

Fortune Minerals Ltd. - NICO Project - EA0809-004 [2009]
Government of the Northwest Territories

Technical Report

June 19, 2012



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INTRODUCTION

The Government of the Northwest Territories (GNWT) has reviewed the Fortune Minerals Ltd. NICO Project Developer's Assessment Report, Appendices, Annexes and additional documents filed during the Environmental Assessment (EA). The GNWT has participated in all phases of the EA and have met several times with Fortune Minerals' representatives and consultants to discuss any issues or questions the GNWT had throughout the process. Minutes from those meetings are posted on the Public Registry.

This Technical Report is composed of two parts:

1. Socio-economic impacts
2. Environmental impacts (focusing on Caribou and including air quality)

PART 1 – SOCIO-ECONOMIC IMPACTS

Mitigation Measures

It is important to fully understand the predicted socio-economic impacts of the NICO project and the mitigation measures and other commitments that Fortune Minerals Ltd (Fortune) will undertake.

In addition to Fortune's commitments documented in Appendix 1.III of the Developer's Assessment Report (DAR), Fortune has made several additional commitments which are documented in information request responses, discussion at the technical meetings or through meetings between the developer and parties. The GNWT recommends all commitments, particularly mitigation measures, documented during the environmental assessment process be posted to the public registry prior to the Public Hearings. In this way, the commitments can be considered in parties' final arguments.

Recommendation:

The GNWT recommends that an updated commitments table be submitted to the public registry prior to the public hearing.

Employment

The terms of reference ask the developer to provide:

- An estimate of human resource requirements for the development
- An assessment of the likely percentage of direct employment for northern and Aboriginal residents as well as any target goals for northern and Aboriginal employment
- A description of any barriers to direct or contract employment including
 - Skills gaps
 - Hiring and retention policies
 - Barriers to maximizing regional and Aboriginal employment
- Plans, strategies and commitments for maximizing direct employment of Aboriginal and northern people
- Employment policies for Aboriginal and other northern women
- Plans strategies or other commitments the developer has to support the mine-ready workforce, career paths in mining and assist training programs
- Whether and how the developer's strategies and commitments for maximizing Aboriginal and northern employment will extend to contractors

The GNWT had difficulty determining what impact the NICO Project would have on employment in the NWT as the DAR seems to present employment information differently throughout the document. As a result, there appears to be inconsistencies in the employment figures and it is difficult to distinguish between total direct employment and total cumulative employment, including indirect and induced. It is also not clear whether employment numbers are presented as project totals or if they only include territorial employment as references are made to “northern employment.”

For example, Section 16.2.4.2.1 (page 16-51) states “a cumulative total of 288 FTEs will be created during construction, 5818 FTEs during operations and 150 FTEs during closure. The total cumulative effect on employment for the entire NICO Project (construction, operations, and closure combined) is 6256 FTEs.” However, in section 3.13.2 (page 3-89) of the DAR, the direct employment total for FTEs over the construction, operations and closure phase of the NICO Project is stated as 2867. Also see Table 16.1.2-1.

16.2.5.2.5 Page 16-72 of the DAR states “288 FTEs of employment within the NWT during construction; 480 FTEs of employment within the NWT during the 2-year Underground and Open Pit phase of operations; 297 FTEs of employment within the NWT during the rest of the operations phase (16-year Open Pit); and 150 FTEs of employment within the NWT during the closure and post-closure phase (20 years).”

There appears to be some discrepancy between the numbers of FTEs in different parts of the DAR as well as the years of operation: “operations “estimated at 16 years” (page 3-89 and 16-51) but then on page 3-89 “the operating mine life is estimated to be 18 years in duration.”

Information provided to the GNWT on May 14, 2012 provided employment predictions for each phase of the proposed mine. These totals included the following workforce percentages, from person year totals of direct employment:

- Construction (18 month phase)
 - 334 Person Years (50.5% northern, 43.7% Aboriginal)
- Underground Operations (8 month phase concurrent with the open pit)
 - 194 Person Years (78.9% northern, 51 % Aboriginal)
- Open Pit Operations (18 year phase)
 - 142 Person Years (82% northern, 57% Aboriginal)
- Decommissioning (2 year phase)
 - 30 Person Years (50% northern, 25% Aboriginal)
- Post-closure monitoring (10 years)
 - 5 Person Years (80% northern, 60% Aboriginal)

Recommendation:

The GNWT recommends that Fortune clarify:

- The discrepancy regarding the FTEs and provide an explanation of how these totals were calculated in order to help the departments understand why the totals differ throughout the document.
- The duration of the various phases of the mine life. For example, in the DAR the underground phase is two (2) years but in the information provided May 14, 2012 the underground operations are eight (8) months. The length of time for closure and post closure has also changed from 20 years to 12 years.

The GNWT recognizes that the most recent employment prediction made by Fortune are higher than the cumulative figures achieved by the three diamond mines (30% Aboriginal and 59% Northern) and supports Fortune's hiring predictions for the NICO project. The GNWT also acknowledges that Fortune has the following hiring goals for its contractors during construction and operations: 60-80% northern, of which 30-50% to be Aboriginal. To ensure these commitments are extended to Fortune's contractors, contractors will be "directed through contractual agreements to make every effort to use labour from the Wek'eezhi Settlement Area." (DAR Section 16.2.7.2.1).

Where the tables (16.1.2-1) indicate "northern numbers", the DAR (Section 16.2.4.2.1) states that northern refers to 'local northern residents'. The GNWT also notes Fortune's commitment to a Northern Hire Policy which reads: "Hiring preference will be given to the following persons in order of priority": (DAR Section 3.13.3 page 3-90)

- Tlicho citizens from the communities of Behchoko, Whati, Gameti and Wekweeti, and Tlicho citizens residing in Yellowknife;
- NWT First Nations and Métis persons residing in Yellowknife, N'Dilo, and Detah;
- Yellowknife, N'Dilo and Detah residents;
- NWT residents; and
- Canadian residents" (DAR section 3.13.4)

Need for Southern Workers

Section 16.2.7.2.1 of the DAR (page 16-76) indicates that "For the NICO Project, there may be a need to use labour imported from southern provinces. Typically during construction, a large influx of skilled contract workers will move from project to project, these workers generally do not intend to relocate or make a permanent home in the area. The need for southern workers is also referenced in Section 16.2.11.2.1 (page 16-90) "the present labour supply, however, is not large enough to be able to accommodate most of the employment and contracting opportunities." The same section also notes "It is highly likely that workers from

other parts of Canada also will be employed by the NICO Project especially during construction.”

Furthermore, the Section 6.0 of the DAR (page 23) states “There may be a need to hire workers from outside the Northwest Territories due to a shortage of trained mine workers, but as some of the existing mines begin to wind down over the next few years, some experienced workers will be able to shift to the NICO Project.” This issue is further addressed in Section 16.2.6.2.2 (page 16 -78) of the DAR which reads “Diavik is expected to discontinue their open pit mining operations in 2012. This will release a substantial number of highly trained and motivated Aboriginal workers as well as other northern workers who can fill vacancies as the NICO Project ramps up.”

Recommendation

The GNWT recommends that Fortune:

- provide a forecast of how many workers and for which positions it expects to hire southern workers for each phase of the project.
- indicate the pick-up point(s) for southern workers and whether they will receive a supplemental travel allowance.

BHP Billiton is expanding its Misery open pit operations and is currently hiring experienced mine workers. In addition, DeBeers Gahcho Kue Project is also an open pit operation currently going through the environmental assessment process and will also be looking to hire experienced open pit workers. Depending on the alignment of proposed project timelines, these trained Aboriginal and northern employees Fortune anticipates hiring may not be available for recruitment so meeting its hiring predictions may be more challenging.

Recommendation

The GNWT recommends that Fortune:

- explain how it will mitigate competition with other mines for experienced and trained mine employees.

Travel to Mine Site

The NICO Project is in close proximity to the Tlicho communities which may be a recruitment advantage. Page 16 – 59 of the DAR states “employees will be provided with free scheduled round-trip, work-related transportation from the following LSA communities: Yellowknife, Behchoko, Whati and Gameti. Wekweekti will be fly-in only for any employees who reside there,” and that there will be a daily bus from Whati for 10 hour shifts. The DAR notes the bus transportation will be available from Gameti, Wekweekti and Behchoko but does not clearly state transportation arrangements for potential Yellowknife, Dettah, N’dilo residents or other northerners.

Recommendation

The GNWT recommends that Fortune:

- clarify transportation arrangements for employees from Yellowknife, including Dettah and N'dilo. (DAR Section 3.13.7 page 3-92)
- provide additional information about the pick-up schedule in each community and the commuting time from each community as this may be perceived as a barrier to employment. E.g. care and maintenance workers travelling from Whati will work a 10 hour shift but onsite employees appear to be working 12 hour shifts.
- advise whether it will consider other pick-up points in the NWT to expand its northern labour pool and increase the likelihood of achieving its Aboriginal and northern hire predictions.

Rotation

Fortune has referenced a “flexible rotation schedule” and the “potential for shorter shifts” (DAR 16-52 and page 16 -54 respectively). The company proffers that these approaches may enhance its ability to recruit those who “previously may not have been able to take on rotational work” and “may also offer more opportunities for women with young children to enter the workforce.”

Recommendation

The GNWT recommends that Fortune:

- give further consideration to a flexible rotation schedule and offer shorter shifts, where operationally feasible, and communicate this to the potential northern workforce in order to maximize opportunities for all NWT residents including NWT Aboriginal residents and women, and reduce barriers that may limit the availability of the northern workforce to participate in the labour market..

Education and Training

The TOR require Fortune to provide “a description of any plans, strategies or other commitments the developer has to support increasing the mine-ready workforce, support career paths in mining, and assist training programs in related support activities. The developer will outline how these strategies will create or contribute to training opportunities for Northern and Aboriginal persons in general, and its employees in particular, over the life of the mine.” (TOR, Appendix K1 (6) page 35).

