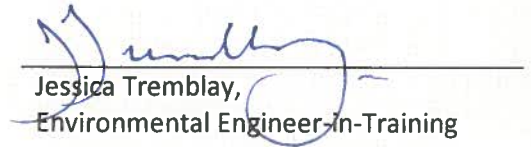

Teck Coal Limited – Elkview Operations Permit 1807 Annual Air Report

March 31, 2017

Teck



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Executive Summary

This annual report on air quality monitoring has been prepared in compliance with reporting conditions of Permit 1807 issued under the provisions of the *Environmental Management Act*. In accordance with the permit, Elkview Operations (EVO) is authorized to discharge emissions to the air from a coal processing plant and related facilities.

Monitoring is conducted as per the requirements set out in Section 3 of Permit 1807. Currently, two (2) source emissions (stack), three continuous air monitors and three weather stations are monitored (Table 1, Figure 1). Source samples are monitoring twice a year for Total Suspended Particulate (TSP) and Flow while continuous stations monitor PM10 and PM2.5 concentrations continuously. Meteorological stations collect temperature, wind speed and wind direction continuously.

All continuous monitoring stations met data completeness requirements per Permit 1807.

In 2016, sample results from continuous monitor stations at EVO remained below provincial air quality objectives for PM2.5 with some exceedances to the PM10 guidelines. The Downtown Air Monitoring (DTAM) Station (E262137) exceeded PM10 objectives in 0.29% of its daily samples while Whispering Winds Trailer Park (WWTP) Air Monitoring Station (0250184) and the Michel By-Products Plant (MBPP) Air Monitoring Station (E206193) did not exceed. Highest particulate averages occurred in the Spring, Summer and Winter months. To reduce mine-related dust emissions, EVO has continued to improve the control of fugitive dust by suppression on the mine roads, mine spoils, plant and tailings areas. These include implementing the use of DustTreat and using water cannon/sprinkler systems on roads to reduce dust events at Elkview.

Biannual sampling of the Dryer Stacks (E102593) and the Breaker Station Stack (E210047) occurred in the second (Q2) and fourth (Q4) quarter by RWDI. All testing was performed while plant equipment was operating within normal parameters. All parameters were tested in accordance with referenced methodologies. The Dryer Stack met permit limits in both Q2 and Q4. The Breaker Stack exceeded Total Suspended Particulate (TSP) limits in both Q2 and Q4. Both instances were investigated and re-sampled within 30 days of becoming aware of the exceedance and met permit limits after re-sampling.

In 2017, EVO is conducting a monitoring assessment by a Qualified Professional to validate and potentially update its Air Quality Model. In addition, methods for dust speciation and winter dust suppression are being investigated to further improve fugitive dust management on site.

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1 Description of Mine Operations and Monitoring Program

1.1 Introduction

Elkview Operations (EVO) operates a metallurgical coal mine located in the Elk Valley approximately 3 km east of Sparwood, British Columbia.

This report discusses the monitoring program and the performance of the air pollution control facilities at EVO for 2016 as authorized under provisions of the *Environmental Management Act*, through Ministry of Environment Permit 1807 amended on August 17, 2015 (Appendix A).

In June 2015, the Fugitive Dust Control Plan as per Section 2.7.1 of permit 1807 was submitted which outlines engineered and administrative controls at site to mitigate the release of fugitive dust. This plan was approved on September 22, 2015 by MOE staff. Under the Baldy Ridge Extension (BRE) approvals an update to the Fugitive Dust Management Plan is required by March 31 and is included in this annual report (Appendix B).

1.2 Elkview Operations Monitoring Program

Monitoring is conducted as per the requirements set out in Section 3 of Permit 1807. Currently, two (2) source emissions (stack), three continuous air monitors and three weather stations are monitored (Table 1, Figure 1). Source samples are monitoring twice a year for Total Suspended Particulate (TSP) and Flow while continuous stations monitor PM10 and PM2.5 concentrations continuously. Meteorological stations collect temperature, wind speed and wind direction continuously. Continuous data for a given time period is considered valid if 75% data for that time period has been captured. Ambient air continuous monitoring is considered compliant if 75% of data within a quarter has been captured.

A summary and analysis of ambient data collected with a summary of any elevated results greater than the current Ministry Ambient Air Quality Criteria and analysis of trends over the stations' history is contained within this report.

Additional context surrounding equipment run time information can be found in the Teck Coal Ltd. Regional Air Quality Monitoring Program 2016 Annual Report submitted under separate cover.

Table 1 Summary of Permit PA1807 requirements and applicable permit limits and BC Ambient Air Quality Objectives

EMS ID	Location Code	Parameter	Permit Limit	BCAAQO	Unit	Measure	Instrument Make	Instrument Model
E102593	Dryer Stacks	Total Suspended Particulate	85	-	m3/s	Combined Maximum	-	-
		Flow	133	-	mg/m ³	Combined Maximum		
E210047	Breaker Stack	Total Suspended Particulate	150	-	m3/s	Maximum	-	-

EMS ID	Location Code	Parameter	Permit Limit	BCAAQO	Unit	Measure	Instrument Make	Instrument Model
		Flow	14	-	mg/m ³	Maximum		
E262137	Downtown Centennial Square (DTAM)	PM10	-	50	ug/m ³	Daily	Thermo	5030i SHARP
		PM2.5	-	25 ⁽¹⁾	ug/m ³	Daily	Thermo	5030i SHARP
			-	8 ⁽²⁾	ug/m ³	Annual		
		Temperature	-	-	dec c	Continuous	Campbell	HC2-S3
		Wind Direction	-	-	-	Continuous	RMYoung	05103
Wind Speed	-	-	km/h	Continuous	RMYoung	05103		
0250184	Whispering Winds (WWTP)	PM10	-	50	ug/m ³	Daily	Thermo	5030i SHARP
		PM2.5	-	25 ⁽¹⁾	ug/m ³	Daily	Thermo	5030i SHARP
			-	8 ⁽²⁾	ug/m ³	Annual		
		Temperature	-	-	dec c	Continuous	Campbell	HC2-S3
		Wind Direction	-	-	-	Continuous	RMYoung	05103V
Wind Speed	-	-	km/h	Continuous	RMYoung	05103V		
E206193	Michel By-Products Plant (MBPP)	PM10	-	50	ug/m ³	Daily	Thermo	5030i SHARP
		PM2.5	-	25 ⁽¹⁾	ug/m ³	Daily	Thermo	5030i SHARP
			-	8 ⁽²⁾	ug/m ³	Annual		
		Temperature	-	-	dec c	Continuous	Campbell	HC-S3-XT
		Wind Direction	-	-	-	Continuous	RMYoung	05103-10
Wind Speed	-	-	km/h	Continuous	RMYoung	05103-10		

(1) Achievement based on annual 98th percentile of daily average, over one year

(2) Achievement based on annual average, over one year

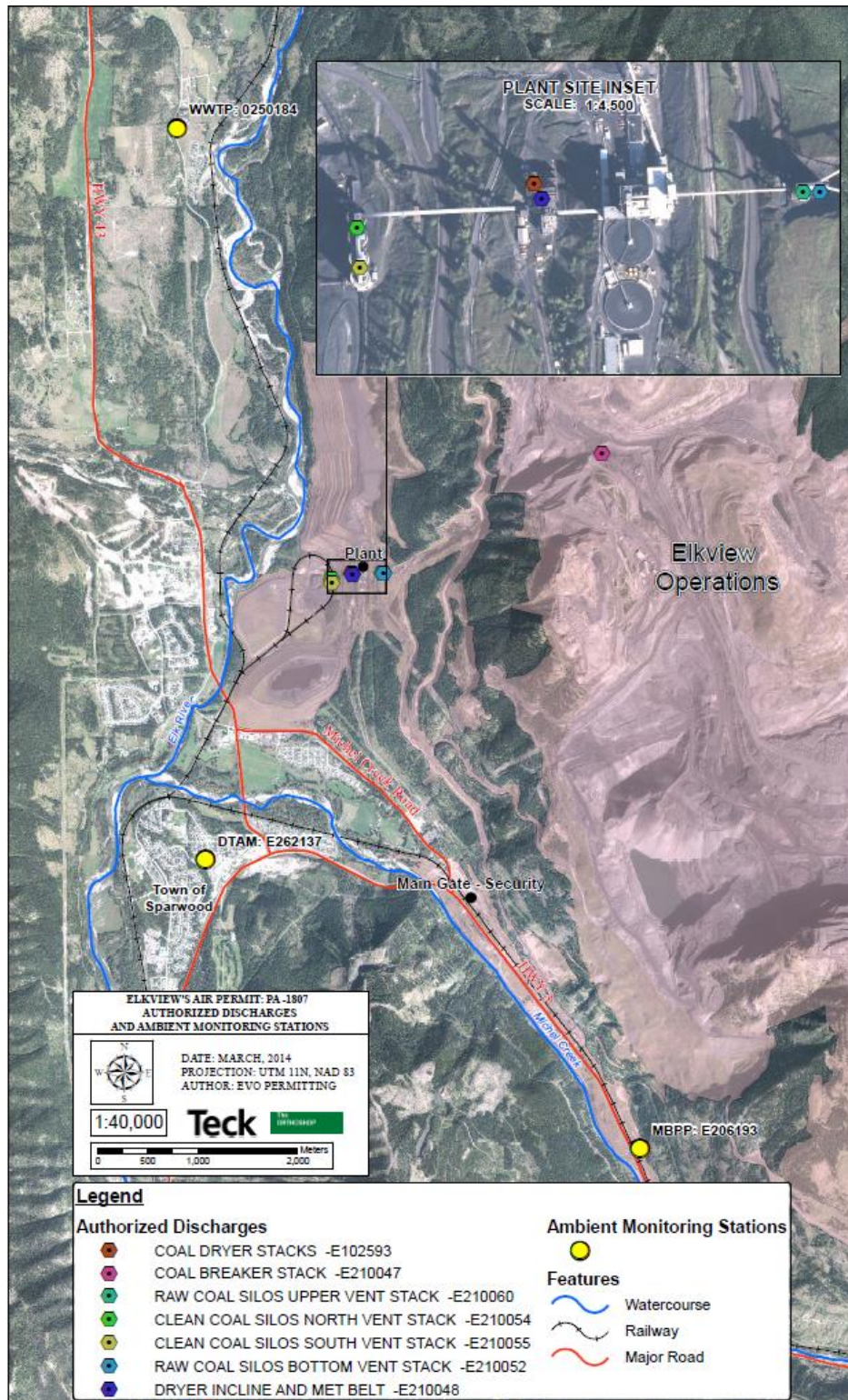


Figure 1 Elkview Operations Air Monitoring Locations

2 Ambient Air Data Collected in 2016

Per Section 4.3 of Permit 1807, a summary for each of the continuous monitors contains valid monitoring days and hours by month, quarter and year; annual hourly and daily mean and standard deviation; hourly percentiles (0, 10, 25, 50, 75, 90, 95, 98, 100); hourly exceedances of the BC Provincial Objectives; daily average by day of week and by season. Furthermore, daily percentiles and exceedances to BC Provincial Objectives are identified for PM_{2.5} values and 24 hour running average percentiles and exceedances to the BC Provincial Objectives for PM₁₀.

