RioTinto | Diavik

Closing responsibly, Closing with care

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Robert Jenkins
Deputy Minister
Government of Northwest Territories
Department of Environment and Climate Change
PO Box 1320
Yellowknife, NT X1A 2L9

July 25, 2025

Subject: Diavik Diamond Mines (2012) Inc (DDMI) Tier 2 Wildlife Management and Monitoring Plan (WMMP)

DDMI is pleased to provide its Tier 2 WMMP to the Government of the Northwest Territories Environment and Climate Change (GNWT-ECC) for review and comment (Attachment A). DDMI notes that the Tier 2 WMMP was provided as information in Appendix VI-3 of the Final Closure and Reclamation Plan Version 1.1 submitted to the Wek'èezhìı Land and Water Board which is currently undergoing public review. This Tier 2 WMMP has been developed to cover wildlife mitigation and monitoring activities at the Diavik Mine during closure and post-closure phases with the closure phase starting at the end of commercial operations which is planned for March 2026.

The Tier 2 WMMP was developed in accordance with Section 95 of the *NWT Wildlife Act*. The concordance table in Section 1.5 of the Plan demonstrates compliance with the Environmental Agreement, applicable Acts and regulations, and GNWT-ECC WMMP Guidelines.

Please do not hesitate to contact the undersigned or Kyla Gray (kyla.gray@riotinto.com; 867-445-4922) should you have any questions regarding this submission.

Sincerely,

Nicole Goodman, Superintendent Environment & Closure
Cross shift: Mark Nelson

Cc:
Brett Elkin, GNWT-ECC
Pete Cott, GNWT-ECC
Greg Look, GNWT-ECC

Attachment A: DDMI Tier 2 WMMP

Attachment A: DDMI Tier 2 WMMP

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TIER 2 CLOSURE AND POST-CLOSURE WILDLIFE MANAGEMENT AND MONITORING PLAN FOR THE DIAVIK DIAMOND MINE

Prepared for: Diavik Diamond Mines (2012) Inc.

Prepared by: WSP Canada Inc.

May 5, 2025

Table of Contents

Figures

Tables

Appendices

VERSION HISTORY

Version	Date	Notes
1	May 5, 2025	Initial Tier 2 WMMP submitted as part of the Final Closure and Reclamation Plan

Abbreviations

Abbreviation	Definition
AEMP	Aquatic Effects Monitoring Program
BBOP	Business and Biodiversity Offset Programme
CMA	Conference of Management Authorities
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWS	Canadian Wildlife Service
DDMI	Diavik Diamond Mines (2012) Inc.
Diavik mine	Diavik Diamond Mine
DNA	deoxyribonucleic acid
Dominion Diamond	Dominion Diamond Ekati Corporation
ECC	Environment and Climate Change, Government of the Northwest Territories
ECCC	Environment and Climate Change Canada, Government of Canada
ECG	Ecosystem Classification Group
EER	Environmental Effects Report
Ekati mine	Ekati Diamond Mine
ELC	Ecological Land Classification
EMAB	Environmental Monitoring Advisory Board
ENR	Environment and Natural Resources, Government of the Northwest Territories
FCRP	Final Closure and Reclamation Plan
GIS	Geographical Information System
GNWT	Government of the Northwest Territories
GNWT-DoL	Government of Northwest Territories - Department of Lands
HSI	habitat suitability index
HU	habitat unit
IFC	International Finance Corporation
IQ	Inuit Qaujimajatuqangit
MSES	Management and Solutions in Environmental Science
Mine	Diavik mine
NWT	Northwest Territories
PAR	Performance Assessment Report
QA	quality assurance
QC	quality control
SAR	Species at Risk
SARA	Species at Risk Act
SARC	Species at Risk Committee
SOP	Standard Operating Procedure
spp.	multiple species
TK	Traditional Knowledge
VEC	Valued Ecosystem Component
WHMIS	Workplace Hazardous Materials Information System
WLWB	Wek'èezhìı Land and Water Board
WMMP	Wildlife Management and Monitoring Plan
WMP	Wildlife Monitoring Program
WMMR	Wildlife Management and Monitoring Report
WRSA-NCRP	Waste Rock Storage Area North Country Rock Pile
WRSA-SCRP	Waste Rock Storage Area South Country Rock Pile
WTA	Waste Transfer Area
ZOI	zone of influence
ZOITTG	Zone of Influence Technical Task Group

Units of Measure

Unit	Definition
%	percent
>	greater than
<	less than
°C	degrees Celsius
cm	centimetre
km	kilometre
km/h	kilometres per hour
km^2	square kilometre
m	metre
mm	millimetre
m/s	metres per second

1 INTRODUCTION

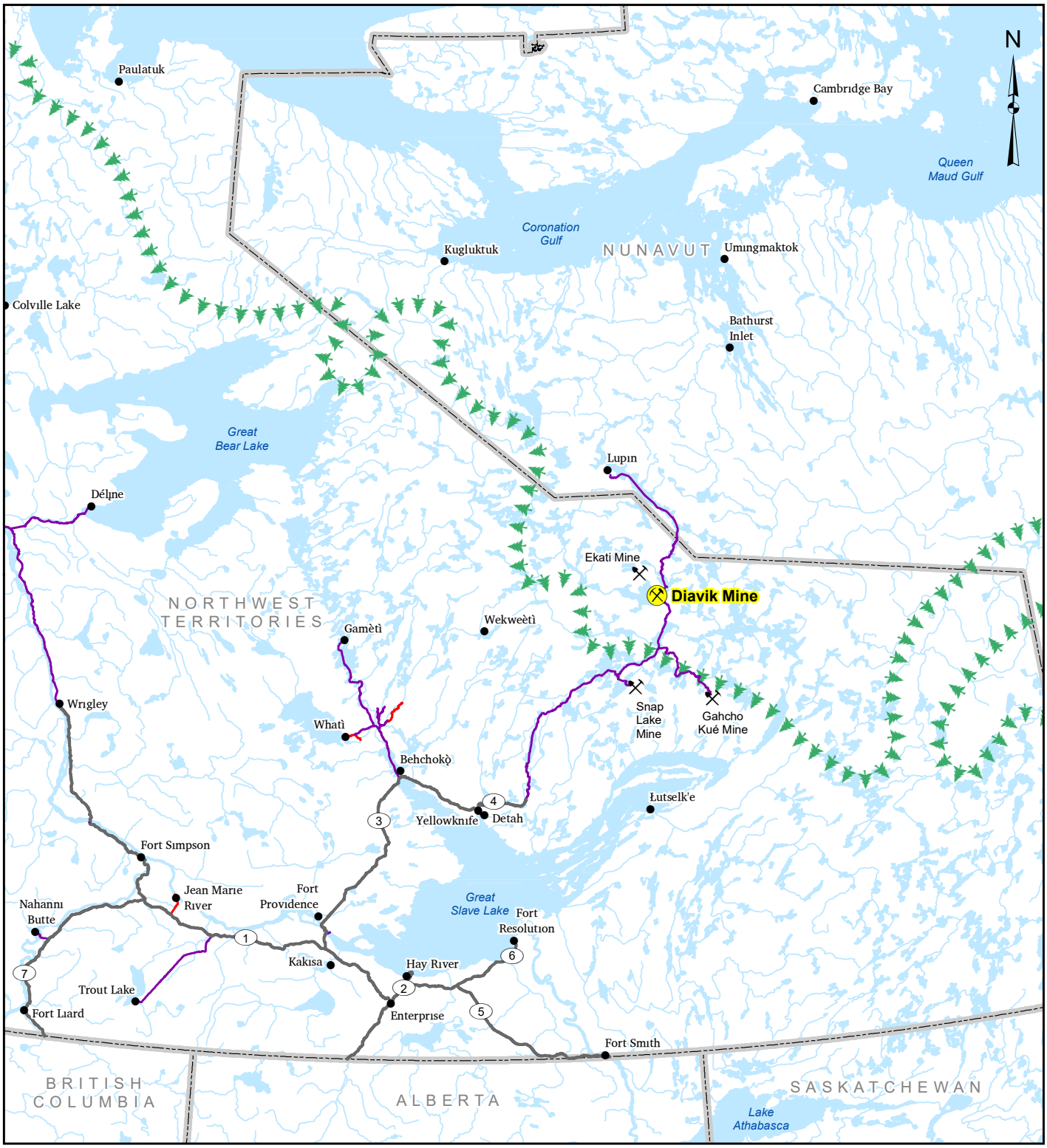
1.1 The Diavik Diamond Mine

The Diavik Diamond Mine (also referred to as the Diavik mine or the Mine) is located on East Island, a 17 km^2 island in Lac de Gras, NWT, approximately 300 km northeast of Yellowknife (64°31' North, 110° 20' West) (Figure 1.1-1). The area is remote, and major freight is trucked over a seasonal winter road from Yellowknife. Worker access is by aircraft. The Diavik mine involves the mining of four diamond bearing kimberlite pipes. The pipes, designated as A154N, A154S, A418, and A21, are located directly offshore of East Island (Figure 1.1-2). All mining, diamond recovery, support activities, and infrastructure (roads, pipes, water and waste management facilities, accommodation complex and airstrip) are located on East Island (Figure 1.1-2). At full development, the Mine is predicted to have a physical footprint of 12.67 km^2 by the end of operations (June/July 2025). A small amount of disturbed area will remain to support monitoring and maintenance during post-closure.

Decommissioning and reclamation activities during the closure phase are anticipated to begin in 2026 and end in late winter of 2029 (i.e., February/March 2030) followed by post-closure monitoring of East Island, which is anticipated to would continue through 2034. The Mine site will be occupied by staff and contractors periodically until completion of closure activities or seasonally depending on scheduling of closure activities. There may be occasions during closure when the Mine site will be unoccupied during winter months. Activities associated with the closure of the Mine that may cause disturbance to wildlife include flooding of open pits, covering of the Processed Kimberlite Containment (PKC) Facility, decommissioning, demolition, and removal of surface facilities (e.g., processing and paste plants, and accommodations), grading and recontouring slopes, and scarifying surfaces targeted for active revegetation (DDMI 2025a). These activities will require the use of heavy machinery and other vehicles and equipment.

During post-closure, the site will be occupied by staff and contractors periodically for maintenance and monitoring activities to support the post-closure assessment (DDMI 2025a). A small number of staff and light vehicles will be present seasonally during post-closure to carry out maintenance and environmental monitoring activities (e.g., the Aquatic Effects Monitoring Program [WSP 2025a]). Heavy machinery and equipment will no longer be present at the site. Periodic maintenance and monitoring during post-closure is anticipated to end in 2034.

This Tier 2 Wildlife Management and Monitoring Plan (WMMP) has been developed to cover wildlife mitigation and monitoring activities at the Mine during closure and post-closure phases. Wildlife effects monitoring would continue to occur during closure with the level of monitoring (e.g., component type, intensity, frequency, and duration) commensurate with the level of activities and number and capacity of staff on site. It is expected that as impact predictions are verified and continue to be negligible and/or non-detectable, most effects monitoring components would stop at the end of closure consistent with the principles of adaptive management. During closure and post-closure, performance monitoring also would be conducted, and it is anticipated that the frequency and intensity of monitoring will diminish as closure criteria and objectives identified in the Final Closure and Reclamation Plan (FCRP; DDMI 2025a) are met. The duration and frequency of effects and performance monitoring would be adaptively managed to appropriately match efforts to the monitoring results. The schedule of anticipated closure and post-closure monitoring is included in this WMMP.



LEGEND

- DIAVIK MINE LOCATION
- POPULATED PLACE
- HIGHWAY
- ALL-SEASON ROAD
- WINTER ROAD
- TREELINE
- WATERCOURSE
- WATERBODY

REFERENCE

BASE DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 12 DATUM: NAD 83

150 0 150
SCALE 1:6,000,000 KILOMETRES

PROJECT
DIAVIK CLOSURE FEASIBILITY STUDY

TITLE
LOCATION OF THE DIAVIK DIAMOND MINE

RioTinto

PROJECT No. 20365423			SCALE AS SHOWN	REV. 0
DESIGN	DC	28 June 2022		
GIS	AK	28 June 2022		
CHECK	DC	28 June 2022		
REVIEW	DC	28 June 2022		

FIGURE: 1.1-1

PATH: I:\CLIENTS\DIAVIK\20365423\Mapping\Products\Wildlife\WMMP_Tier2\Fig1_20365423_ProjectLocation_Rev0.mxd PRINTED ON: 2022-06-28 AT: 3:51:24 PM

REFERENCE

1. 2021 SPOT IMAGE AND 2020 WORLDVIEW IMAGE OBTAINED FROM CLIENT
PROJECTION: UTM ZONE 12 DATUM: NAD 83

PROJECT

DIAVIK CLOSURE FEASIBILITY STUDY

TITLE

DIAVIK MINE SITE INFRASTRUCTURE

RioTinto

PROJECT No. 20365423			SCALE AS SHOWN	REV. 0
DESIGN	DC	28 June 2022		
GIS	AK/LS	28 June 2022		
CHECK	DC	28 June 2022		
REVIEW	DC	28 June 2022		

FIGURE 1.1-2

1.2 Report Content, Objectives and Organization

The WMMP describes how DDMI intends to monitor and mitigate the effects to wildlife that may occur within and beyond the Mine footprint during the closure and post-closure phases. Similar to the operations phase, wildlife effects monitoring will continue during the closure phase to test impact predictions and evaluate the effectiveness of mitigation policies and practices, and results provided in an annual Wildlife Management and Monitoring Report (WMMR). It is expected that as impact predictions are verified and continue to be negligible and/or non-detectable, most effects monitoring components would stop at the end of closure consistent with the principles of adaptive management (Section 2.2). Results from wildlife effects monitoring will also contribute to the evaluation of several closure objectives and criteria developed in the FCRP. The actual assessment of closure objectives and criteria will be completed in the Performance Assessment Report (PAR).

Applicable and relevant mitigation policies and procedures designed to avoid and minimize effects to wildlife and wildlife habitat will also be continued during closure and post-closure. However, not all mitigation measures implemented during operations and closure would be necessary in post-closure due to differences in the type and level of activities. Activities during post-closure will be limited to a few people on site for short periods to carry out care and maintenance and monitoring, which would generate negligible potential for sensory disturbance (dust, noise) and adverse human-wildlife interactions (injury or mortality to animals).

The global objectives of the WMMP were developed considering the requirements of the Environmental Agreement, and the remaining residual environmental risks to wildlife identified in the EER (DDMI 1998b). The global objectives include the following:

- incorporate Traditional Knowledge (TK) and provide opportunities for the involvement and active participation by communities in the implementation of the WMMP;
- documenting Mine-related effects and test impact predictions made in the EER, which would also support the assessment of closure criteria and objectives;
- implement performance monitoring that will inform wildlife-related closure criteria and objectives identified in the FCRP (DDMI 2025a);
- implement practices that mitigate disturbance to wildlife and wildlife habitat that are relevant to closure and post-closure phases and assess the effectiveness of mitigation; and,
- use the results from monitoring to provide feedback for adaptive management and adjust environmental management and monitoring practices accordingly.

During operations, DDMI contributed to regional monitoring initiatives, but these contributions are not required for a Tier 2 WMMP (GNWT-ENR 2019a, 2021). Diavik will continue to collect data in a manner consistent with other developments that may contribute towards cumulative effects assessments.

The closure and post-closure WMMP is organized as follows:

- Section 1 – Introduction – provides introductory and background information relating to the WMMP, including evolution of the WMMP and relevant legislation.

- Section 2 – Development of the Wildlife Management and Monitoring Plan – provides background information on the study area, monitoring framework, valued ecosystem components (VECs), and species of concern.
- Section 3 – Integration of the WMMP with Closure and Reclamation Planning – describes the integration of the WMMP with closure and reclamation planning. Effects and performance monitoring activities are described, along with objectives and a schedule of reporting activities for the closure and post-closure phases.
- Section 4 – Engagement and Incorporation of Traditional Knowledge – outlines how TK is incorporated in the WMMP, including alignment with the TK Closure Monitoring Plan.
- Section 5 – Mitigation – describes mitigation policies, practices, and procedures (i.e., actions) that DDMI has implemented to avoid, minimize, or limit effects to wildlife and wildlife habitat. Mitigation actions are discussed in relation to expected requirements for the closure and post-closure phases.
- Section 6 – Effects and Performance Monitoring – wildlife monitoring programs are described, including objectives and effects predictions (if applicable), methods, frequency and duration, data analysis, and reporting. Effects monitoring during closure, which is similar to monitoring that occurred through operations, is distinguished from performance monitoring that is directly linked to the FCRP closure criteria and objectives and occurs during closure and post-closure.
- Section 7 – Quality Assurance/Quality Control Procedures – describes DDMI's commitments to quality assurance and quality control.
- Section 8 – Reporting – describes the reporting requirements related to the WMMP.
- Section 9 – References – presents a list of all references cited.

1.3 Background to Wildlife Monitoring

Diavik conducted wildlife baseline studies from 1995 to 1997. The information was used to describe ecological conditions in the Lac de Gras area in support of the Project Description and Environmental Assessment (DDMI 1998a,b). A Wildlife Monitoring Program (WMP) was developed as part of the Environmental Agreement for the Diavik Diamond Mine (DDMI 2000). Documents that were used in developing the WMP included the following:

- Comprehensive Study Report, Diavik Diamonds Project (*The Canadian Environmental Assessment Act*; Government of Canada 1999);
- Environmental Assessment Overview, Diavik Diamonds Project (DDMI 1998c);
- Environmental Effects Report, Wildlife, Diavik Diamonds Project (EER; DDMI 1998b); and
- Wildlife Baseline Report, Diavik Diamonds Project (Penner 1998).

Table 1.3-1 summarizes the Environmental Agreement provisions and compliance by the WMP.

Table 1.3-1 Provisions of Environmental Monitoring Programs Under Section 7.1 of the Environmental Agreement

Section 7.1 Provision	Wildlife Monitoring Program Compliance
(a) Meet the monitoring requirements of all Regulatory Instruments.	Compliant with the NWT *Wildlife Act*, and *Species at Risk Acts* (Federal and Territorial).
(b) Verify the accuracy of the environmental assessment of the Project.	An objective of the WMP (Section 1.2).
(c) Determine the effectiveness of measures taken to mitigate any adverse environmental effects of the Project.	An objective of the WMP (Section 5).
(d) Consider Traditional Knowledge.	An example includes the grizzly bear hair snagging program and the identification of high-quality habitat for hair snagging station deployment (Section 4.2.3). Selection of wolverine winter track survey locations and collection of data is another example (Section 4.2.2).
(e) Establish or confirm thresholds or early warning signs.	For wildlife, ecological quantitative thresholds are not available. However, the WMP provides predictions such as Mine-related mortality rates (Section 6.1).
(f) Trigger action by adaptive mitigation measures where appropriate.	Programs have been adaptively managed over time (Section 2.2), which includes changes to mitigation such as early versus more current waste management practices, based on pre-defined triggers. Possible outcomes of adaptive management related to mitigation include more, less, or unchanged mitigation depending on effectiveness. Past scope and improvements are noted in component monitoring sections.
(g) Provide opportunities for the involvement or active participation of each of the Aboriginal Peoples in the implementation of the monitoring programs.	Communities participated in caribou, wolverine, and grizzly bear studies (Section 4.2.4, 4.3).
(h) Provide training opportunities for each of the Aboriginal Peoples.	Training is provided each time communities participate (Section 5.4).

Implementation of the WMP by DDMI from 2002 to 2025 (i.e., during construction and operation of the Mine) has been used to test effects predictions in the EER (DDMI 1998a,b), evaluate the effectiveness of mitigation, and provide feedback for adaptive management. The WMP also considers wildlife issues of concern identified by communities and regulatory agencies. The WMP is aligned with the Environmental Agreement, which states that monitoring programs contained within the management plans shall include activities designed to:

- measure compliance with regulatory requirements;
- determine the environmental effects of the Mine;
- test impact predictions; and,
- measure the performance of Mine operations and effectiveness of impact mitigation.

Section 7.2 of the Environmental Agreement requires that wildlife, including caribou and grizzly bears, be among the environmental components or VECs monitored. The Environmental Agreement also required the establishment of the Environmental Monitoring Advisory Board (EMAB), which operates independently from Diavik and the GNWT and national regulators (e.g., Environment and Climate Change Canada).

Indigenous communities of the Northwest Territories and Nunavut, and the governments of the Northwest Territories, Nunavut, and Canada are members of EMAB. A main role of the EMAB is to serve as a public watchdog of the regulatory process and the implementation of the Environmental Agreement.

1.4 Evolution of the Wildlife Monitoring Program

The Diavik WMP is based on evaluating the assumed success of implemented mitigation and associated predicted residual effects to wildlife and wildlife habitat provided in the EER (DDMI 1998b) but has evolved through time with input from the communities, government regulators, and EMAB. Knowledge of the effects of mining on wildlife from monitoring undertaken at the Diavik mine, other diamond mines, and research in the NWT (e.g., caribou zone of influence (ZOI) analyses, wolverine and grizzly bear hair snagging) has also influenced the components, objectives, study designs, and sampling methods in the WMP. Over time, the content of the WMP was also modified to meet the previous requirements of the Draft Wildlife and Wildlife Habitat Protection Plan and Wildlife Effects Monitoring Program Guidelines provided by the Government of Northwest Territories, Department of Environment and Natural Resources (GNWT-ENR 2013). More recently, the GNWT-Environment and Climate Change (GNWT-ECC [formerly ENR]) has provided Wildlife Management and Monitoring Plan Guidelines (GNWT-ENR 2019a, 2021) for the process and content of wildlife monitoring programs. As a result, the structure and content of the WMP has evolved into the Wildlife Management and Monitoring Plan (WMMP) to be consistent with the GNWT-ENR (2019a, 2021) Guidelines. A Tier 3 WMMP was submitted to the GNWT-ECC in November 2021 and updated in 2024 for the operations phase, and this WMMP has been prepared as a Tier 2 plan for the closure and post-closure phases following GNWT-ENR guidelines (2019a, 2021).

Diavik Mine Environment roles and responsibilities are provided in ENVI-444-0415: Description of Employee Responsibilities (Appendix A). The Diavik mine employs Environment Supervisors to manage and guide the Environment Technicians who implement the WMMP. The Environment Department is led by a superintendent who oversees regulatory concordance, reporting and engagement associated with the WMMP and provides the resources necessary to implement the WMMP, which is also intended to engage interested parties and solicit feedback. Standard operating procedures are provided in Appendix A, and associated data forms are provided in Appendix B.

Consistent with the principles of adaptive management the WMMP is a living document that will be updated as needed. Because the Diavik mine has been operating for over 20 years, multiple environmental monitoring programs and management plans are in place and have been effectively improved over time through adaptive management (Section 2.2).

In 2009 and 2010, workshops were organized with the goal of improving and standardizing wildlife monitoring at all diamond mines (Diavik mine, Ekati mine, and Snap Lake mine). The first was in September 2009 and attended by representatives of the three operating diamond mines, governments, monitoring agencies, and communities. The workshop focussed on general results from the monitoring programs (Marshall 2009). A technical workshop in 2010 resulted in specific recommendations for the mining companies to consider incorporating into the objectives, study designs, and methods of their monitoring programs, with an interest in standardizing approaches and regional monitoring objectives across all the mines (Handley 2010). Additional workshops and meetings were held in 2013, 2018, and 2021. The standardized regional monitoring objectives from this workshop for each VEC are provided in Section 5.

1.5 Concordance

The WMMP serves to meet DDMI's obligations to a range of authorities. This includes various *Acts* and regulations relevant to wildlife in the NWT (Table 1.5-1). The WMMP also meets the requirements of the GNWT Wildlife Management and Monitoring Plan Guidelines (GNWT-ENR 2019a, 2021). The sections of the WMMP that pertain to the NWT Acts and regulations, and the guidelines for wildlife and wildlife habitat protection and monitoring are also identified in Table 1.5-1.

Table 1.5-1 Concordance of Legislation/Regulation Requirements and Wildlife Management and Monitoring Plan

Legislation/ Regulation/ Agreement	Requirement	Corresponding Section in WMMP	Responsible Regulatory Agency
Environmental Agreement	• Measure compliance with regulatory requirements • Determine the environmental effects of the Mine • Test impact predictions • Measure the performance of operations and effectiveness of impact mitigation	Entire Document	Government of Canada, GNWT
Migratory Birds Convention Act, Migratory Bird Regulations	The taking of nests or eggs of migratory game or insectivorous or nongame birds shall be prohibited, except for scientific or propagating purposes under such laws or regulations as the High Contracting Powers may severally deem appropriate.	Section 6.1.8	CWS (ECCC)
NWT *Wildlife Act*	A wildlife management and monitoring plan must include: (a) a description of potential disturbance to big game and other prescribed wildlife, potential harm to wildlife and potential impacts on habitat; (b) a description of measures to be implemented for the mitigation of potential impacts; (c) the process for monitoring impacts and assessing whether mitigative measures are effective; and, (d) other prescribed requirements.	Entire Document. Examples include: Sections 5 and 6 describe potential effects to wildlife and habitat, mitigation and monitoring. Section 5.1 describes effectiveness of mitigation. Section 2.2 describes adaptive management process for mitigation effectiveness. Compliance with NWT WMMP guidelines captures other prescribed requirements (GNWT-ENR 2019a, 2021).	GNWT-ECC
NWT *Wildlife Act*	Guidelines for the preparation of a Tier 2 wildlife management and monitoring plan, dated June 2019 (GNWT-ENR 2019a) and June 2021 (GNWT-ENR 2021).	Section 1	GNWT-ECC
	Purpose of and Objectives of the WMMP		
	Measures, conditions, and developer commitments concordance table	Section 1.5	
	Engagement	Section 4	
	Mention of associated operational or management plans	Section 1.4	
	Project description	Section 1	
	Project map	Section 1	
	Affected species or habitat features	Section 2.3	
	Potential impacts to wildlife and wildlife habitat	Section 5.2	
	Employee wildlife awareness education and training	Section 5.4	
	Infrastructure design and camp layout for bear safety and/or to prevent denning, nesting and roosting	Section 5.3	
	Management of camp waste and other wildlife attractants	Section 5.3.3	

Table 1.5-1 Concordance of Legislation/Regulation Requirements and Wildlife Management and Monitoring Plan

Legislation/ Regulation/ Agreement	Requirement	Corresponding Section in WMMP	Responsible Regulatory Agency
NWT *Wildlife Act*	Timing restrictions and/or set back distances to protect wildlife and wildlife habitat features	Section 5.1, 5.3.1	GNWT-ECC
	Direct habitat loss – minimizing the project's physical footprint	Section 5.2.1	
	Habitat alteration – minimizing physical manipulation of habitat that would decrease its value to wildlife	Section 5.2.1	
	Indirect habitat loss – minimizing functional habitat loss due to sensory disturbance, dust, etc.	Section 5.2.2	
	Management of hazards to wildlife (e.g., open pits, tailings ponds, roads, airstrips, spills)	Section 5.3.1, 5.3.2	
	Wildlife deterrence procedures	Section 5.3.4	
	Habitat restoration	Section 5.2.1	
	Description of the role of community wildlife monitors in implementing aspects of the plan	Section 4	
	Mitigation monitoring	Section 5.5, 6.1	
	Wildlife effects monitoring	Section 6.1	
	Project footprint size reporting	Section 6.1.1	
	Description of approach to adaptive management	Section 2.2	
	Formal response frameworks with action levels	Section 2.2	
	Reporting protocols	Section 8	
	Roles and responsibilities	Section 1.4 and in ENVI-444-0415: Description of Employee Responsibilities (Appendix A)	
	Literature cited	Section 9	
	Glossary	Glossary	
	SOPs	Appendix A	
	Monitoring forms and data sheets	Appendix B	
	Reporting form templates	Appendix B	
	WMMP revisions tracking table	page iv	
Species at Risk Act and *Species at Risk (NWT) Act*	Diavik Diamond Mines (2012) Inc. will adhere to requirements of all applicable Regulations or Recovery Plans that may be developed over the duration of the Mine.	Section 2.4	CWS (ECCC) GNWT-ECC

CWS = Canadian Wildlife Service; ECCC = Environment and Climate Change Canada; GNWT=Government of Northwest Territories; GNWT-ECC = Government of Northwest Territories, Department of Environment and Climate Change; NWT = Northwest Territories; SOP = Standard Operating Procedure; WMMP = Wildlife Management and Monitoring Plan.

2 DEVELOPMENT OF THE WILDLIFE MANAGEMENT AND MONITORING PLAN

2.1 Wildlife Study Area and Setting

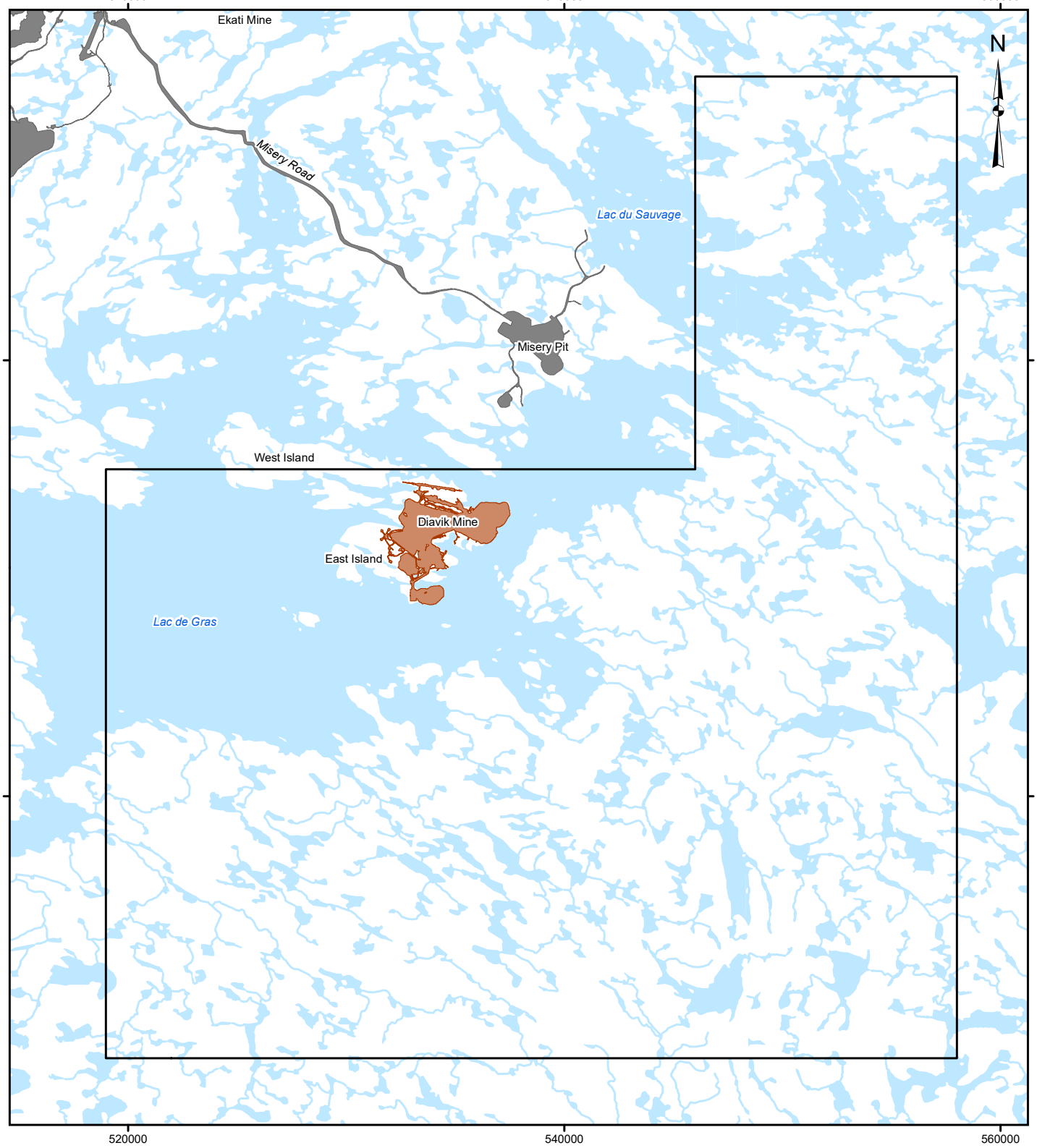
The Diavik mine is located approximately 200 km south of the Arctic Circle and 300 km northeast of Yellowknife in the NWT, Canada. The Mine is located within the headwaters of the Coppermine River drainage basin, which flows north to the Arctic Ocean in the Level III Tundra Shield Low Arctic (south) Ecoregion in the Level II Tundra Shield Ecoregion as defined by the Ecological Classification Group (ECG 2012). This Ecoregion is characterized by short, cold summers, and very cold, long winters. The annual average temperature in the Tundra Shield Low Arctic (south) Ecoregion is -9 degrees Celsius (°C), ranging from +10°C to +12°C in July to -30°C in January. Average annual precipitation is from 200 to 300 mm with approximately 60 percent (%) occurring as rain and 40% occurring as snowfall (ECG 2012).

