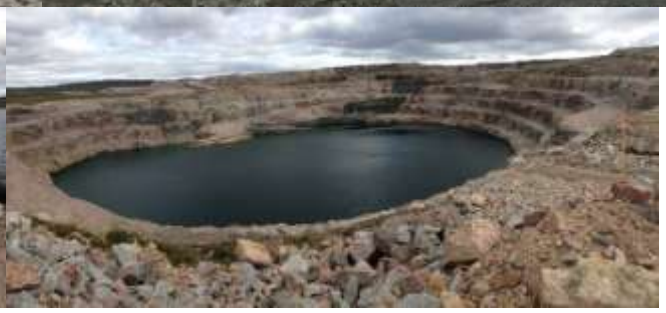
2016-2017 Monitoring Report

for the

Jericho Diamond Mine Project



Nunavut Impact Review Board

File No.: 00MN059

Jericho Diamond Mine Project Certificate No. 002

November 2017

Report Title:	The Nunavut Impact Review Board's 2016 – 2017 Annual Monitoring Report for the Jericho Diamond Mine Project (NIRB File No. 00MN059)
Project:	Jericho Diamond Mine Project
Project Location:	Kitikmeot Region, Nunavut
Land Tenure:	Inuit Owned and Crown Land
Project Owner:	Shear Diamonds (Nunavut) Corp.
Monitoring Officer:	Davin St. Pierre, M.REM
Monitoring Period:	October 2016 – September 2017
Date Issued:	November 24, 2017
Photos by:	Davin St. Pierre, Nunavut Impact Review Board
Cover photo:	Photos taken during the 2017 Jericho Site Visit

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1.0 INTRODUCTION

The Nunavut Impact Review Board (NIRB or Board) was established through Articles 10 and 12 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement), Article 12 and is responsible for post environmental assessment monitoring of projects in accordance with Article 12, Part 7 of the Nunavut Agreement.

Pursuant to Section 12.7.1 of the Nunavut Agreement, the establishment of a project-specific monitoring program may be outlined by the terms and conditions contained in a NIRB Project Certificate, recommendations stemming from a Part 4 Nunavut Agreement determination, or approvals issued by the Nunavut Water Board (NWB). Monitoring programs may specify responsibilities for the Proponent, NIRB, or Government. The purpose of such a monitoring program is outlined in Section 12.7.2 of the Nunavut Agreement as follows:

a) to measure the relevant effects of projects on the ecosystemic and socio-economic environments of the Nunavut Settlement Area;

b) to determine whether and to what extent the land or resource use in question is being carried out within the predetermined terms and conditions;

c) to provide the information base necessary for agencies to enforce terms and conditions of land or resource use approvals; and

d) to assess the accuracy of the predictions contained in the project impact statements.

This document has been prepared by the NIRB to address requirements of Section 12.7.2 of the Nunavut Agreement and details monitoring activities that occurred during the 2016-2017 reporting period. This report also provides an assessment of the following items:

- Success or failure of the terms and conditions within Project Certificate [No. 002];
- Adequacy of the monitoring program including ecosystemic and socio-economic impacts of the Project pursuant to Section 12.7.3(c) of the Nunavut Agreement;
- Adequacy of Appendix D of the Jericho Project Certificate in its direction to the Proponent regarding Project-specific monitoring; and
- Results of 2017 remediation and stabilization works undertaken by Indigenous and Northern Affairs Canada under NIRB File No. 16UN058.

Details related to the remediation and stabilization works undertaken by INAC, and approved by the Board under NIRB File No. 16UN058, are provided throughout the 2016-2017 Monitoring Report.

1.1. Project History and Current Status

On July 14, 2004, pursuant to Section 12.5.12, Article 12 of the Nunavut Agreement, the NIRB issued the Jericho Diamond Mine Project Certificate No. 002 (Project Certificate [No. 002]) to Tahera Corporation Limited (Tahera) following the environmental assessment of the Jericho Diamond Mine Project (Jericho Project or the Project). In December 2004 Tahera requested that the Project Certificate be reissued to reflect updated project ownership, and on January 19, 2005 the NIRB issued Amendment #1 of the Project Certificate [No. 002] in the name of Benachee Resources Inc., a wholly owned subsidiary of Tahera. Construction of the mine commenced in March 2005 and operations began in July 2006.

On October 3, 2007 the NIRB issued Appendix D to the Jericho Project, which sets out the responsibilities of the Proponent in carrying out project-specific monitoring, as well as responsibilities of relevant territorial and federal agencies to coordinate with the Proponent and to provide compliance reporting to the NIRB. The NIRB developed its monitoring program for the Project in accordance with Section 12.7.1 of the Nunavut Agreement.

Tahera filed for creditor protection in January 2008, citing insufficient funds to operate, and the Jericho Mine site was subsequently placed into care and maintenance. Pursuant to Section 89 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSRTA), Indian and Northern Affairs Canada intervened in December 2008 to assume control of the Jericho Mine site and to complete temporary closure of the site to regulatory standards until the site was purchased.

Shear Diamonds (Nunavut) Corp. (Shear) completed the purchase of the Jericho Diamond Mine in August 2010 and subsequently requested that the NIRB reassign the Project Certificate to reflect the new ownership. On August 23, 2011 the NIRB issued Amendment #2 to the Project Certificate [No. 002] in the name of Shear Diamonds (Nunavut) Corp. The site remained in care and maintenance until October 2012 when details were made available on the Nunavut Water Board's (NWB) public registry that indicated that, due to financial constraints, the site was placed in temporary shut down and that all personnel had been moved off site. Shear provided a temporary closure plan and notice that the required environmental monitoring would be suspended.

The NWB issued a renewed Type "A" Water Licence to Shear for the Jericho Mine site on December 21, 2011. Within the NWB's Reasons for Decision issued to the Minister

of Aboriginal Affairs and Northern Development, Shear was required to provide securities totaling $3,389,074 to Aboriginal Affairs and Northern Development Canada (AANDC; renamed from Indian and Northern Affairs Canada) to be held in trust.[1] A Compliance Plan for the Jericho site was posted on the NWB's pubic registry site at the end of 2012 which noted that it was not in a financial position to provide the outstanding securities amount of $321,074.[2] On December 19, 2013 AANDC provided additional detail on the status of the securities, indicating that:

> …the Department currently has $6,618,556 in cash-equivalent and $1,701,858 in debentured security under the Crown land lease and type A water license for the Jericho mine site. The work done on-site by the Department from June to October 2013 to manage water levels and ensure tailings management is maintained has cost approximately $232,000.[3]

On March 8, 2013 AANDC issued notice to Shear that due to its continual failure to manage specific environmental issues on-site, AANDC's Contaminated Sites Program would be conducting periodic work at the Jericho Mine site to manage the specific issues identified. On January 22, 2014 AANDC released correspondence indicating that the site was declared abandoned by Shear and that the Minister had the authority under Section 89 of the NWNSRTA to "take any reasonable measures to prevent, counteract, mitigate or remedy any resulting adverse effects on persons, property or the environment*"* regarding the Jericho mine site, with specific direction that the decision does not terminate any of Shear's existing obligations under the legislation or regulatory instruments.[4]

AANDC subsequently assumed control of the site, which enabled it to draw upon security bonding to facilitate continued site care and maintenance and potential future remediation as may be required. In October 2014 the Nunavut Court of Justice transferred the Jericho mining leases and person property located on Crown lands to the Crown.

On September 30, 2016 the NIRB received a referral to screen Indigenous and Northern Affairs Canada's (INAC; formerly Aboriginal Affairs and Northern Development Canada) proposed "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058)

[1] Nunavut Water Board, *Reasons for Decision Including Record of Proceedings in the Matter of Shear Diamonds (Nunavut) Corp. Renewal Application for Type "A" Water Licence.* December 21, 2011.
[2] Author unknown, 2AM-JER1119 Compliance Plan. September 30, 2012.
[3] Dated December 19, 2013. Correspondence from I. Gray, Regional Director General, Nunavut Region, Aboriginal Affairs and Northern Development Canada Letter to R. Barry, Executive Director, NIRB, *Re: Request for clarification regarding ongoing responsibilities for the Jericho Diamond Mine Site.* January 9, 2014.
[4] Correspondence from I. Gray, Regional Director General, Nunavut Region, Aboriginal Affairs and Northern Development Canada, to Manuel Rappaport and Thomas Pladsen, Director and Chief Restructuring Officer, Shear, Re: *Status of the Jericho Diamond Mine.* January 22, 2014.

from the Nunavut Planning Commission. The project proposed remediation and stabilization works at the Jericho site with the goal of restoring the abandoned site to an environmentally safe condition, stabilizing the site to prevent water accumulation, and preventing the environmental migration of contaminants into surrounding ecosystems (see Table 1).[5] Following a public commenting period and subsequent consideration by the Board, on December 22, 2016 the NIRB issued its Screening Decision Report for the project, approving the remediation and stabilization activities as proposed. On April 21, 2017 the NIRB received a revised summary of remediation and stabilization works to be conducted at the Jericho site, which was determined to be within the scope of previously-approved activities under the "Jericho Site Stabilization Project" (NIRB File No. 16UN058, see Table 1).

On May 30, 2017 the NIRB received a referral from the Nunavut Planning Commission to screen an amendment to NIRB File No. 16UN058, the "Jericho Site Stabilization - Amendment" project proposal. In addition to the previously approved remediation and stabilization activities, as part of the amendment INAC proposed to remove the jetty in Carat Lake to create fish habitat on behalf of Fisheries and Oceans Canada and to potentially use explosive to aid in the removal of the frozen core West Dam. Following a public commenting period and subsequent consideration by the Board, on July 24, 2017 the NIRB issued a Screening Decision Report for the "Jericho Site Stabilization - Amendment", approving the additional works and activities as proposed (see Table 1).

