



# 2017-2018 Monitoring Report for the Jericho Diamond Mine Project



**Nunavut Impact Review Board**

**File No.: 00MN059**

**Jericho Diamond Mine Project Certificate No. 002**

**October 2018**

**Report Title:** The Nunavut Impact Review Board's 2017 – 2018 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:** Jaida Ohokannoak

**Monitoring Period:** October 2017 – September 2018

**Date Issued:** November 1, 2018

**Photos by:** Jaida Ohokannoak and Kelli Gillard  
Nunavut Impact Review Board

**Cover photo:** Photos taken during the 2018 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 2017-2018 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 and 2018 remediation and stabilization works undertaken by Indigenous and Northern Affairs Canada (INAC)<sup>1</sup> under NIRB File No. 16UN058.

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<sup>1</sup> Indigenous and Northern Affairs Canada (INAC) was renamed Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) but INAC will be used in this document.

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 2017-2018 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<sup>2</sup>. 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* (NWNSTRA), 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<sup>3</sup>. 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.

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<sup>2</sup> Public Registry ID: 288095 and 280750

<sup>3</sup> Public Registry ID: 288072

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.<sup>4</sup> A Compliance Plan for the Jericho site was posted on the NWB’s public 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.<sup>5</sup> 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.<sup>6</sup>*

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.<sup>7</sup>

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) 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

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<sup>4</sup> Public Registry ID: 288124

<sup>5</sup> Author unknown, 2AM-JER1119 Compliance Plan. September 30, 2012.

<sup>6</sup> Public Registry ID: 288610

<sup>7</sup> Public Registry ID: 288611

environmental migration of contaminants into surrounding ecosystems.<sup>8</sup> 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).

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<sup>9</sup>. 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.

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 1: 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 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.

<sup>8</sup> Public Registry: [www.nirb.ca/project/125012](http://www.nirb.ca/project/125012)

<sup>9</sup> Public Registry: [www.nirb.ca/project/125150](http://www.nirb.ca/project/125150)

**Table 1: Process History for the NIRB's Monitoring of the Jericho Diamond Mine**

<b>DATE</b>		<b>ACTIVITY UNDERTAKEN</b>
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 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
2017	November	The NIRB issued its 2017 recommendations to Shear, INAC, and DFO.

