

Part 1:  
**Understanding the State of  
Industrial Camps in  
Northern BC:**

*A Background Paper*

Version 1: October 31, 2012  
10-420-6053 (11/12)



For further information about this position statement, please contact:

Greg Thibault, Manager, Public Health Protection  
Northern Health  
Telephone: 250-645-6236  
Email: [greg.thibault@northernhealth.ca](mailto:greg.thibault@northernhealth.ca)

Northern Health Corporate Office  
Suite 600, 299 Victoria Street,  
Prince George, BC Canada V2L 5B8  
General enquiries: 1-866-565-2999 or 250-565-2649  
[www.northernhealth.ca](http://www.northernhealth.ca)

#### Acknowledgements:

We would like to thank the following people from Northern Health and other organizations for their insights and contributions to this report and appendices: Kelly Giesbrecht, Greg Thibault, Chelan Zirul, Dr. Charl Badenhorst, Crystal Brown, Dr. David Bowering, Dale Chen, Sabrina Dosanjh, Brandon Grant, Jim Green, Doug Quibell, Dionne Sanderson, Shane Waddell, Angela Wheeler and Dr. Ronald Chapman.

## Table of Contents

|       |   |    |
|-------|---|----|
| 1.0   | Introduction .....  | 1  |
| 2.0   | Background .....  | 1  |
| 2.1   | Northern Health and Industrial Camps .....                          | 1  |
| 3.0   | Understanding Industrial Camps in Northern BC .....                 | 2  |
| 3.1   | Challenges in Developing a Profile .....                            | 2  |
| 3.2   | Northern BC Industrial Camp Profile (2012) .....                    | 3  |
| 3.2.1 | Northeast HSDA .....  | 4  |
| 3.2.2 | Northern Interior HSDA .....  | 4  |
| 3.2.3 | Northwest HSDA .....  | 4  |
| 3.3   | Public Sector Stakeholders.....                                     | 6  |
| 3.4   | Summary .....   | 8  |
| 4.0   | Industrial Camps and Health .....                                   | 8  |
| 4.1   | Issues and Challenges .....   | 9  |
| 4.1.1 | Atmosphere of Industrial Camps .....                                | 9  |
| 4.1.2 | Health and Shiftwork .....  | 9  |
| 4.1.3 | Mental Health and Problematic Substance Use .....                   | 10 |
| 4.1.4 | Impact on Health Services .....                                     | 10 |
| 4.1.5 | Public Health and Communicable Disease .....                        | 10 |
| 4.2   | Suggested Solutions .....   | 11 |
| 4.2.1 | Mental Health First Aid .....                                       | 11 |
| 4.2.2 | Comprehensive Problematic Substance Use Policies and Programs ..... | 11 |
| 4.2.3 | Health Care Collaboration and Partnership .....                     | 11 |
| 4.3   | Public/Private Health Promotion Practices .....                     | 11 |
| 4.3.1 | Industry Associations: Canada & Australia .....                     | 11 |
| 4.3.2 | Northern BC Companies .....   | 12 |
| 4.3.3 | Health Sector: Public Health & Health Promotion .....               | 12 |
| 4.3.4 | Health Sector: Mental Health and Problematic Substance Use .....    | 12 |
| 4.4   | Industrial Camps and Health: A Summary .....                        | 12 |
| 5.0   | Conclusion and Next Steps.....                                      | 13 |
| 5.1   | Next Steps - Providing Guidance and Recommendations .....           | 13 |
| 6.0   | Other References.....   | 14 |

## Key to Abbreviations

|      |  |        |  |
|------|--|--------|--|
| EAO  | Environmental Assessment Office            | MAC    | Mining Association of Canada                               |
| EHO  | Environmental Health Officer               | MEM    | Ministry of Energy and Mines                               |
| HSDA | Health Service Delivery Area               | MFLNRO | Ministry of Forests, Lands and Natural Resource Operations |
| ICMM | International Council on Mining and Metals | OHS    | Occupational Health and Safety                             |
| LRDW | Land and Resource Data Warehouse           | OGC    | Oil and Gas Commission                                     |

## 1.0 Introduction

As resource development in Northern Health's region increases, more industrial camps are established. Industrial camps are a combination of workplace and living space settings that are prevalent in Northern Health's service delivery area. When considering the determinants of health in a population health approach, industrial camps are an important work setting that merit attention and health resources.<sup>i</sup> However, the impacts on the health of the workers staying in the camps, health services and surrounding communities are not well-known or understood. Northern BC is a unique place, with diverse and complex local circumstances.<sup>ii</sup> Industrial camps in this region present altogether unique and challenging issues; therefore, context-specific information, strategies and initiatives need to be developed to address the delivery of health services and health promotion initiatives in this setting.

Outlined in this report are preliminary background information and focus areas for developing guidance and recommendations for Northern Health to address industrial camp settings. At the outset, the goal of this first report was to provide a profile of industrial camps in Northern BC and to identify existing health promotion research and best practices specific to upstream risk factors. However, the scope of this report has evolved and expanded beyond this initial focus. Through this work broader issues and challenges for Northern Health related to industrial camps are identified, including:

- Implications for health care infrastructure and use of services.
- Mental health and overall well-being of workers and their families.
- Problematic substance use and its impacts.
- Public health and communicable diseases.
- Social and health impacts on host communities.

## 2.0 Background

Industrial camps provide workers with food and lodging at a work site,<sup>iii</sup> are established to staff remote mining operations<sup>iv</sup> or are found near drilling and exploration sites closer to communities.<sup>v</sup> These camps are a cost effective way of accommodating workers<sup>vi</sup> and are used by companies to house an increasingly mobile and transient workforce for their short-term and long-term operations.<sup>vii</sup> There are different definitions of and terms for industrial camps, including: work camp,<sup>viii</sup> fly-in/fly-out,<sup>ix</sup> drive-in/drive-out and commuter camps.<sup>x</sup> For the purposes of this report, we use the term industrial camps to encompass any camp established to house workers in relation to a forestry, mining or oil and gas operation whether in a remote location or close to a community and accessible by road, rail, air or water.

### 2.1 Northern Health and Industrial Camps

Specific to industrial camps, Northern Health is responsible for implementing and enforcing environmental and public health regulations as outlined in the *Industrial Camps Health Regulation, Sewerage System Regulation and Drinking Water Protection Act and Regulations* as part of the *Public Health Act*.<sup>xi</sup> Industrial camps are responsible for applying to Northern Health's Environmental Health Officers (EHOs) for drinking water, sewage and food services permits.

The industrial camp regulation is being revisited; however, it is unlikely that additional responsibilities regarding general health and wellness or health promotion will be included in any future versions. A camp health plan is being proposed although it only refers to the food, sewage, housing and water issues and asks for a procedure to address serious injury or illness. An additional statement is being considered in the guidelines asking that operators provide a balanced diet of sufficient quantity.<sup>xii</sup> This is far from a comprehensive health plan but it indicates that the province is starting to move in a positive direction. It is clear from the issues and challenges identified in this document that the role for Northern Health regarding industrial camps, communities and health extends well beyond the responsibilities outlined in these regulations.

### 3.0 Understanding Industrial Camps in Northern BC

In Northern BC there are currently 1,809 industrial camp sites identified through several different sources. With the exception of logging camps, it is not known which camps are currently active, which ones may be scheduled for future development or which ones may be retired camp sites. These numbers do not include the smaller, more transient camps that are more difficult to track (exploration, silviculture). There are also 98 current or proposed major projects along with 11 operating mines and 27 proposed new ones which are or will likely be accompanied by more camps.

As a result of more industrial and resource development in Northern BC, more industrial camps are being established and are prevalent in Northern Health's service delivery area. It is increasingly difficult for Northern Health staff to identify and interact with the companies overseeing new and existing camps.<sup>xiii</sup> Researchers and government personnel have also experienced difficulty in identifying and tracking these camps.<sup>xiv</sup> Industrial camps do have some positive impacts in the region.<sup>xv</sup> However, issues and challenges with respect to these camps illustrate significant concerns relative to the overall health of the workers and host communities.<sup>xvi</sup> Regarding addressing upstream risk factors, some companies provide fitness equipment and healthy food options; any comprehensive health promotion initiatives or activities within the camps are not well-known.<sup>xvii</sup>

#### 3.1 Challenges in Developing a Profile

Constructing a complete profile of industrial camps in Northern BC is complex and challenging due to how different camps are reviewed, approved, regulated and permitted by various government agencies. The profile outlined in this section is based on best available information from public sources, government and Northern Health staff. The status of the number of camps, the number of workers being housed in the camps and their locations change almost daily and seasonally; therefore, it is difficult to continually construct complete profiles and lists of industrial camps and related companies. However, the information presented in this document is as comprehensive as possible and provides a valuable and insightful foundation for developing recommendations and next steps moving forward. For the purposes of this initial paper, we focus specifically on forestry, oil and gas and mining camps and related developments resulting in industrial camps.<sup>1</sup>

<sup>1</sup> There are several other types of camps, including commercial recreation (guiding, fishing, hunting), agriculture and silviculture. These camps have been excluded for the purposes of this initial report. Some camps related to major projects (utilities, industrial expansion) that have been identified specifically by Northern Health staff and/or playing an integral role in the industrial development context are included in the map and lists of camps where appropriate.

Several sources of information were used to develop the maps and lists of industrial camps using publicly available data from the Land and Resource Data Warehouse (LRDW),<sup>2</sup> records from Northern Health EHOs and input from Ministry of Energy and Mines (MEM) inspectors (Appendices A and B). Oil and gas camps, forestry logging camps and work camps with drinking water licenses were identified and mapped using data from the LRDW. To try and fill the information gap regarding mining camps, information regarding current and anticipated mines in the area from the BC Mining Association's Mines Map<sup>3</sup> was used with information from MEM staff. Northern Health EHOs compiled and provided lists of camps known to them with permits, companies and camps.

Several other sources were explored and requested from various ministries. However, data were not accurate, not easily cross-referenced or not received in time to be incorporated into this report. Details of these various sources of information are outlined in Appendix A. Some information gaps still exist; however, identifying all camps, companies and number of workers is time consuming. The information collected to date clearly shows an impacted population that would benefit from a directed health initiative. Northern Health resources are better spent developing an approach regarding health and industrial camps.

### 3.2 Northern BC Industrial Camp Profile (2012)

The profile of industrial camps in the Northern Health region is compiled from the sources of information list above. Maps were developed using information from the LRDW and subsequent lists of potential camps were generated from the same data. Information provided by the Northern Health EHOs, MEM inspectors and taken from the BC Mining Association is compiled separately.

All types of camps and related resource developments are found in all of Northern Health's health service delivery areas (HSDAs), with the exception of oil and gas camps which are confined to the Northeast HSDA. The 2012 information identifies 1,809 known camps in Northern Health.<sup>4</sup> However, the number of currently active camps is not known. As seen in Table 1 and Map 1, ninety-eight (98) major projects ranging from clean energy, mining, oil and gas, resorts, utilities and other projects are identified and may also have associated industrial camps. There are 11 operating mines and another 27 anticipated new ones. Oil and gas camps dominate the Northeast HSDA. Forestry logging camps are the majority for the Northern Interior HSDA. In the Northwest HSDA, there are mainly forestry logging camps; however, there are 16 new mines proposed for the area.<sup>5</sup>

---

<sup>2</sup> Land and Resource Data Warehouse: [www.lrdw.ca](http://www.lrdw.ca).

<sup>3</sup> BC Mining Association's Mines Map: [www.miningassociationbc.com/](http://www.miningassociationbc.com/).

<sup>4</sup> Some duplication may occur as all information provided through different sources was not and is not easily cross-referenced. It is important to note that some camps may not currently be active.

<sup>5</sup> Individual HSDA maps are in Appendix C.

**Table 1: Number of Industrial Camps\* and Major Projects by Industry and HSDA - LRDW Information**

| Type                    | Northern Health | Northwest HSDA | Northern Interior HSDA | Northeast HSDA |
|-------------------------|-----------------|----------------|------------------------|----------------|
| Oil and Gas – Large     | 15              | 0              | 0                      | 15             |
| Oil and Gas – Medium    | 128             | 0              | 0                      | 128            |
| Oil and Gas – Small     | 1,424           | 0              | 0                      | 1,424          |
| Forestry Logging        | 108             | 18             | 43                     | 48             |
| Water Licenses          | 44              | 21             | 18                     | 5              |
| Identified by EHOs      | 90              | 20             | 16                     | 54             |
| <b>Total</b>            | <b>1,809</b>    | <b>59</b>      | <b>77</b>              | <b>1,674</b>   |
| <i>Major Projects**</i> | 98              | 33             | 15                     | 50             |
| <i>Mines***</i>         | 38              | 19             | 9                      | 10             |

\* Based on best available information from the Land and Resource Data Warehouse. Some duplication may occur and some camps may not be active.

\*\* Major projects engaged in various stages of the environmental assessment process.

\*\*\* Current and anticipated mines.

### 3.2.1 Northwest HSDA

Forestry logging camps are most common in the Northwest and EHOs have identified another 20 camps related to various industries. With the high level of current and anticipated major projects and new mines, the number of industrial camps is guaranteed to increase, particularly in remote locations. Northern Health staff attended meetings to discuss a proposed 10,000 person camps near Atlin, BC. This camp is expected to be established to service a number of mines proposed for the area once the Northwest Transmission Line is completed and power becomes available.<sup>xviii</sup> For a map of industrial camps and major projects in the Northwest HSDA, see Appendix C.

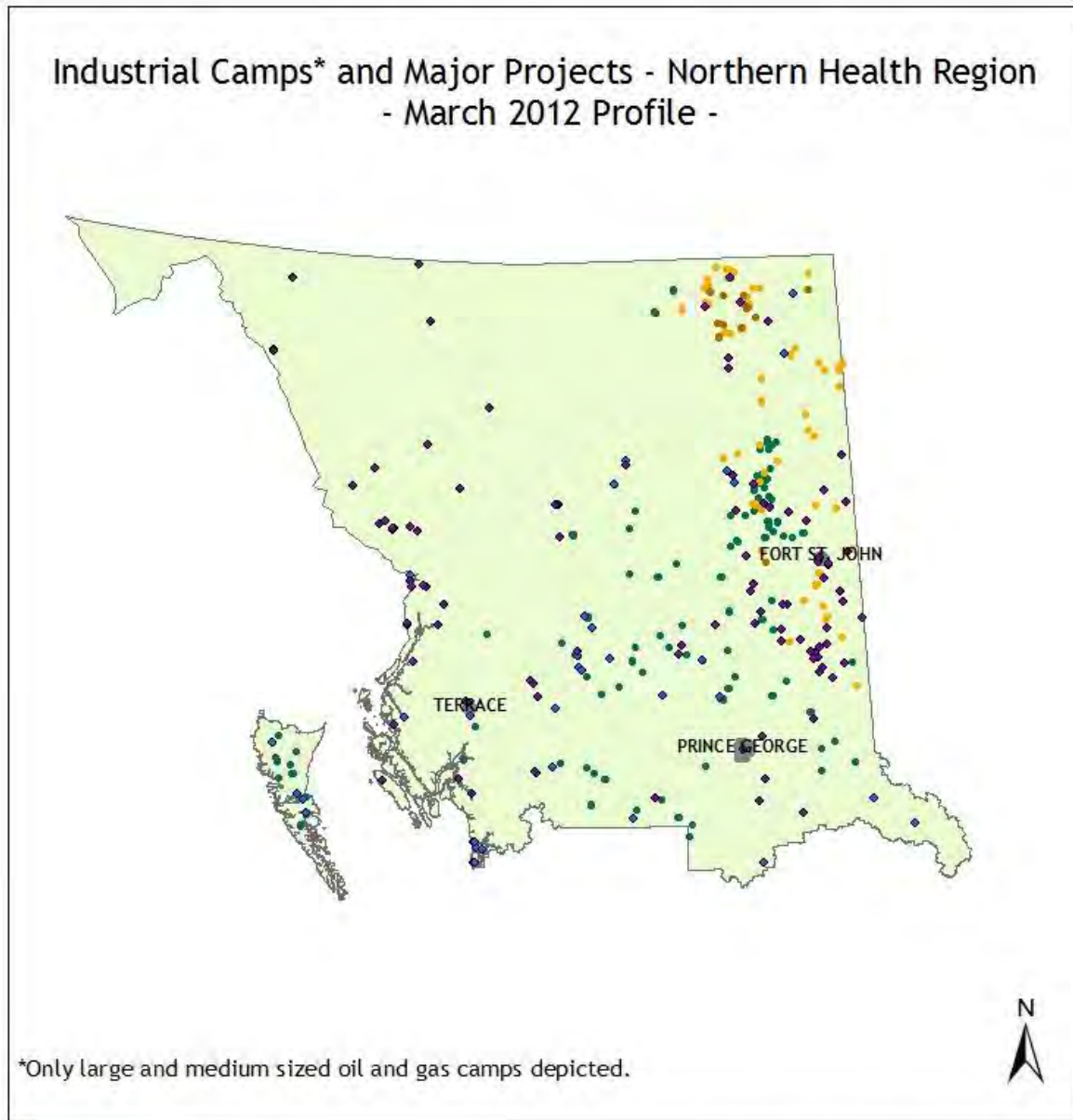
### 3.2.2 Northern Interior HSDA

Forestry camps make up the majority of camps in the Northern Interior HSDA. There are 18 different silviculture companies working for 10 different licensees that likely have tree planting camps. Five operating mines with another 4 anticipated, as well as 15 major projects are either currently operating, under development or anticipated. EHOs identified another 16 camps. For a map of industrial camps and major projects in the Northern Interior HSDA, see Appendix C.