Annual maintenance on the Downtown Sparwood Centennial Square (DTAM) (E262137) and the Whispering Winds (WWTP) (0250184) monitoring stations occurred from May 26, 2016 to June 6, 2016. Downtime due to planned maintenance activities is removed from completeness calculations. In the event an air monitoring station requires extended maintenance due to equipment failure, a notification will be made to the Ministry of Environment and the down-time removed from the completeness calculation.

Appendix C shows all 2016 daily average concentrations for PM_{2.5} and PM₁₀ for each continuous air monitoring station.

2.1 Summary and Analysis of E262137 Downtown Sparwood Centennial Square (DTAM) Monitoring Station

The Downtown Sparwood Centennial Square (DTAM) Monitoring Station (E262137) achieved over 75% data completeness for all hourly, daily, monthly, quarterly and annual timeframes in 2016 (Table 2).

Table 2 Summary of valid monitoring days and hours in 2015 at DTAM for 2016

DTAM Air Monitoring Station					
Time Period	PM 2.5	PM 10	Total Available	PM 2.5 Sampled of Total Available	PM 10 Sampled of Total Available
Number of valid monitoring days/January	31	31	31	100%	100%
Number of valid monitoring days/February	22	29	29	76%	100%
Number of valid monitoring days/March	31	31	31	100%	100%
Number of valid monitoring days/April	30	30	30	100%	100%
Number of valid monitoring days/May ⁽¹⁾	22	26	26	84%	100%
Number of valid monitoring days/June ⁽¹⁾	24	20	24	100%	84%
Number of valid monitoring days/July	31	31	31	100%	100%
Number of valid monitoring days/August	31	31	31	100%	100%
Number of valid monitoring days/September	30	30	30	100%	100%
Number of valid monitoring days/October	31	31	31	100%	100%
Number of valid monitoring days/November	25	25	30	83%	83%
Number of valid monitoring days/December	30	31	31	97%	100%
Number of valid monitoring days/Q1	84	91	91	92%	100%
Number of valid monitoring days/Q2	76	76	80	95%	95%
Number of valid monitoring days/Q3	92	92	92	100%	100%

DTAM Air Monitoring Station					
Time Period	PM 2.5	PM 10	Total Available	PM 2.5 Sampled of Total Available	PM 10 Sampled of Total Available
Number of valid monitoring days/Q4	86	87	92	93%	95%
Number of valid monitoring days/year	338	346	355	95%	97%
Number of valid monitoring hours/Q1	1971	2135	2184	90%	98%
Number of valid monitoring hours/Q2	1812	1828	1920	94%	95%
Number of valid monitoring hours/Q3	2190	2192	2208	99%	99%
Number of valid monitoring hours/Q4	2070	2088	2208	94%	95%
Number of valid monitoring hours/year	8043	8243	8520	94%	97%

(1) From May 26, 2016 to June 6, 2016 the DTAM monitoring station was taken offline for annual maintenance

As shown in Table 3, PM2.5 data at DTAM in 2016 resulted in a daily average of 6.3 ug/m³ and hourly average of 4.65 ug/m³, a decrease from 2015 (6.37 ug/m³ and 6.38 ug/m³, respectively). The highest daily average PM2.5 concentration was observed in the Spring versus in the Summer, 2015. PM10 data at DTAM in 2016 resulted in a daily average of 9.22 ug/m³ and hourly average of 10.81 ug/m³. A reduction in the daily average from 2015 (10.67 ug/m³) and increase in the hourly average from 2015 (10.65 ug/m³). The highest average concentration for PM10 was observed in Winter, as compared to Summer in 2015. Winter dust suppression on site continues to be a challenge due to safety and product restrictions.

Table 3 Average PM 2.5 and PM 10 results for various time periods at DTAM for 2016

DTAM Air Monitoring Station		
Time Period	Average PM 2.5	Average PM 10
Daily Average for Monday	5.86	8.22
Daily Average for Tuesday	6.56	10.47
Daily Average for Wednesday	6.56	11.00
Daily Average for Thursday	6.38	9.09
Daily Average for Friday	6.65	10.22
Daily Average for Saturday	6.40	7.95
Daily Average for Sunday	5.70	7.69
Daily Average in Winter	4.79	10.64
Daily Average in Spring	9.61	8.90
Daily Average in Summer	5.79	8.87
Daily Average in Fall	4.94	8.38
Annual Daily Mean	6.30	9.22
Annual Daily Standard Deviation	5.18	7.90
Annual Hourly Mean	4.65	10.81
Annual Hourly Standard Deviation	4.18	11.38

Percentiles at DTAM are shown in Table 4 for various scenarios. The 98th percentile for Daily PM2.5 (22.02 ug/m³) will be used to compare to BC Provincial Objectives.

Table 4 Hourly percentiles for PM 2.5 and PM 10 at DTAM for 2016

DTAM Air Monitoring Station				
Percentile	Hourly Average PM 2.5	Hourly Average PM 10	Daily (12 am-12am) PM2.5	24-hr Running Average PM10
0	0.00	0.00	0.56	0.41
10	0.80	1.50	1.50	2.40
25	0.80	3.50	2.48	4.63
50	1.70	8.00	4.84	9.21
75	6.30	14.40	8.04	14.66
90	9.80	22.50	13.86	21.23
95	12.70	29.70	17.77	25.37
98	16.50	40.30	22.02	32.13
100	43.60	199.60	25.81	63.54

Section 4.3 in permit 1807 requires summaries of data collected at each air monitoring station since conception. conception.

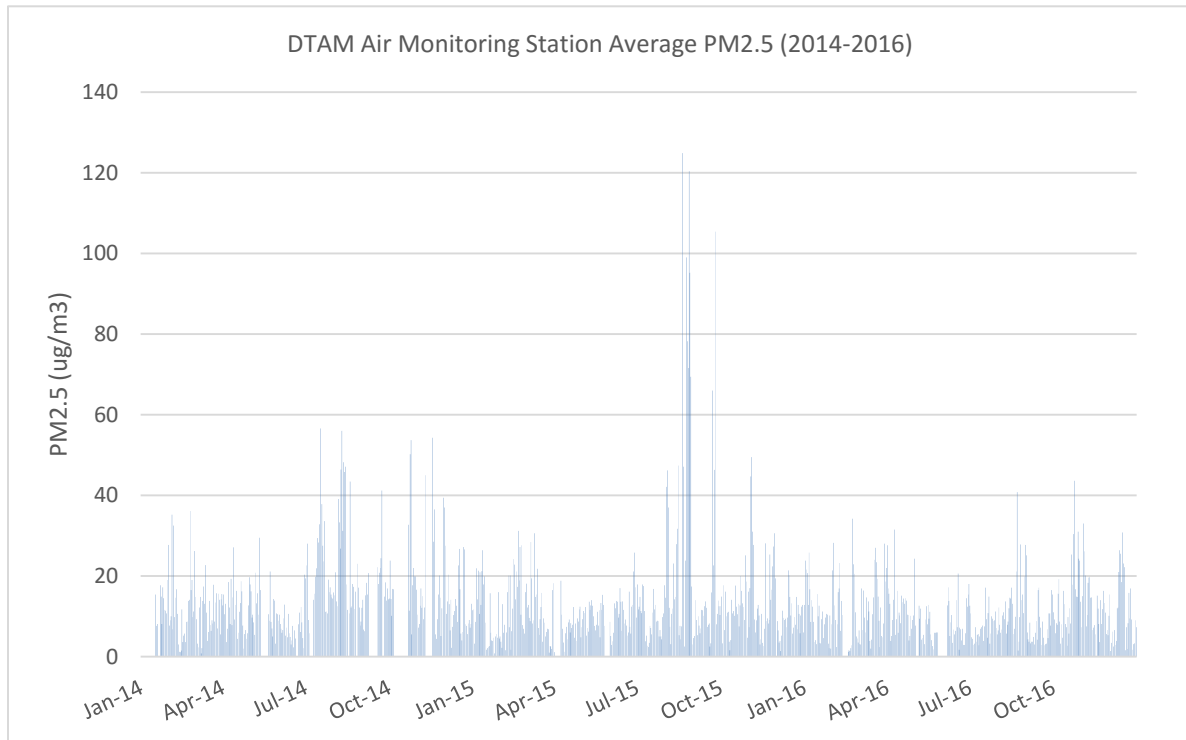


Figure 2 shows average hourly PM 2.5 data collected and

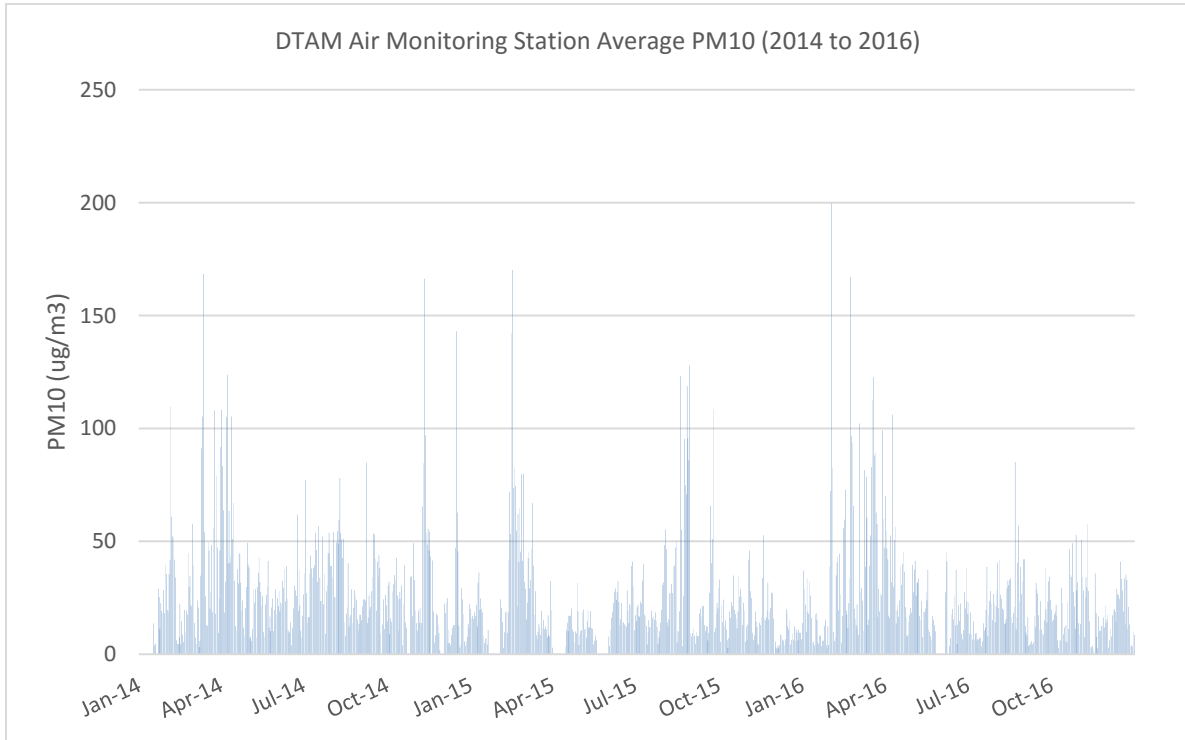


Figure 3 illustrates PM 10 data since conception of DTAM.

