts of 2009/11 DFN elder, land user, knowledge holder and community member observations and perspectives of constraints, stressors and barriers to their ability to hunt large game and undertake associated cultural practices arising from different forms of land use and development occurring at the territorial and host landscape levels. Where possible, information relating to a specific type or class of development is categorized (e.g. agriculture, forestry, oil and gas, hunting, transportation, multiple forms or cumulative development)

Observations On Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Agricultural Development

"In my life time, I've seen the numbers of animals decline. It was easier to find and hunt animals in the 1970's when I was young. I remember this clearly. Then through the 1980's, then into the 1990's you saw less animals and it became harder to hunt - which required more and more trips out in the bush. There are no animals around the Duncan's reserve anymore. All the land has been cleared off for farming. While you can find deer and some elk in farmers, fields, moose are all but gone. This means that we have to drive for the better part of a day, to get to a place where we can start hunting now. However, the places we've shifted to now seem to be the very same areas that the oil companies want to use and expand into". (Source: PIN 002-2009-DFN)

"The land all around us was cleared more and more - our reserve became surrounded with farms. This was very hard on us". (Source: PIN 003-2009-DFN)

"It's difficult to hunt near or on farm lands. There's not a lot of point as there are way less moose in these areas compared to others. Its (it's) also hard as there are fences up and the wildlife officers will charge us is we try to hunt across people's farm lands. We re (We're) told we can't go there to hunt." (Source: PIN 007-2009-DFN)

"You have to go further and try more areas, because there is just simply less animals and less land to hunt on or places where you can successfully hunt. We can't hunt around Duncan's anymore like we did when I was young because all the lands are fenced and cleared. We have to go north and hunt along areas next to the Peace River that still have a lot of forest. There are a few places like this left, but not many". (Source: PIN 015-2009-DFN)

Observations on Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Forestry Development

"In the same period, I saw a lot of the smaller lakes and creeks dry up but this is a time when it was very wet. The companies use and take a lot of these areas - the areas that we used to hunt along and find most of the moose. If the water is gone, the animals will shift and go to where water is. So I think that the drop in moose is due to all the openings in the oil fields, too much traffic and the constant sound of machinery, too many hunters that drive through these areas to find an easy kill and the loss of water from these areas". (Source: PIN 001-2009-DFN)

"The Chinchaga is too cut up and opened up now. They logged and drilled far too much in the Chinook Valley in the 1970's and 1980's. That used to be a good place for us to hunt that was closer to our community, but now it's pretty tough to even see any moose tracks in the area at all". (Source: PIN 003-2009-DFN)

"You can find deer all over this area these days. They are all over, but the moose are shifting to the north from the White Mud Hills, to north of the White Mud River and up to the Notikewin River area. There was lots of logging that happened in the last twenty years north of Cardinal Lake, around Squirrel Mountain and the White Mud Hills. A lot of oil and gas started to happen in the area between "Montagneuse Lake" and "Flood Lake". I think the moose have also started to move south out of the Chinchaga oil fields too. It's just too busy, so I think a lot moved to the Notikewin River area and south of there". (Source: PIN 005-2009-DFN)

"One of the things I've noticed is that's it harder to find the medicines like we used to. Sometimes people think it's as easy as going out into the bush and you'll find these things growing anywhere. That's not true. We've lost so many areas to the all the farming, forestry and oil and gas industries around here in the Peace". (Source: PIN011-2009-DFN)

"The bush has changed. When all these openings and cutblocks come into an area, the forest changes. Even the areas next to the cutblocks change. I don't know why this is - maybe there is just more light and air and the plants under the trees change. In the cut blocks, the vegetation does grow back but its changed and you don't get the medicines to grow back. And this is happening everywhere - not just in a few places". (Source: PIN 011-2009-DFN)

"Forestry also impacts moose. Moose will use the cut blocks because there is new growth after they clear cut. But they disappear again, when they go and spray and kill all the new growth again. We see it year after year. I think some cutting is good for moose, but it doesn't help moose when the cuts are too big and too many. They don't leave enough trees, logs and shrubs and willow. The moose like to have food and areas where they can escape to. Forest fire areas are better. I've seen the moose come back into the big fire that happened that around Slave Lake. They need to clear land more like forest fires do but that would mean they would have to leave more forest alone and leave a lot more trees in those cut blocks than they do today". (Source: PIN 015-2009-DFN)

"They just keep doing this in so many places - all of the trails and corridors and lick areas are being lost. Forestry is especially bad for this. They just take too much timber from one area and don't leave enough areas for the game trails and patches for them to hid in and escape. They still cut to close to the rivers - you need more than a 50m or 75m setback. You see that they are starting to leave little tiny patches and even doing curving cut blocks now, but they aren't going far enough and it's still hurting them. I've seen my relatives get mad, when they go to some of the old lick areas that they used to go to. They are messed up and it's hard to even recognize the land that they used to be on". (Source: PIN 018-2009-DFN)

"The area north of Whitelaw is really bad now. They logged the whole south part of the Whitemud Hills. Now it's no good. You still can find the odd animal that sticks around, but you just don't find animals where they clear so much timber in one place. The trees take a long time to grow and the moose won't come back for a long time. It takes about twenty years for the moose to come back in numbers. They need both the willow and the trees to move around and hide in for feeding". (Source: PIN 021-2009-DFN)

Observations on Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising From Oil and Gas Development and Existing Pipeline Infrastructure

"...you can find hardly any animals in the Cliffdale oilfield area. The area is barren. And the animals that you do find are weak and sick. While it may be from the chemicals and salts the animals ingest from these areas, I have no way of knowing this. We see animal tracks going into the sump pits. They are clearing going into these places that have readily available salts because their natural licks are being cut off and taken out by oil development". (Source: PIN 002-2009-DFN)

"If you were a moose, where would you choose to be? A quiet place where you can feed and rest undisturbed or a stinking, noisy oil refinery with traffic where you are constantly forced to be on the

move. (Source: PIN 002-2009-DFN)

"The oil and gas and foresty companies seem to be punching in everywhere these days. The Chinchaga area is covered by lease sites, seismic, roads and wells. There is lots of trees coming out of this area". (Source: PIN 005-2009-DFN)

"I see what it's like near the Shell plant, and the hunting is no good there. You don't find many animals hanging around there. It's not even nice being there, plus there's all the signs saying we no trespassing. I also here that we good get charged if we even tried hunting around the wells and, roads and pipeline areas. We can't hunt there. The animals don't go there". (Source: PIN 008-2009-DFN)

"The Chinchaga has exploded over the last twenty five years with oil and has. When the oil and gas builds roads, then forestry goes in. I asked a forestry guy about this. He claims they are being responsible by now using the oil and gas company's roads. But, the impact is still there and what he says doesn't really help when oil and gas are punching 1000's of roads, lease sites, pipelines and seismic lines in everywhere. It's now at insane level and the moose have left the Chinchaga because of it and I can't hunt there now". (Source: PIN 110-2009-DFN)

"They also need to start replanting old and new seismic lines. This 'Low Impact Seismic" is not so low impact. The lines are just as dense and cut up the forest. Their use of mulchers is also cutting into the soil by six to seven inches. I've been down the lines they cut at Carmon Creek, two years after they cut it... They said, you wouldn't be able to notice that they were ever there. Those lines are still open and the mulchers cut into the tree and brush roots on the ... I've also seen this on other recent 3-D LIS program areas - the brush doesn't grow back and people are using them for ski doo, quad and truck access. The soil becomes more impacted and that further stops growth. They need to replant seismic lines - the old 2-D cat cut lines and do much more to compensate for this so called low impact seismic." (Source: PIN 010-2009-DFN)

"I've seen the bush in its natural state and what happen when the oil and gas industry moves in. It affects the lands and us. There are less animals in these areas and less and less over time. Moose don't like noise. Moose will move to quieter places. That's why we find them deeper in the bush at all times of the year now. They lose their habitat their food and they get cut off as more and more roads, pipelines and lines go into the bush. And with all these openings, there are more and more people using them. Of course there is a change and its affects the moose and us as a result. What's so difficult to understand about this"? (Source: PIN 011-2009-DFN)

"Also, as we go by sumps and drilling sites you see the stupid wildlife fencing they put up. It's so flimsy it falls over. It's so short than any animal can jump it. We see the tracks going into these areas where they've dumped the water, muds and drilling wastes. If the animals are eating the salts and the chemical from these places, so are we". (Source: PIN 011-2009-DFN)

"The oil industry creates a lot of problems. As the oil fields grew and spread through the Peace, we saw the numbers of moose drop. I have seen this happen out in the Spirit River area and Gordondale areas. I also have seen take place around the oil fields around Cadotte and Seal. First, the moose got out of the oil fields because of all the traffic. Second, there is too much noise and activity, so they move to have their calves in safer places deep in the bush. I guess this works for them, but I think they are running out of these places as they are not just drilling for oil and gas in

one area". (Source: PIN 015-2009-DFN)

"Lots of moose are killed by all the oil field traffic. All the workers drive so fast on those roads to get to and from work and I think many are killed this way. When you drive so fast, its hard to miss the moose. You see a lot of dead animals in the winter. (Source: PIN 015-2009-DFN)

"Also, there are wolves coming into these areas to hunt the moose on the pipelines and seismic lines. You see their tracks in the winter. All these things have caused the drop in the moose numbers". (Source: PIN 015-2009-DFN)

"You see a lot of road kill too in areas like the Chinchaga. Lot's of animals are killed by the huge numbers of trucks that speed through the area. It's like know one seems to care about this. A lot of the animals that come out in these areas are also shot by truck hunters. A lot of workers see the animals out in these areas and go out on their time off or tell other people about them. The animals like moose just don't stand a chance out there anymore. But deer and elk seem to be doing okay". (Source: PIN 020-2009-DFN)

"Wolves are important- they keep a balance in the bush. But now they are on the rise all over the Peace area. I see lots of wolf pack tracks on the cut lines - sometimes a pack of thirty or more. But again, where you see the moose number's drop, then you see the numbers of wolves drop again. It's all related but those cut lines make it easier for the packs of wolves to move fast through the bush and go after weak moose, cows and calves". (Source: PIN 020-2009-DFN)

Observations on Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising From Multiple Forms of Development

"I recall what our family hunting area was like prior to the "big boom" in oil and gas and forestry in the area in the late 1970's and 1980's. Prior to that point, it was possible for us to hunt successfully in most areas. Where moose and wildlife shifted around throughout the region, we generally had success in most of our old areas. However, in the years following the expansion of industry into the area, I remember my father and uncles taking about how things were changing and that it was becoming harder and less predictable of where to find game in our accustomed areas". (Source: PIN 001-2009-DFN)

"Our life changed and we could no longer depend on the bush like we did when I was growing up. We were required to have more money as they years went by, so we had to try and find work where we could. It was often hard to find work, as it seemed like some companies did not want to hire aboriginal people". (Source: PIN 001-2009-DFN)

"My family and I still prefer to rely on wild meat from the land because it just tastes better, it's healthier and we can afford it. Many of my family don't have full time jobs, so buying meat from the store can be very expensive for some families. Moose is healthy and drug free". (Source: PIN 001-2009-DFN)

"My family relies heavily on moose. We need it to stay healthy, to be Cree people and many of our families have to go to the bush to feed themselves. Store bought meat is so expensive and our people know steak, chicken are full of unhealthy preservatives, growth hormones and chemicals. Its not good for you". (Source: PIN 002-2009-DFN)

"Now, most of us are required to travel half a day or more before we can even start hunting. It just seems that over the years, we have to travel further and further to find animals and have any chance of success in hunting. When I was young, it was easier to find game all over the place. While there are still some animals, you need to look longer and go deeper into the bush that's left to find them. This all seemed to happen as there was more oil and gas, forestry and farming". (Source PIN 003-2009-DFN)

"The numbers of moose has dropped over the years. They numbers were still pretty good in the 1970's and into the 1980's, but then started to drop off after that. There are still moose out there however they are being over hunted and pushed out of more areas where there has been lots of road building, lease sites and forestry cut blocks. This is why we have to change our hunting patterns and drive further and further out and go deeper and deeper into the bush. With all the activity happening out there in many places, and more of it happening each year, and more access for hunters, the moose try to find the last and densest places of bush". (Source PIN 003-2009-DFN)

"The moose range through a smaller area now. If, I were to draw it on a map, it would like a "T" shape on the map. The bottom of the T shape goes out south of the Chinchaga and north of the cleared lands north of Cardinal Lake and Wolsley. The two points of the T run north and south and runs along the east side of the Peace extending from the lands across from Manning, south past Carmon and Cadotte Lake and down to William Mackenzie. The moose travel and range through this smaller area now - its like they have been funnelled into this last area, where there is still good cover, food, water and denser bush for them...they need to protect a lot of that good moose habitat in the T – area". (Source PIN 003-2009-DFN)

"I've been through some areas, where we hardly see game or sign of game. This happens in and around the oil fields, farmer's fields and logged out areas". (Source PIN 004-2009-DFN) "I would really like to see the government doing something about all the roads, corridors and access they are making. More and more crown land is disappearing and it makes it harder for us to hunt as the years go by". (Source PIN 005-2009-DFN)

"Animals do migrate naturally and tend to move to the south, but I think they turn back or go other ways when the come to these disturbed areas or areas where there is too much activity. I think all of this moving makes the moose use more of their fat in winter and they get weaker. I think that's part of the reason why we see less animals these days... The few moose that we do find left in these areas are not in good shape, especially in the winter. They are thin and very tough. All moose are like that, however these animals are even more. Our elders say that it's because these moose have to be on the move more often because of all the noise in the bush from logging and oil activity. There are also more hunters and more wolves in the areas where there are lots of openings, meaning they have to spend more energy keeping on the move and always moving". (Source PIN 005-2009-DFN)

"Also, I think the moose will have more of a difficult time in crossing through or moving south from the Harmon Valley area into the DMI road area and across south of Manning. It's a pretty narrow corridor now, and if it's made narrower, it will effect the moose's movements. This in turn will make it harder for us to hunt, as it does so now year by year". (Source PIN 005-2009-DFN)

"There needs to be some tradeoffs made and changes made to ensure that the moose and other important animals to us will survive. For example, maybe they should cut back on forestry where they are looking at doing lots of oil and gas for a number of years. Maybe they should ban hunting

for some years for the sports and commercial outfitters on moose and bear, so that we can still provide for our families and hunt with some success". (Source PIN 005-2009-DFN)

"From what I can see, there seems to be good hunting where there are big areas of bush that aren't touched. If there are too many openings in the bush and cut blocks and roads and seismic lines, it's not that good hunting. Its better where there are less of those things". (Source PIN 007-2009-DFN)

"I don't think we should take any money from the oil companies. That doesn't make things okay. I'd rather, they leave large areas alone like parks or where the animals could travel back and forth, be able to rest and have their populations come back". (Source PIN 007-2009-DFN)

"I still go out on the land. Of course things are different now. But because wildlife is now more scarce and spread out over the land, we have to adapt our hunting. Things have changed because the sheer amount of roads, oil and gas and forestry. It has made the moose and wildlife we rely on change and shift their behaviors. This has made us adapt as well. We will use trucks, ski doos and quads but they are like our modern equivalent to our horses. My family doesn't cruise the seismic lines and pipelines and roads, hoping to surprise a moose. That is not right and it's not a sensible way to hunt. We get out to the area, then we start following the rivers and creeks in the summers to find trails and licks. In the winter we travel back from the rivers and creeks to find sign. So things are like we used to hunt. We use our heads in the bush still". (Source PIN 010-2009-DFN)

"The other thing that makes it so hard to hunt now is all the private lands, fences farms, gated roads, scarified blocks, no trespassing and hazardous signs that block our routes. We can't use our old routes because they have been used by the forestry and oil and gas companies. Our trails made sense and were based on good choice of ground and distance. They've been covered. All the land is cut up and blocked off". (Source PIN 010-2009-DFN)

"We have to travel along ways now too. It takes a long time to find animals now, we actually need to use trucks and sometimes quads and ski doos to get deep into the bush to find the animals. So on one hand, we don't cover as much ground as we used to, but because of all the changes we have to drive a lot and big distances to go the areas that aren't so badly damaged a d where you have got a decent shot of getting a moose over two or three days". (Source PIN 011-2009-DFN)

"So for medicines and for hunting we have to drive further and further and more places. Its a good thing we do have cars these days because we can't do these things around our reserve like we used to be able to do". (Source PIN 011-2009-DFN)

"There are less animals. You see less tracks and less tracks on the game trails and in the licks. My dad and uncles used to show us licks where dozens of animals had been in there in the deep water and mud. What also concerns is me that the licks are drying up too. This is especially true where they do all the oil and gas. I'm not sure why that is. I've also tried going to places with my brothers where Baytex and those companies are working south of the Shell plant. There was a good trail and bunch of licks there. We couldn't even recognize the place - there were roads and drilling pads there now". (Source PIN 011-2009-DFN)

"We have to travel along ways now too. It takes a long time to find animals now, we actually need to use trucks and sometimes quads and ski doos to get deep into the bush to find the animals. So on one hand, we don't cover as much ground as we used to, but because of all the changes we have to

drive a lot and big distances to go the areas that aren't so badly damaged a d where you have got a decent shot of getting a moose over two or three days". (Source PIN 011-2009-DFN)

"I used to like rabbits. But all the rabbits seem to have vanished from the Peace area. I think someone should look into this. Why are they gone? You don't see many chickens prairie chickens or grouse anymore. I miss them". (Source PIN 011-2009-DFN)

"Everywhere we try to go - the forest companies have clear cut land and diced it up. You can't cross through this stuff. Roads are blocked off and gated - with signs saying dangerous - keep out. We are told not hunt near the oil and gas sites because we can't shoot. We are running out of places to go to be Cree people". (Source PIN 011-2009-DFN)

"The fish don't taste as good as they did - their flesh tastes like all the mud that's now in the rivers and creeks. The rivers and creeks were never that muddy and dirty when I was a teenager and a kid". (Source PIN 012-2009-DFN)

"I'm worried about the toxins in moose and animals that now lick the salts from roads and the oil and gas areas". (Source PIN 012-2009-DFN)

"I think the forest companies and oil companies have to stay way back from streams, creeks and lakes. Even the new lease sites and cut blocks are far too close to these. They can directionally drill. All roads need to be back 300 or 500M from rivers. They also need to do more to stop all the silt from going into the ditches into the rivers. You see it just running all the time". (Source PIN 012-2009-DFN)

"They should protect the area around Bison Lake down to Otter Lakes, a bigger area around the DMI and pull all the logging out of there and the area between the Whitemud and Notikewin Rivers". (Source PIN 012-2009-DFN)

"I'm pretty concerned about how little lands there are left for good wildlife habitat. It's been shrinking for years now. The reason we can't find caribou anymore is that they've lost all their lands and habitat. They need a lot of land and need to be left alone. The need the lichens and mosses of trees. They also need bogs to hide and have their calves in. Once upon a time you could find caribou on the east side of the Peace south of Seal and Carmon but they have not been seen for a long time. I hear some of our hunters like XXXXX and XXXXX have spotted caribou up north of the Whitemud in the hills. But that's it". (Source PIN 013-2009-DFN)

"...they are going to have to protect some lands for the moose and the caribou. I think they are going to have to do something with those lands south of the Chinchaga and north of the Whitemud otherwise all we will have left is deer and elk - I don't want to see that happen. We still eat caribou, but XXXX (wife) family brings that down from the north west territories when they come to visit". (Source PIN 013-2009-DFN)

"I have seen a lot of areas over the years. I can tell you that a place changes when you put a lot of roads, well sites and cut blocks in. It just does. It takes time, but we've seen happen again and

again. The wildlife vanish in these areas over time and we can no longer hunt. We have to go somewhere else. The problem is that the remaining animals are having to go somewhere else all the time and so are we". (Source PIN 013-2009-DFN)

"I still eat a lot of fish whenever I can. Though the fish from the Peace doesn't taste as good as it once did. The water is warmer and dirtier over the last thirty years and you can tell the difference in the fish's meat. They are softer and don't taste as clean as they did." (Source PIN 014-2009-DFN)

"There is just less and less land. Some of the old places my family have been logged out. Everywhere you go, there is just more and more oil and gas. There are hardly any places that are untouched and not cut apart by roads. Farming, foresty and oil and gas has almost taken away all of the good lands that the wildlife needed. The moose population is dropping. It's very upsetting to many of the elders and other elders from other reserves. While there are more deer and elk, this does not deal with our concern". (Source PIN 015-2009-DFN)

"Also, all the roads have opened up the good moose habitat to the hunters. There are too many hunters taking too many moose. As the years go by, we see less and less of the moose. Something needs to be done to limit the hunting, especially in the areas where they harvesting so many trees and drilling for oil and gas". (Source PIN 015-2009-DFN)

"Things have changed for fishing, and its harder to find fish than it once was. We used to fish for jackfish in Cardinal Lake. We would take our horses there, but something happened and the fish died. I remember seeing lots of dead jack fish floating there one summer. From the Peace, we would take jackfish, pickerel, rainbow trout and whitefish. However, now the government says that we should only eat so much because of the mercury. This has scared some people from our community from fishing, but I still eat the fish from there and so do a lot of other people. We had a big fishery on the Peace when I was growing up". (Source PIN 018-2009-DFN)

