



REPORT

Diavik Diamond Mines (2012) Inc.
2017 Wildlife Monitoring Report

Submitted to:

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Distribution List

Electronic Copy - Diavik Diamond Mines (2012) Inc.

Electronic Copy - Golder Associates Ltd.

Executive Summary

As a requirement of the Environmental Agreement, Diavik Diamond Mines (2012) Inc. (DDMI) completes a Wildlife Monitoring Program (WMP) each year. The objective of the WMP is to collect 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 Assessment. The WMP 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 results collected for the 2017 WMP for the Diavik Diamond Mine (Mine) located at Lac de Gras, Northwest Territories (NWT). The data were collected according to procedures outlined in the Mine's Standard Operating Procedures. Where helpful, comparisons to the information gathered during the previous monitoring (2000 to 2016) and the pre-construction baseline (June 1995 to August 1997) have been included.

General observations for each program include the following.

Landscape Changes

- In 2017, the Mine footprint increased by 0.47 square kilometres (km²). The total loss of terrestrial and aquatic habitats to date from mining activities (11.69 km²) is below that predicted in the Environmental Effects Report (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 closure activities.

Barren-Ground Caribou

- The total caribou summer habitat loss to date is 2.94 habitat units, which remains below the prediction made in the EER.
- Caribou aerial surveys were not required or completed in 2017. DDMI is waiting for the recommendations and direction from the Department of Environment and Natural Resources, Government of the Northwest Territories (ENR) Zone of Influence Technical Task Group for guidelines on future caribou aerial surveys.
- Thirty two ground-based caribou behavioural scanning observations were completed in 2017. All observations occurred during winter and from 0 to 2.7 km from Mine infrastructure.
- There were no mine-related caribou injuries or mortalities reported in 2017. One caribou carcass was found that had died of natural causes.
- During 2017, the caribou traffic advisory remained at "No Concern" for the entire year. Although caribou numbers on East Island exceeded 100, caribou remained far from haul roads so it was unnecessary to elevate the traffic advisory from "No Concern".
- There was no action taken to herd caribou away from potential hazards in 2017.

Grizzly Bear

- The total direct grizzly bear habitat loss to date is 8.56 km², which is below the amount predicted in the EER.
- The grizzly bear hair snagging program was not undertaken from 2014 through 2016, but did occur in 2017. Diavik completes this program in collaboration with the Ekati mine and the summary report on the hair snagging program is expected mid-2018.
- In 2017, 89 reported instances of grizzly bears were recorded on East Island from 9 May to 20 October. Of these, 57 required deterrent actions and 37 did not require deterrent actions. There were no grizzly bear mortalities and one relocation event.

Wolverine

- The snow track survey was completed twice in 2017. Jorgen Bolt of Kitikmeot Inuit Association and Wayne Langenhan of North Slave Métis Alliance participated in the wolverine track surveys.
- The wolverine hair snagging program was not completed in 2017. The long-term duration and frequency of this program will be evaluated when the results of ENR's analysis are available.
- A total of 44 reported instances of wolverine were recorded within and adjacent to the wildlife study area during 2017 from 24 January to 15 December.
- There were no relocations or mortalities of wolverine in 2017.

Raptors

- In 2017, the regional raptor nest monitoring surveys were not completed by ENR. These surveys are planned to take place every five years, with the next survey is scheduled for 2020.
- A total of 36 Pit Wall/infrastructure inspections were completed from 7 May until 28 September 2017 to determine use by raptors. During the inspections, two peregrine falcon sites were confirmed. One peregrine falcon nesting site was at the Site Services Building and one was at A154. All raptor nests had young present. Common raven nested at the South Tank Farm, but the nest may have been abandoned by the end of May 2017 as no activity was observed after this time. There was also a potential but unconfirmed nesting site for rough-legged hawk at A418.
- No raptor incidents or mortalities were reported at the Mine in 2017.

Waste Management

- In 2017, waste inspections at the Waste Transfer Area (WTA) and Landfill were conducted twice per week during the winter and once per week in the summer. A site-wide compliance inspection and underground inspection is completed on a weekly basis. Since May 2016, the A21 area has been inspected every three days. During inspections staff identified and removed any improperly disposed waste and recorded all sign of wildlife or wildlife activity. Based on the results of inspections, workers are educated on waste management practices as part of adaptive management.
- Throughout 2017, 11,365 units of aluminum containers and 7,153 units of plastic containers were recycled and the total monetary value (\$1,851.80) was donated to charity.
- During 2017, a total of 374,076 litres of waste oil were collected and burned in waste oil heat-generating boilers.
- In 2017, the wind farm generated 17,193 megawatt hours (MWh) of power, which represents an estimated diesel savings of 3.9 million litres.

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1.0 INTRODUCTION

1.1 Background

Diavik Diamond Mines (2012) Inc. (DDMI or Diavik) conducted wildlife baseline studies from 1995 to 1997. The information was used to describe ecological conditions in the Lac de Gras area in support of the Project Description and Environmental Assessment (DDMI 1998a,b). A Wildlife Monitoring Program (WMP) was developed as part of the Environmental Agreement for the Diavik Diamond Mine (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, 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. The WMP also considers wildlife issues of concern identified by communities and regulatory agencies.

Based on reviews and discussions among DDMI, communities and regulators, the WMP has evolved under the principals of adaptive management since the original design 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 impact predictions, community concerns, adaptive management principles and the establishment of regional monitoring programs. Further, community site visits occur annually and allow community members an opportunity to observe Mine operations.

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 WMP 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 ENR (ENR 2004).

Since 2010, WMP programs for caribou, grizzly bear and falcons have been suspended or removed through adaptive management and with consensus among communities, regulators, the mines and monitoring agencies after review of these programs at wildlife monitoring workshops (Marshall 2009; Handley 2010). Discontinuation 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). The current hair snagging programs completed for grizzly bear and wolverine are designed to evaluate cumulative effects and are contributed to the GNWT for this purpose. Of the studies completed in the most recent two comprehensive analysis reports in 2017 and 2014, 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 will no longer complete an independent comprehensive analysis report for wildlife. Instead all comprehensive statistical analyses related to active monitoring programs will be included every three years in the annual WMP report, and would begin in 2020, if applicable. 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.

1.2 Objectives

The overall objectives of the WMP 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 valued components 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, current completed construction of the 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

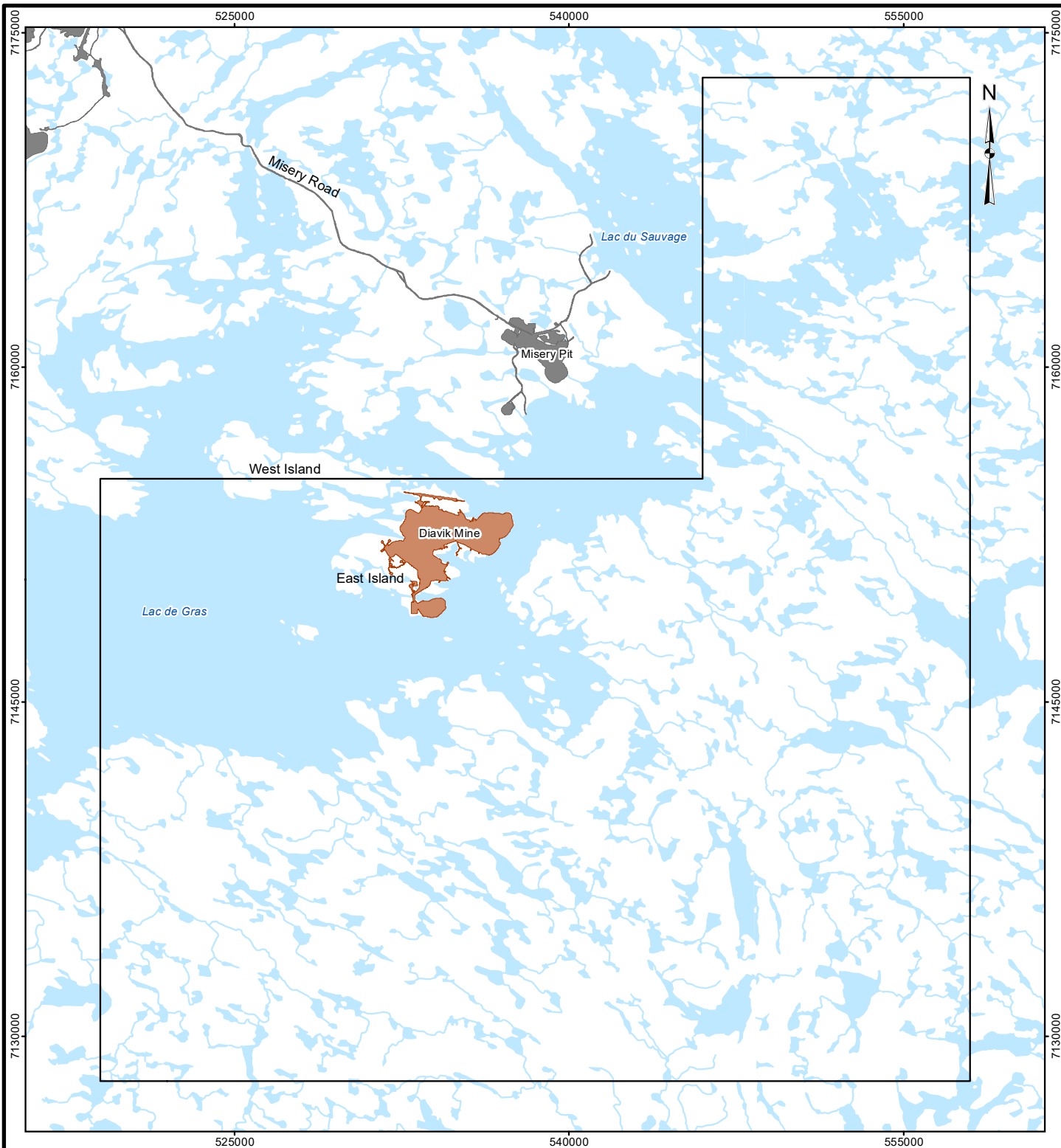
Within each section of this report, data are presented that will be tracked over the life of the Mine. Recommendations for changes to the WMP are presented at the end of each section for consideration, and may be incorporated into the WMP for subsequent years. The WMP is an evolving program that will reflect recommendations during previous years, as well as advances in Mine development. Changes will be captured in annual revisions of the WMP.

The Environmental Monitoring Advisory Board (EMAB) is an arm's length organization that reviews the WMP report annually and provides comments and recommendations to DDMI (Appendix J). In 2017, EMAB requested additional analysis and clarification for caribou monitoring (Table 1) that were completed and included in this report.

Table 1: Wildlife Monitoring Program Recommendations by the Environmental Monitoring Advisory Board, 2017

EMAB Recommendation	DDMI Response	WMP Section
Complete a power analysis to support the target sample size for analysing caribou group behaviour data.	A power analysis on caribou group behaviour was completed.	Appendix I
Diavik should re-do its analysis of the southern migration of caribou using collar information up to the end of November to take into account the changes in migration timing.	The deflection analysis using collar information up to the end of November for the southern migration was completed.	Section 3.4
Diavik should explain how it will include Beverly/Ahiak caribou in its caribou monitoring program.	In 2017, Beverly/Ahiak caribou were likely monitored for group behaviour. All caribou that interact with the mine are monitored regardless of herd association.	Section 3.0

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LEGEND

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



REFERENCE

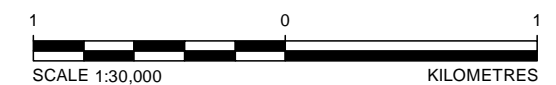
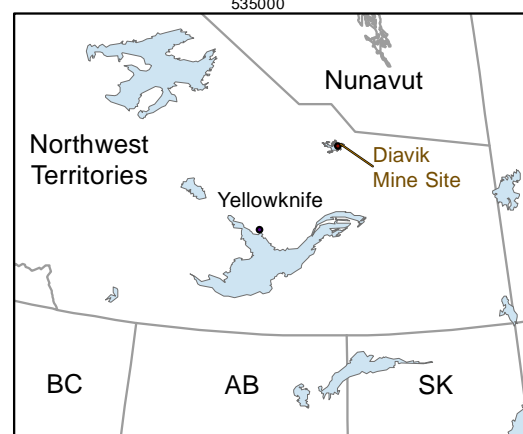
BASE DATA: NTDB 1:250,000. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE – CANADA.
 DATUM: NAD83 PROJECTION: UTM ZONE 12

PROJECT		DIAVIK DIAMOND MINES INC.		
DIAVIK WILDLIFE STUDY AREA, 2017				
PROJECT		1771843	FILE No.	
DESIGN	KB	12 Feb. 2018	SCALE AS SHOWN	REV. 0
GIS	VV	13 Mar. 2018	FIGURE: 1	
CHECK	DC	13 Mar. 2018		
REVIEW	DC	13 Mar. 2018		



LEGEND
 ● INFRASTRUCTURE

REFERENCE
 2017 WORLDVIEW IMAGE OBTAINED FROM CLIENT.
 PROJECTION: UTM ZONE 12 DATUM: NAD 83



PROJECT		1771843		FILE No.	
Rio Tinto		DIAVIK DIAMOND MINES INC.			
TITLE					
DIAVIK MINE SITE INFRASTRUCTURE, 2017					
	DESIGN	KB	20 Dec. 2016	SCALE AS SHOWN	REV. 0
	GIS	VV	13 Mar. 2018		
	CHECK	DC	13 Mar. 2018		
	REVIEW	DC	13 Mar. 2018		
					FIGURE: 2

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2.0 LANDSCAPE CHANGES

The scope of the landscape component of the WMP is to determine if vegetation and surface water loss is 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 the Mine construction has 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).

In addition, Diavik conducts ongoing monitoring to determine if dust from the Mine is affecting vegetation communities, and lichen and soil chemistry near the Mine. Permanent vegetation plots are assessed for vegetation 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. A Comprehensive Vegetation and Lichen Analysis Report is generated every three years, which was last completed in January 2017.

The objective of this component of the WMP is to:

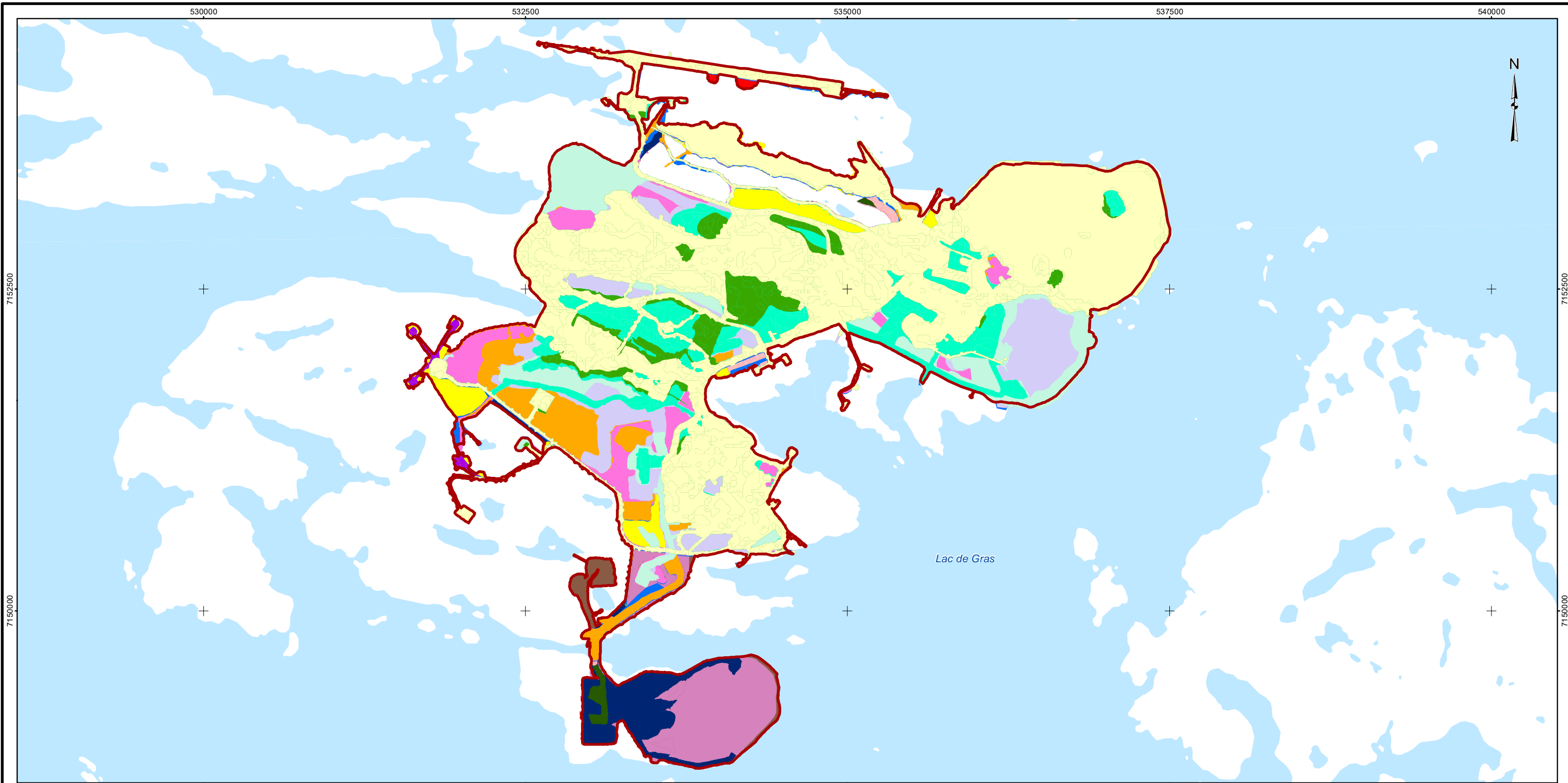
- determine if direct vegetation/habitat loss due to the Mine footprint exceeds the prediction of 12.67 km²

2.1 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 (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).

2.2 Results

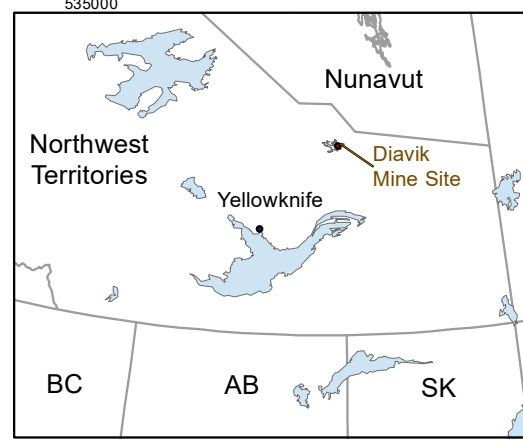
As of December 2017, a total area of 11.31 km² has been altered since Mine construction in 2000. This represents a relative loss of 89.3% of the predicted landscape disturbance (DDMI 1998a). Land cover types at or slightly exceeding the predicted loss include riparian shrub, esker complex, bedrock complex, boulder complex, and birch seep and shrub (Table 2). In 2017, the ELC types that changed included heath tundra, heath boulder, tussock/hummock, riparian shrub, and deep water (Table 2). 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. The annual geographic extent of landscape disturbed from the Mine footprint is illustrated in Figure 3.



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LEGEND		
MINE PERIMETER 2017	DISTURBANCE (2002-2017)	2010
WATERBODY	2002	2011
	2003	2012
	2004	2013
	2005	2014
	2006	2015
	2007	2016
	2008	2017
	2009	

REFERENCE
 BASE DATA: CANVEC HYDROLOGY. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE – CANADA.
 PROJECTION: UTM ZONE 12 DATUM: NAD 83



PROJECT		Rio Tinto		DIAVIK DIAMOND MINES INC.	
TITLE					
MINE FOOTPRINT EXPANSION BY YEAR, 2002 TO 2017					
	PROJECT	1771843	FILE No.		
	DESIGN	KB	20 Dec. 2016	SCALE AS SHOWN	REV. 0
	GIS	BP	13 Mar. 2018		
	CHECK	DC	13 Mar. 2018		
	REVIEW	DC	13 Mar. 2018	FIGURE: 3	

Table 2: Total and Predicted Ecological Landscape Classification Unit Loss, 2000 to 2017

ELC Type	Total Area (km ²) Lost per Year																	
	up to 2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Predicted ^(c)
Heath Tundra	1.45	1.89	2.02	2.38	2.62	2.76	2.93	2.97	3.03	3.00	3.01	3.20	3.20	3.24	3.42	3.52	3.56	3.68
Heath Bedrock (30% to 80%)	0.08	0.34	0.36	0.40	0.45	0.49	0.53	0.58	0.59	0.58	0.59	0.64	0.64	0.64	0.65	0.67	0.67	0.78
Health Boulder (30% to 80%)	0.26	0.64	0.73	0.96	1.07	1.24	1.43	1.49	1.52	1.5	1.53	1.62	1.63	1.63	1.72	1.75	1.76	1.89
Tussock/ Hummock	0.45	0.63	0.79	1.01	1.19	1.27	1.35	1.42	1.44	1.43	1.44	1.46	1.47	1.47	1.53	1.54	1.55	1.64
Sedge Wetland	0.02	0.03	0.04	0.09	0.16	0.16	0.17	0.21	0.21	0.21	0.21	0.22	0.22	0.22	0.23	0.23	0.23	0.26
Riparian Shrub	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03
Birch Seep and Shrub	0.03	0.05	0.06	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.11
Boulder Complex	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05
Bedrock Complex	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Esker Complex	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16
Disturbed ^(b)	0	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Shallow Water	0.11	0.23	0.23	0.26	0.29	0.34	0.35	0.35	0.35	0.34	0.34	0.36	0.36	0.35	0.37	0.40	0.40	0.48
Deep Water	0.15	1.80	1.81	1.82	1.93	2.17	2.19	2.19	2.19	2.12	2.12	2.13	2.13	2.13	2.16	2.63	2.65	3.46
Total^(a)	3.12	5.88	6.32	7.30	8.15	8.86	9.40	9.66	9.78	9.65	9.71	10.1	10.12	10.15	10.55	11.22	11.31	12.67

(a) Any discrepancies in totals across the rows results from the rounding of numbers in annual columns for presentation purposes.

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

(c) From DDMI 1998a.

km² = square kilometres; % = percent.

3.0 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). 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 survey, completed by ENR in June 2015, estimated the number of animals to be from 16,000 to 22,000 (ENR 2018a). 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 71,000 individuals (ENR 2018b), like the Bathurst caribou these herds are believed to also be in decline as are a number of other circumArctic herds (Festa-Bianchet et al. 2011; Gunn et al. 2011). Barren-ground caribou (*Rangifer tarandus groenlandicus*) including the Bathurst and Beverly/Ahiak herds are under consideration for species at risk listing in the Northwest Territories (NWT) and were assessed as threatened by the NWT Species at Risk (SAR) Committee in April 2017 (NWT SAR 2017). The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessed barren-ground caribou in November 2016 as threatened (COSEWIC 2018). To support the recovery of all barren-ground caribou herds, the 2011 to 2015 NWT Barren-ground Caribou Management Strategy was developed (GNWT 2011). The overall goal of the strategy is to maintain numbers of caribou within their natural range of variation. The GNWT has outlined five objectives to obtain this goal:

- engage co-management partners in monitoring and management of caribou
- ensure appropriate, up-to-date information is available for management decisions
- manage impacts of key factors affecting caribou that are within control
- inform the public about the status of caribou and their role in management
- maximize benefits from caribou for NWT residents

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 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. A new barren-ground caribou management strategy for 2018 to 2022 is under development (ENR 2018c).

3.1 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 WMP is to determine if direct summer habitat loss (in 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. Either scenario 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 2.0).

3.1.1 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.

3.1.2 Results

Direct summer habitat loss to date from the Mine is approximately 2.82 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. As noted in Section 2.2, 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.

Table 3: Caribou Summer Habitat Unit Loss to 2017

ELC Type	Habitat Suitability Value	ELC Loss to 2017 (km ²)	Habitat Unit Loss to 2017
Heath Tundra	0.37	3.56	1.317
Heath Boulder	0.40	1.76	0.702
Riparian Shrub	0.46	0.04	0.020
Bedrock Complex	0.27	0.07	0.018
Tussock/Hummock	0.30	1.55	0.465

ELC Type	Habitat Suitability Value	ELC Loss to 2017 (km ²)	Habitat Unit Loss to 2017
Sedge Wetland	0.28	0.23	0.065
Esker Complex	0.30	0.17	0.052
Birch Seep and Shrub	0.11	0.10	0.011
Boulder Complex	0.21	0.05	0.010
Heath Bedrock	0.23	0.67	0.154
Total	-	8.20	2.815

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

3.2 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 WMP is to determine if the area around the Mine where caribou distribution is altered (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 impact prediction 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 conducted in collaboration with the Ekati Diamond Mine. DDMI 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 2014 through 2017.

3.3 Changes to Behaviour

Ground-based behavioural observations, or scan sampling, are conducted to provide data on changes in caribou behaviour as a function of distance from the Mine. Monitoring is conducted cooperatively with the Ekati Diamond Mine as they regularly have caribou close to the mine infrastructure. Because the primary habitat within 5 km of the Mine footprint is water, DDMI is focused on collecting scanning observations further from the mines. The revised impact prediction from Handley (2010) is:

- to determine if caribou behaviour changes with distance from the mines

3.3.1 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 conducted during the autumn (and more recently, during winter) when more caribou were passing through the area. Group composition was classified, and the number of animals in the group was recorded. The response variable is caribou behaviour, while the covariates include distance from Mine, group composition, and weather variables. In order to control for the effects of habitat, all observations were performed within one habitat type (tundra with <30% bedrock or boulders). 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.

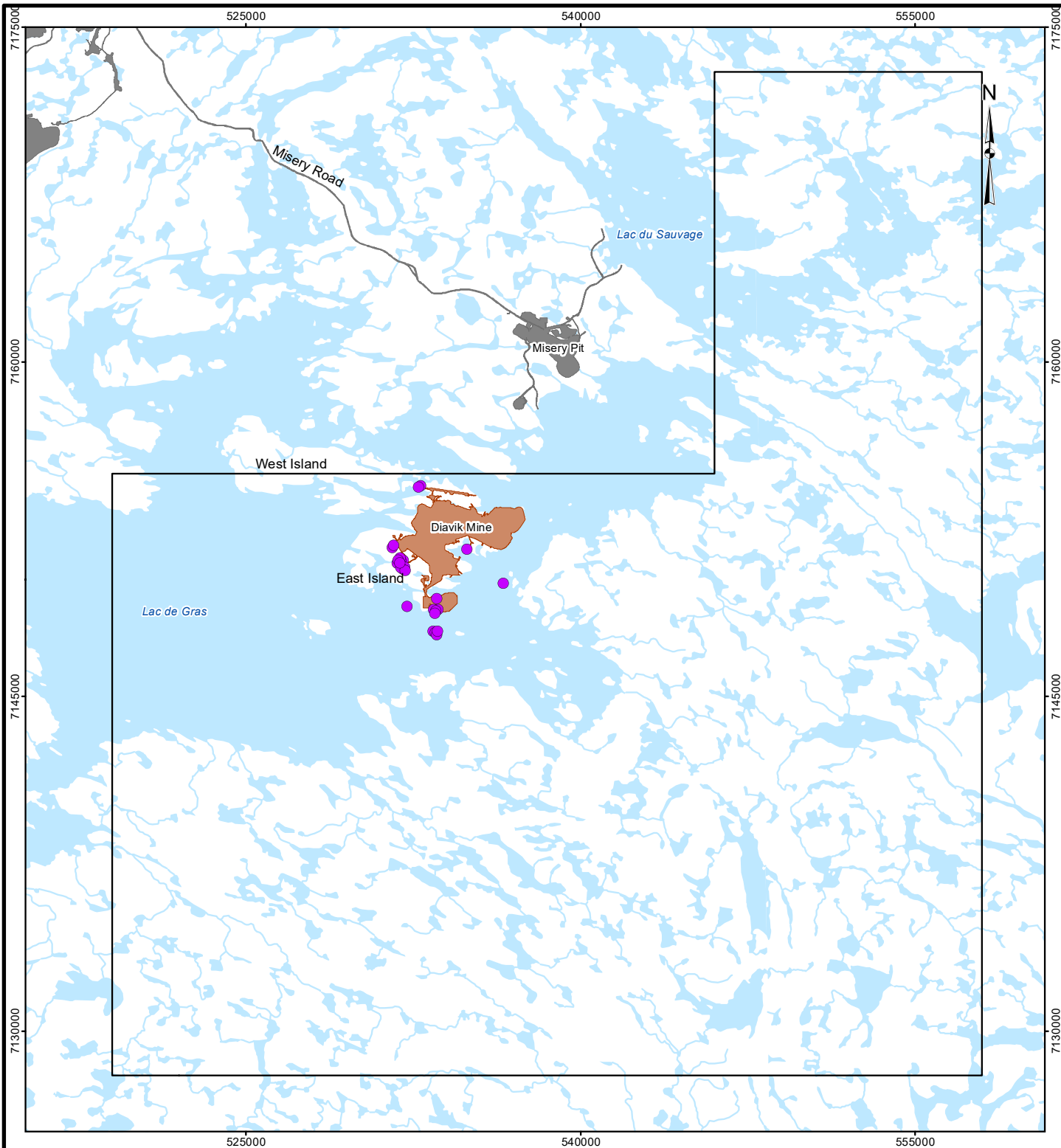
In addition to group-level scans, focal scans are completed on a single caribou. Focal scans provide information on activity budgets (i.e., the amount of time an animal is engaged in different behaviours), the temporal sequence of behaviours relative to stressors or other stimuli, and the length of time 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 will be undertaken on both cows and bulls, for a minimum of 20 minutes.

3.3.2 Results

From January 15 to May 13 behaviour scans were completed on 32 caribou groups from 0 to 2.7 km from the Mine (Figure 4; Appendix A). Caribou collar locations suggest these animals were most likely from the Beverly/Ahiak and Bathurst herds. The total number of caribou observed was 513, group size ranged from 1 to 64 with the average group size being 16 animals with a standard deviation of 14.8. The estimated mean proportion (± 2 SE) of caribou behaviour observed is as follows; bedded 31% (16%), feeding 48% (18%), standing 3% (6%), alert 2% (6%), walking 16% (13%), trotting 0.1% (2%) and running 0.5% (35%). No focal scans were completed in 2017.

These behaviours were observed during winter and likely reflect differences in seasonality from previous observations collected during summer and autumn. Although more caribou groups were observed in 2017 than in recent previous years, there remain insufficient numbers of groups to detect a 15% change in behaviour (Appendix I), particularly when effects related to seasonality would need to be included for these data to be combined with past observations collected only during summer/autumn (because caribou were not present in past winters). For example, caribou may spend more time feeding in winter because insect harassment that is present in summer is not present during winter.

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LEGEND

- CARIBOU ACTIVITY LOCATION
- DIAVIK WILDLIFE STUDY AREA BOUNDARY
- DIAVIK FOOTPRINT
- EKATI FOOTPRINT
- WATERCOURSE
- WATERBODY

NOTE

OVERLAPPING CARIBOU LOCATIONS WERE OFFSET FOR VISUAL PURPOSES.

REFERENCE

BASE DATA: NTDB 1:250,000. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE – CANADA.
 DATUM: NAD83 PROJECTION: UTM ZONE 12



PROJECT		DIAVIK DIAMOND MINES INC.	
TITLE		LOCATIONS OF CARIBOU BEHAVIOUR SCANNING OBSERVATIONS, 2017	
PROJECT	1771843	FILE No.	
DESIGN	DC	05 Mar. 2018	SCALE AS SHOWN
GIS	VV	13 Mar. 2018	REV. 0
CHECK	DC	13 Mar. 2018	FIGURE: 4
REVIEW	DC	13 Mar. 2018	

3.4 Changes to Distribution

Deflection of caribou movements due to mining activities was also predicted (DDMI 1998b). Information collected from caribou collar locations is used to examine the distribution of caribou within the wildlife study area. Prior to 2015, only female caribou were collared. In 2015, ENR placed additional collars on male caribou. These observations are then compared with predicted trends in movement.

The impact prediction in the EER (DDMI 1998b) is:

- during the northern (spring) migration, caribou would be deflected west of East Island and during the southern migration (fall), caribou would move around the east side of Lac de Gras

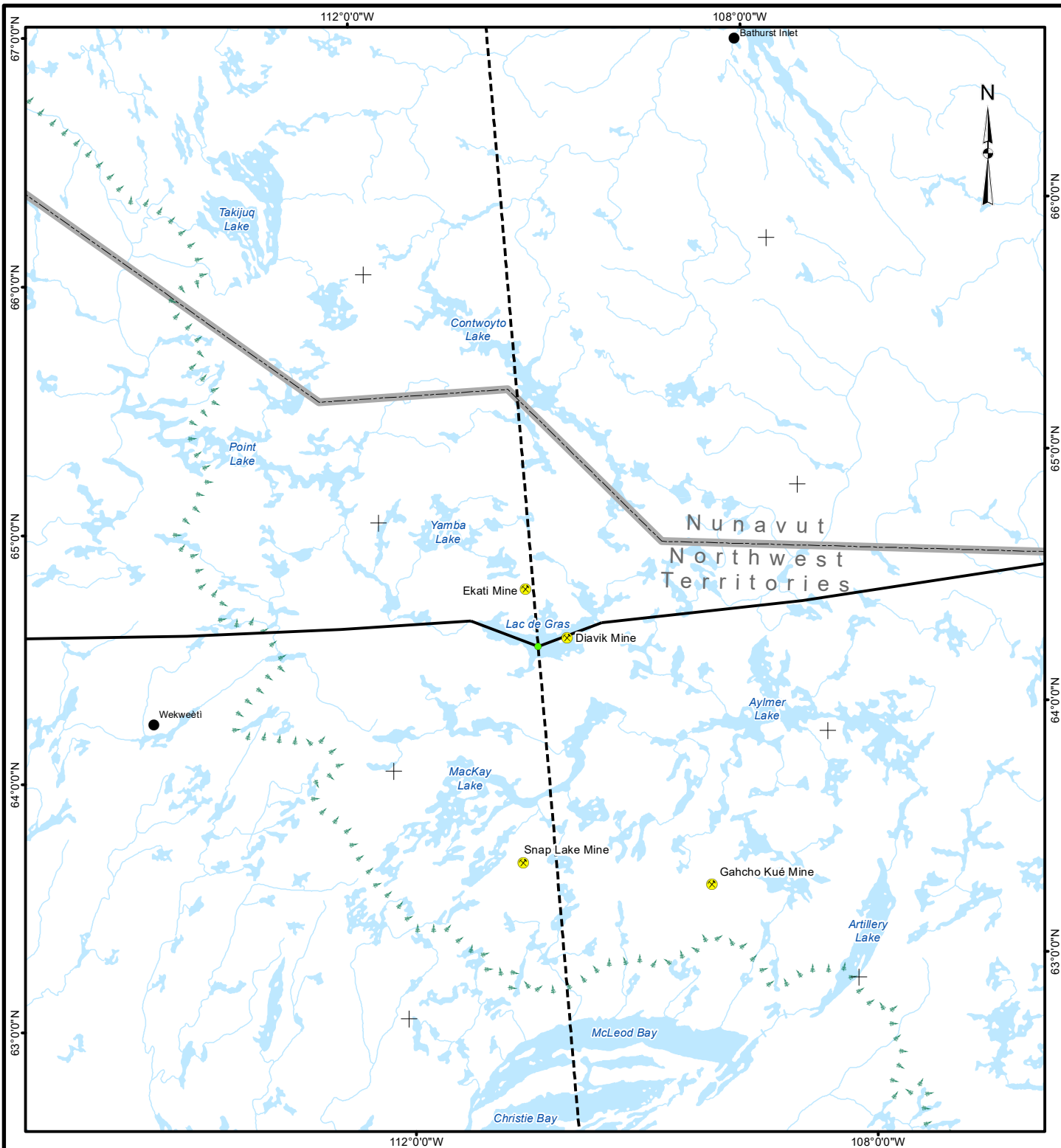
3.4.1 Methods

Data on the geographic location of collared cows and bulls was provided courtesy of ENR, and this information was used to illustrate the movement paths of the Bathurst caribou herd during the northern and southern migration periods.

Movements of collared Bathurst caribou during the 1996 to 2017 northern and southern migrations are included in this report, but are focused on caribou that are located within approximately 200 km of Lac de Gras and the Mine. The northern migration is defined by the period when Bathurst caribou cows leave the winter range in the forest, and migrate north to the calving grounds, typically in May (Gunn et al. 2002). The southern migration starts with the return from the calving and post-calving areas in July, and continues to the fall/rut period ending around 31 October (Gunn et al. 2002). However, as the result of range contraction with smaller herd size, Bathurst caribou are moving past the Lac de Gras region later in the year. To address this phenomena at the request of the Environmental Monitoring Advisory Board (EMAB), the southern migration season was extended to 30 November and applied to all previous years to increase the number of collared animals that can be evaluated against this prediction (EMAB 2017).

A north-south oriented centre or reference line was mapped across Lac de Gras. This reference line helped determine whether movements during the northern migration across a frozen Lac de Gras were east or west (Figure 5). An east-west oriented reference line was used to determine whether collared caribou movements could be categorized as having traveled past Lac de Gras (Figure 5), which was important during the southern migration because more recently collared cows were remaining further north during the summer/autumn. In some years, caribou paths traveled past Lac de Gras on one side, turned around and went back around the opposite side. In these cases, the direction of the first path was selected for quantitative analysis. When applied to all historical collar data, the use of reference lines changed the patterns previously determined using only visual examination in the 1996, 1998 and 2007 southern migration periods. A two-sample, single-tail test on proportions was used to evaluate whether collared caribou movements were consistent with predictions in the EER for the northern and southern migrations (Zar 1999).

I:\CLIENTS\DI\AVIK\1771843\Mapping\MXD\Wildlife\WMP2017\Fig5_BathurstCaribouDeflectionAxes_Rev0.mxd



LEGEND

- ⊗ EXISTING MINE
- LAC DE GRAS CENTROID
- POPULATED PLACE
- - - EAST / WEST MIGRATION DEMARCATION LINE
- NORTH / SOUTH MIGRATION DEMARCATION LINE
- TERRITORIAL BOUNDARY
- ▲ TREELINE
- WATERCOURSE
- WATERBODY

REFERENCE

1. 1:2 MILLION SCALE BASE DATA FROM THE ATLAS OF CANADA; CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE – CANADA. DATUM: NAD83 PROJECTION: NWT LAMBERT CONFORMAL CONIC



PROJECT		DIAVIK DIAMOND MINES INC.	
TITLE		EAST-WEST, NORTH-SOUTH REFERENCE LINES USED FOR BATHURST CARIBOU DEFLECTION ANALYSIS	
PROJECT	1771843	FILE No.	
DESIGN	KB	12 Feb. 2018	SCALE AS SHOWN
GIS	VV	13 Mar. 2018	REV. 0
CHECK	DC	13 Mar. 2018	FIGURE: 5
REVIEW	DC	13 Mar. 2018	

3.4.2 Results

Data from collared caribou in 2017 show that during the northern migration 31 caribou (17 females, 14 males) traveled west and six (3 females, 3 males) traveled east of Lac de Gras, which supports the prediction in the EER (Figure 6). These results are also consistent with the long-term patterns observed since 1996, and further support the observation that the northern migration route of Bathurst caribou relative to the west and east side of Lac de Gras is influenced by their location on the winter range (Golder 2017; Figure 6; Table 4).

Table 4: Numbers of Collared Female Bathurst Caribou Moving Past Lac De Gras during the Spring and Southern Migrations, 1996 to 2017

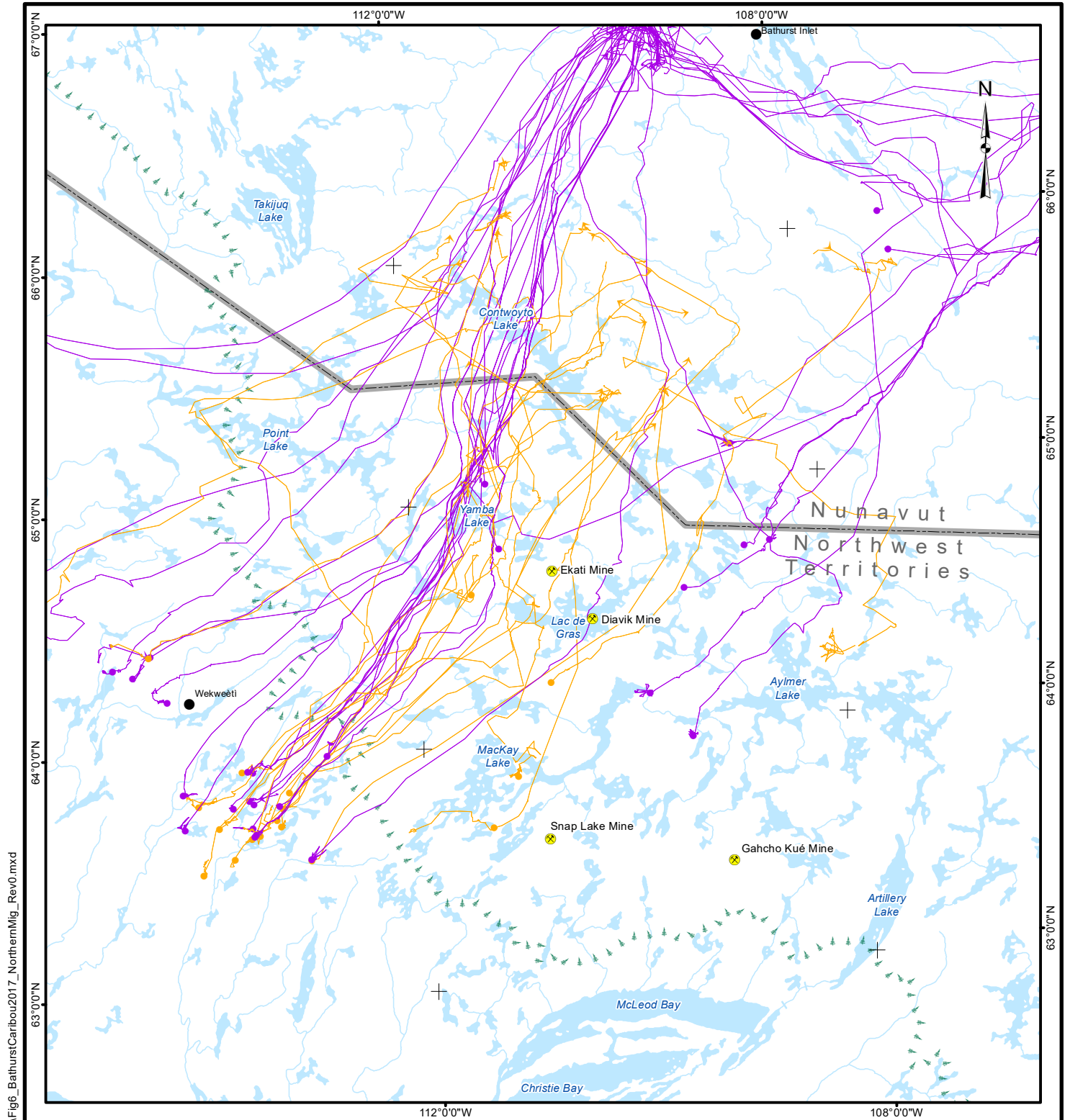
Year	Northern Migration (April 28 to June 30)		Southern Migration (July 1 to November 30)	
	West	East	West	East
1996	2	2	7	2
1997	7	0	1	6
1998	0	6	8	3
1999	12	1	1	13
2000	5	8	0	12
2001	0	11	4	6
2002	8	3	1	9
2003	11	0	0	10
2004	5	1	9	2
2005	14	3	1	18
2006	0	14	10	4
2007	19	1	12	6
2008	7	5	8	7
2009	4	0	4	5
2010	8	2	0	4
2011	17	0	11	0
2012	22	0	13	1
2013	11	4	8	0
2014	17	1	15	0
2015	21	3	21	3
2016	28	0	14	4
2017	31	6	5	11
TOTAL	249	71	153	126

During the southern migration, five collared caribou (2 females, 3 males) traveled west and 11 collared caribou (10 female, 1 male) traveled east of Lac de Gras from July to 30 November 2017 (Figure 7). The results for 2017 are consistent with the prediction of eastern movement around Lac de Gras during the southern migration in the EER.