Table 1: NIRB File No. 16UN058 Scope Summary

SCOPE SUMMARY	
Original "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058)	*Revised* "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058)

• Transportation
  ○ Via airplane from Yellowknife and Kugluktuk
  ○ Via existing JV Winter Road with construction of an extension between the Ekati and Jericho sites
• Accommodations
  ○ Use of existing structures on-site
  ○ Use of water from Carat Lake
  ○ Treatment and disposal of grey and black water using on-site treatment system
• Equipment On-site
  ○ Incinerators, heavy equipment and machinery, passenger vehicles, all-terrain vehicles
• Remediation/Stabilization (*Wastes*)
	• Transportation
	  ○ Via airplane from Yellowknife and Kugluktuk
	• Accommodations
	  ○ Use of soft-camp and select structures on-site
	  ○ Use of water from Carat Lake
	  ○ Treatment and disposal of grey and black water using on-site treatment system (constructed sump)
	• Equipment On-site
	  ○ Incinerators, heavy equipment and machinery, passenger vehicles, all-terrain vehicles
	• Remediation/Stabilization (*Wastes*)
	  ○ Incineration of combustible wastes and select hazardous wastes

[5] Project details are accessible through the NIRB's public registry at www.nirb.ca using the following search criteria: Project Name: Jericho Mine Site Stabilization Project, NIRB File No.: 16UN058, Application No.: 125012

Table 1: NIRB File No. 16UN058 Scope Summary

SCOPE SUMMARY	
Original "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058)	*Revised* "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058)
○ Development and use of a non-hazardous landfill and landfarm ○ Incineration of combustible wastes and select hazardous wastes ○ Demolition and disposal and structures and site debris except for the process plant, truck shop, airport camp, and facilities located on Inuit Owned Land ○ Treatment of contaminated soil on-site or transportation off-site for disposal ○ Collection and transportation of hazardous wastes off-site for disposal ○ Collection and disposal of non-hazardous wastes in landfill ○ Purging, cleaning, and disposal of above-ground fuel storage tanks • Remediation/Stabilization (*Earthworks*) ○ Covering of PKCA Cell A ○ Beaching and stabilization of C1 Diversion, West Dam, and Divider Dyke A ○ Construction of open pit outflow ○ Grading and contouring of berms, pads, and stabilization/remediation areas • Long-term Monitoring	○ Collection and storage of contaminated soils on-site or transportation off-site for disposal ○ Collection and transportation of hazardous wastes off-site for disposal ○ Purging, cleaning, and storage of above-ground fuel storage tanks • Remediation/Stabilization (*Earthworks*) ○ Covering of PKCA Cell A ○ Beaching and stabilization of C1 Diversion, West Dam, and Divider Dyke A ○ Construction of open pit outflow ○ Grading and contouring of berms, pads, and stabilization/remediation areas ○ Removal of water intake jetty on Carat Lake and associated features* ○ Use of explosives* • Long-term Monitoring

*Additional activities approved as part of INAC's May 30, 2017 "Jericho Site Stabilization - Amendment" proposal (NIRB File No. 16UN058)

While the Jericho Mine site is currently in temporary closure under the management of INAC since being declared abandoned in 2014, the Jericho Project remains subject to conditions of the Project Certificate [No. 002], previously assigned to Shear.

The following table provides an overview of monitoring and other activities relevant to the regulatory regime associated with the Jericho project since 2012:

Table 2: Process History for the NIRB's Monitoring of the Jericho Diamond Mine

DATE		ACTIVITY UNDERTAKEN
2012	August	The NIRB conducted its annual site visit.
2012	September	Shear issued notice that due to low diamond prices the site would be minimally staffed, stockpile re-evaluation suspended, and discontinue exploration at the site.
2012	October	Shear issued Temporary Shutdown Plan to the NWB and AANDC outlining: procedures completed for site shutdown; potential risks at

Table 2: Process History for the NIRB's Monitoring of the Jericho Diamond Mine

DATE		ACTIVITY UNDERTAKEN
		site; a site visit schedule to address the risks; and notice that ongoing monitoring would be discontinued.
2012	December	The NIRB issued its recommendations to Shear regarding the 2012 monitoring commitments and compliance to the Project Certificate [No. 002].
2013	November	The NIRB issued its recommendations to Shear regarding the 2013 monitoring commitments and compliance to the Project Certificate [No. 002].
2013	December	Shear's Chief Restructuring Officer provided notification of its plans regarding refinancing of the project with the goal of re-opening the Jericho Mine.
2014	January	The Minister of Aboriginal Affairs and Northern Development declared the site abandoned.
2014	April	The NIRB received notice of Shear's Chief Restructuring Officer's resignation.
2014	June	The NIRB conducted its 2014 site visit.
2014	November	The NIRB issued its recommendations to Shear and AANDC regarding the 2013 monitoring commitments and compliance to the Project Certificate [No. 002].
2014	November	The NIRB received notification of resignation by the last remaining Shear Director.
2015	January	AANDC submitted information and site inspection reports regarding water monitoring and sampling, water releases on-site, and mitigation measures to manage previously identified risks.
2015	June	The NIRB requested updates from agencies regarding compliance to the Project Certificate [No. 002].
2015	June	The NIRB conducted its 2015 site visit.
2015	October	The NIRB issued its 2015 recommendations to Shear, INAC, and Fisheries and Oceans Canada (DFO).
2015	December	INAC submitted its response to the NIRB's request for information regarding ongoing activities at the Jericho Diamond Mine and submitted its responses to the NIRB's 2014-2015 Board Recommendations.
2016	January	DFO submitted its response to the NIRB's request for information regarding ongoing activities at the Jericho Diamond Mine and submitted its responses to the NIRB's 2014-2015 Board Recommendations.
2016	June	The NIRB conducted its 2016 site visit.
2016	November	The NIRB issued its 2016 recommendations to Shear, INAC, and DFO.
2016	December	The NIRB issued its Screening Decision Report for INAC's "Jericho Mine Site Stabilization" proposal (NIRB File No. 16UN058), approving the proposed remediation and stabilization works at the Jericho site.
2017	April	INAC submitted its response to the NIRB's 2015-2016 recommendations.
2017	April	INAC submitted a revised summary of remediation and stabilization

Table 2: Process History for the NIRB's Monitoring of the Jericho Diamond Mine

DATE		ACTIVITY UNDERTAKEN
		works to be conducted at the Jericho site (NIRB File No. 16UN058).
2017	June	DFO submitted its response to the NIRB's 2015-2016 recommendations.
2017	July	The NIRB issued its Screening Decision Report for INAC's proposed "Jericho Site Stabilization – Amendment", approving proposed amendments to the Jericho Site Stabilization Project (NIRB File No. 16UN058).
2017	August	The NIRB conducted its 2017 site visit.
2017	September	The NIRB received INAC's Water Resources Inspection Report

1.2. Project Components

The Jericho Project is a diamond mine situated in the West Kitikmeot region of Nunavut, approximately 430 kilometres (km) southwest of Cambridge Bay and 240 km southeast of Kugluktuk. The site consists of a single open pit mine, processing facility, Processed Kimberlite Containment Areas (PKCA) and stockpiles, as well as a camp and support buildings to house approximately 200 persons, fuel tank farm with capacity for 13 million litres of fuel, an airstrip, and roads connecting site infrastructure. The mine is located on Crown land with access and other infrastructure, including an explosives storage area and emulsion plant, situated on Inuit Owned Land.

2.0 MONITORING ACTIVITIES

2.1. Reporting Requirements

After acquiring the site, Shear requested on June 3, 2011 that the NIRB re-issue Project Certificate [No. 002] to reflect the new owner of the Project, and provided specific commitments to bring the site into monitoring and reporting compliance. Appendix D of the Jericho Project Certificate prescribes the reports which the Proponent is required to submit to the NIRB, specifically quarterly reports, an annual report, and updated management plans as required. Board recommendations issued for the reporting years between 2012 and 2016 requested that Shear provide a discussion on its intentions for reporting while the site continued in care and maintenance, as well as to submit any outstanding reports.

As a result of Shear's non-compliance with the water licence, AANDC intervened as per the NWNSRTA and noted in correspondence received by the NIRB on July 2, 2013 that the scope of its management of the Jericho Mine site at that time would encompass the management of several specific risks, including: site water during freshet; tailings; and

fuel and hazardous waste.[6] The site has since been declared abandoned, and under the stewardship of AANDC. On November 4, 2016 the Board issued its most recent set of recommendations to both Shear and INAC (formerly Aboriginal Affairs and Northern Development Canada), and Fisheries and Oceans Canada (DFO) requesting that they provide an update to the NIRB on water management and sampling practices, including releases of treated site contact water, long-term remediation/stabilization activities, and an update of activities undertaken to manage the risks identified at the Jericho site (see Section 2.5 - Responses to the NIRB's 2016 Recommendations for additional information).

2.1.1. Proponent Annual Report as per Project Certificate Appendix D

Appendix D of the Project Certificate [No. 002] was developed in accordance with the July 2004 Project Certificate to provide direction to the Proponent, the NIRB's Monitoring Officer, and government departments regarding the monitoring program as established pursuant to Section 12.7 of the Nunavut Agreement. Appendix D of the Jericho Project Certificate requires the Proponent to develop a comprehensive post-environmental assessment monitoring program (PEAMP) and submit an annual report to the NIRB by April 30 of each year the project is in operation until the post-closure phase. As outlined in Appendix D, the annual report must provide details of the Proponent's efforts to comply with the Project Certificate [No. 002]. The annual report must include, at a minimum, a discussion of the results of the PEAMP based on all relevant data collection, analysis of various topics related to the ecosystemic and socio-economic environment, and a discussion of the effectiveness of mitigation measures and recommendations for adaptive management. Furthermore, the Proponent is required to provide a status update of compliance with all authorizations and applicable regulations and guidelines associated with the project.

Appendix D of the Project Certificate [No. 002] further requires the Proponent to submit quarterly reports to the NIRB, due at the end of October, January, April, and July of each year, commencing October 31, 2007, to document current and planned infrastructure development at the site.

After its acquisition of the Jericho Mine site in 2010, Shear committed to submitting the required reports to the NIRB on numerous occasions: during the initial acquisition of the

[6] Dated June 7, 2013. Correspondence from E. Paul, Water Resources Officer, Aboriginal Affairs and Northern Development Canada to P. Beaulieu, Manager of Licensing, Nunavut Water Board, Re: *Jericho Mine (2AM-JER1119)*. July 2, 2013.

Project and request by Shear that the NIRB reassign the Project Certificate [No. 002];[7] through the renewal process for the Type "A" Nunavut Water Board water licence;[8] and in person during the NIRB's 2012 Site visit.[9] The last annual report for the Jericho Project was submitted to the NIRB by Tahera on May 16, 2008 for the 2007 reporting year and the last quarterly report submitted to the NIRB was provided by Tahera on January 24, 2008 outlining construction activities taken during the fourth quarter in 2007. To date the NIRB has not received annual or quarterly reports, or supporting information, from Shear as required by Appendix D.

2.2. Wildlife Monitoring

Conditions 3, and 9 through 18, of the Project Certificate [No. 002] outline operational and monitoring requirements with regards to wildlife and birds. The Wildlife Mitigation and Monitoring Plan (WMMP) for the Jericho Project, prepared by Tahera, details the Proponent's proposed methods for conducting wildlife monitoring activities, describes options to mitigate potential impacts to wildlife, and provides direction to site staff. On May 15, 2007 Tahera submitted a fourth draft of its WMMP in accordance with Condition 10 of the Project Certificate [No. 002]. After consultation with the Government of Nunavut – Department of Environment and Environment Canada (now Environment and Climate Change Canada), it was determined that the WMMP as submitted adequately satisfied the requirements of the Project Certificate [No. 002].

In the June 3, 2011 correspondence to the NIRB, Shear committed to implementing the measures proposed in the WMMP, which required that Shear compile and submit a Wildlife Mitigation and Monitoring Report annually as well as prepare a comprehensive analysis of the Plan every three (3) years beginning in 2009. The submission further stated that "during care and maintenance Shear will record wildlife sightings in the field and around the mine site. These sightings will be included in the quarterly report to be submitted to the NIRB".[10] To date the NIRB has not received any of the reports from Shear, nor has it received any annual wildlife data, analyses, or discussion to meet this requirement.