"I have seen lots of changes take place and these changes have not been good. I have hunted though the Chinchaga. Over twenty years, and especially over the last ten, I've seen the numbers of moose, caribou, squirrel, lynx and bear drop to almost nothing. It's the oil and gas, forestry, all the noise, the smell, the traffic, the loss of food, more timber wolves and too much truck hunting. That's what happens, when you open up areas like that. You can also tell by the drop in numbers of tracks. I see this and know its true, because I've seen it year after year and through the different seasons. It's been a while since I've seen and taken a moose from the Chinchaga. I was up there last year and didn't see moose or tracks". (Source PIN 018-2009-DFN)

"I have seen caribou and caribou tracks when I'm out in the bush. They are hard catch and see these days. Even though I'm pretty young, I remember seeing them more often and seeing more tracks when I was out in the bush when I was young. I have seen them in an area moving east from the Running Lake and up through the White Mud and Rambling River areas. Where they go from

there, I don't know. I've talked to some of the elders and hunters in the community, and they think that some of these small herds end up joining up with the herds that go out past Manning, then out towards Red Earth Creek. I've seen caribou tracks out near the BC border in the upper part of Clear River, just north of Clear Prairie. But you don't see them a lot these days. I think our people would hunt them again, if their numbers picked up again. Now, I don't think people hunt them that much because they don't want to loose them. But I do hear about people hunting them here and there". (Source PIN 019-2009-DFN)

"There is one area that is no good for any kind of hunting now. You hardly find any animals there - that's over between the Clear Hills Reserve and Clear Prarie. There has been so much logging, road building, seismic and lease building there, that there area just seems dead. You take a look through those areas and you don't hardly see any game tracks in those areas - not like it is in areas to the north". (Source PIN 019-2009-DFN)

"Things are a real mess in the Chinchaga valley now. The drilling, road building and seismic went crazy in the last few years. You hardly see any animals up there and I go there a lot. The animals get pushed out. It's the noise that pushes them, all the vehicles and the clearing... There are way too many wolves now and you see their tracks all over the Chinchaga area. That also changes the natural balance and hurts the wildlife populations." (Source PIN 019-2009-DFN)

"From what I've seen, the water coming out of places like the Chinchaga is not as good as other places where there has not been so many roads built. You build roads, and you effect how the water moves - out in the muskeg areas especially. You have all the crossings, and you know and see the muddy condition of the water in places like that. They need to do a better job at building roads and keeping them farther away from rivers". (Source PIN 019-2009-DFN)

"I've seem wolf tracks out on the seismic lines where ever I have been. They go in and use those 2-0 and 3-0 seismic lines as fast hunting trails. Like people, animals will take the easiest way through the bush. So you can't blame them, but I think all the amount it easier for them to get at moose, elk and caribou in the winter and in the calving periods. That's got to have something to do with the drop in wildlife populations. Things are getting out of balance, with the more areas companies open up". (Source PIN 019-2009-DFN)

"Snowmobiles and quad use is up all over the area over the last ten years. More people have them and they go in on all of the pipelines, access roads, seismic lines and other straight lines. People know what's going on out there, and they just use these lines to get in deeper into the bush. I don't think this is good for the ground or streams. It allows hunters to go in deeper into the bush and makes more noise and disturbance. Caribou and moose don't like that". (Source PIN 019-2009-DFN)

"My hunting is still one of the most important things to me. Even though I work a lot, I like to go any chance I get. There are a lot of other people in our community like this. Some of our families need to hunt still, because they don't have jobs a lot of the time and meat is so expensive in the stores. Moose, elk, bear, deer, ducks, fish and geese are good types of healthy food - its not like the meat from stores that they color and inject with chemicals. I don't want my kids to have to eat that". (Source PIN 019-2009-DFN)

"... they should let things rest a while - all the non - native people from the south are busy and making money from what's there today. They need to look at putting controls on all of the tag and guide outfitting hunting. We need to let some areas rest and grow back and leave some areas alone to help the wildlife populations recover, and so that we can still hunt". (Source PIN 019-2009-DFN)

"After being on the land for so many years, I have been able to see the changes that are taking place over time. I can also tell the differences between areas - areas that are not so good anymore and areas that are still good for hunting and trapping. It's getting harder and harder to hunt in many parts of this country". (Source PIN 020-2009-DFN)

"We used to see caribou in the area between the William Duncan reserve and the Carmon - Seal Lake areas, but its hard to find them anymore. However we still see their tracks out there from time to time. It's easy to spot their tracks - they sure have got really big feet for such little animals. There is still a small herd that skirts around that Shell plant, south of Carmon Lake. Three years ago, I saw a herd of only seven caribou in that area." (Source PIN 020-2009-DFN)

"Overall, I think that all the development over the last twenty-fifteen years has impacted us. It really took off in this area twenty years ago. It makes it so hard to hunt in our old places and the places that we liked to go. It is hard to be in the bush without being interrupted and to get away from all the noise, trucks and machines". (Source PIN 020-2009-DFN)

"I've seen lots of changes over my life time. The numbers of animals are dropping year by year. There are not as many animals or kinds of animals in this area that there used to be. I don't know why the government people say that things are okay. I've heard some of their experts say that "there's more animals out there than there was years ago". That's not right. We are out there, I have been out there my whole life and see what's happening every year". (Source PIN 021-2009-DFN)

"You can spend two, three or more days and not even see tracks. This happened over north of William Mackenize reserve, just south of Cadotte Lake. We still go through there, but its like the bush has died. You still see the odd animal here and there. Sometimes we'll take one or two from there, but everything has gone down hill there. It gets worse as you get closer to that big oil plant (Shell In-Situ plant) over there. We were stopped hunting up around by Shell, because they have those big pipelines above the ground". (Source PIN 021-2009-DFN)

3.1The DFN 2018/19 Indigenous Knowledge Survey

The following section includes excerpts of 2018/19 DFN elder, land user, knowledge holder and community member observations and perspectives of constraints, stressors and barriers to hunt large game and associated cultural practices arising from different forms of land use occurring at their territorial and host landscape level. Where possible, information relating to a specific type or class of development is categorized (e.g. agriculture, forestry, oil and gas, hunting, transportation, multiple forms or cumulative development)

Observation on Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Agricultural Development

"We have a lot of problems with being able to track and hunt big game that pass over farm lands. Moose will cross over farm lands to move to areas of water, food and cover. Elk do this to, but they are tending to hang around farmer's fields for longer as there is ready supply of crops that they feed on. But they still move off to get to cover". (Source: PIN 001-DFN-2018)

"Ever since I can remember, pretty much all the lands around the Duncan's reserve have been covered by farm lands and plowed fields. Farm lands surround us on all sides". (Source: PIN 001-DFN-2018)

"Farmlands take big areas out and can remove important muskeg, wetlands and forested area which leaves less habitat for moose and places for us to hunt. On existing farm lands, I'm seeing more and more signs are going up on farm fences saying "No Hunting" and "No Trespassing" so I just can't go there unless I'm invited by the farmer. In some cases farmers are happy to have us come out but in most, they don't want First Nations hunters on their lands, which is sad because I think we can help one another. Maybe that will change". (Source: PIN 001-DFN-2018)

"Due to all the farm lands, I have to travel quite a distance away from the reserve to get to an area where you can start hunting. Unless I'm hunting on or right near the reserve down by the Peace, I pretty much have to travel two – three hours out just to get to a place where you can start to hunt". (Source: PIN 001-DFN-2018)

"I've seen what water looks like in different parts of our hunting and fishing territory. When I was young, water was really good and clean in most places. In the later part of the summer and fall, you could see to the bottom of creeks and rivers and small lakes. You could drink out of those. ... Today, it's pretty hard to find places where there is still good clean water. Water isn't in very good shape around farmers' lands or downstream of areas that have been farmed. From what I've seen, the creeks that flow through the bench lands above the Peace area dirty, shallow and warm so it's no good for fishing and you wouldn't want to camp by those rivers or take water out of them when you are camping. One thought that goes through my mind is that they might also have fertilizers running off from farmers lands into the creeks. There's all the waste from cattle going into the creeks and rivers too. So because of this, I chose best not fish or camp by rivers and creeks that are downstream or that flow of farm lands. I chose my spots further away". (Source: PIN 001-DFN-2018)

"When I grew up, most the lands around Duncan's reserve had been cleared off and fenced for farming. They are expanding the farmed areas and draining more wetlands here and there but most of lands had been cleared by the time I was born. I'd say there is circle of about 75 to 100 miles around Duncan's that has been turned into farm lands". (Source: PIN 101-DFN-2018)

"I do get calls from some farmers who want us to come over to their lands and help thin out the deer and elk that are over staying their welcome in their fields. I have talked to some of the other hunters at DFN, and they get calls too. It seems that we are getting a fair number of calls from farmers from the Rycroft area as there is lots of bush nearby the farm lands over there and the elk, deer and odd moose move back and forth from the bush to feed, then back to the bush for other kinds of food, cover and protection. So, in this way, we still have opportunity to hunt on farmed and fenced lands when invited, but for the most part, they are "no-go" areas to us now". (Source: PIN 101-DFN-2018)

"It's the younger hunters and fishers that are being harassed by them now. I am concerned about this. Recently a DFN band member was charged with trespass for hunting on farm lands. She had been given the go ahead to access the land to get a moose but then renter then called to complain, Alberta fish and wildlife came out and she was charged. This is just one recent example of how our hunting rights are being eroded. We have the right, but we can't do anything with it as they gave away all the lands around us, then turn around and harass our people for trying to be who they are and feed their families". (Source: PIN 101-DFN-2018)

"It's a real loss to us to not to be able to hunt nearby the community. We have to go further where there is bush and Crown land, so you won't be disturbed by the private land owners or the game officials. Some years ago, I started to hunt about an hour away to the north in the bush out beyond the belt of farmlands. However, I found that more and more of those lands were being turned into community pasture. So once again we are the ones that have to make way, move on and have to travel further out again. Overall, farms and private land have not been good for me, my family or our community. It takes the land away from our ability to hunt and makes things harder for families". (Source: PIN 101-DFN-2018)

"Duncan's is right in the middle of a huge area of farm lands. We hunt around the community and along the Peace River even though there's fenced and farmed lands. A lot of moose move back and forth along the Peace and come through the reserve. Our families have always been pretty free to move down to the Peace River from the reserve and the farmers in the area have never had an issue with that. My folks used to say that back in their time, they had a pretty good relationship with most of the farmers and they had pretty good friendships with farmers between Dunvegan and Peace River". (Source: PIN 110-DFN-2018)

"... the attitude seems to have changed over my life time where it's become a more political issue it seems, where land owners don't want us to cross or access their lands to go after a moose or elk that's on the move. I think that's too bad as I think most of our people hunt safely and with people's safety in mind. I think more and more our younger hunters are staying clear of farm lands as they don't want to get in trouble and charged. So, I think that we've pretty much had to give up on depending on the lands around Duncan's over my life. This means we have to cover a lot of distance to get to more distant places where we can start hunting. There's a lot of farm land through the Peace and in our territory so it takes a big bite out of where we can go to hunt". (Source: PIN110-DFN-2018)

"A lot of the private and farmed lands are fenced and have signs that say "no hunting" but basically farm lands are lost to us now unless a farmer invites us on to cull some of the deer or elk from their fields. I'd also say the same of highways, maintained access roads and well sites and facilities. We aren't allowed to hunt along or at those areas. You have to think about it from our point of view. We had our hunting grounds then the farms were put over top of that. Then they built roads all through the region and we can't hunt on or off those. Then they start charging our people, after they make it more and more difficult for us. What about the Treaty? What happened to our treaty rights in all of this? We agreed to share the land and allow some farming but now we are pretty much being showed the door. The farmers from the Fairview area are pretty good and call us in to help them out". (Source: PIN 110-DFN-2018)

"Since I've come back to the Peace area, I was shocked to see how much of the land has been cleared for farming. For about 75 miles in every direction, the land has been cleared off around

Duncan's leaving it pretty much in one large farmland. It reminded of the situation that many First Nations face in the Prairies, where they have to travel large distances to even have a remote opportunity to hunt successfully". (Source: PIN 600-DFN-2018)

"I think all the farmed lands does have an impact on where we can find animals and limits the amount of animals we can find and hunt in areas around Duncan's. It also plays a pretty big role in determining where I can hunt and can't hunt. First of all, when have miles and miles of farmed lands, the vegetation and browse that moose need aren't there. They will feed here and there but where they need to feed is in forest and on the edge of forests where there is new growth. Elk and deer are more tolerant and you see them feeding on farmers' fields. Moose will travel across farmed lands to get to water or better stands of forests. As a result, I don't many moose around the Duncan's First Nation. We are surrounded by miles and miles of farm lands which is why we need to travel a couple of hours out to start hunting". (Source: PIN 601-DFN-2018)

"...There is a lot of the negativity about "the Indians hunting and the Indians waste the meat, or the Indians sell the meat and they do this and they do that". Yes, every race has its bad apples and as a result it's hard for us to get permission to use and access private lands and that makes it tough for us to exercise our rights. It's frustrating for us. If we go back a couple of generations to my dad, Mooshum and uncle XXXXXX's time, they used to be able to go down to the Peace River and hunt and they built a bond with farmers between here and the river"....Back then, those people from the reserve that used down the river, on their way back they would trade fish and meat they caught for feed for the horses and potatoes with the farmers...We shared what we caught with the farmers. In those areas, we are still allowed there, as there is still a respect there. We respect them and they respect us. It's a two way street and we are allowed to access those areas. However, that's not the rule for most of our Traditional Territory. (Source PIN-C-DFN 2019-N)

"My Dad, Mooshum and myself have been reported to Fish and Wildlife many times where people say "these Indians are poaching or someone is shooting". Many times, I heard my Dad tell Fish and Wildlife where to go and tell them "to get their nose out of the box of my truck". Even from the Fish and Wildlife side, there is a change in attitudes". (Source: PIN-C-DFN 2019-N)

"We are not allowed to give non – treaty people meat any more or a share what we catch due to Alberta Fish and Wildife's laws. That's how that whole aspect of respect was lost. I am not allowed by those laws to provide meat to people that have grown up here but are not "treaty". I've told the Fish and Wildlife office that you can charge me all you want. If my Mooshum wants a moose, I'm going to get him a moose and if my family needs as moose as in my uncles and aunties, I'll get them a moose! And I will deliver it and there is not a damn thing you can do because we do that out of respect"! (Source: PIN-C-DFN 2019-N)

"If you have fences and if you don't have a relationship with certain farmers, they are going to call the wildlife officers on you. If there is a farmer that you do have a relationship with and they do allow you on, you don't want to shoot if they have grazing animals nearby as you night hit one of their livestock. So having farms is good for the economy but not good for us. When we try to practice our right to hunt to get wild game, it's much harder and we have to travel much farther. We have to go to hunting grounds that don't have farm land". (Source PIN-C-DFN 2019-N)

"One of the things we are missing is that in areas that we can go, it is impacted by forestry and oil and gas. All through that area, there are seismic lines, pipelines, power lines, facilities or something that's causing a disturbance and we are noticing that this activity is pushing the animals to the private sectors (private lands). It's like they know they are protected there". (Source: PIN-C-DFN 2019-N)

"Going back to agricultural and farmed lands, you've got more game seeking sanctuary on these land. There is such ease of access and you've got more semis (trucks) going down these roads and the wildlife are getting hit more often. You see all the carcasses on both sides of the road. You see it everywhere...". (Source: PIN-E-DFN 2019-N)

"With all this activity back in the bush in the oilfields and pipelines, it's pushing the animals out into the open." (Source: PIN-C-DFN 2019-N)

Observations on Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Forestry Development

"There is another area that I currently use for hunting that's just south of the Wapiti River. I hunt for moose and elk in this area. The area lies between Pinto and Nose Creek. I head down as far south near Nose Mountain along the Cutbank River. This area is pretty good as it isn't too badly cut up with lines, roads and there are less well forestry blocks and people". (Source: PIN 001-DFN-2018)

"I've noticed a fair bit of logging that's happened towards the west and I don't see as many moose as I used to but the area between Highway #40 and where the Two Lakes and Bald Mountain Road". (Source: PIN 001-DFN-2018)

"More and more logging has happened over our hunting territories. I do see animals in cut blocks that were cut years ago enjoying the new growth. But, I tend not to find lots of animals in cut blocks. You think they should be there because of the new growth that comes where they logged poplar and trees like that. Moose will use the cut blocks in the winter when they are looking for willow but not so much in the spring, summer and fall". (Source: PIN 001-DFN-2018)

"But I think there's a problem when there's too many big blocks in one area. There's not enough of things that animals need. They need browse, water, access to water, places close to the bush to escape. So, if you have a few cut blocks, not so much has been taken away and it's not too bad. But where they've let too much logging happen in one area, I don't believe it's good conditions for moose or me as a hunter". (Source: PIN 001-DFN-2018)

"Having logging roads in place and cut blocks out there helps me get around into the bush to hunt and look for things like plants. But, I think there's just too many roads out there that everyone is using and I think it's all those roads and all the people that they let in are the real big problem. I think that's why you don't see the moose in cut over areas as much as you think you would". (Source: PIN 001-DFN-2018)

"In terms of fishing, I have not seen for myself big problems from forestry on rivers, creeks and fish. I think they maybe cut too close to the rivers in the past and took too much bush and forest along the rivers. Today they keep back more from the rivers and creeks now, but still not far enough in my view. Wildlife have their trails along the rivers and creeks. There is lot of medicines along the creeks and rivers. When I hunted with my Uncle Stan, we would follow rivers and creeks and you'd find a lot of life and things going on in those areas and more animals and plants in the bush alongside the rivers. I don't think they should log within a mile or so from those rivers or maybe more. Those areas are important habitats for plants, large animals and smaller animals. They are important to us too". (Source: PIN001-DFN-2018)

"One example of a medicine that's important to me is the fungus that grows in stands of Black Diamond Willow trees. It's a really important plant that our people use for a lot of reasons. It doesn't just grow anywhere. When the forestry companies go in to an area and clear out a place, they pretty much take out everything and we lose the places where medicines like this grow and the places they need to grow. Once our people find a place with fungus, they will go the again and again but we leave enough so the fungus will grow for other people years down the road. But what I've seen is that you'll go back to a place and the place has been logged out and it won't grow back anytime soon if ever". (Source: PIN 001-DFN-2018)

"In my mind, one of the biggest problems of forestry are the access roads. When the snow melts and you get the spring rains a lot of water flows over and off those roads into the ditches and culverts. All of that sediment and dirt goes into the creeks, then onto the rivers then into the bigger rivers... When I was growing up, the rivers did get muddy and weren't so clear in the spring so but the silt it would settle out as you get into June and July and the fishing would get good again. With so much silt going into the creeks and rivers from the forestry and oil and gas roads, I think it's made water quality worse for longer periods of time which means we can't fish with much success until the late summer and fall". (Source: PIN 001-DFN-2018)

"I think logging can be like natural forest fire but there are some differences between the two. From what I've seen areas that have been burned by smaller fires are good for our lands, they make them healthier, create more types of life and are in turn good for us. Based on what I've seen, a lot of logging that has been done is more like the damaging type of fire that takes out too much forest, material and doesn't leave enough behind. I see the logging companies trying to do a better job now where they are trying to leave more of nature behind in the blocks but I still think they don't leave enough forest and material behind. For example, it does no good to log up to a good raptor snag on all sides within 25 meter or 50 meters. They may have saved the snag, but the eagles and hawks need a place to hunt with small animals – which have been removed by too much logging". (Source: PIN 001-DFN-2018)

"On the Forestry Trunk Road between the Wapiti and the Little Smoky Rivers, you'll see signs showing when the blocks were logged and you can see the growth. It takes a long time for blocks to grow back to large stand of forest. Further I don't think it's good to have trees harvested all at the same time in one area and the same time of trees just replanted over and over. That problem happens with the evergreen areas, not so much in the hardwood areas. You get more natural, healthier forest in the areas that are mostly just hardwood. It's more natural". (Source: PIN 001-DFN-2018)

"Whenever the spray the evergreen areas that have been logged, you don't see animals for some time in these areas. Some of the elders totally avoid areas that have been spayed as they are afraid of what is in the herbicides they use. I don't know if its unsafe or not, but I think its smart to avoid these areas for a long time". (Source: PIN 001-DFN-2018)

"There has been a lot of timber harvesting going on in the bush through our traditional lands for years. When I was young, we worked in some of the small mills. But back in those days, there was horse logging and logging done with the old type of trucks and machinery. It was smaller scale when I was growing up and in my way of thinking, not harmful to the forest or us". (Source: PIN 101-DFN-2018)

"First of all, I think the logging companies take too much when they go into area and do not leave

enough to help the moose, small animals and birds that need different kinds of bush, plants, shrubs, scrub and downed trees to do well. The contractors that work for the forest companies just go in and clean it all out. Eventually the bush does come back, but it takes a long time for these cut blocks and areas to come back in a way that allows all the variety of life to come back, from the moose down to the mice". (Source: PIN 101-DFN-2018)

"We have a caribou problem. We have a moose problem. We have a hunting problem in our territory. There aren't caribou where there should be. There aren't moose where they should be. I think forestry has played a part in this". (Source: PIN 101-DFN-2018)