Fortune notes that “while education and skills levels of NWT residents have greatly improved over the past 10-15 years” and “while high school graduation rates are improving,” (DAR page 16-76) there are still difficulties in finding and educated and skilled workforce in the NWT, particularly in the small communities. The company identified a number of mitigation measures to address some barriers to employment including:

- “eliminate(ing) a minimum literacy requirement for employment for residents of the Wek’eezhii Settlement Area. As long as safety can be maintained, workers will be accepted at all levels of proficiency, including pre-literate workers. Fortune will overcome these challenges by incorporating essential skills into safety training, technical training and production planning.” (DAR Section 16.2.7.2.2 page 16-76)
- “on-the-job training and support for educational upgrading” (DAR Section 16.2.7.2.2 page 16-77)
- “targeted training and mentorship of those few candidates that have supervisory and management potential and want to advance their careers.” (DAR Section 16.2.7.2.2 page 16-77)

The company states it will contribute to student achievement awards (DAR Section 16.2.7.2.2 (page 16-77) and provide an education assistance program (DAR Section 3.13.3 page 3-90) as well as “try to carry out relevant training programs that are offered in cooperation” with other agencies and organizations.

In addition, Fortune indicates that it “will work diligently to engage youth, particularly those who are Tlicho” and “plans to attend career fairs, participate in classrooms, and develop relationships with schools. Summer employment will be offered to young people as well as work terms and apprenticeships and training opportunities.” (DAR Section 16.2.7.2.2 page 16-77)

Recommendation

The GNWT recommends that Fortune:

- provide more details regarding its pre-employment plans and preparations.
- develop an education and training strategy, including on-the-job training that is linked to current programs and initiatives within the NWT.
- continue to work with the Department of Education, Culture and Employment and other educational organizations to coordinate training and program delivery to prepare residents for employment opportunities and sustain them in their employment.
- provide further details regarding the company’s contribution to student achievement awards and its educational assistance program
- should keep relevant GNWT departments apprised of the company’s efforts and activities in this regard.
- develop evaluation criteria or a prior learning recognition model to assess relevant learning gained through work and life experiences to support the company’s decision to remove minimum education requirements and in consideration of hiring pre-literate workers.
- identify apprenticeship positions and the number of positions that will be available during the construction and operation phases of the project.

- clarify whether there are plans to transition apprentices from the construction to the operation phase of the project.
- develop an apprenticeship policy and coordinate with the NWT Apprenticeship and Occupational Certification Program to identify the number of apprentice positions and the trades that are in demand or needed for the project.
- develop an apprenticeship outreach and promotion strategy to ensure that northern residents are aware of opportunities and prepared to fill the positions.

Career and Advancement

Fortune is “committed to providing opportunities for career advancement for employees hired for the NICO Project, as well as providing opportunities for Aboriginal workers.” (DAR Section 3.13.6 page 3-92). The company also “recognizes that additional effort may be required to help Aboriginal workers with career advancement.” (DAR Section 3.12.3 page 14). To support this, the company will have “computers available for ongoing learning and training through computer based programs.” (DAR Section 16.2.13.1.2 page 16-100).

Recommendation

The GNWT recommends that Fortune:

- develop a detailed workplace education strategy and consider hiring instructors to help employees achieve success in their educational and career development activities.
- advise whether it will release employees from work for upgrading and skill development and whether there will be onsite support for those employees engaged in professional development.
- clarify whether the company intends to provide incentives for employees to pursue training/education on their out rotation.
- provide further details on the professional development and training opportunities for Aboriginal and northern employees who would like to pursue supervisory and management roles.
- complete the Human Resources Closure Plan and a Sustainable Development Strategy. (DAR Section 16.2.9 page 16-85)

Human Resource Policies

The TOR require that Fortune outline its employment policies for Aboriginal and other northern women including training initiatives, measures for security and safety at the mine site, and anti-harassment policies. In consultation with the Tlicho people, Fortune will develop specific strategies for the employment of Aboriginal and other northern women.

The GNWT recognizes that the company’s Northern Hire Policy, along with the implementation of appropriate mitigation measures and provisions for adaptive

management over time, will help Fortune towards achieving its employment predictions.

Recommendation

The GNWT recommends that Fortune:

- formalize its employment predictions, training programs, and hiring policies and practices in a socio-economic agreement to demonstrate its accountability to the public.
- provide further details regarding the company's hiring policies and training programs and initiatives for Aboriginal and other northern women.

Traditional Language Use and Cultural Support

The data provided by Fortune acknowledges that “while over 90% of Tłıchǫ and Yellowknives Dene community residents speak a traditional (Aboriginal) language, the rate is decreasing.” (DAR Section 16.2.2.11 page 13-39). However, “overall in the NWT, Aboriginal language loss has been slowing and may actually be increasing in use in certain regions, at least as a second language”. (DAR Sec 16.2.7.2.7 page 16-80) This may be influenced by the GNWT's Aboriginal Language Plan which provides for a culturally relevant education and supports Aboriginal language programs in schools.

Fortune has developed a number of mitigation measures for language retention and other key indicators of cultural maintenance in Section 16.2.7.2.7 (page 16-80/81) of the DAR including:

- Supporting the culture and language on the worksite, including offering cultural sensitivity workshops
- a, will be giving Tłıchǫ employees who do not have knowledge of the English language, either written or verbal, reasonable opportunities, where the lack of language does not compromise the safety of the individual or of others or work
- hiring Tłıchǫ speaking counsellors for employees and their families
- translating policies and important documents into Tłıchǫ language, where feasible
- considering absence from the site for cultural or family needs on a case-by-case basis
- allowing employees to continue speaking their traditional language on-site if it does not pose a health or safety issue

Recommendation

The GNWT recommends that Fortune:

- continue to work with the Tłıchǫ Government, employees, community members and the territorial government in ongoing support of language and cultural pursuits, as feasible.

- these activities be part of the company's socio-economic monitoring plan and used to inform policy, procedures, etc.

Business Opportunities

The terms of reference¹ required the developer to provide:

- an estimate of contractor and subcontractor goods and services by phase, including an estimate of the percentage that can be sourced from local and regional businesses;
- policies, plans and commitments to maximize contracting to Aboriginal and northern business including discussion on assisting business development initiatives and joint ventures;
- a description of barriers to maximizing use of northern businesses;
- training, education or other improvements needed to maximize the capacity of local and regional businesses to benefit from the NICO Project.

This information is important to fully understand the impact of the Project on NWT-based businesses.

Predicted Procurement

Fortune provided a forecast of its procurement from NWT businesses for the construction and production phase². However, its estimate of total procurement for the construction, production and reclamation phases did not include an estimate of its capital equipment needs³. It is therefore not possible to assess the proportion of total purchases that will likely be sourced from local and regional businesses.

The DAR intermingles results from input-output modeling with estimates of direct procurement. For example, DAR Section 16.2.5.1 (page 16-64) states the effect tables in this section report direct, indirect and induced effects, and report the cumulative effect for each phase. Table 16.2-6 therefore estimates just over \$16 million in direct, indirect and induced labour income. This is an estimate of cumulative labour income over the entire construction phase, not an estimate of annual labour income. When the developer was asked to predict annual procurement expenditures for each phase (GNWT Information Request number 9, part 4), it reported a higher number – \$33 million – for labour costs associated with NWT labour in the construction phase. Based on the information provided, it is not clear whether these predictions are based on annual spending or whether they are an estimate of total spending for a phase. No reconciliation of the DAR numbers and the IRR numbers was provided.

¹ Terms of Reference for the NICO project, Appendix K1 – business opportunities (points 8-11, pages 35 and 36).

² Information Request response – GNWT #9

³ Ibid

Combined direct, indirect and induced effects are an aspect of economic effect. However, to understand the predicted economic impact of the mine -- in a way that can be annually reported and verified over time -- requires a prediction of the annual direct purchases the mine operator expects to make, by phase. The developer has not provided a clear estimate of its total annual direct purchases or the proportion of those annual purchases that will likely come from NWT businesses.

It is therefore not possible to assess what contribution NWT businesses will make and therefore what the effect of the project may be on NWT-based and Aboriginal NWT-based businesses.

Contracting Policies

The DAR (section 16.2.4.2.2) alludes to a NICO Project contracting policy and practice. However, no details about the policy or its implementation are provided in the DAR.

Fortune did provide the GNWT with a copy of its Supply Chain Management Policy. However, the document was not specific to the NICO project. For example, while the Policy gives preference to Aboriginal businesses, it treats all businesses owned by First Nation, Inuit or Metis people the same. The Policy gives preferred vendor status to businesses that are members of organizations such as the Canadian Council for Aboriginal Business (CCAB); many NWT businesses are not members of this organization. The Policy does not identify steps Fortune would take to ensure local businesses have full and fair opportunity to provide goods and services to the Project.

Fortune did not describe how it would assist Wek'eezhii Settlement Area-based businesses in business development initiatives or in establishing joint ventures, as requested in the Terms of Reference (K1-9). Neither has Fortune described any plans and commitments to maximize contracting to Aboriginal and northern businesses. It listed two mitigation measures to help potentially-affected communities adjust to economic fluctuations and to assist the post closure transition for mine employees. It has not described any business strategy in more detail. Although Fortune has said it will work with Tłıch'ô businesses to support capacity-building in the region, it did not explain what this will mean in practice.

Barriers to Northern Business Opportunities

Section 16.2.4.2.1 in the DAR contains a subsection called “Barriers to employment and *contracting*.” While this section addressed several barriers to employment, the discussion did not address barriers to maximizing the use of northern businesses. Some ‘other barriers’ listed in this section (for example, remote communities with few road connections and high costs) are barriers not only for northern residents, but for northern businesses as well. However, the DAR did not recognize, list, or offer mitigation measures to counter the barriers faced by northern businesses.

