

The BACK RIVER PROJECT

FINAL ENVIRONMENTAL IMPACT STATEMENT ADDENDUM



February 2017

Submitted to: Nunavut Impact Review Board PO Box 1360 Cambridge Bay, NU X0B 0C0

BACK RIVER PROJECT

FEIS ADDENDUM

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- 6. Oil Pollution Emergency Plan (Revised)
- 19. Aquatic Effects Management Plan (Significantly Revised)
- 20. Wildlife Mitigation and Monitoring Program Plan (Significantly Revised)
- 21. Conceptual Fish Offsetting Plan (Revised)
- 30. Vegetation Monitoring Plan (New)
- 31. Conceptual Fish-out Plan (New)

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Volume 9 Addenda: Methodology, Effects of Environment on Project, Accidents and Malfunctions

VOLUME ADDENDA SUMMARY

INTRODUCTION

This FEIS Addendum is being provided to the NIRB, in response to the direction received on January 23, 2017, to provide new and updated information on the topic of Methodology, Effects of Environment on Project, Accidents and Malfunctions, as identified within the NIRB Hearing Decision Report (June 15, 2016) and the Ministers' Referral Letter (January 12, 2017).

For convenient reference, this FEIS Addendum follows the original FEIS heading and numbering scheme. In the interest of brevity, the volume and chapter numbers of the FEIS Addenda headers in the Table of Contents have been combined. For example, Section 6.4 in the FEIS Addendum Table of Contents corresponds to Volume 6, Chapter 4 Freshwater Water Quality in the FEIS. Where there is no new or updated information provided in the FEIS Addendum, the corresponding section number is omitted. For example, Section 6.2 and 6.3 are omitted from the FEIS Addendum Table of Contents for this reason. Wherever the original FEIS information is referenced, FEIS is used at the start of the reference (FEIS Volume 10 Chapter 19). Wherever the FEIS Addendum information supersedes the FEIS information, FEIS Addendum is used at the start of the reference (FEIS Addendum Volume 10, Chapter 21).

Volume 9 includes the General Methodology for Project Effects Assessment, Cumulative Effects Assessment, and Transboundary Effects Assessment (Chapter 1), the Effects of the Environment on the Project (Chapter 2), and Accidents and Malfunctions (Chapter 3).

CONFORMITY TO EIS GUIDELINES

Sabina has reviewed the EIS Guidelines in respect of the new information provided on the topic of Methodology (Guidelines Section 7) and Accidents and Malfunctions (Guidelines Section 8.4) and provided an Table of Conformity in FEIS Addendum Appendix V1-1A. This Table replaces the FEIS Table V1-1A.

GENERAL METHODOLOGY FOR PROJECT EFFECTS ASSESSMENT, CUMULATIVE EFFECTS ASSESSMENT, AND TRANSBOUNDARY EFFECTS ASSESSMENT (FEIS VOLUME 9, CHAPTER 1)

No areas of concern noted within the Final Hearing Report or the Ministers' Referral Letter. No additional information is presented.

EFFECTS OF ENVIRONMENT ON PROJECT DESIGN (FEIS VOLUME 9, CHAPTER 2)

No areas of concern noted within the Final Hearing Report or the Ministers' Referral Letter. No additional information is presented.

ACCIDENTS AND MALFUNCTIONS (FEIS VOLUME 9, CHAPTER 3)

In the Final Hearing Report, the NIRB concluded that there is uncertainty in relation to the emergency preparedness and response regarding the shipping, offloading, and transport over land of bulk fuel. The Board also requested additional information about spill response be applied throughout all Project planning stages. Sabina has prepared new or updated information to address Section 6.2 of the Final Hearing Report. This information can be found in response FHR-NIRB-6.2 under FHR-NIRB-6.2(A) -

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FEIS ADDENDUM

Emergency Preparedness and Spill Response Capability for Shipping, Offloading, and Transporting Bulk Fuel.

None of the additional information presented in the FEIS Addendum effects the conclusions presented in Accidents and Malfunctions (FEIS Volume 9, Chapter 3).

APPENDICES (FEIS VOLUME 9)

FEIS Appendix	Title	Summary of Change
Appendix V9-3A	2013 Bathurst Inlet Marine Diesel Fuel Spill Modelling Report (Updated June 2015)	No changes

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9.3 ACCIDENTS AND MALFUNCTIONS (ADDENDA)

NIRB Section: Section 6.2: Accidents and Malfunctions Assessment Ref No.: FHR-NIRB-6.2		Section 6.2: Accidents and Malfunctions Assessment		
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Reference to NIRB Report:

Section 6.2 - Accidents and Malfunctions Assessment

Conclusions and Recommendations of the Board (Section 6.2.4):

In considering the views of the Proponent and those of parties throughout the assessment of the Project and as outlined above, the Board has considerable uncertainty in relation to Sabina's capabilities to respond to spills within Bathurst Inlet, should neither the shipper nor the Canadian Coast Guard be in a position to respond. The Board notes Bathurst Inlet remains relatively pristine and untouched by large scale and potentially permanent impacts. Should the Proponent revise the proposed Project for a future submission, it the Board's view that an enhanced level of information about spill response, while shipping, transferring to land, as well as transport over land, be applied throughout all project planning stages [FHR-NIRB-6.2(A)].

Issues Highlighted within the Ministers' Referral Letter:

On the issue of the marine environment, the Board's conclusion was that it saw "considerable uncertainty" in the effects predicted for the proposed saline water discharge and emergency preparedness and response capacity for shipping of bulk fuel into Bathurst Inlet. Having reviewed the Board's recitation of the evidence, and the Board's views and conclusions, it is not clear why this uncertainty remains.

While we would have expected that the information before the Board on effects predictions and emergency preparedness would meet the appropriate standard for impact assessment, the Board appears to have concluded otherwise. However, at this stage, we do not have enough of an understanding of the Board's concern to come to our own conclusions.

This issue thus requires further review to make sure the Board's concerns are well understood by the parties and that, most importantly, they are given the opportunity to try to address them. By this approach, it seems reasonable to believe that the remaining uncertainty could be resolvable, and this process may bring with it the ability to make refined impact predictions and to develop additional mitigations if necessary.

Sabina Response:

The Board has expressed uncertainty in relation to emergency preparedness and spill response capability, while shipping, transferring to land, as well as transport over land, be applied throughout all project planning stages. The NIRB has also expressed concerns with regards to adequacy of proposed mitigation, management, and regulatory oversight for the proposed Project activities in and near the marine environment.

Emergency Preparedness and Spill Response Capability - Shipping

Sabina notes that the Canadian Coast Guard (CGC) is the lead federal agency for all ship-source spills or pollution incidents in water under Canadian jurisdiction. Sabina recognizes our responsibility to manage the risks effectively and to be prepared to respond in the event of a spill. Response to spills that occur during the act of shipping will be covered under the vessel's Shipboard Oil Pollution Emergency Plan

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(SOPEP). The SOPEP is a required document that must be reviewed and approved by TC³², as stated during the FEIS Final Hearing.

Emergency Preparedness and Spill Response Capability - Fuel Transfer to Land

The Canada Shipping Act, 2001, stipulates that operators of designated oil handling facilities must have an Oil Pollution Emergency Plan (OPEP). As stated during the FEIS Final Hearing, an OPEP must be reviewed and approved by TC³³. Since the FEIS Final Hearing, and in recognition of the NIRB's concern, Sabina has updated the OPEP to include more detail on bulk fuel transfer spill prevention measures (Section 11.3.2), marine mammal and fish sensitivities (Section 5.3.6), spill response kit locations at the MLA (Annex 2), guidelines for responding to multiple emergencies (Section 7.7), large spills (Section 10.1), and unexpected ice conditions (Section 5.3.5). For the NIRB's convenience, the updated OPEP can be found in FEIS Addendum Volume 10, Chapter 6.

Emergency Preparedness and Spill Response Capability - Transport Over Land

To address the NIRB's concerns regarding spill response during over land fuel transport, Sabina has provided an updated Fuel Management Plan (FEIS Addendum Volume 10, Chapter 4) and an updated Spill Contingency Plan (FEIS Addendum Volume 10, Chapter 5).

Regulatory Oversight

As outlined in Sabina (2016), TC and the CCG have the expertise, jurisdiction and mandate to advise on shipping and marine spill response, in accordance with the *Canada Shipping Act* and its regulations, which include numerous specific requirements relating to shipping in the Canadian Arctic and marine spill prevention and response. Other federal agencies and departments, such as DFO, the CCG and ECCC, have distinct but interrelated responsibilities for the management of marine transportation safety and environmental protection in the Arctic (FEIS Volume 10, Chapter 15, Appendix A).