Across all years, 249 (78%) of 320 collared caribou moved west past Lac de Gras during the northern migrations and 126 (45%) of 279 collared caribou moved east during the southern migrations past Lac de Gras, respectively (Golder 2017). More collared caribou have moved west around Lac de Gras than east during the northern migration ($Z = 14.07$, $P < 0.05$) and during the southern migration ($Z = 2.29$, $P < 0.05$). Long-term caribou movement paths generally correspond to the predictions made in the EER for the northern migration but not for the southern migration (DDMI 1998b). Year-to-year patterns have been variable since 1996, particularly for the southern migration. Since 2011 more collared caribou have been moving west around Lac de Gras during the southern movements. This pattern is also influenced by movements of collared males, which were first collared in 2015. East-west movements by females with collars are similar over the long-term ($Z = 0.88$, $P = 0.19$) but is still inconsistent with EER predictions for the southern migration.

Recent evidence from collared Bathurst caribou females show that they have remained further north than historically recorded and arrived in the Lac de Gras area later in the year (Golder 2014; Virgl et al. 2017), which is consistent with range contraction in declining herds (Bergerud et al. 1984, Valkenburg and Davis 1986, Messier et al. 1988, Bergerud et al. 2008). Collared caribou cow seasonal range overlap from year to year has been consistent over time (Virgl et al. 2017), so caribou are still able to reach previously used areas despite variation in movements around Lac de Gras.

Golder (2018) evaluated for a trend in the distance from annual Bathurst autumn range centroids to East Island at the request of EMAB. The results indicated no trend in annual distances between East Island and the annual autumn range centroids through time. This result is expected because East Island is farther north than the treeline and is centrally located in the Bathurst annual range (Golder 2018). Caribou are considered sensitive to disturbance during the post-calving period because calves are maturing and still dependent on maternal cows. A northern shift during the post-calving period may be associated with a reduction in encounter rates with industrial activities in the Slave Geological Province (e.g., the Mine) and lower energetic costs for females and calves due to human-related disturbance (Golder 2014).



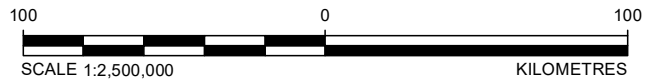
I:\CLIENTS\DI\AVIK\1771843\Mapping\MXD\Wildlife\WMP2017\Fig6_BathurstCaribou2017_NorthernMig_Rev0.mxd

LEGEND

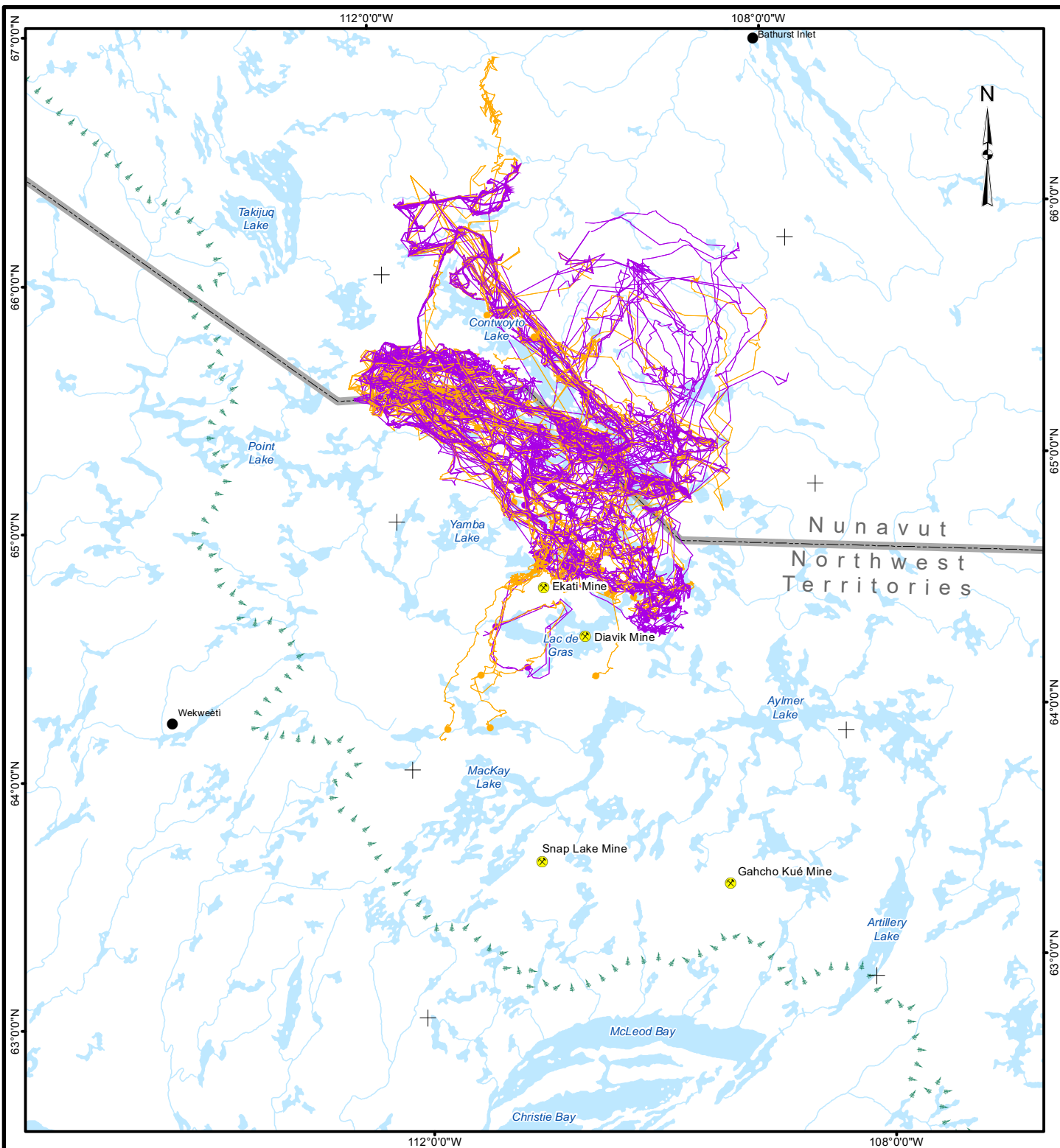
- ⊗ EXISTING MINE
- POPULATED PLACE
- ↔ NORTHERN MIGRATION OF FEMALES (APRIL 15 - JUNE 1)
- ↔ NORTHERN MIGRATION OF MALES (APRIL 15 - JUNE 1)
- TERRITORIAL BOUNDARY
- 🌲 TREELINE
- WATERCOURSE
- WATERBODY

REFERENCE

1. CARIBOU DATA SUPPLIED BY ENVIRONMENT AND NATURAL RESOURCES. 2018. BATHURST CARIBOU SATELLITE COLLAR LOCATIONS, 1996 – NOVEMBER 30, 2017. NWT WILDLIFE MANAGEMENT INFORMATION SYSTEM. GOVERNMENT OF THE NORTHWEST TERRITORIES, YELLOWKNIFE, NT.
 2. 1:2 MILLION SCALE BASE DATA FROM THE ATLAS OF CANADA; CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE – CANADA. DATUM: NAD83 PROJECTION: NWT LAMBERT CONFORMAL CONIC



PROJECT		DIAVIK DIAMOND MINES INC.	
TITLE			
NORTHERN MIGRATION OF BATHURST CARIBOU HERD, 2017			
PROJECT	1771843	FILE No.	
DESIGN	KB	12 Feb. 2018	SCALE AS SHOWN
GIS	VV	13 Mar. 2018	REV. 0
CHECK	DC	13 Mar. 2018	FIGURE: 6
REVIEW	DC	13 Mar. 2018	



LEGEND

- ⊗ EXISTING MINE
- POPULATED PLACE
- SOUTHERN MIGRATION OF FEMALES (JULY 1 - NOVEMBER 30)
- SOUTHERN MIGRATION OF MALES (JULY 1 - NOVEMBER 30)
- TERRITORIAL BOUNDARY
- 🌲 TREELINE
- WATERCOURSE
- WATERBODY

REFERENCE

1. CARIBOU DATA SUPPLIED BY ENVIRONMENT AND NATURAL RESOURCES. 2018. BATHURST CARIBOU SATELLITE COLLAR LOCATIONS, 1996 – NOVEMBER 30, 2017. NWT WILDLIFE MANAGEMENT INFORMATION SYSTEM. GOVERNMENT OF THE NORTHWEST TERRITORIES, YELLOWKNIFE, NT.
 2. 1:2 MILLION SCALE BASE DATA FROM THE ATLAS OF CANADA; CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE – CANADA. DATUM: NAD83 PROJECTION: NWT LAMBERT CONFORMAL CONIC



PROJECT		RioTinto		DIAVIK DIAMOND MINES INC.	
TITLE					
SOUTHERN MIGRATION OF BATHURST CARIBOU HERD, 2017					
PROJECT		1771843		FILE No.	
DESIGN	KB	12 Feb. 2018	SCALE AS SHOWN		REV. 0
GIS	VV	13 Mar. 2018			
CHECK	DC	13 Mar. 2018			
REVIEW	DC	13 Mar. 2018			
GOLDER			FIGURE: 7		

3.5 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, 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 program is to determine if the number of caribou deaths or injuries associated with the Mine is greater than predicted. The following section summarizes the methods applied and the results produced from incident reporting and road observations. The impact prediction in the EER (DDMI 1998b) is:

- mine-related mortality is expected to be low

3.5.1 Methods

Mine-related incidents and mortalities are reported to the Environment Department for documentation in a detailed incident investigation for immediate follow-up (Appendix B). 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.

3.5.2 Results

In 2017, there was one natural caribou mortality due to wolf predation (Skinner 2018, pers. comm.) and no Mine-related caribou injuries or mortalities officially recorded (Table 5). The only Mine-related caribou mortality reported to date occurred in 2004.

Table 5: Caribou Mortalities on East Island, Baseline to 2017

	Baseline ^(a)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
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
Mine-related Mortalities	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

(a) Includes data from 1995 to 1997.

3.6 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 the island and in specific areas dictates the type of mitigation practices that will be undertaken (e.g., haul road closure, speed reduction).

3.6.1 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 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 because they were ineffective at detecting caribou at the Mine that were not already detected and reported to Environment Department staff by Mine employees, environment staff completing other monitoring programs, and pilots.

3.6.2 Results

In 2017, caribou numbers on the East Island reported by staff ranged from 1 to approximately 2,150 animals. Caribou collar locations suggest these animals were most likely from the Beverly/Ahiak and Bathurst herds. In total there were 38 different incidental observations reported with 36 of those observations occurring before 13 May (Table 6). General caribou traffic advisories were issued on days caribou were visible on East Island (Sinclair 2018a, pers. comm) (Table 6). Although the number of caribou exceeded 100, animals remained far from haul roads so elevation from “No Advisory” was required for the protection of caribou. There were no reported incidents involving caribou in 2017. Caribou were observed near the airport on six occasions but did not trigger deterrent actions. Photos of wildlife taken at the Mine are included in Appendix C.

Table 6: Caribou Incidental Observations on and adjacent to East Island, 2017

Date	Number	Location	Comments
1/4/2017	50	Southeast of AN on tundra	
1/4/2017	4	East of CBM Camp on tundra	
1/15/2017	9	Wind Tower 3	
1/16/2017	180	Northwest of Emulsion building ranging between 250–2,000 m distance	in groups of 10–30
1/17/2017	15	A21 Area on ice	
1/21/2017	325	A21 Area on the ice to the SE	
1/21/2017	9	Between Emulsion Plant and AN Building	
1/23/2017	9	Emulsion Plant Area	
1/25/2017	17	South of the Emulsion Road	
1/26/2017	2,150	Behind Western Explosives	Large herd of caribou spread out over a couple kilometres
1/27/2017	12	300 m SE of wind tower 3	
1/28/2017	285	West of Airport	
1/31/2017	16	250 m south of Emulsion Plant road	
2/5/2017	12	Emulsion Plant	
2/7/2017	10	Northwest of Airport Runway ~400 m	
2/11/2017	29	100 m NW of Emulsion	
2/14/2017	8	100 m from A21 Portal Offices on tundra	
2/14/2017	~600	South of A21 Dike roughly 2-4 km distance - trailing away to the West	
2/15/2017	8	Near A21 Portal and North Haul Road on tundra	
2/16/2017	~250	Far southern horizon of Lac de Gras	
2/15/2017	3	At airport near runway on tundra	
2/17/2017	8	At airport near runway on tundra	
2/18/2017	8	At airport near runway on tundra	
2/23/2017	~1,000	Far southern horizon of Lac de Gras seen from South Dike A21	
3/10/2017	~1,000's	10 km SE of Diavik	Exploration crew doing work saw thousands of caribou at least a mile in length
3/13/2017	~200	South of A21 South dike on Lac de Gras ~300 yards	
3/14/2017	~60	South of Zone 2 stockpile on tundra and Lac de Gras	
3/14/2017	~250	Herd of caribou 1.5 km northeast of NI on Lac de Gras	
4/8/2017	1	Passing by drill on Lac de Gras	
4/14/2017	300	Herd of caribou 12 km from site during wolverine track survey	
4/14/2017	9	group of caribou on Lac de Gras 2 km from Mine	
4/28/2017	12	On ice east of raw water inlet	
4/30/2017	2	Spotted on land near first portage on winter road just after the turnoff to the drill	
5/5/2017	7	First spotted in shallow bays area, activity budget completed when herd was to the left of the vegetation plots	
5/8/2018	10	Walking on Lac de Gras	
5/13/2017	19	Ice near zone 1 in A21	
9/27/2017	1	Single caribou reported near airport terminal	
12/26/2017	4	4 caribou between the A418 Dike entrance and lake	

3.7 Caribou Herding

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, DDMI implements its Standard Operation Procedure for caribou herding.

3.7.1 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.

3.7.2 Results

In 2017, herding of caribou at the Mine was not required while caribou were observed on East Island (Sinclair 2018b. Pers. comm.).

3.8 Recommendations

DDMI will continue to focus monitoring of caribou activity budgets that describe changes to behaviour at distances between 2 and 30 km of the Mine and the Ekati mine. DDMI will continue to work with ENR to collaborate and assist with government led caribou monitoring and/or research where possible.

Based on the principles of adaptive management, DDMI will no longer complete an independent comprehensive analysis report for wildlife. Instead all comprehensive statistical analyses related to active monitoring programs will be included every three years in the annual WMP report, and would begin in 2020, if applicable.

4.0 GRIZZLY BEAR

The barren-ground grizzly bear (*Ursus arctos*) ranges throughout most of the NWT. The western population of grizzly bear is currently listed as a species of special concern by COSEWIC (COSEWIC 2018), and listed as sensitive under the NWT General Status Rank (NWT SAR 2018).

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).

Impacts 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.

4.1 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). Loss of habitat may result in negative effects on grizzly bears. The objective of this component of the WMP 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

4.1.1 Methods

Methods used to determine grizzly bear habitat loss are similar to that described in Section 3.1; 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 area).

4.1.2 Results

Cumulative direct grizzly bear habitat loss resulting from the Mine up to 2017 was 8.20 km², which is below that predicted in the EER. As noted in Section 2.2, 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.

4.2 Presence and Distribution

Mining activities can impact the presence of grizzly bears due to disturbance and habitat loss (DDMI 1998b). Vegetation loss and changes to caribou distribution from mining activities may also influence the presence, abundance and distribution of grizzly bears (Gau and Case 1999; Johnson et al. 2005).

Monitoring is completed to determine if mining activities influence the presence of grizzly bears in the study area. The predicted effect is:

- mine development is not predicted to influence the presence of grizzly bears in the area

The revised monitoring objective in Handley (2010) is to:

- determine if Mine-related activities influence the relative abundance and distribution of grizzly bears in the study area over time

In 2010, a pilot study using a hair snagging technique was initiated to assess its effectiveness in determining grizzly bear abundance in the DDMI wildlife study area. In April 2012, a request was made on behalf of DDMI, BHP Billiton Canada and De Beers Canada Inc. to undertake a joint grizzly bear hair snagging program that encompassed Ekati, Diavik, Snap Lake and Gahcho Kué (Rescan 2013a). Following discussions and clarification of methods (Rescan 2013b), the program was initiated in June 2012 using a standard set of sampling protocols. At the March 2013 Wildlife Monitoring Workshop hosted by the GNWT, the monitoring objective for grizzly bear was revised to:

- provide estimates of grizzly bear abundance and distribution in the study area over time (GNWT 2013a)

4.2.1 Grizzly Bear Hair Snagging Program

4.2.1.1 Methods

Diavik, Snap Lake, Gahcho Kué and Ekati mines jointly completed the regional grizzly bear hair snagging program. The study area consisted of a northern section, sampled by the Diavik and Ekati mines (ERM Rescan 2014), and a southern section, sampled by Snap Lake and Gahcho Kué (Jessen et al. 2014). The northern section was sampled in 2012 and 2013, and included 113 stations, arranged in a grid pattern spaced at approximately 12 km by 12 km (ERM Rescan 2014). A wooden tripod with a fixed base and the legs wrapped in barbed wire was used to collect grizzly bear hair for DNA analysis. The wooden tripod was placed in high quality grizzly bear habitat (e.g., esker, riparian area, upland meadow, wetland meadow) to increase the likelihood of capturing grizzly bear hair. Traditional knowledge was included in determining high quality habitat for site selection (Rescan 2014). Non-reward lures (e.g., cured cows blood, fish oil, seal oil and sweeter scented oils) were used to attract the bears to the tripods. The lures were poured on the top of the posts and down the legs, and in the centre of the ground to encourage a bear to squeeze between the legs. The posts were not relocated between each sampling period, but a novel scent combination was used each session to prevent habituation.

At the end of each session, all grizzly bear hair was removed from the tripod and placed in a paper envelope. Each grouping of hair was stored separately, and supporting information such as the tripod identification, date, and location on tripod were recorded. The hair samples were sent to Wildlife Genetics International for DNA fingerprinting.

4.2.1.2 Results

Results of the 2012 and 2013 hair snagging program are provided in ERM Rescan (2014). Analysis of these data indicated a stable or increasing abundance of grizzly bears in the northern section relative to monitoring completed in the late 1990's. The hair snagging program was not undertaken from 2014 through 2016, but did occur in 2017. The summary report on the hair snagging program is expected mid-2018. The long-term frequency of this program has not been determined collaboratively during wildlife monitoring workshops hosted by ENR.

4.3 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

4.3.1 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 it is 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 was 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 ENR, and 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.

4.3.2 Results

There were 89 reported instances of grizzly bears on East Island, and a total of 94 grizzly bear observed (Table 7; Appendix D). Grizzly bears were observed on East Island from 9 May to 20 October. These sightings were observed over 73 days and included approximately 68 observations involving the same young blonde bear with a dark streak on its back that overwintered in a den on East Island and was eventually relocated and tagged (Section 4.3). 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 2017, there was an average of 641 people at the Mine. The number of incidental observations of grizzly bears does not appear to be influenced by the number of people on site (Spearman correlation $r=-0.29$, $P=0.28$); however, staff reporting incidental observations does foster an awareness of wildlife issues at the Mine (Table 7). Of the 94 grizzly bear seen (89 observation instances), 57 involved deterrent actions and 32 did not involve deterrent actions (Table 8). Deterrents used to encourage bears to move away from infrastructure included trucks, bear bangers, rubber bullets, cracker shells, screamers, whistlers, and air horns (Appendix K).

Table 7: Average Camp Population and Number of Incidental Grizzly Bear Observations, 2002 to 2017

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

In 2017, there were no grizzly bear mortalities and one relocation event (Table 8). There was one male (blond with brown stripe and brown legs) grizzly bear that was tranquilized on 19 June and relocated approximately 78 km near the Nunavut border. This bear had previously been observed denning on site, and had been deterred approximately 14 times. After the relocation, the same bear was first observed back on site on 18 July. The bear continued to be observed and deterred until October 2017 and then was not observed at site again.

Construction began at the Mine in the year 2000. The calculated Mine-related mortality rate over the 18-year monitoring period is 0.06 bears per year, which is below the range predicted in the EER.

Table 8: Grizzly Bear Deterrent Actions, Incidents and Mortalities, 2000 to 2017

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
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)
Days Deterrent Actions were Utilized	10	8	2	6	20	23	8	20	3	18	40	31	65	40	39	27	50	51
Relocations	0	1	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1
Mortalities	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	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.

4.4 Recommendations

DDMI participated in regional grizzly bear monitoring in collaboration with BHP Billiton and De Beers Canada Inc. in 2012 and 2017. The long-term duration and frequency of this program will be determined through review and discussion of program objectives and results at the next wildlife monitoring workshop hosted by ENR.

5.0 WOLVERINE

Wolverine (*Gulo gulo*) are annual residents in the Lac de Gras region (DDMI 1998b). Wolverine in the NWT are listed as special concern by COSEWIC (COSEWIC 2018), and is not considered a species at risk, but has a general species rank of sensitive (NWT SAR 2018).

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.

5.1 Presence and Distribution

The objective of this component of the WMP is to determine if mining activities are influencing the presence of wolverines in the study area, and 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 is currently participating in a joint research program coordinated among Dominion Diamond Ekati Corporation and the GNWT. This program involves hair sampling for DNA fingerprinting to estimate abundance of wolverine in the Lac de Gras region.

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

- snow track surveys
- hair snagging
- incidental observations at site

5.1.1 Snow Track Surveys

5.1.1.1 Methods

Snow track surveys began in 2003, and have been conducted 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 (IQ) 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 for wolverine tracks. 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 IQ), including heath tundra and heath tundra boulder habitats.

Historically, each transect is driven once by a snowmobile in March 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 activity and distribution.

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 from the survey date since the mean hourly wind speed had reached 7.7 metres per second (m/s). A wind speed of 7.7 m/s is sufficient to move dry snow along the ground (Li and Pomeroy 1997). Track counts were adjusted for weather by using the minimum number of days since the most recent snowfall or threshold wind speed event. 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. Additional analysis on relative activity, which accounted for imperfect detection of snow tracks, was completed using the statistical analysis Program PRESENCE (Hines 2007). In this analysis, detection rates were derived as a function of the standardized number of days since weather threshold event.

5.1.1.2 Results

In 2017, 52 wolverine tracks were recorded during two surveys of all transects from 22 March to 19 April (Table 9). Snow tracks were observed on 22.5% of transects during the first survey and 52.5% of transects during the second survey. This resulted in a track index of 0.06 and 0.26 tracks per kilometre in the first and second surveys, respectively, and a grand mean ($\pm 2SE$) track density index (TDI) of 0.313 ± 0.070 wolverine tracks per kilometre per days since last weather threshold (Table 9; Appendix E). One dig was observed during the second snow track surveys. Jorgen Bolt of Kitikmeot Inuit Association and Wayne Langenhan of North Slave Métis Alliance participated in the wolverine track surveys.

Statistical modelling of the snow track data to account for imperfect detection and weather indicated that the probability of snow track occurrence in the study area was 0.87 (95%CI: 0.55 to 0.97). Snow track detection was 0.41 (95%CI: 0.26 to 0.59), after accounting for effects of days since last wind event.

A second survey has been completed to estimate detection of wolverine snow tracks since 2015. To evaluate whether detection probability has varied annually, detection estimates for 2015, 2016 and 2017 were standardized using the days since either snowfall or wind threshold event. This model generated snow track detection estimates of 0.42 (95% CI: 0.20 to 0.67) for 2015, 0.60 (95% CI: 0.41 to 0.77) for 2016 and 0.33 (95% CI: 0.18 to 0.54) for 2017. Considering the degree of 95% confidence limits overlap between years, detection was apparently higher in 2016 than in either 2015 or 2017, and detection rates in 2015 and 2017 were similar. This assessment supports the need to continue to complete surveys twice, so that the probability snow track occurrence can be correctly adjusted to reflect temporal variation in annual weather conditions. Future programs that include successful survey of all transects twice will help identify whether snow track detection rates vary over longer periods of time.

Results from the most recent comprehensive analysis of snow track data indicate that TDI and occurrence of snow tracks have increased in the study area through time from 2003 to 2016 (Golder 2017). These patterns appear unrelated to the Mine, although both TDI and occurrence were negatively correlated with the amount of waste rock production. However, the negative association with mine activity indices is not consistent with the expectation that wolverine are attracted to the Mine. Continued diligence with mitigation such as management of food waste and preventing access to on-site denning will be important to avoid and minimize Mine-related effects to wolverine.

Table 9: Wolverine Track Index and Mean Days Since Snow Fall, 2003 to 2017

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

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

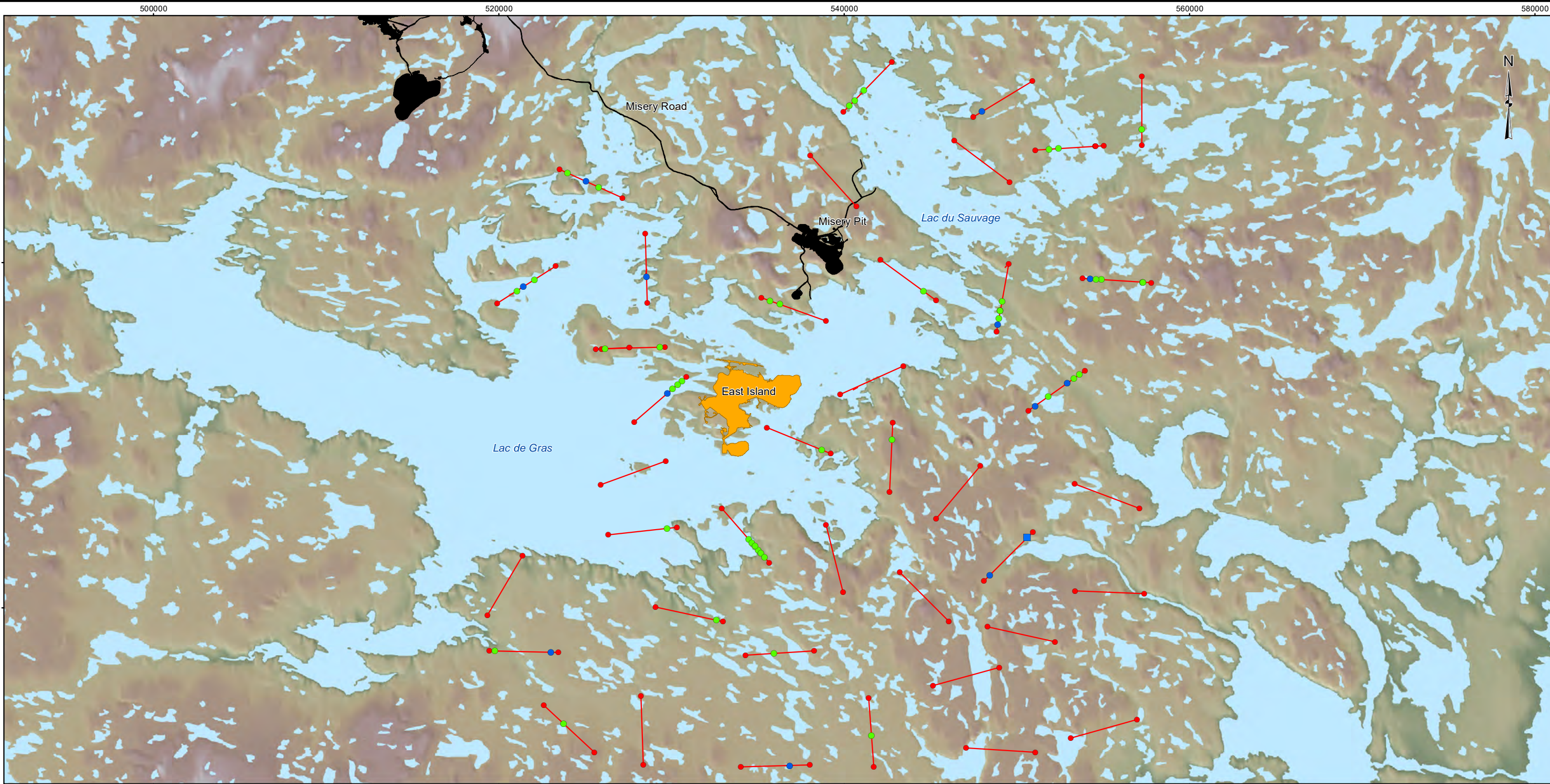
(b) For each transect, a track density index (TDI) was calculated as the number of wolverine tracks per transect length per number of days since recent snowfall or threshold wind speed. TDI is reported as mean Track Density Index \pm 2 times the standard error (Appendix E).

(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.

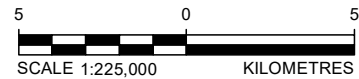
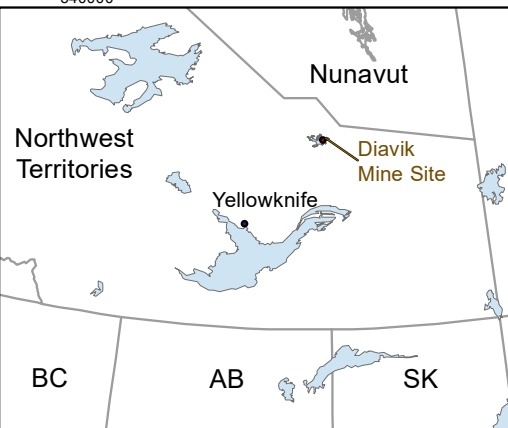
(e) Survey was not completed in 2010 due to community assistant not being available to participate in survey.

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



- LEGEND**
- WOLVERINE DEN
 - SURVEY 1
 - SURVEY 1
 - SURVEY 2
 - TRANSECT
 - DIAVIK FOOTPRINT
 - EKATI FOOTPRINT
 - WATERBODY

REFERENCE
 DEM AND HILLSHADE OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE – CANADA.
 HYDROLOGY OBTAINED FROM CLIENT.
 DATUM: NAD83 PROJECTION: UTM ZONE 12



PROJECT		Rio Tinto		DIAVIK DIAMOND MINES INC.	
TITLE					
WOLVERINE SNOW TRACK SURVEY, 2017					
GOLDER		PROJECT	1771843	FILE No.	
DESIGN	KB	12 Feb. 2018	SCALE AS SHOWN	REV.	0
GIS	VV	13 Mar. 2018			
CHECK	DC	13 Mar. 2018			
REVIEW	DC	13 Mar. 2018			
FIGURE: 8					

I:\CLIENTS\DI\AVIK\1771843\Mapping\MXD\Wildlife\WMP2017\Fig8_Wolverine_SnowTracks_Rev0.mxd

5.1.2 Hair Snagging

5.1.2.1 Methods

The wolverine hair snagging is a regional research program conducted in partnership with ENR and Dominion Diamond Ekati Corporation. This program is also conducted with the assistance of community members. The survey is carried out in March and April by snowmobile. A total of 134 posts constructed of 4 inch x 4 inch lumber in 5 foot lengths are erected across the DDMI study area in a 3 km by 3 km grid. Each post is spiral-wrapped in barbed wire, intended to snag hair from wolverine, and baited with a small portion of local meat and two types of commercially prepared lures (GNWT 2013b). Posts are surveyed in the order they are deployed and are removed after the second visit. Hair samples are submitted to Wildlife Genetics International for DNA fingerprinting to determine the sex and number of individuals in the study area.

5.1.2.2 Results

The wolverine hair snagging program was not completed in 2015, 2016, or 2017 and was last completed in 2014. The long-term duration and frequency of this program has not been determined collaboratively at wildlife monitoring workshops hosted by ENR. The schedule for future monitoring programs will be determined after the data summary analysis report from ENR is complete and reviewed.

5.2 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, 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

5.2.1.1 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 (Appendix L). All wolverine mortalities are reported immediately to ENR, and 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.

5.2.1.2 Results

In 2017, there were 44 reported instances when wolverine were observed at the Mine, and a total of 48 wolverine observed on East Island (Appendix F). These sightings were reported over 36 days from 24 January to 15 December. These observations are not collected systematically, and likely 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 by half in 2017 from 2016. There is no correlation between the number of incidental observations of wolverine and the number of people on site (Spearman correlation $r=0.03$); however, staff reporting incidental observations does foster an awareness of wildlife issues at the Mine (Table 10).

Table 10: Average Camp Population and Number of Incidental Wolverine Observations, 2002 to 2017

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

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

There were four incidents involving wolverine in 2017. A truck was used for all deterrent actions. Since 2000, five wolverines have been relocated and five mortalities have occurred at the Mine (Table 11). No wolverine relocations or mortalities occurred in 2017. Relocations and mortalities continue to be uncommon at the Mine.

Table 11: Wolverine Observations, Deterrents, Relocations and Mortalities, 2000 to 2017

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
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)
Days Deterrent Actions were Utilized	9	10	0	1	1	5	2	1	17	1	0	0	1	0	0	4	6	4
Relocations	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Mortalities	0	1	0	0	0	0	0	0	1	0	0	0	2 ^(a)	0	0	0	1	0

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

(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.

5.3 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. The Environment Department will continue to encourage staff to report wolverine and other wildlife sightings as these build awareness at site and help to prevent or 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.

Based on the principles of adaptive management, DDMI will no longer complete an independent comprehensive analysis report for wildlife. Instead all comprehensive statistical analyses related to active monitoring programs will be included every three years in the annual WMP report, and would begin in 2020, if applicable.

6.0 RAPTORS

Raptors (birds of prey) present in the study area include peregrine falcons, gyrfalcons, rough-legged hawks, snowy owls, and short-eared owls. The Federal *Species at Risk Act* (SARA) considers the peregrine falcon (*Falco peregrinus anatum/tundrius*) 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 2018). In 2017, COSEWIC re-assessed the status of the *anatum/tundrius* peregrine falcon as Not at Risk (NWT SAR 2018). Peregrine falcon is scheduled for assessment by NWT SAR in March 2021 (NWT SAR 2018).

Habitat loss, sensory disturbance, and impacts 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, in the study area, 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 removed from the WMP, and data collection should be focused on mitigating effects to raptors nesting in open pits and on Mine infrastructure. The Workshop also suggested contributing to broader regional monitoring programs.

The revised impact predictions presented in Handley (2010) are to:

- Determine nest site occupancy and productivity of historic peregrine falcon nest sites in the study area to contribute to the Canadian Peregrine Falcon Survey (CPFS), which monitors recovery of species and long-term population trends.
- 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 that may be employed for nest relocations.
- Document and determine the cause of direct Mine-related mortalities of raptors.

6.1 Nest Site Occupancy

6.1.1 Methods

The CPFS is no longer completed; however, DDMI will still contribute surveys of nest use and success in the study area for regional monitoring by ENR and other researchers. Contribution of nest monitoring data to ENR for inclusion in regional and national databases, is scheduled for every five years and was last completed in 2015. The monitoring was conducted by 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 2020.

Falcons 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 conducted twice weekly during the nesting season. Pit walls and other infrastructure are inspected for nests and falcon nesting behaviour. If nests are found, the species occupying the nest is determined along with the presence of eggs and/or chicks. Deterrent actions are considered in consultation with ENR if the nest is in an area hazardous to the birds.

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

6.1.2 Results

A total of 36 Pit Wall/infrastructure inspections were completed from 7 May until 28 September to determine use by raptors (Appendix G). Nests were considered active if they were observed to have eggs or fledglings. Once a nest was confirmed to no longer be active, no further inspections were undertaken. During the inspections, two peregrine falcon nesting sites were confirmed, one at the Site Services Building and one at A154. Finally, common ravens were confirmed nesting at the South Tank Farm, but the nest may have been abandoned by the end of May as no activity was observed after this time (Table 12). All raptor species had young present. A potential nest site for rough-legged hawk was observed at A418 but was not confirmed.

Table 12: Active Nests Observed on Mine Infrastructure and Open Pits in 2017

Area	Species	Date	Observations
A154	Peregrine falcon	23 August	One adult and 3 young spotted.
Site Services Line Up Area	Peregrine falcon	22 May	Peregrine falcon sitting in nest. Three eggs observed 6 July. Three fledglings being fed by adult on 9 July.
South Tank Farm	Common raven	16 to 22 May	Active common raven nest, pair observed at nest. Unable to confirm number of eggs or young.

6.2 Incidents and Mortalities

6.2.1 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. ENR is consulted for mitigation and disposal procedures. This information is tabulated and provided for annual comparisons.

6.2.2 Results

No raptor incidents or mortalities were reported at the Mine in 2017.

6.3 Recommendations

DDMI will continue Pit Wall/infrastructure monitoring for nesting raptors. The next regional nest monitoring is scheduled to occur in 2020 and will be completed by ENR. As well, ENR will continue to collect these data for entry into the regional Raptor Database. DDMI will discuss options with ENR for future monitoring.

7.0 WASTE MANAGEMENT

DDMI is committed to taking the necessary steps to collect, store, transport, and dispose of all waste generated by the Mine. These procedures are being conducted 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 NT 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.

7.1 Waste Inspections

The DDMI Waste Management Plan outlines practices for waste disposal and mitigation actions. The 2014 Waste Management Plan was submitted on 16 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 19 January 2016, and was implemented in 2016 (WLWB 2016). The Mobile Maintenance and Support Services Department 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. In addition, Environment Department staff conduct waste inspections at the Waste Transfer Area (WTA) and Landfill twice per week during the winter and once per week in the summer. A site-wide compliance inspection and Underground inspection is completed on a weekly basis. Since May 2016, the A21 area has been inspected every three days.

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 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 3 m 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. The majority of waste is inventoried and stored at the WTA while awaiting backhaul on the winter ice 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 Type 3 waste rock pile. Waste is pushed into a large depression and a gate was installed in an effort to limit uncontrolled dumping in this area. 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 to animals.

7.1.1 Methods

Inspections of the WTA and the Landfill are conducted twice per week during the winter and once per week in the summer. Inspections of the A21 Area are conducted every three days and inspections of the Underground occur once per week. These inspections are to confirm that all waste segregation, storage and disposal procedures set out in the Waste Management Plan are being followed. Inspections consist of Environment Department staff walking the area of the WTA, Landfill, A21 Area, and Underground 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 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.

7.1.2 Results

Development of the underground Mine and the A21 open pit in 2017 yielded 233,507 tonnes of mined waste rock from A21 (overburden till and lake bottom sediment) and 179,860 tonnes for the underground and 2,189,799 tonnes of ore processed in 2017. The average daily population at the Mine in 2017 was 641 people, and weekly the population ranged from 422 to 728 people (Table 7). During 2017, the WTA and Landfill were surveyed on 87 and 86 occasions, respectively (5 January to 28 December). The A21 Area was surveyed 69 times (8 January to 31 December) and the Underground was surveyed 86 times (3 January to 31 December) (Table 13; Appendix H). A total of 418 misdirected waste items were found during WTA inspections, 929 items during Landfill inspections, 395 items at the A21 Area and 1,382 items at the waste segregation area of the Underground (Table 13). At the WTA, landfill, A21, and Underground, 48.8%, 66.7%, 71.0%, and 68.6% of the inspections had at least one item of misdirected waste, respectively.

In the WTA, the most common misdirected waste item was gloves (136 items), followed by oily rags (114 items) and food packaging (104 items). In the Landfill, the most common misdirected item was also gloves (382 items found), followed by oily rags (168 items) and cigarette butts (116 items). In the A21 Area, the most common misdirected waste item was gloves (77 items), followed by oily rags and drink containers (61 items). In the Underground area, the most common misdirected waste item was cigarette butts (1,024 items), followed by gloves (97 items) and oily rags (66 items).

Considering the total amount of waste disposed (475,244 kg incinerated and 2,376.8 tonnes landfilled), the amount of misdirected waste is considered negligible. Improperly disposed items at the WTA and Landfill were reported to Waste Management staff for immediate rectification.

Table 13: Misdirected Waste at the Waste Transfer Area, Landfill, A21 Area and Underground, 2017

Misdirected Waste Type	Waste Transfer Area (n=86 surveys)		Landfill (n=84 surveys)		A21 Area (n=69 surveys)		Underground (n=86 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	48	3.5	30	22.6	10	10.1	13	11.6
Batteries	5	2.3	6	3.6	2	2.9	5	1.2
Food	21	9.3	23	10.7	17	13.0	28	9.3
Food Packaging	98	26.7	109	35.7	50	23.2	38	24.4
Oil Contaminated Waste	3	4.7	11	7.1	4	5.8	26	4.7
Oil Products & Containers	8	5.8	9	4.8	5	5.8	1	1.2
Oily Rags	24	10.5	138	27.4	61	18.8	66	30.2
Cigarette Butts	6	2.3	116	6.0	48	8.7	1,024	22.1
Cigarette Packaging	22	11.6	34	25.0	33	27.5	51	20.9
Gloves	136	25.6	354	52.4	77	44.9	97	37.2
Drink Containers Recyclable	46	12.8	74	31.0	61	31.9	21	15.1
Other	1	3.5	25	13.1	27	15.9	12	14.0
Total	418	48.8¹	929	66.7¹	395	71.0¹	1,382	68.6¹

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

Wildlife was observed on 20.9% of inspections of the WTA, 4.8% of inspections of the Landfill, 7.2% of inspections of the A21 Area and 9.3% of inspections of the Underground (Table 14). Wildlife sign was observed on 52.3%, 34.5%, 11.6% and 25.6% of inspections at the WTA, Landfill, A21 Area and Underground, respectively. The most common wildlife species observed during inspections were fox and common ravens. The most common wildlife sign observed were fox and unspecified tracks.

Table 14: Wildlife and Wildlife Sign in the Waste Transfer Area, Landfill, A21 Area and Underground, 2017

Species	Waste Transfer Area (n=86 surveys)			Landfill (n=84 surveys)			A21 Area (n=69 surveys)			Underground (n=86 Surveys)		
	Number of Inspections with Wildlife Observations	Total Number of Individuals Observed	Number of Inspections with Wildlife Sign Observed	Number of Inspections with Wildlife Observations	Total Number of Individuals Observed	Number of Inspections with Wildlife Sign Observed	Number of Inspections with Wildlife Observations	Total Number of Individuals Observed	Number of Inspections with Wildlife Sign Observed	Number of Inspections with Wildlife Observations	Total Number of Individuals Observed	Number of Inspections with Wildlife Sign Observed
Common Raven	3	5	0	2	2	3	1	2	1	2	2	0
Fox spp.	14	16	24	2	2	12	1	1	4	6	7	14
Wolverine	2	2	4	0	0	0	1	1	0	0	0	0
Wolf	0	0	0	0	0	0	0	0	2	0	0	0
Gull spp.	1	1	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	2	0	0	0	0	0	0
Unspecified	0	0	20	0	0	13	1	1	3	0	0	8
Total	20	24	48	4	4	30	4	5	10	8	9	22

spp. =species.

