



CARIBOU ROAD MITIGATION PLAN FOR THE JAY PROJECT

DRAFT

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Abbreviations

Abbreviation	Definition
AQMMP	Air Quality Management and Monitoring Program
CRMP	Caribou Road Mitigation Plan
DAR	Developer's Assessment Report
Dominion Diamond	Dominion Diamond Ekati Corporation
Ekati Mine	Ekati Diamond Mine
ENR	Environment and Natural Resources (of the Government of the Northwest Territories)
RSA	regional study area
TCWR	Tibbitt to Contwoyto Winter Road
WEMP	Wildlife Effects Monitoring Program
WRSA	waste rock storage area

Units of Measure

Unit	Definition
%	percent
km	kilometres
km/h	kilometres per hour
m	metres

1 INTRODUCTION

1.1 Background

The Ekati Diamond Mine (Ekati Mine), owned and operated by Dominion Diamond Ekati Corporation (Dominion Diamond), is located in the Slave Geological Province of the Northwest Territories, approximately 300 kilometres (km) northeast of Yellowknife (Map 1-1). Construction at the Ekati Mine began in 1997 and production began in October 1998. The current mine plan predicts a further four years of production to 2019. Dominion Diamond is proposing to develop the Jay kimberlite pipe located beneath Lac du Sauvage. The Jay Project (Project) will be an extension of the Ekati Mine, and is expected to extend the life of the mine by 10 years or more.

The Project is located in the southeastern portion of the Ekati Mine claim block approximately 25 km from the main facilities and 7 km northeast of the Misery Pit (Map 1-1). The Project will also require a haul road, pipelines, and power lines. The following site roads will be constructed for the Project:

- a road from the Misery Road to the south abutment of Jay Dike referred to as the Jay Road, which will be approximately 5.1 km long. The Jay Road will connect the Project to the existing Misery Road and to the Ekati Mine camp and processing plant, and will be the only road crossing the Lac du Sauvage esker;
- a road from the Jay Road to the north abutment of the Jay Dike and Jay waste rock storage area (WRSA), which will be approximately 3.16 km long; and,
- a road from the Jay Road to the Misery camp, which will branch off from the Jay Road just north of King Pond and will be approximately 1.86 km long.

The traffic volumes on the Misery and Jay roads associated with hauling kimberlite from the Project to the processing plant will depend on truck size and configuration. As is currently the case for the transport of Misery Pit kimberlite to the processing plant, long-haul trucks will be used, which are different from the short-haul trucks used in the open pits. From 1997 to 2015, the time between freight trucks on the Misery Road has ranged from 5.8 to 24.9 minutes. The Developer's Assessment Report (DAR) conservatively assumed for the Jay Road an average of 56 round trips per day by long-haul trucks with a fleet of seven trucks making approximately eight trips each per day. Assuming the trucks are evenly spaced, there would be an average of 12 minutes between trucks, not including seasonal traffic from the Tibbitt to Contwoyto Winter Road (TCWR).

Other traffic will include the bulk explosives trucks, crew transport vehicles, road maintenance equipment, garbage trucks, low-bed trucks to transport larger equipment, water trucks, emergency vehicles, and light vehicles. Light vehicle traffic in the January to April session with all other larger trucks and vehicles is approximately 160 to 210 passes per day without the TCWR, and 290 to 340 passes per day with the TCWR, which is about one vehicle every 4 to 5 minutes. The final design of the Jay Road is not yet complete and is subject to further refinement based on ongoing data collection, regulatory and community engagement, and design iteration. More information regarding the traffic predicted for the Jay Road can be found in Appendix C: Traffic Associated with the Jay Project (Dominion Diamond 2015a).

Historically, Bathurst caribou have been observed annually in the area surrounding the Ekati Mine during the post-calving to fall-rut period (July until November), and the timing has varied by year and herd size. Caribou may also encounter the Ekati Mine and the Project during the northern migration (May) to calving areas. It is during these times when caribou have the potential to interact with the Jay and Misery roads.

During the Project Technical Sessions in April 2015, Dominion Diamond made the commitment to provide a Caribou Road Mitigation Plan (CRMP) that gives further details on strategies to reduce the impacts from the Jay and Misery roads to caribou. A draft version of this Plan was submitted to the Mackenzie Valley Environmental Impact Review Board on May 8, 2015. Following a review period, Dominion Diamond hosted a workshop to discuss the CRMP on May 22, 2015 (Dominion Diamond 2015b). The suggestions made at this workshop have been considered and incorporated into this version of the Plan. A second workshop is planned for June 25, 2015 to discuss further comments and suggestions for the revised version of the Plan. Based on the framework of adaptive management, it is important to note that the CRMP will likely evolve through time and should not be considered a 'final' plan.

1.2 Objective

The CRMP will describe the mitigation and monitoring for the Jay and Misery roads with respect to caribou. Although this plan is specifically for the Project, the CRMP will be included as an Appendix in the Conceptual Wildlife Effects Monitoring Plan (Dominion Diamond 2015c) and will apply to other roads at Ekati Mine, including the Misery Road and future Sable Road, upon approval of the Project.

The objective of the CRMP is to:

- avoid and minimize (reduce) the risk of caribou and other wildlife mortalities from traffic;
- avoid and minimize the barrier effect of the Jay and Misery roads (and other Ekati Mine roads) to caribou movement and migration; and,
- limit the effect of sensory disturbance from roads and traffic on caribou behaviour.

