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1 April 2022

Re: Diavik 2021 Wildlife Management and Monitoring Report

Attached is an electronic copy of the 2021 Wildlife Management and Monitoring Report (WMMR or Report) for Diavik Diamond Mines (2012) Inc. (DDMI). The Report summarizes work performed under DDMI's Wildlife Research (Monitoring) Permit during 2021.

DDMI's responses to comments and recommendations from the Environmental Monitoring Advisory Board (EMAB) and Environment and Climate Change Canada (ECCC) on the 2020 Wildlife Management and Monitoring Report are provided in Appendix A. Additionally, DDMI's responses to parties' comments and recommendations on the 2021 Wildlife Management and Monitoring Plan that had implications to the WMMR are provided in Table 1 of the Report.

DDMI requests that you review these documents and provide comments and recommendations by May 31, 2022. DDMI will provide responses by July 30, 2022. If you have any questions regarding the above, please contact the undersigned or Kyla Gray (kyla.gray@riotinto.com) at your convenience.

Yours sincerely,



Kofi Boa-Antwi
Superintendent, Environment

Cc: John McCullum, EMAB
Dylan Price, EMAB
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Attachment: 2021 Wildlife Monitoring Report

DIAVIK DIAMOND MINES (2012) INC.

Wildlife Management and Monitoring Report

Submitted to:

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PO Box 2498
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X1A 2P8, Canada

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March 2022
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Executive Summary

The Diavik Diamond Mine (Mine) is located on an island in Lac de Gras, Northwest Territories. As a requirement of the Environmental Agreement, Diavik Diamond Mines (2012) Inc. (DDMI or Diavik) has completed a Wildlife Monitoring Program (WMP) report each year since 2002. In 2019, the Government of the Northwest Territories (GNWT) issued guidelines for the development of a Wildlife Management and Monitoring Plan (WMMP) (GNWT-ENR 2019). Diavik prepared and submitted a WMMP to the GNWT in July 2020 (DDMI 2020a) in accordance with these guidelines, compliance with the Environmental Agreement, and the fundamental aspects of site monitoring and mitigation previously established and accepted in the WMP. An updated 2021 WMMP was prepared based on reviews by the GNWT-ENR, EMAB and ECCC and submitted to the GNWT in November 2021 (DDMI 2021). This Wildlife Management and Monitoring Report (WMMR) aligns with the components and objectives of the WMMP (DDMI 2021), which consider wildlife issues of concern identified by communities and regulatory agencies. The WMMR provides the analysis and reporting of data collected using the methods described for wildlife valued ecosystem components and other wildlife in the WMMP (DDMI 2021).

The objective of the WMMR is to collect and analyze information that will assist in determining if there are effects on wildlife in the study area and if these effects were accurately predicted in the Environmental Effects Report (EER). The WMMR also collects data to determine the effectiveness of site-specific mitigation practices and the need for any modifications through adaptive management. The following report documents the data collected and associated results for 2021. Where helpful, comparisons to the information gathered during the previous monitoring (2000 to 2020) and the pre-construction baseline (June 1995 to August 1997) have been included.

General observations for each 2021 program include the following:

Landscape Changes

- In 2021 the Mine footprint increased by 0.15 square kilometres (km²). The total loss of terrestrial and aquatic habitats to date from mining activities (11.55 km²) is below that predicted in the EER. The current footprint is expected to be at its maximum now for operations, with the exception of the South Country Rock Pile. The footprint may expand slightly during progressive reclamation activities on the North Country Rock Pile.

Barren-Ground Caribou

- The total caribou summer habitat loss to date is 2.86 habitat units, which remains below the prediction made in the EER.
- Caribou aerial surveys were not required or completed in 2021 and have been discontinued. Indications from the 2021 Diamond Mine Wildlife Monitoring Meetings (GNWT-ENR 2021) were that aerial surveys of caribou can be discontinued as part of the annual WMMR. As such, aerial surveys will no longer be discussed in future reports and are no longer a monitoring program in the Mine's WMMP (DDMI 2021).
- Twenty-one ground-based caribou behavioural scanning observations were completed in 2021. Observations occurred mostly during winter from 0 to 15 km from Mine infrastructure. Diavik will continue to monitor caribou behaviour in 2022.
- There were no Mine-related caribou injuries or mortalities reported in 2021.

- During 2021 the caribou traffic advisory remained at “No Advisory” for the entire year. There were four instances where greater than 100 caribou were observed at one time; however, these sightings were not on or immediately adjacent to the Mine site.
- There was one instance where action was taken to deter caribou away from vehicle traffic and Mine infrastructure in 2021.

Grizzly Bear

- The total direct grizzly bear habitat loss to date is 8.35 km², which is below the amount predicted in the EER.
- Program partners at the 2021 Diamond Mine Wildlife Monitoring Meetings (GNWT 2021) agreed that the grizzly bear hair snagging program will no longer be completed. Grizzly bear hair snagging is no longer a monitoring program in the Mine’s WMMP (DDMI 2021).
- In 2021, 80 reported instances of grizzly bears were recorded on East Island from 2 May to 10 October. Of these, 41 required deterrent actions and 39 did not require deterrent actions. There were no relocation events or mine-related mortalities in 2021.

Wolverine

- Since 2015, each transect was surveyed twice so that detection probability could be estimated and incorporated into analyses of relative presence and distribution in the study area (except 2020). Due to COVID-19, only one round of snow track surveys was completed in 2021.
- A total of 24 wolverine tracks were detected at 18 of 39 transects (46% occurrence) during one sampling visit in 2021. The number of wolverine tracks identified among transects ranged from 0 to 3 individuals. The average number of tracks per km per day once adjusted for weather variables was similar to previous years, suggesting annual wolverine occurrence remains relatively constant.
- Program partners at the 2021 Diamond Mine Wildlife Monitoring Meetings (GNWT 2021) agreed that the wolverine hair snagging program will no longer be completed after 2020. Wolverine hair snagging is no longer a monitoring program in the Mine’s WMMP (DDMI 2021).
- There were no wolverine relocations or mine-related mortalities in 2021.

Raptors

- In 2021, the GNWT-ENR’s regional raptor nest monitoring surveys were not completed. These surveys are planned to occur every five years, with the next survey scheduled for 2025. The results of the last nest monitoring survey, completed in 2020, are included in a regional database that is managed by GNWT-ENR.
- A total of 67 Pit Wall/infrastructure inspections were completed from 7 May until 5 September 2021 to determine use by raptors. During the inspections, two rough-legged hawk (*Buteo lagopus*) nests were confirmed; one at the A21 pit and one at the Site Services Line Up Wall. Both nests were confirmed to have successfully fledged. Common raven (*Corvus corax*) nested at the South Tank Farm.
- Two raptor mortalities of unknown cause occurred at the Mine in 2021. No other incidents involving raptors were reported at the Mine in 2021.

Waste Management

- In 2021 waste inspections at the Waste Transfer Area (WTA), Landfill, Underground waste bins, and at A21 were completed twice per week during the winter and once per week in the summer. During inspections staff identified and removed any improperly disposed waste and recorded all sign of wildlife and activity. Based on the results of inspections, workers are educated on waste management practices as part of adaptive management.
- Throughout 2021 aluminium containers plastic containers were recycled, and the total monetary value (\$2,000) was donated to charity. Copper wire was salvaged at the Mine with an approximate value of \$178,000 and donated to the Hay River Family Support Center, Arctic Indigenous Wellness, the Ulukhaktok Food Bank, the Yellowknife YWCA Girls Space program, and the NWT Foster Family Coalition in 2021.
- During 2021 a total of 212,580 litres of waste oil were collected and burned in waste oil heat-generating boilers.
- In 2021 the wind farm generated approximately 17,011.8 megawatt hours (MWh) of power, which represents an estimated diesel savings of 3.8 million litres.

Study Limitations

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1 INTRODUCTION

1.1 Background

Diavik Diamond Mines (2012) Inc. (DDMI or Diavik) completed 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 (Mine; DDMI 2002). Documents that were used in developing the WMP include the following:

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

Monitoring by DDMI during construction and operation of the Mine has been used to test impact predictions in the EER (DDMI 1998a,b), evaluate the effectiveness of mitigation, and provide feedback for adaptive management. In 2019, the Government of the Northwest Territories (GNWT) issued guidelines for the development of a Wildlife Management and Monitoring Plan (WMMP) (GNWT-ENR 2019). Diavik initially prepared and submitted a WMMP to the GNWT in July 2020 (DDMI 2020a) and subsequently submitted an updated WMMP in November 2021 (DDMI 2021) in accordance with these guidelines, compliance with the Environmental Agreement, and the fundamental aspects of monitoring and mitigation previously established and accepted in the WMP. This Wildlife Management and Monitoring Report (WMMR) aligns with the components and objectives of the WMMP, which consider wildlife issues of concern identified by communities and regulatory agencies. The WMMR provides the analysis and reporting of data collected using the objectives and methods described for wildlife valued ecosystem components (VECs) and other wildlife in the WMMP (DDMI 2021).

Based on reviews and discussions among DDMI, communities, and regulators, the WMMR has evolved under the principles of adaptive management since the original design of the WMP in response to trends observed in the data and changes to objectives, study designs, and methods. Rationale for changes were based on the effectiveness of data to test effects predictions, community concerns, adaptive management principles, and the establishment of regional monitoring programs. Further, community site visits occur annually and provide community members an opportunity to observe Mine operations. Due to the COVID-19 pandemic, community visits to the Mine were not completed in 2021. Members of the Diavik Traditional Knowledge Panel did however meet at a land camp within visual range of the Mine, approximately five kilometres west.

Due to the large degree of natural variation inherent in ecosystems, it is often difficult to detect indirect effects with only one or two years of data. Therefore, a more comprehensive analysis and discussion of all data from the WMMR has been completed every three years and submitted as a separate report. Separate reporting began in 2004 following requests for more formal statistical analysis of monitoring data by the Environmental Monitoring Advisory Board (EMAB) (EMAB 2004) and GNWT-ENR (ENR 2004).

Since 2010, some WMP and WMMP studies for caribou, grizzly bear, and falcons have been suspended or removed through adaptive management and with consensus among communities, regulators, mine operators, and monitoring agencies after review of these programs at wildlife monitoring workshops (Marshall 2009; Handley 2010). The 2021 Diamond Mine Wildlife Monitoring Meetings hosted by the GNWT on 2 and 3 of February 2021 determined that the grizzly bear and wolverine hair snagging, and caribou behaviour monitoring programs should be discontinued. However, DDMI has determined it will continue to monitor caribou behaviour. Discontinuation of monitoring through adaptive management precludes the need to complete statistical analyses. In 2014, waterfowl monitoring was discontinued following review and agreement by Environment and Climate Change Canada (EC 2013). Of the studies completed in the most recent two comprehensive analysis reports in 2020 and 2017, the wolverine snow track monitoring is the only program at site that remains active and evaluates regional EER predictions. Based on the principles of adaptive management, DDMI no longer completes an independent comprehensive analysis report for wildlife. Instead, all comprehensive statistical analyses related to active monitoring programs are included every three years in the annual WMMR. The last comprehensive analysis report was completed in 2020 (Golder 2021a) and the next is scheduled for 2023. For the intermediate years, the annual reports present findings from that year, and summarize cumulative data collected up to that year. If critical issues become apparent in the shorter term, then a discussion of these issues is presented in annual reports. At the request of the EMAB in 2018 (EMAB 2018), a section on Traditional Knowledge related to wildlife has been added to the WMMR (Section 2.0).

1.2 Objectives

The overall objectives of the WMMR are to:

- Collect information that will assist DDMI to determine if there are effects on wildlife and if these effects were accurately predicted in the EER.
- Determine the effectiveness of mitigation practices intended to avoid and limit Mine-related effects on wildlife and whether or not these practices and policies require modification.
- Detect effects that were not predicted in the EER.

Objectives specific to wildlife VECs are presented in the following sections.

1.3 Study Area

The Mine is located on East Island in Lac de Gras (Figure 1). The wildlife study area is 1,200 square kilometres (km²) and includes the East and West islands, aquatic habitats, many smaller islands in the northeast portion of Lac de Gras, and the mainland along the southern, eastern, and northern shores of Lac de Gras. An extension to the northwest was made to include the Lac du Sauvage narrows, an important caribou migration corridor (Penner 1998). The local study area during baseline studies (Penner 1998) covered approximately 805 km².

The Mine includes accommodation facilities, operations buildings, haul roads, an airstrip, country rock piles, the A154 and A418 pits and dikes, and A21 dike, and all other infrastructure (Figure 2). In 2012, the Mine was expanded to include the wind farm and access roads to the wind farm. The majority of haul roads required for mining activities are complete. The current footprint is expected to be at its maximum now for

operations, with the exception of the South Country Rock Pile. The footprint may expand slightly during closure activities.

1.4 Report Organization

Within each section of this report, data are presented that will be tracked over the life of the Mine. Recommendations for changes to the WMMR based on adaptive management are presented at the end of each section for consideration and may be incorporated into the WMMR for subsequent years. The WMMP is an evolving management plan that reflects recommendations during previous years, as well as advances in Mine development. Changes will be captured in revisions to the WMMP (DDMI 2021) and future WMMRs.

The EMAB is an arm's length organization that reviews the WMMR annually and provides comments and recommendations to DDMI (EMAB 2021, Appendix A). Golder provided responses to EMAB comments, along with comments from Environment and Climate Change Canada (ECCC; 2021a, Appendix A) on the 2020 WMMR in September 2021 (Golder 2021b; Appendix A). None of the comments made by EMAB or ECCC resulted in a change to the 2021 WMMR, with the exception of a request by ECCC to be included in the WMMR distribution list.

The GNWT-ENR, EMAB, and ECCC also provided comments and recommendations to DDMI on the 2021 WMMP (ENR and EMAB 2021; ECCC 2021b), some of which have implications for the WMMR. Golder provided responses to these comments in November 2021 (Golder 2021c). Comments resulting in changes to the WMMR are summarized in Table 1.

Table 1: Comments on the 2021 WMMP Relevant to the WMMR

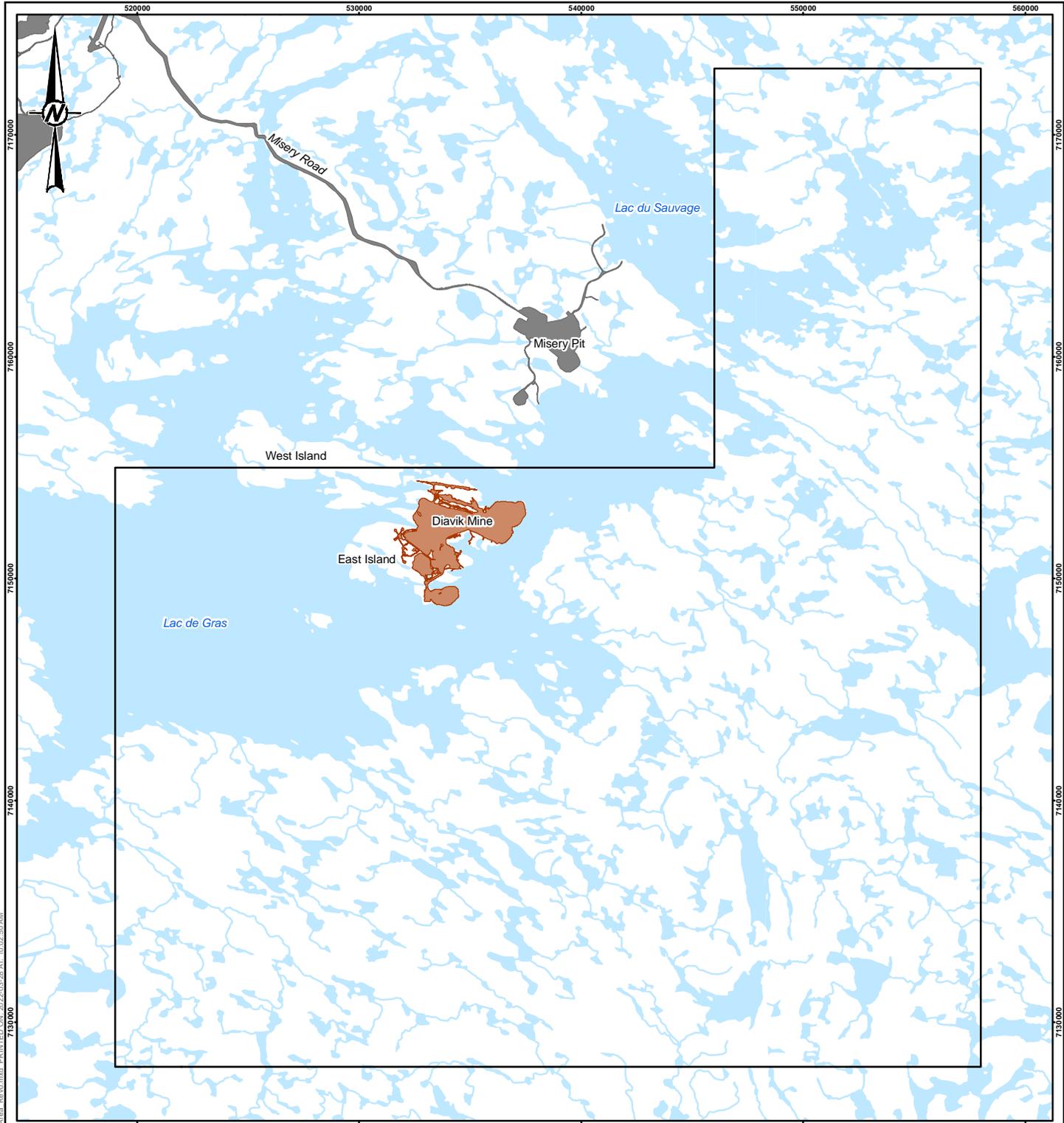
Agency	Comment Identifier	Recommendation	DDMI Response	WMMR Section
EMAB	EMAB-WMMP-06	Please provide the definition of “low” with respect to caribou mortality.	In the EER, the wildlife effects criteria for “low” magnitude was defined as a less than 1% change from baseline conditions (DDMI 1998, Appendix VI). Baseline would include all existing sources of caribou mortalities. DDMI will revise the WMMP to reference the definition from the EER (DDMI 1998).	Section 4.4
EMAB	EMAB-WMMP-14	Document the fate (i.e., success or failure) of nests in the development area.	Fate of nests (i.e., success or failure) in the development area will be documented in future reports.	Section 7.1
ENR	ENR-WMMP-02	As required in the EA and to be consistent with the BCRP recommendations for Mobile Caribou Conservation Measures, ENR requires DDMI to develop a section in the WMMP to identify a) how approaching caribou will be detected, and b) identify trigger levels to initiate action and c) tiered mitigations that may be undertaken to avoid and reduce sensory disturbances to caribou and avoid or minimize impacts to caribou from sensory disturbance and mortality or injury risks.	DDMI will develop a section of the WMMP to identify a) how approaching caribou will be detected, b) identify trigger levels to initiate action and c) tiered mitigations that may be undertaken to avoid and reduce sensory disturbance to caribou and avoid or minimize impacts to caribou from sensory disturbance and mortality or injury risks.	Section 4.7
ENR	ENR-WMMP-03	Remove the statement that long-term monitoring of caribou distribution by aerial survey methods recently demonstrated that caribou distribution is explained more by habitat availability than mine-related effects (Golder 2020b) so zone of influence (ZOI) monitoring using aerial surveys will discontinue and an accepted alternate method will be applied (GNWT-ZOITG 2015). Include and acknowledge sources in the primary literature that offer different conclusions.	DDMI will acknowledge the results of Boulanger 2021. DDMI would like to note that the primary literature does not mean that studies published in the peer-reviewed journals are flawless or infallible (see Wehausen 1984; Joly et al. 2006; Clark et al. 2020). The Golder (2020b) represents a scientifically defensible line of evidence that provides transparency about ZOI assumptions. DDMI’s concerns are generally regarding a lack of validation of assumptions of GNWT-ZOITG (2015) methods. DDMI will include reference to ZOI monitoring and follow the GNWT-ZOITG (2015) guidelines.	Section 4.2

Table 1: Comments on the 2021 WMMP Relevant to the WMMR

Agency	Comment Identifier	Recommendation	DDMI Response	WMMR Section
ENR	ENR-WMMP-05	Revise “2021 Slave Geological Province Wildlife Workshop” to read “diamond mine wildlife monitoring meeting in February 2021” anywhere it is included in the document.	DDMI will revise “2021 Slave Geological Province Wildlife Workshop” to read “Diamond Mine Wildlife Monitoring Meeting in February 2021”.	Sections 1.1, 4.2, 4.7, 5.2, 5.4, 6.2, 6.3, 6.7
ENR	ENR-WMMP-08	Please remove the reference to the Barren-ground Caribou Management Strategy.	DDMI will revise the WMMP to avoid reference to the Barren-ground Caribou Management Strategy and replace with reference to the Barren-ground Caribou Recovery Strategy.	Section 4.0
ENR	ENR-WMMP-14	Please include the most recent population information on the Beverly herd.	DDMI will revise the WMMP to include the most recent population estimate of the Beverly herd.	Section 4.0
ENR	ENR-WMMP-15	Remove the statement about compliance with the Bathurst Caribou Range Plan.	DDMI will revise to state that mitigation included in the WMMP is consistent with mitigation prescribed in the Bathurst Caribou Range Plan for Area 2.	Section 4.0
ENR	ENR-WMMP-17	DDMI should revise the text in this section to acknowledge that the results produced in Golder 2020b were not necessarily consistent with published findings of temporally and spatially variable ZOIs around the Ekati – Diavik complex in the primary literature, and that their analysis was not actually a ZOI analysis in the strictest sense. ENR recommends that methods used to analyze those data be consistent with the recommendations in the revised ZOI Guidance Document.	DDMI disagrees that Boulanger et al. (2021) demonstrate a ZOI around Diavik mine in some years. The results reflect the cumulative effect of the Ekati and Diavik mines and the incremental effect of each mine cannot be measured due to these mines being in close proximity to one another. Diavik Mine is located on East Island, which is surrounded by deep water that caribou avoid (Boulanger et al. 2012). DDMI will acknowledge the results of Boulanger et al. (2012, 2021) and that there is uncertainty about ZOI effects since there are now two studies (Golder 2020a; ERM 2021) that indicate ZOI absence. Differing results should be viewed as healthy and often further push the science, rather than unquestioned acceptance of results. DDMI will consider analytical recommendations of the ZOI Technical Task Group.	Section 4.2

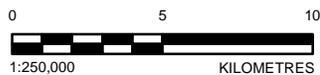
Table 1: Comments on the 2021 WMMP Relevant to the WMMR

Agency	Comment Identifier	Recommendation	DDMI Response	WMMR Section
ENR	ENR-WMMP-20	Include details on how DDMI reduces sensory disturbance and increases the safety of caribou when blasting is occurring in the section developed to address the need for thresholds, triggers and tiered mitigation akin to Mobile Caribou Conservation Measures.	DDMI will implement a 500 m buffer or exclusion zone for blasting as per the Northern Land Use Guidelines for Northwest Territories Seismic Operations (GNWT-DoL 2015).	Section 4.7



LEGEND

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



REFERENCE(S)

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 DIAVIK DIAMOND MINES INC.

TITLE
 DIAVIK WILDLIFE STUDY AREA, 2021

CONSULTANT



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PREPARED ANK

REVIEWED NM

APPROVED JV

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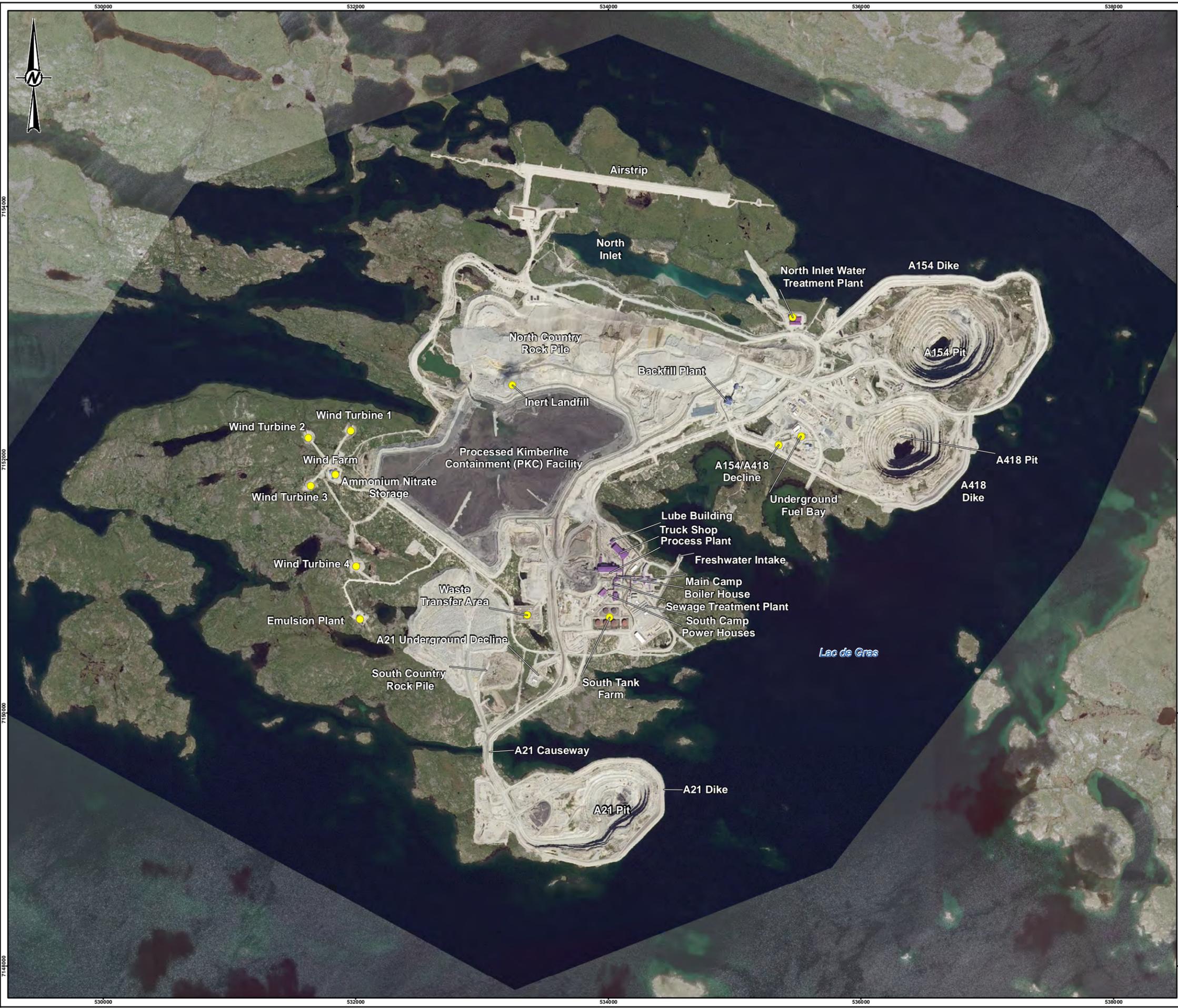
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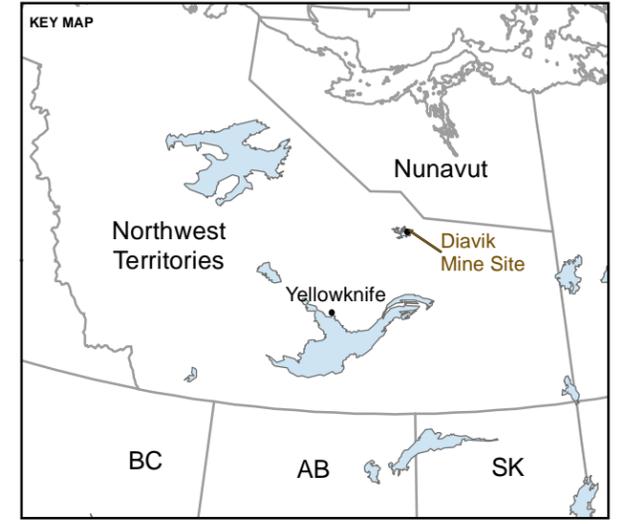
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 PROJECTION: UTM ZONE 12 DATUM: NAD 83

CLIENT

PROJECT
 DIAVIK DIAMOND MINES INC.

TITLE
 DIAVIK MINE SITE INFRASTRUCTURE, 2021

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	PREPARED	ANK
	REVIEWED	NM
	APPROVED	JV

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2 COMMUNITY ENGAGEMENT AND TRADITIONAL KNOWLEDGE

Diavik engages with local Indigenous communities and values community feedback and insights about how Diavik operates the Mine and monitors the environment or may be affecting the environment. As part of their commitment to the environment, Diavik incorporates available Traditional Knowledge in environmental plans and monitoring programs. For Diavik's WMMR, Traditional Knowledge has been incorporated through:

- study design
- wildlife ecology and the interpretation of monitoring results
- community participation with data collection

Incorporation of Traditional Knowledge into study design of monitoring programs has occurred for caribou habitat, grizzly bear, and wolverine. For caribou, Diavik and the Tłıchq Government carried out a Traditional Knowledge study in the summer of 2013 through a series of workshops and site visits where four participating elders from Tłıchq and Lutsel K'e shared stories and knowledge about caribou migration, preferred habitats (vegetation communities and landscape features), and traditional land use (Tłıchq 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, Traditional Knowledge shared in this study has also been considered in the interpretation of monitoring results (see Appendix I of Golder 2017). Elders in the 2013 Traditional Knowledge 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 has also been incorporated into the caribou scan surveys through means of a questionnaire. When elders are present, observed caribou are commented on from an animal health and traditional use perspective. For example, during 2021 caribou behaviour scans (Section 4.3), Earnest (Patty) Lockhart from Lutsel K'e Dene First Nation participated and indicated caribou being observed appeared healthy.

In 2012, the Diavik and Ekati mines collaborated on a new regional scale grizzly bear monitoring program because past mine-specific monitoring programs yielded inconclusive results from highly variable data (Handley 2010). The regional grizzly bear program involved hair snagging methods and included Traditional Knowledge holders to determine the best locations for hair snagging devices (Section 5; ERM 2014). From 2003 to 2006, the study design and data collection for wolverine snow track monitoring was based on the experience of Inuit Qaujimatugangit to locate transects and record wolverine snow tracks (Section 6).

Diavik's Traditional Knowledge Panel provides recommendations to Diavik. In 2021, the Traditional Knowledge Panel made recommendations to aspects of the caribou monitoring program. DDMI will provide responses to the recommendations during the next Traditional Knowledge Panel session in 2022. Where possible, Diavik tries to include community members in environmental monitoring annually. For example, Earnest (Patty) Lockhart from Lutsel K'e Dene First Nation participated in wolverine snow track surveys in 2021 (Section 6.3). Communities have participated in a variety of programs over the history of monitoring by Diavik (e.g., Golder 2018) and this has been documented in past reports. The WMMR is anticipated to evolve as Diavik receives input through community engagement, regulatory workshops, site visits, and Traditional Knowledge studies.

3 LANDSCAPE CHANGES

The scope of the landscape component of the WMMR is to determine if vegetation and surface water loss are within the magnitude or amounts predicted in the EER (DDMI 1998b). East Island vegetation cover is predominantly characterized by heath tundra, and tussock / hummock landscape classes, but Mine construction and operation have also resulted in the loss of shallow and deep water. The main change from the Mine on the landscape is direct disturbance, which will be a long-term effect as the recovery of vegetation is slow in Arctic environments (Burt 1997).

Diavik conducts ongoing monitoring to determine if dust from the Mine is affecting vegetation communities, and lichen and soil chemistry. 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. The 2021 Comprehensive Vegetation and Lichen Analysis Report (Appendix N) indicates that the next cycle of vegetation monitoring should occur in three years (i.e., 2024) based on dustfall trigger exceedances (Golder 2019, 2022). As part of the Closure and Reclamation Plan, dust, vegetation, and lichen monitoring will be continued during closure and post-closure at fixed frequencies. The dustfall trigger will be discontinued at the end of the Life of Mine in 2024.

The objective of this component of the WMMR is to:

- Determine if direct vegetation/habitat loss due to the Mine footprint exceeds the prediction of 12.67 km².

3.1 Methods

A satellite image was obtained and used to update the area of the current Mine footprint. The image was laid over the Ecological Landscape Classification (ELC) developed by the Department of Environment and Natural Resources, Government of the Northwest Territories (GNWT-ENR) (Matthews et al. 2001). Each ELC type disturbed by the Mine was selected and calculations were made to determine the area (km²) of each habitat type replaced by the Mine footprint. Values provided for ELC unit loss are estimates based on the predicted Mine extent (DDMI 1998a), the actual Mine footprint, and the ELC classification (Matthews et al. 2001).

3.2 Results

As of December 2021, a total area of 11.55 km² has been altered since Mine construction in 2000. This represents a relative loss of 91.2% of the predicted landscape disturbance (DDMI 1998a). Land cover types at or slightly exceeding the predicted loss include riparian shrub, birch seep and shrub, boulder complex, disturbed, and esker (Table 2). In 2021, the ELC types that changed included heath tundra (0.07 km²), heath boulder (0.02 km²), heath bedrock (0.01 km²), and tussock/hummock (0.04 km²). The South Country Rock Pile and North Country Rock Pile will increase due to operation and reclamation activities, respectively. However, the remainder of the footprint is not expected to increase during operation and remain at or below the prediction. The annual geographic extent of landscape disturbed from the Mine footprint is illustrated in Figure 3.