[7] Correspondence from P. Strand, President, Shear, to Sophia Granchinho, NIRB Technical Advisor, Re: *Request to assign the Jericho Diamond Mine Project Certificate (No. 002) to Shear Diamonds (Nunavut) Corp.* June 3, 2011.
[8] Dated June 9, 2011. Correspondence from P. Strand, President, Shear, to P. Beaulieu, Manager of Licensing, Nunavut Water Board Re: *Shear Diamonds (Nunavut) Corp. – Licence No. 2AM-JER0410 Notice of Application for Renewal of a Type "A" Water Licence, Jericho Diamond Mine.* June 13, 2011.
[9] NIRB's 2012 Site Visit Report for the Jericho Diamond Mine Project. November 2012.
[10] Correspondence from P. Strand, President, Shear, to S. Granchinho, NIRB Technical Advisor, Re: *Request to assign the Jericho Diamond Mine Project Certificate (No. 002) to Shear Diamonds (Nunavut) Corp.* June 3, 2011.

2.3. Socio-Economic Monitoring

Terms and Conditions 42 through 49 of the Project Certificate [No. 002] outline the Board's requirements for socio-economic monitoring of the Jericho Project.

Inuit Impact and Benefit Agreement

On October 1, 2007 the NIRB received a report from the Kitikmeot Inuit Association (KIA) outlining its experience with the implementation of the Inuit Impact and Benefit Agreement (IIBA) for the Jericho Project. Although the KIA made recommendations for continued improvement, it noted that since the signing of the IIBA the relationship between the KIA and Tahera had been positive. In its June 3, 2011 letter to the NIRB, Shear clarified that while the site remained in care and maintenance, obligations in the IIBA had been suspended except for those related to employment and contracting, and that opportunities for these would be limited while the site remained in this phase.

Socio-Economic Monitoring Committee

Condition 44 of the Project Certificate [No. 002] requires that as a supplement to the IIBA, a Socio-Economic Monitoring Committee (SEMC) be established to monitor and report on socioeconomic impacts in relation to the Jericho Project. While the NIRB received the Jericho Diamond Mine 2007 Socio-Economic Monitoring Report from the Kitikmeot Socio-Economic Monitoring Committee (identified in the report as previously being established as the Jericho Socio-Economic Monitoring Committee) on August 18, 2009, no further correspondence regarding socio-economic monitoring for the Project have been received by the NIRB.

The Government of Nunavut facilitated the most recent Kitikmeot SEMC meeting from November 30 to December 1, 2016 in Cambridge Bay. The NIRB's Monitoring Officer for the Jericho Project was in attendance, although Shear was not present at the event.

2.4. Compliance Monitoring

Through compliance monitoring, regulators and other parties assess whether a project being carried out meets the terms established through legislation, regulations, instruments, commitments, and agreements applicable to project activities. Compliance monitoring is a requirement of the NIRB's Appendix D of the Project Certificate [No. 002].

2.4.1. Compliance with the NIRB Project Certificate

As previously discussed, Shear has not submitted the reports as required to the NIRB or undertaken the mitigation and monitoring activities committed to, and is therefore non-compliant with the requirements of Project Certificate [No. 002], including Appendix D. Although many terms and conditions of the Project Certificate [No. 002] were not

applicable during the 2016-2017 reporting year as the mine site was non-operational and no Shear staff were on-site, select terms and conditions remain applicable.

As previously noted, Shear is required to undertake caribou monitoring as well as collect wildlife data and submit an annual Wildlife Mitigation and Monitoring Report to the NIRB, pursuant to Conditions 3 and 10 respectively. The NIRB has not received a wildlife report or related data from Shear for the 2010, 2011, 2012, 2013, 2014, 2015, and 2016 reporting years. Further as detailed in past site visit reports, Shear was not in compliance with requirements of Condition 34, which requires that all fuel storage areas be bermed, as well as Condition 35 which requires that fencing or suitable deterrents be employed at the landfills or waste storage areas on site.

2.4.2. Compliance Monitoring by Authorizing Agencies

Appendix D of the Project Certificate [No. 002] sets out expectations for authorizing agencies' collaborative monitoring for the Jericho site. Agencies with responsibilities related to the monitoring program are requested to provide compliance reports to the NIRB by April 30th of each year.

2.4.3. Kitikmeot Inuit Association

The Kitikmeot Inuit Association (KIA) is responsible for holding land tenure permits for Shear as well as maintaining several agreements with regards to the function of the site and use of resources for the Jericho Project. On September 10, 2014 the KIA provided an update to the NIRB which indicated that the organization views AANDC (now Indigenous and Northern Affairs Canada) as the primary regulator for the project, and confirmed that it would be collaborating with AANDC to ensure that the portion of the project site on Inuit Owned Land is properly abandoned. The emulsion plant, explosive storage units, and ammonium nitrate storage pad are located on Inuit Owned Land. As outlined in the 2017 Site Visit Report, (see Appendix I), a KIA representative was present during the August 22, 2017 Jericho Mine site visit attended by the NIRB Monitoring Officer.

2.4.4. Indigenous and Northern Affairs Canada

Indigenous and Northern Affairs Canada (INAC) is responsible for issuing Crown land leases for the Jericho Project and conducting land use inspections required under the *Territorial Lands Act* and the *Territorial Lands Regulations*, as well as conducting inspections under the *Nunavut Water and Nunavut Surface Rights Tribunal Act* for compliance to water licence(s) that have been issued by the NWB.

As previously noted, INAC's management of the site focuses on site water during freshet; tailings and tailings facility management; and fuel and hazardous waste storage and containment. On December 22, 2016 the NIRB approved INAC to undertake more substantial remediation and stabilization activities under NIRB File No. 16UN058, which

have the goal of restoring the abandoned site to an environmentally safe condition, stabilizing the site to prevent water accumulation, and preventing the environmental migration of contaminants into surrounding ecosystems. On April 21, 2017 INAC submitted a revised summary of remediation and stabilization works to be conducted at the Jericho site, which was determined to be within the scope of previously-approved activities under NIRB File No. 16UN058. Further, on July 24, 2017 the NIRB approved an amendment to NIRB File No. 16UN058 to conduct additional remediation activities, including the use of explosives in select remediation works and the removal of a jetty as part of the stabilization activities undertaken by INAC.

On April 12, 2017 the NIRB received correspondence from INAC in response to the Board's 2015-2016 Recommendations and regarding management activities undertaken at the Jericho Diamond Mine during the reporting year. INAC's submission included details pertaining to water testing and management, containment berm management, tailings management strategies for the Processed Kimberlite Containment Area (PKCA), contaminated soil and fuel storage area management, and site infrastructure management. In addition, INAC also provided copies of the results from water sampling conducted during the 2015-2016 field season.

On September 29, 2017 the NIRB received INAC's Water Resources Inspection Report from INAC, issued February 7, 2017. The Report detailed findings from a site visit conducted on August 4, 2016 by INAC's Water Resources Officer to assess risks to persons, property, or the environment, and particularly the likelihood of any discharges to water.

Management of Water

2016 Reporting Year

In correspondence received by the NIRB on April 12, 2017, INAC noted that during the 2016 field season, water samples were taken from four (4) areas on-site including the Phase 1 Tank Farm, Phase 2 Tank Farm, Genset Tank Farm, and Transfer Station Tank Farm. INAC indicated that all results for the above sample areas met discharge criteria, and provided analytical results of the sampling conducted. INAC noted that water from all the tank farms was removed using a vacuum truck and was discharged into Cell A of the PKCA.

Within the February 27, 2017 Water Resources Inspection Report, the INAC Water Resources Officer expressed concern that effluent was not filtered through the Oztek filtration unit, as the Phase 2 berm had been contaminated with hydraulic oil in 2012 and continued to hold 60 barrels of hydraulic-oil-contaminated soil and water which had overturned in the past. The Inspector noted that sampling results were provided,

demonstrating that the effluent met discharge criteria, and that the field works manager indicated that the pumping methods utilized minimized the disturbance of the contaminated substrate to avoid the floating of any free product on the surface. The Water Resources Officer requested that the Contaminated Sites Program (CSP) ensures that notification is provided prior to any future discharges and any changes in protocols, until such time as the CSP would be guided by more specific water licence criteria for the work.

INAC's April 12, 2017 submission also indicated that water from Cell B/C of the PKCA was discharged from June 6 to June 9, 2016, and again from July 28 to August 5, 2016 using a water pump with a six (6) inch hose at a discharge rate of 6.57 cubic metres (m^3) per minute. INAC noted that the total volume of water discharged from Cell B/C of the PKCA during the 2016 field season was 94,609 m^3. Similar details regarding the PKCA discharges were provided within INAC's February 27, 2017 Water Resources Inspection Report.

Within INAC's Water Resources Inspection Report, the Water Resources Officer noted that water usage by field personnel during the summer was minimal. The Officer indicated that personnel were on site from June 6 to June 9, and July 28 to August 4, 2016 and that water for camp use in June was estimated to be 20 litres (L), and approximately 20 L per day was used in July and August, drawn by hand from Carat Lake.

The Water Resources Inspection Report also indicated that no maintenance or repairs to the silt curtain and fence on the Southeast Dam Pond were observed as previously recommended, and since no measures were put in place to monitor fine processed kimberlite deposition from the PKCA, it was unknown whether further impacts to the Southeast Dam Pond have resulted. The Water Resources Officer further noted that vegetation growing at the base of the slope appeared robust.

Management of Tailings

2016 Reporting Year

Through correspondence, INAC confirmed that no tailings management activities were undertaken during the reporting year. As previously noted, water from Cell B/C of the PKCA was discharged from June 6 to June 9, 2016, and again from July 28 to August 5, 2016 totalling 94,609 m^3.

Also previously noted, within INAC's February 27, 2017 Water Resources Inspection Report, the Water Resources Officer observed that no measures were put in place to

monitor fine processed kimberlite deposition from the PKCA, and as such, potential impacts to the Southeast Dam Pond were unknown.

Management of Fuel Storage

2016 Reporting Year
As previously noted, in correspondence received by the NIRB on April 12, 2017 INAC noted that water sampling and discharge took place from four (4) different locations on-site, including the Phase 1 Tank Farm, Phase 2 Tank Farm, the Genset Tank Farm, and the Transfer Station Tank Farm. All sample results met discharge criteria and water from the tank farms was removed using a vacuum truck and discharged into Cell A of the PKCA. For discussions related to water discharges undertaken during the 2015-2016 reporting year see the *Management of Water* section above.

Wildlife

2016 Reporting Year
No submissions were received with regards to wildlife monitoring from INAC; however, INAC indicated during the NIRB's 2017 site visit that a bear sightings took place during the summer of 2017 by on-site remediation contractors, and that wildlife sightings are common on-site (see Appendix I).

Additional details related to the management of the above items and pertaining to INAC's responses to the NIRB's 2016 Board Recommendations can be found in Section 2.5.

Site Safety

2016 Reporting Year
Within INAC's February 27, 2017 Water Resources Inspection Report, the Water Resources Officer indicated that no new risks were identified to persons, property, or the environment and that the Contaminated Sites Program was undertaking whatever possible measures to reduce existing risks on-site. The Officer noted that warning signage was posted where dangers were present on-site, that no third-party access was authorized, and that facilities are being monitored and discharged where necessary to prevent failure of works.

2.4.5. Fisheries and Oceans Canada

Fisheries and Oceans Canada's (DFO) authority is legislated pursuant to the *Fisheries Act* to issue an Authorization (NU-00-0068) which bears relevance to items addressed in Terms and Conditions 4 and 19 through 24 of the Jericho Project Certificate.