"Moose need large forests. In the winter, moose need large areas and large stands of forest to get out of the wind and the colder temperatures. So, when the companies take out a forest in one area, the moose will move to areas where there is more forest and denser forest. They need those areas to shelter from the wind and cold and to get what browse there is in the winter. They also need thick stands of forest to hide and escape from predators". (Source: PIN 101-DFN-2018)

"I see the regrowth happening in cutblocks. You see the difference in cutblocks that were harvested one, two, three or more decades ago. The trees are re-growing but I don't see the berries and plants that are important to animals and to us. Maybe over a hundred years or so, you might see this occur. The problem is that when they log, they still take out everything and they change the growing conditions for the lower growing plants and bushes. They can replant or let trees come back to the blocks, but they haven't figured out to regrow or replant the blocks with all the things that should be or that need to be there. Maybe time will take care of this, but if they go back and re-harvest the same blocks in forty or fifty years, the bush won't ever have time to recover. There will be trees but it won't be a real forest in my way of thinking". (Source: PIN 110-DFN-2018)

"On top of too much cutting, I think that the roads and access that the forest companies create has caused a problem. Actually, I think it might be a bigger problem than the cutting they do. Down between the Wapiti and the Little Smoky Rivers, I see that the grizzlies and wolves are up. There are more than they used to be. Far more than I can ever recall. I think that nature is always trying to find balance and where we see species like caribou or moose doing badly, we see Grizzlies and wolves doing well". (Source: PIN 110-DFN-2018)

"One thing now one has really ever talked to us about is the what the pulp mills have been putting into the river or what they used to put in the river. All I know is that there are fish consumption advisories on the major rivers and it seems that those advisories are in place where there have been pulp mills. I heard they were made to clean up their act back in the nineties I think what happened to all the chemicals that came from the plants? Did they all just magically float down the Smoky, the Wapiti, the Peace and out to the Arctic Ocean? Or did they just breakdown in nature and its safe now? I think there are still chemicals from the pulp mills in the river beds and that's still impacting the fish. It could also be that the towns and cities are pumping sewage into the rivers and they have to do more to clean up what comes out of the sewer systems. But part of the reason we can't fish or folks aren't fishing in the Peace, the Smoky and Wapiti rivers as much as they used to, is because the Alberta Government is telling us not to". (Source: PIN 110-DFN-2018)

"You can find moose and elk in cut blocks going after the browse comes back after several years. However, where a large area has been logged or where there is a concentration of lots of logging blocks, I believe that animals will tend to avoid those areas. In addition, it impacts our ability to get through the bush and impacts our ability to get from where we are from where we need to get to. This

occurs and has impeded my ability to hunt in the way I want to in the Little Smoky – Wapiti River Fan". (Source: PIN 600-DFN-2018)

"From what I see, when too much forest is taken from an area, it introduces changes to the bush, dries out the bush, allows in more light and changes the ground vegetation which can alter where moose chose to look for browse. This in turn impacts our hunter's understanding of where to seek out moose". (Source: PIN 600-DFN-2018)

"My uncle and I have talked about many of the things that he has seen and has shown me things in in the bush. I agree with him that moose need good sized areas of forest and a forest that has not been cut apart into small little patches. So on one hand, forest cutblocks can help and be attractive moose by providing more new browse, but when you have all the access that's run into the same area, this kind of offsets this helpful part of logging. Forestry roads, like oil and gas roads and pipelines, can lead to more people coming into an area, increased hunting and then, increased predation by wolves and bears, hunting and then an overall drop in moose numbers and our ability to find hunt with any degree of certainty". (Source: PIN 600-DFN-2018)

"There has been a large amount of forestry activity going on between the Wapiti and Little Smoky rivers. The areas to the west and south of Musreau Lake have been heavily logged. A lot of the lands to the east of forestry trunk road going into the Latournell and Simoette have been heavily logged".(Source: PIN 600-DFN-2018)

"If forestry was so good for elk and moose and for our ability to hunt, why aren't there lots of elk and moose in the places that they should be? Almost all the Duncan's elders and hunters say there are less moose than ever and its harder to hunt than it once was. I see my Dad have a tough time, and he's a very good hunter. Something doesn't add up". (Source: PIN 603-DFN-2018)

"From what I've seen the forest companies just take too much when they log blocks. They pretty much take everything and a lot of the plants and berries that you could get from a forested area is no longer available. It grows back but when I go picking berries with my mum, we don't usually seem to be gathering berries from logging blocks – more natural meadows next to taller forests. I think it takes a good twenty years for us to be able to use a block again to harvest berries and certain kinds of plants. But if they come back again to cut again, they impact it all over". (Source: PIN 603-DFN-2018)

"Then they will move in after some years as the regrowth comes in. Moose will do that. They don't do too much spraying in these parts, but where they do, they kill all the regrowth all over again so it again pushes the animals away again. The blocks do come back and the moose will come into feed from them, but moose do better when there is more trees and natural vegetation left on the ground". (Source: PIN 605-DFN-2018)

"But you know, while the blocks have an impact, I think it's the roads that the forest companies build and people's use of quads in the roads and blocks that create a whole other problem in top of the logging. I think the logging companies have opened up so much country and we've seen the caribou collapse in several parts of our country, other animals like marten and fisher disappearing and now the moose see to be in trouble". (Source: PIN 605-DFN-2018)

"There are many areas that have been too heavily logged down south of the Wapiti and north of the

Little Smoky River that I can't see how any animals can withstand that. Trees grow back but too much has been altered to quickly and forestry takes too many trees and entire forests out of areas. I know they are trying to log in a better way now, but that's only on new blocks – they logged in a bad way in the 70's, 80's and 90's and those areas haven't recovered yet to provide what the animals, birds, fish and what we need as native people". (Source: PIN 605-DFN-2018)

"It (forestry) impacts us in that there usually nothing there. It takes a long time for game to come back. Even the growth of medicine plants that are important to us takes a long time. It plays a big part in creating easy access for predators and humans". (Source: PIN C-DFN-2019-N)

"Let's talk about noise pollution. You've got chippers that were never out there before and they are out there screaming away 24 hours a day for so long...Before they would just de-limb the trees but now the pulp mills want material chipped out on the line as they can get more board feet and product out. So they use more of the tree now than they used to, but now the animals are being subjected to more constant high frequency noise". (Source: PIN C-DFN-2019-N)

"... When you build a lease site, there is a lot of work around properly managing your three types of soils but no gives a darn with forestry when they are running their 40 tonne machinery or a feller-buncher through there and cutting up, carving up and disturbing the ground". (Source: PIN C-DFN-2019-N)

"Even with diamond willow, it's just seen as willow and it wasn't protected. There is now avoidance cutting but diamond willow is still getting hammered. Forestry plays a big role in this." (Source: PIN C-DFN-2019-N)

"We went to pick berries and tried to get through a block and I spent half my time if not more of trying to get through the block and climbing over trees and stumps." (Source: PIN B-DFN-2019-N)

"Even with that, if a human has such issues getting through a cut-block, think about the challenge an animal has in getting through that trying to escape a predator". (Source: PIN B-DFN-2019-N)

"Forestry is very inconsiderate. Taking that willow as an example, there isn't a thing in there so why go and knock it down if they can't use it. If they leave it standing, there is lot of medicines in there that we use. It also provides good forage and shelter for the animals. One time we went up on the 300 Road south of the Sulphur Lake turn off. We met a guy out in the bush that came all the way from Lumby to pick Diamond Willow fungus in the area. I told him about a really good willow stand that we used. We walked a mile and a half only to find that they had moved my precious diamond willow stand down. It was flatter than a pancake! It was patch of about 300 hundred by three hundred feet". (Source: PIN A-DFN-2019-N)

(Referring to a former productive hunting location in the Chinook Valley that had been logged by a forestry company) "That was a favourite spot for a lot of people here at the Nation. The Yellow House was maybe ten miles from the reserve"... That would have been back when my dad was still alive. It was probably 1994 or 1995 that last time I went up there with my dad. Even on that day, we counted six moose. One time when I was about fifteen, we ran into XXXXXXXX from Horse Lake that time and we saw close to twenty-seven or twenty-eight moose. There is forest on both sides of the lick with trails. The moose had everything they needed there... There is some growth that came back but now with the cut that was done there, more people started to move up there and taking the land. It's not the honey pot that used to be". (Source: PIN C-DFN-2019-N)

"There are a lot of areas back there you can from the hill behind the reserve and you can see for miles and you can see the huge amount of logging that's taken place...If you go straight north of Whitelaw,

that's a bad area. There were moose licks at the bottom of the hills and now the moose licks are sticking out there like sore thumbs". (Source: PIN A-DFN-2019-N)

"You know that old Anderson Road that used go north to the Deer Hills – you don't see anything anymore up that way. You will see the odd moose move across the road but it's not anywhere close to what it used to be because of the amount of logging". (Source: PIN C-DFN-2019-N)

"It seems like such a small thing. Why can't they put signs up to say that they have sprayed an area. Sometime we'll will pass medicine area and you can smell it and you don't touch those areas or areas nearby... There are certain plants that are brown and they should not be brown. I often wonder when we walk into the bush, have we walked in far enough... we try to avoid those areas. But if we have to go a long long way, we'll try to go further into the trees and into the muskeg to avoid the sprayed areas... We also think about the wind recently and whether it's drifted. There are a lot of ifs." (Source: PIN B-DFN-2019-N)

"If it's an area that is naturally burned by fire, I find good regrowth. We say that's mother nature's way of take care of stuff, bringing it back and rejuvenating it. Everything comes back in a natural way. With the Clear Hills fire, I cut line in there and there some standing old trees from that fire and when you hit it in 28 degrees below, those trees shatter like shrapnel. A good wind storm will take care of those widow-makers. There seems to be both good and bad that comes with it but it seems that a lot more green and a lot more growth that comes back from a fire than forestry... When there is fire, things have a chance to come back to life". (Source: PIN C-DFN-2019-N)

"One area that comes to mind is where they build the Boundary Pipeline. That area is heavily populated with gas wells and cutblocks. There are a lot of cutblocks in the Clear Hills. Canfor logged all the spruce out of the Hines Creek area"... Yes, trees are growing back, but it takes a long time for things to come back. A lot of the forest is not going to come back before my time. We'll be lucky if my son sees these forests come back half way through his life time. But then forestry will come back and say they are good to go again, the trees are mature and they go back in and harvest it again". (Source: PIN C-DFN-2019-N)

Observations on Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising from Oil and Gas Development and Existing Pipeline Infrastructure

"The ability to camp out there is very important. I love camping. Not only do you make better use of your time and save on fuel but it's just part of the way we've always lived our life. I'm showing my kids how to live that way and they really love going and being out there too. It's really important that we have places to go to set up camp areas that aren't overrun by oil and gas, roads and forestry... You don't want and can't really spend time in camp when you hear machinery and have machines and trucks and compressors running all the time. You can if you really need to but you don't want to. You want to be some distance from plants, well pads because of the bad odors and air that comes from those kinds of facilities. I try to camp upwind from larger oil and gas plants and fields but it's tough because there is so much of it out there". (Source: PIN 001-DFN-2018)

"I have been through a lot of our lands all through north-western Alberta and over into BC. Because I was out there so much when I was young, over the years and to today, I can tell you for certain that there has been a huge increase in the amount of oil and gas activity". (Source: PIN 001-DFN-2018)

"One issue I am very concerned about for my family and our community members that spend time

out in these areas, is the high risk of H2S. There is so much drilling and so many operating wells, it's a wonder that more people have not been injured or killed by H2S in these areas...I basically tend to try and stay clear of those areas where you see the signs and warnings about H2S. Sometimes you just get into those areas, but once I know where they are, I usually don't go back. I certainly don't want take my kids hunting in those areas". (Source: PIN 001-DFN-2018)

"There is another issue that is forcing some of our elders out of the bush. It's the sheer amount of oil and gas and forestry truck traffic. In certain gas fields, they got so busy that it is dangerous. I take a radio with me but even with that, there is so much traffic that it's a safety issue where activity really picks up in a gas field. My uncle XXXXX and some of the other elders of his generation told me that they were scared to go into some of the old hunting areas because they just feel they've were forced out due the crazy amount of traffic". (Source: PIN 001-DFN-2018)

"The situation is made that worse by the amount of dust that gets kicked up from the roads. In so many cases visibility is brought down to tens of metres and you can very suddenly come up on a narrow bridge over a creek or river and it's too late. With our radios, we can hear the drivers and get a sense of where they are, but we can't communicate with them. Every road has its own radio frequency and if you don't know what they are you can get into a tough spot. Most of the folks in the community don't have the money for radios for their trucks. It's very dangerous and I can see why some of our people just feel they can't go into their old hunting areas, due to the traffic, dust and road safety issue. When I go out with elders today, the usually let me drive because of this. The areas between the Wapiti and the Little Smoky and areas west of Fox Creek are like this now and I can see why less of our people now spend less time in these areas, just out of the safety issue alone". (Source: PIN 001-DFN-2018)

"I've seen this area decline in value as a hunting area. I don't expect the land and area to be as good as when I was kid – things change. But when they started to hit that area hard west of Fox Creek and south of the Wapiti, I could see the change happen and happen fast. First, there was more seismic. Then more wells and roads. Then more pipelines. Then roadways are made wider and so are the pipeline right of ways". (Source: PIN 001-DFN-2018)

"I was taught that you let an area rest and recover so enough animals are left and you move to another area. That's what I was shown and taught by my uncles. When the companies widen access roads and pipelines, it just makes it easier for people to get deeper into the bush with quads and jacked up trucks". (Source: PIN 001-DFN-2018)

"The pipelines and seismic lines have now become and are used by many as hunting highways. In addition to the access roads, it's just too much for the animals to handle and their numbers drop. The other issue is that with so much ATV and 4X4 trucks going down the pipelines, 2-D and 3-D seismic lines, they keep the line open and prevent the bush from coming back. Some of those lines that have been around for two or three decades should have grown in but they don't with everyone using them. That's what we've seen through our territory in so many parts and that's what's going on between the Smoky and Wapiti Rivers". (Source: PIN 001-DFN-2018)

"The other issue that makes it easier for hunters is line of site. ATV and truck hunters will cruise up and down the lines and where they intersect with other lines, the hunters look down and if they see an animal they have got an easy shot at it. The animals don't really stand much of a chance. The

other issue is that these lines allow wolves to move faster and run-down moose, caribou and elk. I've observed a lot of wolf tracks on seismic lines, pipelines and along the side of oil and gas access roads. I've also seen evidence of kills along the pipelines and seismic lines. I'm not sure if there are more wolves then there used to be when I was young, but they've got a leg up with the oil and gas companies creating all these lines for them to use". (Source: PIN 001-DFN-2018)

"When oil and gas companies come into an area, it starts with cutlines and exploration. But then, over time you see the bush gets more cut up and broken down with more lines, roads and wells. Then once there is more of that, you then get plants and the bigger pipelines, then you see the cycle continue again. It changes the area". (Source: PIN 101-DFN-2018)

"It has changed the areas that I knew and grew up with and not for the better. I use roads to get around. The bear will use a cutline rather than forcing it's way through the bush if there is a cut line or a pipeline available. So, will the wolves. If there is any easy way to move faster, cover more ground and take down prey, the wolves will use the paths created by the companies. Humans do the same. And what I see with forestry and oil and gas, is that they have carved up the lands and made it easier for predators to find and take down prey". (Source: PIN 101-DFN-2018)

"I know animals and I have come to learn how they think. I was brought up this way and so were others. If you are a caribou, a moose or an elk, you see and learn over your short lifetime. You will decide that things are less safe unsafe in the noisy, busy and dangerous areas of the bush. You will go to areas that have more of what you need like water, food, cover to be concealed, a break from the wind and cold and places where you can move. So, on top of being hunted out, the animals have learned that its safer to go to areas that don't have lots of well sites, seismic lines, roads, tie-ins, pipelines, compressors, pump stations, plants, traffic and people. It's not to say that you won't find animals in these places, but you find a whole lot less of them. And because of that, you won't find me or any other hunter worth their salt in these places today as you are wasting your time". (Source: PIN 101-DFN-2018)

"There are some places that I used to hunt that have been so overrun by industry, that I have just given up in trying to hunt in them. You don't see the tracks that you used to, which tells me that it's not really worth spending time in an area. Some areas have so many roads, traffic, plants, people. They are noisy and smelly. I know that you have got to deal with some change and live with it, but many areas are now like this, and it breaks your heart and you just don't want to be there anymore and there is little point given the drop in animals in these places". (Source: PIN 101-DFN-2018)

"I think oil and gas takes out the habitat the animals need. With oil and gas, they don't even regrow areas – the well sites, pipelines, roads and seismic stay around and open for years at a time. They don't impact as much area as the forest companies do, but wells, roads, pipelines and plants are there for a long time. So, you lose the forage and place to hunt over a longer term than forested areas". (Source: PIN 110-DFN-2018)

"One of things that has changed the way I do things in the bush is the smell of the oil and gas industry in the fields or downwind of the fields. You can get used to the smell over time but it's not pleasant and its worrying. I don't want to spend much time in oil and gas field because of the noise, traffic, people but mostly because of the awful smell. Even though oil and gas comes from under the ground and in some way its natural, what we do it by burning it is not natural. If I had trapline and cabin, I wouldn't want to spend much time as I think being around that stuff over time could make

you sick". (Source: PIN 110-DFN-2018)

"I also avoid fishing in creeks and rivers around in the oil and gas fields. You see oil sheens on the water here and there and that says "no-fishing" to me. I also have basically stopped gathering plants and berries in and downwind of the oil and gas fields. There is dust from the roads that settles on the plants. Also, if you can smell those chemicals in the air, it means something is being released into the air and settles out in the local bush. I don't know if it's toxic. I wish I knew, but when I'm out there I'll go the to places where there isn't oil and gas to fish and harvest berries and plants that I want and need". (Source: PIN 110-DFN-2018)

"In addition to hunting bans along the roads, it's difficult to get around unless you really know how to navigate the oil and gas access and lease roads. Many of them are shut down, are blocked off and locked with gates and you can't access one side of our territory to another easily. Further, it's not necessarily very safe to be on these roads once oil and gas activity starts spiking up in the fall and early winter. There can be a lot of traffic, heavy trucks that move fast. This is the case in the lands and oil fields now west of Fox Creek. I hear that some elders have stopped hunting in this area due to this issue and other issues that arise from a concentration of oil and gas activity". (Source: PIN 600-DFN-2018)

"I tend to stay away from any roads in the summer for berry picking, The berries are covered for dust for a good 100 meters or more from access roads. You just don't want to pick them up and I hear the same thing from a fair number of older people from the community. They say you need to go somewhere clean to go gather berries and medicine plants". (Source: PIN 601-DFN-2018)

"I think there is too much sediment going into the creeks. There are some watersheds that are clearer and better for fishing than others. I can't tell why this is so, but some areas have creeks and rivers that run pretty much all year – a muddy, dark color. There are other areas where the creeks and rivers are much clearer and better for fishing. I can't tell you why there is a difference from one area to the next". (Source: PIN 601-DFN-2018)

"Some fields are really heavily developed and getting more developed over time. You can find animals in the oil and gas fields but overall, I don't find many find animals in these areas and don't have much success in hunting. It's better to spend time looking for animals and hunting in areas away from the heavily developed oil and as fields. Like forestry, I don't know what causes this, It could be several things like the noise, smell, traffic and the amount of wolves and humans that can now move around the bush and hunt easier. If it's happened to the caribou, it can also happen with moose and elk". (Source: PIN 601-DFN-2018)

"In terms of fishing, I try to stay upstream of oil and gas fields as I don't think that the waters are totally clean coming out of the oil and gas fields. You'll seen a sheen on the river that is not natural. How that gets in there I don't know. I know that some goes in naturally as its always been there, but with the amount of earth moving and activity, it must elevate the amount of oil and gas liquids leaching into the rivers. I've seen it and that's why I try to fish above areas with lots of oil and gas development rather than below it or in lakes and bodies of water that are more isolated". (Source: PIN 601-DFN-2018)

"When I've been out in the bush with my and dad, we've come across and gone through oil and gas fields. You can hunt and access these areas, but the dust, noise, smell and amount of people and

vehicles is disturbing to me and my Dad tends not find animals in these areas. I've never really seen anything hunted and killed in the big oil and gas fields so that tells me there is an issue and it backs up what my and dad has told me – that you might as well go somewhere else, as you're not going to find a moose or elk anytime soon is these big fields". (Source: PIN 603-DFN-2018)

"I have heard my dad talk about where he thinks you can find animals and where you can't. He has taught me that he thinks that industrial noise like noise from wells being drilled, or pipeline compressors or cats clearing roads, wells and pipeline sites scare animals like caribou, moose and elk off. So, when I've been out in the bush with my dad, I see him stay clear of areas where there is a lot of industry activity as he thinks it will be harder to find wildlife and find something you want to shoot". (Source: PIN 603-DFN-2018)

"The situation seems pretty crazy in a lot of the lands and between the Wapiti and the Little Smoky. The companies built roads, wells and plants over the habitat of animals and the places where we hunt, then they fence off and close down roads here and there, so it makes it confusing and difficult to get around. Also, it seems like we aren't allowed to hunt around wells, compressors and plants so there are a lot of places we can't use to hunt". (Source: PIN 603-DFN-2018)