Table 2: Total and Predicted Ecological Landscape Classification Unit Loss (km²) Associated with Mine Development Phases, 2000 to 2021

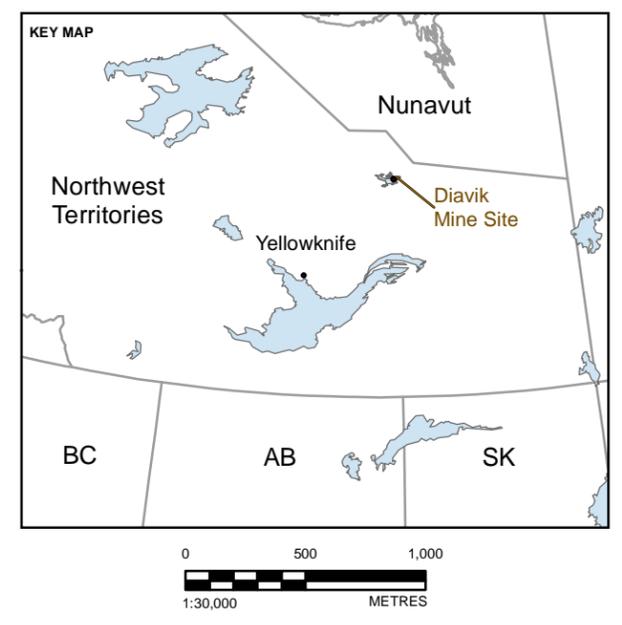
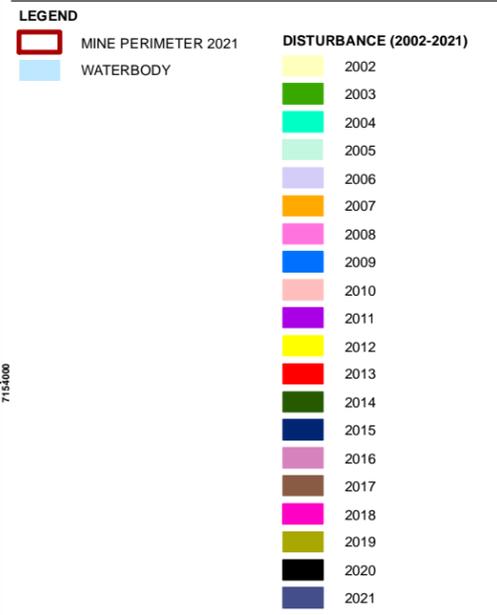
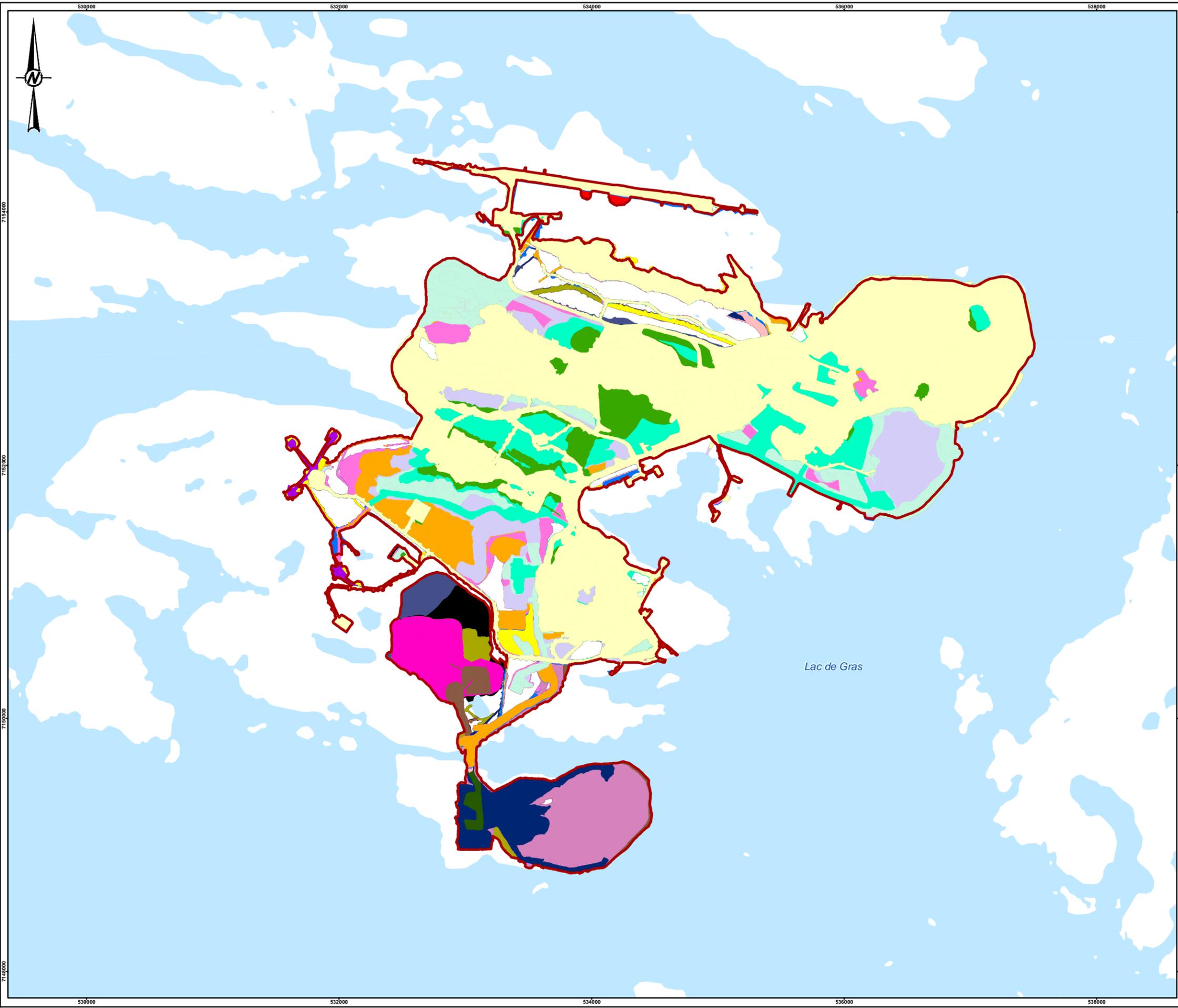
ELC Type	Construction and Open Pit Mining (2000 to 2005)	Open Pit Mining (2006 to 2009)	Underground Mining (2010 to 2016)	A21 Pit Development (2017 to 2021) ^(a)	Predicted ^(b)
Heath Tundra	2.60	2.94	3.28	3.65	3.68
Heath Bedrock (30% to 80%)	0.45	0.56	0.61	0.64	0.78
Health Boulder (30% to 80%)	1.06	1.47	1.64	1.76	1.89
Tussock/Hummock	1.19	1.41	1.50	1.61	1.64
Sedge Wetland	0.16	0.21	0.22	0.24	0.26
Riparian Shrub	0.03	0.03	0.03	0.04	0.03
Birch Seep and Shrub	0.08	0.09	0.10	0.11	0.11
Boulder Complex	0.03	0.04	0.05	0.05	0.05
Bedrock Complex	0.05	0.06	0.06	0.06	0.07
Esker Complex	0.17	0.17	0.17	0.17	0.16
Disturbed ^(c)	0.05	0.06	0.06	0.06	0.06
Shallow Water	0.29	0.34	0.40	0.44	0.48
Deep Water	1.93	2.12	2.63	2.71	3.46
Total^(d)	8.10	9.50	10.75	11.55	12.67

(a) Also represents cumulative loss to 2021.

(b) From DDMI 1998a.

(c) Disturbed includes areas that were already disturbed by exploration activities when the ELC was created.

(d) Any discrepancies in totals across the rows results from the rounding of numbers in annual columns for presentation purposes.
km² = square kilometres; % = percent.



REFERENCE(S)
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 PROJECTION: UTM ZONE 12 DATUM: NAD 83

CLIENT **Rio Tinto**

PROJECT **DIAVIK DIAMOND MINES INC.**

TITLE **MINE FOOTPRINT EXPANSION BY YEAR, 2002 TO 2021**

CONSULTANT	YYYY-MM-DD	2022-03-28
wsp GOLDER	DESIGNED	NM
	PREPARED	ANK
	REVIEWED	NM
	APPROVED	JV

PROJECT NO. 21452119 PHASE 13000 REV. 0 FIGURE 3

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4 BARREN-GROUND CARIBOU

The Mine is within the spring (northern migration), summer, and fall/rut seasonal ranges of the Bathurst caribou herd (Gunn et al. 2002) and more recently present during winter. Caribou of this herd may travel through the Lac de Gras area during the northern migration to the calving grounds, and forage and move through the area during the summer and fall periods, sometimes following shorelines and onto the West and East Islands. Caribou from the Ahiak and Beverly caribou herds may also have ranges that overlap with the Mine to a lesser extent based on collared animal locations. At the time of this report, wintering caribou were present in the study area and caribou collar locations suggest these animals were most likely from the Beverly/Ahiak and Bathurst herds. While caribou from different herds may interact with the Mine, mitigation used by the Mine is designed to protect all caribou from any herd.

In 1996, the mean population size (\pm 95% confidence interval) of the Bathurst caribou herd was estimated at 349,000 \pm 95,000 (Case et al. 1996; Gunn et al. 1997). The most recent population estimate determined by ENR in 2021 was 6,240 animals (ENR 2022). Although the Beverly and Ahiak herds are not monitored as intensively as the Bathurst herd, the last census for the Ahiak herd was in June of 2011 and estimated 71,340 individuals (COMA 2020). The population of the Beverly herd was estimated to be 103,372 individuals in 2018 (COMA 2020). 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). Barren-ground caribou (*Rangifer tarandus groenlandicus*) were listed as threatened by the NWT Species at Risk (SAR) Committee on 11 July 2018 (NWT SAR 2018). The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessed barren-ground caribou in November 2016 as threatened (COSEWIC 2022). To support the recovery of all barren-ground caribou herds, the 2020 Recovery Strategy for Barren-Ground Caribou in the Northwest Territories was developed (COMA 2020). The overall goals of the strategy are to (COMA 2020):

- Maintain or restore self-sustaining, resilient populations of each barren-ground caribou herd, such that no herd is lost.
- Support and maintain the caribou-people relationship.
- Promote conditions that allow caribou to move and migrate across their historic ranges without barriers.
- Promote the conditions necessary for recovery.

The Conference of Management Authorities (COMA), which is comprised of wildlife co-management boards and governments in the NWT, has outlined five objectives to obtain this goal (COMA 2020):

- Partners collaborate on the development and implementation of management, monitoring, guardianship, and conservation plans for barren-ground caribou in the NWT.
- Monitor barren-ground caribou, their habitat, and key factors and threats that may be affecting the status and health of herds in the NWT.
- Fill knowledge gaps, using traditional, community, and scientific knowledge, to enhance responsible and respectful barren-ground caribou conservation.
- Conserve and protect barren-ground caribou populations and their habitat.

- Provide education and promote respect for barren-ground caribou, their habitat, and conservation initiatives.

The strategy outlined the need to monitor the effects of predators on caribou as predation was considered a factor that could be managed. Wolves are the most important year-round natural predator of barren-ground caribou and knowledge of wolf numbers could help understand fluctuations in caribou populations and provide information required to support management decisions. In 2019, GNWT-ENR developed a Bathurst Caribou Range Plan (GNWT 2019), 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 (DDMI 2021) is consistent with mitigation prescribed in the Bathurst Caribou Range Plan for developments in Area 2.

4.1 Habitat Loss

Physical alteration of the landscape reduces available caribou forage (DDMI 1998b). 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). Habitats were rated on a scale of 0 to 1 HUs for their capability to support caribou, with values greater than 0.30 regarded as highly suitable habitat and values less than 0.25 rated as low suitability for caribou. The area of each habitat type on East Island was multiplied by its habitat suitability value to determine the number of foraging habitat units available to caribou.

One objective of the caribou component of the WMMR is to determine if direct summer habitat loss (in habitat units [HUs]) is greater than predicted. The impact prediction in the EER (DDMI 1998b) is:

- At full development, direct summer habitat loss from the project is predicted to equal 2.965 HUs.

Dust deposition can also alter the landscape either by positively influencing vegetation vigour through deposition of nutrients and increased snowmelt rates, or by reducing plant growth by coating leaves and adversely changing soil chemistry. Both mechanisms can lead to a change in plant communities, and forage quality and quantity for caribou. Diavik also monitors for the effect of dust deposition on vegetation (including lichen) and soil chemistry (Section 3.0).

4.1.1 Methods

Using the ELC unit loss (Table 2), the area (km²) of ELC lost was multiplied by its habitat suitability value (DDMI 1998b) to determine habitat units lost.

4.1.2 Results

Direct summer habitat loss to date from the Mine is approximately 2.864 HUs (Table 3). As noted above (Table 2), ELC unit loss is below the level predicted in the EER. Similarly, total direct losses of summer HUs for caribou are currently below that predicted in the EER.

Table 3: Caribou Summer Habitat Unit Loss to 2021

ELC Type	Habitat Suitability Value	Cumulative ELC Loss to 2021 (km ²)	Cumulative Habitat Unit Loss to 2021
Heath Tundra	0.37	3.65	1.349
Heath Boulder	0.40	1.76	0.703
Riparian Shrub	0.46	0.04	0.020
Bedrock Complex	0.27	0.06	0.017
Tussock/Hummock	0.30	1.61	0.484
Sedge Wetland	0.28	0.24	0.068
Esker Complex	0.30	0.17	0.052
Birch Seep and Shrub	0.11	0.11	0.012
Boulder Complex	0.21	0.05	0.011
Heath Bedrock	0.23	0.64	0.148
Total	-	8.35	2.864

Any discrepancies in totals result from the rounding of numbers for presentation purposes.

4.2 Changes to Movement

Miller and Gunn (1979) described disturbance in relation to wildlife as “the phenomenon, which resulted from the introduction of unfamiliar stimuli into an animal’s environment brought about by the presence of human activities”. Mining activities have the potential to decrease the use of habitat adjacent to human developments by caribou due to behavioural disturbance (DDMI 1998b; Golder 2011; Boulanger et al. 2012).

The current objective for this component of the WMMR is to determine if the area around the Mine where caribou distribution is altered (i.e., the zone of influence [ZOI]) due to mining activities is greater or less than predicted. The following section summarizes the methods used and results obtained from surveys. The revised monitoring objective presented by Handley (2010) is:

- To determine whether the zone of influence changes in relation to Mine activity.

From 2002 through 2009, DDMI completed weekly aerial surveys, weather permitting, within a study area that surrounds the Mine. In 2009, the survey area was aligned with that of the Ekati Diamond Mine to improve sampling efficiencies while covering a larger area. In 2012, aerial surveys were completed in collaboration with the Ekati Diamond Mine. Diavik and the Ekati Diamond Mine requested to omit the ZOI requirements for the caribou monitoring program in 2013; the request was approved by ENR on 2 May 2013. Caribou aerial surveys were not completed from 2013 through 2021.

Recent analyses of the Diavik-Ekati caribou aerial survey data (1998 to 2009, and 2012) indicates that caribou exhibit a spatial distribution that corresponds with habitat quality (Golder 2020; ERM 2021). These analyses did not support the presence of a ZOI around the combined Diavik-Ekati mine footprint. Analysis completed by Golder (2020) accounted for numerous other factors such as changes in study area size, changes in overlap with the Bathurst caribou herd distribution, insect harassment, and other annual but

unmeasured factors. These results are in contrast to analyses indicating ZOI presence (Boulanger et al. 2012, 2021). As aerial survey data have not been collected since 2012, Diavik will continue ZOI monitoring using alternative methods and data presented by the ZOI Technical Task Group (GNWT-ZOITTG 2015). As well, indications from the Diamond Mine Wildlife Monitoring Meetings in February 2021 were that aerial surveys of caribou can be discontinued from annual WMMP monitoring (GNWT-ENR 2021).

As per the response to comment ENR-WMMP-17 from the GNWT-ENR (Table 1), an exploratory collar caribou movement analysis is being prepared and will be submitted at a later date. The purpose of this exploratory analysis was to assess movement behaviours of caribou from the Bathurst and Beverly/Ahiak herds that approached the Mine using caribou collar data from 2010 to 2021 provided by GNWT. Movement metrics including speed, residency, and proportion of hard turns (turns $\geq 60^\circ$) were estimated from the collared caribou movement pathways to better understand movement behaviours of caribou near the Mine. Movement metrics from collared caribou near the Mine were compared to reference groups to assess for differences in movements near the Mine versus outside the Mine's influence. To further understand the behaviours of collared caribou near the Mine, additional caribou behaviour monitoring data collected at the Mine, Mine activity data and land cover data were assessed for possible correlations with collared caribou. Methods used in this analysis are consistent with those used in previous analysis completed by Poole et al. (2021), but also include additional ecologically based metrics and comparisons.

4.3 Changes to Behaviour

Ground-based behavioural observations, or scan sampling, are completed to provide data on changes in caribou behaviour as a function of distance from the Mine. Monitoring has been completed cooperatively with the Ekati mine as caribou are often close to the Ekati mine infrastructure. Because the primary habitat within 5 km of the Mine footprint is water, DDMI is focused on collecting behavioural scans of groups of caribou observations further from the Mine during snow-free seasons. The monitoring objective from Handley (2010) is:

- To determine if caribou behaviour changes with distance from the mines.

4.3.1 Methods

Caribou groups were scanned every eight minutes for a minimum of four observations and a maximum of eight observations. For each scan, the number of animals exhibiting each type of behaviour was recorded (Murphy and Curatolo 1987). Individual caribou activities were recorded as feeding, bedded, standing, alert, walking, trotting, or running. Individuals were classified as feeding when they were actually foraging or searching for food (i.e., walking with head down). The GPS location was recorded, and observations were completed during the autumn (and more recently, during winter) when more caribou were passing through the area. Group composition was classified (e.g., males, males and females, males, females, and calves), and the number of animals in the group was recorded. If a group was too large where recording behaviour for each individual was not feasible, the total group size was noted, and a subset of the group was observed for behaviour. The response variable is caribou behaviour, while the covariates include distance from either mine, group composition, and weather variables.

Caribou observations during snow-free periods were performed in one habitat type (tundra with <30% bedrock or boulders). During recent years, caribou have been present during winter, when far-field monitoring of caribou behaviour increases human health risks or requires a change in methods of data

collection (e.g., snowmobile versus helicopter). Such changes influence continuity with historical data and may increase disturbance to caribou. During winter months, only caribou groups near the Mine are monitored to avoid these issues. In winter months, habitat types are not observable, and scans are completed on caribou groups irrespective of habitat type. For the scan observations, weather conditions such as wind speed and direction, temperature, and type of precipitation were documented.

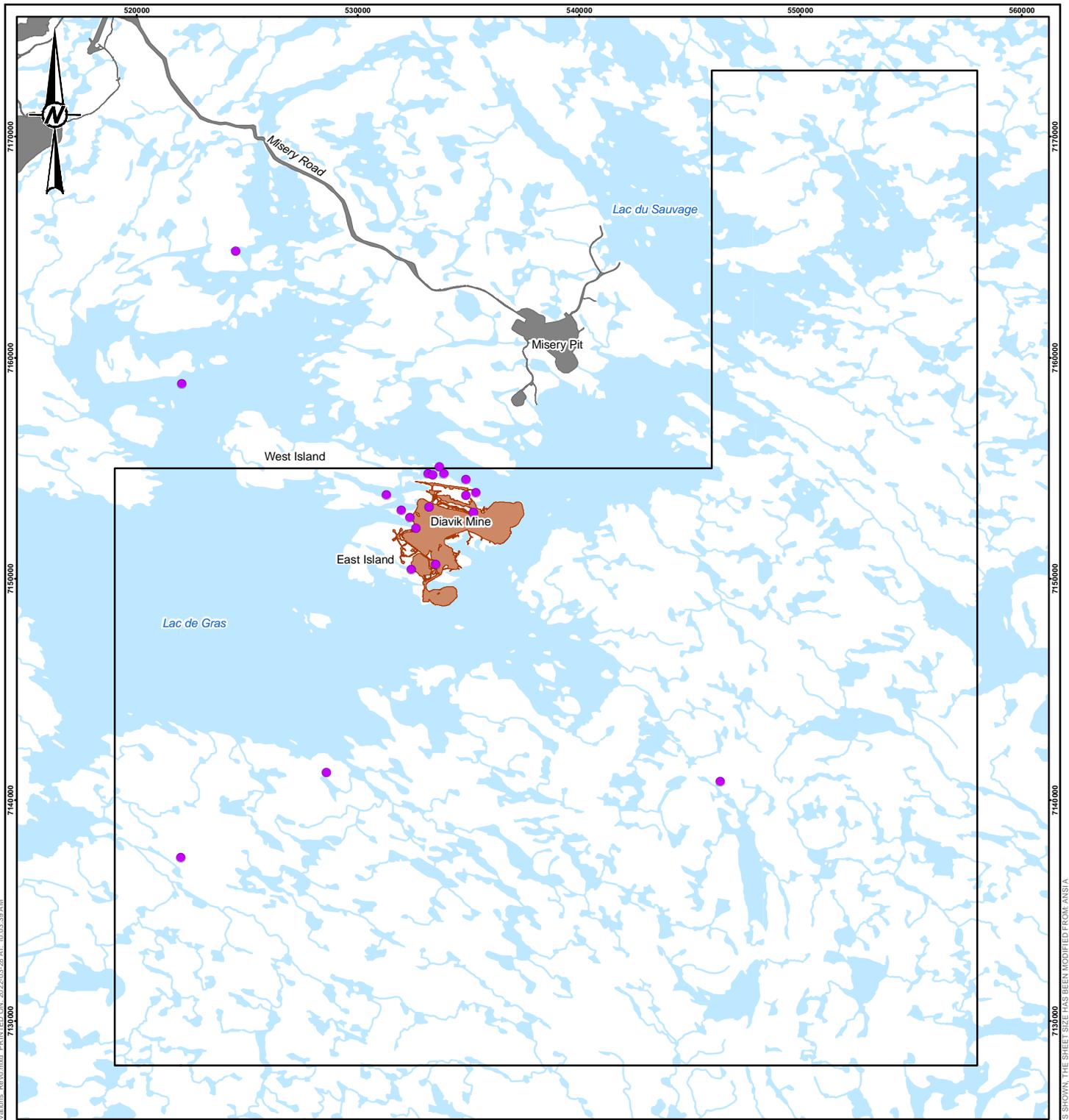
Response of caribou to stressors (natural or anthropogenic) was also assessed. In the event that a stressor was introduced during scan sampling, the observers noted the time and recorded the response of caribou to stressors as either no response, looked in the direction of the stressor, trotted or ran away. The reaction of the majority of the group was used in selecting the category. Estimated distance (m) from the stressor was also recorded. Stressors included type of wildlife, type of aircraft, type of vehicle, and blasts from pits. The observers then waited until the animals resumed their previous behaviour (usually 1 to 2 minutes) and would begin scanning observations again.

Focal scans provide information on activity budgets (i.e., the amount of time an animal is engaged in different behaviours), the temporal sequence of behaviours relative to stressors or other stimuli, and the length of time it takes the animal to return to a non-stressed state following a stressor event. For focal surveys, an individual is selected from a group for observation. Behaviour and time of behaviour changes are recorded. Focal surveys are undertaken on both cows and bulls, for a minimum of 20 minutes. Focal scans have never been part of the historical caribou behaviour monitoring completed at Diavik mine and are not included in the WMMP (DDMI 2020a, 2021). In 2016, DDMI agreed to perform focal scans to support cumulative effects caribou behaviour monitoring completed by GNWT-ENR by collecting this type of data but only after Diavik collected sufficient group scans for the Mine's monitoring requirements. Low and inadequate annual group scan samples have been communicated with EMAB and documented in annual reports (Golder 2018, 2019b, 2020a). The emphasis by DDMI continues to be on the collection of group scan data until a fulsome set of observations that align with other regional observations is achieved.

4.3.2 Results

From 18 March to 29 September behaviour scans were completed on 21 caribou groups from 0 km to 15 km from the Mine (Appendix B). These caribou were potentially from the Beverly/Ahiak and Bathurst herds based on collared caribou locations. The total number of caribou observed was 425. Group size ranged from 1 to 200 with the average group size of 20 animals (1SD=42 animals). The estimated mean proportion (\pm 2SE) of caribou behaviour observed is as follows; bedded 22% (14%), feeding 45% (17%), standing 8% (9%), alert 2% (5%), walking 19% (14%), trotting <1% (2%), and running 4% (7%). No focal scans were completed in 2021.

The number of caribou groups observed in 2021 remained below the 55 groups in different distance strata required to detect a 15% change in behaviour derived from past summer and autumn results. If seasonal variation in behaviour is present, it would increase sample size requirements for these data to be combined with observations collected during summer/autumn (because most caribou were not present in past winters). Seasonal variation in female and male behaviour is expected due to differences in energetic and nutritional demands and environmental conditions (e.g., milk production for calves, autumn rut, insect harassment, and snow depth and hardness).



LEGEND

- LOCATION OF SCANNING OBSERVATIONS
- DIAVIK WILDLIFE STUDY AREA BOUNDARY
- DIAVIK FOOTPRINT
- EKATI FOOTPRINT
- WATERCOURSE
- WATERBODY



REFERENCE(S)

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 PROJECTION: UTM ZONE 12 DATUM: NAD 83

CLIENT

Rio Tinto

PROJECT
 DIAVIK DIAMOND MINES INC.

TITLE
LOCATIONS OF CARIBOU BEHAVIOUR SCANNING OBSERVATIONS, 2021

CONSULTANT
 YYYY-MM-DD 2022-03-28

DESIGNED	NM
PREPARED	ANK
REVIEWED	NM
APPROVED	JV

PROJECT NO.	PHASE	REV.	FIGURE
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4.4 Incidents and Mortalities

Mineral development in the Bathurst caribou herd range created concerns about increased mortality, which includes vehicle collisions, aircraft collisions, and accidents associated with caribou in hazardous areas around mining activities (DDMI 1998b). Mitigation practices and policies have been implemented to avoid and reduce the potential for mortalities such as, review of collared caribou maps provided regularly by the GNWT-ENR to detect approaching caribou, wildlife have the right-of-way on all roads, communicating the presence of caribou via radio, and the caribou traffic advisory. The objective for this component is to determine the number of caribou deaths or injuries associated with the Mine. The following section summarizes the methods and results from incident reporting and road observations. The impact prediction in the EER (DDMI 1998b) is:

- Mine-related mortality is expected to be low (i.e., less than 1% change from baseline conditions [DDMI 1998b]).

4.4.1 Methods

Mine-related incidents and mortalities are reported to the Environment Department for documentation in a detailed incident investigation for immediate follow-up (Appendices D and E). All caribou mortalities are reported immediately to ENR, and ENR is consulted for follow-up mitigation and disposal procedures. The information is tabulated and provided for annual comparisons.

4.4.2 Results

In 2021, there were no Mine-related caribou injuries or mortalities recorded, which has been the case for the past 16 years (Table 4). The only Mine-related caribou mortality reported to date occurred in 2004. No natural mortality events were recorded in 2021.

Table 4: Caribou Mortalities on East Island, Baseline to 2021

	Baseline ^(a)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Natural Caribou Mortalities on East Island	8	7	1	1	0	2	0	0	1	0	0	0	1	1	1	1	0	0	1	0	0	1	0
Mine-related Mortalities	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(a) Includes data from 1995 to 1997.

4.5 Caribou Advisory

The objective of the Caribou Advisory Monitoring program is to make certain that workers are aware of the approximate numbers of caribou on and near East Island, which is related to the potential for interactions between caribou and mining activities. This raises general awareness so that employees are alert to the likelihood that mitigation could be triggered. The number of animals on East Island and in specific areas dictates the type of mitigation practices that will be undertaken (e.g., haul road closure, speed reduction).

4.5.1 Methods

Various methods were used to determine whether or not animals were present in the vicinity of East Island, which included incidental observations reported from pilots and workers, and using the satellite collar locations provided by GNWT-ENR. If animals were reported in the general area, ground surveys were initiated. Ground-based surveys are completed by Environment personnel travelling in vehicles along the haul roads twice per day during a caribou advisory and documenting approximate caribou numbers. Caribou road surveys, and PKC and rock pile monitoring surveys were discontinued on a scheduled basis in 2014 (Golder 2020).

4.5.2 Results

In 2021, caribou numbers on the East Island reported by staff ranged from 1 to approximately 500 animals. Caribou were most likely from the Beverly/Ahiak and Bathurst herds based on collared caribou data. Photos of caribou taken at the Mine are included in Appendix E. There were also four instances where groups of 100 caribou or more were observed away from site. These include once on 27 March west of the N17 Ring Road, once on 31 March on the south side Lac de Gras, once on 5 April west of Pond 3, and once on 13 April between the A21 muster location and the South Country Rock Pile. In total there were 39 different incidental observations reported from 3 March to 21 September (Appendix F). Individual caribou were spotted on or in proximity to haul roads four times in 2021, resulting in site-wide notification of caribou presence. Three of these cases resulted in traffic being stopped in the area. However, no formal advisories were issued due to the low numbers of caribou on site and short duration of presence near Mine infrastructure.

One event involving a single caribou occurred in 2021, which resulted in deterrence measures being implemented (see Section 4.6.2). Caribou were observed near the airport on two occasions but did not trigger deterrent actions.

4.6 Deterring Caribou from Hazardous Areas

When caribou are present on East Island their movements are monitored so that Mine personnel are aware of their presence and location. Of particular importance from a safety perspective (both human and animal), is caribou presence near hazardous areas (such as the airstrip and blast areas). When caribou are sighted adjacent to potentially hazardous areas, DDML implements its Standard Operation Procedure for deterring caribou from these areas.

4.6.1 Methods

The method used to move caribou away from hazardous areas consists of the slow advancement of Environment Department staff behind the caribou, encouraging the movement of the animals in a safe direction.

4.6.2 Results

In 2021, one instance of caribou deterrence occurred. On 1 August, a single caribou was observed on the south haul road. The Environment Department were notified, and traffic control measures implemented, which included all traffic in the area stopping at a distance of approximately 100 m from the individual. At the direction of the Environment Department, two pick-up trucks were positioned to prevent the caribou from returning to the active road. The caribou eventually moved away from the haul road onto nearby tundra.

4.7 Adaptive Management and Recommendations

The February 2021 Diamond Mine Wildlife Monitoring Meetings (GNWT-ENR 2021) suggested that aerial surveys for caribou ZOI monitoring are likely no longer needed. Instead, DDMI will focus on using collared caribou data for ZOI monitoring as an alternative line of evidence.

The 2021 Diamond Mine Wildlife Monitoring Meetings (GNWT 2021) also concluded that caribou behaviour monitoring is no longer necessary. DDMI intends to continue caribou behaviour monitoring at the Mine.

Additional mitigation measures have been included in the 2021 WMMP (DDMI 2021). These measures are specific to caribou detection, action levels, tiered mitigation and blasting. The WMMP describes how approaching caribou will be detected, identifies trigger levels to initiate action, and introduces tiered mitigations that may be undertaken to avoid and reduce sensory disturbance to caribou and avoid mortality or injury risks (DDMI 2021). Tiered mitigation considers proximity of caribou to east island and Mine areas, (e.g., within 5 km of east island, reported on East Island) and corresponding mitigation and monitoring measures that will be implemented, including traffic control and reduced speed limits. Additionally, a 500 m exclusion zone has been implemented during blasting activities, consistent with the Northern Land Use Guidelines for Northwest Territories Seismic Operations (GNWT-DoL 2015), along with already established blasting procedures, such as blasting taking place within a 12 m deep charge hole and blasts being directed upward rather than outward (DDMI 2021). No caribou were identified within the 500 m exclusion zone immediately prior or during blasting operations in 2021.

5 GRIZZLY BEAR

The barren-ground grizzly bear (*Ursus arctos*) ranges throughout most of the NWT. The western population of grizzly bear is currently designated as Special Concern under Schedule 1 of the *Species at Risk Act* (SARA; GOC 2022) and listed as Special Concern under the NWT General Status Rank (NWT SAR 2022).

Grizzly bears have low population densities, low reproductive rates and are sensitive to human activity (DDMI 1998b; McLoughlin et al. 1999). While some grizzly bears may avoid mineral developments, others may be attracted to human activity through odours associated with development (Gau and Case 1999; Johnson et al. 2005).

Effects to grizzly bears from mining may occur through direct habitat loss, habitat suitability reduction, and direct mortality. The focus of the monitoring program is to estimate direct habitat loss, monitor grizzly bear presence and distribution, and report Mine-related mortalities.

5.1 Habitat Loss

Grizzly bears use a wide variety of vegetation and habitats 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 objective of this component of the WMMR is to determine if direct habitat loss for grizzly bear from the Mine footprint is within the prediction in the EER (DDMI 1998b):

- At full development, direct terrestrial habitat loss for grizzly bear from the project is predicted to be 8.67 km².

5.1.1 Methods

Methods used to determine grizzly bear habitat loss are similar to that described in Section 4.1; grizzly bear habitat is assumed to include all terrestrial habitats (i.e., all landscape types in Table 2 except for deep water, shallow water and disturbed areas).

5.1.2 Results

Cumulative direct grizzly bear habitat loss resulting from the Mine up to 2021 was 8.35 km², which is below that predicted in the EER.

5.2 Incidents and Mortalities

Although there is some interaction between the Mine and grizzly bears, every effort is made to immediately report any animals that come into contact with the Mine. Bear awareness instruction is provided to employees and has contributed to the timely reporting of bears approaching site, which limits interactions. Despite mitigation, Mine activities may lead to grizzly bear mortalities, injuries, or relocations from year to year. The specific impact prediction in the EER (DDMI 1998b) is:

- Mortalities associated with mining activities are predicted to be 0.12 to 0.24 bears per year.

5.2.1 Methods

Incidental observations of grizzly bears are recorded and are usually made by Mine staff and reported to the Environment Department. Typically, each independent grizzly bear observation is recorded because it is usually not known if different observations are of the same bear. As the number of incidental observations may be partially related to the number of people on site, the occurrences of incidental observations of grizzly bears were compared to the camp population.

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-ENR, and GNWT-ENR 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.

5.2.2 Results

There were 80 reported instances of grizzly bears on East Island, and a total of 89 grizzly bears were observed (Table 5; Appendix G). Grizzly bears were observed on 60 days from 2 May to 10 October. While these observations are not collected systematically, and contain repeated observations, incidental observations provide an indication of the potential for wildlife incidents or problem wildlife.

In 2021 there was an average of 558 people at the Mine. The number of incidental observations of grizzly bears does not appear to be related to the number of people on site (Spearman correlation $\rho = 0.08$, $P = 0.72$); however, staff reporting incidental observations does foster an awareness of wildlife issues at the Mine (Table 5). Of the 89 grizzly bears seen (80 observation instances), 41 involved deterrent actions and 39 did not involve deterrent actions (Table 6). Deterrents used to encourage bears to move away from infrastructure included trucks, bear bangers, rubber bullets, cracker shells, gun cycles [noise], yelling, and clapping (Appendix H).

Table 5: Average Camp Population and Number of Incidental Grizzly Bear Observations, 2002 to 2021

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Average Camp Population	1100	470	397	646	716	747	979	562	579	630	629	537	484	524	625	641	578	586	585	558
Grizzly Bear Reported instances on East Island	5	19	24	43	21	41	5	22	44	56	97	65	69	77	137	89	90	80	95	80

No grizzly bear relocations occurred in 2021. There were no grizzly bear mine-related mortalities in 2021. One non-mine-related grizzly bear mortality occurred on 9 August 2021. An injured small male grizzly bear was initially observed at the Powerhouse laydown behind the South Tank Farm heavy equipment fueling bay. On the advice of and following procedures directed by GNWT-ENR, the injured bear was euthanized. A post-mortem assessment showed extensive bite and puncture wounds, indicating the individual had been in conflict with another bear. The carcass was disposed of via helicopter approximately 25 km southwest of the Mine. The calculated Mine-related mortality rate over the 22-year monitoring period is 0.14 bears per year, which is within the range predicted in the EER.

Table 6: Grizzly Bear Deterrent Actions, Incidents and Mine-related Mortalities, 2000 to 2021

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Days with Bear Visitations on East Island	15	14	5	15	24	34	20	34	5	22	44	41	77	47	59 ^(a)	56 ^(b)	94 ^(c)	73 ^(d)	70 ^(e)	70 ^(f)	79 ^(g)	60 ^(h)
Days Deterrent Actions were Utilized	10	8	2	6	20	23	8	20	3	18	40	31	65	40	39	27	50	51	36	45	50	41
Relocations	0	1	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	1	0
Mortalities	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0

- (a) Over 59 separate days, 69 grizzly bear observations were recorded.
 (b) Over 56 separate days, 77 grizzly bear observations were recorded.
 (c) Over 94 separate days, 137 grizzly bear observations were recorded.
 (d) Over 73 separate days, 89 grizzly bear observations were recorded.
 (e) Over 70 separate days, 90 grizzly bear observations were recorded.
 (f) Over 70 separate days, 125 grizzly bear observations were recorded.
 (g) Over 79 separate days, 169 grizzly bear observations were recorded.
 (h) Over 60 separate days, 89 grizzly bear observations were recorded.

5.3 Adaptive Management and Recommendations

Diavik participated in regional grizzly bear hair snagging monitoring in collaboration with BHP Billiton and De Beers Canada Inc. in 2012 and 2017. The results through 2017 indicated that the regional grizzly bear population is stable or increasing and not adversely affected by the Diavik and Ekati mines. Program partners at the 2021 Diamond Mine Wildlife Monitoring Meetings (GNWT 2021) concluded that the grizzly bear hair snagging program will be discontinued. Diavik continues to use deterrent actions that keep grizzly bears and Mine personnel safe.