Although dust is caused by vehicles driving on roads, mitigation and monitoring of dust will not be addressed in this Plan. Past mitigation to control dust at the Ekati Mine has included watering and applying dust suppressant to the roads. Dust monitoring at Ekati Mine is completed through the Air Quality Management and Monitoring Program (AQMMP). More detail regarding dust mitigation and monitoring can be found in the AQMMP (ERM 2015) and the Conceptual Air Quality and Emissions Monitoring and Management Plan for the Jay Project (Dominion Diamond 2015d).

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DOMINION
DIAMOND

JAY PROJECT
NORTHWEST TERRITORIES, CANADA

TITLE

LOCATION OF EKATI MINE
AND JAY PROJECT



PROJECT	1419751.4100.35	FILE No.
DESIGN	EN 26/05/15	SCALE AS SHOWN
GIS	ANK 26/05/15	REV 0
CHECK		
REVIEW		

MAP 1-1

2 CARIBOU PRESENCE AT EKATI MINE

Caribou in the Ekati Mine area are typically from the Bathurst herd, and some seasonal patterns are evident in their behaviour and distribution. Bathurst caribou movements through the area surrounding the Ekati Mine have historically occurred from July through October annually, but the timing has varied by year. Sensitivity of caribou to disturbance varies with life history and seasons. Caribou are likely most sensitive to development during the northern migration (May) when females are pregnant and need to get to the calving grounds, and the initial post-calving period (June) after calves have been born and are the most vulnerable to environmental stressors (e.g., predators and weather) and highly dependent on the cow for protection and energy. Sensitivity to development likely decreases during the summer (July and August) and fall/rut period (September and October).

Results from aerial surveys indicate that Bathurst caribou tend to move through the Ekati Mine area in pulses where large numbers of caribou are present for approximately two weeks (Figure 2-1). From 1998 to 2005, when the Bathurst herd size was likely greater than 100,000 individuals (Adamczewski et al. 2009), peak numbers of caribou were typically observed during July (Figure 2-2). Since then, peak caribou movements have occurred later from September to mid-October.

The first caribou arrivals of the year are typically cows on their way from the wintering grounds south of the treeline to the calving grounds near Bathurst Inlet. These caribou travel quickly, feed little, and have a clear directional movement northward regardless of lakes and topography. Their presence in the Ekati Mine regional study area (RSA) is typically confined to a few weeks in May. Bulls begin to arrive from the wintering grounds in July. The bulls typically move less, feed frequently, and are solitary or in small groups. Nursery groups (cows with calves) begin to arrive in July. They usually travel in groups and frequently stop for feeding, but development, large lakes, insect abundance, and other environmental factors influence their movement and behaviour. As the rut begins in late September, and as the caribou begin to leave the barren lands for the forest for winter, groups become mixed with cows and bulls. Caribou are not typically present in the Ekati RSA during winter.

Figure 2-1 Annual Temporal Distributions of Bathurst Caribou in the Ekati Mine Regional Study Area from Post-calving Aerial Surveys, 1998 to 2012