"The old trails and small access points we used get turned into highways that are choked with trucks, equipment and people. It's dangerous to actually even try to go in some of the gas fields around Duncan's now. All over there are gates and signs saying "do not hunt". There are warnings about H2S. It smells. There are the open sumps that have drilling muds pumped into them. It's noisy. You see oil slicks in the creeks and rivers. There are roads running off in every direction... When a place goes this way, XXXX and I just basically stop going there. There is dust way back in the bush and you don't want to gather anything near roads. First you can't find animals and it's too hard to hunt them with all this going on. And it breaks my heart — who in their right mind would want to be in these places". (Source: PIN 605-DFN-2018)

"The areas between the Wapiti and the Little Smoky rivers are not good. As I said, if you stay in tight to some of the rivers and creeks, because the forestry and oil and companies have to stay back, it's not that bad in some of the areas. But the others have been overrun badly and there is hardly any point to trying to hunt through some of the gas fields west of Fox Creek". (Source: PIN 605-DFN-2018)

"The lands south of the town of Wapiti and around the Two Lakes Cut Across Roads, the Mountain Tower Road and the Weyehauser Haul Road are very bad. You can hear the hum of pipeline compressors going non-stop in these areas. The areas north and south of Cutbank are very bad with lots of forestry cutblocks, roads and well sites and pipelines. It's bad". (Source: PIN605-DFN-2018)

"The area between the Cutbank and the Kakwa is not good either. There is also an area between the Forestry Trunk Road and Crooked Lake and the Forestry Trunk Road over to Snuff Mountain that's in pretty bad shape. A lot of oil and gas activity. You can hear it, smell it, see it and its not good. I as a human with some choice don't want to be there. Animals will also choose and they will go somewhere else to get out of these places and that's part of the reason of why we don't find many animals and it hard to successfully hunt so we go to places where we have a better chance". (Source: PIN 605-DFN-2018)

"The quality that land once had is not there anymore and I won't see the quality of the land return in

my life or my children's lifetime. Because the life line for these pipelines, seismic lines, agriculture any human foot print is long term and has decreased it from a cultural and usable standpoint where it's clean and clear and what we need as a people". (Source: PIN E-DFN-2019-N)

"Any human built feature is going to take away from that land. So whatever plant or habitat where that road is, it won't be there because of the constant travel and compaction. Even after reclamation, it's going to take a long time before its values return. Yes we use things, but we aren't out there every day on the lease roads and pipelines". (Source: PIN E-DFN-2019-N)

"The majority of the time we can't use (Referring to oil and gas lease and access roads) them because they are blocked off. They are either radio controlled or access is blocked or there are no trespassing signs. It's very frustrating. In the winter time, these roads aren't plowed. We aren't supposed to be there and it hard for us to get to where need to be". (Source: PIN E-DFN-2019-N)

(Referring to access created by oil and gas companies) "the animals are depleting...Because of the road traffic...It's the ease of access. There are hunters, semis, dust, contamination. The ease of access is too much and it makes it too easy to kill things from the road... It opens up the land so much. The habitat may be awesome but the availability (of the moose) is not there".(Source: PIN E-DFN-2019-N)

(Referring to reclaimed oil and gas sites) "that when they reclaim these areas, they don't put the natural seeds and native grasses back. They just use a grass mixture of something else". (Source: PIN C-DFN-2019-N)

Observations Constraints on Right to Hunt Large Game and Undertake Associated Cultural Practices Arising From Multiple Forms of Development

"I need to go to different places in our hunting grounds as you can't find animals in all times parts of our territory. Animals will naturally move around but over the past twenty-five years or so, they appear to be on the move more which may have something to with the amount of oil and gas, forest cutting, roads and people now coming into a lot of the areas". (Source: PIN 001-DFN-2018)

"There is another area that I have hunted in recently between the Wapiti Rivers and Little Smoky Rivers. It basically runs south of the Cutbank River and west to the good areas in and around Bearhole Lake Park. I hunt both sides east and west of Highway #52 or the Heritage Highway. I don't see much in the way of moose or elk in this area now. That area is pretty much done in now and it's going to take a long time for moose to want to come back in there". (Source: PIN 001-DFN-2018)

"So much has changed in the bush since I was younger. The large amount of development has changed how wildlife use the land and where you tend to find them. My uncle XXXXXX and other uncles knew how to find animals based on what they were taught by their elders and what they came to know over time. They passed that knowledge on to me, but that knowledge doesn't seem to help us as much anymore given the industry activity which I think changing animals natural instincts, migration patterns and movements and it forces them to be on the move a lot of the time". (Source: PIN 001-DFN-2018)

"Moose, elk and other animals need water, safe places to travel, good connected corridors between good habitat areas, they need deep areas of bush, places they can over-winter in to keep warm and

places where they can the forage for the food they like and need". (Source: PIN 001-DFN-2018)

"So, when I think about going out to hunt, plan my hunt and go about hunting I also have to think about these things so you can better anticipate where you have a good chance of finding what you are looking for. So, wildlife like moose and elk can still be found in areas that have these things but they are also being pushed and shift their movements by what's going in the bush like construction, forestry, gas plants, traffic, hunters and wolves. So I try to think about these things too and get a read of things when I'm out there, but industry is pretty hard to predict. So in my way of thinking, I make an educated guess and stay clear of areas that have lots of cuts in the bush, roads and human activity". (Source: PIN 001-DFN-2018)

"So, when I now think about the lands and hunting grounds in this area now, in my mind. there are some areas that have been really overrun with oil and gas, forestry and roads and some areas that have not been overrun as much. There's no hard and fast rule, but where there's lots of cut lines, pipelines and roads, there is a lot of access in place and once you have too much of it, I find that it's harder to find animals in those areas. You tend to find more moose and elk in the areas that have less roads and less predators around. By predators I mean both human and animal". (Source: PIN 001-DFN-2018)

"There is just more and more lines and roads, wider lines and roads, more activity, predators, noise, dust and danger. I still hunt, fish, camp in these areas but it takes a lot of time to actually find an animal that you can take down. It makes more sense to try and find other areas that are less busy and not so impacted. Eventually in some areas, you just have to walk away from them and know, I won't be going back there in my life time as there is no point". (Source: PIN 001-DFN-2018)

"Like other hunters, I use the seismic lines, pipeline rights-of-way and cutlines to help me get to where I want to be in the bush. I'm not like a lot of non-native hunters that just cruise up and down waiting to spot a moose or elk and take it down. The problem is that there is just so much access roads, seismic lines and pipelines that just too many hunters take advantage of them and hunt an area out faster than it can it can recover". (Source: PIN 001-DFN-2018)

"I see evidence of a lot of large hunting parties that come into the areas that we've traditionally hunted. You know that, because they are usually guide outfitters that use an area they are assigned to and they come back to the same camps year after year. They can take a lot of animals in one season". (Source: PIN 001-DFN-2018)

"I think noise does play a role in pushing animals out of an area or that forces animals be on the move more than they should be. That happens when they build things like plants, well pads and pipelines. There is a lot of noise and a lot of activity and you just don't find moose and elk in these areas for some time. I think some moose and elk will avoid an area where there is lot activity and noise. Not all moose and elk are the same, just like humans. Some don't like noise and activity and will go somewhere where its quieter and that they think is safer for them. Some moose and elk, seem to be able to tolerate the noise, but not all". (Source: PIN 001-DFN-2018)

"Like the animals, I like to go to places that aren't so busy, that are quieter, that aren't so cut apart and overrun with oil and gas and forestry roads and activity. It's very hard to find these types of areas now. There are less and less of these quieter areas the older I get. There are some areas that are still not too bad down between the Wapiti and Little Smoky Rivers but they are few and it's

getting harder and harder to find these kinds of places. It's better to hunt in quieter and less busy places and you have more success in less time than with areas that have overrun and overhunted. There is noise from the oil and gas fields and then there are the smells. You don't want to be in these areas where there are so many wells and processing facilities. It's not just unpleasant to smell, it really makes you feel sick and there is no getting used to it". (Source: PIN 001-DFN-2018)

"Overall, I have seen the numbers of moose drop over my life time. There are less moose out on the land than when I first started to hunt as a boy and young man. I don't think they've just gone somewhere else or I just can't find them. They have dropped and it takes me more time and I have to cover lots more ground and go more places to have success. It used to be easier". (Source: PIN001-DFN-2018)

"So, I think it's fair to say that when I was growing up, families were able to take care of their needs because there was so much wildlife in the bush, fish in the rivers, berries in the bush and food in the ground. It's not like that these days for several reasons. One of the reason's is that there is a lot less fish, wildlife and berries to be had now because of all the changes that have happened in the bush. Even though we have more things now materially. I'd say in many ways were better off then". (Source: PIN 101-DFN-2018)

"Today, things have changed in many ways but in many ways they haven't. We don't use horse teams and we stay on the land for less time than we once used to. Our diets have changed as we have more store-bought food now. But it's interesting, in that we now travel out more distant areas out in our territory, because of the low numbers of animals that are out there now". (Source: PIN 101-DFN-2018)

"I would very much like to be able to hunt caribou as the old timers did. I've heard that it was good tasting. However, I don't think I'll ever have a chance to as they have almost disappeared from across our territory and down in the lands between the Wapiti and the Little Smoky Rivers. Over my life I learned where they are and have seen them in this area, but I haven't seen them in the areas south of the Wapiti for a very long time". (Source: PIN 101-DFN-2018)

"I'd say, we've been run off most of the farmed lands but some of us will still hunt as we need to. It's very expensive for myself and our other hunters to always have to drive two – three hours from the community, then start hunting, but that's what we pretty much have to do now. You burn through a lot of gas. I'm okay to do this, but I know it's a struggle for some families to pay for that much gas, and not bring home any meat at the end of a hunt". (Source: PIN 101-DFN-2018)

"Over my life time, I've seen moose leave or shift out of areas where they used to be. Moose moved around and sometimes there are more and less across the land. But what has happened isn't natural. It wasn't part of the natural pattern that I learned about and saw over my life. Something happened quickly that wasn't natural". (Source: PIN 101-DFN-2018)

"The moose have left or are gone from the Clear Hills. They are gone or have left the Hawk Hills. They are now almost gone or are leaving the Saddle Hills. The Silver Valley is in trouble now too. The areas north of Cardinal Lake and south of Cadotte are in trouble. I have also seen the numbers of moose drop badly in the areas that I hunted in around Grande Cache and out along the Berland, Little Smoky and Simonette river areas". (Source: PIN 101-DFN-2018)

"I can't say how its related but it seems that where the companies log a lot and build lots of lease sites, pipeline and punch roads in, the numbers of moose and other animals seem to drop. Back in the day, I once knew where I could successfully hunt and roughly how long it would take me to find something. Even though I'm skilled in the bush, I don't have that kind of certainty anymore. And if I'm having a difficult time, I know that others are having a tougher time". (Source: PIN 101-DFN-2018)

"There is also too much hunting going on top of all of the industry activity. We used to prefer to hunt from July to September, but so much tag hunting goes on in the fall, we've had to change our hunting times. I find that I now have to go out earlier before the big hunting time happens in the Peace and then after the main hunt by non-native hunting is done. The old timers used to say that when you see the "Tiger-Lilies" come into the bush, it's time to start hunting". (Source: PIN 101-DFN-2018)

"I was taught to be selective when I hunted moose. My elders taught me what animals you can shoot and when. Even if I needed to bring meat home for the family, I wouldn't shoot a cow with a calf or a cow by itself. We do our best to pass our knowledge and good practices on to the younger hunters coming up at Duncan's". (Source: PIN 101-DFN-2018)

"It seems we now get more drier and hotter summers and less snow than we used to when I was young. So, I guess it has to do with our planet warming up. But I think it might also have to do with amount of forest and wetlands we've lost along the Peace. Water in creeks, rivers and streams seem to be clearer, cooler and deeper where you've got a lot of good forest and wetlands still. There are some areas like this still. I think its really important not to lose wetlands as they keep water in area which fish, wildlife, plants, trees, ducks, geese and we need". (Source: PIN 110-DFN-2018)

"I think the forest companies, along with the oil companies spook animals with activity and noise. I think that this impacts the animals and my ability to successful hunt them. A lot of animals are killed because they now seem to always be on the move almost all the time. Moose always did move around but they found a place and moved within that. Moose used to move more carefully like they were playing chess. They thought about when, where and how they moved...Now, you seem them running and being spooked. It seems that they do this where there is equipment working, industry noise, traffic, smells, people and hunters. When they are forced to move and are on the run because they are spooked, I think they are forced to make mistakes that they normally wouldn't make and it makes them easier for hunters to site and take down. I might be wrong on this, but it does make sense to me in how I see the moose move around the bush today compared to how they used to move around and how we used to see them behave". (Source: PIN 110-DFN-2018)

"In the lands between the Wapiti and the Little Smoky, there has been a lot of lands logged. Not all areas have been logged but a lot of it has. There are big cutblocks now in areas that I have hunted. They do grow back over a long period of time but not quickly. I have seen moose feeding in cut blocks and they do move to the areas where new growth is coming in the blocks. That's on the plus side, but you also have to look at the access they create for all hunters. I think the road access has had the biggest impact on the amount of wildlife available. They can do some things to block trucks from getting into some areas, but they can't stop ATV's which just about everyone has now". (Source: PIN 110-DFN-2018)

"So, I think we need to look at the cuts, lines and roads that the forestry and oil and gas companies have built and how that has played a big part in altering the natural balance out there in the bush. My hope is that the companies and government can come together with the First Nations and Duncan's and come up with a rescue plan to bring about a balance again. It's needed. As I've said, we've just about lost the caribou down in the Smoky River area and from what I see, the moose aren't that far behind given how hard it is to find them compared to what it used to be like". (Source: PIN 110-DFN-2018)

"Oil and gas activity is happening everywhere all through our territory. They are now pretty much everywhere and into the areas I hunted when I was younger. Because of all the farming around Duncan's, when I was younger, I had to travel about 45 minutes to an hour the north, west, south and east to start hunting. And within half a day and a bit of luck, you were pretty assured of coming back with a moose to feed the family. I'd say in the last ten to twenty years, I now find myself having to drive at least two – three hours away to start hunting. You then have to work at for two or three days in an area to succeed". (Source: PIN 110-DFN-2018)

"That's a lot of time, effort and gas compared to what we had to do. Even after doing that, I'd say you've got more than a fifty percent chance of not finding anything or finding a moose that you can take down. I just won't take down a cow moose or a cow moose with a calf – that's not right. So, the difference seems to be, is that we are now having to hunt more and more in developed oil and gas fields and have to travel further and spend more time. I just can't seem to be able to get the results that I used to. It's much harder now". (Source: PIN 110-DFN-2018)

"On top of all the changes in the bush that got going due to the oil and gas roads and forestry roads, is that there are too many hunters using the roads that the oil and gas companies built. There aren't really any areas in our territory that provide refuges to animals. They have got a no – hunting zone set up along the DMI road that goes up from three creeks up the east side of the Peace River. That's good that's there but what they need are really large areas to allow the caribou and moose populations to rest and recover. But as it is now, there's just too much industry activity and hunting going on everywhere". (Source: PIN 110-DFN-2018)

"With the roads and traffic in the oil and gas fields, you see a lot of road kill. I would say that you see more road kill in the fields that you do along the main highways. Time is money in the bush as they say and the oil field trucks and service vehicles fly down those roads. I believe that there are more animals killed in collisions than are killed by hunters. I might be wrong to say this, but I see the amount of road kill out there and it's a lot. The forestry trucks also play a roll. Even though they are monitored for speed, they have to keep moving to keep down their costs and animals are hit. Over a number of years, it stacks up and I think it's one of the causes of why you find less moose and elk out there now". (Source: PIN 110-DFN-2018)

"There are lot of areas that have farming, forestry, roads, oil and gas and pasture through our country. I seem to have the hardest time being on the land and getting anything done on the land where you have all these things coming together or in one place". (Source: PIN 110-DFN-2018)

"One area is Shell oil sands area just over the Peace River where they have got different kinds of oil production happening, farmlands and forestry. This kind of situation runs from the north in Cadotte Lake area, south through the Heart River and then south out the Harmon valley towards Nampa. This used to be an area that we could go to and rely on. I remember that the area was good. It's not very good now. We still try in there, but the animals seem to have left the bush there and it's pretty

hard to hunt there. It's also not pleasant to be down there". (Source: PIN 110-DFN-2018)

"The Chinchaga valley isn't that good anymore either. So much development has happened west of Hotchkiss and Manning. There are farms around the Peace River valley and above, then you get out into areas that have been forested and where the gas fields are. It used to be a good area for caribou. I'd say this area is now worse for finding animals". (Source: PIN 110-DFN-2018)

"Things aren't very good out around our Clear Hills reserve area and the areas around Clear Prairie, Worsley and Hines Creek. Again, you've got forestry, oil and gas, farming and lots of roads all in the same basic area and the situation is not good there. It's hard to find animals and its harder to hunt because of how the land is closed off to us, cut up and how busy it is". (Source: PIN 110-DFN-2018)

"There are areas down south of the Wapiti River and north of the Little Smoky River that are in pretty decent shape which is why we go down there still, but other areas down there have been and are being overrun by forestry and oil and gas and are in very bad shape now". (Source: PIN 110-DFN-2018)

"When we talk about hunting, why and how we hunt, it is important to understand that we hunt for several reasons. It's hard to separate these out and speak about them separately. We hunt to feed our families but we also hunt because of a deep cultural and spiritual need and spiritual obligations that have to be honoured. We are related to our animal relations and in a sense, we take care of them as they take care of us. So, when we talk about what it means when we experience a loss of the ability and opportunity to hunt, we are talking about something that impacts our people and families at a very deep and important level". (Source: PIN 600-DFN-2018)

"What I find most concerning, is where you have a lot of forestry, oil and gas and energy infrastructure and roads occurring together. There is so much activity going so I can see what my uncle is taking about. This stands in contrast to the areas that haven't been so disturbed and impacted. I know what areas I need and want to be in – and that agrees with where animals, fish and plants want and need to be in. This isn't just being fussy – nature needs a break and space to do what it needs to do and so do we as Cree people". (Source: PIN 600-DFN-2018)

"I continue to participate in and support our cultural ceremonies and customs by going out on the land to gather and harvest the things needed in with certain ceremonies. Generally, when I go out for this purpose, I seek out a clean, undisturbed place to ensure the health and strength of healing properties that come with the specific plants, fish and animals obtained and brought to the ceremonies...So, hunting and fishing is important to provide for our families but it's really important to us to be out on the land. To be a Cree person, I've got to be able to be on the land and I need areas to be left untouched or that have more limited levels of development". (Source: PIN 600-DFN-2018)

"Amazing progress happens when young people ask and want to learn about our traditional ways. So, our cultural ways are still alive but it depends on the Duncan's First Nations' families being able to have some places that either pristine or less disturbed. When you can find those few areas that are still out there, it is so peaceful, helpful and healing. As humans we need these areas to

sustain the ecology and keep things in balance that all humans depend on. For our people, it's a matter of cultural survival". (Source: PIN 600-DFN-2018)

"I spend a lot of time in the bush and going all over our territory and I see the sheer amount of soil and sediments running off the roads into ditches, through culverts. It doesn't stop, in heavy rainy times and after the snow melts, all this stuff runs into the water body down from it, then onto the next. I'm not sure what can be done about this. The roads they build are pretty good but when they are built out of gravel and dirt, it's going to happen. Maybe they could do more to capture and strain some of that sediment out but that would require a ton of work and money to fix that problem". (Source: PIN 601-DFN-2018)

"I've helped my family when they were hunting south of the Wapiti and the Pipestone Creek area. We've tried a lot in this area but have not been successful. It just seems that there are way too many cutblocks, well sites, pipelines and roads. My mum and my dad have taught me to listen to the sounds of big animals moving through the bush. You can hear them when it's not too windy. But, out in this area you can't find wildlife in the way that my dad taught me because of all the sound of machinery and traffic on the roads. This area isn't as bad as other areas my dad has taken me out to, but it was hard to find animals here. I'm not sure I'd ever come back here as I think it's going downhill with too many pipelines, well sites, roads, forestry, traffic and noise. It seems that the situation gets worse the further east you go towards Highway #40. (Source: PIN 603-DFN-2018)

"There isn't too much farm land between the Wapiti and Smoky River, so it doesn't seem to create a big problem for us. But the closer you get to Grande Prairie, the worse it gets. The south side of the Wapiti River isn't too bad for hunting and being able to get around. The north side of the Wapiti has a lot of farms so it's not very good for us". (Source: PIN 603-DFN-2018)

"The rivers and creeks that I've fished in down south of the Wapiti seem to be in better shape. The water is cooler and more clear. From what I've seen, there is better water quality for fish and more fish to be caught compared to the rivers and creeks near the Duncan's reserve". (Source: PIN 603-DFN-2018)

"I go with my family to hunt moose, because we need to eat and want to eat moose and other animals. But along with that, it's something that makes me feel good, right and at home. It's really important to me and makes me feel connected". (Source: PIN 603-DFN-2018)

"We used to go east of the Peace River and spend time hunting around Cadotte and Carmon Lake, Lubicon Lake and down to Seal Lake. Another area that's been hit hard is the area between Pouce Coupe and Tom's Lake in BC, eastwards over to Spirit River and Rycroft. The areas north and south of the "Chin Road" are getting worse with the gas work expanding". (Source: PIN 605-DFN-2018)

"Over the years, I've spoken with a lot of the elders, the older hunters and some of the younger hunters from Duncan's and elders from other native communities. Everyone seems to be seeing what I've seen and we all agree that things are getting worse in the bush where you've got a lot of activity happening. I'm not sure what it is specifically that's causing the problem. There are just roads and people everywhere where they didn't used to be. I think the places that we always used to go and be able to rely on have been hunted out and it's hard for the caribou, moose, elk and other animals to get a rest or a break". (Source: PIN 605-DFN-2018)

"I never ate caribou in my life but I know my family and other families did. I don't think they should be allowed to put anymore pipelines, roads or drill for oil and gas or cut trees in the home of the caribou. We cannot let that species die out. They deserve a chance to live and regrow again in our lands. I'd also like to see my grandchildren be able to rely on them again as our ancestors once did. If we let the caribou die just to allow the oil companies and forestry companies keep making money, the same will happen to moose and other animals. We just need to protect those areas and we need some areas for just native people to go to practice their culture and be who they are on the land". (Source: PIN 605-DFN-2018)

"Our culture is not something that existed in the past and is dying out. I think the oil companies and governments like to hear this story – about the way things used to be. Our way of life has changed and its harder to do the things we used to do on our traditional lands but I, XXXX, other elders and DFN hunters and fishers and harvesters are out there. Our families shop in stores but they still depend on the land as things are so expensive in the stores up here in the Peace. We still go out into our lands, as that's what we have always done and want to do. People and families that spend time on the land have a good life and a healthier life. I see the elders at DFN teaching younger people and taking them out in the bush. Our culture continues to be taught and passed on. Our knowledge is being passed on and learned. But we cannot pass this on, if every square inch of traditional lands are turned plowed under for farming, cut by oil and gas fields, logged or made accessible by never ending roads. We need to put a halt on all this activity in some places, change the way we do things in the bush and begin to help the land, forests, waters, animals and fish recover and regrow".

