BACK RIVER PROJECT
Responses to 2018 Annual Report Comments

July 19, 2019

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1. Introduction

Sabina Gold & Silver Corp. (Sabina), submitted its 2018 Annual Report to the Nunavut Impact Review Board (NIRB) on 1 May 2019, as required by the Back River Gold Mine Project Certificate No. 007. Interested Parties were then requested by the NIRB to provide comments on the 2018 Annual Report

On or before 3 June 2019 the NIRB received comments from the following interested parties:

- Kitikmeot Inuit Association (KIA) = 35 comments
- Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) = 5 comments
- Fisheries and Oceans Canada (DFO) = 0 comments
- Transport Canada (TC) = 0 comments

Following a review of the submissions, Sabina advised CIRNAC and the NIRB on 11 June 2019 that the CIRNAC submission contained comments on other Projects not related to the Back River and as such requested direction from the NIRB. On 11 June 2019 CIRNAC made a resubmission correcting the inaccurate information.

Section 2 provides responses to the comments received from KIA and CIRNAC.

2. Responses to Comments

2.1 RESPONSE TO KITIKMEOT INUIT ASSOCIATION

KIA-1: Sensitive Landform Mitigation and Monitoring

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 13

Summary:

The proponent is required to undertake additional geotechnical investigations to identify sensitive landforms, modify engineering design for project infrastructure, and include mitigation in appropriate management plans. Reporting requirement is to provide the results of additional geotechnical investigations and any measures implemented. There are not yet any reports on sensitive landforms available, despite some project components being initiated.

Detailed Review Comment

There has not been any progress documented on investigating sensitive landforms. This may be problematic as activities have begun that could affect such landforms (e.g., road construction). Within the 2018 annual report, the proponent has indicated that additional geotechnical investigations and mitigation to prevent impacts on sensitive landforms will be reported on once construction has started. However, the proponent has already completed project components are project aspects often included in the early construction phase, and can affect special landforms (e.g., eskers). Based on our review of the construction phase definition (See Appendix A), some activities described in the 2018 annual report as completed to date may be considered part of early construction. Therefore, sensitive landforms may not have been surveyed for and reported on before appropriate mitigation shall be considered.

Regardless of whether activities completed are considered as part of “pre-construction” (a term not used within the FEIS, which uses mobilization and construction; Appendix A) or construction, they have the capacity to damage sensitive landforms (e.g., earthworks, initial commissioning of the MLA, cargo sealifts, and road and bridge construction).

This issue is important, as it affects the reporting requirements for many other valued components as well. Other reporting requirements that are being deferred by the premise that the proponent is in the “pre-construction” phase, include permafrost monitoring, and noise reduction options, among others.

Recommendation/Request:

Please clarify why activities such earthworks, initial commissioning of the MLA, cargo sealifts, and road and bridge construction, are classified as “pre-construction”, given the terminology, phased activities, and timelines used in the FEIS?

Please clarify when the proponent feels that construction is to officially begin, and which activities are included as part of construction.

Please undertake additional geotechnical investigations and/or outstanding reporting as soon as possible. Please note any sensitive landforms already impacted by activities that have occurred on site.

Sabina Response:

The Back River Gold Mine Project (NIRB File No. 12MN036; the Back River Project or the Project) consists of the proposed mobilization, construction, operation, closure, reclamation, and post-closure monitoring of a gold mine operation in the Kitikmeot region of Nunavut.

The FEIS defined Mobilization and Construction as one stage occurring over a four year period from 2016 to 2019. As Sabina proceeded through the Type A Regulatory Process, Project Phases timelines where further advanced to indicate that Mobilization and Construction activities could begin in 2018 with the staging of materials at the Marine Laydown Area (MLA), followed by three years of construction of the Goose Property infrastructure.

In correspondence from Sabina to the NIRB on December 12, 2018, Sabina confirmed seasonal resumption of operations. In addition, Sabina stated:

> Sabina had a safe successful 2018 advancing the Back River Project. On March 13, 2018 Sabina received Type B Water License No. 2BC-BRP1819 from NWB which allows for identified initial development works to commence at both the Goose Property and Marine Laydown Area. On April 23, 2018 Sabina finalized the required agreements (including, but not limited to, the Inuit Impact Benefit Agreement and Land Tenure Agreements) with the KIA.
>
> In 2018, Sabina completed significant initial development activities at the site focused on advancing and de-risking future development, including:
>
> - Completion and commissioning of the Marine Laydown Area (MLA);
> - Completion of two cargo sealifts;
> - Ongoing geotechnical drilling in key infrastructure sites;
> - Detailed surveying of the Winter Ice Road (WIR) route for better refinement;
> - Procurement of construction equipment, bulk fuel storage and other infrastructure; and
>
> Commencement of earthworks at Goose site; including quarry expansion, heavy equipment upgrades and initial road and bridge construction.
>
> The Back River Project for the remainder of 2018 and early 2019 will focus on continued Initial Development Works, beginning with the MLA to Goose site interconnecting Winter Ice Road (WIR) construction and operation. At this point, Sabina will not be entering full construction of the Back River Project. Limited personnel will be on site at the MLA for approximately the week of Dec. 16th; with initial activity limited to camp opening tasks, such as snow clearing, warming up buildings, starting equipment, etc.
>
> Beginning in early January, the 2019 WIR construction is expected to take 45 to 60 days, and completing in late February or early March 2019. Once WIR construction is completed, the WIR route will be maintained during WIR operation as materials are hauled via tractor trailers from the MLA south to Goose site. Hauling on the 2019 WIR is expected to take 15 to 20 days and is estimated to be completed by late March.
>
> The Goose camp will be opened as needed to support the 2019 WIR activities; timing will depend on construction progression and other Project requirements for this camp.

> Exploration at the Back River Project will resemble activities similar to the past several years. Sabina anticipates an approximate 10 week winter exploration drilling program at the Goose site starting mid-February. Sabina also anticipates an approximate 3 month summer field based and fall drilling exploration program at Goose site from mid-June to mid-September.
>
> As per the terms of various licenses, best management practices and monitoring are part of Sabina's Back River Project. Sabina will advise of the dates as we complete our exploration and initial development programs.

Much of the status update provided by Sabina in December was re-iterated to NIRB on March 14, 2019. Optimistically, Sabina proposed throughout the regulatory review process that Mobilization was to be a 1 year undertaking and in reality, this stage is occurring over a two year period.

In support of the NIRB PC No. 007, Sabina defines:

Construction to mean full mobilization of all materials and personnel on site wherein the site is occupied year round to initiate construction of all core mine infrastructure.

Mobilization to mean the time period where some mobilization and development works [i.e. Pre-Construction including site preparation and staging of materials and equipment in advance of construction (NIRB Decision S. 3.4)] can be undertaken consistent with the appropriate permits/licences on a seasonal basis.

The NIRB decision (NIRB 2017) acknowledges that need for flexibility in relations to monitoring the terms and conditions of the PC, and NIRB endeavored to reflect this in the associated language and/or acknowledge that objectives may be achieved through various means.

As stated in Section 3.5 of the Decision:

> The NIRB retains the ability to give additional clarification or direction on an ongoing basis through its Monitoring Officer, with respect to compliance requirements for the Project. Upon request by the Proponent or other parties, the NIRB can provide additional clarification or direction regarding implementation of Project Certificate terms and conditions.

While no formal request was made, no correspondence was received from the NIRB monitoring officer with respect to Sabina correspondence submitted on December 12, 2018 and March 14, 2019, and therefore Sabina assumed plans for resumption of operations as outlined were acceptable to NIRB. Therefore, Sabina structured the reporting requirements of the 2018 annual report to reflect the current status of the Project. Sabina appreciates the NIRB's acknowledgment of the need for flexibility in monitoring and implementation of the PC, and Sabina believes the definitions provided above as well as the update on current status, provides the clarity needed to satisfy KIA request. Sabina anticipates remaining in pre-construction for 2019 pending financing.

No sensitive landforms have been impacted by Project activities. Existing geotechnical data, which was thoroughly reviewed throughout the Back River Project Type A Water Licencing process, was sufficient from an engineering requirement to proceed with pre-construction activities. During Construction, Sabina will, on an annual basis, provide information regarding the results of additional geotechnical investigations undertaken and any associated mitigation and monitoring measures implemented by Sabina in Sabina's annual report to the NIRB. Sabina will also adhere to the geotechnical requirements established within the Type A Water Licence (2AM-BRP1831); for example, July 2019 geotechnical data collected at the proposed bulk tank farm at the MLA has slightly shifted the location of one tank. This

information will be provided in the Construction Summary Report to be provided to the NWB for review and comments, 90 days post completion (2AM-BRP1831; Part D, Item 11).

KIA-2: Waste Management Plan

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 14

Summary:

The proponent is required to produce a waste management plan to ensure environmental protection. This plan must be provided 60 days prior to the start of construction. No waste management plan is yet available, despite some project components included within the construction phase, according to the FEIS definitions, being initiated.

Detailed Review Comment:

Similar to the technical comment noted within KIA-TC-01, it is also unclear if construction has started, as the proponent has completed earthworks and initial commissioning of the MLA, two cargo sealifts, commenced earthworks at goose site including quarry expansion, and started initial road and bridge construction. Based on our review of the construction phase definition (See Appendix A) activities completed so far may be considered part of construction. It is unclear how waste is being managed in an environmentally sensitive manner for these activities if there is not yet a waste management plan.

Recommendation/Request:

Please consider preparing a waste management plan to help ensure that the local environment is maintained during these early construction activities.

Please ensure that the waste management plan is provided prior to construction, if construction is occurring.

Sabina Response:

Term and Condition No. 14 requires Sabina provide a Waste Management Plan that describes how the local environment will not be harmed by wastes at project landfills. It is important to note that no landfills have been constructed at the Back River Project.

Further, Sabina's Landfill and Waste Management Plan, which was reviewed by regulators throughout the Back River Project Type A Water Licence Hearing and approved by the NWB (2AM-BRP1831; Part B, Item 14i), is readily available on the NWB's Public Registry.

KIA-3: Site Footprint

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 32

Vegetation Monitoring Program (Golder 2018; Appendix C)

Summary

The reporting requirement for Condition No. 32 states that the proponent must provide information regarding the current Project footprint, taking into account construction and progressive reclamation activities, and the loss or alteration of vegetation associated with Project activities. However, this information has not been provided.

Detailed Review Comment:

While the proponent has provided a baseline vegetation sampling report as described in the "Vegetation Monitoring Program" (Golder 2018), there was no description of the current project footprint or the change in vegetation/ footprint due to the pre-construction activities completed so far including: earthworks and initial commissioning of the MLA, two cargo sealifts, commenced earthworks at goose site including quarry expansion, and initial road and bridge construction.