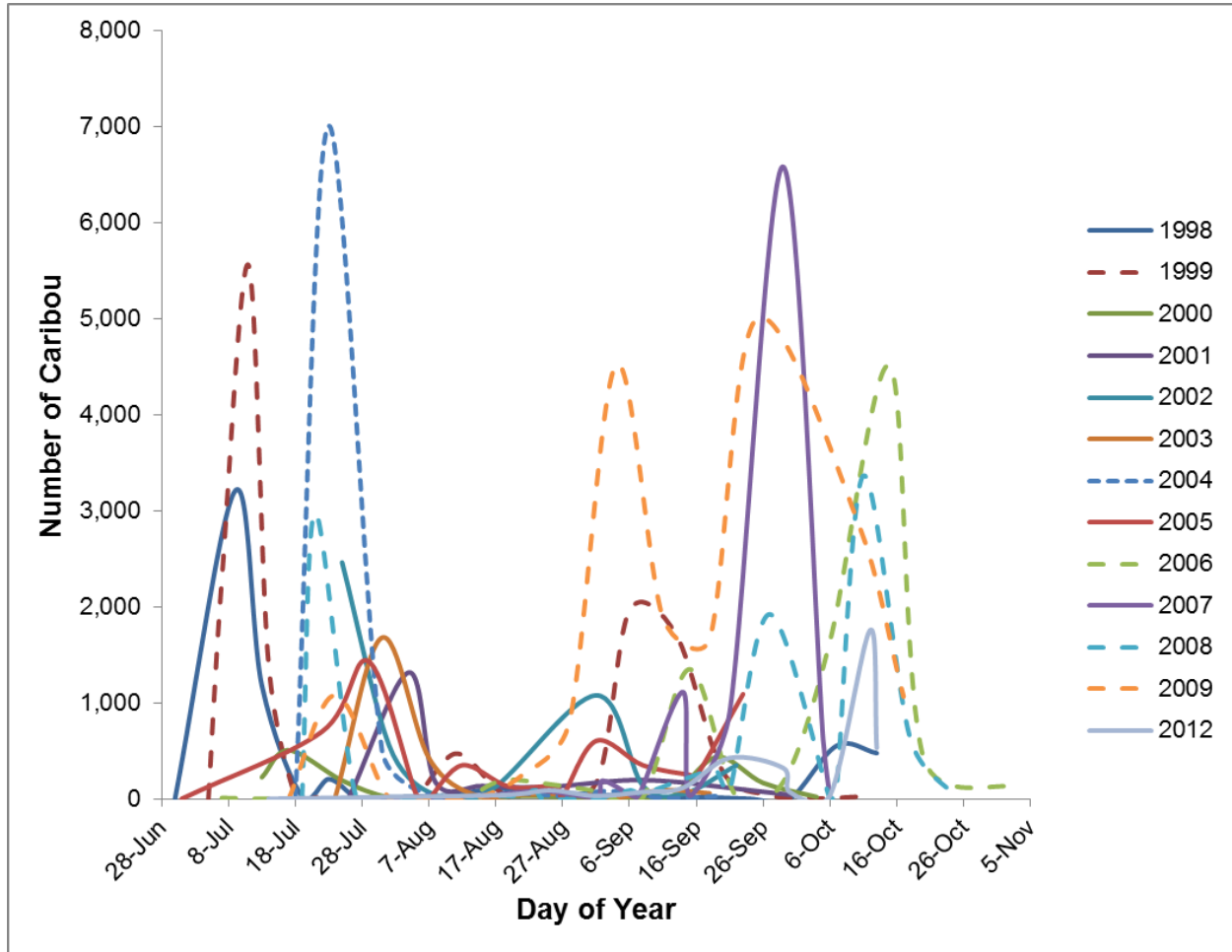
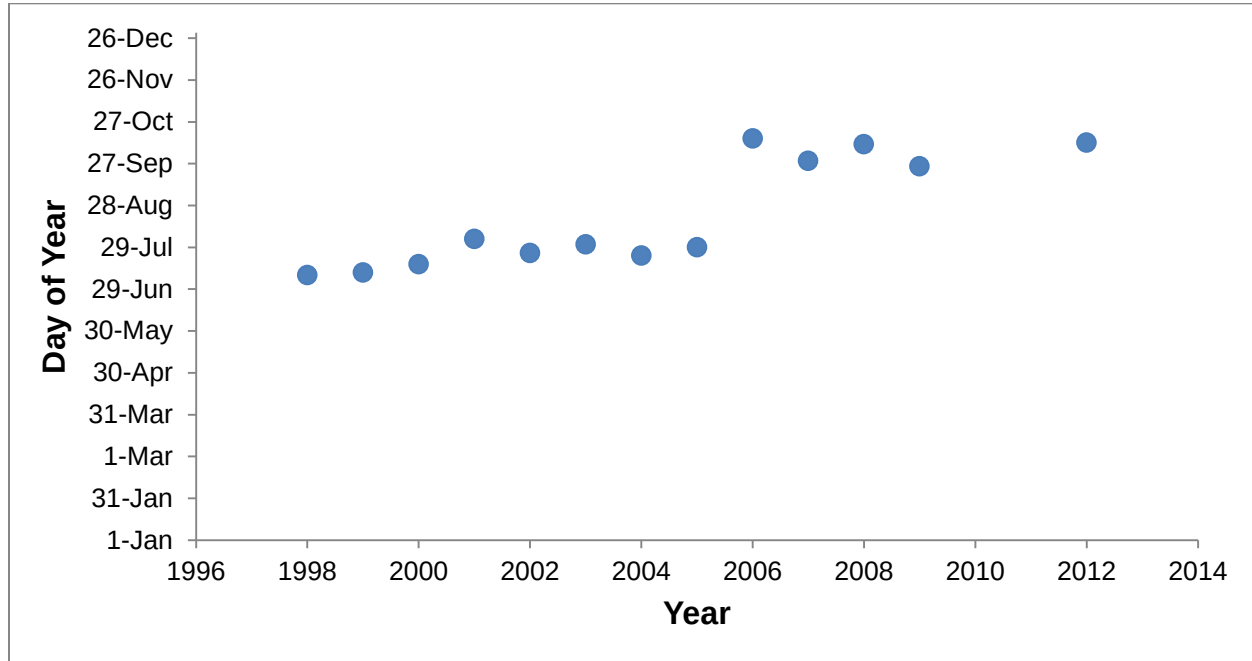


Figure 2-2 Dates of Annual Peak Abundance of Bathurst Caribou in the Ekati Mine Regional Study Area during Post-calving Aerial Surveys, 1998 to 2012



3 MITIGATION AND MONITORING

Dominion Diamond's strategy for managing risks to caribou (and other wildlife) associated with the Jay and Misery roads is to increase mitigation and monitoring as caribou approach the Ekati Mine (Figure 3-1). Four levels of mitigation and monitoring are proposed (Figure 3-2), and the intensity of mitigation and monitoring increases when specific action levels (triggers) are met (Table 3-1) including:

- Operational Level (Blue – continually);
- Level 1 (Yellow – low risk);
- Level 2 (Orange – medium risk); and,
- Level 3 (Red – high risk).

This three level approach to mitigation and monitoring (above the regular Operational Level) is similar to other Ekati Mine operation plans (e.g., cold weather policy). This consistency will allow Mine employees to understand the hierarchical structure of increasing mitigation and monitoring of the CRMP.

