



**DECEMBER ENGAGEMENT MEETING
FOLLOW-UP RESPONSES**

JAY PROJECT

Prepared for: Dominion Diamond Ekati Corporation

February 2015

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Attachment A

Summary of Air Quality at the Jay Project

Abbreviations

Abbreviation	Definition
AEMP	Aquatic Effects Monitoring Program
BHP Billiton	BHP Billiton Canada Inc. including subsidiary BHP Billiton Diamonds Inc.
CD	Compact disc
DAR	Developer's Assessment Report
De Beers	De Beers Canada Inc.
Diavik Mine	Diavik Diamond Mine
Dominion Diamond	Dominion Diamond Ekati Corporation
ELC	Ecological Landscape Classification
e.g.	for example
Ekati Mine	Ekati Diamond Mine
GNWT	Government of the Northwest Territories
i.e.	that is
IBA	Impact Benefit Agreement
LLCF	Long Lake Containment Facility
MVEIRB	Mackenzie Valley Environmental Impact Review Board
NSMA	North Slave Métis Alliance
NWT	Northwest Territories
SEA	Socio-Economic Agreement
VC	valued component
tpd	tonnes per day
WRSA	Waste Rock Storage Area
YKDFN	Yellowknives Dene First Nation

Units of Measure

Unit	Definition
%	percent
#	number
km	kilometres
m	metres
m ³	cubic metres

1 INTRODUCTION

Dominion Diamond Ekati Corporation (Dominion Diamond) held workshops in December 2014 to discuss the Jay Project Developer's Assessment Report (DAR) with communities (December 9 and 10) and regulators (December 11 and 12). Presentations were given on the main topics of: Project and DAR Overview; Human Environment; Aquatic Environment; and Terrestrial Environment. During the session, there were discussions and questions regarding the DAR results. For some questions, Dominion Diamond made commitments to provide the appropriate DAR section references to facilitate review or to provide additional information following the session. The follow-up responses are summarized under the headings of:

- Project Description/Engineering
- Air Quality
- Socio-economics
- Terrestrial/Caribou
- Aquatics

1.1 Project Description/Engineering

Date: December 9, 2014

Originator: Henry Zoe, Tłı̄ch̄o Government

Topic: DAR delivery

Question:

Have we received a copy of the DAR yet?

Commitment:

Commitment to make sure the DAR got to the Tłı̄ch̄o, and to a supplement with 2014 data when available.

Response:

Dominion Diamond provided a CD of the DAR to the Tłı̄ch̄o Government Lands Department. When the 2014 supplemental data reports are available, these will also be provided.

Date: December 9, 2014

Originators: Todd Slack, YKDFN; Tony Whitford, NSMA;

Topic: Lakebed Sediment and Reclamation

Question:

Can the lakebed sediment from the dewatered area be saved for use in reclamation? What are the criteria that you would use to assess whether this material is salvageable and useable? How will you decide what to save?

Commitment:

Provide additional information.

Response:

Lakebed sediment is fine-grained materials, such as, silt, clay, and sand, that accumulates on lake bottoms, often more so in deeper areas of a lake. During the development of open pits at the Ekati Mine in the past, lakebed sediment was put aside for possible future use in reclamation. That is not planned for the Jay Project where lakebed sediment will be encountered during pit stripping and during dike construction. This is because site-specific reclamation research at the Ekati Mine has shown that lakebed sediment is not a suitable reclamation material. If stockpiled separately, this material would create a reclamation liability, requiring reclamation of itself. The specific research findings as published in various technical reports are as follows:

- As part of the rock pad research program established in 2008, lake sediment materials were evaluated for their suitability as a top dressing material. Monitoring results to date indicate that lake sediment did not provide favorable conditions for plant growth. Specifically mixing of lake sediment with topsoil, has reduced performance of planted stock and seeded grasses and legumes (Martens 2014; EcoSense 2014).
- Lake sediments were tested for their ability to support plant growth in a field experiment at the Fox Portal starting in 1996, then later tested in greenhouse experiments in 1998. Field and greenhouse studies on lake sediments in 1996 and 1999 found that lake sediments have low organic content, low moisture holding capacity and low cation exchange capacity, and appeared to be the main factors responsible for poor growth at the Fox Portal Pilot Study (Kidd and Max 2002; Martens 2013).
- Vegetation monitoring on a seeded test area within the lake sediment stock pile area sediment was established in 2002. Initial growth monitoring results were poor and the test area was rototilled and a light application of native grass cultivars and fertilizer was re-applied. Overall rate of native colonization of the lake sediments was deduced to be slow due to persistent crusted surface that persists on the lake sediments (Martens 2009).

References:

- EcoSense. 2014. Ekati Diamond Mine: 2014 Vegetation Annual Report. Prepared for Dominion Diamond Ekati Corporation by EcoSense Environmental Inc. Lethbridge, Alberta.
- Kidd, J. G., and K. N. Max. 2000. EKATI™ Diamond Mine reclamation research program, 1999, NT, Canada. Final report prepared for BHP Diamonds, Inc., Yellowknife, NWT, Canada, by ABR, Inc., Fairbanks, AK, USA.

- Martens, H.E. 2014. Ekati Diamond Mine Revegetation Research Projects – 2013. Prepared for Dominion Diamond Ekati Corporation, Yellowknife, NT, Canada by Harvey Martens & Associates Inc. Calgary AB.
- Martens, H.E. 2013. Ekati Diamond Mine Revegetation Research Projects – 2012. Prepared for BHP Billiton Diamonds, Inc., Yellowknife, NT, Canada by Harvey Martens & Associates Inc. Calgary AB.
- Martens, H. E. 2009. EKATI Diamond Mine revegetation research projects, 2008. Final report prepared for BHP Billiton Diamonds Inc., Yellowknife, NT, Canada by Harvey Martens and Associates, Calgary, AB, Canada.

Date: December 9, 2014

Originator: Todd Slack, Yellowknives Dene First Nation

Topic: Waste Rock Storage

Question:

There is lots of volume in terms of the existing pits at Ekati. Why is waste rock not stored in these pits, instead of in a waste rock storage pile?

In particular, why are the metasediments not being placed within mined out pits for subaqueous disposal?

Commitment:

Provide additional information.

Response:

As part of the project alternatives, various options for on land disposal of the waste rock were considered. Details of the option selection are presented in the DAR Section 2 Project Alternatives. In-pit storage of the waste rock was not specifically evaluated in the alternatives analysis, as it was not considered a viable alternative to on land storage, as discussed below.

During development of the Jay Pit, approximately 102 million m³ of waste rock will be produced, of which approximately 76 million m³ will be non-potentially acid generating granitic rock and 26 million m³ consist of potentially acid generating metasediments. Although it is estimated that only 50% of the metasediments are acid generating, experience from mining these materials at the Ekati Mine indicate that there is no practical means of distinguishing and separating them during handling and disposal; therefore, all metasediments will be classified and handled as potentially acid generating material (DAR Section 3.5.6).

