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January 7, 2014

Kelli Gillard, Technical Advisor
Nunavut Impact Review Board
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Re: 05MN047 Response to Comments received from the KIA, EC, and GN on the Doris North WMMP Reports and Plan

Dear Kelli,

Please find attached below TMAC's responses to comments received on the Doris North Wildlife Mitigation and Monitoring Program (WMMP) reports as well as the WMMP Plan.

TMAC would like to express their thanks to all parties for their interest and comments. Comments addressed were received from the Kitikmeot Inuit Association (letter dated June 28, 2013), the Government of Nunavut Department of Environment (letter dated June 4, 2013), and Environment Canada (letter dated July 4, 2013).

Should you require further information or have any questions about our responses, please do not hesitate to contact me at katsky.venter@tmacresources.com or Lea-Marie Bowes-Lyon at lea-marie.bowes-lyon@tmacresources.com.

Sincerely,

Katsky Venter
TMAC Resources Inc.
Site Environmental Manager

NIRB comments on 2011 WMMP Report (six issues raised by KIA to be addressed for 2013 Report)		
Organization	**Issue**	**Comment by Organization**
Section 3 Caribou		
KIA *Issue 1: Zone of Influence (ZOI)*	The WMMP report indicates "A re-analysis of the post-calving data from 1996-2005 was conducted in 2010 to determine whether a ZOI could be detected with either count or presence-absence data. No consistent ZOI was found, and it was determined that caribou numbers from recent years (2006-2011) are too low to detect a ZOI during the post-calving period, if one exists" The lack of ZOI may be due to several causes: 1. There is no ZOI to detect; 2. Caribou numbers and data are too low for detection; 3. Inadequate statistical data collection and modeling was undertaken. This leads to two sub-issues of concern for KIA:	a. Statistical tests used may have been inappropriate in determination of ZOI. b. Suboptimal modeling approaches may have been used in determining ZOI. Recommendations: HBML should supply KIA with the required detailed write up of statistical procedures and modeling methodology as well as digital data for technical evaluation. From this, KIA can then provide HBML with further recommendations for improvement and determination of ZOI.

Proponent Comment:

To provide background, the re-analysis of post-calving data (1996-2005 and 2006-2011) was conducted to: 1) satisfy the NIRB request to include count modeling in the ZOI analysis, and 2) determine if it is possible to detect a ZOI from the existing data. The analysis was reported, in full, in the 2010 WEMP and is appended below. The ZOI analysis reported in the 2011 WEMP was a summary of the work conducted in 2010 and so did not include a full description of methods.

The methods used for the analysis closely followed those of Boulanger et al. (2012) with their analysis to determine a ZOI around Ekati using the dose-response method.

Results from the 2010 re-analysis concluded that:

1) We had sufficient sample size in the past (1996-2005 data) to detect a ZOI with reasonable confidence intervals when these data were combined across years;
2) A peak in the odds ratio was found at 20 km; however, the odds ratio was 0.9 +/- 1.1 (meaning is that the odds of finding caribou further than 20km out ranges from < 1 to >1). Therefore, we can't say if the odds of seeing caribou are higher closer to the camp or higher further out. Hence, we did not detect a *significant* ZOI.
3) Additionally, there was a peak in the likelihood surface at 20 km, but it did not correspond to a model that had a significant predictor of the probability of caribou locations with respect to ZOI after other habitat variables had been accounted for, meaning there was no evidence for a ZOI at 20 km or anywhere.
4) Using the counts of caribou, we found that more caribou were found at distances greater than 37 km from the camp. Again, the difference is tiny with the number of caribou seen more than 37 km out from the camp is 0.08 times more than the number of caribou closer than 37 km.
5) It should be noted that small peaks seen during likelihood surfaces are expected and do not necessarily represent biologically meaningful ZOI's.

6) Simulations suggest that most runs without a ZOI end up with likelihood peaks across a spectrum of distances, meaning that we found no evidence for a ZOI, not that one doesn't exist. 7) The simulations also suggest that there needs to be caribou seen in at least 100 transect segments to begin to reliably detect a ZOI should one exist. Therefore, caribou numbers from recent years are too low to detect a ZOI and other methods are needed to track caribou movements. 8) As a consequence of 7) above, and as requested by GN DOE, TMAC is interested in contributing to regional monitoring initiatives to monitor caribou in lieu of additional aerial surveys. 9) If the KIA would like to discuss the results of the modeling further, or if there are issues with the current modeling, TMAC and its consultants can meet to discuss.		
Section 5 Grizzly Bear		
KIA *Issue 2: Grizzly Bear Density*	The density of grizzly bears detected is higher than expected in the Doris North Study area, which may require that further mitigation methods be utilized. HBML's Report Findings: The report states "bear activity in the Doris North Project footprint was less than in 2009 and 2010, likely due to continued waste management practices." The report also states later "Despite the reduction in bear activity in camp areas, grizzly bear encounters comprised many of the wildlife encounters/incidents recorded in 2011. Bears were observed near footprint areas on 26 occasions."	The high number of grizzly bear observations, along with the higher than expected grizzly bear numbers determined from hair snag DNA stations, indicates that the project study area may be a particularly important travel corridor for grizzly bears. While the Bear-Safety Audit and improved waste management practices have reduced incidents of bears in the mine site, KIA believes that caution should be maintained especially as the operation goes into care and maintenance and if the project extends south to Boston Camp. Grizzly bear proof fencing surrounding camps is still suggested as a possible means of protecting humans and bears. Recommendations: HBML should install grizzly bear proof fencing around existing camp infrastructure, both in Doris North and Boston camp to protect humans and bears. This should include monitoring its proper function.
Proponent Comment: TMAC Resources does not believe that fencing is needed around camp infrastructure to protect humans and bears based on the 5 year occupation history of Doris North infrastructure during which time no bears have been destroyed in response to an unacceptable risk to humans. TMAC Resources acknowledges and accepts that particularly the northern (coastal) portion of the project area is a likely travel corridor for bears. TMAC wishes to allow bears to freely move through this area while alerting personnel to their presence. This approach has been successful, particularly when combined with the Project's good waste management practices. Fencing the Project site, thereby hindering the natural movements of animals could adversely affect bear movement patterns for little or no benefit to human safety. Fencing is an option to protect people and bears in particular situations where conflict is highly probable. This was the case at Roberts Creek boulder garden during periods of fish monitoring at the fish fences. At this location, a bear proof fence was installed around each of the two fish fences (but leaving open access to the boulder garden to bears and wildlife) and has been effective in protecting the fish fences and personnel working in the area. To further reduce the possibility of human-bear encounters at this location, the monitoring program was converted to a largely automated system that photographed the fish underwater, eliminating daily presence of personnel. TMAC remains committed to the safety of our personnel, and to excellent waste management practices, which we believe is the key to reducing bear/human conflict from developing in most circumstances. Should increased bear activity be reported in the Project site and not be manageable with increased site waste management hygiene activities, TMAC will increase the bear response to an appropriate level, which may include fencing if bears are a consistent problem that threaten worker safety.		
Sections 1 and 2 Introduction and General Wildlife Mitigations and Interactions		