6 WOLVERINE

6.1 Introduction

Wolverine (*Gulo gulo*) are annual residents in the Lac de Gras region (DDMI 1998b). Wolverines are federally listed as Special Concern under Schedule 1 of the SARA (Government of Canada [GOC] 2022) and are considered Not at Risk in the NWT (NWT SAR 2022, Species at Risk Committee 2014).

Wolverine home ranges have been estimated at 126 km² for adult females and 404 km² for adult males (Mulders 2000). The feeding behaviour of wolverine may result in their attraction to camps and habituation if they receive a food reward, which has been demonstrated during baseline, construction, and operations in the Lac de Gras area. Wolverines in the tundra have been shown to depend primarily on scavenging barren-ground caribou for their diet (Mattisson et al. 2016) particularly in the winter (Magoun 1987) and may travel long distances in search of carrion (NWT SAR 2022).

6.2 Presence and Distribution

The initial objective of this component of the WMMR was to determine if mining activities are influencing the presence of wolverines in the study area. The revised monitoring objective determined in Handley (2010) is to:

- Provide estimates of wolverine abundance and distribution in the study area over time.

To meet this objective, DDMI participated in a joint wolverine DNA hair sampling research program in cooperation with Dominion Diamond Mines and the GNWT from 2004 to 2014. Program partners present at the Diamond Mine Wildlife Monitoring Meetings hosted by the GNWT in February 2021 determined to discontinue hair sample monitoring for wolverine. The initial monitoring objective on wolverine presence noted previously will be resumed.

Wolverine presence around the Mine is monitored using the following systematic and anecdotal methods:

- snow track surveys
- incidental observations at site

6.3 Snow Track Surveys

6.3.1 Methods

Snow track surveys began in 2003 and have been completed with the assistance of a community member, when available. From 2003 to 2006, the study design and data collection used the experience of Inuit Qaujimagatuqangit to locate transects and record wolverine snow tracks. This included surveys of 23 transects of variable length and distance from the Mine within a 1,270 km² area. In 2008, DDMI revised the wolverine track survey to increase statistical power to detect changes in wolverine occurrence in the study area. Design changes included the placement of 40 survey transects of equal length (4 km long, total length = 160 km) located in areas of preferred wolverine habitat including heath tundra and heath boulder habitat.

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 Inuit Qaujimagatuqangit), including heath tundra and heath tundra boulder habitats.

Each transect is driven by a snowmobile in March and/or April and all wolverine tracks and other sign (e.g., digs and dens) are recorded. Since 2015, each transect was surveyed twice so that detection probability could be estimated and incorporated into analyses of relative presence and distribution in the study area (except 2020). In 2021, the Mine experienced a COVID-19 outbreak from late-March to mid-April, resulting in a staff shortage including impacts to the Environment team. This resulted in delays and cancellations of programs, which included cancelling the second round of wolverine snow track surveys in order to complete the Snow Core Survey and Under Ice Aquatic Effects Monitoring Program before the end of the winter season.

The detection of snow tracks can be influenced by wind or snowfall. The effect of snowfall was estimated by determining the number of days from the survey date since the most recent snowfall. A wind threshold index was estimated by determining the number of days prior to the survey date that the mean hourly wind speed eclipsed 7.7 metres per second (m/s) because a wind speed of 7.7 m/s is sufficient to move dry snow along the ground (Li and Pomeroy 1997). For each transect, a track density index (TDI) was calculated as the number of wolverine tracks per transect length per number of days since recent snowfall or threshold wind speed.

6.3.2 Results

The 2021 snow track surveys were completed between 26 March and 4 April, and 39 transects were surveyed. Detection rates could not be estimated in 2021 because a second survey was not completed due to COVID-19 restrictions. Only observations where wolverine tracks could be confirmed from photographs were included in analysis. In addition to wolverine, wolf (tracks and individual), caribou (tracks and individuals), and moose (scat) were observed during snow track surveys.

Wolverine tracks were identified at 18 of 39 (46% occurrence) transects (Appendix I). The number of wolverine tracks identified among transects ranged from 0 to 3 individuals. Two wolverines were sighted on 27 March, on transects WT05 and WT07 (Figure 5). Two caribou mortalities that had been scavenged by wolverine were identified, one on 29 March at WT19 and one on 3 April at WT15. Weather-adjusted measures of track density index (TDI) yielded a mean TDI (\pm 2SE) of 0.040 ± 0.020 tracks/km/day since the last weather threshold (Table 7). Mean TDI in 2021 was lower than in 2020. However, wolverine tracks were observed on more transects (2020 – 12 transects; 2021 – 18 transects), and more wolverine tracks were observed overall (Table 7). The last comprehensive analysis of long-term wolverine snow tracking data found that occupancy rates have remained stable during the study program (Golder 2020).

Table 7: Wolverine Track Index and Mean Days Since Snow Fall, 2003 to 2021

Year	Survey Period	Number of Tracks	Distance Surveyed (km)	Mean Days Since Snowfall ^(a)	Mean Days Since Threshold Wind Speed ^(a)	Track Index (Tracks/km)	Mean Track Density Index ($\pm 2SE$) ^(b)
2003	10 – 12 Apr	13	148	2.2	2.1	0.09	0.046 \pm 0.044
2004	16 – 24 Apr	22	148	4.0	4.6	0.15	0.061 \pm 0.040
2004	2 – 8 Dec	10	148	3.9	2.5	0.07	0.048 \pm 0.042
2005	30 – 31 Mar	7	148	7.5	3.9	0.05	0.026 \pm 0.022
2005	7 – 12 Dec	18	148	2.4	3.5	0.12	0.106 \pm 0.044
2006	30 Mar – 1 Apr	5	148	1.0	2.5	0.03	0.029 \pm 0.010
2007 ^(c)	-	-	-	-	-	-	-
2008 ^(d)	30 Apr – 2 May	15	160	17.1	4.1	0.09	0.022 \pm 0.011
2009	2 – 4 Apr	11	156	31.0	9.0	0.07	0.007 \pm 0.005
2010 ^(e)	-	-	-	-	-	-	-
2011	30 Mar – 3 Apr	23	156	0.9	6.7	0.15	0.167 \pm 0.072
2012	28 Mar – 3 Apr	22	160	2.8	4.4	0.14	0.096 \pm 0.065
2013	2 – 6 Apr	26	156	3.1	2.9	0.17	0.076 \pm 0.043
2014	23 – 26 Mar	25	160	6.7	1.0	0.13	0.156 \pm 0.082
2015	24 – 29 Mar	21	160	5.3	11.0	0.13	0.062 \pm 0.049
	14 – 17 Apr	17	160	2.1	1.6	0.11	0.172 \pm 0.130
2016	22 – 27 Mar	50	160	6.5	5.5	1.25	0.190 \pm 0.129
	8 – 13 Apr	50	160	6.7	3.1	1.25	0.215 \pm 0.099
2017	22 Mar – 4 Apr	10	160	4.1	2.5	0.06	0.019 \pm 0.014
	9 – 19 Apr	42	160	2.4	2.7	0.26	0.258 \pm 0.013
2018	23 Mar – 11 Apr	10	132	4.5	1.8	0.08	0.076 \pm 0.060
	13 – 22 Apr	4	132	3.2	1.7	0.03	0.030 \pm 0.029
2019	23 Mar – 2 Apr	14	160	1.6	1.2	0.09	0.138 \pm 0.109
	13 – 21 Apr	32	160	2.1	2.3	0.20	0.206 \pm 0.115
2020 ^(f)	01 Apr – 18 Apr	21	160	2.0	3.6	0.13	0.138 \pm 0.103
2021 ^(f)	26 Mar – 4 Apr	24	156	4.6	4.8	0.15	0.040 \pm 0.020

(a) Presented as a summary of the data used to calculate track densities. Wind threshold speed = 7.7 metres per second.

(b) For each transect, a track density index (TDI) was calculated as the number of wolverine tracks per transect length per number of days since recent snowfall or threshold wind speed. TDI is reported as mean Track Density Index \pm 2 times the standard error (Appendix I).

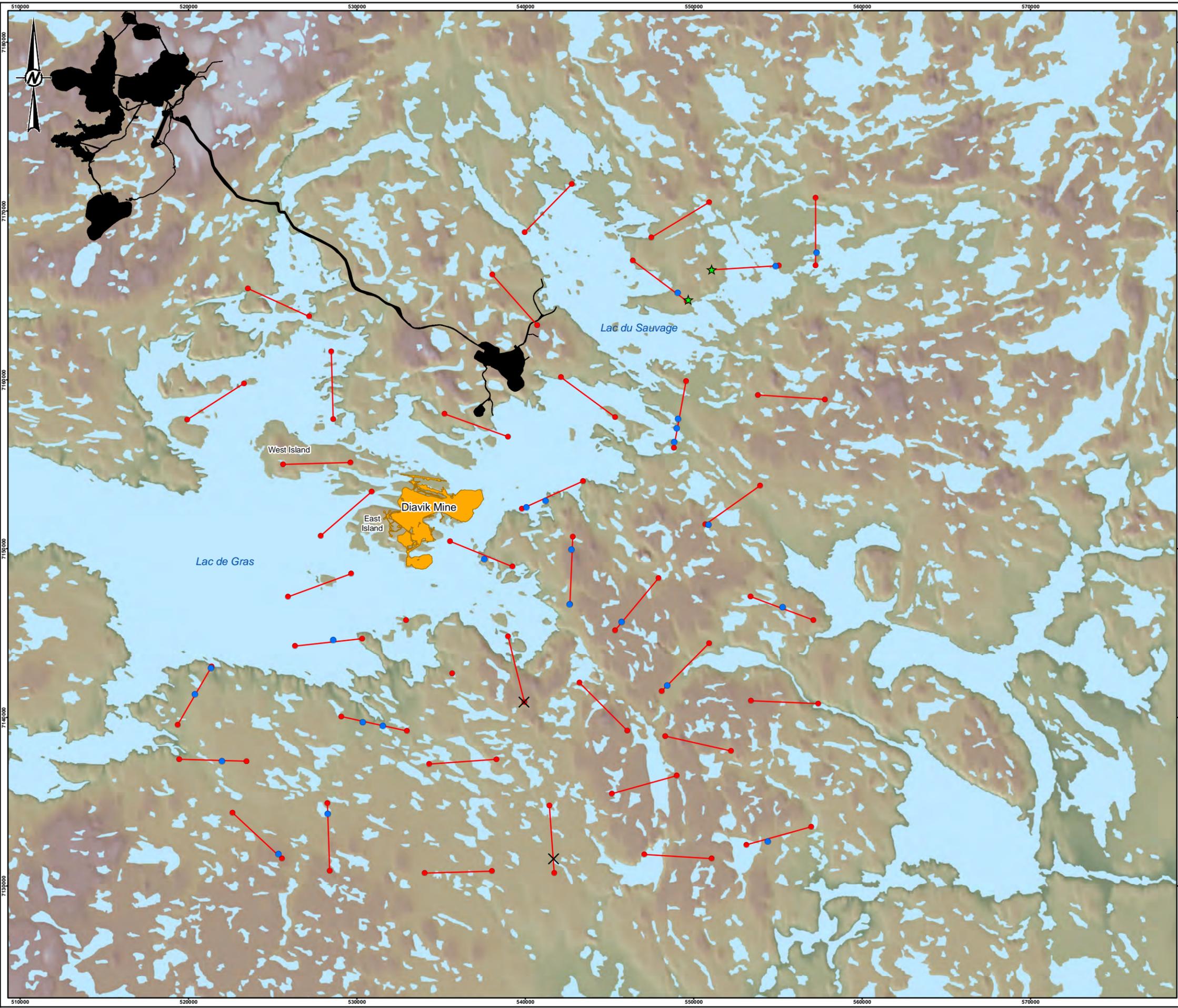
(c) Survey was not completed in 2007 because a Wildlife Research permit was not acquired in time.

(d) The new survey technique was introduced in 2008. Only data hereafter was included in the multi-season occupancy analysis.

(e) Survey was not completed in 2010 due to community assistant not being available to participate in survey.

(f) Second round of surveys was not completed due to site access restrictions or staffing issues resulting from the COVID-19 pandemic.

km = kilometres; tracks/km = tracks per kilometre; SE = standard error.



LEGEND

WOLVERINE SURVEY

- ✕ SCAVENGE SITE
- WOLVERINE TRACK
- ★ WOLVERINE SIGHTING
- TRANSECT
- DIAVIK FOOTPRINT
- EKATI FOOTPRINT
- WATERBODY

KEY MAP

0 5 10
1:225,000 KILOMETRES

REFERENCE(S)

1. DEM AND HILLSHADE OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
2. HYDROLOGY OBTAINED FROM CLIENT.

PROJECTION: UTM ZONE 12 DATUM: NAD 83

CLIENT

PROJECT
DIAVIK DIAMOND MINES INC.

TITLE
SNOW TRACK TRANSECTS AND WOLVERINE OCCURRENCES IN 2021

CONSULTANT	YYYY-MM-DD	2022-03-28
	DESIGNED	SW
	PREPARED	ANK
	REVIEWED	NM
	APPROVED	JV

PROJECT NO.	PHASE	REV.	FIGURE
20136424	13000	0	5

PATH: I:\CLIENTS\DIAM\KCT\482119\MapInfo\Wolverine\Wolverine\2021\Figs_21482119_Wolverine_SnowTracks_Rev0.mxd PRINTED ON: 2022-03-28 AT: 9:55:33 AM
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6.4 Incidents and Mortalities

Mortalities can occur if wolverines become habituated to mining activities resulting from efforts to locate food or shelter (DDMI 1998b). Diligent waste management and strictly enforced speed limits and immediate reporting of wildlife sightings on East Island have limited the mortality of wolverine during the operational period of the Mine. To date, efforts have been focused on limiting Mine-related mortalities and associated changes to wolverine population parameters.

The prediction made in the EER was:

- Mine-related mortalities, if they occur, are not expected to alter wolverine population parameters in the Lac de Gras area.

6.4.1 Methods

Incidental observations of wolverine by Mine staff are reported to the Environment Department. Mine-related incidents and mortalities are also reported to the Environment Department for documentation in a detailed incident investigation and through incident reports submitted by Mine staff (Appendices D and E). All wolverine mortalities are reported immediately to GNWT-ENR, and GNWT-ENR 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.

6.4.2 Results

In 2021, there were 6 reported instances when wolverines were observed on East Island (Appendix J). These sightings were reported during 6 days from 13 January to 20 November. These observations are collected incidentally and may contain repeated observations of the same animal. Incidental observations provide an indication of the potential for wildlife incidents or problem wildlife. Wolverine incidental observations decreased in 2021 from 2020. There is no significant correlation between the number of incidental observations of wolverine and the number of people on site (Spearman correlation $\rho = 0.37$, $P = 0.11$); however, staff reporting incidental observations does foster an awareness of wildlife issues at the Mine (Table 8).

Table 8: Average Camp Population and Number of Incidental Wolverine Observations, 2002 to 2020

Year ^(a)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Average Camp Population	1100	470	397	646	716	747	979	562	579	630	629	537	484	524	625	641	578	586	585	558
Wolverine Observation instances on East Island	4	38	14	43	31	19	46	21	28	4	11	3	6	118	105	44	28	21	17	6

(a) Monthly average camp population is not available for 2000 and 2001.

There were six observations of wolverines on East Island in 2021 and no incidents (Appendix J). No deterrents were used during any of these observations. Since 2000, seven wolverines have been relocated and five Mine-related mortalities have occurred at the Mine (Table 9). No wolverine relocations or Mine-related mortalities occurred in 2021, which continue to be uncommon at the Mine, and are not expected to have a measurable influence on wolverine population survival and reproduction rates.

Table 9: Wolverine Observations, Deterrents, Relocations and Mortalities, 2000 to 2021

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Days with Wolverine Visitations on East Island	25	36	4	38	14	43	31	19	46	21	28	4	11	3	6	83 ^(b)	73 ^(c)	36 ^(d)	23 ^(e)	21 ^(f)	16 ^(g)	6 ^(h)
Days Deterrent Actions were Utilized	9	10	0	1	1	5	2	1	17	1	0	0	1	0	0	4	6	4	0	7	4	0
Relocations	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	2	1	0
Mortalities	0	1	0	0	0	0	0	0	1	0	0	0	2 ^(a)	0	0	0	1	0	0	0	0	0

(a) Two wolverine mortalities occurred in 2012 at an off-site fish compensation program undertaken by DDML.

(b) Over 83 separate days, 118 independent wolverine observations were recorded. It is believed that the majority of these observations were for the same wolverine which was relocated on 23 March 2015.

(c) Over 73 separate days, 105 independent wolverine observations were recorded.

(d) Over 36 separate days, 44 independent wolverine observations were recorded.

(e) Over 23 separate days, 28 independent wolverine observations were recorded.

(f) Over 19 separate days, 21 independent wolverine observations were recorded.

(g) Over 16 separate days, 17 independent wolverine observations were recorded.

(h) Over six separate days, six independent wolverine observations were recorded.

6.5 Adaptive Management and Recommendations

Future monitoring of wolverine snow tracks will continue to include two rounds of surveys to determine whether detection rates of snow tracks vary over longer periods of time. Results from the analysis of long-term snow track monitoring indicate consistent presence of wolverine since 2008. The Environment Department will continue to encourage staff to report wolverine and other wildlife sightings as these promote awareness at site and help to prevent and limit incidents. The Environment Department will continue to work with site departments as a reminder about the importance of waste segregation and securing waste bins to prevent wildlife access. Program partners at the 2021 Diamond Mine Wildlife Monitoring Meetings (GNWT 2021) determined that the wolverine hair snagging program will be discontinued.

7 RAPTORS

Raptors (birds of prey) present in the study area include peregrine falcon (*Falco peregrinus anatum/tundrius*), gyrfalcon (*Falco rusticolus*), rough-legged hawk (*Buteo lagopus*), snowy owl (*Bubo scandiacus*), and short-eared owl (*Asio flammeus*). The federal SARA considers the peregrine falcon as Special Concern; however, they currently have no status under NWT species at risk legislation but have a general species rank of sensitive (NWT SAR 2022). In 2017, COSEWIC re-assessed the status of the *anatum/tundrius* peregrine falcon as Not at Risk (NWT SAR 2022). Short-eared owls are designated as Special Concern under Schedule 1 of the SARA, assessed as threatened by COSEWIC, and currently have no status under NWT species at risk legislation (GOC 2022; NWT SAR 2022).

Habitat loss, sensory disturbance, and changes to prey populations may influence raptors nesting in the Lac de Gras area. Mining activities may cause raptors to avoid the area and surrounding habitats. Mine-related changes in habitat quality can influence the presence and distribution of raptors. Impact predictions related to raptors (DDMI 1998a) were:

- Disturbance from the Mine and the associated zone of influence is not predicted to result in measurable impacts to the distribution of raptors in the study area.
- The Mine is not predicted to cause a measurable change in raptor presence in the study area.

Analysis of Diavik and Ekati peregrine falcon and gyrfalcon nest data from 1998 to 2010 determined that sensory disturbance was not influencing nest occupancy and success (Coulton et al. 2013). Instead, the study concluded that the patterns of use and success were associated with the spatial distribution of nest site quality and the age of nest sites, respectively, which is consistent with findings from another long-term study (Wightman and Fuller 2005). The results confirmed the decisions at the 2010 Diamond Mine Wildlife Monitoring Workshop that annual collection of raptor nest occupancy and success in the study area should be discontinued, and data collection should be focused on mitigating effects to raptors nesting in open pits and on Mine infrastructure.

The monitoring objectives presented in Handley (2010) are to:

- Determine if pit walls or other infrastructure are utilized as nesting sites for raptors.
- Determine nest success in areas of development and document effectiveness of deterrent efforts used.
- Document and determine the cause of direct Mine-related mortalities of raptors.

Another objective related to monitoring the regional status of raptor populations includes:

- Support GNWT-ENR in regional monitoring of raptor nest occupancy and productivity to determine long-term population trends.

Note that the Handley (2010) objective for regional monitoring of raptor nest occupancy for the Canadian Peregrine Falcon Survey (CPFS) has been changed because the CPFS has been discontinued. Instead, monitoring is contributed to a regional database administered by GNWT-ENR.

7.1 Nest Site Occupancy

7.1.1 Methods

The Canadian Peregrine Falcon survey is no longer completed; however, DDMI will still support surveys of nest use and success in the study area for regional monitoring by GNWT-ENR and other researchers. Nest monitoring for inclusion in regional and national databases is scheduled for every five years and was last completed in 2020. The monitoring was completed by GNWT-ENR biologists and included surveys of known nest sites in early and late summer to determine nest use and the presence of hatchlings. The monitoring approach included a helicopter survey using fly-by techniques to minimize disturbance to nesting birds. The next regional survey is scheduled for 2025.

Falcons and other raptors have been known to nest on Mine infrastructure and within the vertical rock faces of open pits at both the Mine and the Ekati Mine. Pit wall/infrastructure inspections at the Mine are completed at least once per week during the nesting season. Pit walls and other infrastructure are inspected for nests and falcon nesting behaviour. If nests are found, DDMI attempts to determine the species occupying the nest along with the presence of eggs and/or chicks. Nests are only considered active if eggs or young are observed. Deterrent actions are only considered in consultation with GNWT-ENR if the nest is in an area hazardous to the birds but not if eggs or young are observed.

Pit wall/infrastructure inspections are completed at eight locations on the Mine: A21 Pit area (Lookout #1, #2, #3 and A21 South Ramp), A154 Pit area (Lookout #1 and #2), A418 Pit area (Lookout #1 and #2), South Tank Farm, Process Plant, Powerhouse #1 and Powerhouse #2, Site Services Building, Boiler House, and Backfill Plant. The survey is completed by stopping at a clear vantage point and thoroughly scanning the area for any potential nesting locations.

7.1.2 Results

Regional nest monitoring was not completed in 2021, with the next scheduled survey to occur in 2025.

A total of 67 Pit Wall/infrastructure inspections were completed from 7 May until 5 September to determine use by raptors (Appendix K).

Two rough-legged hawk nests were recorded in 2021; one on the south side of the A21 South Ramp Highwall and one at the Site Services Lineup Wall. The nest at the A21 South ramp was first observed on 12 May when two adults were observed, one of which was constructing a nest. An adult was frequently observed in the nest throughout May to early July, and three nestlings were observed in the nest on 4 July, with the last observation occurring on 8 August when they were observed out of the nest (Appendix K). The nest at the Site Services Lineup Wall was first observed on 30 May with a single adult sitting on a nest. Three nestlings were observed on 11 July, with all three having fledged by 8 August when they were observed perched near the nest (Appendix K).

Although not considered “raptors”, common ravens (*Corvus corax*) are functional raptors and were confirmed nesting on the stairs of a fuel tank in the south Tank Farm. Additionally, one American robin (*Turdus migratorus*) was identified nesting on machinery in the heavy equipment laydown area (Table 10). This resulted in the piece of equipment being taken out of operation while the nest was active.

Table 10: Active Nests Observed on Mine Infrastructure, Open Pits, and Equipment in 2021

Area	Species	Date	Observations
A21 South Ramp	Rough-legged hawk	12 May to 8 August	Nest building was observed on 12 May and a single adult was observed from May to early July sitting on the nest. On 4 July, three nestlings were observed in the nest. Nest was deemed successful with observations of three fledglings on 8 August.
Site Services Line Up Wall	Rough-legged hawk	30 May to 8 August	An active nest was first observed on 30 May where a single adult was observed sitting in a nest. The nest was deemed successful as three juveniles had fledged from the nest and were observed on 8 August perched on rocks at the top of the Site Services Line Up area feeding.
South Tank Farm	Common raven	23 May to 2 August	An active common raven nest was recorded on 23 through to 2 August. Nestlings were visible on 23 May. Nest success was not recorded.
Heavy Equipment Laydown	American robin	2 August to 8 August	An active American robin nest was recorded on 2 August and 8 August. Nestlings were first recorded on 2 August. Nest success was not recorded.

No deterrent actions were used to prevent raptor nesting in 2021.

7.2 Incidents and Mortalities

7.2.1 Methods

Mine-related incidents that occur are reported to Environment Department staff through incident reports submitted by Mine staff. Environment Department staff follow up on any incident and complete the necessary documentation, GNWT-ENR is consulted for mitigation and disposal procedures. This information is tabulated and provided for annual comparisons.

7.2.2 Results

Two raptor mortalities occurred in 2021. On 2 August, a dead rough-legged hawk was discovered by the dewatering shack at the south entrance of the A21 pit. On 10 October, a dead short-eared owl (*Asio flammeus*) was discovered in the middle of the road, halfway between the airport and the north inlet water treatment plant. The causes of both mortalities are unknown; however, due to the proximity to Mine roads, both mortalities were likely the result of collisions with vehicles.

7.3 Adaptive Management and Recommendations

Diavik will continue Pit Wall/infrastructure monitoring for nesting raptors and support regional nest monitoring. The next regional nest monitoring is scheduled to occur in 2025 and assumed to be completed by ENR.

8 WASTE MANAGEMENT

Diavik is committed to taking the necessary steps to collect, store, transport, and dispose of all waste generated by the Mine. These procedures are being completed in a safe, efficient, and environmentally compliant manner. The Waste Management Plan is an integral part of DDMI's Environmental Management System and focuses on practical and positive management of waste.

The objectives of the Waste Management Plan include:

- creating a system for proper disposal of waste
- minimizing potentially adverse impacts on the physical and biological environment
- complying with Federal and NWT legislation

Mitigation practices include food waste incineration, categorical segregation of non-food waste for storage and subsequent removal from site, and on-site disposal and monitoring. In addition to these mitigation practices, DDMI has implemented recycling and renewable energy initiatives.

In addition to waste management, waste rock and the number of employees at site have been identified as indices of Mine activity (Golder 2017) and have been reported annually beginning in 2017. Waste rock deposition includes hauling of waste rock and is a source of fugitive dust, noise, and general activity at the Mine site. Mine activity includes all sources of sensory disturbance (e.g., dust, smells, lights, noise, and presence of people) potentially influencing the distribution of wildlife in areas adjacent to the Mine.

8.1 Waste Inspections

The DDMI Waste Management Plan outlines practices for waste disposal and mitigation actions. A Waste Management Plan was submitted in January 2015 to the Wek'èezhì Land and Water Board (WLWB) as part of the water license renewal under water license number W2015L2-0001 (WLWB 2015). An updated version of Waste Management Plan was submitted to the WLWB on 5 June 2020 and was implemented in 2020 (DDMI 2020b). The Asset Management Department at the Mine maintains the various waste collection transfer and disposal points, inventories of bulk wastes, waste management datasheets, and status of protective equipment and spill kits. This assists in evaluating the capacity of waste management facilities, planning for logistics associated with backhauling, and requirements for any modifications to the system.

Waste Management staff identify problem areas and work with contractors and Mine employees to resolve any issues. Numbering and inspecting waste collection bins prior to pick up is an effective method of facilitating communication between Waste Management and Environment Department staff and addressing issues within various departments. Efforts are made to identify improperly disposed waste in the large waste collection bins prior to collection; however, on occasion improperly disposed waste may end up in either the Landfill or the burn pit.

Incineration, segregation, and storage of waste takes place at the waste transfer area (WTA), which was established to provide proper handling and storage of waste on site. The facility is located on the south side of East Island. The WTA is a lined facility surrounded by a gated, three-metre-high chain link fence to control wind transportation of any litter and prevent most wildlife intrusion. Contained within the WTA are two

incinerators for food waste, a burn pit for non-toxic/non-food contaminated burnable material, a contaminated soils containment area, a treated sewage containment area, as well as sea cans, sheds, and storage areas for drums, crates, bins, and totes. Two water scrubbed incinerators were installed and operational in October 2012 and are located within the incinerator building. One of the incinerators was replaced in the fall of 2020 with a non-scrubbed incinerator that is large enough to handle all waste. The remaining incinerator is currently used as a back up to the new incinerator. The majority of waste is inventoried and stored at the WTA while awaiting backhaul on the Tibbit-to-Contwoyto Winter Road.

On-site disposal of non-burnable wastes such as steel (ground support for underground mining), vent tubing, plastics, and glass currently occurs at the inert Landfill located within the Waste Rock Storage Area – North Country Rock Pile. Waste is pushed into a large depression in the landfill. The location of the Landfill within the rock pile and traffic in the area will continue to discourage wildlife access to the Landfill, thereby limiting the availability of infrequently misdirected food and food packaging for animals.

8.1.1 Methods

In 2021, waste inspections at the WTA, Landfill, Underground waste bins, and A21 were completed twice per week during the winter and once per week in the summer. These inspections are to confirm that all waste segregation, storage, and disposal procedures set out in the Waste Management Plan are being followed. Inspections undertaken by Environment Department staff consist of walking the area of the WTA, Landfill, A21 Area, and Underground waste bins, where safe to do so, and documenting the type and number of misdirected waste items, as well as wildlife species and sign that were present during the survey. Corrective actions at the WTA and Landfill area include notifying a WTA coordinator and transferring items to the appropriate disposal area. Corrective actions at the A21 Area and Underground waste bins include notifying the area supervisor to arrange for the transfer of items to the appropriate disposal area and additional worker education where required. All misdirected waste items found during inspections in the WTA and Landfill are sorted into the proper disposal area by Waste Management staff. For example, non-burnable material is removed from the incinerator waste stream and transferred to the designated area in the Landfill. Hazardous wastes are stored in the WTA until they can be shipped to licensed facilities off-site.

8.1.2 Results

Development of the Underground mine and the A21 open pit in 2021 yielded 8,666,295 tonnes of mined waste rock and 381,438 tonnes of overburden till and lake bottom sediment. Development also yielded 89,744 tonnes of waste rock for the Underground mine and 2,330,274 tonnes of ore were processed. The average daily population at the Mine in 2021 was 558 people, and weekly the population ranged from 505 to 584 people (Table 5; Appendix L). During 2021, the WTA and Landfill were surveyed on 61 and 59 occasions, respectively. The A21 Area was surveyed 62 times and the Underground was surveyed 62 times. All surveys occurred from 3 January to 29 December (Table 11; Appendix M). A total of 441 misdirected waste items were found during WTA inspections, 691 items during Landfill inspections, 321 items at the A21 Area, and 443 items at the waste segregation area of the Underground (Table 11). At the WTA, Landfill, A21, and Underground, 55.7%, 61.0%, 58.1%, and 51.6% of the inspections had at least one item of misdirected waste, respectively.

In the WTA, the most common misdirected waste item was gloves (204 items), followed by oily rags (130 items), and food packing (33 items). In the Landfill, the most common misdirected item was oily rags (301 items), followed by gloves (183 items), and recyclable drink containers (64 items). In the A21 Area, the most common misdirected waste item was oily rags (195 items), followed by gloves (53 items) and recyclable drink containers (18 items). In the Underground, the most common misdirected waste item was cigarette butts (332 items), followed by gloves (40 items), and oily rags (31 items).

Considering the total amount of waste disposed (458,759 kg incinerated, and 2,604 tonnes landfilled¹), the amount of misdirected waste is negligible. Improperly disposed items at the WTA and Landfill were reported to Waste Management staff for immediate rectification.

¹ This value is for tonnes landfilled in 2020 and serves as a proxy value for 2021. An updated 2021 value is not available due to incomplete load tracking of burn/non-burn bins in 2021.

Table 11: Misdirected Waste at the Waste Transfer Area, Landfill, A21 Area, and Underground, 2021

Misdirected Waste Type	Waste Transfer Area (n = 61 surveys)		Landfill (n = 59 surveys)		A21 Area (n = 62 surveys)		Underground (n = 62 Surveys)	
	Total Number Found in All Inspections	Percent of Inspections	Total Number Found in All Inspections	Percent of Inspections	Total Number Found in All Inspections	Percent of Inspections	Total Number Found in All Inspections	Percent of Inspections
Aerosol Cans	13	8.2	25	22.0	4	4.8	3	4.8
Batteries	2	1.6	0	0.0	0	0.0	0	0.0
Cigarette Butts	0	0.0	0	0.0	0	0.0	332	21.0
Cigarette Packaging	11	9.8	9	11.9	11	8.1	1	1.6
Drink Containers Recyclable	30	18.0	64	33.9	18	11.3	4	6.5
Food	7	4.9	11	8.5	0	0.0	5	1.6
Food Packaging	33	19.7	30	16.9	4	1.6	19	11.3
Gloves	204	37.7	183	47.5	53	29.0	40	29.0
Oil Contaminated Waste	2	1.7	28	11.9	14	9.7	6	3.2
Oil Products and Containers	1	1.7	17	15.3	9	6.5	0	0.0
Oily Rags	130	11.0	301	44.1	195	46.8	31	25.8
Other	8	8.5	23	6.8	13	6.5	2	3.2
Total	441	55.7 ¹	691	61.0 ¹	321	58.1 ¹	443	51.6 ¹

¹ This value indicates the total percentage of inspections with at least one misdirected waste item for that particular sample location.

Wildlife were observed on 4.9% of inspections of the WTA, 1.7% of inspections of the Landfill, and 1.6% of inspections at the waste segregation area of the Underground. Wildlife were not observed during inspections of the A21 Area (Table 12). Wildlife sign was observed on 29.5%, 16.9%, and 3.2%% of inspections at the WTA, Landfill, and Underground, respectively. Wildlife sign was not observed at the A21 Area. Wildlife species observed during inspections were red fox (*Vulpes vulpes*) and common raven. The most common wildlife sign observed were red fox tracks.

Table 12: Wildlife and Wildlife Sign in the Waste Transfer Area, Landfill, A21 Area, and Underground, 2021

Species	Waste Transfer Area (n = 61 surveys)			Landfill (n = 59 surveys)			A21 Area (n = 62 surveys)			Underground (n = 62 Surveys)		
	Number of Inspections with Wildlife Observations	Total Number of Observations	Number of Inspections with Wildlife Sign Observed	Number of Inspections with Wildlife Observations	Total Number of Observations	Number of Inspections with Wildlife Sign Observed	Number of Inspections with Wildlife Observations	Total Number of Observations	Number of Inspections with Wildlife Sign Observed	Number of Inspections with Wildlife Observations	Total Number of Observations	Number of Inspections with Wildlife Sign Observed
Red fox	2	3	15	0	0	8	0	0	0	0	0	0
Wolverine	0	0	2	0	0	0	0	0	0	0	0	1
Arctic hare	0	0	0	0	0	2	0	0	0	0	0	0
Common raven	1	1	0	1	1	0	0	0	0	1	1	1
Unspecified	0	0	1	0	0	0	0	0	0	0	0	0
Total	3	4	18	1	1	10	0	0	0	1	1	2

Since 2014 (when frequency of inspections during summer was reduced to once per week), wildlife observed during waste inspections has remained relatively low and consistent. The highest amount of wildlife was recorded at the WTA in 2014 where 38 red fox, 14 common raven, and 2 unknown gull species were recorded. No wildlife were recorded at the Landfill in 2019, the Underground in 2020, and the A21 Area from 2019 to 2021. Overall, 7.5% of inspections since 2014 have included wildlife observations (Figure 6).