In correspondence received by the NIRB on October 2, 2017, Fisheries and Oceans Canada (DFO) indicated that it did not conduct a site visit during the 2015/2016 reporting year.

Additional details pertaining to DFO's response to the NIRB's 2016 Board Recommendations can be found in Section 2.5.

2.4.6. Natural Resources Canada

In July 2005 Natural Resources Canada (NRCan) issued a licence to Dyno Nobel Nunavut Limited under Section 7 of the *Explosives Act* for the storage and manufacture of explosives at the Jericho Mine site. In correspondence received by the NIRB on May 7, 2014 NRCan provided indication that it would be discontinuing annual reporting regarding the Jericho Diamond Mine Project as there was no longer a licence associated with the site and all explosive materials had been removed from the site.

2.5. Responses to the NIRB's 2016 Recommendations

As a result of the NIRB's findings through its 2015-2016 monitoring program, on November 04, 2016 the Board made the following recommendations to Shear, Indigenous and Northern Affairs Canada (INAC, formerly Aboriginal Affairs and Northern Development Canada), and Fisheries and Oceans Canada (DFO), to assist in compliance with Project Certificate [No. 002] and to ensure the NIRB has all information necessary to adequately discharge its mandate with respect to provisions within section 12.7 of the Nunavut Agreement as they pertain to the Jericho Project.

> ***Recommendation 1:*** *The Board requests that Shear Diamonds (Nunavut) Corporation provide the following outstanding submissions:*
>
> *a) 2010, 2011, 2012, 2013, 2014, and 2015 annual reports;*
>
> *b) Quarterly reports for 2010 through 2016; and*
>
> *c) Wildlife monitoring data from 2010-2016.*
>
> *The Board requests that the Proponent provide these outstanding reports within 90 days' receipt of the Board's recommendations*.

As of the date of this report, the NIRB has not received acknowledgement of, or responses to, the above noted recommendations from Shear.

> ***Recommendation 2:*** *The Board requires that Shear Diamonds (Nunavut) Corporation provide a proposed plan of action to remedy the non-compliance to Condition 34, which requires secondary containment, and Condition 35, which requires fencing around all landfill and waste storage areas. The Board requests*

that the Proponent provide a response within 90 days' receipt of the Board's recommendations.

As of the date of this report, the NIRB has not received acknowledgement of, or responses to, the above noted recommendations from Shear.

> ***Recommendation 3:*** *The Board requests that Fisheries and Oceans Canada[11] provide the NIRB with an update regarding any potential fish habitat compensation plans at the Jericho mine site. Within the update, Fisheries and Oceans Canada should inform the NIRB of its coordination with Indigenous and Northern Affairs Canada should their fish habitat compensation plans be proposed as part of larger remediation and reclamation works on-site.*

In correspondence received by the NIRB on June 2, 2017 DFO provided its response to Recommendation 3 which included written confirmation and updates on DFO's intended use of the Letter of Credit (LOC) towards closure and reclamation objectives at the Jericho Mine site, specifically related to completing fish habitat compensation works as required in the *Fisheries Act* Authorization previously issued for the Project.

DFO indicated within the correspondence that it was working with INAC to coordinate the use of LOC funds and that it intended to use a portion of the LOC for the removal of the infrastructure on the water intake jetty and excavation to create fish habitat in the form of underwater shoals within Carat Lake. DFO noted that it would continue to work with INAC to determine the appropriate use of the remainder of the LOC towards additional remediation options, although cost and feasibility were unknown at the time. DFO further added that should no additional fish habitat or compensation be feasibly achieved, its intention would be to use the remainder of the LOC to support the long-term monitoring of the site.

> ***Recommendation 4:*** *The Board requires that Shear Diamonds (Nunavut) Corporation, or, given the current site management regime, recommends that Indigenous and Northern Affairs Canada[12] continues to provide the NIRB with details of its water monitoring, sampling practices, releases of treated site contact water, as well as activities undertaken to manage risks identified at the Jericho site. The Board requests that the following details be included for the 2016 reporting year:*
>
> *a) Clarification on the specific areas where water sampling was conducted, with the associated results, and details on the volumes of water discharged and treated while conducting seasonal water management activities;*

[11] Note that the Board invited Fisheries and Oceans Canada to comment via correspondence issued under separate cover, and that Shear was not responsible for a response to this recommendation.
[12] Note that the Board invited Indigenous and Northern Affairs Canada to comment via correspondence issued under separate cover, and that Shear was not responsible for a response to this recommendation.

b) Plans to address the low point in the Phase 1 fuel tank farm berm and repair the slumping in the Oztec berm liner;

c) Indigenous and Northern Affairs Canada's tailings management strategy for the Processed Kimberlite Containment Area (PKCA) including how it plans to monitor the extent of tailings dispersal to areas adjacent to the PKCA, such as the Southeast Dam Pond;

d) Plans regarding the stabilization and/or remediation of the contaminated soils on-site identified in the Phase III Environmental Site Assessment; and

e) Plans to manage deteriorating structures on-site and to manage potential hazardous contents stored within the structures.

On April 12, 2017 INAC provided its responses to Recommendation 4 which included responses to the five (5) items discussed within the Board's 2016 Recommendations, as well as details related to management activities undertaken at the Jericho Diamond Mine during the reporting year. INAC's discussion of site stabilization works were approved under INAC's "Jericho Site Stabilization Project" (NIRB File No. 16UN058).

Item A

As noted in Section 2.4.4, INAC collected water samples from four (4) areas on-site including the Phase 1 Tank Farm, Phase 2 Tank Farm, Genset Tank Farm, and Transfer Station Tank Farm. INAC noted that all results for the above sample areas met discharge criteria, and provided analytical results of the sampling conducted. INAC added that water from all the tank farms was removed using a vacuum truck and was discharged into Cell A of the PKCA. Further, INAC added that water from Cell B/C of the PKCA was discharged over the West Dam from June 6 to June 9, 2016, and again from July 28 to August 5, 2016 totalling 94,609 cubic metres.

Item B

INAC indicated that its 2017 site stabilization works would include the cleaning and purging of all fuel tanks on-site, and that the tanks in the Phase 1 Tank Farm would be removed from the bermed area once cleaned to convert the area into storage for petroleum hydrocarbon (PHC) contaminated soils. INAC noted that this area would be covered with a geosynthetic liner to prevent rain and snow from accumulating within the berm, eliminating concerns related to the low point identified during previous site visits, and the potential for the migration of accumulated water within the berm. INAC added the Oztec berm would be decommissioned as part of the site stabilization work.

Item C

INAC responded that its 2017 site stabilization works would include the construction of a cap over the fine processed kimberlite (PK) tailings. INAC noted that the cap would

prevent further erosion of the fine PK by wind and water, and that the performance of the cover would be monitored as part of its long-term monitoring plan. INAC added that the extent of tailings dispersal to areas adjacent to the PKCA would be visually assessed, and that once the cap is installed, further dispersal would be prevented.

Item D

INAC responded that as part of its 2017 stabilization works, PHC soils would be consolidated in the Phase 1 Tank Farm, capped with a geosynthetic liner, and covered to isolate the materials from the surrounding environment. INAC added that the condition of the PHC storage area would be monitored as part of its long-term monitoring plan. Further, INAC noted that metal impacted soils would be packaged as per the Transportation of Dangerous Goods requirements and would be shipped off-site for disposal at a licenced facility.

Item E

INAC responded that its 2017 stabilization works would include the removal of all hazardous materials from the building and structures on-site. INAC noted that hazardous materials would be packaged as per the Transportation of Dangerous Goods requirements and shipped off-site for disposal at a licenced facility. INAC added that buildings and structures would remain intact, that there are no trespassing signs at the site and on all main structures warning against unauthorized access, and further added that the condition of the buildings and structures would be monitored as part of the long-term monitoring plan.

For additional discussions and observations related to INAC's stabilization and remediation works please refer to the NIRB's 2017 Site Visit Report (Appendix I).

3.0 FINDINGS

During the 2016-2017 monitoring period, the NIRB did not receive any documentation, or observe any evidence at site, that would indicate that Shear had been conducting monitoring activities at the Jericho Mine site. Shear remains non-compliant with many requirements under the Project Certificate [No. 002], including the monitoring requirements under Appendix D.

Information has been provided by INAC and DFO on the status of the maintenance and stabilization activities being undertaken at site, as previously discussed and observed during the NIRB's 2017 Site Visit (Appendix I). DFO indicated that it remains in communication with INAC related to fish habitat compensation works, while INAC

continues to undertake activities at site related to longer-term stabilization and maintenance.

4.0 CONCLUSIONS

After purchasing the Jericho Diamond Mine, Shear committed to operating under the plans and procedures put in place by Tahera to address the requirements of the Project Certificate [No. 002], however the site continues to remain unmanned by Shear personnel, and the company remains non-responsive to inquiries.

As a result of Shear's failure to implement requirements of the Project Certificate [No. 002] at site, the Board is unable to provide a detailed assessment, as required by Section 12.7.2 of the Nunavut Agreement, to determine the success or failure of these terms and conditions to mitigate predicted impacts associated with the Jericho Project. However, due to the site remaining non-operational, most of the impacts for which the terms and conditions of the Jericho Project Certificate [No. 002] were written, are not likely being realized. Based on the undertaking of more substantial stabilization activities by INAC, under the Ministerial authority to "take any reasonable measures to prevent, counteract, mitigate or remedy any resulting adverse effects on persons, property or the environment" [13], the relevance of many terms and conditions within the Jericho Project Certificate [No. 002], particularly those related to areas where more substantial stabilization works were undertaken, are reduced.

The coordination of regulatory authorities as intended through the recommendations of the Appendix D of the Project Certificate [No. 002] remains a key component of the NIRB's ongoing monitoring efforts for the site, and the NIRB will continue to work with these agencies in the absence of Shear and in the development of long-term monitoring and maintenance objectives.

[13] Correspondence from I. Gray, Regional Director General, Nunavut Region, Aboriginal Affairs and Northern Development Canada, to Manuel Rappaport and Thomas Pladsen, Director and Chief Restructuring Officer, Shear, Re: *Status of the Jericho Diamond Mine.* January 22, 2014.