In DAR section 16.2.4.2.2, the developer states that due to specialty needs, the project “will require non-local resources” and “much of the NICO Project infrastructure will be pre-fabricated or partially assembled away from the NICO Project.” The developer states, “...procurement requirements for the NICO Project *may* increase economic activity (GDP) in the LSA and NWT” and that the Project “... *should* create ... contracting opportunities for Aboriginal and northern residents in the LSA and NWT” (DAR 16.2.3.3 -- emphasis added)

At the same time, Fortune states elsewhere that “expanding to the broader NWT business sector will increase capacity to cover all contracts.” It goes on to list Tłı̨ch̓ and Aboriginal suppliers and some contract opportunities for the project⁴ but does not discuss suppliers that are available in the broader NWT business sector. It is not clear that Fortune has assessed the capacity of the NWT business community to meet the Project’s procurement needs. In addition, little detail has been provided about mitigation steps the developer would take to engage the broader NWT business community.

Recommendation

The GNWT recommends that, given the uncertainty surrounding the potential impacts of the NICO Project on NWT businesses, Fortune provide the following information in writing to the public registry prior to the Public Hearing:

- How Fortune plans to engage with, and communicate potential contract opportunities for NWT-based Aboriginal and local businesses. For example, will Fortune:
 - Designate a NICO employee to act as a liaison between NICO and NWT businesses?
 - Conduct business opportunities seminars or workshops to make the NWT business community aware of its business opportunities forecast and its corporate procurement policy?
 - Make available business opportunity information related to NICO business plans to NWT businesses

⁴ DAR section 16.2.4.2.2

- Ensure broad communication to NWT businesses and business industry associations in the NWT about business opportunities arising from the project;
- Identify the steps Fortune will take to help build NWT business capacity. For instance, will Fortune:
 - Design and deliver clear business development strategies for local communities and communicate the scope and scale of business opportunities and project requirements in a timely and effective manner;
 - Identify project components, at all stages of construction, operations and closure of the project that could be targets for a business development strategy;
 - Identify possible joint venture opportunities for NWT businesses;
 - Match the size and scope of contracts to the capacity of NWT business where feasible;
- Describe how Fortune plans to engage NWT-based Aboriginal and local businesses, how it will communicate potential contract opportunities, and steps it will take to help build local business capacity.
- Provide an estimate of total annual procurement from NWT-based businesses for the closure and reclamation phase of the NICO Project.
- Provide an estimate of total annual purchases from NWT-based Aboriginal businesses for each phase of the development.
- Provide a table that shows the total annual project procurement, *including capital equipment*, for each phase of the Project.
- Provide a copy of the NICO Project Contracting Policy, referenced in DAR section 16.2.4.2.2 which outlines Fortune's contracting policies specific to the NICO Project.
- Describe how Fortune will assist NWT suppliers to meet the requirements for Canadian Council Aboriginal Business membership.

Closure

In DAR section 3.14.2, Fortune describes its closure and reclamation objectives. The developer does not distinguish between the biophysical and human environment in the key goals of the Closure and Reclamation (C&R) plan.

The GNWT recognizes and is encouraged by Fortune's mitigation measures to avoid negative impacts of closure on NWT residents and assist its employees in transition to post-closure. The mitigation measures proposed by Fortune include meeting with organizations, including businesses, to initiate communication to provide information about the NICO Project and closure plans⁵. Fortune also intends on setting up a transition centre, which will include a database of employees' skills and

⁵ DAR section 16.2.13

training and will help transition employees to other mining projects by working on interviewing skills, and help with resume writing and job searching⁶.

Recommendation

The GNWT recommends:

- The GNWT recommends Fortune's measures to mitigate the negative impacts of closure and to assist transition to post-closure for its employees be formalized in the Closure and Reclamation plan that will be developed in cooperation with communities, the GNWT and regulators.

Monitoring and Follow-up

The TOR requires that Fortune describe any commitments, policies and other strategies to engage with responsible authorities and potentially-affected communities in monitoring impacts on the human environment. (TOR K5 page 38; DAR 16.2.13.1 page 16-99)

Much of the information provided in the DAR is of a preliminary, conceptual nature. For example, the DAR states that the NICO Project will not proceed without an all-weather road and the developer has indicated it may be able to use dirigibles as an alternative to the Tłı̄ch̄ô road route. The DAR states that generators will be used but implies that using surplus power from the Nailii Hydro Project is also an option for the NICO Project⁷.

The *Mackenzie Valley Resource Management Act* (MVRMA) s.111 states a "follow-up program" means a program for evaluating (a) the soundness of an **environmental assessment** or **environmental impact review** of a proposal for a development; and (b) the effectiveness of the mitigative or remedial measures imposed as conditions of approval of the proposal. The MVRMA requires that a follow-up program be a consideration in any environmental impact review (s. 117(3)(c)) and specifically directs that the need for a follow-up program be dealt with in a Panel report (s. 134(2)). A Board report of an environmental assessment is less rigidly defined than a Panel Report, which would indicate that the Board may include a range of factors at its discretion (s. 128(2)) including a follow-up program as defined in s.111. The mandatory considerations for an environmental assessment specifically allow the Board to consider other matters (s. 117(2)(e)). The GNWT views these sections of the MVRMA as being consistent with a requirement for a follow-up program, as defined in the *Act*, when warranted. This is consistent with our interpretation of similar provisions since 1998.

⁶ DAR section 16.2.13

⁷ See DAR section 3.10.22; DAR sections 6.5 2.4 and 2.2.

Due to the inherent difficulty in predicting and assessing socio-economic effects there should be an emphasis on a follow-up program. This, combined with the other examples of uncertainty above, is evidence of the need for a formal follow up program. This should focus on adaptive management processes where careful, relevant monitoring can help to continually refine mitigation measures to optimize project effects on the socio-economic environment. The GNWT recommends that a follow up program, in the form of a socio-economic agreement between the GNWT and Fortune Minerals, be a condition of project approval.

Fortune indicates that it will “monitor the effectiveness of its local hiring and contract policies and programs. The territorial government will also play an important role with the implementation of programs that address barriers to hiring and retention.” (DAR page 16-60). The company also clarifies in Section 16.2.13.1 (page 16-103) that “the NWT Bureau of Statistics has overall responsibility providing socio-economic statistics across the NWT”. Fortune is committed to its own monitoring of socio-economic effects.Fortune will also work closely with other mining companies in the area who public socio-economic reports (e.g. such as the Communities and Diamonds reports) and discuss cumulative effects. Fortune will work in partnership with government and Aboriginal organizations to collect, analyze, and interpret information related to impacts of the NICO Project.

Fortune has stated its intention of establishing a Socio-economic Monitoring Plan to determine the effectiveness of Fortune’s mitigation measures, which will include provisions for a monitoring committee (see DAR section 16.2.13.2). In particular, the Socio-economic Monitoring Plan “will be designed to include the following:

- Determine the effectiveness of the measures in reducing adverse effects and enhancing positive ones associated with the NICO Project;
- Show where adjustments in those measures need to be made; and
- Help Fortune adjust, augment, or replace measures to correct any adverse effects,” (Fortune, 2011)

Fortune also made reference to reporting in the DAR (section 16.2.13.2) as part of the discussion of the Socio-economic Monitoring Plan. Fortune states that

“Data will be generated and evaluated through several internal company systems. These include the human resources information system, the environmental health and safety management system, and the financial management system. Required results and reporting schedules will be determined and defined by the regulators upon approval of the NICO Project, and reports will be provided as required.” (Fortune, 2011)

Ideally, the Socio-economic Monitoring Plan will include monitoring and reporting on appropriate and relevant social, cultural and economic indicators.

It is important that monitoring and reporting programs are designed in a way to test predictions made by the developer; assess the effectiveness of mitigation and support adaptive mitigation; remain in place for the life of the project; and support and contribute to information on cumulative effects at a regional and territorial level. We recommend that this commitment be formalized in a Socio-Economic Agreement (SEA).

The GNWT recognizes Fortune's commitment to transparency through reporting results of its activities. In an Information Request Response (GNWT_5), Fortune committed to collect and publicly report annually on several socio-economic indicators, including the following:

- hiring by hiring priority and job category in total numbers and percentages of total hires;
- hiring by Northwest Territories (NWT) community in total numbers and percentage of total hires;
- total employment in person years by hiring priority and job category in total numbers and percentage of the workforce;
- total employment in person years by NWT community in total numbers and percentage of the workforce;
- total number of NWT resident employees who resigned or who were laid off, fired or otherwise terminated in the previous year;
- participation in and results of training activities;
- gross value of goods and services purchased during the calendar year by major category or purchase in relation to each phase of the project. ('Purchases' based on the gross value of all purchases of goods and services including both goods and services produced in the NWT and goods and services produced outside the NWT that are purchased through NWT businesses); and
- business opportunities forecast and assessment for the upcoming year.

This is an acceptable list of indicators for the developer to report on. It should be supplemented with socio-economic monitoring that is consistent with existing, cumulative monitoring of resource development effects.

Conclusion

The information the GNWT has asked of the developer throughout the EA process is consistent with the Terms of Reference for the NICO Project. Information requested in this part is required to improve understanding of the socio-economic aspects of the NICO Project.

Recommendation

The GNWT recommends that:

- Socio-economic effects monitoring and reporting be incorporated into the NICO Project Socio-economic Monitoring Plan as described in the DAR (section 16.2.13.2) and that this monitoring and reporting be further formalized in a socio-economic agreement. This follow-up program should be a condition of approval of the project.
- Fortune publicly report its results each year and to distribute a copy of the report to both the GNWT and to affected communities.

PART 2 – ENVIRONMENTAL IMPACTS

Air Quality and Commitments

At the February 2012 Technical Session,⁸ the GNWT requested information on the topics of contaminant loading during transport, air quality assessment and monitoring, and incinerator (incineration of sewage sludge and solid waste). Fortune confirmed its commitment to develop an Air Quality Monitoring Plan and an Incineration Management Plan, in collaboration with GNWT's Department of Environment and Natural Resources (ENR) and Environment Canada. These and the source are provided below.

Recommendation

Commitments made during the environmental assessment should be reviewed by parties and refined. The commitments should be categorized, prioritized, given a completion date (where possible), identify responsible parties as well as identify, where appropriate, the tool(s) that will be used to enforce, monitor, follow-up and report on the completion the commitment.