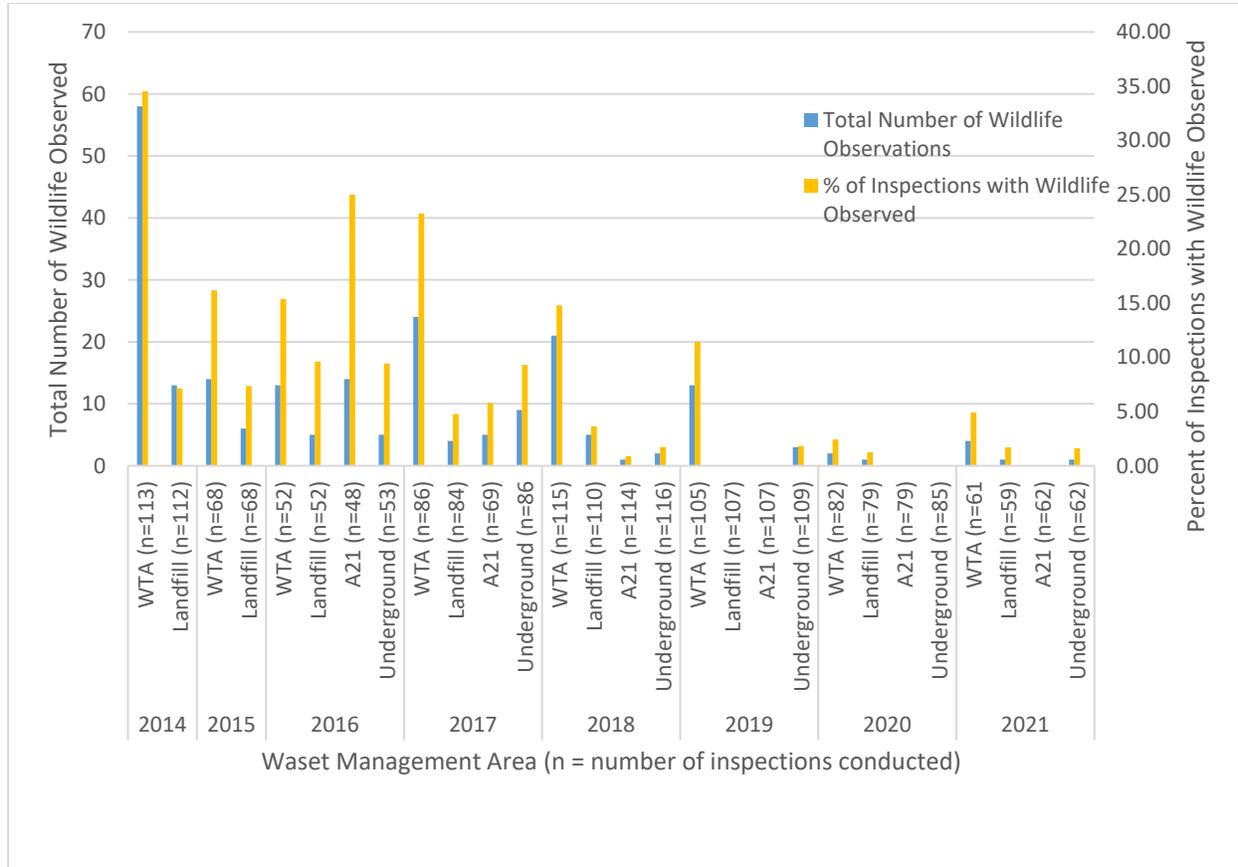


Figure 6: Total Number of Wildlife Observations per Waste Management Area, 2014 to 2021

Wildlife observed since 2014 during waste inspections are summarized in Table 13. The WTA has had an average of 18.6 wildlife observations recorded per year during inspections; 2014 having the highest amount of wildlife recorded with 58 observations recorded. The most frequently observed species at the WTA has been red fox. The Landfill has had an average of 4.4 observations recorded per year during inspections; 2014 having the highest amount of wildlife recorded with 13 observations. The most frequently observed species at the Landfill has been common raven. An average of 3.3 observations have been recorded per year since 2016 when inspections began at the A21 Area; 2016 having the highest amount of wildlife recorded with 14 observations. The most frequently observed species at the A21 Area has been fox species. An average of 3.3 observations have been recorded per year since 2016 when inspections began at the Underground; 2017 having the highest amount of wildlife recorded with nine observations. The most frequently observed species at the Underground has been fox species.

Table 13: Wildlife Reported During Waste Inspections, 2014 to 2021

Year	Location	Number of Surveys in Year	Red Fox	Fox spp.	Grey Wolf	Wolverine	Arctic Hare	Common Raven	Rough-Legged Hawk	Gull spp.	Unidentified	Total
2014	WTA	113	38	0	0	0	0	14	0	2	4	58
	Landfill	112	4	0	1	1	0	4	3	0	0	13
2015	WTA	68	0	6	0	0	0	5	0	0	3	14
	Landfill	68	0	3	0	0	0	3	0	0	0	6
2016	WTA	52	0	5	0	0	0	1	0	0	7	13
	Landfill	52	0	2	0	0	0	2	0	0	1	5
	A21	48	0	11	0	3	0	0	0	0	0	14
	Underground	53	0	3	0	2	0	0	0	0	0	5
2017	WTA	86	0	16	0	2	0	5	0	1	0	24
	Landfill	84	0	2	0	0	0	2	0	0	0	4
	A21	69	0	1	0	1	0	2	0	0	1	5
	Underground	86	0	7	0	0	0	2	0	0	0	9
2018	WTA	115	19	0	0	1	0	1	0	0	0	21
	Landfill	110	2	0	0	0	0	3	0	0	0	5
	A21	114	0	0	0	1	0	0	0	0	0	1
	Underground	116	0	0	0	0	0	2	0	0	0	2
2019	WTA	105	11	0	0	0	0	1	0	1	0	13
	Landfill	107	0	0	0	0	0	0	0	0	0	0
	A21	107	0	0	0	0	0	0	0	0	0	0
	Underground	109	2	0	0	0	1	0	0	0	0	3
2020	WTA	82	2	0	0	0	0	0	0	0	0	2
	Landfill	79	1	0	0	0	0	0	0	0	0	1
	A21	79	0	0	0	0	0	0	0	0	0	0
	Underground	85	0	0	0	0	0	0	0	0	0	0
2021	WTA	61	3	0	0	0	0	1	0	0	0	4
	Landfill	59	0	0	0	0	0	1	0	0	0	1
	A21	62	0	0	0	0	0	0	0	0	0	0
	Underground	62	0	0	0	0	0	1	0	0	0	1
Total			82	56	1	11	1	50	3	4	16	224

Note: waste inspections began in 2016 at the A21 and Underground waste bin areas.

8.2 Recycling Initiatives

During 2008, DDMI implemented an employee-driven recycling program for plastic bottles and aluminium cans generated on site. Throughout 2021, aluminium and plastic containers were recycled for a total monetary value of \$2,000.00, which was given to charity. All proceeds were donated to the Stanton Territorial Hospital Foundation (Mud Run). To date, the total proceeds since the inception of the employee-driven recycling program has generated \$32,777.50.

Scrap copper was also collected in 2020 and sold for \$178,000 in 2021. These proceeds were donated to the Hay River Family Support Center, Arctic Indigenous Wellness, the Ulukhaktok Food Bank, the Yellowknife YWCA Girls Space program, and the NWT Foster Family Coalition.

During 2021, approximately 212,580 litres of waste oil were collected to be used in the waste oil boiler that was commissioned in the second quarter of 2014. Since the boiler was commissioned, 1,749,790 litres of waste oil were burned to create heat at the Mine rather than being shipped off-site.

In addition, a number of waste materials generated on-site are shipped off-site using winter road backhauls. Diavik is committed to maximizing recycling opportunities for wastes generated from Mine operations that cannot be disposed of on site. Items shipped for recycling include:

- used oil, oil filters, and grease
- used glycol
- aerosol cans
- batteries (lead-acid and dry cell)
- expired/waste fuel (e.g., Jet B)
- oil-based paint
- absorbents

Diavik will continue to increase recycling opportunities and reduce waste streams generated at the Mine.

8.3 Renewable Energy

The wind farm became operational on 28 September 2012 and it was predicted that it would reduce Mine diesel consumption by 10%, as well as greenhouse-gas emissions by 12,000 tonnes of carbon dioxide (CO₂) annually. During the tenth year of operation, the wind farm generated 17,011,845 kilowatt hours (kWh) of power, which represents 8.6% of the total power generated in 2021 and an approximate diesel savings of 3.8 million litres (Figure 7). From 2005 through 2021, the annual diesel fuel consumption at the Mine has ranged from 55,573,00 litres to 82,236,753 litres. In 2021, the total fuel consumption was 81,623,312 litres, which follows 2020 as the second highest consumption during this period.

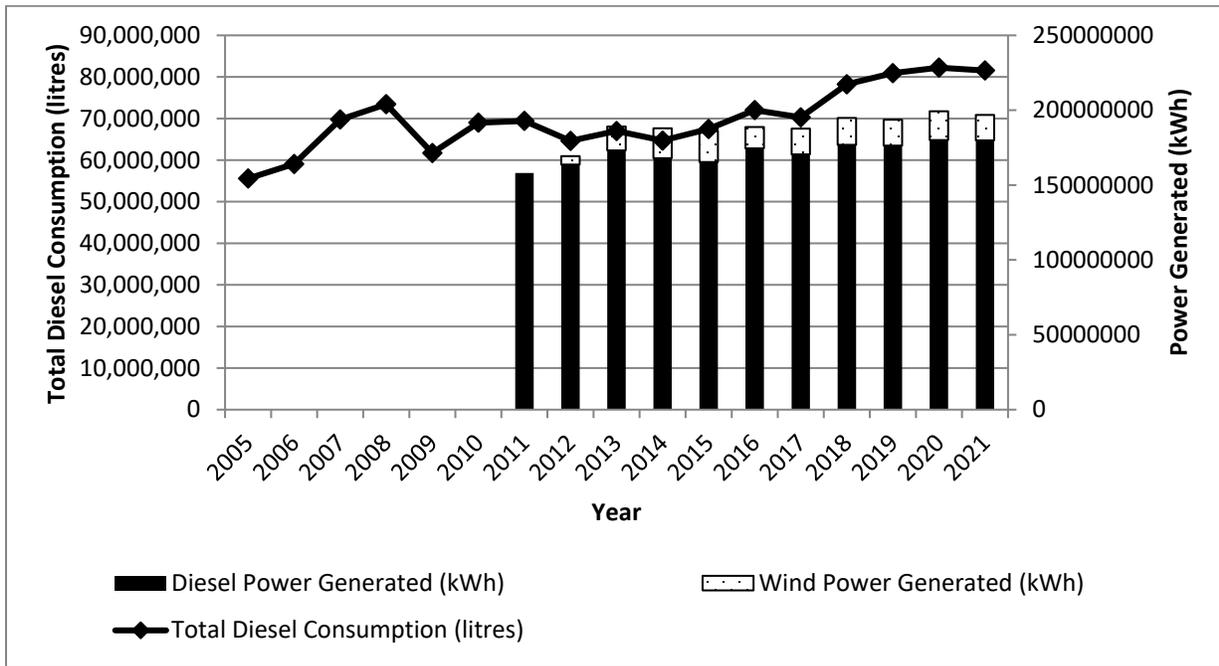


Figure 7: Annual Diavik Power Generation and Diesel Consumption

The peak amount of total power used can be as high as 60% wind power on a given day. The wind farm offset an estimated 10,269 tonnes of carbon dioxide emissions in 2021 (Table 14). The total carbon dioxide emissions (equivalents) offset since 2013 by the wind farm is 106,007 tonnes.

Table 14: Total Litres of CO₂ Offset by the Wind Farm (2013-2021)

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
Wind Farm Energy Generated (KWh's)	15,823,543	19,747,333	20,842,138	14,297,803	17,192,885	18,001,285	17,326,685	19,292,380	17,011,845
CO ₂ Offset (tonnes)	12,000	14,068	14,403	9,030	10,478	12,063	10,798	12,898	10,269
Total CO₂ Offset by Windfarm (tonnes)								106,007	

8.4 Adaptive Management and Recommendations

Procedures and mitigation strategies currently in place have been relatively successful at limiting wildlife interactions in the WTA and Landfill. While foxes, ravens and occasionally wolverine appear to be present at the WTA, Landfill, A21 Area and Underground waste bins, these animals are natural scavengers and will continue to visit these areas throughout the Mine's life. Diavik will continue to monitor the WTA and Landfill at the frequency of twice per week in the winter and once per week in the summer, and the A21 Area and

Underground once per week during the year. Diavik remains committed to carrying out employee education programs related to waste handling.

9 CLOSURE

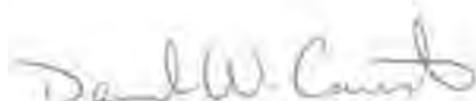
The reader is referred to the Study Limitations, which precedes the text and forms an integral part of this report.

We trust the above meets your present requirements. If you have any questions or requirements, please contact the undersigned.

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APPENDIX A

Comments on the 2020 Wildlife Management and Monitoring Report

TECHNICAL MEMORANDUM

DATE 10 September 2021

GOLDER REFERENCE No. 21452119-2157-TM-Rev0-5000

DIAVIK WORK PLAN No. 698 Rev. 0

DIAVIK PO No. 3104601458

TO Kofi Boa-Antwi
Diavik Diamond Mines (2012) Inc.

CC Rainie Sharpe (Golder)

FROM Dan Coulton and Corey De La Mare

EMAIL
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EMAB COMMENTS ON 2020 DIAVIK WMMR

On 14 July 2021, the Environmental Monitoring Advisory Board (EMAB) issued comments on the 2020 Wildlife Mitigation and Monitoring Report (WMMR) (Golder 2021) to Diavik Diamond Mines (2012) Inc. (DDMI or Diavik). The comments provided by EMAB included the review by Management and Solutions in Environmental Science (MSES). EMAB provided direction that DDMI responses were only required for 17 recommendations DDMI-WMP-10 to DDMI-WMP-55. All other comments EMAB determined that no response was required by DDMI. Golder Associates Ltd. (Golder) has prepared responses to EMAB comments in Table 1.

On 5 August 2021, Environment and Climate Change Canada (ECCC) issued three comments on the WMMR. Golder has prepared responses to ECCC comments in Table 2.

Table 1: DDMI responses to 2020 WMMR comments by the EMAB

2021 Comment Identifier	Category	Comment	Recommendation	DDMI Response
DDMI-WMP-10	Caribou Movement	<p>DDMI's response contains a discussion of the strengths and weaknesses of different statistical approaches (ANOVA/ANCOVA vs. multiple regression) and does not commit to try an alternative approach to the ZOI analysis.</p> <p>In their response to our recommendation to use a ZOI analysis approach similar to White and Gregovich (2017), DDMI's response stated that those authors used "a completely different statistical design than the multiple regression approached (sic) used in the 2019 WMP report" (DDMI, 2020, Appendix A, pg. 5). Then in response to comments on the 2019 WMP report from the GNWT DDMI stated "[t]he statistical approach applied is consistent with White and Gregovich (2017), which also applied a regression interaction between distance and habitat to test for a zone of influence." (DDMI, 2020, Appendix B, pg. 1).</p> <p>These are confusing responses to similar but different requests from EMAB and GNWT. EMAB was requesting an analysis of collar data using methodologies similar to White and Gregovich (2017), not a reanalysis of the aerial survey data. Whereas, the GNWT recommendation was to reanalyze the aerial survey data using established methods. DDMI then suggested that the approach used by White and Gregovich (2017) is consistent with the approach they used to test for a ZOI.</p> <p>In our opinion the obfuscation around the analysis of the aerial survey data is rendered moot by the analysis of collared caribou data from 2012 and 2021 that demonstrate the presence of a ZOI around the mine (Boulanger et al., 2012; Boulanger et al., 2021). Focus should already be turned to the development of a mitigation and monitoring plan that attempts to reduce the size of the ZOI around the mine and monitor it over time scales that will allow for the near real time assessment of mitigation measures and caribou response.</p>	<p>We recommend DDMI clarify their responses to DDMI-WMP-10 and GNWT-20-WMP-3 to clearly address EMAB's original recommendation and the apparent contradiction as to the applicability of the approach used in White and Gregovich (2017) to estimate a ZOI.</p> <p>Also see Caribou Movement (DDMI-WMP-47).</p>	<p>The GNWT's cover letter, Comment GNWT-20-WMP-3 and the content of Boulanger and Poole (2020) appended to the GNWT's comments questioned the use of an interaction term to test for behavioural response by caribou to development. EMAB previously recommended the use of the selection ratio approach by White and Gregovich (2017) to DDMI. Golder, EMAB and MSES participated in a conference call in 2020 where the approach of White and Gregovich (2017) was reviewed. At this meeting, MSES agreed with DDMI that the selection ratio approach of White and Gregovich (2017) characterized a statistical interaction between distance and habitat quality. DDMI maintains that the application of habitat selection theory (Fretwell and Lucas 1970) should explain the reference caribou distribution in the absence of a ZOI. Application of habitat selection theory also predicts an interaction between a distance from mine and habitat variables when a ZOI is present and is appropriate for testing a behavioural response to sensory disturbance by caribou.</p> <p>Comment DDMI-WMP-10 requested that that selection ratios within distance zones be used to monitoring a ZOI. The response by DDMI notes that there are other limitations to the selection ratio approach such as delineation of distance categories is subjectively determined and many distance categories increases model parameter cost using information theory model selection (Burnham and Anderson 2002).</p> <p>DDMI does not see these responses as being contradictory to one another since the GNWT's comment is related to use of an interaction term and EMAB's comment is related to the use of distance zones.</p> <p>At the 2021 Mine Wildlife Monitoring Meetings (previously referred to as the SGP Wildlife Workshop) there was a presentation by Golder on the assumptions of ZOI analysis and in particular, the importance of demonstrating that the assumption about the spatial trend in habitat quality is valid and that it is easy to test. Boulanger et al. (2012, 2021) have not demonstrated that their assumption of an assumed uniform spatial trend in habitat quality is valid. Please refer to DDMI's response to DDMI-WMP-47 where DDMI provides additional evidence that the spatial trend of habitat quality is not uniformly distributed around the Ekati and Diavik mines (attached Figure 1). At the 2021 Mine Wildlife Monitoring Meetings ERM presented their study of the aerial survey data but using different methods than Golder (2020) and arrived at the same conclusion that caribou are distributed in accordance with quality habitat. ERM concluded that the existence of a ZOI was not supported. It is DDMI's view that two independent studies arriving at the same conclusion, using different methods and that demonstrate their assumptions are valid provides stronger evidence than two studies by the same investigators using the same method but have not tested and verified the assumptions in their model.</p>

Table 1: DDMI responses to 2020 WMMR comments by the EMAB

2021 Comment Identifier	Category	Comment	Recommendation	DDMI Response
DDMI-WMP-11	Caribou Behaviour	DDMI responded that the continued collection of caribou behaviour data is included in Diavik's WMMP. However, within the 2020 WMP Report, DDMI reported that "The 2021 Slave Geological Provincial Wildlife Workshop also concluded that caribou behaviour monitoring is no longer necessary." (Section 4.7). While DDMI commits to continue to monitor caribou behaviour in 2021, they also state that the discontinuation of the program through adaptive management "precludes the need to complete statistical analyses" (Section 1.1). We also attended the 2021 workshop and noted no obvious consensus regarding the continuation or discontinuation of caribou behaviour monitoring.	Please provide documentation supporting the decision to discontinue caribou behaviour monitoring. We recommend that behaviour surveys continue to be conducted because the information could be useful in understanding the mechanism behind the ZOI and, subsequently, in developing associated mitigation measures. Ground-based behavioural data will also be needed for comparison against behaviour data collected during closure and post-closure phases to test predictions. The data may also assist in understanding the impacts of mine activity on caribou energetics, which can be used to inform future development applications and cumulative effects assessments. The challenge, as with all approaches presented during the workshop, continues to be sample size and the availability of mine-activity covariates.	The GNWT hosts the mine monitoring meetings and has historically been responsible for production of a meeting report (e.g., Marshall 2009; Handley 2010). DDMI indicated that while it was suggested that caribou behaviour monitoring be discontinued, DDMI would engage EMAB and communities for input before deciding to discontinue this monitoring. It should be noted that the EER did not make predictions about caribou behaviour activities and that the predictions were an outcome of past wildlife monitoring meetings (Handley 2010). At this time DDMI intends to continue to collect caribou behaviour data (i.e., group scans) as done historically. DDMI believes the behaviour data are important for assessing a demographic effect linkage associated with a mine-related change in caribou behaviour and movement (i.e., a different scale of ZOI than Boulanger et al. 2021).
DDMI-WMP-12	Wolverine	DDMI indicated that wolverine snow tracking is included in Diavik's WMMP. This issue is satisfied. After MSES completed our initial review, GNWT provided comment on the WMMP (GNWT-ENR, 2020). Their review questioned DDMI's approach to estimating a ZOI which relied upon the significance of a statistical interaction. In their review of the WMMP, the GNWT identified issues with using a statistical interaction term to examine the occurrence and size of a ZOI. While we think a statistical interaction term may be useful for examining the size of ZOI if the correct data collection approach is used during monitoring, we remain uncertain if DDMI's approach can define a specific ZOI size if it should exist (See Comments in response to DDMI-WMP-10 above).	We agree with the GNWT and recommend that DDMI revise their approach for future annual reports.	DDMI maintains that the application of habitat selection theory (Fretwell and Lucas 1970) and with respect to use of an interaction between a distance from mine and habitat variables is appropriate for testing a behavioural response by wolverine and is scientifically defensible. Please refer to responses to DDMI-WMP-54 and DDMI-WMP-55.
DDMI-WMP-13	Wolverine	DDMI responded that continuation of the wolverine hair snagging program will be determined with program partners.	See Wolverine (DDMI-WMP-54 and DDMI-WMP-55).	Please see response to DDMI-WMP-54 and DDMI-WMP-55
DDMI-WMP-14	Vegetation and Wildlife Habitat	DDMI pointed out that when mining activities cease, sources of indirect effects to vegetation will no longer be present. They acknowledge that vegetation will require an unknown amount of time to progress to a natural state and that the natural state may be different than baseline as the environment generally continues to change through time. They state that vegetation monitoring post-closure will be determined through review and approval of the ICRP	Please see recommendations by EMAB through the Wek'èezhii Land and Water Board (WLWB) review process for under ICRP 4.1 process (SW4 Closure Objective).	DDMI provided responses to EMAB's comments 17, 18 and 19 on for SW4 Closure Objective during the WLAWB review phase of the ICRP version 4.1.
DDMI-WMP-15	Caribou Movement	DDMI referred to their response to DDMI-WMP-10, which states that the analysis of caribou collar data will be completed in 2022, according to Diavik's Wildlife Management and Monitoring Plan (WMMP).	See Caribou Movement (DDMI-WMP-47).	Please refer to DDMI response to DDMI-WMP-47.

Table 1: DDMI responses to 2020 WMMR comments by the EMAB

2021 Comment Identifier	Category	Comment	Recommendation	DDMI Response
DDMI-WMP-16	Caribou Behaviour	<p>DDMI directed EMAB to inquire directly with Ekati mine about their caribou behaviour data from 2017 – 2019.</p> <p>DDMI directed EMAB to inquire directly with Ekati mine about their caribou behaviour data from 2017 – 2019.</p> <p>DDMI did not commit to evaluate different types of movement separately (i.e., walking vs. trotting vs running) and expressed concern that pooling data may confound effects because of data gaps. They state that there is no discernable pattern between distance strata with respect to trotting or running. A demonstrated lack of statistical difference would provide more relevant information.</p>	<p>Can ENR please provide behaviour data from the Ekati mine for the years 2017-2019?</p> <p>Data permitting, it may be informative to distinguish running from trotting from walking in future behavioural analyses. Please also see issue DDMI-WMP-11.</p>	<p>The comment is directed to ENR so no response by DDMI is required.</p> <p>Appendix D of the 2019 WMP report included a table of separate estimates (± 1 SE) of bedded, feeding, standing, alert, walking, trotting and running within and beyond 15 km as requested by EMAB. Estimates that with overlapping standard errors are considered to be statistically similar.</p> <p>Please refer to DDMI's response to DDMI-WMP-11.</p>
DDMI - WMP-17	Caribou Distribution	<p>DDMI evaluated the original predictions relating to caribou migration and determined the prediction for the southern migration was "not well developed and likely incorrect". DDMI suggested that the prediction should have focused on the loss of the East Island route and not specified whether an east or west trajectory would dominate future movements. We agree that the sample size of 10 routes and the predicted results only narrowly suggests that caribou should travel East most of the time for the southern migration:</p> <ul style="list-style-type: none"> - Baseline Routes relative to East Island: 5 East, 1 across, 4 West - Predicted Routes relative to East Island: 6 East, 0 across, 4 West <p>Across all years, DDMI found that more caribou moved west past Lac de Gras during the northern migration (77%; 255 W vs. 76 E) and during the southern migration (57%; 170 W vs. 127 E; Golder 2019). Overall, the departure from predictions for the southern migration is small; however, data from more recent years show a trend toward a more consistent departure from predictions. We agree that monitoring west vs. east deflections is not very informative regarding impacts of the Project on caribou migration. This does not tell us why they would migrate in either direction or if the Mine is influencing this decision. We agree with removing the caribou deflection component of the monitoring program. DDMI has used GPS collar analyses to support their conclusion that observed changes in caribou migration can be largely attributed to natural range contraction (Virgl et al. 2017 use GPS data from 1996-2013; 2019 WMR (Golder 2020b Appendix C) graphed data from 1996-2018). The data show a contraction in autumn range size over time, high autumn range fidelity over time, and a northern shift in the autumn range location over time.</p> <p>However, it should be noted that the contraction and the northern shift of the autumn range could reflect chronic effects (avoidance) of the mine and that the influence of herd size on caribou range attributes should be quantitatively evaluated. Re-evaluation of these range attributes would also align with DDMI's statement that "In some cases, even when Mine-related effects are determined to be negligible, monitoring may be continued because it can increase</p>	<p>We recommend that DDMI re-evaluate these relationships through quantitative analysis of GPS collar data at the time of the next comprehensive analysis (2022). The analysis would verify that autumn range fidelity remains high and that the travel routes for the northern migration remain correlated with the location of the winter range (i.e., that the mine is having no measurable effect on the caribou migration).</p> <p>If changes in caribou range attributes are detected in future GPS collar data analysis that incorporates more recent data, this assumption regarding the extent of the energetic cost may need to be reconsidered.</p>	<p>DDMI previously committed to provide range attributes for Bathurst caribou in lieu of discontinued monitoring of caribou east-west deflections (Golder 2019a). As described in Golder (2019a) resulting changes in range attributes from mining activities would reflect cumulative effects from multiple overlapping developments and would not be solely attributable as an incremental effect from the Diavik Mine. As well, range contraction would result from reduction in caribou population size and in response to natural factors (Virgl et al. 2017). As such, any such analysis provided by DDMI would reflect a contribution (at DDMI's discretion) toward cumulative effects assessment and management. Cumulative effects assessment and management are a responsibility of the GNWT. EMAB's recommendation assumes that further contraction and northern shift of the autumn range would be attributable to Diavik Mine, which DDMI disagrees can be demonstrated or concluded. Figure 4.2-4 from Golder (2017) shows the decline of Bathurst caribou from 1986 to 2015, which corresponds with the contraction of and northern shift in the autumn range. Figure 4.2-4 is provided in this document as Figure 3. The results in Tables 3 and 4 of Boulanger et al. (2021) show variable annual detection of ZOIs depicting attraction, avoidance and no ZOI. These results are not consistent with patterns of contraction and northern shift in the autumn range of Bathurst caribou.</p> <p>Of note is the Jay Project analysis included a number of conservatisms to overestimate energetic effects and subsequent costs to fecundity as a precautionary approach. For example, the energetic model assumed caribou did not acclimatize to stressors, responded by running for 15 minutes and applied the same cost to animals regardless of their distance from the mine. A more technical precautionary assumption included that the variation around each of the model parameter estimates was not propagated through the results so that conclusions were only based on point-estimates. Had variation of multiple model parameters been propagated through the model and confidence intervals provided, the 0.3% result reported would likely overlap zero (i.e., no measurable effect). Similar to the Jay Project, future environmental assessments may require energetic analysis.</p>

Table 1: DDMI responses to 2020 WMMR comments by the EMAB

2021 Comment Identifier	Category	Comment	Recommendation	DDMI Response
DDMI - WMP-17 (continued)	Caribou Distribution (continued)	the confidence of impact predictions in future environmental assessments and contributes to the assessment and management of cumulative effects by government.” (p. 21; emphasis added). With respect to caribou energetics, DDMI does not propose to evaluate the energetic consequence of changes in the southern migration. Impacts to the southern migration were predicted by DDMI (loss of East Island route), but the energetic cost was likely overestimated because of the low amount of use of the east island route (baseline case). Caribou are roughly equally likely to use a west or east route in the absence of the east island route. Aside from existing mitigation measures in place relating to noise, dust, and light, impacts on caribou migration are likely only going to be reduced further through mine site reclamation. The value of completing an assessment of change in energetics at this point in time, if possible, would be to inform future project applications. An energetics model has already been completed for the Jay Project application, in which Dominion Diamond Ekati Corporation (Dominion) concluded that the Jay Project would cumulatively decrease caribou fecundity by 0.3% (MVRB 2016). Based on this information, we could assume that impacts from the Diavik Project would not exceed this cost in fecundity.		
DDMI-WMP-44	Vegetation and Wildlife Habitat	In 2020, the overall disturbance of vegetation types was at or slightly exceeded predicted levels for riparian shrub, birch seep and shrub, boulder complex, esker complex, and disturbed areas (which include areas disturbed prior to exploration activities when the ELC was developed). Seven ELC types (up from three last year) out of 12 were disturbed in 2020, heath tundra (0.06 km ²), heath boulder (0.02 km ²), heath bedrock (0.02 km ²), tussock/hummock (0.03 km ²), birch seep and shrub (0.01 km ²), shallow water (0.01 km ²), and deep water (0.01 km ²). The amount of change reported for these seven ELC types adds up to 0.16 km ² , which when added to last years total disturbance area of 11.19 km ² equals 11.35 km ² . There is a 0.06 km ² difference between the total loss reported by ELC type and the total disturbance reported in this year’s WMR (i.e., 11.41 km ²). It is unclear where this extra 0.06 km ² of disturbance occurred. It is possible this is a result of rounding estimates for the report.	Please clarify this difference in disturbance area reporting. The methods applied for this part of monitoring are adequate	Similar to the 2019 WMP report, natural areas occurring within the Diavik Mine footprint perimeter were again reclassified from disturbed to their original land cover type as they have not been altered by development. As described in the 2020 WMMR small areas of new disturbance were associated with the South Country Rock Pile expansion in 2020 but overall, the Mine’s footprint remains smaller than predicted in the ERR.
DDMI-WMP-46	Caribou Movement	No new data on caribou movement was presented, and no additional analyses for ZOI monitoring were completed, for the 2020 WMR. The 2020 WMR simply restates the results of DDMI’s 2019 analysis of aerial survey data which concluded that no ZOI exists. The 2020 WMR states the “analysis did not detect a ZOI, after accounting for numerous other factors such as changes in study area size, changes in overlap with the Bathurst caribou herd distribution, insect harassment, and other annual but unmeasured factors.” (DDMI, 2020, pg. 12)	Can DDMI please clarify what is meant by ‘annual but unmeasured factors’ and discuss how ‘unmeasured factors’ were incorporated in their previous analysis of the aerial survey data.	A mixed model analysis was completed in the 2019 WMP report with a categorical year variable specified as a random factor. A categorical year variable is correlated with all factors that contribute to annual variation in caribou abundance. Measured temporal factors such as insect harassment and the Bathurst autumn range distribution were included in models as fixed effects. The variation of the categorical year variable reflects the cumulative variation of all other temporal factors that were not measured and explicitly modeled as fixed effects.

Table 1: DDMI responses to 2020 WMMR comments by the EMAB

2021 Comment Identifier	Category	Comment	Recommendation	DDMI Response
DDMI-WMP-47	Caribou Movement	Peer-reviewed publications by Boulanger et al. (2012; 2021) use collar data to demonstrate the existence of a ZOI around the mine, yet there is no mention of these findings in the WMR, which instead states, based on a single analysis of aerial survey data, that there is no ZOI around the mine. We are confused why the already published analyses of caribou collar data are not discussed and why they have not been used to guide adaptive management action to date. We do not agree that a single regression analysis of the aerial survey data is sufficient to conclusively demonstrate the lack of ZOI around the mines when other analyses of collared caribou directly estimating changes in habitat selection show the presence of a ZOI. It is our opinion that all available information should be used to guide management decision-making as opposed to selective use of individual analyses.	We recommend DDMI integrate the findings of Boulanger et al. (2012; 2021), particularly regarding the analysis of collared caribou habitat selection, into the discussion of ZOI around the mine in the WMR. Further, based on the published analyses of caribou collar data, we recommend EMAB request GNWT and DDMI develop a ZOI mitigation and monitoring plan to be implemented immediately.	DDMI does not revise and re-issue annual reports. Instead DDMI will consider comments by EMAB for future reporting. Boulanger et al. (2012) completed a resource selection function (RSF) model based on collared caribou, which describes habitat selection. Habitat data used included water land cover and NDVI values. Boulanger et al. (2021) used this same RSF. The results of the RSF indicate that caribou avoid water land cover (i.e., lakes), which is also supported by the results of aerial surveys (<0.1% use relative to 30% availability of deep water land cover in the aerial survey study area [RSA]). The spatial trend in deep water land cover in the RSA exhibits a significant negative association with distance from mines (Spearman correlation, rho = -0.89, P <0.01), which was shown in Figure 12 of the 2019 WMP report. Consistent with the results of the 2019 WMP, the trend in lakes should result in a positive relationship with caribou abundance (or occurrence) in the absence of a ZOI effect. When examined further, the location of aerial survey segments that contain 100% water, shows a pattern of increasing frequency near the Mines (e.g., Lac de Gras) and from 10 km to 20 km north of the Mines (Exeter and Ursula lakes and Lac du Sauvage) (see attached Figure 1). Note that the UTM value ticks on the x-axis are equivalent to 20 km intervals. The distances of these lakes from mines are consistent with the threshold depicted by Boulanger et al. (2012) that estimated a ZOI at 14 km (95%CI: 12.0 to 15.5 km). Different annual ZOIs described by Boulanger et al. (2021) may reflect changes in where caribou were concentrated as they entered the RSA. While Boulanger et al. (2012, 2021) assumed their statistical threshold reflected a disturbance response by caribou, further examination shows that the process leading to this threshold can be explained by the trend and location of large lakes that caribou avoid.