KIA *Issue 3: RSA and Marine Wildife*	*The adequacy of Regional Study Area and lack of marine survey data reported in wildlife monitoring* The introduction of the report states "While the Doris North WMMP is in place to cover the activities associated with the Doris North Project, the geographic area of the program includes a larger area of the Hope Bay Belt. HBML has been conducting on-going exploration activities in the belt in parallel to the development of the Doris North Project and the 2011 WMMP covers the geographic areas of potential future development as well." This is supported by Figure 1.1-1 indicating the change of study area from the 1996-2005 RSA to the 2008-2011 RSA.	Even though the study area was modified several times throughout the baseline and monitoring periods, the study areas did not represent Melville Sound or the marine environment between Kent Peninsula and Victoria Island. Recent project amendments for use of a permanent floating housing barge as well as discharging TIA effluent into Roberts Bay may result in additional industrial activity in this area. Also the sea ice is of importance since it forms the winter migration route for caribou and multiple marine mammals of conservation concern use this habitat. KIA believes marine focused surveys could be a gap in the existing wildlife mitigation and monitoring plan. Related to this issue are two sub-issues, these being as follows: a. The exclusion of marine wildlife and inclusion of species that are not of conservation concern reported in wildlife monitoring Marine mammals and a number of species of conservation concern in the marine environment north of the project should be included in the survey data. Species that are not of conservation concern such as the barren ground shrew and yellow warbler should potentially be excluded. b. The methods used and associated animal care permits information for seal relocations The report indicates that seals had to be relocated to another site but no details are provided on the methods used, which individuals or companies conducted the relocation, what species were moved, the relocation site used, and the rational for the chosen relocation site. Recommendations: HBML should include the marine environment and marine mammals and species of conservation concern in future WMMP reports. Specific information should be provided on seals relocated from the area on their number and type of species, methods used in capture, handling, care, and release, the individuals or company who performed the relocation, the location of animal release and the rational for the location.
Proponent Comment: Annual monitoring of the marine environment in Roberts Bay adjacent marine areas are conducted, in detail, as part of the Aquatic Effects Monitoring Program (AEMP). This annual report includes physical, chemical and biota that makes up the bottom of the food chain for marine wildlife (seals) and marine birds. Changes in any physical or chemical parameters as a consequence of altered water input and the use and maintenance of the barges and marine laydown area are more likely to be detected in the AEMP. Seabirds and marine mammals are included in the wildlife mitigation and monitoring program, although marine mammals are not a VEC as identified through the Doris North EA process. Seabirds are surveyed in Roberts Bay and Reference Bay twice annually, and marine mammal sightings and incidents are reported annually. Please note that up to and including 2013, surveys for marine birds were conducted during the open water season using a series of transects that are a continuation of those used for on-land waterfowl. These surveys detect very few		

animals on the open water portion of the transects and in 2013 the helicopter company involved expressed concern over the safety of the pilots and crew with respect to flying over open water. The majority of marine bird sightings were recorded on or around the small islands in Roberts Bay and nearly areas. In a future WMMP plan TMAC may include a modified monitoring plan which focuses on the islands. This would be an opportunity for the KIA and EC to comment and discuss suitable modifications to the plan to improve the ability of the design to detect any changes in the marine environment. As noted by the KIA, TMAC is submitting an amendment application that includes a request for ocean discharge from the TIA to Roberts Bay as well as maintaining the option of mooring accommodations barges in Roberts Bay for construction use. This application was initially submitted by HBML in 2011 then later retracted when the HBML Project development ceased. The amendment application includes information on the additional monitoring deemed appropriate to the proposed changes. If a maamatuuq (diseased/sick) seal that goes to the land is encountered, the GN-DOE and/or DFO will be consulted on recommended actions. This happens from time to time and is not necessarily a project effect, but would be recorded in our WMMP reports.		
Section 2 General Wildlife Mitigations and Interactions		
KIA *Issue 4: Habitat Loss*	The habitat loss is substantially greater than what was predicted in the EIS, which may require additional analysis to determine any impact on wildlife and adaptive management approaches The WMMP report states "Collectively, nearly 211 ha of habitat cover has been lost to date, with the greatest loss occurring in Lakes and Ponds (72.1ha) associated with the approved TIA in the former Tail Lake, which began construction in 2011. Other losses included Eriophorum tussock meadows (42.5 ha), wet meadows (26.7ha), Dryas herb mats (24.4ha), and rock outcrops (20.8ha). A total of 16 habitat types (including fresh and salt water) have been altered by Project Infrastructure. The EIS predicted a total disturbance footprint of 56.7ha across 10 cover types."[2] The report also states "it should be noted that the disturbance above predicted values does not imply a significant impact." [2]It appears to KIA that the 211ha of habitat loss may be for the entire Hope Bay Belt and not just Doris North itself. The EIS predicted habitat loss was only for Doris North. Given this, further clarification may be required by HBML. There should be a comparison of the predicted EIS habitat loss to current habitat loss around Doris North.	The report clearly indicates that habitat loss is 3.7 times greater than predicted by the EIS and the types of habitat affected have increased from 10 to 16. The statement that this greater than expected loss of habitat "does not imply a significant impact" is an assumption on the part of HBML. KIA believes the significant increase in the loss of habitat due to infrastructure and industrial activity needs to be investigated to determine whether or not wildlife has been significantly impacted. HBML can quantitatively evaluate the impact of additional habitat loss on wildlife by calculating the decline of wildlife expected and comparing it to actual wildlife observations and previously predicted impacts in the 2006 EIS. For example, the WMMP 2011 report indicated a clear correlation between the abundance of five of the most common upland bird species and four habitat types determined by GIS and ecosystem mapping. From this correlation of bird species to habitat, it is possible to calculate the decline in the number of breeding birds due to additional lost habitat. This predicted decline can then be compared to previous EIS predictions and actual observations to objectively assess the impact of greater habitat loss. Recommendations: KIA recommends that HBML calculate potential population declines for Valued Ecosystem Components (VEC) where habitat or area-density relationships are known for comparison to previous EIS predictions and actual observations. This should be done to objectively evaluate the significance of the additional habitat loss.

Proponent Comment: The KIA is correct in noting that the 211 ha incorrectly included more than the Doris North Project footprint. TMAC will clearly show in the 2013 WMMP Annual Report the habitat loss associated with the Doris North Project. TMAC will calculate potential population declines for Valued Ecosystem Components (VEC) where habitat or area-density relationships are known to objectively evaluate the significance of any additional habitat loss.		
Section 2 General Wildlife Mitigations and Interactions		
KIA *Issue 5:* Wildlife Incidents (lack of species names in reporting)	The report states "During the Tail Lake fish-out, four long-tailed ducks and one northern pintail were caught in gill nets and consequently drowned. One loon was caught in a fishing net on Reference Bay but was rescued and set free. Five songbirds were found dead this summer: one unidentified sparrow was struck by a vehicle on the Tail Lake road, two unidentified songbirds were caught in a mega bag of cuttings, one redpoll was rescued from a piece of machinery but later died, and one redpoll died in a fuel pail at Roberts Bay." Also, "One ptarmigan and five arctic ground squirrels were struck and killed by vehicles on the road between Doris Camp and Roberts Bay in August, 2011. One gull was discovered dead from unknown causes in November, 2011."	These reports make reference to multiple animal deaths without identifying the full species names of the animals involved. The full species name should be included for all animals killed from industrial activity so it can be determined whether or not they are a species of conservation concern or if the Species at Risk Act (SARA) is triggered. All animals killed should be identified by a wildlife biologist to identify the specific species with supporting photographs. Recommendations: HBML should take clear photographs of all animals killed by industrial activity on the mine site so they can be identified to their species level by a wildlife biologist. The identification procedure should be established by a wildlife biologist using multiple photographs of each animal killed depicting the whole animal and its dorsal, ventral, and flank regions. The specific species killed by industrial activity should be reported in future WMMP reports.
EC Issue 2: Wildlife Incidents	This section outlines a number of incidents resulting in bird mortality and adaptive management measures to reduce some of these sources of mortality in the future.	EC encourages HBML to ensure these adaptive management measures continue to be implemented and to monitor their effectiveness in preventing bird mortality. If further fish-outs are required in the future, HBML should consider monitoring the area where gill nets are deployed and use deterrents to prevent birds from entering these areas and becoming entangled in gill nets.
Proponent Comment: TMAC makes every practical effort to identify, to the species level, wildlife species involved in industrial incidents. Depending on the circumstances, it can be difficult with incidents resulting in bird mortality to identify species post-mortem. Methods used to identify wildlife killed due to project activity will be outlined in the 2013 WMMP Report and Plan. If fish-outs are required in the future, TMAC will consider adaptive management techniques to prevent birds from becoming entangled in gill nets.		
Section 1 Introduction		
KIA *Issue 6: Lack of ITK Use in preparation and*	The lack of use of Inuit Traditional Knowledge (ITK) in the preparation and planning of the Wildlife Mitigation and Monitoring Program (WMMP)	As noted by KIA under issue #1 and sub-issues 1a and 1b concerning the detection of the ZOI for caribou, the development of a scientifically adequate WMMP has been demonstrated to be problematic and difficult to undertake. In the development of the mitigation and monitoring program and statistical modeling, a good