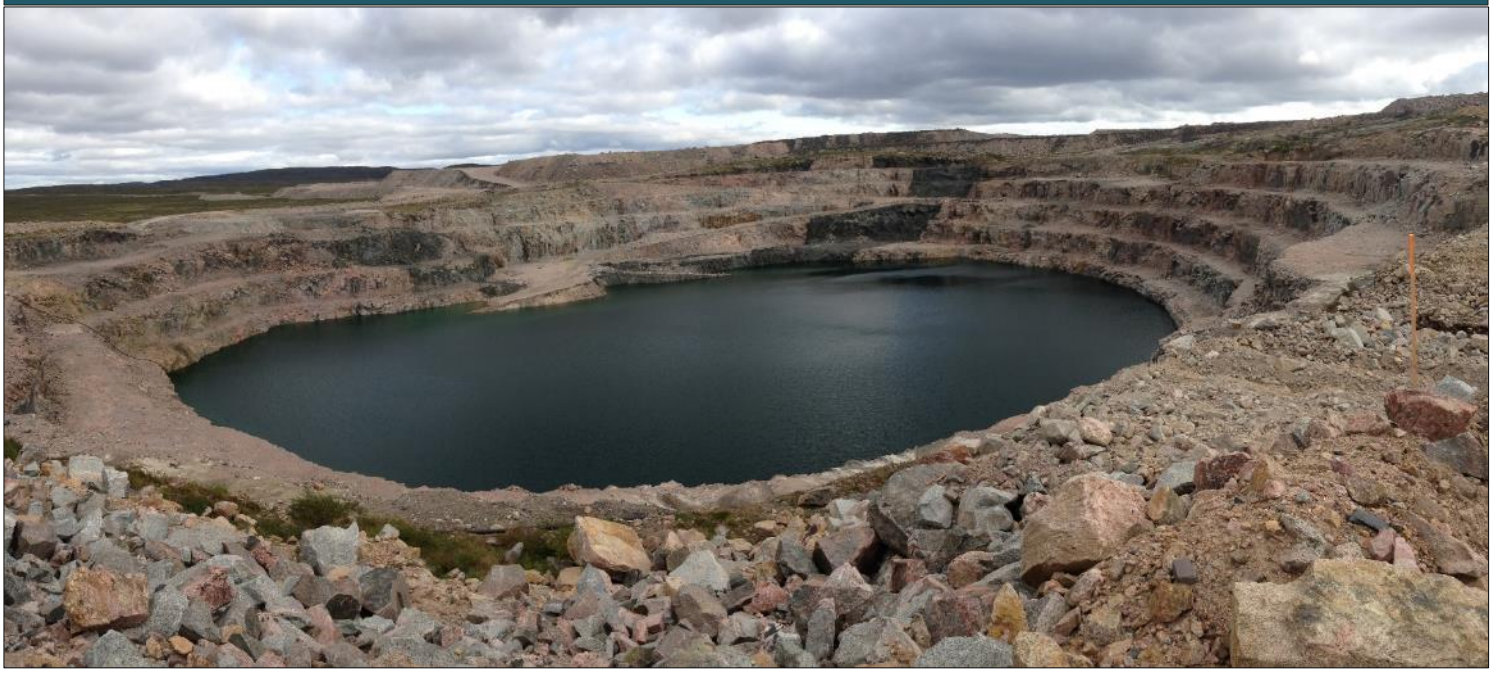
Prepared by: Davin St. Pierre Title: Technical Advisor II Date: October 12, 2017 Signature: 	Reviewed by: Kelli Gillard P.Ag. Title: Acting Director, Technical Services Date: November 24, 2017 Signature: 
Finalized by: Sophia Granchinho Title: Manager, Impact Assessment Date: November 16, 2017 Signature: 	

APPENDIX I
2017 SITE VISIT REPORT

2017 Site Visit Report

for the NIRB's Monitoring of the

Jericho Diamond Mine Project



Nunavut Impact Review Board

File No.: 00MN059

Jericho Diamond Mine Project Certificate No. 002

November 2017

Report Title:	The 2017 Site Visit Report for the Nunavut Impact Review Board's Monitoring of the Jericho Diamond Mine Project
Project:	Jericho Diamond Mine
Project Location:	Kitikmeot Region, Nunavut
Land Tenure:	Inuit Owned and Crown Land
NIRB File No.:	00MN059 Jericho Diamond Mine Project Certificate No. 002
Project Owner:	Shear Diamonds (Nunavut) Corp.
Visit conducted by:	Davin St. Pierre, Technical Advisor II, Nunavut Impact Review Board
Contact:	(867) 983-4615 or dstpierre@nirb.ca
Site visit date: **Previous site visit:**	August 22, 2017 June 8, 2016
Photos by:	Davin St. Pierre
Cover photo:	Panoramic view of the Jericho Diamond Mine Project open pit.

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List of Photos

1. Introduction

The Nunavut Impact Review Board (NIRB or Board) was established through Articles 10 and 12 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement) and is responsible for post environmental assessment monitoring of projects in accordance with Part 7 of Article 12 of the Nunavut Agreement.

The findings provided in this report resulted from the NIRB Monitoring Officer's site visit of the Jericho Diamond Mine on August 22, 2017 that took place as part of the NIRB's monitoring program.

2. Project Description and Ownership

The Jericho Diamond Mine Project is a diamond mine situated in the Kitikmeot region of Nunavut, approximately 430 kilometres (km) southwest of Cambridge Bay and 240 km southeast of Kugluktuk. The site consists of:

- a single open pit mine,
- processing facility,
- processed kimberlite containment areas (PKCA) and stockpiles,
- camp and support buildings to house approximately 200 persons,
- explosives storage and emulsion plant,
- fuel tank farm with capacity for 13 million litres of fuel,
- airstrip, and
- roads connecting site infrastructure.

On July 14, 2004 pursuant to Article 12, Section 12.5.12 of the Nunavut Agreement, the NIRB issued the Jericho Diamond Mine Project Certificate No. 002 (Project Certificate [No. 002]) to Tahera Corporation Limited (Tahera) following the environmental assessment of the Jericho Diamond Mine Project (Jericho or the Project). In December 2004 Tahera requested that the Project Certificate be reissued to reflect the updated project ownership, and on January 19, 2005 the NIRB issued Amendment #1 of the Project Certificate [No. 002] in the name of Benachee Resources Inc., a wholly owned subsidiary of Tahera.[1]

Shear Diamonds (Nunavut) Corp. (Shear) completed the purchase of the Jericho Diamond Mine in August 2010 and subsequently requested that the NIRB reassign the Project Certificate to reflect the new ownership.[2] On August 23, 2011 the NIRB issued Amendment #2 to the Project

[1] Project Certificate [No. 002] Amendment #1 issued via correspondence from S. Briscoe, NIRB Executive Director to G. Missal, Vice-President, Nunavut Affairs for Tahera Diamond Corporation, Re: *Proponent Name Change to Project Certificate for the Jericho Diamond Mine Project [002]*. Letter dated January 19, 2005.

[2] Correspondence from P. Strand, President, Shear, to S. Granchinho, NIRB Technical Advisor, Re: *Request to assign the Jericho Diamond Mine Project Certificate (No. 002) to Shear Diamonds (Nunavut) Corp.* Letter dated June 3, 2011.

Certificate [No. 002] in the name of Shear Diamonds (Nunavut) Corp.[3] In October 2012 the site was placed into temporary closure by Shear.

On March 8, 2013 Aboriginal Affairs and Northern Development Canada (AANDC, now Indigenous and Northern Affairs Canada) issued notice to Shear that due to continued failure to manage specific environmental issues on-site, AANDC's Contaminated Sites Program would be conducting periodic work at the Jericho Mine site to manage the specific issues noted. On January 22, 2014 the Minister of Aboriginal Affairs and Northern Development declared the site abandoned by Shear and assumed control of the site as per the *Nunavut Waters and Nunavut Surface Rights Tribunal Act and the Territorial Land Use Regulations*. As such, the Minister received the authority to "take any reasonable measures to prevent, counteract, mitigate or remedy any resulting adverse effect on person, property or the environment" at the site. While the Jericho Mine site remains in temporary closure under the management of Indigenous and Northern Affairs Canada (INAC) since being declared abandoned, the Jericho Project remains subject to the conditions of Project Certificate [No. 002] assigned to Shear.

2.1 Site Stabilization

On September 30, 2016 the NIRB received a referral to screen INAC's proposed "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058) from the Nunavut Planning Commission. The project proposed remediation and stabilization works at the Jericho site with the goal of restoring the abandoned site to an environmentally safe condition, stabilizing the area to prevent water accumulation, and preventing the environmental migration of contaminants into surrounding ecosystems. Following a public commenting period and subsequent consideration by the Board, on December 22, 2016 the NIRB issued its Screening Decision Report for the project, approving the stabilization activities as proposed. On April 21, 2017 the NIRB received a revised summary of stabilization works to be conducted at the Jericho site which were considered to be within the original scope as assessed. On July 24, 2017 the NIRB issued a Screening Decision Report for its assessment of an amendment to INAC's stabilization project ("Jericho Site Stabilization - Amendment"), approving additional works and activities proposed as part of the overall stabilization undertaking.[4]

See Section 1.1 of the NIRB's 2016-2017 Monitoring Report for the Jericho Diamond Mine Project for additional details related to the scope of approved activities as part of INAC's "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058).

[3] Project Certificate [No.: 002] Amendment #2, issued via correspondence from R. Barry, NIRB Executive Director to P. Strand, Shear President, Re: *Proponent Name Change to Project Certificate for the Jericho Diamond Mine Project [002]*. Letter dated August 23, 2011.
[4] For additional information, access the NIRB's public registry at www.nirb.ca using the following search criteria: Project Name: Jericho Mine Site Stabilization – Amendment, NIRB File No.: 16UN058, Application No.: 125150

3. Objectives and Purpose of Site Visit

In accordance with sections 12.7.1 and 12.7.2 of the Nunavut Agreement as well as the Project Certificate [No. 002], the NIRB is responsible for the establishment of a monitoring program for the Project, which includes conducting periodic site visits. One objective of the NIRB's site visit is to determine whether and to what extent the land or resource use in question is being carried out within the predetermined terms and conditions (Nunavut Agreement, Subsection 12.7.2(b)) as outlined in the NIRB Project Certificate. An additional objective of the site visit was to assess the status of the remediation and stabilization works as approved under NIRB File No. 16UN058. Where possible, observations made from the site visit shall be incorporated into the measurement of relevant project effects.

Prior to the 2017 site visit, the NIRB's Monitoring Officer read previous project-specific and related correspondence, plans, and reports, which specifically included consideration of the following documents:

- Various documents provided by Shear in 2011, including:
  - Aquatic Effects Monitoring Plan;
  - Care and Maintenance Plan, and
  - *Draft* Air Quality Monitoring Program.
- NIRB Project Certificate [No. 002], 2016 Board Recommendations, and 2016 Monitoring and Site Visit Reports;
- Indigenous and Northern Affairs Canada (INAC) annual submissions, including the 2015 Inspection Report, INAC's response to the NIRB's 2016 Board Recommendations, 2016 Water Resources Inspection Report, and 2016 Water Analysis Results;
- Fisheries and Oceans Canada's (DFO) response to the NIRB's 2016 Board Recommendations;
- NIRB's Screening Decision Reports for NIRB File No. 16UN058 and related documentation; and
- Correspondence with relevant parties.

4. 2017 Site Visit

The 2017 site visit was conducted by Davin St. Pierre, NIRB Monitoring Officer for the Jericho Diamond Mine Project (the Monitoring Officer). On August 22, 2017 the NIRB Monitoring Officer accompanied representatives from the Nunavut Water Board (NWB), the Kitikmeot Inuit Association (KIA), DFO, INAC, Public Works and Government Services Canada (PWGSC), and site remediation contractors on a day trip from Yellowknife, Northwest Territories to the Jericho Mine site. The group was met by contractor representatives who were on-site actively conducting stabilization and remediation activities. Upon arrival at the site, the group established a tentative schedule for the day based on the participants' various priorities, established basic safety protocols to be followed throughout the day, and took part in a brief site

safety presentation. The site visit was led by representatives of INAC, PWGSC, and the contractors.

