



AANDC, Nunavut District Office  
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September 24, 2012

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**RE: Inspection of September 13<sup>th</sup>, 2012**

Please find attached the report on the Water License Inspection conducted at the Jericho mine site on September 13, 2012. Included at the end of the report is a summary of observations made during the inspection with respect to issues of non-compliance or non-conformity with the issued Water License or the Nunavut Water and Nunavut Surface Rights Tribunals Act, and actions required of Shear as a result.

The role of Aboriginal Affairs and Northern Development in issues related to the use of water or deposit of waste in Nunavut is one of compliance monitoring and enforcement. AANDC's preferred option is to work with clients to address instances of non-compliance with their authorizations or the Act as well as risks to the environment; the issues identified through the inspection process are brought forward to the Licensee to address within a specified period of time before further actions are undertaken.

Should you require more information or clarification on any aspect of the enclosed report please contact the undersigned at the coordinates listed below. I will, however, be away from the office from September 28<sup>th</sup> to October 22<sup>nd</sup>, 2012. **During that time, please copy all required correspondence to Andrew Keim, A/Manager of Field Operations at the address provided below.** I look forward to continuing to work with you and your staff. If you have any questions please do not hesitate to contact our office here in Iqaluit.

Sincerely,

Eva Paul  
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Aboriginal Affairs and Northern Development Canada  
Nunavut Regional Office  
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Cc: Phyllis Beaulieu – Manager licensing – Nunavut Water Board  
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**License #:** 2AM-JER1119

**Inspector:** Eva Paul

**Inspection Date:** September 13<sup>th</sup>, 2012

**CIDMS #** 581674

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	July 4, 2012	November 1, 2011	June 11 & 12, 2011
Region	Kitikmeot		



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**RE: Inspection of September 13<sup>th</sup>, 2012**

The Jericho Project is located at Latitude 65°59'50"N Longitude 111° 28'30"W in the Kitikmeot Region of Nunavut. Shear's Type 'A' mining and milling water licence, 2AM-JER1119, came into effect February 7, 2012. Other current authorizations related to the Jericho site include:

Land use permit: N2011C0009  
Land leases: 076E13002  
076L03001  
Exploration: 2BE-CDP1116

Shear left the Jericho site on September 2<sup>nd</sup>, 2012. Official notification was given to AANDC of the temporary closure on September 6<sup>th</sup>, 2012.

On the 13<sup>th</sup> of September 2012 a compliance inspection was carried out at the Jericho site. The inspection was planned prior to the Inspector being notified of the closure. Shear representatives travelling with the Inspector by charter to site were; Julie Lassonde, Peter Fournier, and Kyle Conway. AANDC representatives included; Andrew Keim, Karen Costello, Natalie Plato and Michael Bernardin of PWGSC.

**Part A: Scope, Definitions and Enforcement**

At the time of the inspection, the Licensee holds a current authorization (Water Licence). Work to address deficiencies identified in previous inspections has occurred and was underway at the time of the closure of the mine site on September 2<sup>nd</sup>, 2012.

**Part B: General Conditions**

At the time of this writing, all required reports have been submitted to the NWB up to and including July 2012. The revised General Monitoring Plan, due August 7, 2012 is not found on the NWB FTP site. If this plan has been already submitted, please provide a copy to the Inspector.

The Licensee failed to provide advanced notification to the Board regarding the change in conditions associated with the project, however, it is understood that the Licensee received very short notice from their lender. The licensee is reminded that all plans submitted and approved by the Board form part of the licence and operating outside of these plans constitutes non-compliance. The licensee is required to review and update their plans and manuals in order to reflect their current operating status. As outlined in my correspondence of September 18<sup>th</sup>, the plans and reports anticipated in the coming months are as follows:

- Revised General Monitoring Plan - OVERDUE
- Compliance Plan – September 30
- Interim Care and Maintenance Plan (CMP) – September 30
- August Monthly Monitoring Report – September 30
- Quarterly Report (June-August) – September 30
- Annual Geotechnical Inspection Report – September 30?
- Revised Contingency Plan (discussed under Part H) – October 6
- Revised Site Water Management Plan (SWMP) – December 31

**Part C: Conditions Applying to Security**

At the time of this report, there is an outstanding security amount of \$1,121,074. An \$800,000 letter of credit recently released from the expired type 'B' licence NWB1JER0306 is to be applied to this balance, and Shear is to make arrangements with AANDC's Manager of Water Resources for provision of the outstanding balance of required securities.



