Appendix 17-B

Saulteau First Nations Knowledge and Use Study for HD Mining Murray River Coal Project

Saulteau First Nations

Knowledge and Use Study

FOR HD MINING

MURRAY RIVER COAL PROJECT

FINAL REPORT April 28, 2014

Saulteau First Nations

the firelight group

Saulteau First Nations Knowledge and Use Study
for HD Mining Murray River Coal Project

Final Report April 28, 2014

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Acronyms and Abbreviations

B.C.	British Columbia
CEAA	Canadian Environmental Assessment Agency
CV	Curriculum Vitae
EA	environmental assessment
EAO	Environmental Assessment Office
Firelight	The Firelight Group or The Firelight Group Research Cooperative
GIS	geographic information system
km	kilometre
LSA	local study area
m	metre
n.d.	no date
RSA	regional study area
SFN	Saulteau First Nations
the project	Murray River Coal Project
the proponent	HD Mining
the study	SFN Knowledge and Use Study on the Murray River Coal Project
TUS	traditional use study
VC	valued component
ZOI	zone of influence

Executive Summary

The Firelight Group was retained by Saulteau First Nations (SFN) to conduct a traditional knowledge and use study (the study) in relation to the proposed HD Mining Murray River Coal Project (the project).

This report provides non-confidential baseline information and assessment of anticipated project interactions based on current and available SFN knowledge and use data collected within the traditional lands of SFN and the vicinity of the proposed project. It includes analysis of knowledge and use mapping interviews conducted with 107 SFN members during three interview periods (July 8 to 19, 2013; August 12 to 23, 2013; and September 23 to October 11, 2013).

Analysis of site-specific data was based on the proposed project footprint (within 250 metres of the proposed project), a local study area (LSA) within 5 kilometres of the proposed project, and a regional study area (RSA) within 25 kilometres of the proposed project.

Within the proposed project footprint, SFN members reported 72 site-specific use values. Within the LSA (including the project footprint), SFN members reported 115 site-specific use values. SFN members reported 309 site-specific values within the RSA (including the project footprint and LSA). While not every site-specific value recorded includes time information, reported use values in the RSA date from 1915 to the present.

Site-specific (mapped) values reported in the proposed project footprint, LSA, and RSA include cultural and spiritual sites, environmental values, habitation values, subsistence harvesting values, and transportation values.

The site-specific data clearly show that the project footprint is intensively used by SFN members, for hunting, fishing, gathering berries and other plant materials, and camping. Use is reported throughout the project footprint on both sides of the Murray River. The

Murray River itself is a particular focus of SFN use in the project footprint, as it is used as a water route along which SFN members travel, hunt and fish. The road that runs along its western bank is also heavily used by SFN members for hunting, fishing, berry picking and other activities. The bridge over the Murray River in the southwestern section of the project footprint is also a focal point, with members reporting hunting, fishing, camping, and collecting plant materials in the immediate vicinity. A trail heading northwest from the river in the southwestern section of the project footprint is also a focus of use, as SFN members travel along it while hunting. Important habitat for caribou, moose, grizzly bears, mountain goats, and other animals are reported throughout the site. The LSA follows a similar pattern, with site-specific values reported throughout the area and with the Murray River and the road along its western bank as a main focus for use by SFN members.

During the community scoping meeting for the study, SFN members also identified a number of non-site specific values relating to SFN knowledge and use that would be impacted by the proposed project. During data analysis and discussions with SFN participants, these were grouped into non-site specific valued components (VCs):

- Moose, caribou, and other wildlife;
- Water and fish;
- Berries, medicines, and other plants;
- SFN access and continued use of lands and water; and
- Cultural continuity.

This report provides assessment of project effects on site-specific and non-site specific VCs. Based on analysis of interviews with SFN participants, a number of project interactions or impact pathways have been identified:

- Habitat destruction and fragmentation;
- Movement of animals further away from preferred areas for harvesting;
- Disturbance of important environmental features, such as moose licks;
- Airborne dust from the mine or along transport routes from trucks or trains;
- Contamination of water, plants and animals from dust or chemicals;
- Increased traffic;
- Increased non-Aboriginal hunting and use of the area; and
- Cumulative impacts.

The data collected, considered alongside the physical works and activities required by the Murray River Coal Project, indicate that project interactions would further constrain SFN treaty rights practices in the project footprint and LSA for multiple generations. The proposed project is likely to impact the intergenerational transmission of cultural knowledge, and the ability of SFN members to meaningfully practice a way of life consistent with rights under Treaty 8.

This report may be updated or revised by Saulteau First Nations as additional work is completed and new information arises. This report may contribute to, but is not a replacement for, other studies that may be required to support consultation, such as studies or assessments based on socio-economic and cultural impacts, diet and harvesting rates, community health and wellbeing, indigenous or treaty rights, governance, planning and policy, or cumulative effects.

SECTION 1

Introduction

1.1 Overview

The Firelight Group Research Cooperative (Firelight) is pleased to provide this traditional knowledge and use report to the Saulteau First Nations (SFN), as part of reporting requirements between SFN and HD Mining Murray River Coal Project (the project).

This report provides non-confidential baseline information and consideration of anticipated project interactions based on current and available SFN knowledge and use data collected within the traditional lands of the SFN and the vicinity of the proposed project.

The report is organized into five sections:

- Section 1 provides a brief overview of the scope of work, maps of the project area, limitations of this report, and background to the proposed project;
- Section 2 provides background information regarding SFN;
- Section 3 gives information on the methods for the study;
- Section 4 presents the study's findings, including site-specific and non-site specific baseline data, maps of SFN site-specific values, and anticipated impacts of the proposed project; and
- Section 5 summarizes the findings and conclusions.

1.2 Scope of Work and Future Steps

SFN retained Firelight to work with SFN to coordinate and report on a knowledge and use study in relation to the proposed project. Firelight was retained to:

- Coordinate a community meeting with elders and land users, aimed at identifying key issues, locations of interest, and key knowledge holders for participation in interviews and field visits;
- Conduct up to 50 knowledge and use mapping interviews with elders and land users at the SFN band office, and have the interviews transcribed; and
- Analyze the data, prepare a report, and present the findings, including any mitigation and monitoring recommendations, to SFN, for SFN's subsequent possible consideration with HD mining.

The study will also include a site visit for elders and key knowledge holders. The Firelight Group will not directly participate in this activity, but it is anticipated that it will add to SFN understanding and knowledge of the mining project.

1.3 Report Limitations

Limitations of this report include:

- Information provided herein is the most current available to SFN, but not all SFN knowledge holders were able to participate in the interviews. This report is based on a set of interviews involving a small sample of SFN members (107, so 13 per cent of the SFN population). While efforts were made to include key families and knowledge holders active within the LSA and RSA, one of the most important limitations of the study is that some key knowledge holders were not able to participate. Therefore, the site-specific values collected in the study area provide an indication of SFN use in the area, but they do not account for all site-specific use in the area by all SFN members.
- Given the extent of use reported by SFN participants in the area, it was impossible to fully document the knowledge and use of all those interviewed. Interviews lasted approximately one to three hours and data collected for each land user were limited to what the participant was able and willing to report in that time. Interview teams placed priority on documenting values within the LSA and in close proximity to the project. Values further from the project, within and beyond the RSA, were documented where time and opportunity allowed. As above, the site-specific values collected in the study area therefore provide an indication of SFN use in the area, but they do not account for all site-specific use in the area by the SFN members interviewed.

- Site-specific (mapped) values, such as cabins or kill sites, reflect specific instances of use that anchor the wider practice of livelihood within a particular landscape. For example, a particular moose kill site may be mapped with a precise point, but that value is correctly interpreted as an anchor or focal point for a wide spectrum of other related livelihood practices and values. Therefore, the area covered by recorded site-specific use values should be understood as a small portion of the area actually required for the meaningful practice of SFN way of life and treaty rights.

Given these limitations, this report can be used as an indication of where SFN current use occurs. However, as it represents only a portion of total SFN use and knowledge, **it is important to note that absence of data does not suggest absence of use or value.**

This report provides only baseline information and preliminary impact pathway identification. It does not provide an assessment of the significance of residual project effects on SFN knowledge, use or rights. Should an assessment be required, the SFN should be involved in determining appropriate thresholds for significance, in making predictions regarding effectiveness of mitigations, characterizing likely residual project effects, and determining the significance of residual effects.

Mitigation and monitoring measures should be decided upon in dialogue with SFN and so are not presented or proposed in this report. The process for collaboration between SFN and HD Mining regarding monitoring and mitigation is to be determined.

This report is based on the understandings of the authors (see CVs in appendices 4 and 5), and is not intended as a complete depiction of the dynamic way of life and of the living system of use and knowledge maintained by SFN elders and members.

Nothing in this report should be construed as to waive, reduce, or otherwise constrain SFN rights within, or outside of, regulatory processes. Nor should this report be construed as to define, limit, or otherwise constrain the Aboriginal or treaty use or rights of other First Nations or Aboriginal peoples. It should not be relied upon to inform other projects or initiatives without written consent of the SFN.

1.4 Proposed Project[1]

HD Mining International Inc. (HD Mining) is proposing to develop the Murray River property, which lies 12.5 km south of Tumbler Ridge, British Columbia (see Figures 1 and 2 on the following pages for maps of the area). This would be an underground mine with surface facilities. These surface facilities would be located in the vicinity of the Quintette Mine sites (which closed in 2000), close to the Murray River.

The mining method would be longwall mining. Surface facilities would include a mine portal, coal handling and preparation plant, coal rejects pile, administrative offices, change house, maintenance building, and warehouse. Coal from the mine would be conveyed to a stockpile for primary screening and crushing before being conveyed to the coal preparation plant. The clean coal from the preparation plant would be conveyed to a stockpile, and coal from the stockpile would be transported from the mine site to a rail loadout located along the CN Rail mainline, on the east side of the Murray River. HD Mining is considering transportation options, including the rail loadout location. Coarse and fine rejects would be collected and disposed of at one location near the surface facilities. Water from the fines would be recycled for use in the coal handling and preparation plant.

The mine is expected to produce waste water. A water management plan that includes a discharge to the receiving environment has yet to be developed. The water management plan would address general water quality and, in particular, total suspended solids and selenium.

HD Mining's schedule for the proposed project has coal being produced in June 2015, and the mine would run over 31 years, with an annual production of six million tonnes of metallurgical coal over this period.

1 Adapted from the Project Description for HD Mining International Ltd.'s Murray River Coal Project, May 2012.

Figure 1: Project footprint, LSA, and RSA for the HD Mining Murray River Coal Project

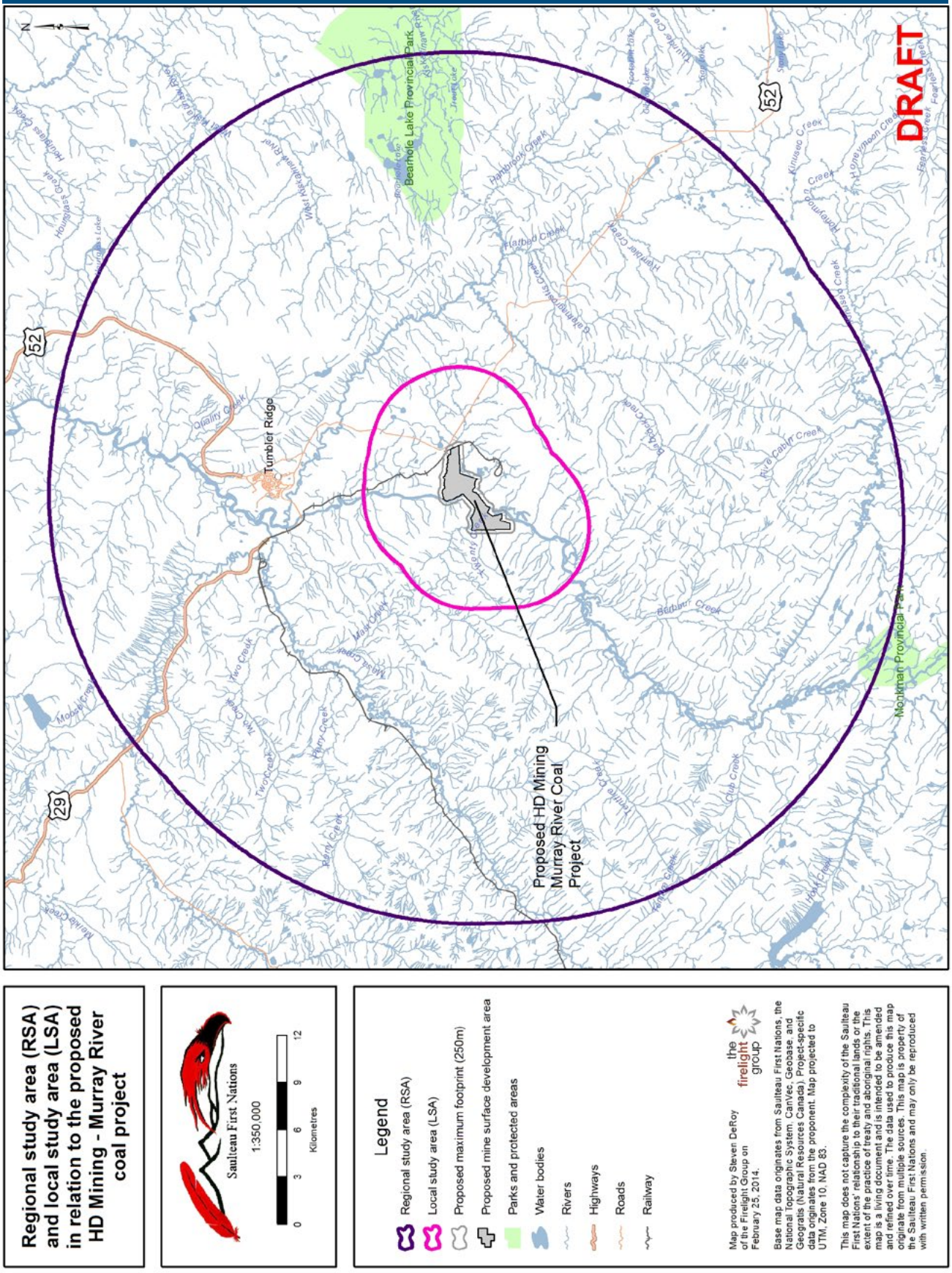
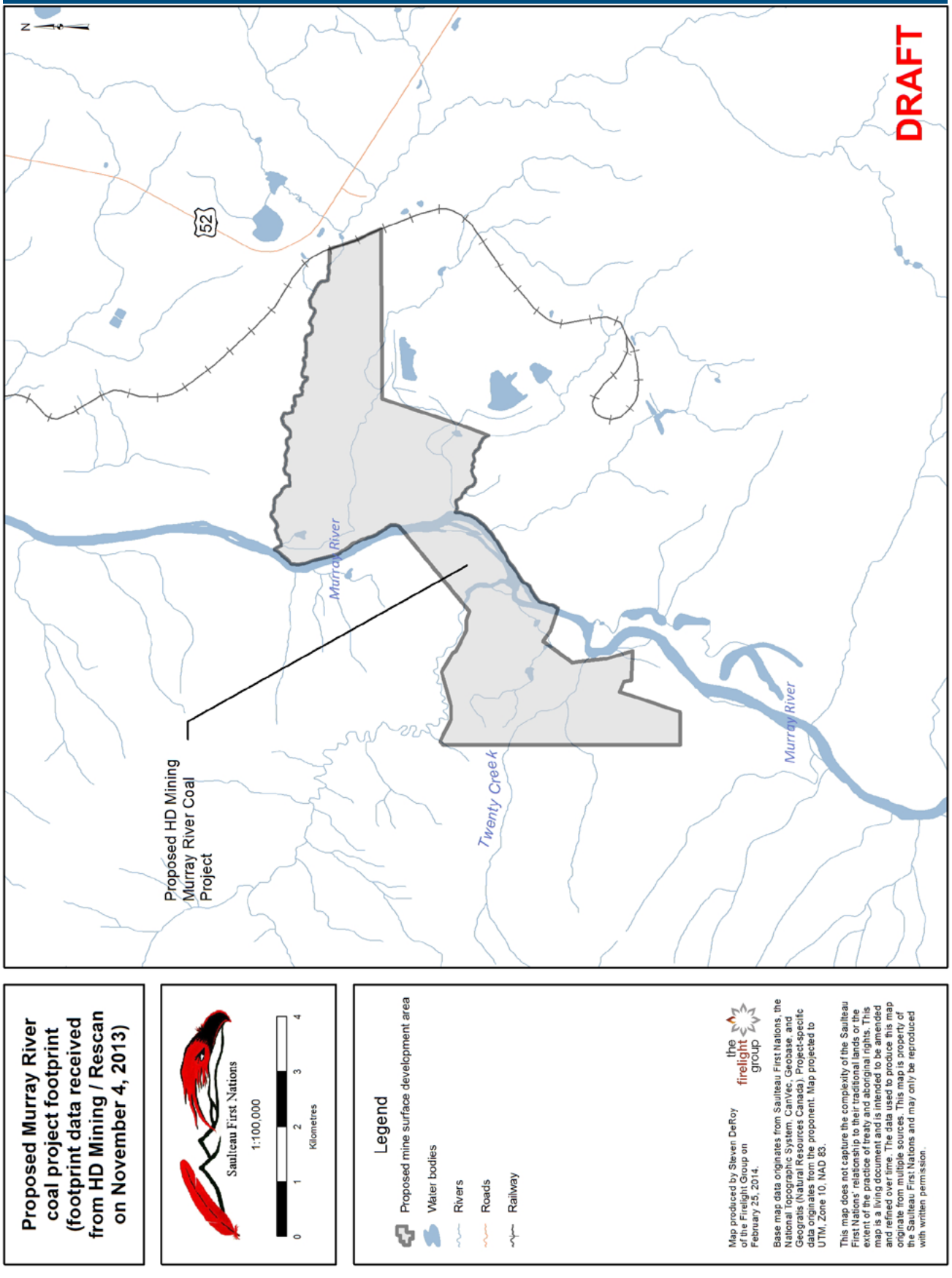


Figure 2: Project footprint of the HD Mining Murray River Coal Project



SECTION 2

Background

2.1 Saulteau First Nations

Saulteau First Nations is located in northeastern B.C., "a land of jack pine, diamond willow, fireweed, buffalo berry and chokecherry, of goose eggs and muskrat and the land of the sacred Twin Sisters Mountains" (SFN n.d.). SFN includes three cultural and linguistic groups: the Nēhiyawēwin Cree, the Dane-Zaa Beaver, and the Anishnaubemowin Saulteau (First People's Language Map of British Columbia n.d.).

The ancestral roots of SFN's Anishnaubemowin Saulteau speaking members are in Manitoba. In the late 1800s, the Saulteau people were living in southern Manitoba, where they suffered from starvation and other hardships. Their leader Kakagooganis, also known as Crow Feather, had a vision of a place to the west that offered a better life. Consequently, in the 1870s a group of Saulteau left Manitoba and followed Kakagooganis on a long journey across the prairies, arriving in the area of Moberly Lake between 1888 and 1908. Along their migration, the Saulteau intermarried with Cree, and after their arrival with the Dunne-Zaa and the Cree of the region. The Dane-Zaa had been in the region since time immemorial (Brody 1981). As a result of this history, SFN members consider themselves a community of nations. The languages most commonly spoken by SFN members today are Cree and English.

The registered population of SFN is currently 998 members (AANDC 2013). The SFN Indian Reserve (I.R. No. 169) is located roughly 100 km southwest of Fort St. John on Highway 29. Many members live on the reserve, or in the immediate vicinity around Moberly Lake. Members living off reserve are mostly based in nearby communities, such as Chetwynd, Kelly Lake, and Fort St. John, while a small number live in other areas of Canada, and in other countries. Moberly Lake, including SFN Reserve, has been SFN's cultural, economic, and administrative centre for generations.

2.1.1 SFN Land Use

SFN members have always lived off the land, getting their meat, fish, fruit, and vegetables from the abundant resources of the area. Historically, the area of northeastern B.C. offered a rich array of species for hunting and trapping. Moose and other game, such as elk, deer, caribou, grouse, and rabbits, were important components of SFN diet. Fur-bearing mammals, such as lynx, beaver, and marten, were important for their valuable hides, which were used to make clothing and blankets, as well as being sold in the fur trade. Fish was also historically an important component of SFN subsistence, and was caught year round in lakes and rivers in the area. In addition to hunting and trapping, gathering plants and fungi for subsistence, medicinal, and spiritual purposes was integral to SFN subsistence and livelihood (Brody 1981; Nesoo Watchie Environmental Ltd. 2011).

SFN members stress the continued importance of the land for their livelihood and way of life. The land and water, and hunting, fishing and subsistence practices, remain critical to SFN members' physical sustenance, social relationships, cultural transmission, and spiritual life.

SFN use of lands — both traditionally and today — extends through much of the upper Peace River Valley and adjacent watersheds, but is particularly focused on areas south of the Peace River, especially around Moberly Lake, and further east to include the Murray River and south to include the area south of Tumbler Ridge where the proposed Murray River Coal Project would be located.

2.1.2 SFN and Treaty 8

SFN is a signatory to Treaty 8. In 1899, Treaty 8 was signed between the Crown and Cree, Chipewyan, and Beaver Indians at Lesser Slave Lake. There were subsequent adhesions in the early 1900s, and in 1914 the Saulteau living at Moberly Lake were admitted into Treaty 8 (Madill 1986). Treaty 8 covers an extensive area of land, including "Northern Alberta, the Northeastern quarter of British Columbia, the Northwestern quarter of Saskatchewan, and the area south of present day Northwest Territories" (Treaty 8 2005-2013).

SFN interprets Treaty 8 as a peace treaty, which, while creating reserves, also secured the rights of First Nations to continue using much larger areas of traditional territory. SFN Chief Harley Davis explains:

> *It was not a Treaty to, to surrender the land. It was not a Treaty to surrender the resources. It was a Treaty to promise not to harass non-First Nations people. …the reserve was to be used as a place of gathering should there be a famine, should there be disease. But it was also to be used for celebrations. And the people were free to go about and live as they always had.* (Davis 2012)

When Treaty 8 was signed, the Crown's negotiators observed that Nations were apprehensive that their hunting and fishing privileges would be curtailed. The negotiators confirmed that Treaty 8 would neither restrict the First Nations' use of the land nor infringe on their way of life:

> *Our chief difficulty was the apprehension that the hunting and fishing privileges were to be curtailed.… We had to solemnly assure them [the First Nations] that only such laws as to hunting and fishing as were in the interest of the Indians and were found necessary in order to protect the fish and fur-bearing animals would be made, and that they would be as free to hunt and fish after the treaty as they would be if they never entered into it.*
>
> *We assured them that the treaty would not lead to any forced interference with their mode of life.… As to education the Indians were assured that … the law, which was as strong as a treaty, provided for non-interference with the religion of the Indians in schools maintained or assisted by the Government.* (cited in Laird, Ross, and McKenna 1966)

As such, SFN consider their treaty rights to apply throughout all of Treaty 8 territory and consider the promises made by the Crown to be the foundation on which all subsequent non-Aboriginal use in the region depends, including both Crown and industrial use. These expectations are predicated on both the written and oral promises made by the Crown's negotiators at the time.

2.1.3 Industrial Development on SFN Lands

Over the past one hundred years, SFN members have experienced both a decrease in access to natural resources within their territory and a decrease in the overall quality of those resources. Changes began in 1912 when 3.5 million acres of federal land in Peace River country was opened up for homesteading (Clare 1998). In the 1920s, exploration began for oil and natural gas in the area, but these resources were not commercially developed until the area was made more accessible by the construction of roads, such as the Alaska Highway in 1942 and the John Hart Highway in 1952. Importantly, the construction of the W.A.C. Bennett Dam at Hudson Hope in 1967–68, which flooded the Peace Valley to create Williston Lake, "signaled the beginning of energy extraction in the region" (Clare 1998). Subsequently, northeastern B.C. became a centre for coal, oil, natural gas, and hydro-electricity production. Concurrent to energy development, the forestry industry was established and expanded: large sections of forest began to be harvested to produce pulp and lumber.

Today, all of these industries remain economically important and levels of activity are very high. A recent study of land use and industrial land changes by the David Suzuki Foundation concluded that, when buffered by 500 m, 66.9 per cent of the Peace Region has been industrially changed to date (Lee and Hanneman 2012).

This large-scale development within SFN traditional territory has increasingly put pressure on SFN's traditional land base and their traditional activities protected by Treaty 8. SFN Chief Harley Davis stated:

> *For the Treaty to be honoured and upheld, the Crown and its officials are charged with the honourable duty of ensuring that there will be enough lands of sufficient quantity and quality. We are dealing with a situation in Northeast,*

> *B.C. where the rights of our people are being rendered meaningless through this — through the — sheer pace and scope of development. What does the right to hunt mean if there are no caribou, grizzly, moose, deer, elk? What does the right to fish mean if we can't find fish in the river because they are warm and full of silt and runoff?* (Davis 2012)

Given the extent and pace of current development in and around SFN territory, and the further extent of that being proposed at this time, SFNs' already impacted treaty rights are at great risk of significant further harm. The Supreme Court of Canada has noted that Treaty 8 promises more than just the rights to hunt, fish and trap, but also promises "continuity in traditional patterns of economic activity" (*Mikisew Cree First Nation v Canada (Minister of Canadian Heritage)*, 2005 SCC 69 at para 47). The B.C. Court of Appeal has confirmed that Treaty 8 protects the right of its signatories to practice a historic mode of life (*West Moberly First Nations v British Columbia (Chief Inspector of Mines)*, 2011 BCCA 247 at paras 130 and 137). As with all aboriginal and treaty rights, SFNs' treaty rights are not frozen in time (*R v Marshall,* [1999] 3 SCR 456 at para 78). Rather, SFN members have a right to maintain a livelihood from their lands, waters and resources, by modern means while sustaining their use for future generations.

SECTION 3

Methods

3.1 Community Scoping Meeting

A small community-scoping meeting was conducted in the Saulteau First Nations Lands Department office on Monday, July 24, 2013. The meeting was attended by SFN membership, and was facilitated by SFN lands staff and The Firelight Group. During the meeting, participants identified key issues and concerns (which formed the foundation for the non-site specific valued components, described below), and key participants who should be interviewed for the study. Methods and timelines were also discussed, and adjusted accordingly for the interview process.