For the NIRB's convenience, Sabina has further outlined the applicable Federal and Territorial legislation and guidelines in the following management plans:

- Fuel Management Plan (FEIS Addendum Volume 10, Chapter 4, Section 4);
- Risk Management and Emergency Response Plan (FEIS Volume 10, Chapter 3, Section 1.6);
- Spill Contingency Plan (FEIS Addendum Volume 10, Chapter 5, Section 1.6);
- Oil Pollution Emergency Plan (FEIS Addendum Volume 10, Chapter 6, Section 1.1); and
- Shipping Management Plan (FEIS Volume 10, Chapter 15, Section 5 and Appendix A).

Additionally, Sabina developed and presented additional specific management plans relating to the prevention of, and response to, any spill event including:

- Risk Management and Emergency Response Plan (FEIS Volume 10, Chapter 3);
- Fuel Management Plan (FEIS Addendum Volume 10, Chapter 4);
- Spill Contingency Plan (FEIS Addendum Volume 10, Chapter 5);
- Oil Pollution Emergency Plan (FEIS Addendum Volume 10, Chapter 6); and
- Shipping Management Plan (FEIS Volume 10, Chapter 15).

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³² D. Kirkland, TC, NIRB Final Hearing File No. 12MN036 Transcript, Pg. 546, Lines 24 to 26

³³ D. Kirkland, TC, NIRB Final Hearing File No. 12MN036 Transcript, Pg. 547, Lines 1 to 3

For the NIRB's convenience, a listing of the terms and conditions and commitments that were recommended during the FEIS Final Hearing by TC and agreed to by Sabina that are relevant to the topic of accidents and malfunction in the marine environment are listed in the table below.

Туре	Identifier	Suggested text from Final Hearing	Anticipated Party Involvement
Term and Condition	TC-T-1	The Proponent will adhere to requirements for loading and handling explosives within the prescribed regulatory requirements.	тс
Term and Condition	TC-T-2	The Proponent must refer to the latest version of Transport Canada's Emergency Response Guide and update its Risk Management & Emergency Response Plan as appropriate.	тс

<u>FHR-NIRB-6.2(A) - Emergency Preparedness and Spill Response Capability for Shipping, Transport to Land, Transporting Over Land, and Regulatory Oversight</u>

Emergency Preparedness and Spill Response Capability - Shipping

The CGC is the lead federal agency for all ship-source spills or pollution incidents in water under Canadian jurisdiction. During the FEIS Final Hearing, the CGC confirmed their ability to implement a consistent approach for responding to marine pollution incidents in all regions of Canada:

"...the Canadian Coast Guard is the lead federal agency for all ship-source spills or pollution incidents in waters under Canadian jurisdiction...The Canadian Coast Guard's environmental response program's mission is to ensure an appropriate level of preparedness and response capability for all ship-source and mystery-source pollution incidents in waters under Canadian jurisdiction. To that end, the Canadian Coast Guard implements a consistent approach for responding to marine pollution incidents in all regions of Canada." 34

Sabina recognizes our responsibility to manage the risks effectively and to be prepared to respond in the event of a spill. Response to spills that occur during the act of shipping will be covered under the vessel's SOPEP. The SOPEP is a required document that must be reviewed and approved by TC³⁵, as stated during the FEIS Final Hearing.

A tremendous amount of attention is paid to emergency preparedness and response to shipping in Canada and particularly in the Arctic waters. TC has put in place a significant legislative and regulatory framework that apply to all vessels within Canadian waters. Shipping companies bringing goods and fuel to the MLA must remain in compliance with all regulatory requirements at all times.

Emergency Preparedness and Spill Response Capability - Fuel Transfer to Land

The *Canada Shipping Act*, 2001, stipulates that operators of designated oil handling facilities must have an OPEP. As stated during the FEIS Final Hearing, an OPEP must be reviewed and approved by TC³⁶.

