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Mr. Chuck Hubert  
Mackenzie Valley Environmental Impact Review Board  
200 Scotia Centre Box 938,  
5102-50th Ave  
Yellowknife, NT  
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**Re: EA1314-01 - Lutsel K'e Dene First Nation's Technical Report for the Jay Project**

Dear Mr. Hubert,

Thank you for this opportunity to participate in the environmental assessment process. Lutsel K'e Dene First Nation (LKDFN) would like to submit this report regarding the proposed Jay Project (EA1314-01) for the consideration of the Board. It is our hope that the Board will consider some of the suggestions presented here and that they will influence some of the measures and decisions made regarding this project.

Lutsel K'e is one of the communities that will be impacted by the Jay Project, during mine operations and beyond. The community is especially concerned that environmental impacts from the mine will hinder their ability to practice their traditional livelihoods, such as caribou harvesting and fishing. There are also concerns within the community that the people of Lutsel K'e are bearing the brunt of many of the impacts while receiving few of the benefits.

This report is intended to outline the concerns presented by members of Lutsel K'e Dene First Nation regarding Developer's Assessment Report (DAR) for the Jay Project proposed by the Dominion Diamond Ekati Corporation, as well as associated documentation. Please find LKDFN's technical report regarding the Jay Project below. Please do not hesitate to contact me should you have any questions or concerns regarding the report.

Sincerely,



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# **TECHNICAL REPORT FOR THE ENVIRONMENTAL ASSESSMENT OF THE JAY PROJECT (EA1314-01)**

**Presented by**

**Lutsel K'e Dene First Nation**

**to**

**The Mackenzie Valley Environmental Impact Review Board**

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## **1.0 NON-TECHNICAL SUMMARY**

The Lutsel K'e Dene First Nation (LKDFN) has participated in this environmental process to the fullest extent of its capabilities. LKDFN's concerns all revolve around the preservation of the traditional culture of Lutsel K'e and the continued ability to live traditionally off the land. Caribou, water, air, a healthy community and respect for the culture are all essential to achieve these goals.

LKDFN is particularly concerned about the health of the Bathurst caribou herd, which has experienced a dramatic recent decline. LKDFN considers any further impact on this herd to be significant and, as there is uncertainty as to the cause of the decline; LKDFN is especially concerned with the accumulation of impacts from this proposed project, other projects and other factors such as climate change and harvesting. LKDFN disagrees with the Developer, who has concluded that there will be some impacts, but that they should not be considered significant.

LKDFN is also very concerned about water quality. LKDFN members have taken water to drink directly from water bodies and wish to continue to be able to do so in perpetuity. LKDFN has specific concerns about the Developer's plan to induce a stratified lake as well as to leave a large mound of waste rock next to the lake and close to streams. LKDFN is concerned that these may pose risks to water quality, if not now, then perhaps far into the future. LKDFN thinks long-term and potential impacts even centuries from now are a concern. LKDFN is also particularly sensitive to the prospect of mercury contamination given the contamination in Stark Lake, directly adjacent to Lutsel K'e and would like to ensure that no more mercury contamination occurs in LKDFN Traditional Territory.

LKDFN is concerned with the Developer's definition of what a significant effect on air quality is, as it does not adhere to the only guidelines currently available in the Northwest Territories. LKDFN is also concerned about dust deposition as LKDFN sees this as extending the mine's influence and having an indirect impact on fish and caribou. Any impacts on fish and caribou can also be considered impacts on residents of Lutsel K'e as these are key food sources on which they depend.

LKDFN would like to see more effort made to meet targets in the Socio-Economic Agreement and doesn't see these targets taken as seriously as in other areas. LKDFN would also like to see more rigorous monitoring and reporting on these targets so that progress can be better articulated. LKDFN is calling on both the Developer and the GNWT in this area.

LKDFN also seeks to raise the profile of Traditional Knowledge. Currently, Traditional Knowledge is not given the same level of respect and credence as scientific studies.

LKDFN wishes to see this change with more Traditional Knowledge used to complement scientific information.

Lastly, LKDFN would like to address the issue of climate change as well as the issue of participant funding for affected communities in regulatory processes, such as this one.

## **2.0 INTRODUCTION**

Lutsel K'e is located on the south side of the east arm of Great Slave Lake and is the seat of the Lutsel K'e Dene First Nation government. The traditional territory of the LKDFN covers close to 500,000 square kilometres, which were, and are presently used to fish, hunt, trap, live and thrive off of. The Lutsel K'e Dene have a spiritual connection to the land that sustains them, and are trusted with watching over the land in the past, in the present, and for the future generations. The Wildlife, Lands and Environment Department of the LKDFN works to monitor and manage the land on behalf of the Band members. The department is heavily engaged with industry and government trying to work together for a sustainable future. We encourage traditional practices and harvesting, seek to involve the traditional knowledge of the members into design of industrial developments, and press governing authorities and industries to respect the land of the First Nation as the members do.

## **3.0 SPECIFIC ISSUES**

Some of the specific issues identified by Lutsel K'e Dene First Nation include the establishment of meromixis in the Jay Pit after closure; the use of traditional knowledge in mine operations, closure and monitoring, the reporting and progress on socio-economic indicators agreed upon in the Socio-Economic Assessment.

### ***3.1 Caribou***

Caribou are central to the traditional livelihoods and spiritual beliefs of the people of Lutsel K'e.