Operational Level mitigation and monitoring will occur continually throughout the year and the life of the Ekati Mine, and higher levels will be implemented when the associated action levels are met (Figure 3-2). For example, if Level 1 mitigation and monitoring is underway when Level 3 is triggered then there will be an immediate escalation from Level 1 to Level 3 mitigation and monitoring, and caribou observations will be compared continuously to the action levels. All mitigation from the previous lower level will be applied to the next higher level. Thus, escalation from Level 1 to Level 3 would include mitigation in Level 2.

Cows migrating to the calving grounds in the spring and cows with calves during the post-calving seasons are considered to be the most sensitive to Mine-related impacts. The mitigation in the CRMP has been designed to protect caribou encountering the Ekati Mine during these seasons. Most mitigations will be applied to all seasons in the same way so that caribou are given a high level of protection throughout the year. In addition, mitigation may be increased depending on the season and group composition of caribou approaching the Jay and Misery roads (and other Ekati Mine roads) (Figure 3-1). The mitigations listed below are based on those that have been used at the Ekati Mine over the past 17 years of mine operations. There has never been a caribou mine-related mortality resulting from a vehicle collision at the Ekati Mine despite annual interaction of caribou with the Mine site, particularly when the Bathurst herd was larger in size in the late 1990s. This result demonstrates that existing mitigation, such as giving wildlife the right-of-way, signage, and road closures, is effective at avoiding caribou-vehicle collisions and limiting wildlife injury and mortalities.

Monitoring is expected to provide early detection of caribou approaching the Jay and Misery roads and to assist in managing appropriate levels of mitigation to protect caribou and other wildlife. The monitoring techniques discussed below are to be considered in sequence. Monitoring will be completed and assessed by the Environment Department and will be used to manage mitigation levels. Monitoring informs the Environment Department if action levels have been met and whether or not a change in mitigation and monitoring level is necessary.

Figure 3-1 Mitigation and Monitoring Intensity for Ekati Mine and Jay Project Roads

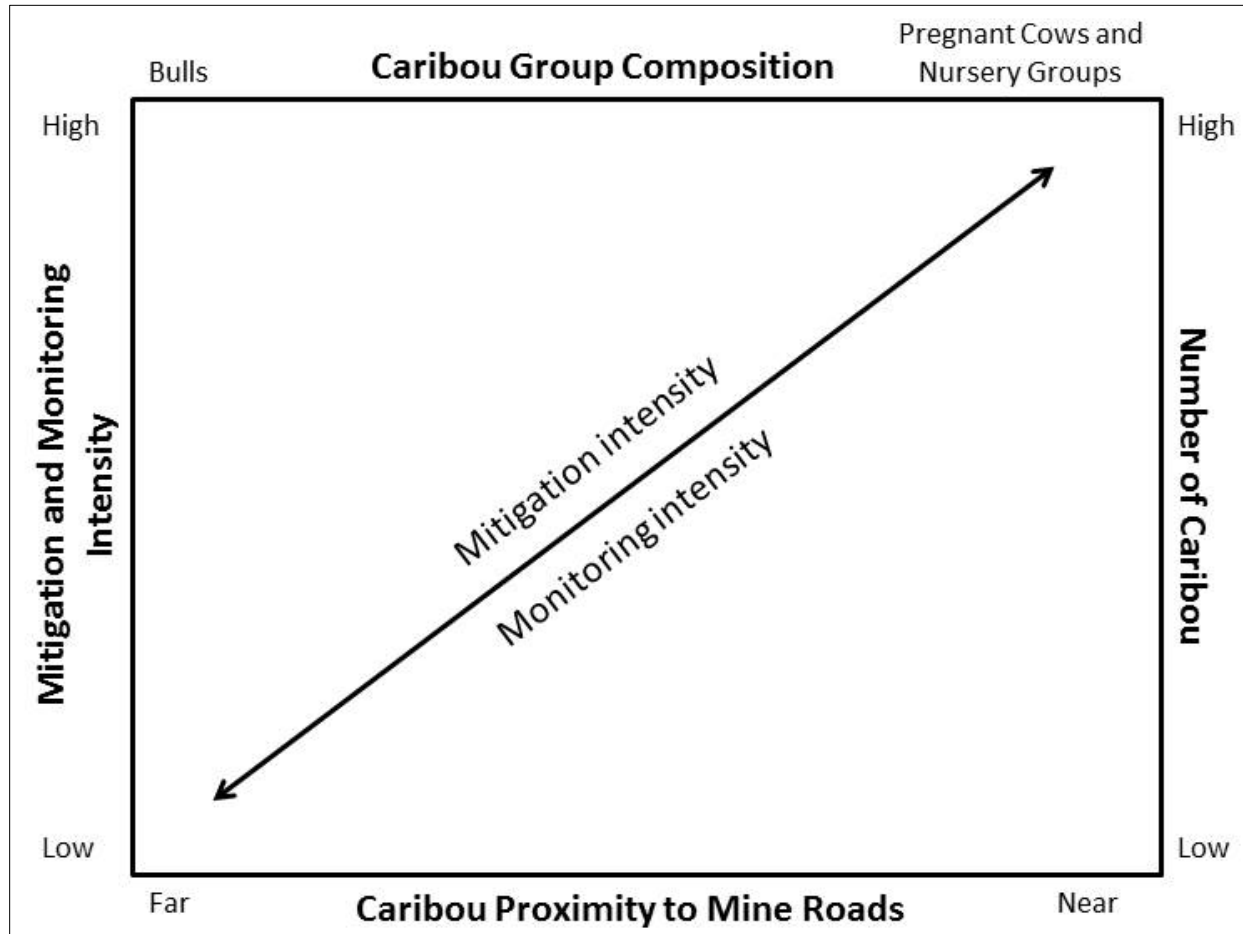


Figure 3-2 Decision Tree for Jay and Misery Roads Traffic Mitigation and Monitoring

