Ambient Air Monitoring Project
Summary Report
Town Hall & Mine Site
Baie Verte, NL

Prepared for:
Government of Newfoundland & Labrador
Department of Natural Resources
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Attention: Mr. Alex Smith, P.Eng.
March 31, 2011
Pinchin File: 07-01-00020

TABLE OF CONTENTS

Appendices

1.0 INTRODUCTION

Pinchin LeBlanc Environmental Ltd. (Pinchin) was retained by the Government of Newfoundland & Labrador (Client) to provide ambient air monitoring at the Town Hall and Mine Site in Baie Verte, NL to determine the airborne fibre levels over a ten (10) month period. The purpose of this report is to provide a summary of the project and to place the important documents in one concise and complete document.

2.0 REGULATORY REQUIREMENTS FOR ASBESTOS

2.1 Asbestos

Asbestos is a set of six naturally occurring silicate minerals exploited commercially for their desirable physical properties. They all have in common their asbestiform habit, long, thin fibrous crystals. The inhalation of asbestos fibres can cause serious illnesses including malignant lung cancer, mesothelioma and asbestosis. Long exposure to high concentrations of asbestos fibres is more likely to cause health problems. Asbestos exists in the ambient air at low levels, which itself does not cause health problems.

The Baie Verte asbestos deposit was discovered in 1955, and Advocate Mines, a division of the giant Johns-Manville Company, began open-pit mining there in 1963. The Advocate Mine operated until 1981. In 1982, it reopened under Transpacific Asbestos Limited and continued to operate for another eight years until the mine shut down in 1990. The mines warehouse, sheds, crusher building and conveyer were all decommissioned within the last couple of years and to date the mine is inactive with all related buildings dismantled.

Each province has issued regulations or guidelines for control of work around asbestos building materials and for the packaging and disposal of asbestos waste. These regulations and guidelines are enforceable under the Newfoundland & Labrador Occupational Health and Safety Act. These are:

- Asbestos Abatement Regulation (111/98) made under the Newfoundland and Labrador Occupational Health and Safety Act; and
- Department of Environment and Conservation Policy Directive: GD-PPD-03 Asbestos Waste Disposal.
- Occupational Health and Safety Regulation 70/09: Part VI Occupational Health Requirements – Asbestos.

Asbestos in the air is regulated by a Threshold Limit Value (TLV). Most regulators use the ACIGH TLV for a measurable exposure criteria as this level is health and safety driven with respect to exposure criteria. Ontario's ambient air criteria was not used, as it is specific to that province and not Newfoundland and Labrador.

- **ACGIH TLV**- American Conference of Governmental and Industrial Hygienists' threshold limit value expressed as a time-weighted average; the concentration of a substance to which most workers can be exposed without adverse effects.

The current ACGIH TLV for all forms of asbestos is 0.1 fibres/ml.

3.0 PROJECT SCOPE

This ambient air monitoring was a proactive approach to determine the levels of airborne fibres around the mine site and town hall over a ten (10) month period. The project consisted of the following:

- Conduct air monitoring at the Baie Verte Town Hall and Mine Site for a duration of 24 hours each approximately every six (6) days, depending on weather conditions (no rain or precipitation), from June 2010 to March 2011. Key Map is presented in Appendix I.
- Submit a total of five (5) TEM air samples within the duration of the project.
- Collect daily weather data from the MET station including wind speed, wind direction, temperature and relative humidity located at the Mine Site.
- Provide monthly air sampling summaries of findings.
- Submit final report.

4.0 METHODOLOGY

4.1 Air Sample Collection

A sampling station was erected at the town hall and the mine site, which provided the low volume pumps electricity and protection from the weather. The sample cassette at the town hall was attached to the pump tubing, which was situated at the top of a plastic rod, approximately fifteen (15) feet from the ground, allowing the sample inlet to sit above the roof and be in full contact with the air stream. The sample cassette at the mine site was attached to the pump tubing situated approximately eight (8) feet from the ground also allowing the sample inlet to be in full

contact with the air stream. One (1) ambient air sample was collected at the town hall and one (1) at the mine site for a duration of 24 hours approximately every six (6) days (not during rainfall or precipitation). A total of eighty (80) air samples were collected using membrane filter cassettes. Four (4) blank samples were also collected for quality control purposes using a membrane filter cassette.

A membrane filter sample was collected by drawing a known amount of air through cellulose mixed ester filter, which has a 0.8 micrometer pore size and is held open-faced in 3-piece conductive cassette. The filter was 25 mm in diameter. Low volume pumps were used in sample collection. The pumps were calibrated to a flow of 1 litre per minute (lpm) using a digital calibrator before each use.

4.2 Air Sample Analysis

The samples were analyzed by the Phased Contrast Microscopy (PCM) method. The analysis was performed following the **"A"** set of counting rules of the **N**ational **I**nstitute of **O**ccupational **S**afety and **H**ealth (**NIOSH)** 7400 Method, Issue 2, dated August 15th, 1994. Phase Contrast Microscopy is an optical technique for viewing small particles rather than a method for measuring specific properties of a substance. It is a technique based entirely on the shape of the particle rather than a method for measuring specific properties of a substance. It is not inherently specific for asbestos. Consequently, all particles satisfying a 3:1 length to width ratio are counted as fibres.

A segment of the collection filter was mounted, treated chemically to make the filter membrane transparent, and examined using a special microscope reticle and counting procedure with phase contrast illumination at 400 to 500 times magnification. Particles are observed for shape and size. Results are presented as the number of fibres per cubic centimetre of air (fibres/cc).

This result is calculated by the following formula:

$$\text{Results}/\text{cc} = \frac{\text{Total number of fibres on the filter}}{\text{Total volume of air sampled (cc)}}$$

Results are calculated based on the above formula and the Quantitation Limit (Q.L.) for the sampling volume.

The reliable quantitation limit of this method, determined from in-house quality control data, is based on a minimum fibre density of about 40 fibres in 100 fields (assuming a graticule area of .00785 mm/sq.). If calculated value is less than Q.L. then the result is reported as <Q.L.

(numerical value for Q.L.). If the calculated value is greater than Q.L., then the resulted is reported as the calculated value.

Pinchin inspectors/technicians are enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en sécurité du travail), a comprehensive quality assurance program. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

Transmission Electron Microscopy (TEM) represents the most sophisticated technology available for characterizing asbestos minerals. Using magnifications routinely at 20,000X or greater and employing powerful chemical (EDXA) and mineralogical (SAEDP) tools, the TEM can differentiate not only asbestos from non-asbestos fibres, but also can classify the several species of different asbestos minerals. Within the project, five (5) samples were sent for TEM analysis. These samples were submitted to the Scientific Analytical Institute (SAI) in North Carolina, USA for analysis using Transmission Electron Microscopy (TEM) EPA Level II Method.

4.3 Description of Type of Air Samples

Asbestos is exceptionally resistant (i.e. to thermal degradation, chemical attack, etc.) and fine fibres can remain airborne for long periods of time. Settled fibres are easily re-entrained back into the atmosphere. Atmospheric transport involves dispersion and re-entrainment of asbestos fibres with deposition occurring due to wash-out and gravitational settling. The deposition and eventual burial of fibres in soils and sediments are the major processes by which asbestos fibres leave the atmosphere. Pinchin conducted ambient air sampling, which is conducted to determine airborne fibre concentrations in the areas of asbestos demolition / renovation of buildings, roads surfaced with gravel containing asbestos, landfills, quarry's, asbestos mines, etc. Both the town hall and mine site were sampled since they are in the vicinity of the former Advocate asbestos open pit mine.

5.0 AIR MONITORING RESULTS

5.1 PCM Sampling Results

The calculated value of the airborne fibre level is relative to the quantitative value for the volume of air sampled. The quantitation limit is the lowest level, expressed in fibres/mL, than can give a reliable and reproducible numerical value for a given volume of air. Any result that is calculated

to be below the quantitation limit is expressed as less than that limit (e.g. <0.01 fibres/mL for a 1440 L sample).

In total, eighty (80) samples were collected with an additional four (4) blank samples. The sample results indicate that airborne fibre levels at both the town hall and mine site, on the sampling days, were all <0.01 f/ml which is below the current TLV of 0.1 f/ml. The air sample results are presented in monthly summaries presented in Appendix I and charted adjacent to the weather data collected in Appendix III.

5.2 TEM Sampling Results

In total, five (5) samples were sent for TEM analysis. Two (2) were sent from the town hall and three (3) were sent from the mine site. For both town hall samples, the TEM results returned no asbestos fibres detected. For the mine site, two (2) of the three (3) samples submitted returned no asbestos fibres detected. One (1) sample returned with one asbestos fibre, however, the asbestos fibre identified on the filter from the mine was measured less than 5 microns. The NL Asbestos Regulation does not consider these respirable fibres as being regulated as defined:

> "respirable asbestos fibres" means asbestos fibres having a diameter of less than 3 um and a length-to-diameter ratio greater than 3:1 and only fibres of a length greater than 5 um shall be taken into account for purposes of measurement; and "

On the day of the mine TEM sample (August 26-27, 2010), which recovered the one asbestos fibre, the wind direction was more southeast than the other TEM sample days at an average of 175 degrees with an average relative humidity of 76%, average temperature of 17.8 ^{0}C and average wind speed and 1.6 m/s. The average wind direction of the other four samples was 262, 223, 252 and 280 degrees, all southwest – west direction. Detailed TEM results are presented in Appendix IV. TEM results compared to the weather conditions are presented in Appendix III.

6.0 MET WEATHER STATION MINE SITE

The MET weather station located at the mine site collected data including temperature, relative humidity, wind direction and wind speed. Pinchin calculated the daily averages of all four parameters and have included the results in Appendix II. Graphs of the wind directions are also presented in Appendix II.

For the duration of the project, the wind was predominantly from the southwest direction (~220 degrees). The mine sampling station and MET station was located just southwest of the mine and the town sampling station was approximately 3.5 km southwest of the mine.

