

# Memorandum

**To:** Todd Powell, Director, Mineral Resources, Energy, Mines and Resources

**From:** Alexco Keno Hill Mining Corp.

**CC:** Keno City Residents

**Date:** May 26, 2022

**Re:** 2022 Q1 Air Quality Monitoring Report

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## INTRODUCTION

This report has been created to summarize air quality monitoring results of Alexco Keno Hill Mining Corp. (AKHM) operations during the first quarter of 2022.

Addressing the potential effects of fugitive dust on community health and well-being is of key importance given the location of the Keno Hill Silver District Mine Operations to Keno City. The main dust sources in the proximity of the village of Keno City include the dry stack tailings facility, mineral processing (crushing) and mine traffic on unpaved roads.

AKHM monitors dust levels around the Keno City area using BGI Omni Ambient Air Quality Samplers. Figure 1 exhibits the locations these samplers were placed to record data on air quality during the period reported. Dust or particulate matter (PM) is divided into different sized fractions for air quality monitoring. AKHM collects for three filter inlet sizes (TSP, PM<sub>10</sub> and PM<sub>2.5</sub>) at each air quality monitoring station which is then sent to an analytical laboratory for gravimetric analysis. Metals analyses by Inductively Coupled Plasma (ICP) mass spectrometry are conducted on the total suspended particulate (TSP) sample.

Particulate air quality monitoring results are compared to the Yukon Ambient Air Quality Standards. There are no ambient air quality standards for metals in Yukon, due to this the Ontario Ministry of Environment Ambient Air Quality Criteria 24-hr average concentrations for metals is used to assess the metals of concern (arsenic, cadmium, iron, manganese, lead, and zinc).

The company also maintains a Dust Disturbance Register to record, track and address dust disturbance concerns raised by Keno City residents.

## RESULTS

The data used to evaluate air quality during the first quarter of 2022 was collected at two monitoring locations, TSP-2 and TSP-3. All samples met the Yukon Ambient Air Quality Standards and the Ontario Ambient Air Quality Criteria. The results for the parameters of concerned are compared to the Yukon and Ontario thresholds on Table 1.

As well, no complaints were filed or recorded by area residents in the Dust Disturbance Register.

**Table 1: Concentrations Summary for 2022 Q1 (24-hour)**

	TSP	PM <sub>10</sub>	PM <sub>2.5</sub>	As	Cd	Fe	Pb	Mn	Zn
<b>Air Quality Criteria (µg/m<sup>3</sup>)</b>	<b>120</b>	<b>50</b>	<b>27</b>	<b>0.3</b>	<b>0.025</b>	<b>4.0</b>	<b>0.5</b>	<b>0.4</b>	<b>120</b>
<b>Station</b>	<b>TSP-2</b>								
<b>Average</b>	3.3	3.0	2.8	0.00098	0.00106	0.104	0.01414	0.007	0.0182
<b>Count</b>	8	12	7	8	8	8	8	8	8
<b>Minimum</b>	2.8	2.8	2.8	0.00035	0.00015	0.050	0.00478	0.002	0.0035
<b>Maximum</b>	6.9	5.6	2.8	0.00250	0.00639	0.203	0.03014	0.021	0.0479
<b>Geometric Mean</b>	3.1	3.0	2.8	0.00072	0.00039	0.091	0.01195	0.005	0.0135
<b>Count exceeding standard</b>	0	0	0	0	0	0	0	0	0
<b>Station</b>	<b>TSP-3</b>								
<b>Average</b>	3.4	3.4	5.1	0.00035	0.00024	0.057	0.00419	0.002	0.0142
<b>Count</b>	9	12	7	6	6	6	6	6	6
<b>Minimum</b>	2.8	2.8	2.8	0.00035	0.00007	0.046	0.00168	0.001	0.0072
<b>Maximum</b>	8.2	7.5	15.6	0.00035	0.00069	0.076	0.00611	0.003	0.0257
<b>Geometric Mean</b>	3.2	3.2	4.0	0.00035	0.00016	0.057	0.00382	0.002	0.0129
<b>Count exceeding standard</b>	0	0	0	0	0	0	0	0	0

## CONCLUSION

The data collected during the first quarter of 2022 shows that any dust originating from AKHM was kept at a minimum and did not exceed thresholds that may indicate a change in operations for reducing dust produced warranted. The dust abatement and monitoring program will continue at AKHM throughout the year to ensure AKHM operations maintain minimal impact on the community of Keno City.