3.2 Interview and Mapping Process

Interview data was collected for this study from two sources:

- Mapping interviews focused on the HD Mining Murray River Coal Project with SFN members; and
- Existing mapped data from other Firelight studies with SFN members, where site-specific data overlaps with the HD Mining Murray River Coal Project's RSA. These studies followed the same methodology described below.

In total, 107 SFN members were interviewed for the HD Mining Murray River Coal Project study, over three interview periods (July 8 to 19, 2013; August 12 to 23, 2013; and September 23 to October 11, 2013). Most participants were interviewed individually, with a small number interviewed in pairs or in small groups.

Participants were identified by SFN staff and leadership, as well as by other participants during interviews. Participant identification codes (in the form S##) were allocated chronologically for each new participant, building on the list of codes used by Firelight for other studies with SFN. Participants who had previously taken part in Firelight studies retained their previously assigned identification code.

The majority of interviews took place at the SFN office in Saulteau First Nations. Interviews also took place at participants' residences on the SFN reserve, and in participants' homes in Moberly Lake, B.C., Kelly Lake, B.C., Dawson Creek, B.C. and Horse Lake, Alberta. Flexibility in interview location allowed participation of SFN members who could not otherwise get to the SFN reserve to take part in the study.

Each of the interviews was focused on the HD Mining Murray River Coal Project, and also on additional industrial projects proposed in the same general area. This enabled broader SFN participation in the study (enabling 107 SFN members to participate) whilst remaining within the HD Mining Murray River Coal Project study's scope and budget.

Interview and mapping protocols were based on standard techniques (Tobias 2010, DeRoy 2012). All mapping interviews included documentation of prior informed consent (see the consent form in Appendix 2), and followed a semi-structured format, guided by an interview guide (see Appendix 3). All interviews were conducted in English, with Cree translation provided where necessary. All mapping interviews were recorded using a digital audio recorder.

3.2.1 Site-Specific (mapped) Data Collection and Analysis

For the purpose of this report, site-specific values are SFN values that are reported as specific and spatially distinct, and that may be mapped (though exact locations may be considered confidential).

Site-specific data were mapped and managed using a direct-to-digital process, which involved projecting Google Earth imagery on a wall or screen. Data were mapped using points, lines, or polygons geo-referenced at a scale of 1:50,000 or finer. Data collection focused on the proposed project's footprint (within 250 m of the project and related physical works and activities),[2] local study area (LSA; within 5 km of the proposed project),[3] and the regional study area (RSA; within 25 km of the proposed project).[4] See Figures 1 and 2 on pages 14 and 15 for maps of the proposed project and the study area.

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2 For designating the project footprint, a 250 m zone of influence (ZOI) around the industrial footprint is used to estimate potential impacts on site-specific VCs, based on evidence that this distance is a reasonable approximation for a zone within which the abundance of wildlife and land use by humans may be directly altered (MSES 2010).

3 Five kilometres is an approximation of the distance easily travelled in a day trip from a point of origin (e.g., a cabin, camp, or other location) by foot through bush and back to the point of origin, as when hunting (Candler et al. 2010). It is used as a reasonable approximation of the area of regularly relied-upon resource use surrounding a given transportation or habitation value.

4 The RSA is a broad area within which direct or indirect effects of the proposed project may be anticipated, such as noise, dust, odors, access management activities, traffic, effects on water, and other forms of disturbance experienced. Along with cumulative effects, these project effects may be expected to interact with SFN values.

The maps of site-specific values presented in this report were generated from the data mapped during the interviews. Points were randomized, and a 1 km buffer was generated around each point, line, and polygon in order to account for margin of error and to protect confidential information.

Site-specific values collected and mapped in this study were organized using five broad classes of use or occupation:

- Subsistence values (including harvesting and kill sites, and plant collection areas);
- Habitation values (including temporary, seasonal, or permanent camps and cabins);
- Cultural/spiritual values (including burials, village sites, ceremonial areas, medicinal plants, and trapping and teaching areas);
- Transportation values (including trails, water routes, and navigation sites); and
- Environmental feature values (including specific highly valued habitat for moose, elk, deer and other animals).

These five classes of use and occupation were taken to be valued components (VCs)[5] for the purpose of analyzing the data.

The temporal boundaries for all data collection and analysis included current and past SFN knowledge and use. For the purpose of this study:

- A past value refers to an account of knowledge and use prior to living memory; and
- A current value refers to an account of knowledge and use within living memory.

3.2.2 Non-Site Specific (unmapped) Data Collection and Analysis

For the purpose of this report, non-site specific values are those that may be specific to a resource or concern, but are spatially indistinct or difficult to map. Non-site specific values often represent the critical conditions or elements that must be present for the continued practice of treaty and Aboriginal rights, such as hunting, fishing, and gathering culturally important plants (e.g., berries, medicines). As such, non-site specific values range from the direct presence of traditionally hunted animals and gathered plants on the land to continued access to traditional hunting areas and non-contaminated sources of plants. Non-site specific values also include intangible cultural resources, such as the transmission of knowledge across generations and the continued use of traditional place names.

Non-site specific (unmapped) data were collected during interviews. Interviews were transcribed, coded and analyzed for issues of importance to SFN members in relation

5 A VC is defined as an important aspect of the environment that a project has the potential to affect (Hegmann et al. 1999). VCs may include tangible or biophysical resources (e.g., particular places or species), as well as less tangible social-, economic-, cultural-, health-, and knowledge-based VCs (e.g., place names, indigenous language, or traditional knowledge regarding a particular area).

to the proposed project. Quotes used in this report were also taken from the interview transcripts and coded during this process. Data and quotes were then organized into key themes, using the non-site specific valued components for the study that were determined during the community scoping meeting. The VCs were also refined during this process.

Non-site specific VCs for the study are:

- Moose, caribou, and other wildlife;
- Water and fish;
- Berries, medicines, and other plants;
- SFN access and continued use of lands and water; and
- Cultural continuity.

3.2.3 Project Interactions Data Collection and Analysis

Project interactions (how the proposed project is anticipated to interact with and affect site-specific and non-site specific VCs) were determined through analysis of the community scoping meeting and interview transcripts, as SFN members discussed their experiences with similar projects and considered the proponent's description of project components.

3.2.4 Confidence in Predictions

Predictions of project impacts made in this report are provided with an indication of the level of certainty that the effects of the project will occur at the level predicted (see Hegmann et al. 1999). High levels of confidence require strong and relevant primary data collected with knowledgeable community members. Lower levels of confidence result from predictions based on professional judgments made without the benefit of strong and relevant primary or secondary data sources. For the purpose of this report, confidence in predictions is assigned based on the following three categories:

- **Low:** predictions are based on professional judgment with limited available secondary or primary information to inform them.
- **Medium:** predictions are based on professional judgment and primary information that is limited due to extent of primary research or level of community representativeness among research participants.
- **High:** predictions are based on professional judgment, strong primary information (including mapping at 1:50,000 or better) conducted with a reliable sample, or operational-level studies involving field visits with knowledge holders, strong project information, and secondary literature review.

SECTION 4

Baseline Data and Project Interactions

The following section provides baseline SFN knowledge and use data for the proposed project footprint, LSA, and RSA, and a preliminary assessment of project interactions. Section 4.1 provides site-specific baseline data, Section 4.2 provides a summary of project interactions, and Section 4.3 provides non-site specific baseline data and detailed analysis of project interactions.

4.1 Site-Specific Values

4.1.1 Overview

The site-specific data clearly show that the project footprint is actively used by SFN members, for hunting, fishing, gathering berries and other plant materials, camping, and other uses. Use is reported throughout the project footprint on both sides of the Murray River, but, in general, the southern portion of the project footprint, and areas closest to the Murray River, are most intensively used. The Murray River itself is a particular focus of SFN use, as it is used as a water route along which SFN members travel by boat, often while hunting and fishing. The road that runs along its western bank is also heavily used by SFN members for hunting, fishing, berry picking, and other activities. The bridge over the Murray River in the southwestern section of the project footprint is also a focal point, with members reporting hunting, fishing, camping, and collecting plant materials in the immediate vicinity. A trail heading northwest from the river in the southwestern section of the project footprint is also a focus of use, as SFN members travel along it while hunting. Important habitat for caribou, moose, grizzly bears, mountain goats, and other animals are reported throughout the project footprint. The LSA follows a similar pattern, with site-specific values reported throughout the area and with the Murray River and the road along its western bank as a main focus for use by SFN members.

Figures 3 to 9, on pages 28 to 34, provide maps of site-specific values reported by SFN members through the study.

4.1.2 Percentage of Participants Reporting Site-Specific Values

Within the proposed project footprint, 11 per cent of SFN members interviewed for this study reported site-specific use values.

Within the LSA (including the project footprint), 21 per cent of SFN members interviewed for this study reported site-specific use values.

Within the RSA (including the project footprint and LSA), 38 per cent of SFN members interviewed for this study reported site-specific use values.

Table 1 provides a summary of the number of participants who reported use in the project footprint, LSA, and RSA, and the percentage this represents of the 107 SFN members interviewed for the study.

Table 1: Participants reporting site-specific use values within the footprint, LSA and RSA of the proposed Murray River Coal Project (n = 107 interviewees)

Project footprint (within 250 m of the proposed project)		LSA (within 5 km of the proposed project, including the project footprint)		RSA (within 25 km of the proposed project, including the project footprint and LSA)	
# of reporters	% of total interviewed	# of reporters	% of total interviewed	# of reporters	% of total interviewed
12	11%	22	21%	41	38%

4.1.3 Total Site-Specific Values Reported

In total, 309 site-specific values were reported in the study area for the proposed HD Mining Murray River Coal Project (project footprint, LSA and RSA combined). This total, and the table, figures and discussion below, include site-specific values mapped in other SFN–Firelight studies, if these values were mapped within the HD Mining Murray River Coal Project's study area (see Section 3.1 for details).

Table 2 on the following page provides an account of these reported SFN site-specific values broken down by activity class for the project footprint, the LSA, and the RSA. Figures 3 to 9, on pages 28 to 34, provide maps of site-specific values reported by SFN members.

Table 2: SFN site-specific use values reported within the footprint, LSA and RSA of the proposed Murray River Coal Project						
Activity Class	Project Footprint (within 250 m of the proposed project)		LSA (within 5 km of the proposed project, including the project footprint)		RSA (within 25 km of the proposed project, including the project footprint and LSA)	
	# of values	% of reported values	# of values	% of reported values	# of values	% of reported values
Cultural/Spiritual	3	4%	13	11%	51	17%
Environmental	11	15%	17	15%	43	14%
Habitation	2	3%	5	4%	35	11%
Subsistence	44	61%	64	56%	155	50%
Transportation	12	17%	16	14%	25	8%
TOTAL	72	100%	115	100%	309	100%

4.1.4 Project Footprint

In the proposed project footprint, 72 site-specific values were reported.

While not every site-specific value recorded includes time information, SFN use was reported in the study from at least the 1960s to the present (2013).

Site-specific values reported in the proposed project footprint include:

- **Cultural/spiritual values,** including a general trapping area, a medicine plant gathering area, and a sacred place;
- **Environmental values,** including reports of high-value habitat for caribou, grouse, elk, moose, grizzly bears, mountain goats, deer, and rabbits, as well as reports of mineral licks used by moose;
- **Habitation values,** including a report of a permanent cabin used by SFN members in the 1960s while hunting, and a report of a camping site;
- **Subsistence values,** including reports of large game kill locations (predominantly for moose and elk, but also for deer and wolf), reports of small game kill locations (predominantly for grouse, but also for rabbit and porcupine), reports of fish catch sites (including multiple reports for bull trout, and also grayling, rainbow trout and whitefish), and reports of plant gathering sites for berries (blueberries) and firewood gathering sites; and
- **Transportation values,** including reports of roads and trails used frequently by SFN members for hunting sheep and elk.

4.1.5 Local Study Area (LSA)

Within the LSA (including the project footprint), a total of 115 site-specific use values were identified.

While not every site-specific value recorded includes time information, SFN use was reported in the study from at least the 1960s to the present (2013).

In addition to the site-specific values described above for the project footprint, SFN participants also reported the following site-specific values in the proposed project LSA:

- **Cultural/spiritual values,** including medicine plant gathering areas, place names, sacred places, and a burial site;
- **Environmental values,** including reports of high-value habitat for sheep and goats, and reports of mineral licks used by moose, goats and elk;
- **Habitation values** including regularly used camping sites;
- **Subsistence values,** including reports of large game kill locations (for moose, elk, deer, caribou, goat, and sheep), reports of small game kill locations (for grouse and rabbit), reports of berry collection sites (huckleberries and cranberries), a report of a drinking water collection site, and reports of fish catch sites (for bull trout); and
- **Transportation values,** including water routes, and roads and trails used frequently by SFN members. Many of these trails and roads are routes along which SFN members report picking berries, hunting (for moose, sheep, elk, woodland caribou, deer, rabbits, porcupines, and grouse), fishing, and camping.

4.1.6 Regional Study Area (RSA)

Within the RSA (including the LSA and project footprint), a total of 309 site-specific values were identified, suggesting that the wider area around the Murray River Coal Project is highly important and intensively used by SFN members.

While not every site-specific value recorded includes time information, SFN use was reported in the study from at least 1915 to the present (2013).

Of particular note in the RSA are values reported for fish and fishing downstream from the proposed project on the Murray River. These include multiple fishing sites frequently used by SFN members and sites where fish have been caught for consumption, including bull trout, grayling, and rainbow trout. The area around Tumbler Ridge is a particular focus for fishing on the Murray River. The Murray River in the RSA is also a frequently used water route travelled by boat by SFN members. These values would potentially be impacted by downstream effects from the mine on water and fish, well into the RSA and beyond.

Figure 3: Reported SFN site-specific use values within the project footprint and LSA

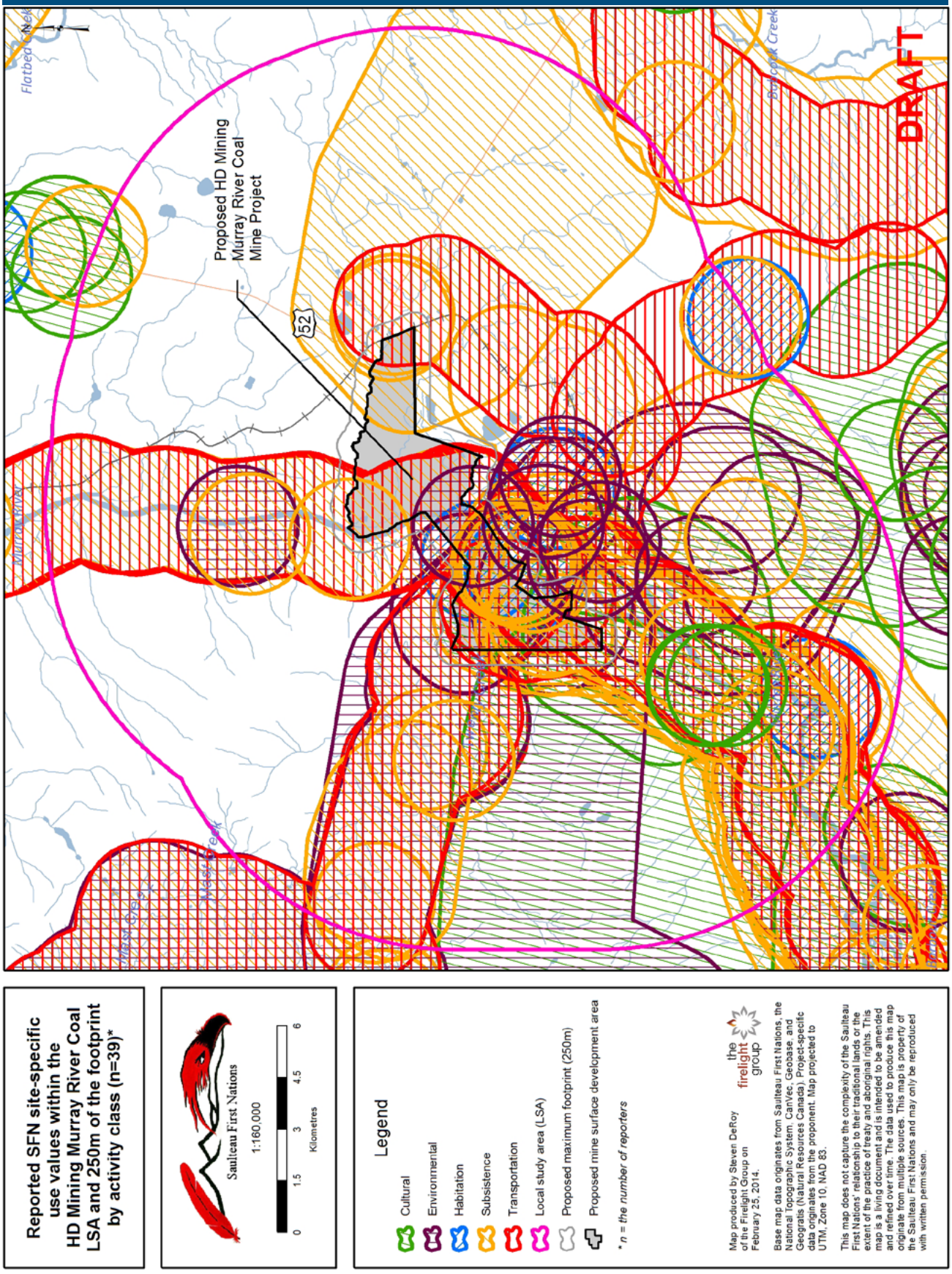


Figure 4: Reported SFN site-specific use values within the LSA and RSA

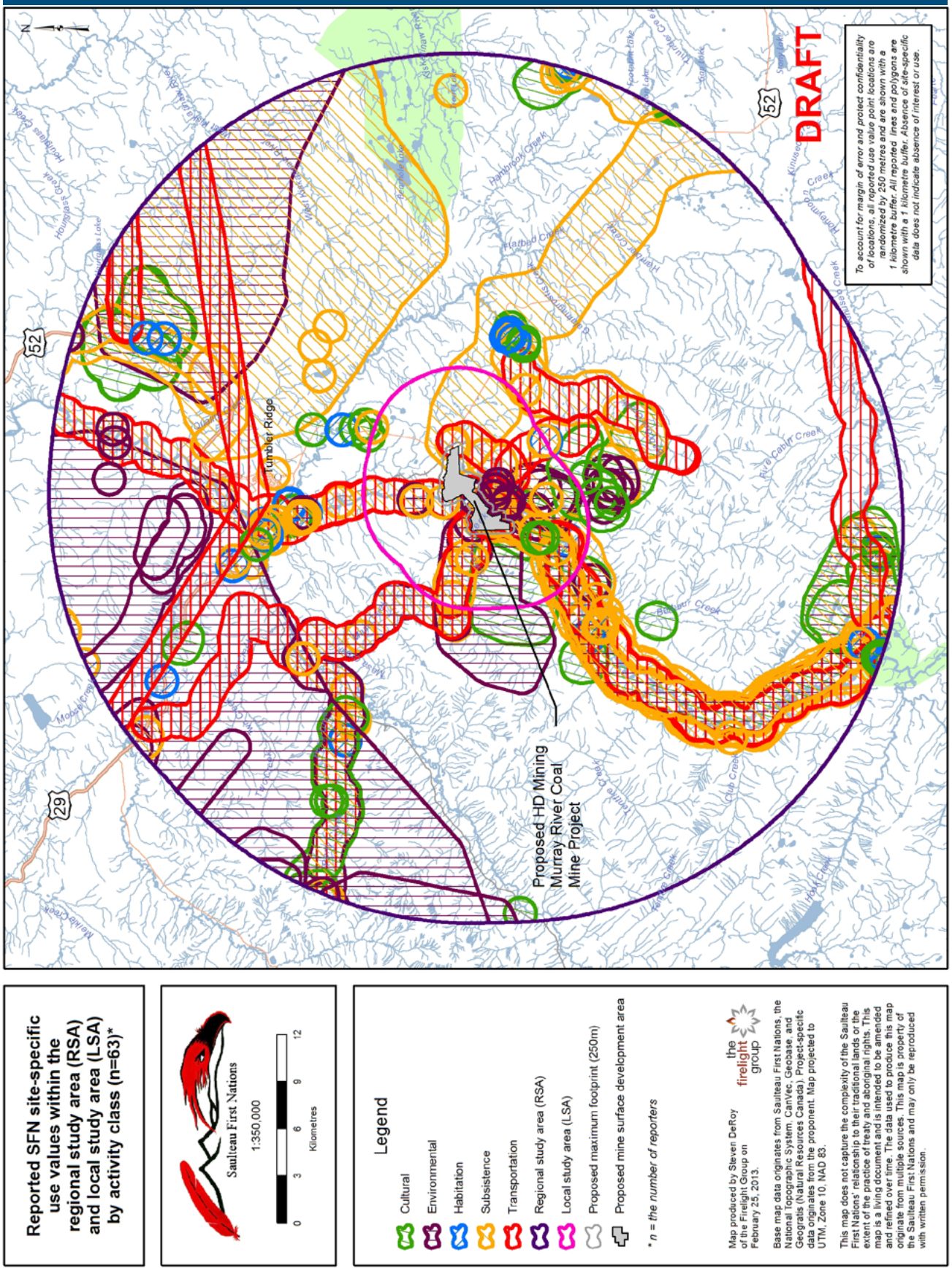


Figure 5: Reported SFN site-specific cultural use values within the LSA and RSA

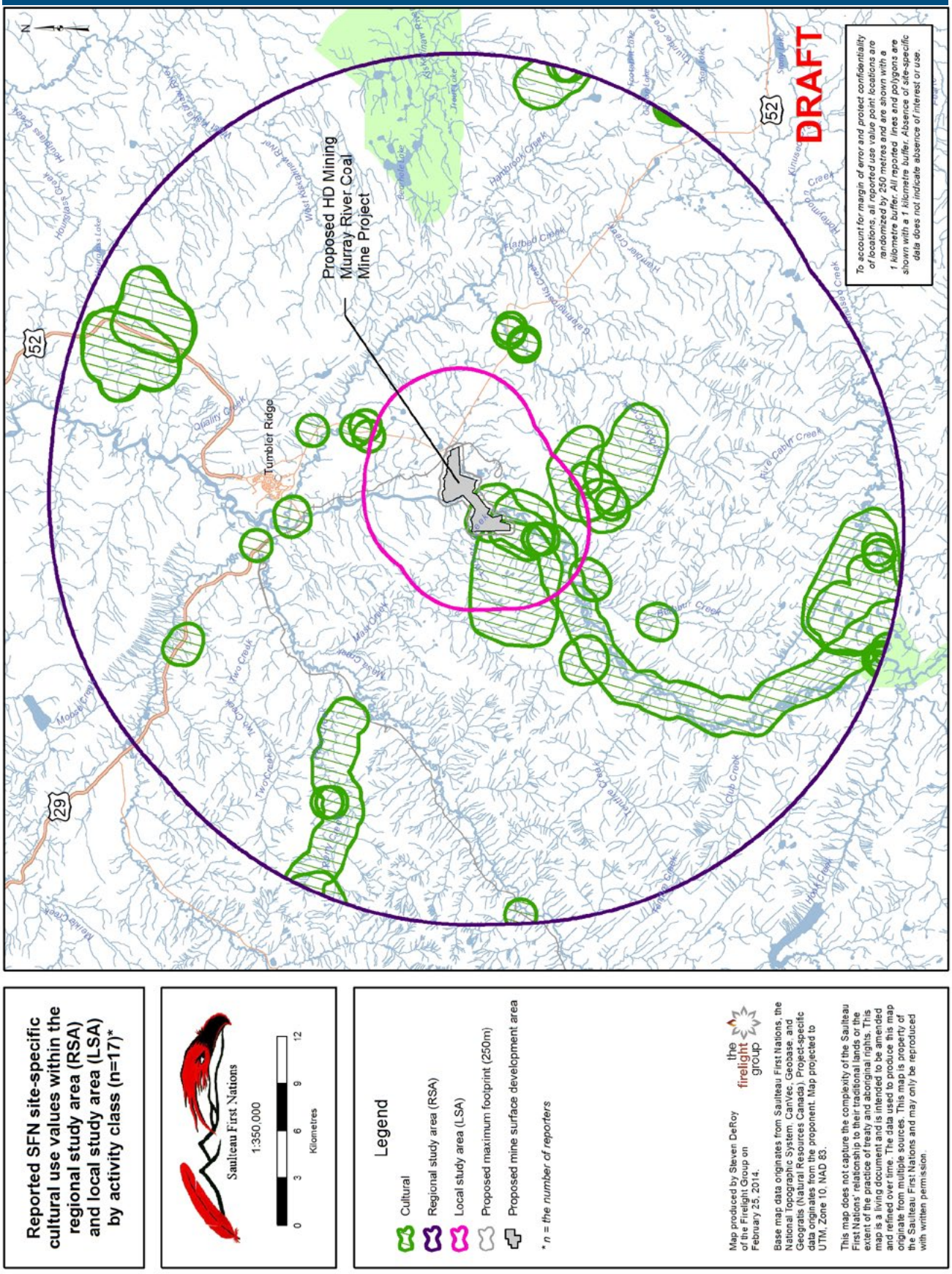


Figure 6: Reported SFN site-specific environmental values within the LSA and RSA

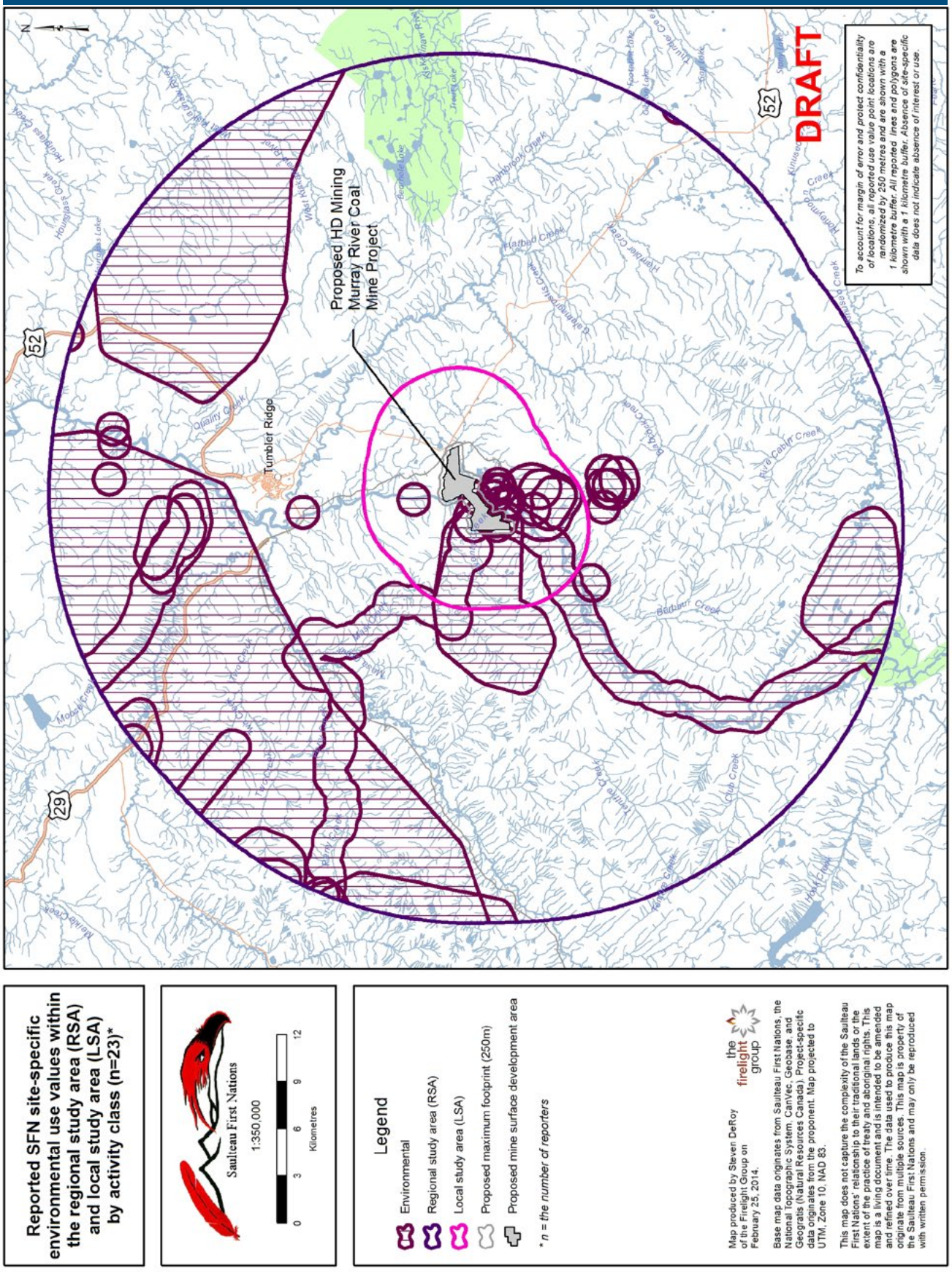


Figure 7: Reported SFN site-specific habitation use values within the LSA and RSA