Spills that occur during the transfer of fuel from a ship in Bathurst Inlet to the Project, Marine Laydown Area, Oil Handling Facility (MLA-OHF) will be responded to in accordance with the TC approved OPEP (FEIS Addendum Volume 10, Chapter 6). An OPEP outlines potential spill scenarios, and provides specific procedures for responding to spills while minimizing potential health and safety hazards and environmental damage. It provides instructions to guide all personnel in emergency spill response situations, defines the roles and responsibilities of management and responders and outlines the

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³⁴ Ms. Williston, DFO, on behalf of the CCG, NIRB Final Hearing File No. 12MN036 Transcript, Pg. 1163, Lines 15 to 26; Pg. 1164, Lines 1 to 10

 $^{^{\}rm 35}$ D. Kirkland, TC, NIRB Final Hearing File No. 12MN036 Transcript, Pg. 546, Lines 24 to 26

³⁶ D. Kirkland, TC, NIRB Final Hearing File No. 12MN036 Transcript, Pg. 547, Lines 1 to 3

measures taken to prevent spills, the related exercise and evaluation programme, and the mechanism for regular updates to the plan.

Since the FEIS Final Hearing, and in recognition of the NIRB's concern, Sabina has updated the OPEP to include more detail on bulk fuel transfer spill prevention measures (Section 11.3.2), marine mammal and fish sensitivities (Section 5.3.6), spill response kit locations at the MLA (Annex 2), guidelines for responding to multiple emergencies (Section 7.7), large spills (Section 10.1), and unexpected ice conditions (Section 5.3.5). Detailed procedures for safe bulk fuel transfer are presented in Annex 5 - Bulk Cargo Transfer Procedures of the OPEP. Additionally, the updated OPEP includes the following information (Section 11.3.2):

Several preventive measures are in place to minimize risk of spills during bulk fuel transfer including:

- The bulk fuel storage facility, pipeline and all related equipment and infrastructures are inspected prior to the bulk cargo transfer and the inspection methods are documented as a Standard Operating Procedure.
- Complete bulk cargo transfer procedures have been established, a copy of which is found in Annex 5 of this OPEP.
- As required by the applicable legislation the ship has a comprehensive Shipboard Oil Pollution Emergency Plan and a copy of this plan has been reviewed by Sabina.
- In addition to the legislative requirements, the charterer has implemented a shipboard spill response training program and performs routine exercises in spill response operations.
- The ship carries a compliment of spill response equipment as listed in Annex 6 of the OPEP and this equipment is ready at the ship's rail at all times for deployment during cargo operations.
- Sabina oil spill response equipment is on the beach, ready for immediate deployment at all times during cargo operations.
- The workboats and trained responders are available at all times during cargo operations for spill equipment deployment.
- Standard transfer procedures include hourly inspections by workboat of the floating hose for leaks or defects.
- During transfer operations the shore manifold is manned at all times.
- A low pressure alarm is installed at the shore manifold that is highly sensitive to differences in pressure during pumping. Any loss in the system will cause a drop in manifold pressure and results in an audible alarm, which is immediately reported by the manifold personnel.
- The bulk fuel storage facility is monitored at all times by Sabina personnel during the transfer.
- The pipeline is inspected hourly on foot during the transfer operation.

For the NIRB's convenience, the updated OPEP can be found in FEIS Addendum Volume 10, Chapter 6.

Emergency Preparedness and Spill Response Capability - Transport Over Land

To address the NIRB's concerns regarding spill response during over land fuel transport, Sabina has provided an updated Fuel Management Plan (FEIS Addendum Volume 10, Chapter 4) and an updated Spill Contingency Plan (FEIS Addendum Volume 10, Chapter 5).

The Fuel Management Plan has been updated to include more detail on the safe handling and storage of fuel. Specifically, more information has been added to roles and responsibilities (Section 5), potential environmental effects (Section 7.5), environmental monitoring (Section 8) and mitigation and adaptive management (Section 9).

The Spill Contingency Plan includes details of emergency response procedures for spills that could occur while transporting bulk fuel over land. Sabina acknowledges that the majority of over land fuel transfer

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will occur on the winter ice road; therefore, the approach to spills on snow and ice (Section 8.2.3) are outlined:

In general, snow and ice will slow the movement of hydrocarbons. The presence of snow may also hide the oil slick and make it more difficult to follow its progression. Snow is generally a good natural sorbent, as hydrocarbons have a tendency to be soaked up by snow through capillary action. However, the use of snow as a sorbent material is to be limited as much as possible. Snow and frozen ground also prevent hydrocarbons from migrating down into soil or at least slow the migration process. Ice prevents seepage of fuel into the water.