planning of WMMP		comprehensive understanding of the study area is required by the wildlife biologists undertaking the work. Information from all available sources should be utilized to develop the program, observation methods, and statistical modeling techniques. To date, HBML has not utilized the Inuit Quajimajatuqangit (IQ) / Inuit Traditional Knowledge (ITK) data base and information in the preparation and planning of its WMMP. KIA has developed extensive GIS mapping and electronic data base of IQ/ITK for the Kitikmeot region from a decade of development work. This information and mapping should be used by HBML to improve its WMMP in addressing issues 1 through 5 and their recommendations. Recommendations: HBML should utilize IQ/ITK with the wildlife data collected to date to improve its WMMP in addressing issues 1 through 5 listed above in this response.
Proponent Comment: TMAC has included IQ/ITK in its wildlife monitoring program in the following ways: 1) Community elders and land users were brought to site during the summer of 2011 for a site tour to learn about the environmental management programs conducted by HBML at the time. The elders and land users were invited to share their knowledge about the land for the purpose of improving these programs. With respect to wildlife, elders and land users walked and flew Windy Road from Roberts Bay to Windy Lake to identify locations where caribou are likely to encounter the road. This information was intended to inform the construction of caribou crossings. The information was also used to guide the placement of remote cameras along the road for the road monitoring study. 2) Inuit land users provided input in the placement of monitoring cameras around site and on the tundra surrounding the Project and previously with the placement of DNA tripods. These land users provided information about wildlife activity patterns, areas of expected high wildlife use and areas of potential conflict around site, with particular attention to caribou seasonal movement patterns. After four years of negotiation, licenced access to the KIA Traditional Knowledge database was secured in July 2012. Upon the payment of appropriate fees, TMAC Resources Inc. will obtain a traditional knowledge report from the KIA that, upon analysis, could inform future iterations of the WMMP Plan.		
Section 2.3 Species at Risk		
EC Issue 1: Species at Risk	"The Species at Risk Act (SARA) uses the COSEWIC designations to produce a ranked list of species according to the level of risk or concern (i.e., Schedule 1 [greatest risk], Schedule 2 and Schedule 3."	The description of the Schedules of the SARA is inaccurate. • Schedule 1 is the official legal list of Species at Risk for SARA (not necessarily the species at greatest risk). It includes species in all risk categories (endangered, threatened, special concern, etc.). SARA applies to all species on Schedule 1. The term "listed" species refers to species on Schedule 1. • Schedule 2 and 3 of SARA identify species that were designated at risk by the COSEWIC prior to October 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1.

		Table 2.3-1: Barren-ground Caribou (Dolphin-Union population) are now listed on Schedule 1 of SARA as Special Concern.
Proponent Comment: The 2013 WMMP Annual Report will reflect the accurate description of the Schedules of the SARA and will update the Dolphin-Union population status.		
Section 7 Upland Breeding Birds		
EC Issue 3: Upland Breeding Birds	As a general comment, table descriptions, column titles and figures in this section lacked sufficient detail for readers to properly interpret the data presented. More detail should be provided in future reports to ensure that the data presented can be easily interpreted. The consultant was contacted directly for further clarifications and the suggestions below are based on supplementary information provided in an email response. Table 7.3-3: The fact that 0 PRISM plots were classified as Tussock, yet 20% Tussock habitat was sampled is a bit confusing. Table 7.4-1: It was not immediately clear that relative abundance for each commonly detected species was the proportion of the total number of territories detected in each habitat (e.g., 36% of all territories detected during point counts in lowland habitat were of savannah sparrows Figure 7.4-1: There was an error in the Notes at the bottom of the Figure. The numbers above the bars in each figure represent the total average counts of pairs (all plots combined). The numbers within the bars represent the total number of surveys per habitat type pooled across years. Figure 7.4-2: What are the units for the y-axis in these graphs? In the notes it says "average annual counts are relative to total counts of birds" Figure 7.4-3: There is no explanation of the meaning of the dotted line.	EC Recommendations Table 7.3-3: The second column title under Point Counts and PRISM should be modified to read "Proportion of total area sampled (all plots combined) in each habitat type". This would make it clearer to readers that of the total area sampled by PRISM plots, 20% was Tussock habitat. Table 7.4-1: • The units for relative abundance of commonly detected species and rarely detected species should be stated explicitly in the table description or column headings: • It should also be clarified that this was the average across years. The years of survey coverage should be indicated in the table description or column headings. • For rarely detected species it should be made clear that it is the total number of detections summed across all years. Figure 7.4-1: The units for the y-axis should be indicated "average counts of upland breeding bird pairs per plot". Figure 7.4-2: Does this mean that the y-axis is the proportion of the total observations of each species that occurred in a given habitat type? For example, averaged across years, ~30% of observations of Lapland Longspur were within Tussock habitat? Figure 7.4-3: If this analysis is used again in future reports please indicate that this dotted line was a LOESS line (running average or 'smoother'). Figure 7.4-4: Clarify whether the y-axis units are the proportion of total observations of a given species occurring in a given habitat type. EC recommends that HBML submit a revised 2011 monitoring report that clarifies the items listed above. EC encourages HBML to continue carrying out PRISM surveys in future monitoring efforts and to share this data with the Canadian Wildlife Service of EC as this provides a valuable contribution to regional monitoring of shorebirds and songbirds.
Proponent Comment: The 2013 WMMP Annual Report will reflect the requested changes and clarifications. TMAC will continue to carry out PRISM plots to monitor shorebirds and songbirds as per the updated WMMP Plan and will provide the data to the Canadian Wildlife Service of EC as suggested.		