With the wind direction predominantly in the southwest direction, there were no measureable fibres exceeding the ACGIH TLV of 0.1 f/ml recorded.

The daily averages are charted adjacent to the sampling days and sample results and are presented in Appendix III. The sample results indicate that airborne fibre levels at both the town hall and mine site, on the sampling days, were all <0.01 f/ml which is below the current TLV of 0.1 f/ml.

7.0 DISCUSSION OF PROJECT

7.1 General

Pinchin conducted the air sampling from June 2010 to March 2011 and collected an air sample at the town hall and mine site approximately every six (6) days, which ran for a duration of 24 hours each. Each of the low volume pumps used were calibrated to a rate of 1 L/min before each sample. Daily weather data including wind speed, wind direction, temperature and relative humidity was also collected from the MET station located at the mine site. Eighty (80) samples were collected in total with an additional four (4) blank samples. Five (5) samples were sent for TEM analysis within the ten (10) month period. All PCM sample results were within the accepted airborne fibre criteria of < 0.1 f/ml for all forms of asbestos. TEM sample results indicated four (4) of the five (5) samples submitted returned no asbestos fibres detected. One (1) mine site sample returned with one asbestos fibre, however, the asbestos fibre identified on the filter from the mine was measured less than 5 microns. The NL Asbestos Regulation does not consider these respirable fibres. PCM monthly summaries, TEM results and daily weather summaries are all attached in the Appendices.

8.0 LIMITATIONS

The work performed by Pinchin was conducted in accordance with generally accepted engineering or scientific practices current in this geographical area at the time the work was performed. Pinchin can only comment on the environmental conditions observed on the date(s) the assessment is performed. The work is limited to those materials or areas of concern identified by the Client or outlined in our proposal. Other areas of concern may exist but were not investigated within the scope of this assignment.

Pinchin makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth

herein. With respect to regulatory compliance issue, regulatory statutes are subject to interpretation and these interpretations may change over time. Pinchin accepts no responsibility for consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The liabilities of Pinchin are addressed in the contract that was agreed upon between Pinchin and the Government of Newfoundland & Labrador prior to the commencement of the project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

9.0 CLOSURE

Should there be any questions regarding the contents of this report, please contact the undersigned at (709) 639-1984.

Yours truly,

Pinchin LeBlanc Environmental Ltd.

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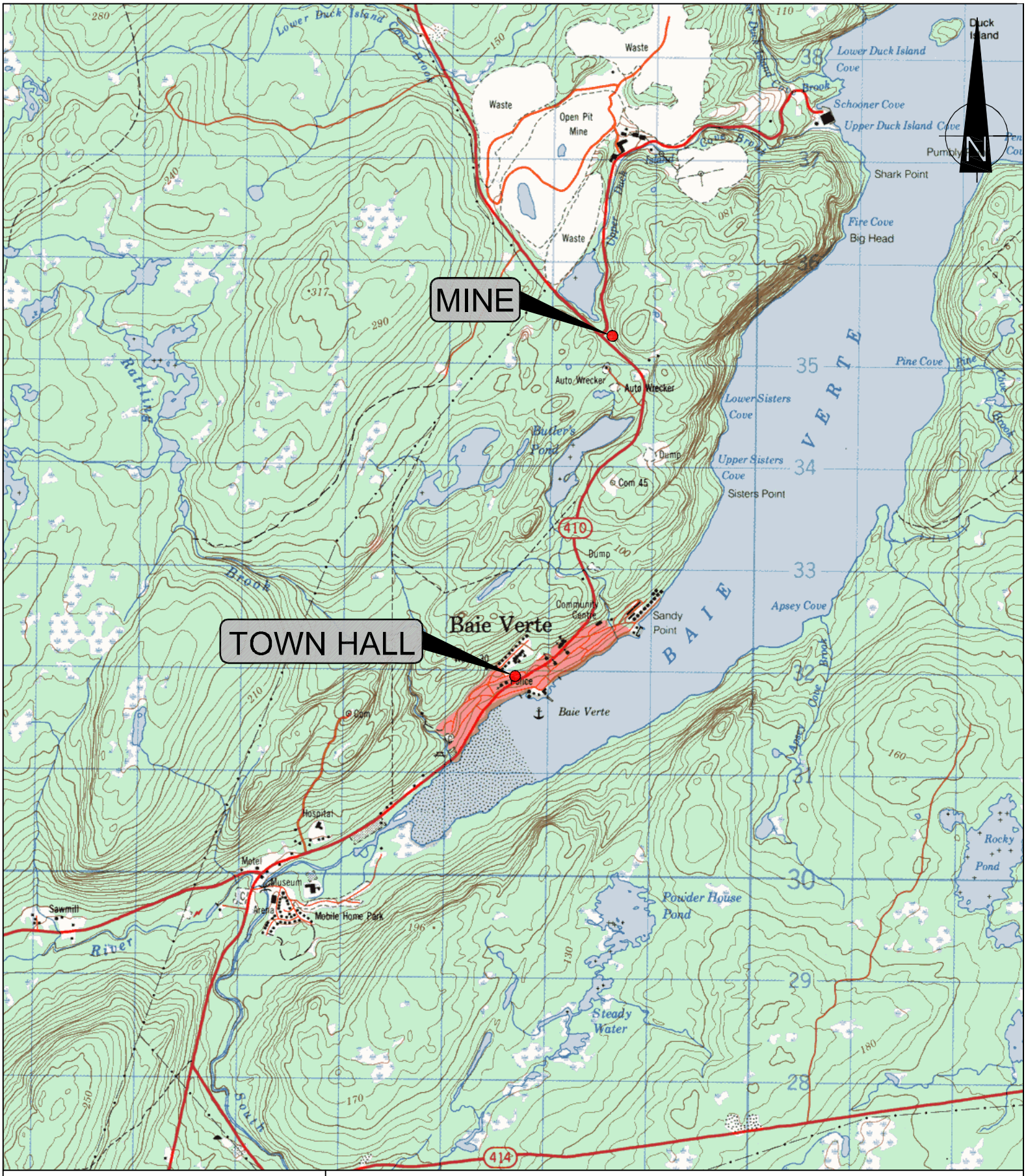
APPENDIX I

KEY MAP – SAMPLE STATIONS



PINCHIN LEBLANC ENVIRONMENTAL

GOVERNMENT OF NEWFOUNDLAND

AMBIENT AIR MONITORING

TOWN HALL AND MINE, BAIE VERTE, NEWFOUNDLAND AND LABRADOR

KEY MAP

DATE:	PROJECT #	SCALE:	DRAWN BY:	CHECKED BY:	FIGURE NO.
APRIL 2011	07 - 01 - 00020	1 : 50,000	P. LOWERY	J. KING	1

APPENDIX II

MONTHLY SUMMARY REPORTS

AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

June 2010 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
June 16-17, 2010	07-01-20-A001	Town Hall	<0.01	Sunny-Sunny
June 16-17, 2010	07-01-20-A002	Mine	<0.01	Sunny-Sunny
June 22-23, 2010	07-01-20-A003	Town Hall	<0.01	Sunny-Sunny
June 22-23, 2010	07-01-20-A004	Mine	<0.01	Sunny-Sunny
June 29-30, 2010	07-01-20-A005	Town Hall	<0.01	Overcast-Partly Cloudy
June 29-30, 2010	07-01-20-A006	Mine	<0.01	Overcast-Partly Cloudy
June 29-30, 2010	07-01-20-A007	Town Hall (Blank)	1 fibre/100 fields	Overcast-Partly Cloudy
June 29-30, 2010	07-01-20-A008	Mine (Blank)	1 fibre/100 fields	Overcast-Partly Cloudy

NOTE: MET station data at Mine Site entrance not downloaded for this period.

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV for asbestos fibres is 0.1 fibres/cm^3.

Analysis of the PCM air sample was provide by Julia King of Pinchin LeBlanc Environmental who is enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en securite du travail), a comprehensive quality assurance programme. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

July 2010 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
July 8-9, 2010	07-01-20-A009	Town Hall	<0.01	Overcast-Overcast
July 8-9, 2010	07-01-20-A010	Mine	<0.01	Overcast-Overcast
July 13-14, 2010	07-01-20-A011	Town Hall	<0.01	Sunny-Sunny
July 13-14, 2010	07-01-20-A012	Mine	<0.01	Sunny-Sunny
July 21-22, 2010	07-01-20-A013	Town Hall	<0.01	Sunny-Partly Cloudy
July 21-22, 2010	07-01-20-A014	Mine	<0.01	Sunny-Partly Cloudy
July 29-30, 2010	07-01-20-A015	Town Hall	<0.01	Overcast-Partly Cloudy
July 29-30, 2010	07-01-20-A016	Mine	<0.01	Overcast-Partly Cloudy

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV exposure limit for asbestos fibres is 0.1 fibres/cm^3. The TLV is published by the American Conference of Governmental Industrial Hygienists (ACGIH) which is the recognized in Asbestos Regulation 111/98 under Section 5 (Prohibition and Threshold Limit Values)

Analysis of the PCM air sample was provide by Julia King of Pinchin LeBlanc Environmental who is enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en securite du travail), a comprehensive quality assurance programme. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

August 2010 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
August 5-6, 2010	07-01-20-A017	Town Hall	<0.01	Overcast-Overcast
August 5-6, 2010	07-01-20-A018	Mine	<0.01	Overcast-Overcast
August 12-13, 2010	07-01-20-A019	Town Hall	<0.01	Partly Cloudy-Overcast
August 12-13, 2010	07-01-20-A020	Mine	<0.01	Partly Cloudy-Overcast
August 18-19, 2010	07-01-20-A021	Town Hall	<0.01	Partly Cloudy-Sunny
August 18-19, 2010	07-01-20-A022	Mine	<0.01	Partly Cloudy-Sunny
August 26-27, 2010	07-01-20-A023	Town Hall	<0.01	Sunny-Overcast
August 26-27, 2010	07-01-20-A024	Mine	<0.01	Sunny-Overcast

