NUNAVUT IMPACT REVIEW BOARD
Nunavutmi Kanogilivalianikot Elittohaiyeoplotik Katimayiit

2011 SITE VISIT REPORT

Jericho Diamond Mine Project

September 28, 2011

Report Title:	2011 NIRB's Monitoring Officer Site Visit Report for the Jericho Diamond Mine Project
Project:	Jericho Diamond Mine
Project Location:	Kitikmeot Region, Nunavut
Project Owner:	Shear Diamonds (Nunavut) Corp. Suite 220, 6 Adelaide Street East Toronto, ON M5C 1T6
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Site visit dates:	August 17 – 19, 2011
Last site visit:	July 28 – 29, 2009
Photos by:	Sophia Granchinho, Nunavut Impact Review Board (August 17-19, 2011)
Cover photo:	Seepage pond #2, Jericho Mine Site

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1. Introduction

The Nunavut Impact Review Board (NIRB) issued the Jericho Diamond Mine Project Certificate [002] to Tahera Corporation Limited (Tahera) in July 2004 for the development of the Jericho Diamond Mine (Jericho or the Project) pursuant to Section 12.5.2, Article 12 of the Nunavut Land Claims Agreement (NLCA). After receiving a request from Tahera to change the name of the holder of the Project Certificate, the NIRB issued an amended cover page to the original Project Certificate in the name of Benachee Resources Inc., a wholly owned subsidiary of Tahera Diamond Corporation on January 19, 2005.

Jericho is a diamond mining operation situated in the West Kitikmeot region about 430 kilometres (km) southwest of Cambridge Bay and 240 km southeast of Kugluktuk. The Proponent commenced construction of the Project in March 2005 and full mine operation was underway by July 2006.

In January 2008, the Proponent filed for creditor protection citing insufficient funds to operate the Jericho Diamond Mine and the site was subsequently placed under care and maintenance. In December 2008, Indian and Northern Affairs Canada (INAC, now Aboriginal Affairs and Northern Development Canada or AAND) intervened pursuant to Section 89 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, and assumed control of the care and maintenance of the Jericho Mine site. In August 2010, Shear Diamonds (Nunavut) Corporation's (Shear or Proponent; formally Shear Minerals Ltd.) purchase of Tahera's assets including the Jericho Diamond Mine was approved and completed.

At the time of the site visit, no mining activities were occurring as the mine remains in the care and maintenance phase while Shear conducts ongoing evaluation of the mineral resource.

2. Objectives & Purpose of Site Visit

In accordance with the Project Certificate [No. 002] issued for Jericho, the NIRB is responsible for the monitoring of this Project in accordance with sections 12.7.1 and 12.7.2 of the NLCA.

The objectives of the NIRB's site visit were therefore to determine whether, and to what extent, the land or resource use in question is being carried out within the predetermined terms and conditions [NLCA, Subsection 12.7.2].

Prior to the site visit, the following items were reviewed: NIRB Project Certificate [No. 002], correspondence from Shear regarding its plans for compliance with the Project Certificate terms and conditions[1], Aquatic Effects Monitoring Plan (2011), *draft* Air Quality Monitoring Program (2011), General Monitoring Plan, INAC Site Assessment Report for 2009[2], INAC Site Visit & Contract Meeting Report for 2009[3], 2010 INAC Water Use Inspection Report[4], 2011 INAC

[1] Pamela Strand [Shear Diamonds (Nunavut) Corporation], President, Re: *Request to assign the Jericho Diamond Mine Project Certificate (No. 002) to Shear Diamonds (Nunavut) Corp.* (dated June 3, 2011).

[2] *Jericho Mine – Site Assessment Report, February 10, 2009* by Kevin Buck and Mellissa Joy, Water Resources Division (submitted to NIRB July 18, 2011).

[3] *Jericho Mine – Site Visit and Contract Meeting, June 17, 2009* by Kevin Buck, Manager of Water Resources, Water Resources Division (submitted to NIRB July 18, 2011).

Water Use Inspection Report[5] and Shear's response to INAC's Concerns[6] and all information related to the Jericho project. Based on this review, the site visit focused upon the following parameters:

1. General Observations
2. Atmospheric Monitoring Stations (Condition 5)
3. Noise (Condition 8)
4. Wildlife and Terrestrial (Conditions 12, 14, 15 and 16)
5. Blasting Activities and Management (Conditions 9, 26, 27 and 28)
6. Roads (Conditions 13, 32 and 33)
7. Fuel Storage (Condition 34)
8. Processed Kimberlite Containment Area (Condition 31)
9. Water Quality (Conditions 29 and 30)
10. Waste Management (Condition 35)
11. Other

The observations resulting from this site visit shall, where possible, be incorporated into the measurement of the relevant effects of the project, as per Subsection 12.7.2 of the NLCA.

3. 2011 Site Visit

On Wednesday August 17, 2011, Sophia Granchinho, NIRB Monitoring Officer, travelled to the Jericho site with Shear employees. At the Jericho site, the group was met by Christina Seitz, Site Administrator for Shear. The visit included meetings and a thorough tour of the project site. Once at the Jericho site, the Monitoring Officer was required to attend a site orientation which included information regarding the Proponent's safety and emergency programs, and environment and wildlife policies. Following the orientation, the Monitoring Officer met with Julie Lassonde, Executive Chairman and Chris Morton, Operations Manager to discuss the site visit, outstanding issues related to the Project Certificate, and environmental compliance and reporting.

On Thursday August 18, 2011 the Monitoring Officer conducted a site tour accompanied by Shear staff, including Julie Lassonde, Chris Morton, Richard Belfer, and Christina Seitz. The site tour included the airport, hazardous waste treatment area, Old Carat Camp, emulsion plant and explosives storage area, old landfill, stockpiles and waste rock piles, location of new landfill, freshwater intake, C1 diversion, the Jericho pit, processed kimberlite containment area (PKCA), one dust monitoring station near the PKCA and the Jericho camp. On August 19, 2011, the Monitoring Officer completed the site tour of the sewage treatment plant and effluent discharge area with Andy Uyarrai. At the conclusion of the site tour, the NIRB Monitoring Officer met with Julie Lassonde and Chris Morton to discuss the visit, outstanding items from the Project Certificate and Shear's continuing responsibilities while in the care and maintenance phase.

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[4] Melissa Joy (Indian and Northern Affairs Canada), Water Resources Officer, *June 8, 2010 Water Use Inspection Report* (submitted to NIRB July 18, 2011).
[5] Ian Rumbolt (Indian and Northern Affairs Canada), Water Resources Officer, *June 11 & 12, 2011 Water Use Inspection Report* (submitted to NIRB July 18, 2011).
[6] Pamela Strand [Shear Diamonds (Nunavut) Corporation], President, *Response to June 2011 Inspection Report of the Jericho Diamond Mine Property* (dated July 12, 2011).