The NIRB's assessment of the site focused on general site conditions, the status stabilization activities under NIRB File No. 16UN058, observations related to compliance with the NIRB Project Certificate [No. 002], and included visual observation of the following features:

- airstrip and roads;
- fuel storage areas, generator enclosures, pump stations, and berms;
- non-hazardous and hazardous waste areas and receptacles;
- stockpiles and waste rock piles;
- mine pit and berms;
- dams and water diversion structures;
- pump house and jetty; and
- processed kimberlite containment area (PKCA).

4.1 General Observations

The Monitoring Officer noted that although the Jericho Mine site was occupied by a small contractor camp undertaking stabilization activities, site debris and garbage was generally contained within waste receptacles or in specific zones. As the contractor on-site was actively managing areas of fuel and/or chemical contamination through removal and storage, several areas of concern identified in the past appeared to be undergoing remediation and stabilization. For additional information related to fuel storage refer to Section 4.2.6 of this report. As noted in 2016, the Monitoring Officer observed during the site visit that select structures were beginning to show signs of weathering due to seasonal environmental effects and that without intervention, the structures could continue to deteriorate and potentially contribute to contamination in the respective areas.

Photo 1: Contractor soft camp located adjacent to the former Jericho camp

Photo 2: Deteriorating structures located at the airstrip (left) and near the main site (right)

4.2 Project Certificate Terms and Conditions

Sections 4.2.1 through 4.2.10 of this report relate to the monitoring of specific components as required by the Jericho Diamond Mine Project Certificate. The following discussion of terms and conditions within the Project Certificate [No. 002] are those which could be verified by direct observation due to the absence of Shear staff at the Jericho site and as no active mining operations were being undertaken when the NIRB 2017 site visit occurred. At the time of the site visit, the NIRB had received no correspondence from the Proponent during the annual monitoring period.

4.2.1 Atmospheric Monitoring

Condition 5 of the Jericho Project Certificate states:

> *The installation of an atmospheric monitoring station to be funded and installed by Tahera, to obtain site-specific meteorological data. This station shall meet the requirements of Environment Canada air quality experts and focus if possible on dust from roads and blasting, and windblown dust from stockpiles.*

During the 2015 site visit the NIRB Monitoring Officer observed two non-operational standing dustfall monitoring stations (see Photo 3 and Photo 4); however, similar to correspondence in 2016, INAC confirmed that no dustfall monitoring was conducted on-site during the reporting year.

Photo 3: Dustfall monitoring station seen at the West dam as seen during the 2015 site visit

Photo 4: Dustfall monitoring station near East dam and to the left of the processed kimberlite containment area as seen during the 2015 site visit

During past site visits, INAC indicated that throughout winter months it was evident from visible dust traces in the snow that fine dust particles from the PKCA do not remain entirely within the containment facility. As the 2017 site visit occurred during a period with no snow, the Monitoring Officer was not able to observe past areas noted to be affected by the dispersed dust. However, the stabilization efforts undertaken to cover the PKCA with coarse material appeared to perform effectively (see Photo 5 and Photo 6). The Monitoring Officer also confirmed that select containment structures (e.g., tire walls) would remain on-site as a mitigation measure to reduce the movement of the fine dust particles, which appeared to be functioning.

Photo 5: Coarse aggregate (material on right) being applied over processed kimberlite tailings (material on left)

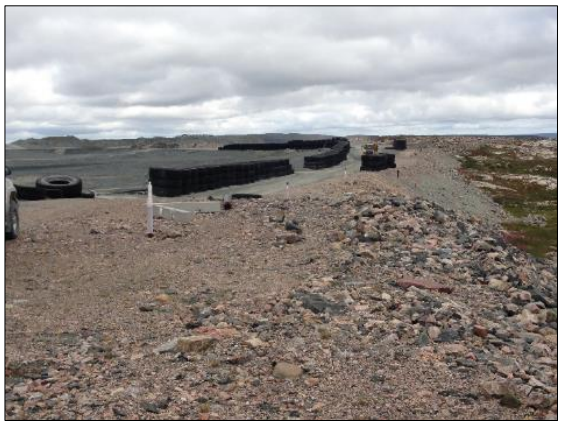

Photo 6: Tire berm adjacent to Cell A of the PKCA

The Monitoring Officer noted that the coarse cover material placed in Cell A of the PKCA appeared to encapsulate the PKCA effectively as compared to past methods of containment. However, trace fine materials were observed in the coarse cover material which may require further observation to ensure short- and long-term effectiveness. As noted in the past, the Monitoring Officer observed that the silt curtain deployed in the southeast pond was still installed.

Photo 7: Silt curtain in the southeast pond

4.2.2 Noise Monitoring and Mitigation

Condition 8 of the Jericho Project Certificate states:

> *For noise abatement, Tahera shall employ industry best practices to protect people and wildlife from mine activity noise, including vehicles and aircraft. The final noise abatement plan shall be filed with NIRB's Monitoring Agent. Industry requirements for low-level flying should be maintained.*

As the site is non-operational, there were no observed noise monitoring or mitigation activities being undertaken related to mining-specific activities. Noise was, however, observed from select stabilization-related operations including vehicle, heavy machinery, and equipment use, power generation, personnel movement, and aircraft transport.

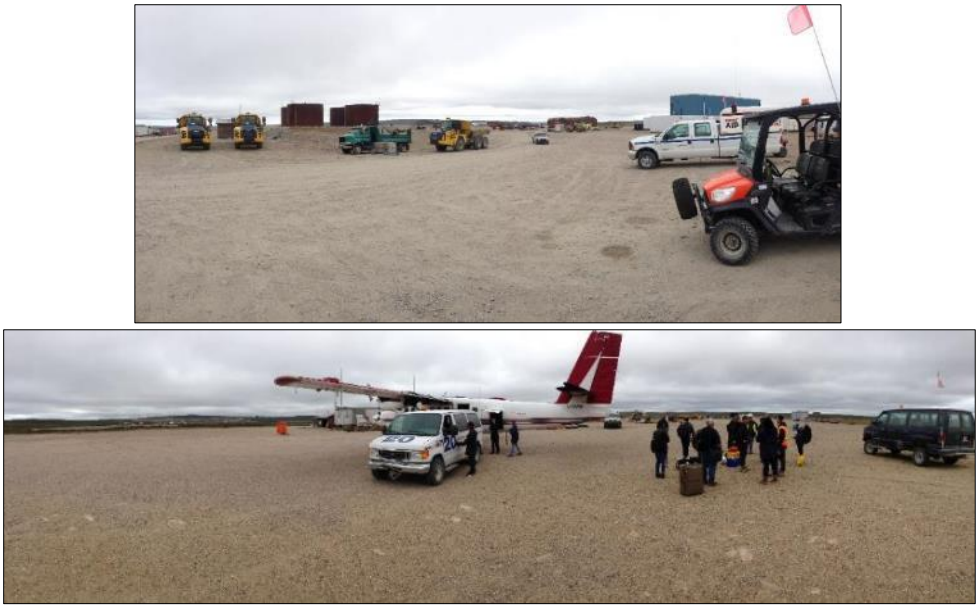

Photo 8: Vehicles and heavy machinery being used for remediation and stabilization operations (above); aircraft used for site transport and contractor crew changes (below)

4.2.3 Wildlife Monitoring and Mitigation

Conditions 3 and 9 through 18 of the Project Certificate [No. 002] outline operational and monitoring requirements with regards to wildlife and birds. During the 2017 site visit the NIRB Monitoring Officer was informed that active wildlife monitoring was being undertaken by the contractors on-site. Although no wildlife, outside of various bird species, were observed during the site visit, INAC noted that bear and other wildlife sightings had occurred throughout the summer period. The Monitoring Officer observed various wildlife deterrence measures being employed by the stabilization contractors, including site hardening measures (e.g., closed camp, electric fencing) and waste management procedures. During previous site visits, INAC staff noted that casual observation by staff and others identified wolves, caribou, arctic hare, arctic foxes, and birds in the project area.

The NIRB did not receive any wildlife-related monitoring data from Shear during the 2016-2017 reporting period.

Condition 13 of the Jericho Project Certificate states**:**

> *Tahera shall submit plans to regulatory authorities to include measures that will ensure caribou are not harmed, entrapped, or frightened by any project activity. Tahera shall do everything it can to ensure that caribou do not fall into pits, or slip on roads; this includes the requirement that Tahera use whatever means it finds necessary including ramps and crossings to assist in the free movement of caribou and construction of berms or fences where appropriate to prevent accidents involving wildlife.*

No caribou were observed during the site visit. Although the alteration of site features could alter the navigable landscape through the area, the modifications being undertaken did not appear to significantly deviate from existing potential movement corridors. Neither the Proponent nor INAC identified any constraint to movement related to site infrastructure. The berm surrounding the pit appeared to be intact, except for berm disturbances in areas where water management features were being rerouted during stabilization activities, and there were no visible traces of wildlife in the vicinity of the pit during observation.

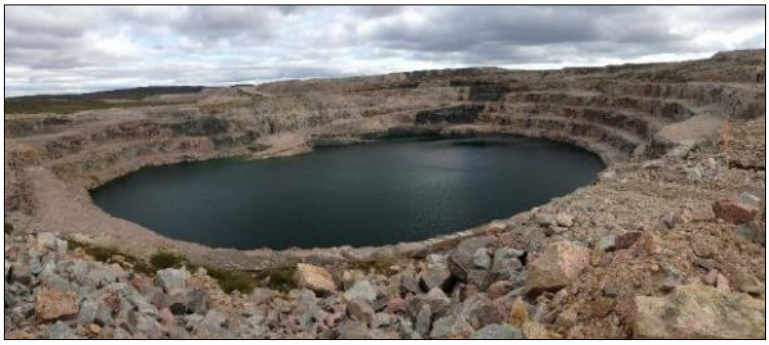

Photo 9: View of the berm surrounding the open pit as seen during the 2017 site visit

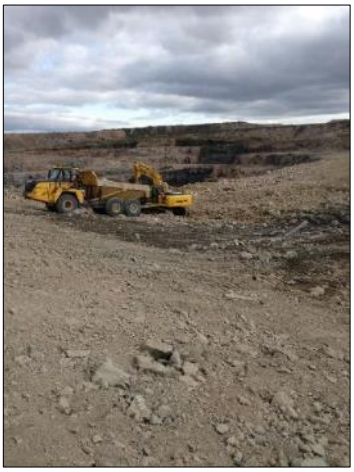

Photo 10: Heavy machinery undertaking earthworks near the open pit to reroute the C1 diversion

Condition 14 of the Jericho Project Certificate states:

> *Tahera shall take special care to avoid disturbing nesting sites of any species in the Project area. Sites within 500 meters of the Project area should be also located, marked, and reported by Tahera to NIRB's Monitoring Agent.*

During the site visit the Monitoring Officer observed several waterfowl species flying between site features. The nest on top of an air vent connected to the mill, identified by the Monitoring Officer during the 2016 site visit, appeared to be visibly intact, although not active. No other nesting sites were observed on-site.