Response to spills on snow and ice includes the general procedures previously detailed. Most response procedures for spills on land may be used for spills on snow and ice. The use of dykes (i.e., compacted snow berms lined with plastic sheeting) or trenches (dug in snow or ice) slow the progression of the fuel and also serve as containment to allow recovery of the fuel. Free product is recovered by using a vacuum, a pump, or sorbent materials. Contaminated snow and ice is scraped up manually or using heavy equipment depending on volumes.

Should spills enter waterways beneath ice cover, ice augers and pumps will be used when feasible to recover fuel and other materials under ice. Slots may be cut in ice over slow-moving water to contain oil. Tiger torches may be used to burn the fuel in place, if unrecoverable by other methods and when feasible and safe to do so.

The contaminated snow and ice is placed in containers or within plastic lined berms on land. For contingency purposes, a contaminated snow storage site will to be designated and located in close proximity to each of the main Project work sites to facilitate inspection and monitoring, in an area which will still be readily accessible once it is time to remove the snow (i.e., spring or summer), and at least 31 m away from any body of water or ditch. Once enough snow has melted, the oily water can be removed from the storage site and processed through an oil-water separator that would be mobilized to site. Hydrocarbons recovered will be burned in the camp incinerator or shipped off-site.

Regulatory Oversight

The NIRB has expressed concerns with regards to adequacy of proposed mitigation, management, and regulatory oversight for the proposed Project activities in and near the marine environment (FHR-NIRB-4.13(B)).

As outlined in Sabina (2016), TC and the CCG have the expertise, jurisdiction and mandate to advise on shipping and marine spill response, in accordance with the *Canada Shipping Act* and its regulations, which include numerous specific requirements relating to shipping in the Canadian Arctic and marine spill prevention and response. During the FEIS Final Hearing, this was confirmed by TC:

"Vessels operating in the north must comply with the Canadian Shipping Act, 2001 and the Arctic Waters Pollution Prevention Act. Operators of the oil-handling facilities that load and unload oil from vessels must have TC-approved OPEPs, or Oil Pollution Emergency Plans, to ensure that they comply with the Canada Shipping Act, 2001 and associated regulations." ³⁷

Other federal agencies and departments, such as DFO, the CCG and ECCC, have distinct but interrelated responsibilities for the management of marine transportation safety and environmental protection in the Arctic (FEIS Volume 10, Chapter 15, Appendix A).

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³⁷ A.Downing, TC, NIRB Final Hearing File No. 12MN036 Transcript, Pg. 1161, Lines 10 to 16

For the NIRB's convenience, Sabina has further outlined the applicable Federal and Territorial legislation and guidelines in the following management plans:

- Fuel Management Plan (FEIS Addendum Volume 10, Chapter 4, Section 4);
- Risk Management and Emergency Response Plan (FEIS Volume 10, Chapter 3, Section 1.6);
- Spill Contingency Plan (FEIS Addendum Volume 10, Chapter 5, Section 1.6);
- Oil Pollution Emergency Plan (FEIS Addendum Volume 10, Chapter 6, Section 1.1); and
- Shipping Management Plan (FEIS Volume 10, Chapter 15, Section 5 and Appendix A).

During the FEIS Final Hearing, TC stated that they have no further concerns related to the Project components within their mandate:

"Transport Canada has provided multiple recommendations within our written submission and we are satisfied with the response that has been provided by Sabina. Transport Canada has no further concerns related to the project components within our mandate. Transport Canada will continue to participate in the project review throughout the regulatory stage, should the project be approved to ensure that the applicable legislation and regulations are being followed." 38

Additionally, Sabina developed and presented additional specific management plans relating to the prevention of, and response to, any spill event including:

- Risk Management and Emergency Response Plan (FEIS Volume 10, Chapter 3);
- Fuel Management Plan (FEIS Addendum Volume 10, Chapter 4);
- Spill Contingency Plan (FEIS Addendum Volume 10, Chapter 5);
- Oil Pollution Emergency Plan (FEIS Addendum Volume 10, Chapter 6); and
- Shipping Management Plan (FEIS Volume 10, Chapter 15).

References:

Sabina (Sabina Gold & Silver Corp.). 2016. Detailed Summary Regarding the Nunavut Impact Review Board Final Hearing Report of June 15, 2016 on the Back River Gold Mine Project. Issued July 2016 by Sabina Gold & Silver Corp.: Vancouver, BC.

Attachment:

Not applicable

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³⁸ A.Downing, TC, NIRB Final Hearing File No. 12MN036 Transcript, Pg. 1162, Lines 19 to 26; Pg. 1163, Line 1