The topography of the region is relatively flat, with the local area characterized by undulating to rolling terrain with northwest to southeast trending ridge features known as eskers and exposed bedrock outcrops. The local terrain is characterized by boulder fields, tundra, and wetlands, and by numerous lakes with interconnecting streams. Permafrost is continuous, typically extending to a depth of 300 m, and is overlain by an active layer, which thaws during the summer and refreezes during the winter. The active layer is typically within 1 to 2 m of the ground surface. The lakes and streams of the area are characterized by clear, soft, and low-nutrient waters, typical of northern aquatic environments. The biological productivity and biomass of plants and animals in streams and lakes are low compared to streams and lakes in southern Canada.

Characteristic vegetation of the Tundra Shield Low Arctic (south) Ecoregion includes continuous to discontinuous low-shrub complexes and erect dwarf-shrub tundra (ECG 2012). The terrestrial vegetation community around the Diavik mine is composed mainly of heath tundra. Characteristic species are Labrador tea, bog cranberry, bearberry, black crowberry, and dwarf birch. Lichen-dominated communities are found on the crests and upper slopes of eskers where the snow does not accumulate and on bedrock or boulder complexes where exposed rock outcrops support these communities. Shrubs, such as willows and dwarf birch, are found in sheltered riparian areas along streams, seeps, and lakeshores associated with poorly drained soils. The vegetation characteristics of the sedge wetlands and tussock hummock plant communities occurring in depressions are dominantly sedges, cotton grasses, and peat mosses (DDMI 1998b).

Despite the harsh climate, the area supports many species of mammals and birds. Most of these animals are migratory (e.g., caribou, peregrine falcon, upland birds, and waterfowl), others are non-migratory (e.g., grizzly bear, wolverine, Arctic fox, red fox, Arctic hare, and raven). Although uncommon, moose and muskox have been observed in the Lac de Gras region (Dominion Diamond 2014).

Beginning in 2002, wildlife monitoring was conducted in a study area of approximately 1,200 square kilometres (km^2) surrounding the Diavik mine (Figure 2.1-1). For caribou, a larger aerial survey study area was expanded to 1,870 km^2 in 2006, and then 2,867 km^2 during 2007 and 2008. In August 2009, the Diavik and Ekati mines collaboratively expanded the aerial survey study area to 5,930 km^2 after consultation with regulators and permission from the GNWT-ECC. The study area was expanded south so that an effective buffer around the Diavik mine was surveyed to fully capture caribou distribution relative to mine development.



LEGEND

- DIAVIK WILDLIFE STUDY AREA BOUNDARY
- DIAVIK FOOTPRINT
- EKATI FOOTPRINT
- WATERCOURSE
- WATERBODY

6 0 6

SCALE 1:250,000 KILOMETRES

REFERENCE

1. BASE DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 12 DATUM: NAD 83

PROJECT

DIAVIK DIAMOND MINES
NORTHWEST TERRITORIES

TITLE

WILDLIFE STUDY AREA FOR THE DIAVIK DIAMOND MINE

RioTinto

PROJECT No. 20365423			SCALE AS SHOWN	REV. 0
DESIGN	DC	28 June 2022		
GIS	ANK	28 June 2022		
CHECK	DC	28 June 2022		
REVIEW	DC	28 June 2022		

FIGURE 2.2-1

PATH: I:\CLIENTS\DIAVIK\20365423\Mapping\Products\Wildlife\WMMP_Tier2\Fig3_20365423_Wildlife_Study_Area_Rev0.mxd PRINTED ON: 2022-06-28 AT: 3:49:21 PM

2.2 Monitoring Framework and 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 TK. The Diavik mine WMMP has and will continue to include adaptive management.

The process of developing a WMMP is collaborative and requires input from communities, EMAB, government and other regulators. As indicated in Section 1.2, the objectives of monitoring include:

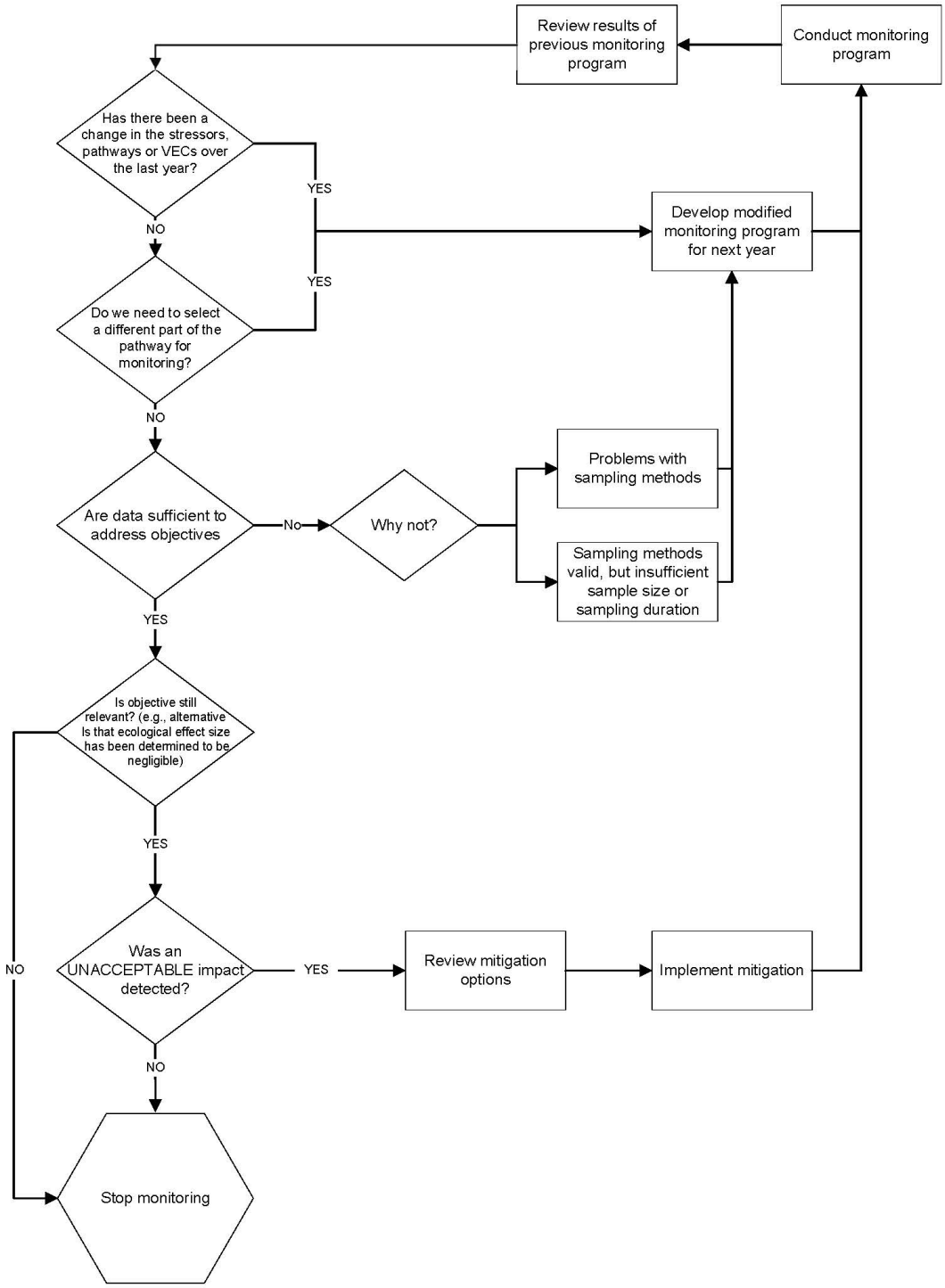
- provide opportunities for the incorporation of TK in the WMMP;
- testing effects predictions (action levels), which can be related to measuring the response of the environment or VEC population to Mine stressors and/or testing the assumptions associated with the predictions;
- collect wildlife effects and performance monitoring data to support the assessment of wildlife-related closure objectives and criteria in the PAR;
- testing the effectiveness of mitigation; and,
- meeting and fulfilling regulatory requirements.

Following the principles of adaptive management, wildlife monitoring has undergone changes since the initial development of the WMP (now WMMP) in 2000 (DDMI 2000). These changes have been implemented following the results of monitoring and effectiveness of mitigation, recommendations, and suggestions from communities, EMAB, and government agencies. Results from local (i.e., Mine-specific) and regional collaborative monitoring programs have been used to provide feedback to Diavik mine operations to determine if the objectives were met (Figure 2.1-1). Modification and/or implementation of additional mitigation has occurred as required and determined through monitoring results and the adaptive management process so that the mitigation used during the operations phase has been demonstrated to be effective. For example, during the early years of the Diavik and Ekati mines, wolverines were gaining access to misdirected food waste in landfills. This led to problem wolverines that were euthanized or relocated to prevent human-wolverine conflicts. Improvements to waste management practices such as worker education on the importance of segregating food waste and other wastes resulted in a rapid decline in wolverine incidents. Follow-up monitoring of waste management areas have demonstrated that this change results in less food and other wastes being misdirected to the landfills. The number of wolverine incidents and mine-related mortalities has also decreased to less than predicted in the EER (DDMI 1998b). The same waste management practices used during operations will be applied during closure and are expected to be effective at avoiding and minimizing adverse human-wolverine interactions.

Alternately, the data and results may be sufficient to demonstrate that Mine-related effects on the VEC are negligible, confirming the objective and supporting the decision to stop monitoring that component of the program (Figure 2.1-1). For example, a decade of monitoring showed little effects from the Diavik and Ekati mines on falcons relative to natural factors occurring at larger regional scales (Coulton et al. 2013). Through discussions and engagement with communities, monitoring agencies, and government, the decision was made to remove annual monitoring of raptor nests from mine-specific objectives of the monitoring programs. Applying this knowledge and the principles of adaptive management, monitoring for potential injury or mortality to raptors and other wildlife during the infilling of open pits would be discontinued once there is no longer a risk to animals from increasing water levels. Similarly, as the results of effects monitoring confirm impacts to wildlife VECs are equal to or below predictions, monitoring would stop at the end of closure.

Diavik has and will continue to actively seek input from regulatory authorities and communities through engagement activities and other regional programs led by the GNWT. Annual reports and meetings are ways that DDMI will present the results of the WMMP, and the basis for communities and regulatory agencies to provide feedback and direction. In accordance with the concept of adaptive management, monitoring and mitigation policies and practices in the WMMP have and will continue to be adaptively managed during closure and post-closure.

Figure 2.2-1 Adaptive Management Decision Tree for the Diavik Mine



2.3 Valued Ecosystem Components

Valued ecosystem components represent physical, biological, cultural, social, and economic properties of the environment that are considered to be important by society. The rationale for choosing the VECs selected for monitoring in the WMMP included the following:

- species are present in sufficient numbers to collect meaningful information;
- monitoring initiatives already exist that DDMI can contribute to;
- monitoring is important to communities, wildlife managers, and regulators;
- species can be monitored effectively with practical and efficient measurement indicators;
- measurement indicators are sensitive enough to detect Mine-related effects; and,
- species of concern (i.e., listed species) are located within the study area and should be monitored.

The VECs included in the WMMP are provided in Table 2.3-1.

Table 2.3-1 Valued Ecosystem Components for the Wildlife Management and Monitoring Plan

Valued Ecosystem Component	Rationale
Barren-ground caribou	Barren-ground caribou is a species of concern and an important component of the culture and economy of the NWT; Mine-site and regional monitoring are undertaken.
Grizzly bear	Grizzly bear is a species of concern, and Mine-site monitoring is being undertaken.
Wolverine	Wolverine is a species of concern, and Mine-site monitoring is being undertaken.
Raptors	Short-eared owl are species of concern. Peregrine falcons are known to nest on cliffs in the Mine regional study area. However, based on monitoring results and technical workshops with government, monitoring agencies and Aboriginal communities, monitoring of raptor nest occupancy and success was removed from the WMMP, and DDMI now supports ECC in regional nest monitoring, which would continue in 2025.

NWT = Northwest Territories; ECC= Department of Environment and Climate Change; ECCC = Environment and Climate Change Canada.

Incidental observations of other wildlife species during monitoring, such as rare or uncommon species will also be recorded (Section 6.1.4). Following the principles of adaptive management, the VECs and monitoring objectives may be reviewed and modified with regulators and EMAB, if necessary.

2.4 Species of Concern

The intent of the federal *Species at Risk Act* (SARA) and the *Species at Risk (NWT) Act* is to prevent wildlife species from becoming extirpated or extinct, to provide for the recovery of extirpated, endangered or threatened species, and to manage species of special concern to prevent them from becoming at further risk. This legislation may be used to prohibit the killing, harming or harassing of listed species, the damage and destruction of their residences, and the destruction of critical habitat. The *Species at Risk (NWT) Act* applies only to birds not already covered by the *Migratory Birds Convention Act*. In the NWT, the Species at Risk Committee will assess species, and the Conference of Management Authorities will prepare the List of Species at Risk, providing legal protection.

For the purposes of the WMMP, species may be considered of concern as a result of their national or territorial status, or their status under the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). As the *Species at Risk (NWT) Act* is implemented, the NWT Species at Risk Committee will make further assessments, and the Conference of Management Authorities will prepare the List of Species at Risk, providing legal protection for these species, and possibly leading to changes in the species at risk considered for the Mine and the WMMP.

There are eleven wildlife species of concern with ranges that are known to overlap or likely overlap with the Mine (Table 2.4-1). For migratory birds, only those birds that breed or winter near the Mine or have been observed at other NWT mines were included; other species that may migrate through the area were not included. Each of the species of concern will be monitored through the WMMP to mitigate direct impacts from habitat loss and mortality as part of the adaptive management process. Mitigation and monitoring strategies will be consistent with any final and applicable COSEWIC assessment report, SARA recovery strategy, action plan, and management plan that may become available during closure and post-closure.

Table 2.4-1 Species of Concern at the Diavik Mine

Species	NWT List of Species at Risk	NWT Species at Risk Committee	COSEWIC Assessment	Federal Species at Risk Act	Potential Mine Impacts	WMMP
Barren-ground caribou	Threatened	Threatened	Threatened	Under Consideration	• may be affected by habitat loss • may be sensitive to disturbance and human activity • risk of harm or mortality	Habitat loss Site monitoring Behaviour monitoring
Grizzly bear (western population)	No status	Special Concern	Special Concern	Special Concern	• may be attracted to developments if food is available • sensitive to disturbance particularly when accompanied by young or during denning • long generation time means one individual may be affected by disturbance seasonally over multiple years, resulting in potential regional population effects	Habitat loss Site monitoring
Wolverine	No Status	Not At Risk	Special Concern	Special Concern	• may be attracted to developments if food or shelter are available	Habitat loss Site monitoring
Barn swallow	Not Applicable	Not Applicable	Special Concern	Threatened	• may nest on Mine infrastructure (risk of mortality)	Habitat loss Site monitoring (particularly for nesting activity)
Bank swallow	Not Applicable	Not Applicable	Threatened	Threatened	• may build nesting colonies on Mine infrastructure (risk of mortality)	Habitat loss Site monitoring (particularly for nesting activity)
Harris's sparrow	Not Applicable	Not Applicable	Special Concern	Special Concern	• may nest on Mine infrastructure (risk of mortality)	Habitat loss Site monitoring (particularly for nesting activity)

Table 2.4-1 Species of Concern at the Diavik Mine

Species	NWT List of Species at Risk	NWT Species at Risk Committee	COSEWIC Assessment	Federal Species at Risk Act	Potential Mine Impacts	WMMP
Lesser yellowlegs	Not Applicable	Not Applicable	Threatened	Under Consideration	• loss of shoreline habitat for breeding • birds that use surface waters at the Mine may be harmed	Habitat loss Site monitoring (particularly for nesting activity)
Red-necked phalarope	Not Applicable	Not Applicable	Special Concern	Special Concern	• loss of shoreline habitat for breeding • birds that use surface waters at the Mine may be harmed	Habitat loss Site monitoring (particularly for nesting activity)
Rusty blackbird	No Status	Not Assessed	Special Concern	Special Concern	• may nest on Mine infrastructure (risk of mortality) • experiencing population declines as a result of changing environmental conditions on breeding and overwintering habitats	Habitat loss Site monitoring (particularly for nesting activity)
Short-eared owl	No Status	Not Assessed	Threatened	Special Concern	• may be affected by habitat loss • sensitive to noise and disturbance and human activity during nesting	Habitat loss Site monitoring (particularly for nesting activity)

Sources: COSEWIC (2012, 2013, 2014a,b, 2016, 2017a,b,c, 2020, 2021a,b); NWT SAR (2025); Working Group on General Status of NWT Species (2021); Government of Canada (2025).

COSEWIC = Committee on the Status of Endangered Wildlife in Canada; NWT = Northwest Territories; WMMP = Wildlife Management and Monitoring Plan; ECC = Department of Environment and Climate Change.

3 INTEGRATION OF WMMP WITH CLOSURE AND RECLAMATION PLANNING

In addition to wildlife effects monitoring and mitigation, this closure and post-closure WMMP was developed to provide supporting information for the activities and plans outlined in the FCRP (DDMI 2025a). The FCRP documents the final closure plan for the Mine site and has been prepared in accordance with the regulatory requirements (Section 1.5).

3.1 Wildlife-Related Closure Objectives

While many of the closure objectives in the FCRP reference wildlife, most are related to wildlife safety and measured through other monitoring programs/activities and not through the WMMP (Table 3.1-1). For example, closure objective SW1 is that surface runoff and seepage water quality will be safe for humans and wildlife, and achievement of this objective will be measured and determined from closure and post-closure sampling of runoff and seepage. Of the closure objectives related to wildlife, only objectives SW3, SW4, SW8, SW10, and M8 will use wildlife and vegetation monitoring to support evaluations of closure criteria in the PAR (Table 3.1-1). Objective M8 (no mortalities to wildlife caused by filling of pits) only requires monitoring during the early part of the closure phase when pits are actively being filled. Objective SW3 would require dust monitoring results during the post-closure phase and is supported by the vegetation and lichen monitoring (linked to the WMMP) during the initial period of post-closure. Objectives SW4, SW8, and SW10 will be evaluated as outlined in Table 3.1-1.

Table 3.1-1 Diavik Mine Closure Objectives that Include Wildlife

Closure Objective	Monitoring Activity	Monitoring included in WMMP?	Monitoring References
SW1. Surface runoff and seepage water quality that is safe for humans and wildlife.	Closure and post-closure sampling of runoff/seepage at representative locations where human/wildlife consumption is likely.	No	WWMP- Section 6.2.1, DDMI 2025a
SW3. Dust levels safe for people, vegetation, aquatic life, and wildlife.	Closure and post-closure dust deposition measurements taken at similar locations as used during operations.	No	WWMP- Section 6.2.1, DDMI 2025a
	Vegetation and Lichen Monitoring Program.	Yes	WMMP - Sections 6.1.2, 6.2.1
SW4. Dust levels do not adversely affect use and safety of vegetation consumption by wildlife.	Closure and post-closure monitoring of wildlife use in the area, with consideration of last ten years of operations monitoring results. Post-closure soil and lichen monitoring.	Yes	WMMP - Sections 6.2.1, 6.2.2
SW8. Predation of caribou is not associated with residual features of the site.	Closure monitoring of wildlife incidents and mortalities. Post-closure monitoring of wildlife use in area annually with community support as part of WMMP. Post-closure assessment of mortality rates annually with community support as part of a WMMP.	Yes	WMMP - Section 6.2.3
SW10. Safe passage and use for caribou and other wildlife.	Closure monitoring of wildlife incidents and mortalities. Post-closure monitoring of caribou use in area annually with community support as part of WMMP. Post-closure assessment of area hazards to caribou with community support and TK input.	Yes	WMMP - Section 6.2.4
SW11. Mine areas are physically stable and safe for use by people and wildlife.	Geotechnical inspection and review of survey of Mine areas.	No	DDMI 2025a

Table 3.1-1 Diavik Mine Closure Objectives that Include Wildlife

Closure Objective	Monitoring Activity	Monitoring included in WMMP?	Monitoring References
Open Pit, Underground, and Dike Area Closure Objectives			
M5. Physically stable pit walls and shorelines to limit risk of a failure impacting people, aquatic life, or wildlife.	Geotechnical inspections. Survey of ground surface above water. SNP water quality monitoring.	No	DDMI 2025a
M8. Wildlife safe during filling of pits.	Closure monitoring of wildlife in pit area during flooding.	Yes	WMMP – Section 6.2.5
W1. Physically stable slopes to limit risk of failure that would impact the safety of people or wildlife.	Visual inspection of, and review of survey of the ground surface. Annual geotechnical inspections.	No	DDMI 2025a
P1. No adverse effects on people, wildlife, or vegetation.	Post-closure sampling of runoff/seepage/dust deposition at representative locations where human/wildlife consumption of water/dust is likely.	No	WWMP- Section 6.2.1, DDMI 2025a
P2. Physically stable processed kimberlite containment facility to limit risk of failure that would affect safety of people or wildlife.	Geotechnical inspection, surveys of ground surface and instrumentation data review of the PKC Facility.	No	DDMI 2025a
North Inlet Area Closure Objectives			
NI2. Water quality and sediment quality in the North Inlet that is safe for aquatic life, wildlife and people.	Water and sediment monitoring of the North Inlet prior to and following reconnection.	No	WWMP- Section 6.2.1, DDMI 2025a
NI6. Physically stable banks of the North Inlet to limit risk of failure that would impact the safety of people or wildlife.	Geotechnical inspection. Visual inspection and instrumentation data review.	No	WWMP- Section 6.2.1, DDMI 2025a
I2. On-site disposal areas that are safe for people wildlife and vegetation.	Geotechnical inspection. Surveillance Network Program (SNP) water quality monitoring.	No	WWMP- Section 6.2.1, DDMI 2025a

3.2 Overview of Monitoring Activities During Closure and Post-Closure

Wildlife monitoring activities would occur through closure and post-closure phases and include effects and performance monitoring. Monitoring would include scientific methods informed by TK and participation (Section 4) and independently by the Community-Traditional Knowledge Closure Monitoring Program (Section 4.3). The purpose, frequency, and duration of effects and performance monitoring activities or components differ but both types of monitoring are designed to support the evaluation of closure objectives and criteria linked to the FCRP (Table 3.2-1 and Table 3.2-2).

The duration and frequency of monitoring under the WMMP will be adaptively managed during the closure and post-closure phases of the Mine to appropriately match monitoring efforts to the monitoring results and the stage of Mine closure. Most components of effects monitoring are expected to cease at the end of closure (Table 3.2-1) as results demonstrate consistent negligible or non-measurable effects due to effective mitigation and the progressive decrease in site activities, people, and equipment. The potential for effects to wildlife habitat (including sensory disturbance) and adverse Mine-related incidents and mortalities would diminish further during post-closure as site activities would be restricted to short periods of care and maintenance and monitoring activities.

Some components of effects monitoring will be carried into the initial period of post-closure. For example, caribou behaviour monitoring would occur throughout closure and the first winter of post-closure (Table 3.2-1). Analysis and reporting would occur after closure (2029) and in first full year of post-closure (2030) (Table 3.2-3). Sampling for effects to vegetation and lichen, which provides support to assessing closure objective SW-3, would occur in the early part of post-closure and analysis and reporting would be completed in 2029 (Table 3.2-3). Effects monitoring related to pits, such as pit wall raptor nest surveys will not be required after pits have been flooded during the first part of closure; however, contribution to regional falcon surveys will be provided once during post-closure (2030) to provide information on the regional falcon population (Table 3.2-1).

After closure activities are complete, the final WMMR will provide a comprehensive analysis comparing results of closure monitoring to the operations phase and EER predictions. The report would include all components of the WMMP except caribou behaviour and vegetation and lichen monitoring. Subsequently, a separate comprehensive report of caribou behaviour analyses and vegetation and lichen analyses would be provided (Table 3.2-3). These comprehensive reports would be the last reporting cycle of wildlife effects monitoring.

Performance monitoring components are directly related to supporting closure objectives in the FCRP (Table 3.2-2) and will begin during closure as reclamation activities on areas of the Mine site are completed and continue through post-closure. The exception is pit infilling (M8-1), which is expected to end during the initial period of closure when flooding of the pits will be completed. While summaries of performance monitoring will be included in the annual WMMR during the closure phase (Table 3.2-3), full evaluation of closure objectives and criteria will be provided in the PAR (i.e., 2034). Details on effects and performance monitoring components are provided in Section 6.

Table 3.2-1 Specific Wildlife Management and Monitoring Plan Effects Monitoring Components and Attributes

Management and Monitoring Plan Components		Purpose	Frequency	Duration
Landscape Changes and Reclamation		• Determine the amount of direct habitat loss due to development of the Diavik mine.	Annually throughout closure	Closure (2026 to 2029)
Vegetation and Lichen		• Determine if dust deposition is related to changes in plant species composition and abundance on mine and reference sites and over time. • Determine if there are differences or changes in lichen chemistry between near-field and far-field areas and if there are implications for caribou health.	Once in post-closure	Post-closure (sampling in summer 2030)
Waste Management	Landfill and Waste Transfer Area Inspections	• Determine the effectiveness of waste management policies and procedures and provide feedback for improvement to reducing attraction and access by wildlife to food and other wastes, including potential contaminants.	Weekly or semi-weekly throughout closure	Closure (2026 to 2029)
	Waste Bin Inspections		Weekly or semi-weekly throughout closure	Closure (2026 to 2029)
Wildlife Incidents and Mortalities		• Document and mitigate wildlife incidents and mortalities. • Reduce risks to both wildlife and people. • Determine the effectiveness of mitigation and test EER predictions about direct Mine-related mortalities.	Continuous throughout active closure and periodic with presence of Mine staff on site during remainder of closure	Closure (2026 to 2029)
Caribou	Incidental Observations	• Identify the composition of caribou groups moving through the study area. • Document the seasonal timing of caribou movement through the study area to determine possible annual trends. • Document possible annual trends in the number of caribou moving through the study area.	Continuous throughout active closure and periodic with presence of Mine staff on site during remainder of closure	Closure (2026 to 2029)
	Behaviour Monitoring	• Determine whether caribou behaviour changes with Mine development phase (Operations versus Closure).	Continuous throughout closure Once in post-closure	Closure (2026 to 2029) and first winter of post-closure (2023)

Table 3.2-1 Specific Wildlife Management and Monitoring Plan Effects Monitoring Components and Attributes

Management and Monitoring Plan Components		Purpose	Frequency	Duration
Grizzly Bear	Incidental Observations	• Avoid and minimize bear-human interactions. • Determine the level of grizzly bear activity on-site.	Continuous throughout active closure and periodic with presence of Mine staff on site during remainder of closure	Closure (2026 to 2029)
Wolverine	Incidental Observations	• Avoid and minimize wolverine-human interactions. • Determine the level of wolverine activity within the study area.	Continuous throughout active closure and periodic with presence of Mine staff on site during remainder of closure	Closure (2026 to 2029)
Raptors	Pit Wall Nest Monitoring	• Determine if pit walls are utilized as nesting sites for raptors.	Pit wall surveys prior to flooding of pits	Closure (2026)
	Incidental Observations	• Determine nest success in areas of development and document effectiveness of deterrent efforts used.	Incidental observations continuous throughout active closure and periodic with presence of Mine staff on site during remainder of closure	Closure: until Mine infrastructure (potential nest sites) are removed
Rare or Uncommon Species	Incidental Observations	• Document trends in the detection of rare or uncommon species in the study area.	Incidental observations continuous throughout active closure and periodic with presence of Mine staff on site remainder of closure	Closure (2026 to 2029)

Table 3.2-2 Specific Wildlife Management and Monitoring Plan Performance Monitoring Components and Attributes

Management and Monitoring Plan Components	Purpose	Frequency	Duration
Post-closure Wildlife Use	• Wildlife use monitoring of the reclaimed site will be used to determine the success of Closure Criteria SW4-1 (DDMI 2025a).	Continuous throughout active closure and periodic with presence of Mine staff on site during remainder of closure and during post-closure	Closure (2026 to 2029) Post-closure (2030 to 2034)
Caribou Predation Events	• Predation/mortality events will be observed at site by Community TK Closure Monitoring Plan or by mine staff and reported to Environment for a follow-up investigation. Caribou predation events will be monitored to determine the success of closure Criteria SW8-1 (DDMI 2025a).	Continuous throughout active closure and periodic with presence of Mine staff on site during remainder of closure and during post-closure	Closure (2026 to 2029) Post-closure (2030 to 2034)
Residual Hazards	• Wildlife injuries and mortalities will be observed at site by Community TK Closure Monitoring Plan or by mine staff and reported to Environment for follow-up investigation. Monitoring the decommission/reclaimed areas to determine the success of Closure Criteria SW10-1 (DDMI 2025a).	Continuous throughout active closure and periodic with presence of Mine staff on site during remainder of closure and during post-closure	Closure (2026 to 2029) Post-closure (2030 to 2034)
Filling of Pits	• Monitor pits during infilling to determine success of Closure Criteria M8-1. • Safely deter wildlife from using pits during filling to avoid injury/mortality risk. • Document any mortality directly resulting from filling of the pits to determine the success of Closure Criteria M8-1 (DDMI 202a5).	Surveys prior to flooding Monitoring during pit filling activities	Closure (2026)

Table 3.2-3 Wildlife Management and Monitoring Program Schedule of Monitoring Activities

Type of Monitoring	Management and Monitoring Program Components		Closure[a]				Post-Closure[b]				
			2026	2027	2028	2029	2030[c]	2031	2032	2033	2034[e]
Effects	Landscape Change and Reclamation	Direct habitat loss	M/R	M/R	M/R	M/R					
		Vegetation and Lichen					M/R				
	Waste Management	Landfill and Waste Transfer Area Inspections	M/R	M/R	M/R	M/R					
		Waste Bin Inspections	M/R	M/R	M/R	M/R					
	Wildlife Incidents and Mortalities		M/R	M/R	M/R	M/R	M	M	M	M	M/R
	Caribou	Incidental Observations	M/R	M/R	M/R	M/R	M	M	M	M	M/R
		Behaviour	M/R	M/R	M/R	M/R	M/R				
Effects	Grizzly Bear	Incidental Observations	M/R	M/R	M/R	M/R	M	M	M	M	M/R
	Wolverine	Incidental Observations	M/R	M/R	M/R	M/R	M	M	M	M	M/R
	Raptors	Pit Wall Nest Monitoring	M/R	M/R							
		Incidental Observations[d]	M/R	M/R	M/R	M/R					
	Rare or Uncommon Species	Incidental Observations	M/R	M/R	M/R	M/R					

Table 3.2-3 Wildlife Management and Monitoring Program Schedule of Monitoring Activities

Type of Monitoring	Management and Monitoring Program Components	Closure[a]				Post-Closure[b]				
		2026	2027	2028	2029	2030[c]	2031	2032	2033	2034[e]
Performance	Post-closure Wildlife Use	M/R	M/R	M/R	M/R	M	M	M	M	M/R
	Caribou Predation Events	M/R	M/R	M/R	M/R	M	M	M	M	M/R
	Residual Hazards	M/R	M/R	M/R	M/R	M	M	M	M	M/R
	Filling of Pits	M/R	M/R							R

(a) Reporting of effects and performance monitoring during closure will be provided in the Wildlife Management and Monitoring Report

(b) Monitoring of wildlife incidents and mortality and caribou, grizzly bear, and wolverine incidental observations will be conducted as part of performance monitoring.

(c) Reporting of effects monitoring in 2030 of post-closure will be provided in a comprehensive Wildlife Management and Monitoring Report

(d) Monitoring would stop when Mine infrastructure (i.e., potential nest sites) are removed

(e) Conclusions of performance monitoring will be provided in the Performance Assessment Report

M=Monitoring; R=Reporting

4 ENGAGEMENT AND INCORPORATION OF TRADITIONAL KNOWLEDGE

As part of their commitment to the environment, DDMI is mandated under their Environmental Agreement to incorporate available TK in environmental monitoring programs. Wildlife monitoring uses scientific methods and is informed by TK regarding local wildlife and wildlife habitat and ecology, when available.

The WMMP focusses on wildlife species and habitats identified as being of social or economic importance, or of particular ecological or conservation concern (i.e., VECs). Each year the program is refined as a result of previous information collected and input from government and non-government agencies, Aboriginal communities and EMAB. With the assistance of community experts, land users, and/or TK holders during wildlife and habitat surveys, TK has been used to help understand monitoring results and provide ways of preventing and reducing impacts to wildlife. The WMMP will continue to evolve as DDMI explores further options to improve the program through community and regulatory workshops, community assistant participation, and site visits.

Part of the intent of DDMI's Engagement Plan is to demonstrate and provide hands-on experience for community members (Elders, adults, and youth) so that they may gain a general awareness on how the Diavik mine Environment Department conducts its day-to-day, site-based, environmental monitoring programs. To accomplish this, DDMI utilizes several different methods, including:

- A TK Panel (community Elders and youth representatives) (active 2012 to 2022).
- Development of a Traditional Knowledge Monitoring Program (TKMP) (ongoing, for submission to WLWB Sept 2025).
- Community assistance with environmental monitoring programs.