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV exposure limit for asbestos fibres is 0.1 fibres/cm^3. The TLV is published by the American Conference of Governmental Industrial Hygienists (ACGIH) which is the recognized in Asbestos Regulation 111/98 under Section 5 (Prohibition and Threshold Limit Values)

Analysis of the PCM air sample was provide by Julia King of Pinchin LeBlanc Environmental who is enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en securite du travail), a comprehensive quality assurance programme. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

September 2010 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
September 1-2, 2010	07-01-20-A025	Town Hall	<0.01	Sunny -Overcast
September 1-2, 2010	07-01-20-A026	Mine	<0.01	Sunny -Overcast
September 9-10, 2010	07-01-20-A027	Town Hall	<0.01	Partly Cloudy-Overcast
September 9-10, 2010	07-01-20-A028	Mine	<0.01	Partly Cloudy-Overcast
September 16-17, 2010	07-01-20-A029	Town Hall	<0.01	Overcast - Sunny
September 16-17, 2010	07-01-20-A030	Mine	<0.01	Overcast - Sunny
September 22-23, 2010	07-01-20-A031	Town Hall	<0.01	Overcast - Partly Cloudy
September 22-23, 2010	07-01-20-A032	Mine	<0.01	Overcast - Partly Cloudy
September 30-October 1, 2010	07-01-20-A033	Town Hall	<0.01	Overcast - Partly Cloudy
September 30-October 1, 2010	07-01-20-A034	Mine	<0.01	Overcast - Partly Cloudy

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV exposure limit for asbestos fibres is 0.1 fibres/cm^3. The TLV is published by the American Conference of Governmental Industrial Hygienists (ACGIH) which is the recognized in Asbestos Regulation 111/98 under Section 5 (Prohibition and Threshold Limit Values)

Analysis of the PCM air sample was provide by Julia King of Pinchin LeBlanc Environmental who is enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en securite du travail), a comprehensive quality assurance programme. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

October 2010 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
October 6-7, 2010	07-01-20-A035	Town Hall	<0.01	Sunny -Overcast
October 6-7, 2010	07-01-20-A036	Mine	<0.01	Sunny -Overcast
October 14-15, 2010	07-01-20-A037	Town Hall	<0.01	Partly Cloudy-Sunny
October 14-15, 2010	07-01-20-A038	Mine	<0.01	Partly Cloudy-Sunny
October 21-22, 2010	07-01-20-A039	Town Hall	<0.01	Sunny - Overcast
October 21-22, 2010	07-01-20-A040	Mine	<0.01	Sunny - Overcast
October 28-29, 2010	07-01-20-A041	Town Hall	<0.01	Sunny - Sunny
October 28-29, 2010	07-01-20-A042	Mine	<0.01	Sunny - Sunny

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV exposure limit for asbestos fibres is 0.1 fibres/cm^3. The TLV is published by the American Conference of Governmental Industrial Hygienists (ACGIH) which is the recognized in Asbestos Regulation 111/98 under Section 5 (Prohibition and Threshold Limit Values)

Analysis of the PCM air sample was provide by Julia King of Pinchin LeBlanc Environmental who is enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en securite du travail), a comprehensive quality assurance programme. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

November 2010 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
November 3-4, 2010	07-01-20-A043	Town Hall	<0.01	Partly Cloudy - Partly Cloudy
November 3-4, 2010	07-01-20-A044	Mine	<0.01	Partly Cloudy - Partly Cloudy
November 9-10, 2010	07-01-20-A045	Town Hall	<0.01	Overcast - Overcast
November 9-10, 2010	07-01-20-A046	Mine	<0.01	Overcast - Overcast
November 18-19, 2010	07-01-20-A047	Town Hall	<0.01	Overcast - Overcast
November 18-19, 2010	07-01-20-A048	Mine	<0.01	Overcast - Overcast
November 24-25, 2010	07-01-20-A049	Town Hall	<0.01	Overcast - Overcast
November 24-25, 2010	07-01-20-A050	Mine	<0.01	Overcast - Overcast
November 30-December 1, 2010	07-01-20-A051	Town Hall	<0.01	Sunny - Overcast
November 30-December 1, 2010	07-01-20-A052	Mine	<0.01	Sunny - Overcast

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV exposure limit for asbestos fibres is 0.1 fibres/cm^3. The TLV is published by the American Conference of Governmental Industrial Hygienists (ACGIH) which is the recognized in Asbestos Regulation 111/98 under Section 5 (Prohibition and Threshold Limit Values)

Analysis of the PCM air sample was provide by Julia King of Pinchin LeBlanc Environmental who is enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en securite du travail), a comprehensive quality assurance programme. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

December 2010 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
December 9-10, 2010	07-01-20-A053	Town Hall (Blank)	1 fibre/100 fields	Partly Cloudy - Overcast
December 9-10, 2010	07-01-20-A054	Mine (Blank)	1 fibre/100 fields	Partly Cloudy - Overcast
December 9-10, 2010	07-01-20-A055	Town Hall	<0.01	Partly Cloudy - Overcast
December 9-10, 2010	07-01-20-A056	Mine	<0.01	Partly Cloudy - Overcast
December 15-16, 2010	07-01-20-A057	Town Hall	<0.01	Overcast – Partly Cloudy
December 15-16, 2010	07-01-20-A058	Mine	<0.01	Overcast – Partly Cloudy
December 23-24, 2010	07-01-20-A059	Town Hall	<0.01	Overcast - Overcast
December 23-24, 2010	07-01-20-A060	Mine	<0.01	Overcast - Overcast
December 29-30, 2010	07-01-20-A061	Town Hall	<0.01	Overcast – Partly Cloudy
December 29-30, 2010	07-01-20-A062	Mine	<0.01	Overcast – Partly Cloudy

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV exposure limit for asbestos fibres is 0.1 fibres/cm^3. The TLV is published by the American Conference of Governmental Industrial Hygienists (ACGIH) which is the recognized in Asbestos Regulation 111/98 under Section 5 (Prohibition and Threshold Limit Values)

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AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

January 2011 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
January 6-7, 2011	07-01-20-A063	Town Hall	<0.01	Sunny - Sunny
January 6-7, 2011	07-01-20-A064	Mine	<0.01	Sunny - Sunny
January 14-15, 2011	07-01-20-A065	Town Hall	<0.01	Partly Cloudy - Partly Cloudy
January 14-15, 2011	07-01-20-A066	Mine	<0.01	Partly Cloudy - Partly Cloudy
January 19-20, 2011	07-01-20-A067	Town Hall	<0.01	Overcast – Overcast
January 19-20, 2011	07-01-20-A068	Mine	<0.01	Overcast - Overcast
January 26-27, 2011	07-01-20-A069	Town Hall	<0.01	Sunny - Partly Cloudy
January 26-27, 2011	07-01-20-A070	Mine	<0.01	Sunny - Partly Cloudy

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV exposure limit for asbestos fibres is 0.1 fibres/cm^3. The TLV is published by the American Conference of Governmental Industrial Hygienists (ACGIH) which is the recognized in Asbestos Regulation 111/98 under Section 5 (Prohibition and Threshold Limit Values)

Analysis of the PCM air sample was provide by Julia King of Pinchin LeBlanc Environmental who is enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en securite du travail), a comprehensive quality assurance programme. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

February 2011 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
February 5-6, 2011	07-01-20-A071	Town Hall	<0.01	Partly Cloudy - Overcast
February 5-6, 2011	07-01-20-A072	Mine	<0.01	Partly Cloudy - Overcast
February 10-11, 2011	07-01-20-A073	Town Hall	<0.01	Overcast - Overcast
February 10-11, 2011	07-01-20-A074	Mine	<0.01	Overcast - Overcast
February 17-18, 2011	07-01-20-A075	Town Hall	<0.01	Overcast – Partly Cloudy
February 17-18, 2011	07-01-20-A076	Mine	<0.01	Overcast – Partly Cloudy
February 25-26, 2011	07-01-20-A077	Town Hall	<0.01	Overcast – Overcast
February 25-26, 2011	07-01-20-A078	Mine	<0.01	Overcast – Overcast

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV exposure limit for asbestos fibres is 0.1 fibres/cm^3. The TLV is published by the American Conference of Governmental Industrial Hygienists (ACGIH) which is the recognized in Asbestos Regulation 111/98 under Section 5 (Prohibition and Threshold Limit Values)

Analysis of the PCM air sample was provide by Julia King of Pinchin LeBlanc Environmental who is enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en securite du travail), a comprehensive quality assurance programme. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

AIR QUALITY MONITORING AT THE FORMER BAIE VERTE (ADVOCATE) ASBESTOS MINE, BAIE VERTE, NL

March 2011 PCM Air Sample Summary

DATE	SAMPLE #	LOCATION	RESULT (f/ml)	WEATHER
March 3-4, 2011	07-01-20-A079	Town Hall	<0.01	Partly Cloudy - Overcast
March 3-4, 2011	07-01-20-A080	Mine	<0.01	Partly Cloudy - Overcast
March 10-11, 2011	07-01-20-A081	Town Hall	<0.01	Overcast - Overcast
March 10-11, 2011	07-01-20-A082	Mine	<0.01	Overcast - Overcast
March 16-17, 2011	07-01-20-A083	Town Hall	<0.01	Partly Cloudy – Overcast
March 16-17, 2011	07-01-20-A084	Mine	<0.01	Partly Cloudy – Overcast

The air samples were analyzed by Phase Contrast Microscopy (PCM) following the "A" set of counting rules of the National Institute of Occupational Safety and Health (NIOSH) 7400 method, issue 2, dated August 15, 1994 for the determination of airborne fibres. The provincial TLV exposure limit for asbestos fibres is 0.1 fibres/cm^3. The TLV is published by the American Conference of Governmental Industrial Hygienists (ACGIH) which is the recognized in Asbestos Regulation 111/98 under Section 5 (Prohibition and Threshold Limit Values)

Analysis of the PCM air sample was provide by Julia King of Pinchin LeBlanc Environmental who is enrolled in the IRSST (Instituit de recherché Robert-Sauve en sante et en securite du travail), a comprehensive quality assurance programme. Each analyst/technician participates in round robin testing on a regular basis to remain certified with the association.