A revised draft of the commitments should be provided for review prior to the Public Hearings to allow parties to review and comment on those commitments.

| Air Quality | |
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| Commitment | Source |
| <p>Fortune has committed to purchasing an incinerator that is capable of meeting the Canadian emissions standards for dioxins and furans emissions. Acquiring the appropriate equipment is part one. A second and equally important part of the issue is the operation of the "compliant" incinerator. Care is required to operate any incinerator in such a manner that it will meet the emissions criteria. Waste loading practices, burn-times, control of residence time, temperature control, waste segregation and other factors are all considerations in meeting the standard.</p> <p>The operational management of the incinerator will be directed by the Incineration Management Plan (IMP) that Fortune has committed to producing in due course. It will be developed consistent with the Environment Canada Technical Guidance Document on Batch Incineration and in cooperation with representatives from Environment and Natural Resources and Environment Canada. Those representatives are currently Ms. Aileen Stevens and Mr. Dave Fox, respectively.</p> <p>Testing the incinerator will be carried out under typical load conditions, including during the incineration of sewage sludge if it is ultimately decided that disposal of the sludge will be by incineration. It is expected that testing under these conditions would represent a worst-case scenario.</p> <p>In the event that the monitoring shows non-compliance with the standard, the pending IMP will direct an appropriate response. It may include different waste segregation practices, different operating parameters, or any other of number of</p> | Fortune response to Round 2 Information Request YKDFN 1.1 |

⁸ See day 3 transcripts, February 9, 2012.

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| variables that contribute to the emissions profile of the incinerator. It is also important to note that incinerator emissions testing is very expensive and every effort will be made to ensure that the equipment and waste management practices result in compliant emissions to avoid unnecessary emissions testing. The frequency of testing has yet to be determined, but it would be reasonable to anticipate that there may be a few years between compliant tests. Frequency of testing will be one of the parameters that will be addressed in the IMP. | |
| <p>Dioxin and furan emissions will comply with standards through the use of an incinerator designed to meet the standards outlined in Section 10.3.2.1 of the Developer's Assessment Report (DAR). The primary source of dioxins and furans, the waste incinerator, will be engineered and operated to meet the Canadian Council of Ministers of the Environment (CCME) emission standards for dioxins and furans (i.e., 80 pico-grams of International Toxic Quotients per cubic metre [pg I-TEQ/m³]) (CCME 2001). The response to Environment Canada Information Request 11 (EC_11) details the intended waste incinerator and the commitment to stack test the incinerator while burning sewage sludge prior to the commissioning of the incinerator.</p> <p>Based on communication with Environment Canada (D. Fox, Environment Canada, 2010, pers. comm.) in May 2010, it was agreed that management plans for the NICO Project will be developed when the NICO Project progresses to the permitting stage. Fortune will develop and implement appropriate adaptive management plans that will include a systematic process to mitigate exceedances of emission standards, should they occur. Section 10.9 of the DAR outlines the adaptive strategies in the way of headings.</p> | Fortune response to Round 1 Information Request YKDFN IR 3.1 |
| Develop an Incinerator Management Plan and comply with the new Environment Canada Regulations (Canada-wide Standards for dioxins/furans and mercury and the <i>Technical Document for Batch Waste Incineration</i>); | February 17, 2102 MVEIRB Summary of Undertaking and Commitments from the February 7 - 9, 2012 Technical Session |
| ...further details on the standard operating procedures, thresholds, and triggers for response to potentially unfavourable emissions releases will be developed during the regulatory phase of the application. The planning will be conducted consistent with the Environment Canada Technical Guidance Document on Batch Incineration and in cooperation with representatives from Environment and Natural Resources and Environment Canada. | Fortune response to Round 2 Information Request YKDFN 1.1 |
| Develop an Air Quality Monitoring and Management Plan in cooperation with Environment Canada. | February 17, 2102 MVEIRB Summary of Undertaking and Commitments from the February 7 - 9, 2012 Technical Session |
| <p>Fortune Minerals Limited (Fortune) has committed to the development of an Air Quality Management Plan in the regulatory phase of the project, and the details of the management of contaminant loading will be considered and documented as a section in the Air Quality Management Plan.</p> <p>Ongoing air quality monitoring and dust deposition monitoring will also be conducted to demonstrate that dust deposition rates remain well-managed.</p> | Fortune response to Round 2 Information Request EC 2-5 |
| ...The development and implementation of an ambient air quality monitoring program is outlined in the response for Environment Canada Information Request 8.3 (EC_8.3). The measurement of the following compounds will be included in the proposed ambient air quality monitoring program (Response 31.5): | Fortune response Information Request Tlicho Government IR 31 |

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| <ul style="list-style-type: none"> total suspended particulate (TSP); particulate matter with a mean aerodynamic diameter of 10 micrometres (PM10); particulate matter with a mean aerodynamic diameter of 2.5 micrometres (PM2.5); and dustfall. <p>Section 10.9 of the DAR outlines the sections that will be included in the mitigation and adaptive strategies and the best management practices plan to control fugitive dust emissions. These plans will be developed if the NICO Project progresses to the permitting stage as agreed upon with Environment Canada (D. Fox, Environment Canada, 2010, pers. comm.).</p> | |
| <p>If the NICO Project progresses to the permitting stage, Fortune will develop and implement appropriate management plans that will include a systematic process to mitigate exceedances of air quality standards beyond the NICO Project Lease Boundary, should they occur. Section 10.9 of the DAR outlines the sections to be included in the adaptive strategies and management plan (Response 31.9).</p> | <p>Fortune response Information Request Tlicho Government IR 31</p> |
| <p>In regards to the air quality management plan, based on communication with Environment Canada (D. Fox, Environment Canada, 2010, pers. comm.) in May 2010, it was agreed that management plans for the NICO Project will be developed when the NICO Project progresses to the permitting stage. Fortune will develop and implement appropriate adaptive management plans that will include a systematic process to mitigate exceedances of emission standards, should they occur. Section 10.9 of the DAR outlines the adaptive strategies in the way of headings.</p> | <p>Fortune response to Round 1 Information Request YKDFN IR 1.1</p> |
| <p>Conduct stack testing while burning sewage sludge.</p> | <p>February 17, 2102 MVEIRB Summary of Undertaking and Commitments from the February 7 - 9, 2012 Technical Session</p> |
| <p>Fortune Minerals Limited will consult with Environment Canada to develop a stack testing program. (IR: A commitment from the proponent to stack test the incinerator emissions while burning sewage sludge prior to the commissioning of the incinerator.)</p> | <p>Fortune response to Round 1 Information Request EC 11</p> |
| <p>Fortune will provide the Tłı̨chǫ Government with their annual report on environmental monitoring results, which will include air quality data (Response 31.7).</p> | <p>Fortune response to Information Request Tlicho Government IR 31</p> |
| <p>A best management practices plan to control fugitive dust and metals will be developed and implemented. Dust mitigation will include the following:</p> <ul style="list-style-type: none"> spraying water on haul roads to maintain sufficient surface moisture during summer months; establishing and enforcing speed limits on unpaved surfaces to minimize dust from vehicle operations; equipping construction equipment with upswept exhausts to enhance dispersion of exhaust; equipping the fleet and other equipment with industry-standard emission control systems; constructing the NICO Project Access Road as narrow as possible, while maintaining safe construction practices; enclosing conveyance systems and processing facilities; limiting the height from which material is dropped to minimize dust; using high efficiency bag houses for point sources of releases; watering ore stockpiles and the primary crusher; revegetating the parts of the mine site that will not be disturbed in the future; and | <p>Fortune response to Round 1 Information Request YKDFN IR 3.2</p> |

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| <ul style="list-style-type: none"> controlling dumping or transfer rates of materials. <p>Section 10.9 of the Developer's Assessment Report outlines the sections that will be included in the best management practices plan to control fugitive dust and metals emissions. A best management practices plan will be developed if the NICO Project progresses to the permitting stage as agreed upon with Environment Canada (D. Fox, Environment Canada, 2010, pers. comm.).</p> <p>Further to the preamble, modelling results of total suspended particulate are conservative. Natural mitigation of dust, such as precipitation and snow accumulation during the winter months, was not included in the modelling due to the lack of publicly available data on the effect of precipitation and snow accumulation on dust control. The impact of the NICO Project on the air quality is best determined through a comprehensive ambient air quality monitoring program. The development and implementation of an ambient air quality monitoring program is outlined in the response for Environment Canada Information Request 8.3 (EC_8.3). The measurement of the following compounds will be included in the proposed ambient air quality monitoring program:</p> <ul style="list-style-type: none"> total suspended particulate; particulate matter with a mean aerodynamic diameter of 10 micrometres (PM10); particulate matter with a mean aerodynamic diameter of 2.5 micrometres (PM2.5); and dustfall. | |
| <p>...Based on Fortune Minerals Limited (Fortune) knowledge of the area including the terrain and meteorology surrounding the NICO Project, Fortune is committed to the following dust mitigation (Response 31.1):</p> <ul style="list-style-type: none"> spraying water on haul roads to maintain sufficient surface moisture during summer months; establishing and enforcing speed limits on unpaved surfaces to minimize dust from vehicle operations; equipping construction equipment with upswept exhausts to enhance dispersion of exhaust; equipping the fleet and other equipment with industry-standard emission control systems; constructing the NICO Project Access Road as narrow as possible, while maintaining safe construction practices; enclosing conveyance systems and processing facilities; limiting the height from which material is dropped; using high efficiency bag houses for point sources of releases; watering ore stockpiles and the primary crusher; revegetating the parts of the mine site that will not be disturbed in the future; and controlling dumping or transfer rates of materials. | <p>Fortune response to Information Request Tliche Government IR 31.1</p> |

NICO Project Location and Caribou Ranges

With respect to the location of the NICO Project and its Regional Study Area, there are two relevant types of caribou to consider – boreal woodland caribou and barren-ground caribou (specifically the Bluenose-East and Bathurst herds).

While there is fluctuation of range use by both types of caribou, the NWT Ecological Regions mapped for the area of the NICO Project show a distinct change from Taiga Shield to Taiga Plains as illustrated in Figure 1. This landscape level difference is

expected to have a large influence on the natural range limits for the boreal woodland caribou, while barren-ground caribou will use both Shield and Plains types.