#### **Part D: Conditions Applying to Construction**

As per Item 4, the Licensee is to provide a Borrow Management Plan within 12 months of the effective date of the Licence. The licensee is reminded of the obligation to maintain all containment and runoff structures throughout the tenure of the licence.

It was noted during the inspection that Shear was undergoing upgrades to the Hazardous Waste Transfer Area (HWTa) and the fuel transfer area at the airstrip. As per items 17 and 18, the Licensee shall submit the required Construction Summary Reports upon completion of these works.

#### **Part E: Conditions Applying to Water Use and Water Management**

No water use, as defined by the issued Water License, is occurring as the site is currently shut down. As per item 5, the Licensee is to submit a revised Site Water Management Plan by December 31, 2012. Shear is reminded of the requirement to carry out weekly inspections of Site Water Management Facilities during periods of flow in order to monitor for areas of deterioration or erosion.

#### **Part F: Conditions Applying to Waste Disposal and Waste Management**

There is currently no grey water or sewage being produced on-site. The Wastewater Treatment Plant was not inspected during this visit. Prior to closure, contact water was being treated on-site with the Oztek remediation unit. The water currently in the Oztek berm was treated, sampled, and met discharge criteria, but the berm had not been discharged at the time of the inspection. *It is recommended that this water be discharged prior to freeze-up to protect the berm's exposed liner.*

An updated PKCA Management Plan is required within 12 months of the effective date of the licence. The licensee is reminded that there exists a requirement to conduct weekly inspections of all earthworks, dams, spillways and pipelines in order to monitor for areas of deterioration or erosion. Further, the Licensee is required to undertake actions to contain the processed kimberlite within the PKCA. Shear's plan to address these requirements must be outlined in the compliance plan and the future updated PKCAMP. Windblown dispersion of fine processed kimberlite (FPK) was an issue in 2012. It has been identified by Shear as a priority environmental risk, and Shear has identified measures to mitigate the risk. These mitigation measures, and a timeline to implementation, are to be outlined in the compliance plan and interim CMP. Keeping the FPK wet was considered critical by Shear to managing the PKCA, and Shear was watering the FPK up until they left the site. It appeared at the time of the inspection that the FPK may begin to dry out prior to freeze-up and will not necessarily freeze in as hoped. *Implementation of the chosen mitigative measures is required this fall.*

Shear did not succeed in cleaning up all the FPK that was dispersed across the SE dam last winter. There remains a large area covered in FPK that will likely cause further sedimentation in the SE dam pond in the spring. Shear has installed silt fences and other mitigative measures, but *these must be checked prior to freshet in order to lessen this impact.*

FPK is pushing through the top of the east wall of Divider Dyke A. This Dyke is not yet built to spec. There is a risk that if the water level rises significantly or overtops, a heavy sediment load could be released into Cell B/C.

It is my understanding that a Geotechnical Inspection was conducted in July 2012. The engineer's report is to be submitted to the Board within 60 days of the inspection, including a cover letter outlining an implementation plan to address the engineer's recommendations (Part I item 20). *Please advise the Inspector and the Board when the 2012 report can be expected.*

Shear began improvements to the HWTa. All hazardous waste from the east cell was moved into the west cell. The contaminated soils were removed, the base re-graded, and the walls built up in preparation for the installation of a new liner. The work was not completed prior to Shear leaving the site.

A large stockpile of propane tanks was noted at Borrow Area 1, some of which still contain propane. The tanks are not secured. *These are to be sorted and properly stored either for use or for backhaul.*

There remain random barrels containing fuel mixed in with the empties at the laydown area across from the HWTa. Much of the waste was said to be legacy waste brought back from Muskox camp, however, some of the barrels were marked 'NSR 2012' so it is possible that some mixing occurred during the movement of waste in the HWTa. *These barrels containing fuel are to be located and stored appropriately.*

*Barrels of expired fuel at the HWTa should be stored standing up, so as to reduce likelihood of leaking.*

There is kimberlite ore noted in the waste rock stockpiles; a legacy issue of the previous owners. This ore should be moved to the ore stockpile area. Item 7 requires that a revised Waste Rock Management Plan be submitted within 12 months of the effective date of the licence, as well as a consolidated Waste Management Plan. The latter should include the Licensee's intended plans for a Landfarm in order to address the contaminated soils in the HWTa.