(Source: PIN 605-DFN-2018)

"I would say that more moose are being killed by vehicles than are being killed by legal hunters...It's terrible now. It not uncommon to see an animal killed along the highway between here and Grande Prairie – one, two or three killed a week". (Source: PIN A-DFN-2019-N)

"There has been an area that has been protected up in the Chinchaga for caribou that's been protected for ten years. They (industry) want to get back in there but that area is right on the migration trail so they should just leave it alone and let it go. I know that we can't stop industry but there are some things that we have to protect and need to keep otherwise we might as well live in a desert". (Source: PIN C-DFN-2019-N)

"The quality that land once had is not there anymore and I won't see the quality of the land return in my life or my children's lifetime. Because the lifeline for these pipelines, seismic lines, agriculture any human foot print is long term and has decreased it from a cultural and usable standpoint where it's clean and clear and what we need as a people". (Source: PIN E-DFN-2019-N)

"If you go back thirty years, the wind conditions were different than they are today. We have so much more wind in this area now and out in the forest. It's so hot here now because of that wind. They have removed our wind break with so much forest being taken down. The soil out there in that field has never been so dry. It once used to be a dark brown soil and now it's grey. There are a lot of things leading to this". (Source: PIN C-DFN-2019-N)

"Any human built feature is going to take away from that land. So whatever plant or habitat where that road is, it won't be there because of the constant travel and compaction. Even after reclamation, it's going to take a long time before its values return. Yes we use things, but we aren't out there every

day on the lease roads and pipelines".(Source: PIN E-DFN-2019-N)

"the animals are depleting...Because of the road traffic...It's the ease of access. There are hunters, semis, dust, contamination. The ease of access is too much and it makes it too easy to kill things from the road. Tim has spoken about this too. It opens up the land so much. The habitat may be awesome but the availability (of the moose) is not there".(Source: PIN E-DFN-2019-N)

(Referring to oil and gas activity) "It has had a gross impact on this area. You can't see it from the highway but when you do go back there and you travel those roads and trails, everywhere you look, if it isn't oil and gas, it's forestry".(Source: PIN C-DFN-2019-N)

"from this aspect this community is suffering as we are losing our rights. With that being taken away, what do we get besides a bit of money here and there to do studies about how these things impact us? ...They say you can still use that land, but the reality is that area is lost with all the signs saying "no trespass", "no hunting", don't do this and don't do that. And it doesn't matter what we say or do... We as native people always end up losing. We lose our land, we lose our culture, our way of life". (Source: PIN C-DFN-2019-N)

"When all you have left is memories, you can't buy that back... We've suffered enough as native people but as human beings to miss the understanding of what it means to live. It's really heart wrenching when you think of the ones that have left us, have gone to the other side and are having to deal with this from that end. It's frustrating to see when you are treated like nothing and like you don't mean anything. As native people we are proud and humble people and there are simple things in life that people forget. You can't teach it if it is not there and if its not's there, it doesn't come back". (Source: PIN C-DFN-2019-N)

"I know damn well my boy and girl will teach my grand-children children these things – but it's hard when so much land is lost. You can't turn back time – there is no time machine. It's very frustrating. We have...elders here with us that know this and they know that it's the simple teachings and when that's gone, it's gone. That's why this means so much to me and why I fight so hard with industry because I understand the meaning of that loss. And until industry starts to see that, recognize that and do something with that, it will be a constant battle".(Source: PIN C-DFN-2019-N)

"It's hard not to get emotional when we talk about these things. It's very hard not to because there are so many memories. All of our berry picking, the things were taught when travelling and the things we did as kids – it gets very upsetting when you look at that small chunk of land – it's just a piece of our territory and yet we have all these things going on all through that area... When they tell us that we have no site specific concerns, or there are no impacts, or ties to the land or what we have to say is too general – they are sadly mistaken. You have heard in the stories today, we used a large area (references maps). It doesn't mean we use it all every day but we use it. There are times when we use it and there are areas that we use for hunting or gathering our medicines... When a lot of this comes together, it's like a small piece of your heart. There are still bigger pieces of your heart. This is something small. When you look at the big picture of what's going on out there, it's like cancer. All those little wells, pipelines, roads, facilities – everything that's put into place all around us - agriculture, it's like a piece of us dies. It's something that we don't gain back. And when you look at that big picture, there is not much of that heart left and how are we supposed to survive with that. All people don't look at it the same way but sometime as the old saying goes – "walk a mile in someone's moccasins and you'll see". It's not easy being an Indian, it's tough". (Source: PIN C-DFN-2019-N)

"This is not just a twinning of a pipeline. This is our hospital, this is our school, this is our heart, this is who we are. The land is us and we are the land. There is no difference. It is our hospital, school and

teachings and it's land based. We have adapted, it's something First Nations people do really well but when there is nothing to adapt to... when you look at the map and look at the cumulative effects, it's not just another small pipeline. We have so little land left and so little of us is left... Our traditional land use area is our heart and it is us. That's what people making money off this land need to understand". (Source: PIN E-DFN-2019-N)

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4.0 DFN Community Observations, Perspectives and Rationale on Additional Constraints to Treaty Right to Hunt Large Game and Associated Cultural Practices Arising from the Projects

4.0 DFN Community Observations, Perspectives and Rationale on Additional Constraints to Treaty Right to Hunt Large Game and Associated Cultural Practices Arising from the Projects

In the preceding sections of this report, there are numerous observations made and concerns and issues raised by DFN community members that are directly relevant and applicable to the role of pipeline projects and corridors and their potential to result in direct, indirect and cumulative impacts on the DFN's Treaty right to hunt large game and culture. Directly relevant and applicable observations can be found in the preceding sections dealing with the impact of linear corridors, the density of linear corridors, noise, loss of vegetation, the impact of oil and gas facilities and operations, existing pipeline infrastructure and the impact of and density or access oil field roads.

Further to this, DFN members also contributed additional observations, perspectives and issues and concerns related to their experience with pipelines on the landscape and the proposed Projects. The following section 4.1 provides qualitative material from DFN community members related to the Projects and pipelines. The following section 4.2 considers the quantitative/mapped data resulting from community interviews that highlight the potential for the interface, consequences and risks posed by the Projects and the DFN exercise of rights and practice of culture. These matters will require;

- thorough weighing and consideration;
- demonstrable detailed analysis;
- rational substantive response, and
- subsequent deep consultation efforts and accommodation

through engagement with the proponent, regulatory review and subsequent Crown consultation.

4.1 Qualitative Information Collected to Date

The following information derived from DFN community members relates to their observations and experience with pipelines being present in the lands that they know and utilize and can be justifiably applied to the Projects in addition to issues, concerns and interests expressed directly in relation to the prospect of the newly proposed Projects:

"The quality that land once had is not there anymore and I won't see the quality of the land return in my life or my children's lifetime. Because the life line for these pipelines, seismic lines, agriculture any human foot print is long term and has decreased it from a cultural and usable standpoint where it's clean and clear and what we need as a people". (Source: PIN E-DFN-2019-N)

"One of the things we are missing is that in areas that we can go, it is impacted by forestry and oil and gas. All through that area, there are seismic lines, pipelines, power lines, facilities or something that's causing a disturbance and we are noticing that this activity is pushing the animals to the private sectors (private lands). It's like they know they are protected there". (Source: PIN C-DFN-2019-N)

"Any human built feature is going to take away from that land. So whatever plant or habitat where that road is, it won't be there because of the constant travel and compaction. Even after reclamation, it's going to take a long time before its values return..." (Source: PIN E-DFN-2019-N)

"the animals are depleting...It's the ease of access...The ease of access is too much and it makes it too easy to kill things from the road... It opens up the land so much. The habitat may be awesome but the availability (of the moose) is not there". (Source: PIN E-DFN-2019-N)

"Every time you go somewhere and if you plow an access road, anyone is going to use that vs. going through the forest as it's the path of least resistance. At the end of jobs, after a while you'll see evidence of wolf and predator tracks. Wolves will use those access trails and the easiest way". (Source: PIN C-DFN-2019-N)

"It has had a gross impact on this area. (Referring to oil and gas activity) You can't see it from the highway but when you do go back there and you travel those roads and trails, everywhere you look, if it isn't oil and gas, it's forestry". (Source: PIN C-DFN-2019-N)

"If they twin the pipeline, there is less damage". (Referring to the pipeline components of the Projects) (Source: PIN B-DFN-2019-N)

"It's (Referring the pipeline components of the Projects) still impacting the area because you're widening it. You are still going to affect the ground, the soils – there is the noise. When they go back in, they are reopening the whole area again. It creates more and easier access again. So much has already been taken and this is another piece that's being taken away from us. We can't use that. It's like saying "we have already done the damage once, it should be okay if we do it again – it shouldn't have any effect". (Source: PIN C-DFN-2019-N)

"It is the presence, machinery and the disturbance that goes with it". (Referring to construction of Projects and their operation) (Source: PIN B-DFN-2019-N)

"The pipeline (Referring to the pipeline components of the Projects) will be on the ground for a long time and it's a long term loss to us". (Source: PIN E-DFN-2019-N)

"I don't want to live with no gas in my house. I want gas in my car. I don't want to go back to horse and buggy days however I do want them to do a better job of what they do"! (Source: PIN B-DFN-2019-N)

"Oil and gas and forestry does not have the same world view as we do. The natural values that we place importance on are not taken into account". (Source: PIN E-DFN-2019-N)

"The majority of the time, something else follows it. If you are putting in a second pipeline, they are going to do some more drilling, No one builds a pipeline for no reason. They want more fluid to go through so they make more money. And this is where the companies get frustrated with First Nations when they talk about cumulative impacts". (Source: PIN C-DFN-2019-N)

"This is not just a twinning of a pipeline. This is our hospital, this is our school, this is our heart, this is who we are. The land is us and we are the land. There is no difference. It is our hospital, school and teachings and it's land based. We have adapted, it's something First Nations people do really well but when there is nothing to adapt to...when you look at the map and look at the cumulative effects, it's not just another small pipeline. We have so little land left and so little of us is left...Our traditional land use area is our heart and it is us. That's what people making money off this land need to understand". (Source: PIN E-DFN-2019-N)

4.2 Quantitative / Geo-Spatial Information

In addition to documenting qualitative community observations and experiences in relation to pipeline projects and corridors, the DFN also documented geo-spatial information provided by community members. Mapped data from the 2009/11, 2012 and 2018/19 DFN research allow can support viewers

in considering the geographic relationships and potential for interactions between DFN land and resource use trends and NGTL Projects and NGTL North-Central Pipeline system corridor. This initial level of analysis is not intended to function as an effects or impact assessment but is intended rather to indicate matters requiring measured and subsequent Crown consultation and more in-depth inquiry. What follows is:

- a listing of the maps within the Appendices of this report that this visual quantitative review / analysis is based upon;
- three sets of tables / matrices providing additional detail to support visual quantitative analysis for each of three distinct research sets (2009/11, 2012 and 2018/19);
- a description of what the combined DFN data suggests in respect to potential projects impacts on DFN rights, culture and interests

4.3 Listing of Maps to Support Visual Quantitative Analysis

The DFN has undertaken a review of maps prepared in relation to the 2009/11, 2012 and 2018/19 research efforts. The following is a list of each group of maps and individual map projection / subject matters with each map grouping. These maps can be viewed within the appendices section of this report.

2009/11 DFN Research: Reference Map/s

View Appendices: Appendix 1: 2009/11 DFN Big Game Hunting Area Data

- Map 1: 2009/11 DFN Big Game Hunting Data within Identified DFN Traditional Territory Large Scale / Territorial Level
- Map 2: 2009/11 DFN Big Game Hunting Data within Identified DFN Traditional Territory Smaller Scale - North East Quadrant of Traditional Territory (NE)
- Map 3: 2009/11 DFN Big Game Hunting Data within Identified DFN Traditional Territory Smaller Scale - North West Quadrant of Traditional Territory (NW)
- Map 4: 2009/11 DFN Big Game Hunting Data within Identified DFN Traditional Territory Smaller Scale – South West Quadrant of Traditional Territory (SW)
- Map 5: 2009/11 DFN Big Game Hunting Data within Identified DFN Traditional Territory Smaller Scale – South East Quadrant of Traditional Territory (SE)
- Map 6: 2009/11 DFN Big Game Hunting Data within Clear Hills Chinchaga Refuge Smaller Scale South East Quadrant of Traditional Territory (SE)

Note:

- All Project/s / Project Components Buffered with 5 KM to facilitate viewing / location
- DFN Traditional Territory Demarcated in Green
- Clear Hills Chinchaga Refuge Demarcated in Pink

2012 DFN Research Maps: Reference Maps

View Appendices: Appendix 2: DFN Identified Example Traditional Land and Resource Use Sites and Areas

- Map 1: DFN 2012 TLRU Identified Fish Catch Sites by PIN
- Map 2: DFN 2012 TLRU Identified Earth Material Gathering Sites by PIN
- Map 3: DFN 2012 TLRU Identified Overnight Sites by PIN
- Map 4: DFN 2012 TLRU identified Cultural Sites by PIN
- Map 5: DFN 2012 TLRU Identified All Hunting Kill Sites by PIN
- Map 6: DFN 2012 TLRU Identified All Large Game Hunting Kills Sites by PIN
- Map 7: DFN 2012 TLRU Consolidated Points by PIN
- Map 8: DFN 2012 TLRU Consolidated Points by PIN North-West
- Map 9: DFN 2012 TLRU Consolidated Points by PIN North-East
- Map 10: DFN 2012 TLRU Consolidated Points by PIN South-West
- Map 11: DFN 2012 TLRU Consolidated Points by PIN South-East
- Map 12: DFN 2012 TLRU Consolidated Points by PIN Clear Hills Chinchaga Refuge

Note:

- All Project/s / Project Components Buffered with 5 KM to facilitate viewing / location
- DFN Traditional Territory Demarcated in Green
- Clear Hills Chinchaga Refuge Demarcated in Pink

2018 / 19 DFN Research: Reference Map/s

View Appendices: Appendix 3: 2018/19 Large Game Hunting Areas Recently Utilized by a Sample of DFN Members within the Wapiti – Little Smoky Fan and the Clear Hills Chinchaga Refuge

Map 1: DFN 2018/19 TLRU Large Game Hunting Areas by PIN

Map 2: DFN 2018/19 TLRU Plant Gathering Areas by PIN

Map 3: DFN 2018/19 Overnight Camp Sites

Note:

- All Project/s / Project Components Buffered with 5 KM to facilitate viewing / location
- DFN Traditional Territory Demarcated in Green
- Clear Hills Chinchaga Refuge Demarcated in Pink

<u>Identified DFN Large Game Hunting Areas and Cultural Practice Areas within the DFN Traditional</u> Territory and Peace River Basin (2009/11, 2012 and 2018/19 Research)

View Appendices: Appendix 4

 $\label{lem:map:condition} \mbox{Map 1: DFN TLRU: } 2009/11 \mbox{ Sustenance /, } 2011 \mbox{ (Should be 2012) Hunting, } 2018/19 \mbox{ Hunting Area Polygons} - \mbox{ Traditional Territory}$

Map 2: DFN TLRU: 2009/11 Sustenance /, 2011 (Should be 2012) Hunting, 2018/19 Hunting Area Polygons – North – East

 $Map\ 3:\ DFN\ TLRU:\ 2009/11\ Sustenance\ /,\ 2011\ (Should\ be\ 2012)\ Hunting,\ 2018/19\ Hunting\ Area\ Polygons-North-West$

Map 4: DFN TLRU: 2009/11 Sustenance /, 2011 (Should be 2012) Hunting, 2018/19 Hunting Area Polygons – South – West

Map 5: DFN TLRU: 2009/11 Sustenance /, 2011 (Should be 2012) Hunting, 2018/19 Hunting Area Polygons – South – East

Map 6: DFN TLRU: 2009/11 Sustenance /, 2011 (Should be 2012) Hunting, 2018/19 Hunting Area Polygons – The Clear Hills Chinchaga Refuge

Note:

- All Project/s / Project Components Buffered with 5 KM to facilitate viewing / location
- DFN Traditional Territory Demarcated in Green
- Clear Hills Chinchaga Refuge Demarcated in Pink

<u>Magnified Projection: Correlation of Identified of DFN Geo-Spatial Data with NGTL Project Areas and Areas in the Vicinity of the Projects</u>

View Appendices: Appendix 5

Map 1: All DFN TLRU: 2009/2011, 2011 (Should be 2012), 2019 Human Foot Print Proximal to the Hidden Creek Compressor Station

Map 2: All DFN TLRU: 2009/2011, 2011 (Should be 2012), 2019 Human Foot Print Proximal to the Bear Canyon Extension

Map 3: All DFN TLRU: 2009/2011, 2011 (Should be 2012), 2019 Human Foot Print Proximal to NCCL NS#1 and NCCL Section #2

Note:

- All Project/s / Project Components Buffered with 5 KM to facilitate viewing / location
- DFN Traditional Territory Demarcated in Green
- Clear Hills Chinchaga Refuge Demarcated in Pink

DFN Traditional Territory

View Appendices: Appendix 6

Included for reference purposes

Within the Appendices a write up is provided which sets out how the original root studies were conducted, a summary of their methods and notations in respect to any associated limitations. This information provides descriptive information, guidance and context for the mapping depicted in this report (See Appendices)

4.4 Tables / Matrices

The following summaries (tables) are produced by considering the maps produced during the 2009/11, 2012 and 2018/19 DFN separate research efforts and undertaking an initial level of analysis of the geographic relationship between DFN rights/ land use patterns and the Projects and NGTL North Central Corridor system. Some additional detail is added to assist in providing context to the maps and data they depict. The material is summarized into a table to facilitate ease of reference.