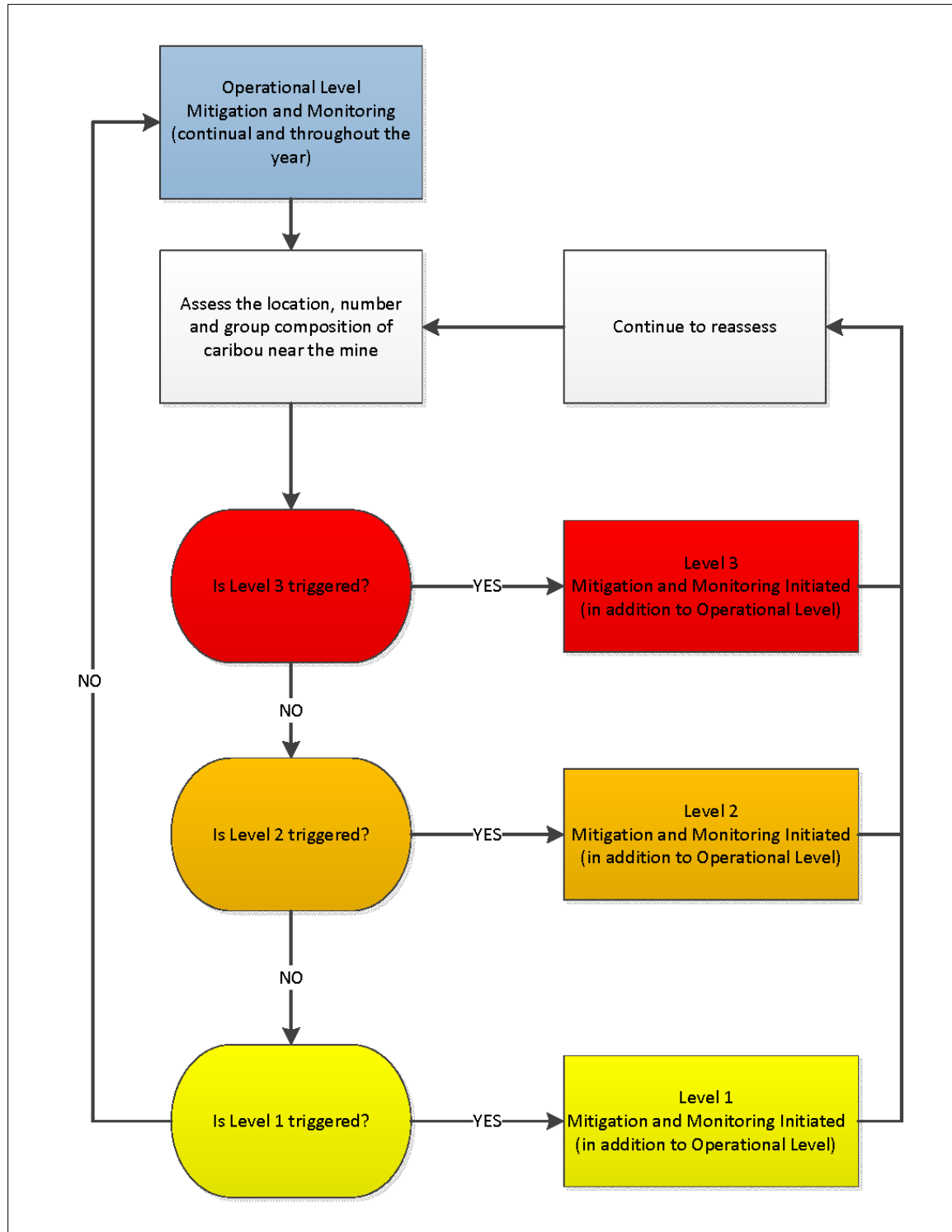


Table 3-1 Action Levels (Triggers) and Associated Caribou Road Mitigation and Monitoring for the Jay Project and Ekati Mine

Level (Alert)	Action Level (Triggers) to Initiate	Wildlife Road Mitigation	Caribou Monitoring
Operational (Blue)	Continual and throughout the year	- Design road to incorporate caribou crossings - Employee education - Speed limits are posted - Wildlife have right-of-way on all roads - Observations of wildlife on roads will be communicated to the Environment Department and other drivers in the area - Wildlife carcasses on or near roads will be removed - Road snow berm height will be managed during winter	- Collared caribou monitoring - Incidental wildlife sightings - Weekly road surveys
1 (Yellow)	One or more collared caribou or caribou observations within 30 km of the Ekati Mine (i.e., RSA)	- Site-wide notifications of caribou approach to Ekati Mine - Signage indicating caribou could be encountered (yellow alert)	- Collared caribou monitoring - Incidental wildlife sightings - Daily road surveys
2 (Orange)	- One or more collared caribou within 14 km of the Ekati Mine - Caribou sightings are reported near the Misery or Jay roads	- Site-wide notifications of caribou approach to Ekati Mine - Increased signage in areas where caribou might encounter the road - Signage indicating caribou are likely to be encountered (orange alert) - Speed limits will be decreased and posted	- Collared caribou monitoring - Incidental wildlife sightings - Daily road surveys - Environment Technicians dispatched to monitor traffic and provide caribou safety
3 (Red)	1% of total cows in the Bathurst herd are within 200 m of the Jay or Misery roads - One or more caribou groups observed within 500 m of the Jay or Misery roads during the northern migration (May) - One or more caribou crossing the road	- Site-wide notifications of caribou approach to Ekati Mine - Signage indicating caribou are highly likely to be encountered (red alert) - Short-term road closures - Long-term road closures	- Collared caribou monitoring - Incidental wildlife sightings - Daily road surveys - Environment Technicians dispatched to monitor traffic and provide caribou safety - Behavioural surveys (scan and focal sampling)