Shear was in the process of discharging from the PKCA to Stream C3 at the time of closure. The Inspector requests that the volume of water discharged be calculated and reported to the Inspector. It was noted that at the time of closure, the Licensee had not completed the final round of toxicity sampling required for the year.

#### **Part G: Conditions Applying to Modifications**

No modifications were noted at the time of the inspection.

#### **Part H: Conditions Applying to Emergency Response and Contingency Planning**

The Contingency Management Plan does not currently cover procedures and risk management during temporary closure of site. As per item 9, an addendum to the plan is to be submitted within 30 days of providing notification of temporary closure, and which fulfils the requirements under Schedule H, item 2. It should also be updated to include:

- reassessment of risk categories based on actual experiences at site.
- inventory of current fuel supplies and hazardous materials
- update any parts that mention the landfarm – it does not exist. The plan must reflect the actual conditions on-site and the actual protocols to be followed.

Shear internal documents show 26 spills were recorded between January and June of 2012. 13 of these spills were inspected and closed during the July inspection. Other spills noted during the July inspection were not recorded in Shear's internal database. Further internal work is required on spill management. Shear has noted in their September 11<sup>th</sup> draft memo of potential environmental hazards and risks that several spills remain to be cleaned up and closed. There remains visible staining around the fuel transfer area. Also of note during this inspection were the barrels that remain in the Phase II fuel farm berm from a large spill of hydraulic oil on snow (spill # 12-121). These barrels remain uncovered, allowing further precipitation to enter the barrels. This poses two problems: an increased volume of contaminated water requiring treatment, and the risk of the barrels overflowing and causing further contamination. *Hazardous waste should always be stored covered; these barrels are to be covered as soon as possible.*

The fuel tank at the emulsion plant was found to still have fuel in it; the hose was in the 'on' position, the tank not locked out, and the berm ½ full of water. *The licensee is to address this prior to freeze-up.* The licensee must line this area prior to it being used as a fuel transfer area. Until such time it must be locked out so that it is impossible to transfer fuel.

The compliance plan shall address how Shear will do due diligence to conduct regular inspections of fuel containment facilities and to minimize risks related to spills while in temporary closure.

#### **Part I: Conditions Applying to General and Aquatic Effects Monitoring**

At the time of the inspection, Shear had recently completed their sampling under the AEMP, however, Ms. Lassonde expressed her doubt that funding would be available to pay for the analysis of the samples. This monitoring is still required.

The revised General Monitoring Plan was due within six months of the issuance of the licence (August 6, 2012). This plan is now overdue. It is to be submitted immediately to the NWB and to the Inspector.

The recent change in project status does not absolve the Licensee of their monitoring requirements under the licence. The Compliance Plan and ICMP shall reflect the steps Shear will take to meet the monitoring requirements.

Please clarify whether a seepage survey has been conducted for 2012 as required by the Site Water Management Plan reporting and as per item 19 (a).

Please copy to the Inspector any requests for changes to the General or Aquatic Effects Monitoring Programs under item 25.

#### **Part J: Conditions Applying to Closure and Reclamation**

The existing ICMP does not provide provisions for the temporary closure of site. It is important that your guidance documents provide the required protocols for staff.

During the inspection it was noted that fuel pump lines had not been bled, tanks were not locked out, and the drummed fuel berms were not covered to prevent water accumulation. There was time while we were on site for Peter and Kyle to address the latter two issues, however, the nozzle lines were not bled off. At the airstrip, numerous jerry cans are stored for equipment start-up, however most are not in secondary containment. Chemicals and cleaners, and several vehicle batteries without containment. Dry goods and candy were left in the kitchen/dining area, and a bin containing the perishable food that was not able to be incinerated sits outside the



Maintenance Shop. Buildings were not secured, in fact, some doors were ajar. While it is hoped that this situation does not arise again, it demonstrates the need for established protocols.

I submitted to Shear on September 18<sup>th</sup> a list of elements that are to be included (but not limited to) in this ICMP as per the *Mine Site Reclamation Guidelines for the Northwest Territories* (INAC, 2007):

*Protocols for Shut-down (Temporary Closure):*

- Protection of Assets (fire suppression systems, tanks, fuel).
- The site, buildings, and all other structures must be secured and restricted to authorized personnel only.
- Pit must be guarded or blocked and warning signs must be posted.
- Lock-out of fuel systems.
- Basic environmental safeguards in place (FPK containment, fuel containment, water management).
- An inventory of chemicals and reagents, petroleum products, and other hazardous materials, which must be secured appropriately or removed if required.

*Monitoring*

- All physical, chemical and biological treatment and monitoring programs must continue according to licenses, permits, and leases in order to maintain compliance.
- Fluid levels in all fuel tanks must be recorded and monitored regularly for leaks or removed from the site.
- All waste rock piles, ore stockpiles, tailings, mine water and other impoundment structures must be stable and maintained in an appropriate manner (including annual geotechnical inspections).
- Drainage ditches and spillways must be inspected annually and maintained regularly (e.g. seasonally depending on snow and ice accumulation and melting) during the closure period and included as part of geotechnical inspections.
- Facilities and infrastructure must be inspected regularly and maintained.
- The reclamation security deposit must be kept up to date.
- Compliance with all applicable federal and territorial laws and regulations, in addition to the operator's Land Use Permits, Land Leases and Water Licenses, and NIRB Project Certificate.

**General Observations and Comments:**

Water samples were taken at from the pit water and downhill from the reagent pad at the emulsion plant and were submitted to Taiga Lab on September 14<sup>th</sup>.

Information requested of Shear during the inspection includes:

- Total discharge from Cell B/C
- Inventory of Fuel and Hazardous Waste and Chemicals on-site
- List of actions that were undertaken when closing the site.



**Non-Compliance:**

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

**Part C (1).** Security has not been furnished in the amount required by the Board.

**Part E (6)(c).** Failure to conduct weekly inspections of site water management facilities during periods of flow.

**Part F (6)(d).** Failure to carry out weekly inspections of dams, spillways, pipelines.

**Part F (6)(e).** Failure to permanently contain the processed kimberlite within the PKCA.

**Part F (14).** Failure to carry out weekly inspections of all major earthworks.

**Part H (5).** Failure to carry out weekly inspections of fuel containment facilities.

**Part I (1).** Failure to file a revised General Monitoring Plan within 6 months of the effective date of the licence.

**Part I (3).** Failure to fully undertake monitoring as described in Table 2.

Based on administrative requirements of the licence or issues noted during the September 13<sup>th</sup>, 2012 inspection, the following is required of Shear:

- Shear is required to return to site prior to freeze-up this year and complete the actions required to close down and winterize the site:
  - those actions identified in this report in italics,
  - those actions identified as necessary to mitigate the risks of FPK dispersion,
  - to pump such water from Cell B/C as required to mitigate risks of overtopping during spring freshet, and
  - any other actions identified in the temporary closure protocols.
- Shear will provide notification to the Inspector of the anticipated visit to complete temporary closure measures.
- Provide to the inspector by September 28<sup>th</sup> the information requested during the inspection:
  - Volume discharged from Cell B/C in 2012,
  - Inventory of Fuel and Hazardous Waste and Chemicals on-site, and
  - List of actions that were undertaken when closing the site.
- Security shall be furnished in the amount and form required.
- Updated Interim Care and Maintenance Plan by September 30<sup>th</sup>, 2012.
- Compliance plan, as required from the July inspection, including actions that will be taken during the current temporary closure, by September 30<sup>th</sup>, 2012.
- An addendum to the Contingency Plan to address temporary closure measures by October 6<sup>th</sup>, 2012.
- Geotechnical Report shall be submitted within 60 days of the geotechnical inspection with an implementation plan.
- Clarify whether a seepage survey has been conducted for 2012 as required by the Site Water Management Plan.
- A revised Site Water Management Plan by December 31<sup>st</sup>, 2012.
- Revised PCKA Management Plan by February 7, 2013.
- Revised Waste Rock Management Plan by February 7, 2013.
- Consolidated Waste Management Plan by February 7, 2013.
- Monitoring results as required in the approved monitoring plans or in a revised monitoring plan.
- A construction summary report shall be prepared within 90 days of completion of current construction projects.

Failure to undertake the actions required as described in this inspection report may result in enforcement actions being undertaken.

**Eva Paul**  
Inspector's Name

  
Inspector's Signature

Cc:

Phyllis Beaulieu – Manager licensing – Nunavut Water Board

Andrew Keim – A/Manager Field Operations, AANDC - [Andrew.Keim@aandc-aadnc.gc.ca](mailto:Andrew.Keim@aandc-aadnc.gc.ca)