### 3.2.3 Northeast HSDA

The industry with the vast majority of camps in Northern Health and in the Northeast HSDA is oil and gas. There are 1,567 related camps identified and they have been divided into three categories based on their size. Forestry logging camps and camps with drinking water licenses are also found in the Northeast. EHOs have also identified several camps. There are 50 current or anticipated major projects for this area, as well as 10 mines (3 currently operating), likely resulting in the establishment of more camps. For a map of industrial camps and major projects in the Northeast HSDA, see Appendix C.

Map 1: Industrial Camps\* & Major Projects - Northern Health Region, March 2012 Profile



| Legend  |  |
|---|--|
|  | Oil and Gas Camps - Large - Over 5ha - NH  |
|  | Oil and Gas Camps - Medium - 1 to 5ha - NH |
|  | Forestry Logging Camps with Permits        |
|  | Camps/Work Camps with Water Licenses - NH  |
|  | Major Projects - NH - May Include Camps    |

- 1567 Oil and Gas Camps (only large & medium depicted)  
 - 15 Large; 128 Medium; 1424 Small
- 108 Forestry Logging Camps with Special Use Permits
- 44 Camps or Work Camps with Drinking Water Licenses
- 98 Major Projects Identified - May include camps

Based on best available information.  
 Some duplication may occur.

Source: This map is compiled using publicly available information from the Land and Resource Data Warehouse.  
[www.lrdw.ca](http://www.lrdw.ca)

Author: Kelly Giesbrecht, KAGE Consulting

Date: 30/04/2012





### 3.3 Public Sector Stakeholders

Several public sector agencies oversee and approve permits, licenses and operations for resource developments and related industrial camps. Permits for resource development and related industrial camps are issued by the ministry or organization responsible for implementing and enforcing specific legislation and regulations. For example, permits for mines and related activities are issued by the MEM in different regions throughout BC. Special use permits for forestry logging camps and silviculture contracts are issued by the Ministry of Forests, Lands and Natural Resource Operations through local district offices. This section briefly outlines different public sector stakeholders and their roles related to industrial camps, and categorizes the industrial camps in two different types (see Figure 2).

#### **Environmental Assessment Office (EAO)**

[www.eao.gov.bc.ca](http://www.eao.gov.bc.ca)

Although not included in the diagram below, the BC EAO is an important government agency as it oversees the certification of major projects related to industrial, energy and mining projects (among others). The environmental assessment process is a harmonized process designed to avoid duplication of efforts in reviewing projects as required by both provincial and federal regulations.<sup>xxix</sup> Northern Health staff are involved directly with some assessments by participating (when asked) and providing comments.<sup>xx</sup> This process is currently undergoing some changes and more responsibility will fall to provincial regulators.<sup>xxi</sup>

#### **Ministry of Forests, Lands and Natural Resource Operations (MFLNRO)**

[www.gov.bc.ca/for/](http://www.gov.bc.ca/for/)

This ministry oversees forestry activities in the province and houses departments that work with other ministries to permit a variety of resource development and industrial activities, including mining.<sup>xxii</sup> Individual Forest District and BC Timber Sales offices are responsible for permitting forestry logging camps and entering into contracts with silviculture companies that may also establish camps.<sup>xxiii</sup> Major Projects through FrontCounterBC is another division of MFLNRO that oversees the permitting of larger scale energy, mining, tourist resort, utilities and other types of projects.<sup>xxiv</sup>

#### **Ministry of Energy and Mines (MEM)**

[www.empr.gov.bc.ca](http://www.empr.gov.bc.ca)

This ministry is responsible for overseeing the *Mineral Tenure Act*, *Coal Act* and *Mines Act* among other regulations. It oversees the approval of mining tenures and permitting in collaboration with MFLNRO (as above). Companies can secure tenures through *Mineral Titles Online*.<sup>xxv</sup> Companies must get a *Mines Act* permit from a regional MEM office and are responsible for making sure their applications meet the standards of relevant legislation including the *Mines Act* and *Health, Safety and Reclamation Code for Mines in British Columbia*.<sup>xxvi</sup> MEM issues multi-year permits and does not currently have the systems or capacity to track the status of industrial camps<sup>xxvii</sup> which complicates their ability to make this information publicly available.

Figure 2: Types of Industrial Camps and Related Regulatory Stages

| INDUSTRY  | TENURE / CLAIM  | PLANNING / EXPLORATION  | ENVIRONMENTAL ASSESSMENT   | OPERATIONAL  | RECLAMATION / PLANTING  |
|---|---|---|--|--|---|
| FORESTRY  | TENURE ISSUED BY FOREST DISTRICT  | LAYOUT  | NOT APPLICABLE   | LOGGING CAMPS - special use permits issued by individual forest districts                  | SILVICULTURE CAMPS - company secures permits outlined in contracts with individual forest districts |
| OIL AND GAS   | TENURES ISSUED THROUGH OIL & GAS COMMISSION (OGC)?                                      | CAMPS - short term; small; transient, mobile; harder to track; permit required from OGC?                | Yes - if triggered by regulation/legislation; opportunity for NH participation/input | CAMPS - permitted by OGC; longer term; permanent; larger; easier to track                  | CAMPS - permitted by OGC?   |
| MINING  | CLAIMS AND TENURES ISSUED ONLINE - Mineral Titles Online - Ministry of Energy and Mines | CAMPS - short term; small; transient, mobile; harder to track; permit required from OGC?                | Yes - if triggered by regulation/legislation; opportunity for NH participation/input | CAMPS - permitted by MEM; longer term; permanent; larger; easier to track                  | CAMPS - permitted by MEM?   |
| OTHER MAJOR PROJECTS  | TO BE DETERMINED - likely on a project by project basis                                 | CAMPS - short term; small; transient, mobile; harder to track; permit required from responsible agency? | Yes - if triggered by regulation/legislation; opportunity for NH participation/input | CAMPS - permitted by responsible ministry; longer term; permanent; larger; easier to track | CAMPS - permitted by responsible agency?  |
| <p>WORKSAFEBC - Responsible for overseeing and enforcing the <i>Occupational Health and Safety Regulation</i> (OHS) and promoting overall workplace health and safety related to camps. Part 25 refers to camps but no policies directly outlined.</p> <p><b>TYPE ONE CAMPS - long term; larger; permanent; easier to track and permit; operational stage</b><br/> <b>TYPE TWO CAMPS - short term; smaller; transient; harder to track and permit; exploration/silviculture stage</b></p> |   |   |  |  |   |

### Oil and Gas Commission (OGC)

[www.bcogc.ca](http://www.bcogc.ca)

The OGC is a one-stop regulatory agency overseeing the oil and gas industry, from exploration to development, pipeline transportation and reclamation. The *Oil and Gas Activities Act* includes requirements for related forestry activity, culture and heritage considerations and land, environment and water considerations as well.<sup>xxviii</sup> Information gathered through the OGC applications portal, ePASS, makes up the data used in the maps and lists of industrial camps and related companies.

### WorkSafeBC

[www.worksafebc.com](http://www.worksafebc.com)

WorkSafeBC is responsible for overseeing and enforcing the *Occupational Health and Safety Regulation* (OHS) and promoting overall workplace health and safety.<sup>xxix</sup> Part 25 of the OHS is a section set aside specifically for *camps*. At the time of this report there are no specific policies listed other than reference to the *Industrial Camps Health Regulation* and a note indicating that: “The *Occupational Health and Safety Regulation* applies to camps to the extent they are workplaces in which workers such as cooks, maintenance people and others work.”<sup>xxx</sup> The OHS regulation does not contain specific reference to upstream risk factors or general health and well-being; however, WorkSafeBC interacts with employers and may be an important partner and collaborator when moving forward with health promotion initiatives and activities.

## 3.4 Summary

The context of resource development and related regulatory processes for permitting, referrals, and notification regarding industrial camps is complex and involves many stakeholders. Industrial camps are also established at various stages of industrial development. It is difficult for all stakeholders involved in overseeing the activities of these camps to identify and track them, and to work together across ministries and organizations in an effective manner. Due to the volume of camps and the number of anticipated new industrial projects in the coming years, there is a sense of urgency to address health related impacts of industrial camps.

## 4.0 Industrial Camps and Health

Health promotion provided the focus for this initial paper and is defined as “the process of enabling people to increase control over, and to improve, their health.”<sup>xxxi</sup> The literature review and environmental scan presented in this section focuses on identifying examples, case studies and best practices of health promotion specific to industrial camps, especially those aimed at addressing upstream risk factors. The review of research into industrial camps and health illustrates a number of issues and challenges related to the health of workers housed in these camps, as well as to the nearby *host* communities. The environmental scan of industry association, company, and health service provider websites shows mostly policies and practices emphasizing safety. However, some stakeholders have, or are engaged in, health promotion activities and related policies. Overall, it is clear that more information is needed, from and for all sectors, regarding best practices for health and industrial camps in Northern BC.

This literature review assists in identifying issues and challenges to be addressed by Northern Health moving forward. However, the lack of information and knowledge directly related to industrial camps and health, specifically in Northern BC, is glaring. This is decidedly a significant information gap to be filled through short-term and long-term information gathering and research endeavours.

As noted above, this literature review focused initially on gathering examples of health promotion and upstream risk factors in industrial camps. Library database searches included fly-in/fly-out, industrial camp, work camp, mining camp, forestry camp, oil and gas camp, rural health and rural health promotion. The results capture examples from mining and oil and gas, long-distance commuting, fly-in/fly-out and drive-in/drive-out camps in rural Australia, United States, Canada and Northern BC. A majority of the studies highlighted the importance of rural resource development and industrial camps in the global context. Although a number of positive impacts from resource development and related industrial camps are apparent, such as economic development, high wages and increased real estate values,<sup>xxxii</sup> the focus of this initial report is the health promotion related challenges of industrial camps. From the research, the main challenges faced by workers and host communities, as well as some suggested solutions, are summarized in the following sections.

## 4.1 Issues and Challenges

The issues and challenges presented by industrial camps have implications for workers, the companies that employ them, their families and the host communities. Through this review we gain a better understanding of the nature of these challenges related to health and health promotion and an appreciation of the depth and breadth of the issues. Clear themes and linkages emerge that demonstrate the complexity of the industrial camps work setting.

### 4.1.1 Atmosphere of Industrial Camps

The atmosphere of industrial camps is something that both the literature and Northern Health staff<sup>xxxiii</sup> note as having implications for the health of workers. The experiences and impacts noted here do not reflect the atmosphere of every industrial camp. The operators of camps acknowledge that health-related issues need to be addressed and try to do so with varying degrees of success.<sup>xxxiv</sup> Workers housed on oil platforms (similar to the isolation of remote industrial camps) in the North Sea compared their accommodations to a prison-like setting because there was little to do on their down time.<sup>xxxv</sup> Life in silviculture (tree planting) camps is described as lawless - having no curfews, speed limits, and no one to curtail the consumption of alcohol.<sup>xxxvi</sup> Regarding oil and gas camps in the Fort St John, BC area, researchers noted an atmosphere of partying all night, where workers are introduced to and enter the *drug scene*, and where older partiers set the standard for new workers at the camps.<sup>xxxvii</sup> Overall, these types of camps can have “negative consequences for individuals, families, and the communities where they live.”<sup>xxxviii</sup> The very nature of Northern work sites may contribute to these problems and merits further investigation and attention.<sup>xxxix</sup>

### 4.1.2 Health and Shift Work

The quality of work life and working conditions are important to the overall well-being of workers.<sup>xl</sup> In operations related to industrial camps, workers are required to leave their homes and families for a set period of time, ranging from 12-18 hour workdays for shifts of 21-28 days<sup>xli</sup> or as long as 42 days in camp with 14 days off<sup>xlii</sup> or longer. Shift work impacts all aspects of health, including: obesity, depression, problematic use of substances (including alcohol),<sup>xliii</sup> sleep disorders<sup>xliv</sup> other types of illness and emotional distress.<sup>xlv</sup> Shift work also puts pressure on workers' home life;<sup>xlvi</sup> with not enough time at home to deal with domestic issues and too much time in camp (or on the oil platform) to think, this can lead to depression.<sup>xlvii</sup>

Workers' jobs are stressful and often dangerous.<sup>xlviii</sup> Another source of anxiety or stress for workers often is the fear that an injury would result in not being able to work, loss of pay and financial hardship.<sup>xlix</sup> This is also highlighted as a concern in Northern Health's consultations with men.<sup>l</sup> Overall, there is a lack of knowledge and understanding of job stresses and their consequences for rural workers' health.<sup>li</sup>

#### 4.1.3 Mental Health and Problematic Substance Use

Often mentioned in all sources of information related to health and industrial camps is the theme of a worker's state of mind and problematic substance use. As already mentioned, drugs and alcohol can be a prevalent part of life in these camps and workers in these camps can suffer from stress, anxiety and depression. These and other factors such as social isolation<sup>lii</sup> and lack of integration among new or temporary workers and permanent residents of host communities<sup>liii</sup> can lead to struggles with problematic use of substances.<sup>liv</sup>

The use of drugs and alcohol is seen as a way of blowing off steam after work or a normal way of life during a shift workers' leave period and can also lead to familial tensions and problems.<sup>lv</sup> Drug and alcohol use and impairment poses a risk for on-the-job accidents and injury, anxiety and emotional distress, as well as long-term health effects.<sup>lvi</sup> Problematic substance use also impacts adjacent and host communities. Workers are "readily visible on their days off when they can be found engaging in selected vices in local hotels and bars."<sup>lvii</sup> From 2004-2005, the Peace Region in Northeast BC had the second worst serious drug offence rate in the province.<sup>lviii</sup>

#### 4.1.4 Impact on Health Services

Rural and remote communities in Northern BC already struggle to provide social welfare and health care services.<sup>lix</sup> An ageing rural population, coupled with increased industrial activity and rapid population growth from an influx of new workers places increased demands on and overwhelms existing infrastructure and health services.<sup>lx</sup> Places like Fort McMurray, AB, are trying to cope with explosive growth and its demands on their health care system along with labour shortages with respect to hospital and public health staff.<sup>lxi</sup> Some camps and companies hire their own physicians;<sup>lxii</sup> however, often the focus is on getting workers back to the job rather than looking at health promotion and prevention.<sup>lxiii</sup>

Lack of personnel and capacity to meet this increased demand has also been identified by Northern Health staff as an important issue regarding the increased number of industrial camps and workers.<sup>lxiv</sup> The seasonal nature of resource development and extraction and influxes of workers during these periods places additional stresses on health services and related human resources capacities. These periods of increased access to health services have been documented in Northeast BC.<sup>lxv</sup> However, access to health care services may be an issue for some workers. One study noted that "provincial policies on health care insurance and workers' compensation may affect the availability of and access to health services [such as general health exams] in host communities."<sup>lxvi</sup>

#### 4.1.5 Public Health and Communicable Disease

Although public health (sanitation, etc) and communicable disease were not a focus of the initial literature review, they are mentioned in the research. Communicable disease was also identified as a topic of concern from Northern Health staff.<sup>lxvii</sup> One study noted that personal hygiene in the silviculture (tree planting) camps is "often mediocre."<sup>lxviii</sup> International studies on sexually transmitted diseases in temporary migrant workers suggest that this "may be an important health concern relevant to the context of intra-national Canadian [worker] mobility as well."<sup>lxix</sup> One study focused specifically on sexually transmitted infections (STIs) and young oil and gas workers in a community in Northeast BC. They found high and increasing rates of STIs linked to a highly mobile workforce and related to factors such as drug and alcohol binging.<sup>lxx</sup> Sanitary conditions and transmission of disease and infection are also important issues meriting further attention.