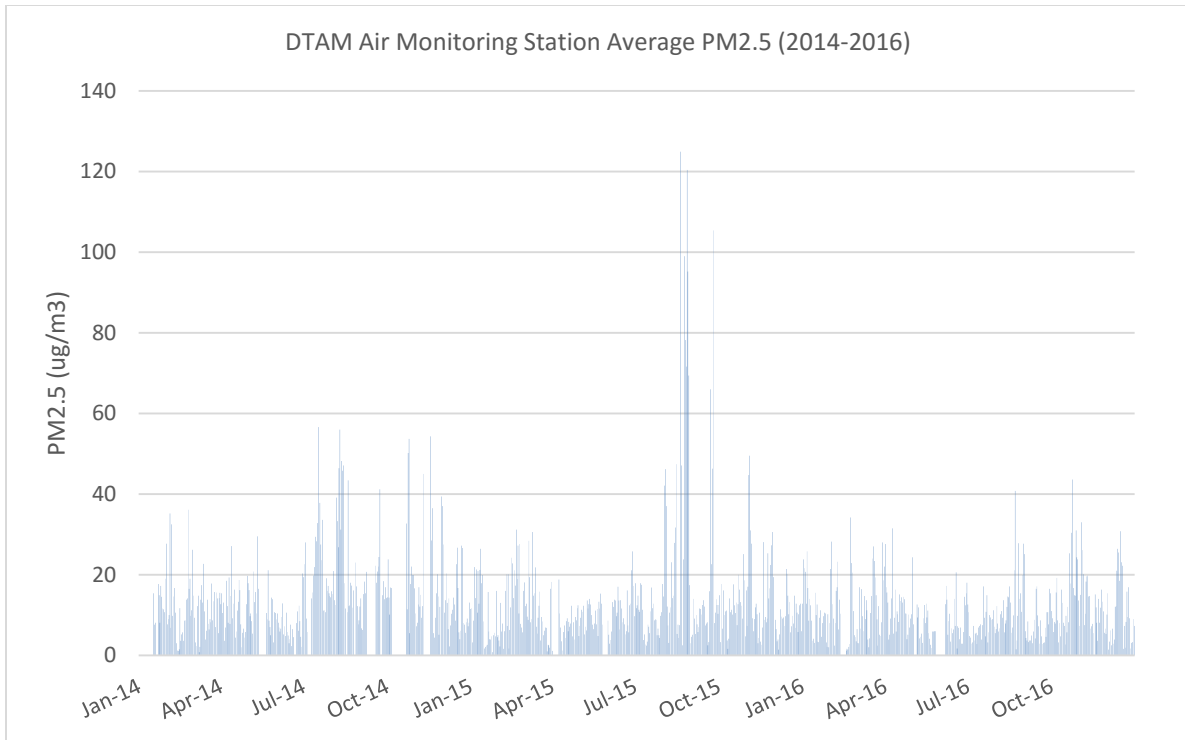


Figure 2 DTAM Air monitoring station hourly average since conception of PM 2.5 data

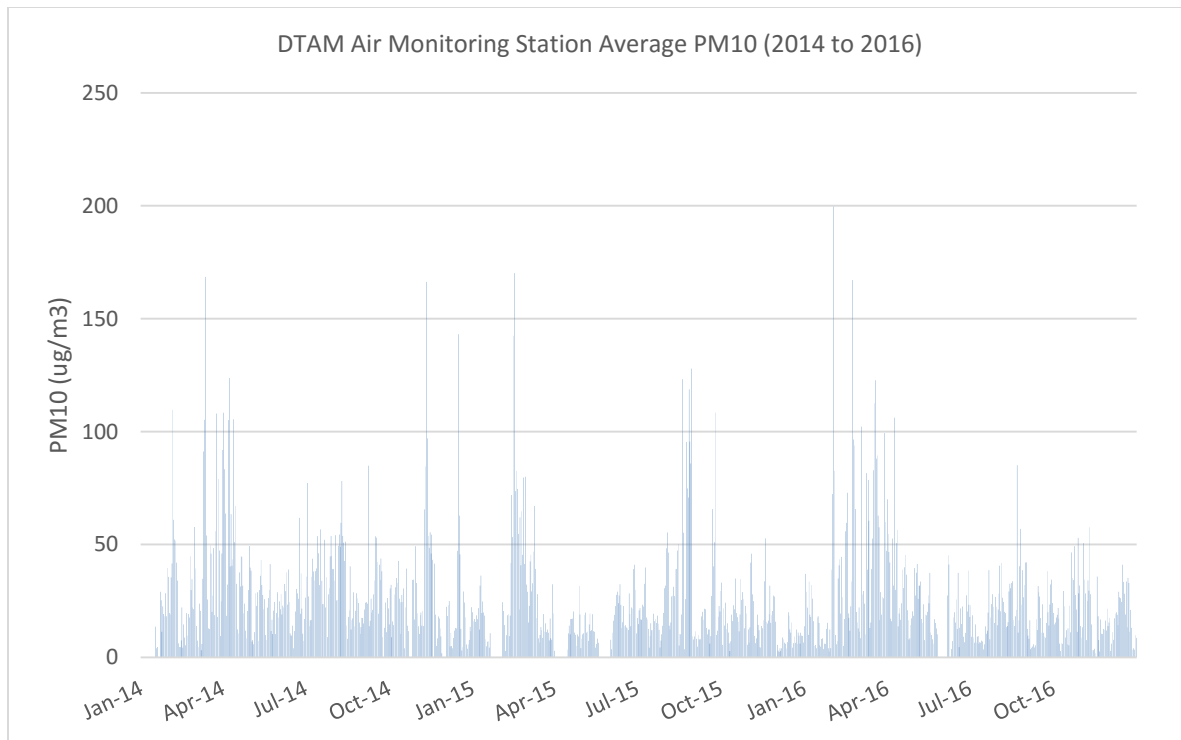


Figure 3 DTAM Air monitoring station hourly average since conception of PM 10 data

2.2 Summary and Analysis of 0250184 Whispering Winds (WWTP) Monitoring Station

The Whispering Winds (WWTP) Monitoring Station (0250184) achieved over 75% data completeness for all hourly, daily, monthly, quarterly and annual timeframes in 2016 (Table 5).

Table 5 Summary of valid monitoring days and hours in 2015 at WWTP

WWTP Air Monitoring Station					
Time Period	PM 2.5	PM 10	Total Available	PM 2.5 Sampled of Total Available	PM 10 Sampled of Total Available
Number of valid monitoring days/January	31	31	31	100%	100%
Number of valid monitoring days/February	26	28	29	90%	97%
Number of valid monitoring days/March	31	31	31	100%	100%
Number of valid monitoring days/April	30	30	30	100%	100%
Number of valid monitoring days/May(1)	26	26	26	100%	100%
Number of valid monitoring days/June(1)	24	22	24	100%	92%
Number of valid monitoring days/July	31	31	31	100%	100%
Number of valid monitoring days/August	31	31	31	100%	100%
Number of valid monitoring days/September	30	30	30	100%	100%
Number of valid monitoring days/October	31	31	31	100%	100%

WWTP Air Monitoring Station					
Time Period	PM 2.5	PM 10	Total Available	PM 2.5 Sampled of Total Available	PM 10 Sampled of Total Available
Number of valid monitoring days/November	30	30	30	100%	100%
Number of valid monitoring days/December	29	30	31	94%	97%
Number of valid monitoring days/Q1	88	90	91	97%	99%
Number of valid monitoring days/Q2	80	78	80	100%	98%
Number of valid monitoring days/Q3	92	92	92	100%	100%
Number of valid monitoring days/Q4	90	91	92	98%	99%
Number of valid monitoring days/year	350	351	355	99%	99%
Number of valid monitoring hours/Q1	1961	2007	2184	90%	92%
Number of valid monitoring hours/Q2	1810	1854	1920	94%	97%
Number of valid monitoring hours/Q3	2198	2200	2208	100%	100%
Number of valid monitoring hours/Q4	2160	2174	2208	98%	98%
Number of valid monitoring hours/year	8129	8235	8520	95%	97%

(1) From May 26, 2016 to June 6, 2016 the DTAM monitoring station was taken offline for annual maintenance

As shown in Table 6, PM2.5 data at WWTP in 2016 resulted in a daily average of 4.77 ug/m³ and hourly average of 3.71 ug/m³, a decrease from 2015 (5.61 ug/m³ and 5.54 ug/m³, respectively). The highest daily average PM2.5 concentration was observed in the Spring versus in the Summer, 2015. PM10 data at WWTP in 2016 resulted in a daily average of 5.56 ug/m³ and hourly average of 6.36 ug/m³. A reduction in the daily average from 2015 (7.83 ug/m³) and the hourly average from 2015 (7.74 ug/m³). The highest average concentration for PM10 was observed in Summer, the same as in 2015.

Table 6 Average PM 2.5 and PM 10 results for various time periods at WWTP

WWTP Air Monitoring Station		
Time Period	Average PM 2.5	Average PM 10
Daily Average for Monday	4.60	5.16
Daily Average for Tuesday	4.59	5.78
Daily Average for Wednesday	5.43	6.37
Daily Average for Thursday	4.56	5.25
Daily Average for Friday	4.84	5.62
Daily Average for Saturday	4.64	5.37
Daily Average for Sunday	4.71	5.35
Daily Average in Winter	4.23	5.04
Daily Average in Spring	6.88	5.34
Daily Average in Summer	4.79	6.93
Daily Average in Fall	3.27	5.02
Annual Daily Mean	4.77	5.56
Annual Daily Standard Deviation	3.62	3.87
Annual Hourly Mean	3.71	6.36
Annual Hourly Standard Deviation	3.43	5.96

Percentiles at WWTP are shown in Table 7 for various scenarios. The 98th percentile for Daily PM2.5 (14.90 ug/m³) will be used to compare to BC Provincial Objectives.

Table 7 Hourly percentiles for PM 2.5 and PM 10 at WWTP for 2015

WWTP Air Monitoring Station				
Percentile	Hourly Average PM 2.5	Hourly Average PM 10	Daily (12 am-12am) PM2.5	24-hr Running Average PM10
0	0.00	0.00	0.33	0.57
10	0.70	1.20	1.32	1.86
25	1.40	2.10	2.21	2.97
50	2.65	4.60	3.74	5.22
75	5.00	8.50	6.44	8.83
90	7.90	13.80	9.61	11.97
95	10.30	17.90	11.88	15.17
98	14.20	24.60	14.90	18.83
100	33.40	59.60	22.36	27.12

Section 4.3 in permit 1807 requires summaries of data collected at each air monitoring station since conception. Figure 4 shows average hourly PM 2.5 data collected and Figure 5 illustrates PM 10 data since conception of WWTP.

