FPK DISPERSION

OBSERVATION AND MITIGATION REPORT

DECEMBER 12, 2011

JERICHO MINE SITE

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OBSERVATIONS

It was observed by our staff on December 12th 2011 that the FPK (Fine Processed Kimberlite) within the PKCA (Processed Kimberlite Containment Area) had been dispersed by the wind during a storm that occurred over a 3 day period. It was reported to the VP of Operations and immediate attention was given to the matter. It was proposed that a site evaluation and delineation be conducted to assess the area and decide what mitigative steps were to be taken.

The storm that hit the Jericho site lasted approximately 3 days (December 5th-7th) with winds blowing 290-320° between 80-140 kms/hr as per the sites AWOS (Automated Weather Observation System). White out conditions were declared which prevented anyone from leaving the camp's vicinity. When comparing these winds with previous statistics they exceed all recorded wind speeds for the area. Please refer to the table below.

Wind

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean hourly wind speed (km/h)	15	17	14	18	17	16	17	18	20	22	13	17
Record hourly speed (km/h)	61	65	57	61	61	57	54	57	74	63	76	80
Date	Jan 23 2001	Feb 16 2001	Mar 11 2000	Apr 24 1999	May 20 2002	Jun 13 2002	Jul 13 1998	Aug 19 2002	Sep 15 2000	Oct 21 1998	Nov 16 2001	Dec 06 2002

The weather statistics displayed here represent the value of each meteorological parameter for each month of the year. The sampling period for this data covers 30 years. Record maximums and minimums are updated annually (The Weather Network, 2011). The table above clearly shows that the storm experienced at the Jericho site was at the very least a 25 year storm. Winds of this magnitude have not been recorded in the area in over 30 years.

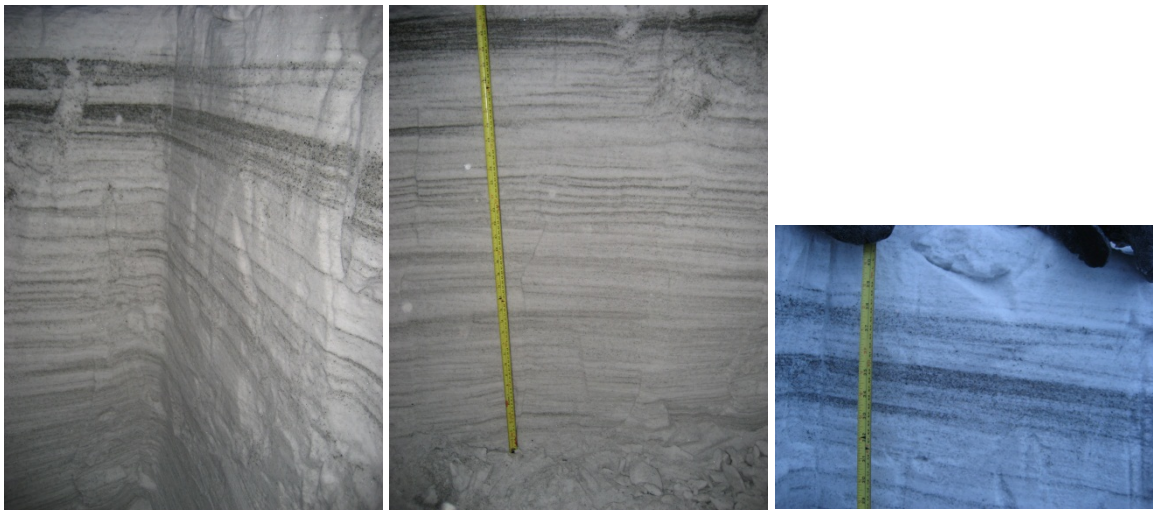
After observing the FPK dispersion it was decided that a perimeter be established to identify the extent of the FPK dispersion. The area east of the PKCA's east dam was observed at and had little to no traces of FPK atop or within the snow profile. The concentrated area was on the south east dam road and just east of the south east dam. A snow profile was dug out 10 m east of the south east dam road. A second profile was dug approximately 25 m east of the south east dam road. A third profile was dug approximately 40 m east of the south east dam road. A fourth profile was dug approximately 50 m east of the south east dam road. Two other profiles were dug approximately 70 m and 120 m east of the south east dam road to observe any trace on the tundra. Please refer to pictures and descriptions below.