During Jay Pit mining, the two most proximal pits are the Misery Pit and the Lynx Pit, which are located at respective distances of approximately 6 km and 10 km. There would be significant additional economic costs to haul the rock from the Jay Pit to these pits, and there would be a significant increase in the quantity of fuel used to haul the rock to these pits, which would increase greenhouse gas emissions and

affect air quality. Pits located at the main Ekati Mine site are further away (i.e., greater than 35 km), and as a result, movement of rock to these pits would also not be viable.

The Misery Pit has an approximate capacity of 40 million m³ and is designated to be used for water management for the Project. Use of the Misery Pit for waste rock disposal would effectively negate its use as a water management facility, thereby necessitating the construction of a large new water management facility with all of the attendant environmental risks and effects. The Lynx Pit has an approximate capacity of 5.2 million m³. The size of the Lynx Pit is insufficient, even for the storage of the metasediments. As the Misery and/or Lynx pits do not have the capacity for storing the approximately 102 million m³ of waste rock from the Jay Pit, an on land Waste Rock Storage Area (WRSA) would still need to be constructed.

Based on experience with the metasediments found at the Ekati Mine, a portion of these materials when exposed to air and water have the potential to react and begin to generate acid. Therefore, the waste rock management plan for the metasediments that will be produced from the Jay Pit includes developing a 2 m thick base layer of non-acid generating rock and a 5 m thick capping layer of non-acid generating rock to serve as the seasonally thawed active layer.

Date: December 11, 2014

Originator: not recorded

Topic: Traffic

Question:

How much traffic will be associated with the Project? What will the increase in traffic will be, as a result of the Jay Project?

Commitment:

DAR Section reference.

Response:

DAR Section 3.5.1.6 Traffic, provides a description of the type and frequency of haul traffic that is expected during mine operations:

- on the Jay and Misery Roads to haul ore to the process plant at Ekati; and,
- on the Jay Waste Haul Road and Jay Ore Haul Road.

Annual variations in the level of traffic on the winter road (Tibbitt to Contwoyto) and on site occur depending on activities. DAR Section 16, Table 16.3-1 presents historical winter road statistics (2002 to 2012). For dike construction, it is estimated that a total of 1,150 loads will be required, between 2016 and 2018.

1.2 Socio-economics

Date: December 9, 2014

Originator: Alfonse Apple, Tłı̨chǫ Government

Topic: Involving Contractors in Community meetings

Question:

Recommendation that contractors should participate in community meetings so that they also hear the concerns of communities around employment.

Commitment:

A response will be provided outlining Dominion Diamond's commitments.

Response:

Dominion Diamond acknowledge the importance of relaying community concerns to contractors. In the past, where appropriate, contractors have been invited to participate in pertinent community meetings. Dominion Diamond intends to continue this involvement of contractors in the future, as needed.

Date: December 9, 2014

Originator: Arnold Enge, North Slave Métis Alliance

Topic: Contractor Hiring Targets

Question:

Can Dominion Diamond commit to requiring the same hiring targets for contractors as those outlined in the SEA?

Commitment:

Provide a summary of the SEA targets to the NSMA.

Response:

The Ekati Mine Socio-Economic Agreement (SEA) (BHP 1996) hiring priority targets will remain in place for the Jay Project, with the following targets set for Northern and Northern Aboriginal employment, both direct, and contractor:

- during construction: 33% Northern (of which 44% will be Northern Aboriginal);
- during operations at less than 18,000 tpd: 62% Northern (of which 50% will be Northern Aboriginal); and,
- during operations at greater than 18,000 tpd: 72% Northern (of which 50% will be Northern Aboriginal).

With respect to the application of employment targets set out in the Socio-Economic Agreement (SEA) to contractors, Section 4.5.1 of the SEA states the following:

"[Dominion Diamond] hereby commits to take all reasonable steps to ensure that its Contractors at the Project adopt a hiring policy that is consistent with this Agreement. [Dominion Diamond] shall, where appropriate, in connection with bids for contracts on the Project:

- (i) require all Contractors to expressly state their commitment to hiring Northern Residents;*
- (ii) evaluate bids on the basis of whether appropriate commitments to hire Northern Residents are included or planned for in the bid;*
- (iii) incorporate the successful bidder's commitments to hire Northern Residents into the contract document; and*
- (iv) require all contractors to regularly report on their Northern Resident hires and to explain their performance to management."*

Dominion Diamond implements its SEA commitments and strives to maintain a high proportion of Northern contractors or, where necessary, contractors who are committed to high Northern content. Dominion Diamond is continually working to improve on past performance. For example, Dominion recently increased the number of Northern trades apprenticeships at the Ekati Mine, including apprenticeships through contractors. In addition, the Ekati Mine recently made a decision to contract for a supply of core boxes to a Northern Aboriginal community.

In addition to the targets established through the SEA, the four Ekati Mine Impact Benefit Agreements (IBA) provide additional means and opportunities for preferential contracting of Northern Aboriginal companies. The details of these programs are confidential to each IBA and cannot be published.

All bids for contracts at the Ekati Mine are evaluated through a rigorous evaluation process that includes Northern/Northern Aboriginal ownership and content as a standard evaluation criteria against which bidders are rated.

The standard Ekati Mine contract that all contractors are required to accept includes the SEA Northern hire targets and a requirement for all contractors to strive for achievement.

Once a contract is awarded, regular contract performance meetings are held with contractor management to review all aspects of contract performance, including SEA Northern hire targets. The performance meetings are organized by the Ekati Mine Procurement Team, who are accountable for all aspects of contractor performance, including SEA northern hire targets.

Contractors are given access to Ekati Mine resources, such as the Aboriginal employment coordinators, to assist in achieving SEA Northern hire targets.

References:

BHP (BHP Diamonds Inc. and the Government of the Northwest Territories). 1996. Socio-Economic Agreement, BHP Diamonds Project.

Date: December 9, 2014

Originator: Henry Zoe, Tłı̄ch̄o Government

Topic: Effectiveness of Education and Social Programs

Question:

When Ekati began, training programs were effective, people liked them. Then, HR staff rotated, and programs changed. These changes were not well received. The effectiveness of education, training and other social programs should be raised within the working group at the mine.

Ekati needs to do an assessment of which programs have worked in the past, and which have not (training and education), and bring back ones that did work.

Commitment:

As part of the adequacy review, Dominion Diamond intends to provide a summary of the existing Ekati education, training and social programs. Additional discussion of the success of these programs can occur in the Ekati working group referenced by the originator.

Response:

Existing and future social and educational programs and initiatives are identified in the DAR Adequacy Review response to Adequacy Items 11.1 to 11.5 submitted January 19, 2015. Dominion Diamond has received positive feedback on several programs, such as the Financial Literacy Program (piloted in Behchokq̓), and the Workplace Learning Program. Formal tracking of program success since the purchase of the Ekati Mine by Dominion Diamond has not occurred; however, Dominion Diamond is committed to an evaluation of their current programs, and engaging communities and employees in the development of future programs.

To this end, Dominion Diamond will follow up with the Ekati Working Group on this topic to obtain their perspective on which social and education programs have worked at the Ekati Mine, which have not, and why. Employee and community engagement will be ongoing for the life of the Project, and Dominion Diamond will consider concerns raised by employees and communities in their program planning.