3.1 General Observations

The Jericho site is currently manned by a relatively small crew (13 people at the time of the visit) necessary to maintain the facilities. In general, the site was well-maintained, orderly and free of litter and garbage. Fuel contamination has been previously documented during the 2009 site visit within secondary containment facilities. Currently only the East and West Containment Cells of the PKCA are being used by Shear.

During the two day site visit, caribou were observed near the PKCA and arctic hare were observed near the camp. On the last day, caribou were observed from the airplane near the airstrip. Wolf sightings were also reported near the airstrip during the first evening of the site visit.

3.2 Atmospheric Monitoring Stations

Condition 5

> *"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."*

To date no official air quality monitoring station has been installed and no air quality monitoring has been conducted by Tahera or Shear as required by Condition #5. An air quality monitoring plan was submitted in August 2004 by Tahera as part of the water licence application and *draft* Air Quality Monitoring Plan was submitted by Shear in June 2011 for the period of care and maintenance. In 2006, a meteorological station was installed but failed to operate and hence no data were collected. Once it acquired the site, Shear had the station sent out for repairs, with the intention of having the station become operational and to meet the requirements of Environment Canada and Condition 5. During the visit, site personnel attempted to install the meteorological station near Lake C3 but due to weather conditions, the installation was postponed. Dustfall monitoring stations (see Photo 1) were installed around the site to determine dust sources and areas for potential mitigation measures. Dustfall samples were to be collected three times during the summer months with the first sample collected in August 2011. Lichen samples were also collected as part of the Air Quality Monitoring Program in August 2011.

Other dust control measures around site include speed limits (30 km/h) and the watering of roads.

3.3 Noise

Condition 8

> *"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."*

This condition was not applicable to the Jericho site at the time of the Monitoring Officer's visit, as the site was in the care and maintenance phase, no mining activities were occurring and only 13 people were on site at the time. The only noticeable sources of noise during the visit were vehicles driving around site and the camp generator (see Photo 2). In addition, Shear has a 'no idling' policy in place.

Photo 1: Dustfall Monitoring Station (DS7) between Lynne Lake and Key Lake

3.4 Wildlife and Terrestrial

Condition 10

> *"Tahera shall develop a plan with the GN to enhance wildlife data and to provide more details on caribou found in the Project area. This work shall begin in 2004 with Tahera taking a lead role."*

During the site visit, Shear staff indicated that no wildlife monitoring activities had occurred during 2010 and 2011 as required by Condition 10 and the Wildlife Mitigation and Monitoring Plan (WWMP, finalized by Tahera in May 2007). Mr. Morton confirmed that four site checks per day are conducted for wildlife, with sightings recorded in the wildlife sightings log. Mr. Morton also noted that the caribou migration was missed and no monitoring was conducted for the 2011 year. However, it was noted that the design of the Proponent's caribou monitoring program is ongoing and that an updated WMMP would most likely be submitted by Shear by October 2011. Shear indicated that it did not intend to submit a wildlife report for the 2010 year.

During the site visit in 2009, it was observed that several caribou lingered within the general vicinity of the camp site, mainly within the area of the main tank farm. Staff at that time used a plastic barrier around the main tank farm to prevent animals from entering. No such barriers were observed around the main tank farm or any other hazardous areas with the exception of a caribou berm on the south side of the pit.

The Monitoring Officer highlighted the importance of reporting wildlife incidents to both the Government of Nunavut (GN) and to the NIRB as outlined in Condition #18 (*Problem wildlife shall be reported immediately to the GN and to the NIRB Monitoring Agent.*"). In the past, wildlife incidents (or "problem wildlife") had been reported to the NIRB only via the annual reports submitted by Tahera.

Condition 12

> *"Tahera shall plan, construct, and operate their mine in such a way that caribou migration paths through the project area are protected. Maps of corridors shall be placed in site offices and upgraded as new information on corridors becomes available. This information shall be sent to NIRB's Monitoring Agent, GN and KIA."*

Maps of caribou paths and corridors were available in the Environment office, however the historical caribou migration corridor map was dated from 2006 and no current maps were available. A caribou migration patterns map from 1998 – 2008 was observed to be posted on the information board in the main corridor at the camp site. In addition, a wildlife log sighting sign-in sheet was observed in the main hall and appeared to have been filled out by Shear personnel when wildlife sightings occurred. No wildlife log book was observed in the Environment office.

Wildlife, including caribou, have been observed at Jericho during the care and maintenance phase. During the site visit, the Monitoring Officer observed caribou northeast of the PKCA and caribou tracks in the East Cell of the PKCA (see Photo 3 and Photo 4). In addition, Arctic hare were observed near the camp kitchen and generator (see Photo 5).

Photo 2: Camp generator

Photo 3: Caribou sighting near the PKCA

Condition 14

> *"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."*

Initial surveys for raptor nests were previously completed and subsequently mapped by Tahera. No new nesting sites have been identified within the project area or within the 500 metre buffer zone. An old raptor nest (potentially Peregrine Falcon) was pointed out to the Monitoring Officer on one of the pit walls (see Photo 6). This nest was known to site personnel and the area has been made off limits to project staff. The Monitoring Officer did not observe any markers or visible indication that a nest was located within the pit walls.

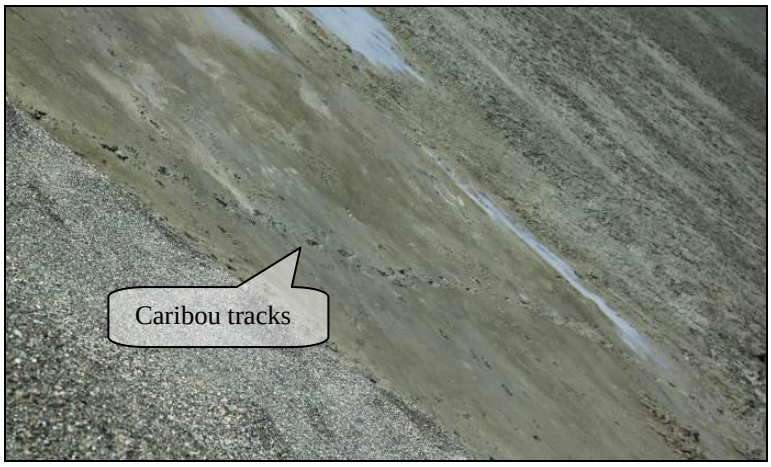

Photo 4: Caribou tracks on dried tailings within PKCA

Photo 5: Arctic hare sighting near generator shack

Photo 6: Old raptor nest on pit wall

Condition 15

> *"For the greater protection of wildlife, wildlife must have the right of way, and this principle must be strictly enforced. This means all activity including construction, drilling, blasting, and traffic movements, be stopped in the presence of susceptible raptors, ungulates, and carnivores."*

As no construction, drilling or blasting are currently being conducted on site, the only activity applicable to this term and condition during the care and maintenance period pertains to traffic

movement around the site. For communication purposes, all staff are required to carry radios in their trucks and on their persons at all times. Personnel are alerted as soon as possible when wildlife are sited in the area, and wildlife are given the right of way at all times when present. The Operations Manager will communicate to site staff when wildlife has moved away and work can resume in the area.