APPENDIX III

DAILY WEATHER SUMMARIES

Date	Wind Speed Avg (meters/sec)	Wind Direction Avg (degrees)	Temp Air Avg (degrees C)	Relative Humidity (%)
6/16/2010	5.373	264	7.767	51.2
6/17/2010	2.819	260.8	9.124	62.2
6/18/2010	2.444	220.8	10.088	78.5
6/19/2010	2.816	247.6	10.694	63.8
6/20/2010	1.808	212.5	14.428	69.8
6/21/2010	1.493	264.8	5.079	95.7
6/22/2010	1.108	187.7	10.083	71.2
6/23/2010	1.694	205.4	20.013	48.5
6/24/2010	2.643	176.5	17.025	56.7
6/25/2010	2.332	204.5	14.884	78.1
6/26/2010	1.455	195.5	13.995	63.8
6/27/2010	1.772	191.7	11.949	62.7
6/28/2010	1.362	204.3	12.303	57.7
6/29/2010	1.774	241.8	6.977	85.9
6/30/2010	1.807	231.8	7.584	92.3
7/1/2010	1.152	203.9	11.243	88.7
7/2/2010	1.1	206.2	10.522	87.6
7/3/2010	1.498	185.8	15.038	66.5
7/4/2010	1.601	213	14.922	78.7
7/5/2010	1.322	196.4	9.15	84.3
7/6/2010	1.389	186.7	10.009	96.3
7/7/2010	1.065	225.9	9.615	95.7
7/8/2010	1.374	175.5	15.417	89.4
7/9/2010	1.874	203.3	22.566	79.9
7/10/2010	2.08	205.9	23.711	76.5
7/11/2010	1.443	201.9	21.374	76.9
7/12/2010	1.788	173.2	19.959	93.3
7/13/2010	2.195	210.9	23.645	65.3
7/14/2010	1.418	199.5	21.784	76.2
7/15/2010	2.143	242.1	14.769	85.8
7/16/2010	1.18	192.5	17.085	72.9
7/17/2010	1.478	189.9	17.828	91.9
7/18/2010	1.018	220.7	14.885	92.3
7/19/2010	1.056	192.5	18.882	82.6
7/20/2010	0.919	184.2	16.891	94.9
7/21/2010	1.402	197.5	18.592	64.1
7/22/2010	0.916	168.1	19.185	63.2
7/23/2010	1.869	224.4	13.665	83.7
7/24/2010	0.911	168.9	16.329	74.7

7/25/2010	1.728	174.9	17.213	76.2
7/26/2010	1.449	193.2	16.118	90.3
7/27/2010	3.499	242.3	12.582	89.8
7/28/2010	2.439	217.4	17.462	66.3
7/29/2010	3.019	178.8	20.049	75.9
7/30/2010	1.75	228.2	15.985	82.1
7/31/2010	1.268	228.7	10.974	95.2
8/1/2010	0.945	211.9	14.3	81.1
8/2/2010	1.392	171.6	16.603	75.1
8/3/2010	0.719	169.9	16.643	77.1
8/4/2010	1.577	178	19.415	66.6
8/5/2010	1.028	181.2	19.764	82.7
8/6/2010	1.578	179.3	19.979	93.2
8/7/2010	1.323	203.2	17.141	80.2
8/8/2010	1.581	181.1	14.632	65.9
8/9/2010	2.096	178.8	16.595	70.2
8/10/2010	2.224	201.3	18.506	74.7
8/11/2010	1.595	231.4	11.089	95.2
8/12/2010	1.208	215.8	11.293	88.6
8/13/2010	1.579	207.2	13.759	75.6
8/14/2010	1.31	213.9	17.209	67.1
8/15/2010	1.051	187.3	18.841	62.8
8/16/2010	0.727	161	17.702	70.8
8/17/2010	0.774	175.8	17.91	76.2
8/18/2010	1.546	209.9	19.754	78.9
8/19/2010	1.143	175.2	17.556	71.7
8/20/2010	1.288	247.8	13.804	96.9
8/21/2010	0.906	239.2	12.504	88.3
8/22/2010	1.449	214.6	11.541	86.4
8/23/2010	0.869	182.1	10.972	87.2
8/24/2010	1.221	203.8	15.592	72.5
8/25/2010	1.838	208.1	19.073	62
8/26/2010	1.241	167.4	18.287	67.6
8/27/2010	2.004	182.1	17.464	84.6
8/28/2010	1.556	233.4	16.734	66.4
8/29/2010	1.311	188.2	16.488	66.8
8/30/2010	2.513	253.9	17.374	63
8/31/2010	1.804	240.4	15.371	73.3
9/1/2010	1.341	206.9	14.49	62.8
9/2/2010	0.927	236.8	13.642	96.2
9/3/3010	1.908	228.9	15.09	78.1
9/4/2010	1.317	192.3	14.582	82.4

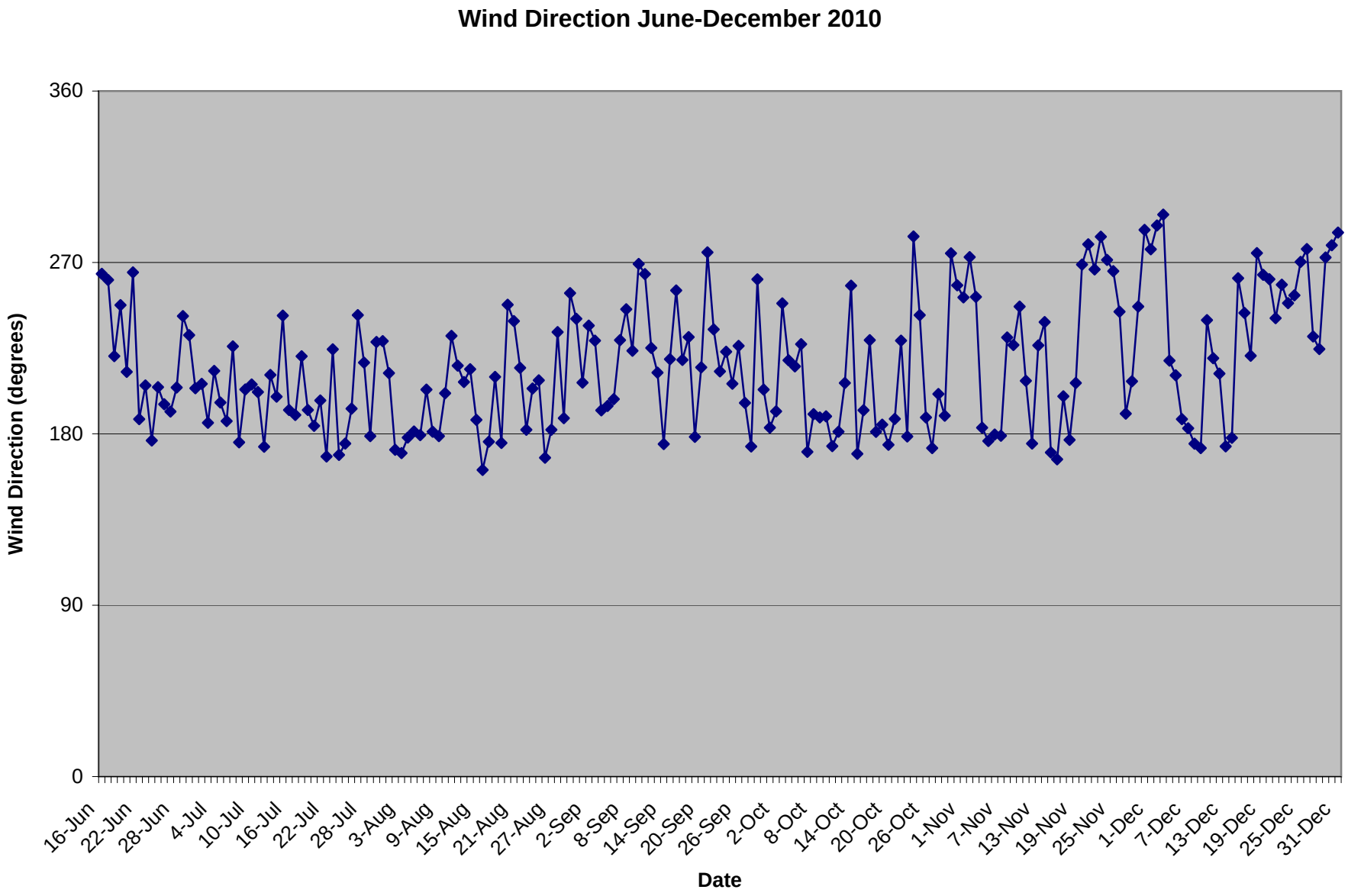
9/5/2010	3.008	194.6	19.947	64.1
9/6/2010	1.726	198.2	15.469	64.5
9/7/2010	1.969	229.2	14.216	62.9
9/8/2010	2.234	245.4	10.108	82.3
9/9/2010	0.856	223.6	10.405	88.9
9/10/2010	1.161	269.2	12.268	96.7
9/11/2010	4.472	263.9	7.704	95.5
9/12/2010	2.326	225.1	6.09	84.6
9/13/2010	0.943	212.1	4.766	84.2
9/14/2010	0.772	174.6	7.689	81.3
9/15/2010	0.949	219.2	8.5	92.9
9/16/2010	0.874	255.3	10.584	97.8
9/17/2010	1.389	218.8	12.4	83.6
9/18/2010	2.245	230.8	8.983	88.3
9/19/2010	1.476	178.4	11.247	80.5
9/20/2010	1.123	214.9	11.326	95.3
9/21/2010	6.018	275.3	9.384	83.3
9/22/2010	3.11	234.8	10.558	63.8
9/23/2010	1.78	212.8	10.557	67.4
9/24/2010	1.986	223.1	7.867	65.8
9/25/2010	1.174	206.3	7.616	71.5
9/26/2010	2.024	226.2	6.587	66.4
9/27/2010	1.663	196.2	8.176	64.4
9/28/2010	1.552	173.3	11.586	84.4
9/29/2010	1.161	261.1	10.043	97.4
9/30/2010	1.137	203.2	8.629	97.6
10/1/2010	2.223	183.2	20.271	81.6
10/2/2010	3.442	191.8	19.734	77.7
10/3/2010	2.212	248.5	8.271	73.7
10/4/2010	1,398	218.6	8.069	68.2
10/5/2010	1.809	215.4	9.405	68
10/6/2010	2.424	227.1	4.58	66.9
10/7/2010	2.063	170.5	5.035	86.8
10/8/2010	2.216	190.3	8.169	79.7
10/9/2010	1.425	188.6	4.545	79.2
10/10/2010	1.458	189.2	4.858	81.3
10/11/2010	1.366	173.5	4.412	81.4
10/12/2010	1.349	181.1	5.176	79.7
10/13/2010	1.461	206.7	6.202	87.4
10/14/2010	2.769	257.8	5.269	79.1
10/15/2010	0.831	169.5	4.527	83.1
10/16/2010	1.269	192.4	7.125	92.4
10/17/2010	1.082	229.2	11.168	95.1