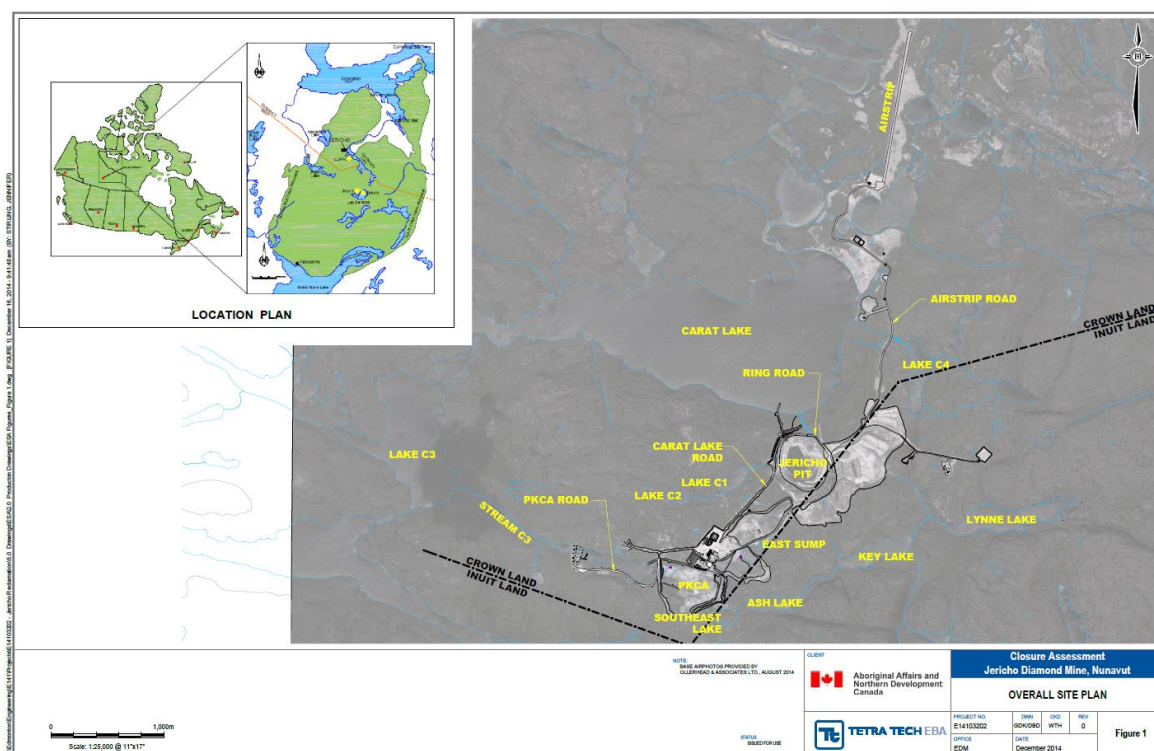


**Table 1: Process History for the NIRB's Monitoring of the Jericho Diamond Mine**

DATE	ACTIVITY UNDERTAKEN
2018 January	DFO submitted its response to the NIRB's 2016-2017 recommendations.
2018 May	The NIRB received INAC's Annual Report for remediation and stabilization works conducted at the Jericho site (NIRB File No. 16UN058).
2018 June	The NIRB conducted its 2018 site visit

## 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 waste rock piles, as well as a camp and support buildings to house approximately 200 persons, fuel tank farm with capacity for 13 million litres of fuel<sup>10</sup>, an airstrip, and roads connecting site infrastructure. The mine is primarily located on Crown land with access and other infrastructure, including an explosives storage area and emulsion plant, as well as the waste rock piles on Inuit Owned Land.



**Figure 1: Overall Site Plan<sup>11</sup>**

<sup>10</sup> Decommissioned and remediated as part of 16UN058 “Jericho Site Stabilization Project”

<sup>11</sup> Public Registry ID: 305395

## 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 2017 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 *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (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.<sup>12</sup> The site has since been declared abandoned, and under the stewardship of INAC. On November 27, 2017 the Board issued its most recent set of recommendations to Shear, INAC (formerly Aboriginal Affairs and Northern Development Canada), and Fisheries and Oceans Canada (DFO) requesting that they provide an update to the NIRB on the activities that are being undertaken to manage the risks identified at the Jericho site, including management of site water during freshet, tailing and tailings facility management, and fuel and hazardous waste storage and containment, any fish habitat compensation works being undertaken and ensuring that secondary containment, fencing and suitable wildlife deterrents are incorporated into ongoing management and site stabilization activities. (see [Section 2.5 - Responses to the NIRB's 2017 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

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<sup>12</sup> Public Registry ID: 288133

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 Project and request by Shear that the NIRB reassign the Project Certificate [No. 002];<sup>13</sup> through the renewal process for the Type "A" Nunavut Water Board water licence;<sup>14</sup> and in person during the NIRB's 2012 Site visit.<sup>15</sup> 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.

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<sup>13</sup> Public Registry ID: 288072

<sup>14</sup> Public Registry ID: 288119

<sup>15</sup> Public Registry ID: 288459

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”.<sup>16</sup> 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.

### **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 March 20 – 21, 2018 in Kugluktuk.

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<sup>16</sup> Public Registry ID: 288072

## **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 2017-2018 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, 2016 and 2017 reporting years. Further as detailed in past site visit reports, Shear was not in compliance with requirements of Condition 35 which requires that fencing or suitable deterrents be employed at the landfills or waste storage areas on site.

INAC however has submitted a wildlife log from their 2017 field season (May to October) as part of their Annual Reporting requirements for NIRB File No: 16UN058 "Jericho Diamond Mine Site Stabilization Project".

### **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 30<sup>th</sup> 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 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 as well as the waste rock piles are located on Inuit Owned Land. As outlined in the 2018 Site Visit Report, (see [Appendix I](#)), a KIA representative was unable to attend the June 6, 2018

Jericho Mine site visit attended by the NIRB Monitoring Officer. No further updates have been received from the KIA with regards to the project site conditions on IOL.

#### **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.

INAC's management and site stabilization activities 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 May 30, 2018 the NIRB received the Jericho Diamond Mine Site Stabilization Project 2017 Annual Report<sup>17</sup> from INAC as required pursuant to the Monitoring and Reporting Requirement 2 of the Screening Decision Report, dated December 22, 2012 (NIRB File No: 16UN058). INAC's submitted a summary of the activities undertaken for the year, maps and photos of the site showing areas of remediation work, a summary of the wastes disposed of onsite and those transported for disposal offsite, details on the transportation activities a description of local hire and employee training, a summary of the community consultations undertaken, a wildlife observation log and an updated work plan for the following year.