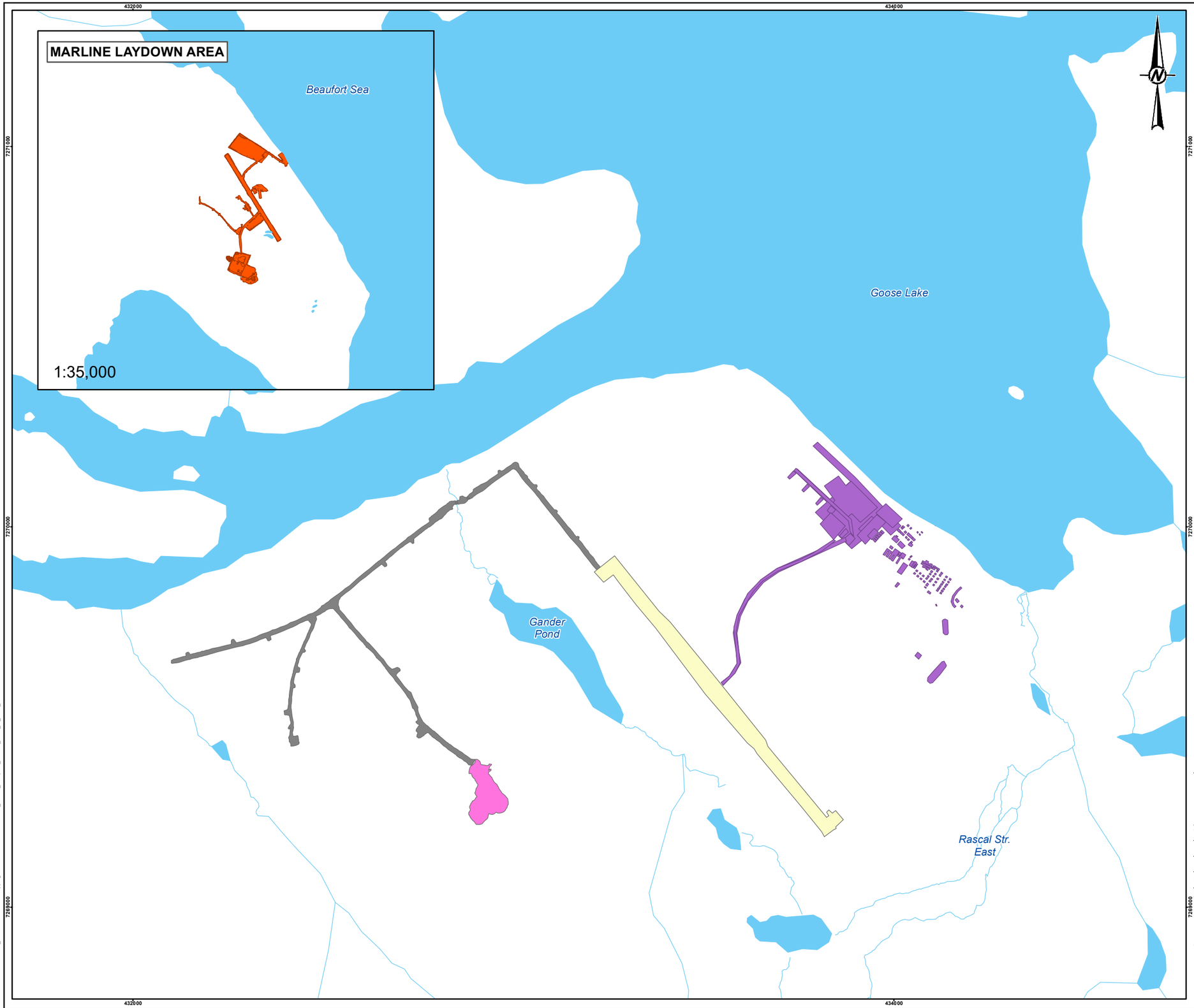
Recommendation/Request:

Please provide the current footprint estimate and clarify the area of lost vegetation associated with Project activities.

Sabina Response:

Figure 1 (below) is a graphic representation displaying 2017 and 2018 footprints for the Goose Property and MLA. The MLA was not constructed in 2017.

Ecosystem/vegetation losses associated with current footprint for the Goose Property and the MLA are presented below in Table 1. To date, 11.7 ha (<0.01% of the LSA) has been affected due to Goose Property development, of which 9.3 ha (<0.0.1% of the LSA) are vegetated ecosystems. Development activities associated with the MLA property has affected 9.6 ha (<0.1% of the LSA), largely limited (9.6 ha) to vegetated ecosystems.



LEGEND

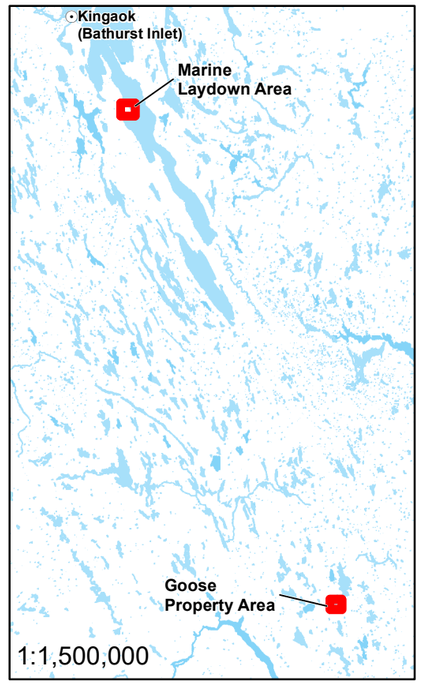
- WATERCOURSE
- WATERBODY

2017 FOOTPRINT

- GOOSE CAMP
- GOOSE AIRSTRIP

2018 FOOTPRINT

- All WEATHER ROAD AND BRIDGE
- QUARRY FOOTPRINT 2018
- MLA INFRASTRUCTURE



DRAFT

0 400 800

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REFERENCE(S)

FOOTPRINT OBTAINED FROM CLIENT. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 13N DATUM: NAD 83

YYYY-MM-DD	2019-07-18
DESIGNED	CS
PREPARED	SK
REVIEWED	
APPROVED	

CLIENT: Sabina Gold & Silver Corp.

CONSULTANT: GOLDER

PROJECT
SABINA BACK RIVER PROJECT, NUNAVUT CANADA

TITLE
BACK RIVER PROJECT FOOTPRINT (2017-2018)

PROJECT NO.	FIGURE	REV.
18114181	1	A

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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Table 1. Ecosystem/Vegetation Losses Associated with Current Footprint for the Goose Property and the Marine Laydown Area

ECOSYSTEM TYPE	TEM CODE	LSA		Goose Property		MLA Property	
		Area (ha)	% of Total LSA	Area (ha)	% of Total LSA	Area (ha)	% of Total LSA
Non-vegetated Ecosystems							
Lake	LA	18140.9	12.5	<0.1	<0.01	-	-
Mine Camp	DR	10.0	<0.1	2.4	<0.01	-	-
Pond	PA	6436.1	4.5	-	-	-	-
River	RI	329.0	0.2	-	-	-	-
Road surface	DZ	3.2	<0.1	-	-	-	-
Saltwater	MW	6170.1	4.3	-	-	0.1	<0.01
Subtotal		*31089.3*	*21.5*	2.4	<0.01	0.1	<0.01
Sparsely Vegetated Ecosystems							
Bedrock outcrop	BR	3428.8	2.4	-	-	-	-
Bedrock-lichen veneer	BL	6882.8	4.8	-	-	-	-
Blockfield	TB	195.5	0.1	-	-	-	-
Cliff	BC	10.9	<0.1	-	-	-	-
Exposed soil	ES	176.7	0.1	-	-	-	-
Marine beach	MB	59.5	<0.1	-	-	0.1	<0.01
Old beach heads	MH	476.1	0.3	-	-	1.0	<0.01
Saline shallow open water	WO	55.8	<0.1	-	-	-	-
Shallow open water	WO	81.1	0.1	-	-	-	-
Sparsely vegetated esker	EC	659.5	0.5	-	-	-	-
Talus	BC	4.5	<0.1	-	-	-	-
Subtotal		*12031.2*	*8.3*	-	-	*1.1*	<0.01
Vegetated Ecosystems							
Cottongrass-sedge fen	WC	3467.7	2.4	0.1	<0.01	-	-
Disturbed Vegetation	DV	0.7	<0.1	-	-	-	-
Dry-sparse tundra	TH	23458.2	16.2	0.1	<0.01	-	-
Dwarf shrub esker	EH	629.7	0.4	-	-	-	-
Estuary marsh	ME	997.3	0.7	-	-	0.7	<0.01
Low bench floodplain	RL	36.5	<0.1	-	-	-	-
Marine dwarf shrub tundra	MT	5444.7	3.8	-	-	5.9	<0.01
Marine riparian shrub	MR	439.4	0.3	-	-	1.3	<0.01
Marine shrubby tundra	MS	1830.2	1.3	-	-	0.2	<0.01
Mesic dwarf-shrub tundra	TL	41722.4	28.9	7.1	<0.01	-	-
Mid bench floodplain	RM	3.8	<0.1	-	-	-	-
Raised bog complex	WB	4224.6	2.9	0.6	<0.01	0.1	<0.01
Saline marsh	MM	252.0	0.2	-	-	<0.1	<0.01
Shrubby esker	EW	220.8	0.2	-	-	-	-
Shrubby tundra	TS	11853.9	8.2	1.4	<0.01	-	-
Tussock meadow	WT	64.4	<0.1	-	-	-	-
Undifferentiated fen	WF	2582.0	1.8	<0.1	<0.01	-	-
Water sedge marsh	WA	2396.0	1.7	<0.1	<0.01	0.1	<0.01
Willow riparian	RW	1441.9	1.0	-	-	-	-
Willow-sedge fen	WS	418.3	0.3	-	-	-	-
Subtotal		*101484.6*	*70.2*	*9.3*	<0.01	*8.5*	<0.01
Grand Total		**144605.1**	**100.0**	**11.7**	**<0.01**	**9.6**	**<0.01**

KIA-4: Invasive Species

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 33

2018 Back River Project Annual Report, Expediter verification form, Appendix B

Summary:

On February 16, 2018, Sabina provided to the NIRB a Standard Operating Procedure (SOP), which ensures all equipment and bulk supplies arriving at the Back River Project site are in a condition free of any soil or plant debris to minimize the risk of invasive plant introduction. However, this was not 30 days in advance of the first shipment, as required in the Project Certificate Condition No. 33 reporting requirement.

Detailed Review Comment:

The proponent uploaded the required SOP document to the NIRB site on Feb 16, 2018. However, the Expediter verification form indicated that the shipper signed the shipment as beginning March 4, 2018. This was only 16 days in advance of the first shipment. As this is a minor lapse in meeting the reporting requirement, and appropriate information was provided, we have indicated that this is partially compliant.

Recommendation/Request:

Please submit reports on time, in advance of all deadlines as described in the Project Certificate Conditions and Reporting Requirements.

Sabina Response:

Sabina recognizes the importance of timely submissions and thanks the KIA for their comment.

KIA-5: Vegetation Monitoring Plan

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 34

Summary:

2018 Back River Project Annual Report does not provide sufficient information and the vegetation-monitoring plan (Golder 2018) referenced within and does not fully address all terms and conditions set out by the NIRB about vegetation monitoring planning.

Detailed Review Comment:

The objective of Project certificate condition No. 34 is "to minimize potential impacts to vegetation along the winter road/trail routings and around project sites."

The terms are as follows;

> "The Proponent shall have in place a Vegetation Monitoring Plan that is designed to quantify the potential impacts on vegetation from the Project, including the annual construction/operation of the winter ice roads and trails. The plan should include all commitments discussed throughout the Review of the Project, including commitments to consult with the Kitikmeot Inuit Association, the Government of Nunavut, and other relevant parties, as well as:
>
> a. Establishment of pre-construction and post-operation vegetation conditions annually with supporting photographs to allow for long- term comparisons of vegetation conditions along winter ice road/trail routings and around project sites;
> b. Incorporation of measures to prevent or minimize potential destabilization and erosion along winter ice road/trail routings and around project sites;
> c. Details on the triggers for implementing adaptive management options if effects to vegetation are observed, including potential impacts from dust deposition; and,
> d. Discussion of how the findings from monitoring efforts would be used to inform reclamation planning."

While the proponent has referenced their baseline vegetation-sampling program for 2018, as it pertains to Condition No. 34, they have not referred to their Vegetation Monitoring Program (2017) which is the more relevant document and is mentioned in other sections of the Annual report. This lack of consideration of the Vegetation Monitoring Program raises concerns that this program has not been utilized in consideration of Project Certificate Condition No. 34.

A second issue is that the locations of vegetation sampling sites selected for the 2018 vegetation baseline program did not take into account the project sites, and only focused on the winter road route. Sampling should also take place "around project sites" in order to fully meet the condition (a) set out by the NIRB. Future monitoring should also monitor select sites near project areas to determine changes in vegetation and to inform adaptive management.

A third issue is that the annual report is also missing information about the remainder of the requirements for Condition No. 34 (b, c, and d). There was no mention of erosion, as asked for in Condition No. 34(b), within the vegetation-monitoring plan (Golder 2018). There was also no mention of erosion in the Vegetation monitoring program (2017), assuming this the exclusion of reference to this document was in error. Details required in (c) and (d) of Condition No. 34 are also not apparent in the 2017 Vegetation Monitoring Program.