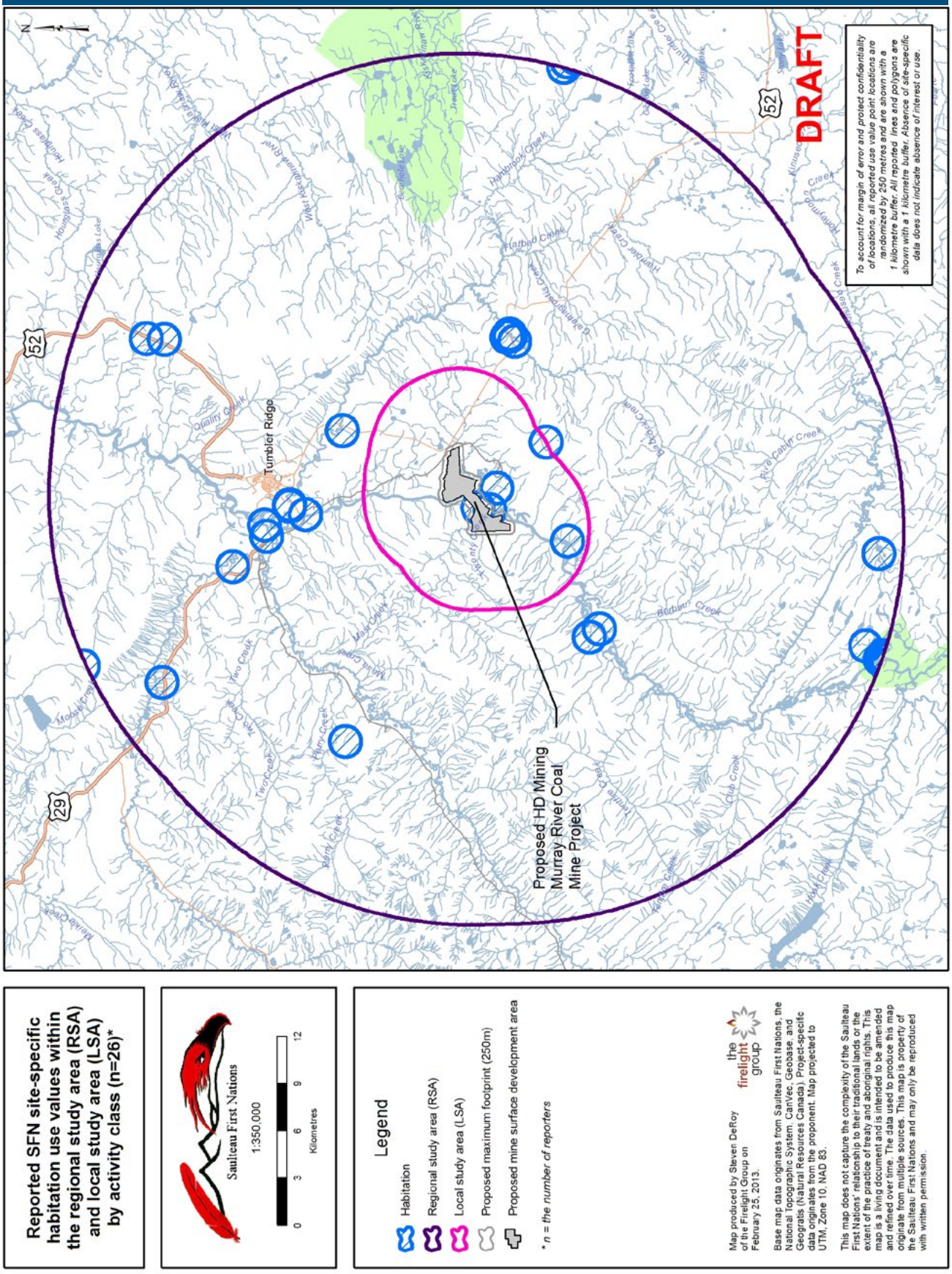


Figure 8: Reported SFN site-specific subsistence use values within the LSA and RSA

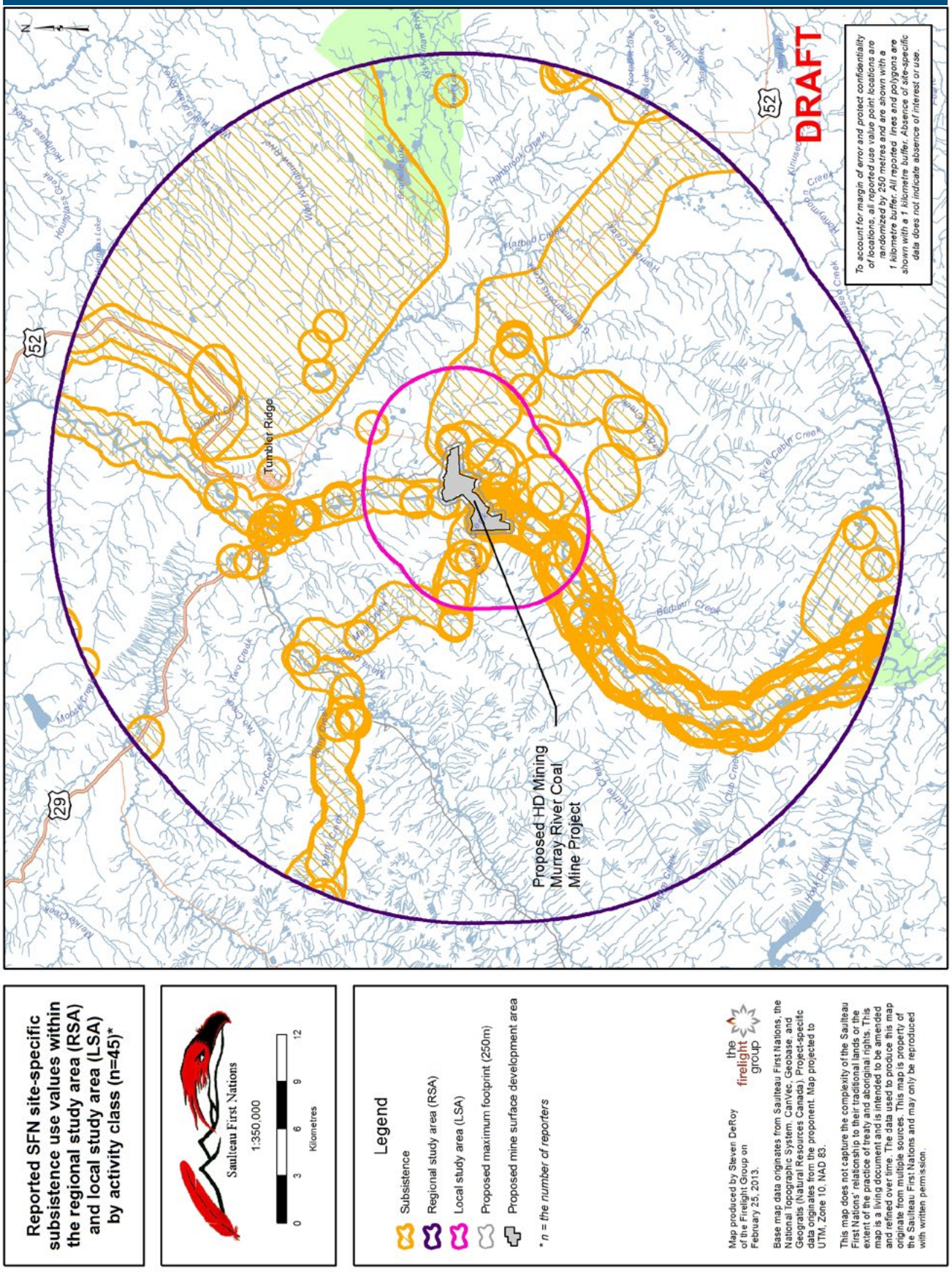
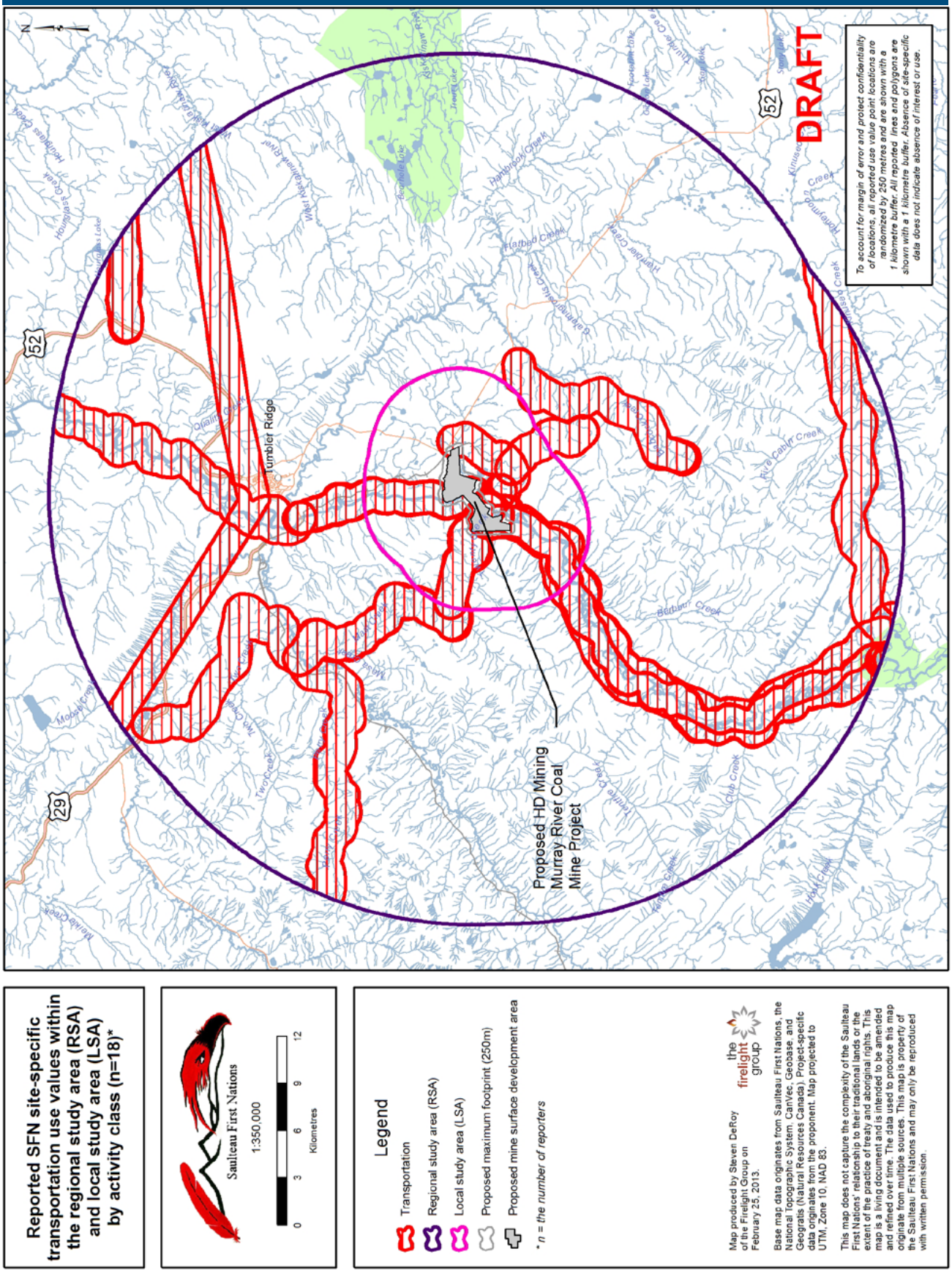


Figure 9: Reported SFN site-specific transportation use values within the LSA and RSA



4.2 Project Interactions

Based on discussions during the community scoping meeting and analysis of the interviews with SFN participants, a number of project interactions were identified for the Murray River Coal Project:

- Habitat destruction and fragmentation;
- Movement of animals further away from preferred areas for harvesting;
- Disturbance of important environmental features, such as moose licks;
- Airborne dust from the mine or along transport routes from trucks or trains;
- Contamination of water, plants, and animals from dust or chemicals;
- Increased traffic;
- Increased non-Aboriginal hunting and use of the area; and
- Cumulative impacts.

These project interactions have the potential to result in significant adverse effects on SFN site-specific and non-site specific values.

Project interactions between the Murray River Coal Project and SFN's site-specific and non-site specific values are discussed in-depth in Section 4.3 below.

For discussions on project interactions with:

- Site-specific cultural use values, see Section 4.3.5 on Cultural Continuity and Section 4.3.3 on Berries, Medicines, and Other Plants;
- Site-specific environmental values, see Section 4.3.1 on Moose, Caribou, and Other Wildlife;
- Site-specific habitation values, see Section 4.3.4 on SFN Access and Continued Use of Lands and Water;
- Site-specific subsistence values, see Section 4.3.1 on Moose, Caribou, and Other Wildlife, Section 4.3.2 on Water and Fish, and Section 4.3.3 on Berries, Medicines, and Other Plants; and
- Site-specific transportation values, see Section 4.3.4 on SFN Access and Continued Use of Lands and Water.

4.3 Non-Site Specific Values

During the community scoping meeting and interviews, SFN members identified a number of non-site specific values relating to SFN knowledge and use within the LSA and RSA of the proposed project. Based on the community scoping meeting analysis of interview material, these have been grouped into five non-site specific VCs:

- Moose, caribou, and other wildlife;
- Water and fish;
- Berries, medicines, and other plants;
- SFN access and continued use of lands and water; and
- Cultural continuity.

Baseline data and project interactions for each of these VCs are discussed below.

4.3.1 Moose, Caribou, and Other Wildlife

Baseline

Hunting is integral to SFN food security and cultural continuity. SFN participants reported the historical and continued importance of moose and other large game, such as elk and deer, for subsistence harvesting and SFN way of life, culture, and identity. SFN members continue to hunt for moose and other game, and rely on these resources.

> *Oh, yeah. That's our primary food source, right there. Some people are here, instead of going and buying meat for their family, they go buy a box of bullets, and go shoot a moose, instead. Right? It's a lot cheaper than buying groceries. It's hard work, but it's worth it in the end. Moose meat's really good.* (S84 2013)

> *We were raised on moose meat … I could eat it every day, if I could. Yeah, I like it. It's a good life.* (S39 2013)

> *It's a lot more healthier than going to the grocery store and buying meat, I think ... Living off moose meat becomes part of your life, you know, you miss the taste, you miss everything.* (S35 2013)

> *Yeah. We go through moose pretty fast, so at least a moose a week in my house. That's just my household alone... there are four or five of us living there and then just everyone that stops by and stuff. Stop by and throw on a steak if we get hungry or something.* (S95 2013)

> *Well, they've got other members of the family that go out and get meat, and bring and share meat with them too, right. So like for me, it's my dad and, like I said, my mother, my grandparents, my brothers, you know. I share the meat*

with people in my family all the time, because I'm the one that's usually out there hunting. And I love being out there at it, you know. I go out and shoot. I even usually go get it cut and wrapped, and then just take them the meat, right, and put it in their freezer for them. My freezer's only so big, and it usually was just me, or like it's me and my wife, but I usually end up filling other people's freezers, too. (S31 2013)

SFN members noted that the moose population in the LSA, RSA and beyond is declining, and identified this as an issue of great concern. Participants said:

In the last five years, we haven't hardly shot any moose because the decline in moose population is so bad right now. (S44 2013a)

I have no moose meat right now. Like, we're trying to find one moose, you know … we can't. I have no moose meat and that's a damn shame, that's a damn shame. It's sad. My grandma's freezer is bare. My grandma's freezer is never bare and her freezer is bare, and she always has two full freezers to provide for all of us family, like if we're having hard times or what have you. She has nothing. (S35 2013)

You don't see no moose. It's just — you just kind of just wonder — basically wonder where did they go? Or what's going on? What happened to them? Because they all died off or what? So it kind of sadden. (S63 2013)

Well, it feels terrible. That's just no good, you know? Because, well, that's our main source of food is moose meat. Anybody's — Any native on this reserve loves moose meat. Everybody loves moose meat. It's way better than beef, it's way better than elk. And, you know, people make dried moose meat out of it. They smoke it, they make hamburger. You know, it's a good source of food for us. That's our main source of food. That's how I feel. For us, it is. And it's just sad, you know, they're just disappearing. Slowly they're just disappearing. (S63 2013)

SFN members also identified the low numbers of caribou in the area as a concern; these animals are so scarce in the area that they are now rarely hunted, as members recognize the need to protect the remaining animals.

SFN members noted that it is not only moose and caribou numbers that are declining. Other species are declining as well:

So it was kind of sad. There's been no animals. Used to be lots of those beavers and not only that was used to be lots of marten, now there's no hardly any marten around and that's the best, marten. (S09 2013)

We eat porcupine. Lot of the elders, they like porcupine. It's a good meat, very rich. Like, again, they're just like beavers but a little different taste. You eat too much of it, you'll get sick. But it's healthy, hey, that a lot of folks eat. But now there's no porcupines. (S63 2013)

SFN participants noted that the quality of moose and other wildlife is also declining, meaning that they cannot always eat meat even after a successful hunt:

> *When we started to skin it and cut it, the blood was black, and my husband said, "Okay, this moose is sick, so we're not going to take it." He said it's sick, so we left it in the wild. We went back a week later to check on this moose. The birds didn't even eat it. They knew it was sick. A second moose that we killed, it didn't even have the stomach lining. He said, "Again … we're not taking this moose; it's sick." So this is the kinds of stuff that are going to have an impact on our animals and our lands if all this stuff goes through.* (S73 2013)

> *They got a moose, and you know what, that thing has little white pustules on some of them. Normally, they're closer to the fat, right? But when we were — I wouldn't even keep that moose. Somebody else took it, but it had so many little white pustules on it and I said this is not good when you have that many little pustules. Once in a while it's okay to see them, but if you're cutting dry meat and you keep seeing it, there's — our moose are getting sick. Bottom line, they are getting sick. And I blame a lot of it on all the [industrial] activity.* (S21 2013a)

> *All the moose up...Yeah, Del Rio. My uncle shot a moose up there, and it had growths on it and stuff, and it just tasted gross. There was pus…Yeah, it's really bad up there. Sour gas all over the place. Moose are breathing it in, and they're getting sick up there. They're all sick.* (S84 2013)

SFN members see the declines in quantity and quality of key animal populations as due to cumulative impacts on wildlife in the general area of the RSA and beyond. Sources of cumulative effects include oil and gas developments, pipelines, other mines and industrial activities, combined with logging and farming, creating a squeezing effect where areas of intact habitat are increasingly limited.

> *Well, like all these rig sites that they have around our area here, all of them, our animals have disappeared quite considerably. Like I guess they just moved out. So much activity around here. Because over south of here, man, you'd be surprised how many roads there are in there, rig roads and rig sites. … So, they created quite an impact on our animal population. They just moved out of the area…* (S75 2013)

Increasing predator numbers (particularly wolves) and recent harsh winters are also placing increasing pressures on moose and caribou populations.

Some SFN members reported that they no longer hunt in the project footprint and LSA of the proposed Murray River Coal Mine, due to the disturbance already caused by the Quintette Mine and related fears over contaminants in meat harvested in the area. Other SFN members do report recent and continued hunting (of moose, elk, deer, wolf, grouse, porcupine, and rabbit), in the Murray River Coal Project's footprint and LSA (see maps and discussions of site-specific subsistence values in Section 4.1), even though many of these individuals also report concerns about eating animals from this industrialized area.

SFN members highlighted that moose, caribou, and other wildlife stand to be impacted by the proposed Murray River Coal Project. This will then impact SFN hunting, which is actively practiced in the project footprint and LSA.

SFN participants noted that during the construction phase, noise and increased traffic drive moose, caribou, and other animals away from an area. After construction, SFN members report that the noise and disruption of mine operations can continue to scare away wildlife.

> *I mean, the hunting gets tougher because you got to go farther and farther in the bush or away from where the action is happening because they scare all the wildlife, eh. … The moose and elk — especially elk are really skittish, you know. They want to be miles and miles away from anything that's happening so there in turn I'd have to be miles and miles away from anything that was happening here.* (S94 2013)

Sensitivity to disturbance was noted to be a particularly important concern in relation to caribou, and participants expressed concern about the herds remaining in the area around the proposed Murray River Coal Project:

> *Quintette caribou herd is going to be hit again.* (S96 2013)

> *My experience with caribou is they're very sensitive with noise. They don't like noise. Yeah. Because that is how, you know, we were taught and also found out with experience that when we ran into caribou we had to be very quiet all the time if we wanted to hunt them.* (S92 2013)

> *Caribou need a big area to survive. If they can't have a big area, it's not like a moose or a deer, sometimes, you know, it takes more, you know, an ongoing impact for moose or deer to get pushed out or to die off. Okay? Or from whatever, because of, you know, because the environment is out of balance because of development, okay? When I'm saying moose and deer, but they do get affected on it too when there's some development going on in their areas, but what I'm saying about caribou is when, when it, when it hits them, right away it affects them. Right within a few days. You know, if a development goes in there, right away the caribou get affected by that. They have to get out of there. That's just their nature of survival.* (S92 2013)

SFN members also highlighted particular concerns about moose in relation to the mine, as these animals are dwindling in numbers and are an important food and cultural resource for SFN members:

> *They even had a hard time getting a moose for Pemmican last year. … We never even got a moose last year for Pemmican Days. That's all this frickin' mining and stuff that they're doing. That's why we can't get nothing.* (S57 2014)

SFN members explained the impacts of coal dust on moose:

> *The moose don't like this dust, coal dust. … when they get that dust in their nose they can't smell fear or danger coming to them. They don't like it, they don't like that coal dust.* (S57 2014)

> *I was told, just yesterday actually, an elder was telling me that when, when the moose inhale, when they are near a coal mine, when they breathe in the coal it takes away their smell, and that takes away their sense of fear. So they, they don't have that sense anymore to sense whether they're getting stalked by a wolf. They lose that when they breathe in the coal, the coal dust. They can't smell other animals. They can't smell. Which is detrimental to a moose's life, obviously, because … they're easy prey. …. I just learned that yesterday and it worries me.* (S35 2014)

> *Because the moose … they'll start leaving the area, the coal. Like they'll go further away because … it plugs their sense of smell and they can't smell they're getting stalked. So what they do is they just leave the area. They'll leave the area where they're mining. Like they'll go far aways.* (S36 2014)

SFN members also expressed concern in relation to the impacts of coal dust on animals in general:

> *How are they going to transport that coal? All that coal that's just going to go in and — coal is not good for people's lungs. And if it's not good for people's lungs and they have a route, it's not going to be good for the animals either.* (S21 2013a)

> *If you go by the coal mine in the winter, you get — the snow's just all black. It's not white. So that has a big impact on all the — you know, all — for animals and stuff, because they breathe it in, you know? Even the people that work in the coal mine. I know people that work the coal mine, the miners. Bothers their lungs because of the coal dust.* (S63 2013)

> *It's a dirty business that coal mining. Any kind of mining, very dirty business. It just ruins that whole area there because in that area [around the proposed Murray River Coal Project] too there's trapping and hunting. There's a lot of — all kinds of animals in there, in that area.* (S62 2013)

SFN members also highlight concerns about contaminant transmission in the food chain. SFN members are concerned about impacts on human health if people consume animals that have inhaled coal dust, eaten plants covered in coal dust or chemicals, or drunk contaminated water (see also Section 4.3.2 Water and Fish, below). The perception of contamination, and resulting psycho-social effects including fear and avoidance, can have many of the same impacts as actual contamination, as both deter SFN members from using an area and utilizing its resources.