#### Management of Water

##### *2017 Reporting Year*

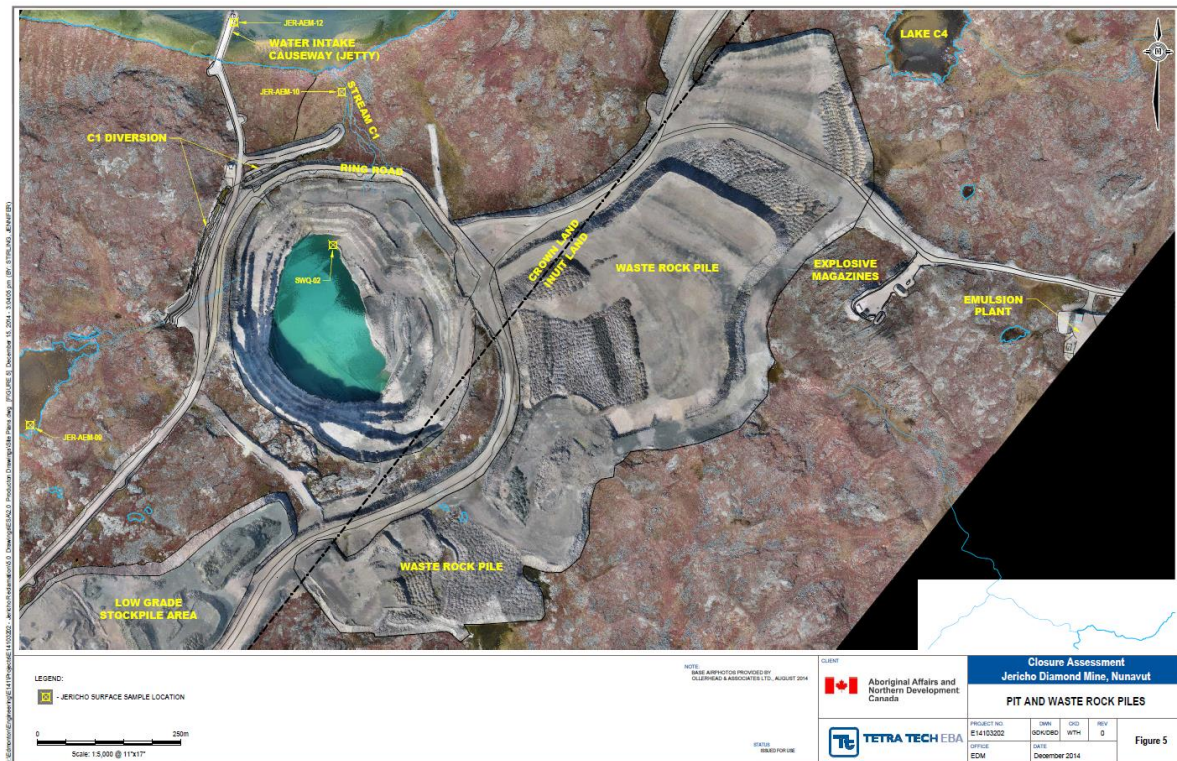
INAC's remediation goals include returning the water flow to its original state as much as practical. In 2017 they removed and plugged the C1 Diversion to re-route water into the

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<sup>17</sup> Public Registry ID: 318843



open pit. This will support the creation of a pit lake. They also breached the open pit side wall to eventually (once the pit lake is formed) allow the original natural flow of surface water into Carat Lake to be restored.