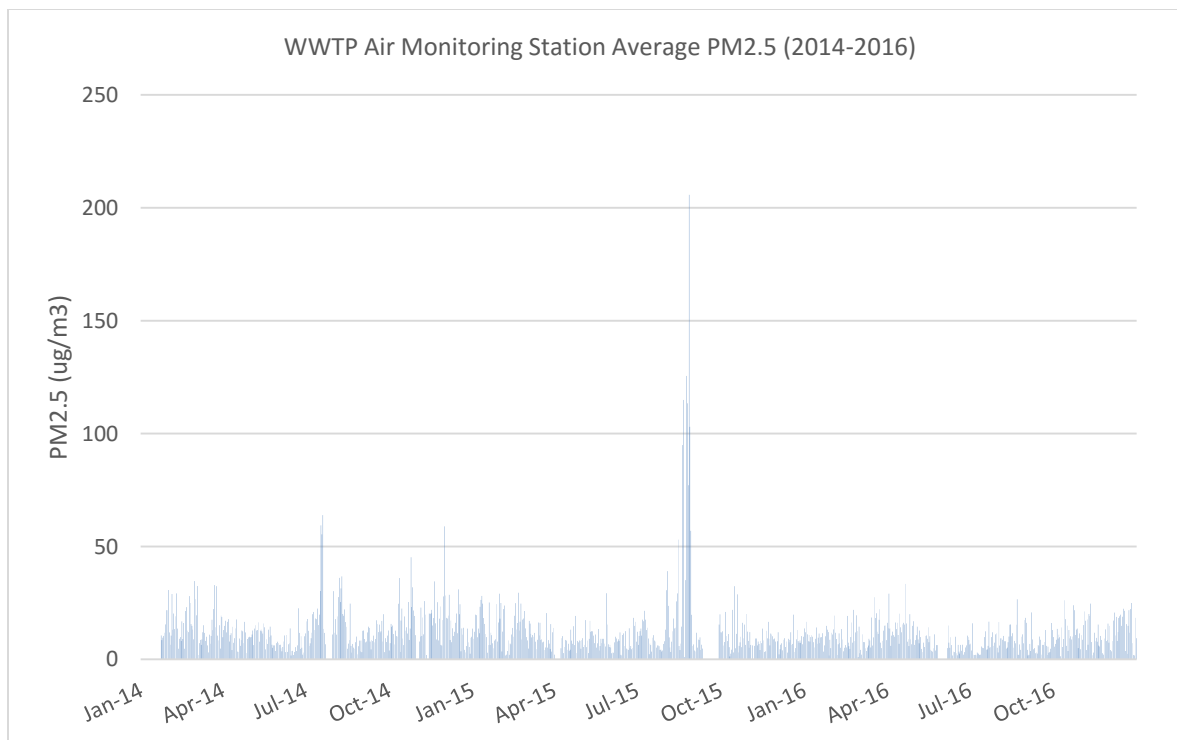


Figure 4 WWTP Air monitoring station hourly average since conception of PM 2.5 data

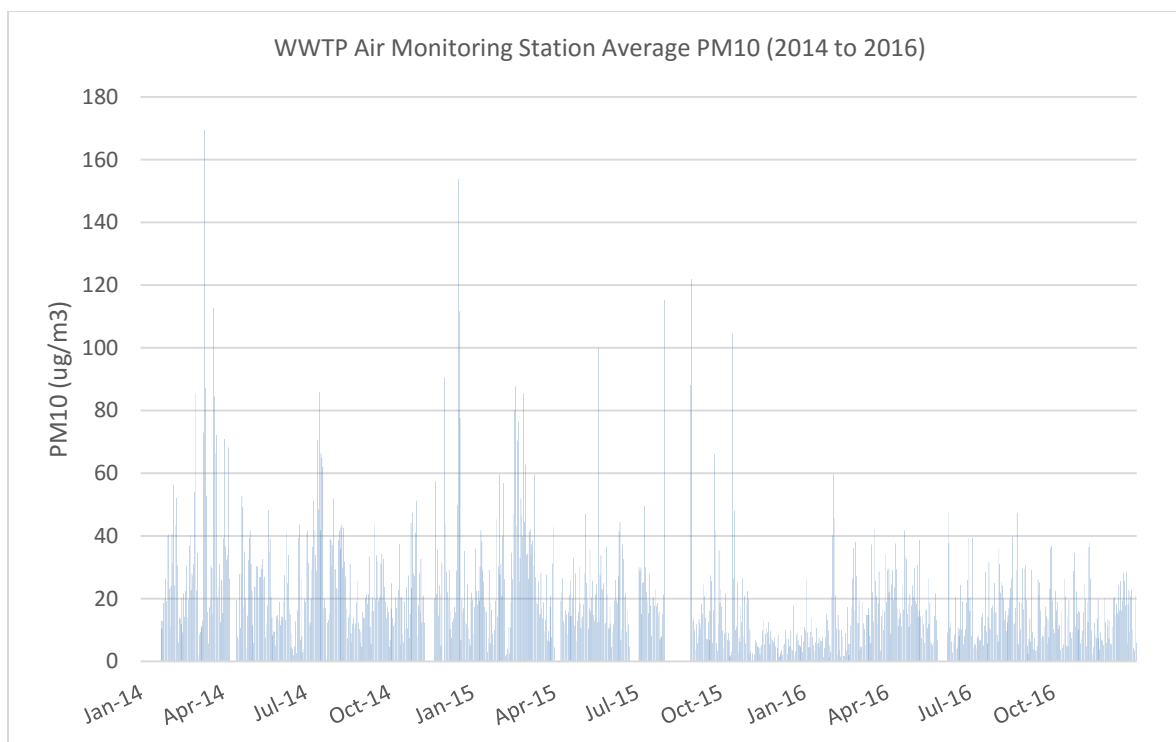


Figure 5 WWTP Air monitoring station hourly average since conception of PM 10 data

2.3 Summary and Analysis of E206193 Michel By-Products Plan (MBPP) Monitoring Station

The Michel By-Products Plant (MBPP) Monitoring Station (E206193) achieved over 75% data completeness for all hourly, daily, monthly, quarterly and annual timeframes in 2016 (Table 8).

From September 26, 2016 to October 27, 2016 MBPP was taken offline to address issues with the dryer pump. Notification was provided to the Ministry of Environment on October 17, 2017 via email when the first attempt to resolve the issue failed and it was noted that data completeness may not achieve 75%. Down-time due to known maintenance is not included in the data completeness calculation.

Table 8 Summary of valid monitoring days and hours in 2015 at MBPP

MBPP Air Monitoring Station					
Time Period	PM 2.5	PM 10	Total Available	PM 2.5 Sampled of Total Available	PM 10 Sampled of Total Available
Number of valid monitoring days/January	31	31	31	100%	100%
Number of valid monitoring days/February	29	29	29	100%	100%
Number of valid monitoring days/March	31	31	31	100%	100%
Number of valid monitoring days/April	30	30	30	100%	100%
Number of valid monitoring days/May	31	31	31	100%	100%
Number of valid monitoring days/June	30	30	30	100%	100%

Number of valid monitoring days/July	31	31	31	100%	100%
Number of valid monitoring days/August	31	31	31	100%	100%
Number of valid monitoring days/September ⁽¹⁾	28	28	28	100%	100%
Number of valid monitoring days/October ⁽¹⁾	4	4	5	80%	80%
Number of valid monitoring days/November	30	30	30	83%	100%
Number of valid monitoring days/December	30	31	31	97%	100%
Number of valid monitoring days/Q1	91	91	91	100%	100%
Number of valid monitoring days/Q2	91	91	91	100%	100%
Number of valid monitoring days/Q3	90	90	90	100%	100%
Number of valid monitoring days/Q4	64	65	66	97%	98%
Number of valid monitoring days/year	336	337	338	99%	100%
Number of valid monitoring hours/Q1	2176	2174	2184	100%	100%
Number of valid monitoring hours/Q2	2181	2181	2184	100%	100%
Number of valid monitoring hours/Q3	2161	2163	2158	100%	100%
Number of valid monitoring hours/Q4	1570	1570	1584	99%	99%
Number of valid monitoring hours/year	8088	8088	8110	100%	100%

(1) From September 26, 2016 to October 27, 2016 maintenance on the MBPP station to address dryer pump issues was occurring and does not contribute to data completeness

As shown in Table 9, PM_{2.5} data at MBPP in 2016 resulted in a daily average of 5.61 ug/m³ and hourly average of 4.25 ug/m³, a decrease from 2015 (7.66 ug/m³ and 7.60 ug/m³, respectively). The highest daily average PM_{2.5} concentration was observed in the Spring versus in the Summer, 2015. PM₁₀ data at MBPP in 2016 resulted in a daily average of 6.63 ug/m³ and hourly average of 7.98 ug/m³, a reduction in the daily average from 2015 (11.73 ug/m³) and the hourly average from 2015 (11.67 ug/m³). The highest average concentration for PM₁₀ was observed in Summer, the same as in 2015.

Table 9 Average PM 2.5 and PM 10 results for various time periods at MBPP

MBPP Air Monitoring Station		
Time Period	Average PM 2.5	Average PM 10
Daily Average for Monday	4.94	5.82
Daily Average for Tuesday	5.38	6.27
Daily Average for Wednesday	7.09	7.91
Daily Average for Thursday	5.45	6.56
Daily Average for Friday	5.54	6.94
Daily Average for Saturday	5.97	6.81
Daily Average for Sunday	4.92	6.08
Daily Average in Winter	4.18	6.90
Daily Average in Spring	7.75	5.10
Daily Average in Summer	6.42	8.37
Daily Average in Fall	3.36	5.92
Annual Daily Mean	5.61	6.63
Annual Daily Standard Deviation	5.65	5.40
Annual Hourly Mean	4.25	7.98
Annual Hourly Standard Deviation	4.67	11.22

Percentiles at WWTP are shown in Table 7 for various scenarios. The 98th percentile for Daily PM_{2.5} (22.38 ug/m³) will be used to compare to BC Provincial Objectives.

Table 10 Hourly percentiles for PM 2.5 and PM 10 at MBPP for 2015

MBPP Air Monitoring Station				
Percentile	Hourly Average PM 2.5	Hourly Average PM 10	Daily (12 am-12am) PM2.5	24-hr Running Average PM10
0	0.00	0.00	0.36	0.45
10	0.70	0.90	1.07	1.70
25	1.10	2.10	2.05	3.22
50	3.10	4.90	4.02	5.99
75	5.50	9.40	7.13	11.00
90	9.00	17.00	11.69	16.38
95	11.90	24.95	15.26	21.74
98	15.92	40.72	22.38	26.90
100	126.80	197.20	51.07	55.13

Section 4.3 in permit 1807 also requires summaries of data collected at each air monitoring station since conception. since conception.

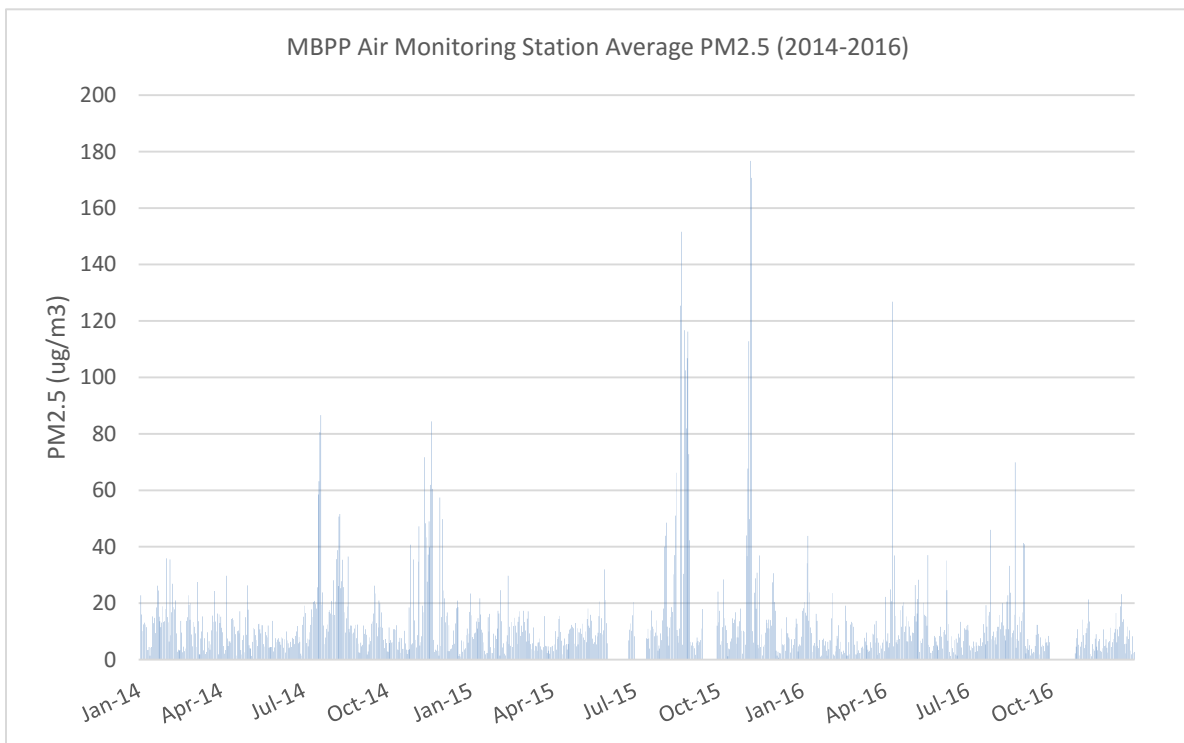


Figure 6 shows average hourly PM 2.5 data collected and Figure 7 illustrates PM 10 data since conception of MBPP.

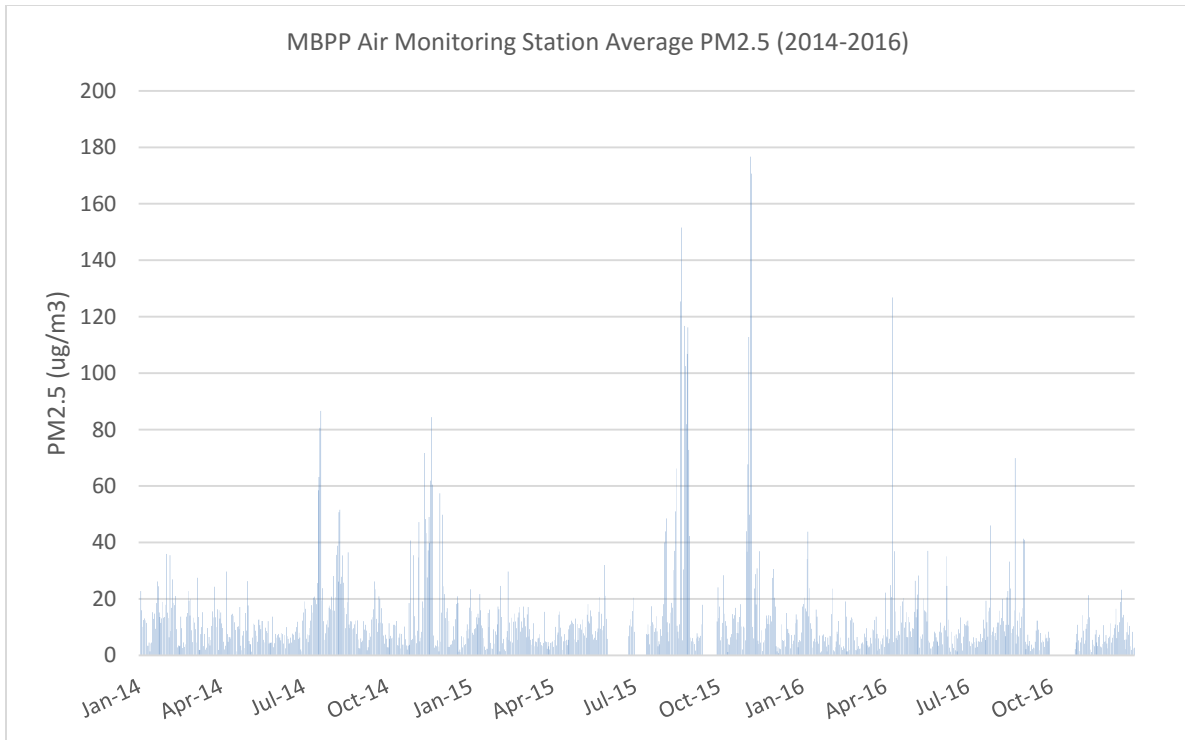


Figure 6 MMBP Air monitoring station hourly average since conception of PM 2.5 data

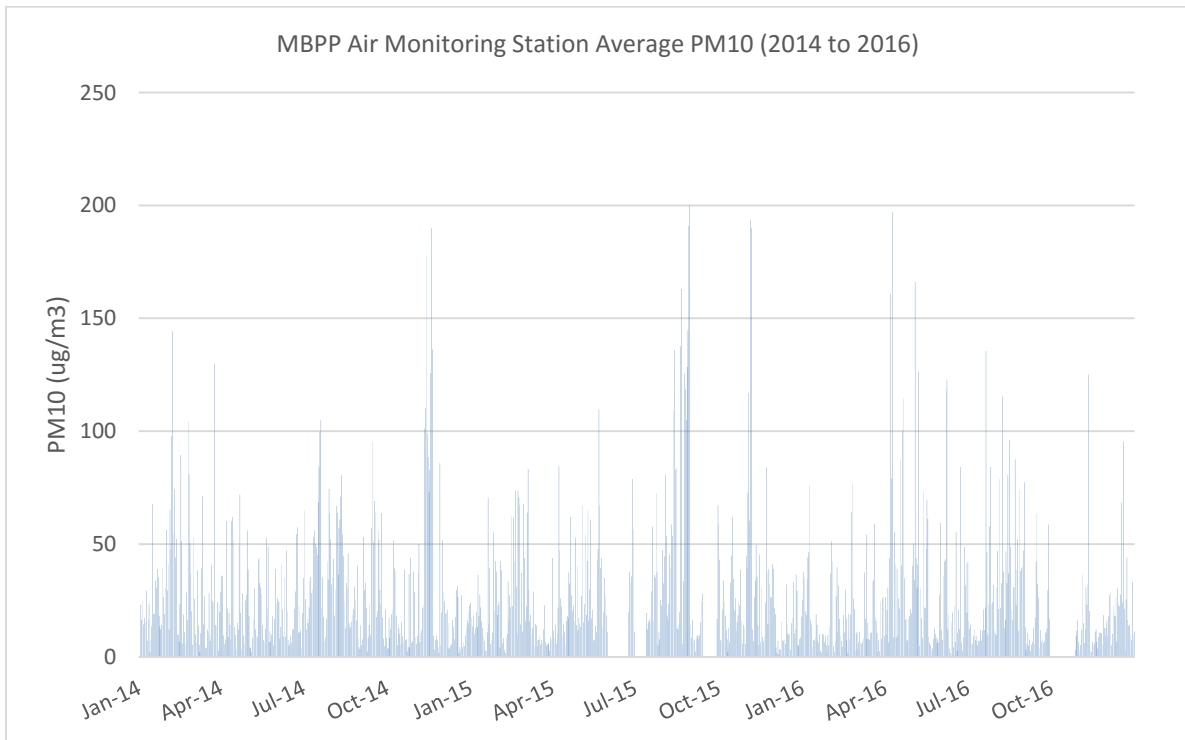


Figure 7 MMBP Air monitoring station hourly average since conception of PM 10 data

3 Continuous Air Quality Objectives

3.1 Provincial Air Quality Objectives

BC Provincial Objectives are applicable to 24-hour and annual PM_{2.5} concentration and 24-hour PM₁₀ concentrations. PM_{2.5} 24-hour concentrations are considered achieved if the 98th percentile of the daily average for the year is below the BC Provincial Objective. PM_{2.5} annual concentrations are considered achieved if the daily average for the year does not exceed BC Provincial Objectives.

In addition to comparing the 98th percentile to applicable objectives, instantaneous daily and hourly PM_{2.5} results are compared to guidelines to inform dust management activities.

Table 11 through Table 13 highlights any exceedances to the BC Provincial Objectives and summarizes events above objective limits.

There were no exceedances to the BC Provincial Objectives for hourly PM_{2.5} at any of the monitoring stations in 2016. The Downtown Sparwood (DTAM) Air Monitoring Station (E262137) met annual PM_{2.5} BC Provincial Objectives, but was above the goal objective. The Whispering Winds Trailer Park (WWTP) Monitoring Station (0250184) and the Michel By-Products Plant (MBPP) Air Monitoring Station (E2061930) met both the Annual BC Provincial Objective and the goal objective.

PM₁₀ 24-hour BC Provincial Objective was exceeded at DTAM (E262137) once (1/0.29%) and none at the WWTP (0250184) and MBPP (E206193) air monitoring stations.

Table 11 Summary of Events above BC Provincial Objectives at DTAM

DTAM Air Monitoring Station						
Measurement	BCAAQO	Annual Average	98th Percentile	Daily Exceedance	Hourly Exceedances	24-Hr Running Average Exceedances
PM _{2.5} -24 Hour ⁽¹⁾	25		22.02	1 (0.3%)	28 (0.35%)	
PM _{2.5} -Annual	8	6.30				
PM ₁₀ - 24 hour	50			1 (0.29%)	97 (1.18%)	24 (0.29%)

(1) Achievement based on annual 98th percentile of daily average, over one year.