> *Traffic, the black coal is going to be everywhere, the dust. And that's poisonous stuff. That's not just, you know, animals breathe that in. It goes into their lungs, into their bloodstream. Maybe we eat that stuff? It's not good.* (S04 2013)

> *When they transport these coal, all that fine dust is — that film of fine dust. … there's a film of that fine dust particles along that highway there. It's stuck to the leaves. And these leaves are eaten by these wild animals. … what it does to those animals that eat those plants?* (S02 2013)

> *It can't be in coal. Coal — it's like you don't go kill a bear for something — to eat it if it's hanging around a dump. You know what I mean? You don't kill a dump bear and eat. You gotta go clean, you gotta go somewhere up the mountains where the bears are clean. The same with plants, you can't do that. So not — they're not clean, right? Or you can't eat a rabbit that's — that lives near the Quintette Mine. Because it's breathing in all that crap.* (S27 2013)

> *They leave these tailing ponds open to the animals, they expose the animals, and then they go drink it. And what — you know, what's happening to the meat, you know?* (S44 2013b)

Other impacts to wildlife result from the wider and busier roads created by the mine development. These add to habitat fragmentation already taking place in the area, and limit the movement of moose, elk, caribou, and smaller fur-bearers through the landscape as they may be wary of crossing cleared areas.

> *When you have big cut blocks, some animals don't go through cut blocks, they'll stay in the bush, so where they can travel is limited then. … I know there's animals that won't go across, they have a really hard time cutting across cut lines and stuff. … A lot of them won't cut across lines, so when they hit the cut line, they'll turn around and go back. It limits them on the amount of places they can go.* (S51 2013)

Roads, transmission lines, and other forms of linear disturbance also provide highways for predators such as wolves and bears, which use these avenues through the forest to travel great distances and outrun prey species, including moose, elk, and caribou. Non-aboriginal hunters also benefit from roads, using them to access areas that were previously inaccessible. The long line of sight offered by a road also allows hunters to see and shoot moose and other animals from distances that are not possible in closed forest, further impacting wildlife populations. An SFN member explained her experience of roads in relation to another industrial development:

> *They put a big honking road up there—it's clear cut up the area where the moose cross. So the hunters sit right at the bottom … and they just sit there and shoot the moose once they come into the clear areas … the wolves are the same. They just sit up there and wait, because that's easy picking.* (S44 2013a)

The construction and operation phases also bring more people into an area. This also adds to hunting pressure on animals. People working at a mine out on the land become more aware of good hunting areas and how to access them, which furthers the pressure they can put on animal populations.

> *You got to try to get them [moose] to come back, because otherwise they keep going with the hunting season and letting all these people from down south and everywhere else coming to hunt here, we ain't going to have no moose for our*

future children. Like right now, I talked to about 20, 30 people. They said they can't kill a moose ... Like, years ago, you go out, get three moose every summer and it feeds a family through winter. (S14 2013)

And they have issues, pressures from hunting from the hunting season now, it's open. We have an open range hunting season in our area. So it's a free-for-all for people to come up and shoot, right. So our members now hunt before August 15th to try to get a moose before all the hunters come out so we are changing our patterns and our way of hunting…. So we're not getting these prime animals when we want. And we're not having the quantity. (S46 2013)

As discussed above, some SFN members reported that they no longer use the area around the proposed Murray River Coal Mine due to concerns over the nearby Quintette Mine. For these individuals, a new mine in the area will extend by many decades the time period over which this area is considered unsuitable for hunting and other activities.

Other SFN members do report recent (2013) and continued hunting in the Murray River Coal Project's footprint and LSA, with moose, elk, and grouse as the most commonly hunted species within the project footprint itself (see maps and discussions of site-specific subsistence values in Section 4.1.3). This continued hunting occurs in spite of concerns about eating meat from animals harvested in this industrialized area. The proposed Murray River Coal Project will eliminate the potential for SFN hunting within the footprint during the construction and operations phases of the mine. SFN values related to moose, caribou, and other wildlife are also likely to be impaired within the LSA, and potentially within the RSA, by further limiting the number of animals in the area, and by increasing concerns over contamination of meat, potentially to the point where more SFN members may be deterred from hunting and carrying out other activities in the area.

In summary, anticipated project interactions from the Murray River Coal Project with SFN hunting of moose, caribou, and other wildlife include:

- Disturbance of animals during project construction and operation, causing them to move away from the area — particular concern was expressed over caribou, as their numbers are already low and they are sensitive to disturbance, and moose, as they are a particularly important resource for SFN members;
- Habitat fragmentation from land clearing for mine operations and road construction, limiting animal movement and reducing the size of habitat areas available to animals;
- Dust from the coal mine impacting the ability of moose to sense and avoid danger, leading to increased fatalities from predators such as wolves and bears;
- Dust from the coal mine being inhaled by animals, or other chemicals from the mine being ingested by animals, leading to contamination of their meat and consequent impacts on human health;
- Linear disturbances (roads or rail) improving hunting success rates for predators such as wolves and bears, leading to reduced numbers of prey species such as moose, elk, and caribou — this in turn leads to increasing numbers of bears and wolves, adding further pressure to prey species;

- Linear disturbances (roads or rail) improving access for hunters, and increasing their success rates due to long lines of sight, adding to hunting pressure on wildlife populations; and
- Construction work on the mine bringing increasing numbers of people into the area, and familiarizing them with good hunting locations, adding hunting pressure to wildlife populations.

Based on anticipated project interactions, and the ongoing importance of the project footprint and LSA to SFN site-specific and non-site specific values related to moose, caribou, and other wildlife, the project is anticipated to have important and potentially significant impacts on SFN harvesting rights. This prediction is made with a high degree of confidence.

4.3.2 Water and Fish

Baseline

SFN participants identified water and fish as an important valued component for this study.

Through the past and into the present, waterways were noted as important travel routes. The Murray River is used as a travel route by boat, with multiple SFN members reporting travelling from Tumbler Ridge upstream past the proposed Murray River Coal Project site and as far as the Kinuseo Falls.

Fishing remains an important part of SFN subsistence activities. Fishing is practiced in the proposed project footprint, LSA and RSA, for bull trout, grayling, rainbow trout, and whitefish (see discussions of site-specific subsistence values in Section 4.1 for more detail). This has been the case for generations and continues today. The Murray River is seen by many as one of the healthier rivers in the region as it does not have dams on it, and it is a preferred waterway for harvesting particular species, including bull trout.

> *See, because the fishing — the bull trout here [Murray River], you can eat them. They get eaten. Not like the Peace River. Yeah, Peace River, they don't taste right, because there's a dam and stuff … And plus they have all that mercury.* (S63 2013)

However, some SFN members report that they now fish less, or not at all, in the project footprint and LSA, due to concerns over water quality related to the Quintette Mine. This suggests that water quality impacts, including SFN perception of water quality, are already at or near a threshold of impaired SFN use.

Watercourses were also recognized as crucial for all other wildlife (i.e., fish-eating animals, and all animals that drink from the rivers, creeks, streams, and lakes), and it was noted that impacts on watercourses are therefore felt throughout the environment and wildlife populations.

> *That's my biggest fear is that they're going to wreck our watershed. If they're wrecking that, they're going to wreck all our staple food. We won't be able to eat our moose because they have to drink water. A lot of them are going to the creeks, rivers, ponds, whatever. You know if we're seeing sick moose and elk already in Del Rio and they're slowly going that way, we're eventually going to see that.* (S21 2013a)

Project Interactions

SFN members report that the proposed project has the potential to affect water quality, for considerable distances downstream of the project.

> *I hope that thing [the Murray River Coal Project] doesn't go through, because they're going to really spoil that river. In the past what I've seen, what the mining companies have done, for one thing there's a lot of coal dust. That coal dust doesn't only settle in one specific area, it travels. It could travel at least 10 kilometres either way, and it covers everything.* (S81 2013)

> *The water, that's all polluted and it goes into the main rivers, all that water. They say it's all, you know, kept in one place but it doesn't stay in one place.* (S62 2013)

Participants also noted that while some SFN members may already avoid the immediate area around the former Quintette Mine, many SFN members hunt and fish on the Murray River downstream, and thus stand to be affected by contaminants entering the river and being transported well beyond the project footprint, LSA and even RSA.

SFN members reported that fish quantity and quality would also be impacted. This would in turn impact the ability of SFN members to harvest these resources from the area. As noted above in Section 4.3.1 on moose, caribou, and other wildlife, fear of contaminants can have many of the same impacts on SFN food security as actual contamination, as it can lead to SFN members avoiding or losing access to a resource. SFN members are particularly concerned about contamination of sensitive rivers and fish species.

> *Well, like I said, it's going to contaminate all the fish in all the water. It's going to poison everything and it's going to turn everything black there. Coal mines, you know, the traffic.* (S04 2013)

> *If they ever decide to make that coal mine near that Murray River, certainly they are going to be destroying that river downstream, and probably at least 25 kilometres upstream. There will not be no fish downstream. I'd be the first one to say, please don't eat those fish coming downstream, because the mercury that's going to be in those fish, and all the impurities that they get from the mine, and what kind of chemicals do they use? They have to use dynamite to dynamite into the rock. So what's in the dynamite? You'd have to be very, very careful in eating anything within, I would say, within even a 50 kilometre radius around that proposed mine. I only hope that they never do that in that area, because there again, they're going to be absolutely destroying that beautiful area and that beautiful river that we've always had in our backyard.* (S81 2013)

> *So my main concern for this coal mine being built is the Murray River. The Murray River is just getting hammered on. … What concerns me is the health and quality of the Murray River, because I know there are members who fish here. There are members who hunt here. … So I guess water quality is a huge concern for me for this mine development.* (S96 2013)

> *The fish. In the future, is there going to be any fishing that's going to continue on? And what are they — and where is their waste going to go? Is it going to be in the river? Or is it by the riverbed? Because they don't — they're pretty close to the Murray River already.* (S23 2013)

SFN members also used their experiences of other mines to explain the potential impacts of the Murray River Coal Project.

> *And then Hasler, I've fished up there way back in the past. Up the Hart Highway. Where's the Willow Creek. Yeah, I've fished up there before they ever put that mine in there, but I don't know. It's kind of — it's not a good place to fish anymore. I miss it.* (S94 2013)

> *Like when they take the trees off and then they're exposing and then you get these heavy rains that we get now. All that stuff ends up in the rivers and that probably affects our food chain too, eh, once they contaminate our fish and whatnot, I would think. … But I know that Willow Creek, I asked about that mine and they — I worked there, eh? You can pretty much just see the coal dust is all over and then when it rains, well, it ends up in the rivers, right?* (S109 2013)

As noted in the section above regarding moose, caribou, and other wildlife, SFN members also expressed concerns about how contamination could affect them through hunting animals that drink the water, as the Murray River and the roads along it continue to be used as a hunting corridor by SFN members.

> *Even our animals, the same with elk, we noticed the change in the way they grow versus before when they were a lot healthier. They are smaller, the meat is different too at different times of year … the water has a lot to do with the quality of meat you have.* (S44 2013a)

> *The main concern I have is with water. I mean, like, even with animals drinking it. If something goes wrong, how are they going to be? How is the hunting going to affect people?* (S47 2013)

That the proposed Murray River Coal Project is so close to the river was of particular concern for SFN members, as they noted that these areas are especially sensitive and highly important for ungulates and other wildlife.

> *I hate seeing industry so close to the watershed, because that's where they calve, that's where our ungulates calve, is close to the watershed, and I hate seeing that industry comes so close. I'd like to see bigger buffer zones, because even with the fishery, the fish as well, you start getting too close to the waters…* (S54 2013)

SFN members highlighted the need for careful monitoring of water quality and related impacts.

> *They're right along that Murray River and the only concern I'd have there is because it's along a main water source, well, who's going to be monitoring that water while they're there making sure that, you know, they're not poisoning all the fish there or whatever that drinks out of that. Next thing you know you've got fish with cancer, moose with cancer, whatever. Like there should be monitors out there during the whole — while that mine is working it should be monitored throughout the whole job.* (S109 2013)

Responses from SFN participants show that as a result of existing impacts from past coal mines, water and fish resources within the proposed footprint and LSA are already at or near an important threshold of unacceptable change. At least some SFN members report that contaminant levels in water and fish are already too high to allow confident harvesting from the area. The Murray River Coal Project has the potential to add to these existing cumulative impacts on water and fish in the region, and has the potential to further directly impact SFN use of the area.

For those SFN members who's use of the project area is already impaired due to ongoing impacts from the Quintette Mine, the opening of a new mine close to the Murray River is likely to intensify SFN impaired or lost use, and further extend the period over which this area and the waters downstream may be considered unsuitable for fishing, hunting and practice of related rights.

For those SFN members who still use the LSA for fishing and hunting, the opening of a new mine is likely to cause an increase in contamination, and fears about contamination, of water, fish, and animals that drink the water or who eat the fish. This would occur in the project footprint, LSA and downstream stretching into the RSA and beyond.

In summary, participants noted that the proposed mine is particularly close to a river that is important for fish, wildlife and SFN use. Project interactions from the Murray River Coal Mine with water and fish are anticipated to include:

- Contamination or perceived contamination of rivers and water courses in the project footprint and LSA, particularly due to coal dust but also other contaminants entering the water from mine operations. These impacts would also be felt for considerable distances downstream, beyond the LSA and RSA.
- Contamination or perceived contamination of fish due to coal dust and other contaminants in the project footprint and LSA. These impacts would also be felt for considerable distances downstream, beyond the LSA and RSA.
- Potential physical disturbance of water courses and fish habitat along the Murray River.
- Contamination or perceived contamination of animals which drink or depend on water, with consequent impacts on SFN use, and potential environmental health impacts or impacts on human health if these animals are consumed.

- Cumulative impacts of the mine together with other industrial operations on contamination or perceived contamination of water and fish downstream of the project footprint, LSA and RSA, through the Murray River, Pine River and into the Peace River.

- Potential disruption of ungulate calving, which takes place near to water courses, by the construction and operation of the mine.

Based on anticipated project interactions, and the ongoing importance of the footprint and LSA to SFN site-specific and non-site specific values related to water and fish, the project is anticipated to have important and potentially significant impacts on SFN harvesting rights, and other related rights, associated with water and fish within the footprint, the LSA, and potentially downstream in the RSA. This prediction is made with a high degree of confidence.

4.3.3 Berries, Medicines, and Other Plants

Baseline

Along with hunting and fishing, gathering berries is an important subsistence and cultural activity for SFN members. An elder, who spoke about recently picking huckleberries, blueberries, and raspberries, said “It doesn’t matter if I crawl, I’m gonna go pick berries” (S05 2013).

Picking medicinal plants is also an important cultural activity for SFN members that continues in the present day, and protecting medicinal plants is considered to be highly important.

> *There are a lot of herbal medicines that some people use, like I use a few myself. There are four different kinds of trees that I use, that I’ve got to take from the bush or something. I got infected on my knee. I had to use those medicines. I had to cure myself. I got cured with that medicine. ... There are certain areas where I go, but it’s all along the mountains.* (S17 2013)

> *That’s what the elders always said: Look after your medicine plants, and also the water, because that’s so important to use.* (S39 2013)

Many SFN members also go to known berry patches year after year, and knowledge of these is often passed down over generations.

> *But, you see, we’ve known these picking areas from the time we were small, because it’s word of mouth. We were told where to go to pick huckleberries, cranberries, blueberries, saskatoons. Any kind of berry that you want to pick, we know where to go to pick these berries. But we’ve always known this. We were told by our parents and our grandparents. So, now we’ll hand this down to our children, so they can hand this down to their children.* (S81 2013)

SFN participants also stressed that plant growth (both quantity and quality) is highly variable year after year due to changing environmental conditions.

> *Medicines will, will grow quite, you know, thick one year in this area and the other year, they might not grow in this other area. … It's very seldom that the plant life will grow the same every year, unless you have kind of the perfect summer. You know. For the plant life to grow that way, eh? Could be too dry or could be too wet.* (S92 2013)

Therefore, while SFN participants return to known plant harvesting sites year after year, they are also constantly adapting and looking for new areas. SFN members reported that they often pick berries and medicines when they find them by chance while they are camping, fishing, or hunting.

To allow for shifting harvesting areas, SFN participants stressed the importance of protecting existing plant picking sites within the proposed project area, and also the need to protect large areas of plant habitat for potential future use. This is especially important in the face of ongoing destruction of plant habitat due to industrial development in the LSA, RSA and beyond.

Berries are currently picked by SFN members in the proposed project footprint (blueberries), LSA (huckleberries and cranberries), and RSA. For SFN members, knowledge regarding medicinal plants and harvesting locations is often closely guarded and may not be discussed in an interview setting. However, it was reported that medicinal plants are also picked in the project footprint (species unspecified), LSA (devil's club), and RSA. Firewood is also collected in the project footprint. The maps and discussions of site-specific subsistence and cultural values in Section 4.1 give further details. Plant gathering is practiced in spite of limitations to access and use and concerns over contaminants that occur due to the already existing Quintette Mine.

Project Interactions

Use of and access to plants stands to be seriously impacted in the areas of the proposed mine. SFN members note that during construction, impacts can occur from direct removal and disturbance of plants when large areas of land are cleared to make way for mine facilities. As some SFN members return to the same berry patches over many years, they are particularly impacted when a berry picking site is removed. One SFN member recalled her experience with another industrial development:

> *We used to always go over there and pick berries. ... There used to be tons of berries back there. Every year the whole family used to go and pick berries. ... Yeah, there's no berries. They uprooted all the berry patches we used to have. ... we went there and oh, I just cried, I cried.* (S20 2013)

Some medicine plants are only found in certain places. Also, some SFN members pick medicines at favoured sites to which they have returned many times. SFN members are

therefore very concerned about the loss of use of these places, or destruction of these plants. Participants explained:

> *Now, if that's the only area and it's not like miles and miles of medicine I'm talking about — I'm talking about patches of medicine. And if they mow that over, it never grows back there again. So there are especially in the mountains where there's really important medicines, that are sweat lodge keepers and healers that use that medicine, and it's lost when it's been mowed down.* (S21 2013b)

For other industrial developments, cleared vegetation is often replaced during reclamation by fast-growing, non-native species, which slow the return of native species. SFN members do not agree with this practice, and want native plants to be used during reclamation.

> *It's not the same what it used to be. It's like the plants are foreign. They try to throw a green rug over the mess they made, I guess. ... It's going to be a pretty hard sell for any kind of original plants to move back in there again, to replant them in there.* (S02 2013)

Loss of access to plants or plant harvesting areas can also occur due to both actual and perceived contamination. SFN members report concerns about coal dust on plants near coal mines and along transportation corridors, which would stop them picking berries or medicines.

> *And, of course, there's the dust… and the vegetation is dirty near that mine. ... It's just kind of dead looking.* (S62 2013)

> *There's a fine film of dust from the coal mines when they transport these things. That's not only through the trucks transporting these things … it's in the railroad tracks too. You can see that fine film, because I walk the railroad tracks.* (S02 2013)

Many SFN members also reported that they fear that cleared areas and roads are often sprayed with herbicides and that they therefore would not pick berries or medicines in these areas. As an SFN member explained:

> *Also for our berry patches, that's one thing I don't want to see is any herbicide spraying, because that destroys our berry-picking right there. So, when I had a meeting with the forestry, I said, "If you guys going to be doing any spraying without letting the First Nations know, please put up a sign." Because elders are getting scared even to go pick anywhere now because of the herbicide spraying and stuff. … This is the scary thing. And also with our medicinal plants. That's another thing that we have to try to protect.* (S39 2013)

As with hunting and fishing, discussed above, some SFN members report that they no longer use the area around the proposed Murray River Coal Project due to the presence of the Quintette Mine. For these members, the Murray River Coal Mine would extend the length of time that this area is unavailable for harvesting berries and plants by many decades. For other members who do still use this area, the new mine stands to impact their plant harvesting through the removal of plants and loss of access, and also through increased concerns over contamination.

In summary, project interactions from the Murray River Coal Mine with berries, medicines, and other plants would include:

- Direct removal of plants, and destruction of habitat, during the construction of the mine, particularly medicines;
- Replacement of native species with non-native species during reclamation; and
- Contamination or perceived contamination of plant picking sites due to coal dust or due to spraying of herbicides around the mine or along roads and access routes used for mine construction, operations, and maintenance.

Based on anticipated project interactions, and the ongoing importance of the project footprint and LSA to SFN site-specific and non-site specific values related to medicinal and food plants, the project is anticipated to have important and potentially significant impacts on SFN harvesting rights, and other related rights, associated with food plants and medicinal plants. This would be the case within the footprint, the LSA, and also potentially the RSA. This prediction is made with a high degree of confidence.

As SFN knowledge holders are concerned about potential disturbance of rare or hard to find medicinal plants in the footprint area, a separate field visit with SFN knowledge holders to identify them could be considered, ideally in spring or early summer.

4.3.4 SFN Access and Continued Use of Lands and Water

Baseline

SFN members identified access and continued use of lands and water as of critical value and importance. SFN livelihood is dependent on unimpaired access to a healthy and intact ecosystem that supports the community's ability to hunt, trap, camp, fish, and be out on the land.

SFN members highlight that existing cumulative impacts from oil and gas, hydro dams, mining, forestry, and agriculture have all contributed to barriers to SFN access and use of lands and waters in the region. These impacts include the conversion of increasing amounts of land and habitat into less usable industrial, farmed, or flooded areas. Remaining habitat areas are also often degraded by contamination and perception of contamination, and reductions in wildlife populations, as discussed above in Section 4.3.1 on moose, caribou, and other wildlife.

Other barriers to access and enjoyment of the land include heavy traffic:

> *There used to be so much activity, so much traffic, you know, them god-damned trucks, they push you off the road, the big coal trucks and stuff like that. They don't slow down for anybody. That's dangerous kind of to go in that area to go hunting.* (S48 2013b)

Increasing access for increasing numbers of people, particularly more hunters, also limits SFN access, as it leads to competition for increasingly scarce resources and a perception of danger as SFN members feel that it is unsafe to be out on the land when so many people are shooting.

> *We do not hunt during hunting season for non-native people. We try to get our moose before the hunting season opens, because we don't like being out there with other people, because there are a lot of people that do not know how to safely handle a firearm. They will shoot at anything that moves. So, we try to get our meat in the deep freeze before that happens.* (S81 2013)

> *There's huge hunter camps … You'd see maybe one or two camps, and now there's about 20 in one location, and that's dangerous in itself — too many hunters in the bush where you are hunting. So, basically, it's just afraid to get shot. It's sounds kind of crazy, but that's the truth of it. And they're not friendly. There's hunters in there that aren't friendly. They don't want you to see their camps, or whatever. Quite different from when I was young. Everybody was friendly, and you'd go and visit at each other's camps and things like that, and share your hunting stories. Now it's almost hostile.* (S61 2013)

These cumulative impacts combine to deter SFN practice on the land, and increase the perception that many parts of SFN territory are now under intense pressure and that SFN members are no longer welcome or able to freely and safely practice their rights.

> *When you add the numbers together — when you look at all of this, the pipelines, the windmills, the dams, all this stuff, and you put all this cumulative effect, you might as well just take … that screen up there, beautiful country, and just paint it black, and just say, "That's all industry now."* (S53 2013)

Nonetheless, SFN members also stressed their determination to continue practicing their rights to hunt, fish, pick berries, and carry out other cultural practices.

> *It's our right to protect it [the land]. It's our right to protect the animals that we use and consume, and the berries that we consume there, and the medicines that we use. … We're the continuous users of it [the land]. And our land's gettin' to be shrinked up, our land base … shrinking up to a point of where we don't even have choices any more. But go to wherever's left — what's left, what's left.* (S02 2013)

True to this, as shown in Section 4.1 by the number of site-specific cultural, environmental, habitation, subsistence and transportation values that were reported, many SFN members still actively use the proposed project footprint and LSA despite past industrial change and barriers to access.

SFN members report that in the past, the LSA of the proposed Murray River Coal Mine was heavily used for activities including hunting, fishing, gathering berries and medicinal plants, and camping. Currently, some SFN members report that they no longer visit this area due to the impact of the nearby Quintette Mine. This mine affected SFN access in a number of ways: it directly removed large areas of land through mining activities; gates and fences blocked SFN access to many areas; concerns over contamination of water, animals, and plants deterred SFN members from harvesting resources in the area; and visible landscape destruction, noise and increased traffic changed the character of the area, deterring people from visiting.

> *We can't hunt in that area [around the Quintette Mine]. It's closed off. The gates are — we can't even get up there to hunt. … That's still Treaty 8 land, and still we get blocked out of those areas. ... it's a big concern for me and for all First Nations. When my parents and I used to go out, anywhere over there, they were never closed off, and there was no gates locked up or nothing in those days. But now they do.* (S39 2013)

> *I think my thoughts with that area (south of Tumbler Ridge) is, you know, they keep putting in more and more stuff but it's already a loss of use area, can't take anymore industry activity because … Well, because there's so much there we don't use it. Like if they say well, are you hunting here, are you doing whatever here, it's like no, because it's already wrecked so.* (S93 2013)

SFN members also reported concerns over air quality and its impacts on human health, which would also deter them from spending time near the coal mine.

> *A tremendous amount of dust. Even when you go there you notice you can't breathe very well. It's just like being suffocated.* (S62 2013)

> *When they haul that stuff, the coal, the air quality is going to be very, very poor. All the way up the highway all the way up to where they're going to haul it, all that coal. Even now when you see those coal trucks parked in Chetwynd you can actually see this haze and they're just covered in black, those trucks are. You don't recognize what colour they are.* (S62 2013)

SFN members also said the mine would add to existing cumulative impacts on SFN use and access in the LSA, RSA and beyond. As discussed above, the Murray River Coal Project is proposed in a region already heavily impacted by industry, so even relatively small additional losses of land are important to SFN members.

> *And then now, these areas they're starting to get closed in as well. Right now there's so many hunters out, as well as the mining people, the people that are doing exploring, people that are doing — what do you call it — you know where they take rocks and soil samples to figure out where the best place is to get coal. They're drilling to see — to study those earth cores where it's — and that's disturbing everything too. Because you build roads up there. There are roads galore up there. Just all torn up. There are really very few places to go to in our area. Whether you go east or west or south.* (S62 2013)

> *When we sign a treaty a 100 per cent of that land base was not touched, with the exception of some small farming. So when you're looking at all these projects and how they add up to our people it's a huge crisis for our people to continue our way of life. So I think it all has a lot to do with eroding our treaty rights is what it really is coming down to. We have very few places to go now.* (S46 2013)

For those SFN members who still use the project area and LSA, the creation of the Murray River Coal Project would further limit and hinder access to the area. For all SFN members, the new mine would further extend the time period over which the area is unavailable or unsuitable for traditional activities.