NIRB comments on 2012 WMMP Report		
Organization	**Issue**	**Comment by Organization**
Section 2 General Wildlife Mitigation and Interactions		
KIA *Issue 1: Table Error*	Page 2-4, Table 2.2-2 This table is difficult to interpret; it contains two main columns with the same labels but different numbers. i.e., both numerical headers are labeled as Total (ha). I believe one (likely the latter) is meant to represent a proportion, not a whole value.	Correct the header(s) in this Table so that it is interpretable.
Proponent Comment: Table headers will be updated for the 2013 WMMP report.		
EC *Issue 1: Species at Risk*	Page 2-7, Section 2.3 Species at Risk "The Minister of Environment uses COSEWIC designations to decide whether to list species under the Species at Risk Act (SARA) and to assign the level of risk or concern (i.e. Schedule 1 [greatest risk], Schedule 2 and Schedule 3)."	The description of the Schedules of the SARA is inaccurate. Schedule 1: is the official legal list of Species at Risk for SARA (not necessarily the species at greatest risk). It includes species in all risk categories. SARA applies to all species on Schedule 1. The term "listed" species refers to species on Schedule 1. Schedule 2 and 3 of SARA identify species that were designated at risk by the COSEWIC prior to October of 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1. Please revise future wildlife monitoring reports for greater clarity.
Proponent Comment: Future monitoring reports will be revised to reflect the correct descriptions of the SARA schedules.		
EC *Issue 1: Species at Risk*	Table 2.3-1 At-risk and Sensitive Wildlife Species Observed or Expected in the Study Area Barren-ground Caribou (Dolphin-Union population) are now listed on Schedule 1 of SARA as Special Concern. The anatum and tundrius subspecies of Peregrine Falcon were reassessed by COSEWIC in 2007 and combined into one subpopulation complex. This subpopulation complex was assessed by COSEWIC as Special Concern and listed under Schedule 1 of SARA. Buff-breasted Sandpiper were assessed by COSEWIC and their current status is Special Concern (May 2012).	Update table to reflect changes.

	Red Knot (rufa) are now listed as Schedule 1 under SARA.	
Proponent Comment: The table will be updated for the 2013 WMMP report.		
KIA *Issue 2: Use of Tail Lake*	Page 2-4: Document states: "the loss of fish in Tail Lake means that the habitat is no longer appropriate for fish-eating waterfowl though other wildlife may continue to use the lake."	Have there been any observations of other wildlife using Tail Lake? This may be a concern in terms of contaminant exposure (and later exposure to humans that may hunt and consume those animals). Motion triggered camera effort covering key shoreline areas of Tail Lake in 2013 may aid in determining use by other wildlife.
Proponent Comment: The Doris North Project has never reached production and no tailings have been placed in Tail Lake, therefore, wildlife using this lake would have no particular exposure to any contaminants at this point. Exposure risk to wildlife once Tail Lake is used for tailings was modeled as a part of the Doris North EIS and there was low predicted risk to wildlife. Incidental information on wildlife use of Tail Lake collected by site staff continue to be reported annually as do results of waterfowl surveys that include Tail Lake.		
KIA *Issue 3: Conclusions regarding grizzly bear activity in 2012*	Page 2-10: Document states: "In 2012, bear activity in the Project area was less than in 2009 and 2010."	This statement appears to be based on incidental wildlife observations that were recorded. This is not an objective measure; 2012 may have simply had fewer workers on site compared to 2009 and 2010 (which means fewer personnel available to see and record grizzly bear sightings or sign). Please provide information on the estimated number of staff in 2009, 2010, and 2012 to aid in interpretation. Motion triggered camera monitoring (if done correctly, with frequency camera checks and maintenance) will provide a better measure of bear use of the Project.
Proponent Comment: TMAC acknowledges that incidental observations are influenced by many factors, including the number of personnel on site, and will make this clear in the 2013 WMMP Report. Additionally, in 2013, wildlife camera data will be able to provide additional bear activity data.		
KIA *Issue 4: Involvement in any Future GN DOE-led Wildlife Monitoring Programs*	Page 2-19: Document states: "GN DOE proposed commitments that included extending the planned grizzly bear and wolverine DNA work and contributing to planned Ahiak and Dolphin-Union regional caribou initiatives run by GN DOE."	Please describe these initiatives and contributions. The KIA would like to be involved in discussions about regional caribou monitoring initiatives, as circumvention of monitoring requirements by funding government programs may set a precedent for many projects in the Kitikmeot, and the KIA must be ensured that the regional plan, and contributions, will protect their interest in caribou.
Proponent Comment: As an alternative to aerial surveys for caribou that, in the past decade, have provided limited data on caribou distribution and abundance, TMAC is interested in contributing to a suitable GN lead program that can be supported by interested stakeholders in the region, including the KIA. The GN-DOE have		

indicated that they intend to conduct a Dolphin-Union Caribou research program in 2014 using radio collars. These collars will provide updated information about the abundance and seasonal distribution of this herd. As indicated in the March 2013 WMMP Sections 2.5.3 and 2.6.3, if the Doris North Project is brought out of Care and Maintenance in the future, TMAC will initiate a dialogue with GN DOE and other interested stakeholders to determine future direction of Grizzly Bear and Wolverine monitoring in the study area.		
Section 5 Grizzly Bear		
KIA *Issue 5: Grizzly Bear Numbers High, and Possibly Underestimated*	Page 5-2: Document states: "Overall, a total of 27 males and 25 females (52 individual grizzly bears) were identified over the two-year program."	As noted in reviews of other related documents, these numbers imply a very high grizzly bear use for the central Arctic. This is recognized in this document on page 5-2, where it states: "*The results do suggest, however, that in terms of individual detections, approximately 8 to 11 grizzly bears may be detected for every 1,000 km^2. Densities in western Nunavut are approximately 7 bears/1,000 km^2*." A further caution should be noted about this interpretation, stemming from the methodology. The use of large grid sizes and the decision to not move the baited hair trap stations within the grids means that these numbers almost certainly underestimate the numbers/densities of grizzly bears. This means that the actual density of grizzly bears is more likely to be at the upper end of this range (11 grizzly bears/1,000 km2) or greater. This means that population densities of grizzly bears in this area may be significantly higher than in other parts of Nunavut. As such, monitoring and mitigation efforts for this species should recognize the fact that this species appears to favour some attributes of the coastal area associated with the Project, and the area may be used as a travel corridor. A heightened scrutiny of grizzly bear mitigation and monitoring programs is needed for this reason, particularly as this species is a species of Special Concern.
Proponent Comment: We challenge the rationale that a higher than expected number of grizzly bears indicated in this study necessitates a heightened scrutiny of our bear mitigation and monitoring programs. The converse might be more accurate; that a lower number of bears than expected in a project study area would call for further investigation to identify potential project related effects. Certainly, a result one way or the other ought to not either way warrant heightened mitigation and monitoring. IQ/TK clearly points to recent increases in grizzly bear abundance in the coastal central arctic. From this perspective, the Hope Bay study area is unremarkable. Independent of survey result, if our project is able to operate in bear habitat without bear mortality or human injury, this should be taken as some indication for success in mitigating and monitoring bears to date.		