#### **Impact**

It is not disputed that there will be impacts on caribou. Predicted impacts are discussed throughout Section 12 of the DAR and several impacts on caribou population numbers and migration routes are discussed. Cumulative impacts are summarized in Table 15.3 of the Adequacy Review Responses. What is disputed is the significance of these impacts. The developer posits that none of the impacts are significant, whether considered individually or cumulatively. The developer has not defined significance thresholds for caribou numerically, stating in the response to DAR-LKDFN-IR-13 that, "There are no perfect numbers that will guarantee sustainability of a population against stochastic events and/or to systematic (e.g., harvest, development) pressures.....Using such

estimates to assess the significance of impacts puts too much weight on a single model and could lead to erroneous conclusions. In contrast, the DAR examined several lines of evidence (changes in habitat quantity and connectivity, habitat quality, movement and behaviour, energetics, and calf production) to determine that the Project and other developments do not significantly contribute to adverse cumulative effects on the Bathurst caribou herd.”

LKDFN argues that the closest caribou herd, the Bathurst herd, is currently under enormous pressure as evidenced by the significant decline in its population. LKDFN argues that at this decline implies a level of vulnerability, where any additional impact should be considered significant. There is uncertainty as to how much of the population decline can be attributed to human activities, but all parties agree that there is some level of attribution. LKDFN believes that this uncertainty should lead to increased caution as opposed to being used as license for business as usual until further evidence is gathered. The precautionary principle suggests that the onus should be on parties to undisputedly demonstrate that human activities do not significantly impact this vulnerable herd before proceeding with potentially harmful developments, as opposed to having to demonstrate harm before stopping development. LKDFN does not believe that the Developer has unequivocally demonstrated that this project will not significantly impact the Bathurst caribou herd.

The welfare of caribou is of paramount importance to LKDFN, and therefore, while LKDFN is concerned about individual impacts, it is the health of the caribou population that is of importance. For this reason, LKDFN chooses to focus on the end result and therefore cumulative effects. It is the Review Board’s role to make final determinations of significance; however, LKDFN is of the opinion that even if individual impacts from this project are not considered significant, considering them cumulatively along with impacts from other developments and pressures, such as harvesting and climate change, results in a significant negative impact on the caribou population. This is especially true given the recent population collapse of the Bathurst caribou herd, within whose home range the proposed project would be located.

#### Developer’s Conclusion

The Developer has consistently maintained throughout Section 12 of the DAR that each of the impacts from the project would not affect the ability of caribou populations to be “self-sustaining and ecologically effective.” In terms of cumulative impacts, the developer states in Section 12.6.2 of the DAR that, *“The cumulative effects from the Project and other developments should not have a significant influence on the ability of the Bathurst caribou herd (and the Ahiak and Beverly herds) to be self-sustaining and ecologically effective.”*

#### LKDFN’s Conclusion and Rationale

LKDFN disagrees with the Developer's Conclusion based on LKDFN's position that the Bathurst caribou herd's ability to be "self-sustaining and ecologically effective" is already threatened. LKDFN argues that any further impacts on the Bathurst caribou herd must be considered significant, and that these impacts are in turn felt by traditional land users. LKDFN also argues that the uncertainty surrounding the sudden decline of the Bathurst caribou population will not decrease without significant further research, and that as a source of impacts to the caribou, it is the mine's responsibility to gather as much information as possible about the nature, severity and mechanisms for these impacts as well as measures to reduce them.

The Bathurst caribou herd has declined from a population of more than 450,000 animals in the 1980s to a significantly smaller current population size whose estimates vary from approximately 4,000 to 20,000 animals (DAR Section 12.2.2.3; <http://www.cbc.ca/news/canada/north/n-w-t-stops-issuing-remaining-bathurst-caribou-tags-1.2880037>). Exact numbers are disputed, but the DAR cites a population estimate of 479,000 in 1986 and a population estimate of 3,594 in 2014 (Section 12.2.2.3).

The dramatic decline of the Bathurst caribou is not in dispute. The contribution of development to this decline and whether further stressors affect the Bathurst caribou herd's ability to be "self-sustaining and ecologically effective" is. The Developer has made it clear in the DAR that the project will have impacts, but that these should not be considered significant. LKDFN argues that given the extreme declines in Bathurst population numbers, any impact whatsoever should be considered significant. LKDFN recognizes the challenges in setting quantitative thresholds for significance; however, there must be a point where the line should be drawn. Arguments could be made that a single mating pair could be considered "self-sustaining and ecologically effective," but few people would argue that this is a desirable result for the majority of NWT residents or that such a reduction is not significant.

LKDFN argues that the more than 95% reduction, based on the most conservative estimates, in the Bathurst herd population has already led to significant impacts for traditional land users in the Northwest Territories through restrictions to their ability to harvest caribou; which is important for both subsistence as well as for the practice of their culture (<http://www.cbc.ca/news/canada/north/bathurst-caribou-mobile-no-hunting-zone-set-up-using-radio-collars-1.2935488>). The GNWT Minister of Environment and Natural Resources was quoted as stating, "The Bathurst herd cannot sustain any harvest" and, "we'll protect the herd for as long as is necessary — to when the numbers are healthy enough to sustain a harvest again" less than a year ago (<http://www.cbc.ca/news/canada/north/bathurst-caribou-conservation-plan-leaves-questions-unanswered-1.2882995>). This official position of the government directly impacts traditional culture and even food security for many residents of the Northwest Territories. If the Bathurst herd cannot sustain any harvest, then it stands to reason that any further reductions in population cannot be sustained either. Also, if harvesting will only be permitted upon increases to the population of the Bathurst herd, then any impediment to

population growth in this herd has a direct impact on traditional livelihoods and food security. Therefore, any impacts whatsoever on the Bathurst herd directly affect traditional land users, including the community of Lutsel K'e.

According to the DAR, the project will result in reductions in parturition rates, increased energy expenditures, stressors from traffic at the mine, potential mortalities due to accidents at the mine, reductions in habitat and an increased Zone of Influence, and a road bisecting a heavily used esker. Each of these is a negative impact and, as discussed above, will impact traditional land users' livelihoods. For this reason alone, the impacts are significant, and this argument is strengthened when they are considered cumulatively. In addition to this, the level of uncertainty around the causes for the collapse of the Bathurst population calls for the highest level of caution, and this would also be reason to consider all impacts on the population as significant. These impacts to the caribou herd as well as traditional livelihoods must be mitigated or offset in some way.

Lastly, given that there is still such a high level of uncertainty regarding the reasons for the population collapse of the Bathurst caribou herd, it would only be logical that more research be undertaken to identify the causes. The Developer has thus far limited mitigation to the more obvious stressors, such as vehicle traffic. It has done limited monitoring, also primarily along roads. Given the precarious position of the Bathurst herd, it would be good to increase monitoring of known stressors and also to invest in research regarding mine structures and activities whose impacts are not well known but indications of an impact exist. For example, the Developer has taken the position that research and mitigation for UV emissions from power lines are not necessary as power lines are considered less of a stressor than traffic (DAR-LKDFN-IR-16). LKDFN argues that given the precarious situation facing the Bathurst caribou, all impacts should be investigated.

### Recommendations

LKDFN requests that the Board make a determination that the Jay Project would have significant, negative, cumulative impacts on the Bathurst caribou herd. LKDFN recommends the following measures to address these significant impacts:

- 1) LKDFN recommends that the Developer collaborate with impacted communities, the GNWT, and other mine operators to commission independent research into which elements of the project are having impacts upon caribou, their severity and innovative mitigation measures to reduce these impacts. This research should be comprehensive and encompass all aspects of the mine. LKDFN recommends increasing research and monitoring of known stressors, such as vehicle traffic and an increased Zone of Influence, while also expanding to areas where impacts are suggested but not well-researched, such as power-lines and light fixtures.
- 2) LKDFN recommends that the Developer consult with affected communities and agree upon offsetting measures to mitigate the significant impacts to traditional livelihoods and the Bathurst caribou herd. This offsetting could include measures to improve conditions for caribou (for example, through improved and faster reclamation of disturbed habitat), measures to compensate for the loss of traditional livelihood opportunities and sustenance through the provision of alternate opportunities, or even direct financial compensation.



### ***3.2 Meromixis in Jay Pit***

LKDFN is concerned by the developer's proposal to dispose of minewater high in Total Dissolved Solids (TDS) in the Jay Pit, which would presumably remain separated from covering freshwater through the inducement of meromictic conditions (Section 3.5.8.1 of the DAR).

#### **Impacts**

While the probability of mixing appears very low, the impact of mixing, were it to occur, would be significant and negative. The dense water designated to be the monolimnium will be extremely high in TDS. While this is the reason for the establishment of meromixis, it would also be damaging to the ecosystem should this lower layer mix with the freshwater in the upper layer. Changes in TDS can significantly affect both fish and aquatic plant populations, in some cases eliminating certain native species entirely (Weber-Scannell and Duffy, 2007) while favouring increases in the populations of other species (Boehrer and Schultze, 2008). Changes in TDS can also affect the taste of water (Health Canada, 2014). A dramatic change in TDS in Lac du Sauvage would significantly change the composition of the ecosystem as well as the perception of the area by traditional land users. This would have several likely indirect effects, as well as the possibility of unforeseen effects. One example is the possibility that larger wildlife would avoid the area if the water's taste were to change significantly. If mixing were to occur, the extent of the impact, geographically and temporally, is unknown.

#### **Developer's Conclusion**

The developer has explored four lines of evidence: a conceptual model; various numerical models; a number of analytical equations; and comparisons to analogous lakes. Based on these analyses, the developer has reached the conclusion that meromixis will be established.

#### **LKDFN's Conclusion and Rationale**

LKDFN is concerned that there is little precedence for human-induced meromictic lakes becoming immediately stratified, and definitely no precedent in the Canadian Territories. The lakes that have been cited as analogous, such as Gunnar Lake, seem to have become stratified over time (MEND, 1995), rather than immediately at mine closure. LKDFN is also concerned that while the developer has asserted that mixing would be highly unlikely, it has not asserted that it will be impossible and has not proposed any adaptive management measures should mixing occur.

Literature on the subject has also indicated that severe storm events or other physical disturbances can cause lake overturn, resulting in mixing (Boehrer and Schultze, 2008). As has been indicated before, LKDFN prefers to think longer-term when considering environmental impacts and is concerned that, while such a storm event is unlikely, it is a

not a matter of if it will happen, but when it will happen. While such a storm event is unlikely in the foreseeable future, LKDFN posits that the likelihood of such an event is much higher if considered over the course of centuries as opposed to decades.

LKDFN's conclusion is that, while the likelihood of mixing does appear to be low, the potential impacts, should it occur, would be significant and negative. LKDFN is not satisfied with the developer's assurances that meromixis will occur and with the adaptive management measures proposed.

### Recommendations

LKDFN recommends that an independent review panel be established to thoroughly analyse:

- 1) the probability of meromixis being established;
- 2) the probability of meromixis being maintained in perpetuity;
- 3) the significance of impacts, both direct and indirect, if mixing were to occur;
- 4) the geographic extent of impacts, should mixing occur;
- 5) the likelihood of meromixis being re-established after mixing, should it occur, and estimates as to how much time would be required for this re-establishment, should re-establishment of meromixis be deemed possible.