In summary, project interactions from the Murray River Coal Project with SFN use and access to lands and waters would include:

- The destruction of specific important sites for harvesting resources or cultural activities during mine construction and operation;
- Access to areas of the project footprint and LSA being curtailed by gates and fences blocking SFN movement;
- Visible landscape destruction, noise, and increased traffic changing the character and safety of the project footprint and LSA, deterring SFN members from using the area;
- Reduced access to, and enjoyment of, resources for SFN members because of increased access and increased presence of non-aboriginal hunters, leading to competition for increasingly scarce resources and a perception of danger as SFN members feel it is unsafe to be out on the land when so many people are shooting;
- Reduced access to wildlife populations in the area as a result of impacts to habitat and diminishing suitability of the LSA for subsistence harvesting (discussed above in Section 4.2.1 Moose, Caribou, and Other Wildlife);
- Excluded or reduced SFN use of the project area and LSA due to fears related to coal dust and other contaminants (discussed above in Section 4.2.1 Moose, Caribou, and Other Wildlife, Section 4.2.2 Water and Fish, and Section 4.2.3 Berries, Medicines and Other Plants); and
- Cumulative impacts on SFN use and access caused by other industrial activities in the area adding to the impacts of the proposed project.

Based on anticipated project interactions, and the ongoing importance of the footprint and LSA to SFN site-specific transportation values (road, trail and water routes) and non-site specific values related to access and use, the project is anticipated to have important and potentially significant impacts on SFN access rights, and other related rights. This will be the case within the project footprint, LSA, and potentially also the RSA. This prediction is made with a high degree of confidence.

4.3.5 Cultural Continuity

Baseline

The transmission of culture and traditional cultural practices from generation to generation, and the ability to carry out these practices into the future, is critical to SFN. These processes are referred to here as cultural continuity, which requires the maintenance of intangible cultural heritage such as language, knowledge, sense of place, place-based stories and values, and cultural practices (e.g., making dry meat and preparing hides).

As discussed above, a lasting and strong connection to the land and animals is also an important aspect of SFN culture and identity. This is maintained, renewed, and strengthened through traditional activities, such as hunting, fishing, gathering plants, and travelling and camping. Many SFN members have visited the same areas regularly throughout their lives, and often these are areas that their families have frequented and used for generations. They are often central to the transmission of cultural knowledge from older to younger generations. This leads to a strong connection to certain culturally known places, and the desire to maintain them in their natural, peaceful state.

> *When you have that many people and that much traffic going on, it's no longer a peaceful place. So sometimes you just want to go to the bush. And you know maybe if you do see a moose, that's going to happen, but if it doesn't you still had that time on the land. … just for your own peace of mind. And a connection to who you are, right, as a person.* (S46 2013)

> *Is there a term in Cree, and there is, and it's called something — it means, "finding peace and quiet," so that's really what's really important to me, because that's kind of what I do — even when I worked, I did work in seismic, and that was the most important thing, to be able to connect to the land. Not hear anything but the sounds in the forest, and you can't do that these days. I always hear something — trucks going down the road even though they could be miles away. It's pretty sad.* (S61 2013)

> *It's like you're reminded constantly wherever you go, now, of industry. You can't just go out and be in the bush, and find peace like you used to. That's a big part of who we are. Like when I say "going out hunting," for me it's being out in the bush. Sometimes I could care less if we get anything, or not.* (S61 2013)

> *We are threatened by, by how we use the land out there when a development comes along. We're, you know, everybody has a say, people in town, same with us over here. It's just a different way we do it. We, we have our culture, our religion in more widespread of an area, the cleaner the land is, the more powerful it is for us for that area to worship the creator. And the more impact it has on it, the less we feel that. Because the land gets filthy, dirty, too much garbage. And in order for us, the holy spirit to come into that area, it has to be clean.* (S92 2013)

It is of critical importance to the SFN community that younger generations have the opportunity to spend time out on the land to develop a connection to it, and also to learn about the land and animals, hunting and trapping, fishing, gathering plants, and appropriate cultural protocols.

> *So but [my grandkids] also like hunting so I think when you're teaching them all your culture and your traditions that you're also keeping your family together and bringing them together on something you all enjoy. … my grandson, my youngest one is out hunting just about every day with somebody, with one of the boys on the reserve. So for me to see that it's really gratifying because if something happens to me, I know they can keep hunting and looking after themselves and providing. So that's a good thing.* (S21 2013a)

> *Always my grandkids, I always go hunting with my grandkids. Teach them how to shoot, how to skin it, what to do first, how to keep it clean. A lot of the youth are showed that, how to hunt and make sure their food is clean. How to respect the moose and when they bring it back to Culture Camp, then we teach the kids how to debone the moose, how to preserve it, like while you're making dry meat because you can't just leave it after you debone.* (S21 2013a)

SFN members also stressed the importance of the context of knowledge transmission. The ability to be in particular places at particular times often allows for sharing certain knowledge. One SFN member explained:

> *My dad never ever told stories during the summertime, because stories were told in wintertime and it still carries on today. We teach that to our kids. We don't tell stories during the summer, only in wintertime. When we would go out, the other thing he would always make us kids do, was we had to really listen. How many birds do you hear? Which way is the wind going? How are the plants growing? And which side are the plants growing the fastest? Stuff like that.* (S20 2013)

The project footprint and LSA are used for cultural purposes by SFN members, as is demonstrated by the site-specific values reported in Section 4.1, including spiritual places and burials. Values for hunting, fishing, and plant gathering also demonstrate that the area is used for cultural purposes, which frequently involve younger SFN members and teaching of SFN cultural knowledge and maintenance of cultural continuity.

Project Interactions

Cultural continuity is vulnerable to environmental changes caused by industrial development, as such changes may decrease the opportunities to engage in cultural activities or may make an area less appealing as a site for cultural activities and knowledge transmission. Loss of a place, either permanently or over a long period of time, frequently results in a gap in the transmission of place-based knowledge, and eliminates the place as a cultural resource for remembering, teaching, and learning the knowledge and cultural practices

associated with it. Developments that change the appearance, feel or sense of an area can also have large impacts on SFN members' sense of place and connection to lands and waters.

SFN members report losing their sense of place and connection to the landscape, as well as opportunities for cultural transmission due to the cumulative dramatic changes already taking place due to industrial development:

> *I just think that, you know, I so enjoy the dry meat, and my grandkids too. I show — I taught them how to hunt, fish and make dry meat, quarter, skin the moose, clean it up, quarter it, debone it, make dry meat, whatever, wrapping it. And my great grandchildren might not have the benefits of doing that and that's really sad.* (S21 2013a)

> *I want to cry. … it's disturbing, really. It's sad. It's a loss because I'm thinking for the future of everyone's children from this area. If I can't even — if I don't even want to go hunt in that area now because of all the destruction that's happening then what's going to happen to like my kids? It's going to be so hard for them to hunt or fish or — anywhere because it's going to be all disturbed land. So that's painful.* (S50 2013)

> *It saddens me, that all the development is actually killing off our moose, chickens, hunting, our hunting … basically our way of life. And it's not going to leave a whole lot for our future generations.* (S74 2013)

> *Like my children are really avid campers and hunters and fisher people, right? They love fishing, they love hunting and camping. Whether they'll pass that on to their children, I don't know. But we took them out since, like I said, since they were not even walking. And my daughter learned to walk in that area, so. Changing, though. Like, you're not even going to be able to go out anymore and camp anywhere without a wind tower beside you, or a flare stack...* (S89 2013)

> *There are going to be hundreds of roads out there. Now there are going to be more people going out there too, as well, to pollute the area. To damage the area. We don't have any more free range area for the animals … The future generation, that's all we're going to see is mining and windmills and roads all over.* (S62 2013)

SFN members state that the Murray River Coal Project, with its impacts on the look and feel of the landscape, as well as on the quality and quantity of animals and other resources in the area, would discourage them from visiting or teaching their children in the area, with a consequent reduction in cultural continuity. As already discussed above, many SFN members feel that the area around the project's footprint has already been lost to them, and that the new mine project would further extend this situation for many decades and multiple generations.

In summary, project interactions from the Murray River Coal Project with cultural continuity would include:

- Direct disturbance and reduced access to areas adjacent to the Murray River that are used for a range of cultural activities, including harvesting of wildlife, teaching of children, and related practices;
- Changes in sense of place, due to changes in the character and feel of the project footprint and LSA due to landscape disturbance and increased pressure from traffic, light, noise, and non-Aboriginal hunters, leading to reduced ability of SFN members to maintain connections to nearby lands and waters and exercise their SFN treaty rights; and
- Reduced opportunities for teaching how to use resources and associated cultural protocols due to reductions in wildlife populations or contamination or perceived contamination of resources in the project footprint, LSA, and downstream along the Murray River.

Based on anticipated project interactions, and the ongoing importance of the project footprint and LSA to SFN site-specific and non-site specific values related to cultural continuity, the project is anticipated to have important and potentially significant impacts on SFN intergenerational transmission of culture, and other related rights. This will be the case in the project footprint and LSA, and potentially also the RSA, with implications for SFN cultural continuity as a whole when considered alongside other cumulative impacts already taking place in the area. This prediction is made with a high degree of confidence.

SECTION 5

Conclusion

5.1 Summary of Baseline and Project Interactions

Based on information collected through this study, it is clear that the proposed project footprint, LSA, and RSA are of high importance to SFN knowledge, use, and occupancy, and are preferred areas for SFN rights practice.

The southern half of the proposed project footprint, and areas adjacent to the Murray River, are especially valued by SFN members for a wide range of practices protected under Treaty 8. The Murray River itself, and riparian areas along it, are of high ecological value for multiple species of fish, moose, and other species important to SFN. They are easily accessed by SFN members, and are associated with unique SFN oral histories and cultural knowledge.

The proposed project is located within the Treaty 8 area and within lands historically and currently relied upon by SFN members for the practice of knowledge, use and rights under Treaty 8, including hunting, trapping, gathering, fishing, and associated cultural and livelihood practices. SFN practices are recognized and affirmed under Treaty 8 and s. 35 of the *Constitution Act, 1982.*

Based on this study's findings, potential project effects on SFN knowledge and use are anticipated to include the following:

- Direct footprint impacts — including land clearing and construction of processing facilities — will remove habitation sites, teaching areas, trails, plant and wildlife harvesting sites, and other site-specific and non-site specific values reported by SFN members.

- Noise, light, and other sensory disturbance by the project and increased traffic is likely to impact sense of place and deter SFN members from visiting the area for the practice of traditional use, leading to a reduction in subsistence practice and, over time, cultural knowledge of the area.

- Land clearing for the mine and its transport links will increase habitat fragmentation in the area, and lead to additional or extended interruption of animal movement patterns, reduction in overall quality of habitat, increased access for hunters and predators, and consequently reduced quantity of wildlife, including moose, caribou, fur-bearers, and other species, for SFN harvest.

- Noise disturbance may cause animal populations to move away from the area. Of particular concern are moose and caribou.

- Project effects on water and air quality, particularly from coal dust but also from metals and other pollutants, are likely to result in reduced SFN confidence in wild foods (especially moose, fish, and berries, but also other species) and reduced traditional food harvesting and related practices. This would occur in the project footprint and LSA, and also downstream along the Murray River and along coal transport routes in the RSA and beyond.

- Increasing access of non-Aboriginal hunters to the project area is likely to result in increased competition, increased disturbance to SFN practice, and reduced opportunities for peaceful enjoyment of traditional practices such as hunting, fishing, gathering berries and medicines, and camping.

It is important to note that SFN members placed this project within a web of cumulative industrial impacts (particularly from the Quintette Mine) that are impacting the Murray River Coal Project's footprint, LSA, RSA and beyond. The results of this study suggest that levels of impact in the LSA from the Quintette Mine and other developments are already at or beyond a threshold of significant effect on SFN use. Project effects will therefore be felt more severely by SFN members, and will prolong existing loss of use or diminished use for many decades during operation and reclamation for the Murray River Coal Project.

These anticipated project interactions would result in high magnitude and long duration effects on documented site-specific SFN subsistence, habitation, cultural/spiritual, transportation, and environmental feature values. It is anticipated that the project would also impact non-site specific values associated with moose, caribou, and other wildlife; water and fish; berries, medicines and other plants; SFN access and continued use of lands and water; and cultural continuity. As such, it is anticipated that the project would have important and potentially significant impacts on SFN knowledge, use and rights within the footprint, the LSA, and potentially the RSA. This prediction is made with a high degree of confidence. If the project proceeds, mitigation and monitoring measures should be decided upon in dialogue with SFN.

5.2 Closure

Should you wish to discuss any aspect of this report, please do not hesitate to contact Carmen Marshall, SFN Lands Biologist, at (250) 788-7289.

Sincerely,

ORIGINAL SIGNED

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Appendix 1

Examples of Qualitative Data

MOOSE		
Quote	**Participant Code**	**Date**
Like, we don't hunt — we don't kill everything we see. I don't anyways. I always just whatever I need. And I don't shoot cow and calves. I won't shoot a — like, a tiny, tiny moose. I won't shoot a big, old bull.	S04	09-Oct-13
So it was kind of sad. There's been no animals. Used to be lots of those beavers and not only that was used to be lots of marten, now there's no hardly any marten around and that's the best marten.	S09	25-Sep-13
I distribute it [moose meat] out to the community, elders, and people that can't get out and hunt for themselves. … It's very important with the economy and everything they can't, they don't know how to go out and do it [hunting]. And there's no work, so we depend on that. They can't go to the butcher shop and buy food, meat. So I go to give it to them. They're very grateful for it. ... There's my wife, she makes dry meat, so we make a lot of that dry meat. We give that to the elders and help them out. … I crush them [dried meat] up—like make it into like a powder. It's called [Cree word] and I'll go give that to my uncles, 'cause they're old and have no teeth, so they eat dry meat. It's nice to do the stuff like that for elders. ... I'll give it to anybody who needs it, if they seem old or need meat. ...I like doing that. It makes me feel good inside that I could go and help people that are in need of meat.	S14	12-Aug-13
You got to try to get them [moose] to come back, because otherwise they keep going with the hunting season and letting all these people from down south and everywhere else coming to hunt here, we ain't going to have no moose for our future children. Like right now, I talked to about 20, 30 people. They said they can't kill a moose ... Like, years ago, you go out, get three moose every summer and it feeds a family through winter.	S14	26-Sep-13
I don't like hunting them [moose] now, because I don't want to deplete them anymore. I'd rather kill an elk now, which I don't like elk meat, but if I go kill a moose, then my kids ain't going to have any meat further down, not if they don't start building up again. So, might as well just stick to elk and butcher block, then wait for a moose to come back so my son could hunt them.	S14	26-Sep-13
Well because of the fresh ground smell on it. That's what they [moose] do. They lick the ground when it's kind of a salty taste on it. That's where they make licks. In some areas there's a salt lick. You know, natural salt water kind of thing and then that's where they drink — they lick that ground there.	S18	25-Sep-13
[A moose shot on the powerline north of Johnson Creek Road] We killed a moose right there and they were skinning it. It didn't like take off right away too, and we were wondering why. It was sick, something was wrong with its joint because they skinned it and everything and my husband was bringing it out and he was just carrying the hind quarter, and I could just see this liquid pouring out ... we got it home and then I had to go get wrapping paper and stuff and I came home and they were all just sitting downstairs and I said, "Ma, what's wrong with you guys? How come it's not deboned?" He said, "You got to look at this." So anyway, they had one hind quartered. They had been waiting for me but they cut in between the joints and all this liquid just oozed out. That's not normal. Something was wrong with the joints of that moose. We didn't even keep it. We threw the meat out... So there's something obviously happening.	S21	04-Oct-13

MOOSE *continued*		
My grandsons and I went up to Hullcross. It's just across the lake. They got a moose, and you know what, that thing has little white pustules on some of them. Normally, they're closer to the fat, right? But when we were — I wouldn't even keep that moose. Somebody else took it, but it had so many little white pustules on it and I said this is not good when you have that many little pustules. Once in a while it's okay to see them, but if you're cutting dry meat and you keep seeing it, there's — our moose are getting sick. Bottom line, they are getting sick. And I blame a lot of it on all the activity.	S21	04-Oct-13
It's, like, we're going out further and further to hunt our moose because they're getting sickly when they're closer to home. … they have a lot of those little pustules and stuff all in their fat. … I won't go hunting in Del Rio area. Too many flare pits over there.	S21	04-Oct-13
Well, they've got other members of the family that go out and get meat, and bring and share meat with them too, right. So like for me, it's my dad and, like I said, my mother, my grandparents, my brothers, you know. I share the meat with people in my family all the time, because I'm the one that's usually out there hunting. And I love being out there at it, you know. I go out and shoot. I even usually go get it cut and wrapped, and then just take them the meat, right, and put it in their freezer for them. My freezer's only so big, and it usually was just me, or like it's me and my wife, but I usually end up filling other people's freezers, too.	S31	7-Oct-13
It [hunting] is a lot more healthier than going to the grocery store and buying meat, I think ... Living off moose meat becomes part of your life, you know…	S35	12-Aug-13
I have no moose meat right now. Like, we're trying to find one moose, you know … we can't. I have no moose meat and that's a damn shame, that's a damn shame. It's sad. My grandma's freezer is bare. My grandma's freezer is never bare and her freezer is bare, and she always has two full freezers to provide for all of us family, like if we're having hard times or what have you. She has nothing.	S35	12-Aug-13
I was told, just yesterday actually, an elder was telling me that when, when the moose inhale, when they are near a coal mine, when they breathe in the coal it takes away their smell, and that takes away their sense of fear. So they, they don't have that sense anymore to sense whether they're getting stalked by a wolf. They lose that when they breathe in the coal, the coal dust. They can't smell other animals. They can't smell. Which is detrimental to a moose's life, obviously, because … they're easy prey. …. I just learned that yesterday and it worries me.	S35	27-Jan-14
Because the moose … they'll start leaving the area, the coal. Like they'll go further away because … it plugs their sense of smell and they can't smell they're getting stalked. So what they do is they just leave the area. They'll leave the area where they're mining. Like they'll go far aways.	S36	27-Jan-14
We were raised on moose meat … I could eat it every day, if I could. Yeah, I like it. It's a good life.	S39	14-Aug-13

MOOSE *continued*		
In the last five years, we haven't hardly shot any moose because the decline in moose population is so bad right now.	S44	17-Aug-13
They put a big honking road up there—it's clear cut up the area where the moose cross. So the hunters sit right at the bottom … and they just sit there and shoot the moose once they come into the clear areas … the wolves are the same. They just sit up there and wait, because that's easy picking.	S44	17-Aug-13
They even had a hard time getting a moose for Pemmican last year. … We never even got a moose last year for Pemmican Days. That's all this frickin' mining and stuff that they're doing. That's why we can't get nothing.	S57	27-Jan-14
The moose don't like this dust, coal dust. … when they get that dust in their nose they can't smell fear or danger coming to them. They don't like it, they don't like that coal dust.	S57	27-Jan-14
It's sad. But, really, I get angry, too. Mostly for the fact our areas are getting hunted-out, too, and that's pretty sad. There's often time when we'll go out and not get any animal at all. Before every time we'd go out, we'd bring home a moose or something. Last year I went from beginning of hunting season, just prior to the hunting season open, which is the beginning of August into end of October, and we finally got a moose. I went to Halfway. We went to the boundaries of our hunting territories. It was really, really hard — tough.	S61	23-Sep-13
Wolves, diseases, foreign gas industry, logging ... logging's the worst because they just wipe out the whole forest, so the moose, you know, have no place to hide and it's, you know, that opens up the — it gives the wolves a better chance to, you know, kill the moose and stuff. Because there's no shelter for a moose to hide in. So there's a big impact for the moose, I think.	S63	24-Sep-13
[Feelings on declining moose population] Well, it feels terrible. That's just no good, you know? Because, well, that's our main source of food is moose meat. Anybody's — Any native on this reserve loves moose meat. Everybody loves moose meat. It's way better than beef, it's way better than elk. And, you know, people make dried moose meat out of it. They smoke it, they make hamburger. You know, it's a good source of food for us. That's our main source of food. That's how I feel. For us, it is. And it's just sad, you know, they're just disappearing. Slowly they're just disappearing.	S63	24-Sep-13
Like, even with oil and gas, with all the pipelines that are going on. They're opening up new areas, maybe at an easy access for quadders, ATV-ers. So moose, they just — you know, there's so many pipelines criss-crossing, you know, it's — if they miss that moose in this area, they'll just go around on another pipeline, and when that moose comes up, here you go. They got a moose. So they don't stand much of a chance. You know what I'm saying? It's pretty — it's sad and it's sickening I think. I just don't like it.	S63	24-Sep-13
You don't see no moose. It's just — you just kind of just wonder — basically wonder where did they go? Or what's going on? What happened to them? Because they all died off or what? So it's kind of — sadden.	S63	24-Sep-13
And moose, they eat off the land. We don't feed them like cattle or — domestic cattle, you know? Moose eat wild stuff. Twigs and grasses and plants and so it's, you know. Then with all this fracking going on, they go to eat all these plants … eat the willows and stuff like that. So then, there you go. They get diseases from there.	S63	24-Sep-13

MOOSE *continued*		
They did a study and they actually did find the causes of the diseases these moose were having. Because when you skin them, you find all these weird things under their lungs and stuff. Lumps, and they got lumps on their bodies and stuff. And that's from their licking the minerals or whatever that's coming off the stacks over there, the flare stacks I guess, maybe was coming out of there and it lies on the ground and then they eat that.	S63	24-Sep-13
This year it's starting to get a little concerning, because we haven't gotten anything this year, just one [moose]. And I'm not sure what it is. And we've got a big family to feed and, with my aunts and mom and whatnot. So, it's a little concerning. I'm not sure if it's the activity or what it is. I think we got our first one at the end of June and nothing since. And we've been out a few times.	S68	26-Sep-13
When we started to skin it and cut it, the blood was black, and my husband said, "Okay, this moose is sick, so we're not going to take it." He said it's sick, so we left it in the wild. We went back a week later to check on this moose. The birds didn't even eat it. They knew it was sick. A second moose that we killed, it didn't even have the stomach lining. He said, "Again, we're not killing — we're not taking this moose; it's sick." So this is the kinds of stuff that're going to have an impact on our animals and our lands if all this stuff goes through.	S73	26-Sep-13
It saddens me, that all the development is actually killing off our moose, chickens, hunting, our hunting … basically our way of life. And it's not going to leave a whole lot for our future generations.	S74	26-Sep-13
Well, like all these rig sites that they have around our area here, all of them, our animals have disappeared quite considerably. Like I guess they just moved out. So much activity around here. Because over south of here, man, you'd be surprised how many roads there are in there, rig roads and rig sites. … So, they created quite an impact on our animal population. They just moved out of the area…	S75	Sep 26, 13
When I was younger, right up until I was 13 or 14 years old, we used to stay in the summer at moose camps, probably for a month or a month and a half at a time. That's where everyone would gather together to camp, hunt, pick berries to get ready for winter.	S76	22-Aug-13
All the moose up...Yeah, Del Rio. My uncle shot a moose up there, and it had growths on it and stuff, and it just tasted gross. There was pus… Yeah, it's really bad up there. Sour gas all over the place. Moose are breathing it in, and they're getting sick up there. They're all sick.	S84	26-Sep-13
Oh, yeah. That's our primary food source, right there. Some people are here, instead of going and buying meat for their family, they go buy a box of bullets, and go shoot a moose, instead. Right? It's a lot cheaper than buying groceries. It's hard work, but it's worth it in the end. Moose meat's really good.	S84	26-Sep-13
The whole community used to share, everybody. Like, if somebody killed a moose here, everybody got a piece of meat. You'd just go there and eat. You know, we'd all have a feast kind of thing.	S87	26-Sep-13
I mean, the hunting gets tougher because you got to go farther and farther in the bush or away from where the action is happening because they scare all the wildlife, eh. … the moose and elk — especially elk are really skittish, you know. They want to be miles and miles away from anything that's happening so there in turn I'd have to be miles and miles away from anything that was happening here.	S94	30-Sep-13

MOOSE *continued*		
Yeah. We go through moose pretty fast so at least a moose a week in my house. That's just my household alone... Living there it's just — there are four or five of us living there and then just everyone that stops by and stuff. Stop by and throw on a steak if we get hungry or something.	S95	30-Sep-13
But there's lots of moose have been getting sick that have been around the gas. I don't know. Like, we, we try to look at them and see if they're healthy before we shoot, but sometimes we get a sick one. And it's usually around the gas lines.	S105	09-Oct-13
Wild game? I'd say we eat it at least two to three times a week, mainly moose. The boy just got a grouse, which we'll probably cook up one day here. We do eat fish, but I haven't been lately because of the way that our water turned out there after the floods. I didn't like the colours of it, and I still don't. I don't like that brown look to it. So I don't the fish would be that great. That's my opinion, anyway. Elk, we ain't a big elk family. We don't really eat that, or deer, so mainly just moose and chickens and fish, whatever we can catch. And currently trying — well, got family teaching our youngest son how to trap.	S110	13-Oct-13

OTHER WILDLIFE		
Quote	**Participant Code**	**Date**
So it was kind of sad. There's been no animals. Used to be lots of those beavers and not only that was used to be lots of marten, now there's no hardly any marten around and that's the best marten.	S09	25-Sep-13
They leave these tailing ponds open to the animals, they expose the animals, and then they go drink it. And what — you know, what's happening to the meat, you know?	S09	9-Oct-13
How are they going to transport that coal? All that coal that's just going to go in and — coal is not good for people's lungs. And if it's not good for people's lungs and they have a route, it's not going to be good for the animals either.	S21	4-Oct-13
It can't be in coal. Coal — it's like you don't go kill a bear for something — to eat it if it's hanging around a dump. You know what I mean? You don't kill a dump bear and eat. You gotta go clean, you gotta go somewhere up the mountains where the bears are clean. The same with plants, you can't do that. So not — they're not clean, right? Or you can't eat a rabbit that's — that lives near the Quintette Mine. Because it's breathing in all that crap.	S17	16-July-13
All the meat is taken and distributed to the elders here. We have lots of people that need elk meat that can't go hunting, so we supply them with meat. It's never wasted. I take everything from the bones, all the scraps, I cook all that for my dogs. Everything is used. The only thing we leave in the bush is the head and the hide and the guts. Everything else comes home with us. … I always give away meat. … If somebody comes to my door, if they need meat … I have a deep freeze full of meat. And then, you know, if they give me something in return, that's fine. If not, it's not a big deal. It's not about selling.	S44	17-Aug-13