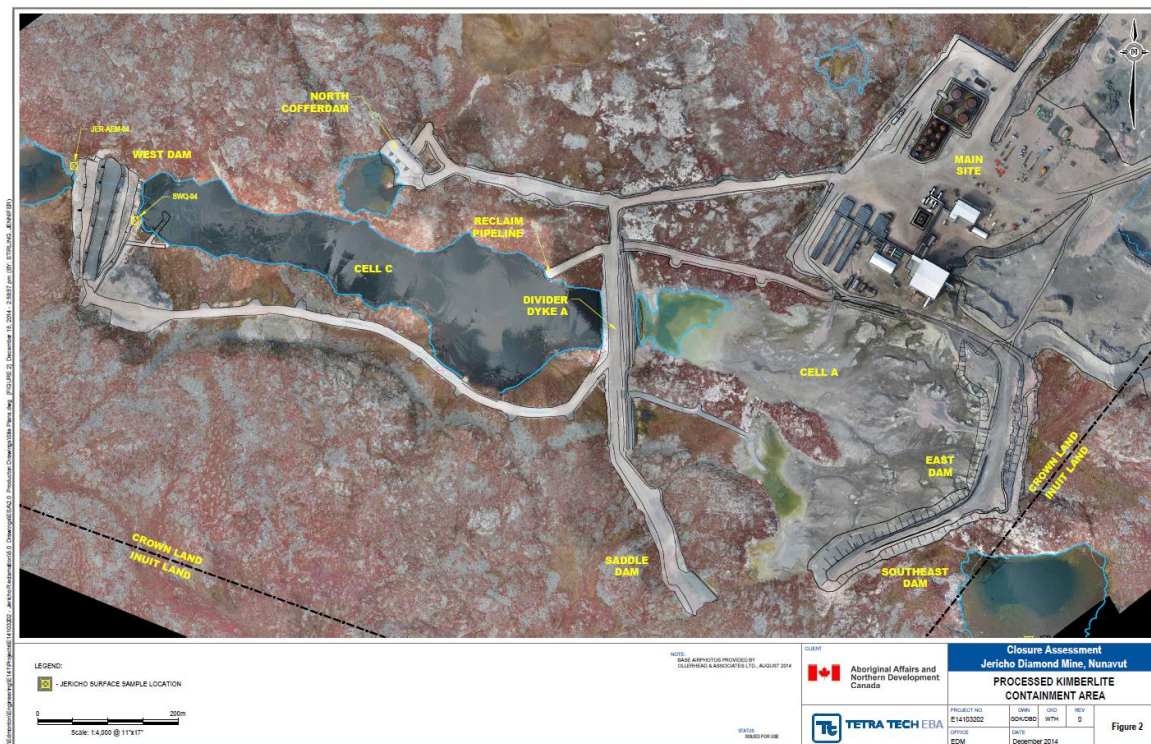


**Figure 2: Water Diversion Channels and Pit<sup>18</sup>**

Works also included grading the existing tailings in Cell A to allow water to flow in its original direction and have lowered the top and created a breach in Dyke A and have breached the West Dam to restore the original surface water flow. In 2017, 291,500,000 litres of clean water from Cell A and Cell C was tested, pumped and discharged downstream into the receiving environment.

A long-term Operation, Maintenance and Surveillance Plan is in development to for future monitoring of performance of dam breaches.

<sup>18</sup> Public Registry ID: 305395



**Figure 3: Processed Kimberlite Containment Area<sup>19</sup>**

## Management of Tailings

### *2017 Reporting Year*

Dust generated from the fine kimberlite tailings was identified as an issue. Remediation work the Process Kimberlite Tailings Area (PKTA) has included grade the existing tailings in Cell A to allow water to flow in its original direction (west) and capping the fine tailings with course grained tailings to prevent erosion and to prevent dust being transported by wind. In 2018, work to fill in some of the holes on the tailings cover will be completed.

A long-term Operation, Maintenance and Surveillance Plan is in development to for future monitoring of performance tailing cover.

## Management of Fuel Storage

### *2017 Reporting Year*

Prior to the 2017 field season there was fuel stored on-site in above ground storage tanks (mostly residual amounts) located mainly in the Tank Farm but also in other areas around site. There was drummed fuel storage near the heli-pad and the airstrip camp. In 2017 all

<sup>19</sup> Public Registry ID: 305395



the above ground fuel tanks and drums were cleaned and decommissioned, and the wash water treated. Some fuel was used in running heavy equipment (170,000 litres) and the residual fuels and waste oils were incinerated (305,000L) or shipped off-site for proper disposal. A small amount of drummed diesel fuel was left on site to be used to run equipment and generators and is being stored within the Truck Shop Building which has an in-ground sump to contain any fuel spills. Hazardous materials were consolidated, packaged and transported offsite for disposal at licenced facilities. All hydrocarbon contaminated soil (165 truck loads) were placed into a lined storage cell in the existing lined tank farm and covered with fine grained tailings.

## Wildlife

### *2017 Reporting Year*

INAC has submitted a wildlife log from their 2017 field season (May to October) as part of their Annual Reporting requirements for NIRB File No: 16UN058 “Jericho Diamond Mine Site Stabilization Project”. INAC has undertaken no formal wildlife monitoring, just observational (see [Appendix I](#)). No fencing or other suitable wildlife deterrents are located on the site.

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 2.6](#).

### **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.

Fisheries and Oceans Canada (DFO) attended the site visit in August 2017 of the current reporting year, however, were not planning a site visit in 2018.

Additional details pertaining to DFO’s response to the NIRB’s 2017 Board Recommendations can be found in [Section 2.6](#).

### **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. NIRB Site Visit**

The NIRB conducted a site visit on June 6, 2018. The NIRB's assessment of the site focused on general site conditions, the status of 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).

The NIRB's site visit report noted that Shear has not been conducting monitoring activities at (see [Appendix I](#)). Most of the terms and conditions of the Jericho Project Certificate are designed to manage impacts brought about by an operating mine, and as the site has not been in operations since 2008 and many of the terms and conditions are not relevant to current site stabilization activities being undertaken by INAC.

The stabilization and remediation activities at the site are considered complete. Areas of concern identified in the past particularly with regard to fuel and / or chemical contamination have been remediated. Hazardous materials have been transported off site. The Processed Kimberlite Containment Area (PKCA) has been capped with coarse tailings to prevent erosion and the West Dam and Divider Dyke A has been breached to allow free flow of water. The C1 Diversion around the pit has been re-routed into the open pit and an outflow was created for the pit lake that will flow into Carat Lake restoring the original natural flow of surface water. The contractor will return to site in the summer of 2018 to finish a few tasks that were unable to be completed before the snow fell including fixing a "hump of fold" in the hydrocarbon contaminated soil storage cell liner.