TMAC believes the current program is appropriate considering the site specific conditions. TMAC is aware that grizzly bears use the coastal area around Roberts Bay for travel, and as a consequence have implemented measures to ensure that bears continue to be able to move freely in the area (e.g. by not fencing the Project), while ensuring that bears are not particularly drawn in to the project site (through rigorous waste management practices and minimizing wildlife attractants). In these ways we continue to mitigate and minimize our project impacts on bears in the area. Mitigation actions are informed by information on bear presence and project interaction provided largely by incidental personnel and wildlife camera observations. TMAC believes that the existing program is designed with the site specific conditions in mind and that sufficient monitoring and appropriate mitigation and management measures are being taken. While coastal areas in Nunavut undoubtedly provide productive habitats for grizzly bears, drawing a comparison between detection frequencies in this study with densities in western Nunavut may not be appropriate due to difference in study design and objectives. The Hope Bay study was designed to provide baseline information on grizzly bear activity in the Hope Bay area. Should a decision be made that further monitoring is required when the project comes out of care and maintenance, the study is designed to monitor changes in relative abundance over time as opposed to absolute density, which was the basis for the western Nunavut study. The assumptions and methods differ between a trend monitoring objective and an absolute density objective. Under a trend monitoring objective, population closure is not a requirement and all grizzly bears are included in an estimate of a superpopulation (the total number of bears expected to occur on the study area at any given time). To determine absolute densities, the study area needs to be sufficiently large relative to the average home range of grizzly bears to meet the population closure requirement because those bears detected at the periphery of the study area are ultimately excluded from density calculations. As a result, density is expected to be lower than detection frequency. Preliminary results from other grizzly bear DNA studies in Nunavut and NWT suggest that a study area of 6,000km^2 and cell size of 12 x 12 km is sufficient to meet the minimum capture probability of 0.2 and a minimum of 50 grizzly bear detections for trend monitoring.		
Section 7 Upland Breeding Birds		
KIA *Issue 6: Nesting Birds*	Page 7-10: Document states: “In 2012, Plot HMB173 (located between helipad and Doris Lake) had six active nests.”	The plot numbers could not be read from the scanned version of Figure 7.4-1. Is this plot location near where the brine spill (or any other spills) had occurred? During a site visit it was noted that birds were collecting strands of material from coconut matting. It would be useful if, in the future, nests were examined (after they fledged) to determine the construction materials used. This would aid in determining whether birds are potentially being exposed to chemicals.
Proponent Comment: If any nests are observed to be constructed with project waste materials during upland breeding bird surveys this information will be recorded.		
EC *Issue 2: Upland Breeding Birds*	Table 7.4.3: What are the units used for relative abundance?	EC assumes that the numbers indicate average territory counts per species relative to the total territories counted but should be noted in the report. EC encourages the Proponent to share the 2012 PRISM data with CWS.
Proponent Comment: The table will be updated for the 2013 WMMP report to clarify units. QA/QCed data is available in the appendix of the WMMP report and digital versions can be forwarded to CWS.		
Section 8 Waterbirds		

KIA *Issue 7: Some Results not discussed in Waterbird Section*	Page 8-7: This discussion is vague and does not discuss many of the results or provide interpretations.	Discussion should attempt to summarize and interpret results, such as those provided in Figures 8.4-1, 8.4-2, 8.4-3, and 8.4-4.
Proponent Comment: Additional information will be included in the discussion section of the 2013 WMMP report.		
Section 9 Raptors		
KIA *Issue 8: Missing Interpretation in Discussion of Raptor Section*	Page 9-9: Document states: "Peregrine falcons and rough-legged hawks had low productivity in 2012 compared with 2011, but golden eagle nests were more successful in 2012 than in 2011."	Discuss/interpret more of the results in this section. For example, are there differences in diet that could account for this disparity between peregrine falcons/ rough-legged hawks and golden eagles? Were enough golden eagle nests monitored to allow for interpretation of a trend? What is known about small mammal population cycles and shorebird numbers during these years for the region? Further interpretation is generally needed in many of the discussion sections.
Proponent Comment: Additional information will be included in the discussion section of the 2013 WMMP report.		
General Comments		
KIA *Minor Issue 1: Typos*	Page 5-2: Paragraph 2, second sentence: Report should read "these data", not "this data". Page 8-7, first sentence: Report should read "data were".	
Proponent Comment: Acknowledged.		

NIRB comments on March 2013 WMMP Plan		
Organization	**Issue**	**Comment by Organization**
Section 2.1 Introduction (Construction and Operations)		
KIA *Issue 1: Additional Consultation*	Page 2-2: Document states: "The Plan is the result of a series of communications between the NIRB, GN DOE, and HBML between Dec 10, 2007 and July 7, 2010." Page 2-2: Objectives, Point 2	Why were other groups, such as the KIA, Nunavut Wildlife Management Board and the Kitikmeot hunter and trapper organization, and local elders, not included in these communications? Page 2-2: Objectives, Point 2: Should aim to incorporate feedback from other groups besides the regulators, particularly as

		hunters and local Inuit have a vested interest in the maintenance of healthy wildlife populations in the region, and have a vast amount of local knowledge.
Proponent Comment: Following extensive consultation during the environmental assessment process, that included the KIA, elders and other local organizations, a proposed WMMP was produced in 2005 as part of the final EIS. With the issuance of the Project Certificate in 2006, NIRB made some recommendations to Miramar for the finalization of the WMMP. Based on these recommendations, additional discussions were held with various groups, including the KIA, prior to the finalization of the December 2006 WMMP (see plan for additional detail). Following the submission of the December 2006 WMMP, NIRB invited parties to comment on the plan and comments were only received from the GN DOE. For this reason, when the WMMP was updated in 2011, the GN DOE and NIRB were contacted. These are the communications referred to in the above statement. We welcome the KIA Inuit Advisory Committee, pursuant to our IOL Commercial Lease, to review, comment or advise on any aspect of the WMMP.		
Section 2.3 Caribou (Construction and Operations)		
KIA *Issue 2: Interpretation of Statistical Results*	Page 2-9, last paragraph: Document states: "The analysis concluded that, in terms of caribou distribution around Windy Camp, there is no Zone of Influence."	Be careful with this wording. What you are discussing in this section is that you have low statistical power, which precludes you from being able to detect a Zone of Influence. Therefore, stating that there is no Zone of Influence is misleading.
Proponent Comment: Proponent accepts modification to "no ***detectable* zone of effect…"**.		
KIA *Issue 3: Contributions to Regional Monitoring of Caribou*	Page 2-10, Section 2.3.3.1: Document states that the client will contribute to a regional monitoring program run by the government. However, descriptions of this program are not provided (or are seemingly not known yet).	The KIA would like to be consulted on the proposed methodology, monetary contributions, personnel requirements, and project-specific and regional objectives of the caribou radio-collaring program proposed by the proponent. This program will represent a major monitoring objective in the region, and could set a precedent for all similar mining projects in the Kitikmeot region. Further, as the proponent is suggesting contributions of an unknown amount to an unknown program as a replacement to existing monitoring, care must be taken to evaluate both the suggested program objectives and proposed contributions to ensure they meet the necessary objectives for Hope Bay and that monetary contributions are fair. Seeking opportunities to involve locals in monitoring programs is also encouraged.
Proponent Comment: TMAC will set up a meeting with the GN-DOE to discuss their caribou monitoring research and TMAC's potential contribution to a suitable GN lead program that is vetted and approved by interested stakeholders, including the KIA. KIA's input on such a program will be sought.		
Section 2.3 Caribou (Construction and Operations) *Section 2.10 Wildlife Interactions with Camp Infrastructure (Construction and Operations)*		
KIA *Issue 4: Insufficient Frequency of*	a) Page 2-10, Section 2.3.3.2 and Page 2-44, Section 2.10.2: Document states: "Cameras will be checked twice per year by on-site environmental technicians."	Two checks per year are not sufficient for collection of motion triggered camera data, and this frequency does not allow for adaptive management if an incident or interaction with

Wildlife Monitoring Camera Checks, Camera Repositioning, and Site Surveys		project infrastructure is occurring. Cameras are frequently knocked over by large mammals, particularly in the Arctic where they are attracted to them as scratching posts in an otherwise barren environment. The lenses become covered in snow or dirt and require cleaning. Frequent maintenance and camera checks are required for this sort of program to work. These checks need to occur at least monthly, and ideally twice per month. Checking cameras twice per year will also not allow for timely responses to problematic interactions between wildlife and camp facilities (problems that could be corrected if detected sufficiently early). An increased frequency of camera checks is strongly recommended. Local residents could be trained and hired to help with monthly or twice monthly camera checks and maintenance.
Proponent Comment: Data from multiple projects in Nunavut indicate that approximately 5-10% of cameras are knocked down during the summer and 1-5% during the winter. A higher number are occluded by snow for periods of several days-weeks during the winter. Approximately 5% of cameras have their batteries die during the winter, typically during February or March. The camera program at Doris North has now been running for 16 months and in that time, no cameras located on or near infrastructure have failed due to being knocked down. Given the relatively low rates of camera failure during the summer, the proposal to check cameras every 2 weeks seems unwarranted, while repeatedly checking cameras during the winter may be a safety concern. To account for potential periods of camera failure TMAC has integrated more cameras into the program than would otherwise have been included. Data collected during the pilot year of the program suggest that two checks per year are sufficient to meet the program objectives. However, the WMMP Plan is a living document based on adaptive management and if future camera data suggest increased frequency of checks is warranted, the WMMP Plan will be updated to reflect that need. It should be noted that the cameras are not the only means used by TMAC to detect problematic interactions between wildlife and camp facilities; all personnel are trained on how to minimize and record wildlife interactions with Project activities. In addition, trained wildlife responders are on site to provide direction in the case of problem wildlife.		
Section 2.10 Wildlife Interactions with Camp Infrastructure (Construction and Operations) *Section 3.3 Wildlife Interactions with Camp Infrastructure (Care and Maintenance)*		
	b) Page 3-6, Section 3.3.2.1 and Page 2-44, Section 2.10.2: Document states: "Cameras may be repositioned annually as deemed necessary pending results of the photo data…"	Adjustment of camera positions using the currently planned schedule will not be sufficient to allow for better visualization of suspected issues. More frequent camera checks and evaluation of camera angles would allow for timely repositioning of cameras.
Proponent Comment: Images will be downloaded twice per year and batteries checked for power. Decisions to move cameras will be made at those times. See previous Proponent Comment for additional details regarding camera checks.		
Section 2.10 Wildlife Interactions with Camp Infrastructure (Construction and Operations)		
	c) Page 2-47: Document states: "Detailed surveys of Doris North Camp buildings will be conducted at least twice per year (in concert with camera maintenance) to determine if wildlife are	Again, this monitoring frequency is not sufficient for effective adaptive management where issues can be responded to in a timely manner.

	accessing structures from underneath, and to observe any wildlife sign occurring around camp. Specifically, surveyors will walk around the buildings, recording any sign of wildlife (e.g., scat, tracks, digs), as well as evidence of damage (e.g., holes, tears) or access points leading to underneath the buildings.	
Proponent Comment: As an active industrial site there are personnel that work on the built-up area daily. Staff are responsible for the condition of the facilities and are required to report wildlife/project interactions as they occur. As our project history has shown, it is these observations of wildlife that lead to successful adaptive management responses. Wildlife-specific building checks directed at determining whether wildlife have been accessing buildings will be conducted twice annually, and a wildlife audit conducted once annually. From our internal wildlife inspection audits or from regulatory or stakeholder visits conducted many times each year, no evidence of wildlife living on project infrastructure un-observed and damaging facilities has been found.		
Section 2.5 Grizzly Bears (Construction and Operations)		
KIA *Issue 5: Rationale for Discontinuing Grizzly Bear Monitoring*	Page 2-14, Section 2.5.2: Document states: "These studies (referring to indirect grizzly bear monitoring using hair snag stations) were discontinued in 2009 due to safety concerns over staff working in prime grizzly bear habitat."	The safety concern about personnel working in grizzly bear country and the predicted minor impact statements appear to contradict one another. Earlier in Section 2.5.1 it is stated that the project would only have a minor impact on grizzly bears that have a home range that overlaps with the Hope Bay Project, and that grizzly bear densities in Nunavut are extremely low. If such a safety concern were present, this safety concern would imply that the densities in that region are higher, and that perhaps then the impacts would not be minor. It is the opinion of KIA's wildlife specialist that setting up and taking down samples from hair snag stations that are largely accessed by helicopter, with the aid of a bear spotter, and in open terrain where grizzly bears can be spotted from a distance, poses no safety issues unless grizzly bear densities are extremely high.
Proponent Comment: This issue stems from a misunderstanding: The studies that were discontinued in 2009 was not the DNA hair-snagging study, but rather a study that involved staff working on the ground in bear habitats such as riparian habitats (among others) to conduct vegetation plots to examine bear activity and thereby calculate a metric of bear density. The tall shrubs in these environments prevented staff from seeing grizzly bears at a safe distance. In those cases, a helicopter was not immediately at hand if a bear interaction occurred. These surveys were discontinued based on safety and in favour of the DNA surveys, as recommended by GN DOE. The DNA-based mark-recapture surveys were conducted in 2010 and 2011 and discontinued after the completion of two years of study, the standard for this type of survey, when the Project went into Care and Maintenance. Note that TMAC's assessments of personnel safety conducting environmental studies weigh the risk of exposing workers to locations to which bears might be present, their ability to detect the bears in the work area, the risk of bear deterrent methods that could be employed to safeguard remote crews, with the relative value of the		

data. The assumption that this safety assessment implies anything about bear density in the study area is incorrect. It only indicates that we are aware they are present.		
KIA *Issue 6: The Grid Sizes Used for Grizzly Bear DNA Monitoring May Lead to Underestimates of Grizzly Bear Population. Mitigation Should Assume Higher Use under the Precautionary Principle*	Page 2-14: Document states: "The study area used for the DNA program was approximately 6,400 km^2. The area was divided into 64 cells, each measuring 10 x 10 km (100 km^2; Figure 2.5-1). Dumond et al. (in prep) suggest that a grid cell size of 50 km^2 is sufficient for grizzly bears; however, at lower grizzly bear densities, the grid size can be larger. Grid sizes consider the resources available, closure violations (e.g., large sampling grid with sparse hair trap coverage), and capture probability (e.g., small grids with intensive sampling) (Boulanger et al. 2004). In addition to meeting the requirement to monitor grizzly bears in the Doris North Project area, the study area was designed to obtain Phase II baseline data for the Boston and Madrid deposits."	Please cite the habitat/area for which Dumond et al. (in prep) suggested a grid size of 50 km^2. If the grid size suggested pertains to Nunavut, the density of grizzly bears in an area associated with Hope Bay would generally be considered higher than for other areas in the Territory. Please mention the grid cell sizes used for the genetic sampling from the West-Kitikmeot Slave Study (WKSS), the relative grizzly bear densities estimated from other areas compared to the Hope Bay study area, and effects of using a larger grid cell sizes (if this is the case) on your results. Normally, grid sizes that are too large for the population density result in imprecise population estimates, as it becomes more difficult to estimate animals not recorded. Further, the decision to not move traps within large grids (regardless of changing bait) may result in a reduction in N values (underestimate in population size), and will, in particular, underestimate the number of females. The decision not to move hair stations is usually done within smaller grids, and increased grid size is normally combined with an increased need for hair snag trap movement to avoid this bias. Given the initial results of the DNA study, which has implied high densities of grizzly bears in the area, densities may be even greater than assumed based on large gird sizes and stationary hair stations. This likely means grizzly bear numbers will be underestimated, which should be considered in planning mitigation and monitoring strategies.
Proponent Comment: 49km^2 (7km x 7km) is the average cell size for bear DNA studies in British Columbia based on higher expected densities and lower movement rates and home range sizes. A cell size of 10x10 km or 12x12 km is appropriate for a population with lower densities and higher movements because it enables coverage of a larger study area with similar effort to account for these movements. To compensate for not moving sampling stations between sessions, additional sessions were added over a shorter time frame to maximize detection probabilities (6 sessions/year over 2 years versus 2/year over 5 years in the western Nunavut study). Should a decision be made that further monitoring is required for grizzly bears once the Project comes out of care and maintenance, the study is designed to monitor changes in relative abundance over time as opposed to absolute density, which was the basis for the western Nunavut study. The assumptions and methods differ between a trend monitoring objective and an absolute density objective. Under a trend monitoring objective, population closure is not a requirement and all grizzly bears are included in an estimate of a super-population (the total number of bears expected to occur on the study area at any given time). To determine absolute densities, the study area needs to be sufficiently large relative to the average home range of grizzly bears to meet the population closure requirement because those bears detected at the periphery of the study area are ultimately excluded from density calculations. As a result, density is expected to be lower than detection frequency. Preliminary results from other grizzly bear DNA studies in Nunavut and NWT suggest that a study area		

of 6,000km^2 and cell size of 12 x 12 km is sufficient to meet the minimum capture probability of 0.2 and a minimum of 50 grizzly bear detections for trend monitoring.		
Section 2.5 Grizzly Bears (Construction and Operations)		
KIA *Issue 7: No Wildlife Cameras Monitoring Roads*	Page 2-46; Figure 2.10-1: No cameras appear dedicated to monitoring the interactions of roads and traffic with wildlife.	Additional cameras focusing on roads and traffic-wildlife interactions are recommended. Furthermore, at project sites likely to capture wildlife interactions, four (three additional) cameras at the same station, facing N, W, S, E, may enhance photo interpretation.
Proponent Comment: This is a good suggestion and we have already implemented it. Starting in summer 2013, 12 cameras are now stationed along the roads and airstrip to monitor interactions of roads and traffic with wildlife. An additional 5 cameras are positioned along roads are pointed out toward the tundra. It is felt that the current deployment of cameras will address the objective of detecting wildlife interactions with mine infrastructure.		
Section 2.7 Upland Breeding Birds (Construction and Operations)		
KIA *Minor Issue 1: Control Plot Locations*	Figure 2.7-1, GIS #: HB-23-186: Some of the 2010 control plot sites appear to be closer to potential human disturbance sites (e.g., Boston Exploration camp) than do some of the mine plot survey points that are farthest from the mine infrastructure along the yellow transect lines.	
Proponent Comment: These designations and plot locations are being reassessed during the 2013 field season and will be reflected in the 2013 WMMP report.		
Section 2.8 Waterfowl (Construction and Operations)		
KIA *Minor Issue 2: Location of Control Blocks*	Figure 2.8-1, GIS #: HB-23-157: The "south control" block, as mentioned in Section 2.8-2 on page 2-32 is not shown in Figure 2.8-1, or it is mislabeled.	
Proponent Comment: This block naming will be corrected in the next WMMP Plan. The south survey block represents the Boston Phase II baseline study area rather than a control, and will only be surveyed again should additional Phase II baseline data be needed.		
Section 2.11 Wildlife Mitigation (Construction and Operations)		
KIA *Minor Issue 3: Training for Wildlife Avoidance*	Page 2-48, Section 2.11: Document states that HBML "provides guidance to staff on how to avoid staff/wildlife interactions."	Because there are a high number of contractors coming to and from site, is there an introductory briefing that provides guidance to contractors on how to avoid contractor/wildlife interactions? Is it not clear whether or not contractors are covered by training provided for "staff" or "on-site personnel".
Proponent Comment: Every person who arrives on site must go through an orientation which includes training for wildlife avoidance, appropriate waste management practices, and documenting wildlife sightings.		
General Comments		
KIA *Minor Issue 4: Spelling and*	Page 2-38, Section 2.9.1: "As a ground nesting raptor, short-eared owls are <u>including</u> with upland breeding birds,	Underlined spelling and grammatical errors.

Grammar Errors	while this section focuses on cliff nesting raptors… Page 2-48, Section 2.11: "establishes and enforcing speed limits on roads;" Page 3-5, Section 3.2.2 "…In the care and maintenance phase, but HBML…"	
Proponent Comment: Acknowledged		
KIA	In addition to the responses provided by our wildlife specialist on the WMMP 2012 Annual Report and the 2013 update of the WMMP Plan, the KIA would like to note to the NIRB that the 2013 update does not adequately address identified issues KIA brought forward in its previous review of the 2011 WMMP Annual Report. There are 6 issues listed in our previous response dated April 23, 2012 on the 2011 WMMP Annual Report addressed to Li Wan, Technical Advisor for NIRB. These six issues from our previous response, along with the ones presented above should be addressed by TMAC Resources Inc. and the NIRB in the oversight of wildlife mitigation and monitoring. KIA would appreciate some formal reply from both NIRB and the proponent on these and the previously identified WMMP issues.	
Proponent Comment: These comments have been responded to in the above WMMP report comment responses and applicable issues will be addressed in the 2013 WMMP Report.		
Section 3.2.2 Caribou (Care and Maintenance)		
GN DOE *Scope*	Issue Summary: HBML had previously indicated its commitment to the continued monitoring of the Ahiak and Dolphin-Union caribou herds via GN planned and implemented collaring programs. Monetary contributions and in-kind support were to be outlined in an MOU between GN and HMBL. It is unclear how or if TMAC will meet this requirement now that it has taken ownership of the project	The GN requests clarification regarding TMAC's participation in a caribou collaring program MOU.
Proponent Comment: At this stage, TMAC is interested in contributing to regional monitoring programs should they be established. TMAC will contact the GN-DOE to set up a meeting to discuss this in early 2014.		
Section 3.3.2.1 Camera Monitoring (Care and Maintenance)		
GN DOE	Issue Summary: Remote cameras on site will be used to monitor wildlife interaction with project infrastructure as well as attempting to assess wildlife use of relatively unaffected areas within the study area. The GN agrees with twice yearly checks on the remote cameras provided that the equipment can remain powered and has sufficient memory for photo storage to avoid gaps over the 6 months the cameras will be operating unattended. Within the WMMP, the proponent states that "Cameras may be repositioned annually as deemed necessary pending results of the photo data." Yet there are no details on which	The GN would like clarification regarding methods for initial camera placement and criteria for repositioning. Later sections defer monitoring efforts of specific species or species groups to the remote cameras. If cameras are intended for monitoring specific species or groups (e.g., grizzly bear, wolverine, shorebirds, waterfowl), the camera location and settings should be adjusted according to specific targets. Otherwise the cameras may not be able to effectively achieve their goal. Likewise, a general approach may capture a broader range of species, but would be ineffective for monitoring specific groups (e.g., shorebirds or raptors). Furthermore, the cameras have a limited detection range (~30m) which brings into question their ability to monitor

	criteria will be used to determine that the cameras should be repositioned or not. Additionally, there are few details pertaining to the methodology used for initially setting up the cameras and their locations throughout the study area.	wildlife outside of the relatively confined spaces within project infrastructure.
Proponent Comment: Cameras are not intended to monitor other wildlife species in the general study area, but incidental camera image captures of other species will be recorded and reported in the WMMP. Cameras will record interactions between wildlife and Project infrastructure. Clarification over targeted monitoring using cameras vs. recording incidental observations will be made in the WMMP plan. A total of 60 cameras were deployed in 2013. Camera placement design is intended to capture 1) wildlife interaction with project infrastructure. Most species within ~25-30 m of a camera's trigger range and field of view should be recorded; and 2) to record the presence of Dolphin-Union caribou and other wildlife within the WMMP study area.		
Section 3.3.2.2 Wildlife Mortalities (Care and Maintenance)		
GN DOE	Issue Summary: The WMMP indicates that both natural and human-caused wildlife mortalities will continue to be monitored and recorded within the project area. There is confusion in the wording that suggests that only VEC species will be reported.	For clarification, the GN reiterates that any and all wildlife mortalities within the project area be reported to the Department of Environment immediately. Local Conservation Officers should be contacted and mortalities will continue to be recorded in the database. Possible causes for mortality should be explored and the location marked (latitude and longitude). Carcasses should be properly disposed of (incinerated) so as to avoid attracting scavengers. Regular review should be undertaken to inform adaptive management strategies to prevent further incidents.
Proponent Comment: All wildlife mortalities are, and will continue to be, reported to the GN-DOE Wildlife Officer in Cambridge Bay. Similarly, Departmental personnel are and will continue to be contacted for advice and direction in the event of any ongoing wildlife issue at Hope Bay. This can be confirmed with a review of station occurrence reports. Additionally, all mortalities, including non-VEC species, are reported in our annual reports.		
Section 3.4.1 Grizzly Bear and Section 3.4.2 Wolverine (Care and Maintenance)		
GN DOE	Issue Summary: The WMMP indicates that both grizzly bear and wolverine DNA based monitoring will be discontinued during the care and maintenance phase, though monitoring will continue via remote cameras. The annual report notes that continuation of the program will be discussed should project development resume.	The GN suggests that the organizations involved in the discussion on continuation of the DN monitoring program be defined and notified as such. It is unlikely that the remote cameras would be effective at providing anything other than incidental observations because the cameras are not positioned according to the hair snagging grid.
Proponent Comment: The organizations involved in the discussion on whether to resume DNA monitoring once the project comes out of care and maintenance will include GN DOE, the Proponent, and NIRB. Other organizations may be involved, including the KIA, elders, and local hunter and trapper organizations. The cameras are positioned to monitor wildlife activity around Project infrastructure (including bear and wolverine activity) and in movement corridors where bears and wolverine are likely to be seen. In addition, one camera is placed at the boulder garden at the outflow of Roberts Lake to monitor bear and wolf activity near the fish fence. It is acknowledged that these cameras are intended to provide incidental and site-monitoring data only.		
Section 3.4.3 Aerial Waterfowl Surveys (Care and Maintenance)		

GN DOE	Issue Summary: If development of the Project resumes, waterfowl monitoring will proceed as in 2012, focusing on areas relevant to the Doris North Project Certificate, and with updates to the methodology or study area as deemed appropriate in consultation with communities and regulators. Remote cameras on-site will monitor wildlife interactions. Incidental bird observations will also continue to be recorded on and near the mine site.	It is unlikely that the remote cameras will capture flying birds. Larger walking or swimming birds may show up in the images, but these birds would need to be within approximately 30m of the cameras. The GN requests further clarification on when and how updates to methodology will be discussed with stakeholders.
Proponent Comment: Monitoring of waterfowl will not take place during the care and maintenance phase of the project when site activities are minimal. However, as exploration activities were undertaken at the Doris North Project site in 2013, TMAC elected to conduct the aerial waterfowl surveys this year and this information will be presented in the 2013 Annual WMMP report. The cameras are positioned to record the presence of wildlife along road routes, the airstrip, and within infrastructure areas. It is unlikely that waterfowl will trigger the cameras as the main purpose of the cameras is to monitor infrastructure and for the timing of the presence of Dolphin and Union caribou. However, any waterfowl captured by the cameras will be recorded and reported in the 2013 WMMP. Updates to the methodology will be discussed with interested stakeholders if the current methodology is determined to be inadequate to meet the objectives set out in the WMMP Plan.		
Section 3.4.4 Upland Breeding Bird Surveys(Care and Maintenance)		
GN DOE	Issue Summary: If project development continues, a combination of variable radius point count surveys and PRISM plots will be used to monitor potential effects of the Project on upland breeding birds, with continued focus on the 2012 study area. Remote cameras on site will monitor wildlife interactions on site. Incidental bird observations will also continue to be recorded on and near the mine site.	It is unclear whether the cameras in operation have the capability to detect a flying bird, or even a small walking bird such as a shorebird or passerine. The GN requests more detail on the efficacy of these cameras, which are typically designed to capture images of medium to large mammals, in monitoring upland breeding birds. If the cameras are not effective, another means of monitoring impacts should be developed.
Proponent Comment: Monitoring of upland breeding birds will not generally take place during the care and maintenance phase of the project. However, TMAC elected to undertake this study in 2013 as exploration activities were resumed in the belt. Additional, incidental observations will continue to be recorded by on site staff in all project phases. The wording of the WMMP plan will be modified when next updated, since upland breeding birds are unlikely to trigger the cameras although they will be recorded and reported on if captured in the camera images.		
Section 3.4.5 Raptor Nest Surveys (Care and Maintenance)		
GN DOE	Issue Summary: If development of the Project resumes, raptor monitoring will proceed as in 2012, consistent with monitoring activities specific to the Doris North Project certificate. Updates to the methodology or study area may be made as deemed appropriate in consultation with communities and regulators. Remote cameras on-site will monitor	It is unlikely that the cameras in their current position will be capable of monitoring nesting raptors. Further clarification is warranted regarding updates to methodologies and the study area as mentioned for other species, above.

	wildlife interactions. Incidental raptor observations will also continue to be recorded on and near the mine site.	
Proponent Comment: Monitoring of raptors will not take place during the care and maintenance phase of the project, and only incidental sightings data will be collected and reported for this group. However, as exploration activities were resumed at the Doris North Project site in 2013, TMAC did elect to conduct the raptor surveys during summer of 2013 and will present these results in the 2013 WMMP. Incidental sightings of raptors by site personnel will continue to be recorded and reported as will any camera raptor sightings. Since the cameras are taking photos on both timed and triggered settings, the birds do not necessarily have to trigger the camera to be observed. The WMMP plan will be modified when next updated to remove the objective of monitoring raptors using cameras, except in the case of incidental observations. Updates to the methodology will be discussed with stakeholders if the current methodology is determined to be inadequate to meet the objectives set out in the WMMP Plan.		
Muskoxen (Care and Maintenance)		
GN DOE	Issue Summary: Muskoxen are not given a section within the Care and Maintenance portion of the WMMP Plan, and are only listed once, referring to other VECs in the Camera Monitoring section 3.3.2.1. The Annual Report indicates that muskox surveys were concurrent with caribou surveys, and that most observations were incidental. Further, aerial surveys, and thus active monitoring, ceased in 2011 in favour of a caribou collaring program. At present, there is no active monitoring of muskox at the project site, nor is it planned.	Incidental observations cannot be used to assess potential impacts or for baseline surveys. The GN suggests supporting the HTO and potentially the GN Wildlife division in conducting surveys. Insufficient data is not grounds to discontinue investigation into a potential zone of influence for muskox.
Proponent Comment: Based on a rigorous, multi-year Issue Scoping and Valued Ecosystem Component selection process that ended in June 2005 and included direct consultation with the GN-DOE, muskox were not selected as a VEC for the Doris North Project. Muskox are not frequently observed throughout the Project study area, either during the baseline data collection or during project construction periods. Observations were recorded incidentally during caribou aerial surveys as additional information. Incidental observations of muskox, as well as other non-VEC species, will however continue be presented in the annual WMMP report data. At this time there are no plans to contribute to HTO or Wildlife Division surveys for muskox.		