RSA = regional study area for the Ekati Mine; km = kilometres; m = metres; % = percent.

3.1 Operational Level (Blue)

This level of mitigation is the baseline for all higher levels, and is continuous throughout the year and life of the Mine including when no collared caribou or caribou observations are recorded within the Ekati Mine RSA. Many of the mitigations presented below have been applied to the Ekati Mine since operations began in 1998 (BHP 2000).

3.1.1 Mitigation

- *Design road to incorporate caribou crossings*

Dominion Diamond's community engagement program has indicated that the Jay Road area is important for caribou movement. In response to the feedback received through community engagement, Dominion Diamond proposes to construct caribou crossings along the Jay Road that respect the communities' identification of the importance of this area for caribou movement. While the design of the Jay Road has not been finalized, the objective is to make the Jay Road as permeable to caribou movement as practicable. Caribou crossings will not be built in areas where raised safety berms are required, or at locations where there are necessary joints and valves in the pipelines that must be accessible (Dominion Diamond 2015e, Map 1-1). Caribou crossings will be designed so that the side slopes of the road are flatter and have finer crushed rock particles (6 inches or less). In the caribou crossing areas, the pipelines will also be covered with finer crushed rock. Valves and pipeline joints must be accessible and will not be covered. Once the road is constructed, monitoring, which will include Aboriginal community members, will be implemented to assess the permeability of the road. This monitoring will be presented in the Ekati Mine annual Wildlife Effects Monitoring Program (WEMP) report.

- *Employee education*

The Environment Department will complete presentations to communicate the importance of mitigation (e.g., wildlife have the right of way and incidental sightings reporting) for the protection of caribou and information regarding caribou behaviour. Presentations will be made to the departments that use the Misery and Jay roads (i.e., Site services, Mine Operations, Logistics, Geology and Mine Technical Services, and Aviation) and distributed to other department managers to communicate the information to their employees. These presentations will be in addition to employee Mine orientation training and driver training and will be included as part of the Site Orientation for all new staff, contractors, and visitors.

Speed limits are posted

Speed limits are 60 kilometres per hour (km/h) along haul roads and 20 km/h or 40 km/h on other roads. Driving slowly will give drivers more reaction time and reduces the distance required to stop.

- *Wildlife have the right-of-way on all roads*

All employees operating vehicles will be responsible for stopping for caribou and other wildlife on the Jay and Misery roads (and other Ekati Mine roads). If a driver encounters wildlife or caribou on the road, they must report this to the Environment Department and Dispatch. This will allow the Environment Department to send Environment Technicians to the location to take any necessary actions and Dispatch to relay the message to other drivers.

Employees must wait until caribou or other wildlife move 100 m from the road before vehicles can proceed at a reduced speed of 20 km/h to limit disturbing animals. This distance can be estimated accurately and quickly by drivers, and at this speed, drivers are expected to be able to safely come to a complete stop should caribou or other wildlife decide to cross the road. When the animal has moved 200 m or more, the driver can increase his or her speed to 40 km/h. Environment Technicians will be dispatched to the location that caribou are encountered any time a driver stops to give caribou the right of way. When the driver can resume driving will be at the discretion of the driver only until an Environment Technician arrives to take over traffic management.

- *Observations of wildlife on roads will be communicated to the Environment Department and other drivers in the area*

This mitigation alerts other drivers and the Environment Department of wildlife presence, and is required by all employees operating a vehicle at all times. The Environment Department can respond according to the perceived threat to human or wildlife safety by issuing site-wide notifications, dispatching Environment Technicians to sections of the road, managing the movement of traffic, or closing roads. All incidental wildlife sightings are summarized in the annual Ekati Mine WEMP report.

- *Wildlife carcasses on or near roads will be removed*

This mitigation is intended to reduce the presence of predators and scavengers near roads. It is expected that all employees will report wildlife carcasses to the Environment Department for removal. The Environment Department reports all wildlife mortalities at site to the Environment and Natural Resources (ENR) department of the Government of the Northwest Territories and receives direction from ENR regarding disposal. All wildlife mortalities that occur at the Ekati Mine and details regarding carcass removal (e.g., distance carcass was moved from the road) will be provided in the annual Ekati Mine WEMP report.

- *Road snow berm height will be managed during winter*

During winter, snow berms present along roads will be reduced to provide safe driving conditions, improve visibility and reduce the berms as obstacles for migrating caribou. Results from monitoring at the Misery Road during the spring migration of Bathurst caribou indicated that snow berm heights may influence movements of caribou (Rescan 2011). The results of this monitoring indicate that caribou crossed roads when berms were 0.5 m high or less and deflected when berms were at least 1.6 m high. Snow berms along the Misery and Jay roads will be maintained at a height less than 1.6 m, where practicable.