Photo 11: Bird nest on mill vent as observed during the 2016 site visit

4.2.4 Blasting Activities and Impacts Mitigation

Conditions 9 and 26 through 28 of the Project Certificate [No. 002] outline requirements for activities relating to blasting activity and to the use and storage of explosives on-site.

Condition 27 of the Jericho Project Certificate states**:**

> *All blasting constituents (dynamite, ammonium nitrate, or other components), and any accelerants besides fuel, shall be stored in covered and isolated buildings, well marked as being dangerous. Blasting materials buildings shall be protected according to industry standards. Ammonium nitrate that is spilled must be cleaned up immediately.*

Mining-related blasting activities are not currently being undertaken on-site, although explosives were used prior to the site visit as part of the supplemental activities approved for the "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058) to loosen the core of the previously installed West Dam (see Photo 12). INAC confirmed that all blasting had been completed prior to the site visit and that it was not storing any blasting materials on-site. Due to time constraints

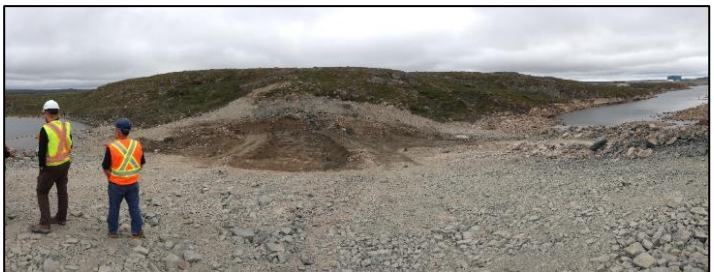

Photo 12: Breached segment of the West Dam where blasting occurred as part of stabilization operations

during the site visit, the Monitoring Officer did not visit the emulsion plant.

4.2.5 Winter/Seasonal Roads

Conditions 32 and 33 of the Project Certificate [No. 002] outline requirements in relation to winter roads and the movement of materials across winter or other roads. Since Shear last indicated that it had no plans to construct any winter or ice roads, the NIRB has received no further plans from the Proponent for such an activity. As the Jericho Mine site is currently non-operational and the Proponent does not currently occupy the site, no observations were made

regarding the movement of materials across site roads outside of activities related to stabilization and remediation operations.

4.2.6 Fuel Storage

Condition 34 of the Jericho Project Certificate states:

> *All fuel storage areas shall be bermed and meet regulatory requirements.*

As part of the stabilization activities being undertaking by INAC under NIRB File No. 16UN058, contractors on-site were conducting substantial works related to fuel storage areas during the 2017 site visit. Fuel tanks within Phase 1 of the main fuel tank farm had been purged, cleaned, removed, and stored on-site prior to the visit to allow room for the consolidation and storage of contaminated soils (see Photo 13 and Photo 14). INAC indicated that the contaminated soils, identified through past and ongoing testing at various locations on-site, would be collected, covered with a liner, and capped with coarse processed kimberlite within the Phase 1 berm for long-term storage. Based on the amended scope of remediation works being undertaken, following the cleaning and removal/storage of fuel tanks on-site, and collection of contaminated soils, INAC indicated that the majority of the berms (except for the former Phase 1 tank farm berm) would be breached to avoid seasonal water accumulation.

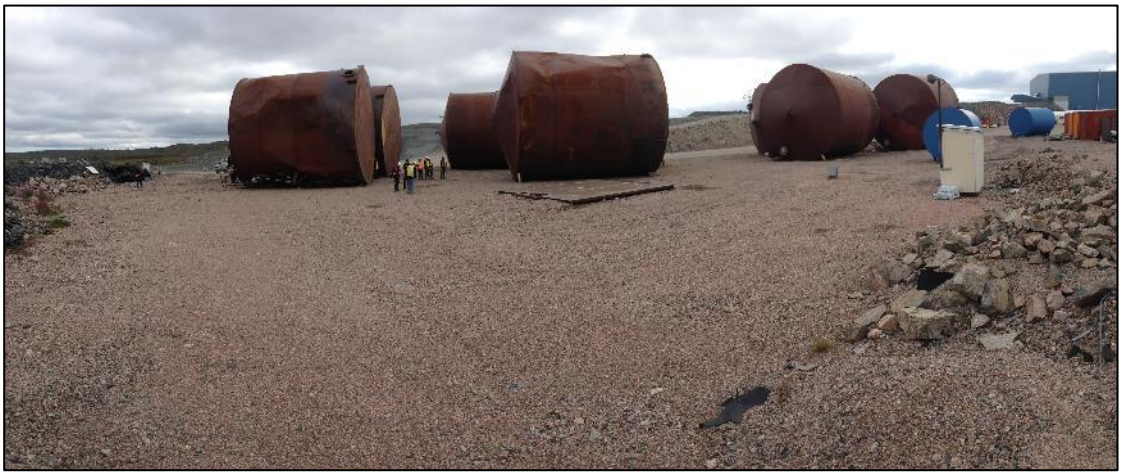

Photo 13: Remediated bulk fuel tanks storage location adjacent to the truck shop

Photo 14: Contaminated soils stored in former Phase 1 tank farm berm to be capped and covered for long-term storage

Remaining fuel from one (1) of the four (4) tanks within Phase 2 of the main fuel tank farm was being utilized for remediation operations. INAC indicated that the bulk fuel tanks within the Phase 2 main fuel tank farm would be purged of their remaining fuel following operations, cleaned, and would remain in-place within the breached berm area due to their size (see Photos 15 through 18). Prior to completion of the stabilization program, INAC indicated that all remaining fuel on-site would be purged and burned off using an on-site incinerator, except for four (4) drums of diesel fuel and the airstrip camp tank. INAC added that due to encountering additional fuel on-site and technical difficulties with the on-site incinerator, additional incineration may be required during the summer of 2018 to complete the disposal of fuel.

Photo 15: Bulk fuel tanks to remain in-place within Phase 2 of the main fuel tank farm

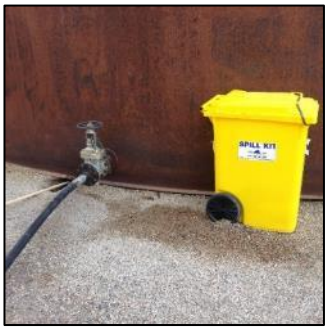

Photo 16: Spill kit located in the Phase 2 main fuel tank farm

Photo 17: Former bulk fuel tank storage area near generators.

Photo 18: Incinerator (green stack) being used for burning remaining fuel and liquids (right in photo) and bulk fuel storage tanks (left in photo)

The Monitoring Officer observed several locations during the 2017 site visit where fuel was stored in appropriate temporary containment berms to support site activities. The temporary berms appeared to be well maintained and monitored, as barrels and materials contained within seemed to be well arranged, upright, and effectively covered to limit any potential transport of materials or release of contents into the berms and/or surrounding environment. During the site visit, INAC confirmed that the remaining electrical generators from the Jericho Project would be decommissioned to ensure environmental stability, and stored on-site.

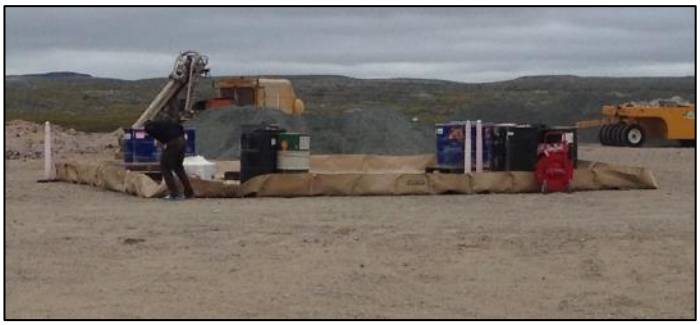

Photo 19: Temporary berm containing fuel barrels near the airstrip

Photo 20: Fuel barrel and containment berm located in the stabilization contractor's soft camp

4.2.7 Water Quality and Aquatic Monitoring

Conditions 6, 29 and 30 of the Project Certificate [No. 002] require the Proponent to establish and participate in a water quality monitoring program. Condition 6 of the Jericho Project Certificate states**:**

> *Tahera shall implement a site-specific ecosystem based water monitoring program, which it will fund. Tahera will also meet the requirements of regulators including the Nunavut Water Board and take advice from KIA as to site selection of this ecosystem based water quality monitoring program.*

As observed during previous site visits, the water within the open pit continues to rise annually (see Photo 21 through 24). Compared to past site visits, the Monitoring Officer observed that water coloration appeared to be more consistent with nearby natural waterbodies. INAC estimated during the 2016 site visit that at the current rate of infiltration, it would take 40 to 42 years for the open pit to fill and resemble a lake. As part of the stabilization activities approved under NIRB File No. 16UN058, the contractors on-site were actively removing the C1 stream diversion to restore natural water flow back to the pit area which would accelerate the pit infill, estimated at 11 to 15 years. Additionally, approximately 58,000 cubic metres (m^3) of water was pumped from Cell B/C into the open pit prior to the site visit. INAC indicated that the discharge was approved by the INAC inspector and that all discharges from Cell B/C met discharge criteria without treatment. For additional discussions related to the open pit see Section 4.2.8. As part of camp operations, the contractors on-site were actively treating greywater using an on-site constructed system which consisted of three (3) separate treatment sumps, pumps, and filters (see Photo 25).

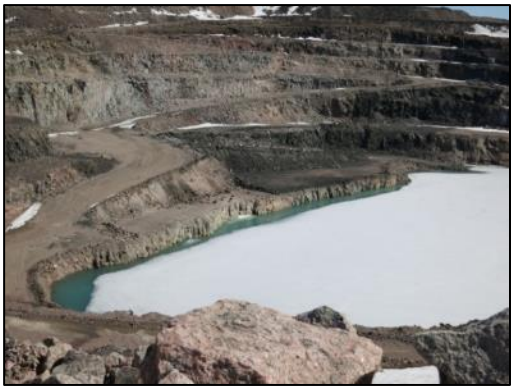

Photo 21: Water level of the open pit as seen during the 2014 site visit

Photo 22: Water level of the open pit as seen during the 2015 site visit

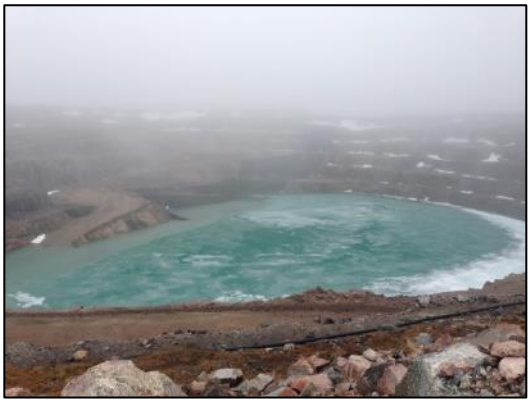

Photo 23: Water level of the open pit as seen during the 2016 site visit

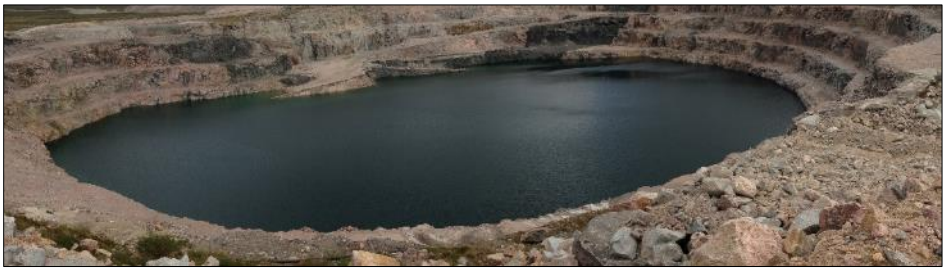

Photo 24: Water level of the open pit as seen during the 2017 site visit

Photo 25: On-site water treatment system for contractor camp greywater

4.2.8 Water Diversion and Impacts to Fish Populations

Conditions 4, 7, 19, and 20 through 25 of the Project Certificate [No. 002] outline requirements of the Proponent in relation to site water management and recommendations for reducing impacts to fish populations in areas surrounding project activities. During the site visit, INAC noted that water had been transferred from Cell B/C over the West Dam, as done in the past, in order to continue with the stabilization activities. INAC indicated that approximately 233,000 m^3 had been pumped, and that no water treatment was required as the water met discharge criteria. Prior to the 2017 site visit, contractors had breached Divider Dyke A as well as the West Dam in order to promote water flow through the respective containment structures. Contractors had conducted blasting and excavation works as part of their breaching activities, as approved under NIRB File No. 16UN058. INAC noted that the West Dam breach would be excavated an additional 1.5 metres (m) to promote water movement, and that the water level in Cell B/C would be expected to rise approximately 1 m from the level observed. INAC added that rip rap would be added to the West Dam to fortify the exposed banks for eventual water