Date: December 9, 2014

Originator: Peter Unger, Łutselk'e Dene First Nation

Topic: Communities and Diamonds indicators

Question:

What are the community health indicators used by Communities and Diamonds?

Commitment:

DAR Section reference will be provided.

Response:

A discussion of Communities and Diamonds reporting and indicators is found in Section 14.6.2 of the DAR. The SEAs for the Ekati, Diavik, and Snap Lake mines requires that the following indicators be tracked for Communities and Diamonds reporting:

BHP	Diavik	De Beers
Community, Family & Individual Well-Being		
number of potential years of life lost		
number of injuries	age standardized injuries	age standardized injuries
number of suicides		
number of communicable diseases	communicable diseases (sexually-transmitted infections, tuberculosis)	communicable diseases (sexually-transmitted infections, tuberculosis)
number of teen births		
	single-parent families (also referred to as lone-parent families)	lone-parent families
number of children receiving services	children in care	children in care
number of complaints of family violence	number of women and children referred to shelters	number of women and children referred to shelters
number of alcohol- and drug- related crimes	police-reported crimes, according to the following categories: violent, property, drug-related, other	police-reported crimes, according to the following categories: violent, property, drug-related, other
number of property crimes		
housing indicators		
Cultural Well-Being & Traditional Economy		
	ratio of home language use to mother tongue, by major age groups	ratio of home language use to mother tongue, by major age groups
	percentage of workforce-aged group engaged in traditional activities	percentage of workforce-aged group engaged in traditional activities
Non-Traditional Economy		
average income of residents	average income	average income
	proportion of high income earners	proportion of high income earners
number of social assistance cases	social assistance cases	income support cases
employment levels and participation	employment	employment
	participation rate	employment participation rate
high school completion	number of people 15 years and older with less than Grade 9	number of people 15 years and older with less than Grade 9
	number of people 15 years and older with a high school diploma	number of people 15 years and older with a high school diploma
	registered businesses, bankruptcies and start-ups	registered businesses, bankruptcies and start-ups
Net Effect on Government		
	net effects on government of the project	
Sustainable Development		
	secondary industry data and initiatives	

References:

GNWT. 2013. Communities and Diamonds 2012 Annual Report. Available at:
http://www.iti.gov.nt.ca/sites/default/files/2012_communities_and_diamonds.pdf. Accessed January 2015.

Date: December 9, 2014

Originator: Todd Slack, Yellowknives Dene First Nation

Topic: Socio-Economic Agreement Performance**Question:**

When has Ekati been in compliance with their SEA?

Commitment:

Additional information will be provided.

Response:

The Ekati Mine Socio-Economic Agreement (SEA) hiring priority and procurement targets will remain in place for the Jay Project, with the following targets set for Northern and Northern Aboriginal employment, both direct, and contractor:

Employment

- during construction: 33% Northern (of which 44% will be Northern Aboriginal);
- during operations at less than 18,000 tpd: 62% Northern (of which 50% will be Northern Aboriginal); and,
- during operations at greater than 18,000 tpd: 72% Northern (of which 50% will be Northern Aboriginal).

Procurement

- during construction: 28% of the total value of goods and services purchased Northern; and,
- during operations: 70% of the total value of goods and services purchased Northern.

This question pertains to the targets for operations at less than 18,000 tpd of production. While the Ekati Mine has met hiring priority and procurement targets, separately, in many years of its operation, it has been challenging to meet all targets in any one year.

Dominion Diamond is committed to hiring and procuring from Northern and Northern Aboriginal sources, and will continue to make every effort reasonable to prioritize Northern spending and employment. The response to DAR Adequacy Review Items 11.1 to 11.5 submitted January 19, 2015, provides a detailed breakdown of Dominion Diamond's response to employment barriers faced by Northerners and Northern Aboriginals. The response above related to *Contractor Hiring Targets* provides further discussion of the SEA requirements associated with contractors.

1.3 Air Quality

Date: December 9, 2014

Originator: Alfonse Apple, Tłıchǵ Government

Topic: Dust Effects on Air and Water

Question:

The dust from the crusher and roads goes into the air and water. The air quality isn't great for the land and animals. In the springtime, the snow looks yellow from the blasting. Does this affect the grass and the water?

Commitment:

Provide DAR section reference.

Response:

The air quality section considers fugitive dust from mining activities (i.e., blasting, drilling, loading/unloading, and dozing), haul road grading and on-site vehicle traffic and ore processing. The air quality section for particulate matter (dust) is in Section 7.4.2.2.4 and 7.4.2.2.5 of the DAR. An update to the air quality assessment which included dust along the Misery Road (Golder 2015) was provided to the MVEIRB and uploaded on January 19, 2015.

Results from the air quality assessment were passed to the water quality and vegetation teams. The assessment for total suspended solids (dust in water) is in Section 8.5.4.2.1 of the DAR. Effects on vegetation are assessed in Section 11.3.2.2 of the DAR under the pathway of *Air and dust emissions and subsequent deposition can cause chemical changes to the environment, which can change soil quality and affect vegetation.*

References:

Golder (Golder Associates Ltd.). 2015. Jay Project Air Quality Assessment Update. Technical Memorandum from Dennis Chang and Chris Madland to Rick Bargery, Dominion Diamond Ekati Corporation. January 19, 2015.

Date: December 9, 2014

Originator: Arthur Beck, Fort Resolution Métis Council

Topic: Seasonal Effects of Dust

Question:

The curtain around dike is good, but is there anything that you can do about the dust? Is there a barrier? How do you protect air in summer and winter? Concerns are related to crushing facility, as well as roads.

Commitment:

DAR section reference.

Response:

Mitigation for dust is described in Section 7.3.2.2. As described in this section, with respect to dust control, the largest emissions are transport related. Dominion Diamond will manage dust and particulate emissions by continuing and evolving the following management practices:

- water spray and dust suppressant application to control dust emissions on haul roads during summer or non-frozen season; and,
- managing vehicle speed to limit road dust from vehicle wheel entrainment.

Date: December 9, 2014

Originator: Peter Unger, Łutselk'e Dene First Nation

Topic: Local Effects from Dust

Question:

Are there local effects from dust?

Commitment:

DAR Section reference.

Response:

Local effects of dust on vegetation are assessed in Section 11.3.2.2 of the DAR under the pathway of *Air and dust emissions and subsequent deposition can cause chemical changes to the environment, which can change soil quality and affect vegetation*, and local effects to water quality are assessed in Section 8.5.4.2.1.

Date: December 9, 2014

Originator: Peter Unger, Łutselk'e Dene First Nation

Topic: Air Quality DAR Results

Question:

Recommendation that the DAR air quality results be posted to the MVEIRB website.

Commitment:

Continue to post air quality results on MVEIRB website.

Response:

Air quality results included in Section 7 of the DAR which was uploaded to the MVEIRB website (uploaded on November 7, 2014: Jay Project: DAR Table of Contents with hyperlinks). An update to the air quality assessment which included dust along the Misery Road (Golder 2015) was provided to MVEIRB and uploaded on January 19, 2015.