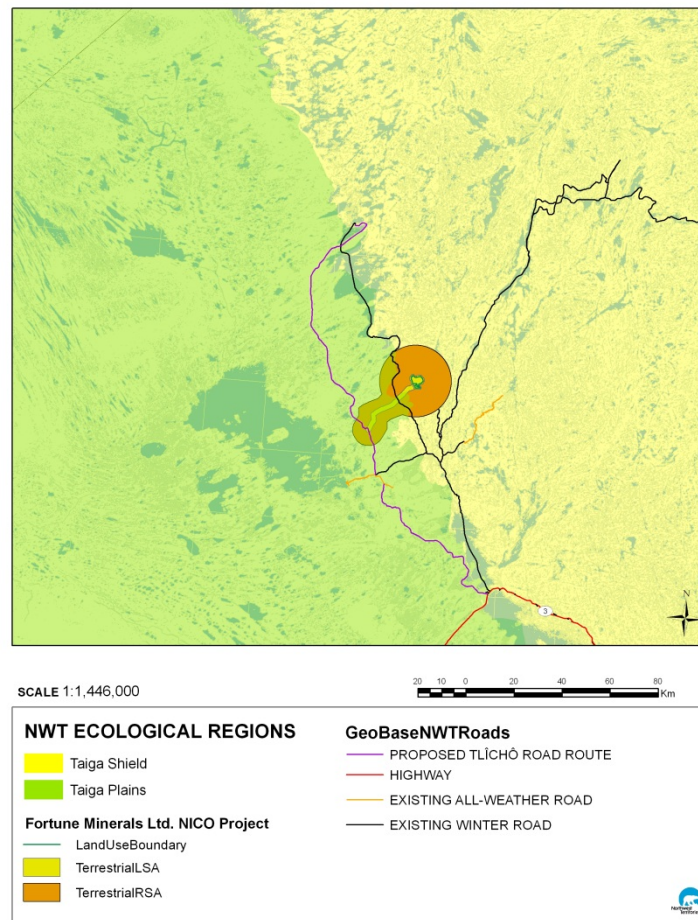


Figure 1. NWT Ecological Regions in the vicinity of the NICO Project.

The NICO Project in Relation to Boreal Caribou Range

Both the proposed national Recovery Strategy for the Woodland Caribou, Boreal Population, In Canada (“national Recovery Strategy”)⁹ and the ongoing territorial Species at Risk Committee (SARC)¹⁰ assessment, currently provide map ranges for Boreal caribou in the NWT. Due to ongoing refinement of boundaries, the boundaries used in the proposed National Recovery Strategy and the ongoing SARC assessment are different. GNWT ENR is currently discussing a new range map that would be used in both federal and territorial initiatives. GNWT has prepared a map applying the May 2012 version of the range boundary in the vicinity of the proposed lease and proposed spur road. The project spur road and lease boundary were

⁹ See discussion on the national Recovery Strategy in the section of this report titled “Status, Conservation and Management of Boreal Caribou.”

¹⁰ See discussion on the SARC in the section of this report titled “Boreal Caribou Conservation and Management Under the New Territorial Species at Risk Act (NWT).”

obtained from Fortune and should be considered as preliminary only. Fortune's Regional Study Area is also shown to assist reviewers in visualizing the relationship between the project and range boundaries. It is important to bear in mind that caribou ranges do not necessarily follow exact lines, and the edge of boreal woodland caribou range likely involves an ecotone and some annual variation.

Figure 2 shows the May 2012 Boreal caribou range boundary in the vicinity of the NICO Project. The projected lease area and about 5.1 km of the mine access spur road are outside the Boreal caribou range boundary while about 23.6 km of the spur road fall within the Boreal caribou range.

Environment Canada's proposed range impact calculation for linear features is the width of the linear feature plus a 500 m buffer on either side. The Developer has indicated its spur road right-of-way is 10 m wide. The linear feature and buffers are also represented in Figure 2.

Status, Conservation and Management of Boreal Caribou

Boreal caribou populations across Canada were assessed in 2002 as "Threatened" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and then subsequently recognized as a "Threatened"¹¹ species federally. The NWT Boreal caribou population, however, has been assessed as a "Sensitive"¹² species on the territorial level in the NWT General Status Rank since 2000. Thus, while the federal status is recognized, the current Boreal caribou population in the NWT is not at risk of extinction or extirpation, but may require special attention or protection to prevent these caribou from becoming at risk. Boreal woodland caribou in the NWT bordering Alberta show a generally declining trend consistent with extensive seismic activity (e.g. Cameron Hills) in those portions of the NWT. Boreal woodland caribou numbers are considered stable and healthy in more northern portions of the Mackenzie River valley, where impacts on the landscape have generally been more limited.

In addition to the GNWT being a signatory to the national Accord for the Protection of Species at Risk in Canada (the "Accord"), the GNWT has also been guided by the federal *Species at Risk Act* (Canada) since 2003. Following 2003, the GNWT has been an active participant in the development of the proposed national Recovery Strategy

¹¹ A "Threatened" is defined as a "...species that is likely to become an endangered species if nothing is done to reverse the factors leading to its extirpation or extinction." Source: *Species at Risk Act* (Canada)

¹² A "Sensitive" species is defined as a "...species that are not at risk of extinction or extirpation but may require special attention or protection to prevent them from becoming at risk." Source: Working Group on General Status of NWT Species. 2011. NWT Species 2011-2015 – General Status Ranks of Wild Species in the Northwest Territories, Department of Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NT. 172pp.

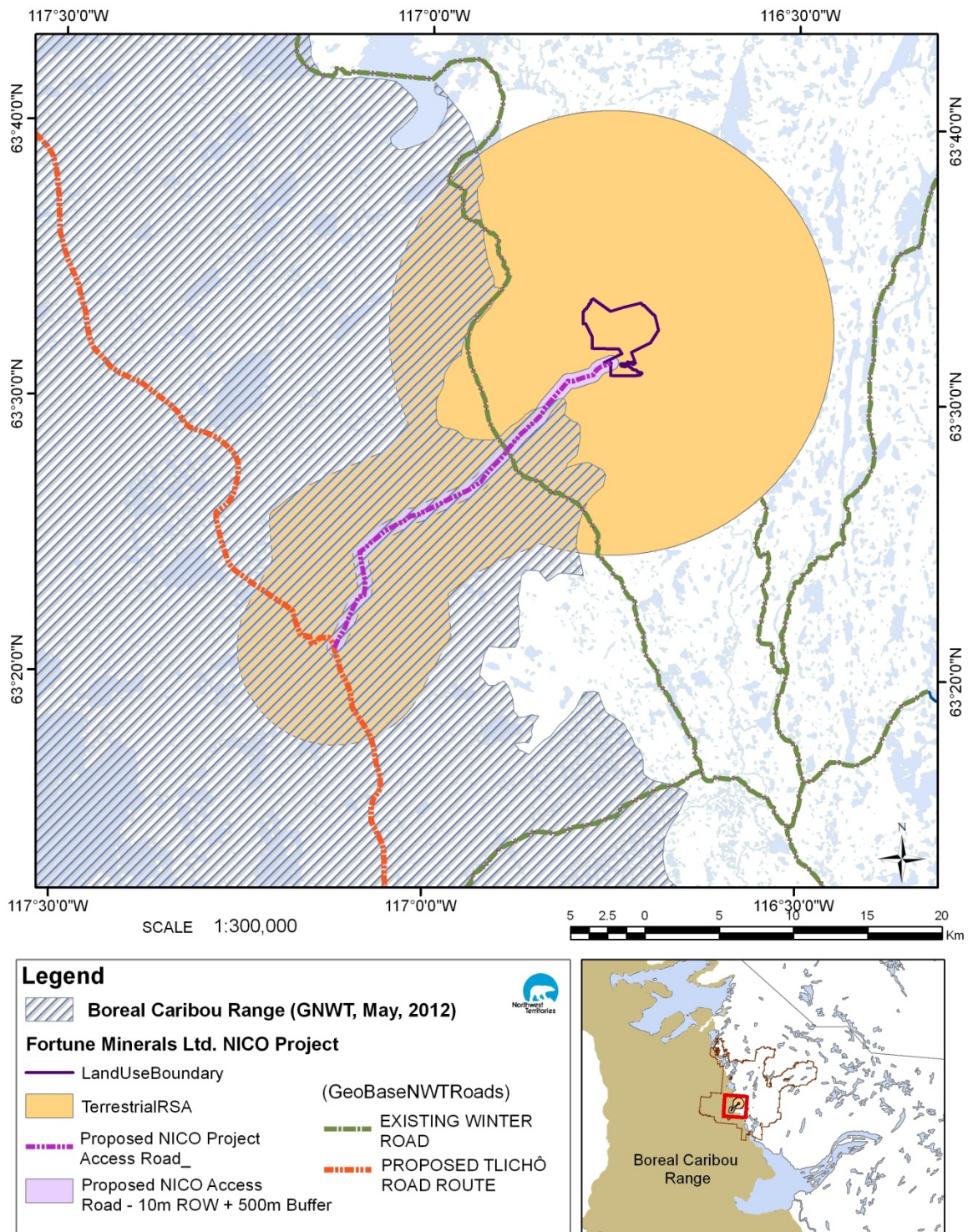


Figure 2: Boreal Caribou Range in relation to the Fortune Minerals Ltd. NICO Project location.

for the Woodland Caribou, Boreal Population, In Canada (proposed “national Recovery Strategy”) that was developed as required by the federal act¹³. The GNWT has reviewed the proposed National Recovery Strategy in conjunction with its own mandates and programs. The national Strategy has varying goals depending on the current status of boreal woodland caribou regionally in Canada. The strategy aims to maintain currently self-sustaining populations, achieve self-sustaining status for those populations that are not self-sustaining, and stabilize those populations that are not self-sustaining. Development of the proposed national Recovery Strategy has involved agencies that include the GNWT, Tłıchǫ and other aboriginal Governments and various management boards. The final version is expected to be released sometime in mid-2012 and will serve to guide the GNWT’s own recovery strategies for Boreal caribou in the NWT. The final strategy may have substantial implications to land management in the NWT, particularly in the southern portions of boreal woodland caribou range, where the total land base affected by areas within 500m of linear anthropogenic features and burned within the last 50 years may be near proposed limits. While the additional affected land base resulting from the Fortune Minerals and proposed access road are currently in an area with limited linear disturbance, the status of boreal woodland caribou in Canada and in the NWT will mean that all proposed additional linear disturbance will need to be reviewed carefully by responsible authorities in relation to regional disturbance and fire history.