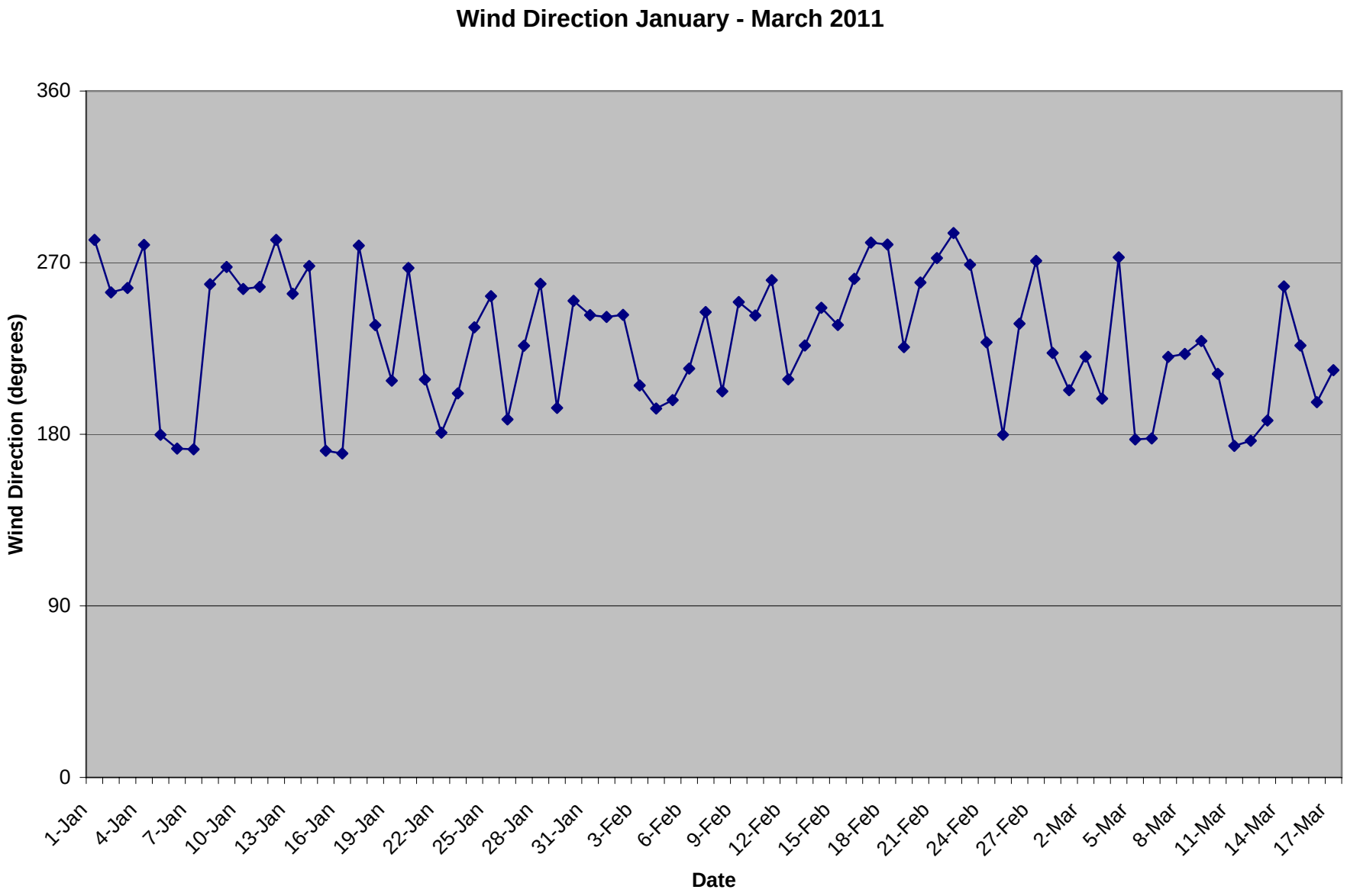
10/18/2010	2.502	181	7.621	84
10/19/2010	2.542	184.8	4.453	76.8
10/20/2010	1.295	174.2	3.357	77.3
10/21/2010	1.182	187.8	5.738	77.6
10/22/2010	2.225	228.9	5.967	93.3
10/23/2010	2.09	178.6	5.683	80.7
10/24/2010	2.876	283.6	4.817	83
10/25/2010	1.948	242.3	4.052	70.8
10/26/2010	0.762	188.6	0.793	77.6
10/27/2010	1.458	172.5	1.014	77.4
10/28/2010	2.14	200.9	9.567	83
10/29/2010	1.06	189.5	8.778	83.1
10/30/2010	2.699	274.8	5.236	94.4
10/31/2010	2.135	258	2.309	83.1
11/1/2010	2.31	251.6	0.502	88.3
11/2/2010	2.868	272.8	-0.095	81.4
11/3/2010	1.285	251.9	0.653	74.7
11/4/2010	0.878	183.2	1.453	76.9
11/5/2010	3.049	176.2	6.777	86.2
11/6/2010	4.332	179.6	15.346	82.2
11/7/2010	2.848	179	15.381	81.2
11/8/2010	1.472	230.6	7.312	94.3
11/9/2010	1.815	226.6	4.033	95.3
11/10/2010	2.779	246.8	-0.043	74.5
11/11/2010	1.535	207.8	-0.453	69.5
11/12/2010	1.342	174.9	2.669	64.1
11/13/2010	1.789	226.4	9.299	36.3
11/14/2010	2.016	238.7	-0.089	67.3
11/15/2010	0.908	170.2	-2.061	74.8
11/16/2010	1.918	166.6	3.039	77.6
11/17/2010	0.953	199.7	4.131	82.5
11/18/2010	2.597	176.8	6.646	92.1
11/19/2010	1.908	206.7	1.911	69.8
11/20/2010	2.529	268.9	-3.104	62.1
11/21/2010	4.3	279.5	-4.469	59.3
11/22/2010	6.502	266.3	-3.729	56.1
11/23/2010	6.042	283.5	0.796	85.7
11/24/2010	3.029	271.3	2.173	96.1
11/25/2010	5.379	265.4	2.425	90.9
11/26/2010	3.043	244.1	2.004	82.5
11/27/2010	1.223	190.6	1.16	92.9
11/28/2010	1.032	207.6	-0.555	86.2
11/29/2010	2.152	246.8	-0.135	76.6

11/30/2010	4.839	287.1	-0.901	76.6
12/1/2010	2.637	276.9	1.406	96.9
12/2/2010	0.817	289.4	1.721	97.7
12/3/2010	1.704	295.1	2.464	98
12/4/2010	1.039	218.4	4.348	96.7
12/5/2010	1.317	210.7	3.051	93.5
12/6/2010	1.618	187.7	6.071	91.6
12/7/2010	1.111	182.9	5.427	94.9
12/8/2010	1.158	174.8	1.924	92.5
12/9/2010	2.217	172.5	-0.545	75.3
12/10/2010	2.527	239.7	-5.674	77.9
12/11/2010	1.293	219.7	-7.455	74.3
12/12/2010	1.73	211.6	-4.342	80.1
12/13/2010	1.492	173.4	-5.246	85.1
12/14/2010	1.874	177.9	1.236	81.4
12/15/2010	1.303	261.7	2.865	96
12/16/2010	0.981	243.5	4.001	97.9
12/17/2010	1.454	221	4.689	96.9
12/18/2010	2.167	274.9	2.204	96.3
12/19/2010	2.716	263.5	2.892	96.2
12/20/2010	2.029	261.2	2.442	93.4
12/21/2010	3.553	240.7	1.976	92.8
12/22/2010	4.245	258.3	1.717	94.9
12/23/2010	5.456	248.6	2.453	95.8
12/24/2010	8.003	252.7	1.81	93.7
12/25/2010	6.913	270.3	1.846	88.9
12/26/2010	4.12	277	0.541	88.3
12/27/2010	1.004	231.1	-0.933	95.3
12/28/2010	0.885	224.5	1.677	97.9
12/29/2010	5.342	272.6	-0.386	97.5
12/30/2010	4.429	279	-3.318	88.1
12/31/2010	4.358	285.7	-3.017	81.3
1/1/2011	5.378	281.9	-0.546	87.2
1/2/2011	4.865	254.4	1.909	95.4
1/3/2011	1.247	256.7	-0.346	97
1/4/2011	1.196	279.3	1.549	97.9
1/5/2011	1.621	179.7	-2.159	86.8
1/6/2011	0.647	172.5	-5.605	83.9
1/7/2011	0.453	172.1	-7.093	81.3
1/8/2011	1.843	258.7	-3.697	87.9
1/9/2011	2.352	267.7	-0.707	95.4
1/10/2011	6.553	256.2	0.492	97.2