7.2 Recycling Initiatives

During 2008, DDMI implemented an employee-driven recycling program for plastic bottles and aluminium cans generated on site. Throughout 2017, 11,365 units of aluminum containers and 7,153 units of plastic containers were recycled and the total monetary value (\$1,851.80) was donated to the Yellowknife Stanton Hospital Foundation. To date, the total proceeds since the inception of the employee-driven recycling program has generated \$26,483.

During 2017, approximately 374,076 litres of waste oil was collected to be used in the waste oil boiler that was commissioned in the second quarter of 2014. Since the boiler was commissioned, 941,213 litres of waste oil was burned to create heat rather than being shipped off-site.

In addition, a number of waste materials generated on-site are shipped off-site using winter road backhauls. DDMI 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

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

7.3 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 annually. During the fifth year of operation, the wind farm generated 17,192,885 kilowatt hours (kWh) of power, which represents 9.2% of the total power generated in 2017 and an approximate diesel savings of 3.9 million litres (Figure 9). The peak amount of total power used made up of wind power was 56.9%. The wind farm offset an estimated 10,478 tonnes of carbon dioxide emissions in 2017. From 2005 through 2017, the annual diesel fuel consumption at the Mine has ranged from 55,573,000 litres to 73,449,006 litres. In 2017, the total fuel consumption was 70,280,345 litres.

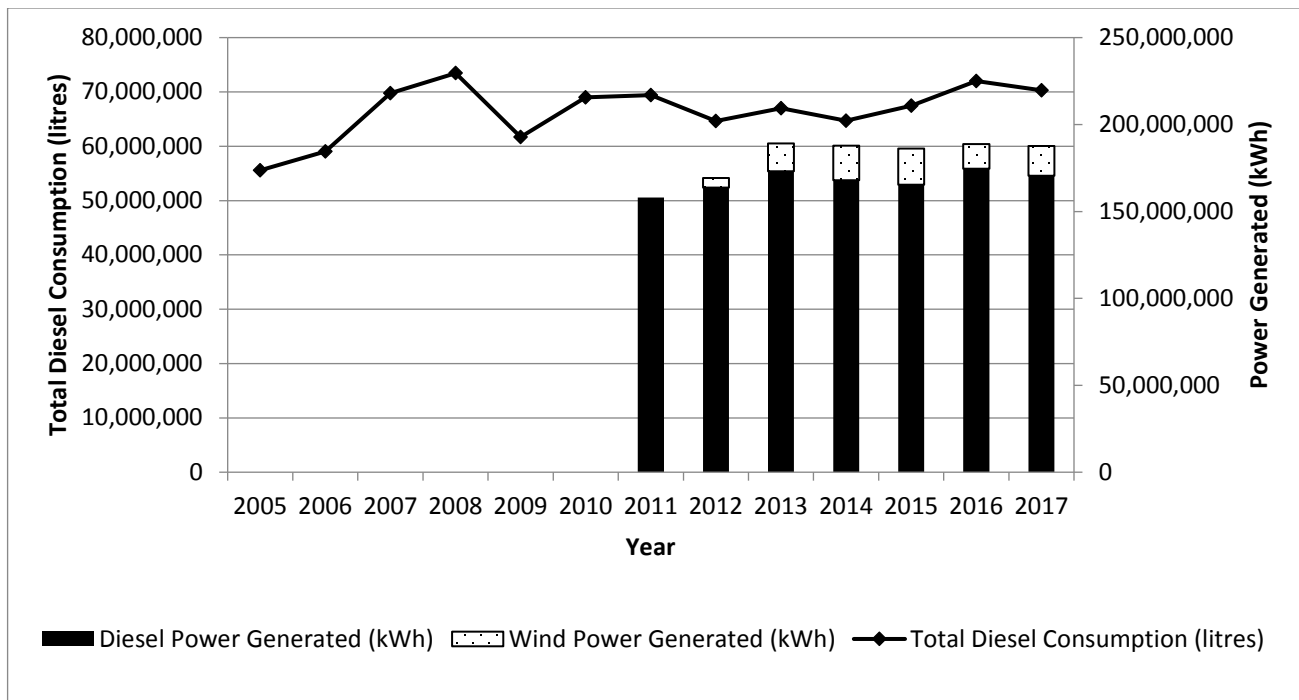


Figure 9: Annual Diavik Power Generation and Diesel Consumption

7.4 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 frequenting the WTA and Landfill, A21 Area and Underground, these animals are natural scavengers and will continue to be present throughout the Mine’s life. DDMI 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, the A21 Area every three days, and the Underground once per week during the year. DDMI remains committed to carrying out employee education programs related to waste handling.

8.0 CLOSURE

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

**Caribou Behavioural Observations
Summary, 2017**

Date	Time	Location	UTM (12W NAD 83)		Group Size	Composition
			Easting	Northing		
2017-Jan-15	10:49	2.67 km east of Diavik	531602	7151768	7	M / F
2017-Jan-16	14:20	2.2 km east of Diavik	531912	7150989	10	F / C
2017-Jan-16	14:21	2.2 km east of Diavik	531912	7150989	6	M / F
2017-Jan-16	14:22	2.2 km east of Diavik	531912	7150989	11	M / F / C
2017-Jan-16	14:23	2.2 km east of Diavik	531912	7150989	8	M / F
2017-Jan-16	14:23	2.2 km east of Diavik	531912	7150989	18	M / F
2017-Jan-21	11:50	2.06 km north of Diavik	533501	7148836	5	M / F
2017-Jan-21	11:51	2.06 km north of Diavik	533501	7148836	11	M / F / C
2017-Jan-21	11:52	2.06 km north of Diavik	533501	7148836	6	M / F / C
2017-Jan-21	11:53	2.06 km north of Diavik	533501	7148836	15	M / F
2017-Jan-21	13:09	2.13 km east of Diavik	531968	7150758	9	M / F / C
2017-Jan-25	15:55	200 m south of Emulsion Plant road	531951	7150892	17	M / F / C
2017-Jan-26	16:30	40 m south west of the Emulsion Plant	532007	7150734	25	M / F
2017-Jan-26	15:50	300 m south west of the Emulsion Plant	532007	7150734	50	M / F
2017-Jan-26	15:54	150 m south of the Emulsion Plant	532007	7150734	55	M / F
2017-Jan-27	15:45	300 m south east of Wind Tower 3	531607	7151777	9	M / F
2017-Jan-28	12:05	West of the airport	532724	7154387	31	M / F / C
2017-Jan-28	12:09	West of the airport	532724	7154387	64	F / C
2017-Jan-31	14:31	150 m south of Emulsion Plant road	-	-	15/16	M / F
2017-Feb-05	14:20	-	-	-	12	M / F
2017-Feb-07	9:46	-	-	-	1	F
2017-Feb-11	15:19	-	531929	7150925	13	M / F / C
2017-Feb-14	14:58	-	533544	7149388	8	M / F / C
2017-Feb-14	15:18	-	533480	7147863	7	M / F / C
2017-Mar-14	9:15	800 m from A21 South Abutment	533480	7147863	8	F / C
2017-Mar-14	9:41	50 m off Zone 2 Rock Pile on tundra	533519	7147801	23	M / F
2017-Mar-14	11:42	3 km from Misery Rock Pile	533480	7147863	16	M / F
2017-May-05	8:32	-	534896	7151601	7	M / F
2017-May-08	16:39	-	536527	7150072	10	M / F
2017-May-13	8:25	-	532211	7149036	19	M / F

F = adult female; M = adult male; C = Calves; km=kilometres; m=meters.

Note: Distances from the Mine estimated in the field.

APPENDIX B

**Wildlife Mortality Incident Reports,
2017**

Wildlife Report - 2017

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

Birds - 2017-08-25 - MAC

Document No.

WildlifeReport000068

25 Aug 2017


Completed on


26 Aug 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	24 Aug 2017 04:45 PM	
Department/Individual Who Reported Mortality:	Unknown	
Environment On Scene		
Environment at Call-out Location	25 Aug 2017 02:46 PM	
Location	LARGE WINDOWS BETWEEN C AND D DORMS	
Animal Type	Other	
Description of Animal/Scene	Two small sparrows likely flew into window and died on impact.	
Photo of Scene		
		
Appendix 1	Appendix 2	Appendix 3
Appendix 4		
Estimated Time of Death	Days	
Environment Off Scene		
End of Environment Call-out	25 Aug 2017 02:47 PM	
Final Location of Carcass	Incinerator	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	

Question		Response	Details
Signature	Shelby Skinner	26 Aug 2017 11:58 AM	

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4

Wildlife Report - 2017

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

Muskrat- 2017-09-18 - Outside Process Plant

Document No.

WildlifeReport000217

18 Sep 2017





Completed on


18 Sep 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	18 Sep 2017 08:15 AM	
Department/Individual Who Reported Mortality:	Process Plant Supervisor	
Environment On Scene		
Environment at Call-out Location	18 Sep 2017 08:25 AM	
Location	Process plant around corner from door 10.	
Animal Type	Other	
Description of Animal/Scene	Dead muskrat. Cause of death uncertain, but certainly could have fallen from height.	
Photo of Scene		
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> <div style="text-align: center;">  <p>Appendix 3</p> </div> <div style="text-align: center;">  <p>Appendix 4</p> </div> </div>		
Estimated Time of Death	Days	
Environment Off Scene		
End of Environment Call-out	18 Sep 2017 08:30 AM	
Final Location of Carcass	Environment chest freezer.	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	

Question		Response	Details
Signature	Matthew Poirier	18 Sep 2017 08:59 AM	

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4

Wildlife Report - 2017

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

Muskrat - 2017-09-26 - Pond 5 Entrance

Document No.

WildlifeReport000076

26 Sep 2017



Completed on


26 Sep 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	26 Sep 2017 11:00 AM	
Department/Individual Who Reported Mortality:	UG Mobile Maintenance	
Environment On Scene		
Environment at Call-out Location	26 Sep 2017 11:06 AM	
Location	Top of the hill on S Haul road before entrance to Pond 5	
Animal Type	Other	
Description of Animal/Scene	Muskrat hit by vehicle, only recognizable by long tail and one foot remaining. Rib cage removed	
Photo of Scene		
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> </div>		
Estimated Time of Death	Hours	
Environment Off Scene		
End of Environment Call-out	26 Sep 2017 11:16 AM	
Final Location of Carcass	Incinerator	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	

Question		Response	Details
Signature	Shelby Skinner	26 Sep 2017 11:19 AM	

Media



Appendix 1



Appendix 2

Wildlife Report - 2017

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

Ptarmigan- 2017-10-08

Document No.

WildlifeReport000078

08 Oct 2017




Completed on


09 Oct 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	08 Oct 2017 07:56 AM	
Department/Individual Who Reported Mortality:	Sight services	
Environment On Scene		
Environment at Call-out Location	09 Oct 2017 09:51 AM	
Location	Airport road	
Animal Type	Other	
Description of Animal/Scene	Ptarmigan dead on the scene hit by vehicle, another ptarmigan near by injured bleeding slightly ran over berm when approached.	
Photo of Scene		
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> <div style="text-align: center;">  <p>Appendix 3</p> </div> </div>		
Estimated Time of Death	Hours	
Environment Off Scene		
End of Environment Call-out	08 Oct 2017 10:00 AM	
Final Location of Carcass	Tundra	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	

Question		Response	Details
Signature	Don Roberts	09 Oct 2017 07:57 AM	

Media



Appendix 1



Appendix 2



Appendix 3

Wildlife Report - 2017

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

Siksik -2017-07-11 - Airport Road

Document No.

WildlifeReport000050

11 Jul 2017


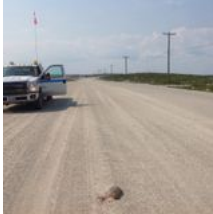

Completed on


18 Jul 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	11 Jul 2017 03:15 PM	
Department/Individual Who Reported Mortality:	Environment / JG DR	
Environment On Scene		
Environment at Call-out Location	11 Jul 2017 03:15 PM	
Location	Airport road	
Animal Type	Other	
Description of Animal/Scene	Siksik	
Photo of Scene		
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> <div style="text-align: center;">  <p>Appendix 3</p> </div> </div>		
Estimated Time of Death	Hours	
Environment Off Scene		
End of Environment Call-out	11 Jul 2017 03:24 PM	
Final Location of Carcass	Waste transfer	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	

Question		Response	Details
Signature	DR JG	11 Jul 2017 03:32 PM	

Media



Appendix 1



Appendix 2



Appendix 3

Wildlife Report - 2017

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

Sik Sik - 2017-08-05 - South Haul Road

Document No.


WildlifeReport000059

05 Aug 2017


Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	05 Aug 2017 07:20 PM	
Department/Individual Who Reported Mortality:	Unknown	
Environment On Scene		
Environment at Call-out Location	05 Aug 2017 08:03 PM	
Location	South Haul Road near Pond 1	
Animal Type	Other	
Description of Animal/Scene	Sik Sik run over on South Haul Road. The back legs were crushed causing the internal organs to come out of its mouth. Animal was double bagged and placed into freezer u Till it can be disposed of at WTA	
Photo of Scene		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 </div>		
Estimated Time of Death	Hours	
Environment Off Scene		
End of Environment Call-out	05 Aug 2017 08:09 PM	
Final Location of Carcass	Freezer	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	

WildlifeReport000059
 Sik Sik - 2017-08-05 - South Haul Road
 Score (1/1) 100.00%

Question		Response	Details
Signature	Shelby Skinner	05 Aug 2017 08:09 PM	

Media



Appendix 1



Appendix 2



Appendix 3

Wildlife Report - 2017

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

Sik Sik - 2017-08-24 - Airstrip

Document No.

WildlifeReport000213

25 Aug 2017



Completed on

25 Aug 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	24 Aug 2017 09:15 AM	
Department/Individual Who Reported Mortality:	Site Services / Lorne (Traffic Controller)	
Environment On Scene		
Environment at Call-out Location	24 Aug 2017 09:30 AM	
Location	Airport runway	
Animal Type	Other	
Description of Animal/Scene	Sik Sik on airstrip struck by landing aircraft. Disembowelled, dead on arrival.	
Photo of Scene		
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> <div style="text-align: center;">  <p>Appendix 3</p> </div> <div style="text-align: center;">  <p>Appendix 4</p> </div> </div>		
Estimated Time of Death	Hours	
Environment Off Scene		
End of Environment Call-out	24 Aug 2017 10:00 AM	
Final Location of Carcass	Carcass collected and incinerated.	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Matthew Poirier	

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4

Wildlife Report - 2017

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

Sik Sik - 2017-09-01 - Airport Road

Document No.

WildlifeReport000017

01 Sep 2017




Completed on


01 Sep 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	01 Sep 2017 09:30 AM	
Department/Individual Who Reported Mortality:	Don - Environment	
Environment On Scene		
Environment at Call-out Location	01 Sep 2017 09:30 AM	
Location	Airport Road	
Animal Type	Other	
Description of Animal/Scene	Sik Sik appears to be ran over on road	
Photo of Scene		
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> <div style="text-align: center;">  <p>Appendix 3</p> </div> </div>		
Estimated Time of Death	Hours	
Environment Off Scene		
End of Environment Call-out	01 Sep 2017 09:30 AM	
Final Location of Carcass	environment freezer to be incinerated	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	

Question		Response	Details
Signature	Don Roberts	01 Sep 2017 10:57 AM	

Media



Appendix 1



Appendix 2



Appendix 3

Wildlife Report - 2017

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

Sik Sik - 2017-09-17 - South Haul Road by Pond 5 Entrance

Document No.

WildlifeReport000216

18 Sep 2017



Completed on

18 Sep 2017


Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	17 Sep 2017 11:00 AM	
Department/Individual Who Reported Mortality:	Site Services	
Environment On Scene		
Environment at Call-out Location	17 Sep 2017 11:10 AM	
Location	South haul road by pond 5 entrance	
Animal Type	Other	
Description of Animal/Scene	Sik Sik with grass in mouth appeared to have been run over by a vehicle on the westbound side of the South haul road.	
Photo of Scene		
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> </div>		
Estimated Time of Death	Hours	
Environment Off Scene		
End of Environment Call-out	17 Sep 2017 11:15 AM	
Final Location of Carcass	Environment chest freezer.	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	

WildlifeReport000216
 Sik Sik - 2017-09-17 - South Haul Road by Pond 5 Entrance
 Score (1/1) 100.00%

Question		Response	Details
Signature	Matthew Poirier	18 Sep 2017 08:47 AM	

Media



Appendix 1



Appendix 2

Wildlife Report - 2017

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

Sparrow - 2017-08-19 - core shack

Document No.

WildlifeReport000212

19 Aug 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Mortality	
Wildlife Mortality		
Enter Initial Time of Report	19 Aug 2017 09:31 AM	
Department/Individual Who Reported Mortality:	Exploration	
Environment On Scene		
Environment at Call-out Location	19 Aug 2017 11:30 AM	
Location	Core shack	
Animal Type	Other	
Description of Animal/Scene	Savannah sparrow was found dead under a table in the core shack	
Photo of Scene		
Estimated Time of Death	Days	
Environment Off Scene		
End of Environment Call-out	19 Aug 2017 11:33 AM	
Final Location of Carcass	Waste transfer	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature		

APPENDIX C

Site Wildlife Photos, 2017



Photograph 1: Caribou



Photograph 2: Resident Grizzly Bear



Photograph 3: Wolverine



Photograph 4: Wolverine Tracks



Photograph 5: Common Raven



Photograph 6: Caribou Herd



Photograph 7: Grizzly Bear and Cub



Photograph 8: Moose

APPENDIX D

**Grizzly Bear Incidental
Observations Summary, 2017**

Date	Number of Animals	Characteristics of Animals	Location	Deterrents Used?
09/05/2017	1	Light brown body with brown strip from top of head to hump, dark legs, most likely problem bear from last year	Top of PKC near seacans > rock pile to tundra between test piles and PKC > PKC rock wall > tundra	Yes
10/05/2017	1	Light brown body with brown strip from top of head to hump, dark legs, most likely problem bear from last year	Gate to WTA > AN Road	Yes
11/05/2017	1	Light brown body with brown strip from top of head to hump, dark legs, most likely problem bear from last year	Gate to WTA > Tundra near pond 12 > California > North haul road > PKC muster	No
12/05/2017	1	Light brown body with brown strip from top of head to hump, dark legs, most likely problem bear from last year	Test piles > A21 Haul Road	Yes
13/05/2017	1	Light brown body with brown strip from top of head to hump, dark legs, most likely problem bear from last year	Ice near zone 1 in A21 > LV road to A2 >, lunch shacks A21 > bay between A21 and main camp > South Winter Road approach > ROM	Yes
13/05/2017	1	Light brown body, dark legs	WTA > tundra W of AN road	No
14/05/2017	1	Light brown body with brown strip from top of head to hump, dark legs, most likely problem bear from last year	Shallow bays > veggie plots > A418 > till pile > north inlet	Yes
17/05/2017	1	Light brown body with brown strip from top of head to hump, dark legs, most likely problem bear from last year	N17	No
20/05/2017	1	Light brown body with brown strip from top of head to hump, dark legs, most likely problem bear from last year	Airport	Yes
23/05/2017	1	Light brown body with brown strip from top of head to hump, dark legs, most likely problem bear from last year	-	Yes
26/05/2017	1	-	Backfill > Shallow bays > UG area > Airport heading north	Yes
26/05/2017	1	Single grizzly. Blonde one that denned over winter	Backfill > Shallow bays > UG area > Airport heading north	Yes
31/05/2017	1	Single grizzly. Blonde one that denned over winter	WTA > Tundra below memorial cross > S haul road, visual lost	Yes
01/06/2017	1	Same Grizzly that denned over winter. Young, blonde.	Pond 5 > ROM > METCON > Waste transfer > Tundra > Tank farms > Main accommodations > Shallow bays > A418 fish habitat.	Yes
02/06/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs	Backfill > SCAP > Shallow Bay Tundra > Rockwall above Pond 1	Yes
03/06/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs	Backfill plant > Pond 13 > Haul road > Shallow bay tundra > A418 fish habitat, Fell asleep on hill NE of Fish Habitat.	Yes
05/06/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs	WTA > Pond 5 > W Shallow Bays > Pond 11 > W Shallow Bays > A418 fish habitat near DPS6	Yes
17/06/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs	Airport > NIWTP > Till Pile	Yes
18/06/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs	Backfill > Pond 1	Yes
19/06/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs	Pond 5	Yes
22/06/2017	1	Light dirty brown, medium sized, different bear than the one that denned on site	Pond 13	Yes
22/06/2017	1	Darker brown bear, light eyes, big head	Backfill area	No
30/06/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs	A418 Laydown > Batch Plant > E Shallow Bays > DPS Well 6	Yes
04/07/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs, blue tag in ear	Tundra near North Inlet > N of West Island	Yes
07/07/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs, blue tag in ear	Backfill > Pond 13 > Pond 1 > half way up PKC rockwall	Yes
09/07/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs, blue tag in ear	Pond 1 > half way up PKC rockwall	Yes
13/07/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs, blue tag in ear	-	Yes
16/07/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs, blue tag in ear	-	Yes
18/07/2017	1	Med-large. Large hump on back. Dark Brown	SCAP area	No
18/07/2017	3	Blue tag bear and 2 adults	Backfill > Pond 13 > ERT	Yes
19/07/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs, blue tag in ear	-	Yes
20/07/2017	1	Med-large. Dark Brown, blonde around hump.	Steel laydown by south camp	Yes
20/07/2017	1	Med-large. Dark Brown, blonde around hump.	Pond 5 south west corner	Yes
20/07/2017	2	Dark brown adult	One bear in Pond 1, and one bear in ditch near backfill	Yes

Date	Number of Animals	Characteristics of Animals	Location	Deterrents Used?
21/07/2017	2	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs, blue tag in ear. Second Grizzly – Fairly large adult, dark brown with prominent hump	Pond 5 south west corner	Yes
22/07/2017	1	Same Grizzly. Young, blonde, brown streak on back, dark paws and legs, blue tag in ear.	Geology Core Shack	Yes
24/07/2017	1	Blue tag bear	Metcon	No
25/07/2017	1	Blue tag bear	Veggie plots	Yes
27/07/2017	1	Blue tag bear	North Mine Dry > SCAP > Backfill > Till pile > NI	Yes
28/07/2017	1	Blue tag bear	Airport Road	Yes
29/07/2017	1	Blue tag bear	Veggie plots > West bay > Pond 1	Yes
30/07/2017	1	Blue tag bear	Backfill > W shallow bays > Veggie plots > E shallow bays > A418 fish habitat (DPS Well 6) > Backfill > Shallow Bays	Yes
31/07/2017	1	Blue tag bear	AN Road	Yes
10/08/2017	1	Blue tag bear	Trench between backfill and South haul road > Slept in Pond 1	Yes
11/08/2017	1	Bigger dark coloured bear	South of south Tank Farm > A21 > Tundra to the West	Yes
11/08/2017	1	Blue tag bear	Pond 5	Yes
12/08/2017	1	Blue tag bear	Pond 1 > Shallow bays > Fish habitats in A418 and A154 > Islands east of A154 dyke	Yes
14/08/2017	1	Blue tag bear	North Inlet > A154 Fish Habitat Area	Yes
15/08/2017	1	Blue tag bear	North Switching Station on South Haul Road	No
18/08/2017	1	Blue tag bear	N17 Area	No
19/08/2017	1	Blue tag bear	Peninsula North of A21 Dike	Yes
23/08/2017	1	Young brown bear with blonde hair around the belly	A21 Portal > Lakeshore Boulevard > Pond 11	Yes
24/08/2017	1	Young brown bear with blonde hair around the belly	MAC > Pond 5 > Shallow Bays > Pond 1 > N Haul Road > NI	Yes
05/09/2017	1	Blue tag bear has darker coat now	Veggie plot road digging up sik sik den	No
06/09/2017	1	Blue tag bear	Backfill/South Haul Road intersection > North through Backfill > North Inlet > Inlet dike.	Yes
11/09/2017	1	Blue tag bear has darker coat now	Behind NMD.	Yes
13/09/2017	1	Blue tag bear has darker coat now	A21 S23 Laydown > Lake Shore Boulevard.	Yes
14/09/2017	1	Blue tag bear has darker coat now	Shallow Bays > North Inlet	Yes
17/09/2017	1	Unable to identify	Towards Airport terminal, > Tundra to the west	No
19/09/2017	1	Blue tag bear has darker coat now	A21 > S Tank farm > PKC > Airport > SCAP Warehouse > Batch Plant > E Shallow Bays	Yes
20/09/2017	1	Blue tag bear has darker coat now	Backfill > Veggie plots > E shallow bays > Veggie plots > Pond 13 > Backfill > NI > Airport > N17 laydown	No
23/09/2017	1	Blue tag bear has darker coat now	Pond 4 > A21 screening plant > Nuna Shop > JJM laydown > North Dike > A21 LV road > Lakeshore Boulevard	No
24/09/2017	1	Blue tag bear has darker coat now	A21 North Dike	No
25/09/2017	1	Blue tag bear has darker coat now	N17 laydown > W of airport	Yes
20/10/2017	1	Blue tag bear has darker coat now	North Haul road > Crusher > PKC	Yes

APPENDIX E

**Wolverine Snow Track Survey
Results, 2017**

Date	UTM Easting	UTM Northing	Snow Cover	Snow Condition	Days Since		Observation Type	Number of Individuals	Age of Track	Comments
					Last Snow	Last Wind				
2017/03/22	551000	7151668	100%	Packed	6	3	Tracks	1	Days	Blown, hard packed, east
2017/03/22	553893	7153681	100%	Packed	6	3	Tracks	1	Days	Blown, hard packed, east
2017/03/22	554259	7159068	100%	Packed	6	3	Scat	1	Days	Wolf/Wolverine?? Scat
2017/03/22	548328	7156189	100%	Packed	6	3	Tracks	1	Days	South east
2017/03/22	5467636	7167636	100%	Packed	6	3	Tracks	1	Days	Off transect between WT05 & WT06 heading south east
2017/03/22	547731	7168670	100%	Packed	6	3	Tracks	1	Days	1 adult heading north. Snow packed.
2017/03/23	521355	7158381	100%	Packed	6	4	Tracks	1	Days	Large adult heading north east snow blown and packed
2017/03/23	523530	7161678	100%	Packed	6	4	Tracks	1	Days	Off transect 4km from WT01 heading north
2017/03/23	523544	7164505	100%	Packed	6	4	Tracks	1	Days	Off transect 900m from WT01-2. Snow packed
2017/03/23	525037	7164603	100%	Packed	6	4	Tracks	1	Days	Medium tracks, maybe female. Heading south east on the lake. Snow packed
2017/03/23	528482	7159160	100%	Packed	6	4	Tracks	1	Days	Large adult tracks heading east. Snow packed
2017/03/23	529888	7152489	100%	Packed	6	4	Tracks	1	Days	Tracks heading west on the lake. Snow packed
2017/03/24	523376	7137371	100%	Packed	7	5	Tracks	1	Days	1 adult heading north. Snow in area wind blown and packed.
2017/03/24	532476	7130500	100%	Packed	7	0	Tracks	1	Days	Off transect between WT12 and WT28. 1 adult heading east
2017/03/24	536865	7130681	100%	Packed	7	0	Tracks	1	Days	1 adult heading W. Snow packed
2017/04/04	550619	7144108	100%	Packed	1.5	1	Tracks, den and scat	1	Days	Tracks, den (under rock), and scat
2017/04/04	548242	7141633	100%	Packed	1.5	1	Tracks	1	Days	Traveling south west. Packed Snow
2017/04/09	557160	7167691	100%	Packed	0	2	Tracks	1	Hours	Heading east. Packed Snow
2017/04/09	552129	7166718	100%	Packed	0	2	Tracks	1	Days	Heading south. Partially snow filled. Packed snow
2017/04/09	551918	7166723	100%	Packed	0	2	Tracks	1	Days	Heading north. Packed snow, tracks filled
2017/04/09	541046	7170064	100%	Packed	0	2	Tracks	1	Days	Heading south east, packed snow, tracks filled. Caribou tracks in area
2017/04/09	540249	7169268	100%	Packed	0	2	Tracks	1	Hours	Heading south west. Packed snow. Caribou tracks
2017/04/09	539981	7168870	100%	Packed	0	2	Tracks	1	Hours	Heading south west, likely same as above. Boulders and packed snow in area
2017/04/09	523302	7157262	100%	Packed	0	2	Animals	1	Hours	1 medium wolverine heading south. 3.4 km east of WT17-1
2017/04/09	521314	7158274	100%	Packed	0	2	Tracks	1	Days	Medium sized tracks heading south east
2017/04/09	522170	7158804	100%	Packed	0	2	Tracks	1	Hours	Medium sized tracks heading south east. Probably the same animal as above
2017/04/09	523327	7162459	100%	Packed	0	2	Tracks	1	Hours	Heading west. 2.95km south of WT 01-2
2017/04/09	524007	7165236	100%	Packed	0	2	Tracks	1	Hours	Heading south. large tracks
2017/04/09	525719	7164280	100%	Packed	0	2	Tracks	1	Hours	Heading north east. Large tracks
2017/04/09	526152	7155038	100%	Packed	0	2	Tracks	1	Hours	Medium sized tracks heading south
2017/04/09	529384	7154675	100%	Packed	0	2	Tracks	1	Hours	Heading south. Flat light. Started snowing
2017/04/10	551875	7152216	100%	Packed	1	3	Tracks	1	Days	Heading south east. Judging by distance and stride, might be wolverine
2017/04/10	553888	7153725	100%	Packed	1	3	Tracks	1	Hours	Heading north
2017/04/10	554113	7154004	100%	Packed	1	3	Tracks	1	Hours	Heading north. Snow packed. Lots of caribou tracks in the area
2017/04/10	557302	7158895	100%	Packed	1	3	Tracks	1	Hours	Heading east
2017/04/10	557305	7158899	100%	Packed	1	3	Tracks	1	Days	Heading north
2017/04/10	554406	7159011	100%	Packed	1	3	Tracks	1	Days	Heading south
2017/04/10	554363	7159004	100%	Packed	1	3	Tracks	1	Hours	Heading north

Date	UTM Easting	UTM Northing	Snow Cover	Snow Condition	Days Since		Observation Type	Number of Individuals	Age of Track	Comments
					Last Snow	Last Wind				
2017/04/10	549096	7157753	100%	Packed	1	3	Tracks	1	Days	Heading west past an old hunting camp
2017/04/10	548884	7157169	100%	Packed	1	3	Tracks	1	Hours	Heading north around an old hunting camp
2017/04/10	548884	7157169	100%	Packed	1	3	Tracks	1	Days	Old tracks heading into hunting camp
2017/04/10	548732	7156132	100%	Packed	1	3	Tracks	1	Hours	Heading north west
2017/04/10	544598	7158340	100%	Packed	1	3	Tracks	1	Hours	Heading west
2017/04/10	543020	7149735	100%	Packed	1	3	Tracks	1	Hours	Heading north on the lake
2017/04/10	539447	7153290	100%	Packed	1	3	Tracks	1	Hours	Heading north across the lake
2017/04/10	539374	7153586	100%	Packed	1	3	Tracks	1	Days	Tracks going onto reference island
2017/04/10	536217	7157741	100%	Packed	1	3	Tracks	1	Hours	Heading west
2017/04/10	536011	7157843	100%	Packed	1	3	Tracks	1	Days	Heading east
2017/04/12	519515	7137698	100%	Packed	3	5	Tracks	1	Days	Spotted off transect, eventually crossed transect. Heading south east. Hard packed snow
2017/04/12	523793	7133325	100%	Packed	3	5	Tracks	2	Days	Hard packed, heading south
2017/04/12	526482	7132867	100%	Packed	3	5	Tracks	1	Days	Heading north east. Soft Snow
2017/04/12	540903	7131134	100%	Packed	3	5	Tracks	1	Days	Hard packed with light snow on top. Heading south west between tracks
2017/04/12	541875	7132615	100%	Packed	3	5	Tracks	1	Days	Hard packed, heading south east, crossed transect twice
2017/04/12	535932	7137457	100%	Packed	3	5	Tracks	1	Days	Heading west. Hard packed with light snow on top
2017/04/14	530653	7153150	100%	Packed	5	7	Tracks	1	Days	Hard packed with light snow. Heading north east
2017/04/14	530600	7153140	100%	Packed	5	7	Tracks	1	Days	Hard packed with light snow. Heading north east
2017/04/14	529892	7152494	100%	Packed	5	7	Tracks	1	Days	Hard packed with light snow. Heading north east
2017/04/14	532948	7139212	100%	Packed	5	7	Tracks	1	Days	Hard packed, heading west. Lots of caribou (approximately 300) at end of track
2017/04/14	530072	7144721	100%	Packed	5	7	Tracks	1	Days	Heading north east. Hard packed. 9 caribou crossed track
2017/04/14	534645	7142902	100%	Packed	5	7	Tracks	1	Days	Heading north east. Hard packed, lots of caribou scat
2017/04/14	534754	7143750	100%	Packed	5	7	Tracks	1	Days	Hard packed, heading north west
2017/04/14	535013	7143511	100%	Packed	5	7	Tracks	1	Days	Hard packed, heading north
2017/04/14	535152	7143389	100%	Packed	5	7	Tracks	1	Days	Possibly same as above individual
2017/04/14	535346	7143153	100%	Packed	5	7	Tracks	1	Days	Hard packed, heading north east
2017/04/14	535610	7142793	100%	Packed	5	7	Tracks	1	Days	Hard packed, heading east
2017/04/14	538690	7149091	100%	Packed	5	7	Tracks	1	Days	Hard packed, heading north

Note: Snow track surveys occurred 22 March to 19 April. Only detection of wolverine sign is reported.

APPENDIX F

**Wolverine Incidental Observations
Summary, 2017**

Date	Animals	Location	Descriptive Characteristics
24-Jan-2017	1	WTA	Adult
26-Jan-2017	1	Airport Road	Large adult
27-Jan-2017	1	WTA	Large adult
27-Jan-2017	1	A154 Pit	Large adult
01-Feb-2017	1	Near A21 Haul Road and WTA	Smaller wolverine
04-Feb-2017	1	Near A21 Haul Road and WTA	Unknown
05-Feb-2017	1	WTA	Unknown
08-Feb-2017	1	WTA	Unknown
08-Feb-2017	1	AN Road	Unknown
12-Feb-2017	1	WTA	Medium size – lighter coloured ring on fur on rump
13-Feb-2017	1	WTA	Medium size – lighter coloured ring on fur on rump
18-Feb-2017	1	Near A21 South Dike	North Dike
19-Feb-2017	2	WTA	North Dike
04-Mar-2017	1	Backfill plant > SCAP	Unknown
08-Mar-2017	1	AN Road	Unknown
10-Mar-2017	1	WTA	Unknown
12-Mar-2017	1	WTA	Unknown
18-Mar-2017	1	WTA	Unknown
20-Mar-2017	1	South Dike	Unknown
20-Mar-2017	1	North Dike	North Dike
25-Mar-2017	1	DOC > South Camp	Unknown
29-Mar-2017	1	WTA	Large Adult
09-Apr-2017	1	A21 Area	Unknown
11-Apr-2017	1	A21 Area inside Dike	Unknown
13-Apr-2017	1	A21 near Lunch Trailers at Zone 3	Unknown

Date	Animals	Location	Descriptive Characteristics
16-Apr-2017	1	UG Fueling Station	Unknown
16-Apr-2017	1	In possible den by caribou carcass	Unknown
30-Apr-2017	1	South Camp	Unknown
02-May-2017	1	C42 Drill Site	Unknown
07-May-2017	1	Ice road near C42	Unknown
16-May-2017	1	WTA	Unknown
18-May-2017	1	Airport Runway	Unknown
06-Jun-2017	1	Outside Waste Management	North Dike
16-Jun-2017	1	AN Road > PKC	Unknown
23-Jul-2017	1	-	Unknown
23-Jul-2017	1	WTA > Metcon	Single
23-Jul-2017	2	Airport Road	One adult, one juvenile
04-Nov-2017	1	PKC north of barge	Large Adults
05-Nov-2017	2	Shallow bays > South camp area. 1 spotted in WTA	Unknown
05-Nov-2017	1	A418 Dike > A21	Unknown
24-Nov-2017	1	PKC	Unknown
24-Nov-2017	1	E of A21 > N Winter road approach > S haul road into shallow bays.	Unknown
15-Dec-217	1	C Portal Area	Unknown

APPENDIX G

**Pit Wall/ Mine Infrastructure Raptor
Survey Results, 2017**

Date	Area	Method Used ^(a)	Bird Species	Number Observed	Confirm Active Nest (Y/N)	Potential Nesting (Y/N)	Young/Fledglings (Y/N)	Comments
10-May-17	Process Plant	D	Peregrine Falcon	1	N	N	N	Perched on process plant building
10-May-17	Site Services Line Up Area	D	Peregrine Falcon	1	N	Y	N	Perched at old nest location
13-May-17	A154 Lookout #1	L	Rough Legged Hawk	1	N	N	N	Flying around 154
16-May-17	A154 Lookout #1	L	Rough Legged Hawk	2	N	N	N	Flew over pit. First hawk was 50 m east of way point
16-May-17	A418 Lookout #2	L	Rough Legged Hawk	1	N	N	N	Flew over pit
16-May-17	South Tank Farm	D	Common Raven	2	Y	Y	Unknown	Nest on the steps of Tank 4
19-May-17	A154 Lookout #1	L	Rough Legged Hawk	1	N	N	N	Flew over pit
19-May-17	A418 Lookout #2	L	Rough Legged Hawk	1	N	N	N	Flew over the dike heading south
19-May-17	South Tank Farm	D	Common Raven	2	Y	Y	Unknown	Nest on the steps of Tank 4
22-May-17	A154 Lookout #1	L	N/A*	1	N	N	N	-
22-May-17	A418 Lookout #1	L	Common Raven	1	N	N	N	Near underground portal
22-May-17	A418 Lookout #2	L	Rough Legged Hawk	1	N	N	N	-
22-May-17	South Tank Farm	D	Common Raven	2	Y	Y	Unknown	Nest on the steps of Tank 4 – no activity
22-May-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	N	1 peregrine falcon sitting in nest
25-May-17	A154 Lookout #1	L	Gull	1	N	N	N	1 gull
25-May-17	A418 Lookout #2	L	Rough Legged Hawk	1	N	N	N	-
25-May-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	N	1 peregrine falcon sitting in nest still
31-May-17	Process Plant	L	Peregrine Falcon	1	N	N	N	Flew from roof of truck shop to roof of process plant
06-Jun-17	A154 Lookout #2	L	Peregrine Falcon	1	Y	N	N	Old nest not active.
09-Jun-17	A154 Lookout #2	L	Peregrine Falcon	1	N	N	N	Peregrine falcon seen flying over pit
09-Jun-17	A418 Lookout #1	L	Rough Legged Hawk	2	N	N	N	Potential breeding pair of rough legged hawk
09-Jun-17	Site Services Line Up Area	D	Peregrine Falcon	2	Y	Y	N	Peregrine falcon in nest. Peregrine falcon on post behind field lab
12-Jun-17	South Tank Farm	D	Common Raven	1	N	N	N	Nest was active but no birds visible
12-Jun-17	Process Plant	D	Peregrine Falcon	1	N	N	N	Perched on exhaust in north side of building
12-Jun-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	N	N	1 Adult on nest
15-Jun-17	A154 Lookout #2	L	Rough Legged Hawk, Peregrine Falcon	2	Y	N	N	1 rough legged hawk and 1 peregrine falcon interacted. Peregrine falcon dive bombing rough legged hawk in flight
15-Jun-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	N	1 peregrine falcon sitting in nest still
19-Jun-17	A154 Lookout #2	L	Peregrine Falcon	1	Y	N	N	Peregrine falcon seen sitting next to old rough legged hawk nest believe peregrine falcon nesting there now
19-Jun-17	A418 Lookout #2	L	Gyrfalcon	1	N	N	N	Flew over lookout
19-Jun-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	N	Peregrine falcon in nest
21-Jun-17	A154 Lookout #2	L	Rough Legged Hawk	1	N	N	N	Old nest not active
21-Jun-17	Process Plant	D	Peregrine Falcon	1	N	N	N	Perched on exhaust vent on truck shop above bays 12-13
21-Jun-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	N	1 Adult on nest
27-Jun-17	A154 Lookout #2	L	Peregrine Falcon	1	Y	N	N	Peregrine falcon on nest
27-Jun-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	N	Peregrine falcon in nest
30-Jun-17	A154 Lookout #2	L	Rough Legged Hawk	1	N	Unknown	N	Sitting on telephone pole S of lookout
30-Jun-17	A418 Lookout #2	L	Peregrine Falcon	1	Y	N	N	Flying on rim of pit, practicing dives
30-Jun-17	Site Services Line Up Area	D	Peregrine Falcon	1	N	Y	N	Nesting, stationary on nest.
03-Jul-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	N	Single adult nesting

Date	Area	Method Used ^(a)	Bird Species	Number Observed	Confirm Active Nest (Y/N)	Potential Nesting (Y/N)	Young/Fledglings (Y/N)	Comments
06-Jul-17	A154 Lookout #1	L	Peregrine Falcon	1	N	Y	Unknown	Saw peregrine falcon fly out of East side of pit westward towards a white slab of Rock west of Lookout 1. Bird flew towards the slab then disappeared between the white slab and a ledge in front of the slab. Lots of bird excrement visible below the ledge.
09-Jul-17	A418 Lookout #1	L	Unknown	1	N	N	N	Small Hawk with all brown colouring on top
09-Jul-17	Site Services Line Up Area	D	Peregrine Falcon	4	Y	Y	Y	3 fledglings being fed by adult peregrine falcon
15-Jul-17	A418 Lookout #1	L	N/A*	1	N	N	N	-
15-Jul-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	N	Observed single adult perched on edge of previously observed nest.
18-Jul-17	South Tank Farm	D	Peregrine Falcon	1	N	N	N	Adult peregrine falcon flying west along S side of Tank farm then crossed road and disappeared behind berm on south side of road
18-Jul-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	Y	Single fledgling stood up to defecate then sat back down
21-Jul-17	A418 Lookout #2	L	Peregrine Falcon	1	N	N	N	Adult sitting on Boulder near patch of smooth gravel overlooking pit from the E
24-Jul-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	Y	1 nestling confirmed in nest
27-Jul-17	A418 Lookout #1	L	Rough Legged Hawk	2	N	Y	N	Two adults. Potential nest. One flew from E to W. Another rough legged hawk joined and both flew to SE
27-Jul-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	Y	Observed single adult perched on edge of previously observed nest. Young present. Adult shielding young
30-Jul-17	A154 Lookout #1	L	Rough Legged Hawk	1	Y	Y	Y	Nest behind rock – hidden from lookout point. Can hear young. Bird smaller than one spotted at lookout #2
30-Jul-17	A154 Lookout #2	L	Rough Legged Hawk	1	N	Y	N	One spotted flying around pit
30-Jul-17	Site Services Line Up Area	D	Peregrine Falcon	1	Y	Y	Y	Saw fledging in nest on wall
05-Aug-17	Site Services Line Up Area	D	Peregrine Falcon	2	Y	Y	Y	Observed two adults on top of rock wall
21-Aug-17	A154 Lookout #1	L	Unknown	1	Unknown	Unknown	Unknown	Observed small dark coloured hawk gliding N to S across Pit.
21-Aug-17	A154 Lookout #2	L	Peregrine Falcon	1	Unknown	Y	N	Likely a peregrine but could be a rough legged hawk circling the pit. Swooped down to land a bit north of lookout 1 at one point, but lost track of it in binoculars.
21-Aug-17	A418 Lookout #1	L	Rough Legged Hawk	2	N	N	N	Pair of hawks along northwest edge of 418 pit. Spotted while driving just after leaving lookout 1.
23-Aug-17	A154 Lookout #1	L	Peregrine Falcon	4	Y	Y	Y	One adult and 3 young spotted
23-Aug-17	Site Services Line Up Area	L	Peregrine Falcon	1	Y	Y	N	Observed single adult perched on ledge below nest
11-Sep-17	A418 Lookout #1	L	Rough Legged Hawk	1	N	N	N	Rough legged hawk flew across pit.
19-Sep-17	Site Services Line Up Area	D	Peregrine Falcon	2	N	N	N	One observed flying, other not seen, just heard
22-Sep-17	A154 Lookout #1	L	Rough Legged Hawk	1	N	N	N	Adult spotted flying overhead. Disappeared near lookout #2, Empty nest under white trailer across pit.
25-Sep-17	A418 Lookout #2	D	Rough Legged Hawk	1	N	N	N	Spotted adult flying overhead
28-Sep-17	Backfill Plant	D	Peregrine Falcon	1	N	N	N	Spotted flying overhead toward PKC

(a) Method used to survey: L = look out scan, D = Driving.