OTHER WILDLIFE *continued*		
Even our animals, the same with elk, we noticed the change in the way they grow versus before when they were a lot healthier. They are smaller, the meat is different too at different times of year … the water has a lot to do with the quality of meat you have.	S44	17-Aug-13
When you have big cut blocks, some animals don't go through cut blocks, they'll stay in the bush, so where they can travel is limited then. I don't, I'm not quite sure, but I know there's animals that won't go across, they have a really hard time cutting across cut lines and stuff because they're like, solitude animals I guess you would call them. A lot of them won't cut across lines, so when they hit the cut line, they'll turn around and go back. It limits them on the amount of places they can go. It just makes the accessibility for hunters more in those areas. And we have enough flipping hunters out there as is, so.	S51	24-Sep-13
So they claim that it is less pollution then for underground? What's the difference? You're still — they're still disturbing the mountains. They're still taking all that out of there. All that dirt out. All that coal or rocks and things out of there. They're still polluting it inside, so there's no difference. It will still be polluting the water. It will still — when they haul that stuff, the coal, the air quality is going to be very, very poor. All the way up the highway all the way up to where they're going to haul it, all that coal. Even now when you see those coal trucks parked in Chetwynd you can actually see this haze and they're just covered in black, those trucks are. You don't recognize what colour they are. I don't think they're allowed to park anymore in town, because the truck drivers sometimes stop and have a coffee or lunch break or whatever. It's a dirty business that coal mining. Any kind of mining, very dirty business. It just ruins that whole area there because in that area too there's trapping and hunting. There's a lot of — all kinds of animals in there, in that area.	S62	23-Sep-13
We eat porcupine. Lot of the elders, they like porcupine. It's a good meat, very rich. Like, again, they're just like beavers but a little different taste. You eat too much of it, you'll get sick. But it's healthy, hey, that a lot of folks eat. But now there's no porcupines.	S63	24-Sep-13
Well, we skin them [beaver], stretch them, sell the pelt. Sometimes we eat the beavers. Some people take the beaver castor. They use it for medicine.	S63	02-Oct-13
That's why we don't — no pun intended — we do not hunt during hunting season for non-native people. We try to get our moose before the hunting season opens, because we don't like being out there with other people, because there are a lot of people that do not know how to safely handle a firearm. They will shoot at anything that moves. So, we try to get our meat in the deep freeze before that happens.	S81	27-Sep-13
It's been happening now more and more there's hardly any moose or hardly any animals. We've seen that ourselves within the say the last say less than 10 years they're slowly disappearing. There used to be lot of rabbits, there's hardly anything and chickens you guys call them grouse, whatever, there's not ver—, like even now, we go hunting day and night. We can't see nothing. We gotta go to the Alberta side. It's hard. Hard to kill anything.	S91	26-Sep-13

CARIBOU		
Quote	**Participant Code**	**Date**
They go out in woods too, woodland caribou. There's three different kind of caribou. There's woodland caribou, there's mountain caribou, there's muskeg caribou. Along say Alaska Highway 71, mile 171 there's muskeg caribou.	S18	25-Sep-13
Well, like all these rig sites that they have around our area here, all of them, our animals have disappeared quite considerably. Like I guess they just moved out. So much activity around here. Because over south of here, man, you'd be surprised how many roads there are in there, rig roads and rig sites. Even that there's a great big tamarack swamp here that was, used to be full of caribou and they even disappeared. So, they created quite an impact on our animal population. They just moved out of the area and I don't know, a lot of them moved to the Alberta side where they get killed off on the road. Some are smart and they move to the mountains, I guess.	S75	26-Sep-13
Caribou need a big area to survive. If they can't have a big area, it's not like a moose or a deer, sometimes, you know, it takes more, you know, an ongoing impact for moose or deer to get pushed out or to die off. Okay? Or from whatever, because of, you know, because the environment is out of balance because of development, okay? When I'm saying moose and deer, but they do get affected on it too when there's some development going on in their areas, but what I'm saying about caribou is when, when it, when it hits them, right away it affects them. Right within a few days. You know, if a development goes in there, right away the caribou get affected by that. They have to get out of there. That's just their nature of survival. With the caribou. Well, this place here, is a real primary for those caribou for their winter grazing and also for the calving. And summer grazing also because the lichen is so high it's good for them in the winter time, you know, just to survive on if the snow gets too heavy, whatever, in other areas, they have a place to go.	S92	29-Sep-13
My experience with caribou is they're very sensitive with noise. They don't like noise. Yeah. Because that is how, you know, we were taught and also found out with experience that when we ran into caribou we had to be very quiet all the time if we wanted to hunt them.	S92	29-Sep-13
And also, Quintette caribou herd is going to be hit again.	S96	1-Oct-13

WATER AND FISH		
Quote	**Participant Code**	**Date**
...And like something happening and even though it's the mountains, if it rains, it snows, you know, it comes down the river, it's going to go in there anyway. So that's, you know, that's what I'm really worried about. People fish and plus, the game, caribou, elk, grizzly, anything, that drinks that water would be, you know, contaminated as well.	S04	9-Oct-13
I was told by an elder when I was young — I didn't believe him. I thought he was crazy, when he said, …"Not in my life time," he said, "You guys will be buying water," is what he said. He said, "All this water, you won't be able to drink it." He said everything's going to get wrecked. And I didn't believe him. I thought he was just crazy. And today, we're drinking bottled water. So that's all true.	S04	9-Oct-13
I'm 53 years old now, so I've seen, right from when I was young, we used to trap, fish, they can drink out of every water hole in the country. Like anywhere, you can go drink water. Now you can't because of all the logging, oil leaks, hydraulic leaks of the skidders, everything.	S04	9-Oct-13
Well, like I said, it's going to contaminate all the fish in all the water. It's going to poison everything and it's going to turn everything black there. Coal mines, you know, the traffic. Same thing as I said over there. Traffic, the black coal is going to be everywhere, the dust. And that's poisonous stuff. That's not just, you know, animals breathe that in. It goes into their lungs, into their bloodstream. Maybe we eat that stuff? It's not good.	S04	9-Oct-13
Well, the coal could hurt a lot of, it could be flood away from it. I mean water always running. It'll go to the river. I know that part.	S16	8-Oct-13
How about the coal mines? How about the lumber? It goes on and on. Look at our lake. I know that was an act of God, that's beside the point but all the logging was done over there and all the runoff goes into the river and it's blocked now. It's been blocked for two years. And this is what happened to Williston Lake. It will never be the same. That water below that dam. And it's going to go on and on. They don't build Site C, they're going to build one at Dunvegan. That's how come people from all the Treaty 8 areas have worked together and do these kind of things. I'd rather see that then have B.C. doing it over here with us. Not B.C., but the B.C. people.	S18	25-Sep-13
Yeah, so, and if that's the case, you know, the pipelines an impact, the mine is going to be an impact, just the impacts. It's opening it up more over there and that's where our healthy moose are. Good water. What are your kids going to drink when they're older, when you have a family?	S21	4-Oct-13
That's my biggest fear is that they're going to wreck our watershed. If they're wrecking that, they're going to wreck all our staple food. We won't be able to eat our moose because they have to drink water. A lot of them are going to the creeks, rivers, ponds, whatever. You know if we're seeing sick moose and elk already in Del Rio and they're slowly going that way, we're eventually going to see that.	S21	4-Oct-13
The fish. In the future, is there going to be any fishing that's going to continue on? And what are they — and where is their waste going to go? Is it going to be in the river? Or is it by the riverbed? Because they don't — they're pretty close to the Murray River already.	S23	12-July-13
And of course, you're going to have soil disturbance, and the logging, and everything else along the way, siltation into the creeks, and the soil erosion and whatnot along the way. That could add impacts to stuff along the way, too.	S31	7-Oct-13

WATER AND FISH *continued*		
The main concern I have is with water. I mean, like, even with animals drinking it. If something goes wrong, how are they going to be? How is the hunting going to affect people? ... My main concern is about water because I am using the water from there. If anything happens, well, I don't know where to go get my water.	S47	8-Oct-13
Wherever there's water there's or damp areas, there would be muskeg tea, so we'd pick that for sure.	S51	24-Sep-13
Oh, my Lord. That's horrible. It's a horrible thought, because there's enough in there already. Our watershed has been effected, and you had floods just a couple years ago that I think was a direct result of all the forest activity, forestry activity. That road is used so much, it is dangerous. When we do go out, we have to use radios, and a lot of times we don't have them — can't afford them, or can't get one. Yeah, I don't think there should be any more activity up there.	S61	23-Sep-13
The water, that's all polluted and it goes into the main rivers, all that water. They say it's all, you know, kept in one place but it doesn't stay in one place. It seeps through to the earth.	S62	23-Sep-13
You keep the big ones [bull trout]. See, because the fishing — the bull trout here [on the Murray River], you can eat them. They get eaten. Not like the Peace River. Yeah, Peace River, they don't taste right, because there's a dam and stuff … And plus they have all that mercury.	S63	24-Sep-13
I hope that thing [the Murray River Coal Project] doesn't go through, because they're going to really spoil that river. In the past what I've seen, what the mining companies have done, for one thing there's a lot of coal dust. That coal dust doesn't only settle in one specific area, it travels. It could travel at least 10 kilometres either way, and it covers everything.	S81	27-Sep-13
If they ever decide to make that coal mine near that Murray River, certainly they are going to be destroying that river downstream, and probably at least 25 kilometres upstream. There will not be no fish downstream. I'd be the first one to say, please don't eat those fish coming downstream, because the mercury that's going to be in those fish, and all the impurities that they get from the mine, and what kind of chemicals do they use? They have to use dynamite to dynamite into the rock. So what's in the dynamite? You'd have to be very, very careful in eating anything within, I would say, within even a 50 kilometre radius around that proposed mine. I only hope that they never do that in that area, because there again, they're going to be absolutely destroying that beautiful area and that beautiful river that we've always had in our backyard.	S81	27-Sep-13
There's too much activity. And the water, you can't drink water nowhere. Everywhere, every water you come to's polluted. Why? I'll just never know why. Why didn't they think of life first and say, all right, we'll do this on this side one place, but we will not pollute water all over, you know? Doesn't make sense.	S91	26-Sep-13
I mean I already have been affected by it [industry]. Like I just don't catch the amount of fish that I used to catch but maybe that's my fault but I don't know. But I do think it will be different but just like anything else that's going on around here that was done before when I was a kid. I mean the fish still seem to be there so I can't say if it really would, but I just know that my own experience is that I'm just not catching the fish that I used to catch.	S94	30-Sep-13

WATER AND FISH *continued*		
And then Hasler, I've fished up there way back in the past. Up the Hart Highway. Where's the Willow Creek. Yeah, I've fished up there before they ever put that mine in there but I don't know. It's kind of — it's not a good place to fish anymore. I miss it.	S94	30-Sep-13
Lots of fish, yeah. All for sustenance, you know. Like I don't sell them or anything, I just eat them and feed my family.	S94	30-Sep-13
Yeah, the water system there. If the coal or something got in there or from the water from wash plants got in that river and probably contaminate it pretty good.	S95	30-Sep-13
So my main concern for this coal mine being built is the Murray River. The Murray River is just getting hammered on. … What concerns me is the health and quality of the Murray River, 'cause I know there are members who fish here. … So I guess water quality is a huge concern for me for this mine development.	S96	1-Oct-13
[Industry] It seems like it's destroying so much land. And it's all about the dollar, you know, that's what they just — and they don't think about the land and the animals and the water, and you know, that kind of stuff. It just seems like it's going to destroy lots ... It's not good for us and for animals and for our future, our children, you know?	S103	9-Oct-13
[The Murray River Mine] Again, they're right along that Murray River and the only concern I'd have there is because it's along a main water source, well, who's going to be monitoring that water while they're there making sure that, you know, they're not poisoning all the fish there or whatever that drinks out of that. Next thing you know you've got fish with cancer, moose with cancer, whatever. Like there should be monitors out there during the whole — while that mine is working it should be monitored throughout the whole job. Take water samples before and after.	S109	10-Oct-13
[Above ground vs. underground mining] I don't really know much about it. I know that one mine there going — that Willow Mine, like it was so close to the river and I don't think anybody even really monitors rivers to see if there's, you know, any contamination and — it would be nice to have that in place before — they should actually hire people to monitor the water and all that, you know what I mean? Like when they take the trees off and then they're exposing and then you get these heavy rains that we get now. All that stuff ends up in the rivers and that probably affects our food chain too, eh, once they contaminate our fish and whatnot, I would think. But I know that Willow Creek, I asked about that mine and they — I worked there, eh? You can pretty much just see the coal dust is all over and then when it rains, well, it ends up in the rivers, right? But this underground, I don't know how — it might be cleaner and it wouldn't be, you know, be so exposed. I'm not sure how that works, but... But it would be nice to have monitors out there just to make sure that —	S109	10-Oct-13
[Murray River Mine] I have a few issues about that one … That one, I want to know what they're going to planning on doing about the gases that they're going to expose when — during their mining. Are they going to let them just flow off in the atmosphere or are they going to deal with them? Because I have a funny feeling that's going to cause a lot of acid rain and other things in that potential area. And then you got your wind structures. So how far is it going to carry? That's my only problem with the underground mine, because they're venting it all off in the atmosphere. And what goes up must come down.	S110	13-Oct-13

BERRIES, MEDICINES AND OTHER PLANTS		
Quote	**Participant Code**	**Date**
It's not the same what it used to be. Like, it's—like the plants are foreign. They try to throw a green rug over the mess they made, I guess. ... It's going to be a pretty hard sell for any kind of original plants to move back in there again, to replant them in there.	S02	20-Aug-13
There's a fine film of dust from the coal mines when they transport these things. That's not only through the trucks transporting these things … it's in the railroad tracks too. You can see that fine film, because I walk the railroad tracks.	S02	20-Aug-13
I'm a little eerie about even eating berries and stuff like in the bush now.	S04	09-Oct-13
Like, we pick muskeg tea, stuff like that. I still pick that all the time. We pick, like — I can make a little bit of medicine. I know how to do that, so I mean it's good to pick near. You've got to always have, pick the stuff away from the highway, away from anything that's rigs or anything that could contaminate everything. Otherwise, the stuff you get won't be any good.	S04	09-Oct-13
It doesn't matter if I crawl, I'm gonna go pick berries.	S05	19-Aug-13
Well, we don't want them to just keep going and go knock our camp down and knock the moose lick down or whatever and cover all the berries. You don't want to see that happen. These days there's hardly any berries because they're all covered already a lot of places with what they've been building: roads, pipelines, and these ones now, wind mills. You've taken all of the berries away from us as far as I know anyway.	S16	08-Oct-13
There are a lot of herbal medicines that some people use, like I use a few myself. There are four different kinds of trees that I use, that I've got to take from the bush or something. I got infected on my knee. I had to use those medicines. I had to cure myself. I got cured with that medicine. ... There are certain areas where I go, but it's all along the mountains.	S17	16-Aug-13
We used to always go over there and pick berries. ... There used to be tons of berries back there. Every year the whole family used to go and pick berries. ... Yeah, there's no berries. They uprooted all the berry patches we used to have. ... we went there and oh, I just cried, I cried.	S20	10-July-13
Now, if that's the only area and it's not like miles and miles of medicine I'm talking about — I'm talking about patches of medicine. And if they mow that over, it never grows back there again. So there are especially in the mountains where there's really important medicines that are sweat lodge keepers and healers that use that medicine, and it's lost when it's been mowed down.	S21	11-Jul-13
I filled my freezer full of berries, huckleberries and blueberries and saskatoons. We should be able to do that every year but it's not like that every year. Sometimes we go out there and it's been so dry we get no berries. Not only that, you get all the hunters. All these roads are open and excessive hunters coming here and depleting some of our main staple foods.	S21	04-Oct-13

BERRIES, MEDICINES AND OTHER PLANTS *continued*		
With all our meat, like rabbit or moose, we smoke it first. And it just gives it more flavor when you smoke it. We always smoke our meat. It's crazy. ...diamond willow, it's just right. ... [Diamond willow] grows in some areas, yes, but not everywhere. It's only sporadically. ... Wherever it is, we cut it. And if it's close or if we're hunting and my husband has a saw, like in this case we needed the diamond willow, so, yeah. ...we get it wherever, wherever it's growing, eh?	S37	13-Aug-13
Also for our berry patches, that's one thing I don't want to see is any herbicide spraying, because that destroys our berry-picking right there. So, when I had a meeting with the forestry, I said, "If you guys going to be doing any spraying without letting the First Nations know, please put up a sign." Because elders are getting scared even to go pick anywhere now because of the herbicide spraying and stuff. … This is the scary thing. And also with our medicinal plants. That's another thing that we have to try to protect.	S39	14-Aug-13
That's what the elders always said: Look after your medicine plants, and also the water, because that's so important to use.	S39	14-Aug-13
Wherever there's water there's or damp areas, there would be muskeg tea, so we'd pick that for sure.	S51	24-Sep-13
Wherever you see the tree is like this close to the road, I mean like pine trees and the spruce trees, wherever you see trees close to the road, that's where we get it [firewood] from. We wouldn't drive in to go get wood. We'd always get it right beside the road. So, yeah, on the way back I can show you where I've gotten wood.	S51	24-Sep-13
And, of course, there's the dust. A tremendous amount of dust. Even when you go there you notice you can't breathe very well. It's just like being suffocated. … When you think about the animals and they're just nearby, you know, in the boreal forests and the vegetation is dirty near that mine. ... It's just kind of dead looking.	S62	23-Sep-13
My grandma used to do that a lot, leave them [saskatoon berries] in the open sun and that dries it and she makes pemmican.	S63	24-Sep-13
When I was well I was able to pick enough berries to last me through the winter, and lots of berries for blueberry pie for Christmas, and all the holidays that we have. I had enough berries to make pies out of it, and then we'd go to the farmer and get cream. You just freeze a little bit in a package, right? Freezer bags, and you'd just cook that on a stove really quick, cool it off, and there's your cream and bannock and berries. You've never tasted anything like it.	S66	27-Sep-13
My mother showed us just not too far from Kelly Lake the spot where she used to pick her medicines. That's gone … I've never seen that medicine grow anywhere else.	S66	27-Sep-13
You have to know where to look for huckleberries, because they only grow — they're a mountain berry, so they only grow in the mountains. There has to be spruce, and pine, and poplar mixed together in that area. It's not hard to find huckleberries, if you know. But, you see, we've known these picking areas from the time we were small, because it's word of mouth. We were told where to go to pick huckleberries, cranberries, blueberries, saskatoons. Any kind of berry that you want to pick, we know where to go to pick these berries. But we've always known this. We were told by our parents and our grandparents. So, now we'll hand this down to our children, so they can hand this down to their children.	S81	27-Sep-13

BERRIES, MEDICINES AND OTHER PLANTS *continued*		
Medicines are like the animals. Medicines will, will grow quite, you know, thick one year in this area and the other ear, year, they might not grow in this other area. That is why the animals have this pattern of going in other areas also. They follow the vegetation food chain for the, where the growth better certain areas and better over here. It's very seldom that the plant life will grow the same every year, unless you have kind of the perfect summer. You know. For the plant life to grow that way, eh? Could be too dry or could be too wet. You know what I'm saying? So, the plant life tend to change the vegetation or the animals tend to follow the same with me when I pick the herbs. I'll follow that pattern of mountain vegetation and would grow for that seasonal year.	S92	29-Sep-13
Our medicines that we pick, it's kind of like, we keep it secret on, on what we pick for medicine and the reason for that is because it, it can be misused by other people. The medicines there. Very, you know, strong where you could hurt people with them also. So, when you have a culture of medicines, you don't just tell anyone even in our own First Nations. The ways, because that other person might not be trustworthy enough. You know what I mean? So, sometimes these people we work with on the studies, they ask, they ask what is that, what is this, what is that. So, we just honestly tell them we can't tell you.	S92	29-Sep-13
There's also that Labrador tea that is also picked. They always picked all their medicines in the summertime and to put it away for winter.	S97	01-Oct-13

SFN ACCESS AND CONTINUED USE OF LAND AND WATER		
Quote	**Participant Code**	**Date**
It's our right to protect it [the land]. It's our right to protect the animals that we use and consume, and the berries that we consume there, and the medicines that we use. … We're the continuous users of it [the land]. And our land's getting to be shrinked up, our land base … for using it is … shrinking up to a point of where we don't even have choices any more. But go to wherever's left — what's left, what's left.	S02	20-Aug-13
When they transport these coal, all that fine dust is — that film of fine dust. … there's a film of that fine dust particles along that highway there. It's stuck to the leaves. And these leaves are eaten by these wild animals. … what it does to those animals that eat those plants?	S02	20-Aug-13
Because some day, like I said, the money cannot be eaten and what we live off that land like we have up there, like our grocery store. That's our grocery store is the bush. We live off of it and the medicines that we have there is our drug store. We use that and it's still out there and it will be there forever. People's Drug Mart will be gone, IGA will be gone. As long as the land that we live off is still there and the animals that we live off are still there and that's forever.	S18	25-Sep-13
Okay, you take a look at Treaty 8 land and you put roads, logging, oil and gas, coal miners, windmills, power lines, where's Treaty 8? Can you see Treaty 8 land? No, there's too many overlays. You can't even see a piece of land that's one square inch in the bottom of the overlays. That seismic line, that cover the whole Treaty 8 land because there was no — nothing in place.	S18	25-Sep-13

SFN ACCESS AND CONTINUED USE OF LAND AND WATER *continued*		
We can't hunt in that area [around the Quintette Mine]. It's closed off. The gates are — we can't even get up there to hunt. … That's still Treaty 8 land, and still we get blocked out of those areas. ... it's a big concern for me and for all First Nations. When my parents and I used to go out, anywhere over there, they were never closed off, and there was no gates locked up or nothing in those days. But now they do.	S39	14-Aug-13
It bothers me that we have to have radios to go up roads that we never had to have radios before. It more or less control — they control which roads we go on now and before we never had to have that. To me, that's a big problem. I don't need everyone knowing where I am going hunting today…. When we hunt, we like to just go out and hunt. …it's a privacy thing. I shouldn't have to ask to go down to my lake. I shouldn't have to ask to go in my bush to pick my berries. I am letting people other than my own family know where I'm going that day. To me, that's infringing on my rights.	S44	17-Aug-13
When we sign a treaty a 100 per cent of that land base was not touched, with the exception of some small farming. So when you're looking at all these projects and how they add up to our people, it's a huge crisis for our people to continue our way of life. So I think it all has a lot to do with eroding our treaty rights is what it really is coming down to. We have very few places to go now … if people want to camp for a week or they want to hunt. And they have issues, pressures from hunting from the hunting season now, it's open. We have an open range hunting season in our area. So it's a free-for-all for people to come up and shoot, right. So our members now hunt before August 15th to try to get a moose before all the hunters come out so we are changing our patterns and our way of hunting…. So we're not getting these prime animals when we want. And we're not having the quantity. And we also have moose that are contaminated.	S46	19-Aug-13
When you have that many people and that much traffic going on, it's no longer a peaceful place. So sometimes you just want to go to the bush. And you know maybe if you do see a moose, that's going to happen, but if it doesn't you still had that time on the land. … just for your own peace of mind. And a connection to who you are, right, as a person.	S46	19-Aug-13
There used to be so much activity, so much traffic, you know, them god-damned trucks, they push you off the road, the big coal trucks and stuff like that. They don't slow down for anybody. That's dangerous kind of to go in that area to go hunting.	S48	17-Aug-13
When you add the numbers together — when you look at all of this, the pipelines, the windmills, the dams, all this stuff, and you put all this cumulative effect, you might as well just take … that screen up there, beautiful country, and just paint it black, and just say, "That's all industry now."	S53	19-Aug-13
I hate seeing industry so close to the watershed, because that's where they calve, that's where our ungulates calve, is close to the watershed, and I hate seeing that industry comes so close. I'd like to see bigger buffer zones, because even with the fishery, the fish as well, you start getting too close to the waters…	S54	19-Aug-13

SFN ACCESS AND CONTINUED USE OF LAND AND WATER *continued*		
There's huge hunter camps in there, too. You'd see maybe one or two camps, and now there's about 20 in one location, and that's dangerous in itself — too many hunters in the bush where you are hunting. So, basically, it's just afraid to get shot. It's sounds kind of crazy, but that's the truth of it. And they're not friendly. There's hunters in there that aren't friendly. They don't want you to see their camps, or whatever. Quite different from when I was young. Everybody was friendly, and you'd go and visit at each other's camps and things like that, and share your hunting stories. Now it's almost hostile.	S61	23-Sep-13
You know in every one of our places you will find a freezer full of moose meat or some other get elk, except for caribou, but mostly moose. And then now, these areas they're starting to get closed in as well. Right now there's so many hunters out, as well as the mining people, the people that are doing exploring, people that are doing — what do you call it — you know where they take rocks and soil samples to figure out where the best place is to get coal. They're drilling to see — to study those earth cores where it's — and that's disturbing everything too. Because you build roads up there. There are roads galore up there. Just all torn up. There are really very few places to go to in our area. Whether you go east or west or south.	S62	23-Sep-13
There are going to be hundreds of roads out there. Now there are going to be more people going out there too, as well, to pollute the area. To damage the area. We don't have any more free range area for the animals … The future generation, that's all we're going to see is mining and windmills and roads all over.	S62	23-Sep-13
If you go by the coal mine in the winter, you get — the snow's just all black. It's not white. So that has a big impact on all the — you know, all — for animals and stuff, because they breathe it in, you know? Even the people that work in the coal mine. I know people that work the coal mine, the miners. Bothers their lungs because of the coal dust.	S63	24-Sep-13
[Near the Murray River Mine] It's nice back there. I mean, you could see they're starting to log it out already. These are big areas here they logged out. Eventually they'll log out in here, because it's all big timber and stuff, but it's not a good thing. It's all year to year. Anything they do, there's always an impact.	S63	2-Oct-13
So what's the use to build all this here? You'll have power. Yeah, you're going to have power. But what are you going to eat? You'll be eating reading your newspaper here with lots of power, but you won't have nothing to eat in the fridge, nothing at all. Even the farmers are seeing it rough. Not only natives, not only people are seeing it rough. Everybody's seeing it rough. And I've seen it on TV every day, what's happening. No it's — to me it's ridiculous to do all this thing here. And I had quit one job. There's one mountain over there. You could see grizzly, black bears, elk, caribou. That's not hardly any caribou. But I seen caribou there. Eagles flying around in that place there, and they were going to rip that off just for coal. And I said, "No, I'm quitting. I'm not telling nothing to nobody anymore," I said. It's no use anyway.	S79	27-Sep-13
I wouldn't want to see another coal mine. I'd have a lot of concerns about that, because, you know, of all the dust and everything like that, you know, and the stuff they're taking out of the ground, but it's going to happen anyway, whether I say yea or nay.	S87	26-Sep-13