2009 /11 DFN Research: Context for and Potential for Rights / Project Interactions

Screening	DFN Research: Context for and P Traditional Territory	Host Landscape: Clear Hills-Chinchaga	Project Area/Areas in Vicinity of Projects
		Refuge (Use Intensity)	
Exercise of Rights Depicted on Maps	-Sustenance / Large Game Hunting	-Sustenance / Large Game Hunting	-Sustenance / Large Game Hunting
Geographic Distribution of Rights / Community Land Use and Resource Use Activity Depicted	-East/West: BC/ALTA Border area, across the Peace River to the east to Red Earth / Bison Lake – Approximate linear distance of 300KM -North/South: Keg River area to Snipe Lake in the north, south to the Slave Lake area / Elmworth area – Approximate linear distance of 350KM	3)Regional Node of Community Activity North and West of Peace River. South of Lac Cardinal / Clear Hills to Hotchkiss/Notikewin to Chinchaga Valley to BC border (Approx. 200KM by 120KM area) 3a) Sub-Locus of Community Activity: North of Lac Cardinal and Clear Hills into Notikewin Watershed extending into high ground area towards BC / ALTA border 3b) Sub-Locus of Community Activity: Notikewin Watershed into Hotchkiss Watershed extending into high ground area towards BC/ALTA border 3c) Sub-Locus of Community Activity: Chinchaga watershed extending west either side of Chinchaga Road out to BC /ALTA border	NCCC N Star#1: -Intersects approx. three (3)Sustenance / Large Game Hunting areas; -Adjacent and contiguous to numerous Sustenance / Large Game Hunting areas -Occurs within Locus of Large Game Hunting activity NEXP N Star#2: -Intersects approx. one (1) Sustenance / Large Game Hunting areas; -Adjacent and contiguous to numerous Sustenance / Large Game Hunting areas -Occurs within Locus of Large Game Hunting activity NEXP Hidden Creek Comp: -Located within one (1) Sustenance / Large Game Hunting area; -Adjacent and contiguous to two additional Sustenance / Large Game Hunting areas -NEXP Bear Creek: -Intersects approx. three Sustenance / Large Game Hunting areas; -Occurs within Locus of Large Game Hunting areas; -Occurs within Locus of Large Game Hunting activity
Relative Intensity of Rights / Community Land and Resource Use Activity Depicted (Scale:Limited / Medium / High / Very High)	-1) Regional Node within Traditional Territory- Both E/W of Peace River from Town of Peace River to Dunvegan / Many Islands	-3a) Sub-Locus of Community Activity: Clear Hills – Chinchaga Refuge: North of Lac Cardinal and Clear Hills into Notikewin Watershed extending into high ground area towards BC / ALTA border	NCCC N Star#1: Occurs in 3b) – (MED-HIGH) Occurs in 3c) – (MED) NEXP N Star#2:
	-2) Regional Node within Traditional Territory – E of Peace River from Winagami Lake, W/E of DMI Road to area across Peace River from Hotchkiss/Notikewin	(MED-HIGH) -3b) Sub-Locus of Community Activity: Clear Hills – Chinchaga Refuge: Notikewin Watershed into Hotchkiss Watershed extending into high ground area towards BC/ALTA border (MED-HIGH)	Occurs in 3b) – (MED-HIGH) NEXP Hidden Creek Comp: Occurs in 3c) – (MED-HIGH) NEXP Bear Creek: Occurs in 3a) – (MED-HIGH)
	-3) Regional Node within Traditional Territory-N and W of Peace River. S of Lac Cardinal / Clear Hills to	-3c) Sub-Locus of Community Activity: Clear Hills- Chinchaga Refuge Chinchaga watershed extending west either side of	

	Hotchkiss/Notikewin to Chinchaga Valley to BC border (CARRIED OVER TO NEXT COLUMN)	Chinchaga Road out to BC /ALTA border (MED)	
Time Frame of Rights / Community Land and Resource Use Activity Depicted	-Research undertaken 2009/11 -Combination of past / current use -Recall interval – "within living memory"	-Research undertaken 2009/11 -Combination of past / current use -Recall interval – "within living memory"	-Research undertaken 2009/11 -Combination of past / current use -Recall interval – "within living memory"
Composition of Community Membership Involved in Research	-Under 25 DFN members interviewed Data depicted for 16 DFN members -Data collected for an additional 5 members but raw material damaged/lost -Generally more male interviewed -Elders/male/female/youth involved -Some of those interviewed have passed	-Under 25 members interviewed -Data depicted for 16 DFN members -Data collected for an additional 5 members but raw material damaged/lost -Generally more male interviewed -Elders/male/female/youth involved -Some of those interviewed have passed	-Under 25 members interviewed -Data depicted for 16 DFN members -Data collected for an additional 5 members but raw material damaged/lost -Generally more male interviewed -Elders/male/female/youth involved -Some of those interviewed have passed
Area Access / Time from Community to Area	-Areas can be accessed in 5 min (on Duncan's IR) to 5 / 6 hours drive for more distant identified locations	Core of Clear Hills-Chinchaga Refuge Accessed Via (Winter/Summer): -"Canfor Rd." north to Sulphur Lake to Hotchkiss/ Chinchaga -"Chin Rd" west to BC/ALTA border	NCCC N Star#1: 125-150KM Approx. NEXP N Star#2: 125KM Approx. NEXP Hidden Creek Comp: 275KM Approx NEXP Bear Creek: 125KM Approx.
Values Present Supporting Right to Hunt Large Game Unique Factors Present Supporting Preferred DFN Use	NA	-Within two / three hours of DFN IR -Green Zone / Crown Land accessible -Suitable mix of ungulate habitat values present (cover/forage/water/wetlands) -Numerous river valleys / creeks to act as corridors for large game -Large number of water bodies/wetlands -Lower density of development present -Lower density of linear corridors -Lower density of access roads -Relative isolation providing suitable grounds for staying in bush and transmittal of knowledge -Caribou ranges in core of area	-Within two / three hours of DFN IR -Green Zone / Crown Land accessible -Suitable mix of ungulate habitat values present (cover/forage/water/wetlands) -Numerous river valleys / creeks to act as corridors for large game -Large number of water bodies/wetlands -Lower density of development present -Lower density of linear corridors -Lower density of access roads -Relative isolation providing suitable grounds for staying in bush and transmittal of knowledge -Caribou ranges in core of area
Land Use Types Present	-Large percentage White Zone, Fee Simple, Agricultural lands present centered around Peace valley -Large pockets of Green Zone / Crown land E, W, N and S of Peace River	-Majority Percentage: Green Zone / Crown Lands	NCCC N Star#1: Mostly Green Zone/Crown NEXP N Star#2: Mostly White Zone NEXP Hidden Creek Comp: Mostly Green Zone/Crown NEXP Bear Creek: Mix of Green/White Zone or Agricultural Lease
Classes of Development / Human Activity Present	-Agriculture, Forestry, Mining, Oil and Gas, Oil Sands/Heavy Oil, Energy, Energy Infrastructure (powerlines/pipelines), Primary and Secondary Transportation, Access Roads, Hunting, Fishing	-Forestry / Natural Gas, Energy Infrastructure (powerlines /pipelines), Primary and Secondary Transportation, Access Roads, Hunting, Fishing	Forestry / Natural Gas, Energy Infrastructure (powerlines/pipelines), Primary and Secondary Transportation, Access Roads, Hunting, Fishing

Degree of DFN Connectivity to Areas	Medium – High – Very High	-High to Medium	High to Medium
Rights / Project Interaction Potential	NA	NA	-Direct/Indirect/Cumulative Interactions
			Identified via Map Analysis
			-Potential for Adverse Impacts to Rights and
			Culture

2012 DFN Research: Context for and Potential for Rights / Project Interactions

		Hast Landsonna Clear Hills Chinches	
Screening	Traditional Territory		Project Area/Areas in Vicinity of Projects
Exercise of Rights Depicted on Maps Geographic Distribution of Rights / Community Land Use and Resource Use Activity Depicted	-Examples (Kill/Catch/Harvesting Sites) of Wildlife Kill Sites, Fish Catch Sites, Harvesting Sites and Other Cultural Activity Sites -Outer data points (for large game kill sites / all use of each DFN participant linked together to form polygon that represents area in which exercise of rights takes place -East/West: As far east as Faust on Lesser Slave Lake, Gift Lake and Red Earth to as far west as the west side of Moberly Lake, Hudson's Hope, the upper Halfway River and Sikinni Chief and Prophet Rivers -North/South: As far north as to north west and east of the Paddle Prairie Metis Settlement / Keg River to as far south as far south as the Cutbank / Smoky River confluence -East/ West linear distance of mapped use area is approximately 400KM -North/South linear distance of mapped use area is approximately 350KM	Host Landscape: Clear Hills-Chinchaga Refuge -Examples (Kill/Catch/Harvesting Sites of Moose Hunting, Elk, Deer Hunting, Fishing, Food Plant / Medicine Plant Harvesting Outer data points (for large game kill sites / all use of each DFN participant linked together to form polygon that represents area in which exercise of rights takes place 5) Regional Node within Traditional Territory north of the Clear Hills and south of the Chinchaga valley extending over the BC – Alberta into the Beatton River valley north-east of Fort. St. John 5a) Sub-Locus of Community Activity: North-West of Paddle Prairie Metis Settlement / Keg River in the Chinchaga River 5b) Sub-Locus of Community Activity: West of Hotchkiss in Hotchkiss River watershed and Meikle River watershed extending westwards towards Chinchaga Wildland Park (CWP) but not reaching CWP 5c) Sub-Locus of Community Activity: West of Manning in Notikewin watershed 5d) Sub-Locus of Community Activity: In lands west of Highway 35 and running over to Sulphur Lake area 5e) Sub-Locus of Community Activity: In lands north / west of Cardinal Lake	Project Area/Areas in Vicinity of Projects -Examples (Kill/Catch/Harvesting Sites of Moose Hunting, Elk, Deer Hunting, Fishing, Food Plant / Medicine Plant Harvesting Outer data points (for large game kill sites / all use of each DFN participant linked together to form polygon that represents area in which exercise of rights takes place NCCC N Star#1: Cluster of example large game kill sites within buffer area and adjacent to the pipeline corridor / Pipeline corridor and buffer area within identified polygon areas where DFN member large game hunting occurs NEXP N Star#2: Cluster of example large game kill sites within buffer area and adjacent to the pipeline corridor / Pipeline corridor and buffer area within identified polygon areas where DFN member large game hunting occurs NEXP Hidden Creek Comp: Comp. Stn. Located within identified polygon area where DFN large game hunting occurs NEXP Bear Creek: Examples of large game kills sites within buffer and adjacent to the pipeline corridor / other DFN cultural use identified within buffer area within identified polygon areas where DFN corridor Pipeline corridor
		lands north / west of Cardinal Lake extending into Whitemud River watershed 5f) Sub-Locus of Community Activity: North of Halverson Ridge (Clear Hills) taking in Sweeney Creek / Doig River	large game hunting and other cultural use occurs
Relative Intensity of Rights / Community Land and	1) Regional Node within Traditional	5) Regional Node within Traditional	NCCC N Star#1: Occurs in / intersects with
Resource Use Activity Depicted	Territory- Both East of Peace of Peace	Territory north of the Clear Hills and south	5b) Sub-Locus of Community Activity: West

(Scale: Limited / Medium / High / Very High)	River from area south of Lesser Salve Lake Running north though the William McKenzie IR / Lubicon area, running north between the Peace River and Buffalo Head Hills up to area across from	of the Chinchaga valley extending over the BC – Alberta into the Beatton River valley north-east of Fort. St. John 5a) Sub-Locus of Community Activity:	of Hotchkiss in Hotchkiss River watershed and Meikle River watershed extending westwards towards Chinchaga Wildland Park (CWP) but not reaching CWP (Medium)
	Notikewin Park. 2) Regional Node within Traditional Territory – E of Peace River from	North-West of Paddle Prairie Metis Settlement / Keg River in the Chinchaga River (Medium)	NEXP N Star#2: Occurs in / intersects with 5b) Sub-Locus of Community Activity: West of Hotchkiss in Hotchkiss River watershed
	Winagami Lake, on both sides of the Smoky River and Peace River up to Dixonville and Clear Hills to the east and west of Highway 35	5b) Sub-Locus of Community Activity: West of Hotchkiss in Hotchkiss River watershed and Meikle River watershed extending westwards towards Chinchaga Wildland Park (CWP) but not reaching	and Meikle River watershed extending westwards towards Chinchaga Wildland Park (CWP) but not reaching CWP (Medium)
	3) Regional Node within Traditional Territory that takes in the Saddle Hills area south to the BC -Alberta border extending south to the headwaters of the Kiskatinaw and Red Valley watershed around Bearhole Lake Park in BC	CWP (Medium) 5c) Sub-Locus of Community Activity: West of Manning in Notikewin watershed (Medium)	NEXP Hidden Creek Comp: Occurs at outermost limit of / adjacent to 5b) Sub- Locus of Community Activity: West of Hotchkiss in Hotchkiss River watershed and Meikle River watershed extending
	4) Regional Node within Traditional Territory that takes in the lower Wolverine, Boyer, Bede and Chinchaga Watersheds, right before the Peace River broadens out and turns eastwards to	5d) Sub-Locus of Community Activity: In lands west of Highway 35 and running over to Sulphur Lake area (Medium-High) 5e) Sub-Locus of Community Activity: In	westwards towards Chinchaga Wildland Park (CWP) but not reaching CWP (Limited) NEXP Bear Creek: Occurs in / intersects 5f) Sub-Locus of Community Activity: North of Halverson Ridge (Clear Hills)
	towards Ft. Vermillion 5) Regional Node within Traditional Territory north of the Clear Hills and south of the Chinchaga valley extending over the	lands north / west of Cardinal Lake extending into Whitemud River watershed (Medium-High) 5f) Sub-Locus of Community Activity:	taking in Sweeney Creek / Doig River (Medium)
	BC – Alberta into the Beatton River valley north-east of Fort. St. John (Carried Over to Next Column)	North of Halverson Ridge (Clear Hills) taking in Sweeney Creek / Doig River (Medium)	
Time Frame of Rights / Community Land and Resource Use Activity Depicted	-Research undertaken in 2012 -Combination of past / current use -Recall interval – "within living memory"	-Research undertaken in 2012 -Combination of past / current use -Recall interval – "within living memory"	-Research undertaken in 2012 -Combination of past / current use -Recall interval – "within living memory"
Composition of Community Membership Involved in Research	-Just under 50 DFN members involved -Range of gender/age/family	-Just under 50 DFN members involved -Range of gender/age/family	-Just under 50 DFN members involved -Range of gender/age/family
Area Access / Time from Community to Area	-Areas can be accessed in 5 minute drive (on Duncan's IR) to 8 Hour drive to furthest documented placed (Approx.)	-Areas can be accessed in 1.5 hour drive to four hour drive (Approx.)	NCCC N Star#1: 125-150KM Approx. NEXP N Star#2: 125KM Approx. NEXP Hidden Creek Comp: 275KM Approx NEXP Bear Creek: 125KM Approx.
Values Present Supporting Right to Hunt Large Game Unique Factors Present Supporting Preferred DFN Use	NA	-Green Zone / Crown Land accessible -Suitable mix of ungulate habitat values present (cover/forage/water/wetlands)	-Within two / three hours of DFN IR -Green Zone / Crown Land accessible -Suitable mix of ungulate habitat values

		-Numerous river valleys / creeks to act as corridors for large game -Large number of water bodies/wetlands -Lower density of development present -Lower density of linear corridors -Lower density of access roads -Relative isolation providing suitable grounds for staying in bush and transmittal of knowledge -Caribou ranges in core of area	present (cover/forage/water/wetlands) -Numerous river valleys / creeks to act as corridors for large game -Large number of water bodies/wetlands -Lower density of development present -Lower density of linear corridors -Lower density of access roads -Relative isolation providing suitable grounds for staying in bush and transmittal of knowledge -Caribou ranges in core of area
Land Use Types Present	-Large percentage White Zone, Fee Simple, Agricultural lands present centered around Peace valley -Large pockets of Green Zone / Crown land E, W, N and S of Peace River	-Majority Percentage: Green Zone / Crown Lands	NCCC N Star#1: Mostly Green Zone/Crown NEXP N Star#2: Mostly White Zone NEXP Hidden Creek Comp: Mostly Green Zone/Crown NEXP Bear Creek: Mix of Green/White Zone or Agricultural Lease
Classes of Development / Human Activity Present	-Agriculture, Forestry, Mining, Oil and Gas, Oil Sands/Heavy Oil, Energy, Energy Infrastructure (powerlines/pipelines), Primary and Secondary Transportation, Access Roads, Hunting, Fishing	-Forestry / Natural Gas, Energy Infrastructure (powerlines /pipelines), Secondary Transportation, Access Roads, Hunting, Fishing	Forestry / Natural Gas, Energy Infrastructure (powerlines/pipelines), Primary and Secondary Transportation, Access Roads, Hunting, Fishing
Degree of DFN Connectivity to Areas (Scale: None / Limited / Medium / High / Very High)	Medium – High – Very High	-Medium to High	High to Medium to Limited
Rights / Project Interaction Potential	NA	NA	-Direct/Indirect/Cumulative Interactions Identified via Map Analysis -Potential for Adverse Impacts to Rights and Culture

2018/19 DFN Research: Context for and Potential for Rights / Project Interactions

Screening	Traditional Territory	Host Landscape: Clear Hills-Chinchaga	Project Area/Areas in Vicinity of Projects
Exercise of Rights Depicted on Maps	-Large Game Hunting Areas Recently Used by DFN Members	-Large Game Hunting Areas Recently Used by DFN Members	-Large Game Hunting Areas Recently Used by DFN Members
		-Plant Gathering Areas Recently Used by DFN Members	-Plant Gathering Areas Recently Used by DFN Members
		-Overnight Sites Recently Used by DFN Members	-Overnight Sites Recently Used by DFN Members
Geographic Distribution of Rights / Community Land Use and Resource Use Activity Depicted	6) Regional node in Lands Between Wapiti River and Little Smoky River Watershed 7) Regional node in Lands between Clear Hills and Chinchaga watershed ("the Clear Hills – Chinchaga Refuge") (Carried Over to next column)	7) Regional node in Lands between Clear Hills and Chinchaga watershed ("the Clear Hills – Chinchaga Refuge") 7a) Sub Locus of Community Activity: Chinchaga Valley extending from edged of farmed lands / east of Hotchkiss, extending westwards through Chinchaga watershed to BC/Alberta border area 7b) Sub Locus of Community Activity: Area north-west of Cardinal Lake extending into Whitemud River watershed and taking in lands around Sulphur Lake 7c) Sub Locus of Community Activity: Area within the upper portion of Eureka watershed and the upper portion of the Notikewin watershed 7d) Sub Locus of Community Activity: Area running along BC – Alberta border takin in the Little Clear River, Sweeney Creek, Doig River and the south side of the Chinchaga watershed	NCCC N Star#1: Buffer area and pipeline corridor intersects area where DFN large game hunting occurs and where DFN plant gathering occurs. One overnight site located within the buffer . NEXP N Star#2: NA – None identified within this survey NEXP Hidden Creek Comp: Buffer area around compressor station intersects area where DFN large game hunting occurs NEXP Bear Creek: NA – None identified within this survey
Relative Intensity of Rights / Community Land and Resource Use Activity Depicted	6) Regional node in Lands Between Wapiti River and Little Smoky River Watershed	7) Regional node in Lands between Clear Hills and Chinchaga watershed ("the Clear Hills – Chinchaga Refuge")	NCCC N Star#1: Intersects / Takes in Sub Locus of Community Activity: Chinchaga Valley extending from edged of farmed
(Scale: Limited / Medium / High / Very High)	7) Regional node in Lands between Clear	7a) Sub Locus of Community Activity: Chinchaga Valley extending from edged	lands / east of Hotchkiss, extending westwards through Chinchaga watershed to BC/Alberta border area (Medium)
	Hills and Chinchaga watershed ("the Clear Hills – Chinchaga Refuge") (Carried Over to next column)	of farmed lands / east of Hotchkiss, extending westwards through Chinchaga watershed to BC/Alberta border area	NEXP N Star#2: (Limited)
	(Carried Syer to next column)	(Medium)	NEXP Hidden Creek Comp: Intersects /

		7b) Sub Locus of Community Activity: Area north-west of Cardinal Lake extending into Whitemud River watershed and taking in lands around Sulphur Lake (Medium) 7c) Sub Locus of Community Activity: Area within the upper portion of Eureka watershed and the upper portion of the Notikewin watershed (Limited – Medium) 7d) Sub Locus of Community Activity: Area running along BC – Alberta border taking in the Little Clear River, Sweeney Creek, Doig River and the south side of the Chinchaga watershed (Limited – Medium)	Takes in Sub Locus of Community Activity: Chinchaga Valley extending from edged of farmed lands / east of Hotchkiss, extending westwards through Chinchaga watershed to BC/Alberta border area (Medium) NEXP Bear Creek: – (Limited)
Time Frame of Rights / Community Land and Resource Use Activity Depicted	-Research undertaken in 2018/19 -Objective to identify large game hunting and associated cultural practices occurring more recently	-Research undertaken in 2018/19 -Objective to identify large game hunting and associated cultural practices occurring more recently	-Research undertaken in 2018/19 -Objective to identify large game hunting and associated cultural practices occurring more recently
Composition of Community Membership Involved in Research	Approximately 10 community members	Approximately 10 community members involved in interviews and mapping	Approximately 10 community members
Area Access / Time from Community to Area	involved in interviews and mapping -Areas can be accessed in 45-minute drive to 3.5 Hour drive to furthest documented placed (Approx.)	-Areas can be accessed in 45-minute drive to 3.5 Hour drive to furthest documented placed (Approx.)	involved in interviews and mapping NCCC N Star#1: 125-150KM Approx. NEXP N Star#2: 125KM Approx. NEXP Hidden Creek Comp: 275KM Approx NEXP Bear Creek: 125KM Approx.
Values Present Supporting Right to Hunt Large Game Unique Factors Present Supporting Preferred DFN Use	NA	-Green Zone / Crown Land accessible -Suitable mix of ungulate habitat values present (cover/forage/water/wetlands) -Numerous river valleys / creeks to act as corridors for large game -Large number of water bodies/wetlands -Lower density of development present -Lower density of linear corridors -Lower density of access roads -Relative isolation providing suitable grounds for staying in bush and transmittal of knowledge -Caribou ranges in core of area	-Within 45 minutes to 3.5Hrs hours of DFN IR -Green Zone / Crown Land accessible -Suitable mix of ungulate habitat values present (cover/forage/water/wetlands) -Numerous river valleys / creeks to act as corridors for large game -Large number of water bodies/wetlands -Lower density of development present -Lower density of linear corridors -Lower density of access roads -Relative isolation providing suitable grounds for staying in bush and transmittal of knowledge -Caribou ranges in core of area

Land Use Types Present	-Large percentage White Zone, Fee Simple, Agricultural lands present centered around Peace valley -Large pockets of Green Zone / Crown land E, W, N and S of Peace River	-Majority Percentage: Green Zone / Crown Lands	NCCC N Star#1: Mostly Green Zone/Crown NEXP N Star#2: Mostly White Zone NEXP Hidden Creek Comp: Mostly Green Zone/Crown NEXP Bear Creek: Mix of Green/White Zone or Agricultural Lease
Classes of Development / Human Activity Present	-Agriculture, Forestry, Mining, Oil and Gas, Oil Sands/Heavy Oil, Energy, Energy Infrastructure (powerlines/pipelines), Primary and Secondary Transportation, Access Roads, Hunting, Fishing	-Forestry / Natural Gas, Energy Infrastructure (powerlines /pipelines), Secondary Transportation, Access Roads, Hunting, Fishing	Forestry / Natural Gas, Energy Infrastructure (powerlines/pipelines), Primary and Secondary Transportation, Access Roads, Hunting, Fishing
Degree of DFN Connectivity to Areas (Scale: None / Limited / Medium / High / Very High)	Limited - Medium – High – Very High	Limited-Medium	Limited - Medium
Rights / Project Interaction Potential	NA	NA	-Direct/Indirect/Cumulative Interactions Identified via Map Analysis -Potential for Adverse Impacts to Rights and Culture

4.5 Summary: Potential for Project Interactions with DFN Exercise of Rights, Practice of Culture and Land / Resource Use Activities

In the preceding section, a review was undertaken on how the Project/s and Project/s components geospatially interact with identified areas of DFN land and resource use utilization / the exercise of rights and the practice of culture. The preceding tables consider the resulting map sets of each distinct DFN research effort (2009/11), 2012 and 2018/19 in isolation and draw some high-level conclusion in respect to potential Project interactions.