References:

Golder (Golder Associates Ltd.). 2015. Jay Project Air Quality Assessment Update. Technical Memorandum from Dennis Chang and Chris Madland to Rick Bargery, Dominion Diamond Ekati Corporation. January 19, 2015.

Date: December 9, 2014

Originator: Several People

Topic: Dust Effects and Air Quality

Question:

More information on managing dust on roads and in the pit area and protecting air quality, as well as emissions from diesel transported by air, and impacts on vegetation, caribou, water, and fish.

Commitment:

Will provide additional air quality information (with focus on dust).

Response:

Please see attached air quality presentation (Attachment A).

1.4 Terrestrial/Caribou

Date: December 9, 2014

Originator: Henry Zoe, Tłı̨chǫ Government

Topic: Population Declines

Question:

Mining industry leadership on the issue of population decline. Would like to see Ekati take a lead on collaborating with other mines to find out why caribou are in decline. When IBA groups met with Diavik, we made the recommendation to them. We make the same recommendation to you – you own 40% of Diavik as well. Let's see what the results say, and see if that differs from the GNWT conclusions. Ekati should take the lead, as the largest mining company, and spearhead a study to find out why the caribou are declining. Not a government study, but a study by the mines.

Commitment:

Will pass on comment and recommendation. Will provide additional information about what Ekati is doing in the caribou monitoring working groups, etc.

Response:

We believe that studies on population trends of the Bathurst caribou herd is properly conducted by governments in collaboration with communities as they have the appropriate resources, expertise, and jurisdiction to complete such work. This work can be conducted by government using the best available techniques to assess herd health. Dominion Diamond has supported research on the Bathurst herd over the years including by providing funding for aerial surveys and other monitoring and assessment work. Dominion Diamond is committed to support this work both in terms of contributing to data and providing resources where appropriate.

Senior management of Dominion Diamond has committed to support the work on the current review of the Bathurst herd being conducted by the GNWT and Aboriginal organizations and to provide resources, where appropriate, as a result of the recommendations that come from that discussion.

Date: December 9, 2014

Originator: Alfonse Apple, Tłıchǫ Government

Topic: Caribou and Infrastructure

Question:

Is there fencing on site and do caribou get caught in it?

Commitment:

Information to be provided.

Response:

The electric fences have all been removed from site and replaced with chain link or snow fence which eliminates the chances of wildlife getting entangled. This was done based on recommendations from communities following our regular Ekati engagement process. Fences are inspected twice a week to ensure that they are in good repair and do not pose risks to wildlife.

Date: December 9, 2014

Originator: Ron Beaulieu, Fort Resolution Métis Council

Topic: Invasive Species

Question:

Was the movement of invasive species (seeds) via trucks considered? Invasive species can change plant communities and the ecosystem.

Commitment:

DAR Section reference.

Response:

The introduction of non-native invasive plant species into new areas from construction equipment and personnel by transporting seed or plant parts on equipment or clothing were considered in Section 11.3.2.2 of the DAR under the pathway of *Introduction of non-native invasive plant species can affect plant community composition*.

Date: December 9, 2014

Originator: Ron Beaulieu, Fort Resolution Métis Council

Topic: Herd displacement around the mines; Bathurst herd population

Question:

Has seen that large herds used to move through the area and have changed locations where they cross Lac de Gras. Indicated that Jay Project will push the caribou further north-east, being pushed away from disturbance.

Commitment:

DAR Section reference and additional information.

Response:

The distribution of caribou in the vicinity of Lac de Gras is discussed in Section 12.2.2.1 (pages 12-16 to 12-17) of the DAR; the main points of which are summarized in this paragraph. Caribou have been commonly observed in the Diavik and Ekati wildlife study areas during aerial surveys in the post-calving season; observations of post-calving groups are presented in Map 12.2-4 of the DAR (page 12-18) and suggest that the probability of observing caribou in the post-calving season is higher in areas further from Ekati Mine. Recent analyses (Boulanger et al. 2012) indicated that the zone of influence around the Ekati and Diavik mines varied from 12 to 14 km, although data from satellite-collared caribou indicate that caribou regularly travel through the study area. The DAR also contains a map of historic caribou trails in the area observed during a 2013 aerial reconnaissance survey (Map 12.2-5).

In the DAR Sable Addendum, the following text appears on page 4-52: *"From 2011 to 2012, motion detection wildlife cameras were used to investigate caribou interactions with the Misery Road and other mine site roads. The overall rate of deflections was observed at approximately 2% of road interactions, meaning that 98% of the caribou-road interactions photographed did not show clear observations to suggest that the Misery Road impeded movement. Deflections did not appear to be affected by changing traffic levels on the Misery Road over the duration of the study. However, the effective range of the*

cameras is likely limited to less than 500 m, meaning that caribou reactions to the road beyond this distance would be difficult to discern from the data."

Historic caribou movement paths in the vicinity of Ekati and Diavik Mines were identified through Traditional Knowledge and these appear in Map 12.4-3 in the DAR. When considering the effects of mining activities on caribou autumn migration paths, caribou were conservatively assumed to travel around the combined footprints of Diavik and Ekati Mines, and the Jay Project (DAR pages 12-102 to 12-105 and 12-114 to 12-116; Sable Addendum pages 4-40, 4-52, 4-55, Map 4.2-4).

References:

Boulanger J, Poole KG, Gunn A, Wierzchowski J. 2012. Estimating the Zone of Influence of Industrial Developments on Wildlife: a Migratory Caribou *Rangifer tarandus groenlandicus* and diamond mine case study. Wildlife Biol 18: 164-179.

Date: December 11, 2014

Originator: Bill Ross, Independent Environmental Monitoring Agency

Topic: Caribou and culture

Question:

Why no discussion of caribou and culture?

Commitment:

DAR Section reference.

Response:

A discussion of traditional land use is provided in DAR sections 15.2, 15.3, and 15.4

Date: December 11, 2014

Originator: Bill Ross, Independent Environmental Monitoring Agency

Topic: Definition of magnitude, effectiveness and self-sustaining quality of vegetation species

Question:

What is the connection between the area affected and the ability to be ecologically effective and self-sustaining? What is the link between the % area and ecologically effective and self-sustaining?

Commitment:

DAR Section reference.

Response:

The definition of magnitude in the vegetation assessment is found in Section 11.6.1. and the results of the residual impact classification and significance in Section 11.6.2. The link between defining residual impact criteria and the method for determining significance is provided Section 11.6.1. For example, determining the magnitude of an effect from changes in plant community connectivity on a vegetation valued component (VC) depends on the spatial extent (amount of area or proportion of the population) and duration of the changes. Duration includes reversibility; a reversible effect from a development is one that does not result in a permanent adverse effect on population processes (e.g., survival and reproduction) and properties (e.g., stability and resilience). Using a reasoned narrative approach, the magnitude (and resulting significance) is determined by discussing the absolute or relative area (%) of the adverse change in the plant community (ELC type) in context of how common/uncommon the community is in the effects assessment area, and the known life history characteristics and responses of plants and plant communities to disturbance (i.e., resilience) (Section 11.6.2.1)

Date: December 11, 2014**Originator:** Bill Ross, Independent Environmental Monitoring Agency**Topic:** Management of listed species**Question:**

Are there recovery or management plans for those listed species?