1/11/2011	6.756	257.3	0.003	83.8
1/12/2011	3.229	281.9	-1.121	89.7
1/13/2011	4.224	253.7	-0.433	96
1/14/2011	4.286	268.2	-2.126	88.6
1/15/2011	0.811	171.3	-4.38	89.8
1/16/2011	1.412	169.9	-4.671	86.7
1/17/2011	3.624	278.9	-5.765	78.8
1/18/2011	3.358	237.2	-8.884	74.7
1/19/2011	1.866	208.1	-2.866	90.9
1/20/2011	6.122	267.2	-3.296	87.9
1/21/2011	1.461	208.7	-3.951	81.2
1/22/2011	4.194	180.8	-3.068	80.4
1/23/2011	2.066	201.4	-5.717	78.3
1/24/2011	5.187	236.1	-6.321	82.4
1/25/2011	2.508	252.4	-9.456	65.5
1/26/2011	1.27	187.8	-12.4	73.8
1/27/2011	1.579	226.4	-9.617	88.2
1/28/2011	2.743	258.9	-3.557	87.8
1/29/2011	0.791	193.8	-5.241	87.7
1/30/2011	2.378	250	-7.289	86.2
1/31/2011	1.82	242.5	-12.221	79.2
2/1/2011	2.418	241.5	-15.463	67.3
2/2/2011	2.347	242.6	-15.142	65.5
2/3/2011	1.665	205.6	-15.616	70.7
2/4/2011	1.837	193.5	-7.96	80.6
2/5/2011	1.041	197.9	-7.253	82.2
2/6/2011	3.066	214.4	-5.138	90.1
2/7/2011	2.382	244.1	-10.124	74.8
2/8/2011	1.123	202.5	-11.872	84.1
2/9/2011	2.129	249.3	-6.08	83.2
2/10/2011	2.195	242.3	-14.9	67.4
2/11/2011	2.811	260.8	-16.2	66.5
2/12/2011	2.026	208.8	-12.765	68.1
2/13/2011	3.019	226.5	-11.82	73.1
2/14/2011	3.219	246.3	-15.792	61
2/15/2011	2.752	237.3	-5.322	91.1
2/16/2011	9.007	261.5	-3.207	82.2
2/17/2011	4.008	280.5	-5.009	76.5
2/18/2011	4.057	279.5	-4.087	76.9
2/19/2011	2.089	225.7	-2.297	90.7
2/20/2011	4.537	259.6	-0.796	90.8
2/21/2011	4.448	272.4	-1.663	87.2
2/22/2011	6.431	285.5	-2.027	89.9

2/23/2011	7.071	268.9	-2.968	84.3
2/24/2011	1.738	228.2	-5.331	74.9
2/25/2011	2.422	179.7	-2.6	77.3
2/26/2011	4.815	238	-3.736	86.4
2/27/2011	3.476	270.9	-13.988	63.9
2/28/2011	1.353	222.6	-12.917	65.6
3/1/2011	2.997	203.1	-6.168	82.9
3/2/2011	3.024	220.7	-5.388	59.9
3/3/2011	3.452	198.7	-1.319	82.2
3/4/2011	3.427	272.8	-10.646	70.8
3/5/2011	2.147	177.3	-8.773	67.6
3/6/2011	3.691	177.8	1.993	78.4
3/7/2011	2.053	220.6	-2.228	92.4
3/8/2011	3.977	222.1	0.179	77.9
3/9/2011	1.679	228.9	-9.213	81.3
3/10/2011	0.684	211.7	-10.983	72.9
3/11/2011	1.934	173.9	-2.863	68.8
3/12/2011	3.325	176.6	4.105	84.3
3/13/2011	2.519	187.2	2.834	81.6
3/14/2011	4.514	257.5	-5.853	85.6
3/15/2011	2.081	226.5	-10.516	62.8
3/16/2011	2.228	196.8	-0.396	62.9
3/17/2011	2.315	213.6	0.874	77.2


Wind Direction June-December 2010
360
270
180
90
0
Wind Direction (degrees)
16-Jun
22-Jun
28-Jun
4-Jul
10-Jul
16-Jul
22-Jul
28-Jul
3-Aug
9-Aug
15-Aug
21-Aug
27-Aug
2-Sep
8-Sep
14-Sep
20-Sep
26-Sep
2-Oct
8-Oct
14-Oct
20-Oct
26-Oct
1-Nov
7-Nov
13-Nov
19-Nov
25-Nov
1-Dec
7-Dec
13-Dec
19-Dec
25-Dec
31-Dec
Date


Wind Direction January - March 2011
360
270
180
90
0
Wind Direction (degrees)
1-Jan
4-Jan
7-Jan
10-Jan
13-Jan
16-Jan
19-Jan
22-Jan
25-Jan
28-Jan
31-Jan
3-Feb
6-Feb
9-Feb
12-Feb
15-Feb
18-Feb
21-Feb
24-Feb
27-Feb
2-Mar
5-Mar
8-Mar
11-Mar
14-Mar
17-Mar
Date

APPENDIX IV

WEEKLY WEATHER / SAMPLE SUMMARIES

WEATHER VS. PCM AIR MONITORING RESULTS

TH - Town Hall
MS - Mine Site
A001 - PCM Air Sample

Sample ID	Date	Wind Speed Avg (meters/sec)	Wind Direction Avg (degrees)	Temp Air Avg (degrees C°)	Relative Humidity (%)	Pump ID	Cal Flow (L/min)	Pump Volume (litres)	Results (fibre/ml)	General Weather Observations
07-01-20-A001-TH	6/16/2010	5.373	264	7.767	51.2	SYD-3	1.0	1440	<0.01	Sunny
	6/17/2010	2.819	260.8	9.124	62.2					Sunny
07-01-20-A002-MS	6/16/2010	5.373	264	7.767	51.2	SYD-5	1.0	1440	<0.01	Sunny
	6/17/2010	2.819	260.8	9.124	62.2					Sunny
07-01-20-A003-TH	6/22/2010	1.108	187.7	10.083	71.2	SYD-3	1.0	1440	<0.01	Sunny
	6/23/2010	1.694	205.4	20.013	48.5					Sunny
07-01-20-A004-MS	6/22/2010	1.108	187.7	10.083	71.2	SYD-5	1.0	1440	<0.01	Sunny
	6/23/2010	1.694	205.4	20.013	48.5					Sunny
07-01-20-A005-TH	6/29/2010	1.774	241.8	6.977	85.9	SYD-3	1.0	1440	<0.01	Overcast
	6/30/2010	1.807	231.8	7.584	92.3					Partly Cloudy
07-01-20-A006-MS	6/29/2010	1.774	241.8	6.977	85.9	SYD-5	1.0	1440	<0.01	Overcast
	6/30/2010	1.807	231.8	7.584	92.3					Partly Cloudy
07-01-20-A007-TH	6/29/2010	1.774	241.8	6.977	85.9	SYD-3	--	--	1 fibre/100 fields	Overcast
(blank)	6/30/2010	1.807	231.8	7.584	92.3					Partly Cloudy
07-01-20-A008-MS	6/29/2010	1.774	241.8	6.977	85.9	SYD-5	--	--	1 fibre/100 fields	Overcast
(blank)	6/30/2010	1.807	231.8	7.584	92.3					Partly Cloudy
07-01-20-A009-TH	7/8/2010	1.374	175.5	15.417	89.4	SYD-3	1.0	1440	<0.01	Overcast
	7/9/2010	1.874	203.3	22.566	79.9					Overcast
07-01-20-A010-MS	7/8/2010	1.374	175.5	15.417	89.4	SYD-5	1.0	1440	<0.01	Overcast
	7/9/2010	1.874	203.3	22.566	79.9					Overcast
07-01-20-A011-TH	7/13/2010	2.195	210.9	23.645	65.3	SYD-3	1.0	1440	<0.01	Sunny
	7/14/2010	1.418	199.5	21.784	76.2					Sunny
07-01-20-A012-MS	7/13/2010	2.195	210.9	23.645	65.3	SYD-5	1.0	1440	<0.01	Sunny
	7/14/2010	1.418	199.5	21.784	76.2					Sunny
07-01-20-A013-TH	7/21/2010	1.402	197.5	18.592	64.1	SYD-3	1.0	1440	<0.01	Sunny
	7/22/2010	0.916	168.1	19.185	63.2					Partly Cloudy
07-01-20-A014-MS	7/21/2010	1.402	197.5	18.592	64.1	SYD-5	1.0	1440	<0.01	Sunny
	7/22/2010	0.916	168.1	19.185	63.2					Partly Cloudy
07-01-20-A015-TH	7/29/2010	3.019	178.8	20.049	75.9	SYD-3	1.0	1440	<0.01	Overcast
	7/30/2010	1.75	228.2	15.985	82.1					Partly Cloudy
07-01-20-A016-MS	7/29/2010	3.019	178.8	20.049	75.9	SYD-5	1.0	1440	<0.01	Overcast
	7/30/2010	1.75	228.2	15.985	82.1					Partly Cloudy
07-01-20-A017-TH	8/5/2010	1.028	181.2	19.764	82.7	SYD-3	1.0	1440	<0.01	Overcast
	8/6/2010	1.578	179.3	19.979	93.2					Overcast
07-01-20-A018-MS	8/5/2010	1.028	181.2	19.764	82.7	SYD-5	1.0	1440	<0.01	Overcast
	8/6/2010	1.578	179.3	19.979	93.2					Overcast
07-01-20-A019-TH	8/12/2010	1.208	215.8	11.293	88.6	SYD-3	1.0	1440	<0.01	Partly Cloudy
	8/13/2010	1.579	207.2	13.759	75.6					Overcast
07-01-20-A020-MS	8/12/2010	1.208	215.8	11.293	88.6	SYD-3	1.0	1440	<0.01	Partly Cloudy
	8/13/2010	1.579	207.2	13.759	75.6					Overcast
07-01-20-A021-TH	8/18/2010	0.906	239.2	12.504	88.3	SYD-3	1.0	1440	<0.01	Partly Cloudy
	8/19/2010	1.449	214.6	11.541	86.4					Sunny
07-01-20-A022-MS	8/18/2010	0.906	239.2	12.504	88.3	SYD-5	1.0	1440	<0.01	Partly Cloudy
	8/19/2010	1.449	214.6	11.541	86.4					Sunny
07-01-20-A023-TH	8/26/2010	1.241	167.4	18.287	67.6	SYD-3	1.0	1440	<0.01	Sunny
	8/27/2010	2.004	182.1	17.464	84.6					Overcast
07-01-20-A024-MS	8/26/2010	1.241	167.4	18.287	67.6	SYD-5	1.0	1440	<0.01	Sunny
	8/27/2010	2.004	182.1	17.464	84.6					Overcast
07-01-20-A025-TH	9/1/2010	1.341	206.9	14.49	62.8	SYD-3	1.0	1440	<0.01	Sunny
	9/2/2010	0.927	236.8	13.642	96.2					Overcast
07-01-20-A026-MS	9/1/2010	1.341	206.9	14.49	62.8	SYD-5	1.0	1440	<0.01	Sunny
	9/2/2010	0.927	236.8	13.642	96.2					Overcast
07-01-20-A027-TH	9/9/2010	0.856	223.6	10.405	88.9	SYD-3	1.0	1440	<0.01	Partly Cloudy
	9/10/2010	1.161	269.2	12.268	96.7					Overcast
07-01-20-A028-MS	9/9/2010	0.856	223.6	10.405	88.9	SYD-5	1.0	1440	<0.01	Partly Cloudy
	9/10/2010	1.161	269.2	12.268	96.7					Overcast
07-01-20-A029-TH	9/16/2010	0.874	255.3	10.584	97.8	SYD-3	1.0	1440	<0.01	Overcast
	9/17/2010	1.389	218.8	12.4	83.6					Sunny
07-01-20-A030-MS	9/16/2010	0.874	255.3	10.584	97.8	SYD-5	1.0	1440	<0.01	Overcast
	9/17/2010	1.389	218.8	12.4	83.6					Sunny
07-01-20-A031-TH	9/22/2010	3.11	234.8	10.558	63.8	SYD-3	1.0	1440	<0.01	Overcast
	9/23/2010	1.78	212.8	10.557	67.4					Partly Cloudy
07-01-20-A032-MS	9/22/2010	3.11	234.8	10.558	63.8	SYD-5	1.0	1440	<0.01	Overcast
	9/23/2010	1.78	212.8	10.557	67.4					Partly Cloudy