LKDFN would like this panel to then present its findings as well as recommendations on:

- 1) adaptive management measures should it become evident that meromixis will not be established, these should include early warning systems to allow for identification of the issue as early as practicable, a fully fleshed out contingency plan for disposal of the minewater should disposal in the Jay Pit not be feasible due to mixing, and clear recommendations as to which organization would be accountable for these measures;
- 2) similar adaptive management measures should a disturbance cause mixing during DDRC's operations in the Northwest Territories;
- 3) options for minimizing the risk of mixing after DDRC can no longer practicably be held accountable for mine effects;
- 4) options for adaptive management by the GNWT and other implicated parties for minimizing impacts should mixing occur in the distant future;

LKDFN envisions this panel to be similar in nature to panels established for the review of mine infrastructure, such as dyke review panels.

## ***3.3 Waste Rock Storage Area***

LKDFN is concerned that there are potential impacts from the Waste Rock Storage Area (WRSA) that could be significant.

### Impacts

The WRSA has several potential impacts, however; there are two which are of primary concern for LKDFN. These are the change to caribou habitat, including potential obstructions to migration, and the risk of seepage with potential Acid Rock Drainage. As discussed in the section dealing with caribou, LKDFN considers all impacts to the Bathurst caribou herd to be significant, with the reasons explained in that section. Acid Rock Drainage would be a significant impact to aquatic life with impacts to traditional livelihoods through changes in harvesting opportunities as well as perceptions of the area.

### Developer's Conclusion

The developer plans to build the WRSA for the Jay Pit on the western shore of Lac du Sauvage (DAR Section 3.5.6). The Developer has committed to setting the WRSA back a minimum of 100 m from Lac du Sauvage, a minimum of 30 m from streams draining into Lac du Sauvage, and a minimum of 200 m from the adjacent esker. The Developer has committed to providing access ramps on WRSA to allow caribou to move on and off of it, as well as to monitor the presence of caribou on the WRSA (Jay Project Management Plans Workshop on June 25 and 26, 2015). The Developer proposes to place potentially acid-generating rock from the Jay Pit in the center of the WRSA, with clean granite to cover it. Permafrost encapsulation was also cited as a method to prevent Acid Rock Drainage (DAR Section 8.4.2.3). When questioned about the necessity for permafrost encapsulation, the Developer has stated that it is not necessary for physical stability or to prevent Acid Rock Drainage (DAR-HEMA-IR-22; Jay Project Management Plans Workshop on June 25 and 26, 2015). The Developer concluded that, "predicted changes to water quality will not cause adverse effects to aquatic life or prevent the use of the water as a drinking source" (DAR Section 8.7.2).

### LKDFN's Conclusions and Rationale

While LKDFN does not doubt that the measures to prevent seepage from the WRSA will be effective, they do not reduce the risk of seepage to zero. LKDFN even has a reasonable amount of confidence that the Developer would be capable of managing seepage, should it occur during mine operation or closure. However, LKDFN holds a long-term perspective and is concerned with the possibility of seepage long after closure, given the close proximity to multiple water bodies.

Acid Rock Drainage would be a significant impact and LKDFN does not have many assurances that it will be managed after mine closure. LKDFN is currently living with multiple abandoned mine sites within LKDFN Traditional Territory and is wary of post-closure environmental effects. LKDFN posits that this WRSA is exceptionally close to water bodies and that stronger assurances need to be provided that the pile will not have any impacts on these water bodies as well as some options for how impacts can be managed should they occur; no matter how unlikely they appear to be.

Lastly, as discussed in the section regarding caribou, LKDFN believes that all impacts to the Bathurst caribou herd should be considered significant based on the precarious position of the herd currently. Therefore, the impact of the WRSA on caribou habitat and migration cannot be dismissed and it is LKDFN's position that every effort possible should be made to reclaim the WRSA as suitable caribou habitat and that intensive monitoring is required to monitor the success of these measures.

### Recommendations

LKDFN recommends that the Developer present an enhanced monitoring plan for monitoring the use of the WRSA by caribou. Also, given that LKDFN considers all impacts to caribou significant and has asked for enhanced reclamation measures to accommodate caribou, LKDFN recommends that the Developer present options for enhanced reclamation of the WRSA to improve it as habitat for caribou to the extent possible. LKDFN recommends a revised WRSA management plan that includes adaptive management measures during mine operations and closure, but also options for longer-term adaptive management should seepage occur at any time post-closure.

## ***3.4 Water Quality – Mercury***

Mercury is a contaminant of particular concern for LKDFN.

### Impact

Mercury is toxic to humans and is well known to bioaccumulate, especially in aquatic organizations. Even minute amounts of mercury can eventually accumulate to cause toxicity. This effect has already impacted the community of Lutsel K'e in terms of where fish can be harvested and what size of fish can be eaten. As this affects a core subsistence activity, LKDFN considers this to be a significant impact.

### Developer's Conclusions

The Developer concluded that runoff from the Jay WRSA would contain an average mercury concentration of 0.025 ug/L, with a maximum concentration of 0.04 ug/L (DAR Appendix 8E).

### LKDFN's Conclusion and Rationale

LKDFN has experience with mercury contamination. Stark Lake, a lake adjacent to the community of Lutsel K'e, hosts an abandoned mine site which has been identified as a source of mercury. This has significantly impacted traditional livelihoods as community residents can no longer harvest fish from Stark Lake and are very cautious with the size of fish harvested in adjacent areas.

Residents of Lutsel K'e have consistently shown strong opposition to any amount of mercury released into the environment. It is the firm position of LKDFN that any amount of mercury released into the environment should be considered a significant effect.

### Recommendations

LKDFN requests specific details for the management of sediments contaminated with mercury, along with specific measures to prevent mercury from entering any water bodies.

## ***3.5 Air Quality***

LKDFN's concerns regarding air quality are primarily regarding the deposition of dust and other pollutants as well as the Developer's definition of significance.

### Impact

Air quality has direct impacts on fish and wildlife. Pollutants in the air can be inhaled by terrestrial life and many of these pollutants can be deposited on land with implications for terrestrial plant life (and indirectly herbivores consuming these plants), and in water bodies with implications for aquatic life

### Developer's Conclusion

The DAR states that "Magnitude is the primary criterion used to determine significance" and that significant is defined as "Predicted concentrations are above the AAQS for the NWT and exceedances of the relevant criteria are widespread, continuous, and occur well-beyond the Project area" (DAR Section 7.6.1.2). It goes on to state that "if a prediction is reversible and short-term or medium-term in duration, but it is above the established threshold at times, it would receive a not significant rating" (DAR Section 7.6.1.2). The Developer concludes, "All of the effects were classified as local in geographic extent and of medium duration because emissions and effects cease when Project activities are completed. Magnitude classifications ranged from negligible to high within the LSA. Consequently, effects to air quality were classified as not significant" (DAR Section 7.6.2).

### LKDFN's Conclusion and Rationale

LKDFN does not find this to be a stringent or effective definition of significance. The NWT AAQS are relatively lenient. For example, the World Health Organization (WHO) sets the limits for Nitrogen Dioxide at 40 µg/m<sup>3</sup> for the annual mean and 200 µg/m<sup>3</sup> for the 1-hour mean; and Sulphur Dioxide is limited at 20 µg/m<sup>3</sup> for a 24-hour mean and 500 µg/m<sup>3</sup> for a 10-minute mean ([http://whqlibdoc.who.int/hq/2006/WHO\\_SDE\\_PHE\\_OEH\\_06.02\\_eng.pdf](http://whqlibdoc.who.int/hq/2006/WHO_SDE_PHE_OEH_06.02_eng.pdf)). Please note that the WHO sets these guidelines globally, so this includes all developing countries,

where air quality management is much more challenging than in a developed country such as Canada. Given that NWT AAQS are far more lenient than the international standard and that the NWT AAQS were specifically designed with developments, such as this project, in mind, LKDFN fails to understand how the proponent can suggest that exceeding them can be considered not significant.

Lastly, LKDFN is extremely concerned about dust deposition as Traditional Knowledge has identified this as an effect that impacts caribou. The Developer has responded to previous inquiries regarding dust deposition; however, LKDFN would appreciate as much information as possible and sustained monitoring and research into this area.

### Recommendations

LKDFN recommends that any exceedance of the Ambient Air Quality Guidelines be considered a significant effect. LKDFN also recommends that the GNWT complete legally binding air quality regulations as soon as practicable. LKDFN also recommends that the Developer prepare a dust management plan, including a comprehensive monitoring program that includes lichen sampling and details about dust suppression efforts at site.

## ***3.6 Socio-economic indicators and their progress***

LKDFN is concerned about the socio-economic impacts of the Jay Project on the community of Lutsel K'e.

### Impacts

The implementation of the Jay Project will have several socio-economic impacts on the community of Lutsel K'e. Both positive and negative impacts are anticipated, with varying levels of significance. Positive impacts could include increased employment opportunities, increased social programs supported by the mine and increased incomes within the community. Negative impacts could include increased income inequality within the community, increased substance abuse issues due to increased disposable incomes, increased numbers of single-parent homes due to shift work at the mine, and increased incidences of domestic violence resulting from the increased substance abuse. Given the proximity of the mine to the community and the level of involvement by community members, it is likely that many of these impacts will be significant.

### Developer's Conclusion

The project proponent has signed a Socio-Economic Agreement (SEA) with the Government of the Northwest Territories for the Ekati mine. The proponent proposes to extend the targets of the SEA to encompass the Jay Project. The project proponent concluded that "Overall, it is expected that the Project will have a net-positive effect on the socio-economic environment in the NWT, and LSA communities, maximizing

economic, employment and educational benefits, while minimizing potential negative impacts on well-being, physical infrastructure and NTLU.” (Jay Project DAR, Section 14.9)

### LKDFN’s Conclusion and Rationale

LKDFN questions the conclusion that project will have a net-positive effect on the community of Lutsel K’e. LKDFN does not rule out this possibility, but does not accept this as a foregone conclusion. LKDFN notes that the majority of the targets within the SEA have not been met, and there is little discussion in the DAR explicitly addressing these shortcomings and proposing strategies to remedy them. LKDFN is concerned that current monitoring and reporting is not adequate to identify and prevent potentially significant negative socio-economic impacts.

It is difficult to accurately assess progress on the objectives of the SEA on a yearly basis. There is currently very little data collected systematically within the community. There is a prevailing opinion that substance abuse issues are worsening; however, there is little quantitative data available to support this conclusion and no way to determine if this is attributable to the mine or not. While LKDFN appreciates the information presented in the annual *Communities and Diamonds* report, the way it is currently structured makes it difficult to concretely assess progress on the in the Socio-Economic Agreement. For example, it is difficult to assess progress on the 14 indicators established for Health and Wellness. The subjects are discussed, but an explicit assessment of progress on these specific indicators has not been included in recent editions of this report.

LKDFN also believes that there is room for increased transparency regarding the annual meeting between the GNWT and the project proponent. LKDFN understands that these discussions sometimes include proprietary information that cannot be shared. However, a report of the discussions that have taken place could be shared while omitting sensitive information.

The Developer has set targets in the Socio-Economic Agreement, and a large proportion of these have not been met. The only positive effect of the mining industry is the economic benefits that it purportedly provides. If these benefits are not clearly and unequivocally being accrued, then it calls into question the validity of the entire development. It is not acceptable to fail at emissions tests, or effluent limits or workplace safety conditions, and LKDFN argues that it should be similarly or more troubling when SEA targets are not met. LKDFN’s position is that much more work is required to meet SEA targets and to monitor progress on associated indicators.

### Recommendations

LKDFN recommends more stringent monitoring and stronger commitments to the SEA objectives. A good start would be a more structured reporting system for SEA indicators and increased transparency regarding discussions between the GNWT and the project proponent. LKDFN recommends a clear and explicit discussion of the SEA objectives in

every edition of the *Communities and Diamonds* report. Where progress towards the achievement of an objective is determined to be lagging, there should be a list of clear and concrete measures being implemented to address this shortcoming. For increased transparency, LKDFN recommends a report of all meetings between the GNWT and the project proponent regarding socio-economic impacts be shared with all interested parties, omitting any proprietary information.

This level of detail will likely require increased monitoring of socio-economic indicators. LKDFN recommends a comprehensive monitoring plan for SEA objectives be developed for each of the affected communities in collaboration with the leadership in each community. This plan should clearly describe the methodology used for measuring each indicator within the community, as well as explicitly assigning accountability for each monitoring activity.

### ***3.7 Traditional Knowledge***

LKDFN is concerned that Traditional Knowledge is not given the same level of prominence as Western scientific information.

#### **Impact**

Traditional Knowledge (TK) is the basis for the livelihoods practiced by a large proportion of the residents of Lutsel K'e. Development operations not adequately incorporating TK into their planning, operations and monitoring cannot properly assess impacts on these livelihoods. LKDFN is concerned that development based purely on scientific information will not fully capture potential impacts on these traditional livelihoods and this could result in significant negative impacts on these same livelihoods, especially where TK conflicts with scientific knowledge.

#### **Developer's Conclusion**

Section 5.4 of the DAR states: "The TK baseline studies included the Yellowknives Dene First Nation, Łutselk'e Dene First Nation, Deninu K'ue First Nation, Fort Resolution Métis, North Slave Métis Alliance, the Tłjchq Government, and the Kitikmeot Inuit Association. The results of the studies and scoping activities done by MVRB and Dominion Diamond were used in the EA to develop valued components and to inform pathways analysis, and were used by the various technical components in their respective assessments. Local and TK information was also used in Project design to assess Project alternatives. The information was considered in the Subject of Note (Culture) which also makes recommendations for Project monitoring programs."

#### **LKDFN's Conclusion and Rationale**

LKDFN appreciates the efforts made by the project proponent to collect and apply TK; however, LKDFN does not believe that they are adequate. While TK is present in the



DAR, it is not nearly as systematically applied as scientific studies. Traditional Knowledge appears to be primarily relegated to section 5 of the DAR, called “Traditional Knowledge.” LKDFN cannot help but notice that there is no similar section called “Western Science.”

Beyond section 5 and Appendix XVII, LKDFN is hard pressed to find many references to TK. For example, section 8 relates to water quality and quantity. It does contain a two page section (Section 8.2.6) addressing TK, but this appears to be the extent of its application in this section. There is no mention of traditional knowledge regarding hydrology. There is mention of the incorporation of traditional knowledge, but no concrete example (ex. TK from community X indicates that the water flows from A to B). LKDFN has lived on this land for countless generations and has extensively used the water bodies in this area. While LKDFN does not discount the value of scientific studies, we maintain that there is also value to considering knowledge gathered over centuries of observations along with the scientific information gathered over only a few short years.

### Recommendations

LKDFN recommends that Traditional Knowledge be integrated in all discussions of any of the valued components for the remainder of planning and the entirety of operations, monitoring and closure. LKDFN recommends engaging the expertise of world-class experts to develop protocols, including practical measures, for the incorporation of Traditional Knowledge. LKDFN recommends that the mine operator make efforts to provide access to traditional knowledge holders to the land around the mine site for observations to be compared to the historical knowledge in their possession. This could take the form of a land camp or other formal arrangement. LKDFN recommends that concrete references be made in all further documentation to the Traditional Knowledge gathered for each component as the component is discussed, rather than relegating it to a separate section or annex. Where Traditional Knowledge conflicts with scientific studies, LKDFN recommends a discussion of attempts made to reconcile the two knowledge sources, and failing reconciliation, a presentation of justification for choosing one over the other.

## ***3.8 Climate Change***

Climate Change is a major concern for the community of Lutsel K’e. Community members are noticing changes in water levels and in the distribution and range of animals in the area. These changes directly impact the lives of community members.

### Impact

While the impacts of climate change are difficult to predict with certainty, there are some clear trends. The most comprehensive report encountered by LKDFN is the *NWT Climate Change Impacts and Adaptation Report* published by the GNWT in 2008.

Impacts listed in the report that are of primary concern to the community of Lutsel K'e include changing water levels, a shorter winter season and changes in animal species distribution, diversity and range.