3.1.2 Monitoring

Operational monitoring will include reviewing the locations of collared Bathurst caribou, incidental sightings of wildlife, and weekly road surveys, and the results will be documented in the annual Ekati Mine WEMP report.

- *Collared caribou monitoring*

Monitoring the location of collared caribou cows is useful for predicting the overall movements of the Bathurst herd. Recent analyses completed for the Diavik Diamond Mine found a significant negative

correlation between the number of caribou counted during aerial surveys and the mean distance of collared caribou locations from the study area during both migration periods (Golder 2011). This relationship indicates that when more caribou were observed during a survey, the mean distance of collar locations to the study area decreased (i.e., the collared animals were closer to the Mine on average when higher numbers of caribou were counted during aerial surveys).

The location of collared caribou provided by ENR will be monitored to determine the broad-scale proximity of caribou relative to the Ekati Mine. This monitoring will occur year-round and will be used to inform the Environment Department if a change in mitigation level is necessary.

- *Incidental wildlife sightings*

Ekati Mine employees are required to report all incidental wildlife sightings to the Environment Department, which are recorded in an Incidental Wildlife Sightings log. Incidental wildlife sightings reported by site staff allows the Environment Department to understand areas where wildlife are present or of high use so that mitigation can be adaptively managed.

- *Weekly road surveys*

Road surveys will be completed by truck along the Jay and Misery roads to determine the location and numbers of caribou as they approach the Ekati Mine. Environment personnel surveying the roads will allow for more proactive implementation of mitigation. The frequency of surveys will begin at one per week and will become more frequent as higher action levels are met.

3.2 Level 1 (Yellow)

This level of mitigation and monitoring is triggered when one or more caribou are observed within 30 km from the Ekati Mine (i.e., within the Ekati RSA). Mitigation at this level to provide a heightened awareness to Ekati Mine employees that caribou may be encountered near or on the Mine site.

3.2.1 Mitigation

- *Site-wide notifications of caribou approach to the Ekati Mine*

Notifications are communicated through site-wide email, during morning safety meetings or department-specific radio channels by the Environment Department. Notification will include signage alerting drivers departing on the Jay and Misery roads that migrating caribou are approaching the Ekati Mine.

- *Signage indicating caribou could be encountered (yellow alert)*

The Environment Department will post yellow (Level 1) alert signs for drivers that caribou could be encountered in the area. This provides drivers with reminders to be vigilant. All drivers will be notified at the beginning of their shift the alert level the Mine is currently at and provided with maps of any recent incidental caribou sightings. Signs will be posted at entry points of mine roads.

3.2.2 Monitoring

Level 1 monitoring will include all of the monitoring in the Operational Level; however, the frequency of road surveys will be increased from weekly to daily surveys. The frequency of yellow alert level, and all observations from additional road surveys will be documented in the annual Ekati Mine WEMP report.

3.3 Level 2 (Orange)

This level of mitigation occurs when one or more collared caribou or caribou observations occur within the 14 km of the Ekati Mine (i.e., within the predicted zone of influence for changes in caribou distribution) or if caribou sightings are reported near the Misery or Jay roads. Mitigations are intended to reduce sensory disturbance from roads and traffic on approaching caribou (i.e., within 14 km of the Mine), and the perception that roads and vehicles are a barrier to movement.

3.3.1 Mitigation

- *Increased signage in areas where caribou might encounter the road*

The Environment Department will post orange alert signs for drivers that caribou are present at relevant sections of the road. This will remind drivers to slow down if caribou are seen within 200 m (i.e., the maximum stopping distance of a loaded haul truck travelling 60 km/h) of the road or stop if caribou are on the road. The location of the signs will be based recent caribou observations.

- *Signage indicating caribou are likely to be encountered (orange alert)*

The alert signs posted in Level 1 Mitigation will change from yellow (Level 1) to orange alert (Level 2). All drivers will be notified at the beginning of their shift the level the Mine is currently at and provided with maps of any recent incidental caribou sightings. Signs will be posted at entry points of mine roads.

- *Speed limits will be decreased and posted*

The maximum speed limit on portions of the Misery haul road is 60 km/h. Speed limits will be decreased to 40 km/h along sections of the Jay or Misery roads when caribou nursery groups are observed within 500 m from the road. When caribou are observed within 200 m of the road, the speed limit will be decreased to 20 km/h. The length and section of the road, and duration of the speed limit decrease will be determined by the Environment Department. All wildlife will continue to have the right of way during speed limit reductions.

3.3.2 Monitoring

Level 2 monitoring will include all of the monitoring in Level 1 and the monitoring listed below. The number of orange alert level, and the road, frequency, duration and length of road segments of speed limit reductions will be documented in the annual WEMP report.

- *Environment Technicians dispatched to monitor traffic and provide caribou safety*

Environment Technicians will be dispatched to the location of any caribou observations along the roads to monitor and adaptively manage caribou safety. Technicians will also be present during speed limit reductions to monitor traffic and enforce compliance.