Finally, the majority of the adaptive management section of the Golder (2018) report does not speak about adaptive actions or define triggers; instead, a list of mitigation measures is provided. There is some discussion of "corrective actions" but there is no discussion of dust on vegetation, specific triggers and adaptations, or reclamation planning. The 2018 report mentions adaptive management but does not describe in detail how this will be used.

Recommendation/Request:

Please reference the Vegetation Monitoring Program (2017), or other such plan, in subsequent Annual reports in relation to Project Certificate Condition No. 34.

Please append a copy of the Vegetation Monitoring Plan, as has been done for other monitoring plans and programs such as the WMMP.

Add monitoring sampling sites near project areas to determine changes in vegetation and inform adaptive management near project infrastructure in addition to sites already sampled along the winter road (part of condition).

Please address or show how potential destabilization and erosion is being minimized (requirement b).

Please provide details on triggers for implementing adaptive management options if effects to vegetation are observed (requirement c).

Please address potential impacts from dust deposition (requirement c).

Please include consideration of how results from monitoring efforts can be used to inform reclamation planning (requirement d).

Sabina Response:

Sabina thanks the KIA for their recommendations. Sabina will provide a revised Vegetation Monitoring Plan to the KIA within 90 days of this response submission.

KIA-6: Revegetation and Reclamation

References:

2018 Back River Project Annual Report, Project Certificate Condition No. 35

Interim Closure and Reclamation Plan (ICRP; October 2017)

Summary:

Condition No. 35 requires that a progressive revegetation plan be created; however, no progressive revegetation program is referenced or provided in the annual report. Condition No. 35 does not include a timeline (such as in condition No. 36) that this plan can be delayed until 3 years into construction. A review of Sabina's compliance reporting within the Annual report, and a review of the ICRP (October 2017) suggests that Sabina may not intend to produce a progressive revegetation plan. Therefore, it is not clear how the proponent will meet condition No.35.

Detailed Review Comment:

The project certificate required the proponent to initiate/produce a progressive revegetation program, such as a program to incorporate measures for the use of test plots, reseeding, and replanting of native plants. This condition (No. 35) required that the program and associated results be provided within the Proponent's annual report. No program has been provided in the 2018 annual report. Further, the methods section of the annual report for Condition No. 35, and the ICRP referenced therein, suggests that the proponent does not have plans to produce or initiate such a program. Instead, the ICRP appears to dismiss progressive revegetation as a concept, saying, and "Active revegetation of the Property as part of closure is not planned given the cold climate setting of the Project as well as the precedents that have been established for mine closure in Nunavut. Additional research in this field may be considered in future iterations of the Plan." (p. 5-16). Further, there is no mention of a progressive revegetation program in the Progressive Reclamation section of the ICRP (Section 6). Collectively, these written statements and exclusions appear to render the proponent non-compliant with Condition No.35, and such a position should be contemplated by a formal request to the NIRB to modify or remove the condition.

Condition No. 35 was devised with the purpose of developing a revegetation program using test plots in order to better understand how revegetation could work in these more challenging environments. It is a common misconception that revegetation is not possible in arctic environments; however, there have been some instances of plants being grown and successfully reintroduced in the north, though we recognize the potential difficulty, cost, and time span of such an undertaking.

The current ICRP, as well as the compliance report for Condition No. 35, also appear to contradict the compliance reporting for Condition No. 36. Compliance reporting for Condition No. 36 promises that revegetation strategies will be included in the annual reporting within three years from the start of construction. This promise is contradicted by the statement included within the annual report for Condition 35 that "Active revegetation of the Property, as part of closure is not planned given the cold climate setting of the Project as well as the precedents that have been established for mine closure in Nunavut." (p. 5-16). This discrepancy raises concern that progressive revegetation is not actually being considered, nor will it be used during post-construction.

Finally, during our reading of Condition No. 35, we did not interpret the condition to imply that there could be a 3-year delay in developing a progressive revegetation strategy. However, Sabina appears to interpret the compliance measure as such within the "next steps" section of the 2018 annual report for Condition No. 35. Condition No. 36; on the other hand, does discuss maintaining an up-to-date revegetation plan, and that the revegetation plan could be revised if more information becomes available after 3 years.

Recommendation/Request:

Please provide a progressive revegetation program such as a program to incorporate the use of test plots, reseeding, and replanting of native plants as is described in condition No. 35.

Please update the ICRP to be aligned with these new objectives and include information about the progressive revegetation program in the ICRP and Vegetation Monitoring Plan (Appendix H).

Sabina Response:

Term and condition No. 35 requires Sabina develop a progressive revegetation program for disturbed areas that are no longer required for operations. As the Project is still in the pre-construction phase, and no areas have been identified as 'no longer required', no progressive reclamation program has been established. Sabina anticipates developing at progressive revegetation program late in the Construction Phase or early in the Operations Phase.

KIA-7: Aircraft Monitoring Measures

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 61

Back River Project Standard Operating Procedure: Fixed Wing and Helicopter Operations (July 2018)

Summary:

Condition No. 61 requires that the Proponent inform pilots of minimum cruising altitude guidelines and that a daily log or record of flight paths and cruising altitudes is maintained to monitor adherence. This includes a reporting requirement to provide information in the Proponent's annual report and make logs available to the Nunavut Impact Review Board upon request. It is unclear from the annual report if flight logs have been maintained or reviewed for adherence.

Detailed Review Comment:

Based on information provided in the annual report and related SOP, it is unclear if a daily log or record of flight paths and cruising altitudes for project aircraft was maintained and if adherence has been monitored. The annual report does indicate that "no wildlife incidents were recorded" (p. 4-95); however, it does not report if flight logs were received from pilots, or whether pilots were generally successful in maintaining sufficient altitudes to prevent excessive disruption to wildlife. More information is needed.

Recommendation/Request:

Please clarify if these flight logs have been created and if adherence to cruising altitude guidelines has been provided to and confirmed by the NIRB. Alternatively, provide flight logs or results as an appendix to the annual report.

Sabina Response:

Sabina provides training for helicopter and fixed wing pilots and has developed a Standard Operating Procedure which informs pilots of their responsibilities: *The Back River Project - Standard Operating Procedure – Fixed Wing and Helicopter Operations*. This SOP includes minimum cruising altitudes when wildlife are present.

Daily logs are recorded of helicopter operations and will be reported in the *Back River Project: 2018 Pre-Construction Wildlife Effects Monitoring Report* which will be delivered to the NIRB in 2019.

KIA-8: Marine Environment

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 62

Marine Monitoring Plan (May 2018)

2018 Marine Sampling Report (April 2019)

Summary:

Condition No. 62 states that:

"The Proponent shall maintain a marine monitoring program at the Marine Laydown Area to enable identification of potential impacts of the Project on the marine environment and to inform adaptive management actions…At a minimum, water sampling should include end of pipe and control area samples, collected on a regular basis to confirm salinity levels of the discharge and the receiving environment."

Sampling has been completed for 2018; however, some modifications could improve the ability of the program to identify potential impacts.

Detailed Review Comment:

More consistency in sampling times, increasing the number of replicates for some tests, and sampling during summer may improve the ability of the marine sampling program to detect changes in the environment.

For example, in the Marine Monitoring Plan, the Proponent planned to conduct physical oceanography monitoring (temperature, salinity, dissolved oxygen profiles, light penetration) annually, in April and August. However, the 2018 sampling report shows that physical oceanographic sampling was only completed in winter, and not during the summer during open water season. It is unclear why this is the case.

Similarly, phytoplankton biomass (chlorophyll a) measurements were only completed in winter as opposed to during April and August, as planned in the Marine Monitoring Plan. Plankton biomass may vary considerably from month-to-month and between successive years. Significant variation in biomass may occur in just one week in response to seasonal temperature changes. To determine a more accurate baseline, multiple samples per year are needed, and samples should be collected during the open water season in the summer. In order to be able to distinguish between seasonal variation and changes over time, consistent sampling in April and August should be completed.

Recommendation/Request:

Please resume sampling twice per year, during the indicated months, for oceanographic monitoring (temperature, salinity, dissolved oxygen profiles, light penetration) and phytoplankton biomass (chlorophyll *a*) as is described in the Marine Monitoring Plan.

Sabina Response:

2018 Marine studies focused on filling baseline data gaps and identifying appropriate sampling locations for future monitoring. During monitoring years, the sampling program outlined in the Marine Monitoring Plan will be followed.

KIA-9: Spills

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 89

Fuel Management Plan (FMP)

Spill Contingency Plan (SCP)

Oil Pollution Management Plan (OPMP)

Shipboard Oil Pollution Emergency Plan (SOPEP)

Hazardous Materials Management Plan (HMMP)

Summary:

Condition No. 89 states that:

> "The Proponent shall include within its Wildlife Mitigation and Monitoring Program Plan measures for preventing fuel spills into the marine environment and mitigating potential effects of an accidental spill on polar bears, seals, other marine wildlife, and migratory birds. Measures should include:
>
> a. Placement of spill prevention and response equipment as necessary to initiate wildlife protection measures along shipping routes and on-site;
> b. Ensuring spill response contacts for Sabina and government agencies are current;
> c. Providing a list of community organizations that would be contacted to inform traditional land users of shipping activity in the area, any spills and actions to ensure public safety and plans for clean-up". However, part (c) of this requirement has not been met and this information is scattered throughout five separate plans rather than being provided in the WMMP itself."

Detailed Review Comment:

Point (c) of condition No. 89, which requires that land users and their organizations be contacted in the event of a spill, is missing from all five of these plans. This contact information is important to facilitate communications between events happening on the project site and traditional land users that could be affected. A list of contacts and descriptions of when to contact Inuit organizations should be included in the management plans to facilitate information sharing and to ensure health and safety of land users in the event of a more serious spill/safety incident.

In reviewing these five management plans, it becomes apparent how separating the information between five documents makes it challenging to locate important information, which may be needed in the event of a spill affecting wildlife. This difficulty was the reason that the condition also specified to include key spill-related information in the Wildlife Management Plan itself. As this has not been addressed, this remains an outstanding issue.

Recommendation/Request:

Please address part (c) of condition No. 89 and provide a list of community organizations that would be contacted to inform traditional land users of shipping activity in the area, any spills and actions to ensure public safety and plans for cleanup.

Please include key spill-related information in the WMMP itself and highlight which of the five plans relating to spill management will contain the relevant information pertaining to wildlife, such as locations of spill response equipment and spill response contacts for Sabina and government agencies.

Sabina Response:

The Wildlife Mitigation and Monitoring Program Plan (WMMP Plan) includes information on spill management. The amount of information required to accurately describe the processes of fuel management, hazardous material management, and spill management from vessels, during vessel unloading and from terrestrial facilities is too large to include in the WMMP Plan. Therefore, the WMMP Plan provides a high-level description of fuel and hazardous material management and fuel spill management and refers the reader to the appropriate plan, including:

1. The Fuel Management Plan (FMP) that outlines the approach for managing hydrocarbon products that are to be stored and managed at the Project.
2. The Spill Contingency Plan (SCP) that is designed to protect worker and public safety and minimize any effects of a spill on the environment.
3. The Oil Pollution Management Plan (OPMP) is a requirement of the *Canada Shipping Act* (2001) and describes the responses to oil spill scenarios at the Marine Laydown Area to minimize environmental damage and ensure worker safety.
4. The Shipboard Oil Pollution Emergency Plan (SOPEP) is a requirement of the International Maritime Organization (IMO) for all ships transporting fuel; it describes the equipment, training and procedures that the ship must have on board in order to manage and address any fuel spills during shipment or unloading to minimize any effects on the environment.
5. The Hazardous Materials Management Plan (HMMP) outlines the safe handling requirements, storage, transportation, disposal, and reporting of hazardous materials at the Goose site and the Marine Laydown Area throughout the life of the Project.

In response to the comment from the KIA, the next version of the WMMP Plan will include, or will point the reader to the plan which includes:

1. Locations of spill response equipment, and

2. Spill response contacts for Sabina and government agencies.

Sabina will also update the WMMP Plan to address part (c) of condition No. 89, and provide a list of community organizations that would be contacted to inform traditional land users of shipping activity in the area, any spills and actions to ensure public safety and plans for clean-up. Sabina will provide a revised WMMP Plan to the KIA within 90 days of this response submission.