N/A = information not available; Y = yes; N = no; - = none; * = potential typo.

APPENDIX H

Waste Inspections Summary, 2017

Date	Location	Attractants				Wildlife				Wildlife Sign			
		Attractants Present?	Items	Number of Items Present	Comments	Wildlife Present?	Species	# of Individuals Observed	Wildlife Comments	Wildlife Sign Observed?	Wildlife Sign Observed Species	Wildlife Sign Type	Wildlife Sign Observed Comments
5/Jan/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
12/Jan/17	WTA	No	-	0	-	Yes	Red fox	1	Single fox at burn pit	Yes	Red fox	Yes	-
20/Jan/17	WTA	No	-	0	-	No	-	0	-	No	-	-	Fresh snowfall
26/Jan/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
2/Feb/17	WTA	No	-	0	Gate stuck open	No	-	0	-	Yes	Fox and wolverine	Tracks	-
8/Feb/17	WTA	No	-	0	-	Yes	Common raven and red fox	4	3 common raven perched in burn pit, 1 red fox, chewing on something outside burn pit burn (couldn't identify what), wolverine was reported inside WTA today	Yes	Fox and wolverine	Tracks	-
11/Feb/17	WTA	Yes	batteries and food	5	Batteries were from power drills – found in burn pit – removed prior to burn	No	-	0	-	No	-	-	-
14/Feb/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
17/Feb/17	WTA	No	-	0	-	Yes	Red fox	1	-	Yes	Fox	Tracks	-
20/Feb/17	WTA	Yes	oily rags	50	-	No	-	0	-	No	-	-	-
23/Feb/17	WTA	No	-	0	4 oily rags barrels with open tops	No	-	0	-	Yes	Fox	Tracks	-
26/Feb/17	WTA	No	-	0	Burn pit on fire / gasoline drums being stored in WTA	Yes	Red fox	2	-	Yes	Fox	Tracks	-
1/Mar/17	WTA	Yes	food packaging	1	1 candy wrapper in the burnables bin	No	-	0	-	No	-	-	-
4/Mar/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
7/Mar/17	WTA	Yes	oily rags	40	-	Yes	Raven	1	-	Yes	Fox	Tracks	-
10/Mar/17	WTA	Yes	drink container	1	-	No	-	0	-	Yes	Fox and wolverine	Tracks	Lots of fox tracks and some wolverine tracks
14/Mar/17	WTA	No	-	0	Bagged cardboard in pit looks ready to burn, 4 barrels of dirty rags have no lids	No	-	0	-	Yes	Fox	Tracks	-
17/Mar/17	WTA	Yes	food packaging and other	2	1 oily hose in non burnables which could be attracting wolverine.	Yes	Wolverine and fox	2	Fox on top of burn pit	Yes	Wolverine	Tracks	Wolverine tracks at Bin 24
19/Mar/17	WTA	Yes	food packaging and oil contaminated waste	3	-	No	-	0	-	No	-	-	-
22/Mar/17	WTA	No	-	0	-	Yes	Red fox	2	Two foxes in burn pit sniffing bags and chewing on items	Yes	Fox	Tracks	-

Date	Location	Attractants				Wildlife				Wildlife Sign			
		Attractants Present?	Items	Number of Items Present	Comments	Wildlife Present?	Species	# of Individuals Observed	Wildlife Comments	Wildlife Sign Observed?	Wildlife Sign Observed Species	Wildlife Sign Type	Wildlife Sign Observed Comments
25/Mar/17	WTA	Yes	gloves	3	-	Yes	Wolverine	1	Wolverine called in	Yes	Wolverine	Tracks	Lots of fresh tracks, looks like it found a glove and ate two fingers off of it
28/Mar/17	WTA	Yes	food and food packaging	20	Email sent to Caleb, lots of unburned food waste in burn pit	No	-	0	-	Yes	Fox and wolverine	Tracks	-
31/Mar/17	WTA	No	-	0	-	No	-	0	-	Yes	Unspecified	Tracks	-
3/Apr/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
6/Apr/17	WTA	No	-	0	-	No	-	0	-	Yes	Red fox	Tracks	-
10/Apr/17	WTA	Yes	cigarette butts and packaging, food packaging, and gloves	7	-	Yes	Red fox	1	Scruffy fox in burn pit scavenging	Yes	Fox	Tracks	-
12/Apr/17	WTA	Yes	drink containers and oil contaminated waste	6	Improper waste for Bauer based on other labels	No	-	0	-	Yes	Fox	Tracks	-
15/Apr/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
18/Apr/17	WTA	Yes	cigarette butts and packaging, food and food packaging, gloves, and oily rags	37	A21 burn bin dumped at burn pit, misdirected waste	Yes	Red fox	1	-	Yes	Fox	Tracks	-
21/Apr/17	WTA	Yes	food and food packaging	2	1 orange, 1 coffee cup	Yes	Red fox	2	-	Yes	Fox	Tracks	-
24/Apr/17	WTA	Yes	drink containers, food packaging, gloves, and oily rags	11	Burn pit has some misdirected waste. Unsure of origin	No	-	0	-	Yes	Fox	Tracks	-
27/Apr/17	WTA	No	-	0	-	Yes	Red fox	1	-	Yes	Fox	Tracks	-
30/Apr/17	WTA	No	-	0	-	Yes	Red fox	2	2 red fox in the burn pit	Yes	Fox	Tracks	-
3/May/17	WTA	No	-	0	-	Yes	Red fox	1	-	No	-	-	-
6/May/17	WTA	No	-	0	-	Yes	-	0	-	Yes	Fox	Tracks	-
9/May/17	WTA	Yes	oil products	3	Spill near used oil filter area	No	-	0	-	No	-	-	-
12/May/17	WTA	Yes	food packaging, gloves, oil products, and oily rags	20	Oil still on ground from spill, burn pit (cigarette packs, coffee cups, snickers wrappers, paper plates, gloves)	No	-	0	-	No	-	-	-
15/May/17	WTA	Yes	food packaging, gloves, and oily rags	10	Oily rags and gloves in non-burn bin, fork and knife on ground, 4 gloves in burn pit, tin cans in burn pit	No	-	0	-	Yes	Fox	Scat	-
18/May/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-

Date	Location	Attractants				Wildlife				Wildlife Sign			
		Attractants Present?	Items	Number of Items Present	Comments	Wildlife Present?	Species	# of Individuals Observed	Wildlife Comments	Wildlife Sign Observed?	Wildlife Sign Observed Species	Wildlife Sign Type	Wildlife Sign Observed Comments
21/May/17	WTA	Yes	aerosol cans	16	Lots of water in the contained spills area (land farm)	Yes	Gull	1	-	No	-	-	-
28/May/17	WTA	Yes	oil contaminated waste	1	-	No	-	0	-	No	-	-	-
30/May/17	WTA	Yes	food packaging	3	Pallets from external spill probably need to be replaced as they are saturated with oil. New spill behind used oil filters	No	-	0	-	No	-	-	-
6/Jun/17	WTA	Yes	food, food packaging, and gloves	14	-	No	-	0	-	No	-	-	-
13/Jun/17	WTA	Yes	aerosol cans, food packaging, gloves, oil products, and oily rags	21	1 aerosol can and 1 glove by recycling and garbage overflow	No	-	0	-	No	-	-	-
20/Jun/17	WTA	Yes	aerosol cans and gloves	20	-	No	-	0	-	No	-	-	-
28/Jun/17	WTA	Yes	drink containers and gloves	51	-	No	-	0	-	No	-	-	-
4/Jul/17	WTA	Yes	gloves	20	-	No	-	0	-	No	-	-	-
11/Jul/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
18/Jul/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
25/Jul/17	WTA	Yes	cigarette packages, drink containers, food and food packaging, gloves, and oily rags	35	Food waste in burn pit, spill at oily rag drum area	No	-	0	-	No	-	-	-
1/Aug/17	WTA	Yes	cigarette packages, drink containers, food packaging, and, gloves	18	No lid on aerosol cans, barrel overflowing as well, No lid on oily rags barrel overflowing as well, 10 nitrile 2 workgloves 2 cigarette packages, 2 food containers, and 2 drink containers in burn pit	No	-	0	-	No	-	-	-
8/Aug/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
15/Aug/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
22/Aug/17	WTA	Yes	glove	1	-	No	-	0	-	No	-	-	-
29/Aug/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
5/Sep/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-

Date	Location	Attractants				Wildlife				Wildlife Sign			
		Attractants Present?	Items	Number of Items Present	Comments	Wildlife Present?	Species	# of Individuals Observed	Wildlife Comments	Wildlife Sign Observed?	Wildlife Sign Observed Species	Wildlife Sign Type	Wildlife Sign Observed Comments
13/Sep/17	WTA	Yes	drink containers, food and food packaging, and gloves	37	-	No	-	0	-	No	-	-	-
20/Sep/17	WTA	Yes	cigarette package, food packaging, and gloves	13	2 forks, 3 plates, 4 gloves, 2 gum packs, 1 cigarette pack, 1 teabag	No	-	0	-	No	-	-	-
26/Sep/17	WTA	No	-	0	Erosion occurring	No	-	0	-	No	-	-	-
4/Oct/17	WTA	No	-	0	-	Yes	Raven	1	-	No	-	-	-
10/Oct/17	WTA	No	-	0	-	No	-	0	-	Yes	Fox	Tracks	-
17/Oct/17	WTA	Yes	gloves	2	-	No	-	0	-	Yes	Fox	Tracks	Prints in burn pit
20/Oct/17	WTA	Yes	cigarette package, drink container, food packaging, oil products, and other	7	Glass food bottles in non-burn bin	No	Red fox	0	-	Yes	Red fox	Tracks	-
23/Oct/17	WTA	No	-	0	Fridges in non-burn with coolant system removed	No	-	0	-	No	-	-	-
26/Oct/17	WTA	Yes	cigarette package, drink container, food packaging, a glove, and oily rags	7	Empty lunch bag and plastic bag found under stairs and chewed. No prints found near bin	No	-	0	-	Yes	Unspecified	Chew	Empty lunch bag and plastic bag found under stairs and chewed. No prints found near bin
29/Oct/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
2/Nov/17	WTA	No	-	0	-	Yes	Red fox	1	-	Yes	Fox	Tracks	-
4/Nov/17	WTA	No	-	0	-	No	-	0	-	Yes	Unspecified	Tracks	-
7/Nov/17	WTA	Yes	other	1	-	No	-	0	-	Yes	Fox	Tracks	-
10/Nov/17	WTA	No	-	0	No waste problems	Yes	Red fox	1	Took photos of fox climbing into waste truck bed	Yes	Fox	Tracks	-
13/Nov/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
16/Nov/17	WTA	No	-	0	-	No	-	0	-	Yes	Fox	Tracks	-
19/Nov/17	WTA	Yes	food packaging, gloves, and oil contaminated waste	11	-	Yes	Red fox	1	-	Yes	Fox	Tracks	-
22/Nov/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
25/Nov/17	WTA	No	-	0	Burn pit on fire so did not inspect	No	-	0	-	No	-	-	-
28/Nov/17	WTA	No	-	0	Hole in perimeter fencing near Northwest corner of yard	No	-	0	-	Yes	Fox	Tracks	-

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1/Dec/17	WTA	Yes	battery, drink container, food packaging, and a glove	7	Hole in fence from last inspection looked to have been repaired	No	-	0	-	Yes	Unspecified	Tracks and scat	Scat near Non-burn bin, and several sets of small animal tracks around yard
4/Dec/17	WTA	No	-	0	-	No	-	0	-	No	-	-	-
7/Dec/17	WTA	Yes	cigarette package and an oil product	2	-	No	-	0	-	Yes	Unspecified	Urine	-
10/Dec/17	WTA	No	-	0	-	No	-	0	-	Yes	Fox	Tracks	Fox tracks in various locations within the yard.
13/Dec/17	WTA	Yes	food packaging	1	-	No	-	0	-	Yes	Unspecified	Tracks	-
16/Dec/17	WTA	Yes	cigarette package, drink container, and food packaging	3	-	No	-	0	-	Yes	Unspecified	Tracks	-
19/Dec/17	WTA	Yes	food	1	-	No	-	0	-	Yes	Unspecified	Tracks and scat	-
22/Dec/17	WTA	Yes	gloves	2	-	No	-	0	-	Yes	Fox	Scat	-
25/Dec/17	WTA	Yes	cigarette package and a glove	2	-	No	-	0	-	Yes	Unspecified	Tracks	-
28/Dec/17	WTA	No	-	0	-	No	-	0	-	Yes	Red fox	Tracks	Refo tracks
5/Jan/17	Landfill	Yes	other	3	3 wood pallets	No	-	0	-	No	-	-	-
12/Jan/17	Landfill	Yes	cigarette package	1	Pushed over today scrapped to ground	No	-	0	-	Yes	Fox	Tracks	-
20/Jan/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	Fresh snowfall
26/Jan/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
3/Feb/17	Landfill	Yes	other	3	-	No	-	0	-	No	-	-	Freshly blown snow
8/Feb/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
11/Feb/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
14/Feb/17	Landfill	Yes	drink container, food packaging, gloves, and oily rags	84	Pile of oily work clothes, gloves, and life jackets. Gave approximate quantity of each. Looks like it all came from JJM. Supervisor notified.	No	-	0	-	No	-	-	-
17/Feb/17	Landfill	Yes	drink container, gloves, and oily rags	11	-	No	-	0	-	No	-	-	-
23/Feb/17	Landfill	No	-	0	Recently pushed	No	-	0	-	No	-	-	-
26/Feb/17	Landfill	Yes	cigarette package, drink containers, food packaging, gloves, and oily rags	10	-	No	-	0	-	No	-	-	-
1/Mar/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-

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4/Mar/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
7/Mar/17	Landfill	Yes	aerosol cans, cigarette packages, drink containers, food and food packaging, gloves, oil contaminated waste, and oily rags	26	-	No	-	0	-	Yes	Fox	Tracks	-
10/Mar/17	Landfill	Yes	aerosol cans, cigarette packages, drink containers, food packaging, gloves, oil contaminated waste, and oily rags	22	-	No	-	0	-	No	-	-	-
14/Mar/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
17/Mar/17	Landfill	Yes	glove	1	-	No	-	0	-	No	-	-	-
19/Mar/17	Landfill	Yes	glove	1	-	No	-	0	-	No	-	-	-
22/Mar/17	Landfill	Yes	aerosol can, cigarette packages, drink container, food packaging, gloves, oil products, oily rags	14	-	Yes	Red fox	1	-	Yes	Unspecified	Unspecified	-
25/Mar/17	Landfill	No	-	0	Dozer pushing piles into pit, nothing to inspect	No	-	0	-	No	-	-	-
28/Mar/17	Landfill	Yes	aerosol cans and drink containers	5	3 aerosol cans and pop cans taken to waste transfer area	No	-	0	-	No	-	-	-
31/Mar/17	Landfill	Yes	batteries, gloves, and other	11	Cardboard boxes	No	-	0	-	No	-	-	-
3/Apr/17	Landfill	Yes	drink containers, food, and food packaging	11	Cardboard and pallets	No	-	0	-	No	-	-	-
6/Apr/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
10/Apr/17	Landfill	Yes	aerosol cans, cigarette package, drink containers, food packaging, gloves, and oil contaminated waste	9	-	No	-	0	-	Yes	Fox	Tracks	-
12/Apr/17	Landfill	Yes	aerosol cans, cigarette packages, gloves, and other	11	Improper waste from Bauer based on other labels	No	-	0	-	Yes	Fox	Tracks	-
15/Apr/17	Landfill	No	-	0	-	No	-	0	-	Yes	Unspecified	Unspecified	-

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18/Apr/17	Landfill	Yes	aerosol cans, batteries, cigarette butts and package, drink container, gloves, and oily rags	16	-	No	-	0	-	Yes	Fox	Tracks	-
21/Apr/17	Landfill	No	-	0	Recently pushed	No	-	0	-	No	-	-	-
24/Apr/17	Landfill	Yes	cigarette butts and packages, drink containers, food packaging, gloves, and oily rags	34	Pile with misdirected waste looks like UG and surface site services cleaned out lockers	No	-	0	-	Yes	Fox	Tracks	-
27/Apr/17	Landfill	Yes	aerosol cans, cigarette packages, drink containers, food packaging, and other	9	3 gas cylinders from fire extinguisher	No	-	0	-	No	-	-	-
30/Apr/17	Landfill	Yes	food and food packaging	7	-	No	-	0	-	Yes	Common raven and red fox	Tracks	-
3/May/17	Landfill	Yes	gloves	3	-	No	-	0	-	Yes	Fox	Tracks	-
6/May/17	Landfill	Yes	gloves	20	Dozer pushing all material into landfill.	No	-	0	-	No	-	-	-
9/May/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
12/May/17	Landfill	Yes	food and gloves	4	From backfill	No	-	0	-	No	-	-	-
15/May/17	Landfill	Yes	aerosol cans, gloves, oil contaminated waste, and oily rags	22	-	No	-	0	-	No	-	-	-
18/May/17	Landfill	Yes	gloves and other	26	Lots of boots some coveralls, jacket.	No	-	0	-	Yes	Common raven	Chew	Raven chew on a bag
21/May/17	Landfill	Yes	cigarette package, gloves, and oily rags	9	-	No	-	0	-	No	-	-	-
24/May/17	Landfill	Yes	cigarette package, food packaging, gloves, and other	7	3 photos taken	No	-	0	-	No	-	-	-
28/May/17	Landfill	Yes	gloves and other	15	-	No	-	0	-	No	-	-	-
30/May/17	Landfill	Yes	gloves and oily rags	4	-	No	-	0	-	No	-	-	-
6/Jun/17	Landfill	Yes	aerosol cans, cigarette butts and packages, drink containers, food and food packaging, gloves, and oily rags	137	Daniel from site services called in after dumping non-burn bin from A21 that there were aerosol cans in the pile, 10 coffee cups, bag of rotten fruit	No	-	0	-	No	-	-	-
13/Jun/17	Landfill	No	-	0	Land fill freshly bulldozed	No	-	0	-	No	-	-	-

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20/Jun/17	Landfill	Yes	aerosol cans, drink containers, food and food packaging, gloves, and other	55	Whole bag of incinerator garbage. Ziploc bag of carrots present. Lots of nitrile gloves	No	-	0	-	Yes	Common raven	Chew	Incinerator bag pecked by CORA
27/Jun/17	Landfill	Yes	drink containers, food packaging, gloves, and oil contaminated waste	10	2 spill pads, two plastic water bottles, 4 coffee cups	No	-	0	-	No	-	-	-
5/Jul/17	Landfill	Yes	aerosol cans, drink containers, food packaging, gloves, and oily rags	24	-	No	-	0	-	No	-	-	-
11/Jul/17	Landfill	Yes	cigarette packages, drink containers, food packaging, and gloves	15	1 rubber boot	No	-	0	-	No	-	-	-
18/Jul/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
25/Jul/17	Landfill	Yes	cigarette butts and packaging, drink containers, food and food packaging, gloves, and oily rags	102	-	No	-	0	-	No	-	-	-
1/Aug/17	Landfill	Yes	aerosol cans, cigarette package, food and food packaging, gloves, and other	11	-	No	-	0	-	No	-	-	-
8/Aug/17	Landfill	Yes	cigarette packages, drink containers, food packaging, gloves, and an oily rag	23	-	No	-	0	-	Yes	Birds	Chew	5 bags pecked by birds 1 had food containers
15/Aug/17	Landfill	Yes	oil contaminated waste	1	Area just pushed, 1 tidy tank off to the side, need to talk to waste transfer coordinator and ensure it has been cleaned	No	-	0	-	Yes	Bear	Scat	-
22/Aug/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
5/Sep/17	Landfill	No	-	0	Freshly bulldozed	No	-	0	-	No	-	-	-
13/Sep/17	Landfill	Yes	gloves, oil products, and oil rags	7	-	No	-	0	-	No	-	-	-
26/Sep/17	Landfill	Yes	gloves	5	-	No	-	0	-	Yes	Bear	Scat	-
3/Oct/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
10/Oct/17	Landfill	Yes	aerosol can, cigarette packages, drink containers, food packaging, gloves	10	-	No	-	0	-	Yes	Unspecified	Chew	Bag of incinerator garbage torn open, chocolate bar wrappers strewn about

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17/Oct/17	Landfill	Yes	battery, drink container, food packaging, and oily rags	15	-	No	-	0	-	Yes	Fox	Tracks	Clean Food jars with lots of fox prints around them
20/Oct/17	Landfill	No	-	0	Recently bulldozed	No	-	0	-	No	-	-	-
23/Oct/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
26/Oct/17	Landfill	No	-	0	Recently bulldozed	No	-	0	-	No	-	-	-
29/Oct/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
2/Nov/17	Landfill	Yes	aerosol can and food packaging	2	-	No	-	0	-	No	-	-	-
4/Nov/17	Landfill	No	-	0	-	No	-	0	-	No	-	-	-
7/Nov/17	Landfill	No	-	0	No issues, recently bulldozed	No	-	0	-	No	-	-	-
10/Nov/17	Landfill	No	-	0	No issues	No	-	0	-	No	-	-	-
13/Nov/17	Landfill	No	-	0	-	No	-	0	-	Yes	Red fox	Tracks	Fresh tracks
16/Nov/17	Landfill	No	-	0	-	No	-	0	-	Yes	Fox	Tracks	-
19/Nov/17	Landfill	Yes	drink container, food packaging, gloves, and oily rags	13	-	No	-	0	-	No	-	-	-
23/Nov/17	Landfill	Yes	cigarette package, food and food packaging, and gloves	56	Candy wrappers, coffee creamer, coffee bag, plates,	Yes	Raven	2	-	Yes	Fox	Tracks	-
25/Nov/17	Landfill	Yes	aerosol cans, drink container, food packaging, gloves, and oily rags	26	Process plant cleaned up their mess, A21 did not	No	-	0	-	Yes	Unspecified	Scat	-
28/Nov/17	Landfill	Yes	aerosol cans, cigarette butts and packages, drink containers, food packaging, gloves, and oily rags	54	-	No	-	0	-	Yes	Common raven	Chew	Raven pecked open bag
1/Dec/17	Landfill	Yes	aerosol cans, food packaging, and oily rags	9	1 large bag of misc. dirty textiles and 3 bags of used coveralls present	No	-	0	-	No	-	-	-
4/Dec/17	Landfill	Yes	drink container, food packaging, and gloves	7	-	No	-	0	-	Yes	Common raven and red fox	Tracks, scat, and chew	Raven and fox tracks, fox droppings present, 1 bag destroyed
7/Dec/17	Landfill	Yes	aerosol can, gloves, oil products	9	-	No	-	0	-	No	-	-	-
10/Dec/17	Landfill	Yes	gloves and oil products	4	-	No	-	0	-	Yes	Fox tracks	Fox tracks	-
13/Dec/17	Landfill	Yes	gloves	2	-	No	-	0	-	Yes	Unspecified	Tracks	-

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16/Dec/17	Landfill	Yes	food packaging, gloves, and oil rags	3	-	Yes	Red fox	1	Fox was spotted chewing on a glove	Yes	Unspecified	Tracks, possible snow den	-
19/Dec/17	Landfill	Yes	cigarette package, food packaging, and gloves	7	-	No	-	0	-	Yes	Unspecified	Tracks	-
22/Dec/17	Landfill	Yes	aerosol cans, drink containers, and oily rags	5	-	No	-	0	-	Yes	Unspecified	Tracks	-
25/Dec/17	Landfill	Yes	gloves and other	4	-	Yes	Raven	1	-	No	-	-	-
28/Dec/17	Landfill	No	-	0	-	No	-	0	-	Yes	Red fox	Tracks	-
5/Jan/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
12/Jan/17	Underground	Yes	food packaging	2	-	No	-	0	-	No	-	-	-
20/Jan/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
26/Jan/17	Underground	Yes	other	1	-	No	-	0	-	Yes	Red fox	Tracks	-
2/Feb/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
8/Feb/17	Underground	Yes	gloves, oily rags	11	-	No	-	0	-	No	-	-	-
11/Feb/17	Underground	Yes	oil contaminated waste	20	-	No	-	0	-	No	-	-	-
14/Feb/17	Underground	Yes	gloves, oil contaminated wasted	7	-	No	-	0	-	No	-	-	-
17/Feb/17	Underground	Yes	drink containers, gloves, oily rags	7	-	No	-	0	-	Yes	Red fox	Tracks	-
20/Feb/17	Underground	No	-	0	-	No	-	0	-	Yes	Red fox	Tracks	-
23/Feb/17	Underground	Yes	food packaging, rags	4	-	Yes	Raven	1	-	Yes	Red fox	Tracks	-
26/Feb/17	Underground	Yes	oily rags	4	-	Yes	Red fox	9	-	Yes	Red fox	Tracks	-
1/Mar/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
4/Mar/17	Underground	Yes	food packaging	1	-	No	-	0	-	No	-	-	-
7/Mar/17	Underground	Yes	cigarette butts, oily rags	13	-	No	-	0	-	No	-	-	-
10/Mar/17	Underground	Yes	other	1	1 large plastic jug in the yard. Likely blew in from elsewhere	No	-	0	-	No	-	-	-
14/Mar/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
17/Mar/17	Underground	Yes	food packaging	1	-	No	-	0	-	No	-	-	-
19/Mar/17	Underground	Yes	aerosol cans, cigarette butts, food, gloves, other	7	-	No	-	0	-	No	-	-	-
22/Mar/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
25/Mar/17	Underground	Yes	oily rags	2	-	No	-	0	-	Yes	Red fox	Tracks	-
28/Mar/17	Underground	Yes	aerosol cans, gloves	5	-	No	-	0	-	Yes	Red fox	Tracks	-
31/Mar/17	Underground	Yes	cigarette butts	1	-	No	-	0	-	No	-	-	-
3/Apr/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-

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6/Apr/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
10/Apr/17	Underground	Yes	cigarette packaging	1	-	No	-	0	-	No	-	-	-
12/Apr/17	Underground	Yes	food packaging	1	-	No	-	0	-	No	-	-	-
15/Apr/17	Underground	Yes	aerosol cans, drink containers, food, food packaging, gloves, oily rags	10	-	No	-	0	-	Yes	Red fox	Tracks	-
18/Apr/17	Underground	Yes	cigarette butts, cigarette packaging, oily rags, other	155	doorway needs cigarette butt cleanup when snow is melted	No	-	0	-	Yes	Red fox	Tracks	-
21/Apr/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
24/Apr/17	Underground	Yes	cigarette butts, gloves, oily rags, other	5	-	No	-	0	-	Yes	Red fox	Tracks	-
27/Apr/17	Underground	Yes	drink containers	1	-	No	-	0	-	No	-	-	-
30/Apr/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
3/May/17	Underground	Yes	aerosol cans	1	-	No	-	0	-	No	-	-	-
6/May/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
9/May/17	Underground	Yes	aerosol cans, cigarette butts, cigarette packaging, drink containers, food, food packaging, gloves	117	-	Yes	Red fox	2	-	No	-	-	-
12/May/17	Underground	Yes	cigarette butts, cigarette packaging, food, food packaging, gloves	125	-	No	-	0	-	No	-	-	-
15/May/17	Underground	Yes	cigarette butts, cigarette packaging, food packaging, gloves	110	-	No	-	0	-	No	-	-	-
18/May/17	Underground	Yes	batteries, cigarette packaging, oily rags, other	8	-	No	-	0	-	No	-	-	-
21/May/17	Underground	Yes	gloves	1	-	No	-	0	-	No	-	-	-
24/May/17	Underground	Yes	gloves	2	-	No	-	0	-	No	-	-	-
28/May/17	Underground	Yes	oily rags	1	-	No	-	0	-	No	-	-	-
30/May/17	Underground	Yes	cigarette butts, cigarette packaging, drink containers, food packaging, gloves, oily rags	116	-	No	-	0	-	No	-	-	-
6/Jun/17	Underground	Yes	cigarette butts, cigarette packaging, drink containers, gloves	58	-	No	-	0	-	No	-	-	-

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13/Jun/17	Underground	yes	other	2	connected ear plugs	No	-	0	-	No	-	-	-
20/Jun/17	Underground	yes	cigarette packaging	1	-	No	-	0	-	No	-	-	-
27/Jun/17	Underground	yes	cigarette butts, cigarette packaging, food packaging	103	-	No	-	0	-	No	-	-	-
4/Jul/17	Underground	yes	cigarette butts, cigarette packaging, drink containers, food packaging, gloves, oily rags	127	-	No	-	0	-	No	-	-	-
12/Jul/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
18/Jul/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
25/Jul/17	Underground	Yes	aerosol cans, cigarette butts, cigarette packaging, food packaging, gloves, oily rags, other	60	-	No	-	0	-	Yes	Red fox	Scat	Scat on oily rags bags
1/Aug/17	Underground	Yes	cigarette butts, cigarette packaging, food packaging, gloves, oily rags	44	-	No	-	0	-	No	-	-	-
8/Aug/17	Underground	Yes	cigarette packaging, gloves, other	4	-	Yes	Raven	3	-	No	-	-	-
15/Aug/17	Underground	Yes	food packaging, oily rags	5	-	No	-	0	-	No	-	-	-
22/Aug/17	Underground	Yes	drink containers, gloves, oily rags, other	8	-	No	-	0	-	No	-	-	-
29/Aug/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
5/Sep/17	Underground	Yes	oil products and containers	1	-	No	-	0	-	No	-	-	-
13/Sep/17	Underground	Yes	gloves, oily rags	5	-	No	-	0	-	No	-	-	-
19/Sep/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
26/Sep/17	Underground	Yes	cigarette butts, cigarette packaging, drink containers, food, food packaging, gloves	117	-	Yes	Red fox	1	-	No	-	-	-
3/Oct/17	Underground	yes	aerosol cans	1	-	No	-	0	-	No	-	-	-
17/Oct/17	Underground	yes	cigarette packaging	2	-	No	-	0	-	No	-	-	-
20/Oct/17	Underground	yes	gloves, oily rags	5	-	No	-	0	-	No	-	-	-
23/Oct/17	Underground	Yes	oil contaminated waste, other	3	Piece of metal in burn bin	No	-	0	-	No	-	-	-
26/Oct/17	Underground	Yes	aerosol cans, food packaging, gloves, oily rags	8	-	No	-	0	-	No	-	-	-

Date	Location	Attractants				Wildlife				Wildlife Sign			
		Attractants Present?	Items	Number of Items Present	Comments	Wildlife Present?	Species	# of Individuals Observed	Wildlife Comments	Wildlife Sign Observed?	Wildlife Sign Observed Species	Wildlife Sign Type	Wildlife Sign Observed Comments
29/Oct/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
2/Nov/17	Underground	Yes	gloves, oily rags	8	-	No	-	0	-	No	-	-	-
4/Nov/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
7/Nov/17	Underground	Yes	drink containers, gloves, oily rags	3	-	No	-	0	-	No	-	-	-
13/Nov/17	Underground	No	-	0	-	No	-	0	-	Yes	Unspecified	Tracks	-
16/Nov/17	Underground	Yes	gloves, oily rags	3	-	No	-	0	-	Yes	Red fox	Tracks, Scat	Scat and prints in burn bin
19/Nov/17	Underground	Yes	other	1	Empty antifreeze container	Yes	Red fox	1	-	No	-	-	-
23/Nov/17	Underground	Yes	food, food packaging, gloves	8	-	No	-	0	-	Yes	Red fox	Tracks	-
25/Nov/17	Underground	Yes	aerosol cans, drink containers, food packaging, gloves, oily rags	14	-	No	-	0	-	No	-	-	-
28/Nov/17	Underground	Yes	other	1	air filter in burn bin	No	-	0	-	No	-	-	-
1/Dec/17	Underground	No	-	0	-	Yes	Red fox	1	-	No	-	-	-
4/Dec/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
7/Dec/17	Underground	Yes	drink containers, oily rags	2	-	No	-	0	-	Yes	Red fox	Tracks	-
10/Dec/17	Underground	Yes	aerosol containers, cigarette packaging, food, gloves	5	-	No	-	0	-	No	-	-	-
13/Dec/17	Underground	Yes	cigarette butts, drink containers, gloves, oily rags	10	-	No	-	0	-	Yes	Unspecified	Tracks	-
16/Dec/17	Underground	Yes	cigarette butts, cigarette packaging, food, food packaging, gloves	16	-	No	-	0	-	Yes	Unspecified	Tracks	-
19/Dec/17	Underground	Yes	cigarette butts, food packaging, oil contaminated waste	12	-	No	-	0	-	Yes	Unspecified	Tracks	-
22/Dec/17	Underground	Yes	cigarette butts, oily rags	6	-	No	-	0	-	Yes	Unspecified	Tracks	-
25/Dec/17	Underground	No	-	0	-	No	-	0	-	Yes	Unspecified	Tracks	-
28/Dec/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
31/Dec/17	Underground	No	-	0	-	No	-	0	-	No	-	-	-
17/Mar/17	A21	Yes	food packaging	1	-	Yes	Wolverine	1	-	No	-	-	-
19/Mar/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
22/Mar/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
25/Mar/17	A21	Yes	gloves, other	2	sweater	No	-	0	-	No	-	-	-

Date	Location	Attractants				Wildlife				Wildlife Sign			
		Attractants Present?	Items	Number of Items Present	Comments	Wildlife Present?	Species	# of Individuals Observed	Wildlife Comments	Wildlife Sign Observed?	Wildlife Sign Observed Species	Wildlife Sign Type	Wildlife Sign Observed Comments
28/Mar/17	A21	Yes	gloves, oil contaminated waste	5	-	No	-	0	-	Yes	Red fox	Tracks	-
31/Mar/17	A21	Yes	cigarette packaging, drink containers, food, food packaging, gloves	9	-	No	-	0	-	No	-	-	-
3/Apr/17	A21	Yes	drink containers, food, food packaging, gloves	11	-	No	-	0	-	No	-	-	-
6/Apr/17	A21	Yes	food packaging	2	-	Yes	Raven	1	-	No	-	-	-
12/Apr/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
15/Apr/17	A21	Yes	drink containers, food, food packaging, gloves, oil contaminated waste	11	-	No	-	0	-	Yes	Red fox, Wolf	Tracks	-
18/Apr/17	A21	Yes	cigarette butts, cigarette packaging, gloves, oily rags	10	-	No	-	0	-	Yes	Red fox, Wolf	Tracks	-
21/Apr/17	A21	Yes	cigarette packaging, drink containers	2	-	No	-	0	-	No	-	-	-
24/Apr/17	A21	No	-	0	-	Yes	Red fox	1	-	No	-	-	-
27/Apr/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
30/Apr/17	A21	Yes	cigarette packaging, drink containers, food packaging, gloves	11	-	No	-	0	-	No	-	-	-
3/May/17	A21	Yes	cigarette butts, drink containers, gloves	19	-	No	-	0	-	No	-	-	-
6/May/17	A21	Yes	aerosol cans, cigarette butts, cigarette packaging, food packaging, gloves	10	-	No	-	0	-	No	-	-	-
9/May/17	A21	Yes	aerosol cans, gloves	2	-	No	-	0	-	No	-	-	-
12/May/17	A21	Yes	aerosol cans, cigarette butts, food packaging, gloves, oily rags	22	-	No	-	0	-	No	-	-	-
15/May/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
18/May/17	A21	Yes	cigarette packaging, drink containers, oil products and containers, oily rags, other	18	-	No	-	0	-	No	-	-	-
21/May/17	A21	Yes	gloves	1	-	No	-	0	-	No	-	-	-
24/May/17	A21	Yes	cigarette packaging, gloves, other	7	Bag of incinerator garbage was thrown into burnables bin. Lots of shop towel paper, towels, etc.	No	-	0	-	No	-	-	-

Date	Location	Attractants				Wildlife				Wildlife Sign			
		Attractants Present?	Items	Number of Items Present	Comments	Wildlife Present?	Species	# of Individuals Observed	Wildlife Comments	Wildlife Sign Observed?	Wildlife Sign Observed Species	Wildlife Sign Type	Wildlife Sign Observed Comments
30/May/17	A21	Yes	cigarette packaging, food packaging, oily rags	5	-	No	-	0	-	No	-	-	-
6/Jun/17	A21	Yes	gloves	1	-	No	-	0	-	No	-	-	-
13/Jun/17	A21	Yes	drink containers, food packaging, other	8	6 rock drilling heads	No	-	0	-	No	-	-	-
20/Jun/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
27/Jun/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
7/Jul/17	A21	Yes	food packaging, gloves	4	-	No	-	0	-	No	-	-	-
11/Jul/17	A21	Yes	cigarette packaging, drink containers	2	-	No	-	0	-	No	-	-	-
18/Jul/17	A21	Yes	cigarette packaging, drink containers, food, food packaging, other	9	-	No	-	0	-	No	-	-	-
25/Jul/17	A21	Yes	food	2	-	No	-	0	-	No	-	-	-
1/Aug/17	A21	Yes	drink containers, gloves	4	-	No	-	0	-	No	-	-	-
8/Aug/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
15/Aug/17	A21	Yes	drink containers, food packaging	4	-	No	-	0	-	No	-	-	-
22/Aug/17	A21	Yes	gloves	3	-	No	-	0	-	No	-	-	-
29/Aug/17	A21	Yes	cigarette packaging, gloves	2	-	No	-	0	-	No	-	-	-
5/Sep/17	A21	Yes	aerosol cans, cigarette packaging, drink containers, food, oily rags	17	-	No	-	0	-	No	-	-	-
13/Sep/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
20/Sep/17	A21	Yes	other	2	-	No	-	0	-	No	-	-	-
26/Sep/17	A21	Yes	cigarette butts, drink containers, food packaging, gloves, oily rags	39	-	No	-	0	-	No	-	-	-
3/Oct/17	A21	Yes	cigarette packaging, drink containers, food, gloves, oily rags	32	-	Yes	-	1	-	No	-	-	-
10/Oct/17	A21	Yes	cigarette packaging, food, oily rags	3	-	No	-	0	-	No	-	-	-
17/Oct/17	A21	Yes	drink containers	5	-	No	-	0	-	No	-	-	-
20/Oct/17	A21	Yes	batteries, cigarette butts, cigarette packaging, drink containers, gloves	20	-	No	-	0	-	No	-	-	-
23/Oct/17	A21	Yes	oily rags	2	-	No	-	0	-	No	-	-	-

Date	Location	Attractants				Wildlife				Wildlife Sign			
		Attractants Present?	Items	Number of Items Present	Comments	Wildlife Present?	Species	# of Individuals Observed	Wildlife Comments	Wildlife Sign Observed?	Wildlife Sign Observed Species	Wildlife Sign Type	Wildlife Sign Observed Comments
26/Oct/17	A21	Yes	food packaging, gloves, other	5	bag of cloth material	No	-	0	-	No	-	-	-
29/Oct/17	A21	Yes	gloves	6	-	No	-	0	-	No	-	-	-
2/Nov/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
4/Nov/17	A21	Yes	aerosol cans, batteries, cigarette butts, cigarette packaging, drink containers, food, food packaging, gloves, oil contaminated waste, oil products and containers, other	15	-	Yes	-	1	-	Yes	Unspecified	-	-
7/Nov/17	A21	Yes	other	1	pair of pants in the non-burn	No	-	0	-	No	-	-	-
10/Nov/17	A21	Yes	other	1	palette in non-burn	No	-	0	-	No	-	-	-
13/Nov/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
16/Nov/17	A21	Yes	drink containers, gloves	2	-	No	-	0	-	Yes	Red fox	Tracks	-
19/Nov/17	A21	Yes	aerosol cans, oily rags	4	-	No	-	0	-	No	-	-	-
22/Nov/17	A21	Yes	gloves, other	7	4 bags of coveralls	No	-	0	-	Yes	Common raven and red fox	Pecked open bag of coveralls; tracks	-
25/Nov/17	A21	Yes	food packaging, oily rags	23	-	No	-	0	-	No	-	-	-
28/Nov/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
1/Dec/17	A21	Yes	aerosol cans, cigarette packaging, drink containers, gloves	8	-	No	-	0	-	No	-	-	-
4/Dec/17	A21	Yes	oil products and containers, oily rags	7	-	No	-	0	-	No	-	-	-
7/Dec/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
10/Dec/17	A21	Yes	cigarette packaging	2	-	No	-	0	-	No	-	-	-
13/Dec/17	A21	Yes	gloves	2	-	Yes	Raven	1	-	Yes	Common raven	Tracks	-
16/Dec/17	A21	Yes	drink container, gloves, oil contaminated waste	4	-	No	-	0	-	No	-	-	-
19/Dec/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
22/Dec/17	A21	No	-	0	-	No	-	0	-	Yes	Unspecified	Tracks	-
25/Dec/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
28/Dec/17	A21	No	-	0	-	No	-	0	-	No	-	-	-
31/Dec/17	A21	No	-	0	-	No	-	0	-	No	-	-	-

APPENDIX I

**Caribou Behaviour Sample Size
Requirements**

1.0 INTRODUCTION

Barren-ground caribou from the Bathurst or Ahiak herds may be present in the area surrounding the Diavik Diamond Mine (Mine). Monitoring barren-ground caribou behaviour in areas surrounding that has been a component of the Wildlife Monitoring Program since 1998. Presumably sensory disturbance from mining activity disturbs caribou and disrupts their energy balance through a decrease in time spent feeding and resting. Foraging and resting are necessary activities for caribou to replenish or conserve body fat reserves required for survival and reproduction. In June 2017, the Environmental Monitoring Advisory Board (EMAB) requested sampling guidelines for off-site behaviour monitoring of caribou (EMAB 2017). The following describes the approach and results of an a priori power analysis completed to guide sampling effort of the caribou behaviour monitoring program.