Condition 16

> *"The highest protection shall be given to nesting and flightless birds or vulnerable wildlife including protection of all dens. Further, Tahera must submit a more detailed plan to NIRB's Monitoring Agent to list specific steps that Tahera will take to study and prevent losses of nests and eggs within the site and a buffer zone 500 metres surrounding the lease area."*

No new nests were identified around the camp area or within the 500 metres buffer zone over the past year. The plan required by Condition #16 has not been submitted to the NIRB's Monitoring Officer to date.

3.5 Blasting Activities and Management

Condition 26

> *"Site-specific plans for blasting activities must meet federal government standards and blasting crews must be fully trained including being provided a copy of Tahera's final Project Certificate containing whatever terms and conditions are ultimately approved by the Minister."*

The Proponent advised that no construction, drilling or blasting activities are to be conducted while the site is under care and maintenance. The pit remains closed and no workers are allowed within the pit unless to conduct dewatering activities. The Monitoring Officer requested information on a hydrophone that was supposed to be placed in Carat Lake in 2006[7,8] by Tahera but site personnel had no information regarding this station and were not sure whether or not one had been installed.

Condition 27

> *"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."*

During the 2009 site visit it was noted that all blasting constituents had been sold to Diavik previously and removed from the site. During the site visit, Shear staff confirmed that there were no blasting constituents being stored or utilized on site. Signs demarcating explosives storage areas were still posted at the gates to the emulsion plant and the ammonium nitrate storage

[7] Tahera Diamond Corporation's *Explosives Management Plan, Version 3 for Jericho Diamond Mine*, September 2006.
[8] Discussion with Cheryl Wray, Environmental Supervisor, June 21 – 22, 2006 site visit.

facility at the time of the site visit. The area formerly used to store blasting materials was empty and locked, and remained separate from the camp site (see Photo 7, Photo 8 and Photo 9).

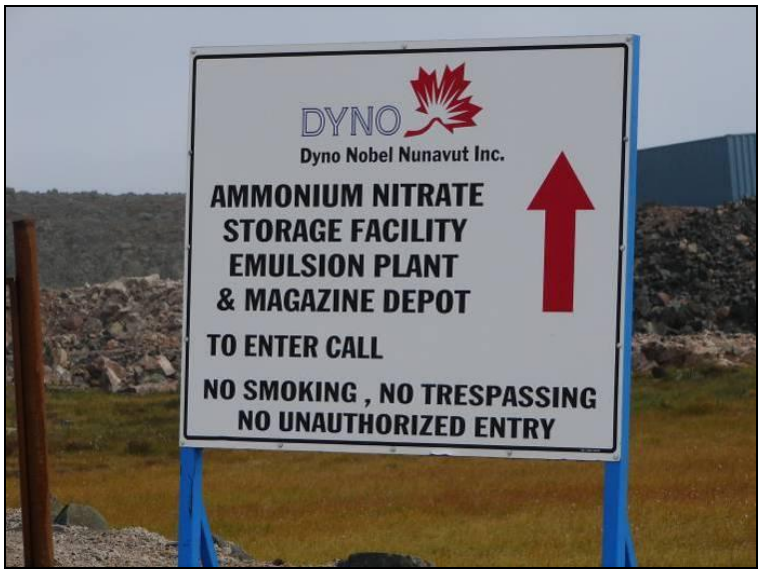

Photo 7: Example of signage posted at the entrance to the ammonium nitrate storage and magazine compound (picture taken in 2008)

Photo 8: Emulsion plant from ammonium nitrate storage pad with camp in background (picture taken in 2009)

During the site visit, the Monitoring Officer noted bags of cement mix were still being stored at the ammonium nitrate storage pad as was noted in the 2009 site visit. No other materials were found at this storage area. Some bags of the cement mix were open or torn and dried cement was observed on the ground around the bags (see Photo 10 and Photo 11).

Photo 9: Processing plant from emulsion plant

Photo 10: Bags of cement mix at the ammonium nitrate storage pad (photo taken 2009)

Condition 28

> *"A blast management plan for Tahera's operations shall be submitted to the NIRB Monitoring Agent, regarding timing, location, and approximate amounts of blasting agents used on an annual basis or if plans change."*

No blasting is being conducted on site while the Project is under care and maintenance and hence no blasting agents or blasting constituents are stored on site. Ms. Lassonde indicated that a blast management plan will be provided to the NIRB's Monitoring Officer and to the Nunavut Water Board (NWB) for approval, 60 – 90 days prior to blasting activities are scheduled to occur.

The NIRB's Monitoring Officer also discussed with Shear staff the historically higher nitrate levels observed in Lynne Lake, downstream of the ammonium nitrate storage pad; and suggested that the ammonium nitrate bags be moved into a building instead of being stored outside on a storage pad.

Ms. Lassonde noted that Dyno Nobel is responsible for the ammonium nitrate storage facility, emulsion plant and magazine depot. During removal of the ammonium nitrate bags in 2008/2009, some of the bags opened up and spilled into the environment. Ms. Lassonde indicated that Dyno Nobel is responsible for clean-up of the observed spillage and any required remediation of the affected area.