## **2.6. Responses to the NIRB's 2017 Recommendations**

As a result of the NIRB's findings through its 2016-2017 monitoring program, on November 27, 2017 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.

**TABLE 1 – NIRB 2017 Recommendations and Responses**

Board Recommendation	Response
<p>The Board requests that <b>Shear Diamonds (Nunavut) Corporation (Proponent)</b> provide the following outstanding submissions:</p> <ul style="list-style-type: none"> <li>a) 2010, 2011, 2012, 2013, 2014, 2015 and 2016 annual reports;</li> <li>b) Quarterly reports for 2010 through 2017; and</li> <li>c) Wildlife monitoring data from 2010-2017.</li> </ul> <p>The Board requests that the Proponent provide these outstanding reports within 90 days' receipt of the Board's recommendations.</p>	No response received from Shear
<p>The Board requires the <b>Proponent (Shear Diamonds (Nunavut) Corp.))</b> to provide a proposed plan of action to remedy the overall non-compliance with the Project Certificate No. 002, including non-compliance with Condition 34 which requires secondary containment around all fuel storage areas, Condition 35 which requires fencing or suitable deterrents around all waste storage areas.</p> <p>This information should be provided within 90 days' receipt of the Board's recommendations.</p>	No response received from Shear
<p>Recognizing the Proponent's past unresponsiveness, the Board request that <b>Indigenous and Northern Affairs Canada (INAC)</b> commit to ensuring that secondary containment, fencing and suitable wildlife deterrents are incorporated into ongoing management and site stabilization activities at the Jericho site, to achieve the objectives of Conditions 34 and 35 of Project Certificate No. 002.</p> <p>A response from INAC to this and other NIRB recommendations is requested within 90 days of receipt of the NIRB Monitoring Report.</p>	No response received from INAC
<p>The Board requests that <b>Fisheries and Oceans Canada (DFO)</b> provide the NIRB with an update regarding its revised strategy for undertaking fish habitat compensation works at the Jericho Mine site. With the update, DFO should inform the NIRB of its coordination works at the Jericho Mine site. Within the update, DFO should inform the NIRB of its coordination with Indigenous and Northern Affairs Canada (INAC) should their fish habitat compensation plans be proposed as part of other</p>	<p>DFO responded on January 18, 2018</p> <p>Due to unforeseen circumstances, the removal of the water intake jetty (as approved under INAC activities proposed under NIRB File No.: 16UN058) was not achieved; and</p>

<p>maintenance or stabilization works undertaken by INAC's ongoing site management function.</p>	<p>Currently working with INAC to towards potential alternative fish habitat compensation works.</p>
<p>The Board requests that <b>Indigenous and Northern Affairs Canada (INAC)</b> provide the NIRB with a detailed report of the stabilization works undertaken at the Jericho site under NIRB File No. 16UN058. The report should include details related to all activities conducted, results of the work, expected short and long-term management requirements, community consultation conducted or to be conducted, and an outline of the expected monitoring and management program. The Board requests that the report include, but not be limited to, the following information in addition to what is required by the Screening Decision Report for 16UN058. This report should be provided as part of the annual report to be submitted to the NIRB on or before December 31st of each year:</p> <ol style="list-style-type: none"> <li>Details related to water monitoring, sampling, treatment, and discharge activities conducted during the reporting year;</li> <li>Details related to earthworks conducted during the reporting year including modifications to water management structures, berms, dykes, and pads;</li> <li>Details related to stabilization activities in the open pit area;</li> <li>Details related to the covering of the Processed Kimberlite Containment Area;</li> <li>Details related to the collection and disposal of hazardous wastes;</li> <li>Details related to the collection, treatment/disposal of contaminated soils;</li> <li>Plans to manage deteriorating structures on-site;</li> <li>Details related to any other remediation activities undertaken and any additional hazards identified;</li> <li>Community consultation summaries; and</li> <li>Monitoring and management plans to ensure the environmental stability of the site and to ensure the effectiveness of the stabilization activities undertaken.</li> </ol>	<p>INAC provided annual report on May 30, 2018.<sup>20</sup></p>

<sup>20</sup> Public Registry ID: 318843

### 3.0 FINDINGS

During the 2017-2018 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 2018 Site Visit ([Appendix I](#)). DFO indicated that it remains in communication with INAC related to fish habitat compensation works, while INAC will continue to monitor the long-term stabilization of the project site.

### 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"<sup>21</sup>, 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.