07-01-20-A033-TH	9/30/2010	1.137	203.2	8.629	97.6	SYD-3	1.0	1440	<0.01	Overcast
	10/1/2010	2.223	183.2	20.271	81.6					Partly Cloudy
07-01-20-A034-MS	9/30/2010	1.137	203.2	8.629	97.6	SYD-5	1.0	1440	<0.01	Overcast
	10/1/2010	2.223	183.2	20.271	81.6					Partly Cloudy
07-01-20-A035-TH	10/6/2010	2.424	227.1	4.58	66.9	SYD-3	1.0	1440	<0.01	Sunny
	10/7/2010	2.063	170.5	5.035	86.8					Overcast
07-01-20-A036-MS	10/6/2010	2.424	227.1	4.58	66.9	SYD-5	1.0	1440	<0.01	Sunny
	10/7/2010	2.063	170.5	5.035	86.8					Overcast
07-01-20-A037-TH	10/14/2010	2.769	257.8	5.269	79.1	SYD-3	1.0	1440	<0.01	Partly Cloudy
	10/15/2010	0.831	169.5	4.527	83.1					Sunny
07-01-20-A038-MS	10/14/2010	2.769	257.8	5.269	79.1	SYD-5	1.0	1440	<0.01	Partly Cloudy
	10/15/2010	0.831	169.5	4.527	83.1					Sunny
07-01-20-A039-TH	10/21/2010	1.182	187.8	5.738	77.6	SYD-3	1.0	1440	<0.01	Sunny
	10/22/2010	2.225	228.9	5.967	93.3					Overcast
07-01-20-A040-MS	10/21/2010	1.182	187.8	5.738	77.6	SYD-5	1.0	1440	<0.01	Sunny
	10/22/2010	2.225	228.9	5.967	93.3					Overcast
07-01-20-A041-TH	10/28/2010	2.14	200.9	9.567	83	SYD-3	1.0	1440	<0.01	Sunny
	10/29/2010	1.06	189.5	8.778	83.1					Sunny
07-01-20-A042-MS	10/28/2010	2.14	200.9	9.567	83	SYD-5	1.0	1440	<0.01	Sunny
	10/29/2010	1.06	189.5	8.778	83.1					Sunny
07-01-20-A043-TH	11/3/2010	1.285	251.9	0.653	74.7	SYD-3	1.0	1440	<0.01	Partly Cloudy
	11/4/2010	0.878	183.2	1.453	76.9					Partly Cloudy
07-01-20-A044-MS	11/3/2010	1.285	251.9	0.653	74.7	SYD-5	1.0	1440	<0.01	Partly Cloudy
	11/4/2010	0.878	183.2	1.453	76.9					Partly Cloudy
07-01-20-A045-TH	11/9/2010	1.815	226.6	4.033	95.3	SYD-3	1.0	1440	<0.01	Overcast
	11/10/2010	2.779	246.8	-0.043	74.5					Overcast
07-01-20-A046-MS	11/9/2010	1.815	226.6	4.033	95.3	SYD-5	1.0	1440	<0.01	Overcast
	11/10/2010	2.779	246.8	-0.043	74.5					Overcast
07-01-20-A047-TH	11/18/2010	2.597	176.8	6.646	92.1	SYD-3	1.0	1440	<0.01	Overcast
	11/19/2010	1.908	206.7	1.911	69.8					Overcast
07-01-20-A048-MS	11/18/2010	2.597	176.8	6.646	92.1	SYD-5	1.0	1440	<0.01	Overcast
	11/19/2010	1.908	206.7	1.911	69.8					Overcast
07-01-20-A049-TH	11/24/2010	3.029	271.3	2.173	96.1	SYD-3	1.0	1440	<0.01	Overcast
	11/25/2010	5.379	265.4	2.425	90.9					Overcast
07-01-20-A050-MS	11/24/2010	3.029	271.3	2.173	96.1	SYD-5	1.0	1440	<0.01	Overcast
	11/25/2010	5.379	265.4	2.425	90.9					Overcast
07-01-20-A051-TH	11/30/2010	4.839	287.1	-0.901	76.6	SYD-3	1.0	1440	<0.01	Sunny
	12/1/2010	2.637	276.9	1.406	96.9					Overcast
07-01-20-A052-MS	11/30/2010	4.839	287.1	-0.901	76.6	SYD-5	1.0	1440	<0.01	Sunny
	12/1/2010	2.637	276.9	1.406	96.9					Overcast
07-01-20-A053-TH	12/9/2010	2.217	172.5	-0.545	75.3	SYD-3	--	--	1 fibre/100	Partly Cloudy
(blank)	12/10/2010	2.527	239.7	-5.674	77.9				fields	Overcast
07-01-20-A054-MS	12/9/2010	2.217	172.5	-0.545	75.3	SYD-5	--	--	1 fibre/100	Partly Cloudy
(blank)	12/10/2010	2.527	239.7	-5.674	77.9				fields	Overcast
07-01-20-A055-TH	12/9/2010	2.217	172.5	-0.545	75.3	SYD-3	1.0	1440	<0.01	Partly Cloudy
	12/10/2010	2.527	239.7	-5.674	77.9					Overcast
07-01-20-A056-MS	12/9/2010	2.217	172.5	-0.545	75.3	SYD-5	1.0	1440	<0.01	Partly Cloudy
	12/10/2010	2.527	239.7	-5.674	77.9					Overcast
07-01-20-A057-TH	12/15/2010	1.303	261.7	2.865	96	SYD-3	1.0	1440	<0.01	Overcast
	12/16/2010	0.981	243.5	4.001	97.9					Partly Cloudy
07-01-20-A058-MS	12/15/2010	1.303	261.7	2.865	96	SYD-5	1.0	1440	<0.01	Overcast
	12/16/2010	0.981	243.5	4.001	97.9					Partly Cloudy
07-01-20-A059-TH	12/23/2010	5.456	248.6	2.453	95.8	SYD-3	1.0	1440	<0.01	Overcast
	12/24/2010	8.003	252.7	1.81	93.7					Overcast
07-01-20-A060-MS	12/23/2010	5.456	248.6	2.453	95.8	SYD-5	1.0	1440	<0.01	Overcast
	12/24/2010	8.003	252.7	1.81	93.7					Overcast
07-01-20-A061-TH	12/29/2010	5.342	272.6	-0.386	97.5	SYD-3	1.0	1440	<0.01	Overcast
	12/30/2010	4.429	279	-3.318	88.1					Partly Cloudy
07-01-20-A062-MS	12/29/2010	5.342	272.6	-0.386	97.5	SYD-5	1.0	1440	<0.01	Overcast
	12/30/2010	4.429	279	-3.318	88.1					Partly Cloudy
07-01-20-A063-TH	1/6/2011	0.647	172.5	-5.605	83.9	SYD-3	1.0	1440	<0.01	Sunny
	1/7/2011	0.453	172.1	-7.093	81.3					Sunny
07-01-20-A064-MS	1/6/2011	0.647	172.5	-5.605	83.9	SYD-5	1.0	1440	<0.01	Sunny
	1/7/2011	0.453	172.1	-7.093	81.3					Sunny
07-01-20-A065-TH	1/14/2011	4.286	268.2	-2.126	88.6	SYD-3	1.0	1440	<0.01	Partly Cloudy
	1/15/2011	0.811	171.3	-4.38	89.8					Partly Cloudy
07-01-20-A066-MS	1/14/2011	4.286	268.2	-2.126	88.6	SYD-5	1.0	1440	<0.01	Partly Cloudy
	1/15/2011	0.811	171.3	-4.38	89.8					Partly Cloudy
07-01-20-A067-TH	1/19/2011	1.866	208.1	-2.866	90.9	SYD-3	1.0	1440	<0.01	Overcast
	1/20/2011	6.122	267.2	-3.296	87.9					Overcast
07-01-20-A068-MS	1/19/2011	1.866	208.1	-2.866	90.9	SYD-5	1.0	1440	<0.01	Overcast
	1/20/2011	6.122	267.2	-3.296	87.9					Overcast
07-01-20-A069-TH	1/26/2011	1.27	187.8	-12.4	73.8	SYD-3	1.0	1440	<0.01	Sunny
	1/27/2011	1.579	226.4	-9.617	88.2					Partly Cloudy