In this section the DFN considers the combined body of DFN geo-spatial data / evidence and overall correlation between the Project's and identified land use. Map group 4 and map group 5 (Found in Appendix 4 and Appendix 5) of this report are relied upon to arrive at the following high level of statements:

- The NCCC N Star #1 and N Star#2 Projects / Project components are located at the top of a DFN zone that can be characterized as an area of High Very High Intensity in respect to the exercise of rights and traditional land, cultural practices and land and resource use patterns;
- All Projects / Project components fall within a well-defined area / complex of where the exercise of DFN rights, practice of culture and land and resource use occurs.
- The Chinchaga valley which contains the NCCC N Star#1 and N Star #2 Projects / Project
 Components and the Hidden Creek Compressor stations occurs in an area of Medium High
 Intensity in respect to the exercise of rights and traditional land, cultural practices and land and
 resource use patterns. The intensity of DFN rights/practices/land use diminishes as you move
 westwards towards the BC Alberta border and the Hidden Creek Compressor Station is
 located at the limits of identified DFN rights/practices/land use;
- The Sweeny Creek / Doig Area which contains the Bear Creek Project component stations occurs in an area of Medium High Intensity in respect to the exercise of rights and traditional land, cultural practices and land and resource use patterns. The intensity of DFN rights/practices/land use diminishes as you move westwards towards the BC Alberta border and the Hidden Creek Compressor Station is located at the limits of identified DFN rights/practices/land use;
- Both Project / all Project components fall within a contiguous zone utilized by the DFN for the hunting of large game and undertaking associated cultural practices;
- The general land use patterns depicted on maps largely depict large game hunting and other activities as occurring in a core area around the DFN reserve at Brownvale. However, when compared against qualitative statements made by community members, the DFN members have and continue to shift their large hunting game to more distant areas that contains less White Zone areas / farmed lands and areas with a high concentration of industry activity, infrastructure and access:
- The maps depict land use trends and the associated limitations with each research stream need to be taken into account. A description of the limitations associated with each DFN research stream (2009/11, 2012 and 2018/19) is included in the accompany DFN Report #1 on the exercise of rights and community use;
- Based on a visual review of the Project's geo-spatial data and the geo-spatial data of the

community, it is possible to conclude that there is high probability of Project interactions;

• What one also needs to take into account is the on the ground realities faced by the DFN and the landscape context in which the Projects / Project components are being inserted. When the material in the following sections is taken into account is only possible to conclude that the proposed Project / Project components and their operation through time will not make the situation better or easier for the DFN. There is a high probability the Project will interact negatively with the exercise of DFN rights / practice of culture and land and land and resource use activities. What the level of impact is should be determined by the parties through ongoing consultative efforts and accommodation by the Crown.

5.0	Understanding	Project Impacts	within a Context	Annronriate to	the DEN
3. 0	Understanding.	rroject impacts	within a Context	Appropriate to	me Drn

5.0 Understanding Project Impacts within a Context Appropriate to the DFN

Based on DFN's community based information gathering and the outputs of its pilot studies, it is appears that many DFN community members share similar observations, experience and perspectives in relation to barriers, constraints and stressors that appear to arise from certain types of land use and classes of development. There also appears to be a correlation between the passage of time (over the past fifty years), the rise of development within the region and increased land use constraints, stressors and barriers experienced by the DFN hunters. Further, many DFN members are able to verbally compare and contrast land use conditions that existed at earlier points in their life to those that exist today.

The matter of cumulative effects and regional cumulative impacts is a subject that has and continues to be raised by numerous First Nations with the context of regulatory proceedings, consultation and litigation. When the DFN information set is considered alongside the body of information brought forward by other Indigenous groups, DFN elder, knowledge holder and land user observations and statements are not without precedent nor are they isolated.

From the DFN's perspective, the Projects are to be inserted into a territory and a landscape already faced with a series of land use and development induced barriers, constraints and factors that inhibit or limit their ability to hunt and practice their culture. The DFN is aware of how major projects and pipeline projects are subjected to review under generic environmental assessment review and regulatory oversight and that the issues and concerns that is highlighting in this are often deemed as "general concerns", not germane or "specific" to the project under examination. Notwithstanding, the DFN is view that the Project has the potential for contributing to the range of constraints, stressors and factors already in play serving to undermine the DFN's ability to hunt within its Traditional Territory and in the Clear Hills – Chinchaga Refuge. As such it must raise these issues and within the context that governs the reality of DFN community members.

To assist in evaluating the issues and concerns being brought forward by the community, the DFN sets out a conceptual framework which helps illustrate and explain the situation DFN community members find themselves in and provides a context for their Project related issues and concerns. The body of observations and statements strongly indicate that community member's ability to exercise their Treaty right to hunt large game is constrained (with varying degrees of confidence) by certain types of land uses and classes of development. The conceptual framework is set out below:

Effective Treaty Hunting Rights Spectrum

Constraints on Ability to Hunt: Increasing

Constraints on Ability Hunt: Decreasing

Types of Land Use / Classes of Development Preventing or Prohibiting or Placing Significant Limitations on Ability to Exercise Treaty Right to Hunt	Types of Land Use / Classes of Development Giving Rise to Barriers or Constraints or Stressors Impairing and Diminishing Ability to Exercise Treaty Right to Hunt	Types of Land Use / Classes of Development with Factors or Characteristics Present that Place Fewer Limitations on Ability to Exercise Treaty Right to Hunt
A)Land Use Type / Class of Development	B)Land Use Type / Class of Development	C) Land Use Type / Class of Development
-Settlements / Municipal Zones Footprint -Fee Simple Lands Footprint -Agricultural Lands Footprint -Primary Transportation Network footprint -Water Bodies foot print -Parks Depending on Restrictions foot print -Indian Reserves footprint -Metis Settlements footprint -Other Footprint	-Crown – Forestry Footprint -Crown – Seismic Footprint -Crown – Well Site Footprint -Crown - Pipelines Footprint -Crown – Facilities Footprint -Crown – Mining Footprint -Crown – Access Road Footprint -Other – Footprint	-Crown- Remaining Core Areas -Crown – Zones with higher quotient of Core Areas -Crown – In close proximity to community -Crown-In close proximity to water - Crown – Where community members have traditionally hunted -Crown - Where community prefer to hunt -Crown - Where community prefer to hunt -Crown - that contain suitable ecological / cultural attributes supportive of hunting -Absence of A)Land Use Type / Class of Development -Impacts from A) Land Use / Type / Class of Development -Absence of B)Land Use Type / Class of Development -Other
Factors / Confidence Levels: Each of the above Land Use Type / Class of	Factors / Confidence Levels: Each of the above Land Use Type / Class of	Factors / Confidence Levels: Each of the above Land Use Type / Class of
Development has a unique set of factors	Development has a unique set of factors	Development has a unique set of factors
that needs to considered in their own right	that needs to considered in their own right	that needs to considered in their own right
vis a vis the treaty right to hunt	vis a vis the treaty right to hunt	vis a vis the treaty right to hunt

The above conceptual framework is helpful in looking at how discreet types of land use and development types can function in a way to restrain, restrict and impair the DFN hunting rights and the practice of culture. Each land use type and class of development type needs to be examined in its own right to determine its own unique contribution to and interaction with community hunting activities and cultural practices. This approach is beneficial and represents a conservative approach as it does not treat cumulative effects / impacts as one homogenous phenomenon. Once this analysis is undertaken, it is then possible to appreciate how multiple land use types and classes of development, acting at a territorial, landscape and project level, can act synergistically to compound the challenges facing community members. In summary such an approach:

- considers the full array of land use types and classes of development present with the DFN
 Territory and host landscape and the differences in how they potentially interact with and impact the Treaty right to hunt and practice of culture
- holds that varying land uses and development types in their own right may interact with and
 impact the Treaty right to hunt and ability to practice culture to varying degrees. Some types of
 land use present harder barriers and more obvious limitations whereas some present more
 nuanced yet still potent limitations and where some may pose lesser or fewer limitations

- Does not paint the exercise of Treaty rights with a broad brush and make the assumption that all
 Treaty rights interact with or are impacted in the same way by varying land uses and development
 types. For this report, the DFN has specifically considered the Treaty right to hunt large game.
 With some work the same framework could be applied to the Treaty right to fish, the Treaty right
 to harvest and gather and other incidental rights and a more fulsome array of associated cultural
 practices. The DFN intends to carry this work out in the future but not within the context of this
 Project
- Takes into account that DFN community members make choices about when and where they choose to hunt and that those choices are often shaped by what they learned growing up, over their lifetime based on knowledge and teaching from elders and relatives, places they have been accustomed to hunt over their lifetime, areas where more suitable conditions prevail that yield more predictability, areas where more suitable conditions prevail that allows them to make better use of their time and scarce resource and areas that they prefer to hunt in because they contain a range of values and characteristics that makes the practice of their cultural ways realizable and desirable

This conceptual framework presents a measured, conservative and suitable context from the perspective of the DFN, to evaluate the potential impacts of the Project and its consequences on the ability of the DFN to exercise its right to hunt large game and undertake associated cultural practices. In DFN's view, in addition to assessing potential adverse effects on environmental and social valued components, the Crown should also evaluate and weigh impacts on DFN rights emanating from the Project from such a standpoint, as it sets out a more appropriate baseline for the informed consideration of impacts and decision making.

6.0 Supplementary Information

Under its workplan for this research, the DFN retained the ALCES Group to help produce a series of maps that helps to demonstrate the types of land use and classes of development present within DFN's Traditional Territory and the Clear Hills-Chinchaga Refuge that will play host to the Project/s and reinforced and operating NGTL pipeline corridor. In addition to providing this geo-spatial information, the ALCES Group also undertook mathematical analysis to calculate the percentage of area at the territorial and landscape levels subject to varying types of human induced footprint. These maps and accompanying narrative will be presented by ALCES in supplementary report.

7.0 Appendices

See attached.

Appendix A) Report Mapping

Appendix A) Report Mapping

Appendix 1: 2009/2011: DFN Sustenance / Big Game Hunting Areas

Appendix 2: 2012 DFN Identified Example Traditional Land and Resource Use Sites and Areas

Appendix 3: 2018/19 Large Game Hunting Areas Recently Utilized by a Sample of DFN Members within the Wapiti – Little Smoky Fan and the Clear Hills –Chinchaga Refuge

Appendix 4: Identified DFN Large Game Hunting Areas and Cultural Practice Areas within the DFN Traditional Territory and the Peace River Basin (2009/11, 2012 and 2018/19)

Appendix 5: Magnified Projection: Correlation of Identified DFN Geo-Spatial Data with NGTL Project Areas and Areas in Vicinity of Projects

Appendix 6: Duncan's First Nation Traditional Territory Maps

75

Appendix B: Root Studies – Summary, Methods, Associated Limitations

Appendix B: Root Studies – Summary, Methods, Associated Limitations

Limitations of DFN Research Conducted to Date

This section provides a brief summary of the approach and methods employed for the DFN 2009/11, 2012 and 2018/19 DFN research efforts conducted to date entitled:

- "Duncan's First Nation: Consolidated Traditional Use Scoping Project of the Upper Peace" (DFN: 2009/11)
- "Duncan's First Nation 2012 Traditional Land and Resource Use Survey" (DFN: 2012)
- "2018 Wapiti Little Smoky Fan Indigenous Knowledge Survey Conducted in Relation to the Nova Gas Transmission Ltd. 2021 System Expansion Project Report" (DFN: 2018/19)
- "2019 Clear Hills Chinchaga Refuge Indigenous Knowledge Survey Conducted in Relation to the Nova Gas Transmission Ltd. North Central Corridor Loop Project and North Corridor Expansion Project" (DFN: 2018 / 19 this document)

"Duncan's First Nation: Consolidated Traditional Use Scoping Project of the Upper Peace" (DFN: 2009/11): Summary of Scope, Method and Limitations

Background to 2008 / 20011 Traditional Land Use Survey Data

The following sections summarize why and how the 2009 / 2011 Duncan's First Nation (DFN) traditional land use survey data set came to be produced:

Prior to 2008, the DFN had not been afforded the opportunity to undertake a traditional use study (a.k.a. Use and Occupancy Study, Traditional Land and Resource Use Study, Indigenous Knowledge Study, Aboriginal Traditional Knowledge Study etc.;

Between 2000 and 2010, the Government of Alberta (GOA) began to develop / refine a consultation framework and directed industry to forward applications and referrals to First Nations including the DFN as part of this consultation framework;

In addition, the GOA also began to develop and implement a traditional land use study program. In 2003, the GOA (Alberta Aboriginal Affairs and Northern Development) released a document a guide entitled 'Best Practices Handbook for Traditional Use Studies' (GOA TUS Guide);

In 2009, the GOA and DFN signed a Contribution Agreement (CA) that provided a limited amount of funding to the DFN support the conduct of traditional use study, limited in scope and scale. The DFN took the above noted GOA TUS Guide into account when it planned and implemented its program of research to fulfil the GOA deliverables outlined in the 2009 CA;

The DFN utilized the research undertaken under the auspices of the 2009 CA to address pressing information needs in relation to several major developments being advanced within the DFN's Traditional Territory at the time. Among others, these projects included:

- the Carmon Creek Expansion Project (est. timeline: 2009 2011)
- the Shell Canada 3-D seismic Project being conducted in the Carmon Creek area (est. timeline 2009-2010)
- the Ironstone Resources mining exploration project being proposed north of the Clear Hills

DFN TUS information (including summary interview statements and bio-maps) was provided to the proponents advancing the above projects and GOA agencies including Alberta Environment, Alberta Sustainable Resource Development and Alberta Aboriginal Affairs and Northern Development between the years of 2008-2011;

For example, the DFN TUS information was referenced and presented in different formats to the above GOA agencies within the three studies entitled:

- Duncan's First Nation Information Package on Shell Peace River 3-D Seismic Project: December 2008;
- 'Duncan's First Nation Current and Traditional Land Uses and Shell Canada's Carmon Creek Project': Prepared by Martyn Glassman: July 2009;
- 'Duncan's First Nation Current and Traditional Land Uses and Shell Canada's Carmon Creek Project': Supplementary Information Binder': Prepared by Matthew General: July 2009, and

• 'Here We Still Stand: Duncan's First Nation Traditional Use Scoping Project of the Upper Peace': 2011

The information presented in these studies were all based on the interview and mapping work undertaken by the DFN in 2009/11 period.

The DFN notes that since the filing of these documents almost a decade ago, that DFN experienced a damaging flood in its old office building and numerous files were damaged and lost. As a result, the DFN has the original text of these studies but does not have the corresponding attachments that form part of these documents. The DFN is working to recover these and will provide updates to the GOA and proponents as they become available. Notwithstanding the above occurrence, the DFN does have the majority of interview statement summaries and bio – maps that the above documents were based upon and referenced.

Methodology of DFN Interviews Conducted Between 2009 – 2011

The DFN opted to undertake its first round of community pilot interviews between 2009 and 2011 based on information and recommendations within (GOA TUS Guide) and according to the direction and content contained within GOA-DFN CA. The DFN also consulted with other parties and took into account other guidance available at the time. The basic approach taken by the DFN in its 2009/11 research effort is summarized as follows:

Planning the Research

- consulted with DFN leadership, staff, elders and community in relation to community interests and initial research priorities;
- one of the initial priorities identified by the DFN was to undertake a set of scoping interviews with identified DFN elders and knowledge holders. Given the importance of hunting to the DFN community and culture, emphasis was placed on working to identify hunting areas that were and relied upon by a sample of DFN community members;
- a secondary objective was documenting participating DFN elder and knowledge holder observations in respect to the role of land use change / development in altering the land and resource use patterns of the community;
- develop guiding research principles and directions with the same constituent groups;
- develop a draft interview guide in consultation with same constituent groups and to ensure the same basic approach and set of questions was asked of every community participant;
- select base maps of a sufficient scale, mylars and other interview tools to accurately capture mapped data documented during interviews;
- develop consent forms to be reviewed at outset of interviews and upon review and validation of interview statements and maps by community participants;
- retaining and briefing community coordinators to assist in explaining rationale for interviews, coordinate interviews, set up appropriate space for interviewing and storing of data

Implementing the Research

- Set up interview room and mapping space conducive to conducting organized interviews with community members in a comfortable setting;
- Explained purpose of research, confidentiality provisions and reviewed consent forms with participating community members;
- Administering interview guide in consistent way for each interview conducted;
- Asking probing questions to obtain as detailed information as possible;

- Applying flexibility to ensure that interview participants could speak to those matters that were relevant and important to them;
- Taking and maintaining written notes during interview to capture main points;
- Focus on identifying larger areas to scope and identify areas in which people hunted and procured large game vs. specific sites;
- Attempt to identify large game hunting areas / subsistence areas used over the DFN participant's lifetime with attempts to ascertain use that occurred earlier in a person's life and use that occurred in more recent times:
- Following interviews prepare interview statements for review and validation by interview participants;
- Following interviews prepare draft map biographies (converted from base map / mylar overlays) to GIS format for review and validation by interview participants
- Review interview statements and map biographies with interview participants, undertake amendments with input from interview participants and sign consent forms
- Utilize interview information sets within written studies prepared and submitted to Government of Alberta and relevant proponents
- Store information and set out follow up instructions for backing up information and storing in a secure place with DFN file rooms

Documentation of Methodology

The DFN included summaries of the basic research methodology in the document entitled, 'Duncan's First Nation: Consolidated Traditional Use Scoping Project of the Upper Peace', 2011). The following excerpt from this one study outlines the scope, method and limitations of the 2009/11 survey noted at the time:

'7) Government of Alberta Funding and Best Practices for TLUS

The first challenge to overcome was that of funding. The DFN simply did not have adequate funding to undertake the required research for a comprehensive traditional use study. In 2009 the DFN and the Alberta Aboriginal Relations entered into an agreement where the Government of Alberta agreed to fund a limited traditional use study to be conducted by the DFN. The DFN Chief and Council expressed their thanks to Alberta Government for supporting this study, while pointing out that much more research and funding was needed.

The funding and agreement was in place from April 1 2009 to March 31 2011. In return for the funding the study, the Government of Alberta needed to receive several things from the study effort. These included:

- *Lists of those who were interviewed as part of the study*
- List of those interviews that were summarized
- Lists of specific traditional use sites identified with a GPS
- Resulting mapping based on the study
- This Final Report

8)TLUS Study Based On Alberta Guidance

As noted, there are lot of ways to approach a traditional use study project, however there is not a lot of guidance on what a good traditional use study should look like, be based on, what it should include and how it should be undertaken.

Given that the Government of Alberta funded the study, the DFN based its traditional use study planging and methodology or approach on a how to booklet produced by the Government of Alberta in 2003 called,

'Best Practices for Traditional Use Studies' (Attachment #1)(note – not included in this document but available upon request).

This guide provides some advice and instruction on how to plan and carry out a traditional use study, which DFN took into account when planning its survey. In summary then, the DFN's methodology or approach to the study and the way in which it actually conducted the study followed recommendations set out in the Alberta guide. Some of these steps and elements included:

- Discussed and built agreement in the community for the need for an initial traditional use study.
- Developed a funding proposal and research plan that was accepted and funded by the Government of Alberta.
- Developed an information sharing protocol and interview consent form to ensure that community participants understood the purpose of the study and how their information would be managed and utilized.
- Ensured that elders and community members were respected in the interview process and paid them as project research partners and experts on their own culture and history.
- Decided to use the map biography approach to traditional use studies where individual community members are interviewed on a one on one basis where possible and their information is recorded in written summaries and maps.
- Decided the focus of the initial traditional use study which is the identification of the key hunting and fishing areas that community members have and continue to use.
- Decided to map important hunting and fishing areas along with examples or some specific sites such as camps, trails, fishing sites.
- Obtained additional information on how community members think their land use patterns are changing and the reasons for this through additional questions.
- Split the interviews where a group of people would be asked to show those areas that they have used over their whole lifetime. Another group would be asked to show separately, those that they used historically from those that they use today. This was done to provide a comparison to guide future research.
- Given the limited amount of funding, decided to conduct twenty initial one one one interviews with community members who are known to use the land a great deal attempting to get a good balance of elders, men and women and youth.
- Designed a questionnaire / interview to guide the interviews and to ensure that the interviews were conducted in a consistent way or the same way each time.