The changing water levels affect the community's ability to travel, to receive goods including food, and practice traditional livelihoods. Lutsel K'e does not have road access and many residents depend on boats for transport as well fishing and hunting from boats for subsistence. Lowered water levels make some passage impossible to navigate closing hunting and fishing areas and make transporting food from Yellowknife more difficult. The shorter winter season presents the same issues, limiting movement by snowmobile and making hunting, fishing and transporting food from Yellowknife more difficult. These barriers to travel as well as changing conditions within animal populations lead the GNWT to conclude that climate change will result in a decreased ability to hunt, trap or fish (<http://www.nwtclimatechange.ca/content/climate-change-impacts>).

#### Developer's Conclusion

In response to DAR-LKDFN-IR2-05, the Developer stated:

*"Since Dominion Diamond has taken ownership of the Ekati Mine, several programs and improvements have been put in place. Dominion Diamond has put in place a Greenhouse Gas and Energy Management Steering Committee comprising of energy leaders in each area of the business. The Steering Committee's mandate is to "ensure that effective and efficient energy use remains part of the way that we do business and to ensure that we seek out opportunities to reduce our energy use and greenhouse gas emissions at Ekati". The Steering Committee has prepared and released a monthly dashboard on energy and diesel use and emissions generated for the information of staff. The Steering Committee is also responsible for reviewing and identifying projects that meet the above mandate, including consideration of potential alternative energy projects.*

*Some key initiatives that have occurred since the purchase of the Ekati Mine include the purchase and commissioning of a large-scale composter that will reduce the need to operate two incinerators, and the purchase and testing of biodiesel use in some equipment. Reducing the use of incinerators down to only one will decrease the amount of diesel used, as well as eliminate emissions from the incinerator stack. The biodiesel was tested in a loader, a grader, and in a light vehicle at various blends in 2014. Preliminary results indicated a reduction in emissions, and testing is ongoing this year."*

#### LKDFN's Conclusion and Rationale

LKDFN does not presume to attribute climate change impacts to just one mine. However, as climate change is an especially important issue for the community of Lutsel K'e, the attitude of the mine operator towards climate change mitigation can have a significant impact on its relationship with the community. Community members are

interested in seeing every effort possible being made to reduce the mine's contribution to climate change and would like to see mines in LKDFN's home territory become world leaders in climate change mitigation. LKDFN urges the Developer to embrace this attitude and strive to become an industry leader in climate change mitigation.

### Recommendations

LKDFN recommends as much information sharing about climate change adaptation measures as possible, and recommends that the Developer include a brief update during community visits. LKDFN also recommends that the Developer continue and expand efforts to reduce emissions, especially in the area of alternative energy, pursuing similar initiatives to Diavik and their use of wind turbines.

## ***3.9 The Regulatory Process***

LKDFN notes that there is not a clear mechanism for participant funding with respect to the regulatory process.

### Impact

LKDFN does not have very much capacity to participate in the regulatory process. The GNWT provides support through the Interim Resource Management Assistance programs (Base Funding and Resource Pressures). This funding allows LKDFN to hire one technical staff person and run the Wildlife, Lands and Environment Department office and LKDFN very much appreciates this support. However, while this support is crucial for activities such as the drafting of this report, it does not allow LKDFN to fully participate in the regulatory process. Without full participation, LKDFN is not able to fully exploit all opportunities for influencing regulatory decisions and this could lead to several significant impacts for the community of Lutsel K'e.

Currently, LKDFN's representatives face challenges participating in regulatory sessions and other meetings related to resource developments as Lutsel K'e does not have road access and most of these meetings take place in Yellowknife. It is very expensive to send representatives to Yellowknife and also requires a significant administrative effort. Lack of funds and staff prevents LKDFN from participating in all but the most essential regulatory meetings. This lessens LKDFN's knowledge of developments as well as decreasing LKDFN's influence over regulatory decisions. This could result in decisions being taken against the community's interests resulting in impacts to the community simply because LKDFN was not adequately informed or was unable to properly express their position.

### Developer's Conclusion

The Developer has supported the participation of LKDFN representatives on several occasions. LKDFN has not asked for or encountered an explicit statement from the Developer regarding a formal agreement on participant funding.

## LKDFN's Conclusion and Rationale

The community of Lutsel K'e is very concerned about developments taking place within Lutsel K'e Dene First Nation Traditional Territory. Unfortunately, the community has little capacity to participate in the regulatory process. This is true for both the technical capacity to review documentation related to environmental assessment and permitting, as well as having the financial resources necessary to send representatives to regulatory meetings. Without the means to fully participate, LKDFN cannot influence decisions to the extent that other parties with the means to participate fully can. This can lead to some decisions that may have been taken differently with LKDFN's full participation. These decisions could lead to activities that would have significant negative impacts on the residents of Lutsel K'e.

LKDFN asked both the Government of the Northwest Territories as well as the Federal Government of Canada about plans to formalize participant funding in February of 2015, and was told that they were aware of the issue but that no formal timeline has been established for discussions or implementing a solution. LKDFN argues that a formal arrangement for participant funding is necessary and should be implemented as soon as possible to allow for the regulatory process to function as it was designed to, with the full participation of implicated parties.

## Recommendations

LKDFN recommends that the Government of the Northwest Territories, the Federal Government of Canada and major mine operators in the Northwest Territories hold meetings as soon as possible with the aim of agreeing upon a formal process to support the participation of communities impacted by development in the regulatory process.