Table 1: DDMI responses to 2020 WMMR comments by the EMAB

2021 Comment Identifier	Category	Comment	Recommendation	DDMI Response
DDMI-WMP-48	Caribou Movement	<p>In order to develop and implement meaningful mitigation measures to try to address the ZOI issue, the focus must shift to gathering information on covariates of mine activity (i.e., traffic volumes, noise disturbance) that can be used in ZOI models to determine whether these are important mechanisms contributing to the ZOI. It is also necessary to identify new methods to monitor caribou abundance and distribution anytime caribou are in the area, and analyses to examine the data to guide the development and implementation of appropriate mitigation measures. It is important to develop these monitoring methods now in order to try and implement mitigation during the final years of mine operations. Adequate ZOI monitoring techniques will also need to be identified so they can be incorporated into the WMMP and be available for use during closure to rigorously monitor the environmental changes associated with closing and reclaiming the mine. Boulanger et al. (2021) showed an average ZOI size of 7.2 km around the mine, this should get smaller as the mine is closed and reclaimed and the techniques need to be in place to measure that change on a timescale that allows for alterations to mitigation practices as needed.</p>	<p>In addition, based on the published analyses showing the presence of a ZOI around the mine, we recommend EMAB request DDMI, in collaboration with GNWT, immediately develop monitoring techniques to identify mine-related sources of sensory disturbance and new methods for monitoring caribou abundance and distribution relative to the mine whenever they are in the area.</p>	<p>At the 2021 Mine Wildlife Monitoring Meetings (previously referred to as the SGP Wildlife Workshop) there was a presentation by Golder on the assumptions of ZOI analysis and in particular, the importance of demonstrating that assumptions about the spatial trend in habitat quality are valid and that it is easy to test. Boulanger et al. (2012, 2021) have not demonstrated that their assumption of a uniform spatial trend in habitat quality is valid. Please refer to DDMI's response to DDMI-WMP-47 where DDMI provides additional evidence that the spatial trend of habitat quality is not uniformly distributed (attached Figure 1). At the 2021 Mine Wildlife Monitoring Meetings ERM presented their study of the aerial survey data but using different methods than Golder (2020) and arrived at the same conclusion that caribou are distributed in accordance with quality habitat and that existence of a ZOI was not supported. It is DDMI's view that two independent studies arriving at the same conclusion and that demonstrate their assumptions are valid provides stronger evidence than two studies by the same investigators using the same method but have not demonstrated that their model assumptions are valid. While Boulanger et al. (2012, 2021) are peer-reviewed articles this does not mean that these studies are immune from scientific scrutiny.</p> <p>DDMI does monitor and has evaluated a number of mine activity covariates such as fugitive dust deposition (Golder 2019b; Watkinson et al. 2021), number of flights and blasts, waste rock hauled and full-time-equivalents (Golder 2017). To date none of these have demonstrated a significant relationship to wildlife monitoring data at Diavik (Golder 2011, 2014, 2017, 2020). Review of Tables 3 and 4 in Boulanger et al. (2021) show that avoidance of mines does not occur regularly in either collar (avoidance in 5 of 9 years and attraction or no ZOI in 2 years each) or aerial survey data (avoidance in 8 of 13 years and no ZOI in 5 years). Some of the years where ZOIs are measured, the ZOI magnitude overlaps zero (3 years each for collar data and aerial survey data), which indicates no measurable ecological effect. Collectively this means that a change has been measured in 4 of 9 years and 5 of 13 years in collar and aerial survey data, respectively.</p> <p>Furthermore, ZOIs were not detected during construction years. Mine construction is a time with high levels of human activity (greater labour force, more frequent blasting, big machinery, lights and noise are novel on the landscape), when little to no mitigation was occurring and habitat is actively and initially being removed. The magnitude of sensory and habitat disturbance is high during construction and a strong response by caribou would be expected but there was none. DDMI disagrees that there is strong evidence to support that caribou are responding to sensory disturbance by the Diavik and Ekati mines as there are many lines of evidence that show no response or a weak response by caribou.</p>

Table 1: DDMI responses to 2020 WMMR comments by the EMAB

2021 Comment Identifier	Category	Comment	Recommendation	DDMI Response
DDMI-WMP-49	Caribou Movement	During the 2021 SGP Wildlife Workshop, the possibility of holding a forum focussing on caribou mitigation measures was proposed. In addition, there appeared to be general agreement during the 2021 SGP Wildlife Workshop to increase the frequency of ZOI technical task group meetings which would discuss the use of covariates in models, the development of a caribou resource selection function (important habitat characteristics), and other issues relating to the ZOI issue.	We support this type of forum as it could be a successful avenue to adaptively manage mine-related changes in caribou movement. We encourage Indigenous community participation in the forum, particularly those already involved in caribou monitoring programs. We support this forum and recommend that actionable items from meetings be developed whenever possible to ensure that relevant advancements in managing ZOI issues are implemented in Mine monitoring programs.	DDMI would participate in a such a follow-up meeting.
DDMI-WMP-50	Caribou Behaviour	In 2020, between 6 February and 13 November, observations were collected on 33 caribou groups from 0 to 15 km from the Mine. Observations far from the mine were not attempted in the winter due to human safety considerations and required changes in data collection methods (i.e., snowmobile versus helicopter) Overall, 509 caribou were observed. DDMI indicated that there remains insufficient data (# caribou groups) to detect a 15% change in behaviour (55 unique groups of caribou in two distance groups are required).	We continue to emphasize the importance of these data in understanding the influence of the Mine on caribou and recommend that DDMI continue their efforts to collect caribou behaviour data annually and complete statistical analyses when data permits (also see Table 1, Reference #: DDMI-WMP-11).	These monitoring data are included in Diavik Mine's WMMP (Rio Tinto 2021). DDMI intends to continue caribou behaviour monitoring.
DDMI-WMP-53	Grizzly Bear	Hair snagging has been used previously to assess grizzly bear abundance and distribution over time as per the revised monitoring objective (GNWT, 2013). No hair snagging has been completed since 2017. Analysis of data from 2012 to 2017 suggest a stable or increasing number of grizzly bears and that there have been no negative demographic effects on the regional population of grizzly bears due to the mines. DDMI stated in the 2020 WMR that "Program partners at the 2021 Slave Geological Provincial Wildlife Workshop agreed that the grizzly bear hair snagging program will no longer be completed." (DDMI, 2020, pg. 20). We concur that the program partners determined there was no longer a need for annual hair snagging surveys, but do not recall a consensus being reached among program partners on the need for future surveys or what frequency of surveys might be sufficient. While annual hair snag surveys may not be required at this point to confirm population stability, given the number of reported bear observations at the mine and level of development in the region, ensuring grizzly bear populations in the area remain stable should be a goal of monitoring programs even if it is confirmed on a less frequent basis (e.g., once every five years instead of annually). We continue to support DDMI's involvement in the GNWT hair snagging program at a reduced frequency determined in collaboration with program partners.	We recommend EMAB review the meeting notes from the 2021 workshop, when made available by GNWT, before determining the appropriate frequency of future hair snagging surveys. We recommend EMAB confirm with GNWT the need for and preferred frequency of hair snagging surveys moving forward. We recommend developing triggers for reinstating future annual hair snagging at an increased frequency (e.g., annually), for example, if the number of mortalities associated with the mine increases substantially, or if mortalities are recorded for 3 years in a row.	At the 2021 Mine Wildlife Monitoring Meetings program partners decided to discontinue the grizzly bear hair snagging program. Resuming this program requires agreement by all of the program partners as it cannot be implemented by one mine. DDMI would also like to note that Diavik's cost share to run this program was \$171,500 in 2012 and 2013 and \$217,300 in 2017. Grizzly bear mortalities and incidents will continue to be monitored and adaptively managed at the Diavik Mine.

Table 1: DDMI responses to 2020 WMMR comments by the EMAB

2021 Comment Identifier	Category	Comment	Recommendation	DDMI Response
DDMI-WMP-54	Wolverine	The hair snagging program was last completed in 2014. Analysis of the data collected between 2004 and 2015 showed that surveys could be repeated every four to six years to detect an annual population decline of 5% (Efford and Boulanger, 2018). DDMI indicates that the hair sample program will be discontinued “as determined by program partners at the Slave Geological Province Wildlife Monitoring workshops hosted by the GNWT in February 2021.” (DDMI, 2020, pg. 28) We agree that the program partners determined that there was no longer a need for annual hair snag monitoring but do not recall a consensus being reached among program partners on discontinuing surveys all together.	We recommend following the guidance of Efford and Boulanger (2018) who recommended repeating the hair snag surveys every four to six years to confirm regional wolverine populations remain stable.	At the 2021 Mine Wildlife Monitoring Meetings program partners decided to discontinue the wolverine hair snagging program. DDMI has shown previously that trends in occurrence from the wolverine snow track monitoring program correspond with trends in abundance from the hair snagging program (DDMI 2007; and attached Figure 2). Wolverine snow track monitoring is included in the WMMP and regularly involves community participation.
DDMI-WMP-55	Wolverine	There were 17 incidental observations of wolverines on East Island, collected over 16 days from February to December; this measure has been decreasing since 2015, which had the highest number of incidental wolverine observations with 118 that year. The 2020 WMR reported zero mortalities (same as in 2019). There was a single relocation in 2020, and a total of 35 deterrent actions (honking vehicle horn was most common deterrent action) were used during four of the 17 observations.	We recommend developing triggers for reinstating future annual hair snagging surveys, for example, if the number of wolverine mortalities associated with the mine increases substantially, or if mortalities are recorded for 3 years in a row.	Hair snagging surveys for wolverine have never been part of the annual monitoring program but were completed in collaboration with ENR. DDMI has shown previously that trends in occurrence from the wolverine snow track monitoring program correspond with trends in abundance from the hair snagging program (DDMI 2007; attached Figure 2). Monitoring wolverine incidents and mortalities is included in the WMMP (Rio Tinto 2021). Efford and Boulanger (2018) showed that the wolverine population is approximately stable, which predicts that the population is resilient to natural mortality and the low frequency of mine-related mortality over the past decade.

Table 2: Responses to ECCC comments on the 2020 WMMR

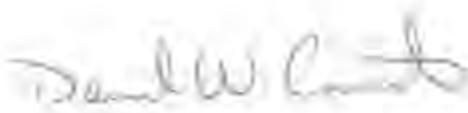
2021 Comment Identifier	Reference	Comment	Recommendation	DDMI Response
2020 WMMP-ECCC-1	Cover letter, p.1	ECCC has jurisdiction for wildlife under the Migratory Birds Convention Act and federal Species at Risk Act but is not included on DDMI's annual report distribution list. ECCC should be added to the distribution list to ensure future annual Wildlife Management and Monitoring Reports (WMMR) are received and reviewed by ECCC.	ECCC should be included on DDMI's annual distribution list. Annual reports can be sent to ECCC here: EANorthNWT@ec.gc.ca	DDMI will include ECCC in the distribution list of the annual report.
2020 WMMP-ECCC-2	Appendix D Wildlife Mortality and Incident Reports	ECCC contact information should be updated to ensure that the appropriate contacts are reached directly and to reduce potential delays in receiving advice.	ECCC recommends the Proponent add ECCC's Canadian Wildlife Service at cwsnorth-scfnord@ec.gc.ca as a contact to reduce delays in receiving advice.	DDMI thanks ECCC for providing contact information, which will be added to the WMMP.
2020 WMMP-ECCC-3	2020 Wildlife Management and Monitoring Report	ECCC notes that the footprint of the mine increased by 0.16km ² in 2020 due to the disturbance of a wetland during the development of the South Country Rock Pile. ECCC notes there is no information on the timing of this disturbance or whether it occurred outside of the bird nesting season. The Migratory Bird Regulations prohibit the disturbance or destruction of migratory birds and their nests or eggs. Migratory birds, their nests and their eggs can be inadvertently harmed, killed, disturbed or destroyed because of many activities including, but not limited to, clearing of trees and other vegetation, or draining or flooding land. ECCC acknowledges that most of the disturbance associated with the construction of the project has been completed but that some future expansion may occur at the South Country Rock Pile during the reclamation of the North Country Rock Pile.	ECCC recommends DDMI provide information on the timing associated with development of the South Country Rock Pile and the disturbance to the wetland.	The expansion of the WRSA-SCRIP (Waste Rock Storage Area - South Country Rock Pile) was continuous during construction until the WRSA-SCRIP reached design footprint limit. DDMI recognizes that there is a potential for future disturbance (e.g., road spurs) to disturb migratory birds and will apply mitigation measures including pre-land disturbance bird surveys for nests (during breeding season May through August) and activity setback buffers for any active nests found during surveys under the guidance of GNWT ENR. These mitigation measures will form part of Diavik's Wildlife Mitigation and Management Plan.

CLOSURE

The reader is referred to the Study Limitations, which follows the text and forms an integral part of this memorandum.

We trust the above meets your present requirements. If you have any questions or requirements, please contact the undersigned.

Golder Associates Ltd.



Dan Coulton, Ph.D., RPBio
Senior Wildlife Biologist



Corey De La Mare, P.Biol.
Principal, Senior Wildlife Biologist

DWC/JAV/llj/lb

https://golderassociates.ca/arepol/boom/files/140080/projects/6/declarables/issued/2157-tm-rev0-5000-responses-to-wmmr/commnts/21452119-2157-tm-rev0-5000-response-to-2020-wmmr/commnts_xxsep_21.docx

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STUDY LIMITATIONS

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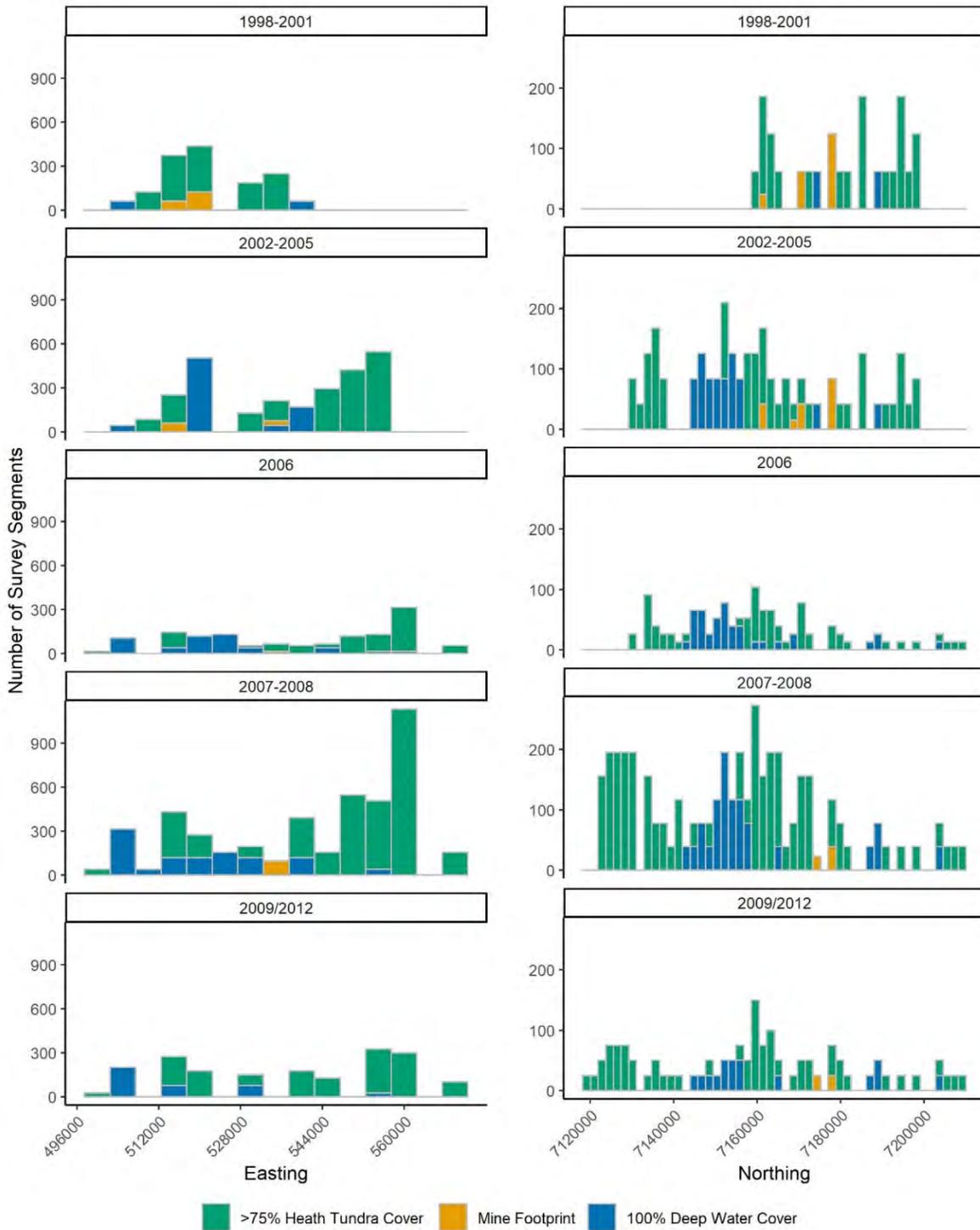


Figure 1: Distribution of Aerial Survey Segments by Land Cover

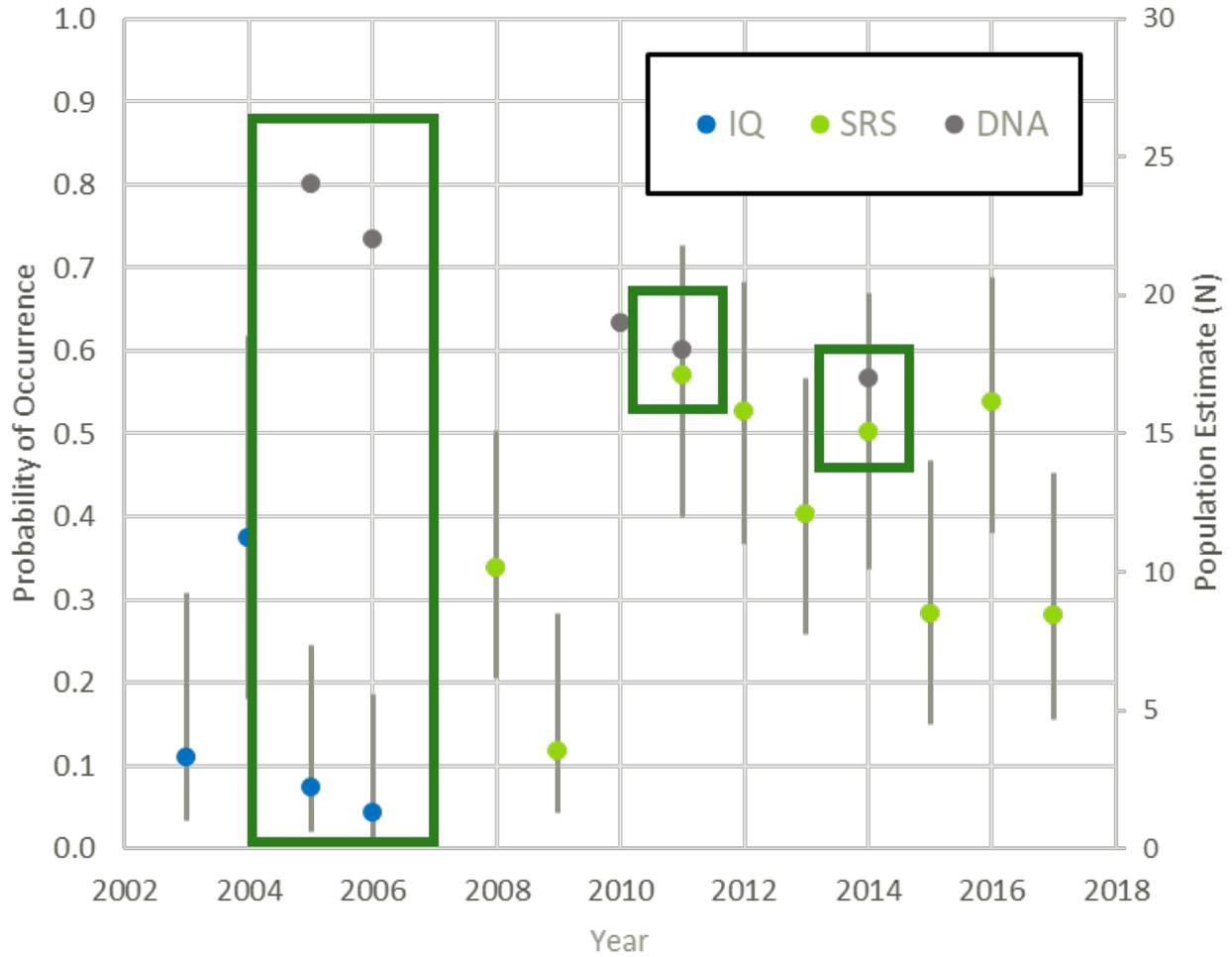


Figure 2: Correspondence Between Wolverine DNA and Snow Track Results

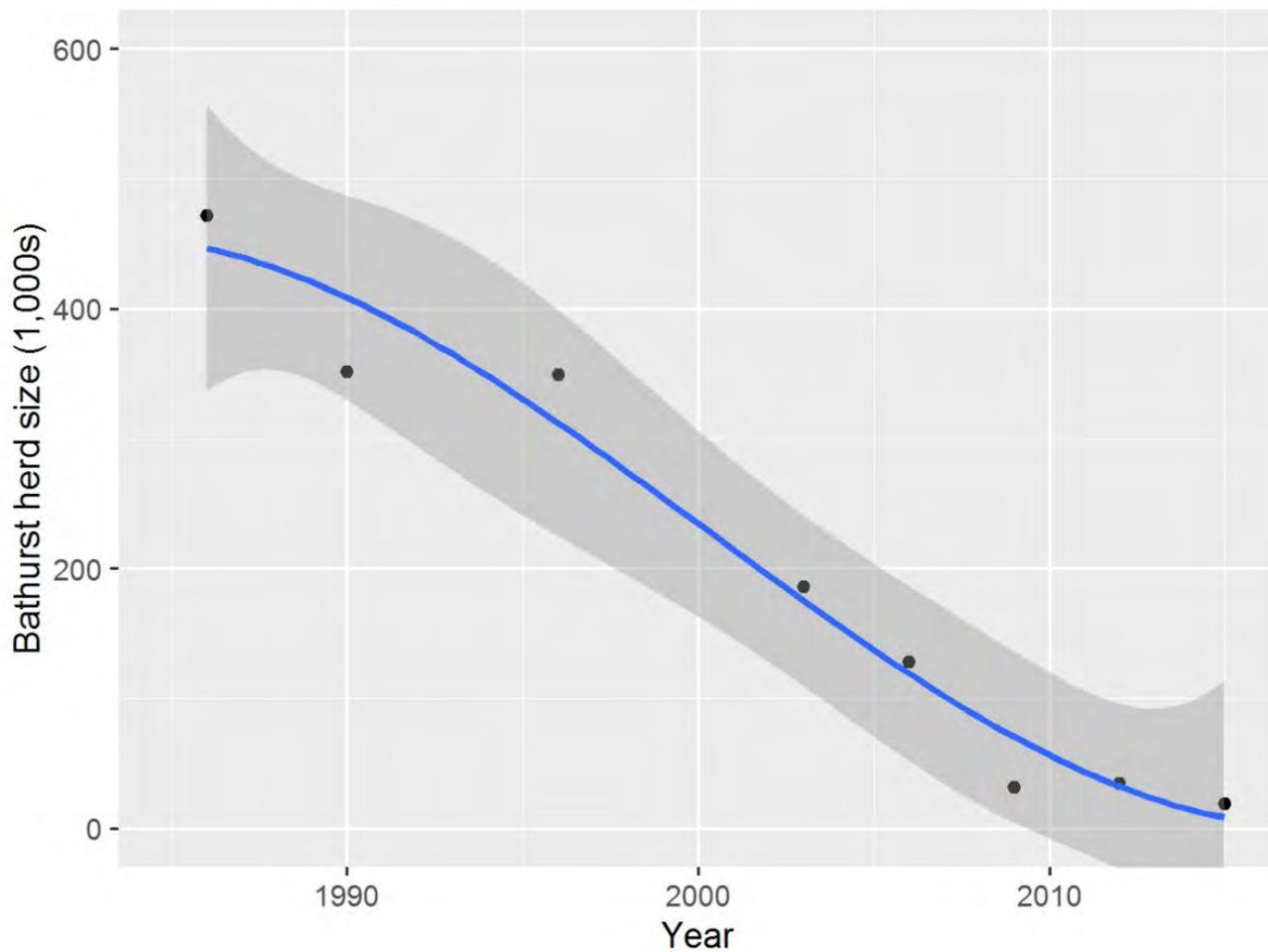


Figure 3: Figure 4.2-4 from Golder 2017

APPENDIX B

Caribou Behavioural Summary

Date	Time	Distance to Mine Component (km)	UTM Easting	UTM Northing	Group Size	Sample Composition
2021-03-18	8:39	0.37	534878	7154489	29	Males / Females
2021-03-24	8:56	0.40	533154	7154760	120	Males / Females
2021-03-24	8:59	0.48	533884	7154745	120	Males / Females
2021-03-24	15:36	0.74	533675	7155069	200	Males/Females
2021-03-24	15:37	0.36	533379	7154705	200	Males / Females
2021-03-26	9:53	0.22	534876	7153779	80	Males / Females
2021-03-27	9:06	1.43	531290	7153805	200	Males / Females / Calves
2021-03-29	14:44	15.93	521986	7137400	12	Males / Females
2021-03-29	14:01	0.00	533214	7153241	50	Males / Females
2021-03-31	10:12	8.87	528575	7141242	200	Males / Females / Calves
2021-04-03	8:54	14.55	546374	7140812	200	Males / Females
2021-04-04	11:30	13.20	524463	7164818	120	Males / Females / Calves
2021-04-04	10:12	11.45	522022	7158825	200	Males / Females / Calves
2021-04-05	8:28	0.08	532340	7152781	200	Males / Females / Calves
2021-04-05	8:33	0.54	531955	7153103	200	Males / Females / Calves
2021-04-06	11:46	0.01	532610	7152303	100	Males / Females
2021-04-27	11:05	0.09	535331	7153907	16	Males / Females / Calves
2021-05-09	15:18	41.66	491029	7161763	13	Males / Females / Calves
2021-07-12	13:15	0.00	533502	7150675	1	Males
2021-09-13	8:48	0.03	532392	7150441	2	Males
2021-09-29	8:02	0.01	535218	7153000	2	Males

APPENDIX C

General Wildlife Reports

Wildlife Report - 2021

Caribou - 2021-07-12 - Pond 12

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Caribou - 2021-07-12 - Pond 12

Document No. WildlifeReport000068

Completed On

12 Jul 2021

Audit ID: 1002

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Sighting

General Wildlife Sighting

Animal Type

Caribou

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)

Male

Photo (If Possible)



Photo 1

Enter Initial Time of Wildlife Sighting

12 Jul 2021 12:45 MDT

Department/Individual Who Reported Wildlife:

Mobile Maintenance

Environment On Scene

Environment at Call-out Location

12 Jul 2021 13:15 MDT

Chronological Events

1245 Caribou called in at A21 Portal
1300 Caribou called in on road to Waste Transfer.
1315 ENV has eyes on Caribou in Pond 12 grazing.
1325 Vac Truck drove by, no response from Caribou.
1328 Haul Truck drove by, Caribou looked up.
1330 2 Haul Trucks passed, Caribou kept grazing.
1333 Light Vehicle drove by, no response.
1334 HaulTruck passed, Caribou kept grazing.
1337 3 Haul Trucks drove by, Caribou looked up in their direction.
1348 Light Vehicle drove by, no response
1352 Two Haul Trucks drove by, no response.
1359 Caribou climbed up onto road by Waste Transfer and walked towards Test Piles.
1414 Caribou trotted down hill in front of ENV truck. Lying down in water by California Shack
1455 Caribou asleep. ENV out.
1600 Caribou called in on LV Road to PKC.
1607 Caribou on Tundra by Cross

Movement Map (Import NotePlus Site Map)

Environment Off Scene

End of Environment Call-out

12 Jul 2021 16:13 MDT

Final Location of Wildlife

Test Piles

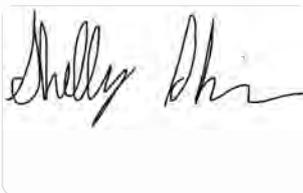
Closure & Sign-off

100%

Wildlife Report Complete

On

Signature



Shelby Skinner

16 Jul 2021 07:14 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Caribou - 2021-07-13 - North Haul Road

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Caribou - 2021-07-13 - North Haul Road

Document No.

WildlifeReport000127

Completed On

13 Jul 2021

Audit ID: 1002

Wildlife Report

Type of Wildlife Report	General sighting / Other
Report Type	Sighting

General Wildlife Sighting

Animal Type	Caribou
-------------	---------

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)
 Single male caribou

Photo (If Possible)

Enter Initial Time of Wildlife Sighting	13 Jul 2021 14:00 MDT
---	-----------------------

Department/Individual Who Reported Wildlife:
 Surface Mining

Environment On Scene

Environment at Call-out Location	13 Jul 2021 14:00 MDT
----------------------------------	-----------------------

Chronological Events

14:00 Caribou called in on North Haul Road near North Country Till Pile.
 14:15 ENV stops hauling on North Haul Road Single Lane. Caribou walking down Single Lane.
 14:30 Caribou trotting down North Haul Road towards PKC Muster. Caribou goes into HME Parking at PKC Muster then onto LV PKC road heading towards Waste Transfer. ENV opens North Haul Road for hauling.
 15:00 ENV leaves Caribou grazing in Pond 12.

Movement Map (Import NotePlus Site Map)



Photo 1

Environment Off Scene

End of Environment Call-out	13 Jul 2021 15:00 MDT
-----------------------------	-----------------------

Final Location of Wildlife

Pond 12

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Shelby Skinner

16 Jul 2021 07:52 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Caribou - 2021-07-25 - SCRP

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Caribou - 2021-07-25 - SCRP

Document No.

WildlifeReport000128

Completed On

25 Jul 2021

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Sighting

General Wildlife Sighting

Animal Type

Caribou

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)

Single large caribou

Photo (If Possible)



Photo 1

Enter Initial Time of Wildlife Sighting

25 Jul 2021 07:00 MDT

Department/Individual Who Reported Wildlife:

Steve - Dyno Explosives

Environment On Scene

Environment at Call-out Location

Environment did not visit the area

Chronological Events

Caribou called in at the South Country Rock Pile and Ammonium Nitrate roadway. Environment immediately contacted Pit supervisor to halt traffic in the area. Caribou made its way south across the South Haul Road and exited safely to the Tundra several minutes later.

Movement Map (Import NotePlus Site Map)

Environment Off Scene

End of Environment Call-out

Final Location of Wildlife

Tundra near SCRP

Closure & Sign-off

100%

Wildlife Report Complete



Signature

GC

25 Jul 2021 15:55 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Caribou - 2021-08-01 - ROM - South Haul Road

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Caribou - 2021-08-01 - ROM - South
Haul Road

Document No.

WildlifeReport000130

Completed On

2 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

1 Aug 2021 16:00 MDT

Department/Individual Who Reported Wildlife:

Unknown. Caribou was spotted several times on the PKC before being reported on the south haul road

Environment On Scene

Environment at Call-out Location

2 Aug 2021 16:15 MDT

Animal Type

Caribou

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

Single large male, appeared healthy

Photo (If Possible):



Photo 1

Chronological Events

1600 Environment received a report of a single caribou on the south haul road near the truck shop
 1615 Environment on scene, caribou was standing still on the edge of the haul road, several vehicles had stopped at a safe distance to allow the animal to pass. Environment shut down the relevant section of the south haul road and instructed waiting vehicles to back slowly out of the area.
 1620 The caribou walked from the south haul road partway up ROM hill before turning around and heading up the small access road behind the site services lineup. Environment followed at a safe distance.
 1625 Environment stopped a loader heading the opposite direction down the access road and backed up to allow the caribou to leave the area. The caribou again headed up ROM hill, Environment stopped a haul truck heading in the opposite direction and followed the caribou back onto the access road.
 1640-1740 The caribou stood in the shade on the access road and grazed on nearby willows. Environment remained nearby to prevent traffic from using the road.
 1745 A second Environment team arrived from the other side of the access road and slowly approached the animal. The second truck blocked access to ROM hill while the caribou was gently encouraged back onto the south haul road and then onto the tundra near the shallow bays.
 1800 The caribou headed northeast on a small access road parallel to the south haul road. Environment positioned vehicles to prevent the animal from returning to the active road.
 1810 The caribou began grazing on nearby tundra, Environment remained to monitor the scene
 1840 Environment off scene

Movement Map (Import NotePlus Site Map)



Photo 2

Deterrent Count	0.5%
Truck	2 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 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

1 Aug 2021 18:40 MDT

Final Location of Wildlife

Tundra near Shallow Bays

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

2 Aug 2021 07:21 MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2020

Grizzly - 2021-05-20 - Airport

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-05-20 - Airport

Document No.

WildlifeReport000378

Completed On

20th May, 2021

Audit

100%

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Sighting

General Wildlife Sighting

Animal Type

Grizzly Bear

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)

Single grizzly

Photo (If Possible)

Enter Initial Time of Wildlife Sighting

20th May, 2021 1:30 PM MDT

Department/Individual Who Reported Wildlife:

RTX

Environment On Scene

Environment at Call-out Location

20th May, 2021 2:00 PM MDT

Chronological Events

13:30 Grizzly reported East of Helipad, Environment issued bear alert

14:00 Grizzly spotted on ice heading towards Misery Pit. Bear visible from Water Tree

Movement Map (Import NotePlus Site Map)

Environment Off Scene

End of Environment Call-out

20th May, 2021 2:30 PM MDT

Final Location of Wildlife

Ice

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature



Shelby Skinner

24th May, 2021 9:30 AM MDT

Wildlife Report - 2021

Grizzly - 2021-05-31 - A21

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-05-31 - A21

Document No.

WildlifeReport000103

Completed On

1st Jun, 2021

Audit

100%

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Sighting

General Wildlife Sighting

Animal Type

Grizzly Bear

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)

Single grizzly, healthy looking; Dark brown legs with a scratch on the face

Photo (If Possible)

Enter Initial Time of Wildlife Sighting

31st May, 2021 3:45 PM MDT

Department/Individual Who Reported Wildlife:

RTX - Eileen

Environment On Scene

Environment at Call-out Location

31st May, 2021 4:00 PM MDT

Chronological Events

15:45 - ENV receives call of bear near RTX Drill site S of A21, ENV issues announcement

15:50 - Bear moves toward A21 Zone 2 and is spotted by the Pit Supervisor who continues to follow the bear as it moves along toward the A21 Muster Station

16:05 - ENV arrives on scene and bear is on the ice moving SW of A21

16:20 - ENV no longer has eyes on bear, it was last spotted headed in a good direction (away from site), ENV leaves the area

Movement Map (Import NotePlus Site Map)

Environment Off Scene

End of Environment Call-out

31st May, 2021 4:30 PM MDT

Final Location of Wildlife

SW of A21

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Atikin Hehn

1st Jun, 2021 8:38 AM MDT

Wildlife Report - 2021

Grizzly - 2021-06-13 - Truck shop to NI to A21

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-06-13 - Truck shop to
NI to A21

Document No.

WildlifeReport000104

Completed On

13th Jun, 2021

Wildlife Report

Type of Wildlife Report	General sighting / Other
Report Type	Sighting

General Wildlife Sighting

Animal Type	Grizzly Bear
-------------	--------------

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)

Average sized blonde grizzly, possibly resident or previous year's cub.

Photo (If Possible)



Photo 1

Photo 2

Enter Initial Time of Wildlife Sighting	13th Jun, 2021 2:30 AM MDT
---	----------------------------

Department/Individual Who Reported Wildlife:

Pit Ops

Environment On Scene

Environment at Call-out Location	13th Jun, 2021 2:55 AM MDT
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Chronological Events

02:30 Bear called in to Security who contacted on call Environment (ENV) personnel. Grizzly spotted on Process Plant ROM hill.

02:55 Environment on scene. Bear across the bay from Truck Shop, no visual. Repositioned to vegetation plots near south haul road.

03:27 Bear called in at Backfill. ENV went to backfill yard, no visual on bear. Animal had already moved up berm towards North Haul Road.

15:15 Bear called in on A21 Haul Road heading towards A21 Muster Station.

15:20 ENV on scene, bear near shoreline to west of A21 muster. Moved towards South Country Rock Pile. ENV off scene again.

16:00 Bear called in again at A21 muster station, ENV mobilizes.

16:20 ENV on scene, bear not visible. Search begins.

17:30 Bear spotted on South side of A21 heading across ice towards southern mainland. ENV off scene.

Movement Map (Import NotePlus Site Map)

Environment Off Scene

End of Environment Call-out

13th Jun, 2021 6:00 PM MDT

Final Location of Wildlife

Heading south across ice to mainland

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

GC

13th Jun, 2021 6:49 PM MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Grizzly 2021-07-24 Dump 12

Complete

Score	0.25%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly 2021-07-24 Dump 12

Document No. WildlifeReport000382

Completed On

24 Jul 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0%

Enter Initial Time of Wildlife Sighting

24 Jul 2021 22:30 MDT

Department/Individual Who Reported Wildlife:

Frank - Pit Supervisor

Environment On Scene

Environment at Call-out Location

24 Jul 2021 22:50 MDT

Animal Type

Grizzly Bear

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

No visual, unknown individual

Photo (If Possible):

Chronological Events

10:35 Grizzly called in to Security night shift who notified on-call Environment personnel. Bear near the Fresh Air Raise heading south towards Dump 12.

