Inspection Report

License #: **2AM-JER1119**

Inspector: **Eva Paul**

CIDMS # **545657**

Client	Shear Diamonds Ltd.		
Mailing Address	Suite 220 6 Adelaide St. E Toronto, ON M5C 1T6		
Inspection site location	Jericho Mine		
Contact name	Julie Lassonde	Title	President and CEO
Last inspection date	November 1, 2011	June 8, 2010	June 11 & 12, 2011
Inspection start date	July 4, 2012		
Region	Kitikmeot		

AANDC, Nunavut District Office
Box 100
Iqaluit, NU, X0A 0H0

Submitted Via E-Mail
Our File: 2AM-JER1119
CIDM # 545657

August 1, 2012

Julie Lassonde
President and CEO
Shear Diamonds Ltd.
Suite 220 6 Adelaide St. E
Toronto, ON M5C 1T6
Tel: 780-995-2499
Email: Jlassonde@sheardiamonds.com
CC: ar_enviro@yahoo.ca

RE: Water Licence Inspection July 4th, 2012

On the 4th of July 2012 a compliance inspection was carried out on Jericho Project and facilities located at Latitude 65°59'50"N Longitude 111° 28'30"W in the Kitikmeot Region of Nunavut.

I would like to thank the Site Environmental Services staff, particularly Allison Rippin-Armstrong, Wes Atchison, and Pete Fournier for their assistance and time during the inspection. It is valuable to spend time with the staff on-site and to be able to discuss matters in-situ with the people who are working directly on site.

At the time of inspection, the camp is active and processing of the coarse reject pile is on-going. These activities are approved under Water Licence 2AM-JER1119, issued on December 21st, 2011. An Annual Report for 2011 was filed with the Nunavut Water Board on March 31st, 2012. Monthly monitoring reports, quarterly reports, and plans requiring updating have been submitted as per the timelines set out in the licence. In addition to their monthly reporting requirements, Shear has added the results of their own internal inspections conducted by Site Environmental Services staff.

Site water supply comes from Carat Lake. It is metered at the intake, and accounts for camp use. There is a meter in camp, and one at the processing plant, but water is currently being recycled from Cell B/C for use in the processing plant and to wet the PKCA.

The following components and activities were inspected:

- JD-03 site (NWB1JER0306)
- Water intake and water treatment room
- Spills
- PKCA and FPK dispersion
- HWTA
- Fuel Farm
- Incinerator and waste management practices
- Divider Dyke A and West Dam

JD-03 Historic Drill Program

The JD-03 drill program (originally NWB2JD39899, which was consolidated into NWB1JER9801 and re-issued as NWB1JER0306) was inspected for the purposes of closing the expired 0306 licence. Upon inspection, some wooden debris (pallets, core boxes, stakes, plywood) was noted around the lake, left from the drilling program. The site of the Carat Camp, which supported the JD-03 drill program, is located at the end of the runway and holds nothing now but stacks of core. Shear committed to clean up the drill sites as soon as possible, and to submit photographic evidence of the clean-up to the inspector. At the time of this writing, the report has been received, and I am satisfied that this site is adequately reclaimed and this file can now be closed. A report to the Nunavut Water Board will be submitted recommending closure of the license.

Water Intake and Water Treatment Room

Water intake facilities are found in good condition and conform to the licence. Water is metered at the intake and accounts for all consumable water on-site. As previously described, water is also being recycled within the system, which does not contribute to overall consumption. Samples were taken of Carat Lake for baseline information, and were sampled also by Shear staff at the time of the Inspection.

Water for camp use is metered off the main intake. The water-chlorine levels are checked daily, and the water is UV treated. The water treatment room is cluttered, with staining/burns on the floor (possibly from chlorine). Logs are not currently kept in the WT room. Logs of system maintenance (UV bulb changes etc.) and emergency/spill procedures for chlorine spills and broken UV lamps (mercury spill) should be posted in the WT room. I also noted that chlorination is occurring before the UV process, which may reduce the efficacy of the system.

Spills

Spill Reporting was discussed with Shear staff: Past inspectors required of them to report each spill to the Spill Line, not only those spills of reportable quantities. This practice has resulted in the creation of a preliminary internal documentation system. Shear has agreed to maintain their internal documentation system, to be reviewed by the Inspector while on-site, and to report spills of 'reportable' quantities only to the Spill Line.

While Shear's documentation of spill occurrence is good, more work is to be done on spill follow-up. As a licence requirement, a report is due 30 days following a spill, to document the cleanup and follow-up action. These have not been enforced for smaller spills, but an internal procedure is to be put in place to ensure follow-up. For spills of all sizes, the practice should be to remove contaminated material immediately, or as soon as is practicable, so that the contaminant cannot spread or be washed into water bodies. Where a spill report cannot be finalized in the 30 days, a subsequent follow-up date can be set in consultation with the Inspector.