The Action Plan for Boreal Woodland Caribou Conservation in the NWT (2010-2015; the “Action Plan”) was released by the GNWT in 2010 after five years of data collection and community discussion. The plan lays out 21 action items for the conservation of Boreal caribou in the NWT. Similar to the national Recovery Plan, for success, the Action Plan requires a cooperative effort among management authorities that include the GNWT; Tłıchǫ Government; federal government agencies; NWT Wildlife Management Advisory Council; and the Gwich’in, Sahtu and Wek’èezhìi Renewable Resources Boards. Once the national Recovery Strategy (as mentioned above) is finalized, the GNWT will review its Action Plan for compliance with the federal *Species at Risk Act* to ensure that territorial actions also contribute to the overall national recovery of Boreal caribou. Appendix 1 of the Action Plan details Boreal caribou conservation and management activities that have already been completed or that are underway in the NWT; examples in the North Slave include systematic aerial surveys and holding community workshops for the collection of local and traditional knowledge on Boreal caribou.

In the same year, the GNWT Implementation Plan for the Action Plan for Boreal Woodland Caribou in the NWT (2010-2015) was released. The plan was created in consultation with management authorities, Aboriginal organizations, communities and other stakeholders. It lays out the 21 actionable items from the Action Plan into

¹³ Environment Canada. 2011. Recovery Strategy for the Woodland Caribou, Boreal population (*Rangifer tarandus caribou*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vi + 55pp.

specific tasks to be cooperatively carried out within each NWT region by the GNWT and other management authorities.

Boreal Caribou Conservation and Management Under the New Territorial Species at Risk Act (NWT)

In 2010, the *Species at Risk Act* (NWT) was enacted and it bound the GNWT and other management authorities to fulfilling federal commitments for the protection of species at risk. This act has the specific purpose of preventing species from becoming extirpated or extinct by recognizing the role and responsibilities of the GNWT, as well as other management authorities that include the Tłı̨chǫ Government and Government of Canada; various co-management boards including, but not limited to the Wildlife Advisory Management Council; and the Gwich'in, Sahtu and Wek'èezhìi Renewable Resources Boards.

The NWT SARC, established under the territorial act, is responsible for assessing the status of species that may be at risk in the NWT. The SARC has an obligation to carry out its assessment using the best available information that includes Aboriginal traditional knowledge, community knowledge and scientific knowledge. The GNWT has appointed several expert wildlife staff to serve and act independently on the SARC. As it currently stands, the committee has other experts appointed by Environment Canada, the Wildlife Management Advisory Council (NWT), Dehcho First Nations, Northwest Territory Métis Nation, as well as the Gwich'in, Sahtu and Wek'èezhìi Renewable Resources Boards.

The Boreal caribou are scheduled to be assessed by the SARC in 2012 with an expected final status to be concluded sometime later in the year. The GNWT's above mentioned program, the General Status Ranks of Wild Species in the NWT, is being used as a tool by the SARC in its status assessment of NWT Boreal caribou. The final status has the potential to affect the strategies, plans and programs of responsible wildlife management authorities in the NWT. With respect to the GNWT, the SARC status on Boreal caribou will serve to further guide future plans and actions toward the conservation of this caribou subspecies.

The NICO Project in Relation to Barren-Ground Caribou Range

Use of winter ranges of barren-ground caribou changes between seasons and among years, and a smaller winter range is generally used when herd numbers are at low levels. It is therefore important to recognize the "long term" range used by herds. Figure 3 (below) shows the range of the Bathurst and Bluenose-East barren-ground caribou herds over an extended time in relation to the NICO Project vicinity based on satellite collared caribou cows from 1996 to 2009. Based on this information, the NICO Project (i.e. the mine site and access road) would be located within the long term winter range of the Bathurst barren-ground caribou herd.

Given the current low population level of the Bathurst herd relative to historic highs (an estimated 470,000 in 1986 and 32,000 in 2009), the use of some portions of the winter range is expected to be lower than when populations are at their maximum. Figure 4 illustrates the relative use of the available range by satellite collared barren-ground caribou from 2006 to 2010. As there are limited numbers of collared animals, Figure 4 also includes additional information based on the locations of barren-ground caribou observed during spring surveys from 2008 to 2012. The addition of the more recent survey data illustrates animals may be more widespread than the satellite data alone suggest, and illustrates use of the larger winter range. Only a fraction of 1% of the herd is radio-collared, thus some ranges used by one or more herds may not include collared caribou in the area.

Status, Recovery and Management of Barren-Ground Caribou

The GNWT released its first Caribou Forever – Our Heritage, Our Responsibility strategy in 2006. This document laid out a series of strategies and implementation actions for 2006- 2010. The latest 2011-2015 strategy builds on this management approach for the continued recovery and sustainability of barren-ground caribou. Both strategies recognize that barren-ground caribou herd populations fluctuate over a wide range in numbers over time, with cycles varying from about 30 years to longer periods. With respect to the NICO Project, the Bathurst herd, estimated at 32,000 caribou in 2009, has stabilized. This outcome has been due improved environmental conditions leading to better calf survival and to actions carried-out by the GNWT and other management authorities including the Wek'èezhì Renewable Resources Board, the Tlicho government and the Yellowknives Dene First Nation. Example initiatives in the North Slave have included limiting harvest by all hunters and emphasizing bull harvest over cow harvest..

The other Barren-ground caribou herd relevant to the NICO Project, the Bluenose-East herd population, has been estimated at 100,000 caribou in 2010; it has stabilized since declines in the early 2000s and . This trend reflects a combination of environmental conditions leading to good calf survival in the late 2000s and limited hunting by all groups of hunters.

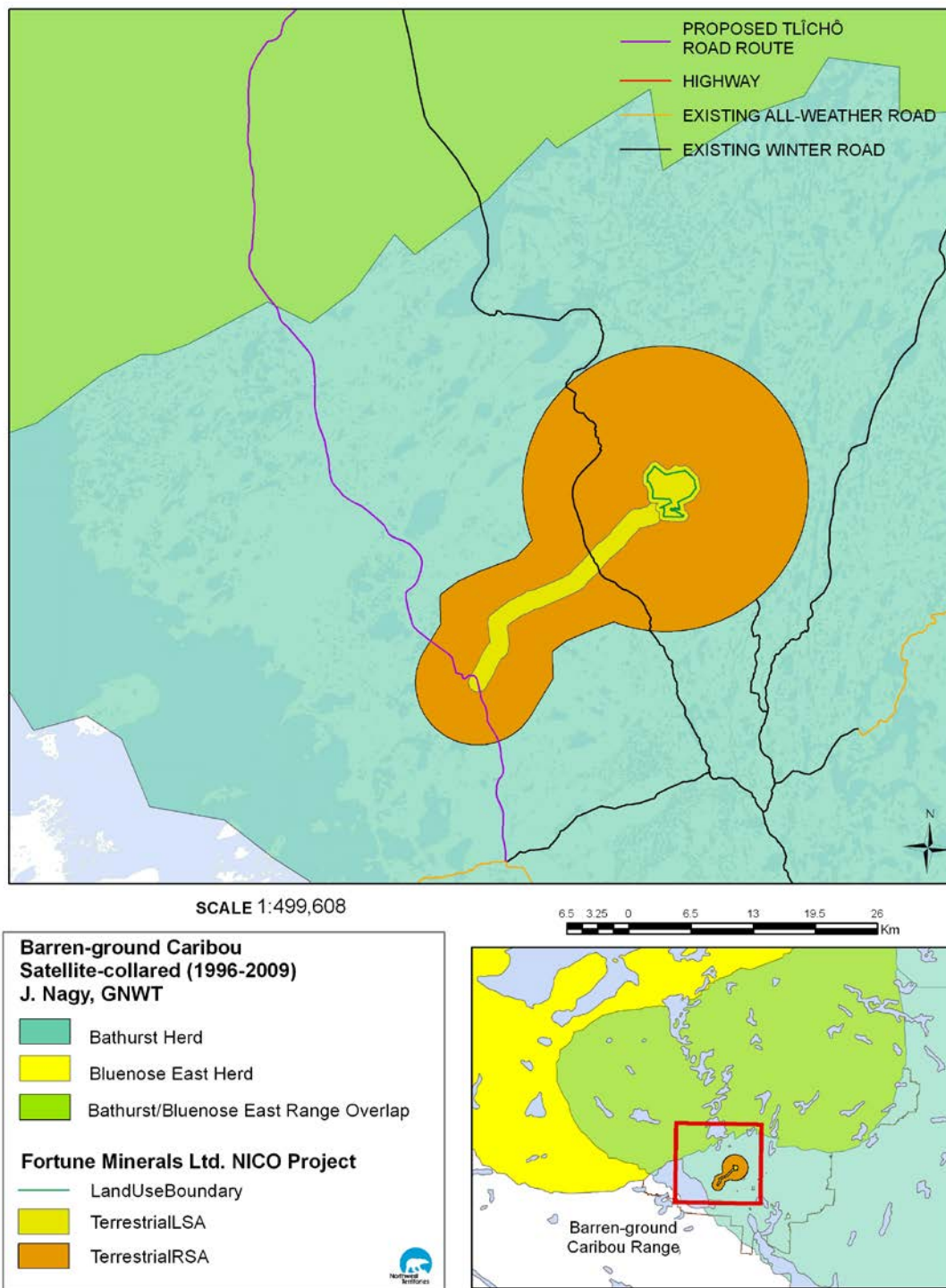


Figure 3: Barren-ground Caribou Range in relation to the Fortune Minerals Ltd. NICO Project location.