Table 12 Summary of Events above BC Provincial Objectives at WWTP

WWTP Air Monitoring Station						
Measurement	BCAAQO	Annual Average	98th Percentile	Daily Exceedance	Hourly Exceedances	24-Hr Running Average Exceedances
PM _{2.5} -24 Hour ⁽¹⁾	25		14.90	0 (0%)	7 (0.09%)	
PM _{2.5} -Annual	8	4.77				
PM ₁₀ - 24 hour	50			0 (0%)	92 (1.12%)	0 (0%)

(1) Achievement based on annual 98th percentile of daily average, over one year.

Table 13 Summary of Events above BC Provincial Objectives at MBPP

MBPP Air Monitoring Station						
Measurement	BCAAQO	Annual Average	98th Percentile	Daily Exceedance	Hourly Exceedances	24-Hr Running Average Exceedances
PM2.5-24 Hour ⁽¹⁾	25		22.38	5 (1.48%)	402 (4.97%)	
PM2.5-Annual	8	5.61				
PM10 - 24 hour	50			0 (0%)	92 (1.14%)	18 (0.22%)

(1) Achievement based on annual 98th percentile of daily average, over one year.

4 Meteorological Stations

Wind roses from each meteorological station are shown in Figure 8 through Figure 10.

Predominant wind direction at DTAM shows from the South, while WWTP and the MBPP air monitoring stations showed dominant wind direction from the South-East and South-South-East, respectively. Wind speeds typically ranged from 0.5 m/s to 8.8 m/s with instance of speeds greater than 8.8 m/s.

Downtown Air Monitor (60 mins.)

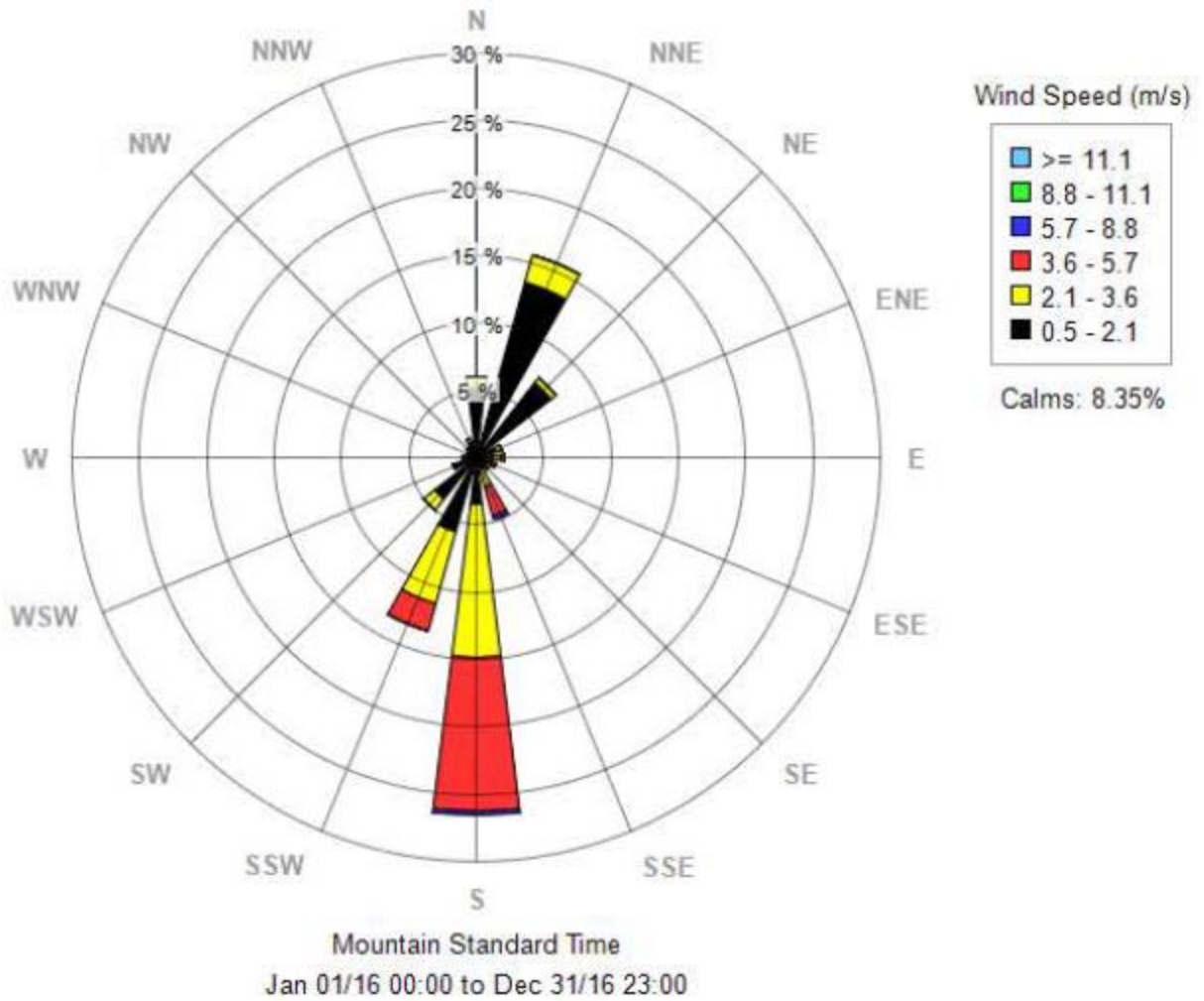


Figure 8 60 minute average wind rose for DTAM using quality assured data

Whispering Winds Trailer Park (60 mins.)