## REFERENCES

Ontario Ministry of Environment. (2012). *Ontario's Ambient Air Quality Criteria. Standards Development Branch.* PIBS#6570e01. April 2012.

Yukon Environment. (2019). *Yukon Ambient Air Quality Standards.* April 2010, updated October 2019.



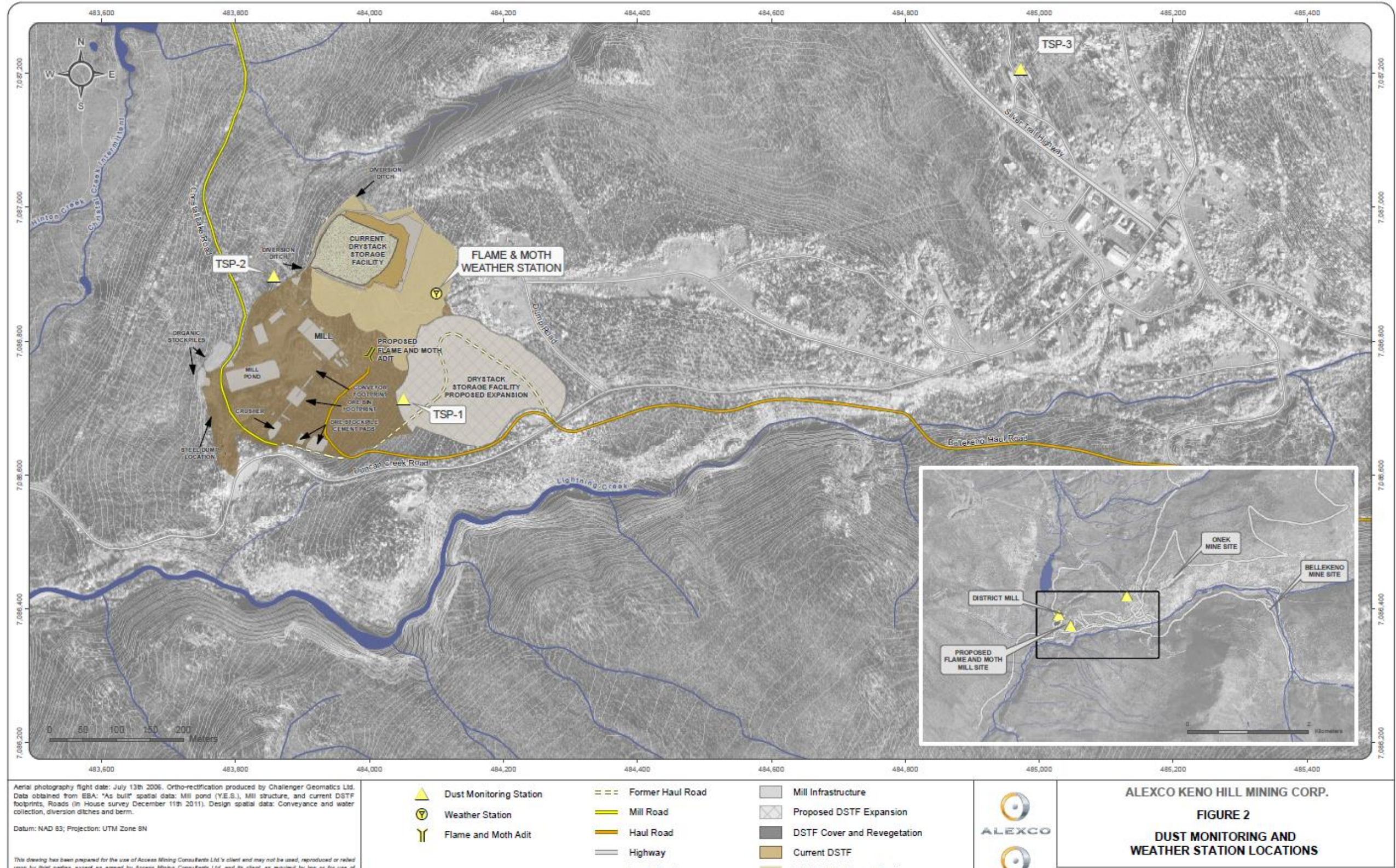


Figure 9-2: Air Quality/Dust Monitoring Locations