KIA-10: Wildlife & Marine Shipping

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 89

Oil Pollution Emergency Plan (OPEP)

Summary:

Condition No. 89 states that "The Proponent shall ensure that the necessary spill response equipment and training to employees, contractors, and local community members is available prior to commencing Project shipping." It also explains that local community members are "members of the public who may reside seasonally in or near the communities of Kingaok (Bathurst Inlet) and Omingmaktok (Bay Chimo)". While some information on training has been provided in the OPEP, it is not clear if the local community was considered. In the reporting requirements, it was additionally indicated, "results of annual inspections shall be included in the Proponent's annual report". However, we are unable to locate any information on such inspections.

Detailed Review Comment

The training described in the OPEP does not specify how community members have been included. The OPEP states "details of the attendees and the training/exercises will appear in future OPPP/OPEP documents but for 2018 all sign-in sheets and supporting documentation will be on-site at the time of the bulk fuel transfer and be available to competent regulators, upon request". It is unclear if community members were included in spill response training prior to shipping or if they will be included in future training as the project develops.

Shipping was started in 2018, but it is unclear if any inspection results are available for 2018 and can be provided at this time.

Recommendation/Request:

Please clarify how spill response training to local community members is being made available.

Please clarify if there are any annual inspection results for 2018 and where these have been provided in the annual report. If not, please clarify if these will be provided in the 2019 report.

Sabina Response:

Sabina made numerous attempts to offer training to the community members of Bathurst Inlet and Bay Chimo. Unfortunately, community members were unable to participate. As no bulk fuel was shipped into the MLA in 2018, and there are no plans for bulk fuel shipments in 2019, Sabina will attempt to organize training in 2020 prior to the next bulk fuel shipment.

Sabina is unable to locate the text in the reporting requirements of either term and condition No. 89 or the OPEP, which states "results of annual inspections shall be included in the Proponent's annual report".

KIA-11: Annual Update on Effectiveness of Ongoing Monitoring and Mitigation for Wildlife

References:

Back River Project 2018 Annual Report, Project Certificate Condition No.50

Wildlife Mitigation and Monitoring Program Plan (Version 9, September 2018)

Summary:

Condition No. 50 states that, within the annual report to the NIRB, the Proponent will incorporate a review section that includes:

a. An examination for trends in the measured natural variability of Valued Ecosystem Components in the region relative to the baseline reporting;
b. A detailed analysis of wildlife responses to operations with emphasis on wildlife behaviour, mortalities, and displacements (if any), and responses to project operations;
c. A detailed description of staged reduction mitigation events, including operational shutdowns, undertaken throughout the year in response to wildlife in proximity to the Project. Details shall include, but are not limited to:
    i. A description of the aggregation and species of wildlife encountered;
    ii. Environmental conditions;
    iii. A description of the sequence of activities ceased as well as the duration of cessation; and
    iv. The effectiveness of the applied mitigation measures and potential amendments that may be required.
d. A demonstration and description of how the monitoring results contribute to cumulative effects monitoring associated with the Project; and
e. Any proposed changes to the monitoring survey methodologies, statistical approaches, or proposed adaptive management stemming from the results of the

Detailed Review Comment:

Condition No. 50 has clear reporting requirements for tracking the effectiveness of ongoing monitoring and mitigation efforts within annual reports, during all project phases. The proponent has not provided the information requested within this condition and has stated that the 2018 Pre-Construction Wildlife Effects Monitoring Report will be delivered to the NIRB for review during Q2, 2019. This delay in information will prevent the integration of valuable feedback into the prime construction season within 2019.

Further, the proponent states that (page 4-78): “the majority of formal wildlife monitoring will begin in the Construction Phase of the project”. As highlighted in earlier technical comments (e.g., KIA-TC-1), the pre-construction phase was not referred to within the FEIS, which used the terms “mobilization and construction”. As noted in Appendix A, it appears that some activities already conducted could be considered as part of the construction phase, based on earlier definitions. Therefore, there is a concern that wildlife monitoring is not occurring when it is supposed to be.

Recommendation/Request:

The KIA requests that the reporting requirements for Condition No. 50 be provided as soon as possible, and that these be included within the annual report in future years (as per the wording of the condition). This request pertains to most of the wildlife conditions, as monitoring results were not provided with the annual report.

The KIA requests formal clarification about project phases, and activities and times of each phase, as the terminology and activities referred in the annual report, which differ from those used in the FEIS.

Sabina Response:

During 2018, Sabina was in the Pre-Construction Phase of the Back River Project and conducted wildlife monitoring that was appropriate to the small-scale activities occurring at site. Results of these monitoring activities will be reported in the *Back River Project: 2018 Pre-Construction Wildlife Effects Monitoring Report* which will be delivered to the NIRB in 2019.

As the Project goes into formal Construction and Operations Phases, wildlife monitoring will be expanded with the scale of Project activities and will be reported in future Wildlife Effects Monitoring Reports as described NIRB Condition 50 and detailed in the current version of the Wildlife Mitigation and Monitoring Program Plan.

KIA-12: Wildlife Mitigation for Seabirds along Shipping Route

References:

Back River Project 2018 Annual Report, Project Certificate Conditions No.58, No.64, and No.65

Appendix G. SOP: Marine Shipping Wildlife Mitigation and Monitoring (Version 1.0, June 26, 2018) Sections 1, 3.1, 3.4, 3.5, 3.8; Table 3.5-1, Table 3.2-1

Summary:

The SOP states that "large groups" of seabirds may trigger a marine shipping mitigation response (500 m setback distance). However, "large groups" are not defined. Further, there are no explicit training requirements for bridge staff to understand seabird flocking behaviour. This protective goal would benefit from the inclusion of trigger thresholds for each seabird family (species grouping) expected to be encountered, as well as additional training requirements.

Detailed Review Comment:

The Marine Shipping and Wildlife Mitigation and Monitoring SOP states that "large groups" or "large congregations" of seabirds may trigger a mitigation response, which is to "attempt to maintain a minimum 500 m setback distance" (Table 3.5-1). However, "large groups" are not defined in the SOP, nor are there distinctions made between different seabird species. Therefore, bridge staff may not initiate a mitigation response for species, or time periods, where the largest flock size is relatively smaller than for others even though it may be warranted (particularly for species at risk).

It is important that training for bridge staff, described in Section 3.2 of the SOP, include seabird species identification as well as knowledge of the social/flocking behaviour of each expected species. Different seabird species congregate in differently sized groups; therefore, bridge staff must be trained to recognize when a "large group" of seabirds, of a particular species or a mixed-species flock, is present. For example, during fall migration (mid-July to early September, when open-water shipping for the Project will also occur) at Point Barrow, Alaska, mean flock size for both King and Common Eider was 105 birds, the modal flock size was 26-50 birds, and the largest flock observed was estimated at 1,100 birds (Thompson and Person 1963). In contrast, along the coast of western Victoria Island, Pacific Loons migrate during the fall in small flocks of up to 12 individuals (Smith 1973).

A wide variety of seabirds are expected along shipping routes (Table 3.2-1); at minimum, each group of birds at the family level can be expected to exhibit different behaviours during the breeding and fall migration periods. The "General Species Groups" listed in Table 3.2-1 almost reflect family-level classifications, except for swans. For instance:

- Gaviidae: Loons
- Procellariidae: includes Northern Fulmar
- Alcidae: Alcids or Auks
- Scolopacidae: includes Phalaropes
- Stercorariidae: Jaegers
- Laridae: Gulls and Terns
- Anatidae: Ducks, Geese, and Swans
- Gruidae: includes Sandhill Crane

In addition to training, the SOP could include large group thresholds for each seabird family (called general species group by the proponent), most likely to be observed. Setting clear guidelines within the

SOP will reduce subjective interpretations and should help bridge staff understand when a mitigation response is required.

Recommendation/Request:

The KIA recommends that the mitigation trigger threshold for "large groups" be defined for each species, or family, listed in Table 3.2-1.

The KIA also recommends that seabird species behaviour, in addition to species identification, be required as part of training (Section 3.2).

Sabina Response:

Sabina is committed to managing the use of vessels that bring equipment and fuel to the Project in an environmentally responsible manner. Sabina has produced a document which is distributed to all vessel operators which lists Sabina's requirements while under contract: *The Back River Project - Standard Operating Procedure – Marine Shipping Wildlife Mitigation and Monitoring*. This SOP includes instructions on monitoring for marine mammals and marine birds and appropriate setbacks from known wildlife areas and wildlife observed during vessel operation. The SOP will be updated as needed during the life of the Project as appropriate. Sabina will provide a revised SOP to the KIA within 90 days of this response submission.

Sabina will add additional training information for the vessel bridge crew into the SOP in future versions. However, Sabina is of the opinion that making the mitigation overly granular and including species-specific group sizes will not improve the implementation of mitigation measures and risks making the mitigation impractical or confusing. Instead, Sabina will highlight the importance of avoiding groups of birds on the ocean when safe to do so.

KIA-13: Wildlife Mitigation along Shipping Route Sensitive Habitat for Seabirds and Marine Mammals along the Project Shipping Route

References:

Back River Project 2018 Annual Report, Project Certificate Conditions No.58, No.64, and No.65 Appendix G. SOP: Marine Shipping Wildlife Mitigation and Monitoring (Version 1.0, June 26, 2018) Section 2, Figure 2.1-1, Figure 2.1-2, Table 3.5-1

Summary:

Figures 2.1-1 and 2.1-2 of the SOP show the sensitive habitat for seabirds/sea ducks and marine mammals along the shipping route, respectively. It is unclear where these data came from, and it appears to the reviewer to have come from an outdated and since updated source. References to data sources and further information about sensitive habitats would allow for a more comprehensive review.

Detailed Review Comment:

The Marine Shipping and Wildlife Mitigation and Monitoring SOP, Table 3.5-1, states that any group of marine mammals observed on the ocean surface, especially in the sensitive habitat areas identified in Figure 2.1-2, will trigger mitigation response(s) at the discretion of the ship's operator. Table 3.5-1 also states that a mitigation response will be triggered for any large group or colony of seabirds while traversing sensitive habitat areas identified in Figure 2.1-1. The bridge crew making wildlife observations may be more vigilant within the areas known or mapped to be sensitive habitat. Since mitigation responses will more likely be triggered within sensitive habitat, it is important to identify, accurately and conservatively, these sensitive areas. Sabina does not reference the data sources that were used identify and map sensitive habitat for these wildlife groups.

During this review, the KIA identified an ECCC report, Key Habitat Sites for Migratory Birds in the Nunavut Settlement Area, which is the likely source for the sensitive seabird habitats. However, the data used for Figure 2.1-1 likely came from a previous version of this report, as there are some discrepancies between the figure and the latest version of the report (ECCC 2016). For example, Figure 2.1-1 indicates that Eastern Lancaster Sound is sensitive habitat, while Eastern Jones Sound is a "key marine habitat site" (presumably less sensitive, though this is unclear). According to ECCC (2016), both areas are "highly risk intolerant"; therefore, both should be indicated as sensitive habitat, and appropriate mitigation should be applied. In addition, there are "moderately risk intolerant" areas of Melbourne Island and southeastern Victoria Island that are not included in Figure 2.1-1. Although the proposed shipping lane does not appear to traverse the area, it should be included for transparency and to ensure that shipping does not venture too close to the shoreline of Victoria Island. Likewise, the "highly risk intolerant" Rasmussen Lowlands should be indicated in Figure 2.1-1 for transparency.

In summary, further information about the data sources and rationale behind sensitive habitat designations should be included in the SOP to ensure that sources have not since been updated or replaced. Without appropriate data referencing (i.e., source and year) and/or a more detailed description of the Figures in this SOP, it is difficult for the KIA to complete a comprehensive review to assess whether the SOP will be protective enough of seabirds and marine mammals along the shipping route.