Profile 1

Profile 1 – 10 m E of SE dam Rd

Profile 1 was located approximately 10 m east of the south east dam road. A profile was cut out of the snow to observe the depth of the FPK layer and its dispersion pattern. The profile was approximately 16 ¼" deep. The FPK layer observed was approximately 6-7" deep which we believe to be during the wind storm.

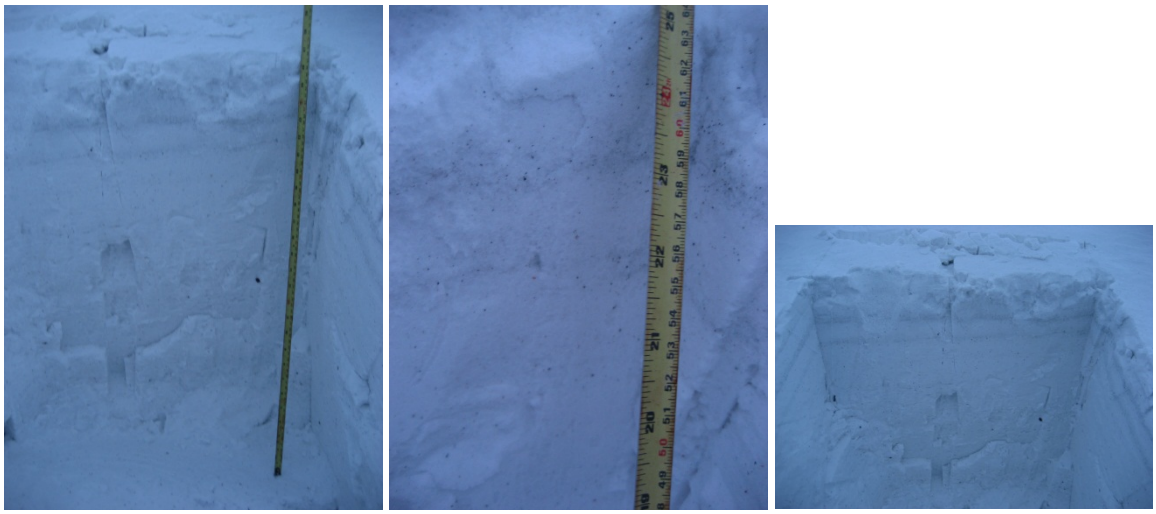
Profile 2



Profile 2 – 25 m E of SE Dam Rd

Profile 2 was located approximately 25 m east of the south east dam road. A profile was cut out of the snow to observe the depth of the FPK layer and its dispersion pattern. The profile was approximately 42 ¾" deep. The FPK layer observed was approximately 6-7" deep which we believe to be during the wind storm. There were multiple layers below what we believe to be the layer brought on by the storm.

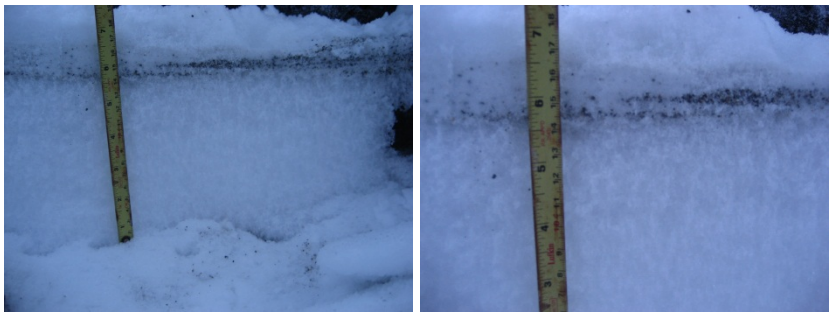
Profile 3



Profile 3 – 40 m E of SE Dam Rd

Profile 3 was located approximately 40 m east of the south east dam road. A profile was cut out of the snow to observe the depth of the FPK layer and its dispersion pattern. The profile was approximately 27" deep. There were small traces of FPK in two thin layers that ranged from ½" to 1" thick.

Profile 4



Profile 4 – 50 m E of SE Dam Rd

Profile 4 was located approximately 400 m east of the south east dam road. A profile was cut out of the snow to observe the depth of the FPK layer and its dispersion pattern. The profile was approximately 8" deep. There were traces of FPK in a thin layer approximately 1 ½" thick.