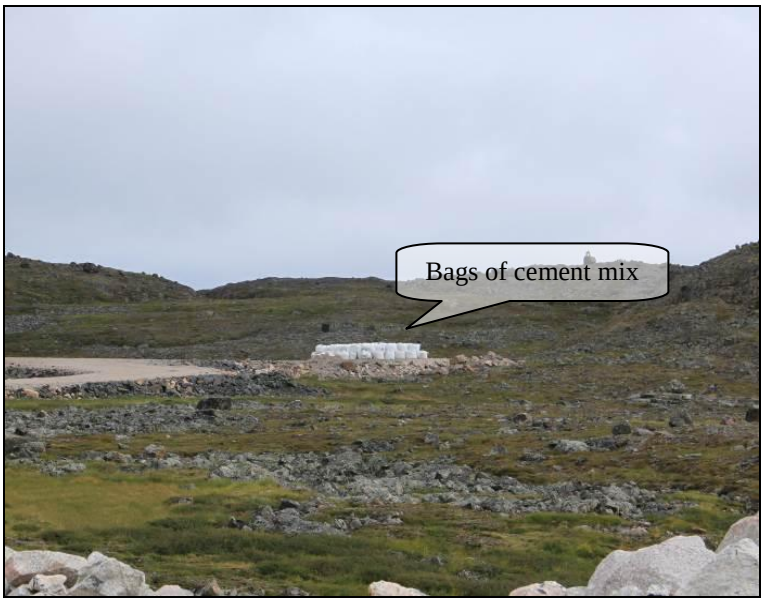

Photo 11: Ammonium nitrate storage pad from emulsion plant

3.6 Roads

Condition 13

> *"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."*

The Monitoring Officer noted during the site visit that Tahera has not incorporated ramps or caribou crossings in the design of its camp roads. This was based on previous studies that have shown that caribou generally do not have a problem crossing roads unless their line of site is compromised, which, the Tahera indicated should not be the case at the Jericho site[9,10]. Shear has not added any berms or crossings at the Jericho site and indicated in discussions with the Monitoring Officer that it has no plans to provide for these types of structures.

[9] Rescan 2005. *EKATI Diamond Mine 2004 Wildlife Effects Monitoring Program.* Prepared for BHP Billiton Diamonds Inc. by Rescan Environmental Services Ltd.

[10] Curatolo, JA and SM Murphy. 1986. The effects of pipelines, roads, and traffic on the movements of caribou, Rangifer tarandus . *Canadian field-naturalist*. Vol. 100, no. 2, pp. 218-224

The Monitoring Officer noted that during the 2011 site visit as well as other previous visits to Jericho, the caribou appeared to have little difficulty climbing onto very steep piles of rock and tailings (see Photo 3, Photo 4 and Photo 12), although studies have indicated that they tend to prefer roads or eskers[9,10].

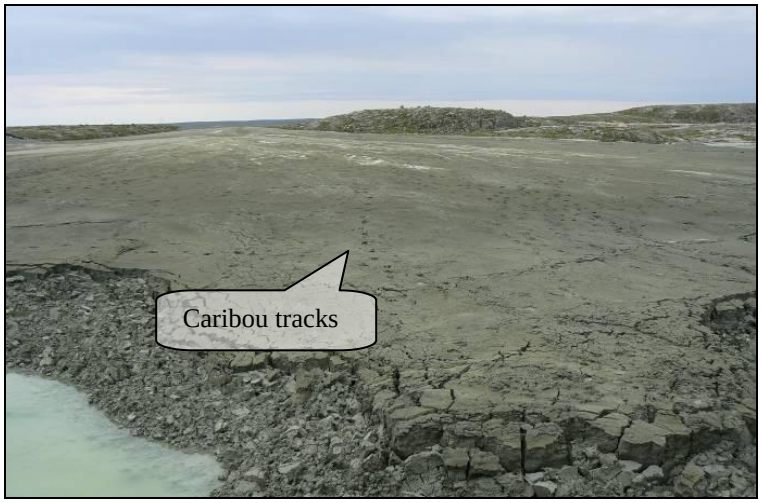

Photo 12: Caribou tracks on tailings pile (photo taken in 2009)

The open pit features a large caribou berm constructed around its perimeter, approximately 4 to 5 feet in height in most places with the main section of the perimeter located on the south side of the pit. During the site visit, the Monitoring Officer noted that no fencing was visible around the open pit area; however tires were placed around the pit area as a deterrent to people, who might be travelling in the area, especially during the winter periods (see Photo 13 and Photo 14).

Photo 13: Haul truck tires around open pit area

Photo 14: Aerial view of open pit with tires around perimeter

At the time of the site visit, the Jericho pit was deemed unsafe, and no access was permitted down into the pit with the exception of personnel conducting dewatering activities, from the pit to the PKCA. When Tahera suspended activities at the Jericho site in January 2008, the open pit naturally filled with water (see Photo 15, Photo 16 and Photo 17). Shear commenced dewatering activities of the open pit on July 29, 2011, and the pit water was pumped, discharged, and then diluted within the PKCA. This allowed the pit water to be incorporated and discharged as part of the PKCA discharge while still meeting the water licence discharge criteria. Dewatering activities halted within a week and half due to mechanical failure of the pump.

Photo 15: Aerial view of open pit at Jericho

Photo 16: Open pit at Jericho

Photo 17: Pump used to dewater pit

Condition 32

"Any ice or snow road construction, stream or river crossing in Nunavut be conducted to minimize sedimentation and environmental disruptions, and that DFO, KIA, and the NWB be consulted well in advance of such construction. At a minimum, silt fences must be used where appropriate and all fuel truck drivers must carry spill kits."

No new construction has been undertaken since the Jericho site went into care and maintenance in 2008, and at the time of the 2011 site visit, Shear indicated that it had no plans to construct winter roads during ongoing care and maintenance of the site. The Monitoring Officer advised Ms. Lassonde that Deton'Cho applied to renew its permits to develop winter/ice roads from Yellowknife to Pellat Lake and then north to Lupin Mine with a second leg leading to the Jericho site (NIRB File No. 04RN111).

Shear personnel confirmed that all fuel trucks on site were equipped with spill kits, and the Monitoring Officer noted that secondary containment was in place at the fuel transfer station. No large fuel trucks were being used for refuelling at the time of the site visit and all trucks were being refuelled at the main station (see Photo 18). Spill kits were noted at most fuel storage areas (see Photo 19).