2.0 POWER ANALYSIS APPROACH AND RESULTS

The Mine uses group behaviour and focal scan monitoring methods analogous to those used at the Ekati and Gahcho Kué mines during the post-calving and autumn period. The analysis of behaviour data uses regression methods to test for a significant relationship between behaviour and distance from mine variables (DDMI 2011). The power analysis generated for this technical memo was based on the most recent statistical results reported for the Ekati and Diavik mine caribou behaviour monitoring program (DDMI 2011).

The power analysis focussed on determining the required sample size to detect a 15% change in feeding behaviour between two groups. Feeding behaviour was selected because it has a large influence on a maternal cow's energy balance and a pregnant female's ability to produce a calf in the subsequent spring (i.e., ecological effect on the rate of body mass loss [Cameron and Ver Hoef 1994]). Although distances of monitored groups may be divided into numerous strata, a linear effect was assumed to be constant across distance strata, and therefore only requires consideration of differences between two adjacent groups. In other words, regardless of which two adjacent groups are being compared, the effect size of 15% will be the same in a linear model (i.e., regression slope = effect size). It is important to note that while a 15% change is considered a small statistical effect size, it is unknown whether a 15% change in feeding behaviour is ecologically significant to barren-ground caribou.

The standard deviation associated with feeding behaviour was not directly reported in DDMI (2011) and was derived through back-transformation of the annual summaries of standard errors and sample sizes reported. The largest annual standard deviation was used in the power analysis to provide conservative sample size estimates. The power analysis was completed using the program G*Power (Version 3.1.6; Faul et al. 2009) with the statistical conditions specified in Table 1. A Type I error rate (α) of 0.10 was used because it was considered ecologically more conservative to accept detecting a statistical effect that does not actually exist rather than failing to detect a difference in caribou feeding behaviour due to the Mine. Based on these conditions, feeding activity of 55 different caribou groups are required for each of the two distance strata to statistically detect a change in feeding activity of at least 15%.

Table 1: A Priori Power Analysis Statistical Assumptions

Analysis Metric	Assumption
Effect size	15% (difference in feeding behaviour between two distance groups)
Type I Error Rate (α)	0.10
Type II Error Rate (β)	0.20
Power (1- β)	0.80
Mean of Stratum 1	0.00%
Mean of Stratum 2	15.0%
Standard Deviation	31.4%

The power analysis completed provides clarity on the number of group behaviour observations required to test statistical effects given the established conditions. For example, the power analysis is based on behaviour variation observed during the summer and autumn while currently caribou are encountering the Mine in winter when temperatures are colder and forage is covered by snow. Seasonality is expected to influence the behaviour of caribou.

REFERENCES

- Cameron RD, Ver Hoef JM. 1994. Predicting parturition rate of caribou from autumn body mass. *Journal of Wildlife Management* 58:674-679.
- DDMI (Diavik Diamond Mine Inc.). 2011. Analysis of Environmental Effects from the Diavik Diamond Mine on Wildlife in the Lac De Gras Region. Prepared by Golder Associates Ltd. for Diavik Diamond Mine Inc., Yellowknife, NT.
- EMAB (Environmental Monitoring Advisory Board). 2017. Review of Diavik's 2016 Wildlife Monitoring Program Report and 2014-2016 Comprehensive Analysis Report. 21 August 2017.
- Faul F, Erdfelder E, Buchner A, Lang A-G. 2009. Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behaviour Research Methods* 41: 1149-1160.

APPENDIX J

**Comments on the 2016 Wildlife
Monitoring Report**

DATE 11 December 2017**REFERENCE No.** 1771843-1612-TM-Rev1-5000**WORK PLAN No.** 547**DIAVIK PO No.** D03792**TO** David Wells
Diavik Diamond Mines (2012) Inc.**FROM** Daniel Coulton, Jaewoo Kim, and John Virgl**EMAIL** Daniel_Coulton@golder.com;

Jaewoo_Kim@golder.com;

John_Virgl@golder.com

TASK DESCRIPTION **RESPONSES TO EMAB (MSES) COMMENTS ON 2016 WMP AND 2017 WCAR, AND
GNWT'S ENR COMMENTS ON 2017 WCAR**

On 12 June 2017, the Environmental Monitoring Advisory Board (EMAB) issued comments on the 2016 Wildlife Monitoring Program report and 2017 Wildlife Comprehensive Analysis report. The comments provided by EMAB included the review by Management and Solutions in Environmental Science (MSES) that provided some of the same comments for the 2014 WMP and as far back as the 2010 Comprehensive Analysis Report, which have been provide been responded to previously. As per your request and in review of the comments by EMAB and MSES, Golder Associates Ltd. (Golder) has prepared the following responses for your consideration in Table 1.

On 11 October 2017, the Government of the Northwest Territories' (GNWT) Department of Environment and Natural Resources (ENR) issued comments and a technical review on DDMI's March 2017 wildlife comprehensive analysis report. As per your request and in review of the comments by GNWT's ENR, Golder Associates Ltd. (Golder) has prepared the following responses for your consideration. Responses to ENR are provided in Table 2 and to Boulanger et al. (2017) in Table 3.



Table 1: Comments by MSES and EMAB on the 2016 Wildlife Monitoring Program Report and 2017 Wildlife Comprehensive Analysis Report

MSES Comment	EMAB Recommendation	Diavik Response
<p>The report concludes that “the Mine is likely having local-scale effects on plant species abundance and composition”. The report does not suggest any strategies that could mitigate these effects. Please consider if and how these potential project effects could be mitigated.</p>	<p>Diavik should include a discussion on how potential project effects on vegetation abundance and composition could be mitigated.</p>	<p>Local-scale residual (i.e., after mitigation) effects to plant species abundance and composition were predicted in the EER (Table 1.2-1; Golder 2017b). This included direct physical changes from the Mine footprint and indirect changes from dust deposition. Mitigation implemented by Diavik to minimize effects to vegetation included making the mine site as small as possible, and the application of dust suppressants such as watering roads. The current analysis indicates residual effects are within the predictions from the EER, which suggests mitigation has been effective.</p>
<p>DDMI concluded that “given that the majority of metals concentrations have decreased below concentrations reported in the 2010 risk assessment, a follow up risk assessment based on 2016 data is not required” (Appendix I, Section 3.6). However, in our review of the Dust Deposition to Lichen report (MSES 2011; also see Table 2 below), we commented that the risk assessment did not include information on any changes in the concentrations of metals present in caribou and humans pre- and post-exposure or how these levels of metals relate to the health of either caribou or humans. Given this information, the expectation that metal concentrations are within safe levels for caribou (and humans) is opinion and unsupported by data. We recommend DDMI provide additional information that would support their conclusion that concentrations of metals in lichen are safe for caribou.</p>	<p>Diavik should provide additional information to show that concentrations of metals in lichen are safe for caribou.</p>	<p>Sufficient support for the conclusions in the 2016 Vegetation and Lichen Monitoring Report (Golder 2017b) is provided by the current analysis of metals concentrations in lichen and the 2010 Risk Assessment (Golder 2011a).</p> <p>Effects to caribou and humans due to changes in concentrations of metals in lichen are considered to be negligible given that concentrations in lichen have significantly decreased from 2010 to 2016 at near-field sites, and that the 2010 Risk Assessment found no adverse effects to caribou health. Importantly, the 2010 Risk Assessment applied highly conservative assumptions and conditions, such as caribou would obtain all their food and water from the near-field area throughout the entire year. Based on data from collared animals, the residency time of caribou within the near-field area is much less than 6 months (even for mature bulls that may spend more time near mine sites). For example, the residency time assessment for the Jay Project indicated that collared caribou spend an average of 8.9 days during the post-calving period (6.4% of available time) within cumulative ZOIs during the baseline, which including a 15 km ZOI around Diavik-Ekati among other development ZOIs.</p> <p>The 2010 Risk Assessment used higher metals concentrations than those measured in 2016, which represents an overestimation of existing health risks to caribou and humans (i.e., existing health risks are even lower now). Therefore, it is considered reasonable to conclude that concentrations of metals in lichen (and subsequent exposure to caribou and humans) has not been negatively impacted by the Mine and that no further assessment of risks is required at this time.</p>
<p>The information collected through the vegetation monitoring program also is used to test and evaluate the predicted effects of the Mine. There are four key predictions for vegetation:</p> <ol style="list-style-type: none"> 1. The predicted loss is 12.67 km² of vegetation/land cover. 2. Increased dust deposition may lead to potential change in vegetation. 3. No rare or endangered species or communities will be lost as a result of the proposed Project. 4. Community level richness is predicted to decrease by 14%; Species diversity and richness is predicted to decrease by 44%. <p>The effects of the Mine remain at or below predicted levels with regards to predictions 1 and 3. Prediction 2 is also accurate and it has been found that vegetation community structure, measured as plant species abundance and richness, has likely been altered due to dust deposition. With regards to prediction 3, vascular plant species richness was actually 54% higher on heath tundra plots and 9% higher on shrub Mine plots. This unexpected outcome is likely due to a higher number of graminoid species on Mine plots in the Heath Tundra and Shrub communities. The report does not suggest any strategies that could mitigate these unanticipated effects. Please consider if and how these potential project effects could be mitigated.</p>		<p>The residual effects prediction noted by EMAB is in reference to Key Question 4 (i.e., a <i>reduction</i> in community level richness and a <i>reduction</i> in species level diversity and richness). In contrast, the analysis detected an increase in total vascular plant species richness on Heath Tundra and Shrub vegetation communities mine plots (but only significant for the Heath Tundra community), which appeared to be related to a small increase (1 to 2 species) in graminoid species. The ecological relevance of this result is uncertain considering the low abundance (percent cover) of graminoids in these two community types (Appendix C; Golder 2017b). Current mitigation, such as dust suppression appears to be effective at minimizing adverse effects to vegetation.</p>

MSES Comment	EMAB Recommendation	Diavik Response
<p>DDMI has recommended that vegetation and lichen monitoring frequency should be reduced from once every three years to once every five years. Given that above-ground mining is anticipated at the A21 Area in 2018, we do not agree with this recommendation. Results of the vegetation and lichen monitoring programs indicated that dust deposition rates and metal concentrations decreased after mining activity shifted completely underground. With above-ground mining activities commencing once again, dust deposition and metal concentrations in lichen are likely to increase again. We recommend that the established three-year timeframe be continued in order to capture changes in vegetation and lichen parameters.</p>	<p>Diavik should continue the three-year monitoring schedule to capture changes in vegetation and lichen parameters. With a return to above-ground mining activities scheduled for 2018, dust deposition and metal concentrations in lichen are likely to increase again.</p>	<p>The recommendation is based on the principles of adaptive management. Depending on the direction and magnitude of measured changes during monitoring, relative to effects predictions, the intensity, duration and/or frequency of monitoring may be increased or decreased.</p> <p>As described in Section 3.6 of the Vegetation and Lichen Monitoring Report (Golder 2017b), DDMI included an adaptive management trigger to resume to a three-year vegetation and lichen monitoring schedule if results from dust monitoring exceed the upper 95% confidence interval for dustfall values on mine plots during the period of underground mining (approximately 400 mg/dm²/y; Figure 2.3-1). Based on the 2010 Risk Assessment and current results of metals concentrations in lichens, this action level or adaptive management trigger is considered conservative for the protection of caribou.</p>
<ul style="list-style-type: none"> ■ Has the ZOI guidance document been finalized? If so, please provide the document to EMAB for their review. If not, please have ENR explain why not and when it is expected. ■ What plans does DDMI have to address the caribou movement objective while they wait for guidance from ENR? Diavik should continue to monitor and verify the accuracy of the predictions in the environmental assessment and the effectiveness of mitigation measures (Article 1, 1.1(b), Diavik Environmental Agreement (2000)). ■ While waiting for the ENR to determine best approaches to ZOI monitoring, would DDMI consider using caribou collar data to re-evaluate the ZOI associated with the Diavik Mine specifically? 	<p>Diavik should continue to monitor and test predictions on the ZOI while they wait for ZOI guidance from ENR. This could include gathering more aerial survey data, analysis of all caribou collar data available to the present time and additional analysis of existing data, and looking at other factors that might affect caribou e.g., habitat or changing mine activity.</p> <p>Diavik should propose adaptive management measures to mitigate the 14 km ZOI since this area is larger than predicted.</p>	<p>A final version of the ZOI guidance document has not been distributed to DDMI.</p> <p>The intent of the ZOI guidance document is to standardize the sampling of caribou data across developments to support cumulative effects analysis by the GNWT. This was the agreed approach by regulators, mine agencies and communities at the mine monitoring workshops beginning in 2010 (Handley 2010).</p> <p>Diavik has already completed analyses of these data related to habitat, temporal trends and mine activity (Golder 2011b). The caribou density analysis (Golder 2017a) is an additional analysis of the aerial survey data.</p> <p>Boulanger et al. (2012) also examined a cumulative ZOI (i.e., Ekati and Diavik mines) for caribou using collar data. Collar analyses indicated a ZOI of 3 km (95%CI: 1.5 km-12 km), which is less than reported for aerial survey data. Due to the proximity of the Diavik and Ekati mines, the location of Diavik (i.e., on an island in Lac de Gras) and the general southern movement of caribou through the area in the post-calving to autumn period, detecting separate ZOIs from the two mines sites is likely not possible. There would likely be a large amount of overlap between the ZOIs for the two mines and an influence from Lac de Gras (Golder 2011b).</p> <p>The caribou density analysis in Golder (2017) suggests that there is no ZOI around Ekati and Diavik or that it is smaller than could be detected, which is less than predicted in the EER.</p>
<p>A regression analysis evaluated the relationship between caribou density and nearest distance to the Ekati or Diavik Mine footprint. The results showed that distance to a mine footprint explained very little of the variation in caribou density. To confirm this result, we recommend that DDMI present information on the power of the data to detect an effect.</p>	<p>Diavik should present the reasons for the type of analysis they used and information on the power of the data to detect an effect. Future analyses using caribou density should include habitat associations and changes in mine activity, and other potential confounding factors. Non-linear relationships should also be considered.</p>	<p>As described in Golder (2017a), the caribou density analysis was completed to address a request by EMAB.</p> <p>The analysis included 142,418 sampling units (i.e., 1 km X 1.2 km survey transect segments) through time periods of 1998 to 2009 and 2012. Bergerud et al. (2008) suggested a threshold density 5 caribou per km² is necessary before demographic consequences arise, which equates to the effect size of 0.25 and is associated with ecological significance (Cohen 1988). Assuming the effect size of 0.25, an alpha-value of 0.05, and the given sample size, the observed power was 1.00. There is sufficient power and sample size to detect effect sizes associated with ecological significance (Bergerud et al. 2008; Cohen 1988).</p>

MSES Comment	EMAB Recommendation	Diavik Response
<p>Furthermore, the caribou ZOI may shift in response to the beginning of above-ground mining activities once again (expected in 2018). With a gap in aerial data collection growing, so do our concerns regarding adequate testing of the impact prediction. This reinforces our recommendation above that DDMI continue to monitor and test predictions while they wait for feedback from ENR. Specifically, DDMI should collect new data and complete more rigorous analyses to evaluate the caribou ZOI.</p>		<p>DDMI has completed analyses for a caribou ZOI using different methods and data in the most recent and past comprehensive reports. Other studies have completed similar analyses, with collared animals and aerial survey data using different statistical approaches (Johnson et al. 2005; Boulanger et al. 2012). The focus in the past has been to assume statistical effects detected from occurrence data translated to the ecological scale. However, the results on caribou density indicate this is potentially a false assumption. Although not part of the Diavik Mine WMP, further analysis using these data and density metric will include available habitat and the potential influence of natural factors in the region.</p>
<ul style="list-style-type: none"> ■ Given that the two mines have agreed to cooperate, please provide details on the data collected by Ekati during ground-based caribou behaviour surveys (since 2010 when coordination between the mines began). ■ If Ekati has sufficient data near-mine, please analyze a DDMI-Ekati combined dataset to test how caribou behaviour changes as a function of distance from the Mine. ■ Given the insufficient Diavik data near-Mine, would DDMI consider collecting data outside of autumn and using GPS collar information to collect data opportunistically? ■ There was some discussion in the past about the Cumulative Impacts Monitoring Program (CIMP) leading a behaviour monitoring task group, but given the lack of information on the status of this group, we recommend DDMI continue with its own monitoring, coordination with Ekati, and data analysis until such a working group is established and operational. 	<p>Please provide details on the methods and data collected by Diavik and Ekati both close to and far from the mines, including sample sizes, group sizes and group composition. Please explain how Diavik determines how much data are needed to do an analysis, and provide a power analysis to support the target sample size. As well please explain why there is such a large range in the number of observations per year and provide details on how Diavik decides when to collect behavioural data at distances greater than five km from the mine.</p> <p>Diavik should analyze caribou behavioural data from Diavik and Ekati Mines from 2012 to 2016. This type of analysis is important for guiding caribou management and mitigation actions at the Diavik mine. Diavik should consider use of non-parametric analytical techniques. Diavik should include a discussion of limitations that might result from pooling data across years.</p>	<p>The methods used for caribou behaviour monitoring by Diavik are reported in the WMP annually including results. Ekati mine does the same. The most recent analyses of these data were reported in 2011 (Golder 2011b). The summary on numbers of caribou in behaviour observations noted by EMAB suggests EMAB is unfamiliar with caribou behaviour monitoring methods after 16 years of reviewing reports. The sampling unit of this monitoring program is a caribou group (i.e., the number of groups reflects the sample size) and not the number of individual caribou.</p> <p>Since 2010, Ekati has observed 7 groups of caribou and collected group behaviour data. In combination with the number of observations by DDMI, there remains insufficient data to complete analyses similar to that in previous comprehensive analysis reports.</p> <p>DDMI will continue to collect caribou behaviour monitoring data when caribou are present in the study area during post-calving to autumn periods because this is when cows with calves are most sensitive to effects of disturbance. Annual variation in observations is an index of caribou abundance in the RSA.</p> <p>There have been too few observations of caribou behaviour to generate confident conclusions from results.</p> <p>Analytical methods used are appropriate for these data and consistent with the scientific literature (e.g., Duquette and Klein 1987). DDMI has already responded to questions about pooling data across years (Golder 2011c).</p> <p>DDMI will consider including a power analysis to determine required sample sizes in the next WMP report.</p>
<p>Given that analyses of change in behaviour with distance are still planned for the future, we re-state, for the record, that analyses of data should address the following: Justify any pooling of data across years, or use year as a variable in the analysis, and identify what, if any, assumptions were made. Reconcile behavioural observations with the occurrence of caribou: does behaviour change with distance as occurrence does, i.e., is behaviour “normalized” past the zone of influence of 14 km? Why is there the same effect before Diavik was built (given that the years 1998/99 show the same ZOI “effect” as the years after the Mine was built)? How can the information gained from the various caribou analyses be used to adjust or develop mitigation measures if there is a larger than predicted effect of the Mine on caribou?</p>		<p>DDMI has responded to these comments previously (Golder 2016).</p>

MSES Comment	EMAB Recommendation	Diavik Response
<p>The data presented in Table 2.1-2 of the WCAR does not seem to match the data discussed in the 2016 WMR (e.g., 2016 southern migration: 1 west, 1 east (WCAR, Table 2.1-2); 9 west, 1 east (WMR, Section 3.4.2)). Please explain why the data are different and how this influences the results presented. The last three years of collar data (as per the WMRs) indicate a departure from predictions for the southern migration. While it appears that over the majority of sampled years that the southern migration prediction is supported, how many consecutive years without support for the prediction are necessary to trigger adaptive management?</p>	<p>Diavik should re-do its analysis of the southern migration of caribou using collar information up to the end of November, to take into account changes in migration timing. Diavik should discuss why some caribou are not following the predicted southern migration, including a large majority in the last 6 years; EMAB's review indicates that since 2011, 48 collared caribou went west during the southern migration while two went east. Diavik should also discuss potential response actions to the departure from the prediction regarding the southern migration of caribou and changes to the timing of migration.</p>	<p>For the purpose of consistency with previous deflection analyses, the southern migration was defined from 1 July to 31 October annually (WCAR Section 2.1.5; WMP Section 3.4.1). For the purpose of the movement maps provided in the WMP, the results included data from 1 July to 30 November. Additional time has been included for mapping purposes since 2014 because most collared caribou remain north of the Lac de Gras region until late-October to November during the decline phase of this herd. Had the collar data through 30 November been included in the WCAR, the EER predictions would have still been supported.</p> <p>The results of the deflection analysis show that east-west movements of caribou vary through time but conform to the predictions of the EER; there is no need for adaptive management because there is no permanent fragmentation effect of the Bathurst caribou herd (i.e., caribou have moved as predicted in subsequent years and the population remains connected). This conclusion is also supported by the results of Virgl et al. (2017), which indicate seasonal range fidelity is high from year to year based on Bathurst collar data.</p> <p>DDMI will consider completing the suggested deflection analysis in the next WMP report.</p>
<p>Monitoring data has demonstrated that for the past 3 years at least, the prediction for the southern migration was not accurate. Therefore, one might conclude that the mitigation measures in place to manage impacts on caribou migration are not as effective as anticipated. An adaptive management process would identify and implement new mitigation measures to manage project impacts. As such, we request that DDMI discuss their adaptive management process and their response action in light of this unanticipated, potential effect of the Project.</p>		<p>Please refer to the results reported for 2014, 2015 and 2016 WMP's, which indicate that most collared caribou moved east of Lac de Gras from 1 July to 30 November. This supports the EER prediction. Note migration maps do not show all collar-paths because of the large seasonal range scale. When the migration period is restricted to 31 October, most collared caribou during recent years have not encountered the Lac de Gras region due to post-calving and autumn range contraction and delayed movement to below the treeline by the Bathurst caribou herd, which is a natural phenomenon during a decline phase (Virgl et al. 2017).</p>
<p>We reiterate our previous recommendations that, given the increase in grizzly bear incidental observations near the Mine over time, DDMI should increase vigilance and future years of data collection should be used to evaluate whether the current deterrent system is effective at reducing grizzly bear presence near the Mine. DDMI should discuss their adaptive management process and their response action in the case that the current deterrent system is found to be ineffective.</p>	<p>Diavik should include a discussion of the possibility that grizzly bears may be becoming habituated and their presence on site may be on the rise.</p>	<p>DDMI has responded to this previously (Golder 2016).</p>
<p>Decisions regarding program frequency were anticipated to be determined collaboratively during wildlife monitoring workshops hosted by ENR in 2016; however, decisions are now expected upon completion of the 2014 data summary analysis report from ENR. ENR should indicate when they expect to complete the 2014 wolverine hair snagging data analysis. If more data collection and analysis is not anticipated for 2017, DDMI should describe alternative plans for evaluating wolverine abundance in the study area.</p>	<p>Diavik should describe alternative plans for evaluating wolverine abundance in the study area as per their WMP objective if they are not anticipating the analysis of the wolverine hair-snagging program to be complete in 2017.</p>	<p>DDMI is not aware when ENR will complete analyses of wolverine hair snagging data.</p> <p>DDMI monitors relative presence and distribution of wolverine using the snow track monitoring program. The 2014 WMP report demonstrated that annual measures of presence from the snow track program correspond with measures of abundance from the hair snagging program. This indicates that results of the snow track program can be used as an index of broad changes in wolverine abundance.</p>
<p>There may be opportunities for more systematic site surveys/checks for wolverines and waste management to mitigate instances of wolverines in waste bins. For instance, could waste collection bin checks be included in already scheduled waste inspections at the Waste Transfer Area (WTA) and Landfill?</p>		<p>Thank you for the recommendation. DDMI currently includes waste bin checks (although not reported) as part of waste bin inspections of the WTA and landfill.</p>
<p>Given that there have only been five wolverine mortalities reported since 2000, there appears to be support for the prediction that mining related mortalities are not expected to alter wolverine population parameters in the Lac de Gras area. However, it is not clear precisely how this prediction is being tested as there has been little information provided on wolverine population parameters over time in the WMRs. We recommend DDMI elaborate on how they are testing this particular prediction given the absence of data on population size.</p>		<p>Mortality is a population parameter and direct mine-related mortalities are annually reported. As noted by MSES, there is monitoring evidence to support that the mine-related mortality rate has been low. Results of wolverine snow track monitoring through 2016 suggest that wolverine presence (an index of abundance) in the study area may be increasing. This also supports the prediction of the EER.</p>

MSES Comment	EMAB Recommendation	Diavik Response
While the overall effect of waste management appears to be positive (fox numbers at the WTA are lower than previous years), the new A21 Area appears to be attracting higher numbers of wolverine and fox. Furthermore, there seems to be an increasing trend in the number of grizzly bear observations and wolverine probability of occurrence over time. We commend DDMI for its efforts which probably led to the low attraction effect on wildlife in the past and concur with their commitment to carry out employee education programs related to waste handling to decrease misdirected waste. DDMI should explore the reasons for the higher levels of misdirected food waste in the A21 Area as this may be contributing to wildlife (particularly wolverine) presence and possible habituation near the Mine site.	Diavik should explore the reasons for higher levels of misdirected food waste in the A21 Area as this may be contributing to wildlife (particularly wolverine) presence and possible habituation near the Mine site.	DDMI reviews the results of monitoring as part of the adaptive management process. DDMI remains committed to carrying out employee education programs related to waste handling.
	Diavik should explain how it will include Beverly/Ahiak caribou in its caribou monitoring program.	Mitigation used at the Diavik mine is designed to protect barren-ground caribou. The WMP is designed to monitor barren-ground caribou and is not herd-specific. Observations of caribou believed to be from the Beverly/Ahiak herd were reported in the 2016 WMP.
	Diavik should discuss adaptive management actions regarding changes to caribou migration patterns as this indicates a potential mine-related effect.	DDMI has responded to this previously (Golder 2016).
	Dustfall could be falling out onto vegetation that caribou eat. Diavik should analyze how much caribou forage area has been lost due to dustfall.	This was not included in the 15 recommendations provided by EMAB on 23 August 2016. DDMI will consider addressing this request in the next WMP report.

Table 2: Comments by the Department of Environment and Natural Resources on the 2017 Wildlife Comprehensive Analysis Report

ENR Comment	DDMI Response
To paraphrase key points in the technical review, IER suggested that the caribou density analysis was inappropriate for drawing conclusions on the ZOI for several reasons including that: A) It did not account for the influence of habitat or population change on caribou density survey segments. B) It used density as a response variable in the absence of including other variables that could affect density in the model. C) The authors were seeking a response in density at the discrete distance of 14 km when ZOI has been generally considered to be a gradient of change in caribou selection. D) The authors used simple linear regression which can test for linear relationships but is not appropriate for detecting thresholds. E) The authors misinterpreted several aspects of the Boulanger et al. 2012 analysis.	A and B) The approach used was to answer a simple question proposed by the Environmental Monitoring Advisory Board (EMAB) about caribou abundance at 14 km. C and D) The approach used was appropriate for providing an answer to the question posed by EMAB. The zone of influence (ZOI) threshold represents the maximum spatial extent of an indirect effect by the mines and should be comparable at distances closer to the mines. The comparison completed in Golder (2017) considers the maximum expected difference. E) We agree that some aspects of Boulanger et al. (2012) were misinterpreted based on new information provided by Boulanger et al. (2017).
ENR agrees with Integrated Ecological Research's conclusion that the approach was unlikely to detect a ZOI and is not a robust test of whether there is a ZOI around the mines or what the size and magnitude of that ZOI might be. ENR will not be making any substantive changes to its use of the concept of ZOI in environmental assessment or range planning on the basis of this analysis.	The analysis completed was not designed to detect a ZOI threshold but to describe abundance at the ZOI threshold estimated by Boulanger et al. (2012). The analysis was appropriate to answer the question proposed by EMAB.
Until substantive, peer reviewed analyses can provide more appropriate estimates of ZOI or insights into the variable nature of ZOI around the mine(s), ENR will continue to work with the Boulanger et al. (2012) estimate in reference to measured indirect impacts of the mines on caribou in environmental assessment and range planning.	No response is required.
DDMI continue to have its consultants participate in the ZOI Technical Task Group (ZOI TTG).	DDMI does not have representation on the ZOI Technical Task Group (ZOI TTG) and will consider doing so in the future.
The ZOI TTG discuss and include a section on analytical approaches to ZOI estimation for inclusion in the draft guidance document for monitoring the ZOI, the finalization of which will be discussed in an upcoming ZOI TTG meeting 13 October 2017.	No response is required.
ENR recommends that DDMI/its consultants re-do analysis of the aerial survey data to include habitat variables and other factors that can influence density (population status, etc.) and use of an analytical technique that can accommodate non-linear relationships in accordance with outcomes of ZOI TTG discussions.	DDMI agrees that it is important to consider habitat variables and other factors (e.g., population size) that can influence density. A new analysis that considers habitat and population size, among other factors, is underway and will be reported when complete. Of minor technical note is that the approach proposed by the ZOI TTG guidelines is a two-part linear model, which is different than a non-linear model.
ENR also recommends that, given that DDMI has clearly compiled activity level data for inclusion in the comprehensive report, that DDMI consider ways to include activity levels at Diavik mine (including both FTE's and waste rock production) into future ZOI analyses.	DDMI has included its full-time-equivalents (FTE) values as indices of mine activity as part of wildlife analyses since 2010 (Golder 2011b, 2014, 2017).

Table 3: Comments by the Boulanger et al. (2017) on the 2017 Wildlife Comprehensive Analysis Report

Boulanger et al. (2017) Comment	DDMI Response
<p>1. The analysis does not account for the influence of habitat or change in population size on density of aerial survey segments and therefore cannot estimate a zone of influence. The density of caribou in any aerial survey segment cell will depend on habitat suitability within any segment. These associations were modelled as part of previous ZOI analyses including those conducted by Golder (Johnson et al. 2005, Golder 2008, Boulanger et al. 2012, Boulanger 2015). In addition, during the time that surveys occurred (1996 to 2012) the Bathurst caribou herd, as indexed by estimates of breeding females, declined from 151,393 to 15,935 caribou (Boulanger et al. 2016) which affected the relative number of segments with caribou present as well as the density of caribou in segments. The issue here is that the Golder analysis does not consider any habitat or population trend factors (beyond removing water habitat from cell areas) and only includes distance from mine as a predictor variable in the simple linear regression model. In other words, the Golder model assumes that distance from mine site is the only factor influencing caribou density in aerial survey segments. By not accounting for any of the habitat and demographic factors influencing density, the analysis lacks any resolution to detect or estimate a ZOI around the mine areas.</p>	<p>The approach used was to answer a simple question proposed by EMAB about caribou abundance at the 14 km ZOI occurrence threshold estimated by Boulanger et al. (2012). The approach used was appropriate for providing an answer to the question posed by EMAB.</p>
<p>2. The prediction of higher densities of caribou at 14 km as a test of zone of influence is problematic. One of the original rationale for this analysis was a study of boreal caribou that predicted higher densities of caribou at ZOI boundaries (Fortin et al. 2013). We dispute whether this analysis provides a true test of the extent of ZOI as estimated by Boulanger et al. (2012). First, as mentioned previously, the Golder (2017) analysis lacks a base model to describe variation in density based on habitat, which is an integral part of the Fortin et al. (2013) analysis. Second, the ZOI relationship as estimated by Boulanger et al. (2012) describes a gradient of habitat selection as opposed to a discrete boundary or edge (such as clear cuts in the Fortin et al. 2013 analysis). Given this, it is unlikely that an abrupt change in density at the 14 km boundary would occur or would be detectable.</p>	<p>Golder (2017) does not cite Fortin et al. (2013). The approach used was to answer a simple question proposed by EMAB about caribou abundance at the 14 km ZOI occurrence threshold estimated by Boulanger et al. (2012). The approach used was appropriate to provide an answer to this question.</p> <p>A key assumption of the occurrence approach is that occurrence reflects habitat selection and that detected effects are ecologically meaningful to barren-ground caribou. If a change in occurrence (or habitat selection) between its minima (next to mine) and maxima (threshold distance) are likely not detectable on the ecological scale (e.g., abundance) then it would imply that there is no ecological effect. The results of Golder (2017) indicate that the difference in caribou density next to mines (i.e., the minima) and the ZOI threshold of 14 km (i.e., the maxima) is approximately 0.5 caribou per km².</p>
<p>3. Density as opposed to presence/not detected as the response (y-axis) variable is problematic in that more factors than just habitat selection (or the effect of the mines) will affect density. Caribou are gregarious and caribou in a given group are not likely independent of each other as discussed in Boulanger et al. (2012). In other words, a larger group size might not really reflect higher habitat quality or greater selection for a given habitat patch/aerial survey segment. For example, caribou aggregate into large groups to escape insect harassment, which is one method in which herd size is estimated (Rivest et al. 1998). In this case, the density of caribou does not depend at all on habitat or distance to mine and in this context using density as the response variable is potentially misleading and adds additional variance to the analysis. If density is to be used, then the statistical model should contain terms to describe factors that cause variation in density. Failure to do this blurs the relationship between density and distance from mine therefore reducing the ability to detect a change in density (as a function of distance from mine).</p>	<p>The variables of caribou occurrence (present/not present) and density are related. For example, the same number of survey segments where density equals zero will also indicate not present. The ability of caribou to be observed during an aerial survey will be a function of their abundance within the visible area (among factors such as topography, animal movement/or not, light conditions). Adjacent transect segment values for either presence or absence will be related to the density of caribou. Hence the same factors that influence caribou density will also influence presence and absence.</p> <p>Caribou have been observed aggregating in large density to escape insect harassment (Rivest et al. 1998; Burch 2012). We expect where these large aggregations occur is at least partly a function of habitat that maximizes relief from swarming insects. Large aggregations appear to be restricted temporally from late June to mid-July during mosquito emergence (Burch 2012). The extent of aerial surveys completed by the Ekati and Diavik mines during post-calving ranges from July to November, so only part of the data would possibly reflect this source of variation, which would also influence the presence-absence coding of aerial survey results. The relative influence of large aggregations can be evaluated by stratifying survey results by month to see if there is a declining density trend within years.</p> <p>A new analysis that considers habitat and population size, among other factors, is underway and will be reported when complete.</p>
<p>4. The simple linear regression model used in the Golder analysis is not estimating or testing a threshold at 14 km or any other interval. The previously mentioned concerns make it highly unlikely that the Golder analysis can discern or detect a change in density. However, beyond these issues, the linear regression model assumes that density changes linearly with distance from mine across the entire range of distances from mine; therefore, it cannot detect a threshold. Previous analyses have used non-linear regression models (Golder 2008), segmented regression models (Boulanger et al. 2012) or generalized additive models (Fortin et al. 2013) that estimate a threshold rather than assuming a linear increase.</p>	<p>Please see previous response about the analysis objective.</p>
<p>5. Using mean yearly densities of caribou in segments further reduces the ability of the analysis to detect changes in density. Unlike previous ZOI analyses, the Golder analysis uses mean density over an entire year for each segment as the response (y-axis) variable. This reduces sample size and masks likely seasonal variation in the use of habitat around the mine area.</p>	<p>The Golder (2017) report statement that "annual mean density for each segment was used to describe the distribution of caribou densities across space and time, and compared to the density predicted at 14 km" is incorrect. Golder (2017) did not use year estimates but the full range of data at the segment-level in the caribou density analysis. Figure 2.1-1 shows the sample size of 142,418 considered in the analysis, which for obvious reasons, cannot reflect the annual scale.</p>

Boulanger et al. (2017) Comment	DDMI Response
<p>6. The Golder report misinterprets various aspects of the ZOI analysis of Boulanger et al. (2012). The assertion that Boulanger et al. (2012) “defines presence as caribou detected at least once during any of the repeated surveys in a given year” (Golder 2017a:11) is incorrect. Boulanger et al. (2012) used detection/not detected in individual segments in each survey conducted as the sample unit, as opposed to pooling data for a year. No pooling of data across years occurs in the Boulanger et al. (2012) analysis.</p>	<p>We agree that Golder (2017) misinterpreted some aspects of the Boulanger et al. (2012) analytical approach. However, our misinterpretation was based on that Boulanger et al. (2012) did not report the sample size used in their analysis or provide the degrees freedom of their “mine phase” or “pooled” models (see Boulanger et al. (2012); Table 2), which would have provided insights into how the data were structured for their analyses. As well, the assumption of detection probability was qualitatively assessed even though a Mackenzie et al. (2006) occupancy parameterization could have been used with repeated measures of survey segments to estimate detection probability for empirical evaluation.</p> <p>Table 2 in Boulanger et al. (2012) refers to a “pooled” model in comparison to results for different periods of years (a mine phase model), which would suggest that the “pooled” model did pool data across years (i.e., no temporal effect assumed).</p>
<p>7. The assertion that the probability of detecting caribou in segments depends on the relative number of segments at different distances from mine is incorrect. The probability of detection of caribou in any segment has no relationship with the number of segments at different distances from mine as suggested by Golder (2017:11). The transect segment (which is nested within the transect) is the sample unit for the analysis and therefore the ZOI regression model considers the distribution of segments as a function of distance from mine and accounts for the fact that there will be lower sample sizes of segments at closer distances from the mine. The distribution of segments will influence the power to detect a ZOI but it will not influence or bias the ZOI analysis/estimate.</p>	<p>The approach to evaluating a change in caribou distribution with proximity to development relies on a measure of distance to sampling units of aerial survey segments. The number of segments representing different distances is known to increase with distance from the mines for the post-2006 aerial survey designs. Golder demonstrated this in a presentation at the 2013 Wildlife Monitoring Workshop hosted by ENR. The number of times a distance is sampled is representative of survey effort at a given distance and Golder (2011) has shown in Diavik’s wolverine snow track data that probability of occurrence significantly increases with greater survey effort. Other studies on caribou have recognized this problem and accounted for it (e.g., Weir et al. 2007). The same principle applies to aerial survey effort for caribou in the Diavik-Ekati study area. While the relative difference in survey effort across sampled distances is constant, the absolute difference in survey effort across sampled distances increases each time the aerial survey is repeated. Thus, the amount of time spent surveying for caribou at further distances will be exacerbated when the aerial survey is repeated numerous times.</p> <p>To account for varying survey effort would require an index of survey effort to be explicitly modeled as was done in Golder (2011) and as suggested in the reviewers’ comment #1 to Diavik to account for natural factors on caribou density. We recommend further clarification or illustration be provided in the ZOI TTG guidance document on how nesting segments within survey transects accounts for unbalanced sample sizes across the distribution of distances measured at the segment level.</p> <p>If there is lower power to detect a threshold at close distances to the mines, then it can influence where a ZOI threshold is estimated.</p>

CLOSURE

We trust that the above proposed responses meet your needs. If you have any questions, please contact Dan directly at 867-445-9112.

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Principal, Senior Ecologist

DWC/JK/JAV/cr/ah

\\golder.gds\galburnaby\final\2017\3 proj\1771843 ddm_2017_environmental projects\1771843-1612-tm-rev1-5000\1771843-1612-tm-rev1-5000-response to mses_wmp, wcar, and enr comments 11dec_17.docx

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APPENDIX K

**Wildlife Deterrent Action Incident
Reports, 2017**



Wildlife Report - 2017

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

Grizzly Bear - 2017-05-09 - PKC

Document No.

WildlifeReport000178

09 May 2017

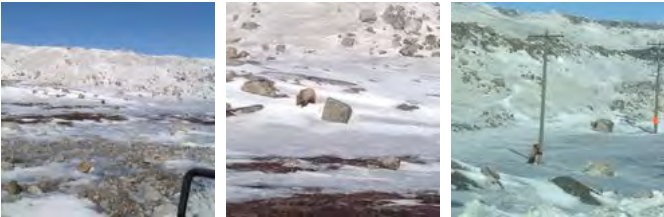
Completed on

12 May 2017



Score

3/441.0 - 0.68%

Audit - 3/441 0.68%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (2/440) 0.46%	
Enter Initial Time of Wildlife Sighting	09 May 2017 09:00 AM	
Department/Individual Who Reported Wildlife:	PKC	
Environment On Scene		
Environment at Call-out Location	09 May 2017 09:22 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Light brown with dark legs, potentially problem bear	
Photo (If Possible):		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 </div>		
Chronological Events		
	<p>900 receive call about bear at PKC 0920 ENV on site, no visual of bear, bear alert issued 950 visual of bear near California, dug up the snow and is eating something 0951 HORN, no response 0954 bear cleaning itself 1005 updated bear alert 1025 rubbing on power pole 1040 bear ran up PKC wall, used TRUCK to move back down wall 1047 bear laying down on PKC rock wall 1100 bear sleeping on tundra between test piles and PKC 1150 bear still sleeping on tundra between test piles and PKC 2230 call about bear siting in the test piles area</p>	

WildlifeReport000178
 Grizzly Bear - 2017-05-09 - PKC
 Score (3/441) 0.68%

Question	Response	Details	
Movement Map (Import NotePlus Site Map)  Appendix 4			
Deterrent Count		Score (2/440) 0.46%	
Truck	1		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	1		
Specify	truck horn		
Environment Off Scene			
End of Environment Call-out	09 May 2017 10:34 PM		
Final Location of Wildlife	Tundra between test piles and PKC		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Shelby Skinner		

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4



Wildlife Report - 2017

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

Grizzly - 2017-05-10 - WTA

Document No.

WildlifeReport000179

10 May 2017

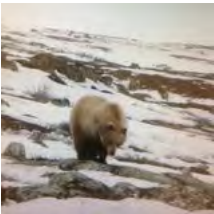
Completed on


12 May 2017

Score

11/441.0 - 2.49%

Audit - 11/441 2.49%

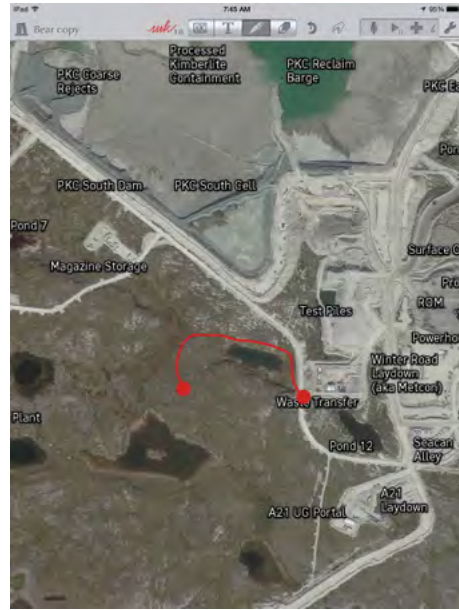
Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (10/440) 2.27%	
Enter Initial Time of Wildlife Sighting	10 May 2017 12:00 PM	
Department/Individual Who Reported Wildlife:		
Environment On Scene		
Environment at Call-out Location	10 May 2017 12:10 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Light brown body, dark legs, bear denning on island	
Photo (If Possible):		
		
Appendix 1		
Chronological Events		
	<p>1150 ENV receives call from WTA ABOUT BEAR AT GATE 1200 issue bear alert 1210 ENV on scene no visual 1230 bear spotted on tundra opposite side of AN road as WTA 1245 release 3 BEAR BANGERS, stood up after first one, no reaction to second and ran on third 1301 SCREAMER, just looked at me 13:40Kyla took over - shelby to heli pad to attempt to move bear with heli. 14:30 bear still in general area 16:00 move with heli called off due to fog, ENV loses visual and leaves.</p>	

Question	Response	Details
Movement Map (Import NotePlus Site Map)  Appendix 2		
Deterrent Count		Score (10/440) 2.27%
Truck	6	
Air Horn	0	
C/F Bear Banger	3	
C/F Pen Whistle	1	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	10 May 2017 04:00 PM	
Final Location of Wildlife	Between AN road and emulsion plant	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Kyla Gray	

Media



Appendix 1



Appendix 2



Wildlife Report - 2017

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

Grizzly - 2017-05-12 - Test piles

Document No.