Commitment:

Will provide a response.

Response:

A proposed management plan has been posted for the rusty blackbird (*Euphagus carolinus*) (Environment Canada 2014). The consultation period on the proposed management plan ended on October 26, 2014; there is no information available on when a final management plan will be available for this species. Management plans or recovery strategies are not currently available for other listed wildlife species that have the potential to occur in the vicinity of the Jay Project. Management plans for the peregrine falcon (anatum/tundrius subspecies) (*Falco peregrinus* ssp. *anatum/tundrius*) and short-eared owl (*Asio flammeus*) will be published in 2015 or 2016 (Environment Canada 2015).

References:

Environment Canada. 2014. Management Plan for the Rusty Blackbird (*Euphagus carolinus*) in Canada [Proposed]. *Species at Risk Act* Management Plan Series. Ottawa, ON. iv + 22 pp.

Environment Canada. 2015. Three-Year Recovery Document Posting Plan. Available at: http://www.sararegistry.gc.ca/virtual_sara/files/pp_ec_0115-v03_e.pdf. Accessed: January 23, 2015.

1.5 Aquatics

Date: December 9, 2014

Originator: Arnold Enge, North Slave Metis Alliance

Topic: Water Quality in Slipper Lake

Question:

Can you confirm that there will be no change to water quality in Slipper Lake as a result of the Jay Project?

Commitment:

DAR section reference and additional information.

Response:

The water quality in Slipper Lake will be influenced by the Jay Project, as an extension of existing Ekati Mine operations. However, concentrations of water quality constituents in Slipper Lake as a result of the Project are predicted to be lower than existing conditions, peaking in post-closure, before decreasing to concentrations well below current conditions.

To determine potential effects on Slipper Lake, we need to look specifically at the output of the model developed by Rescan (Rescan 2012) to predict water quality in Slipper Lake as a result of discharge from the Long Lake Containment Facility (LLCF) associated with the Ekati Mine. Slipper Lake and the LLCF are within the Koala watershed, which flows into Lac de Gras. As described in Section 8.2.5.2 of the DAR, minewater flows from the LLCF into a series of lakes in the Koala Watershed (i.e., Leslie Lake, Moose Lake, Nero Lake, Nema Lake, and Slipper Lake) before entering Slipper Bay of Lac de Gras. The Koala watershed model results of flows and chemistry (Appendix 8F3) were used as a source term input to the Lac de Gras hydrodynamic model for the DAR (Appendix 8F5).

An update of the 2012 Rescan model was specifically developed for the DAR (ERM Rescan 2014a); the updated model accounted for future use of the LLCF for the Project and updated flow and chemistry source terms in the LLCF discharges to the Kola watershed, and hence to Slipper Lake. As part of a recent submission, predictions of water quality in Slipper Lake (ERM Rescan 2014b) and Lac de Gras (Golder 2015) were updated.

In summary, there will be changes to water quality in Slipper Lake due to the Jay Project which will not be harmful and which will decrease after mining.

References:

Dominion Diamond. 2013. Wastewater and Processed Kimberlite Management Plan Version 4.0. Yellowknife, NT.

ERM Rescan (ERM Rescan Environmental Services Ltd.). 2014a. Water Balance and Water Quality Modelling Related to the Jay Project. Submitted to Dominion Diamond Ekati Corporation, Yellowknife, NWT. October 2014.

ERM Rescan. 2014b. Water Balance and Water Quality Modelling Related to the Jay Project – UPDATED. Submitted to Dominion Diamond Ekati Corporation, Yellowknife, NWT. November 2014

Golder (Golder Associates Ltd.) 2015. Jay Project – Lac de Gras Hydrodynamic Model Updates. Technical Memorandum. Prepared by Golder Associates Ltd. for Dominion Diamond. January 2015.

Rescan (Rescan Environmental Services Ltd.). 2012. Water Quality Modelling of the Koala Watershed, Ekati Diamond Mine. Prepared for BHP Billiton Diamonds Inc. Yellowknife, NWT, Canada.

Date: December 9, 2014

Originator: Arthur Beck, Fort Resolution Métis Council

Topic: Fish and Invertebrate Health

Question:

Have you checked to see if there are chemicals in the fish and the invertebrates?

Commitment:

DAR Section reference.

Response:

A summary of fish tissue chemistry is provided in Section 9.2.6 of the DAR. A summary of historical fish tissue information is in Section A6 of Appendix A of Annex XIV and fish health information is in Section A5 of Annex XIV. The benthic invertebrate baseline is Annex XIII. Benthic invertebrate tissue chemistry has not been analyzed in the region. Attempts have been made under other mine aquatic effects monitoring programs (AEMPs), but sufficient sample size has not been collected, due to the small size and low density of benthic organisms in subarctic lakes. The benthic communities in waterbodies near the Project are characteristic of the region, and show no indication of potential effects from elevated chemical levels in tissues.

Date: December 11, 2014

Originator: Elissa Berril, Wek'èezhì Land and Water Board

Topic: Discharge volumes during post-closure

Question:

What are the discharge volumes from the Jay WRSA to Lac du Sauvage during the post-closure period of the Jay Project?

Commitment:

Information to be provided.

Response:

Monthly discharge volumes from the WRSA to Lac du Sauvage in the post-closure period are shown in the table below for months with flow.

Month	Flow (m ³)
June	254,521
July	76,695
August	100,952
September	82,765

Date: December 11, 2014

Originator: Elissa Berril, Wek'èezhì Land and Water Board

Topic: Water balance model

Question:

Does the water balance model account for encapsulation of waste rock and the development of permafrost in the Jay WRSA at closure?

Commitment:

To be provided.

Response:

The Jay WRSA is anticipated to freeze into permafrost which would affect the water balance by reducing water flows due to freezing within the pile. However, as a conservative approach for the assessment of potential effects of the Jay Project, the water balance does not account for the development of permafrost.

Date: December 11, 2014

Originator: Elmar Platt, consultant for Łutselk'e Dene First Nation

Topic: Fish count - minimum size

Question:

What is the minimum fish size detected in your testing?

Commitment:

DAR Section reference.

Response:

Hydroacoustic surveys were designed to detect larger fish, such as yearling and older fish, (i.e., fish greater than 9 cm in length in mid-summer) in deep-water locations (Section 3.1.5 of Annex XIV; Section 9.2.3.3 of the DAR).