10:50 Environment bear monitor on scene. Bear last spotted heading into boulder field. No visual gained. Environment searched the area.

11:30 Environment satisfied bear bedded down, left the area.

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 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 24 Jul 2021 23:30 MDT

Final Location of Wildlife

Unknown

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

GC

25 Jul 2021 08:16 MDT

Wildlife Report - 2021

Grizzly - 2021-08-23

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-08-23

Document No. WildlifeReport000142

Completed On

23 Aug 2021

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Sighting

General Wildlife Sighting

Animal Type

Grizzly Bear

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)

Darker, larger bear with patchy fur

Photo (If Possible)

Enter Initial Time of Wildlife Sighting

23 Aug 2021 05:00 MDT

Department/Individual Who Reported Wildlife:

Pit Ops

Environment On Scene

Environment at Call-out Location

23 Aug 2021 06:30 MDT

Chronological Events

05:00 Security received a call from Pit Ops about a single grizzly on the A21 Haul Road headed toward the A21 Muster. Pit Ops continued to watch bear until ENV got on shift.

06:10 ENV goes to see Pit Ops who is following bear on camera (as well as person in field in Truck). Bear is grazing and moving along the infield of the A21 pit and moves North toward the bay adjacent to Lakeshore Blvd.

06:30 ENV arrives on scene. Bear is swimming across to bay in the direction of the South Tank Farm. Bear stops along the tundra and continues to graze

07:30 Bear has been moving back and forth along the Tundra and is slowly moving N. Bear in OK area, ENV leaves to swap out personnel.

08:45 ENV cannot locate bear, leaves area

15:00 Bear grazing in Pond 11

15:30 Bear sleeping in Pond 11

16:00 Bear grazing in Pond 11

16:30 Bear sleeping in Pond 11

17:06 Bear grazing in Pond 11

17:58 Bear crossed road towards field dailies

18:30 Bear drank from evaporation pan

19:30 Bear crossed South Winter Road Approach onto Tundra

19:45 Bear grazing and slowly heading towards Lakeshore Boulevard. Pit Ops personnel swapped out ENV.

Movement Map (Import NotePlus Site Map)



Photo 1

Environment Off Scene

End of Environment Call-out

Final Location of Wildlife

Tundra by old Winter Road Staging Area

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Shelby Skinner

24 Aug 2021 14:08 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly 2021-09-12 Shallow Bays

Complete

Score	0.25%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly 2021-09-12 Shallow Bays

Document No. WildlifeReport000149

Completed On

12 Sep 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0%

Enter Initial Time of Wildlife Sighting

12 Sep 2021 00:00 MDT

Department/Individual Who Reported Wildlife:

Underground

Environment On Scene

Environment at Call-out Location

12 Sep 2021 12:06 MDT

Animal Type

Grizzly Bear

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

Same large dark coloured individual with gold fur patches that has been on site frequently the past month.

Photo (If Possible):



Photo 1



Photo 2

Chronological Events

12:06 Bear called in to Environment (ENV) in shallow bays near Underground C portal.

12:35 ENV on scene, bear foraging in shallow bays south of Underground surface infrastructure.

13:15 Bear crosses to East side of North Winter Road Approach (NWRA)

13:41 Bear still E of NWRA, ENV off scene.

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 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 12 Sep 2021 13:45 MDT

Final Location of Wildlife

On Tundra East of NWRA

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

GC

12 Sep 2021 15:10 MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Grizzly - 2021-10-09 - North Inlet

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-10-09 - North Inlet

Document No. WildlifeReport000156

Completed On

10 Oct 2021

Audit 100%

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Sighting

General Wildlife Sighting

Animal Type

Grizzly Bear

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)

Larger bear with blonde stripe on shoulders and dark stripe running down back

Photo (If Possible)



Photo 1

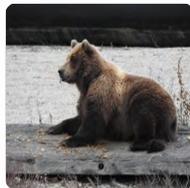


Photo 2

Enter Initial Time of Wildlife Sighting

9 Oct 2021 13:20 MDT

Department/Individual Who Reported Wildlife:

Powerhouse

Environment On Scene

Environment at Call-out Location

9 Oct 2021 13:30 MDT

Chronological Events

13:20 - Single grizzly called in at NC17 Laydown near Airport

13:30 - ENV arrives on scene, located bear on Tundra near North Inlet, bear in good area, ENV issues announcement and leaves area

Movement Map (Import NotePlus Site Map)

Environment Off Scene

End of Environment Call-out

10 Oct 2021 13:45 MDT

Final Location of Wildlife

North Inlet

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Atikin Hehn

10 Oct 2021 09:00 MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Grizzly - 2021-10-10 - Shallow Bays

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-10-10 - Shallow Bays

Document No. WildlifeReport000158

Completed On

10 Oct 2021

Audit 100%

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Sighting

General Wildlife Sighting

Animal Type

Grizzly Bear

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)

Larger bear - same as previous day; blonde stripe across shoulders and black stripe down back

Photo (If Possible)



Photo 1

Enter Initial Time of Wildlife Sighting

10 Oct 2021 10:30 MDT

Department/Individual Who Reported Wildlife:

Projects

Environment On Scene

Environment at Call-out Location

10 Oct 2021 10:40 MDT

Chronological Events

10:30 - Bear called in headed down the NCRP toward the North Haul Road, ENV issues announcement

10:40 - Bear spotted in the Shallow Bay area

12:05 - Bear still grazing in Shallow Bay area

12:50 - Bear still grazing in Shallow Bay area - ENV updates announcement and leaves area

14:30 - ENV locates bear in same area, bear continues to graze

17:00 - Bear crosses South Haul Road and heads toward Pond 5

17:15 - Bear moves from Tundra above Pond 5 toward North Haul Road

17:20 - Bear crosses PKC Muster area toward tundra near Test Piles

17:25 - Bear headed toward Windfarm area

17:40 - ENV cannot locate bear, updates announcement and leaves area

Movement Map (Import NotePlus Site Map)

Environment Off Scene

End of Environment Call-out

10 Oct 2021 17:40 MDT

Final Location of Wildlife

Tundra near Emulsion Plant/Windfarm

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Atikin Hehn

10 Oct 2021 18:01 MDT

Appendix

Appendix



Photo 1

APPENDIX D

Wildlife Mortality Incident Reports 2021

Wildlife Report - 2021

Duck - 2021-06-13 A21 Pit Maintenance Shop

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Duck - 2021-06-13 A21 Pit
Maintenance Shop

Document No.

WildlifeReport000105

Completed On

14th Jun, 2021

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Sighting

General Wildlife Sighting

Animal Type

Other

Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)

Dark black duck with orange bill. some species of Scoter duck. (likely White Winged Scoter)

Photo (If Possible)



Photo 1



Photo 2

Enter Initial Time of Wildlife Sighting

13th Jun, 2021 3:00 PM MDT

Department/Individual Who Reported Wildlife:

A21 Pit Maintenance

Environment On Scene

Environment at Call-out Location

13th Jun, 2021 4:30 PM MDT

Chronological Events

15:30 Injured duck called in at A21 pit maintenance shop.

16:30 Environment (ENV) arrives on scene, confirms duck is alive but minimally responsive to verbal and thrown (non contact) stimuli. Will not move with verbal stimuli. Decision is made to leave animal in place, as it is not in danger of equipment, and is sheltered by the berms.

June 14, 2021

14:00 ENV visited the area again to check on potentially injured animal. There was no sign of it, and no sign of feathers. Duck likely moved on on its own, or was taken by a predator.

Movement Map (Import NotePlus Site Map)

Environment Off Scene

End of Environment Call-out

14th Jun, 2021 2:30 PM MDT

Final Location of Wildlife

Unknown, away from mine infrastructure.

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

GC

14th Jun, 2021 5:09 PM MDT

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Grizzly - 2021-08-09 - Powerhouse Laydown

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-08-09 - Powerhouse Laydown

Document No.

WildlifeReport000138

Completed On

10 Aug 2021

Audit ID: 1009

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Mortality

Wildlife Mortality

Enter Initial Time of Report

9 Aug 2021 16:30 MDT

Department/Individual Who Reported Mortality:

Environment

Environment On Scene

Environment at Call-out Location

9 Aug 2021 13:30 MDT

Location

Powerhouse laydown behind South Tank Farm heavy equipment fuelling bay



Photo 1

Animal Type

Grizzly Bear

Description of Animal/Scene

A small male grizzly sustained significant injury in a fight with another bear. The injured bear was euthanized on the advice of and following procedures directed by the Government of the Northwest Territories, Department of Environment and Natural Resources (GNWT-ENR).



Photo 2



Photo 3

Photo of Scene

Estimated Time of Death

Hours

Environment Off Scene

End of Environment Call-out

14 Aug 2021 16:30 MDT

Final Location of Carcass

Carcass was disposed of by helicopter 25km southwest of site to avoid risk of attracting scavenging animals

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Nicole Goodman

14 Aug 2021 09:20 MDT

Appendix

Appendix



Photo 1



Photo 2



Photo 3

Wildlife Report - 2021

Owl - 2021-10-10 - Airport Road

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Owl - 2021-10-10 - Airport Road

Document No. WildlifeReport000157

Completed On

10 Oct 2021

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Mortality

Wildlife Mortality

Enter Initial Time of Report

10 Oct 2021 07:30 MDT

Department/Individual Who Reported Mortality:

Powerhouse

Environment On Scene

Environment at Call-out Location

10 Oct 2021 08:00 MDT

Location

Airport Road

Animal Type

Other

Description of Animal/Scene

Owl found deceased in middle of road halfway between airport and NIWTP. Unknown cause of death.

Photo of Scene



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7

Estimated Time of Death

Hours

Environment Off Scene

End of Environment Call-out

10 Oct 2021 08:45 MDT

Final Location of Carcass

Environment freezer

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Atikin Hehn

10 Oct 2021 09:51 MDT

Appendix

Appendix



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7

Wildlife Report - 2020

Ptarmigan - 2021-03-08

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Ptarmigan - 2021-03-08

Document No.

WildlifeReport000102

Completed On

8th Mar, 2021

Audit

100%

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Mortality

Wildlife Mortality

Enter Initial Time of Report

8th Mar, 2021 11:00 AM MST

Department/Individual Who Reported Mortality:

Mike - Powerhouse Electrical

Environment On Scene

Environment at Call-out Location

8th Mar, 2021 11:00 AM MST

Location

Airport Road

Animal Type

Other

Description of Animal/Scene

Ptarmigan was found on the Airport Road. Likely hit by a passing vehicle.

Photo of Scene

Estimated Time of Death

Hours

Environment Off Scene

End of Environment Call-out

8th Mar, 2021 11:00 AM MST

Final Location of Carcass

Carcass incinerated

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Atikin Hehn

8th Mar, 2021 1:20 PM MST

Wildlife Report - 2021

Ptarmigan - 2021-11-03 - Airport Road

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Ptarmigan - 2021-11-03 - Airport Road

Document No. WildlifeReport000159

Completed On

4 Nov 2021

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Mortality

Wildlife Mortality

Enter Initial Time of Report

3 Nov 2021 10:00 MDT

Department/Individual Who Reported Mortality:

Unknown

Environment On Scene

Environment at Call-out Location

3 Nov 2021 10:30 MDT

Location

Airport road near airport

Animal Type

Other

Ptarmigan

Description of Animal/Scene

Single dead ptarmigan found on the road, no obvious wounds or mechanism of injury.



Photo 1

Photo of Scene

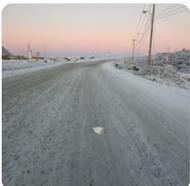


Photo 2

Estimated Time of Death

Hours

Environment Off Scene

End of Environment Call-out

3 Nov 2021 10:40 MDT

Final Location of Carcass

Sulphur lab freezer

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

4 Nov 2021 11:21 MDT

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Ptarmigan - 2021-11-08 - A21 Muster

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Ptarmigan - 2021-11-08 - A21 Muster

Document No. WildlifeReport000160

Completed On

9 Nov 2021

Audit

100%

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Mortality

Wildlife Mortality

Enter Initial Time of Report

8 Nov 2021 09:30 MST

Department/Individual Who Reported Mortality:

Surface Mining

Environment On Scene

Environment at Call-out Location

8 Nov 2021 10:00 MST

Location

Road near A21 muster

Animal Type

Other

Description of Animal/Scene

Single dead ptarmigan on the road to the A21 muster area, no obvious cause of death but evidence of scavenging by ravens

Photo of Scene



Photo 1

Estimated Time of Death

Hours

Environment Off Scene

End of Environment Call-out

8 Nov 2021 10:10 MST

Final Location of Carcass

Sulphur lab freezer

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

9 Nov 2021 15:34 MST

Appendix



Photo 1

Wildlife Report - 2021

Red Fox 2021-11-27 NCRP Ramp

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Red Fox 2021-11-27 NCRP Ramp

Document No. WildlifeReport000161

Completed On

27 Nov 2021

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Mortality

Wildlife Mortality

Enter Initial Time of Report

27 Nov 2021 11:30 MST

Department/Individual Who Reported Mortality:

PKC supervisor - Troy Bortolotto

Environment On Scene

Environment at Call-out Location

27 Nov 2021 12:30 MST

Location

North Country Rock Pile (NCRP) access ramp

Animal Type

Fox

Red Fox

Description of Animal/Scene

Carcass of red fox located at the base of the berm on the side of the road going down the NCRP ramp.

Photo of Scene



Photo 1



Photo 2

Estimated Time of Death

Hours

Unknown

Environment Off Scene

End of Environment Call-out

27 Nov 2021 12:30 MST

Final Location of Carcass

Saved in freezer awaiting ENR confirmation.

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

GC

27 Nov 2021 16:43 MST

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Rough legged Hawk-2021-08-02- A21

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Rough legged Hawk-2021-08-02- A21

Document No.

WildlifeReport000131

Completed On

2 Aug 2021

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Mortality

Wildlife Mortality

Enter Initial Time of Report

2 Aug 2021 16:00 MDT

Department/Individual Who Reported Mortality:

Environment/Waylon Simba, Brennan Debassige

Environment On Scene

Environment at Call-out Location

2 Aug 2021 16:00 MDT

Location

dewatering shack at the south entrance of A21 pit.

Animal Type

Other

Description of Animal/Scene

Rough legged Hawk/ looks to be full grown hawk, that has been dead for about 3/4 days.

Photo of Scene



Photo 1

Photo 2

Estimated Time of Death

Environment Off Scene

End of Environment Call-out

2 Aug 2021 16:30 MDT

Final Location of Carcass

In the environment freezer

Closure & Sign-off

Wildlife Report Complete

On

Signature

Brennan Debassige

2 Aug 2021 17:32 MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Sic sic-2021-06-10

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Sic sic-2021-06-10

Document No.

WildlifeReport000379

Completed On

10th Jun, 2021

Audit

100%

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Mortality

Wildlife Mortality

Enter Initial Time of Report

10th Jun, 2021 4:55 PM MDT

Department/Individual Who Reported Mortality:

Environment

Environment On Scene

Environment at Call-out Location

10th Jun, 2021 4:55 PM MDT

Location

North haul road beside north country till pile

Animal Type

Other

Description of Animal/Scene

Sic Sic hit by unknown vehicle in middle of road.

Photo of Scene

Estimated Time of Death

Hours

Environment Off Scene

End of Environment Call-out

10th Jun, 2021 4:57 PM MDT

Final Location of Carcass

Tundra north of N17 laydown.

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature



Brennan Debassige

10th Jun, 2021 5:30 PM MDT

Wildlife Report - 2021

Sparrow - 2021-09-24 - Truck Shop Mezzanine

Complete

Score	100%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Sparrow - 2021-09-24 - Truck Shop
Mezzanine

Document No.

WildlifeReport000155

Completed On

25 Sep 2021

Audit 100%

Wildlife Report

Type of Wildlife Report

General sighting / Other

Report Type

Mortality

Wildlife Mortality

Enter Initial Time of Report

24 Sep 2021 15:30 MDT

Department/Individual Who Reported Mortality:

Truck Shop

Environment On Scene

Environment at Call-out Location

25 Sep 2021 15:35 MDT

Location

Truck shop mezzanine

Animal Type

Other

Description of Animal/Scene

Sparrow or other small passerine bird found dead on the floor of the truck shop mezzanine, no obvious cause of death.

Photo of Scene



Photo 1

Estimated Time of Death

Hours

Environment Off Scene

End of Environment Call-out

25 Sep 2021 15:40 MDT

Final Location of Carcass

Sulphur Lab freezer

Closure & Sign-off

Wildlife Report Complete

On

Signature

Brett Potter

25 Sep 2021 15:23 MDT

Appendix

Appendix



Photo 1

APPENDIX E

Site Wildlife Photos 2021

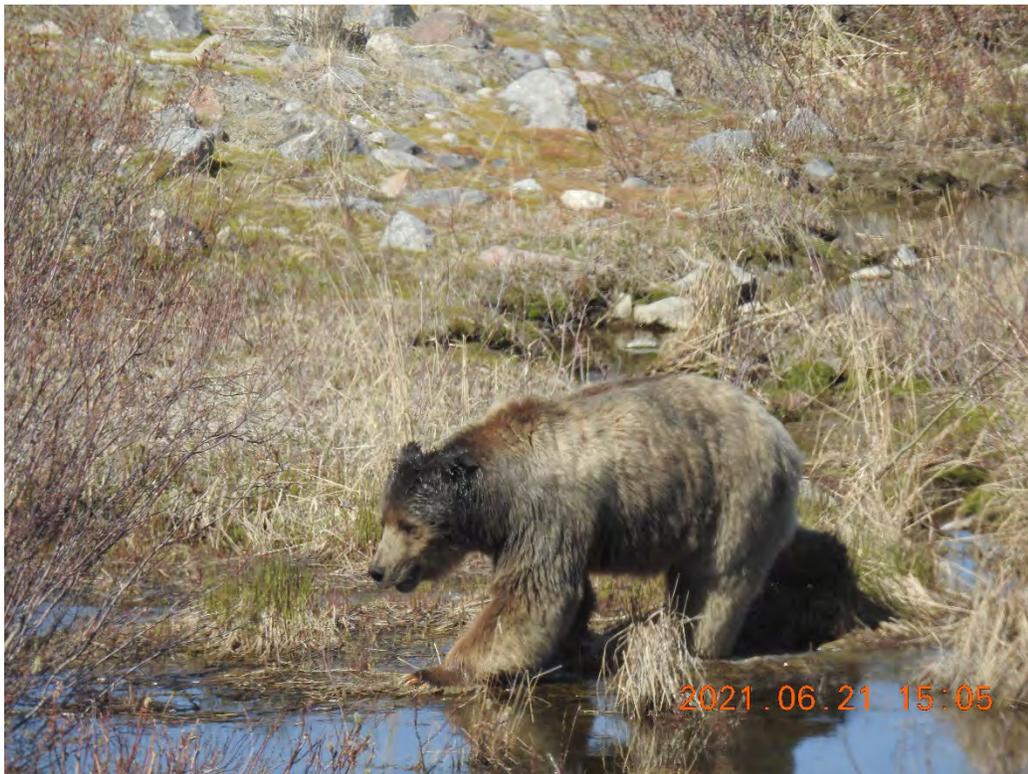


Figure 1: Grizzly bear (*Ursus arctos*). 21 June 2021.



Figure 2: Grizzly bear. 27 June 2021.



Figure 3: Grizzly bear. 1 July 2021.



Figure 4: Grizzly bear. 12 August 2021.



Figure 5: Grizzly bear. 12 August 2021.



Figure 6: Grizzly bear. 24 August 2021.



Figure 7: Grizzly bear. 12 September 2021.



Figure 8: Group of barren-ground caribou (*Rangifer tarandus groenlandicus*). 13 April 2021.



Figure 9: Barren-ground caribou (*Rangifer tarandus groenlandicus*). 12 July 2021.



Figure 10: Red fox (*Vulpes vulpes*). 14 June 2021.



Figure 11: Arctic hare (*Lepus arcticus*). 13 June 2021.



Figure 12: Snowy owl (*Bubo scandiacus*). 20 November 2021.



Figure 13: Rough-legged hawk (*Buteo lagopus*) fledgling. 7 August 2021.



Figure 14: Peregrine falcon (*Falco peregrinus anatum/tundrius*). 20 June 2021.

APPENDIX F

Caribou Incidental Observations Summary 2021

Date	Number of Caribou	Description
2021-03-07	4	Caribou far in the distance S of Diavik (A21)
2021-03-10	1	Caribou spotted on winter road heading to Diavik. One animal injured
2021-03-18	29	Caribou spotted North of East end of runway. 2 Wolves spotted by GC while doing caribou scans, no interaction between wolves and caribou
2021-03-19	40	Caribou bedded near winter road 18km SE of Diavik
2021-03-24	200	Large group of Caribou hung around the airport all day, got 4 behaviour scans on 4 different groups of the same herd, on two occasions throughout the day. 2 scans simultaneously in the morning, the other 2 simultaneously in the afternoon. All groups were members of a large 200+ individual herd that was spread over 2 kms.
2021-03-24	200	
2021-03-24	200	
2021-03-24	200	
2021-03-25	200	Same group as previous day
2021-03-26	80	From same group as previous day
2021-03-27	200	Same group of Caribou near airport, spotted to the West of N17, spooked by a white wolf walking on the ice between the groups
2021-03-31	500	Herd on south side of lake between wolverine track numbers 3-1 and 27-1
2021-04-05	200	Herd west of pond 3
2021-04-13	200	Spotted between A21 muster and SCRP
2021-04-18	20	Spotted offshore from A21 Muster
2021-04-21	15	Spotted on the way to FFD-1 during AEMP grazing on the tundra
2021-04-27	16	Small group of caribou feeding on the tundra beside the runway east approach
2021-07-12	1	Single Caribou at A21 Portal, Pond 12, Test Piles
2021-07-13	1	Single Caribou at NCTP, N Haul Road, PKC Muster, Pond 12
2021-07-17	1	Single caribou at NCRP, Pond 3
2021-07-18	1	A21 Portal shop heading towards SCRP
2021-07-22	1	Single large caribou at North Inlet
2021-07-23	1	Single large caribou at North Inlet

Date	Number of Caribou	Description
2021-07-25	1	Single large caribou between SCRCP and PKC, heading S
2021-07-30	1	Single bull caribou reported moving S from NW corner of PKC dam
2021-07-31	1	Single caribou reported between emulsion plant and magazine storage
2021-08-01	1	Single caribou reported on the south haul road, was herded carefully to the tundra near shallow bays
2021-08-07	1	Single caribou spotted by NI
2021-08-09	1	Single caribou near helipad
2021-08-12	1	Single caribou near AN road
2021-08-13	1	Single caribou between NCRP and Airport Road heading west
2021-08-18	1	Single caribou beside emulsion plant road
2021-08-20	2	2 caribou on tundra near SCRCP
2021-08-23	2	2 caribou on tundra near SCRCP
2021-08-25	1	Caribou near A21 Haul Road headed toward A21 Muster Station
2021-08-29	1	Tundra near A21 Watering Tree
2021-09-03	6	Group of 6 caribou with large antlers near TK camp
2021-09-13	2	2 caribou on tundra near SCRCP
2021-09-21	1	Single caribou reported near A21 Water Tree

APPENDIX G

Grizzly Bear Incidental Observations Summary 2021

Date	Number of Animals	Characteristics of Animals	Location	Deterrents Used?
2021-05-02	2	One large healthy male, large snout, blonde shoulders, dark brown fur, other one unknown	2 Grizzlies spotted in similar area around A21	yes
2021-05-04	1	Single grizzly	Grizzly bear spotted 4km SE of the mine by RTX exploration crew.	no
2021-05-20	1	Single grizzly	Single grizzly reported east of helipad	no
2021-05-29	3	one adult, 2 yearling cubs	Sow and 2 yearlings spotted at A21 in middle night and again in the morning	yes
2021-05-31	1	One adult, dark brown legs, with scratch on face	Single grizzly approached drill site S of A21, then appeared at A21 Z2, A21 muster, then moved along the ice S of A21	no
2021-06-13	1	Adult, light brown/blonde colouring, thick snout	Light brown grizzly around site all day moved from Truck shop before shift to NI, then around Pond 3 to A21	no
2021-06-14	1	Unknown	Grizzly bear called in at North Inlet but was not visible due to fog.	no
2021-06-16	1	young grizzly, unknown otherwise	Grizzly at A21 South Ramp, ENV not able to obtain visual.	no
2021-06-16	1	Young blonde bear, likely the blonde cub from last year's group of sow and 2 cubs	Grizzly at A21 dike pit. ENV shadowed bear along dike to make sure it did not make contact with people.	yes
2021-06-18	3	Blonde third year cub possibly, with large brown mother and UB following. May have been a blonde female and large dark coloured male?	Sow and 3rd year cub at north inlet, Resident male heading from SCAP in their direction trying to catch up	yes
2021-06-18	1	Unknown, never got eyes on the bear due to lateness of call	Unconfirmed grizzly called in in shallow bays. Originally spotted at the cafeteria, but Security was having radio troubles, took 10mins to contact Env. Never told Env the bear had been near the cafeteria. Walking trail was never closed.	no
2021-06-19	1	probably Resident male	Probably Resident male, moved from SCAP warehouse to North Inlet	yes
2021-06-21	1	Dark brown, large male grizzly with jet black head. Have not seen this one before. Was aggressive and skittish.	Spotted heading towards 154 dike entrance fish habitat. Pushed north away from island	yes
2021-06-23	1	Single Blonde cub from last year	The blonde cub from last year moving from ROM hill to North Inlet	no
2021-06-24	2	shaggy blonde and dark brown bear sleeping near batch plant and Dark Horse large dark bear that charged GC	a scruffy looking bear, not Resident male or the cub, but likely been here before sleeping south of Batch, second large brown "Dark Horse" bear approaching 418 dike in distance. GC blocked Dark Horse from coming onto site, bear went north	no
2021-06-24	1	Resident male,	Resident Grizzly Resident male in Metcon eating spilled hydrocarbons the second time	yes
2021-06-24	1	Resident male,	Resident Grizzly Resident male in Metcon eating spilled hydrocarbons the first time	no
2021-06-24	1	Resident male,	Resident male in front of Truck shop	yes
2021-06-25	1	Resident male	Resident male at Metcon getting back into tote. Removed tote with site services	yes
2021-06-25	1	Resident male	Resident male at A21 pit shop, then persuaded towards pond 7	yes
2021-06-25	1	Resident male	Resident male wandering slowly through camp to NCTP	yes
2021-06-27	1	Resident male	Resident male at underground mine dry	no
2021-06-28	1	Resident male	Resident bear called in at ROM hill, spotted at WTA, moved towards SCRP and was seen digging a den	yes
2021-06-29	1	Small, blonde, possibly one of the cubs from the past 2 years	single grizzly (one of the cubs from the past 2 years????) at W dam PKC	yes
2021-06-29	1	Resident male	Single grizzly near PKC muster	yes

Date	Number of Animals	Characteristics of Animals	Location	Deterrents Used?
2021-06-30	1	Unknown - did not respond as it was called in outside of working hours	Single grizzly at Water Tree by NI	no
2021-07-01	1	Resident male	Single grizzly near south tank farm. Wandered around various places on site.	yes
2021-07-01	1	Unknown - did not see bear due to fog	single grizzly between SCAP and Batch Plant	no
2021-07-01	1	Small, blonde, possibly one of the cubs from the past 2 years	single grizzly (one of the cubs from the past 2 years????) at STF	yes
2021-07-02	1	Resident male	Resident bear called in at N Dam PKC, ROM hill road, Pond 5, Shallow Bays	no
2021-07-03	1	Resident male	Bear at the A21 chicane, moved toward SCRCP	yes
2021-07-03	1	Resident male	Single grizzly outside south camp	yes
2021-07-04	1	Resident male	Resident bear called in at Backfill, crossed road to SCAP, crossed back to Backfill and went up to the NCTP	yes
2021-07-04	1	Resident male	singly grizzly in D1 laydown	yes
2021-07-05	1	Resident male	Single grizzly near SCAP warehouse	yes
2021-07-06	1	Unknown - probably Resident male	Single grizzly going down A154 Pit	no
2021-07-07	1	Unknown - probably Resident male	single grizzly on Airport Road crossing into North Inlet	no
2021-07-09	1	Resident male	Resident bear called in on S Haul Road heading towards Backfill, Shallow Bays, Backfill, Pond13	yes
2021-07-17	1	Unknown - probably Resident male	Single grizzly at Airport, N17	no
2021-07-18	1	Resident male	Resident bear called in at Met Con, South Tank Farm, Pond 11, Fresh Water Uptake, Pond 10	no
2021-07-18	1	Resident male	Single bear wandering around site	yes
2021-07-24	1	unknown	Single grizzly, moved from FAR towards north winter road approach, bedded down in boulder field	no
2021-07-29	1	Single young grizzly, sex unknown, thin with patchy fur	Single grizzly moving from backfill to till pile	yes
2021-08-04	1	unknown	Single grizzly reported near helipad	no
2021-08-05	1	Adult male	Single grizzly near Batch Plant	yes
2021-08-05	1	Adult male	Single grizzly near North Inlet	yes
2021-08-06	1	Adult male	Single grizzly on south haul road	yes
2021-08-07	1	Adult male	Single grizzly near crusher loadout	yes
2021-08-08	1	Adult male	Single grizzly near Pond 1	yes
2021-08-09	1	Unknown	Single grizzly near pond 12/waste transfer	no
2021-08-09	1	Single brown bear	Single injured bear at South Tank Farm	no
2021-08-10	2	Large, darker, patchy bear and smaller blond bear	Two bears chasing each other in A21	yes
2021-08-10	1	Single grizzly	Single grizzly out by Magazine	no
2021-08-11	2	Single grizzly	One grizzly reported at OMD (not observed by ENV) and 2 grizzlies spotted on NCRP later in afternoon	no

Date	Number of Animals	Characteristics of Animals	Location	Deterrents Used?
2021-08-12	2	Large, darker, patchy bear and smaller blond bear	Two grizzlies, one called in at Lakeshore Boulevard, the other by the South Tank, both met by South Winter Road Approach and chased to NI	yes
2021-08-15	1	Large, darker, patchy bear	Single dark patchy at Minter Road Laydown, Pond 11, south Winter Road Approach, Fresh Water Uptake, Pond 10, Shallow Bays, Pond 5	yes
2021-08-17	1	Single grizzly	Single grizzly at NCTP heading towards Crusher	no
2021-08-17	1	Single grizzly	Single grizzly near waste transfer area (the smaller blonde bear)	no
2021-08-19	1	Single grizzly	Single grizzly on tundra near lakeshore boulevard	no
2021-08-21	1	Single grizzly	Single grizzly E PKC headed S toward SCRP	no
2021-08-23	1	Large, darker, patchy	Single grizzly grazing A21 infield, then bay along Lakeshore Blvd	no
2021-08-24	1	Large, darker, patchy	Single grizzly grazing by SCRP tundra	yes
2021-08-27	1	Same bear from previous days, large, darker, patchy	Single grizzly grazing infield of A21	yes
2021-08-31	1	Same bear from previous days, large, darker, patchy	Single grizzly, grazing in Pond 5, Tundra near SCRP	yes
2021-09-01	1	Same bear as previous days	Single grizzly at A21 Pit shop, then on Tundra near magazine storage	no
2021-09-05	1	Same bear from previous day	Single grizzly west of airport	yes
2021-09-11	1	Same bear from previous days, large, dark chocolate brown, slight golden patches	Single large chocolate brown grizzly in shallow bays, same one that has been here this past week	yes
2021-09-12	1	Same bear from previous days, large, dark chocolate brown, slight golden patches	Single large chocolate brown grizzly in shallow bays, same one that has been here this past week	no
2021-09-14	1	"Patches", same bear from previous weeks.	"Patches" the now resident chocolate brown grizzly with gold patches.	no
2021-09-15	1	Patches	Patches in the shallow bays	yes
2021-09-15	1	Single large grizzly	Single grizzly in tundra patch near batch plant	yes
2021-09-15	1	"Patches", same bear from previous weeks.	"Patches" in the North Inlet	no
2021-09-16	1	Resident male	Resident male near A21 pit shop	yes
2021-09-17	1	"Patches", same bear from previous weeks.	"Patches" near WTA/A21 Pit Shop/SCRP	yes
2021-09-19	1	Resident male	Single grizzly spotted digging den near helipad	no
2021-10-03	1	Single grizzly	Called in near Emulsion plant	no
2021-10-03	1	Single grizzly	Called in leaving PKC Spillway headed toward Pond 3	no
2021-10-04	1	Single grizzly - likely same bear from previous day	Called in between airport and NC17 laydown	no
2021-10-09	1	Larger, blonde stripe on shoulders, dark stripe running down spine	Single grizzly grazing in the North Inlet	no
2021-10-10	1	Same bear from yesterday - likely Resident Male	Bear grazing in shallow bays ,majority of day	no

APPENDIX H

Wildlife Deterrent Action Incident Reports 2021

Wildlife Report - 2020

Grizzly - 2021-05-02 - A21

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-05-02 - A21

Document No.

WildlifeReport000377

Completed On

2nd May, 2021

Audit

0.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

2nd May, 2021 12:15 PM MDT

Department/Individual Who Reported Wildlife:

Surface mining supervisor

Environment On Scene

Environment at Call-out Location

2nd May, 2021 12:43 PM MDT

Animal Type

Grizzly Bear

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

Single grizzly. Looked very healthy

Photo (If Possible):

Chronological Events

12:15 Grizzly bear called in near A21 muster

12:43 Environment (ENV) on site, single grizzly bear north of A21 muster slowly grazing. Bear continues to move slowly north toward A21 Watering Tree.

13:20 Bear crosses South Country Rock Pile (SCRP) haul road and moves east, eventually ending up in bay between A21 and Lakeshore Boulevard.

14:30 Bear tries to gain access to A21 infield and dike, Environment (ENV) uses truck to block access.

14:45 Bear slowly crosses back to Lakeshore Boulevard and then to A21 portal pit shop, bear scraping at something in snow, fired one mid-range rubber bullet, hitting animal on its backside. Bear left heading toward SCRCP.

15:45 Bear spotted heading toward SCRCP, ENV leaves scene.

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

Truck

1

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 Explosive

0
From 0 to 40

12GA B.B. Marker

0
From 0 to 40

12GA Rubber Bullet

1
From 0 to 40

12GA Slug

0
From 0 to 40

Helicopter

0
From 0 to 40

Other

0
From 0 to 40

Specify

Mid Range rubber bullet

Environment Off Scene

End of Environment Call-out

2nd May, 2021 3:45 PM MDT

Final Location of Wildlife

Tundra near SCRP

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

MN

3rd May, 2021 2:12 PM MDT

Wildlife Report - 2020

Grizzly- 2021-05-29 -A21

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly- 2021-05-29 -A21

Document No.

WildlifeReport000062

Completed On

29th May, 2021

Audit

0.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

28th May, 2021 11:30 PM MDT

Department/Individual Who Reported Wildlife:

Dave Crews

Environment On Scene

Environment at Call-out Location

29th May, 2021 12:05 AM MDT

Animal Type

Grizzly Bear

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

Sow and two cubs

Photo (If Possible):



Photo 1

Chronological Events

2330 Security called ENV about bears by A21 Dike, issued bear alert
0000 ENV arrived at A21 and bears had moved through Zone 3 and back onto ice. Bears were up on equipment. Looks like same sow and 2 cubs from last word years. One cub hanging close to sow while other is keeping distance.
0023 Sow and 2 cubs sleeping on Tundra across the lake from the N Dike A21
0049 Bears still sleeping on Tundra
0100 Left bears sleeping on Tundra
0730 Sow and 2 cubs spotted on Lakeshore Boulevard heading to South Tank Farm
0745 ENV arrived at Waste Transfer Area, bears moving along fence
0748 ENV used CRACKER*1 to deter bears away from fence
0750 bears moved from Waste Transfer Area along AN Road, then to the A21 Portal
0757 ENV used 1*SHORT RANGE RUBBER BULLET on the sow and a cub to deter them from the Laydown
0800 Bears leave A21 Portal Laydown heading south onto Tundra, ENV loses sight of bears
0834 ENV leaves area

Movement Map (Import NotePlus Site Map)



Photo 2

Deterrent Count

0.5%

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 Explosive

0

From 0 to 40

12GA B.B. Marker

0

From 0 to 40

12GA Rubber Bullet

2

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

29th May, 2021 9:56 AM MDT

Final Location of Wildlife

AN Road

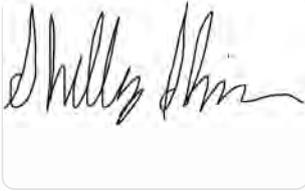
Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

A handwritten signature in black ink, appearing to read "Shelby Skinner", enclosed in a thin black rectangular border.

Shelby Skinner

30th May, 2021 7:57 AM MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

2021-06-16

Complete

Score	0.75%	Failed items	0	Actions	0
-------	-------	--------------	---	---------	---

Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) 2021-06-16

Document No. WildlifeReport000065

Completed On

16th Jun, 2021

Audit

0.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

16th Jun, 2021 1:33 PM MDT

Department/Individual Who Reported Wildlife:

A21 pitshop

Environment On Scene

Environment at Call-out Location

16th Jun, 2021 1:40 PM MDT

Animal Type

Grizzly Bear

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

Young blonde Bear, likely the blonde cub from last year's group of sow and 2 cubs

Photo (If Possible):



Photo 1



Photo 2

Chronological Events

7:15 Bear called in at entrance to A21 South ramp, environment mobilized, but did not gain visual on bear. 13:40 Bear at A21 pit shop, Environment already en route.

13:45 Bear crosses Haul road towards lake shore boulevard.

14:08 Used Bear banger 1x on bear, and 1x yelling at A21 dike.

14:30 Bear heading SE, from A21 on lake

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger	1 From 0 to 40
C/F Pen Whistle	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	1 From 0 to 40
Specify	Yelling at Bear x 1

Environment Off Scene

End of Environment Call-out 16th Jun, 2021 2:35 PM MDT

Final Location of Wildlife

Bear heading South East from A21 onto lake ice

Closure & Sign-off

100%

Wildlife Report Complete On

Signature

GC BD WS

16th Jun, 2021 4:45 PM MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Grizzly - 2021-06-18 - Backfill to NI

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-06-18 - Backfill to NI

Document No. WildlifeReport000106

Completed On

18th Jun, 2021

Audit

0.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

18th Jun, 2021 4:45 AM MDT

Department/Individual Who Reported Wildlife:

Site Services

Environment On Scene

Environment at Call-out Location

18th Jun, 2021 5:05 AM MDT

Animal Type

Grizzly Bear

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

possibly the same sow from the past 2 years, with the darker coloured cub, being followed distantly by resident bear "Ugly Butt".

Photo (If Possible):



Photo 1



Photo 2



Photo 3

Chronological Events

04:45 Two bears called in running through Backfill loadout yard.

05:05 Environment (ENV) on scene, two bears are making their way west through the north inlet. Looks like a sow and a third year cub. Possibly the same sow and one of the cubs that has been on site for past several years. The sow colouring looks different from previous years, but the cub looks nearly identical to the darker coloured cub from previous years.

05:30 A third bear is reported heading from SCAP warehouse yard towards Zone 1. Environment mobilizes to the area.

05:35 ENV arrives on scene, begins search for bear.

05:40 Bear spotted on berm between Backfill loadout yard and North Haul Road. Bear begins crossing road towards North Country Till Pile. ENV uses TRUCK to ensure bear keeps heading north.

05:45 Bear in North Inlet, ENV monitors as bear moves quickly down the inlet in direction of the other 2 bears and airport.

06:05 Bear climbs berm onto airport apron, ENV gets good visual, confirms it is the resident Grizzly "Ugly Butt". ENV has to use TRUCK at close range to push bear off of Airport equipment and off the apron.

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

Truck

2

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 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

18th Jun, 2021 6:30 AM MDT

Final Location of Wildlife

All bears north or west of the Airport runway.

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

GC

18th Jun, 2021 7:24 AM MDT

Appendix

Appendix



Photo 1



Photo 2



Photo 3

Wildlife Report - 2021

Grizzly - 2021-06-18 Shallow bays

Complete

Score	0.25%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-06-19 Shallow bays

Document No.

WildlifeReport000107

Completed On

20th Jun, 2021

Audit

0.25%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0%

Enter Initial Time of Wildlife Sighting

18th Jun, 2021 9:30 PM MDT

Department/Individual Who Reported Wildlife:

Pit Operations Dispatcher Dena

Environment On Scene

Environment at Call-out Location

18th Jun, 2021 9:55 PM MDT

Animal Type

Grizzly Bear

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

Unknown, likely resident grizzly

Photo (If Possible):

Chronological Events

21:30 Grizzly called in to Security near the cafeteria.

21:45 Security able to contact reporter, notifies on call Environment personnel (ENV). ENV contacts the reporter, bear was then in shallow bays heading towards SCAP.

21:55 ENV on South Haul Road searching for reported grizzly. Checked vegetation plots, collection ponds, and workplaces in the vicinity, no site of the Grizzly anywhere. No further reports.

22:30 ENV leaves area, end of call out.

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 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

18th Jun, 2021 10:30 PM MDT

Final Location of Wildlife

Unknown, no visual ever gained.

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

GC

20th Jun, 2021 8:07 AM MDT

Wildlife Report - 2021

Grizzly - 2021-06-19 - NCTP

Complete

Score	0.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-06-19 - NCTP

Document No.

WildlifeReport000109

Completed On

21st Jun, 2021

Audit

0.5%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.25%

Enter Initial Time of Wildlife Sighting

19th Jun, 2021 9:30 PM MDT

Department/Individual Who Reported Wildlife:

Unknown, call reported to Environment by Security

Environment On Scene

Environment at Call-out Location

19th Jun, 2021 9:50 PM MDT

Animal Type

Grizzly Bear

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

Single young adult grizzly

Photo (If Possible):

Chronological Events

2130: Environment received report of a single grizzly at the SCAP warehouse

2150: Environment arrived at SCAP warehouse, found no evidence of bear and searched surrounding areas

2220: Environment spotted bear on North Haul Road and followed it onto South Country Till Pile near operating equipment

2223: Used TRUCK to deter bear over berm and onto tundra near Airport Road. Environment backtracked to Airport Road, but bear was not present on arrival. Environment continued searching the area.

2255: End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.25%

Truck

1

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 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

21st Jun, 2021 10:55 PM MDT

Final Location of Wildlife

Unknown, likely tundra near Airport Road

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

21st Jun, 2021 4:04 PM MDT

Wildlife Report - 2021

Grizzly - 2021-06-21 A154 dike

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-06-21 A154 dike

Document No. WildlifeReport000380

Completed On

21st Jun, 2021

Audit

0.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

21st Jun, 2021 2:30 PM MDT

Department/Individual Who Reported Wildlife:

Site Services

Environment On Scene

Environment at Call-out Location

21st Jun, 2021 2:55 PM MDT

Animal Type

Grizzly Bear

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

Large dark grizzly, unfamiliar

Photo (If Possible):



Photo 1



Photo 2

Chronological Events

14:30 bear called in at A154 dike entrance, ENV makes announcement, mobilizes.

14:55 Environment at scene, climbs berm to get visual on bear. Grizzly spotted in vegetation at base of berm.

Grizzly is unfamiliar, Environment quietly returns to vehicle. Bear notices presence of Environment person, walks quickly away towards dike entrance.

15:01 Bear moved into depression further west. Environment opens vehicle door to get ID photos, then Yells at bear to deter it away. Bear mock charges at the person, Environment returns to vehicle with plenty of space. Bear turns back before reaching berm, and runs northwest towards dike entrance.

15:03 Environment follows bear in truck, encouraging it to continue moving away from site.

15:06 Bear crosses bay from NI toward airport, then goes across ice.

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

Truck	1	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 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	1	From 0 to 40
Specify		Yelling,

Environment Off Scene

End of Environment Call-out 21st Jun, 2021 3:06 PM MDT

Final Location of Wildlife

On mainland north of Diavik

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

GC

22nd Jun, 2021 6:58 AM MDT

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Grizzly - 2021-06-24 - Metcon

Complete

Score	1.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-06-24 - Metcon

Document No.

WildlifeReport000113

Completed On

25th Jun, 2021

Audit

1.5%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

1.25%

Enter Initial Time of Wildlife Sighting

24th Jun, 2021 4:00 PM MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

24th Jun, 2021 4:15 PM MDT

Animal Type

Grizzly Bear

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

Single resident adult

Photo (If Possible):

Chronological Events

1600 Environment receives report of a single grizzly near Pond 12, moving toward the South Tank Farm

1620 Environment finds bear in Metcon laydown, eating spilled material from a tote. Used TRUCK to move bear from spill

1630 Used BANGER to move bear out of Metcon laydown. Bear moved onto haul road briefly before returning to Metcon

1640 Environment continued following bear, used TRUCK twice more in an effort to move the bear from the spill

1713 Used RUBBER BULLET to move bear from Metcon laydown. Bear crossed haul road and passed north of waste transfer area to tundra next to AN road. Environment continued to monitor bear until Site Services cleaned up the spill.

1930 Environment left scene

Movement Map (Import NotePlus Site Map)



Photo 1

Deterrent Count

1.25%

Truck	3 From 0 to 40
Air Horn	0 From 0 to 40
C/F Bear Banger	1 From 0 to 40
C/F Pen Whistle	0 From 0 to 40
12GA Explosive	0 From 0 to 40
12GA B.B. Marker	0 From 0 to 40
12GA Rubber Bullet	1 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 24th Jun, 2021 7:30 PM MDT

Final Location of Wildlife

Tundra near AN road

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

25th Jun, 2021 9:57 AM MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly - 2021-06-24 - PKC-Lakeshore Boulevard

Complete

Score	1.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-06-24 - PKC-Lakeshore Boulevard

Document No. WildlifeReport000112

Completed On

25th Jun, 2021

Audit

1.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

1.5%

Enter Initial Time of Wildlife Sighting

24th Jun, 2021 8:30 AM MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

24th Jun, 2021 8:45 AM MDT

Animal Type

Grizzly Bear

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

Resident adult male

Photo (If Possible):



Photo 1

Chronological Events

0830 Environment received report of a single grizzly walking on haul road toward PKC muster
0845 Environment on scene, used TRUCK to move bear off haul road and into Metcon laydown
0853 Environment finds bear eating spilled material from tote in Metcon laydown, used BANGER to move bear away from spill. Environment continued monitoring bear in Metcon laydown
0902 Used BANGER to move bear away from the same tote. Bear left Metcon laydown and moved toward Seacan Alley
0917 Used 12GA EXPLOSIVE to move bear from Seacan Alley onto Lakeshore Boulevard
0925 Bear moves from Lakeshore Boulevard east onto tundra
0929 Used BANGER to move bear further onto tundra, bear does not respond
0950 Used BANGER to move bear further onto tundra, bear moves slightly farther away and lies down to sleep
1001 Environment leaves scene

Movement Map (Import NotePlus Site Map)



Photo 2

Deterrent Count

1.5%

Truck

1

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

4

From 0 to 40

C/F Pen Whistle

0

From 0 to 40

12GA Explosive

1

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

24th Jun, 2021 10:01 AM MDT

Final Location of Wildlife

Tundra near Lakeshore Boulevard

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

25th Jun, 2021 9:20 AM MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Grizzly - 2021-06-24 - Truck Shop-Shallow Bays

Complete

Score	1%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-06-24 - Truck Shop-Shallow Bays

Document No.

WildlifeReport000114

Completed On

25th Jun, 2021

Audit

1%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.75%

Enter Initial Time of Wildlife Sighting

24th Jun, 2021 10:41 PM MDT

Department/Individual Who Reported Wildlife:

Site Services

Environment On Scene

Environment at Call-out Location

24th Jun, 2021 10:55 PM MDT

Animal Type

Grizzly Bear

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

Single resident adult male

Photo (If Possible):

Chronological Events

2241 Environment received report of a single grizzly near the north side of the truck shop

2255 Environment found bear on lakeshore just outside Pond 10 berm

2257 Used BANGER to move bear west toward shallow bays. Bear moved a short distance and lay down to sleep

2306 Used 12GA EXPLOSIVE to move bear further away. Bear did not respond

2337 Used 12GA EXPLOSIVE from a closer vantage point . Bear moved further into the shallow bays. Environment continued to monitor bear

2409 Environment left scene

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.75%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

1

From 0 to 40

C/F Pen Whistle

0

From 0 to 40

12GA Explosive

2
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

25th Jun, 2021 12:09 AM MDT

Final Location of Wildlife

Shallow Bays

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

25th Jun, 2021 10:05 AM MDT

Wildlife Report - 2021

Grizzly - 2021-06-25 - A21 Pit Shop - Wind Farm

Complete

Score	2.74%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-06-25 - A21 Pit Shop -
Wind Farm

Document No.

WildlifeReport000115

Completed On

26th Jun, 2021

Audit

2.74%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

2.5%

Enter Initial Time of Wildlife Sighting

25th Jun, 2021 3:45 PM MDT

Department/Individual Who Reported Wildlife:

Surface Mining

Environment On Scene

Environment at Call-out Location

25th Jun, 2021 4:05 PM MDT

Animal Type

Grizzly Bear

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

Single resident adult male

Photo (If Possible):

Chronological Events

1545 Environment received report of a single grizzly at the A21 pit shop
1605 Environment on scene, found bear at north edge of pit shop yard
1610 Used TRUCK to move bear out of pit shop, across AN road into Pond 12. Bear stopped on tundra near Pond 12 and lay down
1612 Used BANGER to move bear out of Pond 12 and along AN road. Bear did not respond
1615 Bear lay down to sleep. Environment continued to monitor bear
1725 Used SHOTGUN CYCLE, bear gets up and starts walking slowly
1738 Used CRACKER x2, SHOTGUN CYCLE. Bear moves further into tundra.
1803 Bear walking along perimeter of Waste Transfer Area fence back towards South Haul Road. Used SHOTGUN CYCLE, TRUCK. Bear turns back towards Ammonium Nitrate (AN) Road.
1810 Bear walking along AN road alongside SCRP. Used TRUCK, bear moves into small valley between AN road and SCRP.
1826 SHOTGUN CYCLE, bear continues along base of SCRP to west side
1848 Bear crossing Emulsion road, TRUCK used, bear goes into Tundra by Pond 7. Environment leaves scene.

Movement Map (Import NotePlus Site Map)

Deterrent Count

2.5%

Truck

3

From 0 to 40

Air Horn	0
	From 0 to 40
C/F Bear Banger	1
	From 0 to 40
C/F Pen Whistle	0
	From 0 to 40
12GA Explosive	2
	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	4
	From 0 to 40

Shotgun cycle

Specify

Environment Off Scene

End of Environment Call-out

25th Jun, 2021 6:48 PM MDT

Final Location of Wildlife

Pond 7

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Nicole Goodman

26th Jun, 2021 9:13 AM MDT

Wildlife Report - 2021

Grizzly - 2021-06-25 - Metcon Yard

Complete

Score	1%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-06-25 - Metcon Yard

Document No. WildlifeReport000111

Completed On

25th Jun, 2021

Audit

1%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.75%

Enter Initial Time of Wildlife Sighting

25th Jun, 2021 6:30 AM MDT

Department/Individual Who Reported Wildlife:

Pit Operations

Environment On Scene

Environment at Call-out Location

25th Jun, 2021 7:00 AM MDT

Animal Type

Grizzly Bear

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

Single Male young adult grizzly, blonde, resident

Photo (If Possible):



Photo 1



Photo 2



Photo 3

Chronological Events

6:40 - Pit Ops Supervisor calls in a bear present at ROM, ENV mobilizes and heads to area.

7:10 - After some searching in area, ENV obtains visual confirmation of bear in Metcon yard. Bear has climbed onto an empty tote, torn it open, and attempting to get access to the contents.

7:15 - ENV drives towards bear and honks, attempting to spook bear from area. He retreated within some of the old machines stored there. Re-emerged and went back to tote.

7:20 - Continued honking and yelling at bear. Eventually retreated away from area and moved towards berm and A21 haul road.

7:25 - Crossed berm and road towards Pond 12 and waste transfer area

7:30 - ENV obtains visual on bear from snow dump area, looking down onto Pond 12. Bear is wading near the shore of the pond.

7:35 - ENV discharges a bear banger shot to scare bear towards SCR. Bear begins retreating towards AN road and A21 Pit Maintenance shop.

7:45 - Bear makes it up to AN road and slowly begins crossing road. ENV vehicle drives towards the bear and honks multiple times to encourage him to continue across road and away from area.

7:55 - Bear continues moving towards SCR, visual lost.

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.75%

Truck

2

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

1

From 0 to 40

C/F Pen Whistle

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

25th Jun, 2021 8:00 AM MDT

Final Location of Wildlife

Heading southwest towards SCRP area

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

JM

25th Jun, 2021 8:56 AM MDT

Appendix

Appendix



Photo 1



Photo 2



Photo 3

Wildlife Report - 2021

Grizzly - 2021-06-25 - ROM - NCTP

Complete

Score	4.49%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-06-25 - ROM - NCTP

Document No.

WildlifeReport000116

Completed On

26th Jun, 2021

Audit

4.49%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

4.25%

Enter Initial Time of Wildlife Sighting

25th Jun, 2021 8:45 PM MDT

Department/Individual Who Reported Wildlife:

Site Services

Environment On Scene

Environment at Call-out Location

26th Jun, 2021 9:00 PM MDT

Animal Type

Grizzly Bear

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

Single resident male

Photo (If Possible):



Photo 1

Chronological Events

2045 Environment received report of a single grizzly on ROM hill
 2100 Environment on scene, no bear found. Environment began searching surrounding area.
 2120 Site Services reported bear on totes in Metcon laydown
 2125 Environment entered Metcon, used TRUCK to move bear out of laydown. Bear moved away slowly, climbing to the top of ROM hill
 2130 Environment entered ROM, observed bear heading northeast toward the process plant
 2155 Environment found bear walking down haul road from ROM to South Haul Road past Site Services Lineup, followed bear to Pond 5 and continued to monitor
 2220 Used 12GA EXPLOSIVE to move bear northeast toward Shallow Bays. Bear did not respond.
 2222 Used SHOTGUN ACTION, bear began moving slowly to the northeast
 2225 -2305 Environment followed bear moving very slowly from Pond 5 to pond 13, passing through Backfill yard and using SHOTGUN ACTION five more times to keep bear moving
 2305 Used BANGER to move bear out of Pond 13 and away from C Portal. Bear did not respond.
 2310 Used RUBBER BULLET to move bear out of Pond 13 and away from C Portal. Bear flinched on impact and moved several feet away.
 2315 Used SHOTGUN ACTION to move bear out of Pond 13. Bear began to move very slowly toward the Crusher Loadout Yard
 2315-2345 Environment followed bear moving very slowly along pipeline to small tundra patch near Crusher Loadout Yard, Used SHOTGUN ACTION three more times to keep bear moving
 2345 Used RUBBER BULLET to move bear out of Crusher Loadout Yard, bear flinched but otherwise did not respond
 2350 Used SHOTGUN ACTION to move bear out of Crusher Loadout Yard toward NCTP
 2355 Used BANGER to move bear across North Haul Road and onto NCTP
 2356 Environment left scene

Movement Map (Import NotePlus Site Map)



Photo 2

Deterrent Count

4.25%

Truck	1 From 0 to 40
Air Horn	0 From 0 to 40
C/F Bear Banger	2 From 0 to 40
C/F Pen Whistle	0 From 0 to 40
12GA Explosive	1 From 0 to 40

12GA B.B. Marker **0**
From 0 to 40

12GA Rubber Bullet **2**
From 0 to 40

12GA Slug **0**
From 0 to 40

Helicopter **0**
From 0 to 40

Other **11**
From 0 to 40

Specify Cycle shotgun action

Environment Off Scene

End of Environment Call-out 25th Jun, 2021 11:56 PM MDT

Final Location of Wildlife

North Country Till Pile

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

Brett Potter

26th Jun, 2021 4:14 PM MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Grizzly - 2021-06-28 -ROM

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-06-28 -ROM

Document No.

WildlifeReport000066

Completed On

28th Jun, 2021

Audit

0.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

28th Jun, 2021 1:30 PM MDT

Department/Individual Who Reported Wildlife:

Jimmy Larkin - Surface Mining

Environment On Scene

Environment at Call-out Location

28th Jun, 2021 2:00 PM MDT

Animal Type

Grizzly Bear

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

Resident bear

Photo (If Possible):

Chronological Events

1330 Bear called in going up ROM Hill Road. ENV issued bear alert 1400 ENV at the scene, no visual of bear. ENV scanned WTA, Pond 5, Pond 1, A21 Portal and no sign. 1435 ENV spots bear walking perimeter of WTA. Used TRUCK 2x to move bear along. Little to no response. 1500 Bear crossed AN road towards SCRP, crossed through E21 sump and onto tundra next to SCRP ramp. Updated bear alert. Bear observed digging a den. 1530 ENV left bear digging hole.

Movement Map (Import NotePlus Site Map)



Photo 1

Deterrent Count

0.5%

Truck

2

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 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

28th Jun, 2021 3:30 PM MDT

Final Location of Wildlife

W of SCRP ramp

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Shelby Skinner

29th Jun, 2021 6:54 PM MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly-2021-06-29- PKC

Complete

Score	1%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly-2021-06-29- PKC

Document No.

WildlifeReport000118

Completed On

29th Jun, 2021

Audit

1%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.75%

Enter Initial Time of Wildlife Sighting

29th Jun, 2021 5:30 PM MDT

Department/Individual Who Reported Wildlife:

PKC

Environment On Scene

Environment at Call-out Location

29th Jun, 2021 6:00 PM MDT

Animal Type

Grizzly Bear

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

Young, blonde, possibly one of the cubs that have spent the past 2 years at Diavik

Photo (If Possible):

Chronological Events

1730 Received call that bear was on the West Dam of PKC heading towards NCRP. Issued bear alert.

1800 ENV at North Dam PKC and spotted bear walking towards NCRP ramp. Used TRUCK 2x to move bear up the slope. Updated bear alert. 1815 ENV used TRUCK to move bear down the slope towards NI. ENV left the scene.

Movement Map (Import NotePlus Site Map)



Photo 1

Deterrent Count

0.75%

Truck

3

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 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

29th Jun, 2021 6:30 PM MDT

Final Location of Wildlife

North Inlet

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Shelby Skinner

30th Jun, 2021 4:29 PM MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly - 2021-06-29 - WTA-A21 Muster

Complete

Score	2%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-06-29 - WTA-A21
Muster

Document No.

WildlifeReport000117

Completed On

29th Jun, 2021

Audit

2%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

1.75%

Enter Initial Time of Wildlife Sighting

29th Jun, 2021 10:20 AM MDT

Department/Individual Who Reported Wildlife:

Surface Mining

Environment On Scene

Environment at Call-out Location

29th Jun, 2021 10:35 AM MDT

Animal Type

Grizzly Bear

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

Single resident male

Photo (If Possible):

Chronological Events

10:20 Environment received a report of a single grizzly near the PKC muster

10:35 Environment on scene, no bear in the immediate area

10:37 Waste Transfer reports bear at WTA gate

10:40 Environment on scene, used TRUCK to move bear away from gate. Bear moves away, running for a few metres before slowing to a walk

10:42 Environment follows bear twice around the perimeter of WTA, twice more using TRUCK to try to move bear away from the area. Bear responds playfully, does not leave.

10:45 Bear moves toward AN road, Environment follows

10:47 Used RUBBER BULLET to try to move bear north along AN road toward the windfarm. Bear continued southwest toward SCRCP

10:48-11:03 Environment followed bear back and forth along small access road between SCRCP and AN road

11:03 Used RUBBER BULLET to try to move bear north along AN road. Bear shuddered and continued moving toward A21 pit shop

11:05 Environment followed bear back and forth along small access road between A21 pit shop and AN road

11:17 Bear entered A21 pit shop, Environment used TRUCK to move bear back toward SCRCP

11:21 Used BANGER to move bear into E21 sump, followed bear to A21 haul road

11:38 Bear crosses A21 haul road and Lakeshore Boulevard, enters LDG and swims toward A21 dike

1147 Bear exits LDG onto Lakeshore Boulevard, Environment used BANGER to move bear across Lakeshore

Boulevard, across A21 haul road and onto tundra near A21 muster

1155 End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

1.75%

Truck	3 From 0 to 40
Air Horn	0 From 0 to 40
C/F Bear Banger	2 From 0 to 40
C/F Pen Whistle	0 From 0 to 40
12GA Explosive	0 From 0 to 40
12GA B.B. Marker	0 From 0 to 40
12GA Rubber Bullet	2 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	29th Jun, 2021 11:55 AM MDT
Final Location of Wildlife	
Tundra near A21 muster	

Closure & Sign-off

100%

Wildlife Report Complete	On
Signature	
Brett Potter	
29th Jun, 2021 1:59 PM MDT	

Wildlife Report - 2021

Grizzly - 2021-07-01 - Seacan Alley - NCTP

Complete

Score	2.99%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-07-01 - Seacan Alley -
NCTP

Document No.

WildlifeReport000120

Completed On

2nd Jul, 2021

Audit

2.99%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

2.75%

Enter Initial Time of Wildlife Sighting

1st Jul, 2021 2:10 PM MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

1st Jul, 2021 2:20 PM MDT

Animal Type

Grizzly Bear

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

Single resident bear

Photo (If Possible):

Chronological Events

1410 Environment received report of a single grizzly near Lakeshore Boulevard heading toward the South Tank Farm

1420 Environment on scene, found bear in Seacan Alley

1425 Used TRUCK to move bear out of Seacan Alley, bear headed toward WTA

1425-1445 Environment searched area for bear

1445 Environment found bear in Metcon laydown

1448 Used RUBBER BULLET to move bear out of Metcon laydown, bear moved toward ROM hill

1500 Used 12GA EXPLOSIVE to move bear across ROM hill toward the Process Plant

1515 Environment found bear on haul road near Pond 5, used RUBBER BULLET to move bear into the pond.

Environment continued to monitor bear

1615 Used BANGER to try to move bear out of Pond 5, bear did not respond

1650 Bear began moving slowly from Pond 5 to Pond 1, Environment followed

1711 Used BANGER to try to move bear out of Pond 1, bear did not respond

1736 Used RUBBER BULLET to move bear northeast out of Pond 1, Environment followed bear through Backfill Yard to Crusher Loadout Yard

1743 Used BANGER to move bear to tundra patch at northeast edge of Crusher Loadout Yard

1800 Used RUBBER BULLET to move bear out of tundra patch onto North Haul Road

1802 Used BANGER to move bear across North Haul Road onto NCTP

1805 Environment entered NCTP, did not find bear. Continued to search surrounding area

1825 Environment left scene

Movement Map (Import NotePlus Site Map)



Photo 1

Deterrent Count

2.75%

Truck

2

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

4

From 0 to 40

C/F Pen Whistle

0

From 0 to 40

12GA Explosive

1

From 0 to 40

12GA B.B. Marker

0

From 0 to 40

12GA Rubber Bullet

4

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

1st Jul, 2021 6:25 PM MDT

Final Location of Wildlife

North Country Till Pile

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

2nd Jul, 2021 8:29 AM MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly -2021-07-01 -South Tank Farm

Complete

Score	0.75%	Failed items	0	Actions	0
-------	-------	--------------	---	---------	---

Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly -2021-07-01 -South Tank Farm

Document No.

WildlifeReport000119

Completed On

1st Jul, 2021

Audit

0.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

1st Jul, 2021 9:00 AM MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

1st Jul, 2021 9:30 AM MDT

Animal Type

Grizzly Bear

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

single blonde, 3rd year cub

Photo (If Possible):

Chronological Events

09:10 Bear called in leaving South Tank Farm heading towards Winter Road Dispatch. Issued bear alert.

09:30 ENV at South Tank Farm, no visual of bear. Contacted PA's and Camp Manager to close Walking Trail and Patio.

09:40 Bear spotted in Pond 11 grazing.

09:50 Fired CRACKER SHELL 2x, very little movement or reaction to deterrents.

09:58 Bear bedded down in Pond 11. 10:55 ENV drove down to Pond 11 access road and bear got up and moved back to the SW corner of the pond.

11:15 ENV drove up to Warehouse Cold Storage to find a better angle to fire rubber bullets but there was no clear access.

11:30 ENV left bear grazing in Pond 11.

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

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 Explosive

2
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

1st Jul, 2021 11:30 AM MDT

Final Location of Wildlife

Pond 11

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Shelby Skinner

5th Jul, 2021 5:51 PM MDT

Wildlife Report - 2021

Grizzly - 2021-07-02 - South Haul Road - Pond 5

Complete

Score	1.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-07-02 - South Haul
Road - Pond 5

Document No.

WildlifeReport000121

Completed On

3rd Jul, 2021

Audit

1.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

1.5%

Enter Initial Time of Wildlife Sighting

2nd Jul, 2021 5:30 PM MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

3rd Jul, 2021 5:45 PM MDT

Animal Type

Grizzly Bear

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

Single resident male

Photo (If Possible):

Chronological Events

1730 Environment received report of a single grizzly on the south haul road heading north from the truck shop
1745 Environment on scene, located bear on tundra adjacent to the south haul road
1746 Bear attempted to eat through electrical cable running parallel to south haul road before entering nearby den
1750 Used BANGER to move bear out of den. Bear exited den but did not leave area
1752 Closed SHOTGUN ACTION, bear moved away from den toward truck shop
1800 Used BANGER to attempt to reverse bear's direction of travel, bear did not respond
1806 Used 12GA EXPLOSIVE to attempt to reverse bear's direction of travel, bear did not respond
1825 Bear began to climb berm onto south haul road, heading toward the truck shop
1828 Used RUBBER BUCKSHOT to attempt to move bear away from truck shop, bear responded by darting across south haul road into Pond 5
1837 Used RUBBER BULLET to move bear out of Pond 5, missed
1847 Used 12GA EXPLOSIVE to move bear out of Pond 5, bear moved a short distance away and lay down to sleep.
Environment continued to monitor bear
1945 End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

1.5%

Truck

0

From 0 to 40

Air Horn	0
	From 0 to 40
C/F Bear Banger	2
	From 0 to 40
C/F Pen Whistle	0
	From 0 to 40
12GA Explosive	2
	From 0 to 40
12GA B.B. Marker	0
	From 0 to 40
12GA Rubber Bullet	1
	From 0 to 40
12GA Slug	0
	From 0 to 40
Helicopter	0
	From 0 to 40
Other	1
	From 0 to 40
Specify	Rubber buckshot

Environment Off Scene

End of Environment Call-out	2nd Jul, 2021 7:45 PM MDT
Final Location of Wildlife	pond 5

Closure & Sign-off

100%

Wildlife Report Complete	On
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Signature

Brett Potter
3rd Jul, 2021 8:40 AM MDT

Wildlife Report - 2021

Grizzly - 2021-07-03 - A21 Muster

Complete

Score	2%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-07-03 - A21 Muster

Document No. WildlifeReport000123

Completed On

4th Jul, 2021

Audit

2%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

1.75%

Enter Initial Time of Wildlife Sighting

3rd Jul, 2021 7:30 PM MDT

Department/Individual Who Reported Wildlife:

Surface dispatch

Environment On Scene

Environment at Call-out Location

3rd Jul, 2021 7:45 PM MDT

Animal Type

Grizzly Bear

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

Single resident male

Photo (If Possible):

Chronological Events

1930 Environment received report of a single grizzly at the A21 chicane, moving toward the A21 muster

1945 Environment on scene, found bear on tundra near A21 muster

1950 Used BANGER to move bear away from muster station, no response. Bear moved slowly north toward the watering tree. Used 12GA EXPLOSIVE to move bear further west, no response

2005 Used 12GA EXPLOSIVE to move bear away from watering tree and A21 haul road. Bear reversed direction briefly, but remained near watering tree

2015 Used RUBBER BULLET to move bear away from watering tree. Bear ran north a short distance but did not leave the area

2020 Used RUBBER BUCKSHOT to move bear away from A21 haul road. Bear began to move northwest, used 12GA EXPLOSIVE to move bear further away

2028 Used BANGER to move bear away from the base of SCRP

2037 Environment left scene

Movement Map (Import NotePlus Site Map)

Deterrent Count

1.75%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger	2 From 0 to 40
C/F Pen Whistle	0 From 0 to 40
12GA Explosive	3 From 0 to 40
12GA B.B. Marker	0 From 0 to 40
12GA Rubber Bullet	1 From 0 to 40
12GA Slug	0 From 0 to 40
Helicopter	0 From 0 to 40
Other	1 From 0 to 40
Specify	Rubber buckshot

Environment Off Scene

End of Environment Call-out 3rd Jul, 2021 8:37 PM MDT

Final Location of Wildlife

Tundra west of SCRP

Closure & Sign-off

100%

Wildlife Report Complete On

Signature

Brett Potter

4th Jul, 2021 8:27 AM MDT

Wildlife Report - 2021

Grizzly - 2021-07-03 - South Camp

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-07-03 - South Camp

Document No. WildlifeReport000122

Completed On

3rd Jul, 2021

Audit

0.75%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

3rd Jul, 2021 1:15 AM MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

3rd Jul, 2021 1:25 AM MDT

Animal Type

Grizzly Bear

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

Single resident male

Photo (If Possible):

Chronological Events

0115 Environment received report of a single grizzly outside N dorm at south camp
0125 Environment on scene, no bear found in immediate area. Environment began searching surrounding areas
0140 Environment found bear in Pond 11, continued monitoring bear
0220 Bear left Pond 11, heading toward the white sprung next to the steel yard
0225 Bear began eating through insulation covering a pipe behind a small shack near white sprung
0232 Used RUBBER BUCKSHOT to attempt to move bear away from steel yard, bear moved across south winter road approach
0234 Used RUBBER BULLET to move bear further onto tundra
0245 End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

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 Explosive

0

From 0 to 40

12GA B.B. Marker

0

From 0 to 40

12GA Rubber Bullet

1

From 0 to 40

12GA Slug

0

From 0 to 40

Helicopter

0

From 0 to 40

Other

1

From 0 to 40

Specify

Rubber buckshot

Environment Off Scene

End of Environment Call-out

3rd Jul, 2021 2:45 AM MDT

Final Location of Wildlife

Tundra west of south winter road approach

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

3rd Jul, 2021 8:51 AM MDT

Wildlife Report - 2021

Grizzly - 2021-07-04 - Backfill

Complete

Score	1%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-07-04 - Backfill

Document No. WildlifeReport000125

Completed On

5th Jul, 2021

Audit

1%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.75%

Enter Initial Time of Wildlife Sighting

4th Jul, 2021 8:00 PM MDT

Department/Individual Who Reported Wildlife:

Security

Environment On Scene

Environment at Call-out Location

4th Jul, 2021 8:30 PM MDT

Animal Type

Grizzly Bear

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

Resident bear

Photo (If Possible):

Chronological Events

19:45 ENV receives call from Security about a bear leaving the SCAP yard crossing road to Backfill Plant. Issued bear alert.

20:45 ENV searches for an hour when ENV receives call from Pit Supervisor that bear is lying on pipes near Backfill. Use TRUCK to move bear off pipes, crosses road into SCAP/Fabrication Shop yard very slowly. Updated bear alert as person was observed getting out of truck in same yard that bear was in.

21:30 Bear crossed back over to Backfill and bedded down. Used TRUCK 2x and bear only walked very slowly.

22:00 ENV left bear sleeping.

22:30 Bear called in by Security walking towards Batch Plant / Old Mine Dry.

23:00 Bear called in between A154 Pit and Water Tree. Notified NIWTP operator.

July 5

00:00 Bear called in at NCTP and would not move.

00:20 ENV at NCTP and bear had gone down the slope towards Airport Road.

00:30 Bear observed by ENV sleeping at the top of the NCTP. ENV left bear sleeping there.

Movement Map (Import NotePlus Site Map)



Photo 1

Deterrent Count

0.75%

Truck

3

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 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

5th Jul, 2021 12:00 AM MDT

Final Location of Wildlife

North Country Till Pile

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Shelby Skinner

5th Jul, 2021 5:38 PM MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly - 2021-07-04 - D1 Laydown

Complete

Score	0.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-07-04 - D1 Laydown

Document No.

WildlifeReport000124

Completed On

4th Jul, 2021

Audit

0.5%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.25%

Enter Initial Time of Wildlife Sighting

4th Jul, 2021 1:10 PM MDT

Department/Individual Who Reported Wildlife:

Environment On Scene

Environment at Call-out Location

4th Jul, 2021 1:20 PM MDT

Animal Type

Grizzly Bear

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

Single resident male

Photo (If Possible):

Chronological Events

1310 Environment received report of a single grizzly in the D1 laydown

1320 Environment on scene, found bear browsing on grass in laydown

1325 Used BANGER to move bear out of laydown, bear moved slowly away

1326 Environment followed bear out of laydown through 154 infield areas to tundra near North Inlet

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.25%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

1

From 0 to 40

C/F Pen Whistle

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

4th Jul, 2021 1:40 PM MDT

Final Location of Wildlife

Tundra near North Inlet

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

4th Jul, 2021 3:45 PM MDT

Wildlife Report - 2021

Grizzly - 2021-07-05 - SCAP

Complete

Score	0.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-07-05 - SCAP

Document No.

WildlifeReport000126

Completed On

5th Jul, 2021

Audit

0.5%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.25%

Enter Initial Time of Wildlife Sighting

5th Jun, 2001 6:45 AM MDT

Department/Individual Who Reported Wildlife:

Backfill

Environment On Scene

Environment at Call-out Location

5th Jul, 2021 7:00 AM MDT

Animal Type

Grizzly Bear

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

Single resident male

Photo (If Possible):

Chronological Events

0645 Environment received report of a single grizzly near the crusher loadout yard

0700 Environment on scene, found bear near SCAP warehouse. Bear began walking across south haul road toward the crusher loadout yard

0715 Used BANGER to move bear from crusher loadout yard across north haul road. Bear headed north around the base of the till pile toward the north inlet. Environment continued to monitor bear

0730 End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.25%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

1

From 0 to 40

C/F Pen Whistle

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

5th Jul, 2021 7:30 AM MDT

Final Location of Wildlife

Tundra near north inlet

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

5th Jul, 2021 4:31 PM MDT

Wildlife Report - 2021

Grizzly- 2021-07-09 - South Haul Road

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly- 2021-07-09 - South Haul
Road

Document No.

WildlifeReport000067

Completed On

9th Jul, 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

9th Jul, 2021 5:30 AM MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

9th Jul, 2021 6:00 AM MDT

Animal Type

Grizzly Bear

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

Resident bear

Photo (If Possible):



Photo 1

Chronological Events

0530 Bear called in on South Haul Road heading towards Backfill. Issued Bear alert.

0600 ENV spots bear in Pond 1 heading up into the Backfill yard. Bear walked around sprung trying to cross road into Backfill. Used TRUCK bear went back into Pond 1

0630 Bear crosses South Haul Road into Shallow Bays. Used TRUCK. Bear swam in Shallow Bays then went back onto Tundra and back onto South Haul Road.

0650 Bear in ditch between South Haul Road and Backfill Crusher yard.

0710 Bear crossed South Haul Road into Pond 13.

0737 Bear no longer visible in Pond. ENV out.

1000 Bear spotted on South Haul Road heading towards Airport.

Movement Map (Import NotePlus Site Map)



Photo 2

Deterrent Count 0.5%

Truck **2**
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 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 9th Jul, 2021 8:00 AM MDT

Final Location of Wildlife

Pond 13

Closure & Sign-off 100%

Wildlife Report Complete **On**

Signature

Shelby Skinner

10th Jul, 2021 8:09 AM MDT

Appendix

Appendix



Photo 1



Photo 2

Wildlife Report - 2021

Grizzly - 2021-07-18 - Met Con

Complete

Score	3.74%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-07-18 - Met Con

Document No.

WildlifeReport000381

Completed On

18 Jul 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

3.5%

Enter Initial Time of Wildlife Sighting

18 Jul 2021 04:30 MDT

Department/Individual Who Reported Wildlife:

Deanna - Surface Mining

Environment On Scene

Environment at Call-out Location

18 Jul 2021 05:05 MDT

Animal Type

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

Resident Bear

Photo (If Possible):

Chronological Events

0430 Security calls with bear sighting on A21 Haul Road heading towards Met Con. Issued bear alert.
 0445 Bear called in by South Tank Farm heading towards camp. Closed walking trail.
 0503 ENV spots bear in Pond 11, closes Patio, bear crosses road towards Winter Road approaches. Used TRUCK.
 0505 Bear crosses Winter Road Approach, Used TRUCK and starts walking on tundra near Field Dailies.
 0530 Bear graving on tundra between Com Shack and Fresh Water Uptake. Bear is being harassed by bugs. Keeps laying down and rolling in vegetation.
 0610 Bear bedded down in same location.
 718 Bear moving towards RW Water Uptake
 0745 Bear in Pond 10. Notified Warehouse and Truck Shop, issued bear alert.
 0800 Used TRUCK to prevent bear from crossing road into Pond 5
 0808 Bear in Shallow Bays. ENV out
 1600 Bear called in at Process ROM, updated bear alert.
 16:30 No visual of bear
 1930 Bear calld in between Process ROM and Truck Shop. Updatd bear alert
 1950 Bear spotted in Pond 5
 2017 Bear graving in Shallow Bays
 2100 Threw ROCKS 10x to move bear along shoreline towards Fresh Water Uptake
 2130 Bear on small patch of tundra between C and D Dorm. Used TRUCK, no response.
 2215 ENV left bear on Tundra near S Winter Road Approach

Movement Map (Import NotePlus Site Map)

Deterrent Count	3.5%
Truck	4 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 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	10 From 0 to 40
Specify	Rocks
Environment Off Scene	
End of Environment Call-out	18 Jul 2021 22:30 MDT
Final Location of Wildlife	South Winter Road Approach
Closure & Sign-off	100%
Wildlife Report Complete	On
Signature	
Shelby Skinner	11 Aug 2021 17:30 MDT

Wildlife Report - 2021

Grizzly - 2021-07-29 - Backfill

Complete

Score	0.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-07-29 - Backfill

Document No.

WildlifeReport000129

Completed On

29 Jul 2021

Audit

0.5%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.25%

Enter Initial Time of Wildlife Sighting

29 Jul 2021 09:03 MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

29 Jul 2021 09:14 MDT

Animal Type

Grizzly Bear

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

Single young bear, unknown sex. Appeared thin, with patches of black fur.

Photo (If Possible):

Chronological Events

0903 Environment received a report of a single grizzly between C Portal and the Backfill Plant

0914 Environment on scene, bear was walking along the pipeline next to the Backfill Plant. Environment followed bear to the tundra patch by the Crusher Loadout

0923 Used BANGER to move bear out of Crusher Loadout. Bear ran out of loadout yard and crossed the north haul road to the base of the till pile

0926 Environment followed bear around the till pile to a tundra patch across from the North Inlet

0935 End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.25%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

1

From 0 to 40

C/F Pen Whistle

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

29 Jul 2021 09:35 MDT

Final Location of Wildlife

Tundra near North Inlet

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

29 Jul 2021 17:05 MDT

Wildlife Report - 2021

Grizzly - 2021-08-05 - Batch Plant

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-08-05 - Batch Plant

Document No.

WildlifeReport000133

Completed On

6 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

5 Aug 2021 06:45 MDT

Department/Individual Who Reported Wildlife:

Underground

Environment On Scene

Environment at Call-out Location

5 Aug 2021 06:55 MDT

Animal Type

Grizzly Bear

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

Single large male

Photo (If Possible):

Chronological Events

0645 Environment received a report of a single grizzly near the batch plant
 0655 Environment, on scene, found bear grazing on tundra south of batch plant
 0702 Used RUBBER BULLET to move bear away from batch plant, bear ran away to the northeast, into a laydown at the top of the 418 pit
 0705 Used TRUCK to move bear north, bear crossed 418 ramp toward the FAR. Environment remained on scene but did not see the bear again
 0730 end call

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

Truck

1

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 Explosive

0
From 0 to 40

12GA B.B. Marker

0
From 0 to 40

12GA Rubber Bullet

1
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

5 Aug 2021 07:30 MDT

Final Location of Wildlife

154 infield near FAR

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

6 Aug 2021 10:10 MDT

Wildlife Report - 2021

Grizzly - 2021-08-05 - North Inlet

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-08-05 - North Inlet

Document No. WildlifeReport000134

Completed On

6 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

5 Aug 2021 13:30 MDT

Department/Individual Who Reported Wildlife:

Surface Mining

Environment On Scene

Environment at Call-out Location

5 Aug 2021 13:45 MDT

Animal Type

Grizzly Bear

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

Single large male

Photo (If Possible):

Chronological Events

1330 Environment received a report of a single grizzly near the North Inlet water treatment plant
 1345 Environment on scene, found bear on the tundra close to the North Inlet and Airport Road
 1350 Used 12 GA EXPLOSIVE, bear moved north toward the water
 1359 Used BANGER, bear moved west away from treatment plant
 1405 End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

1

From 0 to 40

C/F Pen Whistle

0

From 0 to 40

12GA Explosive

1

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

5 Aug 2021 14:05 MDT

Final Location of Wildlife

Tundra west of water treatment plant

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

6 Aug 2021 10:22 MDT

Wildlife Report - 2021

Grizzly - 2021-08-06 - Shallow Bays

Complete

Score	1%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-08-06 - Shallow Bays

Document No. WildlifeReport000135

Completed On

6 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.75%

Enter Initial Time of Wildlife Sighting

6 Aug 2021 07:30 MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

6 Aug 2021 07:40 MDT

Animal Type

Grizzly Bear

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

Single resident male

Photo (If Possible):

Chronological Events

0730 Environment received a report of a single grizzly on the south haul road heading toward the truck shop
 0740 Environment on scene, found bear walking toward the truck shop on a small access road parallel to the south haul road
 0750 Used BANGER to reverse bear's direction, bear stops but does not turn around
 0815 Used BANGER to reverse bear's direction, bear slowly moves away from truck shop
 0835 Bear begins climbing berm toward south haul road
 0836 Used TRUCK to prevent bear from crossing south haul road. Bear moved east onto tundra near shallow bays.
 Environment continued to monitor bear
 0855 End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.75%

Truck

1

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

2

From 0 to 40

C/F Pen Whistle

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

6 Aug 2021 08:55 MDT

Final Location of Wildlife

Tundra near Shallow Bays

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

6 Aug 2021 11:07 MDT

Wildlife Report - 2021

Grizzly - 2021-08-07 - Crusher Loadout

Complete

Score	0.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-08-07 - Crusher
Loadout

Document No.

WildlifeReport000136

Completed On

8 Aug 2021

Audit

0.5%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.25%

Enter Initial Time of Wildlife Sighting

7 Aug 2021 19:40 MDT

Department/Individual Who Reported Wildlife:

Surface Mining

Environment On Scene

Environment at Call-out Location

7 Aug 2021 19:55 MDT

Animal Type

Grizzly Bear

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

Single adult male

Photo (If Possible):

Chronological Events

1940 Environment received a report of a single grizzly moving between the north country till pile and the crusher loadout, with a possible injury to its back right leg

1955 Environment on scene, found bear grazing in a small tundra patch at the edge of the crusher loadout. The bear appeared sluggish but uninjured

2000 Used BANGER to cause bear to move and observe gait. Bear moved a short distance and did not appear to limp. Environment continued to monitor bear

2015 End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.25%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

1

From 0 to 40

C/F Pen Whistle

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

7 Aug 2021 20:15 MDT

Final Location of Wildlife

Tundra near crusher loadout

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

8 Aug 2021 07:22 MDT

Wildlife Report - 2021

Grizzly - 2021-08-08 - Pond 1

Complete

Score	1%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-08-08 - Pond 1

Document No.

WildlifeReport000137

Completed On

8 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.75%

Enter Initial Time of Wildlife Sighting

8 Aug 2021 12:10 MDT

Department/Individual Who Reported Wildlife:

Site Services

Environment On Scene

Environment at Call-out Location

8 Aug 2021 12:18 MDT

Animal Type

Grizzly Bear

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

Single adult with black patches on hindquarters, at times appeared to have a slight limp.

Photo (If Possible):

Chronological Events

1210 Environment received a report of a single grizzly in Pond 1, grazing near a working excavator
 1218 Environment on scene, found bear near excavator
 1220 Used BANGER to move bear to the east, across pond 1 toward backfill. Bear moved slowly away.
 1227 Used BANGER to move bear out of Pond 1, banger misfired
 1228 Used second BANGER to move bear out of Pond 1, bear moved slightly but did not leave pond
 1240 followed bear across south haul road, bear climbed berm to Shallow Bays. Environment continued to monitor bear
 1300 End call

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.75%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

3

From 0 to 40

C/F Pen Whistle	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 8 Aug 2021 13:00 MDT

Final Location of Wildlife

Shallow Bays

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

Brett Potter
8 Aug 2021 14:53 MDT

Wildlife Report - 2021

Grizzly - 2021-08-10 A21

Complete

Score	1.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-08-10 A21

Document No.

WildlifeReport000069

Completed On

10 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

1.5%

Enter Initial Time of Wildlife Sighting

10 Aug 2021 14:50 MDT

Department/Individual Who Reported Wildlife:

Brad - Surface Mining

Environment On Scene

Environment at Call-out Location

10 Aug 2021 15:00 MDT

Animal Type

Grizzly Bear

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

2, one blonde, one with darker fur on head and dark patch on hind leg, darker bear much larger than the blond one

Photo (If Possible):

Chronological Events

1450 Single grizzly reported near Zone 4/MudX pile. Issued bear alert

1500 ENV at dewatering shack, no sign of bears

1515 Two bears ran behind truck with larger bear chasing smaller blond bear. Bears ran around MudX pile and popped out on A21 N ramp haul road. Updated bear alert.

1530 Small blond bear was spotted on berm along N ramp panting heavily. No sign of larger bear.

1600 Larger bear called in by MudX pile heading towards the S ramp.

1630 ENV spots larger brown bear near A21 lookout grazing. Threw ROCKS 4x and used TRUCK 2x.

1700 ENV left both bears resting on opposite sides of the A21 Pit.

2000 Single blond grizzly called in at Team Drilling staging area. Updated bear alert.

2020 ENV on Lakeshore Boulevard and spotted bear walking along shoreline.

2045 Bear crossed Lakeshore Boulevard and went up and over the A21 Haul Road towards SCRP. No sign of bear at SCRP. ENV out.

Movement Map (Import NotePlus Site Map)



Photo 1

Deterrent Count	1.5%
Truck	2 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 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	4 From 0 to 40
Specify	Rocks
Environment Off Scene	
End of Environment Call-out	10 Aug 2021 20:30 MDT
Final Location of Wildlife	SCRP
Closure & Sign-off	100%
Wildlife Report Complete	On
Signature	
Shelby Skinner	
11 Aug 2021 17:07 MDT	

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly - 2021- 08-12 - South Winter Road Approach

Complete

Score	2.74%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021- 08-12 - South Winter
Road Approach

Document No.

WildlifeReport000140

Completed On

14 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

2.5%

Enter Initial Time of Wildlife Sighting

12 Aug 2021 16:30 MDT

Department/Individual Who Reported Wildlife:

Garret - Nuna

Environment On Scene

Environment at Call-out Location

12 Aug 2021 17:00 MDT

Animal Type

Grizzly Bear

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

2 bears

Smaller, blonde, 2-3 years old

Larger, patchy fur

Photo (If Possible):



Photo 1



Photo 2



Photo 3

Chronological Events

1630 Bear called in on tundra by Lakeshore Boulevard

1645 ENV on Lakeshore Boulevard and spot bear crossing road onto tundra behind seacan alley.

1700 Bear grazing on tundra south of the South Winter Road Approach.

1730 Bear tries crossing the road towards camp, used TRUCK 10x.

1800 Bear heading west on tundra.

1815 Larger bear approaches in front of ENV truck and starts chasing the smaller blond bear towards the South Tank Farm. Updated bear alert

1830 Bears running through Met Con, up ROM hill, onto North Haul Road, onto N PKC Dam road, up North Country Rock Pile (NCRP). ENV loses sight of bears on NCRP.

1900 Both bears grazing on tundra on North Inlet side of NCRP. ENV out.

Movement Map (Import NotePlus Site Map)



Photo 4

Deterrent Count 2.5%

Truck **10**
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 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 12 Aug 2021 19:30 MDT

Final Location of Wildlife

Tundra at base of NCRP

Closure & Sign-off 100%

Wildlife Report Complete **On**

Signature

Shelby Skinner

14 Aug 2021 10:47 MDT

Appendix

Appendix



Photo 1



Photo 2



Photo 3



Photo 4

Wildlife Report - 2021

Grizzly - 2021-08-15 - Winter Road Staging Area

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-08-15 - Winter Road Staging Area

Document No. WildlifeReport000141

Completed On

15 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

15 Aug 2021 17:30 MDT

Department/Individual Who Reported Wildlife:

Brad - Surface Mining

Environment On Scene

Environment at Call-out Location

16 Aug 2021 17:30 MDT

Animal Type

Grizzly Bear

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

Large, dark patchy fur

Photo (If Possible):

Chronological Events

1730 Bear called in at white sprung near Winter Road Staging Area, issued bear alert
 1800 Bear spotted on Pond 11 grazing
 1845 Bear crossed road towards South Winter Road Approach. Bear heading N along shoreline towards Fresh Water Uptake.
 1930 Bear tried crossing road towards Main Camp, used TRUCK to push back onto Tundra.
 2000 Bear walking along pipes towards Pond 10, then into Shallow Bays. Used TRUCK to keep bear off road.
 2030 ENV left bear grazing in Shallow Bays
 2200 Security called ENV to report bear in Pond 5.

Movement Map (Import NotePlus Site Map)



Photo 1

Deterrent Count

0.5%

Truck

2

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 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 15 Aug 2021 20:30 MDT

Final Location of Wildlife

Pond 5

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

Shelby Skinner

16 Aug 2021 17:58 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly - 2021-08-24 - A21 Pit Shop

Complete

Score	0.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-08-24 - A21 Pit Shop

Document No.

WildlifeReport000143

Completed On

24 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.25%

Enter Initial Time of Wildlife Sighting

24 Aug 2021 05:12 MDT

Department/Individual Who Reported Wildlife:

Surface Mining

Environment On Scene

Environment at Call-out Location

24 Aug 2021 06:45 MDT

Animal Type

Grizzly Bear

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

Darker, large, patchy bear. Same bear as yesterday.

Photo (If Possible):



Photo 1

Chronological Events

0512 Bear called in to Security at Zone 3 (A21); Security made announcement

0522 Bear location corrected; Bear on tundra between Lakeshore Blvd and South Tank Farm; Security updated announcement

06:18 Pit Supervisor contacts ENV about the bear on tundra in Pond 12 area, headed toward the SCRP very slowly (grazing)

06:25 Pit Supervisor updates ENV on bear, bear has moved toward the A21 Pit Shop. ENV confirms personnel in the area are aware of the bear. ENV mobilizes.

06:40 ENV arrives on scene and starts scanning the area for the bear.

06:45 ENV locates bear at base of SCRP, grazing in the direction of the E21 Sump

07:05 Bear climbs the hill and disappears, heading in the direction of the E21 Sump and SCRP Ramp

07:20 ENV locates bear near the ramp of the SCRP, headed SW

07:25 Bear crosses the SCRP Ramp onto the tundra and continues grazing.

07:30 ENV fires C/F BANGER, bear jumps but then continues to graze. Bear slowly headed further onto the tundra (SW) away from camp.

07:35 Bear in good area, ENV leaves

Movement Map (Import NotePlus Site Map)

Deterrent Count 0.25%

Truck 0
From 0 to 40

Air Horn 0
From 0 to 40

C/F Bear Banger 1
From 0 to 40

C/F Pen Whistle 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 24 Aug 2021 07:35 MDT

Final Location of Wildlife

SW of SCRP

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

Atikin Hehn

26 Aug 2021 11:24 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly - 2021-08-27 - A21

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-08-27 - A21

Document No.

WildlifeReport000144

Completed On

29 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

27 Aug 2021 09:30 MDT

Department/Individual Who Reported Wildlife:

Surface Mining

Environment On Scene

Environment at Call-out Location

27 Aug 2021 09:50 MDT

Animal Type

Grizzly Bear

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

Larger, dark, patchy fur

Photo (If Possible):



Photo 1

Chronological Events

09:30 - Environment Department (ENV) receives call of bear at A21 near the muster station, ENV makes announcement.

09:50 - ENV locates bear behind MUD X pile at A21, bear grazing on grassy area.

10:00 - ENV uses TRUCK to move bear across road onto South Dike entrance

10:13 - ENV uses GUN CYCLE to keep bear moving

10:50 - Bear beds down in infield, grassy area of A21 pit, ENV leaves area.

11:30 - ENV returns to check on bear, bear still in same location, ENV leaves.

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

Truck

1

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 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 1
From 0 to 40

Specify Gun cycle

Environment Off Scene

End of Environment Call-out 27 Aug 2021 11:30 MDT

Final Location of Wildlife

A21 Infield area

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

Atikin Hehn

29 Aug 2021 16:53 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly - 2021-08-31 - Pond 5

Complete

Score	1.25%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-08-31 - Pond 5

Document No. WildlifeReport000145

Completed On

31 Aug 2021

Audit 1.25%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

1%

Enter Initial Time of Wildlife Sighting

31 Aug 2021 13:20 MDT

Department/Individual Who Reported Wildlife:

Surface Mining

Environment On Scene

Environment at Call-out Location

31 Aug 2021 13:30 MDT

Animal Type

Grizzly Bear

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

Darker, large, patchy fur - same bear as previous days

Photo (If Possible):



Photo 1

Chronological Events

13:20 - Environment (ENV) receives call of bear on South Haul Road (SHR) headed toward the Process Plant ROM, ENV issues announcement.

13:35 - ENV locates bear on Tundra above Pond 5.

14:15 - Bear moves up berm and crosses North Haul Road (NHR) headed toward Processed Kimberlite Containment Facility (PKCF) muster area.

14:20 - Bear is found behind test piles on tundra, ENV uses CLAPPING to try and get the bear moving.

14:50 - Bear is in tundra beside South Country Rock Pile (SCRCP), ENV uses CLAPPING to try and get the bear to move.

15:15 - Bear crosses SCRCP/PKCF intersection and is headed toward tundra in the direction of the Ammonium Nitrate building, ENV leaves area and updates area owner.

16:00 - ENV talks with Pit Ops, who find bear on camera near the SCRCP pond.

20:15 - ENV receives call of bear on tundra near A21 Pit shop, ENV issues announcement.

20:35 - ENV locates bear, Pit Ops keeping eyes on bear.

20:45 - ENV uses TRUCK to move bear.

20:48 - ENV uses GUN CYCLE to move bear, bear moves closer to SCRCP and continues to graze.

20:55 - ENV leaves area.

Deterrent Count	1%
Truck	1 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 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	3 From 0 to 40
Specify	2 clapping, 1 gun cycle
Environment Off Scene	
End of Environment Call-out	31 Aug 2021 21:00 MDT
Final Location of Wildlife	Tundra near A21 Pit shop
Closure & Sign-off	100%
Wildlife Report Complete	On
Signature	
Atikin Hehn	1 Sep 2021 08:00 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly - 2021-09-05 - Airport

Complete

Score	0.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-09-05 - Airport

Document No. WildlifeReport000147

Completed On

6 Sep 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.25%

Enter Initial Time of Wildlife Sighting

5 Sep 2021 07:00 MDT

Department/Individual Who Reported Wildlife:

Site Services

Environment On Scene

Environment at Call-out Location

5 Sep 2021 07:30 MDT

Animal Type

Grizzly Bear

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

Same bear as previous days, darker, patchy, larger

Photo (If Possible):



Photo 1

Chronological Events

07:00 - ENV receives call of bear near pipeline by Heli-pad, ENV issues announcement

07:30 - ENV arrives on scene and locates bear, bear grazing on tundra W of Airport

07:35 - bear continues grazing and slowly moving SW toward the windfarm

08:15 - Bear starts moving closer to NC17 laydown, ENV uses GUN CYCLE to move bear back onto the tundra

08:20 - Bear continues moving SW, ENV leaves area

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.25%

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 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 1
From 0 to 40

Specify Gun cycle

Environment Off Scene

End of Environment Call-out 5 Sep 2021 08:20 MDT

Final Location of Wildlife
Tundra W of NC17 Laydown

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

Atikin Hehn
6 Sep 2021 13:09 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Grizzly - 2021-09-11 - Shallow Bays

Complete

Score	1%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-09-11 - Shallow Bays

Document No. WildlifeReport000148

Completed On

12 Sep 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.75%

Enter Initial Time of Wildlife Sighting

11 Sep 2021 16:00 MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

11 Sep 2021 16:10 MDT

Animal Type

Grizzly Bear

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

Single adult with dark and patchy coat

Photo (If Possible):

Chronological Events

1600 Environment received a report of a single grizzly in the shallow bays near the truck shop

1610 Environment on scene, found bear grazing in the shallow bays and continued to monitor bear

1627 Bear approached south haul road berm, fired BANGER to move bear northeast into shallow bays. Bear ran away a short distance to the north

1630 Bear climbed berm and attempted to cross south haul road, used TRUCK to move bear back down berm and then fired BANGER to move bear away.

1635 Bear returned to grazing in the shallow bays, Environment continued to monitor

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.75%

Truck

1

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

2

From 0 to 40

C/F Pen Whistle

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

11 Sep 2021 17:40 MDT

Final Location of Wildlife

Tundra near shallow bays

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

12 Sep 2021 10:30 MDT

Wildlife Report - 2021

Bear-2021-09-15-diavik diamond mine (Batch Plant & UG Area)

Complete

Score	1.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Bear-2021-09-15-diavik diamond mine (Batch Plant & UG Area)

Document No.

WildlifeReport000154

Completed On

19 Sep 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

1.25%

Enter Initial Time of Wildlife Sighting

15 Sep 2021 17:30 MDT

Department/Individual Who Reported Wildlife:

environment/Brennan & Waylon

we last saw the bear in the field between UG and Truck Shop, but then came onto the road to near UG, and we tried to chase him back to the field but he ran towards the batch plant.

Environment On Scene

Environment at Call-out Location

15 Sep 2021 17:30 MDT

Animal Type

Grizzly Bear

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

Huge adult sized Grizzly

Photo (If Possible):

Chronological Events

Berry Field to Underground road to Batch plant Back to berry field

Movement Map (Import NotePlus Site Map)

Deterrent Count

1.25%

Truck

3

From 0 to 40

tried to chase him back towards field with truck when first sighting.

Air Horn

0

From 0 to 40

C/F Bear Banger

2

From 0 to 40

1- bear banger did not phase Bear when it was set off, he kept eating berries.

2-once bear was in the field he wanted to head towards truck shop/main camp, so we got ahead of him and fired banger so he went south/east. banger worked.

C/F Pen Whistle **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 15 Sep 2021 18:30 MDT

Final Location of Wildlife

In large field past UG, south/east of A418 pit

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

B.Deassige

19 Sep 2021 07:47 MDT

Wildlife Report - 2021

Grizzly - 2021-09-15 - Shallow Bays

Complete

Score	0.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-09-15 - Shallow Bays

Document No.

WildlifeReport000151

Completed On

16 Sep 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.25%

Enter Initial Time of Wildlife Sighting

15 Sep 2021 19:00 MDT

Department/Individual Who Reported Wildlife:

Unknown

Environment On Scene

Environment at Call-out Location

15 Sep 2021 19:17 MDT

Animal Type

Grizzly Bear

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

Single adult male, dark patchy fur.

Photo (If Possible):

Chronological Events

1900 Environment received a report of a single grizzly crossing the south haul road toward pond 1
 1917 Environment on scene, spotted the bear on the tundra southeast of the south haul road
 1920 Used BANGER to move the bear further from the haul road, bear moved slowly away. Environment continued to monitor the bear.
 1955 Environment left scene

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.25%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

1

From 0 to 40

C/F Pen Whistle

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

15 Sep 2021 19:55 MDT

Final Location of Wildlife

Tundra near Shallow Bays

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

16 Sep 2021 10:49 MDT

Wildlife Report - 2021

Grizzly - 2021-09-16 - SCRP

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Grizzly - 2021-09-16 - SCRP

Document No.

WildlifeReport000152

Completed On

16 Sep 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

16 Sep 2021 08:00 MDT

Department/Individual Who Reported Wildlife:

A21 Pit Shop

Environment On Scene

Environment at Call-out Location

16 Sep 2021 08:15 MDT

Animal Type

Grizzly Bear

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

Single resident male

Photo (If Possible):

Chronological Events

0800 Environment received a report of a single grizzly between the A21 pit shop and the waste transfer area

0815 Environment on scene, no bear was present in the area

0827 Environment located the bear on the tundra near the ramp to the south country rock pile

0830 Used BANGER to move the bear away from the haul road, bear did not respond

0834 Used BANGER to move the bear away from the haul road, bear began to move slowly to the north, over a ridge and out of sight

0845 Environment left scene

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.5%

Truck

0

From 0 to 40

Air Horn

0

From 0 to 40

C/F Bear Banger

2

From 0 to 40

C/F Pen Whistle

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

16 Sep 2021 08:45 MDT

Final Location of Wildlife

Tundra near SCRP

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

16 Sep 2021 10:56 MDT

Wildlife Report - 2021

Grizzly - 2021-09-17 - A21 Pit Shop

Complete

Score	1.25%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Grizzly - 2021-09-17 - A21 Pit Shop

Document No. WildlifeReport000153

Completed On

17 Sep 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

1%

Enter Initial Time of Wildlife Sighting

17 Sep 2021 11:00 MDT

Department/Individual Who Reported Wildlife:

Surface Mining

Environment On Scene

Environment at Call-out Location

17 Sep 2021 11:30 MDT

Animal Type

Grizzly Bear

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

Single male grizzly, dark patchy coat. Has been resident bear on site for the past several weeks.

Photo (If Possible):

Chronological Events

11:05am: Environment receives report of grizzly near A21 Pit Shop and Waste Transfer Area. All-announce made

11:22am: Environment arrives on scene, bear spotted on AN road near turnoff to A21 Pit Shop. TRUCK used. Bear starts moving along tundra patch between SCRPs and Pit Shop area.

11:25: TRUCK, SHOTGUN CYCLE used as bear continues moving

11:26 Bear moves uphill towards eastern edge of SCRPs. SHOTGUN CYCLE used and bear goes over edge of SCRPs and out of view. Area Supervisor updated on local channel

11:52 Environment searches around perimeter of SCRPs but is not able to find bear. Site-wide all announce updated and Environment leaves scene.

Movement Map (Import NotePlus Site Map)



Photo 1

Deterrent Count

1%

Truck

2

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 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	2
	From 0 to 40
Specify	Shotgun cycle

Environment Off Scene

End of Environment Call-out 17 Sep 2021 12:00 MDT

Final Location of Wildlife

SCRP (South Country Rock Pile)

Closure & Sign-off

100%

Wildlife Report Complete On

Signature

Nicole Goodman

17 Sep 2021 18:19 MDT

Appendix

Appendix



Photo 1

Wildlife Report - 2021

Caribou - 2021-08-01 - ROM - South Haul Road

Complete

Score	0.75%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location) Caribou - 2021-08-01 - ROM - South Haul Road

Document No. WildlifeReport000130

Completed On

2 Aug 2021

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.5%

Enter Initial Time of Wildlife Sighting

1 Aug 2021 16:00 MDT

Department/Individual Who Reported Wildlife:

Unknown. Caribou was spotted several times on the PKC before being reported on the south haul road

Environment On Scene

Environment at Call-out Location

2 Aug 2021 16:15 MDT

Animal Type

Caribou

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

Single large male, appeared healthy

Photo (If Possible):



Photo 1

Chronological Events

1600 Environment received a report of a single caribou on the south haul road near the truck shop
 1615 Environment on scene, caribou was standing still on the edge of the haul road, several vehicles had stopped at a safe distance to allow the animal to pass. Environment shut down the relevant section of the south haul road and instructed waiting vehicles to back slowly out of the area.
 1620 The caribou walked from the south haul road partway up ROM hill before turning around and heading up the small access road behind the site services lineup. Environment followed at a safe distance.
 1625 Environment stopped a loader heading the opposite direction down the access road and backed up to allow the caribou to leave the area. The caribou again headed up ROM hill, Environment stopped a haul truck heading in the opposite direction and followed the caribou back onto the access road.
 1640-1740 The caribou stood in the shade on the access road and grazed on nearby willows. Environment remained nearby to prevent traffic from using the road.
 1745 A second Environment team arrived from the other side of the access road and slowly approached the animal. The second truck blocked access to ROM hill while the caribou was gently encouraged back onto the south haul road and then onto the tundra near the shallow bays.
 1800 The caribou headed northeast on a small access road parallel to the south haul road. Environment positioned vehicles to prevent the animal from returning to the active road.
 1810 The caribou began grazing on nearby tundra, Environment remained to monitor the scene
 1840 Environment off scene

Movement Map (Import NotePlus Site Map)



Photo 2

Deterrent Count

0.5%

Truck

2

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 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

1 Aug 2021 18:40 MDT

Final Location of Wildlife

Tundra near Shallow Bays

Closure & Sign-off

100%

Wildlife Report Complete

On

Signature

Brett Potter

2 Aug 2021 07:21 MDT

Wildlife Report - 2020

Wolf 2021-04-30 truck shop

Complete

Score	0.5%	Failed items	0	Actions	0
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Wildlife Report

Audit Title (Animal - yyyy-mm-dd - Location)

Wolf 2021-04-30 truck shop

Document No.

WildlifeReport000376

Completed On

30th Apr, 2021

Audit

0.5%

Wildlife Report

Type of Wildlife Report

Deterrent Reporting

Deterrent Report

0.25%

Enter Initial Time of Wildlife Sighting

30th Apr, 2021 9:35 PM MDT

Department/Individual Who Reported Wildlife:

Truck Shop

Environment On Scene

Environment at Call-out Location

30th Apr, 2021 9:55 PM MDT

Animal Type

Wolf

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

1 young grey wolf, white on belly and dark grey on top with a dark snout tip.

Photo (If Possible):

Chronological Events

09:35 Single wolf called in at truck shop.

09:55 Environment personnel on scene at South Winter Road Approach, wolf on ice heading west.

10:07 Wolf crosses A21 haul road, environment personnel encourages across with truck.

10:22 Wolf passes A21 pit shop, environment off scene.

Movement Map (Import NotePlus Site Map)

Deterrent Count

0.25%

Truck

1

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 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 30th Apr, 2021 10:22 PM MDT

Final Location of Wildlife

South Country Rock Pile west of A21 pit shop

Closure & Sign-off 100%

Wildlife Report Complete On

Signature

Gordon Cumming