Recommendation/Request:

The KIA requests that Sabina provide references for the data source(s) used to create Figures 2.1-1 and 2.1-2 in the Marine Shipping Mitigation and Monitoring Plan SOP.

The KIA also requests that Figures 2.1-1 and 2.1-1 be updated to reflect the most up-to-date designations for important or sensitive habitat areas.

Sabina Response:

Sabina is committed to managing the use of vessels that bring equipment and fuel to the Project in an environmentally responsible manner. Sabina has produced a document which is distributed to all vessel operators which lists Sabina's requirements while under contract: *The Back River Project - Standard Operating Procedure – Marine Shipping Wildlife Mitigation and Monitoring*. This SOP includes instructions on monitoring for marine mammals and marine birds and appropriate setbacks from known wildlife areas and wildlife observed during vessel operation. The SOP will be updated as needed during the life of the Project as appropriate. Sabina will provide a revised SOP to the KIA within 90 days of this response submission.

Sabina will update the Marine Shipping SOP habitat maps to include more recent mapping provided by Environment and Climate Change Canada (ECCC) if available and will list the sources of data used for producing maps.

KIA-14: Wildlife Reporting Requirements for Ship Strikes of Marine Mammals or Seabird

References:

Back River Project 2018 Annual Report, Project Certificate Conditions No.58, No.64, and No.65

Appendix G. SOP: Marine Shipping Wildlife Mitigation and Monitoring (Version 1.0, June 26, 2018) Sections 3.1, 3.6

Summary:

The SOP states that ship strikes of a marine mammal will be reported to Sabina as soon as practical and within 24 hours. To ensure compliance with the Marine Mammal Regulations, s.39, accidental contact with marine mammals must immediately be reported to the Minister of DFO with the necessary details.

Detailed Review Comment:

Section 3.6 of the Marine Shipping Wildlife Mitigation and Monitoring Plan SOP states that if bridge staff determine a ship strike of a marine mammal or group of seabirds has occurred, they will complete the Marine Mammal and Seabird Sightings Record; and marine mammal strikes will be reported to Sabina as soon as practical and within 24 hours.

The SOP should also note that the ship's captain would be required to report immediately accidental contact with marine mammals to the Minister of DFO, as per the federal Marine Mammal Regulations s.39. The regulations also describe the information needed for reporting, including:

a. The date, time, and location of the incident;
b. The species of marine mammal involved in the incident;
c. The circumstances of the incident;
d. The size and type of vehicle;
e. The weather and sea conditions at the time of the incident;
f. The observed state of the marine mammal after the incident; and,
g. The direction of travel of the marine mammal after the incident, to the extent that it can be determined.

Reference to the Marine Mammal Regulations s. 39 is particularly relevant during these early stages of construction, as the reporting requirement section of Condition No. 65 notes that: "Initially, until contracts with shippers have been established, the Proponent shall provide details an annual basis regarding the protocols and measures implemented with contracted shipping companies in fulfillment of this Term and Condition in the Proponent's annual report to the Nunavut Impact Review Board. Once longer-term arrangements with shippers have been established, the Proponent shall provide these details in the Proponent's annual report to the Nunavut Impact Review Board every two (2) years or whenever there is a change or addition to the shipping companies retained by the Proponent."

Recommendation/Request:

The KIA recommends that Sabina include the requirements of the Marine Mammal Regulations s.39 into Section 3.6 of the SOP, Documenting Ship Strikes. While it will be the responsibility of the shipping company to ensure that they follow Marine Mammal Regulations, s.39, it will also be helpful for the onboard observer to know this duty, such that they can help to ensure that the shipping company is following its obligations.

Sabina Response:

Sabina is committed to managing the use of vessels that bring equipment and fuel to the Project in an environmentally responsible manner. Sabina has produced a document which is distributed to all vessel operators which lists Sabina's requirements while under contract: *The Back River Project - Standard Operating Procedure – Marine Shipping Wildlife Mitigation and Monitoring*. This SOP includes instructions on monitoring for marine mammals and marine birds and appropriate setbacks from known wildlife areas and wildlife observed during vessel operation. The SOP will be updated as needed during the life of the Project as appropriate. Sabina will provide a revised SOP to the KIA within 90 days of this response submission.

Note that it is already the responsibility of the vessel operator to report marine mammal strikes to DFO per the Marine Mammal Regulations and it is not the responsibility of Sabina to instruct the vessel operator on all of their requirements beyond those specific to Sabina. However, to facilitate reporting, Sabina will include reporting requirements found in the Marine Mammal Regulations for marine mammal strikes in the Marine Shipping SOP.

KIA-15: Shipping Setback Distances for Seabirds and Species at Risk

References:

Back River Project 2018 Annual Report, Project Certificate Conditions No.58, No.64, and No.65

Appendix G. SOP: Marine Shipping Wildlife Mitigation and Monitoring (Version 1.0, June 26, 2018) Section 2.2, Table 3.2-1, Table 3.5-1

Wildlife Mitigation and Monitoring Program Plan (Version 9, September 2018) Section 13.1.3.3

Summary:

The SOP describes two shipping setback distances: 30 km from Prince Leopold Island and 500 m from large groups or colonies of seabirds in Bathurst Inlet/Elu Inlet and Lambert Channel. It is unclear why Eastern Lancaster Sound is not explicitly mentioned as sensitive habitat where mitigation should be applied. Furthermore, since the endangered Ivory Gull is one of the "most likely observed" species along shipping routes, an additional setback of 2 km from Ivory Gull breeding colonies needs to be

Detailed Review Comment:

Section 2.2 of the Marine Shipping Wildlife Mitigation and Monitoring Plan SOP describes two shipping setback distances from identified sensitive habitats, including:

- 30 km from Prince Leopold Island; and
- 500 m from marine bird colonies in the Bathurst Inlet/Elu Inlet and Lambert Channel Key Marine Habitat Sites.

It is unclear why the Eastern Lancaster Sound is not included in the latter bullet point, even though it is designated as sensitive habitat in Figure 2.1-1. The recommended shipping mitigation responses in Table 3.5-1 is more protective, as this table includes the 500 m setback for any large group of seabirds on ocean surface within sensitive habitat areas identified in Figure 2.1-1. In addition, Section 13.1.3.3 (Shipping Management) of WMMP v.9 includes the 500 m setback for moulting aggregations of sea ducks and migrating waterfowl, but also only refers to Bathurst Inlet/Elu Inlet and Lambert Channel as sensitive areas. As mentioned in KIA-TC-12, Eastern Jones Sound should also be designated as sensitive habitat where the mitigation response will apply.

Furthermore, Table 3.2-1 lists the endangered Ivory Gull as a species that will be most likely observed along shipping routes. However, no mitigation responses are included in Table 3.5-1 regarding this species at risk. ECCC (2016) has proposed a marine setback of 2 km from Ivory Gull breeding colonies, and identifies Eastern Lancaster Sound as containing habitat "likely to be identified as Critical Habitat for a migratory bird listed as 'endangered' or 'threatened' under the Species at Risk Act (Ivory Gull)". Therefore, the 2 km setback distance for Ivory Gull colonies should be included as a mitigation response. Overall, Section 2.2 of the SOP and Section 13.1.3.3 of the WMMP should be revised with this additional setback for Ivory Gull, as well as for consistency and clarity.

In addition, Table 2 in ECCC (2016) shows the feeding buffers applied from colonial bird nesting sites to delineate Key Habitat Site boundaries in their report:

- Black-legged Kittiwake and Thick-billed Murre: 30 km
- Northern Fulmar, Common Eider and Black Guillemot: 15 km
- Ivory Gull: 2 km
- Other: 1 km

While the ECCC has incorporated these buffers into their boundaries (which comprise the sensitive habitat areas shown in Figure 2.1-1 of the SOP), if additional colonies of these species are observed by bridge staff outside of their known locations, they should consider adaptive management and adjust the shipping course to minimize disturbance.

Recommendation/Request:

The KIA requests that Section 2.2 of the SOP and Section 13.1.3.3 of the WMMP be revised to include the 500 m buffer distance for large colonies of seabirds on land and large groups of seabirds on the ocean surface within the entire sensitive habitat areas identified: Bathurst/Elu Inlets, Lambert Channel, Eastern Lancaster Sound, and Eastern Jones Sound.

The KIA also requests that a 2 km buffer distance from Ivory Gull colonies be included in the SOP and WMMP; in particular, Eastern Lancaster Sound is likely to be identified as Critical Habitat for this species.

The KIA also recommends adaptive management and application of ECCC-recommended buffer distances if bridge staff observe additional seabird colonies.

Sabina Response:

Sabina is committed to managing the use of vessels that bring equipment and fuel to the Project in an environmentally responsible manner. Sabina has produced a document which is distributed to all vessel operators which lists Sabina's requirements while under contract: *The Back River Project - Standard Operating Procedure – Marine Shipping Wildlife Mitigation and Monitoring*. This SOP includes instructions on monitoring for marine mammals and marine birds and appropriate setbacks from known wildlife areas and wildlife observed during vessel operation. The SOP will be updated as needed during the life of the Project as appropriate. Sabina will provide a revised SOP to the KIA within 90 days of this response submission.

The primary objective of the vessel's master is the safety of the vessel. As part of the WMMP Plan and Marine Shipping SOP, provided to vessel operators, Sabina has listed a variety of setback distances from known breeding colonies, as well as monitoring and setbacks from observed groups of birds on the water. Known breeding colonies were identified in the WMMP Plan from Traditional Knowledge and information provided by ECCC. Sabina is of the opinion that including a large number of different setback distances for different species risks making the Marine Shipping SOP impractical. Note that asking the vessel's crew to identify additional breeding colonies on shore is impractical. However, if there is updated information on sensitive locations for marine birds and known breeding colonies identified by ECCC, then Sabina will update the Marine Shipping SOP as needed.

KIA-16: Marine Shipping Wildlife Monitoring Staff and Procedures

References:

Back River Project 2018 Annual Report, Project Certificate Conditions No.58, No.64, and No.65

Appendix G. SOP: Marine Shipping Wildlife Mitigation and Monitoring (Version 1.0, June 26, 2018) Sections 3.2, 3.4; Figure 3.4-1

Summary:

Condition No. 64 of the project certificate required that the proponent have in place appropriate ship-based marine monitoring programs and protocols developed through consultation with Fisheries and Oceans Canada, communities and other interested parties. Sabina developed the Marine Shipping Wildlife Mitigation and Monitoring SOP to assist in meeting the objectives of this condition.

Based on a review of this SOP, information that is more specific is needed regarding the bridge staff who will conduct wildlife observations during marine shipping, as well as the procedures that have been adapted for the Back River Project from ECCC/CWS protocols for pelagic seabird surveys.

Detailed Review Comment:

Section 3.4 of the Marine Shipping Wildlife Mitigation and Monitoring Plan SOP indicates that bridge staff will record wildlife observations "as part of their other routine duties during daylight hours" and that the observer will conduct four, 30-min observations per day. It is unclear whether all bridge staff will each conduct 2 hours (cumulative) of observations per day. It will be important to ensure that all bridge staff are able to accommodate this schedule; otherwise, a dedicated wildlife observer may be needed to ensure that monitoring is completed, especially within sensitive habitat areas.

The monitoring procedure in Section 3.4 is based on ECCC/CWS protocols (Gjerdrum et al. 2012). However, the proponent made some modification to the protocol that may not be feasible. For example, Section 3.4 states that bridge staff will record marine mammals and seabirds within a 180° viewing area out to the horizon. Gjerdrum et al. (2012) recommend recording observations within 50-m, 100-m, 200-m, and 300-m semi-circles, and then >300 m. Setting a "maximum" detection distance of 300 m may be more practical and would prioritize identification of birds that could be impacted by marine shipping, rather than having the observer strain to look for birds on the horizon. It is also unclear in Figure 3.4-1 as to whether the shading of the semi-circles and arrows represent fixed distances. Distance values/strata could be added to this figure for clarity.

The SOP refers to a Marine Mammal and Seabird Sightings Record Form that bridge staff will use. The KIA would like this form appended to the SOP to review whether the data fields are complete in comparison to data collection as recommended by ECCC/CWS.