During the July 4 inspection, and a stopover on July 15, we inspected a number of the reported spills. Due to the sheer number of reported spills, we were not able to inspect them all at this time. Some inspected spills (noted below) cannot be closed due to contaminated material remaining at the spill site.

The following spills will be closed:

12-050	12-082	12-158	12-226	12-266
12-076	12-105	12-159	12-247	
12-081	12-116	12-201	12-265	

The following spills require further remediation or are to be addressed upon final closure of the site:

12-080	12-121	12-148

PKCA and FPK dispersion

Fine Processed Kimberlite (FPK) in the Processed Kimberlite Containment Area (PKCA) is currently accumulated against the East Dam and is dispersed over the Southeast Dam by wind. Shear discovered the FPK dispersion in April of 2011 and took action immediately to assess the issue and put mitigation measures in place. 2011 mitigation measures were not ultimately successful, as Shear again reported FPK dispersion in the spring of 2012. Extensive effort went to manually removing the dispersed FPK and placing silt fences prior to freshet, in order to

divert sediment before it impacted the SE dam pond. Regular reports of their progress were sent to the Inspector. There remains a crust of FPK on the south side of the SE dam and evidence of deposition in the water. Shear is actively pursuing means to collect the dispersed FPK with a vacuum system. Shear has taken a much more aggressive approach to the PKCA at this point, using a series of sprinklers to wet the FPK and to try and move the bulk of the FPK away from the South and Southeast Dams. They are also developing further wind attenuation measures, to be implemented this fall and winter.

Hazardous Waste Transfer Area
It is evident that a lot of work has been done on-site to identify and consolidate hazardous waste in the HWTA. Wastes are segregated and each area is well-signed. There is contamination of the gravel throughout the HWTA, which will all need to be treated or disposed of appropriately when the liners are changed. Steps should be taken to prevent further contamination by placing barrels upright where possible. Liners are exposed in places, and visibly torn. Shear has committed to replacing the liner on one cell of the HWTA (where the liquids are stored) this season, and the second cell (where soils are kept) will be replaced next year.

Fuel Farm / Fuel Transfer Area
Visible contamination exists in the Fuel Farm berm from historic and recent spills. Phase II was recently contaminated with motor oil when oil-contaminated snow was placed in the berm rather than drummed and placed in the HWTA as per the spill contingency plan (Spill 12-121). Water that accumulated in Phase I is currently being treated on-site.

Oztek Unit: Due to the legacy contamination throughout the Jericho site, Shear has successfully commissioned the development of an advanced water treatment unit that uses a combination of filtration and ozonation in order to separate hydrocarbons from water. This permits Shear to treat all their hydrocarbon-contaminated water on-site, drastically reducing the amount of hazardous waste that requires shipping. The water treated in the Oztek so far meets discharge criteria.

Work has been done to clean up historic contamination at the Fuel Transfer Area. Some staining still shows under the pumphouse, and absorbent is in place to keep it from migrating. Nozzles are all kept in buckets to catch any drips. Records and spill procedures are kept on-site. The recent geotechnical inspection revealed that there is an existing liner under the FTA.

Incinerator Area and Waste Management Practices
Shear has implemented waste sorting practices, separating plastics/recyclables/glass/batteries etc. Shear uses mostly clear plastic bags in order to help verify that inappropriate items are not being incinerated. At the time of the inspection the incinerator was loaded contrary to their procedure; metals were visible in the ash and it was left unattended. It was recommended that a 'name' column be added to the incinerator log to require users to take responsibility for the contents of each burn. If it continues to be an issue, I would recommend Shear limit access to a few trained staff that would be responsible for the incinerator.

Divider Dyke A and West Dam
A seepage survey was conducted in 2011 at the time of licence renewal. A geotechnical inspection was conducted in July following the inspection. A thorough inspection of all dams and dykes for seepage was not conducted at this time, but no seepage or evidence of erosion was noted at Divider Dyke A and the West Dam during the inspection.

Non-Compliance:

Issues where there is a known or suspected violation of a requirement of the Water license or Act:

Part B (11). Signage is insufficient with respect to water supply facilities and monitoring stations.
Part C (1). Security has not been furnished in the amount required by the Board. Shear and AANDC are in the process of addressing this shortcoming.

As a result of the July 4, 2012 inspection, the following is required of Shear:

A compliance plan: detailing each section in the licence, the steps required to achieve compliance, and a proposed timeline for each. This plan is due to the Inspector by September 30, 2012.

Eva Paul
Inspector's Name

Inspector's Signature

Cc:
Phyllis Beaulieu – Manager licensing – Nunavut Water Board