## 4.2 Suggested Solutions

The research presented here identifies many negative impacts of industrial camps, but little is said in terms of how to address these impacts in a positive way. Solutions covering three of the main themes are suggested from the research.

### 4.2.1 Mental Health First Aid

Some research suggests that workers are reluctant to access support for mental health and substance use due to embarrassment, the fear of losing their employment and concerns with trust and confidentiality, or they may not be aware of the services available through their employer.<sup>lxxi</sup> Workers may instead seek more information support from their peers. One suggested best practice is to strengthen this through a mental health first aid program.<sup>lxxii</sup>

### 4.2.2 Comprehensive Problematic Substance Use Policies and Programs

A suggested solution for drug and alcohol use is comprehensive corporate policies and related programs, which companies can and do implement (see Section 4).<sup>lxxiii</sup> However, even with extensive corporate policies and many designated dry camps, drug and alcohol use are still prevalent in this setting.<sup>lxxiv</sup> One author noted that: “It is unlikely...that those [workers] at risk would pay the slightest attention [to these types of policies],”<sup>lxxv</sup> indicating a bigger challenge regarding behaviour change.

### 4.2.3 Health Care Collaboration and Partnership

It is suggested that partnerships between a variety of stakeholders such as public health, community organizations, industry and government ministries as a way of addressing “some of the adverse social and health impacts of a boom in a resource-dependent community.”<sup>lxxvi</sup> This will require the development of new relationships with companies and other stakeholders,<sup>lxxvii</sup> as well as innovative strategies and solutions to address a complex set of issues.

## 4.3 Public/Private Health Promotion Practices

An environmental scan of industry association, individual company and health sector websites in Canada and Australia was conducted (Appendix D).<sup>6</sup> The scan focused on Northern regions, to identify any existing best practices regarding health promotion in industrial camps.<sup>7</sup> Overall, where health promotion policies are in place or being developed they are more general in nature and do not outline industrial camp setting specific practices. These sources are also potential contacts for and partners in health promotion strategies moving forward.

### 4.3.1 Industry Associations: Canada & Australia

Mining, oil and gas and forestry industry association websites in Canada and Australia were searched for any policies and practices regarding health promotion. The policies were also searched for practices that specifically targeted industrial camps. All Australian associations were contacted via email asking if they had any health promotion policies and any that were directed towards industrial camps. Health Coordinators for Chevron Australia and Chevron Canada responded and provided available health promotion policies. A recent publication for managers and supervisors in oil and gas field operations developed by two international oil and gas associations is promising in terms of identifying some of the underlying risk factors related to overall health (such as fitness), as well as issues arising related to a mobile workforce.<sup>lxxviii</sup> The International Council on Mining and Metals (ICMM) is leading some health promotion work and

<sup>6</sup> When looking at the health sector, examples from Alberta, Ontario and Australia were considered.

<sup>7</sup> The environmental scan of industry and industry association websites focused solely on health promotion information, strategies and initiatives. The scope for the second paper will be expanded, where possible, to include other areas such as primary care, emergency and trauma care and mental health services and support.

promotes health impacts assessments on their website.<sup>lxxix</sup> Similarly, the Mining Association of Canada (MAC) has both a safety and health protocol and framework that identify health promotion as important to industry operations.<sup>lxxx</sup>

#### 4.3.2 Northern BC Companies

The websites of the top five companies in each industry affiliated with industrial camps in Northern BC were scanned for health promotion policies and practices. Again, where policies were made available on their websites, the focus is mainly on worker and workplace safety. One company specifically identified work camp safety inspections in relation to ensuring that standards for water quality, noise and chemical exposures were being met.<sup>lxxxi</sup> Imperial Oil also has a general health policy that refers to fitness of workers and the provision of voluntary health promotion programs related to worker productivity; however, it also indicates that these programs supplement other health care and that employees are “responsible for their own health care and [for] their relationships with personal physicians.”<sup>lxxxii</sup> Other companies highlight health and safety in their vision or mission,<sup>lxxxiii</sup> have a health and safety committees<sup>lxxxiv</sup> or have health and safety listed as part of their corporate social responsibility.<sup>lxxxv</sup> Of these companies, it appears that the one with the best practices regarding health and health promotion is a contractor - Bechtel Corporation. A search of their website for topics related to health resulted in several publications and factsheets, including: *You and Your Health*<sup>lxxxvi</sup> and *Health Tips for Men*,<sup>lxxxvii</sup> discussing diet, exercise and healthy weights. Northern Health staff also noted that this contractor promotes healthy eating in their Kitimat facility.<sup>lxxxviii</sup>

#### 4.3.3 Health Sector: Public Health & Health Promotion

As expected, the health sectors in Alberta, Ontario, Western Australia and Queensland Australia have health promotion and mental health programs and initiatives. Some are more developed than others and some even have a rural component. However, the searches did not identify any health promotion best practices specific to industrial camps. All health sectors have programs that address public health and communicable disease. The only mention of work camps is in relation to public health inspectors.<sup>lxxxix</sup> Alberta Health Services’ general health and wellness information on their website is somewhat limited.<sup>xc</sup> The Government of Western Australia’s second health promotion framework covers 2012-2016, building on the previous one for 2007-2011, and addresses the same risk factors that Northern Health is focusing on: weight and obesity, nutrition, physical activity, tobacco use and harmful levels of drinking.<sup>xci</sup>

#### 4.3.4 Health Sector: Mental Health and Problematic Substance Use

There are two examples of programs targeting men and/or those that work in industry to support to provide them with access to mental health and substance use problems. Western Australia’s Mental Health Commission is working with a variety of stakeholders to improve access to mental health related services in rural and remote areas; there is a new facility specifically for men with mental health and drug and alcohol problems.<sup>xcii</sup> In Grande Prairie, AB, there is a *Northern Addictions Centre* (aka the Business & Industry Clinic) that assists other service providers to “reintegrate employees back into the workplace.”<sup>xciii</sup> These approaches could be coupled with the idea of mental health first aid at the industrial camp sites as suggested in the literature review.

### 4.4 Industrial Camps and Health: A Summary

The literature review of rural health promotion research and examples specific to industrial camps was very useful for identifying related issues and challenges. It supports issues raised by Northern Health staff. The emphasis of the information was on identifying negative impacts well beyond the scope of public health and health promotion, without many suggestions for how to address these impacts. It is glaringly apparent that more information is needed about industrial

camps in Northern BC in order to develop overall health service delivery and health promotion related strategies and partnerships with other stakeholders. Through the environmental scan, we found that both public and private stakeholders generally have policies on workplace health and safety and that some are working on aspects of health promotion. Although there does not appear to be anything specific to industrial camps, there could be opportunities to work with private sector associations and companies already thinking about or engaged in health promotion work to develop best practices. There could also be opportunities to work with these groups to address other impacts of industrial camps on primary care, emergency services and trauma care, and community health services.

## 5.0 Conclusion and Next Steps

In conclusion, through the information presented in this report we have demonstrated the complex and unique nature of industrial camps in Northern BC. The level of current and proposed industrial and resource development activity for the area, and the mobile and transient nature of the workforce means that industrial camps will continue to be established and exist in Northern Health's area. Working together with other stakeholders to identify these camps, collaborate on strategies and initiatives and to minimize negative impacts and promote positive impacts on workers and host communities is a way forward.

### 5.1 Next Steps - Providing Guidance and Recommendations

It is difficult to develop appropriate health care initiatives and strategies to address the challenges presented by industrial camps without adequate information. These next steps focus on developing comprehensive, setting- and context-specific guidance regarding health care, health services and industrial camps for Northern Health. The biggest lesson learned through the compilation of this report is that we need more information in order to address complex health and community impacts related to industrial camps with innovative strategies. Some of this information may be available internally at Northern Health or through the Ministry of Health and other information may require research advisors or partnerships moving forward.

Future background papers will delve deeper into the issues outlined in this report. Two more papers are currently planned. The second paper in this series provides an overview of community and economic development in Northern BC. The goal is to illustrate how communities in our region have moved through different stages over time in relation to changes in our economy and resource development opportunities. The third paper in this series will be framed using a health and economic development lens. This document aims to identify the impacts on health and health services utilization and the roles of Northern Health, government and industry in the following areas:

#### Life In Industrial Camps

- Impacts of shiftwork & isolation
- Eating habits and physical activity

#### Behaviours

- Population / Public Health: communicable diseases & STIs
- Mental Health and Addictions: drug testing; counseling & rehabilitation services
- Health and Safety: occupational health & safety; motor vehicle crashes

#### Primary & Acute Care

- Physician visits/ access to primary care
- Access to emergency & trauma care
- Perinatal care: physician visits; deliveries



Through initial discussions of the information presented in this paper, the overall recommendation was made to expand the discussion from issues in and stemming from industrial camps to include a transient workforce. It is apparent that the *traditional* definition of an industrial camp (remote and isolated from adjacent communities) is not always the case in Northern BC. Companies and their workers and sub-contractors are making arrangements to stay in hotels and houses in communities. It is a natural fit to broaden our scope and reframe this work to also include transient workers as a focus. This preliminary work also points to the importance of business practices (i.e. housing arrangements for workers) and the relationship to communities and health care. At this time, further study is proposed to better understand the impacts of these types of business models on communities and health services utilization.

Key focus areas and topics requiring further investigation were also identified through initial discussions. They are outlined below and will be incorporated as best as possible into the work already underway.

#### 1. Transient Workers & Their Families

- As noted above, the recommendation to expand the discussion from industrial camps to transient workers is a welcome one. There is a need for more information about this population in Northern BC, including: a) a population profile (age, sex, education, etc); and, b) a better understanding of the impacts of a transient workforce on health service utilization. A focus on different health and social impacts for men, women and families would provide valuable insights.

#### 2. Examples from the Canadian Armed Forces

- There is a large body of work regarding the health impacts and social dynamics of military bases. Although not exactly the same as the industrial camp-setting, drawing on research in this area will compliment what we are currently learning.

#### 3. Patient-Flow Mini-Study

- A mini-study of patient-flow in the Northeast was suggested as a starting point to better understand the movements and health care needs of a transient workforce. Using the example of workers moving back and forth between Alberta and British Columbia will help better understand health services utilization in this context.
- This could be added to this series as another paper.

#### 4. Economic Contributions of Resource Development to Northern BC & BC

- Resource development is an important component of the economy in Northern BC and British Columbia as a whole. More information on revenues generated from resource operations, the establishment of industrial camps and the related transient workforce is important.
- General resource revenue information may be publicly available; however, a separate study would be needed in order to provide a comprehensive profile.

Next steps include gathering information to address each issue in an evidence-based manner, linking with other endorsed positions and working with a range of Northern Health programs and departments. The next goal is to provide guidance and recommendations for Northern Health regarding health and community impacts of transient workers in the industrial camp and community setting.

## 6.0 Other References

(Also see Appendix E)

British Columbia Mining Association. (2012). *Mines Map*. Website. Accessed on April 10, 2012 at: <http://www.miningassociationbc.com/#>.

Devine, S. G., Muller, R. & Carter, A. (2008). Using the framework for health promotion action to address staff perceptions of occupational health and safety at a fly-in/fly-out mine in northwest Queensland. *Health Promotion Journal of Australia*, 19(3), 196-202.

Dixon, M. (1978). *What happened to Fairbanks? The effects of the Trans-Alaska oil pipeline on the community of Fairbanks, Alaska*. Boulder, Colorado: Westview Press.

England, J. L. & Albrecht, S. L. (1984). Boomtowns and social disruptions. *Rural Sociology*, 49(2), 230-246.

Escoffery, C., Kegler, M. C., Alcantara, I., Wilson, M. & Glanz, K. G. (2011). A qualitative examination of the role of small, rural worksites in obesity prevention. *Preventing Chronic Disease*, 8(4), A75. Retrieved from Centres for Disease Control website: [http://www.cdc.gov/pcd/issues/2011/jul/10\\_0185.htm](http://www.cdc.gov/pcd/issues/2011/jul/10_0185.htm)

Halseth, G., Strausfogel, D., Parsons, S. & Wishart, A. (2004). Regional economic shifts in British Columbia: Speculation from recent demographic evidence. *Canadian Journal of Regional Science*, 27(3), 317-352.

Hayter, R., Barnes, T. J. & Bradshaw, M. J. (2003). Relocating resource peripheries to the core of economic geography's theorizing: Rationale and agenda. *Area*, 35(1), 15-23.

Ministry of Energy, Mines and Petroleum Resources. (2008). *Health, Safety and Reclamation Code for Mines in British Columbia*. Government of British Columbia: Victoria, BC. Website: Accessed on March 29, 2012 at: <http://www.empr.gov.bc.ca/Mining/HealthandSafety/Pages/HSRC.aspx>.

Northern British Columbia Women's Task Force. (1977). *Report on Single Industry Communities*. Northern British Columbia Women's Task Force: Kitimat, BC; Fraser Lake, BC; Mackenzie, BC.

Northern Health. (2011). *Where are the Men? Chief Medical Health Officer's Report on the Health and Wellbeing of Men and Boys in Northern BC*. Northern Health: Prince George, BC. Accessed on March 15, 2012: <http://men.northernhealth.ca/Portals/4/pdfs/mens-health-report-web-nov11.pdf>.

Women's Research Centre. (1979). *Beyond the Pipeline*. Prepared for: The Northern Pipeline Agency: Vancouver, BC.