Photo 18: Fuelling station

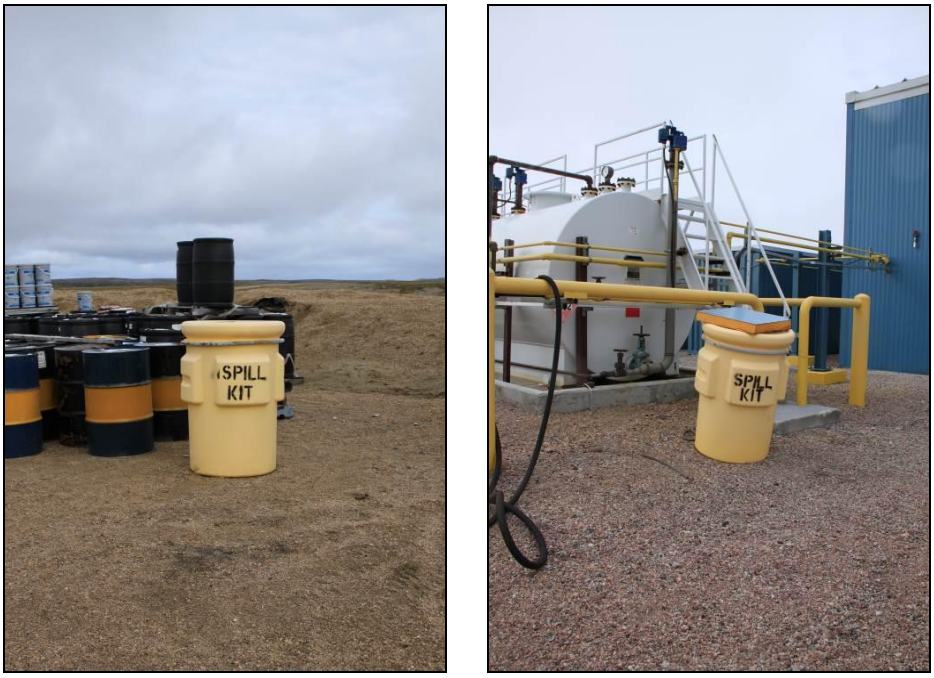

Photo 19: Spill kits (HWTA and emulsion plant)

Roads around the mine site were maintained as required and culverts that had been previously installed continued to function properly (see Photo 20).

A silt fence was observed in West Containment Cell of the PKCA. This silt fence was installed in order to prevent sediment from entering the lower part of the West Cell and Stream C3 during the dewatering of the pit into the West Cell (see Photo 21).

Photo 20: Culvert at C1 Diversion – facing upstream

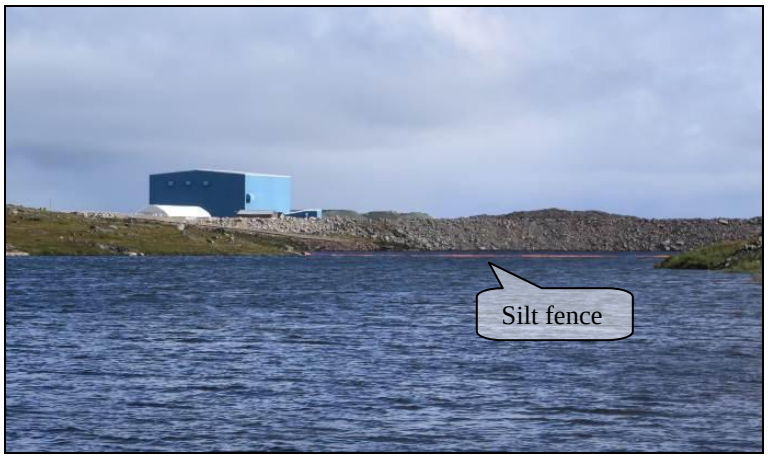

Photo 21: West Containment Cell (facing east towards processing plant)

3.7 Fuel Storage

Condition 34

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

All fuel tank areas appeared to be well bermed; however, it was noted that the liners were exposed in several areas and in some cases the liners were also ripped. Mr. Morton indicated that the exposed liners would be covered with fine gravel upon screening of the gravel to separate the coarse from the fine material. Fuel contamination, soil staining and notable

hydrocarbon odours were evident at several locations around the site. Pooling of water (standing water) was also evident within several of the fuel bermed areas. Mr. Morton indicated that the standing water within the bermed areas would be pumped to a reclamation unit (ozonator) that then filters the water to remove any hydrocarbons (see Photo 22) prior to being pumped to a containment unit next to the main fuel tank farm (see Photo 23). Once the water is tested and confirmed to meet the discharge criteria, it would be discharged into the PKCA (East Cell).

During the 2009 site visit, similar observations were made for the fuel storage areas. The NIRB recommended that Tahera comply with Condition #34 and ensure that the fuel storage areas meet regulatory requirements.

Photo 22: Water reclamation unit (ozonator)

Photo 23: Filtered water after going through the reclamation unit

Main Fuel Tank Farm:

The liner for the main fuel tank farm was exposed in several areas. Substrate in the berms was heavily contaminated with fuel and standing water within the berm contained visible

hydrocarbon sheen. Strong hydrocarbon odours were also noted around the fuel tank farm (see Photo 24 through Photo 27).