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<sup>21</sup> Public Registry: 288611

Prepared by: Jaida Ohokannoak  
Title: Technical Advisor II  
Date: November 1 ,2018  
Signature:



Reviewed by: Kelli Gillard P.Ag.  
Title: Manager, Project Monitoring  
Date: November 1 ,2018  
Signature:



## **APPENDIX I**

### **2018 SITE VISIT REPORT**



# 2018 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**

**June 2018**

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**Report Title:** The 2018 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:** Jaida Ohokannoak, Technical Advisor II,  
Kelli Gillard, Manager, Project Monitoring

**Contact:** (867) 983-4609 or [johokannoak@nirb.ca](mailto:johokannoak@nirb.ca)

**Site visit date:** June 6, 2018

**Previous site visit:** August 22, 2017

**Photos by:** Jaida Ohokannoak and Kelli Gillard

**Cover photo:** Panoramic view of the Jericho Diamond Mine Project open pit.

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## 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 June 6, 2018 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.<sup>1</sup>

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.<sup>2</sup> On August 23, 2011 the NIRB issued Amendment #2 to the Project

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<sup>1</sup> Public Registry ID: 288095 and 280750

<sup>2</sup> Public Registry ID: 288072

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

On March 8, 2013 Aboriginal Affairs and Northern Development Canada (AANDC, renamed 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)<sup>4</sup> since being declared abandoned, the Jericho Project still 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.<sup>5</sup>

## **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

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<sup>3</sup> Public Registry ID: 288034 and 288075

<sup>4</sup> Indigenous and Northern Affairs Canada (INAC) was renamed Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), but for the purposes of this report the NIRB will continue to use INAC.

<sup>5</sup> For additional information, access the NIRB's public registry at [www.nirb.ca](http://www.nirb.ca) using the following search criteria: Project Name: Jericho Mine Site Stabilization – Amendment, NIRB File No.: 16UN058, Application No.: 125150

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 2018 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:

- NIRB Project Certificate No. 002, 2017 Board Recommendations, and 2017 Monitoring and Site Visit Reports;
- Indigenous and Northern Affairs Canada (INAC) annual submissions, including the 2017 Annual Report for the Jericho Diamond Mine Site Stabilization Project, 2015 and 2016 INAC Inspection Reports,
- Fisheries and Oceans Canada's (DFO) response to the NIRB's 2017 Board Recommendations;
- NIRB's Screening Decision Reports for NIRB File No. 16UN058 and related documentation; and
- Correspondence with relevant parties.

#### **4. 2018 Site Visit**

The 2018 site visit was conducted by Jaida Ohokannoak, NIRB Monitoring Officer for the Jericho Diamond Mine Project (the Monitoring Officer) and Kelli Gillard, Manager, Project Monitoring (MPM). On June 6, 2018 the NIRB Monitoring Officer and MPM accompanied the INAC Mine Inspector, on a day trip from Yellowknife, Northwest Territories to the Jericho Mine site. The group was met by the INAC contaminated sites team and Public Services and Procurement Canada (PSPC) (formerly Public Works and Government Services Canada) representatives who were on-site monitoring the status and results of the stabilization and remediation activities that had occurred the previous summer (2017).

The NIRB's assessment of the site focused on general site conditions, the status of 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 stabilization and remediation activities at the site are considered complete. Areas of concern identified in the past particularly with regard to fuel and / or chemical contamination have been remediated. Hazardous materials have been transported off site. The Processed Kimberlite Containment Area (PKCA) has been capped with coarse tailings to prevent erosion and the West Dam and Divider Dyke A has been breached to allow free flow of water. The C1 Diversion around the pit has been re-routed into the open pit and an outflow was created for the pit lake that will flow into Carat Lake restoring the original natural flow of surface water. The contractor will return to site in the summer of 2018 to finish a few tasks that were unable to be completed before the snow fell including fixing a “hump of fold” in the hydrocarbon contaminated soil storage cell liner. As noted in previous site visit reports, 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: Deteriorating structures*



*Photo 2: Scrap wood and metal*



## 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 2018 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 2018 site visit the NIRB Monitoring Officer observed no dustfall monitoring stations and INAC confirmed that no formal dustfall monitoring was conducted on-site during the reporting year only visual observations. They noted that in the past throughout the 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. During the site visit the Monitoring Officer observed very little dust on the snow and it appears stabilization efforts undertaken to cover the PKCA with coarse kimberlite material are performing effectively to reduce the dust compared to other methods in the past including freezing with water. ([Photo 3](#))



Photo 3: Very little dust on snow at PKSA



Photo 4: Tire berm used to mitigated dust deposition from PKSA

The Monitoring Officer also confirmed that select containment structures (e.g., tire berm) would remain on-site ([Photo 4](#)). They were originally installed as a mitigation measure to reduce the movement of the fine dust particles, but it was noted that they may not be entirely effective as a large amount of dust has been collecting in the pond behind them. The Monitoring Officer has



some concerns about future dust dispersion as the coarse kimberlite material will break down with time. Further observations will be required to ensure short- and long-term effectiveness of the coarse kimberlite cover (Photo 5). Discussions were had with INAC with regards to monitoring the PKSA and other techniques for stabilizing the site such as creating artificial boulder fields to encourage the creation of micro environments to support soil and vegetation establishment. The Monitoring Officer noted to INAC that at other mine sites nearby that natural re-vegetation (in particular grasses) establish quickly on processed kimberlite which will help with the stabilization of the PKCA. The Monitoring Officer encouraged INAC to monitor and report on any natural vegetation re-establishment.