- i World Health Organization. (2011). *Rio Political Declaration on Social Determinants of Health*. World Conference on Social Determinants of Health, October 19-21, 2011: Rio de Janeiro, Brazil. Accessed on March 26, 2012: <http://www.who.int/sdhconference/declaration/en/>
- ii Hanlon, N. & Halseth, G. (2005). The greying of resource communities in Northern British Columbia: Implications for health care delivery in already-underserved areas. *Canadian Geographer*, 49(1), 1-24. (Page 21).
- iii Sweeney, B. (2009). Sixty years on the margin: The evolution of Ontario's tree planting industry and labour force: 1945-2007. *Labour/ Le Travail*, 63, 47-78; Sweeney, B. (2009). Producing liminal space: Gender, age and class in northern Ontario's tree planting industry. *Gender, Place and Culture: A Journal of Feminist Geography*, 16(5), 569-586.
- iv Storey, K. (2001). Fly-in/fly-out and fly-over: Mining and regional development in Western Australia. *Australian Geographer*, 32(2), 133-148. doi: 10.1080/00049180120066616 (Page 35).
- v Goldberg, S., Shoveller, J. S., Koehoom, M., & Ostry, A. S. (2010). And they call this progress? Consequences for young people of living and working in resource-extraction communities. *Critical Public Health*, 20(2), 157-168. (Page 164); Markey, S. (2010). Fly-in, fly-out resource development: A new regionalist perspective on the next rural economy. In G. Halseth, S. Markey & D. Bruce (Eds.), *The next rural economies: Constructing rural place in global economies* (pp. 239-250). Cambridge, MA: CABI Publishing. (Page 240).
- vi Markey, S. (2010). Fly-in, fly-out resource development: A new regionalist perspective on the next rural economy. In G. Halseth, S. Markey & D. Bruce (Eds.), *The next rural economies: Constructing rural place in global economies* (pp. 239-250). Cambridge, MA: CABI Publishing. (Page 241); Storey, K. (2001). Fly-in/fly-out and fly-over: Mining and regional development in Western Australia. *Australian Geographer*, 32(2), 133-148. doi: 10.1080/00049180120066616 (Page 135).
- vii Newhook, J.T., Neis, B., Jackson, L., Roseman, S.R., Romanow, P., Vincent, C. (2011). Employment-related mobility and the health of workers, families, and communities: The Canadian context. *Labour/Le Travail* 67(Spring 2011), 121-156; Petkova, V., Lockie, S., Rolfe, J. & Ivanova, G. (2009). Mining developments and social impacts on communities: Bowen Basin case studies. *Rural Society*, 19(3), 211-228; Storey, K. (2001). Fly-in/fly-out and fly-over: Mining and regional development in Western Australia. *Australian Geographer*, 32(2), 133-148. doi: 10.1080/00049180120066616; Torkington, A. M., Larkins, S., Gupta, T. S. (2011). The psychosocial impacts of fly-in fly-out and drive-in drive-out mining on mining employees: A qualitative study. *Australian Journal of Rural Health*, 19, 135-141. doi: 10.1111/j.1440-1584.2011.01205.x

- viii Petkova, V., Lockie, S., Rolfe, J. & Ivanova, G. (2009). Mining developments and social impacts on communities: Bowen Basin case studies. *Rural Society*, 19(3), 211-228. (Page 213).
- ix Markey, S. (2010). Fly-in, fly-out resource development: A new regionalist perspective on the next rural economy. In G. Halseth, S. Markey & D. Bruce (Eds.), *The next rural economies: Constructing rural place in global economies* (pp. 239-250). Cambridge, MA: CABI Publishing.
- x Torkington, A. M., Larkins, S., Gupta, T. S. (2011). The psychosocial impacts of fly-in fly-out and drive-in drive-out mining on mining employees: A qualitative study. *Australian Journal of Rural Health*, 19, 135-141. doi: 10.1111/j.1440-1584.2011.01205.x
- xi Government of British Columbia . (2009). *Public Health Act: Industrial Camps Regulation*. Queen's Printer: Victoria, BC. Website. Accessed on March 12, 2012 at: [http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/14\\_427\\_83](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/14_427_83)
- xii G. Thibault, personal communication, March 19, 2012.
- xiii Ibid.
- xiv Markey, S. (2010). Fly-in, fly-out resource development: A new regionalist perspective on the next rural economy. In G. Halseth, S. Markey & D. Bruce (Eds.), *The next rural economies: Constructing rural place in global economies* (pp. 239-250). Cambridge, MA: CABI Publishing. (Pages 56 and 243); J. Pardoe, personal communication, May 3, 2012.
- xv Markey, S. & Heisler, K. (2010). Getting a fair share: Regional development in a rapid boom-bust rural setting. *Canadian Journal of Regional Science*, 33(3), 49-62. Retrieved from <http://www.cjrs-rcsr.org/Volume33-3.htm> (Page 52); Northern Health. (2006). *Population Health and Oil and Gas Activities: A Preliminary Assessment of the Situation in North Eastern BC*. A Report from the Medical Health Officer to the Board of Northern Health. Northern Health: Prince George, BC. Accessed on March 15, 2012: [http://www.northernhealth.ca/Portals/0/About/NH\\_Reports/documents/OilandGasreport.pdf](http://www.northernhealth.ca/Portals/0/About/NH_Reports/documents/OilandGasreport.pdf) (Page 15).
- xvi Storey, K. (2001). Fly-in/fly-out and fly-over: Mining and regional development in Western Australia. *Australian Geographer*, 32(2), 133-148. doi: 10.1080/00049180120066616 (Page 139).
- xvii G. Thibault, personal communication, March 19, 2012.
- xviii Ibid.
- xix Environmental Assessment Office. (2012). *Federal/Provincial Relations: The Environmental Assessment Process*. Website. Accessed on April 03, 2012 at: [http://www.eao.gov.bc.ca/fed\\_prov%20relations.html](http://www.eao.gov.bc.ca/fed_prov%20relations.html)
- xx D. Quibell, personal communication, March 20, 2012.
- xxi Davidson, A. (2012, April 17). *Ottawa to Slash Environment Review Role*. CBC News Online. Website: Accessed on April 19, 2012 at: <http://www.cbc.ca/news/politics/story/2012/04/17/environmental-reviews.html>
- xxii Ministry of Forests, Lands and Natural Resource Operations. (2012). *Authorizations, Licensing and Permitting* (side menu). Website. Accessed on April 20, 2012 at: <http://www.gov.bc.ca/for/#>
- xxiii M. Hay, personal communication, March 2012.
- xxiv Ministry of Forests, Lands and Natural Resource Operations. (2012). *Major Projects BC*. Website. Accessed on April 20, 2012 at: [http://www.for.gov.bc.ca/major\\_projects/](http://www.for.gov.bc.ca/major_projects/)
- xxv Ministry of Energy and Mines and Responsible for Housing. (2012). *Mineral Titles*. Website. Accessed on April 20, 2012 at: <http://www.empr.gov.bc.ca/Titles/MineralTitles/Pages/default.aspx>.
- xxvi Ministry of Energy and Mines and Responsible for Housing. (2012). *Permitting and Reclamation*. Website. Accessed on April 20, 2012 at: <http://www.empr.gov.bc.ca/Mining/Permitting-Reclamation/Pages/default.aspx>
- xxvii J. Pardoe, personal communication, May 03, 2012.
- xxviii Oil and Gas Commission. (2012). *About the Oil and Gas Commission*. Website. Accessed on April 19, 2012 at: <http://www.bcogc.ca/about/>.
- xxix WorkSafeBC. (2012). *About Us*. Website. Accessed on April 03, 2012: [http://www.worksafebc.com/about\\_us/default.asp](http://www.worksafebc.com/about_us/default.asp)
- xxx WorkSafeBC. (2012). *OHS Regulation: Part 25 Camps*. Website. Accessed on April 03, 2012: <http://www2.worksafebc.com/Publications/OHSRegulation/Part25.asp>.
- xxxi World Health Organization. (1986). *Ottawa Charter for Health Promotion*. An International Conference on Health Promotion, November 17-21, 1986: Ottawa, Ontario, Canada. Accessed on March 15, 2012: <http://www.phac-aspc.gc.ca/ph-sp/docs/charter-chartre/pdf/charter.pdf> (Page 1).
- xxxii Northern Health. (2006). *Population Health and Oil and Gas Activities: A Preliminary Assessment of the Situation in North Eastern BC*. A Report from the Medical Health Officer to the Board of Northern Health. Northern Health: Prince George, BC. Accessed on March 15, 2012: [http://www.northernhealth.ca/Portals/0/About/NH\\_Reports/documents/OilandGasreport.pdf](http://www.northernhealth.ca/Portals/0/About/NH_Reports/documents/OilandGasreport.pdf) (Page 15).
- xxxiii D. Bowering, personal communication, March 21, 2012.
- xxxiv G. Thibault, personal communication, March 19, 2012.
- xxxv Collinson, D. L. (1998). "Shift-ing" lives: Work-home pressures in the north sea oil industry. *Canadian Review of Sociology and Anthropology*, 35(3), 301-324. (Page 307).
- xxxvi Sweeny, B. (2009). Producing liminal space: Gender, age and class in northern Ontario's tree planting industry. *Gender, Place and Culture: A Journal of Feminist Geography*, 16(5), 569-586. (Page 575).

- xxxvii Goldberg, S., Shoveller, J. S., Koehoorn, M., & Ostry, A. S. (2010). And they call this progress? Consequences for young people of living and working in resource-extraction communities. *Critical Public Health*, 20(2), 157-168. (Page 162).
- xxxviii Storey, K. (2001). Fly-in/fly-out and fly-over: Mining and regional development in Western Australia. *Australian Geographer*, 32(2), 133-148. doi: 10.1080/00049180120066616 (Page 139).
- xxxix Barton, S. (2002). Aspects of the effect of substance use on health, wellness and safety of employees and families in northern remote work sites. *Social Indicators Research*, 60(1), 263-274. (Page 270).
- xl Barton, S. (2002). Aspects of the effect of substance use on health, wellness and safety of employees and families in northern remote work sites. *Social Indicators Research*, 60(1), 263-274. (Page 267).
- xli Goldberg, S., Shoveller, J. S., Koehoorn, M., & Ostry, A. S. (2010). And they call this progress? Consequences for young people of living and working in resource-extraction communities. *Critical Public Health*, 20(2), 157-168. (Page 158).
- xlii Barton, S. (2002). Aspects of the effect of substance use on health, wellness and safety of employees and families in northern remote work sites. *Social Indicators Research*, 60(1), 263-274. (Page 267).
- xliii Petkova, V., Lockie, S., Rolfe, J. & Ivanova, G. (2009). Mining developments and social impacts on communities: Bowen Basin case studies. *Rural Society*, 19(3), 211-228. (Page 222).
- xliv Collinson, D. L. (1998). "Shift-ing" lives: Work-home pressures in the north sea oil industry. *Canadian Review of Sociology and Anthropology*, 35(3), 301-324. (Page 315).
- xlv Barton, S. (2002). Aspects of the effect of substance use on health, wellness and safety of employees and families in northern remote work sites. *Social Indicators Research*, 60(1), 263-274. (Page 270).
- xlvi Shandro, J. A., Veiga, M. M., Koehoorn, M., Shoveller, J., Scoble, M. (2011). Perspectives on community health issues and the mining boom-bust cycle. *Resources Policy*. doi:10.1016/j.resourpol.2011.01.004 (Page 23).
- xlvii Collinson, D. L. (1998). "Shift-ing" lives: Work-home pressures in the north sea oil industry. *Canadian Review of Sociology and Anthropology*, 35(3), 301-324. (Page 313, 317).
- xlviii Goldberg, S., Shoveller, J. S., Koehoorn, M., & Ostry, A. S. (2010). And they call this progress? Consequences for young people of living and working in resource-extraction communities. *Critical Public Health*, 20(2), 157-168. (Page 158).
- lix Collinson, D. L. (1998). "Shift-ing" lives: Work-home pressures in the north sea oil industry. *Canadian Review of Sociology and Anthropology*, 35(3), 301-324. (Page 309).
- I Northern Health. (2011). *Men's Health Matters Because Men Matter. Community Consultation on Men's Health: What We Heard*. Northern Health: Prince George, BC. Accessed on March 15, 2012: <http://men.northernhealth.ca/Portals/4/pdfs/mens-health-matters-web-nov11.pdf>.
- ii Pratt, D. (1990). Occupational health and the rural worker: Agriculture, mining, and logging. *The Journal of Rural Health*, 6(4), 399-417. (Page 413).
- iii Goldberg, S., Shoveller, J. S., Koehoorn, M., & Ostry, A. S. (2010). And they call this progress? Consequences for young people of living and working in resource-extraction communities. *Critical Public Health*, 20(2), 157-168. (Page 162-163).
- liii Petkova, V., Lockie, S., Rolfe, J. & Ivanova, G. (2009). Mining developments and social impacts on communities: Bowen Basin case studies. *Rural Society*, 19(3), 211-228. (Page 222).
- liv Goldberg, S., Shoveller, J. S., Koehoorn, M., & Ostry, A. S. (2010). And they call this progress? Consequences for young people of living and working in resource-extraction communities. *Critical Public Health*, 20(2), 157-168. (Page 163).
- lv Aiken, G. J. M. & McCance, C. (1982). Alcohol consumption in offshore oil rig workers. *British Journal of Addiction* 77, 305-310. (Page 305); Collinson, D. L. (1998). "Shift-ing" lives: Work-home pressures in the north sea oil industry. *Canadian Review of Sociology and Anthropology*, 35(3), 301-324. (Page 317); Goldberg, S., Shoveller, J. S., Koehoorn, M., & Ostry, A. S. (2010). And they call this progress? Consequences for young people of living and working in resource-extraction communities. *Critical Public Health*, 20(2), 157-168. (Page 162).
- lvi Barton, S. (2002). Aspects of the effect of substance use on health, wellness and safety of employees and families in northern remote work sites. *Social Indicators Research*, 60(1), 263-274. (Page 266).
- lvii Sweeny, B. (2009). Producing liminal space: Gender, age and class in northern Ontario's tree planting industry. *Gender, Place and Culture: A Journal of Feminist Geography*, 16(5), 569-586. (Page 574).
- lviii Markey, S. & Heisler, K. (2010). Getting a fair share: Regional development in a rapid boom-bust rural setting. *Canadian Journal of Regional Science*, 33(3), 49-62. Retrieved from <http://www.cjrs-rcsr.org/Volume33-3.htm> (Page 56).
- lix Hanlon, N. & Halseth, G. (2005). The greying of resource communities in Northern British Columbia: Implications for health care delivery in already-underserved areas. *Canadian Geographer*, 49(1), 1-24. (Page 2).
- lx Goldberg, S., Shoveller, J. S., Koehoorn, M., & Ostry, A. S. (2010). And they call this progress? Consequences for young people of living and working in resource-extraction communities. *Critical Public Health*, 20(2), 157-168. (Page 158); Hanlon, N. & Halseth, G. (2005). The greying of resource communities in Northern British Columbia: Implications for health care delivery in already-underserved areas. *Canadian Geographer*, 49(1), 1-24. (Page 7); Markey, S. & Heisler, K. (2010). Getting a fair share: Regional development in a rapid boom-bust rural setting. *Canadian Journal of Regional Science*, 33(3), 49-62. Retrieved from <http://www.cjrs-rcsr.org/Volume33-3.htm> (Page 53).
- lxi Sauve, M. (2007). Canadian dispatches from medical fronts: Fort McMurray. *Canadian Medical Association Journal*, 177(1), 26.
- lxii R. Chapman, personal communication, May 7, 2012.