Photo 24: Main tank fuel farm

Photo 25: Standing water within bermed area at main fuel tank

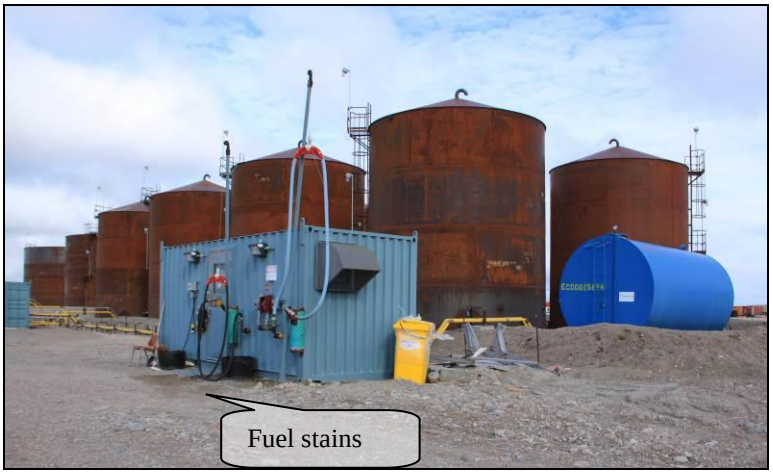

Photo 26: Fuelling station

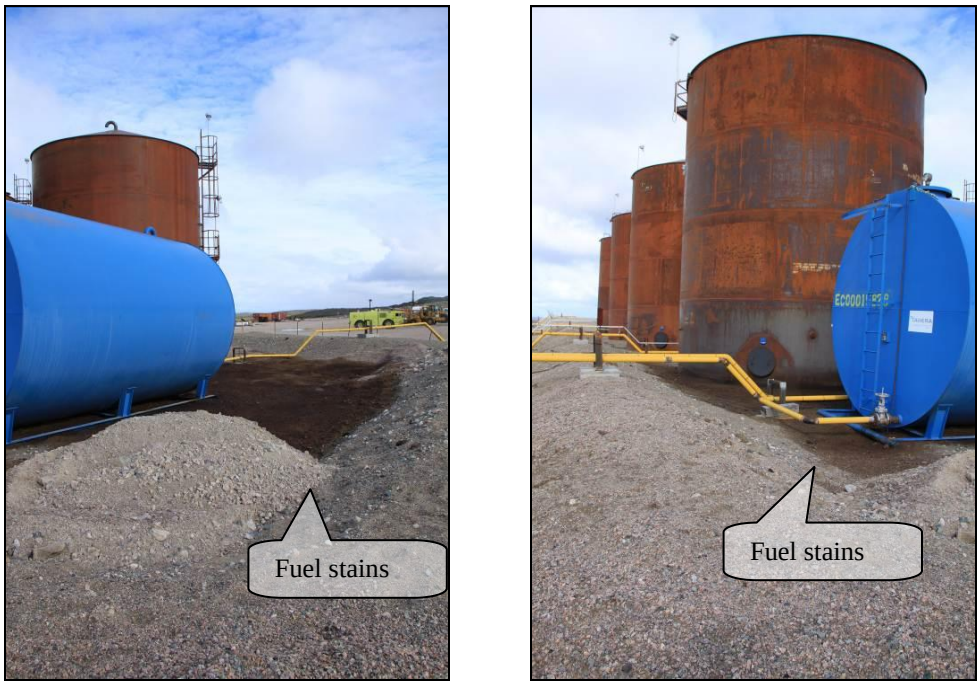

Photo 27: Contaminated soil within bermed area at main fuel tank

Airport Fuel Tanks:

The liner for the airport fuel tanks was exposed in one main area. Standing water was present with visible hydrocarbon sheen. Hydrocarbon odours were also noted at the airport fuel tanks. As described in the 2009 site visit report, the substrate within the berm at the airport showed evidence of contamination from a previous spill in 2007 and it appeared that the contaminated soil had not been removed from the bermed area. The spill that occurred in 2007 at the airport fuel tank farm was approximately 47,000 litres and was due to a faulty valve line[11].

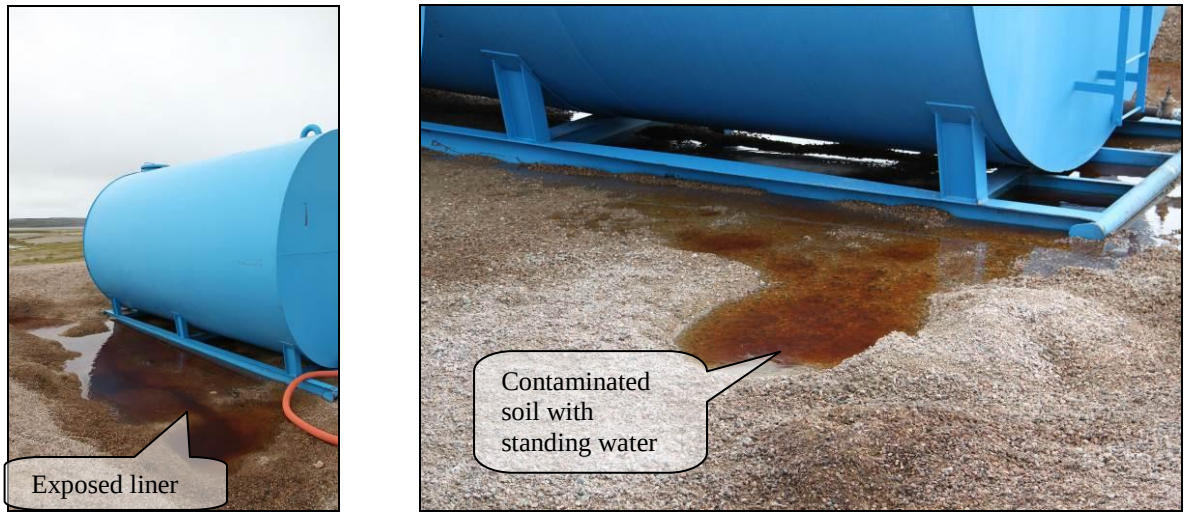

Photo 28: Airport fuel tanks

[11] Tahera Diamond Corporation, *Annual Monitoring Report for 2007*, prepared by AMEC Earth & Environmental, May 16, 2008.

Fuel barrels stored at the airport were not located within a secondary containment facility. Mr. Morton mentioned that the barrels were empty and would be removed from site (see Photo 29). Fuel stains were also evident on the road next to the airport fuel tank berm.

Photo 29: Fuel barrels stored at airport

Hazardous Waste Transfer Area:

The two waste transfer containment areas (two cells) located near the airport are bermed and lined, but are not completely enclosed as each cell has an access ramp located on its southeast corner. The liner around the perimeter (numerous locations) was exposed, torn and is in need of repair or replacement (see Photo 30). Hydrocarbon odours were also noted at the waste transfer areas. Shear is currently developing plans to address the damaged liner and is working to sort and properly contain the wastes until they can be shipped off-site for appropriate disposal.

Photo 30: Exposed liner at the Hazardous Waste Transfer Area

The cell to the east contains bulk waste containers, waste oil, waste fuel in drums and cubes, and drummed diesel fuel (see Photo 31). Most of the barrels within this cell came from the Muskox site and contain waste oil. The waste oil is currently being used in the boiler at site.

Photo 31: Waste Transfer Containment Area (easterly direction)

The cell towards the west is being used for storage and/or isolation of contaminated soil (see Photo 32, Photo 33 and Photo 34), which is stored in one large pile under a tarp, in numerous drums or bags. As there is no current landfarm in place at Jericho, the contaminated soil has not been remediated on site, nor has it been removed off-site for treatment. Shear has submitted a *draft* landfarm plan to the NWB and is awaiting approval of this plan.

The majority of the contaminated soil located in this cell was associated with a DC-4 jet spill that occurred in December 2006 at the airport, along with the remainders of some minor spills that occurred around site since Tahera began construction. The piles of contaminated material have been previously covered by tarps, but the tarps have ripped off in many places and the contaminated material is exposed to the environment (see Photo 32). The bulk of the contaminated soil is currently being infiltrated by water and there is potential that hydrocarbons could be leaching out of the pile into the secondary containment. Pooling water was noted in this cell with hydrocarbon staining (see Photo 33). In addition, a visible stain was noted on the south side of this cell at the base of the contaminated soil pile (see Photo 34).

The drummed and bagged contaminated soil materials were previously brought to the Jericho site from Hood River and Muskox exploration camps where smaller spills had occurred. The soil is contaminated with either diesel fuel or Jet fuel (see Photo 33).

Photo 32: Waste Transfer Containment Area (westerly direction) – hydrocarbon contaminated soil

Photo 33: Waste Transfer Containment Area (westerly direction) – drummed and bagged hydrocarbon contaminated soil

Photo 34: Waste Transfer Containment Area (westerly direction) – bulked and drummed hydrocarbon contaminated soil

Emulsion Plant Fuel Tank:

The emulsion plant including the fuel tank is owned and operated by Dyno Noble who is responsible for the maintenance and care of these buildings. Fuel from the fuel tank at the emulsion plant has been emptied out by Shear and any standing water in the bermed fuel tank area is removed to the reclamation unit on an as-need basis. Compared to the 2009 site visit, there were no hydrocarbon odours present and contaminated soil around the fuel tank has been removed (see Photo 35).