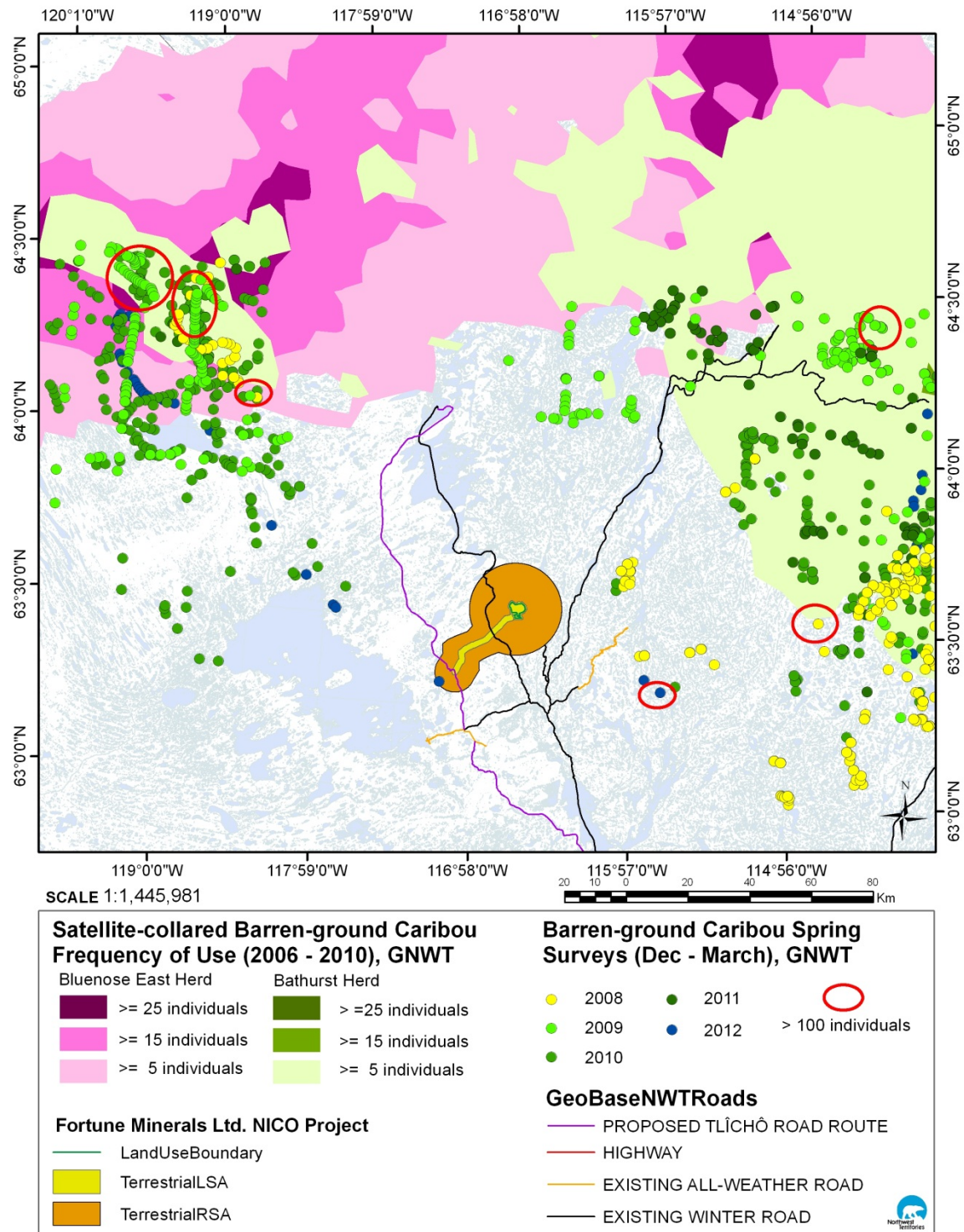


Figure 4: Barren-ground Caribou Range in relation to the Fortune Minerals Ltd. NICO Project location.

Increased Access to Caribou

A concern raised by the GNWT throughout this environmental assessment is the potential for increased harvesting as a result of increased and improved vehicle access to barren-ground caribou herds. Recent experience suggests that roads providing easy access to NWT barren-ground caribou herds have the potential to increase hunter access greatly and enable over-harvest of caribou when herds reach low numbers and have a declining natural trend. Barren-ground caribou populations fluctuate over time and most are currently at the low point in their cycle. Increased access via roads has the potential to accelerate natural declines and prevent timely recovery unless harvest is closely monitored and managed. Barren-ground caribou herds have reached low numbers before in the NWT, and at those times, caribou pulled back to relatively remote core areas, where they had an opportunity to recover under limited harvest pressure. These areas are now less remote. While many herds in the NWT are now stable or increasing, there are concerns that these trends could be easily reversed, particularly if new roads lead to increased harvest pressure.

Both during the first round of IRs and during Fortune's presentation at the February 2012 Technical Session it was made very clear by Fortune that the presence of an all-weather road was essential to the viability of the project. An all-weather road would have a much larger potential impact on barren-ground caribou than the footprint of the NICO mine alone, and in particular, the potential for increased access and harvest. This effect may persist long after the mine is closed. The access to the 3 existing diamond mines and adjacent habitat is limited to winter; an all-season road to the Fortune Minerals site could affect caribou and other wildlife over a longer time span.

The need to understand and monitor harvesting resulted in GNWT ENR and co-management partners developing close monitoring of these herds and monitoring and managing the Bathurst harvest. Figure 5 (below) illustrates the pattern of harvest of caribou in winter 2008/2009 near Tlicho communities.¹⁴ The squares are 10x10km blocks and the colour scheme shows where greater and lesser numbers of caribou were taken. Blue dots are winter satellite collar locations of Bluenose-East caribou and green dots are Bathurst satellite collar locations. Hunting was concentrated that winter on Bathurst caribou from roads to Gameti and Wekweeti and the trail to Hottah Lake.

¹⁴ J. Adamczewski, J. Boulanger, B. Croft, D. Cluff, B. Elkin, J. Nishi, A. Kelly, A. D'Hont, and C. Nicolson. 2009. Decline in the Bathurst Caribou herd 2006-2009: a technical evaluation of field data and modeling. Draft Technical Report

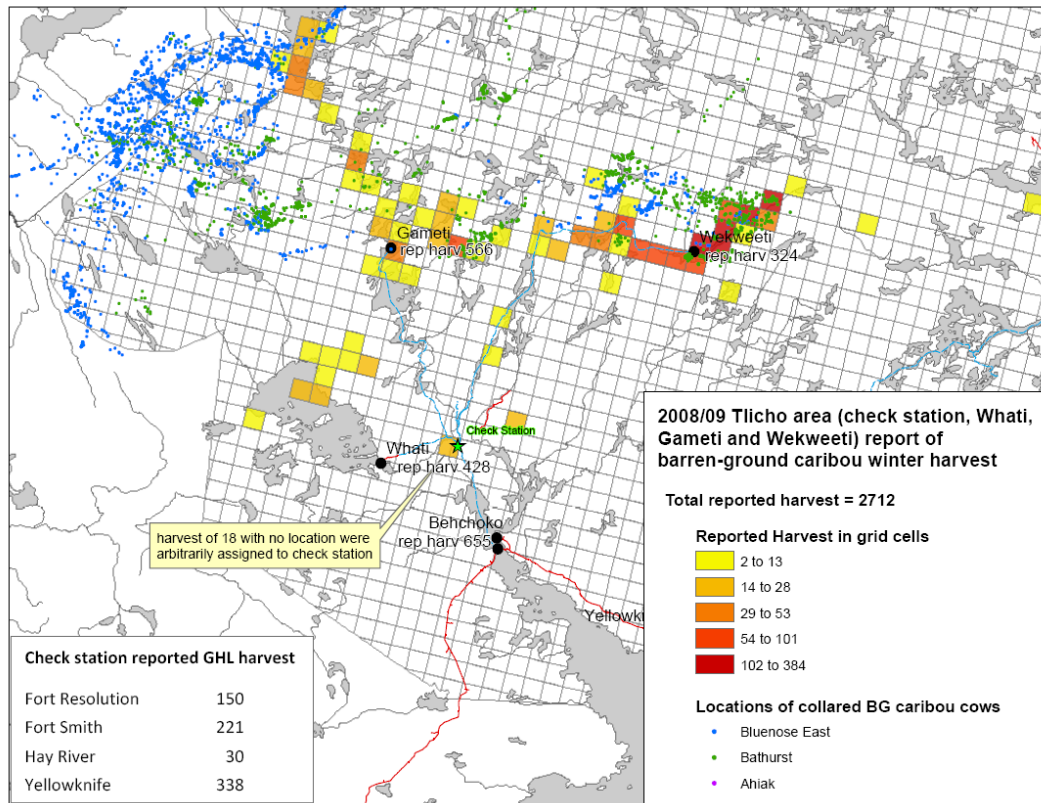


Figure 5. Winter Harvest 2008/2009 in the Tlicho Area.

Cumulative Effects

Concern over cumulative effects on caribou has been expressed clearly not only by ENR but also by other co-management partners. It is not the potential effects of one mine that are the greatest concern; it is the accumulated effects of all development on a caribou range that matter most. Assessing only the NICO Project without fully considering all other existing and proposed developments is no longer a sufficient approach.

Roads have the potential to be the largest single contributor to the cumulative effects of development on caribou in the NWT. It is also important to bear in mind that several further mines and roads are under consideration for the Bathurst herd's range; each development further limits the options for caribou of shifting to alternate ranges. The recent proposals for new mines and roads, such as the Denison Road, Fortune Minerals, Gahcho Kue, Izok Lake, and Bathurst Inlet Port and Road, will make the Bathurst herd more accessible and will likely increase access to other herds. GNWT expects that a zone of influence or avoidance by caribou similar in extent to those shown for the Ekati, Diavik and Snap Lake diamond mines will also occur for the Fortune Minerals mine. While the mine would be in forested winter range, it will still represent a constraint on the use of winter range by caribou.