WildlifeReport000181

12 May 2017


Completed on


14 May 2017

Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

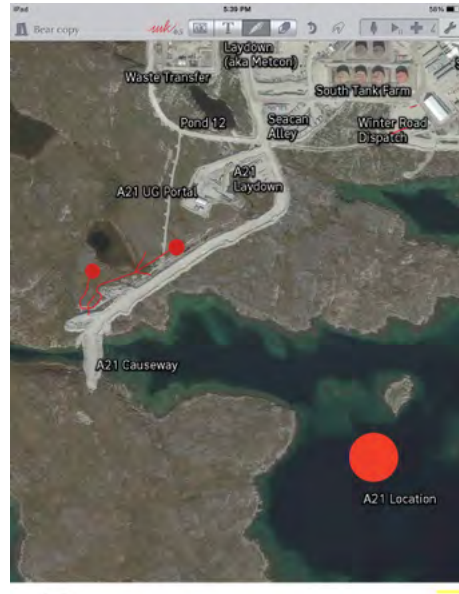
Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (1/440) 0.23%	
Enter Initial Time of Wildlife Sighting	12 May 2017 08:35 AM	
Department/Individual Who Reported Wildlife:	Nuna	
Environment On Scene		
Environment at Call-out Location	12 May 2017 09:41 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Light brown body, dark legs, problem bear	
Photo (If Possible):		
		
Appendix 1		
Chronological Events		
	0836 ENV receives call from Nuna with bear in test piles area 08:41 ENV on scene, no visual 0900 bear spotted on tundra near orange candles, old test piles road 0915 rubbing chin on candle 1330 call about bear heading to A21, update bear alert 1345 ENV on scene no visual 1530 call about bear near radio change sign on haul road 1600 used TRUCK to push bear back on tundra 1718 bear moving W towards AN road 1730 ENV left bear on tundra on the S side of A21 haul road	

Question		Response	Details
Movement Map (Import NotePlus Site Map)			
 <p>Appendix 2</p>			
Deterrent Count			Score (1/440) 0.23%
Truck	1		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	12 May 2017 05:30 PM		
Final Location of Wildlife	West side of A21 haul road		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Shelby Skinner		

Media



Appendix 1



Appendix 2



Wildlife Report - 2017

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

Grizzly - 2017-05-13 - Zone 1 A21

Document No.

WildlifeReport000182

13 May 2017

Completed on


14 May 2017

Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (1/440) 0.23%	
Enter Initial Time of Wildlife Sighting	13 May 2017 08:00 AM	
Department/Individual Who Reported Wildlife:	Greg/Nuna	
Environment On Scene		
Environment at Call-out Location	13 May 2017 08:20 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Light brown body, dark legs, problem bear	
Photo (If Possible):		
Chronological Events		
	<p>0800 received call about bear on ice near Nuna shop 0820 ENV on scene no visual 0822 bear spotted on W side of zone 1 0850 bear alert updated, left bear to attend sow and cub(s) 1000 returned and bear in same area 1500 call about bear near LV road intersection to A21, update bear alert 1515 call about bear near lunch shacks 1520 ENV on scene, bear went from zone 3 to cross LV road and onto the bay. Crossed bay onto tundra on E side of haul road. Moving N 1802 TRUCK used to keep bear on right of winter road approach 2000 bear called in at fuelling station at ROM by Huey from process plant, updated bear alert 2020 bear spotted on patch of tundra at the base of ROM across the haul road from pond 5 2030 bear climbed back up ROM rock pile 2130 no sign of bear for an hour, ENV off call</p>	

Question	Response	Details	
Movement Map (Import NotePlus Site Map)  Appendix 1			
Deterrent Count		Score (1/440) 0.23%	
Truck	1		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	13 May 2017 09:30 PM		
Final Location of Wildlife	Unknown		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Shelby Skinner		

Media



Appendix 1



Wildlife Report - 2017

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

Grizzly 2017-05-14 - Shallow Bays

Document No.

WildlifeReport000184

14 May 2017

Completed on

15 May 2017


Score

5/441.0 - 1.13%

Audit - 5/441 1.13%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (4/440) 0.91%
Enter Initial Time of Wildlife Sighting	14 May 2017 08:45 AM	
Department/Individual Who Reported Wildlife:	Site Services	
Environment On Scene		
Environment at Call-out Location		
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Light blonde body, dark brown legs, problem bear	
Photo (If Possible):		

Question	Response	Details
Chronological Events		
		<p>0845 call from site services bear crossing south haul road to shallow bays 0850 ENV has visual of bear 0930 threw ROCKS to keep bear from coming up veggie plot road 1009 bear playing with geese on S side of S winter road approach 1130 lost site of bear 1230 bear reported on S haul road near crusher 1240 bear rolling in waste from WTP, used TRUCK to push bear off till pile 1245 bear spotted by ENV at bottom of rock pile across from WTP 1307 use TRUCK to move bear into NI 14:00 bear near pipe line in NI 14:20 lost site do bear 14:40 bear spotted near NIWTP and cross onto till pile 14:50 bear climbing till pile 14:55 bear attempts to get into sludge on till pile, clicked gun and bear went to edge of till pile 15:00 lost sight of bear 15:15 bear spotted on. Side of till pile 15:20 bear spotted crossing AIRPORT ROAD 15:30 bear moving along black pipe toward airport 16:18 bear banger used (bear runs approx. 70 m) bear now moving north towards airport 16:35-bear at road that runs down to black pipe- truck used to push bear towards NI 1640- bear crosses NI and is now on airport side or NI 17:10- bear grazing on airport side of run way 18:00- heli pushing bear</p>
Movement Map (Import NotePlus Site Map)		
Deterrent Count		Score (4/440) 0.91%
Truck	1	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	1	
12GA Explosive	0	
12GA B.B. Marker	0	

Question	Response	Details	
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	1		
Other	1		
Specify	clicked gun		
Environment Off Scene			
End of Environment Call-out	14 May 2017 06:00 PM		
Final Location of Wildlife	East Island		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Shelby Skinner		



Wildlife Report - 2017

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

Grizzly -2017-05-20 - Airport

Document No.

WildlifeReport000185

20 May 2017


Completed on

21 May 2017


Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (1/440) 0.23%
Enter Initial Time of Wildlife Sighting	20 May 2017 08:50 AM	
Department/Individual Who Reported Wildlife:	Great Slave Heli - Mike	
Environment On Scene		
Environment at Call-out Location	20 May 2017 09:06 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Smaller Bear that denned on site	
Photo (If Possible):		
Chronological Events		
	<p>0850 the pilot called in the bear by the airport 0906 JG and DR arrived on scene. The bear was about 200m east of the fuel cache. We talked to the pilot and he offered to deter the bear with the helicopter. 0924 the helicopter has the bear on the north side of the runway, by the lake 0927 the bear is across the ice by the mainland north of the airport. ENV leaving the area</p>	
Movement Map (Import NotePlus Site Map)		
		
Appendix 1		
Deterrent Count		Score (1/440) 0.23%
Truck	0	
Air Horn	0	

WildlifeReport000185
 Grizzly -2017-05-20 - Airport
 Score (2/441) 0.45%

Question	Response	Details
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	1	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	20 May 2017 09:30 AM	
Final Location of Wildlife	On the mainland north of the airport	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	JG	

Media



Appendix 1



Wildlife Report - 2017

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

grizzly-2017-05-23 - south haul road

Document No.

WildlifeReport000186

23 May 2017


Completed on


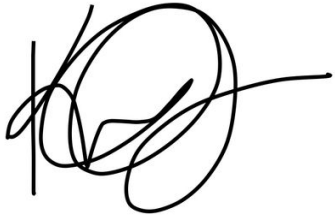
31 May 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

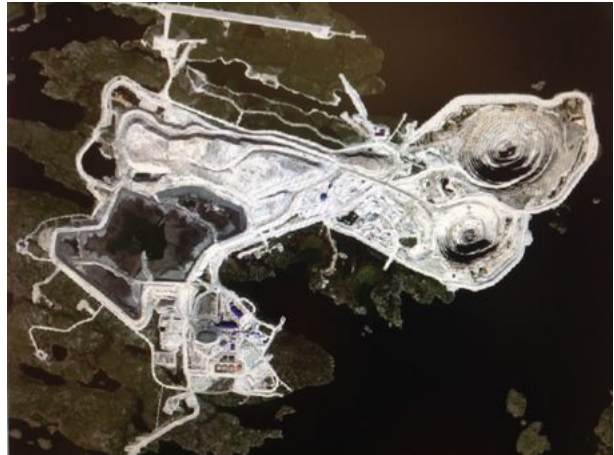
Question	Response	Details
Wildlife Report		
Type of Wildlife Report	General sighting / Other	
Report Type	Sighting	
General Wildlife Sighting		
Animal Type	Grizzly Bear	
Description of Individual / Activity (eg. number of individuals, colour, age, size, etc.)	Bear is believed to be individual that denned on island. Blonde coat with dark eyes	
Photo (If Possible)		
		
Appendix 1		
Enter Initial Time of Wildlife Sighting	23 May 2017 08:45 AM	
Department/Individual Who Reported Wildlife:	Brad, site services	
Environment On Scene		
Environment at Call-out Location	23 May 2017 08:55 AM	
Chronological Events		
	8:45: site service called in bear on south haul road near SCAP, environment issued all announce 0850: site service updated bear location to batch plant 0855: Envr on scene 0920: BANGER used. 0937 bear crossed dike access road heading east pushed with TRUCK, 0939 BANGER AND SCREAMER USED 1012: bear on lac de gas heading east	

Question	Response	Details	
Movement Map (Import NotePlus Site Map)  Appendix 2			
Environment Off Scene			
End of Environment Call-out	23 May 2017 10:22 AM		
Final Location of Wildlife	Lac de gas heading east		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Kyla Gray		

Media



Appendix 1



Appendix 2



Wildlife Report - 2017

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

Grizzly 2017-05-26

Document No.

WildlifeReport000040

26 May 2017

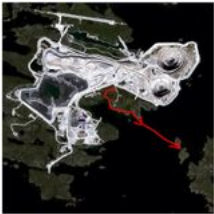
Completed on


03 Jun 2017

Score

5/441.0 - 1.13%

Audit - 5/441 1.13%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (4/440) 0.91%
Enter Initial Time of Wildlife Sighting	26 May 2017 06:30 AM	
Department/Individual Who Reported Wildlife:	Jimmy Larkin pit supervisor	
Environment On Scene		
Environment at Call-out Location	26 May 2017 06:50 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	1 light brown	
Photo (If Possible):		
Chronological Events		
	Bear spotted on NW side of shallow bays heading E. continued E along shore, headed to mainland across ice. No deterrents used.	
Movement Map (Import NotePlus Site Map)		
		
Appendix 1		
Deterrent Count		Score (4/440) 0.91%
Truck	2	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	

Question	Response	Details
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	2	
Specify	Action shotgun	
Environment Off Scene		
End of Environment Call-out	26 May 2017 08:20 AM	
Final Location of Wildlife	Mainland E of shallow bays	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Gordon Cumming	

Media



Appendix 1



Wildlife Report - 2017

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

Grizzly 2017-05-26

Document No.

WildlifeReport000040

26 May 2017

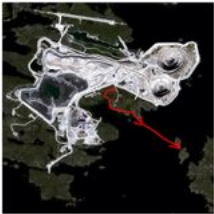
Completed on


26 May 2017

Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (1/440) 0.23%
Enter Initial Time of Wildlife Sighting	26 May 2017 06:30 AM	
Department/Individual Who Reported Wildlife:	Jimmy Larkin pit supervisor	
Environment On Scene		
Environment at Call-out Location	26 May 2017 06:50 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	1 light brown	
Photo (If Possible):		
Chronological Events		
	Bear spotted on NW side of shallow bays heading E. continued E along shore, headed to mainland across ice. No deterrents used.	
Movement Map (Import NotePlus Site Map)		
		
Appendix 1		
Deterrent Count		Score (1/440) 0.23%
Truck	1	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	

Question	Response	Details
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	26 May 2017 08:20 AM	
Final Location of Wildlife	Mainland E of shallow bays	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Gordon Cumming	

Media



Appendix 1



Wildlife Report - 2017

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

Grizzly - 2017-05-31 - WTA

Document No.

WildlifeReport000041

31 May 2017

Completed on



01 Jun 2017

Score

7/441.0 - 1.59%

Audit - 7/441 1.59%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (6/440) 1.36%	
Enter Initial Time of Wildlife Sighting	31 May 2017 10:40 AM	
Department/Individual Who Reported Wildlife:	Geotechnical/Dave?	
Environment On Scene		
Environment at Call-out Location	31 May 2017 11:03 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Problem bear	
Photo (If Possible):		
Chronological Events		
	<p>1045 ENV receives call from Geotech about bear near WTA, issue bear alert 1105 ENV on scene, bear has moved to tundra E of cross, grazing 1130 bear climbed up PKC rock wall, updated bear alert 1135 used TRUCK 3x to move bear back down rock pile 1149 bear resting on boulder at base of PKC rock pile 1200 clicked unloaded pen launcher, no response. Used AIRHORN 2x, lifted head 1213 BEAR BANGER fired, bear jumped off rock it was sitting on but did not move far 1247 updated bear alert, ENV out 1415 bear called in crossing S haul road towards ROM 1433 lost visual of bear on right side of S haul road on dirt patch amongst boulders</p>	

Question	Response	Details	
Movement Map (Import NotePlus Site Map)  Appendix 1			
Deterrent Count		Score (6/440) 1.36%	
Truck	3		
Air Horn	2		
C/F Bear Banger	1		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	31 May 2017 04:33 PM		
Final Location of Wildlife	North side of South haul road		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Shelby Skinner		

Media



Appendix 1



Wildlife Report - 2017

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

Grizzly - 2017-06-01 - Pond 5

Document No.

WildlifeReport000188

01 Jun 2017


Completed on

02 Jun 2017

Score

28/441.0 - 6.35%

Audit - 28/441 6.35%

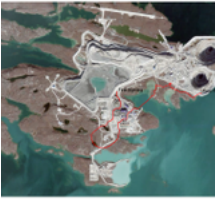
Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (27/440) 6.14%
Enter Initial Time of Wildlife Sighting	01 Jun 2017 06:24 AM	
Department/Individual Who Reported Wildlife:	Site services	
Environment On Scene		
Environment at Call-out Location	01 Jun 2017 06:52 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blonde, brown streak down back, dark legs	
Photo (If Possible):		
		
Appendix 1		

Question	Response	Details
Chronological Events		
		<p>0620 receive call of bear in Pond 1 0630 correction bear in Pond 5 0650 ENV has visual of bear in Pond 5 0656 used rocks, little to no reaction from bear 0701 used AIR HORN moved bear 10 meters 0709 fox approached bear and startled bear, fox stalking bear 0758 bear chased fox up to tundra above pond 5, lost visual 1000 no visual of bear, ENV off site 1345 bear reported on haul road on plant floor, when ENV on scene bear was on rock wall behind Tli'Cho lineup, crossed ROM LV road, and into ROM 1400 bear went down ROM rock wall into Metcon, bear alert updated 1415 bear crossed South haul road towards WTA 1440 fired BEAR BANGER, no reaction to trucks driving by 1519 fired BEAR BANGER 1540 bear crossed AN road and heading S, ENV. out 1600 bear seen being chased by fox towards A21 1607 fired BEAR BANGER, bear heading S, ENV out 1707 bear reported NW of A21 haul road on the tundra, updated bear alert 1735 bear spotted on tundra east of A21 haul road, environment dispatched 1800 Environment finds bear crossing road at Fuel Tanks, Heading in direction of power plants. Followed with truck, attempting to get on north side of bear and push him south, but bear crossed berm into ditch and continued towards powerplants. 1803 Bear passes between tank farms and powerplants and heads NW under the arctic corridor, past the white warehouse to the shallow bays. 1830 Bear crosses to north side of shallow bays, heading towards veg plots road 1850 environment heads to veg plots, drives towards bear, then stops to shoot bear banger. Bear starts moving east 1900 Bear attempts to cross highway, environment able to cut it off with the truck and persuade it back south of haul road. 1910 Bear crosses survey road, Explosive shot towards bear. Bear continues East nonchalantly 1920 monitoring bear meandering east. 1940 bear crosses A418 Dike, heading north into fish habitat. Environment shoots 12 gauge banger while bear is in fish habitat, unable to move bear. Continue monitoring, attempting to persuade bear out of pit area. 2010 environment satisfied bear is stationary in fish habitat, environment leaves area.</p>

WildlifeReport000188

Grizzly - 2017-06-01 - Pond 5

Score (28/441) 6.35%

Question		Response	Details
Movement Map (Import NotePlus Site Map)			
			
Appendix 2			
Deterrent Count			Score (27/440) 6.14%
Truck			10
Air Horn			1
C/F Bear Banger			4
C/F Pen Whistle			0
12GA Bear Banger			1
12GA Explosive			1
12GA B.B. Marker			0
12GA Rubber Bullet			0
12GA Slug			0
Helicopter			0
Other			10
Specify			rocks
Environment Off Scene			
End of Environment Call-out			01 Jun 2017 08:00 PM
Final Location of Wildlife			Fish habitat on south side of A418 pit
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete			On
Signature	Shelby Skinner		

Media



Appendix 1



Appendix 2



Wildlife Report - 2017

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

Grizzly - 2017-06-02 - Backfill Crusher

Document No.

WildlifeReport000189

02 Jun 2017

Completed on



03 Jun 2017

Score

3/441.0 - 0.68%

Audit - 3/441 0.68%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (2/440) 0.46%	
Enter Initial Time of Wildlife Sighting	02 Jun 2017 07:13 AM	
Department/Individual Who Reported Wildlife:	Site Services/Ken	
Environment On Scene		
Environment at Call-out Location	02 Jun 2017 06:00 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Same resident bear. Blonde, with dark feet and lower legs, with a brown patch down his back.	
Photo (If Possible):		
Chronological Events		
	<p>0700 bear called in in A418 at DPS 6, issued bear alert 1030 bear reported on tundra E of Backfill Plant 1200 bear reported on tundra E of UG 1800 bear reported crossing North Haul Road from Backfill to SCAP warehouse, ENV on scene no visual 1810 bear seen crossing N haul road from Backfill to pond 13 1815 bear tried to cross haul road but I used TRUCK to keep bear in Pond 13 1830 bear grazing in Pond 13 1845 bear crossed UG haul road and went down to Veggie plots 1900 used BEAR BANGER, little to no reaction from bear 1945 bear crossed N haul road into Pond 1 2130 updated bear alert, left bear sleeping on PKC rockwall above Pond 1</p>	

Question		Response	Details
Movement Map (Import NotePlus Site Map)			
			
Appendix 1			
Deterrent Count			Score (2/440) 0.46%
Truck	1		
Air Horn	0		
C/F Bear Banger	1		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	02 Jun 2017 09:31 PM		
Final Location of Wildlife	PKC rockwall near N haul road, above Pond 11		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Shelby Skinner		

Media



Appendix 1



Wildlife Report - 2017

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

Grizzly - 2017-06-03 - Backfill

Document No.

WildlifeReport000190

03 Jun 2017

Completed on


03 Jun 2017

Score

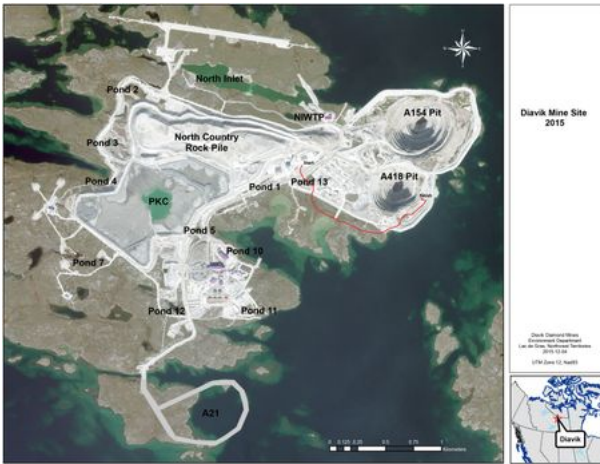
7/441.0 - 1.59%

Audit - 7/441 1.59%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (6/440) 1.36%	
Enter Initial Time of Wildlife Sighting	03 Jun 2017 05:25 AM	
Department/Individual Who Reported Wildlife:	Paul/Running Repair	
Environment On Scene		
Environment at Call-out Location	03 Jun 2017 05:59 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blonde, brown strip down back, dark legs, bear that denned on island	
Photo (If Possible):		
Chronological Events		
	<p>0525 ENV received call from security of bear at White Sprung at Backfill Plant, issue bear alert</p> <p>0545 Paul called and said bear had crossed S haul road and is now grazing in Pond 13</p> <p>0559 ENV has visual of bear</p> <p>0700 bear climbed up to main portal pad, came out near portal road and crossed haul road onto tundra in E Shallow Bays</p> <p>0750 bear tried to cross haul road, used TRUCK 2x to keep off road</p> <p>0800 bear went into E Bay to avoid N winter road approach</p> <p>0915 GC arrives in second truck to take over for SS2. Fires bear banger. Bear crosses road into fish habitat of A418</p> <p>0930 bear foraging in fish habitat, bangers fired 3X trying to move it, did not care.</p> <p>1015 bear moves E long dike roads</p> <p>1025 bear poops</p> <p>1030 bear lays down for a rest in the sun.</p> <p>1130 last sighting of bear, still resting. Environment leaves scene</p>	

Question	Response	Details	
Movement Map (Import NotePlus Site Map)  Appendix 1			
Deterrent Count		Score (6/440) 1.36%	
Truck	2		
Air Horn	0		
C/F Bear Banger	4		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	03 Jun 2017 11:30 AM		
Final Location of Wildlife	Sleeping on a hill NE of A418 Fish Habitat between Pit and Dike		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Gordon Cumming		

Media



Appendix 1



Wildlife Report - 2017

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

Grizzly - 2017-06-05 - WTA

Document No.

WildlifeReport000042

05 Jun 2017


Completed on


06 Jun 2017

Score

3/441.0 - 0.68%

Audit - 3/441 0.68%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (2/440) 0.46%	
Enter Initial Time of Wildlife Sighting	05 Jun 2017 09:00 PM	
Department/Individual Who Reported Wildlife:	Site Services Dan	
Environment On Scene		
Environment at Call-out Location	05 Jun 2017 09:26 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blonde, dark brown stripe down back and legs	
Photo (If Possible):		
Chronological Events		
	2100 call from Dan of bear at gates to WTA, issue bear alert 2120 call from Paul running repair of bear walking down ROM road and into Pond 5 2126 ENV has visual of bear in Pond 5 2130 bear crossed road to Shallow Bays, used TRUCK 2140 bear crossed road into Pond 11 2146 bear crossed road back into Shallow Bays 2231 bear crossed 418 Dike into fish habitat, use TRUCK 2257 ENV left bear in fish habitat near DPS well 6, updated bear alert	
Movement Map (Import NotePlus Site Map)		
		
Appendix 1		

Question	Response	Details
Deterrent Count		Score (2/440) 0.46%
Truck	2	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	05 Jun 2017 11:00 PM	
Final Location of Wildlife	Fish habitat near DPS6	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Shelby Skinner	

Media



Appendix 1



Wildlife Report - 2017

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

Grizzly 2017-06-11 A21 Dike

Document No.

WildlifeReport000191

2017-06-11

Completed on

2017-06-17, 12:27 PM

Score

9/441 - 2.04%

Audit - 9/441 - 2.04%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (8/440) 1.82%
Enter Initial Time of Wildlife Sighting	2017-06-11, 8:25 AM	
Department/Individual Who Reported Wildlife:	Judy support services	
Environment On Scene		
Environment at Call-out Location	2017-06-11, 8:37 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blonde bear with brown legs and stripe down back, denned onsite	
Photo (If Possible):		
Chronological Events		
	<p>08:25 environment received call from Judy at A21. Environment issued bear alert</p> <p>08:37 environment arrived on site</p> <p>09:04 bear crossed S Dike entered NUNA Laydown, JJM Yard and then crossed N Dike. Updated folks in Nuna Laydown and had Brian from Bauer get guys on Dike into trucks/shacks, updated bear alert. Bear tried to cross LV road near lunch area.</p> <p>0924 use TRUCK move bear off LV road off of A21 haul road</p> <p>10:02 use TRUCK move bear from winter road staging area</p> <p>10:13 bear grazing in Pond 11 and Walking Trail closed</p> <p>11:38 use TRUCK move bear into Pond 11</p> <p>12:11 use TRUCK move bear across road to Tundra E of Comm Shack</p> <p>12:27 use RUBBER BULLET bear stayed in Tundra E of Comm Shack</p> <p>12:29 use 12 GA EXPLOSIVES bear stayed in Tundra E of Comm Shack</p> <p>12:31 use 12 GA BEAR BANGER bear stayed in Tundra E of Comm Shack</p>	

WildlifeReport000191
 Grizzly 2017-06-11 A21 Dike
 Score (9/441) 2.04%

12:31 use 12 GA EXPLOSIVE bear stayed in Tundra E of Comm Shack
 1330 SS2 took over for DB
 1430 bear crossed S haul road and went into Pond 5
 1600 SS2 left bear grazing in Pond 5

Movement Map (Import NotePlus Site Map)



Appendix 1


Deterrent Count Score (8/440) 1.82%

Truck	4
C/F Bear Banger	0
12GA Bear Banger	1
12GA Explosive	2
12GA Rubber Bullet	1
Specify	

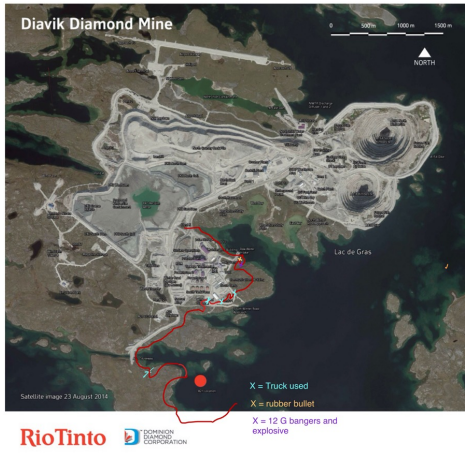
Environment Off Scene

End of Environment Call-out	2017-06-11, 4:00 PM
Final Location of Wildlife	Pond 5

Closure & Sign-off Score (1/1) 100%

Wildlife Report Complete	On		
Signature	Don Roberts	2017-06-17 12:27 PM	

Media



Appendix 1



Wildlife Report - 2017

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

grizzly bear 2017-06-12 shallow bays

Document No.

WildlifeReport000192

2017-06-12


Completed on

2017-06-17, 11:34 AM

Score

5/441 - 1.13%

Audit - 5/441 - 1.13%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (4/440) 0.91%
Enter Initial Time of Wildlife Sighting	2017-06-12, 7:30 AM	
Department/Individual Who Reported Wildlife:	Bradley	
Environment On Scene		
Environment at Call-out Location	2017-06-12, 7:45 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blonde with brown stripe and brown paws	
Photo (If Possible):		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 Appendix 4 </div>		
Chronological Events		
<p>07:30 environment received call and issued alert 07:45 Environment arrived at bear location. W Shallow Bays 08:10 use TRUCK 08:35 bear crossed S Haul Road 09:25 Environment update bear alert. Bear sleeping on PKC wall above Pond 1</p> <p>13:15 bear on south haul road 13:15 TRUCK DETERRENT USED, bear entered trench in between backfill plant and south haul road. 13:16 Environment update bear alert. Bear in between backfill plant and south haul road 14:20 bear moved along pipes to north side of trench 14:35 crossed backfill north light vehicle entrance to</p>		

WildlifeReport000192
 grizzly bear 2017-06-12 shallow bays
 Score (5/441) 1.13%

grass at base of backfill rock wall.
 15:00 bear sleeping
 16:10 bear awake
 17:20 bear crossed north haul road TRUCK used as deterrent
 17:25 GUN COCKING used bear climbed north rock pile
 17:30 spotted on top of rock pile
 18:00 left bear in this area

Movement Map (Import NotePlus Site Map)



Appendix 5

Deterrent Count Score (4/440) 0.91%

Truck	3
12GA Bear Banger	0
12GA Rubber Bullet	0
Helicopter	0
Other	1
Specify	pumping empty shot gun

Environment Off Scene

End of Environment Call-out	2017-06-12, 6:00 PM
Final Location of Wildlife	North till pile

Closure & Sign-off Score (1/1) 100%

Wildlife Report Complete	On		
Signature	Don Roberts		

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4



RioTinto DOMINION
MINING
CORPORATION

Appendix 5



Wildlife Report - 2017

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

Grizzly - 2017-06-14 - By South Haul Road

Document No.

WildlifeReport000193

2017-06-14

Completed on

2017-06-14, 5:43 PM

Score

4/441 - 0.91%

Audit - 4/441 - 0.91%


Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (3/440) 0.68%
Enter Initial Time of Wildlife Sighting	2017-06-14, 3:30 AM	
Department/Individual Who Reported Wildlife:	Pit ops - Frank Tobin	
Environment On Scene		
Environment at Call-out Location	2017-06-14, 3:45 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Same bear that has been on site for awhile	
Photo (If Possible):		
Chronological Events		
	<p>0330 Bear spotted by South haul road between pond 5 and the backfill plant</p> <p>0345 JG searching for the bear</p> <p>0400 bear spotted crossing the road into pond 13 area</p> <p>0415 chased bear with the truck out of pond 13 and on A418 road. The bear went back into pond 13 area.</p> <p>0430 chased the bear out of pond 13. It ran across the road and into the backfill plant area.</p> <p>0450 bear went into the ditch between the backfill plant and south haul road</p> <p>0510 bear still in the ditch feeding on grass and moving north</p> <p>0520 the bear is close to the road. Chased it across the road to the base of the till pile.</p> <p>0524 bear crossed the road to the water treatment plant area</p> <p>0530 left the bear in this area</p>	
Movement Map (Import NotePlus Site Map)		

WildlifeReport000193
 Grizzly - 2017-06-14 - By South Haul Road
 Score (4/441) 0.91%



BioTinto

Appendix 1

Deterrent Count		Score (3/440) 0.68%	
Truck	3		
Specify			
Environment Off Scene			
End of Environment Call-out	2017-06-14, 5:30 AM		
Final Location of Wildlife	By the water treatment plant		
Closure & Sign-off		Score (1/1) 100%	
Wildlife Report Complete	On		
Signature	JG	2017-06-14 5:38 PM	

Media



RioTinto  DIAMOND CORPORATION

Appendix 1

Wildlife Report - 2017

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

grizzly 2017-06-14 north haul road

Document No.

WildlifeReport000043

2017-06-14

Completed on

2017-06-17, 18:23

Score

9/441 - 2.04%

Disclaimer

The assessors believe the information contained within this risk assessment report to be correct at the time of printing. The assessors do not accept responsibility for any consequences arising from the use of the information herein. The report is based on matters which were observed or came to the attention of the assessors during the day of the assessment and should not be relied upon as an exhaustive record of all possible risks or hazards that may exist or potential improvements that can be made.

Information on the latest workers compensation and OHS / WHS laws can be found at the relevant State WorkCover / WorkSafe Authority.

Confidentiality Statement

In order to maintain the integrity and credibility of the risk assessment processes and to protect the parties involved, it is understood that the assessors will not divulge to unauthorized persons any information obtained during this risk assessment unless legally obligated to do so.

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Chronological Events	4
Deterrent Count	5
Environment Off Scene	5
Closure & Sign-off	5
MEDIA	6

Audit - 9/441 - 2.04%

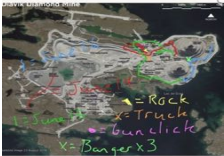
Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (8/440) 1.82%
Enter Initial Time of Wildlife Sighting	2017-06-14, 09:40	
Department/Individual Who Reported Wildlife:	Jimmy Pit Op Supervisor	
Environment On Scene		
Environment at Call-out Location		
Animal Type		
Description (eg. number of individuals, colour, age, size, etc.):	Blonde with brown stripe down back and brown legs	
Photo (If Possible):		
Chronological Events		
	<p>09:40 Environment received bear call of sighting on N Haul Road. Environment issued alert 10:02 Environment arrived at Till Pile. Bear spotted in Sewage Drop. ROCK to move bear over Till Pile 10:06 bear crossed Till Pile towards NIWTP 10:06 bear crossed Airport Road and crossed Black Pipes onto Tundra 10:14 GUN CLICK move bear away from pipes onto Tundra 10:22 GUN CLICK move bear toward Pond</p> <p>12:08 bear crossed Airport Road onto Rock Pile. Bear picked up ziploc bag then dropped it near top of Rock Pile 12:15 bear moved onto N Haul Road. Environment update alert 12:20 bear moved to future fish habitat area north of A154 Remained in area Till night 21:00 bear moved to west side of pit and slept for the night.</p> <p>June 15 05:00 moved to the fresh air raise Area 10:00 moved to ERT training area 12:30 crossed hanging tree to Tundra north of water treatment plant. 13:00 crossed Airport road to Till Pile 14:00 crossed north Haul road to backfill trench 15:30 crossed south Haul road used TRUCK push bear to</p>	

WildlifeReport000043
 grizzly 2017-06-14 north haul road
 Score (9/441) 2.04%

Pond 13
 16:50 crossed by underground portal to Tundra north of shallow bays
 20:30 traveled on road to pit A418 future fish habitat.
 21:30slept on SE bank of A418 pit

June16
 05:45 bear woke up
 07:00 bear moved to A154 fish habitat east side
 08:45 used 3 BANGERS to keep bear from moving west
 10:30 environment ended 24h monitoring, updated announcement, left bear in fish habitat east of A154 pit

Movement Map (Import NotePlus Site Map)



Appendix 1

Deterrent Count

Score (8/440) 1.82%

Truck	2
C/F Bear Banger	3
Other	3
Specify	1 rock , 2 uses of cocking gun

Environment Off Scene

End of Environment Call-out	2017-06-16, 10:18
Final Location of Wildlife	East of A154 pit fish habitat

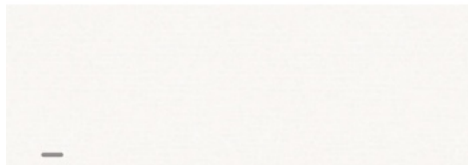
Closure & Sign-off

Score (1/1) 100%

Wildlife Report Complete	On
--------------------------	----

Signature	Don Roberts, Justin Grandjambe, Darcy Bourassa	2017-06-17 18:23	
-----------	------------------------------------------------	---------------------	--

Media



Appendix 1



Wildlife Report - 2017

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

Grizzly Bear - 2017-06-17 - Airport Road

Document No.

WildlifeReport000194

17 Jun 2017


Completed on

17 Jun 2017

Score

9/441.0 - 2.04%

Audit - 9/441 2.04%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (8/440) 1.82%	
Enter Initial Time of Wildlife Sighting	17 Jun 2017 08:00 PM	
Department/Individual Who Reported Wildlife:	Site services, Brad	
Environment On Scene		
Environment at Call-out Location	17 Jun 2017 08:20 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	1 blonde grizzly brown back strip with brown legs, small, female confirmed, same grizzly that denned on site	
Photo (If Possible):		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 Appendix 4 </div>		

Question	Response	Details
----------	----------	---------

Chronological Events

08:00 bear seen near airport
 08:10 bear moved closer to heli pad environment deployed
 08:30 PUMPED SHOTGUN
 09:00 bear in north inlet side of airport road
 09:30 bear seen on rock pile south of airport road sleeping
 10:15 used TRUCK to keep bear off north haul road
 11:30-12:05 bear I between till pile and north haul road used TRUCK to keep bear from crossing road
 12:10 -13:15 used TRUCK multiple times to keep bear on north side of north haul road near airport road inter section
 13:15- bear moved west on north haul road
 13:20- threw ROCKS for noise to push bear up till pile north
 13:30- threw ROCKS for noise to push bear up till pile north
 14:00- bear climbed rock pile.
 14:05- used TRUCK to push bear down north side of pile
 14:10: bear crossed airport road
 14:20- updated announcement , left bear on tundra north of airport road

Movement Map (Import NotePlus Site Map)




Appendix 5

Deterrent Count

Score (8/440) 1.82%

Truck	4
Air Horn	1
C/F Bear Banger	0
C/F Pen Whistle	0
12GA Bear Banger	0
12GA Explosive	0
12GA B.B. Marker	0

Question	Response	Details
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	3	
Specify	rocksx2, gun pump x1	
Environment Off Scene		
End of Environment Call-out	17 Jun 2017 02:30 PM	
Final Location of Wildlife	North inlet	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Don Roberts, Justin Grandjambe	

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4



Appendix 5

Wildlife Report - 2017

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

Grizzly - 2017-06-18 - Pond 1

Document No.

WildlifeReport000044

2017-06-18

Completed on

2017-06-18, 23:06

Score

2/441 - 0.45%

Disclaimer

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Deterrent Count	5
Environment Off Scene	5
Closure & Sign-off	5
MEDIA	6

Audit - 2/441 - 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (1/440) 0.23%
Enter Initial Time of Wildlife Sighting	2017-06-18, 21:00	
Department/Individual Who Reported Wildlife:	Backfill	
Environment On Scene		
Environment at Call-out Location	2017-06-18, 21:11	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Female, blonde with brown back stripe brown legs, same bear that denned on site, same bear has been on site since June 11	
Photo (If Possible):		
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> </div>		
Chronological Events		
	2100 bear sighting called in near back fill 2111 environment on scene 2130 bear crossed south Haul road used TRUCK to push bear towards Tundra 2205 bear crossed south Haul road to Pond 1 2235 bear climbed rock pile and bedded down 2300 environment left the scene bear sleeping on rock wall	
Movement Map (Import NotePlus Site Map)		



Appendix 3

Deterrent Count		Score (1/440) 0.23%	
Truck	1		
Specify			
Environment Off Scene			
End of Environment Call-out	2017-06-18, 23:00		
Final Location of Wildlife	Rock wall west of Pond 1		
Closure & Sign-off		Score (1/1) 100%	
Wildlife Report Complete	On		
Signature	Donald Roberts	2017-06-18 23:06	

Media



Appendix 1



Appendix 2



Appendix 3



Wildlife Report - 2017

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

Grizzly- 2017-06-19 Vegetation plots

Document No.

WildlifeReport000045

19 Jun 2017

Completed on



26 Jun 2017

Score

4/441.0 - 0.91%

Audit - 4/441 0.91%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (3/440) 0.68%	
Enter Initial Time of Wildlife Sighting	19 Jun 2017 04:21 AM	
Department/Individual Who Reported Wildlife:	Underground employees	
Environment On Scene		
Environment at Call-out Location	16 Jun 2017 04:35 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Male, blonde with brown back stripe brown legs, same bear that denned on site, same bear has been on site since June 11	
Photo (If Possible):		
Chronological Events		
	<p>0430 bear spotted on the road between the shallow bays by UG employees. JG on scene at 0435</p> <p>0435 the bear saw something and ran</p> <p>0500 there is lots of fog. Lost sight of the bear</p> <p>0530 bear came back onto the road between the shallow bays</p> <p>0600 bear in the west bay opposite of Pond 1</p> <p>0630 bear moving west along the south Haul road past the vegetation plots</p> <p>0700 bear crossed the south Haul road and into Pond 5</p> <p>0730 bear grazing in Pond 5</p> <p>0830 JG switching out with DR</p> <p>0845 DR on scene bear still sleeping. Bear sleeping on a boulder.</p> <p>1000 bear still sleeping</p> <p>1030 bear sleeping. ENV attempting to move it out of Pond 5</p> <p>1100 fired a 12 gauge banger and 1 handheld banger at the bear. Bear got up and started walking</p> <p>1117 ENR biologist shot the bear with a tranquilizer</p> <p>1215 helicopter removed bear from site.</p>	

Question		Response	Details
Movement Map (Import NotePlus Site Map)			
			
Appendix 1			
Deterrent Count			Score (3/440) 0.68%
Truck			0
Air Horn			0
C/F Bear Banger			1
C/F Pen Whistle			0
12GA Bear Banger			1
12GA Explosive			0
12GA B.B. Marker			0
12GA Rubber Bullet			0
12GA Slug			0
Helicopter			0
Other			1
Specify	Tranquilizer		
Environment Off Scene			
End of Environment Call-out	19 Jun 2017 12:00 PM		
Final Location of Wildlife	About 78 kilometers away, near the Nunavut border		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Don Roberts		

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly- 2017-06-22 - Pond 13

Document No.

WildlifeReport000046

22 Jun 2017


Completed on

26 Jun 2017

Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (1/440) 0.23%	
Enter Initial Time of Wildlife Sighting	22 Jun 2017 09:29 AM	
Department/Individual Who Reported Wildlife:	Site services	
Environment On Scene		
Environment at Call-out Location	22 Jun 2017 09:37 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Light dirty brown grizzly, medium size, different bear than one that denned on site	
Photo (If Possible):		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 Appendix 4 </div>		
Chronological Events		
	9:20 bear called in 09:35 environment on the scene 09:35 Bear in Pond 13 moving south 10:38 bear crossed road by underground portal C used TRUCK to push bear to Tundra 11:40 lost visual of bear 12:20 environment ended call out	
Movement Map (Import NotePlus Site Map)		
Deterrent Count	Score (1/440) 0.23%	
Truck	1	
Air Horn	0	

Question	Response	Details
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	22 Jun 2017 12:20 PM	
Final Location of Wildlife	Shallow bays area	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	DR	

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4



Wildlife Report - 2017

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

Grizzly - 2017-06-30 - A418 Laydown

Document No.

WildlifeReport000195

30 Jun 2017


Completed on


01 Jul 2017


Score

7/441.0 - 1.59%

Audit - 7/441 1.59%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (6/440) 1.36%
Enter Initial Time of Wildlife Sighting	30 Jun 2017 09:38 PM	
Department/Individual Who Reported Wildlife:	Geotech	
Environment On Scene		
Environment at Call-out Location	30 Jun 2017 09:55 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blonde bear with dark brown legs and dark stripe down back, bear that denned onsite	
Photo (If Possible):		
		
Appendix 1		

Question	Response	Details
Chronological Events		
		<p>2138 received call from Security about bear in Laydown in A418, issued bear alert 2155 on the scene, drillers call on radio and bear is in the ditch near the drill heading W of drill site 2215 lost visual of bear heading down into A418 Pit 2242 visual of bear from Lookout 1 on A418 pit wall grazing 2319 bear grazing on tundra S of Batch Plant 2355 bear tried to enter Batch Plant, used TRUCK 0012 bear crossed road into E Shallow Bays 0057 used TRUCK X5 to keep on lake side of A418, alerted Geotech drilling that bear could be headed for their work area 0100 bear crossed dike into Fish Habitat near DPS well 6 0133 bedded down near DPS well 6 0215 left bear sleeping in fish habitat near DPS 6, updated bear alert, told Geotech drilling to call security if bear gets up and moving again, SS2 out</p>
<p>Movement Map (Import NotePlus Site Map)</p>  <p>Appendix 2</p>		
Deterrent Count		Score (6/440) 1.36%
Truck	6	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	

Question	Response	Details	
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	01 Jul 2017 02:15 AM		
Final Location of Wildlife	DPS Well 6		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Shelby Skinner		

Media



Appendix 1



Appendix 2

Wildlife Report - 2017

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

Grizzly - 2017-07-04 - North Inlet

Document No.