Generator Day Tank:

The bermed generator day tank area only contained standing water. There was no evidence of soil staining as was previously noted during the 2009 site visit (see Photo 36).

Photo 35: Emulsion plant fuel tank

Photo 36: Generator day tank

Helicopter Landing Area:

Fuel drums were stored near the helicopter landing area within secondary containment berms which was installed on June 16, 2011. Inspections of all fuel containment structures are conducted daily and rain drains are used to filter water (carbon filters) that collects within the berms (see Photo 37). When fuel is required, fuel barrels are transported to the helicopter landing area.

3.8 Processed Kimberlite Containment Area

Condition 31

> *"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."*

A permeable barrier in the Processed Kimberlite Containment Area (PKCA) divides the area into two containment cells; an East Cell and a West Cell, with only the East Containment Cell having been used for the deposition of tailings material (see Photo 38 through Photo 40). At the time of the site visit, Shear was discharging water from the West Containment Cell into Stream C3 (see Photo 41).

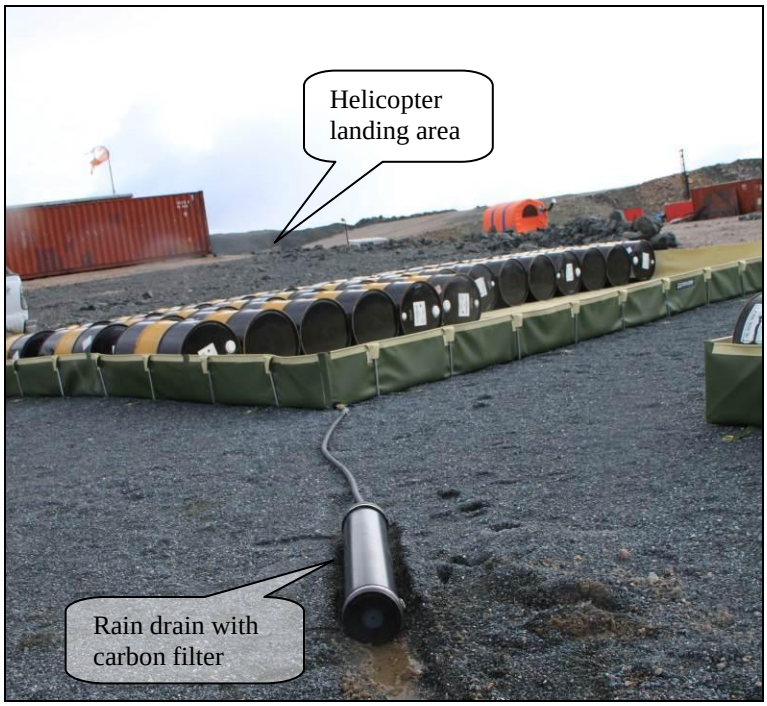

Photo 37: Fuel drums near helicopter landing area

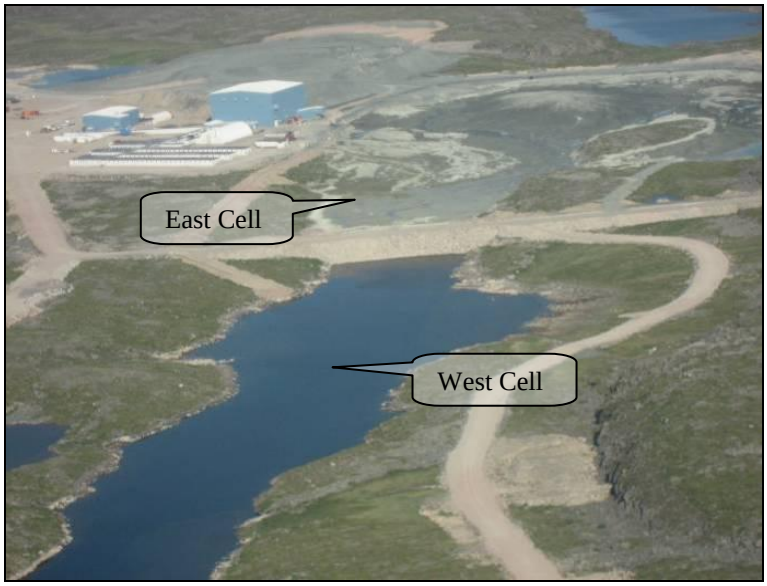

Photo 38: Aerial view of PKCA (photo taken in 2009)

In April 2011, Shear personnel noticed that fine process kimberlite from the PKCA had been dispersed by wind over the Southeast Dam. During the site visit, the Monitoring Officer confirmed that the fine process kimberlite had been dispersed over the Southeast Dam and covered a majority of the ground on the south slope of the dam and rocks (see Photo 42). Ms. Lassonde indicated that once Jericho went into care and maintenance and the processing of the kimberlite stopped, the fine process kimberlite dried due to lack of sufficient amount of water covering the material. Shear has installed wind fences within the PKCA to prevent the fine process kimberlite from being dispersed and has advised that once processing resumes, the fines within the PKCA will be covered with a layer of water preventing further dispersion of the fine process kimberlite. Fisheries and Oceans Canada has also requested that Shear conduct fish sampling in four of the lakes downstream of the Southeast Dam.

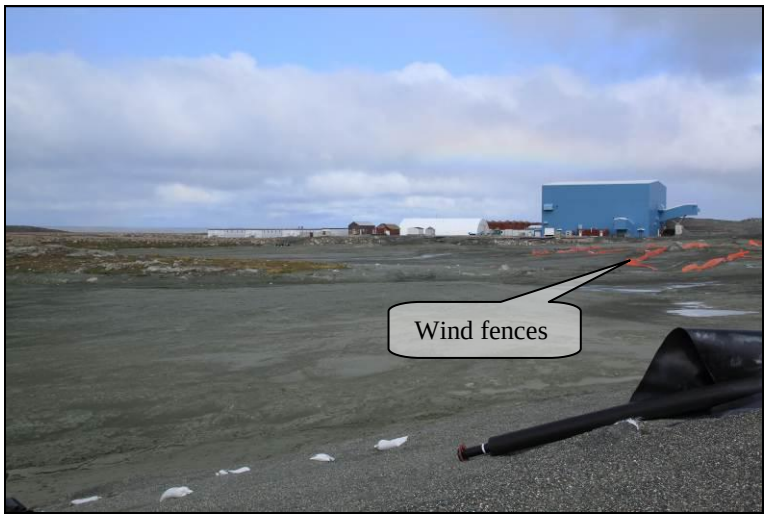

Photo 39: East Containment Cell (looking downstream with processing plant in the background)