- lxiii G. Thibault, personal communication, March 19, 2012.
- lxiv C. Badenhorst, personal communication, April, 24, 2012.
- lxv Northern Health. (2006). *Population Health and Oil and Gas Activities: A Preliminary Assessment of the Situation in North Eastern BC*. A Report from the Medical Health Officer to the Board of Northern Health. Northern Health: Prince George, BC. Accessed on March 15, 2012: [http://www.northernhealth.ca/Portals/0/About/NH\\_Reports/documents/OilandGasreport.pdf](http://www.northernhealth.ca/Portals/0/About/NH_Reports/documents/OilandGasreport.pdf) (Page 19).
- lxvi Newhook, J.T., Neis, B., Jackson, L., Roseman, S.R., Romanow, P., Vincent, C. (2011). Employment-related mobility and the health of workers, families, and communities: The Canadian context. *Labour/Le Travail* 67(Spring 2011), 121-156. (Page 149).
- lxvii G. Thibault, personal communication, March 19, 2012; S. Wadden, personal communication, March 28, 2012.
- lxviii Sweeny, B. (2009). Producing liminal space: Gender, age and class in northern Ontario's tree planting industry. *Gender, Place and Culture: A Journal of Feminist Geography*, 16(5), 569-586. (Page 576).
- lix Newhook, J.T., Neis, B., Jackson, L., Roseman, S.R., Romanow, P., Vincent, C. (2011). Employment-related mobility and the health of workers, families, and communities: The Canadian context. *Labour/Le Travail* 67(Spring 2011), 121-156. (Page 131).
- lxx Goldberg, S., Shoveller, J. S., Ostry, A. S. & Koehoorn, M. (2008). Sexually transmitted infection (STI) testing among young oil and gas workers. *Canadian Journal of Public Health*, 99(4), 350-354.
- lxxi Torkington, A. M., Larkins, S., Gupta, T. S. (2011). The psychosocial impacts of fly-in fly-out and drive-in drive-out mining on mining employees: A qualitative study. *Australian Journal of Rural Health*, 19, 135-141. doi: 10.1111/j.1440-1584.2011.01205.x (Page 139-140).
- lxxii Ibid.
- lxxiii Aiken, G. J. M. & McCance, C. (1982). Alcohol consumption in offshore oil rig workers. *British Journal of Addiction* 77, 305-310. (Page 309); Barton, S. (2002). Aspects of the effect of substance use on health, wellness and safety of employees and families in northern remote work sites. *Social Indicators Research*, 60(1), 263-274. (Page 271).
- lxxiv G. Thibault, personal communication, March 19, 2012.
- lxxv Aiken, G. J. M. & McCance, C. (1982). Alcohol consumption in offshore oil rig workers. *British Journal of Addiction* 77, 305-310. (Page 309).
- lxxvi Goldberg, S., Shoveller, J. S., Koehoorn, M., & Ostry, A. S. (2010). And they call this progress? Consequences for young people of living and working in resource-extraction communities. *Critical Public Health*, 20(2), 157-168. (Page 165).
- lxxvii Ibid.
- lxxviii IPIECA & International Association of Oil and Gas Producers. (2011). *Managing health for field operations in oil and gas activities: A guide for managers and supervisors in the oil and gas industry*. Website. Accessed on May 01, 2012 at <http://www.iecea.org/publication/managing-health-field-operations-oil-and-gas-activities>
- lxxix International Council on Mining and Metals. (2012). *Health and Safety: Leading Indicators Work*. Website. Accessed on April 17, 2012 from <http://www.icmm.com/our-work/projects/articles/leading-indicators>; International Council on Mining and Metals. (2012). *Health and Safety: Health Risk Assessment Project*. Website. Accessed on April 17, 2012 from <http://www.icmm.com/page/14606/health-risk-assessment>.
- lxxx Mining Association of Canada. (2012). *Towards sustainable mining - assessment protocol: A tool for assessing safety and health performance*. Website. Accessed on April 17, 2012 at: [http://www.mining.ca/www/media\\_lib/TSM\\_Documents/protocols\\_2012/TSM%20SAFETY%20AND%20HEALTH%20PROTOCOL%20-%20February%202012.pdf](http://www.mining.ca/www/media_lib/TSM_Documents/protocols_2012/TSM%20SAFETY%20AND%20HEALTH%20PROTOCOL%20-%20February%202012.pdf); Mining Association of Canada. (2012). *Towards sustainable mining: Safety and health framework*. Website. Accessed on April 17, 2012 at: [http://www.mining.ca/www/media\\_lib/TSM\\_Documents/2011\\_protocols/Safety%20Framework.pdf](http://www.mining.ca/www/media_lib/TSM_Documents/2011_protocols/Safety%20Framework.pdf)
- lxxxi Imperial Oil. (2012). *Monitoring worker health in the field*. Website. Accessed on May 01, 2012 at: [http://www.imperialoil.com/Canada-English/community\\_ccr2009\\_safety\\_health.aspx](http://www.imperialoil.com/Canada-English/community_ccr2009_safety_health.aspx)
- lxxxii Imperial Oil. (2012). *Health policy*. Website. Accessed on May 01, 2012 at: [http://www.imperialoil.com/Canada-English/Files/health\\_policy.pdf](http://www.imperialoil.com/Canada-English/Files/health_policy.pdf) (Page 1).
- lxxxiii Spectrum Resource Group. (2012). *About us*. Website. Accessed on May 01, 2012 at: <http://srgi.ca/about.php>
- lxxxiv Chieftain Metals Inc. (2012) *Technical, environmental, health and safety committee*. Website. Accessed on May 01, 2012 at <http://www.chieftainmetals.com/corporate-tech-enviro-health-safety.php>
- lxxxv Devon Canada Corporation. (2012). *Corporate social responsibility: Environmental, health and safety*. Website. Accessed on May 01, 2012 at [http://www.dvn.com/CorpResp/ehs/Pages/health\\_and\\_safety.aspx](http://www.dvn.com/CorpResp/ehs/Pages/health_and_safety.aspx); Encana Corporation. (2012). *Health*. Website. Accessed on May 01, 2012 at <http://www.encana.com/about/responsibility/reports/cr2010/health-safety/health/>; Nexen Inc. (2012). *Responsible development*. Website. Accessed on May 01, 2012 at <http://www.nexeninc.com/en/ResponsibleDevelopment/HealthandSafety.aspx>; Thompson Creek Metals. (2012). *Corporation social responsibility*. Website. Accessed on May 01, 2012 at <http://www.thompsoncreekmetals.com/s/CRP.asp>
- lxxxvi Bechtel Corporation. (2012). *2008 Monthly ES&H Campaign: March – You and Your Health*. Website. Accessed on May 01, 2012 at <http://www.bechtel.com/assets/files/Environmental/ToolboxSafetyTopics/2008/20080303YouandYourHealth.pdf>
- lxxxvii Ibid.
- lxxxviii S. Dosanjh, personal communication, March 27, 2012.
- lxxxix Alberta Health Services. (2012). *Environmental public health: Work camps*. Website. Accessed on May 03, 2012 at <http://www.albertahealthservices.ca/services.asp?pid=service&rid=1052215>

- 
- x<sup>c</sup> Alberta Health Services. (2012). *Disease prevention, wellness and lifestyle*. Website. Accessed on May 03, 2012 at <http://www.albertahealthservices.ca/572.asp>
- x<sup>ci</sup> Government of Western Australia. (2012). *WA health promotion strategic framework 2012-2016*. Website. Accessed on May 03, 2012 at [http://www.public.health.wa.gov.au/2/1588/2/health\\_promotion\\_strategic\\_framework.pm](http://www.public.health.wa.gov.au/2/1588/2/health_promotion_strategic_framework.pm)
- x<sup>cii</sup> Government of Western Australia. (2012). *Mental health commission: Rural and remote mental health*. Website. Accessed on May 03, 2012 at [http://www.mentalhealth.wa.gov.au/ournewapproach/rural\\_remote.aspx](http://www.mentalhealth.wa.gov.au/ournewapproach/rural_remote.aspx)
- x<sup>ciii</sup> Alberta Health Services. (2012). *Northern addictions centre/ business and industry clinic*. Website. Accessed on May 03, 2012 at <http://www.albertahealthservices.ca/services.asp?pid=service&rid=1039204>

## Appendix A Sources of Data for Maps and Lists of Industrial Camps

The information obtained from the Land and Resource Data Warehouse (LRDW) is updated on a regular basis and subject to change. This is the best available, publicly accessible source of information for industrial camps in British Columbia. Some information is cumulative and covers several years of industrial camp permitting and it is not always known which areas identified for industrial camps are currently active; retired; scheduled for development; a temporary, seasonal or permanent camp; or, if a camp has been or will eventually be established on that site. The information presented in the maps was obtained from the LRDW on the dates noted below and is subject to change. Lists generated from this information shown in Appendix B are subject to the same restrictions and changes.

### Oil and Gas Camps

#### Map and Lists

- Data obtained from the BC Government Land and Data Warehouse (LRDW)
  - ⇒ File: OGC Ancillary and Other Applications (Public Version)
  - ⇒ Date: March 19, 2012
  - ⇒ Data Custodian: BC Oil and Gas Commission
- Contains information on deck sites, well sites, etc and included camps`
  - ⇒ Not able to determine which sites designated for camps are active.
- To generate a shapefile for the map and list of camps and affiliated companies the information was filtered by purpose “camps” as categorized by the available data.

#### Front Line Sources

- Northern Health Environmental Health Officers also provided information regarding industrial camps in their areas.

### Forestry Logging Camps

#### Map and Lists

- Data obtained from the BC Government Land and Data Warehouse (LRDW)
  - ⇒ File: Forest Tenure Special Use Permit Polygon
  - ⇒ Date: March 28, 2012
  - ⇒ Data Custodian: BC Government Forest Tenures Branch
- Contains information on all special use permits issued by the Forest Tenures Branch.
  - ⇒ Able to determine which camps were active, pending or retired.
- To generate a shapefile for the map and a list of camps and affiliated companies the information was filtered by special use code “logging camps, offices, etc” as categorized by the available data.
- No company information available.

## Front Line Sources

- Northern Health Environmental Health Officers also provided information regarding industrial camps in their areas.

## Drinking Water Licenses

### Map

- Data obtained from the BC Government Land and Data Warehouse (LRDW)
  - ⇒ File: Drinking Water Sources (Surface Water PODs)
  - ⇒ Date: March 19, 2012
  - ⇒ Data Custodian: BC Government Water Management Branch
- Contains information on all consumptive water license points of diversion.
- To generate a shapefile for the map and a list of camps and affiliated companies the information was filtered by license purpose “camps or work camps” as categorized by the available data.
- No company information available.

## Major Projects

### Map

- Data obtained from the BC Government Land and Data Warehouse (LRDW)
  - ⇒ File: Electronic Project Information Centre (EPIC) - Points
  - ⇒ Date: April 02, 2012
  - ⇒ Data Custodian: BC Environmental Assessment Office
- Contains information on projects that are currently or have been subject to environmental assessment review.
- No other attribute information available, although the description of the data indicates that it should provide information regarding the type of project and status in the assessment process. Attempts were made to obtain the full data set, but requests and inquiries were not acknowledged at the time this report was completed.
- Project ID numbers are provided with this data and attempts were made to cross-check this with other sources of information, with no results.
- Other sources tried include:
  - ⇒ Major Projects BC (Ministry of Forests, Lands and Natural Resource Operations): No project IDs available and accuracy of the information on their website is questionable as project descriptions did not match the region in which they are found.
- Link: [http://www.for.gov.bc.ca/major\\_projects/map.htm](http://www.for.gov.bc.ca/major_projects/map.htm)
  - ⇒ The BC Environmental Assessment Office has a database of projects but no common identifiers were apparent - such as project IDs.
- Link: [http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic\\_home.html](http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_home.html)



- ⇒ Canadian Environmental Assessment Office has a database of projects but no common identifiers were apparent - such as project IDs.
- Link: <http://www.ceaa.gc.ca/050/index-eng.cfm>

## Mines - Projects and Status (used for Lists in Appendix B)

### Lists

- Data obtained from BC Mining Association's Mines Map
  - ⇒ They have an interactive map that shows which mines are operating, reclaimed, in exploration, in the environmental assessment process.
- Link: <http://www.miningassociationbc.com/>
  - ⇒ This information was used to identify some mines and companies; unfortunately no related camp information or coordinates is available.
  - ⇒ This information was cross-checked with other information provided by 'front line sources'.

### Front Line Sources

- Northern Health Environmental Health Officers and Ministry of Energy and Mines staff also provided information regarding industrial camps in their areas.

## Appendix B List of Industrial Camps and Companies in Northern BC

Lists of camps presented in this appendix are based on best available information from a variety of sources and are subject to change given the fluctuating nature of industrial camps. Some camps may never be established, some may be retired and some currently active - all camps can either be temporary, seasonal or permanent in nature and their status is difficult to track. Please see Appendix A for more information on how the maps of industrial camps and related lists were generated.

### 1. Northeast Health Service Delivery Area

#### 1a: Oil and Gas Camps Over 1 Hectare (ha) and Related Companies

| Proponent                                 | # of camps | <1 ha | = 1-5 ha | > = 5 ha | Company Website  |
|---|------------|-------|----------|----------|--|
| Encana Corporation                        | 207        | 178   | 27       | 2        | <a href="http://www.encana.com/">www.encana.com/</a>   |
| Canadian Natural Resources Limited        | 128        | 125   | 3        | 0        | <a href="http://www.cnrl.com/">www.cnrl.com/</a>   |
| Shell Canada Limited                      | 83         | 80    | 3        | 0        | <a href="http://www.shell.ca">www.shell.ca</a>   |
| Talisman Energy Inc.                      | 72         | 62    | 9        | 1        | <a href="http://www.talisman-energy.com/">www.talisman-energy.com/</a>   |
| Husky Oil Operations Limited              | 57         | 52    | 5        | 0        | <a href="http://www.huskyenergy.com/">www.huskyenergy.com/</a>   |
| BP Canada Energy Company                  | 57         | 56    | 1        | 0        | <a href="http://www.bp.com">www.bp.com</a>   |
| Burlington Resources Canada (Hunter) Ltd. | 49         | 47    | 2        | 0        | <a href="http://www.conocophillips.com/EN/about/who_we_are/history/burlington/Pages/index.aspx">www.conocophillips.com/EN/about/who_we_are/history/burlington/Pages/index.aspx</a> |
| ConocoPhillips Canada Operations Ltd.     | 38         | 32    | 6        | 0        | <a href="http://www.conocophillips.ca/EN/Pages/index.aspx">www.conocophillips.ca/EN/Pages/index.aspx</a>   |
| EOG Resources Canada Inc.                 | 36         | 26    | 7        | 3        | <a href="http://www.eogresources.com/home/index.html">www.eogresources.com/home/index.html</a>   |
| Devon Canada Corporation                  | 36         | 32    | 2        | 2        | <a href="http://www.dvn.com/Pages/devon_energy_home.aspx">www.dvn.com/Pages/devon_energy_home.aspx</a>   |
| Apache Canada Ltd.                        | 36         | 32    | 4        | 0        | <a href="http://www.apachecorp.com/Operations/Canada/index.aspx">www.apachecorp.com/Operations/Canada/index.aspx</a>   |
| Quicksilver Resources Canada Incl.        | 22         | 6     | 15       | 1        | <a href="http://www.qrinc.com/operations/canada/">www.qrinc.com/operations/canada/</a>   |
| Penn West Petroleum Ltd.                  | 22         | 21    | 0        | 1        | <a href="http://www.pennwest.com/">www.pennwest.com/</a>   |
| Nexen Inc.                                | 19         | 14    | 3        | 2        | <a href="http://www.nexeninc.com/">www.nexeninc.com/</a>   |
| Petro-Canada                              | 19         | 17    | 2        | 0        | <a href="http://www.petro-canada.ca/">www.petro-canada.ca/</a>   |
| Imperial Oil Resources Limited            | 16         | 0     | 13       | 3        | <a href="http://www.imperialoil.ca/Canada-English/default.aspx">www.imperialoil.ca/Canada-English/default.aspx</a>   |
| Primewest Energy Inc. (TAQA North Ltd.)   | 16         | 9     | 7        | 0        | <a href="http://www.primewestenergy.com/">www.primewestenergy.com/</a> ; <a href="http://www.taqa.ae">www.taqa.ae</a>  |
| TAQA North Ltd.                           | 11         | 9     | 2        | 0        | <a href="http://www.taqa.ae">www.taqa.ae</a>   |
| Progress Energy Ltd.                      | 8          | 4     | 4        | 0        | <a href="http://www.progressenergy.com/">www.progressenergy.com/</a>   |
| Cequence Acquisitions Ltd.                | 8          | 7     | 1        | 0        | <a href="http://www.cequence-energy.com/">www.cequence-energy.com/</a>   |
| Nuvista Energy Ltd.                       | 7          | 6     | 1        | 0        | <a href="http://www.nuvistaenergy.com">www.nuvistaenergy.com</a>   |
| Legacy Oil & Gas Inc.                     | 6          | 4     | 2        | 0        | <a href="http://www.legacyoilandgas.com/">www.legacyoilandgas.com/</a>   |
| Canbriam Energy Inc.                      | 5          | 4     | 1        | 0        | <a href="http://www.canbriam.com">www.canbriam.com</a>   |
| Harvest Operations Corp.                  | 3          | 2     | 1        | 0        | <a href="http://www.harvestenergy.ca">www.harvestenergy.ca</a>   |
| Nal Petroleum (ACE) Ltd.                  | 3          | 2     | 1        | 0        | <a href="http://www.nal.ca">www.nal.ca</a>   |
| Encal Oil and Gas Ltd.                    | 1          | 0     | 1        | 0        | ?  |
| Tesla Exploration Ltd.                    | 1          | 0     | 1        | 0        | <a href="http://www.teslaexploration.com">www.teslaexploration.com</a>   |

**Source:** Land and Resource Data Warehouse on March 19, 2012. Some camps may not be active.

### 1b: Forestry Logging Camps and Related Districts

| Forest District | Number of Camps | Contact Information  |
|-----------------|-----------------|--|
| Peace           | 43              | <a href="http://www.for.gov.bc.ca/dpc/">www.for.gov.bc.ca/dpc/</a> |
| Mackenzie       | 3               | <a href="http://www.for.gov.bc.ca/dmk/">www.for.gov.bc.ca/dmk/</a> |
| Fort Nelson     | 2               | <a href="http://www.for.gov.bc.ca/dfn/">www.for.gov.bc.ca/dfn/</a> |
| <b>Total</b>    | <b>48</b>       |  |

**Source:** Land and Resource Data Warehouse on March 28, 2012.

### 1c: Camps and Workcamps with Drinking Water Licenses

| Type         | Number of Licenses | Contact Information |
|--------------|--------------------|---------------------|
| Workcamp     | 3                  | Not available       |
| Camp         | 2                  | Not available       |
| <b>Total</b> | <b>5</b>           |                     |

**Source:** Land and Resource Data Warehouse on March 19, 2012.

### 1d: Industrial Camps Identified in the Northeast HSDA

| Facility Name                | Capacity | Contractor/Company                                  |
|------------------------------|----------|---|
| HornRiver                    | 700      | PTI   |
| Kiwigana Lodge               | 475      | Compass Group                                       |
| Komi Camp                    | 400      | Compass Group                                       |
| Willow Creek Camp            | 325      | Grizzco   |
| Groundbirch Lodge            | 250      | Horizon North Camps and Catering;<br>Jomax Drilling |
| Red Willow Lodge             | 200      | Horizon; Red Rock Camos; Royal<br>Camp Services     |
| LXL (Haystack)               | 180      | Grizzco   |
| Geetla                       | 124      | PTI   |
| Sierra                       | 104      | PTI   |
| Grizzly Lodge                | 100      | Horizon   |
| Sasquatch Crossing Inn       | 100      | Mag and Mels  |
| Beaton Airport Camp          | 3 to 85  |   |
| Ventures Patry Camp          | 72       | Mag and Mels  |
| Jedney Camp                  | 60       | Progress Energy                                     |
| Buffalo Inn                  | 50       | Mag and Mels  |
| Devon Canada Komie           | 8 to 50  | Devon Canada  |
| D. Loenwen 127 camp          | 40       | Mag and Mels  |
| Bucking Horse River Lodge    | 35       | Bucking Horse River Lodge; CNRL;<br>Clean Harbors   |
| Buick Creek                  | 32       | Mag and Mels  |
| 801 Paramount                | 30       | Acho Camps and Catering                             |
| Lone Wolf Open Camp          | 30       | Mag and Mels; Northgate Industries                  |
| Conoco Phillips Canada Ltd.  | 25       | Conoco Phillips Canada Ltd.                         |
| LaPrairie Camp               | 25       | Grizzco   |
| Spectra                      | 25       | Compass Group                                       |
| Carbon Creek Industrial Camp | 24       | Carbon Creek Industrial Camp                        |
| Dechant Leasing              | 22       | Dechant Leasing                                     |
| Legacy                       | 20       | Acho Camps and Catering                             |
| nabors 34                    | 20       | PTI   |
| nabors 97                    | 20       | PTI; Western Camp Services                          |

| Facility Name                   | Capacity | Contractor/Company  |
|---------------------------------|----------|---|
| Devon Canada North Nig          | 7 to 18  | Devon Canada  |
| Devon Canada Tommy Lakes        | 12       | Devon Canada  |
| Devon Tommy Lakes               | 12       | Devon Canada  |
| J. Bueckert Ltd                 | 12       | J. Bueckert Ltd   |
| Only for Employees              | 11       | Only for Employees  |
| Fort Nelson Town camp           | 10       | Kledo Constuction   |
| Devon Canada Peggo              | 6 to 10  | Devon Canada  |
| North Nig                       | 9        | Devon Canada  |
| TAGA North Chinchaga            | 4 to 6   |   |
| Devon Canada Martin             | 2 to 4   | Devon Canada  |
| Devon Canada Monias             | 1 to 3   | Devon Canada  |
| Conoco Phillips Gutah Camp      | 2        | Conoco Phillips Canada Ltd.                                   |
| Devon Canada Kahnntan           | 0        | Devon Canada  |
| Devon Canada Wargen             | 0        | Devon Canada  |
| Devon Canada West Eagle Kitchen | 0        | Devon Canada  |
| Mag N' Mel's Buick Creek Camp   | 0        |   |
| Beaton Airport Camp             |          | R&G Lennex Contracting  |
| Camp 1                          |          | D. Loewen Ent.  |
| Camp 226                        |          | LRG   |
| Devon Peggo                     |          | Devon Canada  |
| Dillion Mine                    |          | Walter Energy/Pelly Construction;<br>Keyera Caribou Gas Plant |
| Goodlow Open Camp               |          |   |
| Kely Pile Camp                  |          | Key Pile Camp   |
| nabors 70                       |          | Elite Camp Services; Encana Corp                              |
| Ring Border Plant Camp          |          | Conoco Phillips   |
| Talisman Camp (T2)              |          | Grizzco   |

Source: Crystal Brown & Daisy Tam, EHOs, Northern Health – 23-March-2012

## 1e: Mines - Status and Related Companies - Northeast (BC Mining Association)

| Mine                  | Status                                | Company / Proponent   | Associated Camp                  |
|-----------------------|---------------------------------------|---|----------------------------------|
| Carbon Creek          | Advanced Exploration                  | Cardero Resource Corp. ( <a href="http://www.cardero.com/s/carbon_creek.asp">www.cardero.com/s/carbon_creek.asp</a> )     |                                  |
| Central South         | Advanced Exploration                  | Xstrata Coal ( <a href="http://www.xstratacoal.com/EN/Pages/default.aspx">www.xstratacoal.com/EN/Pages/default.aspx</a> ) | Yes, camp on maintenance.        |
| Roman Mountain        | Advanced Exploration                  | Peace River Coal ( <a href="http://www.peacerivercoal.com">www.peacerivercoal.com</a> )                                   |                                  |
| Willow Creek          | Advanced Exploration                  | Walter Energy Western Coal ( <a href="http://www.walterenergy.com">www.walterenergy.com</a> )                             | Yes, temporary (1-2 years), ~200 |
| Gething Coal Project  | Permitting / Environmental Assessment | Canadian Dehua International ( <a href="http://www.dehua.ca">www.dehua.ca</a> )   |                                  |
| Hermann               | Permitting / Environmental Assessment | Walter Energy Western Coal ( <a href="http://www.walterenergy.com">www.walterenergy.com</a> )                             |                                  |
| Horizon               | Permitting / Environmental Assessment | Peace River Coal ( <a href="http://www.peacerivercoal.com">www.peacerivercoal.com</a> )                                   |                                  |
| Brule Coal Mine       | Operating                             | Walter Energy Western Coal ( <a href="http://www.walterenergy.com">www.walterenergy.com</a> )                             | Yes, permanent for ~200          |
| Trend Coal            | Operating                             | Peace River Coal ( <a href="http://www.peacerivercoal.com">www.peacerivercoal.com</a> )                                   |                                  |
| Wolverine-Perry Creek | Operating                             | Walter Energy Western Coal ( <a href="http://www.walterenergy.com">www.walterenergy.com</a> )                             |                                  |

**Source:** BC Mining Association's Mines Map: [www.mining.bc.com](http://www.mining.bc.com). Accessed on April 10, 2012.  
 Associated camp information provided by Brian Oke, Inspector of Mines, Ministry of Energy and Mines on May 01, 2012

## 2. Northern Interior Health Service Delivery Area

### 2a: Forestry Logging Camps and Related Districts

| Forest District | Number of Camps | Contact Information  |
|-----------------|-----------------|--|
| Prince George   | 11              | <a href="http://www.for.gov.bc.ca/dpg/">www.for.gov.bc.ca/dpg/</a> |
| Mackenzie       | 9               | <a href="http://www.for.gov.bc.ca/dmk/">www.for.gov.bc.ca/dmk/</a> |
| Nadina          | 9               | <a href="http://www.for.gov.bc.ca/dnd/">www.for.gov.bc.ca/dnd/</a> |
| Fort St. James  | 7               | <a href="http://www.for.gov.bc.ca/dja/">www.for.gov.bc.ca/dja/</a> |
| Headwaters      | 2               | <a href="http://www.for.gov.bc.ca/dhw/">www.for.gov.bc.ca/dhw/</a> |
| Quesnel         | 2               | <a href="http://www.for.gov.bc.ca/dqu/">www.for.gov.bc.ca/dqu/</a> |
| Vanderhoof      | 2               | <a href="http://www.for.gov.bc.ca/dva/">www.for.gov.bc.ca/dva/</a> |
| Skeena          | 1               | <a href="http://www.for.gov.bc.ca/dss/">www.for.gov.bc.ca/dss/</a> |
| <b>Total</b>    | <b>43</b>       |  |

**Source:** Land and Resource Data Warehouse on March 28, 2012.

## 2b: Silviculture Companies with Potential Camps in 2012 - Northern Interior

| Licensee   | Contractor / Company                     | Company Website  |
|--|--|--|
| BC Timber Sales (multiple districts)                       | AKD                                      | No <b>website</b> - from Quesnel   |
|  | Artisan Reforestation                    | <a href="http://www.artisanreforestation.com">www.artisanreforestation.com</a> |
|  | Dynamic Reforestation                    | <a href="http://www.dynamicreforestation.com">www.dynamicreforestation.com</a> |
|  | Folklore Contracting                     | <a href="http://www.folklorecontracting.com">www.folklorecontracting.com</a>   |
|  | Next Generation Reforestation            | No website - from Beaverlodge  |
|  | Seneca Enterprises                       | <a href="http://www.seneca-enterprises.com">www.seneca-enterprises.com</a>     |
|  | Spectrum Resource Group                  | <a href="http://www.srgi.ca">www.srgi.ca</a>                                   |
|  | Summit Reforestation                     | <a href="http://www.summitreforestation.com/">www.summitreforestation.com/</a> |
|  | Windfirm Resources                       | <a href="http://www.windfirm.ca/">www.windfirm.ca/</a>                         |
| Canfor   | Folklore Contracting                     | <a href="http://www.folklorecontracting.com">www.folklorecontracting.com</a>   |
|  | Apex Reforestation                       | <a href="http://www.apex-reforestation.com">www.apex-reforestation.com</a>     |
|  | Brinkman & Associates Reforestation Ltd. | <a href="http://www.brinkman.ca">www.brinkman.ca</a>                           |
|  | Celtic Reforestation                     | <a href="http://www.celticreforestation.com">www.celticreforestation.com</a>   |
|  | Spectrum Resource Group                  | <a href="http://www.srgi.ca">www.srgi.ca</a>                                   |
| N/A  | IFS - Industrial Forestry Service Ltd.   | <a href="http://www.industrialforestry.ca">www.industrialforestry.ca</a>       |
| Lakeland Mills   | Apex Reforestation                       | <a href="http://www.apex-reforestation.com">www.apex-reforestation.com</a>     |
|  | Spectrum Resource Group                  | <a href="http://www.srgi.ca">www.srgi.ca</a>                                   |
| Carrier Lumber   | Artisan Reforestation                    | <a href="http://www.artisanreforestation.com">www.artisanreforestation.com</a> |
|  | Brinkman & Associates Reforestation Ltd. | <a href="http://www.brinkman.ca">www.brinkman.ca</a>                           |
| Dunkley Lumber Ltd.  | Artisan Reforestation                    | <a href="http://www.artisanreforestation.com">www.artisanreforestation.com</a> |
|  | Spectrum Resource Group                  | <a href="http://www.srgi.ca">www.srgi.ca</a>                                   |
|  | Venture North                            |  |
| Conifex - Mackenzie  | Apex Reforestation                       | <a href="http://www.apex-reforestation.com">www.apex-reforestation.com</a>     |
| East Fraser - Mackenzie                                    | Currently Unknown                        |  |
| West Fraser - Quesnel; Quesnel River Pulp; Quesnel Plywood | Apex Reforestation                       | <a href="http://www.apex-reforestation.com">www.apex-reforestation.com</a>     |
|  | Big Sky Silviculture Ltd.                | No website - from Vancouver  |
|  | Blue Collar Silviculture                 | No website - from Quesnel  |
|  | Spectrum Resource Group                  | <a href="http://www.srgi.ca">www.srgi.ca</a>                                   |
|  | Zanzibar                                 | <a href="http://www.zanzibar.ca/">www.zanzibar.ca/</a>                         |
| Hauer Bros - Valemount                                     | Gainer Res                               | No website - from Robson area  |
| Tolko - Quest Wood   | Blue Collar Silviculture                 | No website - from Quesnel  |

Source: Jim Green, EHO, Northern Health - 23-March-2012

## 2c: Camps and Workcamps with Drinking Water Licenses

| Type         | Number of Licenses | Contact Information |
|--------------|--------------------|---------------------|
| Workcamp     | 16                 | Not available       |
| Camp         | 2                  | Not available       |
| <b>Total</b> | <b>18</b>          |                     |

Source: Land and Resource Data Warehouse on March 19, 2012.

## 2d: Identified Industrial Camps in the Northern Interior HSDA

| Facility Name              | Capacity | Industry      |
|----------------------------|----------|---------------|
| Huckleberry Mine           | 250      | Mining        |
| Meadowview Lodge           | 10       | Not specified |
| Camp Watters Bunkhouse     |          | Not specified |
| Canfor-Northwood Pulp Mill |          | Forestry      |
| Frost Lake Camp            |          | Not specified |
| Hat Lake Camp              |          | Not specified |
| Itcha Mountain Outfitters  |          | Not specified |
| Kluskus Logging Camp       |          | Forestry      |
| Malaput Camp               |          | Not specified |
| Munro Camp                 |          | Not specified |
| Nanki Lake Camp            |          | Not specified |
| Ospika Camp                |          | Not specified |
| Raspberry Camp             |          | Not specified |
| Troll Camp                 |          | Not specified |
| Windy Point Inn            |          | Not specified |

**Source:** Angela Wheeler & Dale Chen, EHOs, Northern Health – 23-March-2012

## 2e: Mines - Status and Related Companies - Northern Interior (BC Mining Assoc.)

| Mine                 | Status                                | Company / Proponent  | Associated Camp  |
|----------------------|---------------------------------------|--|--|
| Frasergold           | Advanced Exploration                  | China Minerals Mining Corp. ( <a href="http://www.chinamineralsmining.com">www.chinamineralsmining.com</a> ) |  |
| Giscome Quarry       | Permitting / Environmental Assessment | Graymont Western Canada Inc. ( <a href="http://www.graymont.com">www.graymont.com</a> )                      |  |
| Chu Molybdenum       | Permitting / Environmental Assessment | TTM Resources ( <a href="http://www.ttmresources.ca">www.ttmresources.ca</a> )                               | Yes – temporary, ~100 people                           |
| Mt. Milligan Project | Permitting / Environmental Assessment | Thompson Creek Metals Inc. ( <a href="http://www.thompsoncreekmetals.com">www.thompsoncreekmetals.com</a> )  | Yes – temporary (~2 years) and housing, ~200+ people   |
| Gibraltar            | Operating                             | Taseko Mines Ltd. ( <a href="http://www.tasekomines.com">www.tasekomines.com</a> )                           |  |
| Kemess South         | Operating                             | AuRico Gold ( <a href="http://www.auricogold.com">www.auricogold.com</a> )                                   | Yes – reclamation mode but may have ~ 100 people there |
| Mount Polley         | Operating                             | Imperial Metals ( <a href="http://www.imperialmetals.com">www.imperialmetals.com</a> )                       |  |
| QR                   | Operating                             | Barkerville Gold Mines Ltd. ( <a href="http://www.bakervillegold.com">www.bakervillegold.com</a> )           |  |
| Shasta               | Operating                             | Sable Resources ( <a href="http://www.sableresources.com">www.sableresources.com</a> )                       | Yes, small, permanent, seasonal, ~10 people            |

**Source:** BC Mining Association's Mines Map: [www.mining.bc.com](http://www.mining.bc.com) . Accessed on April 10, 2012.  
 Associated camp information provided by Brian Oke, Inspector of Mines, Ministry of Energy and Mines on May 01, 2012.

### 3. Northwest Health Service Delivery Area

#### 3a: Forestry Logging Camps and Related Districts

| Forest District | Number of Camps | Contact Information  |
|-----------------|-----------------|--|
| Haida Gwaii     | 11              | <a href="http://www.for.gov.bc.ca/dqc/">www.for.gov.bc.ca/dqc/</a> |
| Kalum           | 2               | <a href="http://www.for.gov.bc.ca/dkm/">www.for.gov.bc.ca/dkm/</a> |
| Mackenzie       | 2               | <a href="http://www.for.gov.bc.ca/dmk/">www.for.gov.bc.ca/dmk/</a> |
| Fort St. James  | 1               | <a href="http://www.for.gov.bc.ca/dja/">www.for.gov.bc.ca/dja/</a> |
| North island    | 1               | <a href="http://www.for.gov.bc.ca/dni/">www.for.gov.bc.ca/dni/</a> |
| Skeena          | 1               | <a href="http://www.for.gov.bc.ca/dss/">www.for.gov.bc.ca/dss/</a> |
| <b>Total</b>    | <b>18</b>       |  |

Source: Land and Resource Data Warehouse on March 28, 2012.

#### 3b: Camps and Workcamps with Drinking Water Licenses

| Type         | Number of Licenses | Contact Information |
|--------------|--------------------|---------------------|
| Workcamp     | 14                 | Not available       |
| Camp         | 7                  | Not available       |
| <b>Total</b> | <b>21</b>          |                     |

Source: Land and Resource Data Warehouse on March 19, 2012.

#### 3c: Industrial Camps Identified in the Northwest HSDA

| Facility Name                                     | Capacity                       |                      | Industry              |
|---|--------------------------------|----------------------|-----------------------|
| Kitimat Modernization Project                     | 600<br>(1500 projected in ph3) | Bechtel Corporation  | Industry              |
| Forrest Kerr Mine Project                         | 440                            |                      | Mining                |
| Galore Creek Mining Corporation                   | -80-400+                       |                      | Mining                |
| Kemess Mine                                       | 70 to 100                      |                      | Mining                |
| Summit Reforestation & Forest Management Unit # 5 | 85-94                          | Summit Reforestation | Forestry/Silviculture |
| Summit Reforestation & Forest Management Unit # 4 | 85-93                          | Summit Reforestation | Forestry/Silviculture |
| Summit Reforestation & Forest Management Unit # 3 | 85-92                          | Summit Reforestation | Forestry/Silviculture |
| Summit Reforestation & Forest Management Unit # 2 | 85-91                          | Summit Reforestation | Forestry/Silviculture |
| Summit Reforestation & Forest Management Unit # 1 | 85-90                          | Summit Reforestation | Forestry/Silviculture |
| Windfirm Resources Inc.                           | 80                             | Windfirm Resources   | Forestry/Silviculture |
| Copper River Ranch                                | 60                             |                      | Not Specified         |
| RCDC  | 60                             |                      | Not Specified         |
| Bob Quinn Lodge                                   | 50                             |                      | Not Specified         |
| Kemano Staffhouse - Industrial Camp               | 50                             |                      | Utilities/Industry    |
| Alice Arm Lodge                                   | 30                             |                      | Not Specified         |
| Avanti Kitsault Mine 2011                         | 30                             |                      | Not Specified         |
| Dolly Varden Silver                               | 30                             |                      | Not Specified         |
| Kildala Camp One                                  | 27                             |                      | Not Specified         |
| Eskay Creek Mine Industrial Camp                  | 20                             |                      | Mining                |
| Great Glacier Salmon Camp                         | 10                             |                      | Not Specified         |

Source: Sabrina Dosanjh & Shane Wadden, EHOs, Northern Health – 23-March-2012



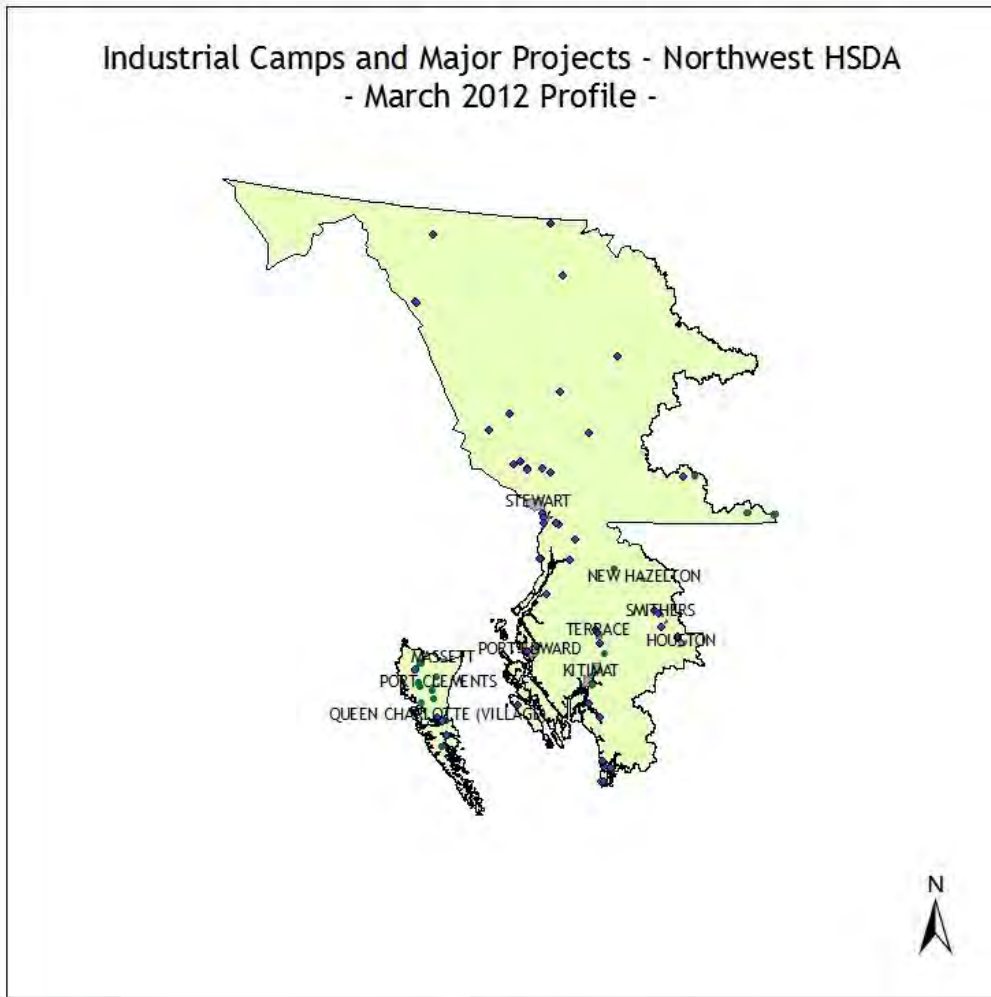
### 3d: Mines - Status and Related Companies - Northwest (BC Mining Association)

| Mine                    | Status                                | Company / Proponent   | Associated Camp |
|-------------------------|---------------------------------------|---|-----------------|
| Berg                    | Advanced Exploration                  | Thompson Creek Metals Inc. ( <a href="http://www.thompsoncreekmetals.com">www.thompsoncreekmetals.com</a> )           | Likely - remote |
| Big Bull                | Advanced Exploration                  | Chieftain Metals Inc. ( <a href="http://www.chieftainmetals.com">www.chieftainmetals.com</a> )                        | Likely - remote |
| Foremore                | Advanced Exploration                  | Roca Mines Inc. ( <a href="http://www.rocamines.com">www.rocamines.com</a> )  | Likely - remote |
| Bear River Gravel       | Permitting / Environmental Assessment | Glacial Aggregates Inc. ( <a href="http://www.glacialagg.ca">www.glacialagg.ca</a> )                                  | Likely - remote |
| Davidson Property       | Permitting / Environmental Assessment | Thompson Creek Metals Inc. ( <a href="http://www.thompsoncreekmetals.com">www.thompsoncreekmetals.com</a> )           | Likely - remote |
| Dome Mountain           | Permitting / Environmental Assessment | Metal Mountain Resources Inc. ( <a href="http://www.metalmountainresources.com">www.metalmountainresources.com</a> )  | Likely - remote |
| Galore Creek            | Permitting / Environmental Assessment | NovaGold / Teck Resources ( <a href="http://www.novagold.com">www.novagold.com</a> )                                  | Likely - remote |
| Kerr-Sulphrets-Mitchell | Permitting / Environmental Assessment | Seabridge Gold Inc. ( <a href="http://www.seabridgegold.net">www.seabridgegold.net</a> )                              | Likely - remote |
| Kitsault                | Permitting / Environmental Assessment | Avanti Mining Inc. ( <a href="http://www.avantimining.com">www.avantimining.com</a> )                                 | Likely - remote |
| Kutcho Creek            | Permitting / Environmental Assessment | Capstone Mining Corp. ( <a href="http://www.capstonemining.com">www.capstonemining.com</a> )                          | Likely - remote |
| Morrison                | Permitting / Environmental Assessment | Pacific Booker Minerals ( <a href="http://www.pacificbooker.com">www.pacificbooker.com</a> )                          | Likely - remote |
| Mount Klappan           | Permitting / Environmental Assessment | Fortune Minerals Limited ( <a href="http://www.fortuneminerals.com">www.fortuneminerals.com</a> )                     | Likely - remote |
| Red Chris               | Permitting / Environmental Assessment | Imperial Metals ( <a href="http://www.imperialmetals.com">www.imperialmetals.com</a> )                                | Likely - remote |
| Schaft Creek            | Permitting / Environmental Assessment | Copper Fox Metals Inc. ( <a href="http://www.copperfoxmetals.com/s/Home.asp">www.copperfoxmetals.com/s/Home.asp</a> ) | Likely - remote |
| Tulsequah Chief         | Permitting / Environmental Assessment | Chieftain Metals Inc. ( <a href="http://www.chieftainmetals.com">www.chieftainmetals.com</a> )                        | Likely - remote |
| Turnagain               | Permitting / Environmental Assessment | Hard Creek Nickel ( <a href="http://www.hardcreek.com">www.hardcreek.com</a> )  | Likely - remote |
| Endako                  | Operating                             | Thompson Creek Metals Inc. ( <a href="http://www.thompsoncreekmetals.com">www.thompsoncreekmetals.com</a> )           | Yes.            |
| Fireside                | Operating                             | Fireside Minerals Inc. ( <a href="http://www.firesideminerals.com">www.firesideminerals.com</a> )                     | Likely - remote |
| Huckleberry             | Operating                             | Imperial Metals ( <a href="http://www.imperialmetals.com">www.imperialmetals.com</a> )                                | Yes (NI HSDA)   |

Source: BC Mining Association's Mines Map: [www.mining.bc.com](http://www.mining.bc.com). Accessed on April 10, 2012

## Appendix C: Maps

### Map A: Industrial Camps and Major Projects - NW HSDA: March 2012 Profile



**Legend**

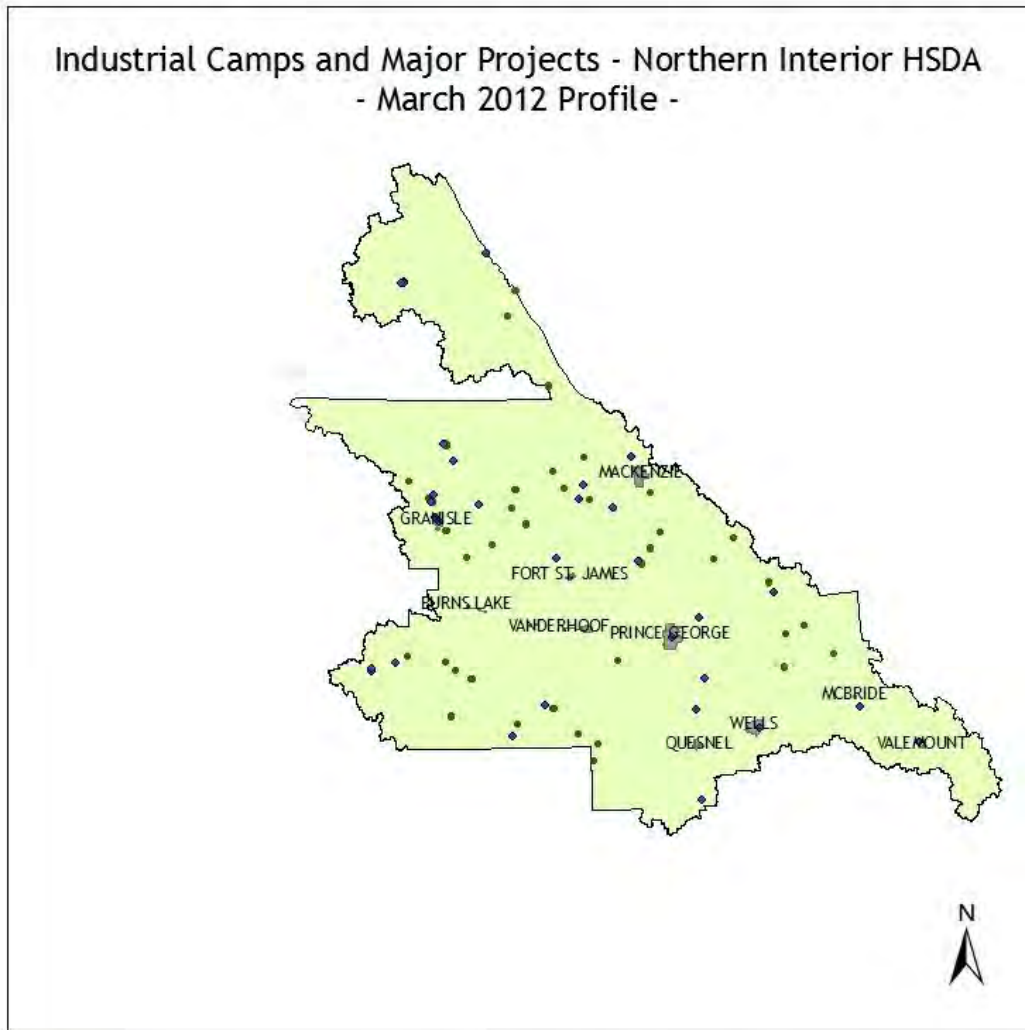
- Forestry Logging Camps with Permits
- ◆ Camps/Work Camps with Water Licenses
- ◆ Major Projects - NW- May Include Camps

- 18 Forestry Logging Camps with Special Use Permits
  - 21 Camps or Work Camps with Drinking Water Licenses
  - 33 Major Projects Identified - May include camps
- \*Based on best available information.  
Some duplication may occur.