07-01-20-A070-MS	1/26/2011	1.27	187.8	-12.4	73.8	SYD-5	1.0	1440	<0.01	Sunny
	1/27/2011	1.579	226.4	-9.617	88.2					Partly Cloudy
07-01-20-A071-TH	2/5/2011	1.041	197.9	-7.253	82.2	SYD-3	1.0	1440	<0.01	Partly Cloudy
	2/6/2011	3.066	214.4	-5.138	90.1					Overcast
07-01-20-A072-MS	2/5/2011	1.041	197.9	-7.253	82.2	SYD-5	1.0	1440	<0.01	Partly Cloudy
	2/6/2011	3.066	214.4	-5.138	90.1					Overcast
07-01-20-A073-TH	2/10/2011	2.195	242.3	-14.9	67.4	SYD-3	1.0	1440	<0.01	Overcast
	2/11/2011	2.811	260.8	-16.2	66.5					Overcast
07-01-20-A074-MS	2/10/2011	2.195	242.3	-14.9	67.4	SYD-5	1.0	1440	<0.01	Overcast
	2/11/2011	2.811	260.8	-16.2	66.5					Overcast
07-01-20-A075-TH	2/17/2011	4.008	280.5	-5.009	76.5	SYD-3	1.0	1440	<0.01	Overcast
	2/18/2011	4.057	279.5	-4.087	76.9					Partly Cloudy
07-01-20-A076-MS	2/17/2011	4.008	280.5	-5.009	76.5	SYD-5	1.0	1440	<0.01	Overcast
	2/18/2011	4.057	279.5	-4.087	76.9					Partly Cloudy
07-01-20-A077-TH	2/25/2011	2.422	179.7	-2.6	77.3	SYD-3	1.0	1440	<0.01	Overcast
	2/26/2011	4.815	238	-3.736	86.4					Overcast
07-01-20-A078-MS	2/25/2011	2.422	179.7	-2.6	77.3	SYD-5	1.0	1440	<0.01	Overcast
	2/26/2011	4.815	238	-3.736	86.4					Overcast
07-01-20-A079-TH	3/3/2011	3.452	198.7	-1.319	82.2	SYD-3	1.0	1440	<0.01	Partly Cloudy
	3/4/2011	3.427	272.8	-10.646	70.8					Overcast
07-01-20-A080-MS	3/3/2011	3.452	198.7	-1.319	82.2	SYD-5	1.0	1440	<0.01	Partly Cloudy
	3/4/2011	3.427	272.8	-10.646	70.8					Overcast
07-01-20-A081-TH	3/10/2011	0.684	211.7	-10.983	72.9	SYD-3	1.0	1440	<0.01	Overcast
	3/11/2011	1.934	173.9	-2.863	68.8					Overcast
07-01-20-A082-MS	3/10/2011	0.684	211.7	-10.983	72.9	SYD-5	1.0	1440	<0.01	Overcast
	3/11/2011	1.934	173.9	-2.863	68.8					Overcast
07-01-20-A083-TH	3/16/2011	2.228	196.8	-0.396	62.9	SYD-3	1.0	1440	<0.01	Partly Cloudy
	3/17/2011	2.315	213.6	0.874	77.2					Overcast
07-01-20-A084-MS	3/16/2011	2.228	196.8	-0.396	62.9	SYD-5	1.0	1440	<0.01	Partly Cloudy
	3/17/2011	2.315	213.6	0.874	77.2					Overcast

WEATHER VS. TEM AIR MONITORING RESULTS

TH - Town Hall
MS - Mine Site
T001 - TEM Air Sample

Sample ID	Date	Wind Speed Avg (meters/sec)	Wind Direction Avg (degrees)	Temp Air Avg (degrees C°)	Relative Humidity (%)	Pump ID	Cal Flow (L/min)	Pump Volume (litres)	Results (fibre/ml)	General Weather Observations
07-01-20-T001-MS	8/26/2010	1.241	167.4	18.287	67.6	SYD-5	1.0	1440	1 fibre <5.0 µm	Sunny
	8/27/2010	2.004	182.1	17.464	84.6					Overcast
07-01-20-T002-TH	6/16/2010	5.373	264	7.767	51.2	SYD-3	1.0	1440	None Detected	Sunny
	6/17/2010	2.819	260.8	9.124	62.2					Sunny
07-01-20-T003-TH	9/22/2010	3.11	234.8	10.558	63.8	SYD-3	1.0	1440	None Detected	Overcast
	9/23/2010	1.78	212.8	10.557	67.4					Partly Cloudy
07-01-20-T004-MS	12/15/2010	1.303	261.7	2.865	96	SYD-5	1.0	1440	None Detected	Overcast
	12/16/2010	0.981	243.5	4.001	97.9					Partly Cloudy
07-01-20-T005-MS	2/17/2011	4.008	280.5	-5.009	76.5	SYD-5	1.0	1440	None Detected	Overcast
	2/18/2011	4.057	279.5	-4.087	76.9					Partly Cloudy

APPENDIX V

TEM RESULTS

Airborne Asbestos Analysis

By Transmission Electron Microscopy

Modified fromYamate Level II Methodology (EPA Contract No. 68-02-3266)

Client: Pinchin LeBlanc Environmental
74 Broadway Ste 201
Corner Brook, NL A2H-4C

Attn: Julia King

Lab Order ID: 1014912

Date Received: 12/20/2010
Date Reported: 12/27/2010
Date Amended: 1/6/2011

Project: 07-01-00020

Page: 1/1

Sample ID	Description	Volume (L)	# Asbestos Structures	Analytical Sensitivity, s/cc	CONCENTRATION	
			<5.0 µm	<5.0 µm	Structures/mm^2 <5.0 µm	Structures/cc <5.0 µm
Lab Sample ID	*Lab Notes*	*Filter Area*	≥ 5.0 µm	≥ 5.0 µm	Structures/mm^2 ≥ 5.0 µm	Structures/cc ≥ 5.0 µm
			TOTAL	**TOTAL**	**TOTAL Structures/mm^2**	**TOTAL Structures/cc**
07-01-20-T001	**Mine site**	**1440**	1	0.00281	10.5	**0.00281**
1014912L11-1		385 mm2	**None Detected**	**0.00281**	**<10.5**	**<0.00281**
			1	**0.00281**	**10.5**	**0.00281**
07-01-20-T002	**Town hall**	**1440**	**None Detected**	0.00281	<10.5	**<0.00281**
1014912LL2-2		385 mm2	**None Detected**	**0.00281**	**<10.5**	**<0.00281**
			None Detected	**0.00281**	**<10.5**	**<0.0081**

[redacted]

Analyst

[redacted]

Approved Signatory

Airborne Asbestos Analysis

By Transmission Electron Microscopy

Modified fromYamate Level II Methodology (EPA Contract No. 68-02-3266)

Client: Pinchin LeBlanc Environmental
74 Broadway Ste 201
Corner Brook, NL A2H-4C

Attn: Julia King

Lab Order ID: 1104109

Date Received: 3/31/2011
Date Reported: 3/31/2011
Page: 1/1

Project: Ambient Air Monitoring Baie Verte, NL 07-01-00020

Sample ID	Description	Volume (L)	# Asbestos Structures	Analytical Sensitivity, s/cc	CONCENTRATION	
			<5.0 µm	<5.0 µm	Structures/mm^2 <5.0 µm	Structures/cc <5.0 µm
Lab Sample ID	***Lab Notes***	***Filter Area***	≥ 5.0 µm	≥ 5.0 µm	Structures/mm^2 ≥ 5.0 µm	Structures/cc ≥ 5.0 µm
			TOTAL	**TOTAL**	**TOTAL Structures/mm^2**	**TOTAL Structures/cc**
07-01-20-T003	***Town Hall (Sept 23/10)***	***1440***	None Detected	0.0028	<10.5	**<0.0028**
1104109_LII_1		385 mm2	None Detected	0.0028	<10.5	**<0.0028**
			None Detected	0.0028	<10.5	**<0.0028**
07-01-20-T004	***Mine Site (Dec 17/10)***	***1440***	None Detected	0.0028	<10.5	**<0.0028**
1104109_LII_2		385 mm2	None Detected	0.0028	<10.5	**<0.0028**
			None Detected	0.0028	<10.5	**<0.0028**
07-01-20-T005	***Mine Site (Feb 17/11)***	***1440***	None Detected	0.0028	<10.5	**<0.0028**
1104109_LII_3		385 mm2	None Detected	0.0028	<10.5	**<0.0028**
			None Detected	0.0028	<10.5	**<0.0028**

[redacted]

Analyst

[redacted]

Approved Signatory

APPENDIX VI

PHOTOS

PHOTO 1: MINE SITE SAMPLING STATION

PHOTO 2: TOWN HALL SAMPLING STATION