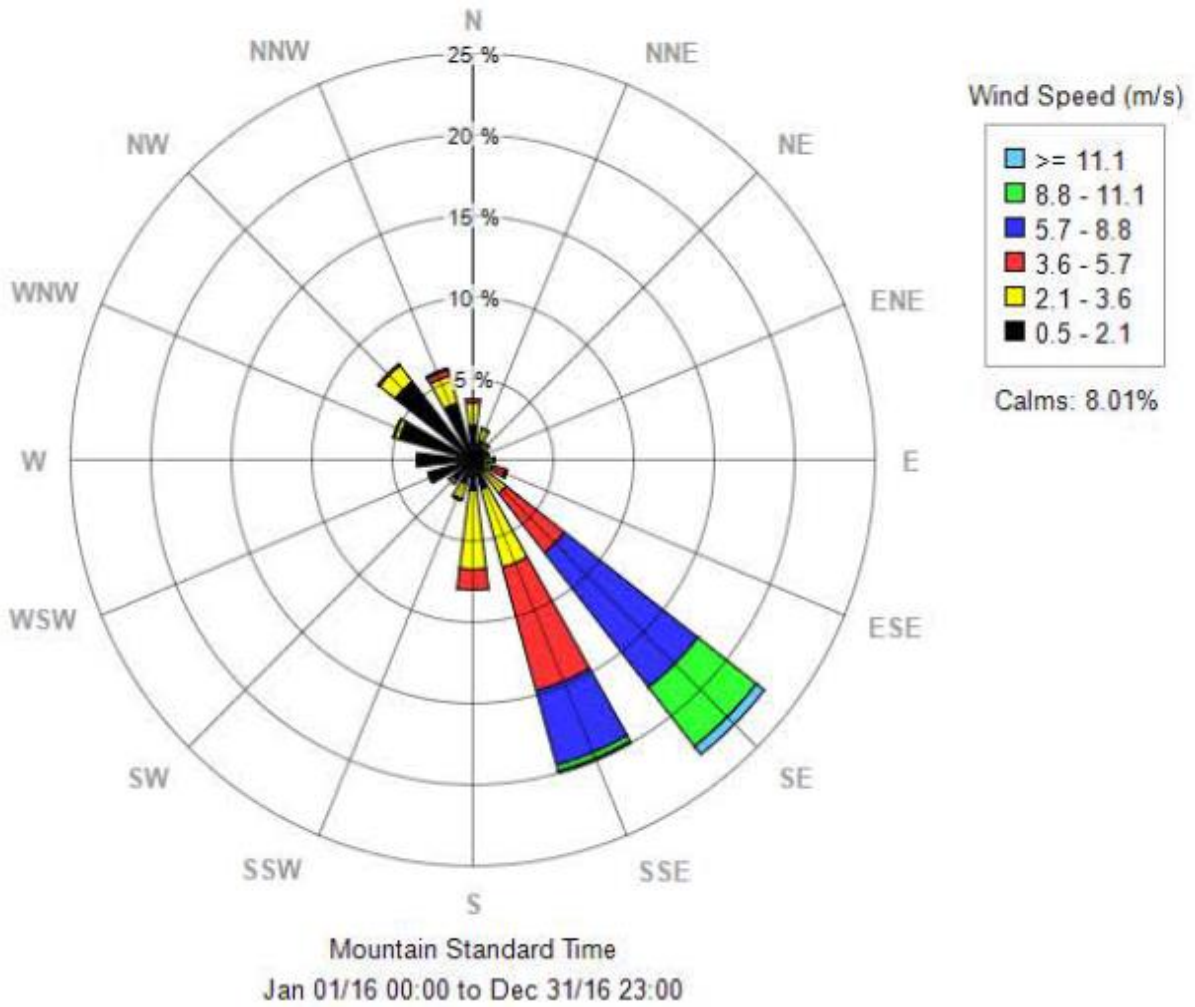


Figure 9 60 minute average wind rose for WWTP using quality assured data

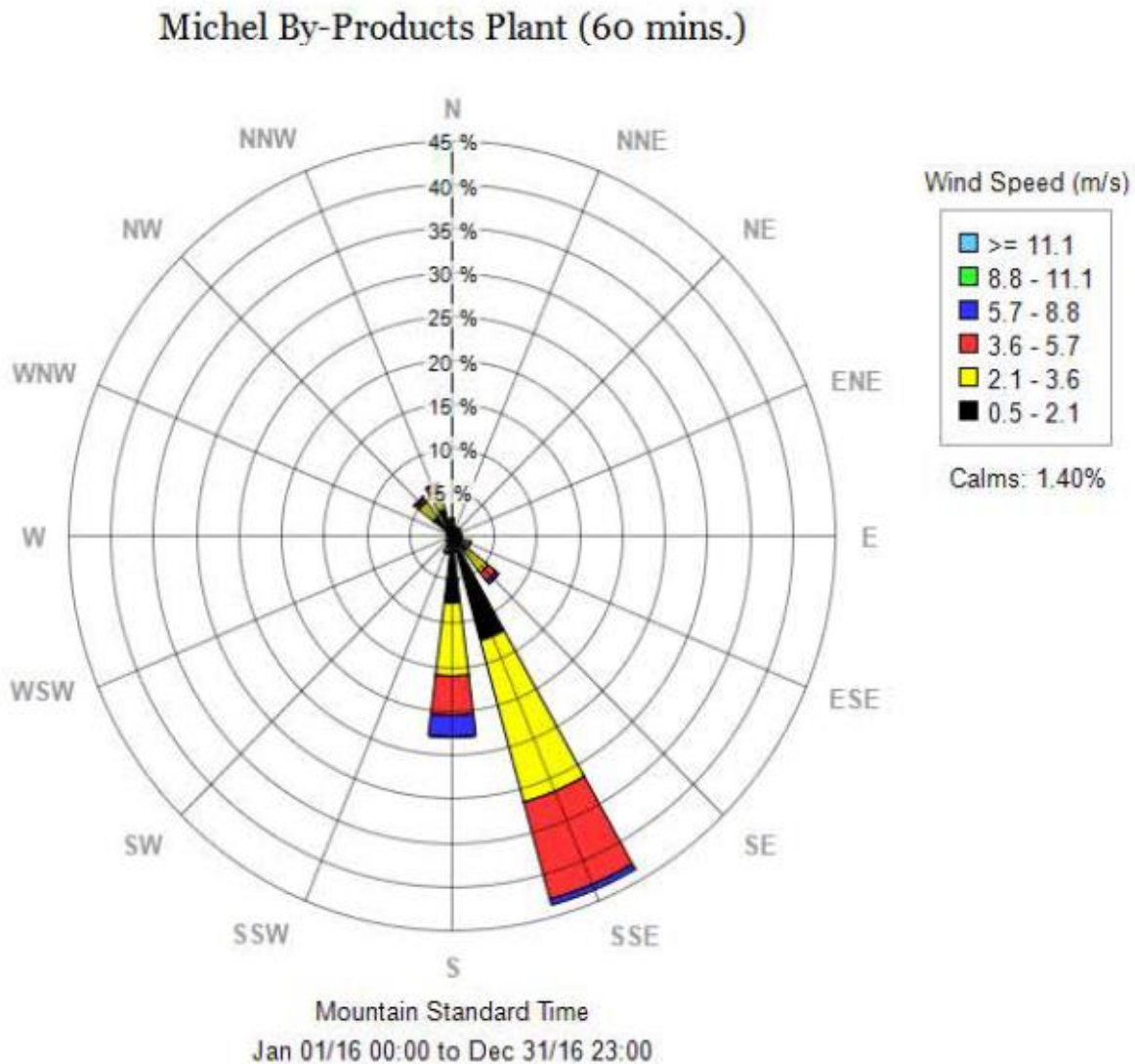


Figure 10 60 minute average wind rose for MBPP using quality assured data

5 Source Emissions

5.1 Source Emissions Sampling

Per Section 3 of Permit 1807, the Dryer Stack (E102593) and the Breaker Stack (E210047) are sampled twice a year and compared to applicable permit limits (Table 1). Each stack must be under normal operating conditions and at least 75% of nominal load during sampling. Emission sources are sampled in accordance with the *“British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples, 2003 Edition (Permittee)”*.

The Dryer Stack and Breaker stack were sampled in Q2 and Q4 2016. The Breaker stack exceeded permit results in Q2 and Q4 and per Permit 1807, was re-sampled within 30 days of becoming aware of the results. Results of the source sampling can be seen below.

5.2 Summary of Source Sampling

Source sampling in Q2 was conducted from May 2-4, 2016 (Table 14). The Breaker stack (E210047) exceeded Total Suspended Particulate (TSP) permit limits on May 2, 2016 (298.4 mg/m³ on a limit of 150 mg/m³) and upon investigation it was determined the exceedance may be related to installation of a waste system to cool the collector system in the event of overheating. It is possible the system caused wetting to the filters, reducing their functionality. To resolve this, an alarm was put in place to notify operations when the system turns on and the filters replaced. The Breaker stack was re-sampled on June 23, 2016 and results were within compliant limits. Dryer stack emissions were within compliance limits in Q2 2016.

Table 14 Summary of Q2 2016 Source Sampling Emissions

Sample Date	Site Number	Location	Average Flow Rate (m ³ /s)	Average Total Particulate (mg/m ³)
May 2, 2016	E210047	Coal Breaker Stack	14	298
June 23, 2016			14	31
Permit Limit			14	150
May 3 – 4, 2016	E102593	North Dryer Stack	-	30
		South Dryer Stack	-	21
		Combined Dryer Stacks	115	-
Permit Limit			133	85

Source sampling in Q4 was conducted from November 7-9, 2016 (Table 15). The Breaker stack (E210047) exceeded TSP permit limits on November 7, 2016 (247 mg/m³ on a limit of 150 mg/m³) and upon investigation it was determined the exceedance may be attributed to inadequate maintenance and operation of the Breaker Dust collection system, resulting in poor performance. Improvement to the preventative maintenance schedule and operating procedures were made to address compliance concerns. The Breaker stack was re-sampled on December 13, 2016 and results were within compliant limits. Dryer stack emissions were within compliance limits in Q4 2016.

Table 15 Summary of Q4 2016 Source Sampling Emissions

Sample Date	Site Number	Location	Average Flow Rate (m ³ /s)	Average Total Particulate (mg/m ³)
Nov 7, 2016	E210047	Coal Breaker Stack	9	247
Dec 13, 2016			8	29
Permit Limit			14	150
Nov 8-9, 2016	E102593	North Dryer Stack	-	17
		South Dryer Stack	-	32
		Combined Dryer Stacks	90	-
Permit Limit			133	85

As shown in Table 16 the average production rates during stack sampling are representative of the annual average or typical production rates for 2016. The flowrates calculated from averaging the combined Dryer Stack Tests were determined by RWDI, following Environment Canada EPS 1/RM/8 Method B, “Determination of Stack Gas Velocity and Flow Rate.” The 2016 annual average flowrate was determined by flow-meters that are installed on the Dryer Stacks, and monitored by EVO. The flowrates calculated by RWDI (labeled flowrate in Table 15) during the stack sampling events are representative of annual or typical average flowrates for 2016 (bottom row in Table 15).

Table 16 Average and Annual Clean Coal Production and Flowrates in 2016

Period	Sampling Date	Start Time	End Time	Average Clean Coal Production Rate During Source Test (tph)	Flowrate (m3/min)
Fluidized Bed Coal Dryer North Stack Test Results					
Q2	May 3, 2016	11:40 AM	10:20 AM	1,202	6,900 ¹
Q4	Nov 8, 2016	12:17 PM	2:25 PM	1,369	5,430 ¹
Fluidized Bed Coal Dryer South Stack Test Results					
Q2	May 4, 2016	11:05 AM	12:33 PM	1,035	6,900 ¹
Q4	Nov 9, 2016	9:50 AM	6:43 PM	709	5,430 ¹
2015	Elkview Measured Annual Average			950	6,500

¹ Flowrate calculated by combining the average flow rate from both the North and South Dryer stacks

Figure 11 and Figure 12 show historic Dryer Stack and Breaker Stack emissions.

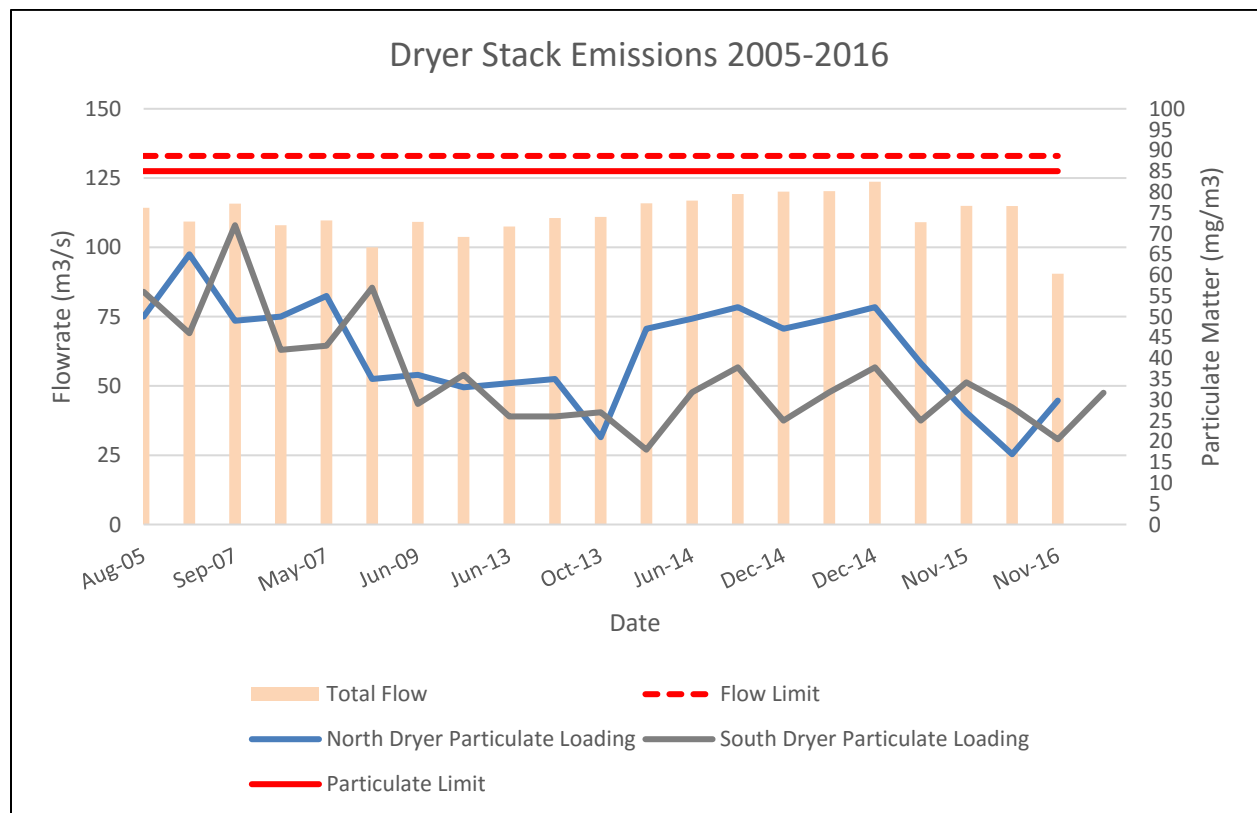


Figure 11 North and South Dryer Stack Total Flow and Particulate Matter Emissions Trend 2005-2016