The methods follow guiding principles for integrating TK at the Mine, which are provided in Table 4.0-1. The guiding principles were developed on the basis of respect, integrity and to demonstrate a willingness to learn from experience.

Table 4.0-1 Diavik Mine Guiding Principles of Traditional Knowledge Integration

Principle	Integration at Diavik Mine
Wildlife programs benefit most when TK is applied at the development stage. Scientific methods are then used to collect data.	Grizzly bear hair snagging program, wolverine snow track program, and vegetation and lichen sampling (caribou habitat).
TK is used throughout operations to check in and update programs.	Recommended new caribou behaviour monitoring categories.
TK monitoring programs will be considered that have a clear objective directly linked to testing EER predictions or mitigation effectiveness and are reproducible.	Vegetation and lichen monitoring program (e.g., Tłı̨chǫ Government 2013).
Communities including Elders should participate in monitoring.	Caribou monitoring up to 2013 when caribou were abundant in the study area. Wolverine snow track monitoring.
TKMP will be the primary source of TK	TKMP in development prior to closure

During operations, the TK Panel was the primary way that DDMI gathered TK for the Mine and the TK Panel met at least once per year. The TK Panel was comprised of DDMI and TK holders from the five different communities involved in the Environmental Agreement. During Closure the primary means of gathering TK for the mine will be through the TKMP, which is in development with community partners and will be submitted to the WLWB in Sept 2025.

Diavik is committed to engaging with communities to explain proposed changes to the WMMP, to listen to comments, respond to questions and consider suggestions to improve components of the WMMP. Diavik will consider proposed TK monitoring programs that have a clear objective and will lead to measurable and reproducible results that relate to EER predictions or inform on mitigation effectiveness.

4.1 Support of Community-Based Traditional Knowledge Studies

The Diavik mine has a strong history of supporting community-based TK projects that extends back to the mid-1990s. Diavik became a funding partner to the On the Land Collaborative in 2016. Through the On the Land Collaborative, Diavik is able to ensure communities across the north are supported for land-based activities. The On the Land Collaborative brings together government, charitable, corporate, and other partners to combine efforts and make it easier for communities in the Northwest Territories to access money and resources for land-based projects. The On the Land Collaborative supports projects that:

- get people out on the land;
- connect community members to their land, culture, and traditions;
- build or strengthen partnerships;
- enhance community capacity; and,
- are sustainable.

For more information, visit www.nwtontheland.ca.

In addition to support for land-based projects, the Diavik mine hosted numerous site visits and community meetings to discuss archaeology, wildlife, habitat, water, and waste management at the Mine site. Representatives from the communities have also helped design project activities and components in an effort to minimize potential impacts. Other site-based TK and community engagement programs related to the wildlife monitoring programs have included:

- TK Camp for Elders and youth;
- Survey transect design used for wolverine snow track monitoring 2003 through 2006, and input into revised transect design in 2008;
- community participation in caribou behaviour, grizzly bear hair snagging, and wolverine snow track monitoring;
- annual TK Panel sessions;
- annual visits from community leadership and representatives;

- annual community participation in group workshops and site visits to demonstrate and discuss air quality, dust, and vegetation monitoring, and other specific topics of interest; and,
- periodic Winter Road tours.

Diavik mine staff also regularly participate in community-based meetings and workshops to discuss questions and concerns about ongoing mining activities and monitoring programs in conjunction with the Engagement Plan.

4.2 Incorporation of Traditional Knowledge in Monitoring

With the assistance of community experts, land users and/or TK holders during wildlife and wildlife habitat surveys, TK has been applied to help with monitoring study designs, understand the results, or provide ways of preventing or reducing impacts to wildlife. In particular, TK has been an important part of wildlife monitoring program development. In general, TK is not applied as a separate line of evidence; scientific methods have been the source of data collection to provide repeatable results and comparison with the EER predictions. Diavik is committed to providing communities with the opportunity to participate in mitigation and monitoring study designs and programs. Up to 2013, communities, including Elders, were regular participants in caribou monitoring. Participation has decreased since then because of the Bathurst caribou herd decline and subsequent low numbers of caribou in the study area. Inclusion of TK in the monitoring of caribou, wolverine, and grizzly bear is listed in Table 4.2-1 with further description in the subsequent sections.

Table 4.2-1 Traditional Knowledge and Wildlife Monitoring at Diavik Mine

VEC	Traditional Knowledge Contributed	Monitoring Program	Program Application	WMMP Section
Barren-ground caribou	• preferred habitat • migration • traditional land use • caribou behaviour categories	Vegetation and Lichen (habitat) Caribou behaviour	• selection of sampling locations (study design) • variables measured • interpretation of results	4.2.1
Wolverine	• preferred habitat	Snow track monitoring	• selection of sampling locations (study design) • monitoring participation	4.2.2
Grizzly bear	• preferred habitat	Grizzly bear hair snagging	• scale of monitoring (study design) • selection of sampling locations (study design) • monitoring participation • species samples	4.2.3

4.2.1 Caribou

Elders and holders of TK are regularly invited to site to participate in monitoring programs and to share their knowledge about caribou behaviour, diet, health and body condition, and migration movements. For example, Diavik and the Tłı̨chǫ Government carried out a TK study in the summer of 2013 through a series of workshops and site visits where four participating Elders from Tłı̨chǫ and Lutsel K'e shared stories and knowledge about caribou migration, preferred habitats (vegetation communities and landscape features) and traditional land use (Tłı̨chǫ Government 2013). The guidance provided by the Elders resulted in selection of specific sampling sites for the vegetation and lichen monitoring program that were appropriate for caribou use. In addition to influencing the study design, TK shared in this study has also been considered in the interpretation of monitoring results (Appendix I in Golder 2017). Elders in the 2013 TK study noted that caribou will avoid using the areas close to the Mine during migration because dust on forage will alter its taste or smell.

Traditional Knowledge was incorporated into caribou behaviour surveys in the fall of 2012 and 2013. For example, participating Elders added an additional behaviour "curious" for caribou that approached. Traditional Knowledge has also been incorporated into the caribou scan surveys through means of a questionnaire. Observed caribou are commented on from an animal health and traditional use perspective. For example, during 2019 caribou behaviour scans, Earnest , Lockhart from Lutseł K'e Dene First Nation and Lisa Marie Zoe from Whatí participated and commented that the caribou being observed appeared healthy.

4.2.2 Wolverine

Diavik has completed long-term monitoring of wolverine using snow track methods. From 2003 to 2006, the study design and data collection for wolverine snow track monitoring was based on the experience of Inuit Qaujimajatuqangit (IQ) to locate transects and record wolverine snow tracks in the study area. In 2008 the study design was revised and the final locations of snow track survey transects were the result of a stratified random sampling process of potential locations in the study area, but some transects were relocated from Lac de Gras to areas of preferred wolverine habitat (based on IQ). Snow track surveys are often completed with support from community members.

4.2.3 Grizzly Bear

At technical and community workshops held in 2010, regulators, monitoring agencies and community members recommended that the mining industry collaborate on a large scale regional grizzly bear program to assess population status and monitor trends over the long term (Handley 2010). In response, DDMI and Dominion Diamond agreed to work together on a large scale, grizzly bear mark-recapture study surrounding their diamond mine properties in the central barrens of the NWT (ERM Rescan 2014).

A hair snagging pilot study was completed jointly by Diavik and the Ekati mine in 2010 and 2011 (DDMI 2012; Rescan 2012). Elders, land users and youth from Kugluktuk, Łutselk'e Dene, Yellowknives Dene, and the North Slave Métis Alliance participated in site visits during the initial planning phases of the program and helped identify habitat locations for establishing hair snagging devices for the grizzly bear DNA program (ERM Rescan 2014). Surveys were completed by a biologist and a community assistant. Hair samples collected from the barbed wire were identified to species by a community assistant and archived for possible DNA fingerprinting to validate species identification (ERM Rescan 2014, 2018).

Program partners agreed to discontinue the grizzly bear hair snagging program at the Diamond Mine Wildlife Monitoring Meeting in February 2021.

4.2.4 Traditional Knowledge Inclusion in Effects Mitigation and Deterrents

Since 2011, the TK Panel guided DDMI to appropriately and meaningfully consider TK in operations and closure planning and management of the Mine. The TK Panel was made up of Elders and youth from Diavik's Participation Agreement communities selected by their respective communities (Kitikmeot Inuit Association, Łutselk'e Dene First Nation, North Slave Métis Alliance, Tłı̨chǫ Government and Yellowknives Dene First Nation). Panel members met annually since 2012 until 2022 to gather review closure plans for various areas of the Mine, share their knowledge in relation to each topic, and present recommendations to Diavik. In this way, they continually built their understanding of the Mine site and the closure challenges, while also directly influencing closure plans. In total the TK Panel had provided 263 detailed recommendations for consideration by DDMI and other parties. For example, the TK Panel sessions made the following re-sloping recommendations to encourage safe passage of wildlife through and around the Mine site, which have been incorporated into closure mitigation:

- TK Panel #10 (Watching/Monitoring and the WRSA-SCRP, 14-18 September 2017): incorporate a re-sloped (3:1) pathway on the South Country Rock Pile to facilitate safe movement of wildlife across the pile (Appendix X-17 of DDMI 2022).
- TK Panel #9 (Focus on Caribou, 13-16 May 2016): ensure that the closure design for the Waste Rock Storage Area North Country Rock Pile (WRSA-NCRP) would be sloped to minimize the amount of water that would pool on top of the pile minimizing wildlife attraction (Appendix X-16 of DDMI 2022).
- TK Panel #7 (Re-vegetation Report, 14-18 August 2014): design the WRSA-NCRP final closure slope to be neutral to wildlife and vegetation, mimicking the approach taken at the Test Piles.

4.3 Traditional Knowledge Monitoring Program

Indigenous communities have expressed a clear interest in fully participating in the tracking of closure progress and assessment of closure performance. This interest is wide-spread and is viewed as being paramount in demonstrating successful Mine closure. DDMI has heard from Indigenous communities and worked directly with Diavik's TK Panel to try to understand applicable scope, methods, and requirements. DDMI is committed to providing an opportunity for Indigenous communities to participate in Diavik's closure through a Traditional Knowledge Monitoring Program.

DDMI's objective is to work with communities to determine the detailed scope for the Program so that specific methods, frequencies, and locations could be described by DDMI in the Program design document. The development of the Traditional Knowledge Closure Monitoring Program is underway thus specific details are not available at this time. DDMI will be submitting the program document to WLWB in September 2025.

5 MITIGATION

The environmental design features and mitigation policies, practices, and procedures that DDMI has and will continue to implement to avoid, minimize, or limit effects to wildlife and wildlife habitat are collectively referred to as mitigation. The WMMP includes many mitigations implemented on a hierarchy of intensity (action) levels and spatial and temporal scales to protect wildlife and wildlife habitat. Standard mitigation hierarchy includes the following classifications (IFC 2012; BBOP 2021):

- Avoid: actions taken to completely avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure and engineered designs of facilities (e.g., waste rock storage areas).
- Minimize: actions taken to reduce the duration, intensity and/or spatial extent of impacts that cannot be avoided.
- Reclaim: actions taken to rehabilitate degraded ecosystems or restore ecological function following exposure to impacts that cannot be completely avoided and/or minimized (e.g., seeded areas).
- Offset: measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimized and/or rehabilitated or restored. Offsets are achieved once compensation is sufficient that the outcome is no net loss or a net gain for the feature (e.g., VEC) for which compensation was developed. Offsets can take the form of positive management interventions, such as restoration of degraded habitat, arrested degradation or averted risk, and protecting areas where there is imminent or projected loss.

Adverse effects from a mine or development should be mitigated as much as possible using avoidance, followed by minimization, and reclamation. This is because effects that are avoided entirely or minimized mean that the effects from a development prior to implementing reclamation are reduced.

The Diavik mine uses mitigation that avoids, minimizes, and reclaims adverse effects associated with environmental risks or effects pathways. The results of the environmental assessment for the Diavik mine (DDMI 1998b; Government of Canada 1999) concluded that there were no significant residual effects to wildlife and wildlife habitat, therefore offsetting is not required.

Mitigation at the Diavik mine is applied and intensified or reduced within an adaptive management framework (Section 2.2). For example, the frequency with which wildlife deterrents are applied may increase or decrease, depending on results of monitoring (Section 2.2; Figure 2.1-1). Similarly, if monitoring demonstrated that wildlife-vehicle collisions were high or increasing, then the scope or frequency of driver training, speed limits, or other mitigation can be managed adaptively in a way that is intended to reduce the effect. Adaptive management can also include increasing monitoring, applying different mitigation, or implementing a special study to better understand an effect.

Mitigation actions implemented at the Diavik mine during operations (as outlined in the previous Tier 3 WMMP) will continue during closure and post-closure, where relevant and applicable following the principles of adaptive management (Section 2.2). For example, not all mitigation measures implemented during operations and closure would be necessary in post-closure due to differences in the type and level of activities. Activities during post-closure will be limited to a few people on site for short periods to carry out care and maintenance and monitoring, which would generate negligible potential for sensory disturbance (dust, noise) and adverse human-wildlife interactions (injury or mortality to animals).

5.1 Mitigation Effectiveness at the Diavik Mine

Various mitigation designs, policies, practices, and procedures have been implemented, monitored, and evaluated at the Diavik mine and other operating mines such as Ekati, Gahcho Kué, Snap Lake (closed), and Jericho (now dormant). Successful mitigation used during the Mine's operational phase will continue during closure and post-closure. New mitigation is focussed around protecting wildlife during the approximately 10 months required to flood open pits. The WMMP assesses the effectiveness or success of different mitigations implemented at the Diavik mine and incorporates the lessons learned through adaptive management. Some of the improvements include modified landfill practices, construction of skirting around buildings, employee education, and monitoring site nesting activity of raptors. A qualitative assessment of the effectiveness of mitigation is included in the sections below.

5.1.1 Vehicle-Wildlife Collisions

Mitigation efforts to avoid and minimize vehicle-wildlife collisions implemented during the operations phase will continue throughout the closure and post-closure phases. However, some mitigation actions listed below (e.g., altering traffic patterns, inspections of airstrip) would no longer be applicable during post-closure with the decommissioning of most of the vehicle fleet and reclamation of the airstrip. Behavioural observation scans of caribou and dispatching Environmental Technicians to monitor vehicle traffic would also be discontinued after closure as availability of staff on site during post-closure would be limited to care and maintenance and monitoring activities.

Successful mitigation efforts to avoid and minimize vehicle-wildlife collisions include speed limits, giving animals the right-of-way, radio communication of wildlife presence, and temporary road closures. No caribou or grizzly bear have been killed at the Diavik mine from vehicle collisions. One wolverine (DDMI 2007) and two raptors (WSP Golder 2022a) have been killed by a vehicle. Most vehicle-wildlife collisions involve fox, Arctic hare, ptarmigan, and Arctic ground squirrel.

Radio communications about the presence of wildlife have limited vehicle-wildlife collisions. The placement of wildlife crossing signs is re-assessed when necessary, such as when habitat around the Mine changes due to operational or reclamation activities, or as new information about habitat use by wildlife becomes available. The Diavik mine provides employee training about the wildlife right-of-way policy, including how the Environment Department responds to the calls.

Diavik has implemented several mitigation practices to minimize potential interactions between Mine-related traffic and wildlife:

- caribou advisory;
- wildlife always have the right-of-way;
- speed limits of 15 km/hr to 60 km/hr are posted based on human safety and are enforced;
- reduced speed limits relative to caribou proximity from roads are also enforced (Table 5.1-1);

- vehicles encountering wildlife on roads are required to stop and communicate the presence of wildlife on the road(s) to the Environment Department and others in the area (Table 5.1-1);
- traffic patterns may be altered and are communicated site-wide when wildlife are in the vicinity of the road (Table 5.1-2); and,
- visual inspections at the airstrip for wildlife are completed prior to take-off and landing of all aircraft.

Speed limits enforced based on distance of caribou from roads are identified in Table 5.1-1.

Table 5.1-1 Speed Guidelines Based on Distance of Caribou from Site Roads

Distance of Caribou from Site Roads[1]	Speed Guideline
Less than 100 m	• Driver to stop. If caribou are travelling away from road driver can continue at reduced speed of 20 km/h. If caribou are approaching road the driver is to remain stopped.
100 – 200 m	• Driver to proceed at 20 km/h
200 – 500 m	• Driver to proceed at 40 km or posted speed limit if less than 40 km/h
500 m or more	• Driver to proceed at posted speed limit

1) Applies to caribou in line of sight from the road.

Table 5.1-2 outlines how approaching caribou will be detected, trigger levels to initiate action, and tiered mitigations to avoid and reduce sensory disturbance, injury and mortality to caribou.

Table 5.1-2 Tiered Caribou Mitigation and Monitoring Levels

Action Level	Caribou Mitigation	Caribou Monitoring
Throughout the year	• Employee education • Observations of caribou on East Island will be communicated to the Environment Department and other drivers in the area	• Collared caribou monitoring • Incidental caribou sightings. • Behavioral scans on observed caribou.
Caribou collar data shows caribou within 5 km of East Island	• Site-wide notifications that caribou may be encountered on site • Employee education	• Collared caribou monitoring • Incidental caribou sightings.
Caribou sightings are reported on East Island	• Site-wide notifications of caribou presence. • Speed limits decreased and posted in notifications	• Collared caribou monitoring • Incidental caribou sightings. • Behaviour observation scans on observed caribou.
Caribou on Mine areas and roads	• Observations of caribou on roads will be communicated to the Environment Department and road users • Site-wide notifications of caribou presence. • Caribou have right-of-way • Temporary road closures by environment to minimize disruptions to caribou movement. • Deter caribou from hazardous areas	• Collared caribou monitoring • Incidental caribou sightings • Behaviour observation scans • Environment Technicians dispatched to monitor traffic and provide caribou safety.

5.1.2 Blasting

Blasting has potential to cause sensory disturbance, injury, and mortality to wildlife. Current practices limit potential wildlife disturbance, injury, or mortality, and no wildlife injuries or mortalities related to blasting at Diavik have been reported to date. Blasts during the closure and post closure phases are expected to be smaller and less infrequent than operations.

Diavik occurs on East Island in Lac de Gras and much of the Mine site is adjacent to the lake. Caribou avoid lakes (Boulanger et al. 2012, 2021), so there is low risk that blasting will be a source of sensory disturbance to many caribou. Diavik will implement a 1 km exclusion zone to blasting for caribou.. Mitigation for blasting would no longer be continued once blasting requirements are complete during closure.

5.1.3 Waste Management

Mitigating the attraction of carnivores and scavengers (e.g., gulls and ravens) to food garbage, petroleum products, contaminants, and potential shelter is a concern at all operating mines. There are indications that improved and continual employee education has resulted in a decrease in the presence of scavengers and food waste items at the Waste Transfer Area (WTA) and Landfill over time at the Diavik mine (Golder 2020). Specifically, training and education is provided for each department and new employees on the importance of following waste management policies and practices, and wildlife awareness to reduce adverse interactions with wildlife. Changes to waste management practices during operations, in addition to the education and awareness programs for new and current employees and contractors, have included:

- more frequent incineration of camp waste to reduce chance of wildlife encounters;
- littering and feeding of wildlife is prohibited;
- signs have been added in lunchrooms and additional labels have been added to waste bins to indicate proper waste disposal; and,
- recyclable and hazardous waste materials shipped off-site using winter road backhauls.

Waste management practices implemented during the operations phase will continue, where appropriate, throughout the closure phase but the intensity of mitigation is expected to decrease toward the end of closure due to the decline in the number of people and level of activity on site as the closure phase progresses. During post-closure the number of people and level of activity on site would be further reduced and mitigation related to waste materials should be minimal.

5.1.4 Open Pits

Open pits may lead to wildlife injury or mortality through the presence of steep sides, blasting during dike breach and traffic. No caribou or other wildlife mortalities from animals entering the open pits at the Diavik mine have been reported (Golder 2020). Diavik has implemented several mitigation practices to avoid and minimize potential adverse interactions between wildlife and hazardous areas of the Mine-site:

- caribou advisory;
- wildlife always have the right-of-way;
- caribou and other wildlife will be deterred from areas of risk; and,
- specific caribou deterrent procedures.

Open pits will only be present during the initial part of the closure phase, prior to pit flooding (Section 5.1.5). Thus, implementation of mitigation practices specific to open pits will discontinue following the completion of pit infilling.

5.1.5 Pit Flooding

Filling open pits with water from Lac de Gras during closure can result in injury or mortality to wildlife present in pits, particularly raptors nesting on pit walls. Pit flooding is expected to occur during the initial part of closure and begin in summer or fall (2026 and be completed in2027 (approximately 6 - 12 months filling period). Prior to flooding open pits, surveys of the pit and dike area will be completed for caribou and other wildlife (Section 6.1.5), including raptor nests (Section 6.1.8), to achieve closure objective M8 of no mortalities to wildlife caused by pit flooding (Section 6.2.5, Table 3.1-1). Caribou and other large mammals will be deterred from the open pit and/or dike area, if present.

It is expected that any raptors nesting in open pits prior to the start of flooding in summer/fall 2026 would have fledged young and the risk of injury/mortality to birds from flooding would be avoided or minimal because the rate of flooding is slow (i.e., ~12 months to complete). Nesting birds would be monitored to determine nest occupancy and fledging (Section 6.1.8). Raptors returning to the study area the following May are not predicted to nest on pit walls as filling of pits with water should be at or near completion. If filling is not complete, then pits would be monitored for raptors attempting to establish nests and deterrence measures applied after consultation with GNWT-ECC and ECCC on most appropriate actions. Monitoring and mitigation would be discontinued once pits are filled.

5.1.6 Dust

During operations the Mine produces dust through various sources including blasting and crushing rock, heavy equipment operation (e.g., haul trucks) and light vehicle traffic, and the take off and landing of aircraft. Fugitive dust emissions are mitigated through the application of water and chemical suppressants on roads near buildings and the airstrip during summer or the non-frozen period. Diavik waters roads to suppress dust as frequently as possible when they are dry during the summer. The action trigger for application of suppressants is visual observation of fugitive dust. Monitoring of dust deposition is completed through the Aquatic Effects Monitoring Program (AEMP) and the Comprehensive Vegetation and Lichen Monitoring Program, which assesses the effects of dust deposition on plant species composition and abundance, and changes to lichen and soil chemistry (Section 6.1.1). Dust deposition has resulted in limited and small adverse effects to plant communities/wildlife habitat (Golder 2017; Watkinson et al. 2021, WSP Golder 2022b; WSP 2025c).

Dust mitigation will continue throughout the closure phase of the Mine and is expected to decrease with level of activity. Mitigation for dust is expected to discontinue during post-closure commensurate with the small number of people, minimal activity, and absence of heavy equipment for applying water on site.

5.2 Mitigation of Key Environmental Risks or Pathways

The WMMP provides specific mitigation for each of the following key environmental risks or pathways:

- direct habitat alteration and loss;
- indirect habitat alteration and loss; and,
- protection of caribou and other wildlife from direct Mine-related mortality.

5.2.1 Direct Habitat Alteration and Loss

Direct habitat loss refers to the physical disturbance and immediate loss of wildlife habitat (e.g., upland and riparian vegetation, wetlands, and water) within the footprint of the Diavik mine. Direct habitat loss has occurred during the construction and operation of the Diavik mine and will continue to be monitored as part of the WMMP to track the progress of decommissioned and reclaimed areas.. Mitigation for direct habitat loss is implemented so that the physical footprint of the Diavik mine does not exceed that authorized in the Land Use Permits and includes the following:

- during closure, soil disturbance will be limited to only those areas developed from construction and operation of the Diavik mine;
- use progressive reclamation when areas of the Mine site are no longer required; and,
- conditions will continue to be monitored over time to evaluate the success of closure actions and, using industry best practice, adaptive management, and newer proven methods as available, to adjust the FCRP as necessary and appropriate.

Active revegetation of targeted decommissioned areas is expected to be completed by the end of closure; other decommissioned areas will be left to revegetate naturally.

5.2.2 Indirect Habitat Alteration and Loss

Indirect habitat loss is a result of a decrease in the perceived quality of habitat by wildlife and subsequent changes in movement and behaviour of individuals that occurs adjacent to the physical Mine footprint . The decrease in habitat quality can be a function of sensory disturbance from Mine-related dust, noise, lights, human presence, and animal memory of previous encounters with development. Changes in movement and behaviour from sensory disturbance can affect the local abundance and distribution of animals within an area from mining activity. Thus, sensory disturbance can reduce habitat quality for wildlife even where vegetation has not been physically altered.

Currently, it is expected that indirect habitat alteration and loss for caribou will discontinue during post-closure when mine-related activity will no longer exist. Potential indirect habitat alteration and loss mechanisms will be monitored through the WMMP and other programs such as the dust deposition component of the AEMP and Comprehensive Vegetation and Lichen Monitoring Program.

Mitigation policies and actions to minimize indirect habitat loss includes the following:

- regular maintenance of equipment to limit noise and particulate matter emissions;

- dust suppression is applied as appropriate to roads, airstrip, and laydown areas;
- speed limits are posted and limit fugitive dust emissions;
- wildlife always have the right-of-way; and,
- education and environmental sensitivity training will be provided to employees and contractors.

Mitigations implemented at the Mine during construction and operations will continue to be implemented during the closure phase and are expected to decrease with level of activity on site. Mitigation for sensory disturbance is expected to discontinue during post-closure commensurate with the small number of people and minimal activity and absence of heavy equipment and jet aircraft for generating noise and fugitive dust on site.

5.3 Protection of Caribou and Other Wildlife

Occasionally, mining operations have contributed to the mortality or injury of wildlife. This may be either accidental (such as vehicle collisions with wildlife), or the deliberate removal (re-location or intentional destruction) of problem wildlife to protect worker safety. An effective way to reduce wildlife mortality has been to establish and enforce low speed limits on Mine roads. Reducing the availability of food and shelter for wildlife, thus limiting the attraction and presence of animals within the Diavik mine, is also highly effective at preventing mortality or harm to wildlife. Wildlife have also been effectively deterred from high-risk areas. Deterrent actions always start with the least intrusive method and then increase with intensity as needed. Monitoring incidents and mortalities, and effectiveness of mitigation for the protection of caribou and other wildlife is included in the WMMP.

Mitigation actions implemented at the Mine during construction and operations will continue to be implemented during the initial period of closure, but are expected to decrease with the decline in the number of people and level and frequency of activity on site during the later period of closure and particularly during post-closure.

5.3.1 Direct Mine-Related Mortality and Injury

Mitigation to avoid and limit direct Mine-related mortality and injury to caribou and other wildlife from collisions with vehicles or aircraft, physical hazards (e.g., pits, blasting), interaction with potential contaminants, destruction of migratory bird nests (i.e., incidental take), and pit infilling includes the following:

- current mitigation policies and practices for safety of wildlife on roads, airstrip, and other areas of the Diavik mine (Section 5.1). These practices include reporting of wildlife sightings by all employees, and control of encounters by Environment staff;
- site Environmental staff will investigate all caribou and other wildlife incidents and mortalities, and will report to the appropriate government agency GNWT-ECC: responsible North Slave Regional Officer or ECCC (Environment and Climate Change Canada): cwsnorth-scfnord@ec.gc.ca and dalfnord-wednorth@ec.gc.ca, and recommend follow-up;

- systematic monitoring of different areas of the Diavik mine will be conducted, including the waste management and transfer areas, and Landfill. Information collected will be used for adaptive management;
- surveys for wildlife presence at infrastructure areas prior to decommissioning, demolition, and reclamation activities. Demolition activities will be suspended or buffered until wildlife are no longer present. Diavik will consult with ECCC regarding appropriate buffers for migratory birds. If an unoccupied raptor nest is detected in areas or on infrastructure scheduled for demolition, it will be reported to GNWT-ECC and a General Wildlife Permit will be required to authorize removal;
- caribou and other wildlife will be deterred from areas of risk;
- wildlife always have the right-of-way;
- speed limits of 15 km/hr to 60 km/hr are posted based on human safety and are enforced;
- reduced speed limits are enforced based on distance of caribou from roads (speed limits enforced based on distance of caribou from roads are identified in Table 5.1-1);
- mitigation is currently in place to minimize human-wildlife interactions, including awareness training;
- birds showing nesting activity in areas of critical risk will be actively deterred. Diavik will deter birds from nesting in inactive pits prior to completion of pit flooding after consultation with GWNT-ECC and ECCC;
- pit wall monitoring procedures for raptor nests (prior to initiation of pit flooding in 2026, Section 5.1.5);
- monitoring and deterrent procedures for flooding of pits, includes caribou and other large mammals and raptors (see closure objective M8 in Section 6.2.5);
- although Diavik mine is at full development, any additional land clearing will take place outside the migratory bird breeding season. If this is not possible, bird nest surveys will be completed following Standard Operating Procedures for Pre-Land Disturbance Bird Sweeps (May 1 to August 31; Appendix A, ENVI-1242-0921). Diavik will consult with ECCC regarding appropriate buffers;
- visual airstrip inspections for wildlife are completed prior to take-off and landing of all aircraft; and,
- vehicles encountering wildlife on roads are required to stop and communicate the presence of wildlife on the road(s) to the Environment Department and others in the area (Section 5.1.1).

5.3.2 Management of Toxic Substances

The following mitigation policies and procedures are intended to decrease the risks to caribou and other wildlife from ingestion of toxic substances or encounters with toxic spills on the Diavik mine site:

- regular equipment maintenance (e.g., regular checks for leaks);
- drip trays are used during servicing and refuelling;
- hazardous substances are stored and handled on site in accordance with applicable regulations;
- fuel is stored at a central bulk fuel area and fuel tanks are housed within bermed areas;
- follow Diavik's Contingency Plan in the event of a spill (spill response training is provided and updated);
- surficial material and snow affected by hydrocarbon spills are handled in accordance with the existing Contingency Plan and material will be remediated in the landfarm or the Type III waste rock zone of the WRSA-NCRP;
- any leaks or spills identified along the pipelines are addressed and clean-up, following the existing Contingency Plan; and,
- wildlife are deterred from the landfarm and Type III waste rock zone of the WRSA-NCRP following methods outlined in Standard Operating Procedures for Wildlife Monitoring (Carnivores) and Caribou Management/Observation On and Off East Island (Appendix A, ENVI-911-0119).

5.3.3 Management of Attractants

The following mitigation and management plans are intended to limit the numbers of predators and scavenging wildlife (such as carnivores, gulls and ravens) attracted to the Diavik mine, and avoid and minimize human-wildlife interactions and changes to predator-prey relationships:

- apply the Waste Management Plan;
- separate bins located throughout the accommodations complex, shops, and other facilities on-site for immediate sorting of domestic wastes
- shipment of hazardous waste off-site to registered third party waste receiver;
- food wastes are collected in specific bins for transport directly to the WTA for incineration;
- camp waste is stored indoors prior to incineration and is burned regularly;
- littering and feeding of wildlife is prohibited;
- raised, heated buildings are skirted to prevent wildlife access to shelter under the buildings, and monitored regularly;

- wildlife activity will continue to be monitored at WTA and Landfill, and provide feedback into adaptive management;
- the Landfill site and WTA are regularly inspected for mis-directed waste;
- the efficiency of the waste management program will be reviewed as needed and improved through adaptive management; and,
- education and reinforcement of proper waste management practices and issues surrounding wildlife habituation is provided to all workers and visitors to the site.

5.3.4 Deterring Wildlife

The goal of wildlife deterrent action is to respond to situations using humane methods that keep both humans and wildlife safe. Wildlife will only be deterred when there is a risk to either humans or wildlife, as judged by the Environment staff. All deterrent actions start with the least intrusive method, and then increase in intensity as needed, following Standard Operating Procedures for Wildlife Monitoring (Carnivores) (Appendix A, ENVI-914-0119). Each deterrent action will stop as soon as the animal moves away from the potentially hazardous site and no longer poses a threat to humans. Deterrents may be used to remove wildlife from the airstrip and potentially hazardous sites and activities, such as pits prior to or during flooding. Staff are required to report incidental sightings of caribou and wildlife when present on site and near hazardous areas. All deterrent actions will be documented and reported to GNWT-ECC. Specific deterrent actions for caribou include the following:

- all incidents involving interactions, use of deterrents or potential injury of caribou will be documented and evaluated; and,
- caribou will only be moved away from roads or the airstrip under specific circumstances, such as when there are incoming flights or if there is an emergency, following Standard Operating Procedures for Caribou Management/Observation On and Off East Island (Appendix A, ENVI-911-0119).

5.4 Education

Environmental education is part of every employee's and visitors mandatory training upon starting at the Diavik mine. The Diavik Safety Training System for environmental education training includes:

- review of Environmental Management System;
- wildlife awareness (Incidental Reporting Requirements);
- wildlife right-of-way policy (Diavik Wildlife Management Policy);
- no feeding wildlife policy (DDMI Policy: No Feeding of Wildlife);
- no hunting or sport fishing policy (Diavik Wildlife Management Policy);
- spill reporting;
- wildlife reporting policy;

- Workplace Hazardous Materials Information System (WHMIS); and,
- waste management.

The Environment department also provides role and department-specific training and presentations based on seasonal environmental issues. For instance, departmental staff will be given presentations on waste management practices if a trend is identified from monitoring.

5.5 Mitigation Review

The mitigation in the WMMP stems from current practices at Diavik and existing mines; however, an annual review system is required to evaluate the mitigation. A review will be undertaken to evaluate the following:

- which mitigation has been implemented;
- which mitigation is perceived to be or shown to be successful;
- if new mitigation has been implemented in response to new issues; and,
- if some mitigation has become redundant or ineffective.

The mitigation review will be provided in the annual WMMR.

6 EFFECTS AND PERFORMANCE MONITORING

Wildlife monitoring activities would occur through closure and post-closure phases and include effects and performance monitoring. Wildlife effects monitoring is completed to verify effect predictions and action levels, testing the effectiveness of mitigation, and meeting and fulfilling regulatory requirements. Effects monitoring during closure would occur with the level of monitoring (e.g., component type, intensity, frequency, and duration) commensurate with the level of activities and number and capacity of staff on site. During closure and post-closure, performance monitoring also would be conducted. Performance monitoring is completed to determine the success of closure criteria and objectives. It is anticipated that the frequency and intensity of performance monitoring will diminish as closure criteria and objectives identified in the FCRP are met. The duration and frequency of effects and performance monitoring would be adaptively managed to appropriately match efforts to the monitoring results. Both effects and performance monitoring provide opportunities for the incorporation of TK in the WMMP.

6.1 Effects Monitoring

6.1.1 Landscape Changes and Reclamation

Diavik has monitored the cumulative amount of direct habitat loss from construction and operations of the Mine since 2000. A total loss of 12.67 km^2 was predicted in the EER (DDMI 1998b) and approved through the Environmental Assessment process. During closure, targeted areas of the Mine site will be actively revegetated and other areas left for natural revegetation.

Past Scope and Improvements

Studies conducted by Epp and Matthews (1998) and Matthews et al. (2001) classified the entire Slave Geological Province into 15 units or habitat associations. Since 2000, this 15 unit Ecological Land Classification (ELC) system has been used to assess the amount of loss per habitat association at the Diavik mine.

Objectives

The objective for this component of the WMMP is to:

- Determine the amount of direct habitat loss due to development of Diavik mine that is actively revegetated and left for natural revegetation.

Methods

A satellite image is used to update the area of the current Mine footprint. The image is laid over the ELC (Matthews et al. 2001) (Table 6.1-1). Each ELC type disturbed by the Mine is selected and calculations are made to determine the area (km^2) of each habitat type replaced by the Mine footprint. Values provided for ELC unit loss are estimates based on the predicted Mine extent (DDMI 1998b), the actual Mine footprint, and the ELC. Areas that have been actively seeded during closure will be identified as actively revegetated. Areas such as the North Country Rock Pile, South Country Rock Pile and Processed Kimberlite Containment Facility will be identified as natural revegetation in the year when closure activities are complete.

Table 6.1-1 Description of Habitat Types within the Diavik Study Area

Habitat Type	Description
Bedrock complex (>80% rock)	Exposed bedrock with very little vegetative cover.
Birch seep/riparian shrub	Vegetation in areas of active water seepage through boulder fields and boulder streams. Moist and well drained areas of low shrub with continuous vegetation cover. Birch and willow species dominate these areas.
Boulder complex (>80% rock)	Large areas of boulder fields including boulder outcrops, boulder streams, and drainages. This land cover type supports very little plant growth.
Deep water (>2 m)	Deep, clear lakes and major river systems with water depths greater than 2 m.
Esker complex	Linear structures of sand and gravel, formed by glacial rivers that provide significant topographic relief. Eskers support a number of plant communities and are important to wildlife. Esker tops are wind-swept and accumulate very little snow during winter.
Heath tundra (<30% rock)	Closed mat plant community that grows on moderate to well drained soils, covering most of the upland areas. Plants generally belong to the heath family (*Ericaceae*) and vegetation covers at least 70% of the ground surface.
Heath tundra (30-80% bedrock)	Sparse heath tundra and bedrock outcrops are exposed; vegetation is discontinuous and described as open mat heath tundra.
Heath tundra (30-80% boulder)	Open mat plant community with heath tundra and boulder fields.
Lichen veneer	Flat islands, low peninsulas, and esker tops are covered with a continuous mat of lichen that appears as “veneer.” Sites are windswept and dry, allowing very little plant growth.
Riparian tall shrub	Linear plant associations of birch, willow, and alder that follow active stream courses, usually with a cobble or boulder substrate. Under-storey plant species may include dwarf raspberry, dwarf marsh violet, cloudberry, grasses, sedges, club mosses, and common horsetail.
Sedge wetland	Wet sedge meadows and other sedge associations of non-tussock plant species. Sedge species such as *Carex aquatilis* and *C. bigelowii*, and cotton grass (*Eriophorum angustifolium*) are dominant vegetation types within wet, low lying sites where standing water is present throughout much of the growing season.
Shallow water (<2 m)	Waterbodies that contain submergent or emergent vegetation with water depths less than 2 m.
Spruce forest	Spruce-lichen woodland in lowland, sheltered areas such as river valleys. Typically clumped forest in a predominantly tundra landscape.
Tussock/hummock	Plants belonging to the sedge family (*Cyperaceae* spp.) are dominant, and tussock cotton grasses such as *Eriophorum vaginatum* and *E. russeolum* are common. These sites are drier and less frequently flooded than sedge wetlands.
Unclassified	Pixels (the smallest sub-division of the mapped area) that could not be successfully assigned to one of the above classes are considered to be unclassified.

Source: Matthews et al. (2001).

m = metre;% = percent; >= greater than; <= less than; spp = multiple species.

Frequency and Duration

Mine footprint updates and associated habitat (ELC) loss, active revegetation and natural revegetation will be provided annually for the closure phase. This monitoring will be discontinued once closure activities are complete as reclamation of disturbed areas at the Mine site will not continue after closure.

Data Analyses

Analyses will be completed in a Geographical Information System (GIS) platform to compare predicted and observed cumulative area of ELC units altered due to Mine development and closure activities, including areas of active and natural revegetation. The area of each ELC type directly disturbed by the Diavik mine

and actively revegetated and left for natural revegetation will be included in the annual WMMR during the closure phase (Table 3.2-3). The information would provide support for the evaluation of closure criterion SW4-1 and associated performance monitoring of wildlife use of the reclaimed Mine site during post-closure (Section 6.2.1).

6.1.2 Vegetation and Lichen Monitoring

Dust deposition due to industrial development has the potential to cause localized effects on vegetation abundance and composition and can also affect the quality of food resources for wildlife that eat plants. In 2013, the Tłı̨chǫ Government completed a Traditional Knowledge study on the potential effects from dust on caribou and caribou habitat. Comments from the Elders on lichen and vegetation conditions reflect that they noticed dust on the lichen near the Mine site, and they stated that dust reduced the quality of the forage for caribou (Tłı̨chǫ Government 2013). The Elders also stated that the caribou will avoid using the area close to the Mine as their migration route because the caribou recognize the difference in lichen quality (by smell and taste). Diavik conducts ongoing monitoring to determine if dust from the Mine is affecting vegetation communities, and lichen and soil chemistry (i.e., Comprehensive Vegetation and Lichen Monitoring Program). Permanent vegetation plots are assessed for plant species cover (relative abundance) and richness at Mine and reference sites. Metals concentrations are analyzed in lichen and soil samples near and far from the Mine.

Past Scope and Improvements

Diavik initiated a vegetation monitoring program in 2001, one year after construction began, to study vegetation composition and abundance over time. The results of the monitoring would assist in developing appropriate and practical mitigation strategies if mining operations were having a strong adverse effect on tundra vegetation communities. The program was expanded in 2006 and 2008 to provide an equal number of mine and reference permanent vegetation plots (PVPs) distributed among three vegetation community types. Dust deposition data have been collected since 2002 at 12 sampling stations (6 mine and 6 reference plots). Chemical analysis of lichen was first completed by DDMI in 2005, and a more extensive monitoring program was implemented in 2010 to assess whether dust deposition generated increased metals concentrations in lichen and possible health effects to caribou. Subsequent vegetation and lichen chemistry monitoring occurred in 2013, 2016, and 2021. A Comprehensive Vegetation and Lichen Analysis Report has been generated every three or five years during operations, with the last operations monitoring cycle conducted in 2024.

Objectives

The purpose of the vegetation and lichen monitoring programs is to assess if dust deposition from the Mine is altering plant community structure and composition and if it is influencing lichen species. Lichen species represent one of the food sources for caribou and there is potential for lichen abundance to be altered in areas near the Mine site. Additionally, lichens have the potential to uptake metals and other chemicals that can adversely affect the health of caribou and other wildlife.

The vegetation and lichen monitoring programs include the following objectives:

- assess changes in plant species abundance (species percent cover) and composition (species richness) between mine and reference sites over time;

- determine if any detected changes in plant species abundance and composition are qualitatively related to dust deposition; and
- identify differences or changes in lichen chemistry between near-field and far-field areas, and relate those changes to possible implications for caribou health.

Methods

Vegetation monitoring includes 30 PVPs (15 mine, 15 reference) that are surveyed during July to August. Each PVP consists of a 2 metre (m) by 2 m area and is subdivided into four, 1 square metre subplots. Cover and richness of vascular and non-vascular plants are recorded. Where possible, lichens and bryophytes are identified to genus or species level, and percent cover is estimated following the same procedures used for vascular plants. Details are provided in WSP (2025a).

Dustfall will be collected at the frequency specified in the approved AEMP using a modified Nipher dust deposition gauge. Determination of the annual rate of dust deposition (milligram per square decimetre per year [mg/dm^2/y]) is calculated based on the weight of the dust residue remaining, the sampling area of the gauge, and the number of days the monitoring gauge was deployed.

Lichen sampling plots are located in near-field (20 plots), far-field (24 plots), and far-far-field (3 plots) locations. Lichen sampling occurs during the same period as vegetation surveys. The concentration of metals in far-far-field plots are assumed to represent background levels. Clean sampling protocols are implemented so that samples are not contaminated by external sources. Lichen samples are not washed or cleaned of dust and soil prior to analysis. Soil samples are collected from the top 15 cm of the soil layer at the same locations as lichen samples using a plastic (nylon) trowel. All lichen samples and soil are collected in resealable plastic bags and kept cool for transport to a laboratory for analysis. The purpose of the soil sampling is to incorporate exposure from inadvertent ingestion of soil by caribou while grazing on lichens into a risk assessment, if deemed necessary. Details are provided in WSP (2025a).

Frequency and Duration

The vegetation and lichen monitoring program will be completed once during the first year of post-closure. Results from monitoring have shown small changes to vegetation near the Mine, which are likely related to dust deposition but no significant deviation from long-term trends. Dust deposition has decreased since underground mining began and metals concentrations in lichen have exhibited a correspondent decline (Watkinson et al. 2021; WSP Golder 2022b; WSP 2025c). It is anticipated that results from the post-closure sampling cycle will further demonstrate a decrease in dust deposition levels during closure, associated with the decrease in site activity, and a negligible change in vegetation composition and richness and a decline in lichen metals concentrations. As such, vegetation and lichen monitoring would be discontinued commensurate with the small number of people and minimal activity and absence of heavy equipment and jet aircraft for generating fugitive dust on site.

Data Analyses

The relationship between dust deposition rates and differences in plant species abundance and composition between mine and reference PVP sites will be assessed qualitatively because the locations of the dust deposition gauges are not directly correlated with PVP locations. Dust deposition rates are stratified into plot type (e.g., mine versus reference), categorical distance from Mine footprint and time periods to reflect changes in mining activities over time at the Diavik mine. The periods of activity include construction,

open-pit mining, underground mining, and closure. Dust deposition rates at each station will be described using a log-normal distribution and the rates tabulated as geometric averages. Vegetation and lichen and moss data analysis will use two-way Repeated Measures Analysis of Variance (RM-ANOVA) for evaluating trends and determining if there are statistical differences in vegetation abundance (percent species cover) and composition (plant species richness) between mine plots and reference plots among years. Non-metric multidimensional scaling (NMDS) will also be used to examine differences in composition among mine and reference plots. A comprehensive vegetation and lichen analysis will be reported in the first full year of post-closure (Table 3.2-3).

6.1.3 Waste Management

The Waste Management Plan implemented at the Mine previously during construction and operations will continue to be implemented during the closure phase. The Waste Management Plan outlines requirements so that the collection, storage, transportation, and disposal of all wastes generated by mining and support activities at the Diavik mine are conducted in a safe, efficient and environmentally compliant manner. The plan also incorporates waste minimization. The main objectives of the Waste Management Plan are to:

- create a system for proper disposal of waste;
- minimize potentially adverse impacts on the physical and biological environment; and,
- comply with Federal and NWT legislation.

6.1.3.1 Waste Inspections

Past Scope and Improvements

The Diavik mine site has two key areas of concern relating to waste storage, handling, and disposal. The WTA is a disposal and staging area for wastes generated on site, both hazardous and non-hazardous. The approved inert Landfill is for disposal of materials such as glass, plastic, steel, and styrofoam and is located in the WRSA-NCRP. Waste inspections will inform on the progress of closure objectives associated with waste management (I2; Table 3.1-1). The closure objective I2 is that on-site disposal areas are safe for people, wildlife, and vegetation, and achievement of this objective will be measured and determined from water and geotechnical monitoring and not from wildlife monitoring (DDMI 2022b).

Objectives

The objective of this component of the WMMP is to:

- Determine the effectiveness of waste management policies and procedures and provide feedback for improvement to reducing the attraction and access by wildlife to food and other wastes.

Methods

Standard Operating Procedures for Waste Management (ENVI-913-0119) are provided in Appendix A. The survey involves visual investigations of the WTA, recycling areas, and Landfill on foot (Appendix A, ENVI-913-0119: Standard Operating Procedures for Waste Management). The amounts and types of

animal attractants (e.g., food, food packaging, oil products, and oil-contaminated wastes) and other misdirected wastes (e.g., batteries and aerosol cans) will be recorded. Small attractants and other mis-directed wastes that can be safely removed will be properly discarded. Diavik also monitors waste segregation (Appendix A, ENVI-913-0119: Standard Operating Procedures for Waste Management).

The presence of wildlife and wildlife signs (such as tracks and scats) will be recorded during surveys. Photographs will be taken of most wildlife sighted, and behaviour of animals will be observed and recorded to determine if animals are habituated.

Frequency and Duration

Waste inspections at the WTA and Landfill will be completed once per week during the closure phase until the WTA and Landfill is decommissioned. A site-wide compliance inspection will be completed on a weekly basis. The intensity of monitoring is expected to decrease toward the end of closure due to the decline in the number of people and level of activity on site as the closure phase progresses. During post-closure the number of people and level of activity on site would be further reduced and monitoring related to waste materials is not anticipated to be required.

Data Analyses

Data analyses will be completed to identify the number of wildlife attractants and wildlife sign observed at the WTA and Landfill and results provided in annual WMMR (Table 3.2-3). Results will be used to identify any further mitigation that would improve the effectiveness of the Waste Management Plan with respect to wildlife, if necessary. As noted in the methods, small attractants are other mis-directed wastes that can be safely accessed are immediately and properly discarded. This is either completed at the time of the inspection or actioned to the personnel responsible for the area. Other actions may include follow-up training and presentations on proper disposal of wastes.

6.1.4 Wildlife Incidents and Mortalities

Past Scope and Improvements

Direct Mine-related effects to wildlife survival and reproduction are monitored through incident (e.g., deterrent action, injuries, and relocations) and mortality reporting and investigations. Environment staff report wildlife concerns or issues to the GNWT-ECC. Except in the event of an emergency, the GNWT-ECC is consulted on decisions to relocate or destroy wildlife or wildlife dwellings. For migratory birds, ECCC is consulted. Mine-related mortality predictions in the EER (DDMI 1998b) included:

- mine-related caribou mortality is expected to be low (i.e., less than 1% change from baseline conditions [DDMI 1998b]);
- mortalities associated with mining activities are predicted to be 0.12 to 0.24 grizzly bears per year; and,
- mine-related mortalities, if they occur, are not expected to alter wolverine population parameters in the Lac de Gras area.

Monitoring during Mine construction and operations has demonstrated that Mine-related mortalities have been less than predicted for caribou, grizzly bear and wolverine. The results support that mitigation practices to minimize Mine-related mortalities have been effective.

Objectives

The objectives for this component of the WMMP are to:

- document and mitigate wildlife incidents and mortalities, including raptors (Handley 2010);
- reduce risks to both wildlife and people; and,
- determine the effectiveness of mitigation and test EER predictions about direct Mine-related mortalities.

Site monitoring of wildlife incidents and mortalities will also inform on the progress of closure objectives in the FCRP (DDMI 2022), such as closure objectives SW8, SW10, and M8. For details on how wildlife monitoring, including mortality events, will be used to evaluate closure criteria, see Section 6.2.3.

Methods

Wildlife incidents and mortalities observed by Diavik mine staff will be reported immediately to the Environment Department (Diavik Wildlife Management Policy). Incidents include observations of wildlife-Mine and wildlife-human interactions where there is a potential risk of harm to people, wildlife, and/or Mine infrastructure. A description of management responses will be recorded for all incidents and entered into a database. Inspection by Environment staff will be made to determine the probable cause of the incident or mortality. Obvious injuries, the position of the animal, and anything considered unusual will be photographed and recorded. Further information such as time, date, location, estimated time of death, and any sightings of other wildlife in the area will also be recorded. Information for suspected caribou predation events will be recorded, including their location and the nearest Mine area (e.g., SCRP, PKC Facility) to provide information for closure objective SW8 (Section 6.2.3). Note, closure criteria for SW8 will be evaluated during post-closure monitoring in the PAR.

Wildlife mortality details will be reported to either GNWT-ECC or ECCC each time an animal is found dead at or near the Mine site. In all circumstances, the regulating organization will be consulted regarding carcass disposal. Unless otherwise directed by government, carcasses found close to the Mine will be incinerated or moved away from any work areas (i.e., further out onto the tundra) to prevent attraction of carnivores and other scavengers to the Mine site. Carcasses found in an area where they do not pose a threat to wildlife or human safety will be left where found.

Frequency and Duration

Wildlife incident and mortality monitoring will be undertaken as required, continuously during closure through effects monitoring and post-closure through performance monitoring. All mortalities will require follow-up to determine if anything can be done to prevent similar mortalities from occurring in the future. All wildlife mortalities will be reported to either GNWT-ECC or ECCC as soon as possible, depending on the applicable regulatory authority.

Data Analyses

Data analyses will be completed to identify trends over time in the number of Mine-related mortalities. Analyses will also attempt to determine the cause of mortality and identify any further mitigation that would improve the effectiveness of wildlife safety. Numbers of incidents and mortalities (including caribou wildlife use, predation events, and residual hazard incidents) will be included in the annual WMMR during closure and the PAR during post-closure (Table 3.2-3). It is anticipated that the number of incidental observations will decrease during closure and post-closure, particularly, as the number and frequency of people on site decrease.

6.1.5 Caribou

Bathurst caribou movements through the area surrounding the Diavik mine have historically occurred from July through October annually, but the timing has varied by year. Results from aerial surveys indicate that Bathurst caribou tend to move through the Diavik mine area in pulses where large numbers of caribou are present for approximately two weeks. From 1998 to 2005, when herd size was likely greater than 100,000 individuals (Adamczewski et al. 2009), peak numbers of caribou during the southern migration were typically observed during July. Since then, peak caribou movements have occurred later from September to mid-October. Currently caribou are observed near the Mine during winter months (Golder 2020).

Caribou in the Diavik mine area are typically from the Bathurst herd, and some seasonal patterns are evident in their behaviour and distribution. During the northern migration, 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, spend little time feeding and resting and have a clear directional movement northward regardless of lakes and topography. Their presence in the Diavik mine study area 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 and rest, and are solitary or in small groups.

Nursery groups (cows with calves) begin to arrive in the study area during summer to autumn. They usually travel in groups and frequently stop to forage, 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 travel towards the forest for winter, groups become mixed with cows and bulls.

The Bathurst caribou herd is one of six barren-ground caribou herds in the NWT, previously considered the only herd with a range that included the Diavik study area. Information from satellite collared cows collected by GNWT-ECC indicates that both the Bathurst herd, and to a lesser extent the Beverley and Ahiak herds, have seasonal ranges that overlap with the Diavik study area. The most recent population estimate determined by GNWT-ECC in June 2018 was 8,200 animals (GWNT-ENR 2020a). The last census for the Ahiak herd was in June 2011 and estimated 71,000 individuals (GNWT-ENR 2020b). The population of the Beverly herd was estimated to be 103,372 in 2018. Similar to the Bathurst caribou herd these herds are believed to also be in decline as are a number of other circum-Arctic herds (Festa-Bianchet et al. 2011; Gunn et al. 2011). Both traditional and scientific knowledge indicate that caribou populations cycle relatively regularly with climate patterns (GNWT-ENR 2005, 2006). Caribou herds also exhibit periodic changes in seasonal migration routes and in calving and winter ranges (Gunn et al. 1997; Gunn and D'Hont 2002; Boulanger et al. 2004; Bathurst Caribou Management Planning Committee 2004).

In 2019, GNWT-ECC developed a Bathurst Caribou Range Plan (GNWT-ENR 2019b), which proposes development limitations and hierarchical management actions for different areas in the Bathurst annual range. The Mine is located in Area 2 of the Bathurst Caribou Range Plan, which has a proposed moderate development level and status of cautionary. Mitigation included in the WMMP is consistent with mitigation prescribed in the Bathurst Caribou Range plan for developments for Area 2. For example, Table 5.1-2 includes hierarchical mitigation actions relative to caribou proximity to the Mine and roads, which are consistent with the concepts of Mobile Caribou Conservation Measures and Road Planning and Management Actions in the Bathurst Caribou Range Plan.

Barren-ground caribou (*Rangifer tarandus groenlandicus*) were listed as threatened by the NWT Species at Risk Committee on 11 July 2018 (NWT SAR 2018). The COSEWIC assessed barren-ground caribou in November 2016 as Threatened (COSEWIC 2016). A Recovery Strategy for Barren-ground Caribou in the Northwest Territories was issued by the Conference of Management Authorities in 2020 (CMA 2020).

6.1.5.1 Incidental Observations

Incidental caribou observations in the study area are monitored and recorded to minimize potential risks associated with human-caribou interactions, caribou injury/mortality due to encountering Mine site hazards (Section 6.1.4), and to identify Mine structures that are acting as potential barriers to caribou movement. Furthermore, recording incidental caribou observations provides anecdotal information on the composition (e.g., age and sex), timing, and number of caribou moving through the study area.

Past Scope and Improvements

Since 2002, incidental caribou sightings of individuals and groups have been recorded by Diavik mine staff. Caribou presence and group size have been recorded on an ongoing basis at the Diavik mine to better assess caribou habitat use in and around the Mine site.

Objectives

The objectives of this component of the WMMP are to:

- identify the composition of caribou groups moving through the study area;
- document the seasonal timing of caribou movement through the study area to determine possible annual trends; and,
- document possible annual trends in the number of caribou moving through the study area.

Methods

The Standard Operating Procedure for Caribou Management/Observation On and Off East Island (ENVI-911-0119) is provided in Appendix A. Incidental caribou observations in and near the Diavik study area will be reported by helicopter operators, ground-based field workers, other Mine personnel, and people from visiting communities. Other information recorded with caribou observations will include location, group size and composition, dominant behaviour, and distance to Mine infrastructure, when achievable. Any caribou predation events observed will be recorded using the Wildlife Report form as described in Section 6.1.4 and support the evaluation of closure objective M8 (Section 6.2.5).

Caribou observations reported on the Mine site in close proximity to roads, personnel, or Mine structures will be investigated and the caribou visually monitored, as these are a potential concern to human and wildlife safety.

Frequency and Duration

Incidental sightings logs will be maintained at site during closure through effects monitoring and post-closure through performance monitoring commensurate with the level of activity on site. Environment staff will review the logs weekly and respond to wildlife sightings or trends of concern when they occur.

Data Analyses

As incidental data are biased by observer effort and location (i.e., no standardized sampling design), no formal analysis of these data are proposed. Results will inform where and when additional monitoring or mitigation may be required (e.g., caribou advisory triggered) to avoid and minimize incidents. The composition, seasonal movement, and numbers of caribou in the area will be reported annually in the WMMR. Records of incidental observations during post-closure will be provided in the PAR (Table 3.2-3). It is anticipated that the number of incidental observations will decrease during closure and post-closure, particularly, as the number and frequency of people on site decrease.

6.1.5.2 Habitat Loss

Changes in the amount of different quality habitats for caribou during summer were predicted from the direct physical alteration of habitat from the Mine footprint. The EER (DDMI 1998b) predicted that at full development, direct summer habitat loss from the Mine would be 2.965 habitat units (HUs). Diavik will continue to measure habitat loss during closure to track the progress of reclamation activities. It is anticipated the growth of sedges and grasses on disturbed areas through active seeding or natural revegetation will provide value as forage for caribou.

Past Scope and Improvements

Caribou habitat loss on East Island is expressed in habitat units (HUs) for caribou summer habitat. A habitat unit is the product of surface area and suitability of the habitat in that area to supply food for caribou and cover from predators (DDMI 1998b). To address how the change of habitat may affect caribou on East Island, a habitat suitability index (HSI) model was developed for DDMI for the EER (DDMI 1998b). The scope of monitoring caribou habitat loss has not changed since 2000.

Objective

The objective of this component of the WMMP is to:

- Determine if direct summer habitat loss (in habitat units [HUs]) is greater than predicted.

Methods

Using the HSI model, habitats were rated on a scale of 0 to 1 for their capability to support use for caribou, with values >0.30 regarded as highly suitable habitat and values <0.25 rated as low suitability for caribou (Table 6.1-2). Habitats with a suitability value of zero are considered Mine altered (i.e., disturbed). Using the ELC unit loss (Section 6.1.2), the area (km^2) of ELC lost is multiplied by its habitat suitability value (DDMI 1998b) to determine habitat units lost. Areas that have been actively seeded during closure will be

assigned low suitability, while areas targeted for natural revegetation will also be qualified as low but are anticipated to take much longer to establish relative to actively revegetated areas.

Table 6.1-2 Caribou Summer Habitat Suitability Values

ELC Type	Habitat Suitability Value
Heath Tundra	0.37
Heath Boulder	0.40
Riparian Shrub	0.46
Bedrock Complex	0.27
Tussock/Hummock	0.30
Sedge Wetland	0.28
Esker Complex	0.30
Birch Seep and Shrub	0.11
Boulder Complex	0.21
Heath Bedrock	0.23

Frequency and Duration

Caribou habitat loss will be monitored annually during closure and will be discontinued once closure activities are complete as reclamation of disturbed areas at the Mine site will not continue after closure (Section 6.1.1).

Data Analyses

The total amount of caribou habitat loss will be compared to the EER prediction. Cumulative caribou habitat loss (and active revegetation and natural revegetation areas) will be included in the annual WMMR.

6.1.5.3 Near-field Group Observations

Past Scope and Improvements

Information on the activity budgets of caribou has been collected since 1998. Observations of caribou groups at various distances from Mine infrastructure have been made and group behaviours at specified time intervals have been recorded (scan sampling methods, as in Altmann 1974). In 2001, the study was expanded to collect information on the responses of caribou groups to stressors. From 2001 to 2024, the scope of the behaviour work had remained the same, including data collection on both the stressor and activity budget studies.

In 2004 and 2005, increased effort was made to collect samples greater than 7 km from the Mine. This effort was maintained through 2008. In 2009, Environment Department staff at Diavik and Ekati mines worked collaboratively to increase the effort at sites farther away from the two mines. Diavik focussed their effort in areas greater than 14 km from either mine (outside of the estimated ZOI for caribou distribution at the time), and Ekati focussed effort at distances close to the Mine. The data were shared between DDMI and Dominion Diamond. These analyses are provided in the 2010 comprehensive analysis report. While historically, caribou were present in the study area during summer-fall period, more recently caribou are present during winter months. Extreme cold temperatures during winter have limited far-field monitoring effort. Cold temperatures would either require a helicopter to run more frequently or use of snowmobiles

and cause greater disturbance to caribou and/or result in an increased risk to human safety. During winter, monitoring will be completed on caribou near the Mine site.

The results of a power analysis completed on summer to autumn monitoring data indicated that to detect a 15% change in feeding behaviour with an α=0.10, would require 55 caribou groups in each of two distance strata. Factors of year, habitat, group composition, and season would increase sample size requirements.

To satisfy the Mine's Tier 3 WMMP Approval Condition 6 (GNWT-ECC 2022a, 2023a), DDMI met with EMAB, GNWT-ECC, and the Tłı̨chǫ Government (TG) twice (GNWT-ECC 2023b, 2024a) to determine if group scan observations of caribou groups could be increased in order to meet its monitoring objective. The conclusion of these meetings was that sampling effort, particularly for far field observations could not be increased and therefore are unlikely to meet the monitoring objective to determine if caribou behaviour changes with distance from the mines. Instead, it was agreed that DDMI would continue group scan methods for caribou observed from the Mine site (i.e., near field) for comparison across the Mine development phases of Operations and Closure (GNWT-ECC 2024b).

Objectives

The objective of near-field caribou behaviour monitoring is to:

- Determine whether caribou behaviour changes with Mine development phase (Operations versus Closure).

Methods

Scan sampling (Altmann 1974) will be used to record the behaviour of groups of caribou (Appendix A, ENVI 911-0119: Standard Operating Procedure for Caribou Management/Observation On and Off East Island). When first arriving at the sampling location, the observers will wait five minutes before commencing the surveys. During that time, information on group location and insect harassment will be recorded, and a composition count conducted.

Scan samples will distinguish between nursery and non-nursery groups. If caribou are present on the Mine site, the site facility will be recorded (e.g., airstrip, Waste Rock Storage Area – North Country Rock Pile). Observations will be conducted during the winter (December/April), post-calving (July/August), and autumn/rut (September/October) periods. For groups of up to 30 animals, all individuals will be included in the scan. For larger groups, a sub-sample of 20 to 30 animals will be observed. There may be multiple observations from a single large group, consisting of several consecutive scans on different sub-groups. Data may be supplemented with the use of video recordings. Caribou groups are scanned every eight minutes for a minimum of four observations and a maximum of eight observations. In the event that a stressor occurs during a scan observation, the observers will record the immediate response of caribou to stressors as either exhibiting no reaction, or a reaction (caribou look towards disturbance; caribou walk away; caribou trot or run away). Estimated distance from the stressor will also be recorded. Stressors include aircraft (helicopter and airplane), three categories of vehicles (light [e.g., pick-up truck], medium [e.g., water truck], and heavy truck [e.g., haul truck]), blasts from pits, human presence and predators (wolf or grizzly bear). The methods for this monitoring are described by ENVI-911-0119: Standard Operating Procedure for Caribou Management/Observation On and Off East Island (Appendix A).

Frequency

Monitoring will be completed every year and depends on the presence of caribou visible from the Mine site. Large numbers of observations are required to detect differences in caribou behaviour, which is strongly affected by environmental conditions such as wind, temperature, and insect abundance (Weladji et al. 2003). Diavik will implement this component of the WMMP when caribou are detected near the Mine site. The goal will be to obtain as many observations annually as possible to statistically analyze the data across the Mine phases of Operations, Closure and Post-Closure.

Data Analyses

Monitoring results of a given year will be reported annually. More formal statistical analysis will be completed once during post-closure, sufficient data permitting.

6.1.6 Grizzly Bear

Grizzly bear (western population) are listed as Special Concern under the SARA and by COSEWIC. This species currently has no status in the NWT but has been classified as Special Concern by the NWT Species at Risk Committee (NWT SAR 2022). Diavik has contributed to DNA hair snagging studies for grizzly bear that provide demographic information on this species (ERM Rescan 2014, 2018) and have informed species at risk assessments by the NWT Species at Risk Committee (NWT SARC 2017) and inform cumulative effects assessments and management by the GNWT.

Waste from Mine sites may potentially act as wildlife attractants, increasing the likelihood of human-wildlife interactions and wildlife habituation. Bears moving through the Mine site area are a concern from the perspective of both human and wildlife safety. In response to these concerns, barren-ground grizzly bears are included in the WMMP.

6.1.6.1 Incidental Observations

The recording of incidental grizzly bear observations in the study area allows bear activity to be identified and monitored, which can help locate and eliminate bear attractants, minimize human-bear interactions, and risks to grizzly bear mortality (Section 5.3.1). Incidental observations can also be used to monitor changes in bear activity near the Mine over time and to assess potential attraction or avoidance of the Mine area by different demographic (e.g., age, sex) groups.

Past Scope and Improvements

The presence of grizzly bears, incidents and mortalities at the Mine site has been monitored since 2002. Mine-related incidents and mortalities are reported to the Environment Department for documentation in a detailed incident investigation for immediate follow-up. All grizzly bear mortalities are reported immediately to GNWT-ECC, and GNWT-ECC is consulted for follow-up mitigation and disposal procedures. If wildlife had to be deterred to reduce the risk of a wildlife-human incident, then all effort is made by the Environment staff to start with the least intrusive method available, and all deterrent actions are recorded.

Objectives

The objectives of this component of the WMMP are to:

- avoid and minimize bear-human interactions; and,
- determine the level of grizzly bear activity within the study area.

Methods

Incidental observations of grizzly bears in the vicinity of the Diavik study area will be reported to the Environment Department. This includes all grizzly bear observations from helicopter, field workers, and by other DDMI staff. Each bear observation includes the date, number of individuals, location, behaviour, and presence or absence of a collar.

Standard Operating Procedures for Wildlife Monitoring (Carnivores) (ENVI-914-0119) are provided in Appendix A. All grizzly bear observations reported in close proximity to roads, personnel, and Mine structures will be recorded and investigated when they pose a threat to human and wildlife safety. When necessary, grizzly bears will be deterred from the Mine site area through the use of vehicles, helicopter (if available), bear bangers, screamers, bean bags, and rubber bullets. During helicopter deterrent efforts, the health and safety of the grizzly bear is of primary concern. Bears observed within the Mine site that do not pose an immediate potential threat to human and bear safety will be visually monitored until the bear moves out of the area.

Grizzly bear activity that is a potential concern for human and wildlife safety, or that requires deterrent efforts, will be documented and recorded as incidents (Section 6.1.4). All deterrent activities will be reported to GNWT-ECC.

Frequency and Duration

Incidental sightings logs will be maintained at site during closure through effects monitoring and post-closure through performance monitoring commensurate with the level of activity on site. Environment staff will review the logs weekly and respond to wildlife sightings or trends of concern when they occur.

Data Analyses

As incidental data are biased by observer effort and location (i.e., no standardized sampling design) no formal analysis of these data are proposed. Instead, results will inform where and when additional monitoring or mitigation may be required, and trends in the occurrence of grizzly bears in the area. Records of incidental observations during closure will be provided in the annual WMMR and during post-closure will be provided in the PAR (Table 3.2-3). It is anticipated that the number of incidental observations will decrease during closure and post-closure, particularly, as the number and frequency of people on site decrease.

6.1.6.2 Habitat Loss

Grizzly bears use a wide variety of vegetation and habitat types. Studies of grizzly bears in the NWT have led to understanding their seasonal habitat preferences (McLoughlin et al. 2002; Johnson et al. 2005). Loss of habitat may result in negative effects on grizzly bears. The EER (DDMI 1998b) predicted that at full development, direct terrestrial habitat loss for grizzly bear from the Mine would be 8.67 km^2. Diavik will continue to measure habitat loss during closure. It is anticipated the growth of sedges and grasses on reclaimed areas due to active seeding or natural revegetation will provide value as forage for grizzly bear.

Past Scope and Improvements

Anticipated changes in grizzly bear habitat quality and quantity included direct physical alteration of habitat by the Mine footprint. The scope of monitoring grizzly bear habitat loss has not changed since 2000.

Objective

The objective of this component of the WMMP is to:

- Determine if direct habitat loss is greater than predicted.

Methods

Methods used to determine grizzly bear habitat loss are similar to that described in Section 6.1.5.2; grizzly bear habitat is assumed to include all terrestrial habitats (i.e., all ELC landscape types in Section 6.1.1, except for deep water, shallow water and disturbed area). Areas that have been actively seeded during closure will be assigned low suitability, while areas targeted for natural revegetation will also be qualified as low but are anticipated to take much longer to establish relative to actively revegetated areas.

Frequency and Duration

Grizzly bear habitat loss will be monitored annually during closure and discontinued once closure activities are complete as reclamation of disturbed areas at the Mine site will not continue after closure (Section 6.1.1).

Data Analyses

The total amount of grizzly bear habitat loss will be compared to the EER prediction. Cumulative grizzly bear habitat loss (and active revegetation and natural revegetation areas) will be included in the annual WMMR.

6.1.7 Wolverine

Wolverine are listed as a species of Special Concern by the SARA and by COSEWIC. This species currently has no status in the NWT but has been classified as Not at Risk by the NWT Species at Risk Committee (NWT SAR 2022). Diavik has contributed to DNA hair snagging studies for wolverine that provide demographic information on this species and have informed species at risk assessments by the NWT Species at Risk Committee (NWT SARC 2014) and inform cumulative effects assessments and management by the GNWT.

Wolverine are curious animals and will investigate human-made structures and food caches when humans are not present (COSEWIC 2014b). Wolverine prefer undisturbed areas, but home ranges may overlap with human-caused disturbances (COSEWIC 2014b). However, human activity, including mining, hunting, trapping, and major transportation routes, may displace or alter wolverine travel routes and lead to increased human-caused mortalities (Weir 2004).

Wolverines moving through human occupied areas are a potential cause for concern with regards to wildlife and human safety. Food and food waste may potentially act as wolverine attractants, increasing the possibility of wolverine habituation, and risk of adverse human-wolverine interactions.

During operations wolverine monitoring included snow track surveys, which exhibited a distribution of relative activity that suggested wolverines are attracted to the Mine site (Golder 2020). However, long-term results of mortality monitoring indicate levels below that predicted in the EER and that mitigation to protect wolverine is effective (WSP 2025b). The same mitigation and mortality monitoring will be continued during closure and post-closure commensurate with the level of activity at site so snow track monitoring is no longer necessary and will not be a component of the WMMP.

6.1.7.1 Incidental Observations

Monitoring and recording incidental wolverine observations in the Diavik study area minimizes the potential risks associated with human-wolverine interactions, and risks to wolverine removal and mortality (Section 6.1.4). Once a wolverine is sighted within the Mine site area, DDMI staff that are potentially at risk of encountering the wolverine will be notified, and work activities will be adjusted accordingly.

Past Scope and Improvements

Incidental wolverine observations, incidents and mortalities have been formally recorded by DDMI staff since 2002.

Objectives

The objectives of this component of the WMMP are to:

- avoid and minimize wolverine-human interactions; and,
- determine the level of wolverine activity within the study area.

Methods

Standard Operating Procedures for Wildlife Monitoring (Carnivores) (ENVI-914-0119) are provided in Appendix A. Incidental observations of wolverines will continue to be reported to the Environment Department. This includes all wolverine observations made from helicopter, field workers, and other DDMI staff. Each wolverine observation will include the date, number of individuals, location, and behaviour.

All wolverine observations reported in close proximity to roads, personnel, and Mine structures will be investigated, as these are of particular concern with regard to human and wildlife safety. When necessary, wolverines will be deterred from the Mine site through the use of vehicles and/or bear bangers.

Wolverine activity will be recorded as an incident if it is of potential concern to human or wolverine safety, could cause damage to Mine infrastructure, or requires deterrent efforts. Wolverine observed within the Mine site that do not pose an immediate potential threat to human and wildlife safety will be visually monitored until the animal moves out of the area.

Frequency and Duration

Incidental sightings logs will be maintained at site during closure through effects monitoring and post-closure through performance monitoring commensurate with the level of activity on site. Environment staff will review the logs weekly and respond to wildlife sightings or trends of concern when they occur.

Data Analyses

As incidental data are biased by observer effort and location (i.e., no standardized sampling design), no formal analyses of these data are proposed. Instead, results will inform where and when additional monitoring or mitigation may be required, and trends in the occurrence of wolverine in the area. Records of incidental observations during closure will be provided in the annual WMMR and during post-closure will be provided in the PAR (Table 3.2-3). It is anticipated that the number of incidental observations will decrease during closure and post-closure, particularly, as the number and frequency of people on site decrease.

6.1.8 Raptors and Migratory Birds

Raptors are birds of prey, such as, falcons, eagles, hawks, owls, and ravens (a functional raptor). Raptor species observed frequently nesting with the Mine study area include peregrine falcon, gyrfalcon, rough-legged hawk, and common raven. Short-eared owls (*Asio flammeus*), snowy owls, and northern harriers have been observed in the Lac de Gras area (Dominion Diamond 2014). The peregrine falcon (*anatum-tundrius* complex) and the short-eared owl are classified as species of Special Concern by the federal SARA.

Other bird species of concern with potential to occur at the Mine site include barn swallow (*Hirundo rustica*), bank swallow (*Riparia riparia*), Harris's sparrow (*Zonotrichia querula*), lesser yellowlegs (*Tringa flavipes*), red-necked phalarope (*Phalaropus lobatus*), and rusty blackbird (*Euphagus carolinus*). Federal and provincial status of these species are summarized in Table 2.4-1.

6.1.8.1 Pits and Site Infrastructure Monitoring

In northern environments, raptor species such as peregrine falcons, rough-legged hawks, gyrfalcons, and common ravens nest on ledges and cliff faces. In landscapes with human-made structures, cliff-nesting birds have been observed to nest on human-built ledge structures such as cairns, buildings, towers, mining dredges, and bridges (Kessel 1989). Open pit walls at Diavik mine resemble steep-sided ledges and offer attractive nesting locations for falcons and other cliff-nesting birds.

Monitoring of cliff-nesting birds on pit walls is a priority at Diavik. The eggs, nests, and individuals of gyrfalcon, peregrine falcon, and other raptor species (e.g., rough-legged hawk, golden eagle) are legally protected under the NWT *Wildlife Act, Section 38*. Potential pit wall nesting species likely to be found at Diavik include peregrine falcon, gyrfalcon, rough-legged hawk, and common raven.

Other species of concern may use various habitats at the Mine site and have been detected at other nearby mines in the NWT. Of these species of concern, only Harris's sparrow and lesser yellowlegs have been documented at the Mine site. Bank swallows and barn swallows are aerial insectivores that forage over wetlands and open habitats. Bank swallows typically create colonies on riverbanks and may use waste rock piles or stockpiles as nesting habitat at the Mine site. Barn swallows typically use anthropogenic nest sites including buildings, bridges, and stationary equipment. Bank and barn swallows have not been observed at the Mine during operations. Lesser yellowlegs and red-necked phalarope are shorebirds that may use shoreline habitats and surface waters at the Mine site. Harris's sparrow use a variety of upland habitats and may use tundra habitat adjacent to infrastructure and reclaimed areas at the Mine site. Rusty blackbirds are associated with forested areas near wetlands and may use habitats adjacent to surface waters. Short-eared owls use open habitats and may use open areas and reclaimed areas of the Mine site.

Raptors and other birds will be deterred from open pits, dike areas and Mine facilities and infrastructure to prevent nesting at areas scheduled for closure activities and to minimize risk of harm (Sections 5.1.4 and 5.1.5).

Past Scope and Improvements

Detection and monitoring of raptor nesting activity on pit walls began in 2004 (DDMI 2005) and has continued to include other infrastructure and species. Deterrent actions have been used to specifically reduce the suitability of pit walls in active pits as nesting habitat (DDMI 2005). During closure, pits and other

infrastructure will be monitored prior to closure activities to prevent inadvertent harm to birds nesting at these areas.

Objectives

The standardized monitoring objectives for raptors at diamond mines (Handley 2010) are to:

- determine if pit walls or other infrastructure are utilized as nesting sites for raptors; and,
- determine raptor nest success in areas of development and document effectiveness of deterrent efforts used.

Pit walls will also be monitored for raptor nesting activity to avoid injuries or mortalities prior to pit flooding (Section 6.2.5).

Methods

Standard Operating Procedures for Raptor Pit Inspection and Bird Monitoring (ENVI-897-0119) is provided in Appendix A. Pit walls will continue to be monitored at the Diavik mine until pits are refilled. Visual pre-clearing surveys for nesting activity will occur at all open pits, and other infrastructure areas targeted for decommissioning (i.e., stockpiles, waste rock piles, and buildings) between May and August (Appendix A, ENVI-897-0119: Standard Operating Procedures for Raptor Pit Inspection and Bird Monitoring) (also see Section 6.2.5). Pit wall/infrastructure inspections are completed at nine locations on the Mine: A21 Pit area (Lookout #1, #2, #3, A21 South Ramp, and A21 North Ramp), A154 Pit area (Lookout #1 and #2), A418 Pit area (Lookout #1 and #2), South Tank Farm, Process Plant, Powerhouse (Lookout #1 and #2), Site Services Building, Boiler House, and Backfill Plant.

Incidental nesting observations will be reported by ground-based field workers, other Mine personnel, and people from visiting communities. Follow-up observations of birds, nests, and nesting activity (i.e., nest construction, perching, and incubation) will be recorded by Environment staff.

If raptors or migratory birds are nesting in the pit prior to complete flooding in May 2026, deterrence measures would be applied after consultation with GNWT-ECC and ECCC on most appropriate actions (Section 6.2.5). Filling of pits is anticipated to last ~12 months beginning in summer/fall 2026. This timing minimizes or eliminates most of the risk to raptor nests because water levels will be low during the breeding season and near maximum levels before the following breeding season (Section 5.1.5).

Frequency and Duration

Visual pre-clearing surveys for nesting activity will be completed at least once per week prior to closure activities at all open pits and other infrastructure areas (i.e., surface waters at the Mine, stockpiles, waste rock piles, and buildings) between May and August in the year they are scheduled for closure. Nests detected on pit walls and on other Diavik mine infrastructure will be monitored for fledging success, unless deterrence is authorized by GNWT-ECC or ECCC. The areas surveyed will decrease during closure as infrastructure is decommissioned and flooding of pits is completed. Incidental sightings logs will be maintained throughout closure. Incidental observations will be discontinued during post-closure as activities will be limited to a few people on site for short periods to carry out care and maintenance and monitoring, which would generate negligible potential adverse human-wildlife interactions (injury or mortality to animals). Environment staff will review the logs weekly and respond to wildlife sightings or trends of concern

when they occur. Visual surveys will be discontinued once closure activities at different Mine areas are completed.

Data Analyses

Data analyses will be completed to identify the success of raptor pit nests. Nests detected on infrastructure will be analyzed for use and productivity. Results of pit wall monitoring for nesting activity will be provided in the annual WMMR until flooding of pits is completed (Table 3.2-3). Incidental observations of raptors will be provided in the annual WMMR during closure.

6.1.9 Rare or Uncommon Species

Diavik will continue to record all incidental observations of rare or uncommon species (e.g., species that have expanded or shifted their range so that they occur more frequently in the study area) that are observed within the Diavik mine study area during the closure phase. If bird species at risk that have not previously been documented at the Mine site (e.g., barn swallow, bank swallow) are observed on the Mine site, ECCC (CWS) will be notified. Observations of rare or uncommon species will be reported in the annual WMMR. Recording of rare or uncommon species will be discontinued at the end of closure as activities will be limited to a few people on site for short periods to carry out care and maintenance and monitoring, which would generate negligible potential adverse human-wildlife interactions (injury or mortality to animals).

6.1.10 Regional Monitoring Efforts

Support for regional monitoring efforts informing cumulative effects assessments and management is not required for a Tier 2 WMMP (GNWT-ENR 2019a). However, DDMI will continue to use monitoring techniques during closure and post-closure that are consistent with practices during Mine operation and that will contribute to cumulative effects assessments, monitoring, and management by the GNWT.

Diavik has a history of contributions that have supported regional monitoring efforts, such as financial contributions to the GNWT's caribou collaring program, which has supported increases in the number of collars deployed and deployment of high resolution geo-fenced collars that will inform management and the ecology of caribou. As part of Diavik's Tier 3 program, Diavik has completed ZOI monitoring and analysis, which contributes to understanding cumulative effects to caribou (Golder 2020). Diavik has also analyzed collar data to describe several Bathurst caribou range attributes (e.g., autumn range size and fidelity), which informs on the broad-scale ecology of the herd (Golder 2020).

Diavik contributed to the collection of raptor nest data for GNWT-ECC to support regional monitoring during operations and intends to continue this contribution during closure. This regional monitoring program occurs every five years (next to occur in 2025). Diavik intends to contribute to regional monitoring of raptors in 2025.

By definition, the WMMP is focussed on Diavik mine-specific mitigation and monitoring, and any collaboration with the GNWT (and other agencies, communities, and mines) on regional programs for the assessment and management of cumulative effects is outside the scope of analysis and reporting in the WMMP.

6.2 Performance Monitoring

6.2.1 Health Effects from Contaminants

Diavik completed a risk assessment of caribou exposure to metals in lichen from dust deposition and found that potential health effects to caribou were negligible (Golder 2011). Caribou exposure to metals from dust deposition and associated health risks continue to be evaluated during Mine operations as part of the Comprehensive Vegetation and Lichen Monitoring Program (Section 6.1.2), which indicated metal concentrations were within safe levels for caribou (Golder 2017; WSP Golder 2022b; WSP 2025c). The next cycle of the Comprehensive Vegetation and Lichen Monitoring Program is scheduled for the summer of 2030 during initial post-closure.

Water quality on site (e.g., water management ponds) and in the receiving environment is systematically monitored through the Surveillance Network Program and through the Aquatics Effects Monitoring Program (AEMP). The results provided input into the caribou risk assessment (Golder 2011) and current information on the potential risks of exposure of contaminants to wildlife that occur within and adjacent to the Mine. The importance of environmental effects to the aquatic environment are evaluated by comparing annual AEMP results to Action Levels, which are defined as part of the AEMP Response Framework. The Response Framework and associated adaptive management strategies are described in the Closure and Post-Closure AEMP Design Plan (WSP 2025a).

All closure objectives related to potential wildlife health effects from contaminants (SW1, P1, NI2, and I2; Table 3.1-1) will be evaluated using contaminant monitoring, not wildlife monitoring, to evaluate closure criteria (DDMI 2025b). As such, these closure objectives are not monitored in the WMMP. Results from the 2030 Comprehensive Vegetation and Lichen Monitoring Program will inform whether metal concentrations in dust, vegetation and lichens continue to be within safe levels for caribou following closure, which supports the evaluation of closure objective SW3.

6.2.2 Post-closure Wildlife Use

Wildlife use monitoring of the reclaimed site will be used to determine the success of closure objective SW4, that dust levels do not adversely affect use and safety of vegetation consumption by wildlife. (Table 3.1-1). Evaluation of closure criteria involves collecting evidence of post-closure wildlife use of the area (SW4-1; Table 3.1-1) but will also use monitoring data collected during closure to support the assessment.

Objectives

The objective of this component of the WMMP is to:

- Monitor wildlife use of the reclaimed Mine area during post-closure.

Methods

The Traditional Knowledge Closure Monitoring Program and incidental observations by staff and workers on site will be used to record wildlife use of the Mine site during closure and post-closure periods. Currently, the Traditional Knowledge Closure Monitoring Program is not fully developed (Section 4.3). The locations of collared caribou will also be used to identify caribou use. A second method will include the use of remote

cameras placed around the Mine site during closure and post-closure when the staff, workers, or other people are absent at the Mine site.

Frequency and Duration

The frequency and duration of the Traditional Knowledge Closure Monitoring Program has not been developed (Section 4.3). Incidental observations of wildlife on reclaimed areas will occur whenever the Mine site is occupied by Environment staff and other people on site during the closure and post-closure phases. When the site is unoccupied, remote cameras will be deployed during the closure and post-closure phases. The GNWT monitors caribou locations by satellite and GPS collars annually. Collar data is anticipated to be available from the GNWT for closure and the first full year of post-closure Monitoring will be discontinued once results indicate that closure objective SW4 has been achieved.

Data Analyses

Records and results of incidental observations, wildlife photos from remote cameras, and caribou collar locations during closure will be provided in the annual WMMR and during post-closure will be provided in the PAR (Table 3.2-3).

6.2.3 Caribou Predation Events

Predation events of caribou will be recorded during closure and post-closure incidentally to access closure objective SW8, predation of caribou is not associated with residual features of the site (Table 3.1-1). Data from predation events will be used to evaluate closure criteria for SW8-1that predation of caribou is not associated with residual features of the site. Monitoring for SW8 criteria will include recording caribou predation events, their location and whether predation events are associated with residual site wide features, such as features that could prevent escape from predation.

Objectives

The objective of this component of the WMMP is to:

- Document caribou predation events that occur on the Mine site during closure and post-closure, including the location and nearest Mine feature.

Methods

Caribou mortality events observed at site by staff during closure and post-closure will be reported to Environment for a follow-up investigation to assess whether the mortality may be a predation event. All observed mortality events will continue to be reported as described in Section 6.1.4, with suspected predation events requiring additional data to be collected. Data collection for suspected predation events will include comments on how the mortality was evaluated, the location of the predation event (i.e., coordinates), and the nearest Mine feature(s). These data will be used to evaluate closure criterion SW8-1.

Frequency and Duration

Mortality and suspected predation events on caribou will be recorded incidentally throughout the closure and post-closure periods whenever the Mine site is occupied by Environment staff and other people on site. Monitoring will be discontinued once closure objective SW8 has been achieved.

Data Analyses

Records and results of caribou predation events during closure will be provided in the annual WMMR and during post-closure will be provided in the PAR (Table 3.2-3).

6.2.4 Residual Hazards

Wildlife mortalities and injuries related to use of the Mine site will be recorded to evaluate closure objective SW10, safe passage and use for caribou and other wildlife (Table 3.1-1).

This section includes performance monitoring related to closure criteria to evaluate closure objective SW10.

Objectives

The objective of this component of the WMMP is to:

- Document regular or systematic injuries and mortalities associated with residual features (hazards) of the reclaimed Mine site.

Methods

Traditional Knowledge Closure Monitoring Program (Section 4.3) and incidental observations by Environment staff and other people on site will be used to record wildlife injuries and mortalities of residual features of the Mine site during closure and post-closure periods. Mine features will be considered residual once closure activities at Mine areas are completed. All observed wildlife incidents will continue to be reported as described in Section 6.1.4, with suspected incidents from residual hazards requiring additional data to be collected. Data collection for suspected residual hazards incidents will include comments on how the injury/mortality was evaluated, the location of the event (i.e., coordinates), and the nearest Mine residual feature(s). These data will be used to evaluate closure criterion SW10-1.

Frequency and Duration

Injuries and mortalities associated with residual hazards will be recorded incidentally whenever the Mine site is occupied by Environment staff and other people on site. A hazardous residual feature will be based on more than one incident of identified harm year over year. Monitoring will be discontinued once closure objective SW10 has been achieved.

Data Analyses

Data analyses will be completed to identify residual hazards and the frequency of wildlife injuries and mortalities. Results of the analyses during closure will be provided in the annual WMMR and during post-closure will be provided in the PAR (Table 3.2-3).

6.2.5 Flooding of Pits

Flooding open pits with water from Lac de Gras during closure can result in injury or mortality to wildlife present in pits. For example, raptors such as peregrine falcons have nested on pit walls likely because they resemble natural cliffs that raptors select as suitable nesting habitat (Court et al. 1988; Poole and Bromley 1988; Wightman and Fuller 2005) and active nests could be flooded by rising water levels. The deposition of processed kimberlite into the A418 mine workings will begin during operations in 2023. The monitoring and mitigation applied during processed kimberlite deposition will also be used during the closure phase

when the pits will be filled with water (DDMI 2022). Flooding of pits is anticipated to last approximately 10 months beginning in summer/fall 2026. This timing minimizes or eliminates most of the risk to raptor nests because water levels will be low during the breeding season and near maximum levels before the following breeding season (Section 5.1.5).

Prior to and during flooding open pits, surveys of the pit and dike area will be completed to achieve closure objective M8, which is to keep wildlife safe during filling of pits (Table 3.1-1). Mitigations such as deterring wildlife from the pits prior to and during infilling are provided in Section 5.3.1, and monitoring activities are outlined below.

Objectives

The objectives of this component of the WMMP are to:

- deter raptor nesting activity on pit walls prior to and during initial pit infilling; and
- deter caribou and large mammals from entering pits during filling.

Methods

Prior to and during flooding of open pits, surveys of the pit and dike area will be completed for caribou, other large mammals (e.g., grizzly bear, wolverine, wolf), and raptors. Observations of birds, nests, and nesting activity (i.e., nest construction, perching, and incubation) will be recorded by Environment staff. When observed, DDMI will implement deterrent actions to dissuade animals from using the area (Section 5.1.5). If raptors or other birds are nesting in the pit prior to complete flooding in spring 2027 then deterrence measures would be applied after consultation with GNWT-ECC and ECCC on most appropriate actions.

The pit and dike area will be monitored during flooding and approaching wildlife will be deterred from the area. Caribou, large mammals and raptor presence in or near pit areas will also be monitored through incidental observations reported by Environment staff and other people on site. Any mortalities directly resulting from flooding of the pits will be documented.

Visual surveys for bird nesting activity will occur at all open pits between May and August (Appendix A, ENVI-897-0119: Standard Operating Procedures for Raptor Pit Inspection and Bird Monitoring) (also see Section 6.1.8). Pit wall/infrastructure inspections are completed at nine locations on the Mine: A21 Pit area (Lookout #1, #2, #3, A21 South Ramp, and A21 North Ramp), A154 Pit area (Lookout #1 and #2), A418 Pit area (Lookout #1 and #2).

Frequency and Duration

Surveys of the pits for nesting raptors will start prior to pit flooding and continue to the end of the breeding season in 2026. Surveys will be discontinued once pit flooding is complete (spring 2027). Incidental observations of caribou and other large mammals near pits would be collected throughout the period of flooding pits.

Data Analyses

Results of wildlife surveys prior to flooding of open pits will be reported in the WMMR until flooding of pits is completed, which is anticipated to be in spring 2027. Results reported will include the number of surveys, wildlife observed, deterrents used and wildlife injuries or mortalities associated with pit flooding. The information will also be summarized in the PAR (Table 3.2-3).

7 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

Quality assurance (QA) refers to plans or programs encompassing internal and external management and technical practices designed so that data of known quality are collected, and that such collections match the intended use of those data (Environment Canada 2012). Quality control (QC) is an internal aspect of quality assurance. It includes the techniques used to measure and assess data quality and the remedial actions to be taken when QC assessment criteria are not met. The QA/QC procedures are implemented so that field sampling, laboratory analyses, data entry, data analysis, and report preparation produce technically sound and scientifically defensible results.

All components of the WMMP, study designs, field methods, and data collection techniques will be reviewed on an ongoing basis by DDMI and their environmental consultant. These QA/QC procedures will provide consistency and integrity of study designs, field protocols, and data collection techniques. Furthermore, continuous evaluation of study methods and results will be used to identify elements for modification or implementation of new techniques. In addition, raw data can be available for review by EMAB, community organizations and government. This approach is intended to provide a WMMP that generates feedback for adaptive management, which concurrently complies with the terms and conditions in the Environmental Agreement for the Diavik mine.

8 REPORTING

Data analysis and reporting of effects monitoring will continue to focus on meeting objectives and providing results that can be used in a timely manner to adjust mitigation as necessary. The use of adaptive management as a scientific framework for the WMMP is integral to its effectiveness as a monitoring and mitigation tool. Adaptive management enables mitigation to be properly focussed on those areas where the greatest potential for impacts exists and where the greatest reduction in risk can be achieved. Adaptive management is an ongoing process based on a consistent and well-founded framework that continually adjusts according to new information. In this way, the success and effectiveness of mitigation can be reliably monitored.

For each year of monitoring during closure, all effects and performance monitoring data will be examined in preparation of reporting (Table 3.2-3). The annual WMMR will be produced and distributed to communities, EMAB, and government (GNWT-ECC, ECCC) to provide feedback. The annual report will summarize monitoring results for the monitoring year and make comparisons to previous years. It will briefly describe methods and related objectives. A discussion and interpretation of results will be presented. The report will use plain English as much as possible and make effective use of graphics and photographs.

The annual WMMR will include the following information:

- any updates or recommended changes to mitigation, environmental design features, and component-specific objectives, study designs and sampling methods required to meet the global objectives of the WMMP;
- occurrences of human-wildlife interactions, incidents, accidents, injuries or mortalities involving wildlife;
- records of disturbances to wildlife habitat that were not predicted;
- documentation of all effects and performance monitoring activities that occurred during the previous calendar year; and,
- reference to communities participating in monitoring programs and contributing Traditional Knowledge.

After closure activities are complete, the final WMMR will provide a comprehensive analysis comparing results of closure monitoring to the operations phase and EER predictions. The report would include all components of the WMMP except caribou behaviour and vegetation and lichen monitoring. Subsequently, a separate comprehensive report of caribou behaviour analyses and vegetation and lichen analyses would be provided (Table 3.2-3). These comprehensive reports would be the last reporting cycle of wildlife effects monitoring. This approach aligns the comprehensive analysis with the schedule of monitoring in the FCRP (DDMI 2022). After closure, performance monitoring will be assessed and reported in the PAR (Table 3.2-3).

9 REFERENCES

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Appendix A
Standard Operating Procedures

Table of Contents

RioTinto

Description of Employee Responsibilities

1. Environment Superintendent:

It is the responsibility of the Superintendent to ensure that:

- All legal requirements are in place and met for the required task(s),
- Environment Supervisors have the necessary resources and support to meet lab quality objectives,
- Instituting, maintaining and communicating all SOP's for the applicable task(s),
- Technical best practice requirements are properly incorporated into all SOP's,
- The responsibilities for health, safety environment and quality are communicated to all Personnel,
- The risks associated with remote field activities are managed effectively,
- Appropriate information, instruction, resources and training are provided to all Personnel, and
- Corrective action is administered for failure to adhere to Company and/or Legal Standards/Requirements.

2. Environment Supervisor:

It is the responsibility of the Supervisor to ensure that:

- All legal requirements are in place and met for the required task(s) and all lab quality objectives are met,
- All new Personnel receive an orientation of the applicable work area (office, laboratory, field lab, hanging tree) and understand the hazard of each applicable area,
- All Personnel have read and understand the appropriate SOP's,
- Contractors understand and adhere to the Companies Standards/Regulations when on site,
- Proper tools are used for risk management (CCCs, JHAs, Take 5's, Team Based Risk Assessments),
- All equipment and PPE required for the task(s) are available, appropriate and have had the scheduled maintenance and repairs completed,
- The appropriate quality control/quality assurance practices are followed,
- All Personnel have completed the required training before completing the task(s) assigned,
- All required permits are reviewed and signed off prior to commencement of the task(s),
- Data / laboratory sheets / MP5 imports are reviewed for accuracy and completion, and
- The Company Non-Conformance, Incident and Action Management Policy is followed, as required.

3. Environment Technicians and All Other Personnel:

It is the responsibility of all other Personnel working within the Environment Department to ensure that:

- They comply with all standard operating procedures and lab quality systems,
- They complete all required permits and receive appropriate signoff from the Environment Supervisor, or their delegate, prior to commencing the task(s),
- Proper controls are in place before commencing the task(s),
- Concerns are raised with the Environment Supervisor, or their delegate,
- They are engaged and attentive during required training,
- They reviewing and become familiar with all task related documents and reference material,
- They take action to eliminate, minimize, avoid, and report hazards,
- All safety devices and PPE are used properly,
- They do not place themselves, or others, at risk,
- All equipment is maintained and inspected prior to use and if required unsafe/damaged equipment is removed from service,
- All samples are collected, handled and stored following the SOP,
- Proper, legible documents are completed and saved, and
- Reporting all incidents to Environment Supervisor, or their delegate, as soon as possible.

RioTinto

Environment STANDARD OPERATING PROCEDURE			
Area No.:	**8000**	**Document #:**	**ENVI-897-0119**
		Revision:	**6**
Task Title:	**Raptor Pit Inspection and Bird Monitoring**		
Next Review:	**1 Year from Final Approval in Documentum**		
Effective Date:	**Date on approved stamp in footer.**		

1 REFERENCES/RELATED DOCUMENTS

1.1 **Bird Species of Lac de Gras** – Located in: P:\DDMI Environment\10.0 Operational Control\10.2\Forms\Archive Forms\2013 - FORMS

1.2 **Peterson Field Guide Western Birds Reference book -** Environment Office Library

1.3 **Smithsonian Handbooks Birds of North America Western Region -** Environment Office Library

1.4 **The Sibley Field Guide to Birds -** Environment Office Library

Revision History			
Revision	**Revision Description**	**Date of Revision**	**Author**
0	Original Issue	17-May-2012	D. Bourassa
1	New Format	10-Dec-2014	K. Gray
2	New Format	05-Nov-2016	S. Martin-Elson
3	Template, location map and area manager updated	20-Oct-2017	S. Skinner
4	Superintendent update	10-Mar-18	S. Skinner
5	Annual update	30 Mar-19	M. Nelson L. Case

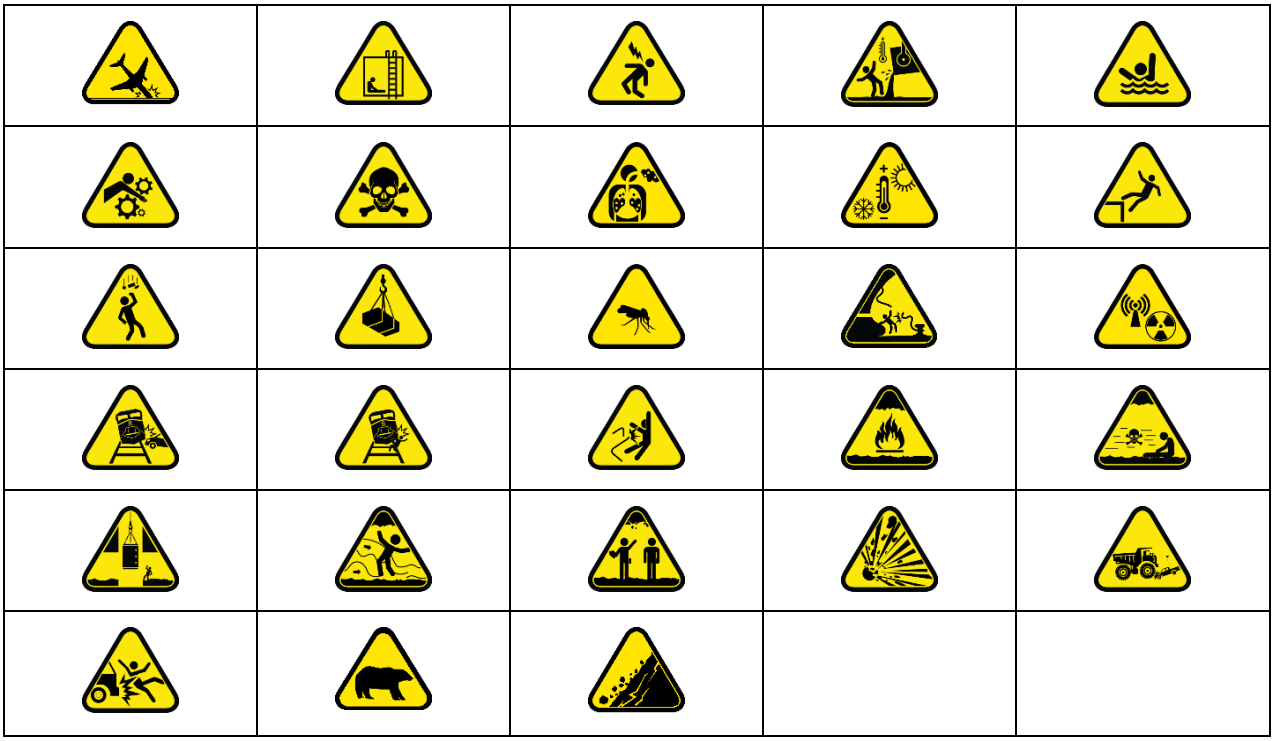
6	Update A21 Procedures	20-Oct-19	L. Case
7	Site bird monitoring update	29-Sep-21	K. Gray

Authorized Electronically in Documentum By:	
Area Superintendent:	K. Boa-Antwi
Area Manager:	D. Patterson

Raptor Pit Inspection and Bird Monitoring

CRITICAL RISKS

Other potential critical risks not currently assessed as part of this SOP



Peregrine Falcon

Rough-legged Hawk

Gyrfalcon

Figure 1. Raptors that may nest on Pit Walls at the Mine Site

Description

This SOP outlines the procedure for conducting Pit Wall and Infrastructure inspections for raptors, and migratory bird monitoring at the Mine Site.

Bank Swallow

Barn Swallow

Harris's Sparrow

Lesser Yellowlegs

Red-necked Phalarope

Rusty Blackbird

Short-eared Owl

Figure 2. migratory bird species at risk that may occur at the Diavik Mine Site.

2 PURPOSE

The main objective of these surveys is to monitor the Diavik Mine Site for federally listed bird species, and active raptor nesting sites, and to implement mitigation actions, such as deterrence, to ensure nest developments are not located in areas at the mine site with potential for adverse impacts to these birds. Deterrent activities are intended for raptor species; if evidence of nesting of other migratory bird species is identified, Environment and Climate Change Canada should be contacted (cwsnorth-scfnord@ec.gc.ca) as soon as possible to ensure adequate mitigation and monitoring measures are put in place.

Raptor species that have potential to nest at the Mine Site include peregrine falcon (*Falco peregrinus*), gyrfalcon (*Falco rusticolus*), and rough-legged hawk (*Buteo lagopus*). Nesting sites for these raptor species on the Mine Site include Pit Walls.

The peregrine falcon anatum/tundrius subspecies (*Falco peregrinus anatum/tundrius*) is listed as Special Concern under the *Species at Risk Act* (SARA). Other birds that are federally listed under SARA or designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) that have potential occur at the Mine Site are outlined below. Although surveys should focus on federally listed bird species and nesting raptors; non-listed bird species, including nesting evidence, should still be recorded during surveys.

Common Name	Scientific Name	SARA	COSEWIC	Habitat	Potential Mine Site Infrastructure
Bank swallow	*Riparia riparia*	Threatened	Threatened	Colonies nest on banks, waste rock piles; forages over open habitats	Stockpiles, waste rock piles
Barn swallow	*Hirundo rustica*	Threatened	Special Concern	Nests on anthropogenic structures; forages over wetlands and open habitats	Buildings, bridges, stationary equipment
Harris's sparrow	*Zonotrichia querula*	N/A	Special Concern	Variety of upland habitats,	Tundra adjacent to

				generally associated with coniferous forest	infrastructure, reclaimed areas
Lesser yellowlegs	*Tringa flavipes*	N/A	Threatened	Wetlands and waterbodies	Mine-altered waters
Red-necked phalarope	*Phalaropus lobatus*	Special Concern	Special Concern	Wetlands and waterbodies	Mine-altered waters
Rusty blackbird	*Euphagus carolinus*	Special Concern	Special Concern	Forested areas near wetlands	Mine-altered waters and adjacent habitats
Short-eared owl	*Asio flammeus*	Special Concern	Threatened	Open habitats, including tundra and reclaimed areas	Reclaimed areas, open areas of Mine Site

3 SCOPE

3.1 Scope of Procedure

This SOP describes the responsibilities and processes for undertaking Pit Wall and Mine Infrastructure Inspections and monitoring of bird nesting locations. All findings during these inspections will be recorded in the electronic field sheet in iAuditor and will be transferred to an electronic excel sheet.

3.2 Scope of Activities

All findings during these inspections will be recorded in the electronic field sheet in iAuditor and will be transferred to an electronic excel sheet.

4 DEFINITIONS

Definitions							
ACTS		Groundwater		PROVE		SOP	✓
AEMP		JHA		QA		TSS	
COC		NTU		QC		TSP	
DI water		PAL		Remote work		WHMIS	
DO		PFD		SDS		WLWB	
ELT		PPE	✓	Seepage			
GPS	✓	Problem bear		SNP			

See: ENVI-443-0415 - Environment Term Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

5 RESPONSIBILITIES

See: ENVI-444-0415 - Environment Roles and Responsibilities - Located in: Diavik Intranet – SOPs – Environment Folder

6 PROCEDURE

6.1 Key HSEQ Aspects

Task Hazards

Aircraft		**Extreme Weather**		**Line of Fire**		**Snowmobile Operation**	
Burns		**Fall into Water**		**Manual Labour**		**Spills**	
Chemical Contact		**Falling**	✓	**Noise**		**Sprain / Strain**	
Confined Space		**Fire**		**Overhead Objects**		**Stored Energy**	
Cuts Scrapes		**Firearms / Deterrents**		**Perception**	✓	**Uneven Terrain / Ground**	✓
Dehydration		**Fumes / Gases**		**Pinch Points**		**Unfamiliar Area**	✓
Electrical		**Glass**		**Risk to Wildlife**		**Visibility**	
Entanglement		**Heavy Equipment**	✓	**Rotating Parts**		**Watercraft Operation**	
Equipment Loss or Damage		**Lifting**		**Sample Loss or Damage**		**Wildlife**	✓
Ergonomics		**Light Vehicle**	✓	**Slip, Trip, Fall**	✓	**Working Remotely**	

See: ENVI-445-0415 - Environment Hazard Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

6.2 CRM Critical Risks

Critical Risk	Critical Control
Wildlife	Scans, Means of egress

Vehicle collision or rollover	Seatbelt, Segregation, Defensive driving
Vehicle impact on person	Seatbelt, Segregation, Defensive driving/walking
Fall from heights	Stay away from edge

6.3 Tools Required

Supplies, Tools and Equipment			
Tool / Equipment	**Quantity**	**Supplies**	**Quantity**
GPS	**1**	**iPad**	**1**
Binoculars	**1**	**PPE (required for travel around site)**	**1 per person**
Field Identification Bird Guides	**1**	**Radio**	**1**
Digital Camera	**1**	**A21 Field Sheet**	**1**

6.4 Procedural Steps

Open iAuditor on a field iPad and start a Bird Survey audit.

6.4.1 A418 and A154 Pit Walls Inspection Procedure

During the nesting season, typically May through August, conduct weekly inspections of the A418 and A154 Open Pits.

Gather all equipment necessary to complete inspection and drive to the pit and dike areas.

Drive to the lookout locations being mindful of any raptor activity on the dikes. See Figure 2 below. Proceed to lookout and scan pit walls and skies above pit for a minimum of 15 minutes

Record any findings in iAuditor; take photos and obtain GPS coordinates of nesting location (if possible).

Repeat procedure at all four lookouts around the A418 and A154 pits.

Figure 2. A154 and A418 Lookout Locations

6.4.2 Infrastructure Inspection Procedure

During the nesting season, typically May through August, conduct weekly inspections of site infrastructure to document raptor species and other bird species. Site infrastructure includes mine-altered waterbodies, stockpiles, waste rock piles, pits and buildings.

Gather all equipment necessary to complete inspection. Drive to and stop at areas where infrastructure can be easily and completely scanned. Ensure all areas listed on the field sheet are visited. Radio communication is required when entering restricted areas (e.g., Process Plant, Backfill Plant).

Scan area infrastructure looking for bird species and signs of nesting. Infrastructure that federally listed birds have potential to interact with are identified in Section 2.

Record any findings in iAuditor, take photos, and obtain GPS coordinates of nesting location (if possible).

6.4.3 A21 Inspection Procedure

Print A21 Pit Wall Monitoring Field Sheet (ENVI-951-0319) (Located in 13.4 Wildlife>2019 Wildlife>A21 Pit Wall)

During the nesting season, typically May through August, conduct daily inspections of the A21 Open Pit.

Gather all equipment necessary to complete inspection and drive to the A21 Dike areas. Contact Pit Supervisor on Channel 7 for access and notify that you are going to be around the dike area conducting a Raptor Survey. Drive to the first lookout location being mindful of any raptor activity on the dikes (Figure 3). Proceed to lookout and scan pit walls and skies above pit for a minimum of 15 minutes. Record any findings on field data sheet; take photos and obtain GPS coordinates of nesting location (if possible). Repeat at second lookout.

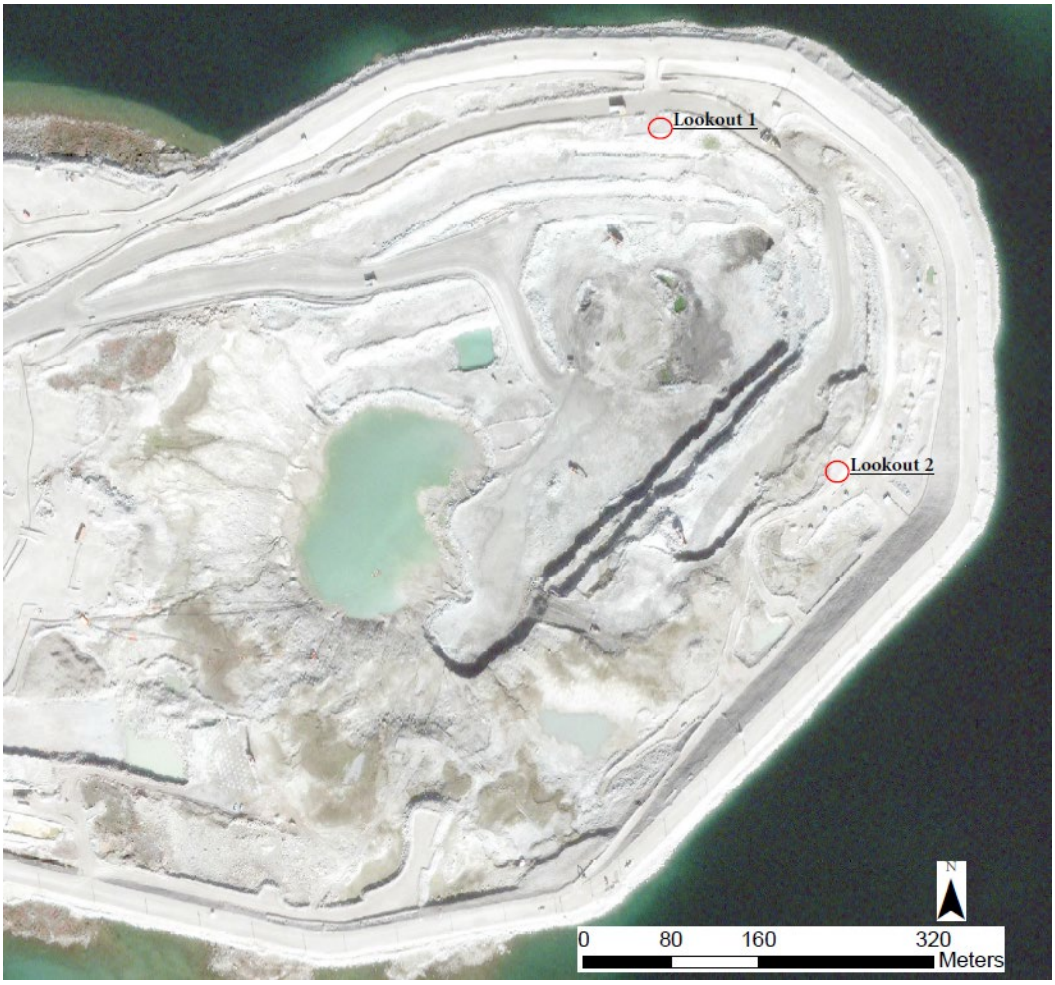


Figure 3. A21 Lookout Locations

6.4.4 A21 Deterrence

Deterrence described in the following section is intended for nesting raptor species i.e. prior to the nests being considered active (contains eggs or fledglings)

Technicians will not bring bear bangers with them for A21 pit inspections. If a raptor or raven appears to be nesting in the pit area, the Environment Supervisor and Pit Supervisor will need to approve the use of bear bangers in the pit.

If bear bangers are approved by both the Environment Supervisor and Pit Supervisor, Print A21 Pit Wall Deterrence Field Sheet (ENVI-950-0319) (Located in 13.4 Wildlife>2019 Wildlife>A21 Pit

Wall). The details of deterrent use will be recorded on the field sheet along with the Response Index of the Raptors. Request Pit Supervisor arrange an escort for you into the pit to fire bear bangers up towards the bird(s). If possible, record video of bird's reaction to banger. Do not fire banger directly at bird to avoid injuring it.

A combination of passive visual and auditory deterrence will be deployed in the active A21 open pit. Deterrents include:

- Scarecrows
- Wetland Wailer (aka Screaming Bird Machine)
- Decoy ground and air predators

6.4.5 Deterrence During Open Pit Flooding

Deterrence described in the following section is intended for nesting raptor species.

Prior to initiation of flooding an open pit make an assessment on the potential for active nests in the pit. Assess if the fill rate will cause the nest to be within 250 m of the water level by the time the raptors are fledged (typically end of August).

During the nesting season, typically May through August, conduct daily inspections of the open pit being flooded. If there is a suspected nest, assess if the fill rate will cause the nest to be within 250 m of the water level by the time the raptors are fledged (typically end of August).

If the nest is reasonably going to be within 250 m of the fill line by the end of August deter the raptors from nesting by using methods outlined in 6.4.4.

6.4.6 Follow-up on Deterrence

If any potential raptor nesting activity is noted on the pit walls or on any infrastructure, the Environment Supervisor should be notified who in turn will contact ENR. If the nest is still being constructed every effort will be taken to deter continued construction of the nest and actions to destroy the nest and incinerate the nest material will be implemented. Dependent on location and stage of nest production, ENR may request DDMI to attempt to relocate the nest. If relocation is not an option; continued monitoring will be conducted by DDMI Environment Staff.

7 QUALITY OUTCOMES AND EXPECTATIONS

To safely complete the tasks outlined in this SOP, without incident.

Producing quality, accurate and repeatable results.

RioTinto

ENVIRONMENT STANDARD OPERATING PROCEDURE			
Area No.:	**8000**	**Document #:**	**ENVR-517-0912**
		Revision:	**6**
Task Title:	**Caribou Management/ Observation On and Off East Island SOP**		
Next Review:	**1 Year from Final Approval in Documentum**		
Effective Date:	**Date on approved stamp in footer.**		

1 REFERENCES/RELATED DOCUMENTS

1.1 ENVR-501-0112- SOP Remote Field Safety - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs

1.2 ENVI-135-0112-Remote Field Safety Permit - Located in: P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Current Forms\Approved\Remote Field Safety Plans

1.3 ENVR-601-0112- SOP Helicopter - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs

1.4 ENVI-243-0912- Caribou Scanning (Activity Budget): Located in: P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Current Forms\Approved\Wildlife Forms\Caribou

Revision History			
Revision	**Revision Description**	**Date of Revision**	**Author**
0	Original Issue	16-Sep-12	D. Grabke
1	Update template and combined all caribou SOP's into one	25-May-14	K. Moore
2	Format update	19-July-15	G. Reid
3	Updated Template including CRM Critical Risks	06-Nov-16	E. Neba
4	Template and area manager updated	20-Oct-17	S. Skinner
5	Superintendent update	10-Mar-18	S. Skinner

6	Annual Review Removed reference to Caribou Advisories, clarified scanning procedures	16-Jan-20	N. Goodman

Authorized Electronically in Documentum By:	
Area Superintendent:	K. Boa-Antwi
Area Manager:	D. Patterson

(Document owners will be prompted annually to update content; however, changes may or may not result.)

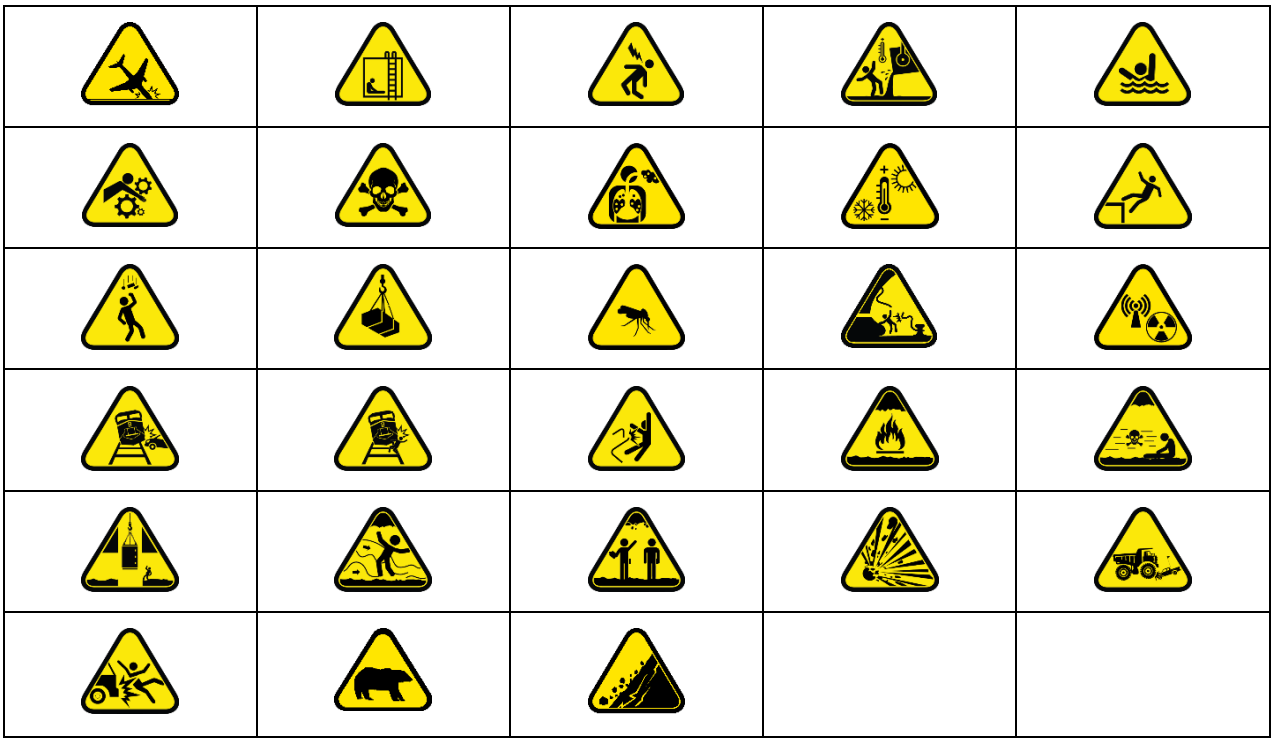
ENVIRONMENT

STANDARD OPERATING PROCEDURE

Caribou Management/ Observation On and Off East Island SOP

CRITICAL RISKS

Other potential critical risks not currently assessed as part of this SOP



Description

Collecting information on caribou presence in and around Diavik area can be conducted by completing Caribou scanning. When caribou are observed in hazardous areas around the mine site additional measures are required to safely move them away.

2 PURPOSE

The Bathurst caribou herd frequently forages in and around the East Island where Diavik is located and this species is ranked as Threatened according to the Species at Risk Committee in April 2017. Diavik has developed this SOP to ensure proper action and response occurs with the presence of caribou in and around the Diavik area. The intent of caribou management at and away from Diavik site is to collect information on caribou activity in order to determine whether a change in behavior occurs in relation to distance from mining infrastructure. In addition to monitoring caribou behavior in response to mining activities, caribou movements are monitored so that mine personnel are aware of caribou presence and to ensure the animal safety near heavy work areas. The following SOP will outline the procedure on what to do when caribou are spotted on the East Island, what steps are to be followed when deterring actions are required to safely move caribou, notifying site personnel on caribou presence on east island and lastly the steps to follow when conducting caribou scanning (activity budgets) either away or at Diavik site.

3 SCOPE

3.1 Scope of Procedure

This SOP outlines the step by step procedure for managing caribou observed at the mine site and away from site.

3.2 Scope of Activities

The activities involved in this SOP outline the Environment Department's role for managing caribou in and around the Diavik Area. This SOP outlines the specific response required for the caribou observation as well as the process for notifying employees of caribou presence around East Island.

4 DEFINITIONS

Definitions							
PPE	✓	**GPS**	✓	**DO**		**NTU**	
MSDS		**SOP**	✓	**DI Water**		**ELT**	
Problem Bear		**JHA**	✓	**AEMP**		**WLWB**	

Definitions							
QA		Groundwater		COC		PAL	
QC		Seepage		WHMIS		ACTS	
Remote Work	✓	SNP		TSS		PROVE	
TSP							

See: ENVI-443-0415 - Environment Term Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

5 RESPONSIBILITIES

See: ENVI-444-0415-R0- Environment Roles and Responsibilities - Located in: Diavik Intranet – SOPs – Environment Folder

6 PROCEDURE

6.1 Key HSEQ Aspects

Task Hazards							
Slip, Trip, Fall	✓	Chemical Contact		Rotating Parts		Uneven Terrain / Ground	✓
Sprain / Strain	✓	Fall into Water		Firearms / Deterrents	✓	Perception	✓
Working Remotely	✓	Overhead Objects		Dehydration		Risk to Wildlife	✓
Aircraft	✓	Visibility		Ergonomics		Unfamiliar Area	

Task Hazards							
Watercraft Operation		**Fire**		**Glass**		**Falling**	
Snowmobile Operation	✓	**Line of Fire**	✓	**Fumes / Gases**		**Confined Space**	
Light Vehicle	✓	**Cuts Scrapes**		**Entanglement**		**Heavy Equipment**	
Lifting		**Pinch Points**		**Stored Energy**		**Extreme Weather**	✓
Manual Labour		**Noise**		**Burns**		**Electrical**	
Wildlife	✓	**Spills**		**Equipment Loss or Damage**		**Sample Loss or Damage**	

See: ENVI-445-0415 - Environment Hazard Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

6.2 CRM Critical Risks

Critical Risk	Critical Control
Vehicle Collision or Roll Over	Seat belts, Segregation, Positive Communication/Defensive Driving, Follow road signs/rules
Vehicle Impact on Person	Positive communication/Defensive walking
Aircraft Transport	Safety Briefing, Seat belts, Trained, Follow Pilot Instructions
Wildlife	Scan, Truck or means of Egress

It is the responsibility of all personnel to adhere to the high health and safety standards used at Diavik. Personnel are required to complete all pre-task planning and safety checks. Queries about the appropriate permits and checks should be brought to the attention of the Supervisor or their delegate. Tasks should be executed to plan using the identified controls. Any deviations from plan should be assessed prior to proceeding with the remainder of the task. All incidents will be reported to the Supervisor or their delegate as soon as possible.

6.3 Tools Required

Supplies, Tools and Equipment			
Tool / Equipment	**Quantity**	**Supplies**	**Quantity**
Light Vehicle	**1**	**Field sheets**	**8-10**
Helicopter (Caribou Location)	**1**	**IPAD/camera**	**1-2**
Radio/ Sat Phone	**2**	**Field Work Permit**	**1**
Field Kits to include: GPS, Binoculars, Personal Gear, Survival Gear, Deterrents	**1**		
Stop Watch	**1**		

6.4 Procedural Steps

Caribou observations at site are called in by site employee's, pilots or observed by Environment personnel conducting inspections in various areas around the mine site. Upon receiving the report of Caribou presence, ensure all pertinent information is collected from the caller- who is calling the report in, where is the animal spotted, what direction is the animal moving, are there people working in that general area. This information should be documented in the Wildlife Incidental Sheet on the P:Drive.

Caribou deterring procedures are to be applied under three specific locations and circumstances, or where Environmental site personnel identify additional hazard areas or situations during ongoing monitoring and inspections.

6.5 Deterrent Action

6.5.1 Dikes

The caribou deterrent procedures are to be applied when caribou move onto the dikes of mine pits, either traveling over land or by swimming to the dike, and where they are vulnerable to:

A. Injury from flying rock during blasting operations;

B. Severe behavioural response to blasting or other operational sensory stimuli;

C. Entrapment on the dike, hazardous terrain and behavioural response to sensory stimuli from construction or operational activities.

Any number of caribou present on the mining dikes will trigger caribou deterrent action. This threshold is established to prevent injury from flying rock and disturbance from severe adverse response to blasting or equipment operation.

- Caribou deterrent on dikes and confined corridors will use a combination of a small truck and/or foot patrol as most appropriate to the local situation and terrain. The direction of deterring will depend on their location on the dike or confined corridor relative to the escape routes to the shoreline buffer. The shortest escape route may not always be the most appropriate route.
- Maintain the necessary radio communication with the area supervisor, e.g., Surface Operations Supervisor on Channel 7, for timing of the deterring and personnel safety. Maintain the necessary radio communication with surface operations to facilitate any modification to traffic, and construction or operational activities where required to allow caribou escape to a shoreline buffer as planned in the previous step, and to announce the "All-Clear" at the completion of caribou deterring procedures.
- Deterring by vehicle and on foot will entail approaching caribou at a slow speed (i.e., < 5 km/hr for vehicles) and stopping when caribou show an alarmed response. When caribou stall, the patrol will slowly move forward to initiate a further alarmed response. Observation of caribou behaviour will provide cues on when to proceed. Deterring should never stimulate a Very Alarmed-Panic Escape Response.

6.5.2 Constricted Corridors

The caribou deterring procedures are to be applied when caribou are trapped in hazardous and constricted spaces such as corridors within the mine footprint where they are vulnerable to collisions with vehicles and severe behavioural response to sensory stimuli associated with vehicles and employee activities.

The criteria to trigger deterring of caribou in confined corridor or other hazardous sites are dependent on a combination of factors. Good judgment is required to avoid disturbance and caribou injury, but the following should be considered: number of caribou present, distance of

caribou from roads or other stimuli, the nature of the confining feature, the effectiveness of traffic control, duration of entrapment, and behavioral response by caribou in the confined space.

The steps for undertaking deterring procedures in constricted corridors are the same as outlined in the section on Dikes, above.

6.5.3 Airstrip

The caribou deterring procedures are to be applied when caribou are on or near the airstrip or at the water crossing west of the airstrip during aircraft landing or take-off where they are vulnerable to collisions with aircraft or severe behavioural response to sensory stimuli associated with aircraft during landing or take-off.

Any number of caribou present on the airstrip or are located within 100 m of the airstrip will trigger caribou deterring action. This threshold is established to prevent any potential for caribou-aircraft collisions.

1. A small truck will be used for patrol, and, if necessary, to move caribou off the airstrip. Vehicle patrols should proceed from east to west to encourage caribou to move to escape routes leading to the west island and to avoid herding the caribou to active construction and mining operations. Maintain communication with air traffic control. Vehicles can travel at normal site speed limits unless caribou are visible.
2. When caribou are present on the airstrip, the vehicle will approach caribou at a slow speed (i.e., < 5 km/hr) and stop when caribou show an alarmed response. During airstrip patrols, the deterrer should wait no longer than 3 minutes for caribou to begin moving off the airstrip, before continuing the deterring procedure. If the caribou stall, the patrol may slowly move forward to initiate an alarmed response. If caribou travel along the airstrip ahead of the patrol, the vehicle may proceed to move caribou from the airstrip surface.
3. In the event that a herd of caribou remains within 100 m of the airstrip and exhibits behavior for returning or crossing the airstrip, the patrol may need to park at a push-out of the airstrip from where the patrol may proceed to continue the deter on foot. Environment personnel will be in contact with Diavik air traffic control if a delay in takeoff or landing must occur to ensure the animals are a safe distance from the runway.

6.5.4 Other Hazards or Entrapment Sites

The caribou deterring procedures may to be applied when caribou are trapped in hazardous and constricted spaces and situations that are identified by Environmental site personnel during ongoing monitoring and inspections. These spaces and situations will require additional communication and planning as there is potential to herd caribou toward the danger instead of away from it. The spaces and situations may include:

- Caribou trapped within the area of infrastructure and above-ground pipelines;
- Prolonged caribou entrapment in the area near the shallow bays;

- Caribou presence or entrapment on the islands adjacent to the mine pits during the brief period of thin ice hazard in October / early November; or
- Open pits.
- Within the blast exclusion zone (500 m).

6.6 Determining Caribou Hazards

When caribou are present on the east island, Environment site personnel or other designated personnel (i.e. contractors or site services) are responsible for conducting the following searches and communications:

1. Maintain radio contact with airport terminal operator and security personnel to receive reports of caribou on or near the runway and take management action if required. All Environment staff accessing the runway will need permission from Diavik Air traffic control in addition to completing the training to access this specific area.
2. Maintain radio communication with security personnel, truck drivers, contractors, helicopter pilots and other site operators to receive reports of caribou on the dikes and confined road corridors. Verify reports of caribou to determine numbers and appropriate management action.
3. Maintain communication and radio contact as necessary with area owners and/or air traffic controller as necessary to implement adjustments to vehicle traffic, construction and operations activities and/or aircraft traffic to expedite the deterring of caribou from hazard sites.

7 QUALITY OUTCOMES AND EXPECTATIONS

The primary objectives for implementing this SOP are:

- To safety complete the tasks outlined in this SOP, without incident.
- To produce quality, accurate and repeatable results.

RioTinto

ENVIRONMENT STANDARD OPERATING PROCEDURE			
Area No.:	**8000**	**Document #:**	**ENVI-913-0119**
		Revision:	**9**
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Effective Date:	**Date on approved stamp in footer.**		

1 REFERENCES/RELATED DOCUMENTS

1.1 ENVI-444-0415 R4 – Environment Roles and Responsibilities- Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs\Current

1.2 ENVI-445-0415 R3 – Environment Hazard Definitions – Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs\Current

1.3 ENVI-443-0415 R3 – Environment Term Definitions – Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs\Current

Revision History			
Revision	**Revision Description**	**Date of Revision**	**Author**
0	Original Issue	03-Mar-00	
1	Updated	Mar-05	R.Eskelson/S. Oystryk
2	Updated - related documents, review date	Oct-06	C. English
3	Biennial update, frequency amended	Jan-09	C. English
4	Updated - Format, Description, Pictures, 2, 3.1, 3.2, 6.2, 6.3	16-Oct-14	K. Gray
5	Format Update	08-Dec-15	G. Reid

6	Updated Template including CRM Critical risk	05-Nov-16	E. Neba
7	Update to template and area manager	21-Oct-17	A. Hehn
8	Superintendent update	11-Mar-18	S. Skinner
9	Annual update	30-Mar-19	M. Nelson

Authorized Electronically in Documentum By:	
Area Superintendent:	K. Boa-Antwi
Area Manager:	D. Patterson

(Document owners will be prompted annually to update content; however, changes may or may not result.)

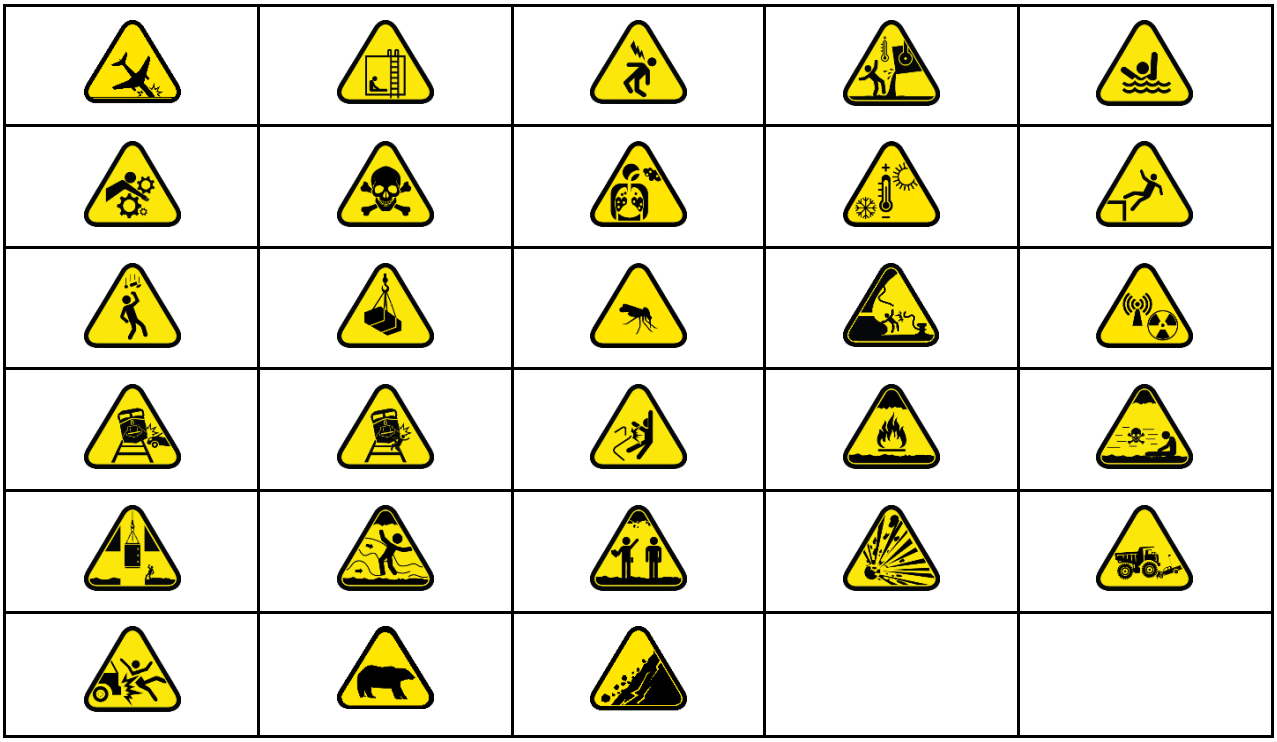
ENVIRONMENT

STANDARD OPERATING PROCEDURE

Waste Inspection

CRITICAL RISKS

Other potential critical risks not currently assessed as part of this SOP



Landfill

Waste Transfer Area burn pit

Waste Transfer Area waste storage

Figure 1. Landfill (top) and Waste Transfer Area Burn Pit/Waste Storage (bottom)

Description

This SOP covers the undertakings involved with weekly/semi-weekly monitoring visits to Diaviks Landfill and Waste Transfer Area to ensure that the collection, storage and disposal of all wastes are being done in a safe, efficient, and environmentally compliant manner. This is to avoid environmental contamination and wildlife occurrences /interactions, as some waste can be an attractant if not disposed of correctly.

2 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide direction for monitoring the Waste Transfer Area (WTA) and the Landfill to ensure proper waste disposal, as well, for both attractants to wildlife and wildlife that may visit these sites. Wildlife can potentially be very dangerous by becoming habituated to human activity. This situation can pose a threat to the safety of both the personnel on site and to the animal itself

3 SCOPE

3.1 Scope of Procedure

This procedure applies to all Diavik Diamond Mines personnel and contractor personnel

3.2 Scope of Activities

This procedure describes the monitoring procedure of the waste piles/burn pit and storage areas for improperly disposed/stored waste and looking for presence or signs of wildlife.

4 DEFINITIONS

Definitions							
ACTS		**Groundwater**		**PROVE**		**SOP**	✓
AEMP		**JHA**		**QA**		**TSS**	
COC		**NTU**		**QC**		**TSP**	
DI water		**PAL**		**Remote work**		**WHMIS**	
DO		**PFD**		**SDS**		**WLWB**	
ELT		**PPE**		**Seepage**			

GPS		**Problem bear**		**SNP**			

See: ENVI-443-0415- Environment Term Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

5 RESPONSIBILITIES

See: ENVI-444-0415 - Environment Roles and Responsibilities - Located in: Diavik Intranet – SOPs – Environment Folder

6 PROCEDURE

6.1 Key HSEQ Aspects

Task Hazards							
Aircraft		**Extreme Weather**		**Line of Fire**		**Snowmobile Operation**	
Burns		**Fall into Water**		**Manual Labour**		**Spills**	
Chemical Contact		**Falling**		**Noise**		**Sprain / Strain**	✓
Confined Space		**Fire**		**Overhead Objects**		**Stored Energy**	
Cuts Scrapes	✓	**Firearms / Deterrents**		**Perception**		**Uneven Terrain / Ground**	✓
Dehydration		**Fumes / Gases**		**Pinch Points**		**Unfamiliar Area**	✓
Electrical		**Glass**		**Risk to Wildlife**		**Visibility**	✓

Entanglement		**Heavy Equipment**	✓	**Rotating Parts**		**Watercraft Operation**	
Equipment Loss or Damage		**Lifting**		**Sample Loss or Damage**		**Wildlife**	✓
Ergonomics		**Light Vehicle**	✓	**Slip, Trip, Fall**	✓	**Working Remotely**	

See: ENVI-445-0415 - Environment Hazard Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

6.2 CRM Critical Risks

Critical Risk	Critical Control
Vehicle collision or Rollover	Seatbelts, segregation, Positive communication/Defensive driving, follow road signs/rules
Vehicle Impact on Person	Positive communication/defensive walking
Wildlife	Scan, Truck

6.3 Tools Required

Supplies, Tools and Equipment

Tool / Equipment	Quantity	Supplies	Quantity
iPad	**1**		

6.4 Procedural Steps

Monitoring will be happen every three days in summer and twice per week in winter.

Prior to leaving the office, download the "Waste Inspection" monitoring schedule from the MP-Field program on the iPad. Press: **Download Current Visits.**

Find and press the Waste Inspection visit for that day, the visit will automatically download onto the day's schedule (make sure to manually change date if inspection was completed on a different day, record reasoning in comments)

6.4.1 Landfill Inspection

Upon arrival, note time visited on iPad and use drop down menu to highlight Sample Taken.

***Note: If the inspection was not completed, select Sample Not Taken and leave reasoning in the sample comments.

Scan area for wildlife.

Identify new waste piles since last visit, inspect those first.

Inspect waste piles for any attractants such as food/food product/oil contaminated items/paints/gloves, as well for things such as batteries, bulbs containing mercury, chemicals, and aerosol cans that can be hazardous to the environment (Figure 2). Everything in the landfill should be inert and pose no risk to the safety of the environment, people, or wildlife.

Figure 2. These items do not belong in the Landfill

Look for signs of wildlife i.e. scat/tracks/chewed garbage.

Record all findings on the iPad, example shown below (Figure 3).

Report any concern of improperly stored material to the Environment Supervisor. Provide pictures and coordinates if possible.

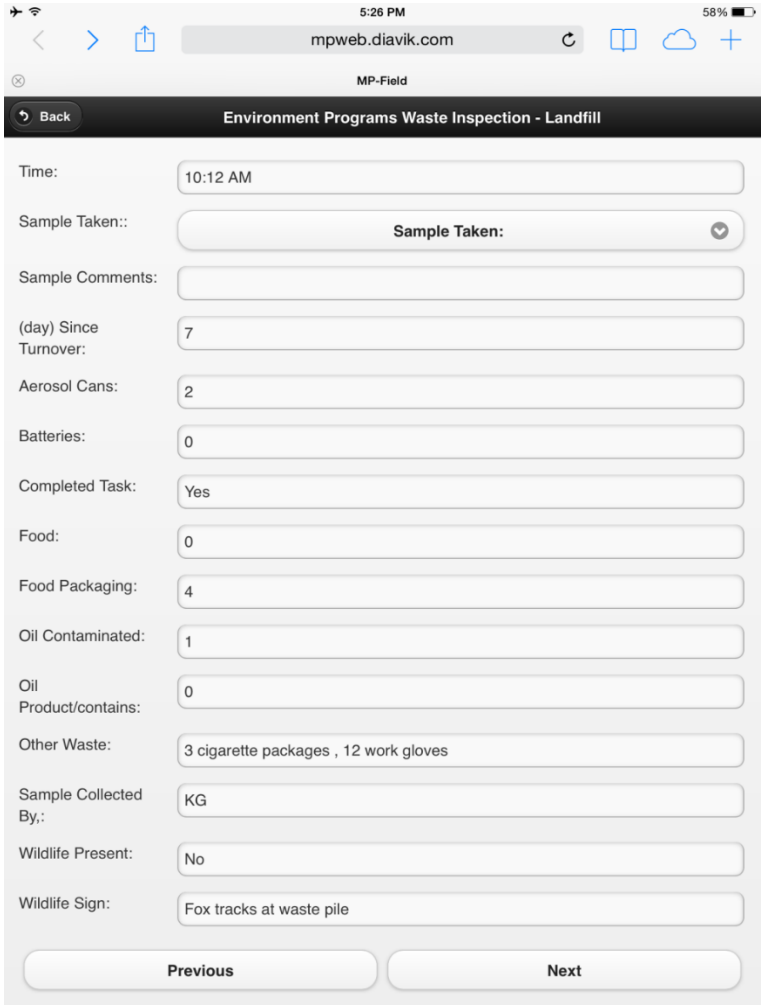


Figure 3. Screenshot of Landfill inspection in MP Field

6.4.2 Waste Transfer Area

Announce when entering/leaving Waste Transfer Area CH.5, the gate should remain closed all times to reduce the chance of wildlife entering the area. Contact the operator if gate is open.

Note time visited on iPad and use drop down menu to highlight **Sample Taken.**

***Note: If the inspection was not completed, select Sample Not Taken and leave reasoning in the sample comments.

Inspect waste storage containers and drums alongside fence for anything out of place/leaking/broken. Placards on fence clearly mark what is to be stored in each section.

Visually inspect fence for any potential entry points for wildlife.

Inspect burn pit area. If burn pit is active with a fire do not enter. The burn pit should only contain burnable waste such as wood, paper, paper products, and cardboard.

Look for signs of wildlife i.e. scat/tracks/chewed garbage.

Record all finding on iPad.

Report any concern of improperly stored material, wildlife and entry points to the environment supervisor. Provide pictures if possible.

6.4.3 A21 and Underground Waste Bins

Note time visited on iPad and use drop down menu to highlight **Sample Taken.**

***Note: If the inspection was not completed, select Sample Not Taken and leave reasoning in the sample comments.

Check burn bin and note any materials present that are not burnable

Check non-burn bin and note any materials present that should not be reporting to the Landfill such as food and drink containers, PPE, and chemicals.

6.4.4 Uploading Completed Inspections

**Remember to check that date is correct before uploading. Once inspections are complete the Waste Inspection visit will read 100% and is now ready to upload to MP5 from the iPad. Connect to ddmiipad and press upload visit. The visit will disappear when upload is complete.

7 QUALITY OUTCOMES AND EXPECTATIONS

7.1 To safely complete the tasks outlined in this SOP, without incident.

7.2 Producing quality, accurate and repeatable results.

RioTinto

ENVIRONMENT STANDARD OPERATING PROCEDURE			
Area No.:	**8000**	**Document #:**	**ENVI-914-0119**
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1 REFERENCES/RELATED DOCUMENTS

1.1 ENVI-916-0119 - SOP Helicopter - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs

1.2 ENVI-919-0119 – SOP Snowmobiles - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs

1.3 ENVI-907-0119 – SOP Remote Field Safety - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs

1.4 ENVI- - SOP Firearms - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs

1.5 Wildlife Report Template - Located in: iAuditor on iPad1 and iPad2

1.6 Wildlife Awareness Presentation - Located in: Diavik Intranet – HSEQ – Operational Control - Environment

Revision History			
Revision	**Revision Description**	**Date of Revision**	**Author**
0	Original Issue	01-Aug-12	D. Grabke
1	Annual Review and Update	20-Aug-13	K. Moore
2	Template Update and Annual Review	17-May-14	K. Moore

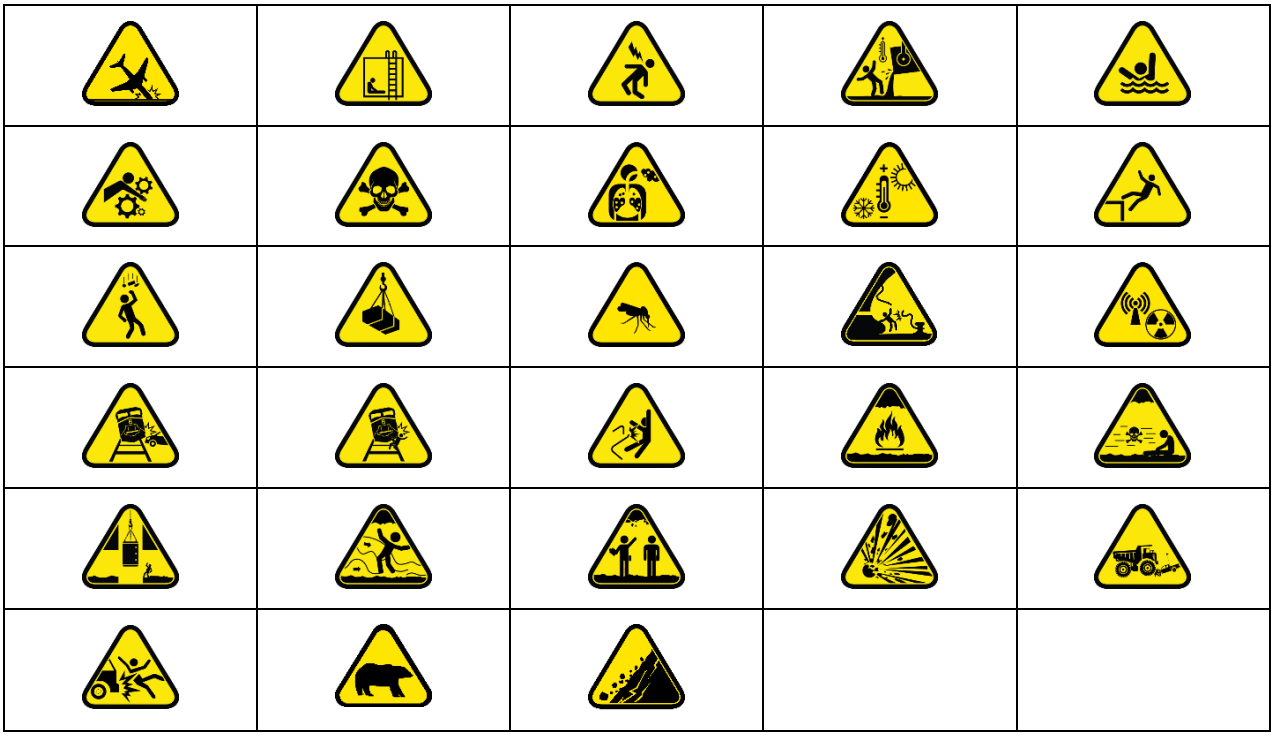
3	Format update	20-July-15	G. Reid
4	Format update	06-Dec-15	G. Reid
5	Updated template including CRM Critical risk	05-Nov-16	E. Neba
6	Security check-in at night	24-Sep-17	S. Sinclair
7	Update to template and area manager	21-Oct-17	A. Hehn
8	Superintendent update	11-Mar-18	S. Skinner
9	Annual update	2-Feb-19	M Nelson

Authorized Electronically in Documentum By:	
Area Superintendent:	S. Sinclair
Area Manager:	J. Kozian

(Document owners will be prompted annually to update content, however, changes may or may not result.)

CRITICAL RISKS

Other potential critical risks not currently assessed as part of this SOP



Description

This SOP has been developed to provide guidance when responding to bear/wildlife calls at the Diavik site.

2 PURPOSE

This Standard Operating Procedure (SOP) provides a guideline to follow when responding to wildlife (bears, wolves, wolverines, and foxes) at the Diavik (DDMI) site. This procedure applies to all DDMI personnel, contractors, and visitors' at the mine site. However, wildlife control is managed by trained Environment personnel. Grizzly bears and other carnivores are frequently sighted at the mine site; therefore, worker safety is a priority. There will be situations when management actions will be required to deter problem wildlife away from the mine site.

3 SCOPE

3.1 Scope of Procedure

This SOP outlines the step-by-step procedure for managing bear and other carnivores observed at the mine site.

3.2 Scope of Activities

The activities involved in this SOP outlines the Environment Department's role for deterring bears/ wildlife away from the mine site along with initiating site wide Wildlife Alerts to notify site employees of the animal presence. This SOP also outlines the responsibilities and accountabilities of updating crews on wildlife locations. Activities covered by the SOP include monitoring, deterrence, relocation, and destruction.

4 DEFINITIONS

Definitions							
ACTS	✓	**Groundwater**		**PROVE**	✓	**SOP**	✓
AEMP		**JHA**		**QA**		**TSS**	
COC		**NTU**		**QC**		**TSP**	
DI water		**PAL**		**Remote work**		**WHMIS**	

DO		**PFD**		**SDS**		**WLWB**	
ELT		**PPE**	✓	**Seepage**			
GPS	✓	**Problem bear**	✓	**SNP**			

See: ENVI-443-0415 - Environment Term Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

5 RESPONSIBILITIES

See: ENVI-444-0415-R0- Environment Roles and Responsibilities - Located in: Diavik Intranet – SOPs – Environment Folder

6 PROCEDURE

6.1 Key HSEQ Aspects

This SOP references the use of helicopters and snowmobiles as potential deterrents or options for remote relocation. These critical risks and hazards are not routine for this task and the appropriate SOPs should be consulted to address hazards and risks associated with those modes of transportation.

Task Hazards							
Aircraft		**Extreme Weather**		**Line of Fire**	✓	**Snowmobile Operation**	
Burns		**Fall into Water**		**Manual Labour**		**Spills**	
Chemical Contact		**Falling**		**Noise**	✓	**Sprain / Strain**	
Confined Space		**Fire**		**Overhead Objects**		**Stored Energy**	

Cuts Scrapes		**Firearms / Deterrents**	✓	**Perception**	✓	**Uneven Terrain / Ground**	✓
Dehydration		**Fumes / Gases**		**Pinch Points**	✓	**Unfamiliar Area**	✓
Electrical		**Glass**		**Risk to Wildlife**	✓	**Visibility**	✓
Entanglement		**Heavy Equipment**	✓	**Rotating Parts**		**Watercraft Operation**	
Equipment Loss or Damage		**Lifting**		**Sample Loss or Damage**		**Wildlife**	✓
Ergonomics	✓	**Light Vehicle**	✓	**Slip, Trip, Fall**	✓	**Working Remotely**	

See: ENVI-445-0415 - Environment Hazard Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

6.2 CRM Critical Risks

Critical Risk	Critical Control
Uncontrolled release of energy (flares or firearms)	Scan, positive communication, training, ACTS and PROVE, lock-out mechanisms
Vehicle collision or rollover	Seat belts, segregation, positive communication, defensive driving
Vehicle impact on person	Positive communication, defensive walking
Wildlife	Scan, truck or means of egress, deterrents

6.3 Tools Required

Supplies, Tools and Equipment			
Tool / Equipment	**Quantity**	**Tool / Equipment**	**Quantity**
Light Vehicle	**1**	**iPad with iAuditor**	**1**
Aircraft (pending location/ behavior of bear)	**1**	**GPS**	**1**
Field kit equipped with deterrents	**1**	**Camera**	**1**
Shot gun and ammunition kit	**1**	**Radio (Blue Stripe Antennae)**	**1**

6.4 Procedural Steps

The following flow chart (Figure 1) outlines the steps to be taken when wildlife (carnivores) have been observed on site:

ENVIRONMENT

STANDARD OPERATING PROCEDURE

Wildlife Monitoring (Carnivores)

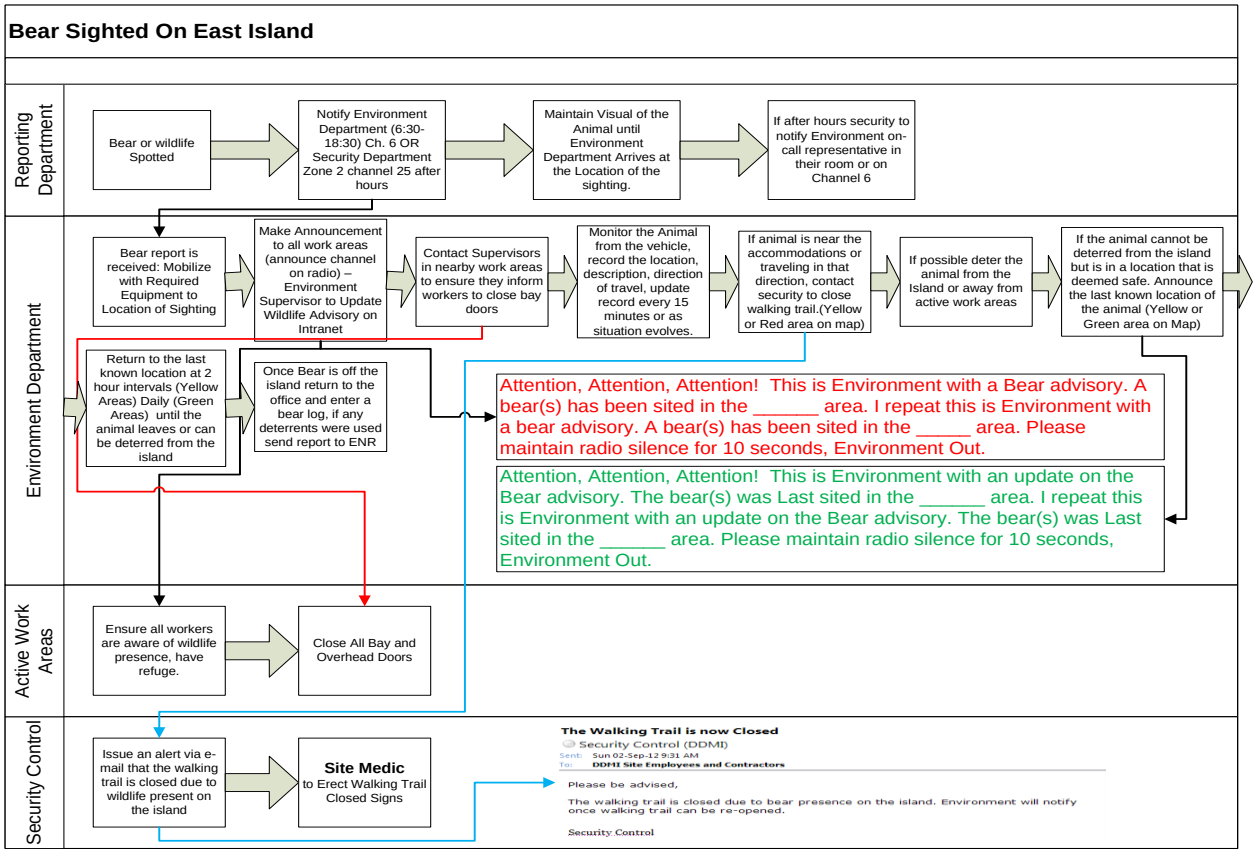


Figure 1: Procedural steps for wildlife monitoring

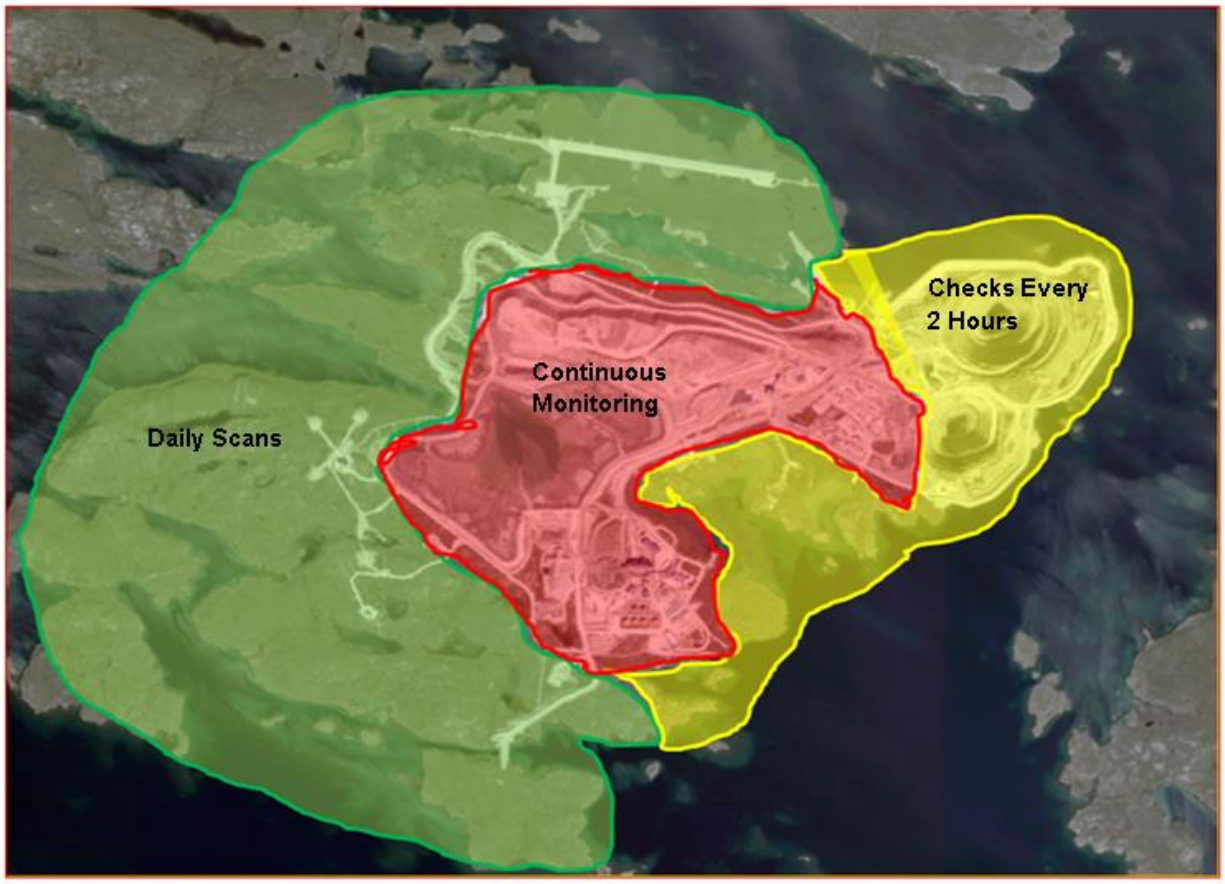


Figure 2: Monitoring Criteria for Problem Carnivores

6.4.1 Additional Information

Pertinent information to collect upon receipt of wildlife call

- Name and contact information of individual reporting the sighting;
- Number of animals; and
- Last known location and ask to maintain visual until Environment arrives at the scene.

Contact sequence for after hour callouts

- Environment Technician(s)
- Environment Term Technician(s)
- Environment Supervisor

NOTE: Environment staff who are on after hour callouts shall check in with security control every 2 hours and inform security control when the callout is complete.

6.4.2 Controls to protect workers

- Supervisors of work areas adjacent to the sightings need to be contacted to inform them to close any open doors to ensure the animals do not enter any mine infrastructure.
- The walkway between south camp and the main accommodations will remain open, unless Environment determines a need to close it. Environment will check with security to see if anyone is using the walkway. Environment will do a sweep of the walkway if there are people using the walkway. Environment will be responsible for arranging closure.
- If an alert occurs during shift change, Environment, with input from Site Services, will determine the need for buses to move personnel.

6.4.2.1 Wildlife Inside Buildings or Corridors

Special consideration should be taken if wildlife is reported inside buildings. Most wildlife will not remain in buildings and corridors; however, problem carnivores can become food conditioned and may seek to enter structures inhabited by workers.

When contacted by Security Control or individuals, the responding Environment personnel should ensure:

- The individual(s) reporting the animal have informed the area supervisor.
- People working in the structure have evacuated the building to the nearest vehicle.
- Where possible leave exterior structure doors open so that the wildlife can exit the structure and close and latch interior doors to prevent the animal moving into other areas of the structure, the idea is to provide the animal one or two obvious exits.
- Structure exits are monitored until Environment personnel arrive at the scene to understand when the animal has left the building.

After confirming that the reporting individual(s) are secure and structure doors are open and monitored the on-call Environment personnel should activate additional resources:

- At a minimum the Environment Supervisor or their designate should be made aware of the situation
- Emergency Response Team Advisor
- Security Control

As the problem carnivore is in a structure, deterrent options are limited to air horns and fire extinguishers. No bear spray, banger, or firearm should ever be used in a structure.

On arrival at the structure, Environment personnel will determine if there is a safe way to enter the structure and use air horns to encourage the animal to move toward an open exterior door. Personnel should never enter a building if entering the building would place the employee between the animal and the only open exit.

Problem wildlife in structures can be trapped and relocated if they are reluctant to move on. DDMI should have two traps:

- A larger drum-style trap owned by the Environment Department, and
- A smaller cage trap owned by Underground Operations.

Depending on the trap style and the animal in the trap a minimum of two people are required to pick up and move the trap, in many instances three people are required. The style of trap used is dictated by the structure, the animal involved in the disturbance, and the availability of help to move the trap. Once set and baited the trap should be checked every hour; additionally, the structure exit should be monitored continually to know when the animal has left the building.

Once trapped the animal should be moved to the Environment Field Lab for temporary storage until ENR can be contacted and a plan for relocation generated – see relocation under remedial actions.

6.4.3 Duties of supervisors

- All supervisors are responsible to monitor the radio for changes or updates on the bear's movement on site.
- Supervisors are responsible to account for and notify their staff. If necessary, supervisors are responsible to restrict work in certain areas, depending on the problem carnivore's location.

6.4.4 Criteria for Lifting Advisory (See Figure 2):

6.4.4.1 Green

Bear/ problem carnivore can be left in this area, use discretion where the animal is close to infrastructure.

6.4.4.2 Yellow

Bear/ problem carnivore can be left at the discretion of the person monitoring the animal.

Things to consider:

- Is the bear moving around?
- Is the bear bedded down, if so for how long?
- Do you have a visual on the animal and how long have you had the visual for?
- How active has the animal been?
- What time of day is it?
- Are there people in the area?
- Have you assigned alternate monitor(s) (night…who??)
- What is the distance from active work areas?
- Have you contacted area supervisors to ensure they are aware a problem carnivore is close?

- Can security monitor the animal with their cameras?

Ensure the alert has been updated.

6.4.4.3 Red

Bear/ problem carnivore needs to be monitored continuously while in the red zone.

- In the event there is an unconfirmed wildlife sighting (i.e., reported by workers but not seen by Environment), the search can be abandoned after 1 hour with no sighting.
- The alert will stay in effect until the bear or other carnivore has left the red zone.

6.4.5 Remedial Action for Problem Wildlife

Preventing the attraction for wildlife through proper food storage, garbage disposal and camp maintenance is the most effective way of avoiding problem carnivores in general. Management action will be carried out if bears or other carnivores pose a threat to people and/or property.

Occasional visitations by grizzly bears, wolverines, and wolves to the mine site are anticipated. Procedures for dealing with problem wildlife are outlined below.

The Environment Superintendent and the Environment Supervisor will work with Environment Natural Resources (ENR), GNWT to deal with problem wildlife at site. There is a hierarchy of options for control of problem wildlife that poses a nuisance or danger to human safety; the three levels of increased effort to deal with problem wildlife are:

- Level I: Deterrence
- Level II: Relocation
- Level III: Destruction

The Environment Supervisor will maintain effective communication with ENR in reporting problem carnivores and in evaluating options for wildlife control.

6.4.5.1 Level I: Deterrence

A method or device, either physical or chemical, designed to chase the animal away. This could involve one or a combination of the following approved and recommended methods by ENR:

- Use of vehicles
- Bear Bangers
- Noise crackers
- Rubber bullets
- Bean bag marking cartridge
- Aircraft
- Pepper spray

Each member in the Environment Department has been trained and are responsible to ensure they have deterrents with them while on a wildlife call-out. Firstly, the Environment representative must do an inventory of the number of bangers, screamers, they have present in their field kits. They must keep track and log the number of deterrents they use on the animal (documented on the iPad in iAuditor and Ammunition Used Log). If any discrepancies are noticed (i.e., lost live bangers or other deterrents), notify the Environment Supervisor and an incident report will be generated. Each member in the Environment Department is accountable for their field kits containing bear bangers and screamers. The Technician must ensure kits are stored adequately for the duration of their shift. All discharged deterrents must be brought back to the environment office and placed in a zip lock bag with the technician initials and date of use. These bags will be stored in the firearms cabinet for periodic reconciliation.

Individuals using methods of deterrence must properly assess the situation that they are in and the following points must be considered:

- Vehicles are an acceptable method of deterring bears, wolves, wolverines, and foxes; however, ensure that the animal is moved away from project activities and not scared towards camp infrastructure or toward unsuspecting people. This is the preferred method of deterring wildlife as they move adjacent to the mine site, and for moving problem carnivores off site.
- Increase the level of deterrent accordingly, based on the behaviour of the animal: vehicles & their horns, air horns, bear bangers, cracker shells, rubber bullets, and helicopter.
- No shooting of a bear banger towards buildings or fuel sources.
- Ensure that the bear banger is shot between you and the problem carnivore so that the animal is not scared towards you. If using an air horn, ensure that it is directed towards the animal.
- If a helicopter is available on or near the site, it may be used to deter the problem carnivore off the island **if other methods of deterrents are unsuccessful**. Ideally, an attempt should be made to move the animal onto the small islands, west of the airstrip - thereby encouraging the animal to move off East Island onto the mainland. Note: This method of deterrence can only be conducted at the discretion of pilot and all DDMI personnel will follow the procedures laid out in the helicopter usage SOP (ENVI-916-0119). A qualified DDMI Environment personnel should be onboard the aircraft or on the ground with visual (and radio) contact to provide the pilot with guidance. Ground to air radio contact with the helicopter can be maintained using Zone 7 – Great Slave Helicopters Channel.
- The pilot should:
    - Stress the animal as little as possible. A stressed bear running for a distance can overheat and die.
    - Keep the helicopter well back from the animal. The minimum distance between the helicopter and the bear is 100 m (320 ft) back and 30 m (100 ft) up from the ground.

  - Keep the animal in visual contact. This should be done by taking the helicopter to a higher altitude rather than getting closer than the minimum distance.
  - Only get close enough to the bear to make it move, not fly over it. A carnivore moving at a 'fast walk' can cover a lot of ground quickly and efficiently; there is no need to run the animal.
  - DO NOT push a bear for more than 10 minutes or 3 km (2.2 miles).
- Documentation of all deterrent actions must be completed. This includes all notes made in the iPad iAuditor and uploaded to 15.3 Wildlife Database → Wildlife Deterrence Used → Year. In this final copy, be sure to include as much detail as possible. This includes the description of the animal (colour, build, stature and approx: age), behaviour of the animal, response to stressor (deterrent), the number of each deterrents used, location (coordinates) and any movement that occurred with the animal. Any additional pictures will be helpful to identify the animal in the future.

Note: If you are required to deter problem carnivores from the site, a deterrence report must be completed. This report should be e-mailed to Adrian Lizotte Adrian_Lizotte@gov.nt.ca

6.4.5.2 Level II: Relocation

DDMI Environment will work with ENR; GNWT to determine if/when a problem carnivore should be relocated. A completed relocation permit is usually required by ENR prior to starting relocation. Relocation is completed under the authority of ENR, and would be supported by DDMI Environment. Relocation typically involves remote work (ENVI-907-0119) and helicopters (ENVI-916-0119) or snow machines (ENVI-919-0119). Prior to undertaking relocation the relevant SOPs should be reviewed and a JHA completed.

If a problem carnivore is trapped inside a structure the trap containing the animal will be stored in the Environment Field Lab until an action plan is formulated with ENR. The following are potential options:

- Smaller animals, e.g., foxes, can be relocated to Pond 3 or the Wind Farm
- If Lac de Gras is frozen or the winter ice road is open the animal can be relocated away from East Island, release of the animal should occur at least 75km from site and preferably in an environment that is attractive to the carnivore
- If it is summer the animal may have to be tranquilized and transported via helicopter as far as possible

If possible, relocation should be in an environment that is attractive to the carnivore (e.g., caribou herds for wolf and wolverine). Otherwise, it is recommended to relocate the wildlife to the north or northwest of the mine site as this region is typically upwind of the mine site.

Prior to releasing the problem carnivore an attempt should be made to mark the animal with a bright colour spray paint. This is to help identify repeat offenders.

Individuals involved in the release of animals from traps at the relocation site should be as close to a means of safe egress as possible. The most likely response of a released animal is to run away from the trap; however, it could turn and attack.

If the problem carnivore repeatedly offends after relocation, contact ENR and discuss destruction options.

6.4.5.3 Level III: Destruction

The destruction of problem carnivores will only be implemented as a last resort deterrence method if all the above methods have failed. ENR wildlife officials will make this decision upon recommendation and discussions with designated biologists and DDMI Environment personnel. However, if an emergency arises where there is direct danger to an individual then it may be necessary to destroy problem carnivores immediately. **Note: Unless the wildlife poses an immediate threat to life or safety, approval to destroy an animal must come from ENR prior to destruction.**

Only Environment personnel holding a valid Possession and Acquisition License (PAL) are to handle any firearm or to destroy problem carnivores, if the situation arises. Direct permission must be obtained from **ENR using their 24-hr emergency contact phone number: (867) 873-7181**. Prior to destroying problem carnivores the responsible person will complete a JHA and will follow the firearm SOP (ENVI-920-0119) when performing the destruction. The one exception to this policy is if an indigenous trapper has been hired to trap and destroy the animal. In this instance, the trapper will hold a valid PAL and will only shoot the animal after it has been trapped.

If destruction of an animal occurs, a detailed incident report must be prepared and submitted to ENR officials. This report would also be included as an appendix in the annual wildlife monitoring report.

If an animal is destroyed, the hide must be preserved in such a manner that it will not be allowed to spoil. ENR will require the head along with any other requested samples which will change from year to year dependent on research priorities.

7 QUALITY OUTCOMES AND EXPECTATIONS

To safely complete the tasks outlined in this SOP, without incident.

Producing quality, accurate and repeatable results.

RioTinto

ENVIRONMENT STANDARD OPERATING PROCEDURE			
Area No.:	**8000**	**Document #:**	**ENVI-1242-0921**
		Revision:	**0**
Task Title:	**Pre-Land Disturbance Bird Sweeps (May 1 to August 31)**		
Next Review:	**1 Year from Final Approval in Documentum**		
Effective Date:	**Date on approved stamp in footer.**		

1 REFERENCES/RELATED DOCUMENTS

1.1 **Bird Species of Lac de Gras** – Located in: P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Archive Forms\2013 - FORMS

1.2 **Peterson Field Guide Western Birds Reference book -** Environment Office Library

1.3 **Smithsonian Handbooks Birds of North America Western Region -** Environment Office Library

1.4 **The Sibley Field Guide to Birds -** Environment Office Library

1.5 **Northwest Territories – Wildlife Act**

1.6 **NWT Wildlife General Regulations: Schedule General**

1.7 **Migratory Birds Convention Act**

Revision History			
Revision	**Revision Description**	**Date of Revision**	**Author**
0	Original Issue	20-Sept-21	K. Gray

Authorized Electronically in Documentum By:	
Area Superintendent:	Kofi Boa-Antwi
Area Manager:	David Patterson

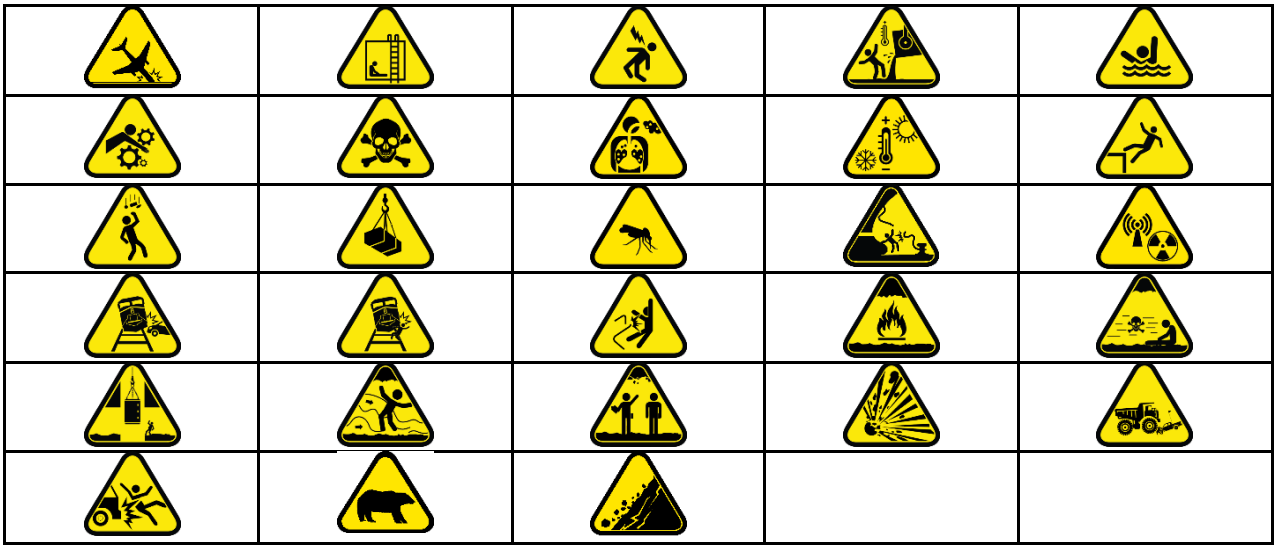
RioTinto

ENVIRONMENT

STANDARD OPERATING PROCEDURE

Pre-Land Disturbance Bird Sweeps (May 1 to August 31)

CRITICAL RISKS



Description

This SOP describes procedures to be followed prior to commencement of land disturbance on undisturbed land, e.g. the tundra, in the Diavik area during the bird nesting season (May 1 to August 31) for resident and migratory birds.

2 PURPOSE

The purpose of this guideline is to provide efficient and standardized procedures to field operations staff conducting bird sweeps for protecting resident and migratory nesting birds in areas of planned tundra disturbance within the Diavik Project footprint during bird nesting season (May 1 to August 31). Pre-land disturbance surveys reduce the likelihood of incidental take of federal- or territorial-protected bird species during land disturbance activities.

3 SCOPE

3.1 Scope of Procedure

This standard operating procedure (SOP) describes the responsibilities and processes for protecting and communicating presence of nesting resident and migratory birds in areas of planned land disturbance activities, including on the tundra. This procedure is to inform Diavik Environment department personnel who are responsible to carry out bird sweeps in areas of planned land disturbance.

3.2 Scope of Activities

This procedure applies to all activities in undisturbed areas with the potential to affect or impact nests, eggs, or birds.

4 DEFINITIONS

- **Nest** – means the nest of a resident or migratory bird and includes parts of the nest. A broader definition includes any structure, ground scrape or part of the landscape (i.e., burrow, tree cavity, broken tree top, ground or floating vegetation) that a bird species uses for breeding, laying eggs or rearing young.

- **Active nest** – a nest is considered active if it contains viable eggs and/or chicks. If a nest is found but bird activity is not detected at the nest, professional judgment and expert knowledge must be used to determine whether the nest is likely to be in use or whether it has been abandoned. A nest is also considered active if its presence is suspected based on the behaviour of nearby birds, even if its precise location and condition cannot be verified. Nests for birds that re-use nests from one year to the next are generally protected year-round.

- **Inactive nest** – nests that are empty, contain non-viable eggs, or are being built but do not yet have an egg in them are considered inactive.

5 RESPONSIBILITIES

See: **ENVI-444-0415 - Environment Roles and Responsibilities** - Located in: Diavik Intranet – SOPs – Environment Folder

6 PROCEDURE

6.1 Key HSEQ Aspects

Task Hazards							
Aircraft		Extreme Weather	✓	Line of Fire		Snowmobile Operation	
Burns		Fall into Water		Manual Labour	✓	Spills	
Chemical Contact		Falling		Noise		Sprain / Strain	✓
Confined Space		Fire		Overhead Objects		Stored Energy	
Cuts Scrapes		Firearms / Deterrents		Perception		Uneven Terrain / Ground	✓
Dehydration	✓	Fumes / Gases		Pinch Points		Unfamiliar Area	✓
Electrical		Glass		Risk to Wildlife	✓	Visibility	✓
Entanglement		Heavy Equipment		Rotating Parts		Watercraft Operation	
Equipment Loss or Damage		Lifting		Sample Loss or Damage		Wildlife	✓
Ergonomics	✓	Light Vehicle		Slip, Trip, Fall	✓	Working Remotely	

See: ENVI-445-0415 - Environment Hazard Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

6.2 CRM Critical Risks

Critical Risk	Critical Control
Temperature extremes	Multiple layers, buddy checks, hydration, breaks
Wildlife	Scans, egress plan, deterrents
Vehicle interaction with person	Call into work area, positive confirmation

6.3 Tools Required

- Clipboard and field sheet (Appendix 1)
- Pencils
- Bird identification book
- GPS
- Camera
- Extra batteries
- Binoculars
- Flagging tape
- Drag line

6.4 Procedural Steps

Surveys should not be conducted at freezing temperatures, during steady drizzle or rain events, during fog, or when winds exceed 20 km/h. These conditions may interfere with breeding behaviour and compromise observer ability.

The best time for bird sweeps is early in the morning or late evening, when birds are most active. The most important thing is to avoid periods of low activity, such as during the heat of the day or in rainy weather.

The focus of the survey should be to search for birds exhibiting breeding behaviour, such as paired birds, birds carrying nesting material, birds carrying food, territorial singing, alarm calls, or distracting displays and to scan the area for signs of nesting and or active nests.

- Notify area owner that you will be in the vicinity conducting surveys in their work area.

- Observe the area planned for land disturbance from a distance to listen and watch for birds and bird behaviour for at least 30 minutes. Use of binoculars recommended.
- Record all activities during observation time in a field sheet (see Appendix 1).
- Working in a group of 3 and with a drag line (two people on each end of line and a third observer in the middle in a V formation), walk quietly and slowly North to South and then East to West in a grid pattern over the area, pausing intermittently to observe bird behaviour and study the ground for signs of nesting. A 30-meter buffer area outside of the planned disturbed area should be surveyed as well.
- Minimal conversation (noise) should be made between the observers
- If an active nest is located, record the following information information (do not touch nests or eggs):
    - Species (or a description of type and behaviour of the bird)
    - UTM coordinates, date, time of day
    - Photos
    - Nest site description (vegetation type, nest height, type of nest)
    - Stage of nesting (construction stage, eggs including number, hatchlings, almost fledged)
    - Additional information on adult bird presence/absence, behaviour
- Cordon off the area with flag high visibility tape to ensure it remains undisturbed and report discovery to the Supervisor Environment.
- Supervisor Environment, to inform Superintendent Environment of nest.
- Superintendent Environment or a designate to engage regulatory authority(ies) (Government of the Northwest Territories Environment and Natural Resources [GNWT ENR] and Environment and Climate Change Canada [ECCC]) for guidance on how to proceed.
- Superintendent Environment to prepare instruction for area owner to commence work in the area, if applicable.

Based on advice from GNWT ENR/ECCC, some of the following actions may be required:

- Monitoring the nest under guidance from GNWT ENR/ECCC.
- Relocation of nest/nest materials
- Removal and destruction of nest/nest materials.
- Establishing setbacks or buffers until the nest is no longer active.
- Inclusion of results of bird sweep activities and mitigations for active nests in annual Wildlife Monitoring Reports.

7 QUALITY OUTCOMES AND EXPECTATIONS

7.1 To safely conduct the tasks outlined in this SOP without incident

7.2 To ensure the protection of birds nesting in areas of planned development.

Appendix 1
Field Sheet
Pre-Land Disturbance Bird Sweeps (May 1 to August 31)

Date (yyyy-mmm-dd):

Weather Conditions:

Precipitation (snow, rain, none):

Survey Area Description (topography, vegetation, etc.)

Observation Period (30 min)

Observation Notes (record all activity):

Ground Survey

GPS Coordinates Survey Area Perimeter (UTM):

Easting: _____ Easting: _____ Easting: _____ Easting: _____

Northing: _____ Northing: _____ Northing: _____ Northing: _____

Survey Start Time (includes observation period) (24:00): _____ Survey End Time (24:00): _____

Number of Individuals Conducting the Survey: _____ Surveyed By: _____

Species/nests found during survey:

UTM coordinates of nest/nest materials: Easting _____ Northing _____

Nest site description (vegetation type, nest height, type of nest)

Stage of nesting (construction stage, eggs including number, hatchlings, almost fledged)

Additional information on adult bird presence/absence, behaviour

Appendix B
Monitoring and Report Forms

RioTinto | Diavik

Closing responsibly, Closing with care

Table of Contents

Note: the page numbers in this table refer to the WMMP Appendix page number, not the data form page number.

Rio Tinto

Caribou Scanning Observations (Activity Budgets)

		No:	ENVI-243-0912 R0
Area:	Diavik Mine Site - Offsite	**Revision:**	03
Effective Date:	31 October 2015	**By:**	L. Coe
Task:	Activity Budget Scans		
		Page:	**1** **of** **3**

DATE (yyyy.mm.dd):_____ **SAMPLED BY:**_____ **GPS COORDINATES (UTM):**_____**E**_____**N** 12W (datum) NAD 83

Diavik:_____**(km)** N NE E SE S SW W NW **Air Temp:**_____˚**C** **Wind Direction:**_____ **Wind Speed** (knots)**:**_____

Cloud Cover: 0%, 10%, 25%, 50%, 75%, 100% **Precipitation:** rain / mist / snow / n/a **Snow Cover:** 0%, 10%, 25%, 50%, 75%, 100%

Mosquito / Blackfly Harassment 0 = None to 4 = Severe: 0 1 2 3 4 **Warble / Botfly:** Present Absent **Total Number Caribou in Herd:**_____

Habitat Type: HT SW EC RS SF DS IC LA ST BO<80% BO>80% **Number of Stressors encountered during Observation:**_____

Caribou Activity Budget Observations

Caribou Sample Size: _____ **Sample Composition:** *Females Females/Calves Males Females/Males Females/Males/Calves* **(#of Calves_____)**

Time	Behaviour							Stressor			Comments
	B	F	S	A	W	T	R	Description	Distance (m)	Response (0 – 3)	*Reason Δ caribou,(eg. over hill, new caribou) or other pertinent information*

Behaviour Types	Bedded	Feeding	Standing	Alert	Walking	Trotting	Running		
Stressor Types	Staff on Foot	Pickup in area	Haul Truck in area	Helicopter, Plane	Blast	Other Wildlife	Etc.		
Response-Majority of Group	0=No Reaction	1=Mild – animals look towards disturbance	2=Moderate-animals walk away	3=Severe–animals trot or run away					
Habitat HT=Heath Tundra	SW=Sage Wetlands	EC=Esker Complex	SF=Spruce Forest	RS=Riparian Shrub	ST=Snow Covered Tundra	LA=Lake	BO=Boulder	IC=Ice	

Questions for TK Component of Survey

Name of Participant :_____ **Participating Agreement Community:**_____

What features, plants and aspects of the landscape would attract caribou to this location?_____

Do you feel these caribou are healthy?_____ How did you determine this? _____

Based on your above answer would you harvest these caribou for human consumption? _____
Do you think the calves in this group have a good chance of survival?_____ Why?_____

Would this area be a good area to hunt in?_____ Would you consider this terrain to be easy, moderate or difficult to travel in?_____

Do you believe the change in weather patterns affected the caribou?_____ How? _____

Was the response to the stressor(s) one that you would consider normal?_____ Why?_____

Is there anything else you'd like to add?_____

I give my consent for the above information to be utilized in reports._____ Name:_____

Signature:_____ Date: _____

Caribou Scanning Observations (Activity Budgets)			
		No:	ENVI-243-0912 R0
Area:	Diavik Mine Site - Offsite	**Revision:**	03
Effective Date:	31 October 2015	**By:**	L. Coe
Task:	Activity Budget Scans		
		Page:	**3** **of** **3**

Revision #	Revision Description	Date of Revision	Prepared By	Approved By
00	Initial Release	05 May 10	L.Coe	S. Bourn
01	New format, revised parameter	22 May 11	K.Moore	S.Bohnet
02	New Format added list of questions for TK	29 Oct 15	D. Dul	S. Sinclair

Raptor Inspection and Bird Monitoring

Raptor Inspection and Bird Monitoring

Complete

Score	0%	Failed items	0	Actions	0
Title (YYYY-MM-DD Bird Survey)					
Conducted on					

Raptors and Birds of Concern

For the duration of the nesting period (May 1st through August 31st), a weekly inspection is conducted to identify if species of concern are present at the Mine Site. This will be conducted in addition to the weekly Raptor Survey. Areas should be inspected throughout the week to ensure adequate time for all areas to be scanned for the presence or absence of birds. See following photos for bird species.

Peregrine Falcon

Rough-legged Hawk

Gyrfalcon

Bank Swallow

Barn Swallow

Harris's Sparrow

Lesser Yellowlegs

Red-necked Phalarope

Rusty Blackbird

Short-eared Owl

Weekly Raptor Survey

Surveyed By:

Pit Infrastructure (A154 and A418 Lookouts)

Bird Species

Number of Birds (specify species)

Is there nesting activity?

Description of area and activity (location; flying, perched, etc)

Collection Ponds and North Inlet

Bird Species

Number of Birds (specify species)

Is there nesting activity?

Description of area and activity (location; flying, perched, etc)

ERT Training Grounds, Watering Tree, Airport and Helipad

Bird Species

Number of Birds (specify species)

Is there nesting activity?

Description of area and activity (location; flying, perched, etc)

South Tank Farm, METCON Yard, and Seacan Alley

Bird Species

Number of Birds (specify species)

Is there nesting activity?

Description of area and activity (location; flying, perched, etc)

MAC, South Camp, Steel Yard, Cold Storage

Bird Species

Number of Birds (specify species)

Is there nesting activity?
Description of area and activity (location; flying, perched, etc)
Process Plant, Boiler House, Sewage Treatment, Powerhouse I and II
Bird Species
Number of Birds (specify species)
Is there nesting activity?
Description of area and activity (location; flying, perched, etc)
Truck Shop, Lube Storage, Site Services Line up, Carpentry Shop and Environment Field Lab
Bird Species
Number of Birds (specify species)
Is there nesting activity?
Description of area and activity (location; flying, perched, etc)
Backfill Plant, Crusher ROM, North Country Rock Pile, Till Pile and Landfill
Bird Species
Number of Birds (specify species)
Is there nesting activity?
Description of area and activity (location; flying, perched, etc)
Batch Plant, SCAP Yard, Fabrication Shop, C Portal/UG Surface, FAR and D1 Laydown
Bird Species
Number of Birds (specify species)
Is there nesting activity?
Description of area and activity (location; flying, perched, etc)
A21 Areas (Dike lookouts, A21 Muster, Laydowns, MUDX Pile)
Bird Species
Number of Birds (specify species)
Is there nesting activity?

Description of area and activity (location; flying, perched, etc)
Test Piles, PKC Muster, Process ROM, A21 Pit Shop and A21 Portal
Bird Species
Number of Birds (specify species)
Is there nesting activity?
Description of area and activity (location; flying, perched, etc)
AN/Emulsion Plant, Windfarm and South Country Rock Pile
Bird Species
Number of Birds (specify species)
Is there nesting activity?
Description of area and activity (location; flying, perched, etc)
☐ Data Entered In P:Drive 13.4 Excel File?

Selected Sample Points

Environment Programs: Waste Inspection - A21
Environment Programs: Waste Inspection - Landfill
Environment Programs: Waste Inspection - Underground
Environment Programs: Waste Inspection - Waste Transfer Area

Selected Parameters

Sample Collected By:
Waste Inspection - Aerosol Cans (Qty.)
Waste Inspection - Batteries (Qty.)
Waste Inspection - Cigarette Butts (Qty.)
Waste Inspection - Cigarette Packaging (Qty.)
Waste Inspection - Drink Containers Recyclable (Qty.)
Waste Inspection - Food (Qty.)
Waste Inspection - Food Packaging (Qty.)
Waste Inspection - Gloves (Qty.)
Waste Inspection - Oil Contaminated Waste (Qty.)
Waste Inspection - Oil Products and Containers (Qty.)
Waste Inspection - Oily Rags (Qty.)
Waste Inspection - Other (Qty.)
Waste Inspection - Wildlife Observations (Qty.)
Waste Inspection - Wildlife Sign
Waste Inspections - Wildlife Observations (Type)

Wildlife Report - 2020

Wildlife Report - 2020

Complete

Score	0%	Failed items	0	Actions	0

Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)	
Document No.	WildlifeReport000049

Completed On

11th Jun, 2020

Audit 0%

Wildlife Report

Type of Wildlife Report	Deterrent Reporting

Deterrent Report 0%

Enter Initial Time of Wildlife Sighting

Department/Individual Who Reported Wildlife:

Environment On Scene

Environment at Call-out Location

Animal Type

Description (eg. number of individuals, colour, age, size, etc.):

Photo (If Possible):

Chronological Events

Movement Map (Import NotePlus Site Map)

Deterrent Count 0%

Truck	0 From 0 to 40
Air Horn	0 From 0 to 40
C/F Bear Banger	0 From 0 to 40
C/F Pen Whistle	0 From 0 to 40
12GA Bear Banger	0 From 0 to 40
12GA Explosive	0 From 0 to 40
12GA B.B. Marker	0 From 0 to 40

12GA Rubber Bullet	**0** From **0** to **40**
12GA Slug	**0** From **0** to **40**
Helicopter	**0** From **0** to **40**
Other	**0** From **0** to **40**
Specify	

Environment Off Scene

End of Environment Call-out

Final Location of Wildlife

Closure & Sign-off

0%

Wildlife Report Complete

CARIBOU ROAD OBSERVATIONS FORM

Date: **Crew:**

South Road

Time: **Total Distance Travelled:**

Group Size	Behaviour	Group Composition	Encounter Distance (m) (circle one)
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m

Mid Road

Time: **Total Distance Travelled:**

Group Size	Behaviour	Group Composition	Encounter Distance (m) (circle one)
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m

North Road

Time: **Total Distance Travelled:**

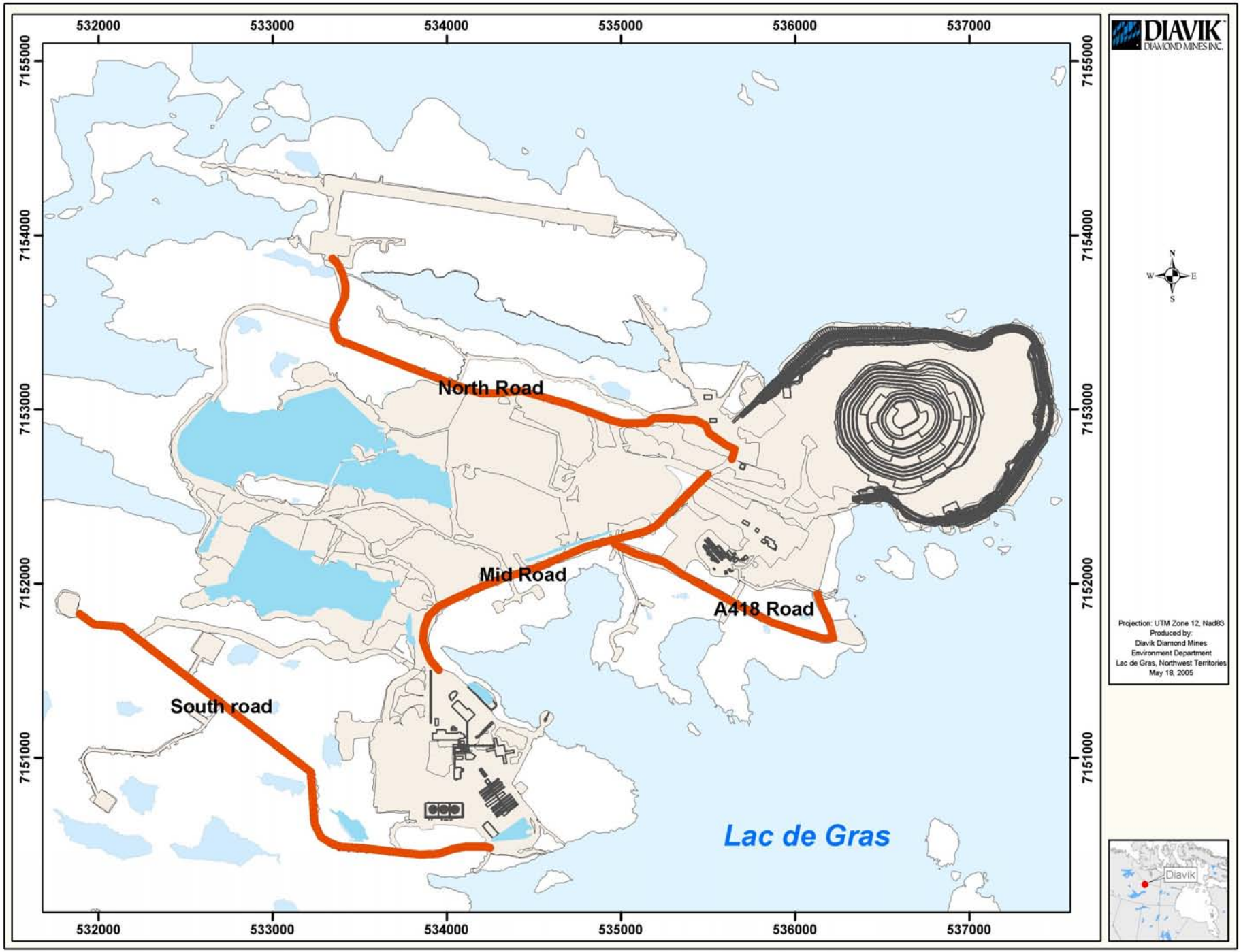
Group Size	Behaviour	Group Composition	Encounter Distance (m) (circle one)
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m

A418 Road

Time: **Total Distance Travelled:**

Group Size	Behaviour	Group Composition	Encounter Distance (m) (circle one)
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m
			On Road <50m 50-200m

*Note: Surveys should be conducted on one leg of trip only.
Behaviour/Activity Categories: Bed, stand, feed, alert, walk, trot and run
Group Composition: females, females with calves (nursery group), males, females and males, and females, males and calves (nursery group)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North Road
Mid Road
A418 Road
South road
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DIAMOND MINES INC.
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Produced by:
Diavik Diamond Mines
Environment Department
Lac de Gras, Northwest Territories
May 18, 2005
Diavik

CARIBOU - PKC/ROCK PILE INTERACTIONS

Date: **UTM East:**

Observer(s): **UTM North:**

Herd size:

Herd comp (circle one): females males females/calves females/males females/males/calves

Dominant Behavior (circle one): Bed Feed Stand Alert Walk Trot Run

Location (circle one): Ice Water Kimberlite Dike Road Tundra Gravel

Diagram of herd location:

Do any caribou appear to be stuck or drinking from the PKC?_____

Comments:_____

Complete a separate survey sheet for every caribou/caribou group seen within the PKC/Rock Pile.

CARIBOU - PKC/ROCK PILE INTERACTIONS

Date: **UTM East:**

Observer(s): **UTM North:**

Herd size:

Herd comp (circle one): females males females/calves females/males females/males/calves

Dominant Behavior (circle one): Bed Feed Stand Alert Walk Trot Run

Location (circle one): Ice Water Kimberlite Dike Road Tundra Gravel

Diagram of herd location:

Do any caribou appear to be stuck or drinking from the PKC?_____

Comments:_____

Complete a separate survey sheet for every caribou/caribou group seen within the PKC/Rock Pile.

CLOSURE WILDLIFE PRE-CLEARING SURVEY FORM

Date: _____

Observer: _____

Location: _____

Closure Activity (check): ☐Earth works ☐Blasting ☐Pit infilling ☐Infrastructure/building demolition
☐Other_____

Start Time: _____

End Time: _____

Species or Nest Observed	Notes

Action Taken (check):

☐Activity Buffer ☐Buffer Size*: _____

☐Deterred

☐Closure Activity Suspended

☐ Closure Activity may proceed

*For an active raptor nest the buffer should be 250 m. For migratory birds, contact Environment and Climate Change Canada for appropriate buffer size. The date, time and contact should be recorded.

Note: removal of non-active nests of may require a special permit from either the Depart of Environment and Natural Resources (non-migratory birds) or Environment and Climate Change Canada (for certain species at risk: consult the Canada Gazette).