Attachment A

Summary of Air Quality at the Jay Project

Dominion Diamond Corporation

Summary of Air Quality
at the Jay Project in
response to Community
Engagement questions
from December 2014

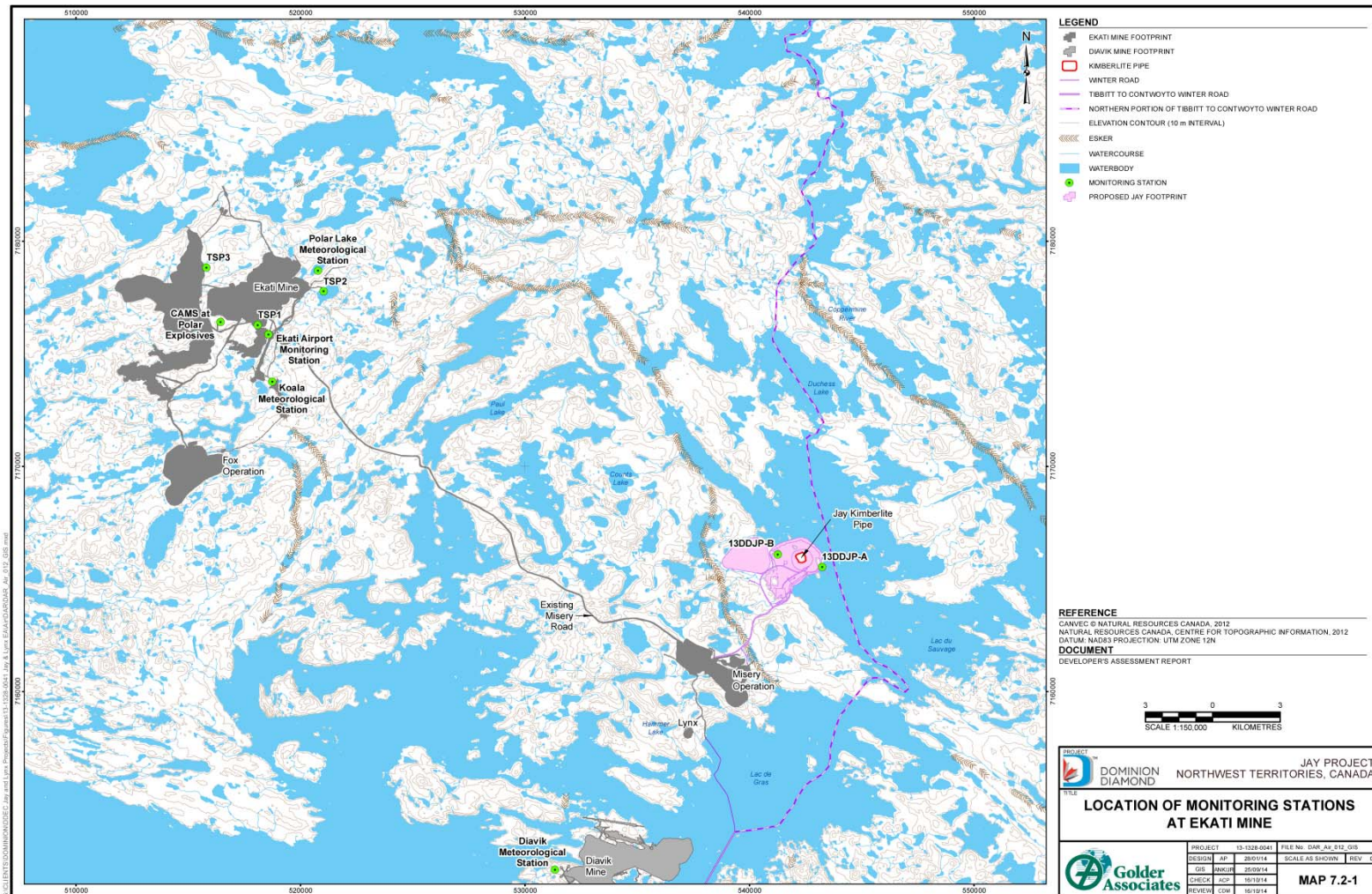


Air Quality at the Jay Project

- The Jay Project involves open pit mining within a dike structure at Lac du Sauvage, as well as associated mining infrastructure at the existing Ekati Mine.
- The Jay Project will emit a number of compounds into the air which can affect air quality, such as dust from roads and other mining activity as well as diesel exhaust from vehicles and power generators.
- Operations at the Ekati processing plant during the Jay Project will remain essentially unchanged from the current production.
- The map on the following slide shows the location of the Project, as well as air quality monitoring stations (total suspended particulate matter, fine particulate matter, nitrogen dioxide, sulphur dioxide) at the Ekati Mine. Dustfall is also being monitored at various location surrounding the Ekati Mine.



Location of the Jay Project and Air Quality Monitoring Stations



Reference Sections for Air Quality in the DAR

- Air quality was assessed in the Developer's Assessment Report (DAR).
- An update to the air quality results was provided to the MVEIRB on January 19, 2015 at [http://www.reviewboard.ca/upload/project_document/EA1314-01 Adequacy Review responses Vol 3 Air Quality Assessment Update.PDF](http://www.reviewboard.ca/upload/project_document/EA1314-01_Adequacy_Review_responses_Vol_3_Air_Quality_Assessment_Update.PDF)
- Main Sections, Appendices, and Annexes in the DAR relevant to Air Quality are shown in the Table below.

Section/ Appendix Number	Section Title
Section 7	Air Quality
Appendix 7A	Summary Results of Air Quality Modelling
Appendix 7B	Air Emission Details
Appendix 7C	Dispersion Modelling Approach
Annex I	Air Quality and Meteorological Baseline Report for the Jay Project

Other Assessments in the DAR that Considered Air Quality Effects

While there are standards to directly compare air quality, changes to air quality can also have an effect upon other aspects of the environment.

Air quality was considered by other disciplines to determine the effects of air quality on their assessments:

- The effects of air emissions and dust deposition on water quality were considered in the Water Quality and Quantity assessment in Section 8 of the DAR
- The effects of air emissions and dust deposition on vegetation and soils were considered in the Vegetation assessment in Section 11 of the DAR
- The effects of air emissions and dust deposition on wildlife were considered in the Wildlife and Wildlife Habitat assessment in Section 13 of the DAR
- The effects of air quality on human and wildlife health were considered in the Human and Wildlife Health Risk Assessment Report, submitted separately from the DAR

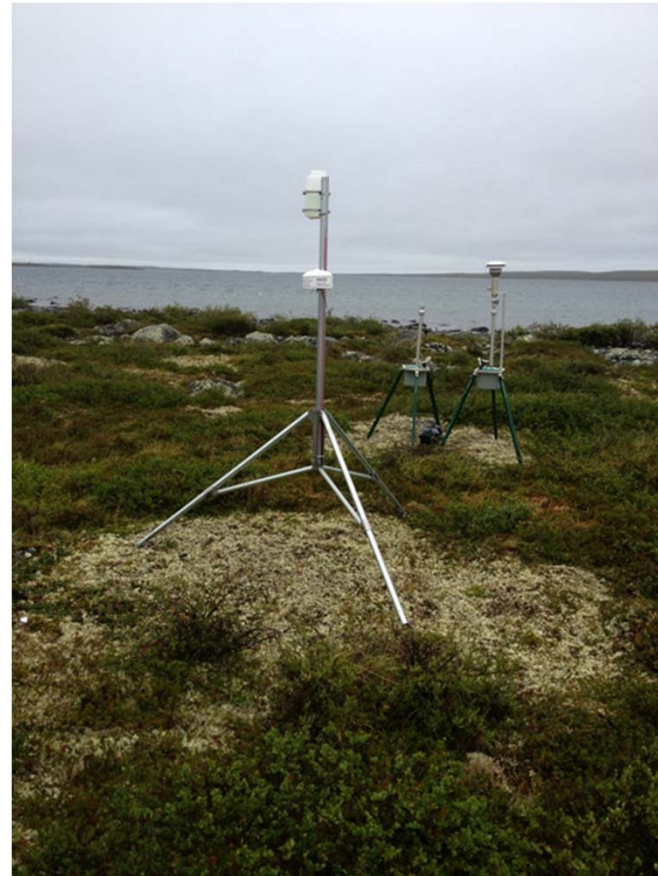
Air Quality Assessment Approach

- The GNWT sets ambient air quality standards for the Northwest Territories.
- The air quality assessment estimated the future emissions of the Jay Project and existing mines in the region, and used a computer model to predict the concentrations of the emitted compounds. These were compared against the NWT ambient air quality standards.
- In general, conservative approaches were taken to estimate emissions, so actual emissions from the Project and other mines may be much lower than were used in the assessment.
- Air quality modelling was also conducted for existing mines (without the Jay Project) to determine the predicted air quality prior to the Jay Project being constructed.

Air Quality Monitoring

- Monitoring stations also record the air quality at the Ekati Mine. The results of this monitoring are published in the Air Quality Monitoring Program report published every three years to the Wek'èezhìi Land and Water Board.
- Results of air quality monitoring data:
 - measurements close to the mine site are less than guideline values
 - returned to near background values within a few kilometres of the mine

Air quality monitoring station at Lac du Sauvage in the summer of 2013.



Air Quality Modelling

Emission Sources Modelled in the Air Quality Assessment

- Fugitive emissions, such as:
 - Road dust
 - Other sources of fugitive dust
 - Mining and material handling activities
 - The exposed lake bed of Lac du Sauvage and other exposed surfaces
 - Blasting
 - Ekati processing plant
- Combustion emissions (exhaust), such as:
 - Diesel power generators
 - Waste incinerators
 - Auxiliary boilers
 - Vehicle exhaust

Dust Modelling

Dispersion modelling in the Air Quality Assessment included dust.

- There were two categories of dust assessed. These are known as total suspended particulate matter (TSP) and fine particulate matter.
- TSP includes all dust that can normally be blown in the air. If you had a handful of TSP, you could see dust grains in your hand, but they would generally be smaller than sand.
- Fine particulate matter includes only very small grains of dust. If you had fine particulate matter in your hand, you might see that your hands were dusty, but you would not be able to see the individual grains of dust by themselves.
- TSP and one type of fine particulate matter ($PM_{2.5}$) have air quality standards in the NWT.

Total Suspended Particulate (TSP)

TSP includes all dust that can become suspended in the air. TSP is what is normally considered “nuisance dust”. An example of TSP would be the visible dust kicked up behind a vehicle on a gravel road.

- Most of the TSP will quickly deposit back onto the ground within a few hundred metres of the source.



Fine Particulate Matter

Fine particulate matter is dust of very small sizes. A common example of fine particulate matter is “soot”.

- These fine particles can be breathed into the lungs, and so their main concern is health effects.
- Fine particulate matter will travel further in the air than TSP before settling back onto the ground.

Two types of fine particulate matter were modelled: PM_{10} and $PM_{2.5}$.

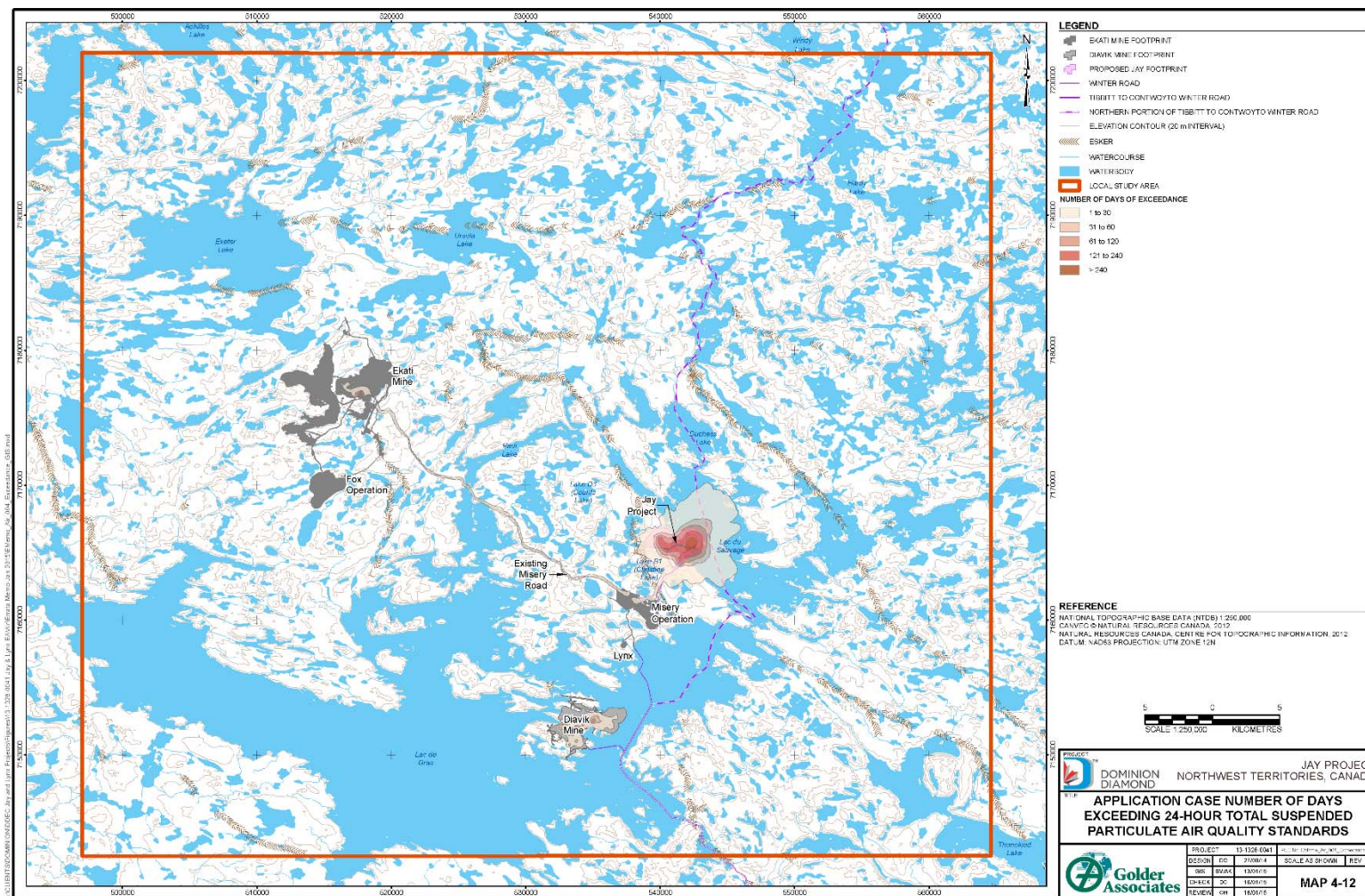
- PM_{10} includes dust smaller than 10 microns across. The NWT does not have an air quality standard for PM_{10} , but it was modelled so that the results could be used for the Human Health Risk Assessment.
- $PM_{2.5}$ is the smaller of the two types, and includes dust less than 2.5 microns across.
- Particulate matter from diesel combustion emissions are included in $PM_{2.5}$.