WildlifeReport000196

04 Jul 2017


Score

3/441.0 - 0.68%

Audit - 3/441 0.68%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (2/440) 0.46%
Enter Initial Time of Wildlife Sighting	04 Jul 2017 03:11 PM	
Department/Individual Who Reported Wildlife:	Site Services	
Environment On Scene		
Environment at Call-out Location	04 Jul 2017 03:31 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blonde, dark legs, blue tag in ear, male	
Photo (If Possible):		
Chronological Events		
	1530 ENV has visual of bear near black pipes 1600 bear alert issued 1604 used TRUCK to keep off Airport Road 1730 used HELICOPTER to move bear from NIWTP to N of West Island 18:30 helicopter back at helipad	
Movement Map (Import NotePlus Site Map)		
		
Appendix 1		
Deterrent Count		Score (2/440) 0.46%
Truck	1	
Air Horn	0	
C/F Bear Banger	0	

WildlifeReport000196
 Grizzly - 2017-07-04 - North Inlet
 Score (3/441) 0.68%

Question	Response	Details
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	1	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	04 Jul 2017 06:30 PM	
Final Location of Wildlife	Mainland N of West Island	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Shelby Skinner	05 Jul 2017 06:22 PM
		

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly - 2017-07-07 - Backfill

Document No.

WildlifeReport000197

07 Jul 2017


Completed on

08 Jul 2017


Score

7/441.0 - 1.59%

Audit - 7/441 1.59%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (6/440) 1.36%
Enter Initial Time of Wildlife Sighting	07 Jul 2017 04:00 PM	
Department/Individual Who Reported Wildlife:	A21	
Environment On Scene		
Environment at Call-out Location	07 Jul 2017 04:04 PM	
Animal Type		
Description (eg. number of individuals, colour, age, size, etc.):	Blonde with blue tag in ear	
Photo (If Possible):		
		
Appendix 1		

Question	Response	Details
Chronological Events		
		<p>1600 received call of bear near backfill crusher 1604 ENV on scene, bear grazing in ditch along pipe 1610 banged ROCKS together and CLAPPED HANDS, bear moved heading N along black pipes 1630 CYCLE ACTION, bear crossed S Haul road into Pond 13 1650 shot 12 gauge BEAR BANGER, bear moved towards dement bags at UG portal 1701 CYCLE ACTION, bear moving towards Pond 13 1705 shot EXPLOSIVE 1730 bear crosses S haul road into pond 1 17:32 CYCLED ACTION of gun, 1738 bear began climbing along high wall in pond 1 1739 bear laid down to sleep 3/4 of way up side of high wall 1830 environment satisfied bear wasn't moving, left scene.</p>
Movement Map (Import NotePlus Site Map)		
<div> </div> <p>Appendix 2</p>		
Deterrent Count		Score (6/440) 1.36%
Truck	0	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	1	
12GA Explosive	1	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	

Question		Response	Details
Other		4	
Specify		Rocks, hand clapping, action cycling	
Environment Off Scene			
End of Environment Call-out		07 Jul 2017 06:30 PM	
Final Location of Wildlife		On highwall beside pond 1	
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete		On	
Signature	Shelby Skinner	08 Jul 2017 08:51 AM	

Media



Appendix 1



Appendix 2

Wildlife Report - 2017

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

Grizzly - 2017-07-09 - Pond 1

Document No.

WildlifeReport000198

09 Jul 2017

Completed on

18 Jul 2017

Score

3/441.0 - 0.68%

Audit - 3/441 0.68%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (2/440) 0.46%
Enter Initial Time of Wildlife Sighting	09 Jul 2017 07:24 PM	
Department/Individual Who Reported Wildlife:	Site Services Jeff	
Environment On Scene		
Environment at Call-out Location	09 Jul 2017 07:50 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Young blonde male wth blue tag in ear	
Photo (If Possible):		
Chronological Events		
	1920 call from Jeff about bear crossing S haul road into Backfill, issue bear alert 1950 ENV has visual of bear in Pond 1 grazing 2006 CYCLE ACTION, bear climbed up PKC rock wall to fine material and bedded down 2036 bear hasn't moved 2048 bear still hasn't moved, updated bear alert, ENV out	
Movement Map (Import NotePlus Site Map)		
Deterrent Count		Score (2/440) 0.46%
Truck	0	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	

Question		Response	Details
12GA B.B. Marker		0	
12GA Rubber Bullet		0	
12GA Slug		0	
Helicopter		0	
Other		2	
Specify		Pumping the action on the shot gun	
Environment Off Scene			
End of Environment Call-out		09 Jul 2017 08:48 PM	
Final Location of Wildlife		Pond 1	
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete		On	
Signature	SS2		

Wildlife Report - 2017

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

Grizzly - 2017-07-13 SCAP

Document No.

WildlifeReport000199

13 Jul 2017


Completed on


14 Jul 2017

Score

5/441.0 - 1.13%

Audit - 5/441 1.13%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (4/440) 0.91%	
Enter Initial Time of Wildlife Sighting	13 Jul 2017 09:55 AM	
Department/Individual Who Reported Wildlife:	Jimmy - Pit ops	
Environment On Scene		
Environment at Call-out Location	13 Jul 2017 09:58 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	1 grizzly same that was relocated blue tag still attached	
Photo (If Possible):		
Chronological Events		
	9:55 - bear sited in SCAP lay down 9:58 - environment on scene 10:00 - bear reacted to TRUCK turning around 10:10 - bear moved to underground area 10:15- bear crossed south haul road to the shallow bays area 10:39- environment left bear in shallow bays area 10:50- environment returned to scene 11:10- used TRUCK to prevent bear from crossing south haul road 11:15- used TRUCK to push bear to A418 lay down 11:20- used TRUCK to push bear to future fish habitat 12:00- bear sleeping environment left scene	
Movement Map (Import NotePlus Site Map)		
		
Appendix 1		

Question	Response	Details	
Deterrent Count		Score (4/440) 0.91%	
Truck	4		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	13 Jul 2017 12:00 PM		
Final Location of Wildlife	A418 future fish habitat		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Don Roberts	14 Jul 2017 07:07 AM	

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly-207-07-16 pond 5

Document No.

WildlifeReport000200

16 Jul 2017

Completed on



18 Jul 2017

Score

16/441.0 - 3.63%

Audit - 16/441 3.63%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (15/440) 3.41%	
Enter Initial Time of Wildlife Sighting	16 Jul 2017 09:15 AM	
Department/Individual Who Reported Wildlife:		
Environment On Scene		
Environment at Call-out Location	16 Jul 2017 10:00 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blue tag resident bear	
Photo (If Possible):		
Chronological Events		
	<p>9:28 bear sighted and called in near pkc sign in 9:50 bear scene in pond 5 10:00 environment on scene 10:45 used EXPLOSIVE round in attempt to move bear 11:35 bear still in pond 5 1145 GUN PUMP 11:46 GUN PUMP x2 11:47 used TRUCK to push bear across south haul road to shallow bays 11:48 GUN PUMP 12:28 12G BANGER 12:30 TRUCK &a gun pump to keep bear from crossing over south haul road 13:10 12G BANGER to push to vegetation plots 13:12 12G RUBBER BULLET TO PUSH OFF PLOTS 14:00 TRUCK X3 GUN COCKINGx2 TR used to deter bear from entering pond 13 then GP to make bear leave pond 13 then TR+GC to push bear off south haul road to shallow bays THEN TR to try and deter bear from entering back fill into pond 1 15:00 used EXPLOSIVE ROUND to try and push bear out of pond 1 15:30 left bear sleeping in pond 1</p>	

Question		Response	Details
Movement Map (Import NotePlus Site Map)			
			
Appendix 1			
Deterrent Count			Score (15/440) 3.41%
Truck	5		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	2		
12GA Explosive	2		
12GA B.B. Marker	0		
12GA Rubber Bullet	1		
12GA Slug	0		
Helicopter	0		
Other	5		
Specify	Gun pumping		
Environment Off Scene			
End of Environment Call-out	16 Jul 2017 03:30 PM		
Final Location of Wildlife	Pond 1		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Don Roberts	18 Jul 2017 07:31 AM	

Media



Appendix 1



Wildlife Report - 2017

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

Bear - x3 - 2017-07-18 - Backfill

Document No.

WildlifeReport000015

18 Jul 2017



Completed on

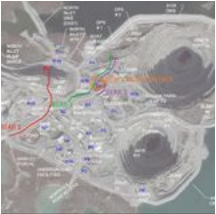
21 Jul 2017

Score

7/441.0 - 1.59%

Audit - 7/441 1.59%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (6/440) 1.36%	
Enter Initial Time of Wildlife Sighting	18 Jul 2017 07:30 PM	
Department/Individual Who Reported Wildlife:	Site Services	
Environment On Scene		
Environment at Call-out Location	18 Jul 2017 07:30 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Bear 1 - Smaller male that was captured and relocated in June. Blue ear tag. Bear 2 - Adult Bear 3 - Adult Bear 2+3 are possible mating couple, often spotted together	
Photo (If Possible):		
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> </div>		

Question	Response	Details
Chronological Events		
		<p>1930 - Radio call for single bear at backfill / pond 13. 1945 - On scene and no bear found. Search area. 2030 - Bear (1) reported on top of till pile at sewage disposal 2035 - 2 RUBBER BULLETS shot at bear, 1 hit, 1 miss, good reaction as it runs out of area down till pile slope towards North Inlet. Circle pile searching for bear. 2105 - Single bear (2) spotted at intersection of North Haul road and Airport road. Pushed with TRUCK into tundra behind ERT Training Grounds. 2135 - Bear (3) reported on A154 haul road. Bear pushed with TRUCK down into ERT Grounds. 2145 - Bear 2 and Bear 3 both grazing on tundra behind ERT. Slowly approach each other over roughly 20 minutes. Once within about 25m of each other, bear 3 chases bear 2 to the fence at the edge of ERT. Roaring, swatting and mouth to mouth glances take place for roughly 20 seconds. 2155 - Bears separate and walk away calmly from each other. 2200 - Push bear 3 into A154 fish habitat with TRUCK. 2230 - Push bear 2 into A154 fish habitat with TRUCK. 2245 - Checked fish habitat and not able to spot bears in the area. Left there for night.</p>
<p>Movement Map (Import NotePlus Site Map)</p>  <p>Appendix 3</p>		
Deterrent Count		Score (6/440) 1.36%
Truck	4	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	

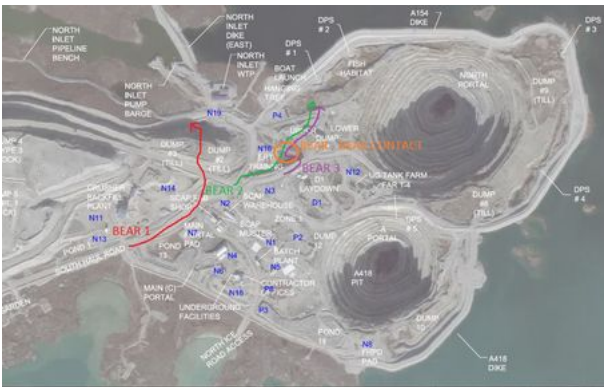
Question	Response	Details
12GA B.B. Marker	0	
12GA Rubber Bullet	2	
12GA Slug	0	
Helicopter	0	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	18 Jul 2017 11:00 PM	
Final Location of Wildlife	Bear 1 - location unknown but last seen heading to NI Bear 2 + 3 - A154 fish habitat North	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Sean Sinclair	

Media



Appendix 1

Appendix 2



Appendix 3

Wildlife Report - 2017

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

Grizzly-2017-07-19 backfill and shallow bays

Document No.

WildlifeReport000052

19 Jul 2017


Completed on


19 Jul 2017

Score

5/441.0 - 1.13%

Audit - 5/441 1.13%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (4/440) 0.91%
Enter Initial Time of Wildlife Sighting	19 Jul 2017 12:30 PM	
Department/Individual Who Reported Wildlife:		
Environment On Scene		
Environment at Call-out Location	19 Jul 2017 12:50 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blonde with dark eyes and dark rump, blue tag on ear	
Photo (If Possible):		
Chronological Events		
	<p>1250 bear in shallow bays near south Haul road 1:10 bear attempts to cross S haul road for several minutes, blocked with truck. 1:20, bear outsmarts environment tech, crosses road into Pond south of backfill 1:50, fired 3 pen bangers trying to move bear out of Pond. No effect, one dud banger 2:15 bear laid down to sleep near side of Pond 2:30 environment made announcement of location, left scene</p>	
Movement Map (Import NotePlus Site Map)		
		
Appendix 1		

Question	Response	Details	
Deterrent Count		Score (4/440) 0.91%	
Truck	1		
Air Horn	0		
C/F Bear Banger	3		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	19 Jul 2017 02:30 PM		
Final Location of Wildlife	Asleep on rock in Pond 1		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Gordon C	19 Jul 2017 03:30 PM	

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly- 2017-07-20

Document No.

WildlifeReport000203

20 Jul 2017


Completed on


22 Jul 2017

Score

4/441.0 - 0.91%

Audit - 4/441 0.91%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (3/440) 0.68%	
Enter Initial Time of Wildlife Sighting	20 Jul 2017 09:50 PM	
Department/Individual Who Reported Wildlife:	Pit ops Frank	
Environment On Scene		
Environment at Call-out Location	20 Jul 2017 10:00 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Dark brown adult	
Photo (If Possible):		
Chronological Events		
	<p>2200 JG on scene. 1 bear in pond 1. 1 bear in ditch by backfill.</p> <p>2205 approached the bear in the ditch with the truck. It started walking East when it saw me.</p> <p>2215 bear heading toward the till pile</p> <p>2220 at intersection to the till pile. Charged at it</p> <p>2225 on road to till pile charged at with truck.</p> <p>2230 on till pile. Leaving it here for now</p> <p>2235 in pond1 searching for the 2nd bear. Can't find it in pond1. Start search for the bear.</p> <p>2245 still can't find the bear</p> <p>2255 still can't find the bear. Leaving area</p>	
Movement Map (Import NotePlus Site Map)		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 </div>		

Question		Response	Details	
Deterrent Count			Score (3/440) 0.68%	
Truck		3		
Air Horn		0		
C/F Bear Banger		0		
C/F Pen Whistle		0		
12GA Bear Banger		0		
12GA Explosive		0		
12GA B.B. Marker		0		
12GA Rubber Bullet		0		
12GA Slug		0		
Helicopter		0		
Other		0		
Specify				
Environment Off Scene				
End of Environment Call-out		20 Jul 2017 10:55 PM		
Final Location of Wildlife		1 bear on till pile		
Closure & Sign-off			Score (1/1) 100.00%	
Wildlife Report Complete		On		
Signature	JG	22 Jul 2017 07:51 AM		

Media



Appendix 1



Appendix 2



Appendix 3

Wildlife Report - 2017

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

Grizzly Bear - 2017-07-20

Document No.

WildlifeReport000202

20 Jul 2017


Completed on

20 Jul 2017



Score

10/441.0 - 2.27%

Audit - 10/441 2.27%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (9/440) 2.04%
Enter Initial Time of Wildlife Sighting	20 Jul 2017 03:45 PM	
Department/Individual Who Reported Wildlife:	Site Services	
Environment On Scene		
Environment at Call-out Location	20 Jul 2017 03:55 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Adult. Large slightly blond hump with darker brown lower body.	
Photo (If Possible):		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 Appendix 4 </div>		

Question	Response	Details
Chronological Events		
<p>WildlifeReport000202 Grizzly Bear - 2017-07-20 Score (10/441) 2.27%</p>		<p>15:55 - JG and MPP arrived on site and located bear grazing on west side of pond 5. 16:15 - Prepared deterrents and approached bear on a road above pond 5 to acquire photos. 16:20 - JG cycled pump action to gauge reaction. Bear looked up, and then continued grazing. 16:30 - JG discharged a rubber bullet from shotgun, grazing bear. Bear moved 20 m further away at slow lope, placing it out of sight in a depression behind a small rock pile. Continued grazing. 16:40 - Moved the truck to a higher road with a better vantage. Decided to attempt pushing bear east through pond 5 with bangers discharged from above. 16:45 to 16:55 - Discharged 2 handheld bear bangers (MPP) , 1 explosive slug (JG), and 1 pen whistle (MPP). Whistle round landed in pond 2m from bear, and it proceeded further east. 17:00 - Drove down to lower pad near pipe discharging water. Banged rocks together (MPP), and bear continued moving east into narrow east corner of pond along the base of the rock pile. 17:05 - Bear began move towards south haul road, so used truck to encourage it across after alerting traffic. 17:10 - Discharged bear banger from pen launcher (MPP) to encourage bear further on to tundra in easterly direction (away from main camp). 17:15 - Repositioned truck to pond 10 to observe bear. Bear started napping on tundra ~150 south of south haul road. 17:25 - Bear still napping. 17:35 - Bear repositioned 4m north to flop on warm smooth outcropping. 17:45 - Made announcement of bear's new whereabouts, and returned to office with intent to check bear location again before end of shift, but after underground shift change. 18:20 - Bear no longer napping in same location. Decide to check Pond 5 again. 18:22 - No bear in pond 5. Start cruising east down south haul road. 18:25 - Scanned rose garden. No bear. 18:30 - Found bear in pond 1. Revved engine to prompt movement east or across road to south, and then JG clapped rocks together again. Good reaction. 18:35 - Drove along side road parallel to pond 1 to encourage further movement eastward. Hoping to drive bear over south haul road to the tundra again. 18:40 - MPP banged rocks together. Bear settled in grazing at base of berm for backfill lay down pad. 18:45 - Return to office to retrieve deterrents. 19:00 - Returned to pond 1 in 2 trucks. No Bear. Scanned south haul road through to North Inlet. 19:30 - Returned to office after checking ponds 1 and 5 again. No bear.</p>

Question	Response	Details
Movement Map (Import NotePlus Site Map)		
 <p>Appendix 5</p>		
Deterrent Count		Score (9/440) 2.04%
Truck	3	
Air Horn	0	
C/F Bear Banger	3	
C/F Pen Whistle	1	
12GA Bear Banger	0	
12GA Explosive	1	
12GA B.B. Marker	0	
12GA Rubber Bullet	1	
12GA Slug	0	
Helicopter	0	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	20 Jul 2017 07:30 PM	
Final Location of Wildlife	Last spotted grazing at East end of pond 1.	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Matthew Poirier Justin Grandejambe	20 Jul 2017 07:39 PM 

Media



Appendix 1



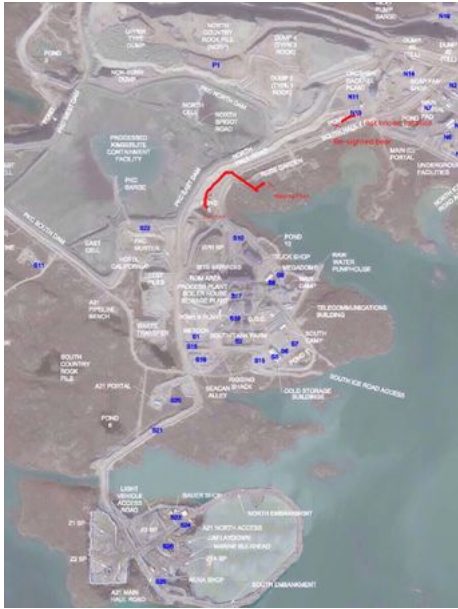
Appendix 2



Appendix 3



Appendix 4



Appendix 5

Wildlife Report - 2017

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

Grizzly - 2017-07-20 - Steel lay down

Document No.

WildlifeReport000201

20 Jul 2017


Completed on


20 Jul 2017

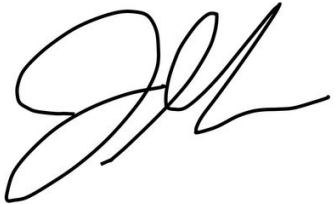
Score

4/441.0 - 0.91%

Audit - 4/441 0.91%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (3/440) 0.68%
Enter Initial Time of Wildlife Sighting	20 Jul 2017 06:45 PM	
Department/Individual Who Reported Wildlife:	A21 fuel truck driver	
Environment On Scene		
Environment at Call-out Location	20 Jul 2017 07:00 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Bigger bear. Dark brown and blonde around the hump	
Photo (If Possible):		
		
Appendix 1		

Question	Response	Details
Chronological Events		
		<p>0645 bear spotted by steel yard by south camp 0700 JG on scene. Bear by the south winter road approach. Charged at it with the truck. It ran over a berm, onto the tundra and heading toward A21. Made an announcement 0708 Bear crossed the A21 light vehicle road 0712 bear crossed the A21 haul road 0715 bear on the tundra heading toward the waste transfer area 0720 bear outside the waste transfer area. Charged at it with the truck. It ran around to the other side of the WTA 0723 charged at the bear again and it ran up to the AN road crossed it. 0728 bear on the tundra by a pond 0735 bear laying down 0745 bear still laying down 0810 bear still laying down 0830 bear sleeping. JG leaving area</p>
<p>Movement Map (Import NotePlus Site Map)</p>  <p>Appendix 2</p>		
Deterrent Count		Score (3/440) 0.68%
Truck	3	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	

Question		Response	Details
Helicopter		0	
Other		0	
Specify			
Environment Off Scene			
End of Environment Call-out		20 Jul 2017 08:40 AM	
Final Location of Wildlife		On the tundra by the AN road across from the WTA	
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete		On	
Signature	JG	20 Jul 2017 08:45 AM	

Media



Appendix 1



Appendix 2

Wildlife Report - 2017

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

Grizzly Bear 2017-07-21 - Pond 5

Document No.

WildlifeReport000204

21 Jul 2017



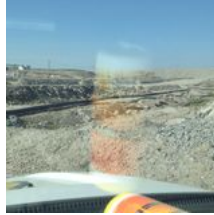


Completed on

22 Jul 2017





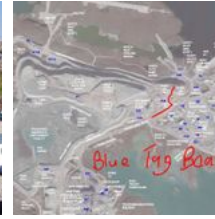

Score

14/441.0 - 3.17%

Audit - 14/441 3.17%

Question	Response	Details		
Wildlife Report				
Type of Wildlife Report	Deterrent Reporting			
Deterrent Report		Score (13/440) 2.96%		
Enter Initial Time of Wildlife Sighting	21 Jul 2017 06:55 AM			
Department/Individual Who Reported Wildlife:				
Environment On Scene				
Environment at Call-out Location	21 Jul 2017 07:20 AM			
Animal Type				
Description (eg. number of individuals, colour, age, size, etc.):	1 Grizzly. Blond/brown, medium large. Blue tag in left ear. Second grizzly appeared 09:30. Larger, browner, prominent hump.			
Photo (If Possible):				
				
Appendix 1	Appendix 2	Appendix 3	Appendix 4	Appendix 5

Question	Response	Details
Chronological Events		
		<p>07:20 - MPP in LV 254 Located bear moving east through pond 5.</p> <p>07:30 - Descended onto lower pad of pond 5 with truck. Identified bear as young grizzly with blue tag in ear from previous relocation attempt.</p> <p>07:50 - Bear started wandering a bit (10m) west. Banged rocks together to discourage him. Retreated back (15m) amongst large rocks at base of rock pile. Continued moving along base to east within pond 5.</p> <p>08:00 - Bear began moving east onto pond 5 road. Tossed a couple small rocks in vicinity, and then charged with truck to move it east. Bear paralleling south haul road on pipeline towards pond 1.</p> <p>08:10 - Bear stopped in grassy boulder patch off south haul road 2/3 of way towards pond 1. Tossed a couple rocks. Bear out of range.</p> <p>08:15 - Bear crossed south haul road near rose garden. Continued moving east on tundra for 50m after tossing some rocks. Then started grazing towards south closer to lac de gras.</p> <p>08:18 - Slowly moving east on tundra.</p> <p>08:33 - Continuing to move east following paired red conduit. Had some play time.</p> <p>08:45 - Cleverly crossed the south haul road 50m away from truck (one utility pole over) and made it to pond 1. Grazed a bit and settled in.</p> <p>09:05 - Bear grazing. Tossed a few rocks to dissuade it from moving west. Slowly working its way from road side of pond to rock pile side.</p> <p>09:30 - SS and Jeremy on site in LV221. Second bear appeared from bush in pond 1. Monitoring standoff.</p> <p>09:45 - SS and Jeremy left in LV221. MPP drove around to backfill lay down as blue tag began moving. Charged with truck, and he hunkered down on a rock in an unreachable corner at edge of lay down overlooking pond 1.</p> <p>09:52 - Returned to monitoring both bears from vantage at edge of pond 1.</p> <p>10:10 - Blue tag on the move. Last seen moving east along the pipeline paralleling the south haul road. Lost sight as it moved through ditch, and MPP had to wait for traffic to pass. Scanned along road east to SCAP workshop, no sighting.</p> <p>10:20 Returned to monitoring larger grizzly in Pond 1. It continues to graze.</p> <p>10:40 - Large bear crossed the south haul road onto the tundra.</p> <p>10:54 - Bear lay down next to vegetation study plot access road. Rolling around. JG in LV 274 patrolling south haul road in search of blue tag bear.</p> <p>11:10 - Large bear moving south along tundra towards north winter road approach. MPP observing.</p> <p>11:23 - Large bear crossed north winter road approach.</p> <p>11:35 - Herded bear along road until it ran out of land and crossed in to the A418 infield over the start of the dike. Charged at it to get it into the infield.</p> <p>11:53 - Bear happily grazing in infield</p>
<p>WildlifeReport000204 Grizzly Bear 2017-07-21 - Pond 5 Score (14/441) 3.17%</p>		<p>- 3 -</p>

Question		Response	Details	
Movement Map (Import NotePlus Site Map)				
				
Appendix 6	Appendix 7	Appendix 8	Appendix 9	Appendix 10
Deterrent Count			Score (13/440) 2.96%	
Truck	5			
Air Horn	0			
C/F Bear Banger	1			
C/F Pen Whistle	0			
12GA Bear Banger	0			
12GA Explosive	0			
12GA B.B. Marker	0			
12GA Rubber Bullet	0			
12GA Slug	0			
Helicopter	0			
Other	7			
Specify	Rocks			
Environment Off Scene				
End of Environment Call-out	21 Jul 2017 12:03 PM			
Final Location of Wildlife	A418 infield for large bear, Till pile for blue tag bear.			
Closure & Sign-off			Score (1/1) 100.00%	
Wildlife Report Complete	On			
Signature	MPP JG	22 Jul 2017 07:49 AM		

Media



Appendix 1



Appendix 2



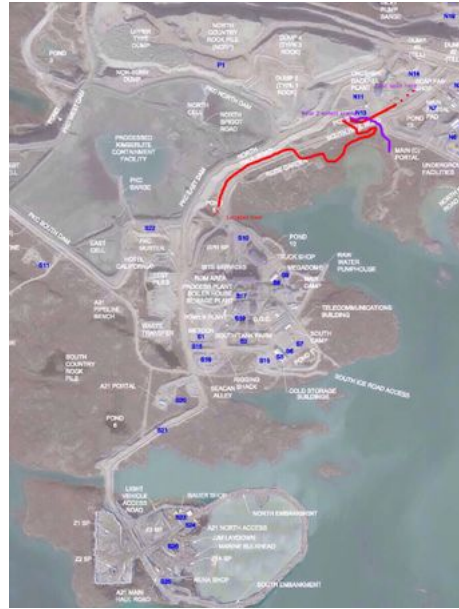
Appendix 3



Appendix 4



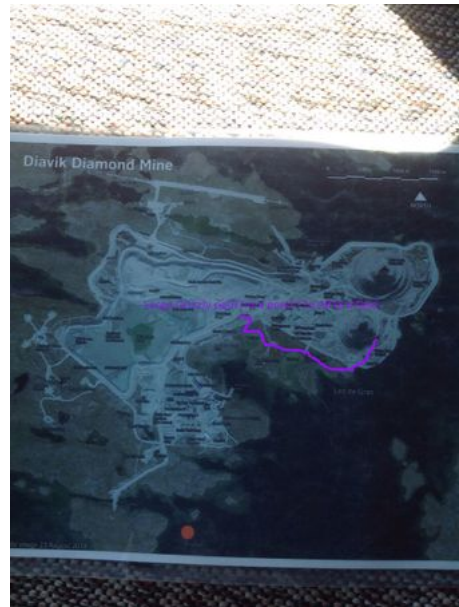
Appendix 5



Appendix 6



Appendix 7



Appendix 8



Appendix 9



Appendix 10

Wildlife Report - 2017

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

Grizzly - 2017-07-22 - Geology area

Document No.

WildlifeReport000053

22 Jul 2017

Completed on

23 Jul 2017


Score

7/441.0 - 1.59%

Audit - 7/441 1.59%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (6/440) 1.36%
Enter Initial Time of Wildlife Sighting	22 Jul 2017 12:00 PM	
Department/Individual Who Reported Wildlife:	Site services	
Environment On Scene		
Environment at Call-out Location	22 Jul 2017 12:10 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Bear with blue tag	
Photo (If Possible):		

Question	Response	Details
Chronological Events		
		<p>1210 JG and SS arrived on site. The bear was behind the core shack</p> <p>1215 SS hit the bear the rubber buck shot. Fired a second shot that missed. The bear climbed the berm and and went to N3 lay down.</p> <p>1220 charged at the bear and it went down into the D1 lay down.</p> <p>1225 bear was approaching the geology area. Charged at it with the truck. It climbed the berm onto the A154 pit road.</p> <p>1330 bear was on the A154 pit road berm. Charged at it and it climbed down the berm toward the ERT training area.</p> <p>1345 left the bear in this area</p> <p>1515 bear spotted on the airport road. JG came out to look for the bear.</p> <p>1530 no sign of the bear</p> <p>1545 found the bear at the base of the Till Pile across from the ERT training grounds</p> <p>1550 bear laid down</p> <p>1610 bear still laying down.</p> <p>1620 pumped the action of the shot gun to try and get the bear moving out of this area as it is to close to the Haul road. Bear got up and started walking but stopped to eat grass.</p> <p>1625 fired a banger. Jumped but didn't leave</p> <p>1635 drove a little closer and pumped the shot gun. Started walking out of area</p> <p>1645 walked in the path of the truck charged at it. Bear ran into an area at the base of the Till Pile with big boulders. Lost sight of it</p> <p>1700 can't find the bear.</p> <p>1710 JG leaving area</p> <p>1740 JG spotted bear digging up siksiks on side of Airport road next to north inlet.</p> <p>1745 Returning Helicopter crew GC, MPP, Chopper Chuck (pilot) take over bear deterrence operation.</p> <p>1750 Bear pushed across road onto rockpile, JG attempts to prevent by charging bear with truck</p> <p>1750 - 18:30 Helicopter circles around and pushes bear off rockpile towards north inlet. Bear begins swimming across, helicopter stands by. Bear reaches other side Helicopter begins pushing bear across runway, and then west northwest across the Tundra to the next island.</p>
Movement Map (Import NotePlus Site Map)		

Question		Response	Details
Deterrent Count		Score (6/440) 1.36%	
Truck		2	
Air Horn		0	
C/F Bear Banger		1	
C/F Pen Whistle		0	
12GA Bear Banger		0	
12GA Explosive		0	
12GA B.B. Marker		0	
12GA Rubber Bullet		0	
12GA Slug		0	
Helicopter		1	
Other		2	
Specify		12 gauge Rubber buck shot	
Environment Off Scene			
End of Environment Call-out		22 Jul 2017 06:30 PM	
Final Location of Wildlife		West Island	
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete		On	
Signature	MPP	23 Jul 2017 04:30 PM	

Wildlife Report - 2017

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

2017-07-24/25 METCON-North Inlet

Document No.

WildlifeReport000205

2017-07-25

Score

10/441 - 2.27%


Completed on

2017-07-26, 4:35 PM

Audit - 10/441 - 2.27%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (9/440) 2.05%
Enter Initial Time of Wildlife Sighting	2017-07-25, 5:30 AM	
Department/Individual Who Reported Wildlife:	Site Services	
Environment On Scene		
Environment at Call-out Location	2017-07-24, 7:30 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Tagged bear	
Photo (If Possible):		
Chronological Events		
	<p>(24th) 1930 reported at Metcon 2005 on tundra south of metal storage yard 2045 SCREAMER fired at bear. Jog west across shoreline. Tried to cross road but pushed back to tundra with TRUCK. 2100 SCREAMER fired directly at bear. No effect. 2115 BANGER fired at bear. Moved a few meters west and then resumed walking slowly towards S Tank farm along tundra far from road. 2200 left bear grazing on tundra 100-200m south of Tank farm area.</p> <p>2300 bear reported at truck shop parking lot. Could not locate.</p> <p>(25th) 0530 bear at veggie plots 0630 bear at pond 1 RUBBER BULLET (1) made contact on rear of bear. 0700 bear at backfill by cement bags BANGERS (2) charged with TRUCK bear ran up rocks to North Haul Road 0730 bear at north country rock pile walking towards ring road. Charged with TRUCK bear went downhill to airport road 0800 bear at north Inlet grazing slowly moving west 0830 ENV left scene 20:30 site Services spots bear near airport road travelling</p>	

WildlifeReport000205
 2017-07-24/25 METCON-North Inlet
 Score (10/441) 2.27%

	west - made announcement		
Movement Map (Import NotePlus Site Map)			
Deterrent Count			Score (9/440) 2.05%
Truck	3		
C/F Bear Banger	3		
C/F Pen Whistle	2		
12GA Rubber Bullet	1		
Specify			
Environment Off Scene			
End of Environment Call-out	2017-07-24, 7:30 PM		
Final Location of Wildlife	North Inlet		
Closure & Sign-off			Score (1/1) 100%
Wildlife Report Complete	On		
Signature	Kyla Gray	2017-07-26 4:35 PM	

Wildlife Report - 2017

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

Grizzly - 2017-07-27-Underground

Document No.

WildlifeReport000055

27 Jul 2017

Completed on


30 Jul 2017

Score

5/441.0 - 1.13%

Audit - 5/441 1.13%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (4/440) 0.91%	
Enter Initial Time of Wildlife Sighting	27 Jul 2017 04:30 AM	
Department/Individual Who Reported Wildlife:	Security	
Environment On Scene		
Environment at Call-out Location	27 Jul 2017 05:00 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blue tagged bear	
Photo (If Possible):		
Chronological Events		
	<p>0430 bear called to security it was at the underground parking lot area 0455 bear crosses road from SCAP to back fill 0500 ENV on scene at south Haul road calls back fill to make them aware and close any open doors 0510 uses RUBBER BULLETS (2) no contact bear runs closes to back fill building over berm visual is lost 0515 ENV enters back fill plant floor visual of bear is made it is 150m from the building Uses TRUCK to charge bear. Runs north up and over rock pile onto north Haul road used TRUCK again to charge bear up Till Pile. Visual lost 0630 visual of bear on till Pile. Bear crosses Airport road to Tundra near north inlet 730 safe area for bear , ENV leaves scene</p>	
Movement Map (Import NotePlus Site Map)		
Deterrent Count	Score (4/440) 0.91%	
Truck	2	
Air Horn	0	

Question	Response	Details	
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	2		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	27 Jul 2017 07:30 AM		
Final Location of Wildlife	North Inlet		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Shelby Skinner	30 Jul 2017 10:11 AM	

Wildlife Report - 2017

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

Grizzly - 2017-07-28 - Backfill Crusher

Document No.

WildlifeReport000056

28 Jul 2017

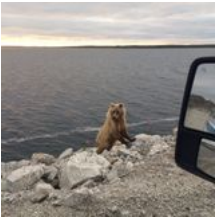
Completed on



30 Jul 2017

Score

4/441.0 - 0.91%

Audit - 4/441 0.91%

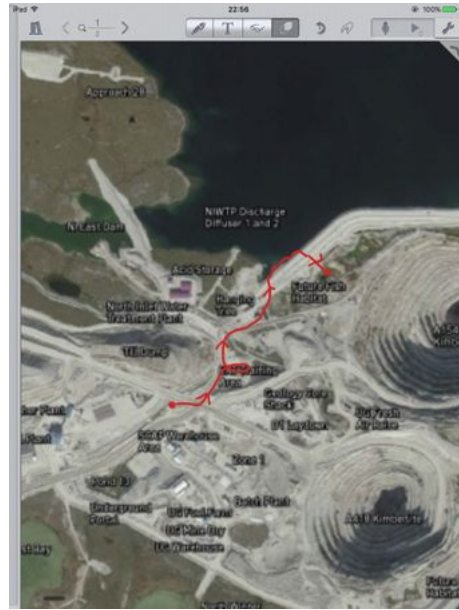
Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (3/440) 0.68%	
Enter Initial Time of Wildlife Sighting	28 Jul 2017 09:00 AM	
Department/Individual Who Reported Wildlife:	Daniel/Site Services	
Environment On Scene		
Environment at Call-out Location	28 Jul 2017 10:03 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Young blonde bear with blue tag in ear	
Photo (If Possible):		
		
Appendix 1		
Chronological Events		
	0900 bear called in on Tundra near airport road heading towards airport 2120 bear called in on N haul road heading towards backfill crusher yard, issued bear update 2135 bear spotted running down airport road, used TRUCK, ran into ERT training grounds, used TRUCK, ran out of ERT training grounds and ran on A154 dike 2150 bear went for a swim off dike 2200 used TRUCK AND bear crossed A154 dike into fish habitat, grazing. Updated bear alert	

Question		Response	Details
Movement Map (Import NotePlus Site Map)			
 <p>Appendix 2</p>			
Deterrent Count			Score (3/440) 0.68%
Truck	3		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	28 Jul 2017 10:30 PM		
Final Location of Wildlife	Fish habitat A154		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Shelby Skinner	30 Jul 2017 10:04 AM	

Media



Appendix 1



Appendix 2

Wildlife Report - 2017

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

Blue Tag Grizz - 2017-07-29 - veg plots

Document No.

WildlifeReport000206

29 Jul 2017

Completed on


30 Jul 2017


Score

24/441.0 - 5.44%

Audit - 24/441 5.44%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (23/440) 5.23%
Enter Initial Time of Wildlife Sighting	29 Jul 2017 07:00 AM	
Department/Individual Who Reported Wildlife:		
Environment On Scene		
Environment at Call-out Location	29 Jul 2017 07:30 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blue tag, brown spot on hump, dark hair around eyes	
Photo (If Possible):		

Question	Response	Details
Chronological Events		
		<p>7:30 ENV finds grizzly grazing just west of north winter road approach.</p> <p>8:20 bear moves closer to veg plots, environment moves to veg plots</p> <p>9:00 shot one banger to move grizzly east out of the south veg plot</p> <p>9:15-9:40 shot 5 bear bangers trying to move bear away from veg plots, put truck between bear and its westward movement</p> <p>10:05 shot 3 more bangers, bear moved slightly east</p> <p>10:20-10:50 bear sneaks around hill to west side of veg plots near west bay. Then crosses veg plot road heading east, ENV pushed it with truck.</p> <p>10:55 bear crosses road into pond 13, failed to block with truck. Then crosses backfill plant intersection into pond 1, had to stop at stop sign, failed to block.</p> <p>11:15 threw rocks in direction of bear, no reaction.</p> <p>12:00 bear lays down for a nap on rock in pond 1, ENV leaves for lunch</p> <p>14:0 ENV returns to area</p> <p>14:50 bear crosses S haul Rd to west bay from pond 1</p> <p>15:10 lost visual South of South haul road</p> <p>15:30 regained visual in same area</p> <p>15:50 practice with 12 gauge deterrents, 1 explosive, 1 rubber buckshot, 1 bean bag</p> <p>17:50 bear crosses S haul road to pond 1</p> <p>18:38 fired 6 bangers trying to move bear out of pond, bear climbed high wall and bedded down for the night</p> <p>18:45 ENV confident bear was bedded down, ENV left scene</p>
<p>Movement Map (Import NotePlus Site Map)</p>  <p>Appendix 1</p>		
Deterrent Count		Score (23/440) 5.23%
Truck	4	
Air Horn	0	
C/F Bear Banger	15	

Question	Response	Details	
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	1		
12GA B.B. Marker	1		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	2		
Specify	Rocks, 1x 12 gauge rubber buckshot		
Environment Off Scene			
End of Environment Call-out	29 Jul 2017 06:45 PM		
Final Location of Wildlife	On high wall beside pond 1		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Gordon Cumming	30 Jul 2017 07:14 AM	

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly - 2017-07-30 - Backfill Plant

Document No.

WildlifeReport000057

30 Jul 2017

Completed on

31 Jul 2017




Score

22/441.0 - 4.99%

Audit - 22/441 4.99%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (21/440) 4.77%
Enter Initial Time of Wildlife Sighting	30 Jul 2017 04:00 AM	
Department/Individual Who Reported Wildlife:	Paul/Fountain Tire	
Environment On Scene		
Environment at Call-out Location	30 Jul 2017 04:30 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Young, blonde, blue tag in ear	
Photo (If Possible):		

Question	Response	Details
Chronological Events		
		<p>0400 (SS2) received call from Terry at Security that bear was spotted crossing S Haul road into Backfill Plant</p> <p>0430 ENV at Backfill Plant, no visual of bear</p> <p>0440 spotted bear in W Shallow Bays grazing near power pole 2102</p> <p>0600 ACTIONED GUN, used TRUCK 3x, bear moved E towards Veg Plots from Veg Plot road</p> <p>0620 bear walked through Veg Plots</p> <p>0657 updated bear alert, bear in E Shallow Bay</p> <p>0717 used TRUCK to get bear across N Winter Road approach</p> <p>0722 ACTIONED GUN</p> <p>0745 used TRUCK 3x to keep bear on lake side of Dike, bear crossed A418 Dike into laydown, used TRUCK to move bear into Fish Habitat DPS Well 6</p> <p>0753 bear grazing at DPS well 6</p> <p>0813 bear grazing near DPS Well 6, updated bear alert, ENV left</p> <p>1629 bear called in at Backfill Plant, updated bear alert</p> <p>16:30 ENV on scene, bear moving S underneath Backfill Plant</p> <p>16:31 blocked with truck, bear moves east into ditch</p> <p>16:35 bear crosses backfill Haul road to ditch heading to Pond one, ENV moves to light vehicle backfill entrance</p> <p>16:40 bear attempts to cross to Pond 1, ENV blocks and chases bear across road to Tundra south of Haul road.</p> <p>17:45 bear crosses Haul road behind truck, failed to block, bear crosses into Pond 1</p> <p>18:00 bear beds down, ENV watches for 10 mins, updates bear alert and leaves scene</p> <p>2000 bear reported crossing S Haul Road from Pond 1 to shallow bays, updated bear alert</p> <p>2020 ENV on scene, no visual in Shallow Bays or Pond 1</p> <p>2105 bear spotted on Tundra across from Pond 5 in Shallow Bays, updated bear alert</p> <p>2140 bear tried to cross S Haul road over into Pond 5, used TRUCK 5x, bear went back down to Tundra</p> <p>2210 fired 3 BEAR BANGERS (C/F) and one EXPLOSIVE, bear moved 50 ft N</p> <p>2220 fired EXPLOSIVE, BEAR MOVED 100ft N</p> <p>2300 fired 4 BEAR BANGERS (C/F), bear moved 50 ft N</p> <p>2330 lost site of bear, regained visual in area first spotted</p>

Question		Response	Details
Movement Map (Import NotePlus Site Map)			
			
Appendix 1		Appendix 2	
Deterrent Count			Score (21/440) 4.77%
Truck	11		
Air Horn	0		
C/F Bear Banger	7		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	2		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	1		
Specify	Actioned gun		
Environment Off Scene			
End of Environment Call-out	31 Jul 2017 12:37 AM		
Final Location of Wildlife	Pond 5		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Shelby Skinner	31 Jul 2017 09:07 AM	

Media



Appendix 1



Appendix 2

Wildlife Report - 2017

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

Grizzly - 2017-08-10

Document No.

WildlifeReport000061

10 Aug 2017

Completed on


13 Aug 2017


Score

6/441.0 - 1.36%

Audit - 6/441 1.36%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (5/440) 1.14%	
Enter Initial Time of Wildlife Sighting	10 Aug 2017 04:45 PM	
Department/Individual Who Reported Wildlife:	Andrew Site Serices	
Environment On Scene		
Environment at Call-out Location	10 Aug 2017 04:50 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blue tag bear, single small young blonde grizzly	
Photo (If Possible):		
Chronological Events		
	<p>16:50 MPP and DR on site in LV 254. Eyes on bear In ditch between south Haul road and Backfill.</p> <p>17:00 JG on site in LV 274 to takeover.</p> <p>1705 bear walked over the berm and headed over to Pond 1</p> <p>1710 bear in Pond 1 feeding</p> <p>1713 shot bear with a rubber bullet. It ran then started walking east.</p> <p>1715 bear stopped to feed</p> <p>1720 still feeding</p> <p>1735 bear went behind a mound out of sight</p> <p>1743 fired a bear banger. Bear started running east</p> <p>1745 pumped the action on the gun to keep the bear moving</p> <p>1752 bear walked onto the pond 1 pump shack pad. Charged at it with the truck. It ran and started climbing the rock pile up toward the North haul road. Fired a bear banger to keep it going.</p> <p>1758 the bear stopped up high on the pile just below the north haul road and is resting</p> <p>1815 still resting. Made an announcement and left.</p>	

Question	Response	Details
Movement Map (Import NotePlus Site Map)  Appendix 1		
Deterrent Count		Score (5/440) 1.14%
Truck	1	
Air Horn	0	
C/F Bear Banger	2	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	1	
12GA Slug	0	
Helicopter	0	
Other	1	
Specify		Pumped the action on the gun
Environment Off Scene		
End of Environment Call-out		10 Aug 2017 06:15 AM
Final Location of Wildlife		On the rock pile by pond 1
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete		On

Question		Response	Details
Signature	JG	11 Aug 2017 10:22 AM	

Wildlife Report - 2017

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

Grizzly - 2017-08-11 - A21

Document No.

WildlifeReport000062

11 Aug 2017

Completed on



13 Aug 2017

Score

3/441.0 - 0.68%

Audit - 3/441 0.68%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (2/440) 0.46%	
Enter Initial Time of Wildlife Sighting	11 Aug 2017 07:25 AM	
Department/Individual Who Reported Wildlife:	Ben from Nuna	
Environment On Scene		
Environment at Call-out Location	11 Aug 2017 07:30 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Bigger dark coloured bear	
Photo (If Possible):		
Chronological Events		
	<p>0725 Ben from Nuna reported that there was a bear swimming to the north Dike in the A21 area. A site wide notice was made by DB</p> <p>0730 JG arrived on site. The bear crossed the North Dike entrance and into the inside of A21 Dike.</p> <p>0735 JG went to S27 lay down and got a visual of the bear feeding on some grass</p> <p>0740 the bear saw my truck and started walking south toward JJM marine lay down.</p> <p>0745 DB arrived on site with another truck and went to the JJM lay down. There were a few trucks in the JJM lay down. The bear passed between both the JJM lay down and S27 lay down and ran into Zone 3. We lost site of it there.</p> <p>0755 JG spotted the bear leaving Zone 3 and onto the A21 haul road.</p> <p>0800 DB drove onto the Haul road and chased the bear onto the Tundra heading east.</p> <p>0805 the bear walked to the end of a peninsula and out of site. DB left the area.</p> <p>0815 JG continued to scan the area for the bear</p> <p>0825 no visual of the bear</p> <p>0845 no visual of the bear. JG received a call of another bear and left the area.</p>	

Question	Response	Details	
Movement Map (Import NotePlus Site Map)  Appendix 1			
Deterrent Count		Score (2/440) 0.46%	
Truck	2		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	11 Aug 2017 08:45 AM		
Final Location of Wildlife	On the Tundra West of the A21 area		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	JG	11 Aug 2017 01:35 PM	

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly - 2017-08-11 - Pond 5

Document No.

WildlifeReport000063

11 Aug 2017

Completed on


13 Aug 2017


Score

3/441.0 - 0.68%

Audit - 3/441 0.68%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (2/440) 0.46%	
Enter Initial Time of Wildlife Sighting	11 Aug 2017 08:45 AM	
Department/Individual Who Reported Wildlife:	Survey	
Environment On Scene		
Environment at Call-out Location	11 Aug 2017 08:55 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blue tag bear	
Photo (If Possible):		
Chronological Events		
	<p>0845 survey called in a bear at pond 5 0855 JG arrived at pond 5 0905 drove down into Pond 5 and pumped the action on the shot gun. The bear ran west 0915 the bear started climbing the PKC dam wall. 0920 the bear walked up the pond 5 pipe bench that goes to the PKC. Lost site of it 0930 JG drove into the PKC area and started looking for the bear. No sign of it 0945 still searching for the bear and nothing 1000 went back to the pond 5 area and no sign of the bear. The bear might be up on the pipe bench between pond 5 and he PKC 1030 searched for the bear and could not find it. JG leaving the area</p>	

Question	Response	Details
Movement Map (Import NotePlus Site Map)  Appendix 1		
Deterrent Count		Score (2/440) 0.46%
Truck	1	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	1	
Specify		Pumped the action on the shot gun
Environment Off Scene		
End of Environment Call-out	11 Aug 2017 10:30 AM	
Final Location of Wildlife	Pipe bench between pond 5 and the PKC	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	

Question		Response	Details
Signature	JG	11 Aug 2017 02:28 PM	

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly - 2017-08-12 - Pond 1

Document No.

WildlifeReport000064

12 Aug 2017

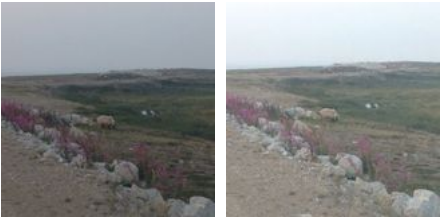
Completed on


13 Aug 2017


Score

5/441.0 - 1.13%

Audit - 5/441 1.13%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (4/440) 0.91%
Enter Initial Time of Wildlife Sighting	12 Aug 2017 03:30 AM	
Department/Individual Who Reported Wildlife:	Site Services Travis	
Environment On Scene		
Environment at Call-out Location	12 Aug 2017 05:00 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blue tag bear	
Photo (If Possible):		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 </div>		

Question	Response	Details
Chronological Events		
		<p>0330 site service employee reported a bear on the haul road going into Pond 5. Site service supervisor went confirm location.</p> <p>0350 site service supervisor reported the bear was actually in Pond 1 and volunteered to keep watch on the bear</p> <p>0430 bear crossed the road to the West shallow Bay Area</p> <p>0500 JG arrived on scene. The bear was on the side of the Vegetation plot Road feeding. Charged at it with truck but it wouldn't budge.</p> <p>0520 crossed the road heading toward East shallow bay. Charged at it with the truck</p> <p>0525 spotted and started feeding</p> <p>0535 the bear is feeding and slowing walking East</p> <p>0545 the bear is in the East shallow bay now</p> <p>0600 feeding in the East shallow Bay Area</p> <p>0615 still feeding in the same area</p> <p>0630 the bear crossed the North winter road approach and is walking East</p> <p>0645 feeding and moving East</p> <p>0655 bear by Survey monument close to A418 pit Dike entrance</p> <p>0700 bear went onto Dike road and ran to the A418 fish habitat</p> <p>0710 the bear is feeding in the fish habitat area</p> <p>0715 bear walked out of the fish habitat and is heading north on the inside of the Dike.</p> <p>0720 bear reached top of 418 dyke</p> <p>0726 used TRUCK to push bear to 154 fish habitat</p> <p>0739 bear grazing in 154 fish habitat</p> <p>0755 bear crested 154 dyke</p> <p>0800 PUMPED GUN to keep bear from heading south</p> <p>0805 bear swam to small island of dyke</p> <p>0820 bear ate gull nest</p> <p>0833 bear sleeping on island</p> <p>0900 environment left bear sleeping</p>
Movement Map (Import NotePlus Site Map)		
 <p>Appendix 3</p>		

Question	Response	Details	
Deterrent Count		Score (4/440) 0.91%	
Truck	3		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	1		
Specify	Pumping shotgun		
Environment Off Scene			
End of Environment Call-out	12 Aug 2017 09:05 AM		
Final Location of Wildlife	Islands east of the A154 dyke		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Don Roberts	13 Aug 2017 07:19 AM	

Media



Appendix 1



Appendix 2



Appendix 3

Wildlife Report - 2017

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

Grizzly - 2017-08-14 - North Inlet Tundra

Document No.

WildlifeReport000210

14 Aug 2017



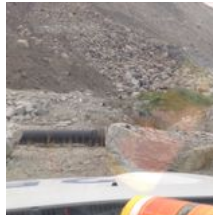

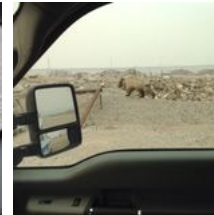
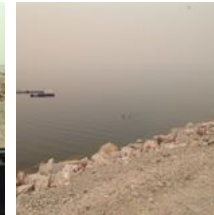
Completed on

15 Aug 2017


Score

4/441.0 - 0.91%

Audit - 4/441 0.91%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (3/440) 0.68%	
Enter Initial Time of Wildlife Sighting	14 Aug 2017 12:00 PM	
Department/Individual Who Reported Wildlife:	Site Services/Brad	
Environment On Scene		
Environment at Call-out Location	14 Aug 2017 12:10 PM	
Animal Type		
Description (eg. number of individuals, colour, age, size, etc.):	Blue tag bear, single blonde young small	
Photo (If Possible):		
     		
Appendix 1 Appendix 2 Appendix 3 Appendix 4 Appendix 5 Appendix 6		

Question	Response	Details
Chronological Events		
		<p>12:10 MPP spotted bear moving south on tundra along pipeline. Bear crossed pipeline and visual contact was lost.</p> <p>12:45 After thorough scanning the bear was found grazing again between the pipeline and airport road farther south towards the NIWTP.</p> <p>12:57 After pacing the bear as it moved south grazing it made a run across the road to the ditch at the base of the rockpile. Charged him with truck.</p> <p>1:03 Took photo of him grazing by a pond/puddle at base of rockpile across from NIWTP entrance.</p> <p>1:30 Remain on station. Suspect bear remains at base of till dump pile across from NIWTP, but it could have snuck by to move along the nearby pipeline towards the west.</p> <p>1:45 Made announcement and left to search for Bear towards backfill.</p> <p>2:00 Found Bear sleeping on a rock at base of till pile that I couldn't quite see from previous vantage.</p> <p>2:05 Left bear sleeping, and returned to office.</p> <p>3:00 Bear reported at hanging tree.</p> <p>3:10 MPP finds bear in northern most A154 Future Fish Habitat area. Begins monitoring.</p> <p>3:45 After grazing in the fish habitat the bear headed up slope to the northwest to attempt skirting the north side of the pit.</p> <p>3:50 Circled around in truck and managed to cut bear off. Charged at it and forced it back down into fish habitat.</p> <p>3:55 Bear attempting to cross road to get up and over dike. Played chicken for 8 minutes. Felt like Bear was hearing the truck instead of vice versa.</p> <p>4:03 Bear made it over the dike and into the water. Swam over to hanging tree/environment docks.</p> <p>4:12 Bear grazed on section of tundra, before moving north over NIWTP outlet pipeline.</p> <p>4:15 Lost sight of bear behind NIWTP. Searched along airport road.</p> <p>4:30 Left area to provide bear watch for Vegetation study crew.</p>
Movement Map (Import NotePlus Site Map)		
Deterrent Count		Score (3/440) 0.68%
Truck	3	
Air Horn	0	

Question	Response	Details
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	14 Aug 2017 04:30 PM	
Final Location of Wildlife	Behind NIWTP	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Matthew Poitier	15 Aug 2017 08:51 AM 

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4



Appendix 5



Appendix 6

Wildlife Report - 2017

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

Grizzly - 2017-08-19 - A21 light vehicle road

Document No.

WildlifeReport000211

19 Aug 2017

Completed on


20 Aug 2017

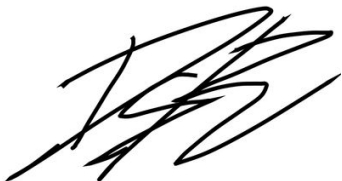
Score

18/441.0 - 4.08%

Audit - 18/441 4.08%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (17/440) 3.86%
Enter Initial Time of Wildlife Sighting	19 Aug 2017 11:58 AM	
Department/Individual Who Reported Wildlife:	Daren - nuna	
Environment On Scene		
Environment at Call-out Location	19 Aug 2017 12:24 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blue tag bear	
Photo (If Possible):		

Question	Response	Details
Chronological Events		
		<p>11:58 bear sighting called in by Daren with nuna 12:30 environment on scene bear sleeping on tundra 13:00 issued updated all announcement and left scene 13:30 bear reported closer to A21 13:40 environment on scene 14:00 used TRUCK AND GUN PUMPING to push bear off A21 light vehicle road moved west crossing A21 haul road 14:15 used TRUCK AND GUN PUMPING to push bear west of A21 portal 14:20 bear crossed A21 haul road and A21 light vehicle road heading east 15:30 used 12GA EXPLOSIVES x2 in an attempt to stop bear from crossing winter road dispatch, bear crossed winter road dispatch to pond 11 15:45 used 12GA rubber slug and 12GA EXPLOSIVES x2 in an attempt to move bear from pond 11 16:20 bear left pond 11 used TRUCK to push bear to tundra behind comm shack 17:20 used TRUCK and GUN PUMP. To push bear crossing fresh air in take heading west on shore 18:10 used TRUCK and GUN PUMP. To stop bear from crossing south haul road to pond 5 18:28 bear swam from rose garden shore to Vegetation plots area 18:45 bear still near Vegetation plots heading to south haul road 18:50 used 12GA EXPLOSIVES x3 in attempt to push bear west, bear moved east 19:15 used TRUCK x2 to stop bear from crossing to pond 1 19:17 bear crossed south haul road to pond 1 19:40 bear climbed rock wall to north haul road 19:40 environment left scene</p>
Movement Map (Import NotePlus Site Map)		
 <p>Appendix 1</p>		
Deterrent Count		Score (17/440) 3.86%
Truck	6	

Question	Response	Details
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	7	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	4	
Specify	Gun Pumping	
Environment Off Scene		
End of Environment Call-out	20 Aug 2017 05:20 AM	
Final Location of Wildlife	North country rock pile	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Don Roberts	19 Aug 2017 01:05 PM
		

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly - 2017-08-23 - A21 Portal

Document No.

WildlifeReport000066

23 Aug 2017

Completed on

24 Aug 2017


Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (1/440) 0.23%	
Enter Initial Time of Wildlife Sighting	23 Aug 2017 08:54 PM	
Department/Individual Who Reported Wildlife:	A21/Joel	
Environment On Scene		
Environment at Call-out Location	23 Aug 2017 09:20 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Dark brown with blonde tips	
Photo (If Possible):		
Chronological Events		
	2055 Joel reported grizzly near A21 portal, issued bear alert 2100 Joel reported grizzly on Tundra off of Lakeshore Boulevard 2120 ENV on scene 2130 bear climbed berm up to Winter Staging area, found bear grazing in Pond 11, closed trail and deck, updated bear alert 2150 BEAR BANGER, bear lifted head and continued grazing 2200 lost visual of bear, getting dark 2245 ENV off scene	
Movement Map (Import NotePlus Site Map)		
Deterrent Count	Score (1/440) 0.23%	
Truck	0	
Air Horn	0	
C/F Bear Banger	1	
C/F Pen Whistle	0	

WildlifeReport000066
 Grizzly - 2017-08-23 - A21 Portal
 Score (2/441) 0.45%

Question	Response	Details	
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	23 Aug 2017 10:45 PM		
Final Location of Wildlife	Pond 11		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Shelby Skinner	24 Aug 2017 06:46 AM	

Wildlife Report - 2017

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

Grizzly - 2017-08-24 - MAC

Document No.

WildlifeReport000067

24 Aug 2017

Completed on



25 Aug 2017

Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (1/440) 0.23%	
Enter Initial Time of Wildlife Sighting	24 Aug 2017 06:25 AM	
Department/Individual Who Reported Wildlife:	Environment/Dianne	
Environment On Scene		
Environment at Call-out Location	24 Aug 2017 06:41 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Brown bear with blonde tips	
Photo (If Possible):		
Chronological Events		
	0625 bear spotted outside cafeteria, bear alert issued 0630 bear spotted heading into Pond 5 0641 ENV on scene, bear ran up and over pipes and onto Tundra above pond 5, lost visual 0652 spotted bear back in Pond 5 0706 bear crossed S Haul Road onto Tundra in Shallow Bays 0810 bear scratching on rocks in Shallow Bays 0900 lost sight of bear 0912 bear crossed S Haul road into Pond 1 0945 bear climbed rock wall into cement storage area of Backfill Plant, notified Backfill Plant operators 0950 bear climbed up rock wall to N Haul Road, notified Pit Supervisor, used TRUCK, crossed Haul Road onto Ring Road and down rock wall 1001 bear in NI, updated bear alert 1030 ENV off scene	

Question	Response	Details	
Movement Map (Import NotePlus Site Map)  Appendix 1			
Deterrent Count		Score (1/440) 0.23%	
Truck	1		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	24 Aug 2017 10:30 AM		
Final Location of Wildlife	North Inlet		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Shelby Skinner	25 Aug 2017 07:28 AM	

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly- 2017-09-06

Document No.

WildlifeReport000070

06 Sep 2017


Completed on


06 Sep 2017

Score

3/441.0 - 0.68%

Audit - 3/441 0.68%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (2/440) 0.46%
Enter Initial Time of Wildlife Sighting	06 Sep 2017 07:45 AM	
Department/Individual Who Reported Wildlife:	Steve - Geotechnical	
Environment On Scene		
Environment at Call-out Location	06 Sep 2017 08:10 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blue tag bear	
Photo (If Possible):		
Chronological Events		
	7:45 Steve geotechnical called in bear at south Haul road Backfill intersection 08:10 environment on scene bear at north inlet 08:50 bear moved to north inlet dyke used truck and 12G bear banger to push bear north to Tundra east of runway 10:01 bear still in same area environment left scene	
Movement Map (Import NotePlus Site Map)		
		
Deterrent Count		Score (2/440) 0.46%
Truck	1	
Air Horn	0	

Question	Response	Details	
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	1		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	06 Sep 2017 10:01 AM		
Final Location of Wildlife	Tundra east of runway		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Don Roberts	06 Sep 2017 10:04 AM	

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly- 2017-09-11

Document No.

WildlifeReport000071

11 Sep 2017


Completed on

11 Sep 2017

Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (1/440) 0.23%
Enter Initial Time of Wildlife Sighting	11 Sep 2017 09:27 AM	
Department/Individual Who Reported Wildlife:	UG	
Environment On Scene		
Environment at Call-out Location	11 Sep 2017 09:31 AM	
Animal Type		
Description (eg. number of individuals, colour, age, size, etc.):	Single blonde/brown grizzly, medium-small.	
Photo (If Possible):		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 </div>		

Question	Response	Details
----------	----------	---------

Chronological Events

0927 Bear reported behind North Mine Dry moving towards SCAP/Zone 1
 0931 MPP on scene with bear at intersection of South and North Haul roads. Charged with truck and bear crosses into ditch and begins climbing slope to Till Pile. Lose sight of bear.
 0950 Find bear at top of Till Pile on second check. Get photo as bear descends crest towards airport road/north inlet.
 0953 Bear crosses pipeline on North Inlet Tundra.
 0957 Locate bear grazing/investigating on inlet side of pipe. Begin monitoring from distance.
 1010 Bear starts moving in direction of airport. Lose sight due to topography.
 1014 Back up the hill, spot the bear continuing to hang out in same general area.
 1055 Bear remains in same area. Loitering.
 1105 Left area, as bear seemed content.
 1210 DW reports bear in same area. Digging for Sik Siks near NIWTP Barge road.
 1500 DB says bear swam over to runway side of NI.

Movement Map (Import NotePlus Site Map)




Appendix 4

Deterrent Count

Score (1/440) 0.23%

Truck	1
Air Horn	0
C/F Bear Banger	0
C/F Pen Whistle	0
12GA Bear Banger	0
12GA Explosive	0
12GA B.B. Marker	0
12GA Rubber Bullet	0

Question	Response	Details	
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	11 Sep 2017 01:50 AM		
Final Location of Wildlife	North inlet tundra.		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Matthew Poirier	11 Sep 2017 05:15 PM	

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4

Wildlife Report - 2017

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

Grizzly - 2017-09-13 - A21

Document No.

WildlifeReport000214

13 Sep 2017


Completed on

14 Sep 2017

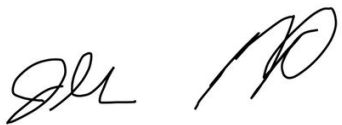
Score

6/441.0 - 1.36%

Audit - 6/441 1.36%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (5/440) 1.14%	
Enter Initial Time of Wildlife Sighting	13 Sep 2017 07:00 AM	
Department/Individual Who Reported Wildlife:	Nuna	
Environment On Scene		
Environment at Call-out Location	13 Sep 2017 07:10 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Med. sized bear. Dark brown	
Photo (If Possible):		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 </div>		

Question	Response	Details
Chronological Events		
		<p>0700 Nuna called in the bear at the S23 lay own in the A21 area</p> <p>0710 JG and MPP arrived on site in separate trucks. The bear was on the tundra by lakeshore boulevard</p> <p>0720 feeding and slowly moving north</p> <p>0740 bear laying down</p> <p>0815 bear up and feeding</p> <p>0830 still feeding in the same area</p> <p>0840 went over a hill out of site</p> <p>0910 found the bear a little further north</p> <p>0930 the bear is closer to the road</p> <p>0945 heading toward south winter road approach</p> <p>1000 crossed into pond 11</p> <p>1010 crossed the road on communications shack side</p> <p>1015 fired a bear banger. Bear started moving north out of site</p> <p>1033 crossed the road by the fresh water intake building</p> <p>1038 the bear went into pond 10</p> <p>1041 out of pond 10 and moving north</p> <p>1045 swam across Inlet and heading toward the veg plots</p> <p>1055 by the veg plots. Charged with the truck. Ran across the road and into pond 1</p> <p>1058 in Pond 1. Fired a bear banger</p> <p>1105 fired another bear banger and it went up into the backfill yard. Drove in and chased it out.</p> <p>1110 on berm heading north. Went back into backfill yard</p> <p>1115 Left the yard crossed the rock pile road and started climbing the till pile</p> <p>1120 came down from the till pile and crossed the airport road into the north Inlet</p> <p>1140 still in the north Inlet area</p> <p>1150 JG leaving area</p> <p>1215 GC on scene, bear still in north Inlet</p>
Movement Map (Import NotePlus Site Map)		
<div> </div> <p>Appendix 4</p>		

Question	Response	Details	
Deterrent Count		Score (5/440) 1.14%	
Truck	2		
Air Horn	0		
C/F Bear Banger	3		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	13 Sep 2017 01:15 PM		
Final Location of Wildlife	North Inlet Tundra		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Matthew Poirier Justin Grandjambe	14 Sep 2017 07:42 AM	

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4

Wildlife Report - 2017

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

Grizzly - 2017-09-14

Document No.

WildlifeReport000072

14 Sep 2017



Completed on


14 Sep 2017


Score

15/441.0 - 3.40%

Audit - 15/441 3.40%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report		Score (14/440) 3.18%
Enter Initial Time of Wildlife Sighting	14 Sep 2017 07:00 AM	
Department/Individual Who Reported Wildlife:	RYCAN	
Environment On Scene		
Environment at Call-out Location	14 Sep 2017 07:30 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	1 Dark underside, dark patch on shoulder hump. , dark legs, brown/blonde back	
Photo (If Possible):		
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> </div>		

Question	Response	Details
Chronological Events		
		<p>7:00 bear sighting in Shallow Bays reported 7:30 GC on sight, confirmed sighting beside veg plots Road 7:50 lost sight behind ridge beside road, somehow manages to sneak around 7:55 ENV finds bear banger trying to see if bear comes out behind ridge 8:15 bear called in coming off north country rock pile and entering north inlet 8:20 environment finds bear in north inlet close to road 8:20-10:00 bear moves west following pipeline 10:20 shot 1 pen banger, 3 12 g explosives trying to move bear west across road, bear didn't move 10:45-11:15 bear moved closer, attempted to move bear east with 2 shotgun bangers, 2 pen bangers, 2 markers, and 3 rubber slugs, totally ineffective, slugs missed, too far. 11:30 bear still hasn't moved, environment off scene</p>
<p>Movement Map (Import NotePlus Site Map)</p> <div style="text-align: center;">  </div> <p>Appendix 3</p>		
Deterrent Count		Score (14/440) 3.18%
Truck	0	
Air Horn	0	
C/F Bear Banger	4	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	5	
12GA B.B. Marker	2	
12GA Rubber Bullet	3	
12GA Slug	0	

Question	Response	Details	
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	14 Sep 2017 11:30 AM		
Final Location of Wildlife	West side of North inlet		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Gordon Cumming	14 Sep 2017 06:17 PM	

Media



Appendix 1



Appendix 2



Appendix 3

Wildlife Report - 2017

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

Grizzly - 2017-09-19 S tank farm-PKC-airport

Document No.

WildlifeReport000073

19 Sep 2017

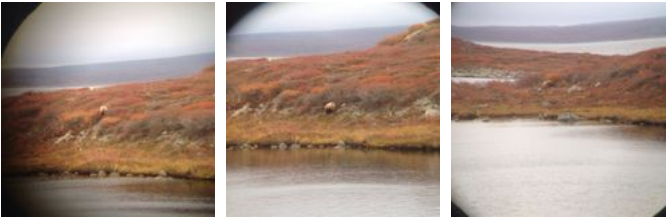
Completed on



20 Sep 2017


Score

12/441.0 - 2.72%

Audit - 12/441 2.72%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (11/440) 2.50%	
Enter Initial Time of Wildlife Sighting	19 Sep 2017 05:50 AM	
Department/Individual Who Reported Wildlife:	A21	
Environment On Scene		
Environment at Call-out Location	19 Sep 2017 07:45 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Dark brown underside, tufts of dishevelled hair behind rump, as if bitten	
Photo (If Possible):		
		
<div style="display: flex; justify-content: space-around; width: 100%;"> Appendix 1 Appendix 2 Appendix 3 </div>		

Question	Response	Details
Chronological Events		
		<p>5:50 bear reported east of lakeshore boulevard 6:50 bear reported in South tank farm 7:15 ENV on scene GC at S tank far 7:20 bear reported on N Haul road 7:30 GC gets visual of bear crossing PKC towards landfill 7:40 GC moved to north end of PKC, meets bear and pushes north with truck 7:45 bear crosses back and forth between landfill, Haul Rd and PKC , ENV continues pushing. 7:50 bear enters ring road, ENV monitors from distance 8-8:20 bear passes through pond 3&2, crosses n17 to Tundra, ENV pushes bear through n17 8:53 bear crosses pond moving close to terminal 8:55 spectators near terminal, ENV fired 3 12g bangers, bear moved west away from terminal then north towards west end of runway 9:10 ENV moves to vehicle road past west end of runway, bear crossed to northwest side of runway just after plane landed, 9:13 ENV FIRED 2 pen bangers, 1 12g banger, moved bear little further from runway 9:35 bear moved back towards runway, cycled gun action, bear moved back NW 9:55 bear moved NW over hill, lost visual. ENV satisfied bear moving in good direction, ENV left scene 1740 Clayton called in bear at SCAP Warehouse headed towards North Mine Dry, updated bear alert 1745 Clayton updates bear location, headed towards Batch Plant 1758 ENV (SS2) on the scene with visual of bear crossing UG road from lay down below Batch Plant to Tundra in E Shallow Bays 1800 bear grazing in Tundra 1950 lost visual of bear headed towards North Winter Road Approach, updated bear alert, ENV left scene</p>
Movement Map (Import NotePlus Site Map)		
 <p>Appendix 4</p>	 <p>Appendix 5</p>	
Deterrent Count		Score (11/440) 2.50%
Truck	3	

Question	Response	Details	
Air Horn	0		
C/F Bear Banger	2		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	4		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	2		
Specify	Cycled shotgun action		
Environment Off Scene			
End of Environment Call-out	19 Sep 2017 08:00 PM		
Final Location of Wildlife	East Shallow Bays		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Shelby Skinner	20 Sep 2017 01:27 PM	

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4



Appendix 5

Wildlife Report - 2017

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

Grizzly - 2017-09-25 - Airport

Document No.

WildlifeReport000220

25 Sep 2017


Completed on


26 Sep 2017

Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (1/440) 0.23%	
Enter Initial Time of Wildlife Sighting	25 Sep 2017 09:35 AM	
Department/Individual Who Reported Wildlife:		
Environment On Scene		
Environment at Call-out Location	25 Sep 2017 09:50 AM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Same on, blonde upper, dark lower and rear	
Photo (If Possible):		
Chronological Events		
	9:35 bear reported in N17 9:50 ENV GC, AH on scene, bear beside N17 on tundra, heading over hill towards airport 9:55 ENV moves to airport road pullout, no visuals 10:00 ENV moves to airport parking lot, 10:05 ENV gets visual on bear grazing SW of airport terminal 10:24 bear swims across bay to road west of runway, ENV moves to that road 10:58 ENV pushes bear west with truck 11:02 ENV off scene. Bear headed in good direction	
Movement Map (Import NotePlus Site Map)		
		
Appendix 1		

Question	Response	Details
Deterrent Count		Score (1/440) 0.23%
Truck	1	
Air Horn	0	
C/F Bear Banger	0	
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	25 Sep 2017 11:02 AM	
Final Location of Wildlife	West of runway	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Shelby Skinner	26 Sep 2017 12:07 PM 

Media



Appendix 1

Wildlife Report - 2017

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

Grizzly -2017-10-20 - PKC to emulsion tundra

Document No.

WildlifeReport000221

21 Oct 2017

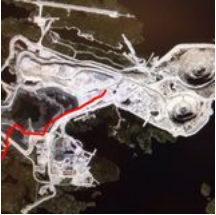
Completed on


21 Oct 2017

Score

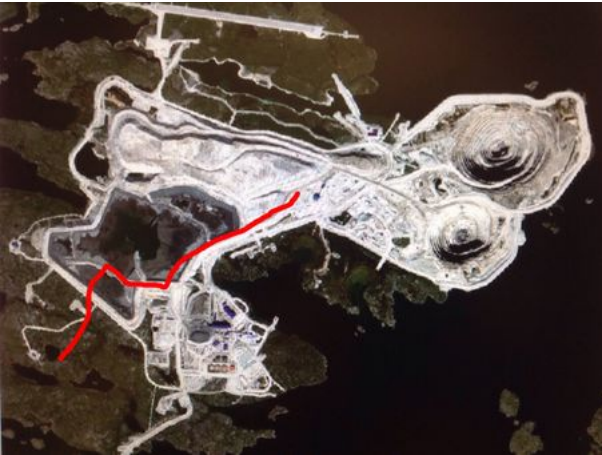
4/441.0 - 0.91%

Audit - 4/441 0.91%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (3/440) 0.68%	
Enter Initial Time of Wildlife Sighting	20 Oct 2017 06:00 PM	
Department/Individual Who Reported Wildlife:		
Environment On Scene		
Environment at Call-out Location	20 Oct 2017 06:20 PM	
Animal Type	Grizzly Bear	
Description (eg. number of individuals, colour, age, size, etc.):	Blue tag bear, much darker now, small paws	
Photo (If Possible):		
Chronological Events		
	<p>1800 Bear called in walking down north haul road near backfill plant towards PKC</p> <p>1830 environment finds bear on south side of PKC</p> <p>1830-1840 ENV follows bear southwest along PKC road attempting to block from crossing road, blocked 3x, bear crosses road eventually and goes over PKC berm</p> <p>1850 ENV moves to AN road, finds bear prints heading S towards emulsion plant,</p> <p>1850-2030 ENV scans area, no sign of tracks returning, ENV updates bear alert and departs scene</p>	
Movement Map (Import NotePlus Site Map)		
		
Appendix 1		

Question	Response	Details	
Deterrent Count		Score (3/440) 0.68%	
Truck	3		
Air Horn	0		
C/F Bear Banger	0		
C/F Pen Whistle	0		
12GA Bear Banger	0		
12GA Explosive	0		
12GA B.B. Marker	0		
12GA Rubber Bullet	0		
12GA Slug	0		
Helicopter	0		
Other	0		
Specify			
Environment Off Scene			
End of Environment Call-out	20 Oct 2017 08:30 PM		
Final Location of Wildlife	Tundra by emulsion plant		
Closure & Sign-off		Score (1/1) 100.00%	
Wildlife Report Complete	On		
Signature	Gordon C	21 Oct 2017 03:22 PM	

Media



Appendix 1



Wildlife Report - 2016

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

Wolverine - 2017-02-12 - Waste transfer

Document No.

WildlifeReport000173

12 Feb 2017

Completed on

12 Feb 2017

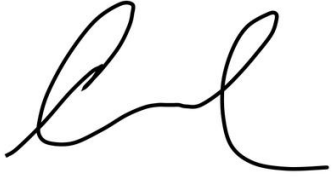
Score

2/441.0 - 0.45%

Audit - 2/441 0.45%

Question	Response	Details
Wildlife Report		
Type of Wildlife Report	Deterrent Reporting	
Deterrent Report	Score (1/440) 0.23%	
Enter Initial Time of Wildlife Sighting	12 Feb 2017 12:25 PM	
Department/Individual Who Reported Wildlife:	Neil Site Services	
Environment On Scene		
Environment at Call-out Location	12 Feb 2017 12:45 PM	
Animal Type	Wolverine	
Description (eg. number of individuals, colour, age, size, etc.):	Medium size with lighter coloured ring around rear end	
Photo (If Possible):		
Chronological Events		
	1245 environment arrived at WT to deter wolverine from area during winter road truck loading. Got in between WR workers and wolverine who was at west end seacans. Blocked path with truck and the wolverine climbed over western fence of WT and crossed AN road heading west.	
Movement Map (Import NotePlus Site Map)		
Appendix 1		
Deterrent Count	Score (1/440) 0.23%	
Truck	1	
Air Horn	0	
C/F Bear Banger	0	

WildlifeReport000173
Wolverine - 2017-02-12 - Waste transfer
Score (2/441) 0.45%

Question	Response	Details
C/F Pen Whistle	0	
12GA Bear Banger	0	
12GA Explosive	0	
12GA B.B. Marker	0	
12GA Rubber Bullet	0	
12GA Slug	0	
Helicopter	0	
Other	0	
Specify		
Environment Off Scene		
End of Environment Call-out	12 Feb 2017 01:00 PM	
Final Location of Wildlife	Tundra west of WT	
Closure & Sign-off		Score (1/1) 100.00%
Wildlife Report Complete	On	
Signature	Sean Sinclair	

Media

Appendix 1

APPENDIX L

**Wildlife Sighting Incident Reports,
2017**

Wildlife Report - 2017

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

Raven Nest - 2017-10-23 - South Tank Farm

Document No.

WildlifeReport000079

23 Oct 2017


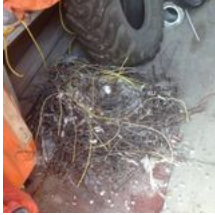

Completed on

23 Oct 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
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.)	Raven nest on stairs at South Tank Farm - unoccupied	
Photo (If Possible)		
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> <div style="text-align: center;">  <p>Appendix 3</p> </div> </div>		
Enter Initial Time of Wildlife Sighting	21 Oct 2017 01:00 PM	
Department/Individual Who Reported Wildlife:	ERT - Rick	
Environment On Scene		
Environment at Call-out Location	22 Oct 2017 02:00 PM	
Chronological Events		
	<p>2017-10-21 ERT was setting up to complete confined space work, a team member relocated the nest off the staircase. The nest was then relocated to a seacan outside of the ERT building.</p> <p>ENV was notified after the relocation took place.</p> <p>2017-10-22 ENV obtained photos of the nest in the seacan.</p> <p>2017-10-23 ENV disposed of the nest in the incinerator.</p>	
Movement Map (Import NotePlus Site Map)		

Question	Response	Details	
Environment Off Scene			
End of Environment Call-out			
Final Location of Wildlife	Incinerator		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Atikin Hehn		

Media



Appendix 1



Appendix 2



Appendix 3



Wildlife Report - 2016

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

Moose Cow & Calf - 2017-01-14 - Between A154 & A418

Document No.

WildlifeReport000161

14 Jan 2017







Completed on


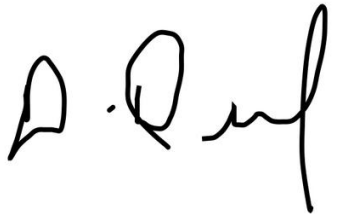
23 Jan 2017

Score

1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
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.)	Moose Cow & Calf	
Photo (If Possible)		
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Appendix 1</p> </div> <div style="text-align: center;">  <p>Appendix 2</p> </div> <div style="text-align: center;">  <p>Appendix 3</p> </div> <div style="text-align: center;">  <p>Appendix 4</p> </div> <div style="text-align: center;">  <p>Appendix 5</p> </div> <div style="text-align: center;">  <p>Appendix 6</p> </div> </div>		
Enter Initial Time of Wildlife Sighting	14 Jan 2017 09:45 AM	
Department/Individual Who Reported Wildlife:	Pit Ops - Clayton	
Environment On Scene		
Environment at Call-out Location	14 Jan 2017 10:05 AM	

Question	Response	Details	
Chronological Events			
		0945 Clayton calls in a Moose Cow & Calf between A154 & A418 Pit 1005 ENV on scene moose are still in same general area, monitor them for next half hour, they graze in the area and bed down 1040 1cow grazing, calf bedded, leave scene 1210 Moose are still in the same general area 1400 Moose still in same general area, Alert Issued No further sightings	
Movement Map (Import NotePlus Site Map)  Appendix 7			
Environment Off Scene			
End of Environment Call-out	14 Jan 2017 02:00 PM		
Final Location of Wildlife	Between A418 & A154 Pit		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Dianne Dul		

Media



Appendix 1



Appendix 2



Appendix 3



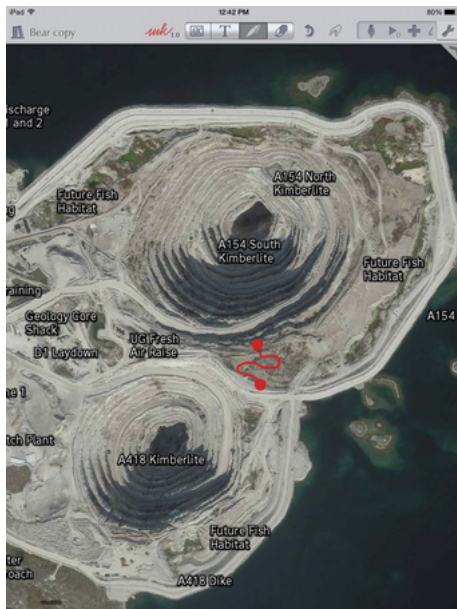
Appendix 4



Appendix 5



Appendix 6



Appendix 7



Wildlife Report - 2016

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

Moose Cow & Calf - 2017-01-15 - A21 - WR#000162

Document No.

WildlifeReport000162

15 Jan 2017


Completed on

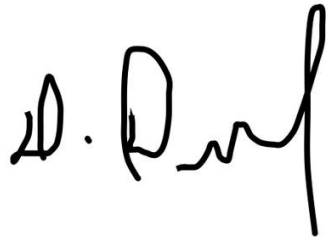
21 Jan 2017

Score

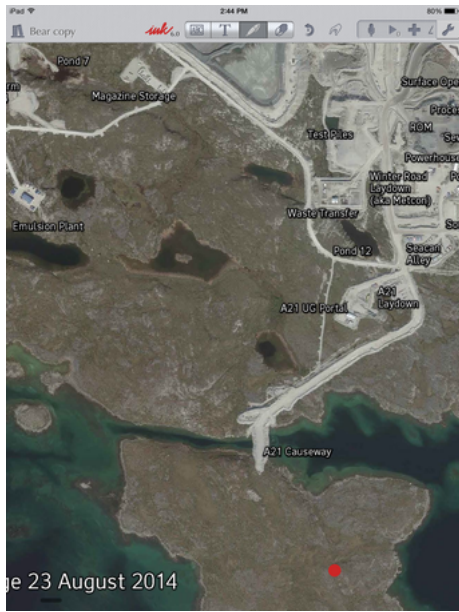
1/1.0 - 100.00%

Audit - 1/1 100.00%

Question	Response	Details
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.)	Moose cow & calf, same ones as yesterday.	
Photo (If Possible)		
Enter Initial Time of Wildlife Sighting	15 Jan 2017 12:07 AM	
Department/Individual Who Reported Wildlife:	A21 reported moose at the A21	
Environment On Scene		
Environment at Call-out Location	15 Jan 2017 10:07 PM	
Chronological Events		
	0007 Security received a call that the Moose Cow & Calf were in the A21 0920 Ray (Nuna) calls in Cow & Calf at Zone 3 in the A21 Area, Alert Issued. 1005 ENV on scene, unable to obtain visual, Gary (Nuna) advises the moose were headed West by A21 - Zone 1. 1015 still no visual, ENV leaves area 1830 no further sightings	
Movement Map (Import NotePlus Site Map)		
		

Question	Response	Details	
Environment Off Scene			
End of Environment Call-out	15 Jan 2017 06:30 PM		
Final Location of Wildlife	Unknown		
Closure & Sign-off			Score (1/1) 100.00%
Wildlife Report Complete	On		
Signature	Dianne Dul		

Media



Appendix 1



golder.com