flow. The Monitoring Officer observed that a silt curtain had been deployed on the outflow of the West Dam breach to isolate the nearby environment from the displacement of silt and materials. INAC confirmed that no fish sampling had taken place during the past year.

Photo 26: West Dam breach as observed during the 2017 site visit

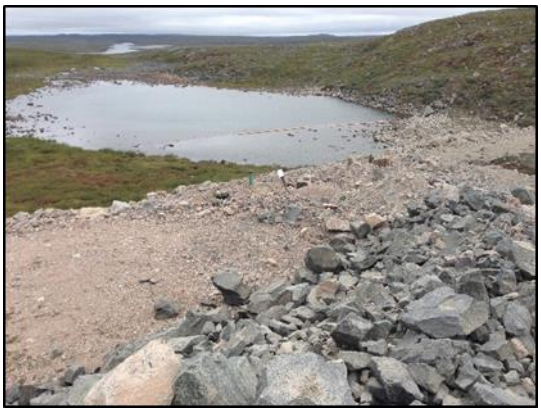

Photo 27: Silt curtain installed near the outflow of the West Dam

Although Divider Dyke A, separating Cell A and Cell B/C of the PKCA, had been breached as part of the stabilization activities, INAC noted that the dyke would continue to function as a filter dyke. INAC indicated that seasonally, a small pond would likely form at the base of Cell A and eventually flow through the dyke and breach into Cell B/C (see Photo 28 and Photo 29). As previously noted, as part of the stabilization activities approved under NIRB File No. 16UN058, the contractors on-site were actively removing the C1 stream diversion to restore natural water flow back to the pit area (see Photo 30). The removal of the C1 diversion was a measure proposed to increase the long-term stability of the water management structure, and to reduce the pit infill timeline, estimated at 11 to 14 years. As part of the works around the open pit, the contractors had also designed an outflow which would flow to Carat Lake when the pit reaches its final elevation.

Photo 28: Divider Dyke A breach

Photo 29: Divider Dyke A breach outflow looking into Cell B/C

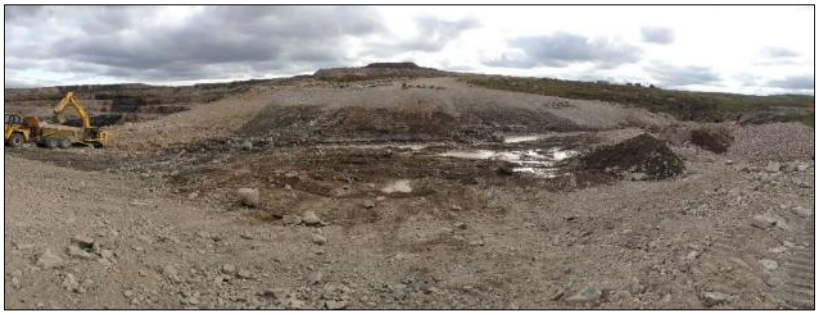

Photo 30: Heavy machinery removing C1 diversion near the open pit

Under the revised scope of activities approved under NIRB File No. 16UN058, INAC intended to remove the water intake jetty in Carat Lake on behalf of DFO to create additional fish habitat in the area. During the 2017 site visit, the jetty had not yet been altered, and DFO representatives noted that remediation of the jetty and associated features may not be undertaken due to unforeseen circumstances. It was clarified that should the activities not be undertaken, DFO would explore alternative options for creating additional fish habitat compensation in the area.

Photo 31: Water intake jetty in Carat Lake

4.2.9 Processed Kimberlite Containment Area

Condition 31 of the Jericho Project Certificate states**:**

> *Further detailed study by Tahera to ensure that water quality exiting the PKCA meets receiving water standards, including further study on the option of a divider/barrier or*

dyke in the PKCA to improve water quality. This information is to be provided to NIRB's Monitoring Agent, DFO, NWB and EC.

Due to the absence of mining operations and the production of wastewater, the PKCA remains mostly dry which limits the ability to conduct water sampling. As previously noted, during the 2017 site visit the Monitoring Officer observed that windblown dust from the PKCA appeared to be contained as coarse materials were being applied over the fine processed kimberlite, and containment structures previously installed were still in place. The Monitoring Officer noted during the site visit that trace fines within the coarse material cover could result in windblown dust and would require monitoring to confirm its short- and long-term effectiveness. INAC indicated that the tire berm would remain around the PKCA following the completion of the stabilization operations. Ground stability within the PKCA appeared to be improved based on past observations as heavy machinery were able to conduct stabilization works without any apparent difficulties.

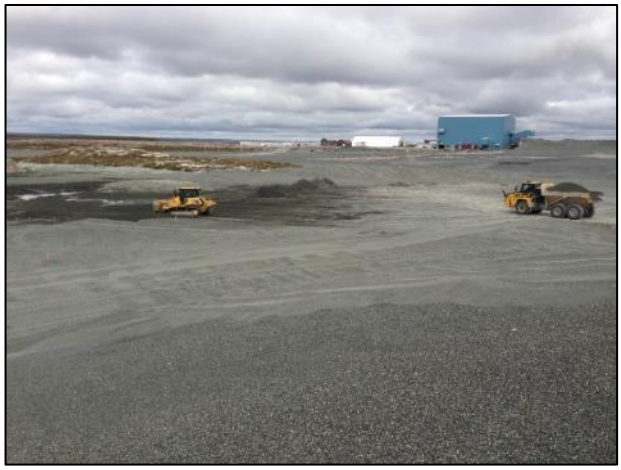

Photo 32: Coarse material being applied over the PKCA

4.2.10 Waste Management

Condition 35 of the Jericho Project Certificate states:

> *Waste management must be controlled in such a way that reduces or eliminates the attraction to carnivores or raptors. Fencing and other suitable deterrents shall be employed in all landfills and waste storage areas. A final waste management plan shall be filed with regulatory authorities including the NWB and NIRB's Monitoring Agent.*

Condition 40 of the Jericho Project Certificate states:

> *Tahera shall enter into written arrangements with its contractors to ensure all site debris is cleaned up off the lands including wind-blown debris.*

As previously noted, although the Jericho Mine site was occupied by a small contractor camp during the 2017 site visit, the Monitoring Officer observed that waste was generally stored within waste receptacles located on-site or was organized in segregated zones within waste storage areas. During the site visit INAC indicated that all hazardous waste was collected and would be packaged and back-hauled as part of the site remediation and stabilization activities. Inert and non-hazardous materials, including structures, clean tanks, and miscellaneous equipment, would remain on-site.

Photo 34: Scattered debris adjacent to the truck shop

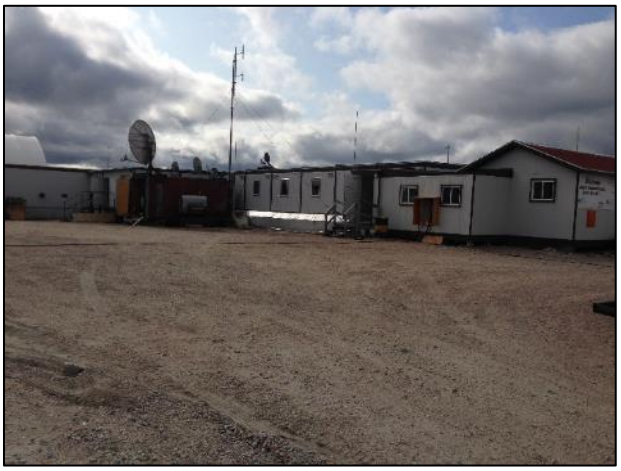

Photo 33: Jericho hard camp and other structures to remain in place

During previous site visits, barrels containing unknown materials were observed in several locations throughout the site, including within the main fuel tank farm. Under the stabilization activities conducted on-site, contractors were actively collecting, cleaning, and storing empty barrels near the hazardous waste storage area. INAC indicated that washwater from the cleaning operations would be treated on-site or shipped off-site for disposal.

Photo 35: Barrel cleaning station near the hazardous waste storage area

The Monitoring Officer noted that barrels previous stored in the Phase 2 main fuel tank farm had been removed as part of the remediation operations and were being processed as part of the remediation contractor's cleaning operations.

Photo 36: Covered barrels containing waste material as seen during the 2016 site visit

Photo 37: Former barrel storage area in the Phase 2 tank farm as seen during the 2017 site visit

5. Findings and Summary

The Jericho Project Certificate [No. 002] terms and conditions require the Proponent to meet operational and maintenance requirements; however, due to the absence of Shear staff at site since the last site visit, the majority of these requirements still have not been met. Additionally, the NIRB Monitoring Officer observed no evidence of monitoring activities being undertaken by the Proponent at the Jericho site during the 2017 visit. As such, the Proponent remains in non-compliance with several terms and conditions, consistent with findings from past site visits.

During the 2017 site visit, the Jericho Mine site was undergoing active stabilization and remediation under INAC's approved "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058). The Monitoring Officer observed several alterations to site features and remediation activities, including alterations to water management structures, hazardous material areas, fuel storage areas, the open pit area, and the tailings storage area, which have the potential to increase the environmental stability of the site for the protection of nearby ecosystems, and decrease the volume of annual stabilization work required by INAC's Contaminated Sites Program.

The Jericho Project Certificate [No. 002] contains numerous terms and conditions which assign responsibilities for responsible authorities to provide assistance and expertise in designing and implementing the various site specific monitoring programs. Following the Minister of Aboriginal Affairs and Northern Development's declaration of the site as abandoned on January 22, 2014, the NIRB Monitoring Officer observed monitoring being undertaken during the joint 2017 site visit by personnel of various federal departments, the NIRB, the Nunavut Water Board, and the Kitikmeot Inuit Association.

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Date: October, 2017

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