Photo 40: West Containment Cell (looking upstream with processing plant in the background)

Photo 41: Stream C3 (downstream of West Containment Cell)

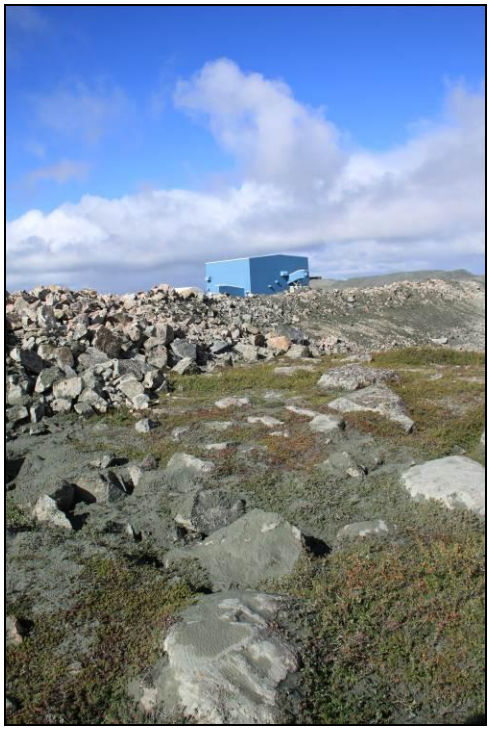

Photo 42: Fine Processed Kimberlite on the South Slope of the Dam

3.9 Water Quality

Condition 29

"Tahera must provide greater detail to regulatory authorities on effluent options, including better information on ammonia and phosphorous levels."

The production of camp sewage has been limited, owing to the small number of staff operating the site while in the care and maintenance phase (see Photo 43). Once the process plant is up and running, water will be reclaimed as part of Shear's waste management plan. Ammonia and phosphorus levels have been well recorded and are available upon request from Tahera.

Condition 30

> *"Tahera must provide greater detail to regulatory authorities on total dissolved solids ("TDS") constituents and nutrient concentrations expected to be released to downstream waters."*

Water quality monitoring is an ongoing requirement of the Proponent's Water Licence. Water quality monitoring occurred in July 2011 as part of the Aquatics Effects Monitoring Program and a new reference lake was selected from within the Jericho River system and will be called Athena Lake.

Photo 43: Inside the sewage treatment plant

3.10 Waste Management

Condition 35

> *"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.*"

During the 2009 site visit, it was noted that the landfill area was not fenced off and that no other wildlife deterrents were apparent (see Photo 44). During the 2011 site visit, Mr. Morton informed the Monitoring Officer that the landfill had been covered by a 6 inch cover and that the incinerator was relocated closer to the camp site (see Photo 45). A new landfill will be developed once the landfill management plan has been approved by the Nunavut Water Board. All approved waste for incineration will be stored in a fenced area prior to incineration and the ash from the incinerator will be captured in drums, sealed and stored in seacans until the new

landfill has been approved (see Photo 46). All other waste materials will be segregated and disposed of at an approved facility or recycled.

During the site visit, no garbage was seen in or around the camp site. Camp garbage was being incinerated every three to four days.

Photo 44: Landfill in 2009

Photo 45: Landfill in 2011

3.11 Other

Ms. Lassonde indicated that the causeway, built out onto Carat Lake to support the pump house, has shown some signs of erosion at the edges due to ice movement during the spring months. DFO has inspected the causeway and is satisfied with the causeway as is.

The lower reaches of the C1 diversion were not built to specifications by Tahera but the area currently functions as a fish habitat and fish were observed to have been moving upstream from Carat Lake to Lake C1 during freshet this year.

Finally, the Monitoring Officer reminded Shear that several of the Terms and Conditions require plans and/or reports to be submitted to the NIRB's Monitoring Officer on an annual basis and that a number of these conditions have not been met as these materials had not been provided to date.

Photo 46: Example of waste management

4. Findings

The NIRB has requested on several occasions that Shear provide an updated status of the Jericho mine during the current care and maintenance phase including a mine plan with clarification on how the proposed exploration activities would relate to the Jericho Mine and any future mining plans[12,13]. As of writing this report, the requested information has not been provided with the exception of correspondence from Shear indicating how they plan on meeting the Project Certificate [002] terms and conditions[14]. This information is required by the NIRB in order to conduct its monitoring activities and to assess the project activities and resource use in relation to the terms and conditions as set out in the Project Certificate .

The Proponent has not met Condition #5, as no atmospheric monitoring station has been installed to obtain site-specific meteorological data.

The Proponent has not met Condition #10, as no wildlife data were collected in 2010 or 2011, only wildlife observations have been recorded at site.

[12] Letter dated November 25, 2010, from Sophia Granchinho, NIRB to Phyllis Beaulieu, NWB, Re: *Assignment of Water Licence 2AM-JER0410 from Benachee Resources Inc. to Shear Diamonds (Nunavut) Corp.*

[13] Letter dated March 28, 2011, from Ryan Barry, NIRB to Allison Rippen Armstrong, Shear, Re: *Request for Jericho Diamond Mine Project Certificate Name Change and Application for Renewal of Type "A" Water Licence for Shear Diamonds Corp.*

[14] Letter dated June 3, 2011, from Pamela Strand, Shear, to Sophia Granchinho, NIRB, Re: *Request to assign the Jericho Diamond Mine Project Certificate (No. 002) to Shear Diamonds (Nunavut) Corp.*

The Proponent has not met the requirements of Condition #34, as the waste transfer containment area near the airstrip was not completely contained (berm was not enclosed) and the liner was ripped in several locations.

With respect to conditions #31 and #35, the Proponent has not proven to be compliant. The Proponent has not provided the NIRB's Monitoring Officer with required information regarding the options for additional divider/barriers or dykes in the PKCA or a revised waste management plan.

5. Summary

The Jericho mine site is currently in care and maintenance and no mining activities have occurred since 2008. Shear is currently evaluating the mineral resources of the Jericho site while maintaining a minimum complement of staff on site.

Overall, Shear appears to comply with most of the terms and conditions contained within the Jericho Project Certificate. However, there are certain conditions where non-compliance is evident which require the Board's consideration.

Prepared by: Sophia Granchinho
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Date: September 28, 2011

Signature: 

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Date: September 7, 2011

Signature: 

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Date: September 23, 2011

Signature: