Indian and Northern Affairs Canada | Affaires Indiennes et du Nord Canada

WATER USE INSPECTION REPORT

Date: June 11 & 12, 2011	**Licensee Rep.** (Name/Title)**:** Michelle Tanguay & Chris Morton
Licensee: Shear Diamonds Ltd.	**Licence No.: 2AM-JER0410**

Shear Diamonds Ltd (Shear) was granted a one year extension (approved by the Minister on March 1, 2011until March 1st, 2012) to their Type A water licence in order to address issues related to the Jericho project from previous ownership. Shear took over the Jericho site in August of 2010, and is in the process of obtaining a Type A renewal licence from the Nunavut Water Board (NWB). The NWB will be conducting technical meetings and a public hearing. There are 14 people onsite to take care of the day to day operations and maintenance. There are a number of plans that were submitted to the NWB as part of the renewal application, but none that have been approved at this point.

WATER SUPPLY

Source(s): Carat Lake	**Quantity used:** 293.9 m3 (Apr 2011 – Present)
Owner:/Operator: Shear Diamonds Ltd	

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Intake Facilities:	**Storage Structure:**	**Treatment Systems:**	**Chemical Storage:**
Flow Meas. Device:	**Conveyance Lines:**	**Pumping Stations:**	**Screen :**

Comments: A water sample was taken at the raw water intake of Carat Lake. Approximately 293 cubic meters of water has been used since April 2011.The inside of the water facility was not inspected at this time. It will be inspected during the next inspection scheduled for Aug or Sep 2011.

WASTE DISPOSAL

Sewage: Sewage Treatment System (Prim./Sec/Ter.)**: RBC Unit**

Natural Water Body:	**Continuous Discharge** (land or water)**:**	
Seasonal Discharge:	**Wetlands Treatment:**	**Trench:**

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Discharge Quality: Pending	**Decant Structure:**	**Erosion:** NA
Discharge Meas. Device: NI	**Dyke Inspection:** NI	**Seepages:**
Dams, Dykes: A	**Freeboard:** A	**Spills:**
Construction: NA	**O&M Plan:**	**A&R Plan:**
Discharge: 246 m3	**Effluent Discharge Rate:** Unknown	

Comments: Sewage is treated by a RBC unit onsite. 246 cubic meters of treated sewage has been discharged to the PKCA area. Total sewage sludge removed from the sewage treatment plant is 20 m3.The unit was not inspected during this inspection, but will be looked at during the next inspection in Aug or Sep 2011. A water sample was taken from SWQ-04 (Previously WQ02) to determine the quality of the water in the Process Kimberlite Containment Area (PKCA) area just before the discharge point to Stream C3.

PKCA

- Fine Process Kimberlite (FPK) from the PKCA was dispersed by wind over the Southeast (SE) Dam. The FPK was dispersed over the Southeast Dam and now covers majority of the ground on the south slope of the dam and rocks in the SE Lake. In a report that was submitted by Shear to the NWB on June 12, 2011, it was noted that the fines were dispersed over the dam. This issue was noticed by Shear staff in April 2011, but was not reported until now, which is a concern for INAC. It is apparent that the containment area is not working as it should be and must be addressed.
- The water in the PKCA area will have to be discharged when it reaches its capacity. Samples and analysis and a letter of intent to discharge must be sent to the NWB and Inspector 10 days prior to discharge.

Pit Dewatering

- Shear plans to discharge water from the pit during the first week of July. Water will be transferred to the west cell of the PKCA. There are approximately 282 000 cubic meters of water that will have to be discharged from the pit. Samples and analysis and a letter of intent to discharge must be sent to the NWB and Inspector 10 days prior to discharge.
- A water sample was taken from the pit to determine water quality. No analysis has been received to date.

Solid Waste:

Owner/Operator: Shear Diamonds Ltd.

Landfill:	**Burn & Landfill:**	**Other:** Incineration

Comments: Shear has an incinerator onsite to get rid of general combustible garbage. Due to the small number of people onsite, there is very little garbage produced. The incinerator is located next to the main

camp in order to monitor what garbage is burned and when it is being burned.

FUEL STORAGE:

Waste Oil Storage: **Owner/Operator: Shear Diamonds Ltd**

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Berms & Liners: U	**Water within Berms: U**	**Evidence of Leaks: U**
Drainage Pipes:	**Pump Station & Catchments Berm:**	
Pipeline Condition: A	**Condition of Tanks: A**	

Comments: There are numerous issues noted during the inspection regarding fuel and waste oil storage.

Fuel Storage

- There is a considerable amount of old fuel onsite. Shear informed me that an additive could possibly be added and the fuel could be used for other purposes at site. A plan needs to be in place to deal with old fuel in the tank farm.
- There are numerous drums of fuel stored to the left of the helicopter landing area. I recommended that these drums be stored in secondary containment. Shear has secondary containment berms scheduled to be sent from Yellowknife to deal with this issue.
- Water has accumulated in nearly all of the secondary containment berms for fuel storage onsite. There are a few issues with this accumulation. 1) In the event of a spill the secondary containment should be able to hold 110% of the largest tank. With water in the bermed area, I'm not sure there is enough capacity in the berm in the event of a spill. 2) Water in the berms has been contaminated with fuel from spills that have occurred over the years. Water from the berms will have to be tested, treated and retested to confirm that the water meets the specific criteria for discharge. This analysis and a letter of intent to discharge must be sent to the NWB and Inspector 10 days prior to discharge. 3) The amount of water in a couple of the bermed areas has caused minor damage to the berm itself (i.e. wave action causing erosion issues). Water from all of the secondary containment (bermed) areas must be removed as soon as possible. Shear informed me that this will be dealt with in the near future.
- Numerous minor spills around site will have to be cleaned up and disposed of appropriately.

Hazardous waste transfer area

- Hazardous Waste Transfer Area (HWTA) is in need of proper management practices. There is a considerable amount of waste oil, old fuels, contaminated water/fuel that should be dealt with immediately. The liner around the perimeter (numerous locations) is exposed, torn and is in need of repair or replacement. There are numerous barrels that are full of waste oils/fuels that are not covered and leaking on the ground. A large amount of contaminated soil (from a previous spill) is stored in the hazardous waste area and at the time of the inspection was covered with a tarp so it was not open to the elements.
- A water sample was taken down slope of the HWTA in Lake 01 (South Shore) to determine the effects (if any) the hazardous waste area is having on the lake.

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected	**Owner /Operator: Shear Diamonds Ltd.**	
	INAC:.The pit, Lake 01 (South shore), Carat Lake (Raw water intake), SWQ 04 (previously WQ 02), SE Dam Lake, Lynne Lake	
Signs Posted	**SNP:**	**Warning:**
Records & Reporting:		
Geotechnical Inspection:		

Non-Compliance of Act or Licence:

- Fine process kimberlite was dispersed over the South East Dam over the winter. This was noticed by Shear staff during April 2011, but was not reported until June 11, 2011. Any unauthorized discharges should be reported immediately after it has been discovered.
- Plans must be developed and implemented to deal with the hazardous wastes and for the old fuel stored onsite. At the moment hazardous wastes are accumulating in the hazardous waste transfer area, but no transfer or disposal of these wastes have occurred. There is a considerable amount of old fuel onsite that will either have to be used or disposed off.
- Secondary containment is recommended for all fuels stored in drums.
- A plan of action (schedules and timelines) is required to deal with the issues onsite. Shear and INAC should work together on this to make certain that issues are being dealt and moving forward in a timely manner.

Shear seems to be making a conscience effort to recognize and address the various issues onsite.

Ian Rumbolt — **Inspector's Name**

Sent by E-mail — **Inspector's Signature**