Recommendation/Request:

The KIA recommends that Sabina determine whether the marine shipping wildlife monitoring procedures, with respect to staff requirements and observation schedule, are feasible and to make modifications as needed.

The KIA requests that the Marine Mammal and Seabird Sightings Record Form be appended to the SOP and provided to the KIA for review.

Sabina Response:

Sabina is committed to managing the use of vessels that bring equipment and fuel to the Project in an environmentally responsible manner. Sabina has produced a document which is distributed to all vessel operators which lists Sabina's requirements while under contract: *The Back River Project - Standard Operating Procedure – Marine Shipping Wildlife Mitigation and Monitoring*. This SOP includes instructions on monitoring for marine mammals and marine birds and appropriate setbacks from known wildlife areas and wildlife observed during vessel operation. The SOP will be updated as needed during the life of the Project as appropriate. Sabina will provide a revised SOP to the KIA within 90 days of this response submission.

During the review of the Final Environmental Impact Statement (FEIS) for the Back River Project, Sabina committed to conducting monitoring for marine mammals and marine birds using the vessels bridge crew. Given the limited number of vessels traversing to the Project, and the small size of those vessels, often being tugs towing barges, Sabina will not support the addition of a separate marine monitor position. However, Sabina is open to making changes to the Marine Shipping SOP that makes the SOP more practical, including the limiting of the observation distance to a practical limit, and will update the SOP to include this suggestion. Sabina will also include the Marine Mammal and Seabird Sightings Record Form on future versions of the SOP.

KIA-17: Marine Mammal and Seabird Species Most Likely Observed along Shipping Routes

References:

Back River Project 2018 Annual Report, Project Certificate Conditions No.58, No.64, and No.65

Appendix G. SOP: Marine Shipping Wildlife Mitigation and Monitoring (Version 1.0, June 26, 2018) Table 3.2-1

Summary:

The SOP does not reference the sources used to compile the list of wildlife species most likely observed along shipping routes. Known species ranges and/or TK/IQ indicate that bearded seals are present in the region, especially around Cambridge Bay. Additional seabird species are also expected along the shipping route. The recommended wildlife reference guides, used for training bridge staff, should be updated to the most current versions.

Detailed Review Comment:

Table 3.2-1 in the Marine Shipping Wildlife Mitigation and Monitoring Plan SOP lists the common species of marine mammals and seabirds most likely observed along shipping routes. No data sources are referenced for this content. In addition, the footnote about species listed on Schedule 1 of the Species at Risk Act does not have asterisks beside the applicable species (i.e., Ivory Gull, Ross's Gull).

According to the latest known species ranges (Mitch Waite Group 2019), Red-throated Loon, Common Loon, Green-winged Teal, and Surf Scoter are also expected within the coastal and oceanic regions of the Project area. The Nunavut Coastal Resource Inventory (NCRI) series corroborate these observations; in addition, these TK/IQ data suggest that Canada Goose, Cackling Goose Ross's Goose, Northern Shoveler, Black Scoter, White-winged Scoter, Mallard, Northern Pintail, and Greater Scaup may be present around Cambridge Bay (GN DOE 2015) and/or Kugluktuk (GN DOE 2010).

The NCRIs for Cambridge Bay and Kugluktuk also indicate that bearded seals may be present along the shipping route; they have been observed around Cambridge Bay and Lambert Channel, and have a low probability of occurrence in Coronation Gulf and Dease Strait (GN DOE 2010, 2015). Table 3.2-1 should be updated with a more comprehensive species list.

In addition, Section 3.8 should be updated with newer wildlife reference guides, as there have been revisions to species classification since 2002/2003. For example, both Thayer's Gull and Iceland Gull are listed in Table 3.2-1 as species most likely observed along shipping routes. Thayer's Gull has since been reclassified as a subspecies of Iceland Gull. Newer field guides would also have updated species range maps to help identify species that may be expected along shipping routes.

Recommendation/Request:

The KIA recommends that Table 3.2-1 be updated with a more comprehensive list of marine mammal and seabird species likely to be observed along the shipping route, as well as identification of species at risk.

The KIA also recommends that newer wildlife references guides be used for training bridge staff in species identification.

Sabina Response:

Sabina is committed to managing the use of vessels that bring equipment and fuel to the Project in an environmentally responsible manner. Sabina has produced a document which is distributed to all vessel operators which lists Sabina's requirements while under contract: *The Back River Project - Standard Operating Procedure – Marine Shipping Wildlife Mitigation and Monitoring*. This SOP includes instructions

on monitoring for marine mammals and marine birds and appropriate setbacks from known wildlife areas and wildlife observed during vessel operation. The SOP will be updated as needed during the life of the Project as appropriate. Sabina will provide a revised SOP to the KIA within 90 days of this response submission.

Sabina is committed to using relevant background information and reference guides, and will update the requested species information and guide references in the next version of the Marine Shipping SOP.

KIA-18: Mitigation Responses for Marine Mammals

References:

Back River Project 2018 Annual Report, Project Certificate Conditions No.58, No.64, and No.65

Appendix G. SOP: Marine Shipping Wildlife Mitigation and Monitoring (Version 1.0, June 26, 2018) Table 3.5-1

Summary:

The SOP would be more protective of marine mammals if the wording of mitigation responses was stronger, and if more details could be provided about distance thresholds that should trigger escalating responses (i.e., a decision tree).

Detailed Review Comment:

Table 3.5-1 of the Marine Shipping Wildlife Mitigation and Monitoring Plan SOP states that application of mitigation responses for "any group of marine mammals observed on the ocean surface, especially in sensitive habitat areas" is at the discretion of the ship's operator. Two mitigation options are suggested:

1. Avoid ship strikes by slowing the vessel and allowing marine mammals to move out of the way.
2. Change ship's heading to avoid groups of marine mammals.

Unlike the mitigation responses for seabirds, there are no minimum setback distances for marine mammals. The federal Marine Mammal Regulations, Schedule VI, indicates that all vehicles must keep a minimum distance of 100 m from whales, dolphins, and porpoises. The SOP would be more protective if a "decision tree" with specific details could be developed, based on scientific rationale, such as marine mammal distances that would trigger successively lower ship speeds, depending on the direction of travel and animal behaviour.

Regarding adaptive management of ship speed to reduce noise disturbance, the Port of Vancouver study, referenced in Table 3.5-1, is entering its third year of vessel slowdown trials. The Enhancing Cetacean Habitat and Observation (ECHO) Program will monitor underwater noise levels and southern resident killer whale presence and will conduct an analysis at the end to evaluate the slowdown trial's effectiveness (Port of Vancouver 2019). If the results are positive, Sabina should incorporate this adaptive management strategy within sensitive marine mammal habitat. The current wording in Table 3.5-1 only suggests that the ship's operator should consider slowing vessels, despite evidence that noise disturbance could be reduced by 1.5-2.8 dB for every 1-knot reduction in speed. Modifying the wording to consider slowing vessels within marine mammal habitat when it is safe to do so may render a stronger protection for whales.

Recommendation/Request:

The KIA requests that the SOP explicitly include the minimum 100 m approach distance to whales, as per the Marine Mammal Regulations, Schedule VI.

The KIA recommends the development of a decision tree for adaptive management of marine mammal mitigation responses.

Sabina Response:

Sabina is committed to managing the use of vessels that bring equipment and fuel to the Project in an environmentally responsible manner. Sabina has produced a document which is distributed to all vessel operators which lists Sabina's requirements while under contract: *The Back River Project - Standard Operating Procedure – Marine Shipping Wildlife Mitigation and Monitoring*. This SOP includes instructions

on monitoring for marine mammals and marine birds and appropriate setbacks from known wildlife areas and wildlife observed during vessel operation. The SOP will be updated as needed during the life of the Project as appropriate. Sabina will provide a revised SOP to the KIA within 90 days of this response submission.

Note that it is already the responsibility of the vessel operator to follow the Marine Mammal Regulations and it is not the responsibility of Sabina to instruct the vessel operator on all of their requirements beyond those specific to Sabina. However, to facilitate reporting, Sabina will include the 100 m minimum approach distance for whales.

The Marine Shipping SOP already includes two options for managing the vessel when marine mammals are observed – slowing the vessel or turning to avoid the marine mammals. Sabina is of the opinion that making the SOP more granular by including a decision tree of management options will make the SOP impractical for regular use. Sabina is conducting mitigation that is appropriate for the types and frequency of vessel traffic used for the Project – typically a tug with barge, or small cargo ship. Sabina will be using the equivalent of approximately 5 vessels per year when in construction and operations of the Project. The Port of Vancouver is proposing vessel slow downs because it is one of the largest and busiest ports in the world, with 3,160 vessels calling on the Port of Vancouver each year (www.portofvancouver.com/about-us/).

KIA-19: Seal Lair Survey and Observation Forms

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 63

Appendix J. SOP: Seal Lair Monitoring (Version 1, February 2018) Sections 2.2, 2.3

Summary:

Condition No. 64 required the proponent to survey for seals and seal lairs annually prior to construction and to take every precaution during the construction of the winter airstrip and ice road to Bathurst Inlet to ensure seal dens/lairs are not impacted by Project infrastructure and activities. To assist in meeting this objective Sabina created a Seal Lair Seal Lair Monitoring Standard Operating Procedure (Version 1), which was included as an appendix to the annual report. Within the SOP, Sabina refers to the Seal Lair Survey and Observation Forms that will be used for pre-construction seal lair monitoring. The instructions within the SOP simply state that the appropriate on-ice person will complete these forms. The SOP does not indicate what types of information will be collected. The KIA and DFO should append these forms to the SOP for review.

Detailed Review Comment:

Section 2.2 of the Seal Lair Monitoring SOP refers to the Seal Lair Survey Form (BackRiver-ENV-001) and Seal Lair Observation Form (BackRiver-ENV-002) that will be used for seal lair monitoring prior to annual construction of winter ice road and airstrip on the sea ice (Project Certificate Condition #63). However, these forms are not included as part of the SOP, and the procedures do not specify what types of information will be collected. The instructions in Section 2.3 simply state that the appropriate on-site person (Environment Team member or a suitable local hunter) will complete these forms.

It would be useful to include data fields such as date/time, location (GPS coordinates), observer name, snow depth, topographic features, incidental wildlife observations, etc. Additional procedural details should also be added. For example, will the surveyor complete the Seal Lair Survey Form even if no potential lairs are found? This would be a quality assurance check that the surveys were completed as planned.

Recommendation/Request:

The KIA requests that the Seal Lair Survey and Observation Forms be appended to the Seal Lair Monitoring SOP to allow for review of the data to be collected.

Sabina Response:

Sabina will include the Seal Lair Observation Form in future versions of the Seal Lair Monitoring SOP.

KIA-20: Rationale for 50-m Buffer Distance for Seal Lairs

References:

Back River Project 2018 Annual Report, Project Certificate Condition No.63

Appendix J. SOP: Seal Lair Monitoring (Version 1, February 2018) Section 2.3

Wildlife Mitigation and Monitoring Program Plan (Version 9, September 2018) Sections 14.2.1.1, 14.1.3.3

Summary:

The SOP states that seal lair surveys will be conducted within 50 m of the winter ice road and airstrip alignment ROW, and that construction personnel will proceed with construction if the seal lair (occupied or not) can be avoided by at least a 50-m buffer. Please provide rationale for this 50-m buffer distance. Previous studies have indicated that ringed seals abandoned their lairs 3x more often within 150 m of on-ice industrial noises; and greater disturbance distances were observed for other human activities.

Detailed Review Comment:

The Seal Lair Monitoring SOP, Section 2.3, states that prior to annual construction of the winter ice road and airstrip (during the seal pupping season, Feb 15 – Apr 15), a survey for seal lairs will be conducted within 50 m of the ROW. If potential lair structures are observed in the planned construction area, construction can still proceed if at least a 50-m buffer can avoid the seal lair. Sabina does not provide a scientific rationale for this 50-m buffer. Buffers that are too small will not effectively mitigate disturbance effects during the sensitive seal pupping season.