Monitoring, Mitigation & Follow-up

Recently some developers have expressed interest in contributing to existing or planned GNWT caribou monitoring programs in place of, for example, flying expensive aerial surveys in the immediate area of their property, in recognition of the potential impacts of increased road access on caribou harvest beyond the local footprint of mines. Cost-sharing, for example, could be used toward monitoring of the Bathurst caribou herd, monitoring and management of harvest, and cumulative effects assessment at larger spatial scales, all of which are on-going or planned by GNWT with co-management partners such as the Tlicho Government and the YKDFN.

In response to two GNWT Round 2 information requests, *“How will Fortune Minerals continue to work with the GNWT as the Wildlife Effects Monitoring Program (WEMP) is developed during the permitting phase, to a level that is satisfactory to the GNWT?”* and *“In recognition of the potential impacts of increased road access on caribou harvest beyond the local footprint of mines, would Fortune Minerals willing to discuss with GNWT this type of contribution?”*, Fortune Minerals has committed to:

- *meet with the Government of the Northwest Territories and co-management partners to discuss the details of the Wildlife Effects Monitoring Plan during the permitting phase until the plan meets regulatory requirements and the requirements specific to the NICO Project; and*
- *is willing to discuss alternatives for the NICO Project conceptual Wildlife Effects Monitoring Plan with the GNWT and co-management partners.*

Fortune Minerals included in the Developer’s Assessment Report a Conceptual Wildlife Effects Monitoring Program (WEMP) (Appendix 18.II WEMP) and it is stated in the document that “...detailed study designs, methods, procedures, and data sheets will be developed during the NICO Project permitting phase”. GNWT suggests that monitoring should be clearly tied to expected or predicted environmental impacts. Flying aerial surveys for caribou should not be carried out simply because it has been done for other mines; however, Fortune Minerals still has a responsibility to identify measurable expected or predicted effects on caribou and other key wildlife. Aerial surveys could be appropriate if they are used to test specific predictions or effects.

The GNWT agrees with the overall goals and objectives of the Conceptual Wildlife Effects Monitoring Program, in particular that design studies and data collection protocols will be developed that are consistent with other programs in the region and that it will consider existing regional and collaborative programs. GNWT still believes, however, that Fortune Minerals has a responsibility to design wildlife monitoring that will be built around predicted environmental effects.

Appendix A includes Tables 8.4-1 and 15.3-1 from the Developer’s Assessment Report showing potential pathways for effects to caribou and caribou habitat and to the abundance and distribution of wildlife (Source DAR Sections 8 & 15). Fortune

has clearly indicated in these tables the specific environmental design features and mitigations that will be used in order to address effects. It will be important that these mitigations are included as the GNWT, Fortune Minerals and other key parties work together to develop the Wildlife Effects Monitoring Program.

Wildlife Commitments

Fortune's commitments and mitigations to work with other parties to develop an appropriate project specific Wildlife Effects Monitoring Program and to discuss alternatives to their Wildlife Effects Monitoring Program as a way to contribute to regional monitoring; in addition to currently existing GNWT and other management authorities' conservation and management efforts, should mitigate project specific effects on wildlife at the mine site and address the issue of potential increased harvest effects from increased access due to mine associated roads.

It will also be important that appropriate reporting and follow-up tools are also established in order to ensure Fortune is meeting its requirements and commitments throughout the life of the project.

Fortune's wildlife related commitments including mitigation commitments extracted from the Round 1 and 2 Information Request responses and Technical Session. Other commitments were provided in Table 8.4-1 of the DAR.

As there is some overlap between many of the commitments a revised wording that ensures commitments and mitigations are specific, measurable and trackable is necessary for these to be included in the Report of Environmental Assessment.

Recommendation

Commitments and mitigations made during the environmental assessment should be written in a consolidated table and submitted prior to the public hearing. The final commitments should be worded so that the all parties and regulators can ensure the attainment of commitments is tracked and, if necessary, enforced.

| Wildlife | |
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| Commitment | Source |
| Fortune Minerals Limited is willing to discuss alternatives for the NICO Project conceptual Wildlife Effects Monitoring Plan with the GNWT and co-management partners. (GNWT IR 2-1: Recently some developers have expressed interest in contributing to existing or planned GNWT caribou monitoring programs in place of, for example, flying expensive aerial surveys in the immediate area of their property. In recognition of the potential impacts of increased road access on caribou harvest beyond the local footprint of mines, would Fortune Minerals willing to discuss with GNWT this type of contribution? Cost-sharing could be used toward monitoring of the Bathurst and Bluenose-East caribou herds, monitoring and management of harvest, and cumulative effects assessment at larger spatial scales, all of which are on-going | Fortune response to Round 2 Information Request GNWT 2-1 |

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| or planned by GNWT with co-management partners such as the Tlicho government and the YKDFN.) | |
| Fortune Minerals Limited will meet with the Government of the Northwest Territories and co-management partners to discuss the details of the Wildlife Effects Monitoring Plan during the permitting phase until the plan meets regulatory requirements and the requirements specific to the NICO Project. (GNWT IR 2-2: How will Fortune Minerals continue to work with the GNWT as the Wildlife Effects Monitoring Program (WEMP) is developed during the permitting phase, to a level that is satisfactory to the GNWT?) | Fortune response to Round 2 Information Request GNWT 2-2 |
| Work with the Tlicho Government and the Wek'èezhii Renewable Resources Board to jointly develop a monitoring plan for the access road routes; | February 17, 2102 MVEIRB Summary of Undertaking and Commitments from the February 7 – 9, 2012 Technical Session |
| Conduct post-closure caribou monitoring; | February 17, 2102 MVEIRB Summary of Undertaking and Commitments from the February 7 – 9, 2012 Technical Session |
| Re-examine caribou assessment endpoints and refine management plans using Tlicho based values on the Tlicho traditional knowledge study is complete; | February 17, 2102 MVEIRB Summary of Undertaking and Commitments from the February 7 – 9, 2012 Technical Session |
| The conceptual Wildlife Effects Monitoring Plan (WEMP) includes routine surveys of the NICO property and communication with site staff to record the presence and interaction of all wildlife, which would include observations of wood bison, if present. The WEMP also includes systematic aerial surveys for caribou, which have recorded observations of moose and would likely also detect wood bison. Thus, the occurrence of wood bison in the regional study area would be recorded and reported as part of the WEMP. | Fortune response to Round 2 Information Request NSMA IR 2-1 |
| <p>Upon approval of the NICO Project, a Wildlife Effects Monitoring Program will be implemented to limit effects to caribou and caribou habitat, determine the effectiveness of mitigation, and test impact predictions. The principal goal of the Wildlife Effects Monitoring Program is to provide information required for the NICO Project Environmental Management System to adaptively manage the NICO Project to protect caribou and caribou habitat. In addition, the Wildlife Effects Monitoring Program is designed to provide a process for regulators, communities, and other people interested in the NICO Project to participate in the development and review of wildlife effects mitigation and monitoring.</p> <p>Specific objectives of the Wildlife Effects Monitoring Program include:</p> <ul style="list-style-type: none"> • provide information to test predicted impacts from the NICO Project DAR, and reduce uncertainty; • implement environmental design features and mitigation to reduce the risks and disturbance to caribou and caribou habitat; • determine the effectiveness of environmental design features and mitigation; incorporate local traditional and ecological knowledge, where applicable and available; • propose action levels or adaptive management triggers that can be used as early warning signs for reviewing and implementing caribou mitigation practices and policies; • design studies and data collection protocols that are consistent with other programs in the region; and • consider existing regional and collaborative programs, such as Cumulative Impact Monitoring Program and the NWT Environmental Stewardship Framework. | DAR Page 8-108 (KLOI Caribou) |
| ...Fortune has provided a Conceptual Wildlife Effects Monitoring Program | Fortune response to Round 1 Information |

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| (Appendix 18.II of the DAR), that includes continued monitoring of caribou throughout the construction, operation, and closure phases of the NICO Project. Fortune will engage the Tłıchǫ Government in discussions on their involvement in the monitoring of caribou in the region of the NICO Project. Annual reports from this monitoring will be made available to the Tłıchǫ Government for review and discussion (Response 11.2). | Request Tlıcho Government IR 11 |
| All mitigation to reduce effects to caribou will be equally effective for woodland and barren-ground caribou. Increased woodland caribou abundance in the study area will be detected by continual environmental monitoring; observations of caribou during the summer and early fall will be assumed to be woodland caribou. Should this occur, the observations will be reported and adaptive management may be implemented through the Environmental Management System (Response 12.2). | Fortune response to Round 1 Information Request Tlıcho Government IR 12 |
| The YKDFN has requested an access plan for the NICO Project Access Road (NPAR). Fortune Minerals Limited (Fortune) will have a policy prohibiting hunting, trapping, or fishing by staff working at the NICO Project site, but has no jurisdiction over access or land use by other people not working at the proposed mine site. Similarly, other private winter roads can be and are used by the public (including the Tibbitt-to-Contwoyto Winter Road, the winter roads to Snare Hydro, Discovery Mine, and Colomac Mine). It is the responsibility of the Wek'èezhì Renewable Resources Board, the Tłıchǫ Government, and the Government of the Northwest Territories to implement regulations regarding public use of the NPAR. Fortune will work with these agencies to address access management concerns, and will adhere to any regulations implemented. | Fortune response to Round 1 Information Request YKDFN 1.2 |
| As mentioned above, there are no proposed plans by Fortune to develop an access management plan. Fortune will work with the Tłıchǫ Government and the Kwe Beh working group to incorporate local and traditional knowledge into monitoring plans once the Tłıchǫ traditional knowledge study has been completed. | Fortune response to Round 1 Information Request Tlıcho Government IR 10 |
| An access management plan would presumably be developed and implemented cooperatively between the Tłıchǫ Government, the Wek'èezhì Renewable Resources Board, the GNWT, and affected communities. Fortune would cooperate with any such plan implemented (Response 10.5). | Fortune response to Round 1 Information Request Tlıcho Government IR 10 |