SFN ACCESS AND CONTINUED USE OF LAND AND WATER *continued*		
[About industrial development near Tumbler Ridge] I think my thoughts with that area is, you know, they keep putting in more and more stuff but it's already a loss of use area, can't take anymore industry activity because … Well, because there's so much there we don't use it. Like if they say well, are you hunting here, are you doing whatever here, it's like no, because it's already wrecked so.	S93	30-Sep-13
I mean, the hunting gets tougher because you got to go farther and farther in the bush or away from where the action is happening because they scare all the wildlife, eh. … the moose and elk — especially elk are really skittish, you know. They want to be miles and miles away from anything that's happening so there in turn I'd have to be miles and miles away from anything that was happening here.	S94	30-Sep-13
I don't like coal mines at all, because, when the trucks go by, everything is so black, dirty, even the snow, when you go on the road, it's all black. And that goes into your lungs when you drive by or something.	S99	7-Oct-13
I don't approve of underground coal mines at all...I totally can't — too dangerous. And they're bad, as far as, well, any kind of coal mine's bad for the economy...Well, they take a nice beautiful piece of land and they just turn it into a big hole in the ground.	S100	7-Oct-13
...with an underground [mine], you're taking all the stuff from under the ground, right? It's going to affect something within something somewhere and somehow. I just don't know exactly how.	S107	10-Oct-13

CULTURAL CONTINUITY		
Quote	**Participant Code**	**Date**
Like I say, I don't really care about myself anymore, but I care about my grandkids. Like they're the ones that are going to have to live this — this way, so I'm fighting for them. For, so that we could try and stop that and leave everything alone, you know, leave everything as it should be. And so they still may have a chance to have clean meat and stuff like that and pick berries, plants.	S04	09-Oct-13
Well, they'll [children] never know what we had over there in the past. Nowadays ... we can't take them up there and show them what was out there. There's no animals out there. There's no berries. Everything's getting wrecked. They're raping the land, and all the berries are disappearing. And you have to go farther up the mountains.... It's just pisses me off.	S14	12-Aug-13
My dad never ever told stories during the summertime, because stories were told in wintertime and it still carries on today. We teach that to our kids. We don't tell stories during the summer, only in wintertime. When we would go out, the other thing he would always make us kids do, was we had to really listen. How many birds do you hear? Which way is the wind going? How are the plants growing? And which side are the plants growing the fastest? Stuff like that.	S20	10-Jul-13
I just think that, you know, I so enjoy the dry meat, and my grandkids too. I show — I taught them how to hunt, fish and make dry meat, quarter, skin the moose, clean it up, quarter it, debone it, make dry meat, whatever, wrapping it. And my great grandchildren might not have the benefits of doing that and that's really sad.	S21	11-July-13

CULTURAL CONTINUITY *continued*		
Always my grandkids, I always go hunting with my grandkids. Teach them how to shoot, how to skin it, what to do first, how to keep it clean. A lot of the youth are showed that, how to hunt and make sure their food is clean. How to respect the moose and when they bring it back to Culture Camp, then we teach the kids how to debone the moose, how to preserve it like while you're making dry meat because you can't just leave it after you debone. We usually put it on top of the meat rack where the smoke is getting it because as you're cutting it you got to put your meat somewhere. So the youth are taught how to debone and how to cut it all up. Some people do meat wrapping. Sometimes they have somebody doing canning out there, teaching the youth how to can. Every time there's Cultural Camp a lot of it is meat gathering is what we're teaching the youth.	S21	04-Oct-13
So but [my grandkids] also like hunting so I think when you're teaching them all your culture and your traditions that you're also keeping your family together and bringing them together on something you all enjoy. It's not nothing new for my grandsons to be in a dry meat rack and deboning and helping me or — it's a way of life. So to teach, to be able to share that with your kids and they actually want to learn. In this day and age, my grandsons don't have to. They could be in their video games or whatever, but, no, my grandson, my youngest one is out hunting just about every day with somebody, with one of the boys on the reserve. So for me to see that it's really gratifying because if something happens to me, I know they can keep hunting and looking after themselves and providing. So that's a good thing.	S21	04-Oct-13
Well, they've got other members of the family that go out and get meat, and bring and share meat with them too, right. So like for me, it's my dad and, like I said, my mother, my grandparents, my brothers, you know. I share the meat with people in my family all the time, because I'm the one that's usually out there hunting. And I love being out there at it, you know. I go out and shoot. I even usually go get it cut and wrapped, and then just take them the meat, right, and put it in their freezer for them. My freezer's only so big, and it usually was just me, or like it's me and my wife, but I usually end up filling other people's freezers, too.	S31	07-Oct-13
All my meat is shared with everybody. We have a big family, and then we give a lot of meat to elders that can't go out and hunt anymore. We give a lot of it away. It goes to a lot of families that need meat, so, yeah … you have to have a gun which some people do, then they don't have any shells and then they don't have a vehicle. So all these things play a part in why they don't go hunting. So we hunt a lot and we give to a lot of West Moberly elders and lots of Saulteau Band members, lots of Saulteau people. All the elders get meat.	S44	09-Oct-13
I always supply them [elders] with meat whether it's just right off the truck like a hind quarter, front quarter, ribs, tons of ribs. They just love ribs and brisket and especially, you know, the liver and the kidneys. We bring all that home. We don't leave anything there but the guts and the hide and the head sometimes. Sometimes we bring home the whole head if I don't have time to take out the stuff on the head but most of the time we bring out everything. We make sure it gets well used. You know, we have three big deep freezes in my garage and I cut it all up and then I usually package it up and go around and give elders meat and fish. They love that, so. It's very important in our diet. I never buy — I've never bought any beef from a grocery store. I don't eat beef. Not that I don't want to eat beef but why eat beef when I have my own food, right? So it's more healthier. My kids have grown up eating moose and elk, you know...	S44	09-Oct-13

CULTURAL CONTINUITY *continued*		
The whole idea of us — we selective hunt. We don't just hunt for the hell of it. We only take from certain areas because we don't want to put such a big impact on a herd, and if there's abundance of elk in one herd, we will selectively take out a certain amount but we'll move on. We don't believe in taking out — like if there's 300 elk in this herd, we'll take them all out. We don't do that. We just selectively hunt a certain amount out of them 300 and then leave them alone. Then we'll move on ... we've taken injured elk too. And I make dry meat out of it. There's nothing wrong with it. So that's the thing. We hunt, we live off the land but we don't abuse our rights either. We selectively hunt. And we know these herds and we watch them and we keep a diary of where we hunt and that and how many we take out so we're not overly hunting an area. We don't believe in that. We truly believe that, you know, we want to make sure there's enough meat for our grandchildren someday down the road, if we ever have grandchildren.	S44	09-Oct-13
I want to cry. … it's disturbing, really. It's sad. It's a loss because I'm thinking for the future of everyone's children from this area. If I can't even — if I don't even want to go hunt in that area now because of all the destruction that's happening then what's going to happen to like my kids. It's going to be so hard for them to hunt or fish or — anywhere because it's going to be all disturbed land. So that's painful.	S50	19-Aug-13
Is there a term in Cree, and there is, and it's called something — it means, "finding peace and quiet," so that's really what's really important to me, because that's kind of what I do — even when I worked, I did work in seismic, and that was the most important thing, to be able to connect to the land. Not hear anything but the sounds in the forest, and you can't do that these days. I always hear something — trucks going down the road even though they could be miles away. It's pretty sad.	S61	23-Sep-13
It's like you're reminded constantly wherever you go, now, of industry. You can't just go out and be in the bush, and find peace like you used to. That's a big part of who we are. Like when I say "going out hunting," for me it's being out in the bush. Sometimes I could care less if we get anything, or not.	S61	23-Sep-13
We live I'd say 90 per cent of traditional life here on the reserve in terms of spiritual and the foods that we eat. Like I said, most of our fridges and freezers are filled with moose meat and — I don't know how you call that, living off the land as much as they did in the old days when we were kids. We lived entirely off the land and we still do.	S62	23-Sep-13
And you can't really go do any hunting anymore, because of all the projects that are being done in the bush now, right? I mean, oil and gas, it seems like it's taken over everything … you got to go further and further away.	S76	26-Sep-13
...we don't want no pipelines or anything; any kind of stuff around our territory, around out land, because we're going to need — our kids and our kids' kids need this, too. They're going to want to hunt. We've got to keep it good.	S84	26-Sep-13
[Being out on the land] Oh, I love it out there. It's so peaceful, and just great. You have no cares in the world when you're out there. You just feel like you're free. It's good. It's a good feeling. Don't have to worry about nothing. Just have to worry about get bears, and stuff.	S84	26-Sep-13

CULTURAL CONTINUITY *continued*		
It's definitely important for me to be able to take — especially my son. He loves the land. He loves being outdoors, likes trying — going new places. So he really likes that kind of stuff, so it's really important for me to take him out there…	S85	27-Sep-13
It's just sad that we have to see our land get destroyed every day. And what is our generations going to — what are my grandchildren going to see? I don't know. How are they going to survive when they go in there? This is crazy.	S86	24-Sep-13
Like my children are really avid campers and hunters and fisher people, right? They love fishing, they love hunting and camping. Whether they'll pass that on to their children, I don't know. But we took them out since, like I said, since they were not even walking. And my daughter learned to walk in that area, so. Changing, though. Like, you're not even going to be able to go out anymore and camp anywhere without a wind tower beside you, or a flare stack.	S89	26-Sep-13
We are threatened by, by how we use the land out there when a development comes along. We're, you know, everybody has a say, people in town, same with us over here. It's just a different way we do it. We, we have our culture, our religion in more widespread of an area, the cleaner the land is, the more powerful it is for us for that area to worship the creator. And the more impact it has on it, the less we feel that. Because the land gets filthy, dirty, too much garbage. And in order for us, the holy spirit to come into that area, it has to be clean.	S92	29-Sep-13
[What he teaches his grandchildren] Oh, everything to do with survival from the wilderness, okay? And everything like, the ceremonies, sweat lodge, medicines, hunting, you know, how, how to tell which way is north, south, west, east, everything. Everything you can think about.	S92	29-Sep-13
I guess it don't really matter what they do anymore, because I won't live that long to see anything. But what they gonna do with my grave? They going to dig me out and they going to put something through there? I don't know, it's pretty sad for everything, what they're doing. No place to pick berries anymore. No place to go hunt. Nobody, no place to go hunt chickens, no place to hunt ducks. No place to go beaver trap, muskrat trap. It's getting bad. Now, you even have to buy water to drink.	S99	7-Oct-13

Appendix 2

Consent Form

SFN HD Mining Murray River Coal Project
Traditional Knowledge, Use and Occupancy Project
Declaration of Informed Consent and Permission to Use Information

I (name) _____, on this day (complete date) _____, give permission for _____ to interview me for the SFN Knowledge and Use Study of the proposed HD Mining Murray River Coal Project.

I understand that the study is being conducted by Saulteau First Nations (SFN). The purpose of this study is to document the rights and interests of SFN in the area of the proposed HD Mining Murray River Coal Project.

By signing below, I indicate my understanding that:

(a) I consent to have my words and responses recorded on maps, in notes, and using audio and video recording equipment.

(b) I am free to not respond to questions that may be asked and I am free to end the interview at any time I wish.

(c) The SFN will maintain intellectual property rights over information and recordings collected through my participation and may use the information and recordings, including audio, video, or pictures, in pursuit of its claims, and for defending and communicating the rights, interests, and titles of its members. This includes, but is not limited to, sharing information for the purposes of negotiation or participation in regulatory or court proceedings.

(d) The SFN will ask permission from me or my descendents, before using my information for purposes not indicated above.

For more information, please contact Naomi Owens at the Saulteau First Nations (SFN) Lands Office at (250) 788-7289.

I would like my name included in reports: **yes** **no**

Signature of participant Witness

_____ _____

PIN #:

The Firelight Group

Appendix 3

Interview Guide

INTERVIEW GUIDE FOR THE
SFN KNOWLEDGE AND USE STUDY OF THE HD MINING MURRAY RIVER COAL PROJECT

THIS GUIDE INCLUDES

- Questions
- Interview checklist
- Interview overview
- Mapping notes
- Mapping codes

Please read the guide completely before beginning interviews

1 INTRODUCTION

Complete the interview checklist, then read with AUDIO & VIDEO RECORDERS ON at the start of each session.

Today is _____, 2013. We are interviewing _____ for the **Saulteau First Nations Knowledge and Use Study** of the proposed **HD Mining Murray River Coal Project.** Thank you for coming.

My name is _____ and my co-researcher(s) is/are _____. We're at the _____ building in _____. _____ has read and signed the consent forms, and we have assigned him/her participant ID #___. We have explained to _____ the purpose of the study, mapping process, and interview plan.

Primary Goal: SFN is working to document community knowledge and use by SFN members in the area of the proposed HD Mining Murray River Coal Project. We'd like to know how you have used these areas, as well as what you may know about how SFN members have used them in the past.

The study area: 12.5 km south of Tumbler Ridge, British Columbia. We will be focusing on areas within about 5km (just over 3 miles) from the proposed Project footprint, but if you feel there are other places or things further away that the Project may impact, please let us know.

2 BACKGROUND & EXPERIENCE
Activities in and knowledge of the Project area

PERSONAL INFORMATION
- Full name
- Place of birth
- Age and year of birth
- Where you were raised
- Membership in Saulteau First Nations
- Parents and grandparents

GENERAL USE QUESTIONS

Have you ever used the area around the proposed Project, or areas nearby?
For hunting / trapping / fishing / camping / plant gathering / passing on traditional knowledge or language
  - If yes
    - When?
    - What do you do there?
    - Who with?
    - How did you learn about this area?
  - If no
    - Why not?

Have your family or community members ever used the area around the proposed Project, or areas nearby?
  - If yes
    - What activities did they do there?
  - If no
    - Why not?
- **Is the Project area important to you / your family / your community? Why?**

RELEVANT INFORMATION TO INCLUDE
- *How they learned about the Project area*
- *First hand experience*
- *Second hand knowledge (map with *)*
- *No use*
- *Trapline number(s) of individual / family members*
- *Other named family members*
- *Remember to spell out all proper names*

3 HABITATION
Places camped or stayed overnight

PERMANENT HABITATION (PX) & TEMPORARY HABITATION (TX)
Can you show us places you have stayed overnight?
Examples: a cabin you built / use(d), a tent, campsite, other temporary or permanent structures
How many times have you stayed there?
Once= TX
More than once= PX

OTHER HABITATION (PX OR TX AND *)
Can you show us places you have heard stories about your family or other SFN members staying overnight, but you haven't stayed at yourself?
How many times have they stayed there?
*Once= TX**
*More than once= PX**

Include for each mapped site in Google Earth description field of the dialogue box
- First and last use (day / month / season AND year / decade)
- Frequency of use
- Names and numbers of members who stayed there

MAPPING
- *Map at an eye height of approximately 10km or less (1:50,000 or better)*
- *Each site is labeled with a code that includes: site use, site #, modifiers, participant ID*
- *Teaching code = TA*
- *Keep list of place names (English, Cree, Saulteau, Dunne-za, etc.)*
- *Spell out all proper names*

SUGGESTED PROMPTS FOR DETAILED KNOWLEDGE AND USE
- Describe the location / the conditions
- Why do you go there?
- How did you find out about this place? / Who showed it to you?
- What do you like about the place?
- What activities do you do when staying there?
- What does this place mean to you?
- Is this place important to you / your family / community? Why?
- Is this place important to sustaining your culture / way of life? How?
- How would you explain the importance of this place to the government / industry?

4 TRANSPORTATION CORRIDORS

Routes used for hunting / fishing / habitation / other rights based practices

TRAIL (TR)

Can you show us routes you have travelled by road or by foot, quad or snowmobile?
For personal use (hunting, fishing, camping, other rights based activities)
Can you show us old trails that have been used by SFN members? *(map with *)*

WATER ROUTE (WR)

Can you show us routes you have travelled along creeks, lakes or rivers by boat?
For personal use (hunting, fishing, camping, other rights based activities)
Can you show us old routes that used to be used by SFN members? *(map with *)*

MAPPING

Include for each mapped site in Google Earth description field of the dialogue box:

- *First and last use (day / month / season AND year / decade)*
- *Frequency of use*
- *Names and numbers of members who use this route*

Transportation routes and all linear features should be controlled

- *Map at an eye height of approximately 10km or less (1:50,000 or better)*
- *Follow the actual route and natural features (not a straight line from A to B)*
- *Include relevant modifiers (after the site code)*
- *Secondhand knowledge = **
- *Commercial use = $*
- *Approximate spatial information = ?*

SUGGESTED PROMPTS FOR DETAILED KNOWLEDGE AND USE

- Why do you travel this route?
- How did you learn about this route?
- What do you do when you are travelling along here?
- Is this the only route to get from point A to B, or is there an alternative?
- Was this a new route, or a well-travelled, well-recognized route?
- Is this route important to you / your family / community? Why?
- Is this route important to sustaining your culture / way of life?
- **What is the farthest point that you have travelled?**

TIME CHECK! Need a break?

5 SUBSISTENCE

Hunting, fishing, and collecting medicines, plants and resources for food or cultural purposes; special habitats / places that these rely on

KILLED OR TRAPPED ANIMALS / BIRDS / FISH (…)

Can you show us places where you have killed or trapped animals or birds?

Can you show us places where you have caught fish?

Personal use – to feed you / your family / your community, or to use for cultural purposes

(Use codes on next page to prompt)

Can you show us places where members of your family or community have killed or trapped animals or birds? *(map with *)*

Can you show us places where members of your family or community have have caught fish? *(map with *)*

ENVIRONMENTAL FEATURE (EF)

Can you show us the locations of special habitats or environmental features that are important to animals / fish / birds / plants?

Examples: calving or mating areas, mineral licks, spawning areas

ENVIRONMENTAL FEATURE CORRIDOR (EC)

What routes do animals use to move between environmental features?

Mapping

Include for each mapped site in Google Earth description field of the dialogue box

- *First and last use (day / month / season AND year / decade)*
- *What they did with the meat / fur*
- *Who they were with*

EF and MC

- *Use controlled polygons (map at an eye height of approximately 10km or less)*
- *Include relevant information (e.g. salt lick) in the description field*
- *Pay close attention to where animals cross the Project area*
- *Include the species in the Google Earth description field (if applicable)*

SUGGESTED PROMPTS FOR DETAILED KNOWLEDGE AND USE

- Why do you hunt / trap / fish?
- Who taught you how to hunt / trap / fish? Where?
- Have you taught anyone how to hunt / trap / fish? Who? Where?
- How important are these animals / birds / fish to your daily life?
- How many people can an animal feed? For how long? (individual / family / community)
- What does it mean to you to be able to hunt / trap / fish?

- Are these animals / birds / fish important to sustaining your culture / way of life? How?
- How would you explain the importance of these animals / birds / fish to the government / industry?
- **Are any of these animals / birds / fish hard to find? Which ones?**

5 SUBSISTENCE CONTINUED

Codes: hunting / trapping / fishing

ANIMAL KILL SITES

MO = Moose
WD = White-tailed Deer
MD = Mule Deer
BB = Black Bear
GB = Grizzly Bear
BI = Bison / Buffalo
CA = Caribou
EK = Elk
SH = Sheep
CH = Chicken
GR = Grouse
RB = Rabbit
MM = Whistler / Marmot
PO = Porcupine
RC = Racoon
OG = Other Game

FURBEARING KILL SITES

BR = Beaver
MT = Marten
FI = Fisher
MU = Muskrat
OT = Otter
LX = Lynx
WO = Wolf
WV = Wolverine
CO = Coyote
SQ = Squirrel
FX = Fox
FO = Other Fur Bearer
TP = General Trapping Area

BIRD KILL SITES

DU = Duck
GE = Geese
SW = Swan
EA = Eagle
HA = Hawk
FL = Falcon
OW = Owl
OB = Other Bird

FISH CATCH SITES

WF = Whitefish
GD = Goldeye
SU = Sucker
LT = Lake Trout
PK = Pickerel / Walleye
JF = Jackfish / Pike
MR = Maria / Burbot
KO = Kokanee
BT = Bull Trout
OF = Other Fish

5 SUBSISTENCE CONTINUED
Codes: medicines / plants / other resources

BERRIES / PLANTS / OTHER RESOURCES (…)
Can you show us places where you've collected berries / plants / water / other resources?
Personal use – collect berries / plants / resources for you / your family / your community
(Prompt with codes below)

Can you show us places where members of your family / community have collected berries / plants / water … ? *(map with *)*

BE = Berries / Wild Fruit
FP = Food Plants (roots, bulbs, cambium)
MS = Mosses / Mushrooms
DP = Dye Plant
BA = Barks (crafts, construction, etc.)
OP = Other Plant
FW = Firewood
EM = Earth Material (rocks, clays, etc.)
EG = Eggs
FE = Feathers
WA = Water (drinking water sources)

MEDICINE PLANTS (MP)
Can you show us places where you've collected medicine plants?
Personal use – collected medicine for you / your family / your community
Can you show us places where members of your family / community have collected medicine plants? *(map with *)*
Include for each mapped site in Google Earth descrition field of the dialogue box
First and last use (day / month / season AND year / decade)

SUGGESTED PROMPTS FOR DETAILED KNOWLEDGE AND USE
- Why do you collect medicine / plants / resources?
- What do you do with the medicine / plants / resources?
- What are these medicines / plants / resources used for?
- How important are these medicines / plants / resources to your daily life?
- Who taught you about collecting and using medicine / plants / resources? Where?

SUGGESTED PROMPTS FOR DETAILED KNOWLEDGE AND USE CONT'D
- Have you taught anyone about collecting and using medicine / plants / resources? Who? Where?
- Are these medicines / plants / resources important to sustaining your culture / way of life? How?
- How would you explain the importance of these medicines / plants / resources to the government / industry?
- **Are any of these medicines / plants / resources hard to find outside of the Project area and nearby areas? (Who were they with? Species, if applicable?)**

6 CULTURAL USE

Gatherings / ceremonies / teaching areas / burials / spiritual places / place names

GATHERING PLACE (GP)

Can you show us important places where people gather?

Examples: pow wows, rodeos, treaty celebrations

- Use by you / your family members / your community

Current or past

CEREMONIAL PLACE (CP)

Can you show us places that are used for ceremonies?

Examples: cultural dances, sweat lodges

- Use by you / your family members / your community

Current or past

MAPPING

- *PN sites: include in Google Earth description field the place name and translation*
- *Include relevant modifiers (after the site code)*
  - *Secondhand knowledge = **
  - *Commercial use = $*
  - *Approximate spatial information = ?*
- *Prompt for detailed knowledge and use as relevant*

TEACHING AREA (TA)

Can you show us any places that have special knowledge or stories associated with them?

Examples: creation stories, dreamier stories, histories

- Who told you?

Can you show us places that are used for teaching knowledge to children or others?

- Current or past
- Use by you / your family members / your community

BURIAL (BU)

Can you show us places where members of SFN are buried or where their remains are (e.g. cremation)?

- Know firsthand or heard from family / community members

SPIRIT (SP)

Can you show us places where spirit beings live or there are special rules about how you act or respect the place?

- Know firsthand or heard from family / community members

PLACE NAME (PN)

Can you show us any places that have special place names?

- Especially Cree, Saulteau or Dunne-za names

INCLUDE for each mapped site in Google Earth description field of the dialogue box

- *First and last use (day / month / season AND year / decade)*
- *Who they were with / who they heard about it from*

7 IMPAIRED USE

Specific and general impaired use due to impacts from industry and other

GENERAL IMPAIRED USE (GL)

Can you show us any general areas where you used to hunt / gather / fish / camp/ practice other rights, but do not go anymore because of impacts from industry or other reasons?

SPECIFIC IMPAIRED USE (SL)

Can you show us any specific places where you used to hunt / gather / fish / camp / practice other rights, but where you do not do those activities anymore because of impacts from industry or other reasons?

Include for each mapped site in Google Earth description field of the dialogue box

- *First and last use (day / month / season AND year / decade)*
- *Reason for avoidance*

MAPPING

- *Map at an eye height of approximately 10km or less (1:50,000 or better)*
- *Transportation routes and linear features should be controlled (follow natural features, do not draw a straight line from A to B)*

SUGGESTED PROMPTS FOR DETAILED KNOWLEDGE AND USE

- Why can you no longer go to this area?
- What activities did you used to do in this area?
- How often did you go to or use this area?
- Can you do those activities somewhere else?
- How does it make you feel that you can no longer go to or use this area?
- How has the loss of use impacted you / your family / your community?
- Has the loss of use impacted your culture / way of life? How?
- How would you explain the importance of this area to the government / industry?
- How would you explain the impact that not being able to use the area has had on you to the government / industry?

8 FINAL QUESTIONS & CONCLUSION

REVIEW VISUAL IMPACT MODEL

Turn on industry data and participant's mapped sites

- **Based on your understanding of the Project, do you think the proposed Project will affect your ability to enjoy your treaty rights or way of life?**
  - If so, how so?
  - What about your children's or grandchildren's ability to enjoy their treaty rights or way of life?

- **What do you think the most important things are for SFN to focus on in relation to the proposed Project?**

- **Are there any other important places or issues related to the Project that you think we should be documenting today?**

- **Are there other SFN members that we should talk to?**

CONCLUSION

Read with audio & video recorders on after every session

Today is *[DATE]*. We have just finished interviewing *[NAME]* for the **Saulteau First Nations Knowledge and Use Study** of the proposed **HD Mining Murray River Coal Project.** Thank you for coming.

My name is *[NAME]* and my co-researcher(s) is/are *[NAME(S)].* We're at the *[BUILDING]* in *[COMMUNITY/TOWN].* We've given *[NAME]* participant ID *[#]*. We've mapped a total of *[#]* sites in Google Earth at 1:50,000 or better, and recorded a total of *[#]* tracks on the digital recorder. Notes are recorded in/on *[NOTEBOOK ETC].* This interview has taken approximately *[#]* hours *[#]* minutes.