Previous studies on the responses of ringed seals to noise disturbance have found that lairs were abandoned three times as often within 150 m of recent on-ice industrial noises (seismic survey lines) (Kelly et al. 1986, 1988). Seals also departed their lairs in response to snowmobiles up to 2.8 km away, human footfalls up to 600 m away, and a skier up to 400 m away. In addition, lairs were abandoned in response to a helicopter flying 5 km away at 152 m agl, and during helicopter landings/takeoffs up to 3 km away (Kelly et al. 1988).

Section 14.2.1.1 of the WMMP v.9 indicates that seal lair monitoring will only be triggered if on-ice construction is planned during the seal pupping season (Feb 15 – Apr 15), although the winter ice road will typically be built during December each year (Section 14.1.3.3), prior to seals building lairs in late February. If construction takes place during the seal pupping season, it will be important that construction activities do not disturb pregnant females that will be giving birth and nursing pups in their lairs. Therefore, a more conservative, scientifically justifiable disturbance buffer distance should be applied.

Recommendation/Request:

The KIA recommends that Seal Lair Monitoring be revised to survey within 150 m of the ROW, and accordingly, to apply a minimum 150-m buffer distance from lairs for construction activities.

Sabina Response:

Sabina is committed to managing the construction and operations of on-ice infrastructure such as the winter ice road and airstrip in Bathurst Inlet in an environmentally responsible manner. It should be noted that construction of the winter ice road and airstrip will begin at the MLA in December and will typically be complete long before the beginning of the seal pupping season, which begins in mid-February. Pre-construction monitoring for seal lairs would only be conducted in the unlikely circumstance that construction is delayed until the seal pupping season begins (Feb 15 – April 15).

KIA-21: Saline Water

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 19

Summary:

Condition No.19 requires development of a Saline Water Management Plan, to be submitted to NIRB at 60 days prior to commencement of operations.

Under 'Methods' it is stated that as a condition of their Water Licence, Sabina is required to submit a revised Water Management Plan (WMP), to which the Saline Water Management Plan is an appendix.

Detailed Summary:

We understand that the WMP was last updated in October 2017, but the update at that time did not include the Saline Water Management Plan. Under PC No. 22, Sabina commits to completing a fulsome update to the WMP in 2019, as requested by the NWB, and this will include the Saline Water Management Plan.

The updated WMP will be submitted to the NIRB at least 90 days prior to the start of Construction.

Recommendation/Request:

The latest Water Management Plan (October 2017) should be made available in case additional considerations regarding the 2018 Annual Report are required.

Sabina Response:

The Water Management Plan (October 2017) which was reviewed by regulators throughout the Back River Project Type A Water Licence Hearing, and approved by the NWB (2AM-BRP1831; Part B, Item 14p), is readily available on the NWB's Public Registry.

KIA-22: Thermal Monitoring

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 20

Summary:

Thermal monitoring will be conducted to identify any potential change in permafrost distribution. Thermal monitoring is expected to be completed at key locations such as Main Dam, Llama Pit, and Umwelt Pit.

The thermal monitoring has not been prepared yet and Sabina is expected to submit it to the NIRB at least 60 days prior to the start of Construction.

Detailed Review Comment:

None.

Recommendation/Request:

It is recommended that the thermistors (or similar devices) should be installed right away at key locations (Main Dam, Llama Pit, and Umwelt Pit) to monitor the effects of the ambient temperature in different seasons and define the baseline conditions at each location before the beginning of the construction and operation phases.

Solid baseline conditions are a key factor in the evaluation of possible future impacts related to construction and operation phases.

Sabina Response:

Sabina thanks the KIA for their recommendation. Sabina will provide the Thermal Monitoring Plan to the NIRB 60 days prior to the start of Construction.

KIA-23: Setbacks to Mitigate Impacts of Runoff/Sedimentation Into Freshwater Habitat

Reference:

Back River Project 2018 Annual Report, Project Certificate Condition No. 23

Summary:

The setbacks from the high water mark of the nearest waterbody utilized for the Airstrip Quarry (approximately 300 m) and the MLA Quarry (approximately 600 m) exceeds the minimum 31 m setback laid out in Sabina's management plan.

Detailed Review Comment:

Based on the timing of this annual report no monitoring results were provided covering the period of quarry development and operation. This review assumes that:

- Any daily monitoring reports or non-compliance reports will be reviewed in next year's annual report.
- Visual inspection of runoff/seepage, turbidity monitoring, and sampling during spring freshet and remarkable rainfall events (as stipulated in the permit) will be reviewed in next year's report.
- Dust generated from the quarry development or operation that may affect human health, wildlife, or aquatic habitat are appropriately captured in operation permits and management plans covering the site.

Recommendation/Request:

This review concludes that no other supporting info is required for monitoring of Condition No. 23.

Sabina Response:

Not applicable. Thank you for your comment.

KIA-24: Prevent blockages or Restrictions to Fish Passage in Fish Bearing Watercourses

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 24

Summary:

Based on the results of the structural analysis of the crossing area, the Gander Outflow crossing structure was changed to a clear-span bridge, which was installed above the high-water mark and without any instream structures. The selection of the clear span option offered better structural stability and avoided any impacts to fish passage and fish habitat, thus complying with the conditions of DFOs letter of authorization (DFO File No. 18-HCAA-00185).

Detailed Review Comment:

The results provided in the annual report confirmed sediment and erosion control was installed prior to placement of the bridge as per the water licence and no instream works was required to complete the bridge installation. Therefore, fish passage monitoring was not required and follow up monitoring and inspections of the water crossing will be conducted during 2019 freshet.

We agree that monitoring and/or inspections should be conducted during freshet to ensure no impact to Arctic Grayling is observed at the crossing as per the DFO Letter of Authorization (18-HCAA-00185).

Recommendation/Request:

None

Sabina Response:

Not applicable. Thank you for your comment.

KIA-25: Blasting to Mitigate Impacts of Explosives Use on Fish and Fish Habitat

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 25

Summary:

During 2018, no blasting occurred within the setbacks outlined by DFO. Therefore, the site is compliant and no additional information is required.

Detailed Review Comment:

We agree that future consultation with DFO should commence specific to any blasting activities near fish bearing waters in 2019.

Recommendation/Request:

None

Sabina Response:

Not applicable. Thank you for your comment.

KIA-26: Fish Passage for Arctic Grayling from Goose Lake to Natural Spawning and Rearing Habitat Located in Upper Rascal Stream East, South of the Planned Airstrip

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 26.

Summary:

The design and offsetting discussions are ongoing with DFO. Construction of airstrip has not commenced. Golder is currently preparing the final version of the offsetting Plan including the final design of the Rascal Stream Fish way under the proposed airstrip extension for submission to DFO in March 2019.

Detailed Review Comment:

No further review is required until the proposed fish way designs and monitoring plans are accepted and/or approved by DFO and KIA. Detailed plans for construction and monitoring will be implemented in compliance with DFO/KIA requirements and covered in future annual reports.

Recommendation/Request:

Any further commitments made by Sabina (if applicable) should be included in future annual reports.

Sabina Response:

Sabina will include relevant commitments in future reports. Thank you for your comment.

KIA-27: Minimizing impacts to freshwater fish habitat that may be used for water withdrawal during 160 km of winter ice road construction

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 27

Summary:

Based on the bathymetry analysis of the 118 waterbodies examined, 55 lakes were identified as being sufficient for under-ice withdrawal. No measurable effects are predicted for fish and fish habitat for the identified source lakes as the recommended under-ice volumes will be adhered to and have been acknowledged protective by DFO.

Detailed Review Comment:

Sabina appears to have followed the DFO requirements for scoping and planning the winter ice road and water withdrawal locations. At the time of the report no water withdrawal had occurred, so summaries of this work were not required.

Recommendation/Request:

None

Sabina Response:

Not applicable. Thank you for your comment.

KIA-28: Winter Ice Road Planning to Mitigate Impacts to Fish and Fish Habitat

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 28

Summary:

Construction of the Winter Ice Road will not take place until 2019. Methods to avoid serious harm to fish were outlined in the Technical Memorandum (November 2018) and Sabina has committed to follow DFOs best management practices as stated in the February 2018 Winter Ice Road Request for Review document. Sabina is also required to comply with the Type A Water Licence (2AM-BRP1831, Part E, Item 7), to equip all water intake hoses with a screens of an appropriate mesh size to ensure that fish are not entrained during pumping events and shall withdraw water at a rate such that fish do not become impinged on the screen.

Detailed Review Comment:

Construction of the ice road will take place in 2019 and therefore no compliance or monitoring results were presented and no additional supporting info to the monitoring program is required at this time.

Recommendation/Request:

Compliance or monitoring for construction activities in 2019 should be included in the 2019 annual report.

Sabina Response:

Compliance or monitoring for construction activities in 2019 will be included in the 2019 annual report.

KIA-29: Water Crossing to Mitigate Impacts to Fish and Fish Habitat

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 29

Summary:

Based on the results of the structural analysis of the crossing area the Gander Outflow crossing structure was changed to a clear-span bridge, which was installed above the high-water mark and without any instream structures. The selection of the clear span option offered better structural stability and avoided any impacts to fish passage and fish habitat, thus complying with the conditions of DFOs letter of authorization (DFO File No. 18-HCAA-00185).

Detailed Comment:

The results provided in the annual report confirmed sediment and erosion control was installed prior to placement of the bridge as per the water licence and no instream works was required to complete the bridge installation. Therefore, fish passage monitoring was not required and follow up monitoring and inspections of the water crossing will be conducted during 2019 freshet.

Recommendation/Request:

We agree that monitoring and/or inspections should be conducted during freshet to ensure no impact to Arctic Grayling is observed at the crossing as per the DFO Letter of Authorization (18-HCAA-00185).

Sabina Response:

Sabina successfully completed freshet monitoring at the Gander Outflow crossing in June 2019. Results will be provided in the 2019 annual report; however, Sabina is pleased to inform the KIA that no signs of sedimentation or erosion or impacts to Arctic Grayling were observed.

KIA-30: Monitoring Program for Culverts to Minimize the Impacts to Fish Bearing Watercourses

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 30

Summary:

Based on the results of the structural analysis of the crossing area the Gander Outflow crossing structure was changed to a clear-span bridge, which was installed above the high-water mark and without any instream structures. The selection of the clear span option offered better structural stability and avoided any impacts to fish passage and fish habitat, thus complying with the conditions of DFOs letter of authorization (DFO File No. 18-HCAA-00185).

Recommendation/Request:

We agree that monitoring and/or inspections should be conducted during the 2019 spring freshet to ensure that barriers to fish passage do not form over time as a result of damage at the crossing caused by ice, flooding, or movement of debris; all of which may occur at freshet (as per the DFO Letter of Authorization 18-HCAA-00185).

Detailed Review Comment:

The results provided in the annual report confirmed sediment and erosion control was installed prior to placement of the bridge as per the water licence and no instream works was required to complete the bridge installation. Therefore, fish passage monitoring was not required and follow up monitoring and inspections of the water crossing will be conducted during 2019 freshet.

Sabina Response:

Sabina successfully completed freshet monitoring at the Gander Outflow crossing in June 2019. Results will be provided in the 2019 annual report; however, Sabina is pleased to inform the KIA that no signs of sedimentation or erosion or impacts to Arctic Grayling were observed.

KIA-31: Monitoring Program for Culverts to Minimize the Impacts to Fish and Fish Habitat

References:

Back River Project 2018 Annual Report, Project Certificate Condition No. 31

Summary:

Since no work has occurred to date on the Rascal Stream Fish Passage no monitoring reports are required for 2018. Sabina will conduct monitoring if any construction occurs in 2019 and present the results as part of the NIRB annual Report. An evaluation of flow scenarios was conducted in 2018 and will continue in 2019 in coordination with DFO.

Detailed Review Comment:

The Proponent should provide annual monitoring updates regarding the Rascal Stream Fish Passage that enables parties to determine its effectiveness and monitoring updates regarding the Rascal Stream Fish Passage shall be included in the annual report to the NIRB. In years when monitoring is not required by Fisheries and Oceans Canada, the Proponent will include a statement in the annual report confirming no active monitoring has occurred.