*Photo 5: Coarse kimberlite cover on processed kimberlite tailings*

#### **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. The potential impacts from noise disturbance at the site is low and in the future will be mainly from aircraft travel to the site for monitoring. The majority of heavy equipment has been removed from the site and only a few working vehicles remain.



*Photo 6: Abandoned light duty vehicles*

#### **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 2018 site visit the NIRB Monitoring Officer was informed that no active wildlife monitoring was being undertaken on-site and was only observational when personnel were present on site. Although no wildlife, outside of various migratory bird species, and ground squirrels were observed during the site visit, INAC reported that several caribou, fox, hare, wolf, musk-ox, and grizzly bears had been seen throughout the summer and fall.<sup>6</sup>

The NIRB did not receive any wildlife-related monitoring data from Shear during the 2017-2018 reporting period.



*Photo 7: Geese in Cell B/C pond (left).*



*Raven hanging around vehicle (right)*

<sup>6</sup> Public Registry ID:317496

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 but several caribou had been observed by contractors in June through September along the airstrip as well as adjacent to or on the PKCA. Although the alteration of site features could alter the navigable landscape through the area, the Monitoring Officer did not identify any constraint to movement related to site infrastructure with the exception of the pit. The berm surrounding the pit was intact except for in areas where water management features were being rerouted during stabilization activities (Photo 8). The berm area was not very high or wide and the Monitoring Officer had some concern that there are no caribou deterrent features such as Enokhuk to divert caribou away from the pit area or around the mine site in general.



*Photo 8: View of the break in the berm surrounding the open pit*

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 many small tundra songbirds and geese species flying between site features or resting on visible water. There were no raptors or nests observed on the pit walls. The raptor nest that was previously identified in 2016 on the air vent

at the processing plant appeared to be abandoned as no birds were observed nesting there in 2017.

#### **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. INAC confirmed that all blasting had been completed prior to the site visit and that it was not storing any blasting materials on-site. The Monitoring Officer did not visit the ammonium nitrate storage facility or the emulsion plant during this site visit but was informed that they did not contain any blasting materials.



*Photo 9: Breached segment of the Divider Dyke A*

#### **4.3 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. INAC had originally proposed to mobilized and demobilize equipment and material for the site stabilization activities using the Joint Venture winter road extension from Ekati to Jericho; however, the road was never constructed due to contracting

timeline so equipment and material were removed using various types of aircraft. As the Jericho Mine site is currently non-operational and the Proponent does not currently occupy the site, no movement of materials along a winter road is expected.

#### **4.3.1 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 undertaken by INAC under NIRB File No. 16UN058, contractors on-site conducted substantial works related to fuel storage areas. Fuel tanks within Phase 1 of the main fuel tank farm have been purged, cleaned, removed, and are being stored on-site ([Photo 10](#)). The contaminated soils, identified through past and ongoing



*Photo 10: Remediated Fuel Tanks*

testing at various locations on-site, have been collected, covered with a liner, and capped with coarse processed kimberlite within the Phase 1 berm for long-term storage. The contractor will be returning to site in the summer of 2018 to complete the task by fixing the fold in the top liner ([Photo 11](#)). The bulk fuel tanks within the Phase 2 main fuel tank farm have been purged of their remaining fuel and cleaned, and are to remain in-place within the breached berm area due to their size. The majority of the berms (except for the former Phase 1 tank farm berm) have been breached to avoid seasonal water accumulation ([Photo 12](#)). INAC indicated that all remaining fuel on-site has been purged and burned off using an on-site incinerator, except for a few drums which are being stored in truck shop building. All drums have been emptied, cleaned, and stacked ([Photo 13](#)).





*Photo 11: Phase I berm containing contaminated soil*



*Photo 12: Phase II fuel tanks with breach in berm*



*Photo 13: Cleaned Fuel Drums*

#### 4.3.2 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 (Photo 14). The pit lake was frozen at the time of the site visit and no free flowing water was observed in any of the streams. 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 C1 stream diversion was removed and plugged, the pit side wall was breached and a channel was restored to allow the original natural water flow back to the pit area which would accelerate the pit infill, estimated at 2 to 3 years (Photo 15 and Photo 16). A breach was also made in the north side of the open pit side wall to restore the natural flow of water back into Carat Lake once the pit reaches its final elevation (Photo 17). For additional discussions related to the open pit see [Section 4.2.8](#).