South East Dam Road & PKCA

S E Dam Road Rd

As displayed in the photos above, there are high concentrations of FPK on the south east dam road. The most easterly part of the PKCA has an increased elevation where it meets the south east dam. This elevation in itself acts as a wind break allowing dense particles to drop onto the road. Increasing the height of the windbreak should effectively drop further FPK.

PKCA

Exposed FPK in PKCA

Prior to the wind storm there was a hard layer of snow ranging from 1-3' on top of the FPK contained within the PKCA. As you can see the force of the winds has completely exposed the FPK.

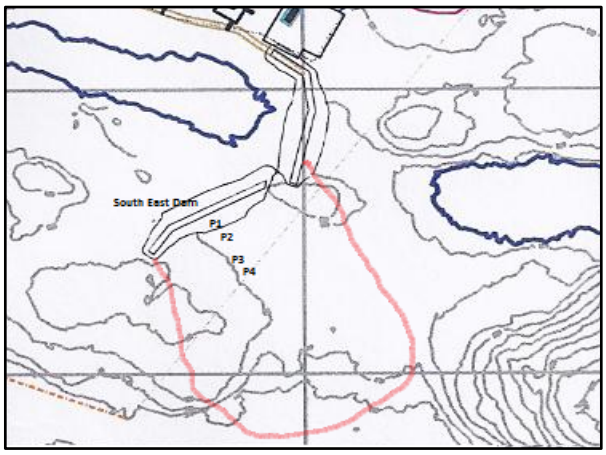
Tundra

Tundra by S E Lake

View towards S E Dam

As can be seen on the photographs FPK is dispersed to the east slope of the south east dam and is also dispersed over the tundra east of the south east dam. Traces of FPK are minimal beyond 100 m east of the south east dam.

FPK Delineation



This map delineates in red the area where the FPK was observed. The prevailing winds come from the north west and a clear pattern has been observed. It also displays the profile location's labelled P1-4 as well as the south east dam. Scale and layouts are approximate and may not reflect actual size and locations.

After observing the behavior of the FPK and its dispersion pattern it was decided to compare the PKCA with the CPK (Coarse Processed Kimberlite) as well as the esker in A1 (Area 1) and the HWTA (Hazardous Waste Transfer Area). The CPK and esker are far denser than the FPK. It was observed that trace amounts of CPK and esker had been dispersed by the wind during the storm which has never been observed since the mine's initial operation, to Shear's knowledge. This also contributed to the validity of a 25 year storm possibility.

MITIGATION

After assessing the situation and great deliberation, a mitigation plan was formed. It was decided that a wind break would be the best option for a short term solution to the FPK dispersion. Snow berms were the first consideration however, being in a state of care and maintenance the site is left with few resources (fuel, manpower, equipment, etc.) to construct such a berm. It was later decided to utilize the materials we had on site that were not in use at the current time as additional measures

to the snow berm. We have a surplus of CAT 777 Rock Truck tires. Their dimensions are approximately 102" by 27". This tire wall in addition to snow accumulation on the face of the wall will serve as a sufficient wind break.

Wind Break Design

The wind break design was developed keeping in mind that Shear has very limited resources and wanted to utilize unused materials around site in addition to snow. After going through site inventory it was decided that the surplus of used CAT 777 rock truck tires would work as a wind block also serving section 2.5 Recovery Opportunities in the Shear Diamonds Waste Management Plan. The concept was to make a wall stacking three tires high (81') the entire length of both the south east dam and the east dam. With a windbreak in place this would allow snow to accumulate on the face of the windbreak and encourage FPK to drop both before and just beyond the wind break. This would be effective in combination with the current increase in elevation from the PKCA to the east and south east dam.

Wind Break Pictures



CONCLUSION

The storm that hit the Jericho Mine Site was at a very minimum a 25 year storm. The FPK dispersion was the first event of its kind for the winter season 2011-2012. We will continue to diligently monitor the situation as the winter progresses.. Shear has completed their due diligence in a very time effective manner. Shear has observed, addressed, and mitigated the situation as quickly as possible within its current capacity to do so. Measures have been taken to better prepare the site for such an occurrence as well as mitigate the current potential for ongoing dispersion.