Recommendation/Request:

None

Sabina Response:

Not applicable. Thank you for your comment.

KIA-32: Agency Inspections and Site Visits

References:

Annual Report Section 4.1.1 Agency Inspections and Site Visits

Summary:

None

Detailed Review Comment:

Four project inspections occurred during the 2018 reporting year as follows:

- July 31 – August 2: CIRNAC Water Licence Inspection
- August 2 – KIA Site Visit
- August 14 – August 16: NIRB Project Officer Inspection (NIRB PRI:320874;322442;322441)
- October 14 – October 15: CIRNAC Land Use Inspection

Sabina notes "Inspection results were conveyed during close-out meetings and are documented in Inspection Reports subsequently distributed to Sabina and relevant stakeholders. Sabina responded to any requests in the inspections to provide additional information and/or address the identified concerns."

No summary of issues noted by the project inspectors are provided within the body of the annual report nor within the appendices.

Recommendation/Request:

Please include a summary of issues highlighted during project inspections and Sabina's response to them in future Annual Reports.

Sabina Response:

Sabina will include a summary of issues highlighted during project inspections and Sabina's response to them in future Annual Reports.

KIA-33: Groundwater and Surface Water Quality

References:

Annual Report Section 4.5.7 Groundwater and Surface Water Quality

Summary:

None.

Detailed Review Comment:

"Sabina undertook a 2018 supplementary baseline sampling program to support the design and implementation of the AEMP, address relevant commitments made by Sabina through the water licensing process…An aquatic baseline synthesis report will be drafted to report the results of the AEMP 2018 sampling program and evaluate the pre-development data set with a focus on addressing commitments made during regulatory review of the Water Licence Application"

The synthesis report was not included within the Annual Report and therefore does not allow a determination as to whether project pre-development activities have had an impact on the aquatic environment.

Recommendation/Request:

Please provide the KIA with the AEMP 2018 report for review when available. Annual AEMP reports should completed such that they can be appended to the project Annual Report in future years.

Monitoring programs and associated results for all VECs should be summarized within the body of the Annual Reports in future years.

Sabina Response:

In 2018, Sabina completed a baseline synthesis report to support the design and implementation of the AEMP; to ensure baseline data collected was sufficient. Sabina did not trigger AEMP requirements in 2018 and therefore there is no 2018 AEMP report. Sabina will provide the baseline synthesis report for review when it is finalized.

Sabina Annual Report format will deliver summary-level information in the main body where appropriate and when directly applicable to the Project Certificate's Terms and Conditions. However, due to the large amount of information provided through its monitoring programs, Sabina anticipates the bulk of information will continue to be presented in appendices to the Annual Report.

KIA-34: Desalination Plant Parameters

References:

Appendix I; Section 4.2 and Table 4-2

Summary:

None

Detailed Review Comment:

Given that "The desalination plant has been designed such that the effluent is concentrated by no more than 10%.", it would be helpful to display the percent change between the influent and effluent for each parameter.

We note that we have spot checked the differences between the influent and effluent and note there were no parameters concentrated on average by more than 10%.

Recommendation/Request:

Please include the maximum and minimum observed concentrations in the desalination plant influent and effluent such that it is easily apparent whether any single parameters have been concentrated by more than 10%. Please also provide the percent differences in each parameter between the desalination plant influent and effluent.

Sabina Response:

Data from each paired desalination influent/effluent sample, as well as means, maximums, and minimums are provided in Appendix C of the 2018 Marine Sampling Report (April 2018). The provided data allows direct comparison of the concentration of any single parameter. In this Appendix, any salinity differences of 10% or more are clearly identified as bolded values, as are any other CCME exceedances. It is noted that no exceedances were observed.

KIA-35: Determination of Effluent Impact on the Marine Environment

References:

Appendix 1

Summary:

None.

Detailed Review Comment:

A comparison between the MLA and reference areas were not performed while the desalination plant was in operation. This comparison is necessary to demonstrate that the effluent is not having a significant impact on the marine receiving environment. This comparison should be provided in addition to comparisons of the influent and effluent concentrations of the desalination plant.

Recommendation/Request:

Please provide a comparison between the MLA and the reference area sample locations while effluent is being discharged.

Noting that the desalination plant will not operate throughout the year, please align the open water season sampling dates in future monitoring years to when discharges from the desalination plant are occurring.

Sabina Response:

2018 Marine studies focused on filling baseline data gaps and identifying appropriate sampling locations for future monitoring. While sampling occurred, it did not occur at the MLA and the reference concurrently. MLA and reference area sampling will be conducted during desalination activities in future monitoring years to aid in effects evaluation.

2.2 RESPONSE TO CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA

CIRNAC-#1: Weather Monitoring and Adaptive Management

Reference:

Project Certificate (PC) Term and Condition (T&C) #8

2018 Annual Report, Page 4-18

Issue/Rationale:

T&C #8 requires the Proponent to "…provide a summary report of meteorological conditions experienced within the project area…" during all project phases (Pre-construction, Construction, Operations, Temporary Closure/Care and Maintenance, Closure and Post-Closure).

In the 2018 Annual Report, the Proponent states "Results and analysis will be provided once monitoring during the Construction Phase of the Project has commenced". This statement suggests the Proponent does not intent to submit results during Pre-construction as stipulated in the T&C # 8.

Recommendation/Request:

CIRNAC recommends that the Proponent provides justification for not providing a summary report of the meteorological conditions experienced within the project area during pre-construction. Alternatively, the Proponent should provide summary results and analysis of pre-construction meteorological conditions within the project area in subsequently annual reports.

Sabina Response:

In 2018, Sabina was undertaking on-site field inspections of existing monitoring equipment to assess its health and ensure its proper working order. With the completion of Atmospheric baseline data collection related to the Back River Project Environmental Assessment, meteorological stations on-site received minimal service.

While servicing of the Project's meteorological stations is ongoing, Sabina will provide any available summary results and analysis of the 2019 meteorological conditions in the 2019 Annual Report.

CIRNAC-#2: Progressive Reclamation Plan

Reference:

Project Certificate (PC) Term and Condition (T&C) #15

2018 Annual Report, Pages 4-27 to 4-28

Issue/Rationale:

This term and condition requires the Proponent to "…have in place a plan for the progressive reclamation of project components, areas, and infrastructure throughout the life of the Project". The proponent is required to submit the plan to the Nunavut Impact Review Board (NIRB) at least 90 days prior to construction, with results and details submitted annually thereafter or as may otherwise be required by the NIRB.

In the 2018 Annual Report, the Proponent indicates under the "Result" section that feedback received during the Water Licence process will be incorporated into the Interim Closure and Reclamation Plan (ICRP: October 2017 version) and "proposes to complete the next comprehensive iteration of the ICRP within 12 months following the commencement of the Operations Phase". However, under the "Next Steps" section, the Proponent states "Sabina will update the latest version of the ICRP (October 2017) and resubmit to the NIRB at least 60 days prior to the start of construction, with results submitted annually thereafter or as may otherwise be required by the NIRB.

There is apparent inconsistency in the Proposed timelines for submission of the ICRP to NIRB. Further, the proposed timelines do not match with the "90 days prior to construction" stipulated in this T&C.

Recommendation/Request:

CIRNAC recommends that the Proponent submits the updated ICRP the NIRB at least 90 days prior to the start of construction, unless otherwise authorized by the NIRB.

Sabina Response:

Sabina will submit the updated ICRP to the NIRB at least 90 days prior to the start of construction, unless otherwise authorized by the NIRB.

CIRNAC-#3: Fuel Transportation

References:

Project Certificate (PC) Term and Condition (T&C) #94

2018 Annual Report, Pages 4-27 to 4-28

Issue/Rationale:

This term and condition requires the Proponent to submit in its annual report a summary of results of the applicable maintenance schedules and summary of inspections throughout all project phases.

The 2018 Annual Report did not contain any maintenance schedules or inspection results. Rather, Sabina stated that "… results of applicable maintenance schedules and summary inspections shall be provided in Sabina's 2019 annual report…" but no rationale was provided as to why this information could not be provided in the 2018 annual report.

Recommendation/Request:

CIRNAC requests that Sabina provides a rationale for not providing summary results of the applicable maintenance schedules and summary of inspections in the 2018 annual report.

Sabina Response:

In 2018, there were no fuel trucks in operation at the Back River Project. Fuel was transported via fuel cubes and tidy tanks. As such no maintenance schedule or summary of inspections are provided.

CIRNAC-#4: Training Measures to Reduce Language Barriers to Inuit Employment On-site

Reference:

2018 Annual Report

NIRB Project Certificate No. 007, Condition 76

Background/Rationale:

Pursuant to Condition 76 of its NIRB Project Certificate, Sabina is recommended to provide information on any second language courses offered on-site with the purpose of reducing language barriers for Inuit employees.

In its assessment of the performance of project certificate terms and conditions, Sabina states that it will consider offering second language courses following a construction decision. Any updates on this topic would be provided in future Socio-economic Monitoring Reports and Annual Reports.

Recommendation/Request:

To satisfy Condition 76 of the Project Certificate, CIRNAC recommends that future Annual Report and Socio-economic Monitoring Report submissions describe measures being implemented to reduce language barriers to Inuit employment with a focus on second-language courses offered on-site.

It is noted that this condition applies to all project phases (preconstruction; construction; operations; temporary closure/care and maintenance; closure; and post-closure). As a result, Sabina is encouraged to begin implementing measures to reduce language barriers to Inuit employment on-site and provide updates in future Annual Report submissions

Sabina Response:

Term and Condition No. 76 encourages Sabina to provide information on second language courses offered on-site; it does not require Sabina to do so or prescribe courses to be delivered. Sabina appreciates CIRNAC's comments and acknowledges no second language courses have been offered on-site to date. Sabina will continue to provide updates on this topic through the NIRB Annual Report process and a placeholder for this information has been provided in the annual Socio-Economic Monitoring Report (in Section 7.1.2 (Hours of Training (by Type) Completed); the Company is thus in-compliance with Term and Condition No. 76.

CIRNAC-#5: Monitoring Data Interpretation and Presentation

Reference:

2018 Annual Report, though out document

Issue/Rationale:

Several project certificate terms and conditions require the Proponent to monitor and report on various valued ecosystem component (VEC) and/or indicators (e.g., air quality, permafrost, surface and groundwater quality, etc.) in order to evaluate the accuracy of Project predictions; assess the effectiveness of mitigation and management measures on Project effects; and identify additional mitigation measures to avert or reduce impacts resulting from project activities, where necessary.

The 2018 Annual Report does not contain substantial reporting on monitoring results for most VECs or indicators (e.g., air quality, permafrost, surface and groundwater quality, etc.). In the few instances where monitoring results are presented (e.g. 2018 Marine Sampling Report), no summary results or interpretations are presented in the main report. Rather this report is presented as an appendix to the 2018 Annual Report.

CIRNAC acknowledges that the project is still in pre-construction and probably has not generated substantial amount of data; however, the Department is of the view that summary results of available data need to be presented in main document, and not as appendices, in order to facility review.

Recommendation/Request:

CIRNAC recommends that, moving forward, Sabina should compile and present summaries of available data collected for various VECs and/or indicators in the main annual report, not appendices. Specifically, summary results and interpretation of data collected to date should be presented in each annual submission.

Further, CIRNAC recommends that the Proponent compares the predicted vs actual project effects and, where necessary, propose additional mitigation measures to avert or reduce impacts resulting from project activities

Sabina Response:

Due to the large amount of information provided through its monitoring programs Sabina anticipates the bulk of information will continue to be presented in appendices to the Annual Report. However, Sabina will consider providing additional summary-level information in the main Annual Report where appropriate and when directly applicable to the Project Certificate's Terms and Conditions. Sabina also anticipates the overall format of its Annual Report submission will not substantially change in future years.

Sabina will consider providing additional information on predicted vs. actual Project effects and additional mitigation measures that may be necessary, in future Annual Reports. However, Sabina would like to re-iterate the Project remains in pre-construction, that current Project effects are considered minimal, and monitoring programs have only just begun. Additional information can be provided by Sabina as the Project advances.