*Photo 14: Open Pit*



*Photo 15: Removal of C1 Diversion and breach of pit wall to re-route water into open pit*



*Photo 16: Outflow from pit lake into Carat Lake*

### ***4.3.3 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 in the summer of 2017 water had been transferred from Cell B/C over the West Dam (Photo 17),



*Photo 17: West Dam*



and that no water treatment was required as the water met discharge criteria. Divider Dyke A as well as the West Dam were breached in order to promote water flow through the respective containment structures (Photo 18 and Photo 19). Water was not expected to flow through this season and INAC noted that Divider Dyke A will likely continue to act as a filter dyke into the future as very little ponding was occurring in Cell A and what discharge will likely filter through to Cell B/C. INAC confirmed that no fish sampling had taken place during the past year and is not part of the *future monitoring plan*.



*Photo 18: Breach in Divider Dyke A*



*Photo 19: Ponding in PKSA Cell A behind Divider Dyke A*

As part of the stabilization activities approved under NIRB File No. 16UN058, the C1 stream diversion was plugged and removed and the channel was restored to allow the natural water flow back to the pit area (Photo 15). This was not a fish bearing stream. The Monitoring Officer also noted that there were several culverts along the road and was informed that none of these were fish bearing streams.

As reported in 2017 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 Fisheries and Oceans Canada (DFO) to create additional fish habitat in the area. The jetty has not been altered and the proposed activities will not be undertaken, as per the direction from DFO.

#### ***4.3.4 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. Ground stability within the PKCA is able to support heavy machinery and the coarse rejects cover was able to be applied without any apparent difficulties ([Photo 20](#), [Photo 21](#), [Photo 22](#), [Photo 23](#)). Very little water is expected to flow through the PKCA containment cells into the receiving environment by the West Dam. Previous water quality testing indicated the water quality met discharge criteria and did not need to be treated, therefore no future water quality monitoring will be conducted at the West Dam prior to water being allowed to discharge into the receiving environment.

As previously noted, during the 2018 site visit the Monitoring Officer observed that windblown dust from the PKCA appeared to be contained by the coarse material cover applied over the fine processed kimberlite, and the containment structures (e.g., tire berm) previously installed were still in place. The Monitoring Officer has some concerns about future wind-blown dust as the coarse material will break down with time and will require further observation to ensure short- and long-term effectiveness (See Section 4.2.1).



*Photo 20: PKSA*



*Photo 21: Cell A PKSA*



*Photo 22: Cell B/C*



*Photo 23: PKSA as seen from the air (Cell A bottom of photo)*

#### **4.3.5 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.*

During the 2018 site visit, there were only a small group on site staying in the airport building for a few days and they were backhauling all their waste.

INAC indicated that all hazardous waste was collected, packaged, and back-hauled off site to licenced facilities in 2017 and that wash water from the cleaning operations was treated on-site and/or shipped off-site for disposal. Inert and non-hazardous materials, including structures, clean tanks, clean barrels and miscellaneous equipment, are to remain on-site. This includes the camp which was previously planned to be deconstructed and landfilled. The Monitoring Officer observed that some of these structures, particularly the soft sided spring buildings are deteriorating.



*Photo 24: Contaminated and Hazardous Site Sign*



*Photo 25: Spills at location of temporary contractor camp*



*Photo 26: Material left behind at temporary contractor camp*





*Photo 27: Temporary Berm Liner*



*Photo 28: Empty and Cleaned Fuel Barrels*

At the contractor's temporary camp location, the Monitoring Officer observed a trail of 11 spills of unknown origin, electrical cords, and miscellaneous materials left behind ([Photo 25](#) and [Photo 26](#)). INAC noted that the contractors will be required to clean-up the spills and remove any remaining materials during the summer (2018) when they complete the work on the soil cell liner. The removal of a temporary berm liner in the grey water sump area will also need to be completed ([Photo 27](#)).

During previous site visits it was noted that, 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, the barrels have now been collected, cleaned, and the empty barrels are being stored near the hazardous waste storage area ([Photo 28](#)).

## **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 2018 visit. As such, the Proponent remains in non-compliance with several terms and conditions, consistent with findings from past site visits.

The "Jericho Mine Site Stabilization Project" (NIRB File No. 16UN058) has now been completed by INAC and all equipment and materials brought to site have been removed. A small amount of work is planned for the summer of 2018 including the clean-up of the temporary camp area and repairing a fold in the liner of the hydrocarbon soil containment cell. INAC now considers the project in long-term observation, maintenance and surveillance (OMS). Three (3) years of monitoring of the site stabilization work will occur starting in June 2018. Further OMS will be determined after the initial 3 year program.

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