- Appointed two people (one community member and one non community member) conduct interviews so that one person could ask the questions and the other to accurately record the interview sessions.
- Decided to map data and information from one one –one interviews on one base map at a scale of 1:325,000. While this is larger than what Alberta recommended, DFN did so as it was aiming to identify key hunting areas within DFN's Traditional Territory. Using 1:50,000 would have resulted in using numerous maps making the exercise more complicated at this initial stage.
- Decided to record data in interviews with a base map and mylar overlays a clear film to cover the map. In this way the same base map is being used for each interview.
- Decided to use the same markings on maps on every interview to make sure that all hunting areas are marked the same way and fishing areas marked the same way.
- Mapped information in a consistent way on base maps for every interview. The information and data drawn on maps was transferred to digital maps with the help of Geographic Information System (GIS) technologists.
- Held workshops with community members to provide additional information on hunting and fishing values and sites. Some of the moose kill sites and important fishing sites were identified in follow up visits to the field. These were documented with the use of a GPS.
- Reviewed the interview summaries and map biographies with participating community members to
 make sure that information recorded was accurate and to see if the interview summary and map
 helped the participants remember additional information that might be documented in future
 studies.
- Managed the study as a project with a project leader who reported on progress to the DFN Council and held ongoing meetings with the community to track progress and to manage the budget.
- Prepared a plan and make arrangements for how to care for the information and protect the information gained from the study.
- Shared and discussed initial results with community and make a plan for further research steps given the limited amount of funding provided'

(Source: "Duncan's First Nation: Consolidated Traditional Use Scoping Project of the Upper Peace", 2011)

Survey Results

At the conclusion of the 2009/11 research effort, the DFN had conducted interviews and follow up validation discussions with 28 DFN community members. Witness statements and map biographies were prepared for 19 (then revised down to 17) of 28 participants.

The first set of maps were prepared by a GIS technician (D. Cameron) who worked in house within DFN who prepared a first initial set of map-biographies which were incorporated into studies provided to the Government of Alberta.

A second set and improved set of maps (largely undertaken to have identified DFN use areas stand out) on map PDFs was prepared by an Edmonton based GIS technician (L. Yellowbird). These were provided to the Government of Alberta in the document entitled: "Duncan's First Nation: Consolidated Traditional Use Scoping Project of the Upper Peace", 2011.

Limitations Associated with the 2009/11 DFN Research Effort

As with all traditional land use surveys, there were some important limitations associated with the research conducted that may have had some limited impact on the survey results and data depicted on the 2009 / 2011 Bio-Maps. These include:

- Several elders had some difficulty with identifying specific land and resource use areas on the topographic maps used. In some cases Bio Maps were not produced to accompany witness statements in several cases, as a limited number of DFN elders were able to talk about their life experience on the land in general terms but not able to identify specific areas (e.g. "I/we went everywhere");
- Initially DFN opted to reject a site-specific mapping approach given community comments during
 the study's planning phase where it was pointed out that what's important to the community, is the
 area in which and over which rights and cultural activities are exercised. Example sites of where
 someone happened to kill an animal, catch a fish or harvest berries and plants were seen as
 important features to capture at some point but not as relevant to the community and the Crown as
 working to identify key community land and resource use areas / sustenance areas / large game
 hunting areas;
- As DFN was mapping at a large scale (1:325:000) on paper base maps with mylar overlays, some generalization occurred. Notwithstanding, extreme care was taken in the interviews to draw polygons that corresponded carefully with the area utilization descriptions, instructions and guidance of DFN interview participants with feedback occurring through the map-biography process;
- Markers used for data marking on the mylar overlays were not as fine as they could be which may
 have led to some slight deviation during the initial data marking and subsequent GIS digitization
 process. With that said, digitized maps tracked hand drawn polygons on raw data map as accurately
 as possible and the hand drawn polygons were drawn as carefully as possible as per the directions,
 instructions and descriptions;
- Hunting areas / sustenance areas / large game hunting areas were depicted with polygons which took in water bodies. When viewing these polygons, generally audiences should exclude the water in waterbodies (e.g. lakes, rivers, streams) as hunting generally did not / does not occur on the water itself. In up two cases however, two DFN members discuss hunting along the Peace River and

Chinchaga River by boat thus the hunting area could be taken include a portion of the river contiguous to the shorelines (distances from shores unknown);

- Initially the DFN attempted to map land use areas into areas utilized in the earlier part of a person's life and areas utilized more recently. Quite quickly it became apparent that attempting to break a person's life lived on the land into two artificial discreet time periods proved to be confusing, bogged the interview process down and detracted from the primary research objective. Thus, DFN switched to asking DFN interview participants to identify areas they recalled using over their lifetime, then sought to qualify that with temporal references with additional probing questions. The corresponding interview statements help in determining the temporal context of mapped use / mapped polygons;
- The DFN selected interview participants based on community, leadership and staff input of who initially should be interviewed. Selection was also based on who happened to be available within the selected periods in which interviews were to be conducted. In retrospect, a more structured approach to creating a more representative sample frame from which to draw participants would have provided greater balance between off reserve and on reserve community members, family groups and greater gender balance;
- The community opted to focus its initial efforts areas north of the Peace River given the need to inform consultations and environmental assessments of the time being conducted in respect to a major projects occurring north of the Peace River;
- The sample size of the group interviewed and involved was of course limited due to limited time and resources. Thus mapped data cannot be held as being representative of the community as a whole however does provide an informative snap shot of examples of community land and resource utilization;
- The resulting information and mappable data clearly did not reflect or constitute the scope or totality of DFN's rights, DFN livelihood and cultural practices or use of lands and resources for traditional purposes;
- Since the 2009/11 survey was completed, the DFN moved offices from its old small band office across the road to the new site of the administration. It appears that most of the original raw data maps and mylars that were drawn on and have been misplaced in or damaged by water damage. This is unfortunate as it would have provided additional back up evidence of how the end product maps and data they depict was arrived at. With that said, the DFN does have most copies of the completed interview statements and most of the corresponding map-biographies. It is working to address the few gaps in its 2009/2011 information set. Notwithstanding, sufficient information remains to enable a viewer to discern DFN land and resource utilization patterns identified in the research period of 2009/2011;
- In retrospect, while some aspects of the survey's methodology could have been improved on, the survey was sufficient in scope and detail for the Government of Alberta to subsequently refer to and base land and resource use consultation decisions upon. The results of the survey were taken into account and incorporated into planning by a proponent and GOA decision making in respect to a major oil sands project and to inform the GOA's ongoing Geo-Data initiative. At the end of the day, the strength of the resulting data is due to the fact that it accurately conveys and depicts what DFN members said they do on the land and where they go, and
- Lastly, numerous people that participated in the 2009/11 survey have sadly left us and would not be available for additional or follow up consultation and dialogue. The DFN views this information as important and relevant to guiding land use decisions and consultations. Just because a person is now

deceased does not negate the information that they provided and knowledge they contributed. It is still relevant and should be deemed so by external parties.

Updating of DFN Information in 2018/2019

In 2018, the DFN determined the need to take stock of the traditional land use research it has undertaken to date and begin the work of supplementing that information and utilizing that information to address ongoing requests for the DFN to engage in consultation on various projects and matters. The DFN is actively considering and planning to undertake a new research stream and will do so if and when it can obtain the necessary resources to undertake a comprehensive Indigenous Rights and Knowledge Study.

In 2018 / 2019, the DFN undertook work to re-digitize the 2009/11 Bio-Maps using open source GIS and brought that data into ALCES Online so that the information could be utilized more readily by the DFN in relation to various matters and proposed projects. To date, DFN's traditional use information could only utilized by referencing and PDF format maps to letters and correspondence. Further, the original data housed in the GIS station could not be accessed as DFN did not have the resources to maintain a GIS function for any significant period of time.

The 2009/11 geo-spatial data was digitized by Mr. Tim Barker of the ALCES Group in summer of 2019 at the request of DFN. As per DFN instructions, Mr. Barker digitized "Identified DFN Sustenance Area" polygons from the 2009/11 bio-maps and prepare updated data layers and mapping. In 2010, the GIS mapper that prepared the initial set of maps identified hunting areas where DFN members hunted large game as 'Sustenance Areas'. In the updated data layer / maps prepared by Mr. Barker, the DFN re-labelled these as 'Large Game Hunting Areas'. The new map titles provides this important clarification to support understanding of what is being depicted on the maps – identified Large Game Hunting Areas.

The DFN notes that in recompiling the maps in 2018/19, one error has been made. In respect to PIN 002, the Bio Map for PIN 002 was transposed with the All Sites or Consolidated Map showing all mapped data for all DFN respondents. Thus, the Bio Map for PIN 002 generally shows data for all respondents / all PINS when it should only show the data for PIN 002. The data for PIN 002 can be viewed in the 2009/11 consolidated map set as produced as of 2009/11. The DFN will make this correction to the 2018/19 data set when time and resources permit and issue an update.

As noted, the DFN is attempting to address the gaps resulting from the loss of some of the original raw data from 2009/11 from the DFN office flood. To assist audiences in understanding what information is present and is being shown, the DFN prepared a meta-data table that allows audiences to link interview statements and bio-maps to DFN members and their unique Personal Information Number (PIN) used for the 2009/11 research effort. (Meta-Data Table not included in this document but is available on request

As noted, the DFN will reissue an updated information set if and when some of the old information is recovered.

"Duncan's First Nation 2012 Traditional Land and Resource Use Survey" (DFN: 2012): Summary of Scope, Method and Limitations

There is one additional piece of TLRU research conducted by the DFN that is of importance and relevance. It has been separated out from the 2009/11 and 2018/19 DFN research given the different approach and methods employed. In 2012, DFN opted to build on the 2009/11 survey effort by undertaking another form of map-biography survey utilizing the approach and method advocated by Mr. Terry Tobais as set out, in what was likely the first academic treatment and text on traditional use studies entitled, 'Living Proof: The Essential Data-Collection Guide for Indigenous Use-and-Occupancy Map Surveys'. (Source: Tobias, T. N. (2009). Living proof: The essential data-collection guide for indigenous use -and-occupancy map surveys. Vancouver, B.C: Ecotrust Canada.

The DFN opted to focus again on the north Peace region to build on what was accomplished with the 2009/11 DFN traditional land use survey. Of interest was to see whether and how applying a different map biography approach and method would reveal differing or similar land and resource use trends and patterns by the community.

While Tobais advocates that every First Nation and researcher should chart their own research course, he in fact advocates a very prescriptive approach and little deviation with his preferred methodology and exacting set of rules. In contrast with other approaches and models, his method generally produces maps demarcating examples of traditional land and resource use sites identified by participating community members, rather than identifying larger areas in which the exercise of rights occurs. Given that this academic text was the first of comprehensive treatment of traditional land use study methodology, had just become available and the positive reception of the guide by many parties, the DFN opted to test and implement its key research features and recommendations.

Over the course of the research project, up to forty-six DFN community members were interviewed on a one-on-one basis with a set questionnaire. At project end, the DFN interviewed 46 respondents out of 284 community members translating into a response rate of 16.9% and a participation rate of 92%. Tobias suggests that TLUS projects should aim to achieve a 70 – 80% response rate, thus DFN did not achieve this benchmark and the survey results cannot be held to be representative of the community as a whole. With that said, the DFN did identify and demarcate over a thousand examples of traditional land and resource use sites in BC and Alberta. During the interviews, community participants identified and demarcated specific the following types of traditional land and resource use sites:

Wildlife Kill Sites

Moose	Elk	Mule Deer	White Tailed Deer
Caribou	Black Bear	Grizzly Bear	Other Mammals
Ducks	Geese	Grebes	Grouse
Cranes	Ptarmigan	Other Birds	

Fish Catch Sites

Walleye Jackfish Dolly Varden Rainbow Trout

Bull Trout Whitefish Gold Eye Grayling

Ling Cod (burbot) Other Fish

Plant and Earth Material Harvesting Sites

Berries Food Plants Medicine Plants Sacred Plants

Construction logs Fire wood Drinking water Specialty rock

Other plant/earth material site

Overnight Sites

Cabin Site Tent Site Lean To Site Other Overnight Site

Cultural Sites

Birth Site Old Settlement Site Sacred Site Burial Place Site

Cache Site Ster Other Cultural Site

Production of Maps in 2012

The resulting data was set out in a series of bio-maps, category maps and thematic maps which was originally digitized in 2012 in collaboration with BC Hydro's Site C Clean Energy Project environmental assessment team which produced the maps according to the following process:

Step 1) Photogrammetry Department Creation of Digital Map Files

Platform used Microstation (dgn files)

- a) Scanned the reference map sheet (Mylar Bio Map Sheets) to jpg format using a large format scanner
- b) Downloaded and opened a geo-referenced version of the same map sheet
- c) Imported the jpg of the reference sheet and matched it to the geo-referenced version, copied the reference circles
- d) Scanned each layer into a jpg file

- e) Opened a unique dgn file for each overlay using the reference circles and matched each layer to its corresponding reference map circles
- f) Digitized all pertinent data (point with associated text for each interview)
- g) This unique file was then converted to shapefile format using FME to a point with attribute information
- h) The file was then checked against the original for completeness

This product was then transferred to BC Hydro's GIS group

Step 2) GIS Department Creation of End Product Maps

- a) The provided shapefiles for each interviewee were merged into one shapefile, maintaining all attribute information.
- b) New blank columns called Province, Category and Group were created in the merged shapefile. For each record, the Province attribute was populated with the appropriate code (alb or bc) after intersecting the data points with provincial boundary polygons. The code in the FEAT_ID_CO attribute was then used to populate the Category column after comparing values with the category codes document. These were then grouped in the Group column (e.g. the Cabin, Lean To and Tent Site categories were grouped into the Overnight Sites group).
- c) In the maps, the merged shapefile was displayed so that only the desired data showed and symbolized accordingly using the PIN, Category and Group attributes
- d) The finalized maps / end mapping products were then reviewed with the DFN.

2018/2019 Enhancement of 2012 Map Data by DFN

The data set produced by Hydro's Photogrammetry and GIS sections was brought into the current research project as a discreet information layer by Mr. Tim Barker of the ALCES Group.

One additional step was taken with the mapped data for this project to enhance its utility. The updated set of maps include the original site specific data points identified in the 2012 survey and in now addition, with convex polygons that link that outermost data points for each DFN respondent / interview participant. As a result, a viewer can view particular example sites of where DFN member killed a large game animals, but also the area over which the right to hunt large game animals has been exercised and associated cultural practices occur. The updated 2012 map set is attached in the appendices of this report.

The methodology section report of the DFN 2012 project report contains the following statements in respect to the methodology employed:

'In respect to the methodology employed in the 2011 (Note: 2012) research effort, the DFN did its utmost to conduct this map biography survey within the framework of science and according to social science research standards. The initial Research Proposal set out DFN's proposed plan for the collection and documentation of data. This Methodology Report sets out how the data collection actually occurred. The two documents are companion documents that can assist the DFN and external parties by providing a record of the methodology employed in this research effort and demonstrate how the resulting map data was arrived at. It also helps ensure that the end map products and the data they depict are considered and viewed within an appropriate context....

The DFN takes the view that its TLUS research project was designed according to a recognized soci**gk** science standards and the best practices and prescriptive standards set out by Tobias within "Living Proof".

Its subsequent review and analysis of the actual way in which the land use data was elicited and documented, strongly indicates that the research implementation mirrored the initial research plan and that the map data goes a long way in satisfying the data quality standards of Objectivity, Reliability, Validity, Precision, Accuracy, Integrity, Auditability and Representativeness. Thus, DFN takes the view that the resulting TLUS maps depict and purport to represent what they say they do. The aim of this Methodology Report and its companion Research Proposal document is to support other parties in considering, testing and hopefully validating this view'.

As with the 2009 (Note: 2009/11) study, DFN made note of the limitations associated with the 2011 (Note: 2012) study which included:

- size of the survey sample (number of community members interviewed) based on available project and time limitations;
- the site-specific approach to map biography research represents a quantitative form of research and does not allow for the expression or documentation of important community member qualitative observations, the contribution of IK and does not address the role of climatic and industrial factors that influence where, when, how and if people can exercise their right on the land;
- documenting community members' land and resource use examples based on a recall interval / time
 frame based on "within living memory" which can make determination of recent or current use
 challenging;
- only allows for the documentation of site specific examples of land and resource use by community
 members which does not take into account the total land area being used and or required by a
 community member in the conduct of their livelihood, sustenance and cultural practices (e.g. where
 someone actually managed to kill a caribou vs the total land used and relied on to get to that result);
- resulted in interviews with more men than women in the community thus not addressing important issues and differences in gender in respect to land use hence resulting in a focus on mammal kills sites over berry and medicine plant harvesting or fishing, and
- that the study as best represents an incomplete snap-shot of DFN land and resource patterns and does not depict the full scope of the exercise of rights by the DFN or the totality of DFN's rights, cultural practices and livelihood pursuits'

"2018 Wapiti – Little Smoky Fan Indigenous Knowledge Survey Conducted in Relation to the Nova
Gas Transmission Ltd. 2021 System Expansion Project Report" (DFN: 2018/19): and "2019 Clear
Hills – Chinchaga Refuge Indigenous Knowledge Survey Conducted in Relation to the Nova Gas
Transmission Ltd. North Central Corridor Loop Project and North Corridor Expansion Project"

(DFN: 2018 / 19 - this document): Summary of Scope, Method and Limitations

Whereas the 2009/11 DFN traditional land use survey focused on the upper Peace River region, the DFN 2018/19 Indigenous knowledge survey focuses on two areas:

- the Wapiti Little Smoky Fan, or those lands and waters that fall between the Wapiti River watershed and the Little Smoky River watershed, and
- the Clear Hills Chinchaga Refuge, or those lands and waters that fall between the Clear Hills and the Chinchaga River watershed

While mappable data for both of the above areas is presented in this report, the primary focus of this report deals with the DFN exercise of rights and practice of culture in Clear Hills – Chinchaga Refuge, given NGTL's interest in developing additional infrastructure in this area.

The methodology for the survey can be summarized as follows. DFN:

- Considered its own information gathering needs /priorities vis a vis the Clear Hills Chinchaga Refuge;
- Considered NGTL's information gathering needs and reporting requirements in relation to key regulatory documents such as the former NEB Filing Manual;
- Coordinated meetings with community elders, community members and leadership regarding the information needs and obtained comments on the direction that should be taken in respect to community research;
- Employed a hybrid map biography qualitative information gathering approach to document the spatial extent of exercise of rights and current use of lands and resources for traditional purposes by interviewed DFN members and to capture DFN land user qualitative information and observations about the state of hosting landscape and potential Project impacts;
- Prepared a draft interview questionnaire with DFN staff and legal counsel input;
- Reviewed the draft interview questionnaire with a community focus group;
- Prepared base maps with a satellite imagery base to use with mylar overlays;
- Conducted interviews with an initial set of community members / Mapping was conducted in a manner that tracked the recommended Bio Mapping method of Terry Tobias;
- Conducted a field reconnaissance of the immediate Project corridor;
- Conducted in an infield mapping / reporting exercise;
- Provide raw mapping data to a qualified mapper (Mr. Tim Barker) to digitally plot the data with open source QGIS software;
- Prepared, reviewed and finalized witness statements with members;
- Review rights, TLRU, IK information results and plot on landscape using ALCES On-Line;
- Highlighted community information directly relevant and applicable to the Project area and areas in the vicinity of the Project;
- Reviewed and prepared synthesis of existing DFN TLRU / IK information, and
- Reviewed the initial project report with the DFN leadership

Bio Maps (one map prepared depicting all of the data identified by a DFN respondent / interview participant during an interview) were prepared for the participating community members. The geo-spatial data for these community members were then collated into one Consolidated Map depicting identified data. The data was

digitized by Mr. Tim Barker which produced a discreet data layer and map set listed in the appendices of this report.

The DFN notes the following limitations in respect to the 2018/19 IK Survey:

- Following the release of the report and discussion with the community, the DFN may be able to identify additional community members that actively exercise their rights and currently use lands and resources in the Clear Hills-Chinchaga Refuge for traditional purposes. Should that occur, it will notify NGTL and provide such supplemental information to NGTL on a timely basis;
- The survey efforts were largely confined to the on-reserve population so community members that live in Grande Prairie area and Edmonton were not surveyed;
- The resulting information and mappable data clearly did not reflect or constitute the scope or totality of DFN's rights, DFN livelihood and cultural practices or use of lands and resources for traditional purposes, and
- Again, an elder and community member with immense knowledge of the land, that participated in the 2018/19 effort have passed on