MAPPING

- *Save audio and video files to computer and portable hard drive*

Example: S08_ParticipantName_ 21June2013_01.mp3

- *Save KMZ files*
- *Complete interview tables and notes*
- *Upload all files to Alfresco*

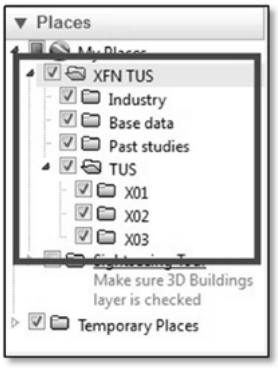
INTERVIEW CHECK LIST

MAKE SURE YOU HAVE

- Laptop with mouse, microphone, projector, video camera, and other equipment
- Batteries (AA, AAA, 9V), memory cards, laser pointer, extension cord
- Consent forms, notebooks, pens, and other supplies
- Gifts and/or honoraria for participants

SET UP GOOGLE EARTH

- Make sure project area with place name layers are projected on the screen
- Set up file structure (see example)
  - If interviewing more than one person, make sure each participant has a separate folder
  - Organize data into industry, base data, past studies, or TUS sub-folders



CHECK YOUR EQUIPMENT

- Make sure audio settings are set to record on MP3 (not WAV)
- Always test your recorders and microphones by playing back audio and video recorders

INFORM THE PARTICIPANT AND MAKE THEM COMFORTABLE

- Get them tea / coffee / water
- Explain the interviews and why we are doing them
- Let them know that we will be reporting back to them and the community
- Explain the interview plan (see "Overview and Introduction")

BEFORE STARTING THE INTERVIEW

- Record the details of the interview (participant id, interview date, location, recording info, etc.) in database
- Read the consent form to the participant and ask them to sign it
- Start your recorders

REMINDERS DURING THE INTERVIEW

- Keep list of place names (English, Cree, Saulteau, Dunne-za, etc.)
- Spell out all proper names, including those of individuals
- Ask relevant questions (see prompts) to get more detailed information about knowledge and use
  - Note: **Prompts are intended as suggestions only.** You do not need to ask every question about every mapped site. Use your judgment.
- Note when there are good quotes and record time code or mapped site

INTERVIEW OVERVIEW

INTRODUCTIONS

- Primary interviewer – name and role
- Secondary interviewer – name and role

MAPPING

- Google Earth imagery projected on the wall
  - Where applicable: existing TUS data already collected through previous projects may be projected
- Eye height of approximately 10km or less (1:50,000 or better)
- Digital mapping using points, line and polygons
- Enter site codes and other data

INTERVIEW

- The interview will take about 2 to 3 hours to complete
  - Break about half way through
  - Can stop the interview at any time
- Three main sections or types of questions
  - First: background and experience in project area
  - Second: specific places or resources, especially within 5km of the Project area
    - Includes: camps, trails, hunting and fishing areas, berry or plant collection areas, important habitat, cultural or spiritual places, and other places you consider important
  - Third: how you think the Project, if it goes forward, will affect you, your family, and Saulteau First Nations
- Questions
  - Some questions are very broad, and others very detailed
  - Some questions may sound obvious, but it is important we get things in your own words
  - The reason for these questions is so that SFN can be in a better position to defend information, if needed, in court or elsewhere
  - If there are things we don't ask about, but you think we should raise in our reports regarding SFN use and Treaty 8 rights in the Project area, please let us know.

STORAGE OF RESULTS

- Digital video and voice recordings, and notes
- Maps and all computer files will be saved to the hard drive and on a portable storage device
- All files will belong to the SFN and will be stored and managed by the Lands Office.

MAPPING NOTES

Map at an eye height of approximately 10km or less (1:50,000 or better)

Label each site consistently in the NAME FIELD of the site properties dialogue box (see ex.)

- Each code in should indicate
  - Site use
  - Site number
  - Modifiers (if relevant)
  - Source (participant ID)
- Modifiers (after the site number)
  - Firsthand knowledge has no modifier
    - Example: TX01-S08 (member with ID# S08 reports first mapped temporary shelter place where she has camped)
  - Secondhand knowledge is mapped with a *
    - Example: TX01*-S08
  - Approximate spatial information is mapped with a ?
    - Example: TX01?-S08
  - Commercial use (including guiding/outfitting) is mapped with a $
    - Example: TX01$-S08
  - If all modifiers are used, this is what it would look like: TX01*?$-S08

All other information goes in the DESCRIPTION FIELD of the dialogue box (see example)

Transportation routes and all linear features should be controlled

- Zoomed in to less than 10km eye height
- Follow the actual route and natural features (not a straight line from A to B)

Include for each mapped site in Google Earth DESCRIPTION FIELD of the dialogue box

- First and last use (day / month / season AND year / decade)
- Frequency of use
- Species (if relevant)
- Number and names of members who were present

Other

- Keep list of place names (English, Cree, Saulteau, Dunne-za, etc.)
- Spell out proper names where possible for the recording
- Use prompts to gain detailed access and use information

MAPPING CODES – PAGE 1/2

HABITATION & TRANSPORTATION

PX = Permanent Habitation
TX = Temporary Habitation
TR = Trail
WR = Water Route

IMPORTANT PLACES & HABITAT

EF = Environmental Feature
EC = Environmental Feature Cooridor

KILL SITES

MO = Moose
WD = White-tailed Deer
MD = Mule Deer
BB = Black Bear
GB = Grizzly Bear
BI = Bison / Buffalo
CA = Caribou
EK = Elk
SH = Sheep
CH = Chicken
GR = Grouse
RB = Rabbit
MM = Whistler / Marmot
PO = Porcupine
RC = Racoon
OG = Other Game

FURBEARING KILL SITES

BR = Beaver
MT = Marten
FI = Fisher
MU = Muskrat
OT = Otter
LX = Lynx
WO = Wolf
WV = Wolverine
CO = Coyote
SQ = Squirrel
FX = Fox
FO = Other Fur Bearer
TP = General Trapping Area

BIRD KILL SITES

DU = Duck
GE = Geese
SW = Swan
EA = Eagle
HA = Hawk
FL = Falcon
OW = Owl
OB = Other Bird

FISH CATCH SITES

WF = Whitefish
GD = Goldeye
SU = Sucker
LT = Lake Trout
PK = Pickerel / Walleye
JF = Jackfish / Pike
MR = Maria / Burbot
KO = Kokanee
BT = Bull Trout
OF = Other Fish

MAPPING CODES - PAGE 2/2

MEDICINES, PLANTS & OTHER RESOURCES

MP = Medicine Plant	OP = Other Plant
BE = Berries / Wild Fruit	FW = Firewood
FP = Food Plants (roots, bulbs, cambium)	EM = Earth Material (rocks, clays, etc.)
MS = Mosses / Mushrooms	EG = Eggs
DP = Dye Plant	FE = Feathers
BA = Barks (crafts, construction, etc.)	WA = Water (drinking water sources

CULTURAL USE

GP = Gathering Place	BU = Burial
CP = Ceremonial Place	SP = Spirit
TA= Teaching Area	PN = Place Name

IMPAIRED USE

GL = General Loss	SL = Specific Loss

Appendix 4

CV Rachel Olson

Rachel Olson

Employment History

The Firelight Group – North Vancouver, BC

Director (2009 to date)

Responsible, as co-founder and director, for helping establish The Firelight Group, a firm of aboriginal and non-aboriginal professionals specialized in providing respectful and respected environmental and social science research, consulting, and support services in processes where aboriginal and non-aboriginal interests interact, and where good relationships are desired by all sides. Tasks include business development, as well as design, development, and delivery of technical services including community-based traditional knowledge research and documentation systems, environmental and socio-cultural impact assessments and monitoring programs, indigenous land use mapping, GIS technical support and training, archival research, community involvement processes, and First Nations consultation support services.

National Aboriginal Health Organization – Ottawa, ON

Research Officer (2007 to 2008)

As a member of the First Nations Centre research team, my primary research areas were the topics of maternity care and environmental health. Also held the research proposal development and workshop development files. Tasks included primary research, technical writing, and participating in various committees and workshops across Canada. Was primary author of NAHO's series entitled, "Celebrating Birth".

United Nations Educational, Scientific and Cultural Organization - Paris, France

Consultant (2006-2007)

Worked with the LINKS (Local and Indigenous Knowledge Systems) program in the Science Sector and facilitated ongoing projects with indigenous communities in New Zealand, Micronesia, and Central America. Also focused on proposal development and editing and publishing various LINKS documents, including edited volumes.

School of Nursing Research, University of British Columbia – Vancouver, BC

Social Science Researcher (2004-2005)

Position of Health Research Associate for the research project, "Access to Primary Care Services for Aboriginal People in an Urban Centre." Duties include literature reviews, project coordination, and data collection, including participant observation of an Emergency Department, and in-depth interviews with aboriginal patients and health professionals.

Education

Doctor of Philosophy in Social Anthropology, University of Sussex, Brighton, UK, 2013

Master of Research in Social Anthropology with Distinction, Ethnology and Cultural History, University of Aberdeen, Scotland, UK, 2003

Bachelor of Arts in Anthropology with Distinction, University of Alberta, Edmonton, AB, 1999

Ecotrust Canada – Vancouver, BC

Aboriginal Mapping Network Coordinator (2003-2004)

Managed the Aboriginal Mapping Network program by meeting and engaging with like-minded individuals and organizations at various conferences and workshops. Coordinated of over 120 aboriginal mapping professionals from across North America, Malaysia and Panama for the "Mapping for Communities: First Nations, GIS and the Big Picture" conference, held on November 20-21, 2003 in Duncan, BC. Conducted a comprehensive evaluation of the Aboriginal Mapping Network.

Dene Tha' First Nation - Chateh, AB

Data Collection Manager (2001 to 2003)

Developed and implemented Traditional Use Study in two First Nations communities, Chateh and Meander River. Included developing research design, methodology, training community researchers, and reporting to the Steering Committee of the Dene Tha' Consultation Pilot Project.

Treaty 8 Tribal Association - Fort St. John, BC

Interview Coordinator (1999-2000)

Coordinated land use mapping and life history interviews with community researchers in two communities, Halfway River and Doig River, focusing on qualitative methodologies and mapping processes.

Project Experience – Traditional Ecological Knowledge (TEK) and Traditional Use Studies (TUS)

Tlicho Government Northwest Territories	Project manager and technical lead for the Tlicho Government indigenous knowledge study for the Fortune Minerals NICO project. The project involved methodology development, data collection, analysis and final reporting. Presented findings at the public hearings of the MacKenzie Valley Environmental Impact Review Board.
Treaty 8 Tribal Association Northeastern British Columbia	Researcher for a Traditional Knowledge, Use and Occupancy Study for the Proposed 'Site C' Area along the Peace River. The project involved work planning, gap analysis, methodology development, and leading field interviews using direct-to-digital mapping.
Mikisew Cree First Nation Northern Alberta	Co-researcher for an Indigenous Knowledge study for assessing Shell-specific oil sands development projects near Fort McKay. The project involved work planning, gap analysis, methodology development, and leading and participating in field interviews using direct-to-digital mapping.

Athabasca Chipewyan First Nation and the Mikisew Cree First Nation Northern Alberta	Co-researcher for the collection of traditional ecological knowledge data for the Athabasca River Use and Traditional Ecological Knowledge Study. The project involved interviews with community members and active land users, established methodologies, data analysis, and final reporting.
UNESCO-LINKS New Zealand	Coordinated the Maori language version of the CD-ROM project, The Canoe is the People, entitled He Waka He Tangata. The goal of the CD-ROM is to revitalize the transmission of indigenous knowledge by strengthening the dialogue between elders and youth. New ICT tools like CD-ROMs are recognized as powerful vehicles for traditional knowledge and the bolstering of oral traditions. The CD-ROM includes 70 videos, 41 stories and accounts, 40 images and diagrams, of which 11 are animated, in addition to numerous maps, photos and texts.
Dene Tha' Nation Alberta	Developed and implemented Traditional Use Study in two First Nations communities, Chateh and Meander River. Included developing research design, methodology, training community researchers, and reporting to the Steering Committee of the Dene Tha' Consultation Pilot Project.
Halfway River First Nation British Columbia	Coordinated land use mapping and life history interviews with community researchers. Included training in qualitative methodologies and mapping processes.
Doig River First Nation British Columbia	Coordinated land use mapping and life history interviews with community researchers. Included training in qualitative methodologies and mapping processes.
Tr'ondek Hwech'in First Nation Yukon	Oral History Project (1999), focused on collecting life history interviews with elders, and stories of life in fish camps along the Yukon River.
Halfway River First Nation British Columbia	Completed site reports for the Halfway River First Nation Traditional Use Study as a research assistant for Third Stone Community Research.

Project Experience – Health and Social

National Aboriginal Council of Midwives Canada-wide	Assisted in the organization of the annual meeting, and wrote the annual report for the Council. Ongoing participation with the Council and continue to support through technical writing/proposal development as requested.

Norway House Cree Nation Manitoba	On-going engagement with the community and local midwifery program. Designing and implementing a body mapping workshop with mother's focused on their childbirth experiences. Working collaboratively with the midwifery program and students on a broader project with regards to rural and remote maternity care.
Ktunaxa Nation Southern British Columbia	Wrote the health and language section of "Section C: Ktunaxa Nation Use, Rights and Interests Assessment for Teck Coal's Line Creek Operations Phase II Project". The project involved interviews, data analysis and final reporting.
National Aboriginal Health Organization Canada-wide	Celebrating Birth Series. Researched and wrote all papers and documents associated with the National Aboriginal Health Organization's series on maternal health.
Opaskwayak Cree Nation Manitoba	Assisted in the conducting of interviews for a qualitative study on mother's experiences of childbirth from a northern Manitoban community. Part of the Strengthening Families: Maternal Child Health Program Evaluation program.
Red Road HIV/AIDS Network British Columbia	Researcher for the "Mapping the Road to Healthier Communities" map directories of health services for the City of Vancouver and the Northern British Columbia region. Guest Editor for "Bloodlines" magazine. Continuing support in research and writing as requested.
Mother Saradadevi Social Service Society Tamil Nadu, India	MSSSS is a grassroots NGO working with HIV/AIDS, both in prevention and care, in the Dindigul District of Tamil Nadu. Conducted a baseline survey of youth and sexual health issues to aid in the development and implementation of prevention programmes in the district.

Selected Publications

Olson, Rachel and Carol Griffin. (2012). An Evaluation of Midwifery Services in Manitoba. Midwives Association of Manitoba for Manitoba Health. Winnipeg, Manitoba.

Olson, Rachel and Carol Couchie. (2010). Clearing the Path: An Implementation Plan for Midwifery Services in First Nations and Inuit Communities. Ottawa: Government of Canada.

Olson, Rachel. (2010). Restoring the Connection: Exploring Aboriginal midwifery and the context of the relocation for childbirth and in First Nation communities in Canada. In, Reproduction, Migration, and Identity. Unnithan-Kumar, Maya, and Sunil Khana (eds). Forthcoming.

National Aboriginal Health Organization. (2009). Celebrating Birth- Aboriginal Midwifery in Canada. Ottawa: National Aboriginal Health Organization. [Primary Author]

National Aboriginal Health Organization. 2008. Celebrating Birth - Exploring the Role of Social Support in Labour and Delivery for First Nations Women and Families. Ottawa: National Aboriginal Health Organization. [Primary Author]

Olson, Rachel. (2008). Exploring the Potential Role of Doulas and Doula Training for the Children and Youth Division of First Nations and Inuit Health, Health Canada. Ottawa: Government of Canada. Internal circulation only.

Corbett J. M., Giacomo Rambaldi, Peter A. Kwaku Kyem, Daniel Weiner, Rachel Olson, Julius Muchemi and Robert Chambers (2006). Overview - Mapping for Change the emergence of a new practice." Participatory Learning and Action 54. 13-20.

Candler, Craig, Rachel Olson, Steven DeRoy, and Kieran Broderick. (2006). PGIS as a Sustained (and Sustainable?) Practice: The Case of Treaty 8 BC. Participatory Learning and Action 54.

Guest Editor. Participatory Learning and Action. Issue 54, April 2006. International Institute for Environment and Development. London, UK.

Guest Editor. Bloodlines Magazine. Issue 5: Spring 2005. Red Road HIV/AIDS Network Society. West Vancouver, BC.

Olson, Rachel. Contributor to Encyclopaedia of the Arctic. 2003. Ed. Mark Nutall. Fitzroy Dearborn, Routledge: New York, NY.

Conferences / Workshops

Paper presentation, Uncertainty and Disquiet: 12th European Association of Social Anthropologists Association. Paris, France, July, 2012.

Presenter, Workshop on Indigenous Mapping and Cartography. United Nations Educational, Scientific and Cultural Organization, Paris, France, November, 2007.

Keynote Presenter, Mapping for Change, September 7 – 11, 2005 in Nairobi, Kenya, Africa

Participant of Strategic Planning Sessions, ESRI International User Conference, July 2004 in San Diego, California

Paper presentation, Indigenous Communities Mapping Initiative Conference, March 10 – 15, 2004 in Vancouver, British Columbia

Paper presentation, Breaking the Ice: Transcending Borders through Collaboration and Interdisciplinary Research, 7th ACUNS Student Conference on Northern Studies, October 24-26, 2003 at the University of Alberta, Edmonton, Alberta

Other Information

Member of the BC Aboriginal Perinatal Health Committee. Member of the Doula Training Committee.

Member of the Reading Panel for the 2004 Buffet Award for Indigenous Leadership in Portland, Oregon.

Proficient user of software applications such as Microsoft Office, Nvivo, and SPSS.

Completed the Labour Support Course – Training Doulas, held by the Doulas of North America. October, 2004.

Registered member of the Tr'ondek Hwech'in First Nation.

Appendix 5

CV Peter Bates

Peter Bates

Education

PhD in Anthropology and Ecology, University of Aberdeen, 2006

MSc Environmental and Ecological Sciences, Lancaster University, 2002

BSc Environmental Science, University of East Anglia, 2001

Employment History

The Firelight Group, Victoria, BC, Canada
Senior Researcher (2013-present)
Field researcher for traditional use studies (TUS) in northern British Columbia. Working in collaboration with First Nations communities to:

- Plan and carry out field research for traditional use studies with First Nations communities in northern BC
- Analyse map data and qualitative data
- Write TUS reports
- Present results at community meetings
- Provide additional support where required

International Council for Science (ICSU), Paris, France
Science Officer (2010-2013)
Coordinating the international natural and social science input to the United Nations Conference on Sustainable Development 2012 (Rio+20).

- Working with international scientists, policy-makers, business leaders, indigenous groups and other stakeholders to develop synthesis reports, recommendations and statements for the Rio+20 process.
- Lobbying governments on environmental issues and presenting statements and recommendations at global Rio+20 preparatory meetings in New York.

The Intergovernmental Oceanographic Commission (IOC), Paris, France
Research Consultant (June-Oct 2010)
Researching, writing and coordinating interdisciplinary input to a report on user-oriented ocean observation and monitoring in the Arctic Ocean, with policy-makers and researchers as the target audience.

Local and Indigenous Knowledge Systems (LINKS) programme, UNESCO, Paris, France
Research Consultant (2007-2010)
Working with international policy and legislation relating to indigenous peoples and their knowledge, on issues including biodiversity conservation, resource management, climate change adaptation and natural disaster preparedness and response.

The Firelight Group, 201-560 Johnson Street, Victoria, British Columbia, V8W 3C6

Resumé **Peter Bates**

Gagos Social Analysts - Yellowknife, Northwest Territories, Canada
Consultant (2007)
Critically reviewing the '2006 Update, State of Knowledge Report of the West Kitikmeot and Slave Study (WKSS) Area' prepared for Indian and Northern Affairs, Canada. Providing additional input and literature on Inuit and Dene First Nation groups in the area for the Traditional Knowledge and Aboriginal Sections of the report. English editing of the document.

Anthropology Department, University of Aberdeen, U.K.
Tutor: BA Anthropology courses (2006-2007)
Teaching, leading seminars, marking and providing feedback on coursework, and motivating groups of undergraduate students. The BA anthropology course involved teaching indigenous peoples' issues, anthropological methodology, kinship, gender, colonialism, symbolism and reciprocity.

The Kitikmeot Heritage Society - Cambridge Bay, Nunavut, Canada
Researcher (2003-2004)
Interviewing Inuit elders for oral history projects. Organising community heritage and tourism events. Engaging in educational activities with Inuit school children. Providing advice and information to Heritage Centre visitors about Inuit culture and the local area. Monitoring IT software and taking charge of general day to day management and administration.

Biology Department, University of Aberdeen, UK
Tutor: BA Conservation Biology courses (2003-2004)
Teaching, mentoring students, leading seminars, marking and providing feedback on coursework, running practical field sessions and motivating groups of undergraduate students. Practical sessions in conservation biology involved habitat assessment, vegetation mapping and surveying, and laboratory work.

Project Experience – Traditional Ecological Knowledge (TEK) Studies

Cambridge Bay
Nunavut, Canada

PhD Thesis research. The interdisciplinary thesis examined the interactions between Inuit indigenous knowledge and Western science around an endangered Arctic caribou herd. This project broadly aimed to determine mechanisms for enhancing collaboration between indigenous peoples and Western scientists in relation to the management of environmental resources. For the fieldwork component I lived and worked for a year and a half in the Inuit community of Ikaluktutiak (Cambridge Bay) in Nunavut in the Canadian Arctic.

The Firelight Group, 201-560 Johnson Street, Victoria, British Columbia, V8W 3C6

Resumé **Peter Bates**

Latin America and Caribbean Region Mexico City, Mexico	Working with indigenous people at the ICSU-UNESCO Rio+20 regional science and technology workshop for Latin America and the Caribbean to include their views and knowledge in the final set of recommendations that were developed from the meeting, which were then reported to the formal regional intergovernmental process for Rio+20 in Santiago, Chile.
International UNESCO, Paris, France	Interviewing indigenous peoples from Kenya, Nepal, India, Thailand, USA and the Philippines who were taking part in the UN Indigenous Interns Programme. Semi-structured interviews documenting and recording their experiences with climate change in their respective countries, and compiling these accounts into a report and web materials.
International Monaco	Overseeing the development of the indigenous peoples working group at the international UNESCO meeting 'Climate Change and Arctic Sustainable Development'. Developing themes, ensuring appropriate and regionally balanced representation by Arctic indigenous peoples, facilitating discussions, writing the final meeting report in collaboration with the meeting rapporteurs, and coordinating and editing a book of papers submitted after the meeting.
International Cairns, Australia	Overseeing the development of the UNESCO international meeting 'Indigenous Knowledge and Changing Environments: Biological and cultural diversities in transition'. Developing the concept and themes, ensuring balanced global representation among indigenous participants, facilitating discussions, writing the final report and coordinating and editing a book of conference papers on indigenous knowledge and environmental issues.
International UNESCO, Paris, France	Developer and lead the editor of the book *Safeguarding the Transmission of Local and Indigenous Knowledge of Nature*. (Peter Bates, Moe Chiba, Sabine Kube and Doug Nakashima (eds.). 2009. UNESCO: Paris. Pp. 256.), including working with anthropologists and indigenous peoples who had submitted chapters.

Project Experience – Ecology and Environmental Science

Cambridge Bay Nunavut, Canada	PhD thesis research. As a secondary component of the PhD research I also engaged in scientific fieldwork on the Arctic tundra with a team of ecologists, investigated caribou grazing and migration patterns as they relate to climate change, industrial development and competition with increasing numbers of muskoxen. Methodologies included sampling and classification of vegetation, and the analysis of parasite loads in the stomachs of caribou and muskoxen.

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Lancashire Wildlife Trust Lancashire, UK	Managing all stages of an ecological fieldwork project that established the impacts of cattle grazing on butterfly conservation in limestone grassland and woodland areas in the U.K., working in collaborating with local farmers and wildlife managers.
University of East Anglia Fieldwork in Nottinghamshire, UK	Ground Flora Succession on Forestry Commission Land. Using vegetation classification and sampling techniques to determine successive plant communities in woodland plots in the U.K., working closely with the British Forestry Commission.
University of East Anglia Fieldwork in Kenya	Animal faecal contamination and oxygen carrying capacity of a Kenyan river. In collaboration with local communities, designing and managing a project using chemical analysis to establish the impacts of goat faeces on a local water source in Northern Kenya.

Conferences/Workshops

- Chief rapporteur and presenter, ICSU-UNESCO Rio+20 science and technology workshop for the Arab States, October 12-14, 2011, Cairo, Egypt
- Chair, workshop on sustainable development options and goals, United Nations Department of Public Information NGO conference, 3-5 September, 2011, Bonn, Germany
- Presenter, *UNESCO's work on climate change.* Presented at 'Indigenous Peoples' Global Summit on Climate Change', April 20-24, 2009, Anchorage, Alaska
- Conference paper, *Inuit approaches to uncertainty, prediction and climate change*, presented at: 'Indigenous Knowledge and Changing Environments: Biological and cultural diversities in transition', UNESCO International Experts Meeting, 2007, Cairns, Australia
- Conference paper, *Traditional Ecological Knowledge: restructuring Inuit-animal relationships?* Presented at: 'Animals and Science: Anthropological Approaches', 2005, Manchester University, UK
- Presentation, *Writing up and representation*. At: Interdepartmental seminar series, 2005, Aberdeen and St. Andrews Universities, UK
- Conference paper, *Natural science and anthropology.* Presented at: 'Global Change and Sustainable Livelihoods in Nunavut and surrounding territories', international interdisciplinary conference, 2003, Northern Studies Centre, Aberdeen, UK

Selected Publications

Journal articles, book chapters and edited volumes

Peter Bates. 2008. Inuit and scientific philosophies about planning, prediction and uncertainty. *Arctic Anthropology*, vol. 44, no2, pp. 87-100, University of Wisconsin Press.

Peter Bates. 2009. *The transmission of Inuit Knowledge in Nunavut.* In: Safeguarding the Transmission of Indigenous Knowledge of Nature. UNESCO: Paris.

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Resumé **Peter Bates**

Peter Bates, Moe Chiba, Sabine Kube and Doug Nakashima (eds.) 2009. *Safeguarding the Transmission of Local and Indigenous Knowledge of Nature*. UNESCO: Paris. Pp. 256.

Peter Bates (ed.). 2009. *Climate Change and Arctic Sustainable Development.* UNESCO Publishing: Paris. Pp. 357.

Peter Bates, David McDonald and Doug Nakashima (eds.). In press. *Indigenous Knowledge and Changing Environments.* UNESCO: Paris.

Other

Peter Bates. 2011. Synthesis report of ICSU-UNESCO regional science and technology workshops. Report for International Council for Science (ICSU) at Rio+20.

Gisbert Glaser and Peter Bates. 2011. *Enhancing Science-Policy Links for Global Sustainability*, paper for Stakeholder Forum at Rio+20.

Peter Bates. 2010. *Why Monitor the Arctic Ocean? Services to society from a sustained ocean observing system.* A report on the ways that an ocean monitoring system in the Arctic can be tailored to the needs of user groups in the region, particularly indigenous peoples.

On the Frontlines of Climate Change. 2009. A report on the work of an internet-based forum which gathers indigenous observations of climate change.

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