## **5.0 SUMMARY OF RECOMMENDATIONS**

LKDFN has made the following recommendations:

- 1) LKDFN requests that the Board make a determination that the Jay Project would have significant, negative, cumulative impacts on the Bathurst caribou herd.
- 2) LKDFN recommends that the Developer collaborate with impacted communities, the GNWT, and other mine operators to commission independent research into which elements of the project are having impacts upon caribou, their severity and innovative mitigation measures to reduce these impacts. This research should be comprehensive and encompass all aspects of the mine. LKDFN recommends increasing research and monitoring of known stressors, such as vehicle traffic and an increased Zone of Influence, while also expanding to areas where impacts are suggested but not well-researched, such as power-lines and light fixtures.
- 3) LKDFN recommends that the Developer consult with affected communities and agree upon offsetting measures to mitigate the significant impacts to traditional livelihoods and the Bathurst caribou herd. This offsetting could include measures to improve

conditions for caribou (for example, through improved and faster reclamation of disturbed habitat), measures to compensate for the loss of traditional livelihood opportunities and sustenance through the provision of alternate opportunities, or even direct financial compensation. \

- 4) LKDFN recommends that an independent review panel be established to thoroughly analyse:
  - a. the probability of meromixis being established;
  - b. the probability of meromixis being maintained in perpetuity;
  - c. the significance of impacts, both direct and indirect, if mixing were to occur;
  - d. the geographic extent of impacts, should mixing occur;
  - e. the likelihood of meromixis being re-established after mixing, should it occur, and estimates as to how much time would be required for this re-establishment, should re-establishment of meromixis be deemed possible.

LKDFN would like this panel to then present its findings as well as recommendations on:

- a. adaptive management measures should it become evident that meromixis will not be established, these should include early warning systems to allow for identification of the issue as early as practicable, a fully fleshed out contingency plan for disposal of the minewater should disposal in the Jay Pit not be feasible due to mixing, and clear recommendations as to which organization would be accountable for these measures;
- b. similar adaptive management measures should a disturbance cause mixing during DDRC's operations in the Northwest Territories;
- c. options for minimizing the risk of mixing after DDRC can no longer practicably be held accountable for mine effects;
- d. options for adaptive management by the GNWT and other implicated parties for minimizing impacts should mixing occur in the distant future;

LKDFN envisions this panel to be similar in nature to panels established for the review of mine infrastructure, such as dyke review panels.

- 5) LKDFN recommends that the Developer present an enhanced monitoring plan for monitoring the use of the WRSA by caribou.
- 6) Given that LKDFN considers all impacts to caribou significant and has asked for enhanced reclamation measures to accommodate caribou, LKDFN recommends that the Developer present options for enhanced reclamation of the WRSA to improve it as habitat for caribou to the extent possible.
- 7) LKDFN recommends a revised WRSA management plan that includes adaptive management measures during mine operations and closure, but also options for longer-term adaptive management should seepage occur at any time post-closure.

- 8) LKDFN requests specific details for the management of sediments contaminated with mercury, along with specific measures to prevent mercury from entering any water bodies.
- 9) LKDFN recommends that any exceedance of the Ambient Air Quality Guidelines be considered a significant effect.
- 10) LKDFN also recommends that the GNWT complete legally binding air quality regulations as soon as practicable.
- 11) LKDFN also recommends that the Developer prepare a dust management plan, including a comprehensive monitoring program that includes lichen sampling and details about dust suppression efforts at site.
- 12) LKDFN recommends more stringent monitoring and stronger commitments to the SEA objectives. A good start would be a more structured reporting system for SEA indicators and increased transparency regarding discussions between the GNWT and the project proponent.
- 13) LKDFN recommends a clear and explicit discussion of the SEA objectives in every edition of the *Communities and Diamonds* report. Where progress towards the achievement of an objective is determined to be lagging, there should be a list of clear and concrete measures being implemented to address this shortcoming.
- 14) For increased transparency, LKDFN recommends a report of all meetings between the GNWT and the project proponent regarding socio-economic impacts be shared with all interested parties, omitting any proprietary information.
- 15) LKDFN recommends a comprehensive monitoring plan for SEA objectives be developed for each of the affected communities in collaboration with the leadership in each community. This plan should clearly describe the methodology used for measuring each indicator within the community, as well as explicitly assigning accountability for each monitoring activity.
- 16) LKDFN recommends that Traditional Knowledge be integrated in all discussions of any of the valued components for the remainder of planning and the entirety of operations, monitoring and closure.
- 17) LKDFN recommends engaging the expertise of world-class experts to develop protocols, including practical measures, for the incorporation of Traditional Knowledge.
- 18) LKDFN recommends that the mine operator make efforts to provide access to traditional knowledge holders to the land around the mine site for observations to be compared to the historical knowledge in their possession. This could take the form of a land camp or other formal arrangement.
- 19) LKDFN recommends that concrete references be made in all further documentation to the Traditional Knowledge gathered for each component as the component is discussed, rather than relegating it to a separate section or annex.
- 20) Where Traditional Knowledge conflicts with scientific studies, LKDFN recommends a discussion of attempts made to reconcile the two knowledge sources, and failing reconciliation, a presentation of justification for choosing one over the other.

- 21) LKDFN recommends as much information sharing about climate change adaptation measures as possible, and recommends that the Developer include a brief update during community visits.
- 22) LKDFN also recommends that the Developer continue and expand efforts to reduce emissions, especially in the area of alternative energy, pursuing similar initiatives to Diavik and their use of wind turbines.
- 23) LKDFN recommends that the Government of the Northwest Territories, the Federal Government of Canada and major mine operators in the Northwest Territories hold meetings as soon as possible with the aim of agreeing upon a formal process to support the participation of communities impacted by development in the regulatory process.