3.4 Level 3 (Red)

This level of mitigation and monitoring will be triggered when 1 percent (%) or more of total cows in the Bathurst herd are within 200 m of the Misery or Jay roads (i.e., the maximum stopping distance of a loaded haul truck travelling 60 km/h), or one or more caribou are crossing the Misery or Jay roads. The trigger will be calculated based on the abundance estimates provided by ENR. This allows the absolute number of caribou representing the trigger to vary with herd size (i.e., this number is more conservative when the herd is at lower abundance). During the northern migration when caribou movement is more predictable and cows are most sensitive to disturbance, short-term closures will occur when groups are within 500 m of the roads. Mitigations are intended to avoid and limit the following effects to caribou:

- risk of caribou mortalities from vehicles;
- the barrier to movement and migration from the Jay and Misery roads (and other Ekati Mine roads); and,
- sensory disturbance from roads and traffic on caribou behaviour (and associated adverse changes in energetics and reproduction).

3.4.1 Mitigation

- *Signage indicating caribou are highly likely to be encountered (red alert)*

The alert signs posted in Level 2 Mitigation will change from orange (Level 2) to red alert (Level 3). All drivers will be notified at the beginning of their shift the level the Mine is currently at and provided with maps of any recent incidental caribou sightings. Signs will be posted at entry points of mine roads.

- *Short-term and long-term road closures*

Dominion Diamond will construct additional kimberlite stockpile areas so that the Project can continue to operate throughout road closures. Short-term closures will involve closing sections of the road from one minute to six hours. Long-term closures will involve closing the entire Jay and/or Misery roads for at least six hours. Whether a long-term or short-term road closure is required will be determined by the Environment Department and will depend on the number and group composition of caribou near the road.

A road closure will always be initiated at any time if the criteria of 1% of total cows in the Bathurst herd is within 200 m of the Jay or Misery roads. Road closures will also occur at numbers lower than this based on the discretion of the Environment Department. For example, a road closure may be triggered if the composition of caribou groups is primarily cows with calves, if lower numbers of caribou are within 200 m of the Misery or Jay roads, or it is believed the caribou intend to cross the road. During the northern migration (May), when caribou movement is more predictable and cows are most sensitive to disturbance, short-term closures will occur when groups are within 500 m of the roads.

3.4.2 Monitoring

Level 3 monitoring will include all of the monitoring in Level 2, with the addition of scan and focal behavioural monitoring. The frequency of red alert level, and all behavioural survey data will be documented in the Ekati Mine annual WEMP report.

- *Behavioural surveys (scan and focal sampling)*

Ground-based scan and focal sampling from the road will be initiated to document caribou response to stressors (e.g., haul trucks). Behavioural monitoring of caribou will allow the Environment Department to understand how caribou behaviour changes with distance to the road and in response to industrial stressors so that mitigation can be adaptively managed (e.g., modifications of setback distances during road closures).

3.5 Roles and Responsibilities

In order to limit road impacts to caribou it is necessary to define all of the Mine staff roles and responsibilities with respect to operating vehicles on the Mine roads (Table 3.5-1)

Table 3.5-1 Ekati Mine Employee Caribou Road Mitigation Plan Roles and Responsibilities

Job Title	Responsibility
Superintendent Mining	• Ensure training is provided for site personnel • Hold all employees accountable for upholding all Environment commitments and policies • Incorporate CRMP components into the site Traffic Management Plan
Superintendent Environment	• Owner of CRMP • Ensure resources are available to establish, implement, execute, and maintain mitigation and monitoring • Responsible for overseeing the review and update of CRMP
Wildlife Advisor	• Design monitoring programs, ensure that monitoring and mitigations are executed and planned, review data, and adapt programs as required • Complete annual reporting and engagement • Provide expertise and support to operations teams • Responsible for implementing the CRMP, and completing the review and any updates
Environment Technician	• Reports directly to the Wildlife Advisor • Understand procedures, execute CRMP action levels and complete monitoring and mitigations as outlined
All Employees	• Report all wildlife and act in a manner that will protect all wildlife, except where it could affect their personal safety • Obey all posted speed limits and rules of the road and give wildlife the right of way on all roads • Understand and follow CRMP procedures and act in accordance with Dominion Diamond's Environmental Standards and Policies

CRMP = Caribou Road Mitigation Plan.

4 ADAPTIVE MANAGEMENT

Adaptive management is a structured process of decision making to deal with uncertainty.

The objective of adaptive management is to reduce uncertainty through monitoring, or “learning by doing” (WLWB 2010). In the case of wildlife monitoring, the “doing” is the environmental monitoring, and the “learning” is continual improvements to environmental management and the monitoring programs.

This requires the monitoring program to be adaptive and flexible. The monitoring program must be flexible enough to incorporate comments, suggestions, and information based both on science and local and Traditional Knowledge. The Ekati Mine WEMP has and will continue to incorporate adaptive management. Changes to the CRMP and WEMP will occur as monitoring results are analyzed and assessed over time. Mitigation and monitoring efforts related to the CRMP will be documented and analyzed in the Ekati Mine annual WEMP report and will include the following information:

- date;
- alert level triggered and reason for trigger; and,
- any follow up regarding the mitigation that was used.

If negative effects are detected (e.g., caribou-vehicle collisions, failed crossing attempts, inadequate signage), the actions available to Dominion Diamond include the following:

- increase monitoring effort;
- implement special studies to further understand the effects; or,
- implement additional mitigation to reduce the effects.

5 REFERENCES

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