Results of Dust Modelling

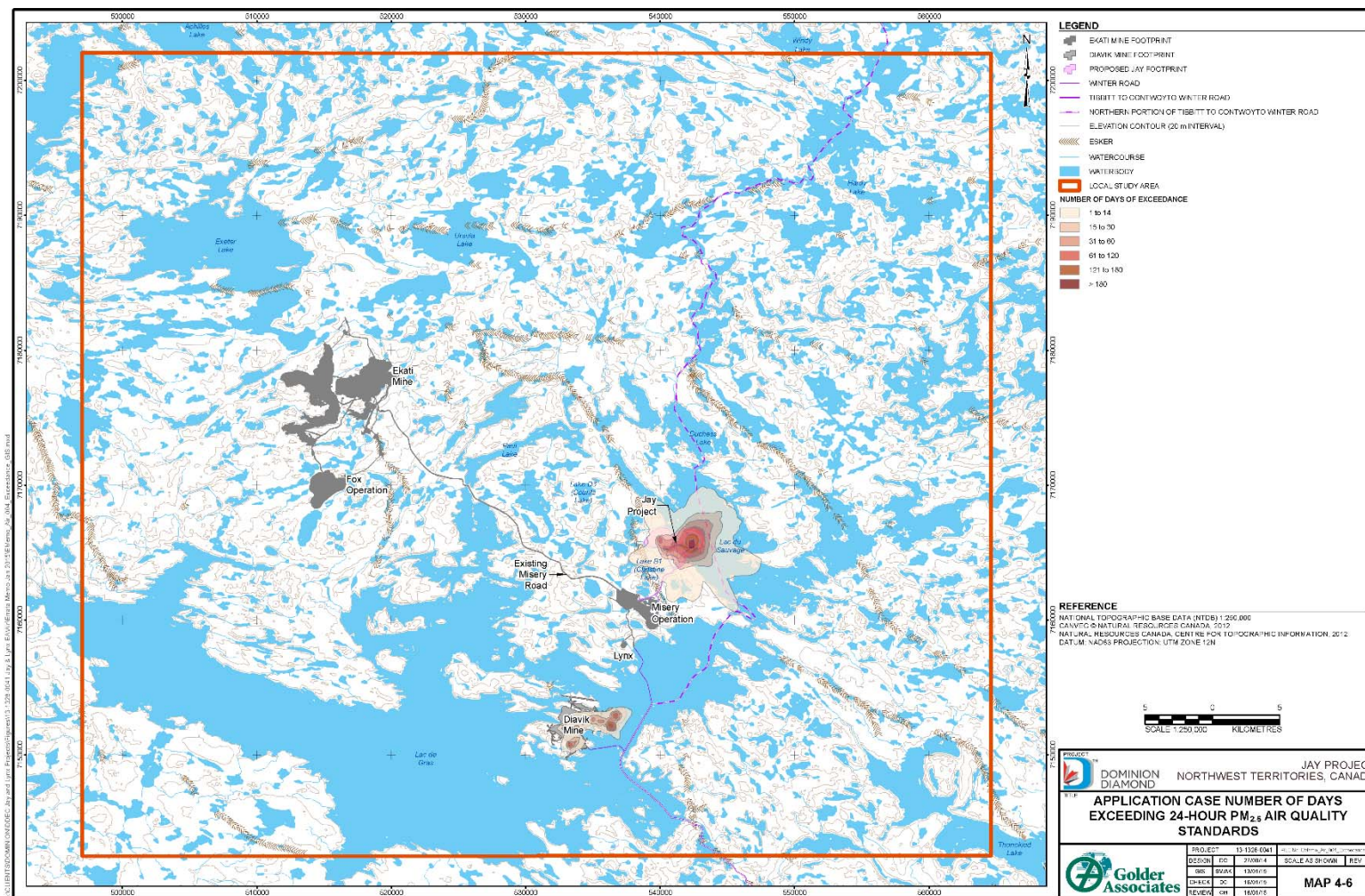
Assessment – TSP and PM_{2.5} Results

- Predicted peak concentrations occur at the Jay Project location.
- There are 24-hour exceedances of the NWT Air Quality Standards predicted outside of the development area.
 - Majority of area where predicted concentrations exceed will experience between 1 to 14 days per year of concentrations over the Air Quality Standard.
- There are annual exceedances of the NWT Air Quality Standards predicted outside of the development area.
- Peak values tend to occur at the development boundaries, and exceedances of the standards tend to occur near the development.
- Concentrations decrease sharply further out from development boundaries and frequency of exceedances for particulate matter diminish rapidly further out from disturbed areas.

Assessment Findings – TSP Frequency of Exceedance



Assessment Findings – PM_{2.5} Frequency of Exceedance



Mitigation

Mitigation to Reduce the Effects on Air Quality

- Mitigation for vehicle dust and vehicle diesel combustion emissions:
 - Water and chemical dust suppressants applied on roads during summer to keep down road dust
 - In winter, snow and ice reduces most of the road dust to a very low level
 - Speed limits on the roads to reduce the dust being kicked up by vehicles
 - Speed limits on the roads to reduce fuel use and diesel combustion emissions
 - Maintenance of road surfaces and use of road toppings to increase vehicle efficiency and reduce fuel consumption and diesel combustion emissions
 - Maintenance of the mine fleet to reduce engine emissions (a properly maintained vehicle emits less exhaust than a “clunker”) and maximize fuel efficiency
 - A no idle policy at the Ekati Mine minimizes vehicle exhaust emissions



Mitigation (Continued)

Mitigation to Reduce the Effects on Air Quality

- Implementation of good design and operational practices reduces total general emissions, and improves energy efficiencies
 - Use of Ultra Low Sulphur Diesel fuel lowers sulphur emissions from diesel combustion for all diesel fired equipment
 - Compliance with regulatory emission requirements for equipment, such as power generators and boilers, means that combustion emissions are kept within regulated amounts for the equipment
 - New incinerators have been installed at Ekati Mine (no additional incinerator for the Jay Project) that meet the regulated emission requirements
 - Existing Ekati Plant crushers are inside a building with a dust collector to reduce dust from the crushers
- Air Quality Monitoring programs for the Jay Project will be developed as an extension of existing Ekati Mine air quality monitoring programs to monitor the air quality in the vicinity of the Mine and Project

Summary

- The Jay Project will effect air quality, including dust emissions
- The effects of air emissions were also considered in other disciplines assessments
- Conservative emission scenarios were assessed
- Results indicate:
 - Exceedances of TSP and PM_{2.5} above the NWT Air Quality Standards near the Project location
 - These effects are local and reversible
- Air Quality Monitoring programs ongoing at Ekati demonstrate that measurements near to the mine are lower than guideline values
 - Jay Project air quality monitoring will be an extension of existing Ekati Mine monitoring programs
- Emissions from Jay Project will be mitigated, including mitigations to limit dust emissions and combustion emissions