Source: This map is compiled using publicly available information from the Land and Resource Data Warehouse.  
[www.lrdw.ca](http://www.lrdw.ca)

Date: 02/05/2012

## Map B: Industrial Camps and Major Projects - NI HSDA: March 2012 Profile



**Legend**

- Forestry Logging Camps with Permits
- ◆ Camps/Work Camps with Water Licenses
- ◆ Major Projects - NI - May Include Camps

- 43 Forestry Logging Camps with Special Use Permits
- 18 Camps or Work Camps with Drinking Water Licenses
- 15 Major Projects Identified - May include camps

\* Based on best available information.  
Some duplication may occur.

Source: This map is compiled using publicly available information from the Land and Resource Data Warehouse.  
[www.lrdw.ca](http://www.lrdw.ca)

Date: 19/04/2012

**Map C: Industrial Camps and Major Projects - NE HSDA: March 2012 Profile**



**Legend**

- Oil and Gas Camps - Large - Over 5ha - NE HSDA
- Oil and Gas Camps - Medium - 1 to 5ha - NE HSDA
- Active Forestry Camps with Special Use Permits - NE HSDA
- Camps and Work Camps with Water Licenses - NE HSDA
- Major\_Projects\_NE - May Include Camps

- 15 Large Oil and Gas Camps (More than 5ha)
- 128 Medium Oil and Gas Camps (1-5ha)
- 1424 Small Oil and Gas Camps (Less than 1ha)
- 48 Forestry Logging Camps with Special Use Permits
- 5 Camps or Work Camps with Drinking Water Licenses
- 50 Major Projects Identified - May include camps

\*Based on best available information.  
 Some duplication may occur.

Source: This map is compiled using publicly available information from the Land and Resource Data Warehouse.  
[www.lrdw.ca](http://www.lrdw.ca)

Date: 02/05/2012

## Appendix D Sources of Information for Environmental Scan

### Industry Associations: Canada & Australia

#### International

International Council on Mining and Metals

- Leading Indicators Work: <http://www.icmm.com/our-work/projects/articles/leading-indicators>
- Health Risk Assessment Project: <http://www.icmm.com/page/14606/health-risk-assessment>

#### Canada

Canadian Association of Petroleum Producers:

<http://www.capp.ca/environmentCommunity/healthSafety/Pages/default.aspx>

ENFORM: The Safety Association for Canada's Upstream Oil and Gas Industry: <http://www.enform.ca/>

Mining Association of Canada – Towards Sustainable Mining

- Safety and Health Protocol:  
[http://www.mining.ca/www/media\\_lib/TSM\\_Documents/protocols\\_2012/TSM%20SAFETY%20AND%20HEALTH%20PROTOCOL%20-%20February%202012.pdf](http://www.mining.ca/www/media_lib/TSM_Documents/protocols_2012/TSM%20SAFETY%20AND%20HEALTH%20PROTOCOL%20-%20February%202012.pdf)
- Safety and Health Framework:  
[http://www.mining.ca/www/media\\_lib/TSM\\_Documents/2011\\_protocols/Safety%20Framework.pdf](http://www.mining.ca/www/media_lib/TSM_Documents/2011_protocols/Safety%20Framework.pdf)

#### British Columbia

BC Forest Safety Council: <http://www.bcforestsafe.org/>

BC Mining Association: [http://www.mining.bc.ca/health\\_and\\_safety.htm](http://www.mining.bc.ca/health_and_safety.htm)

BC Petroleum Contractors Association: <http://www.bcpetroleum.com/>

Industry Training Authority: <http://www.itabc.ca/site3.aspx>

#### Alberta

Alberta Forest Producers Association: <http://www.albertaforestproducts.ca/>

Northwest Mining Association: <http://www.nwma.org/>

#### Ontario

Ontario Forestry Association: <http://www.oforest.ca/>

Ontario Mining Association: <http://www.oma.on.ca/en/>

Ontario Petroleum Contractors Association: <http://www.opcaonline.org/>

Ontario Petroleum Institute: <http://www.ontpet.com/>

#### Australia

APPEA: Australian Petroleum Production and Exploration Association Ltd.: <http://www.appea.com.au/oil-and-gas-in-australia/safety-and-health/objectives.html>

Mineral Council of Australia: [http://www.minerals.org.au/focus/safety\\_health](http://www.minerals.org.au/focus/safety_health)

National Association of Forest Industries: <http://www.nafi.com.au/site/>



## Companies: Operating in Northern BC

### Forestry

- APEX Reforestation: no website
- Artisan Reforestation: <http://www.artisanreforestation.com/>
- Brinkman & Associates: <http://www.brinkmanforest.ca/>
- Spectrum Resource Group: <http://srgi.ca/about.php> (vision/mission)
- Summit Camps: <http://www.summitcamps.ca/> (contractor, catering)
- Summit Reforestation: <http://www.summitreforestation.com/>

### Mining

- Chieftain Metals Inc:
  - Committee: <http://www.chieftainmetals.com/corporate-tech-enviro-health-safety.php>
- Imperial Metals: <http://www.imperialmetals.com/s/Home.asp>
- Thompson Creek Metals:
  - Corporation Social Responsibility <http://www.thompsoncreekmetals.com/s/CRP.asp>
- Walter Energy Western Coal: <http://www.walterenergy.com/>

### Oil and Gas

- Imperial Oil:
  - Work Camp Safety Inspections: [http://www.imperialoil.com/Canada-English/community\\_ccr2009\\_safety\\_health.aspx](http://www.imperialoil.com/Canada-English/community_ccr2009_safety_health.aspx)
  - Health Policy: [http://www.imperialoil.com/Canada-English/Files/health\\_policy.pdf](http://www.imperialoil.com/Canada-English/Files/health_policy.pdf)
- EOG Resources Canada Inc.: <http://www.eogresources.com/home/index.html>
  - Kitimat LNG Facility: <http://www.kitimatlngfacility.com/>
- Encana Corporation: <http://www.encana.com/about/responsibility/reports/cr2010/health-safety/health/>
- Nexen Inc.: <http://www.nexeninc.com/en/ResponsibleDevelopment/HealthandSafety.aspx>
- Devon Canada Corporation: [http://www.dvn.com/CorpResp/ehs/Pages/health\\_and\\_safety.aspx](http://www.dvn.com/CorpResp/ehs/Pages/health_and_safety.aspx)

### Other (Contractor)

- Bechtel Corporation: <http://www.bechtel.com/home.html>  
Search 'health' on their website and there are a number of publications & factsheets.

## Health Sector: BC, Alberta, Ontario & Australia

### Canada

#### Alberta Health Services:

- Disease Prevention, Wellness & Lifestyle (limited): <http://www.albertahealthservices.ca/572.asp>
- Environmental Public Health – Work Camps:  
<http://www.albertahealthservices.ca/services.asp?pid=service&rid=1052215>
- Northern Addictions Centre / Business & Industry Clinic:  
<http://www.albertahealthservices.ca/services.asp?pid=service&rid=1039204>
- Population Health: <http://www.albertahealthservices.ca/1196.asp>

**Ontario:**

Northern Diabetes Health Network: <http://www.ndhn.com/>

Northeast Cancer Centre: <http://www.hsnsudbury.ca/PortalEn/rcp/Home/tabid/84/Default.aspx>

Northeast Local Health Integration Network: <http://www.nelhin.on.ca/home.aspx?langtype=4105>

- *Chronic Disease Prevention and Management:* [http://www.nelhin.on.ca/page\\_priority.aspx?id=11684](http://www.nelhin.on.ca/page_priority.aspx?id=11684)
- *Mental Health and Addictions:*  
[http://www.nelhin.on.ca/page\\_priority.aspx?id=3778&ekmensele=e2f22c9a\\_394\\_514\\_btlink](http://www.nelhin.on.ca/page_priority.aspx?id=3778&ekmensele=e2f22c9a_394_514_btlink)

**Australia**

*Queensland Government:*

- Communicable Diseases Branch: <http://www.health.qld.gov.au/ph/cdb/default.asp>
- Health Promotion Branch: <http://www.health.qld.gov.au/ph/hpu/default.asp>
- Mental Health: <http://www.health.qld.gov.au/mentalhealth/>

*Government of Western Australia:*

- Department of Health: <http://www.healthnetworks.health.wa.gov.au/home/>
- Environmental health, food, water *and* hazards:  
[http://www.public.health.wa.gov.au/1/1060/2/environmental\\_health\\_food\\_water\\_and\\_hazards.pm](http://www.public.health.wa.gov.au/1/1060/2/environmental_health_food_water_and_hazards.pm)
- Health Promotion Strategic Framework:  
[http://www.public.health.wa.gov.au/2/1588/2/health\\_promotion\\_strategic\\_framework.pm](http://www.public.health.wa.gov.au/2/1588/2/health_promotion_strategic_framework.pm)
- Mental Health Commission: <http://www.mentalhealth.wa.gov.au/Homepage.aspx>

*Rural and Remote Mental Health:* [http://www.mentalhealth.wa.gov.au/ournewapproach/rural\\_remote.aspx](http://www.mentalhealth.wa.gov.au/ournewapproach/rural_remote.aspx)

## Appendix E Other Sources of Information and Data

Some potential sources of information and data for the development of a position statement on health promotion and industrial camps are outlined below. This list is not exhaustive and it should be noted that the necessary data for industrial camps in Northern BC may not exist or be easily accessible. These are some starting points and potential partners or collaborators in compiling information for and working towards evidence-based positions and strategies in the coming months.

### British Columbia Statistics: [www.bcstats.gov.bc.ca](http://www.bcstats.gov.bc.ca)

- British Columbia Statistics (BC Stats) is an incredible resource and offers access to a variety of data and analysis in the areas of: Aboriginal peoples, business and industry, census, demography, economy, employee research, environmental statistics, exports and imports, geography, labour and income, and social statistics. BC Stats also provides access to a number of publications and periodicals.
- Major Projects Inventory: “The British Columbia Major Projects inventory is a comprehensive database containing information on major development activities in British Columbia. Information on the location and status of capital projects over \$15 million (Cdn.) in capital cost, or \$20 million in the Lower Mainland area, for mining, oil and gas, manufacturing, transportation, utilities, hotel and residential construction projects are all available at your fingertips.”  
<http://www.bcstats.gov.bc.ca/StatisticsBySubject/BusinessIndustry/MajorProjectsInventory.aspx>
  - This information is easily accessible through downloadable in either PDF or Excel formats. A great resource! December 2011 information accessed on March 27, 2012 at:  
[http://www.jti.gov.bc.ca/ministry/major\\_projects\\_inventory/index.htm](http://www.jti.gov.bc.ca/ministry/major_projects_inventory/index.htm).

### Canadian Institute for Health Information (CIHI): [www.cihi.ca](http://www.cihi.ca)

- The Canadian Institute for Health Information offers a range of products and services, for a fee, and works in the areas of health system performance, spending and health workforce, and factors influencing health. CIHI may be able to assist with compiling data specific to Northern Health’s interest in upstream risk factors depending on available information and resources.

### Centre for Health Services and Policy Research (CHSPR) – UBC: [www.chspr.ubc.ca](http://www.chspr.ubc.ca)

- This research centre, located at UBC, is involved in a range of population health and health services projects including: health human resources, health care use and effectiveness, and primary health care. This may be a valuable source of information in the development of the position paper and the researchers affiliated with this centre may be able to access data on behalf of Northern Health if necessary.

### Environmental Assessment Office (EAO): [www.eao.gov.bc.ca](http://www.eao.gov.bc.ca)

- **e-PIC:** Searchable database of current, approved and pending major projects subject to an environmental review in British Columbia. Accessed on April 03, 2012 at:  
[http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic\\_home.html](http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_home.html).
- **Maps of Projects:** Various publicly available maps of major projects in British Columbia. Accessed on April 03, 2012 at: <http://www.eao.gov.bc.ca/maps.html>.



- Environmental Assessment Statistics: Some statistics provided by the EAO providing context for interpreting the types and trends of projects. Accessed on April 03, 2012 at: <http://www.eao.gov.bc.ca/Statistics.html>.

### Major Projects BC – Ministry of Forests, Lands and Natural Resource Operations (FLRNO): [www.for.gov.bc.ca/major\\_projects/](http://www.for.gov.bc.ca/major_projects/)

- Current Projects - Interactive Map: A map of current clean energy, mining, oil and gas, tourist destination resort, utilities and other major projects in BC is available at: [http://www.for.gov.bc.ca/major\\_projects/map.htm](http://www.for.gov.bc.ca/major_projects/map.htm) (Accessed on April 03, 2012). Each project illustrated is labeled by project name, activity, region, location and a short project description is provided. A spreadsheet database itemizing the projects is available for download and includes the project's status in the environmental assessment process, as well as its coordinates. However, the accuracy of this information needs to be verified before it is used as names of projects and their descriptions on the map do not always seem to correspond to the correct location as depicted.

### Ministry of Energy and Mines:

- Notice of Work: Companies are required to submit a notice of work. As these would be tracked by MEM, perhaps this could be a potential source of information for identifying industrial camps and/or Northern Health could receive notification when such an application is filed related to an industrial camp.
- Recent correspondence with MEM staff indicate that a notice of work does not provide additional information about whether a camp or project is active, or whether the application is, in fact, approved.

### Partnership for Work, Health & Safety (UBC & WorkSafeBC): <http://pwhs.ubc.ca/>

- Work being done by a UBC and WorkSafeBC partnership focuses on different aspects of worker health and safety including: injury and disease surveillance, policy and evaluation and determinants of work injury and illness - including shiftwork and sleep disorders.
- This may be a prime source of potential information and/or collaboration for Northern Health moving forward.

### Population Data BC: <http://www.popdata.bc.ca/>

- "Population Data BC is a multi-university, data and education resource facilitating interdisciplinary research on the determinants of human health, well-being and development. We offer researchers access to one of the world's largest collections of health care, health services and population health data, and a comprehensive education and training service on how to best use those data."
- This organization has various data available from WorkSafeBC dating back to 1987 which may be of use in developing a position statement.
- Other data includes: health care and health services, population and demographic information, and spatial data (great for mapping!).

## Statistics Canada

- A wide range of socio-economic, population, demographic, health and industry related information is available through StatsCan. For a fee, requests for specific 'data runs' can be submitted to tailor to your needs - depending on available data.
- Of specific interest to Northern Health is the 'Health in Canada' department:  
<http://www4.statcan.gc.ca/health-sante/index-eng.htm>

## WorkSafeBC: [www.worksafebc.com](http://www.worksafebc.com)

- Research Secretariat: WorkSafeBC also has a Research Secretariat. Although their focus is on occupational health and safety, this department could be a possible partner in gathering and compiling information specific to industrial camps.
  - Website: [http://worksafebc.com/contact\\_us/research/default.asp](http://worksafebc.com/contact_us/research/default.asp)
- Nature of Injury Codes: Injuries reported to WorkSafeBC are coded and it may be possible to link injuries back to underlying health issues/upstream risk factors. This could be done in conjunction with their research department. A list of injury codes is available at:
  - [http://www.worksafebc.com/health\\_care\\_providers/health\\_care\\_practitioners/hospitals/default.asp](http://www.worksafebc.com/health_care_providers/health_care_practitioners/hospitals/default.asp) (Accessed on April 03, 2012)
- Notice of Project: Companies are required to file Notices of Projects with WorkSafeBC. These records are a possible source of information for further tracking of industrial camps if deemed appropriate.
  - [http://worksafebc.com/insurance/managing\\_your\\_account/notice\\_of\\_project/default.asp](http://worksafebc.com/insurance/managing_your_account/notice_of_project/default.asp) (Accessed on April 03, 2012)