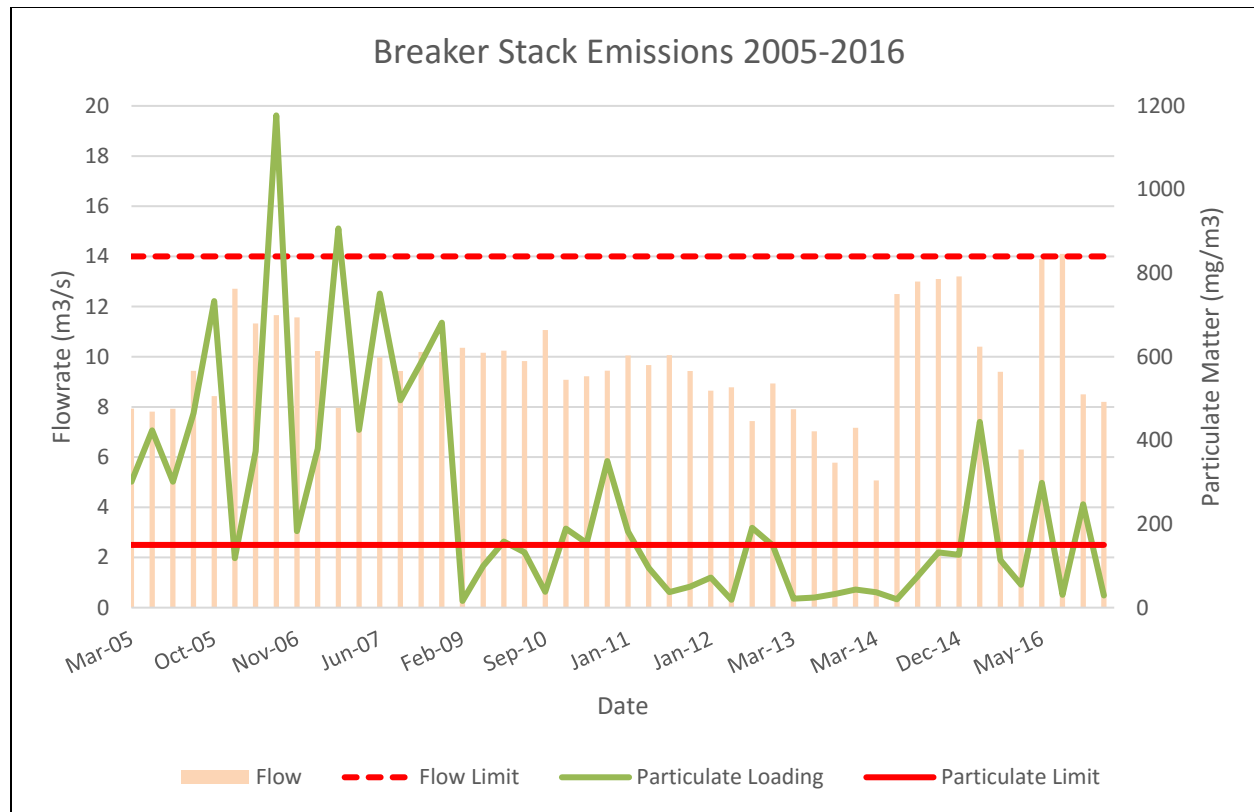


Figure 12 Breaker Stack Emissions Total Flow and Particulate Matter Trend 2005-2016

6 Quality Assurance and Quality Control

Data quality Assurance and Quality control procedures are completed by RWDI prior to data being sent to Elkview Operations.

- Data is automatically downloaded hourly with a QA check done three times per week.
- The data are checked using data QA scripts written for each station that read the data files and process the data within.
- Each script will identifies missing or duplicate time stamps and finds anomalous readings predetermined by the author of the data QA scripts.
- The maximum, average and minimum values for each measured parameter are calculated for the past 14 days and 30 days.
- The script then produces figures for each measured parameter and summarizes all the information in a text file which gets emailed to the data QA personnel.
- The text file and figures are saved in the RWDI network drive.
- Within the same day, data QA personnel will check the summary text file and all generated figures.

- Once per month, the data undergo final QA by RWDI personnel and are saved in a master data file where missing or anomalous data points are classified as "N/A".

Appendix A – Permit PA-1807



August 18, 2015

Tracking Number: 340935
Authorization Number: 1807

REGISTERED MAIL

Teck Coal Limited
3300-550 Burrard ST
Vancouver, BC V6C 0B3

Dear Permittee:

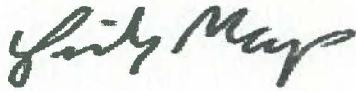
Enclosed is Amended Permit 1807 issued under the provisions of the *Environmental Management Act*. Your attention is respectfully directed to the terms and conditions outlined in the permit. An annual fee will be determined according to the Permit Fees Regulation.

This permit does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the permittee. This permit is issued pursuant to the provisions of the *Environmental Management Act* to ensure compliance with Section 120(3) of that statute, which makes it an offence to discharge waste, from a prescribed industry or activity, without proper authorization. It is also the responsibility of the permittee to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

Administration of this permit will be carried out by staff from the Regional Operations Branch. Plans, data and reports pertinent to the permit are to be submitted to the Mining Director, Environmental Protection, at Ministry of Environment, Regional Operations, 205 Industrial Road G, Cranbrook, BC, V1C 7G5.

Yours truly,



Cindy Meays, Ph.D., R.P.Bio., P.Ag.
for Director, *Environmental Management Act*
Authorizations - South Region

Enclosure

cc: Environment Canada

General Manager, Elkview Operations, RR#1 Hwy 3, Sparwood, BC V0B 2G0



MINISTRY OF
ENVIRONMENT

PERMIT

1807

Under the Provisions of the Environmental Management Act

**Teck Coal Limited
(Elkview Operations)**

is authorized to discharge emissions to the air from a coal processing plant and related mining facilities located east of Sparwood, British Columbia, subject to the terms and conditions listed below. Contravention of any of these conditions is a violation of the Environmental Management Act and may lead to prosecution.

This Permit supersedes and amends all previous versions of Permit 1807 issued under Part 2, Section 14 of the Environmental Management Act.

1. **AUTHORIZED DISCHARGES**

1.1 This section applies to the discharge of contaminants from FLUIDIZED BED COAL DRYER STACKS (2). The site reference number for this discharge is E102593.

1.1.1 The maximum combined rate of discharge is 133 cubic metres per second. The authorized discharge period is continuous.

1.1.2 The characteristics of the discharge must be equivalent to or better than:

Total Particulate Matter 85 mg/m³

1.1.3 The authorized works are cyclones (4), fan, high energy wet scrubbers (2), ducts, stacks (2), and related appurtenances approximately located as shown on the attached Site Plan.

Date issued: July 23, 1975
Date amended: August 17, 2015
(most recent)

A handwritten signature in black ink that reads "Cindy Meays".

Cindy Meays, Ph.D., R.P.Bio., P.Ag.
for Director, *Environmental Management Act*
Authorizations - South Region

1.2 This section applies to the discharge of contaminants from a COAL BREAKER STACK. The site reference number for this discharge is E210047.

1.2.1 The maximum rate of discharge is 14 cubic metres per second. The authorized discharge period is continuous.

1.2.2 The characteristics of the discharge must be equivalent to or better than:

Total Particulate Matter 150 mg/m³

1.2.3 The authorized works are dust collection hoods, ducts, fans, cartridge-style dust collector, stack and related appurtenances approximately located as shown on the attached Site Plan.

1.3 This section applies to the discharge of contaminants from the RAW COAL SILOS (4) UPPER VENT STACK. The site reference number for this discharge is E210060.

1.3.1 The maximum combined rate of discharge is 13 cubic metres per second. The authorized discharge period is continuous.

1.3.2 The characteristics of the discharge must be equivalent to or better than:

Total Particulate Matter 230 mg/m³

1.3.3 The authorized works are cartridge-style dust collector, fans, ducts, stack, and related appurtenances approximately located as shown on the attached Site Plan.

1.4 This section applies to the discharge of contaminants from the CLEAN COAL SILOS (4) VENT STACKS (2). The site reference numbers for these discharges are E210054 and E210055.

1.4.1 The maximum combined rate of discharge is 11 cubic metres per second. The authorized discharge period is continuous.

1.4.2 The characteristics of the discharge must be equivalent to or better than:

Total Particulate Matter 230 mg/m³

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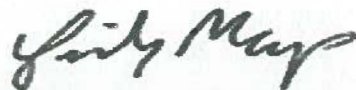


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for Director, *Environmental Management Act*
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- 1.4.3 The authorized works are venturi scrubbers (2), fans, ducts, stacks (2), and related appurtenances approximately located as shown on the attached Site Plan.
- 1.5 This section applies to the discharge of contaminants from the RAW COAL SILOS (4) BOTTOM VENT STACK. The site reference number for this discharge is E210052.
- 1.5.1 The maximum rate of discharge is 5.7 cubic metres per second. The authorized discharge period is continuous.
- 1.5.2 The characteristics of the discharge must be equivalent to or better than:
- | | |
|--------------------------|-----------------------|
| Total Particulate Matter | 230 mg/m ³ |
|--------------------------|-----------------------|
- 1.5.3 The authorized works are dust collection hoods, ducts, fans, venturi scrubber, stack and related appurtenances approximately located as shown on the attached Site Plan.
- 1.6 This section applies to the discharge of contaminants from the DRYER INCLINE BELT AND MET BELT STACK. The site reference number for this discharge is E210048.
- 1.6.1 The maximum rate of discharge is 3.8 cubic metres per second. The authorized discharge period is continuous.
- 1.6.2 The characteristics of the discharge must be equivalent to or better than:
- | | |
|--------------------------|-----------------------|
| Total Particulate Matter | 230 mg/m ³ |
|--------------------------|-----------------------|
- 1.6.3 The authorized works are dust collection hoods, ducts, fans, venturi scrubber, stack and related appurtenances approximately located as shown on the attached Site Plan.
- 1.7 This section applies to the discharge of contaminants from MISCELLANEOUS SOURCES in the coal preparation plant and related mining facilities as shown on the attached Site Plan.

These sources must be operated as per Part 2 Section 6 of the Environmental Management Act that prohibits the introduction of waste into the environment in such a manner or quantity as to cause pollution. The Director may require

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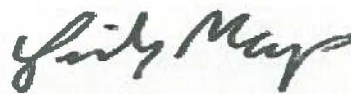
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for Director, *Environmental Management Act*
Authorizations - South Region

sampling or control measures at these sources at any time by specifying such requirements in writing to the Permittee.

These sources include, but are not limited to:

EMS ID	Source
E210050	Preparation Plant Boilers
E210053	Two Stacks associated with the Two Boilers of the Harmer Maintenance Depot
E210056	Miscellaneous Vents associated with the Coal Preparation Plant, Coal Silos, Coal Conveyors, Related Shops, Offices and Laboratories
E210057	Stacks associated with the Exhausts of Standby Diesel Generators
E210058	Vents associated with the Ventilation of the Elkview Plant Raw Coal Tunnel
E210059	Stacks associated with the Coal Preparation Plant Vacuum Pumps
E210062	Four Clean Coal Silo Fans

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2. GENERAL REQUIREMENTS

2.1 Completion of Works

Works authorized by this permit must be complete and in operation while discharging.

2.2 Source and Location of Discharge

The location of the facilities from which the discharges in Section 1 originate and the point of discharge is Lot 1, Parcel A, Plan 6342, District Lot 4588, Kootenay Land District.

2.3 Maintenance of Works and Emergency Procedures

The Permittee must inspect the authorized works regularly and maintain them in good working order. In the event of a condition or emergency which prevents effective operation of the authorized works, leads to unauthorized discharge, or results in a permit exceedance, the Permittee must:

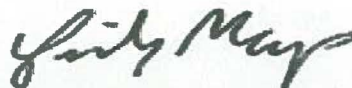
- i. Comply with all applicable statutory requirements, including the Spill Reporting Regulation;
- ii. Immediately contact the Mining Director, Environmental Protection or an Officer designated by the Director by e-mail and telephone; and
- iii. Take appropriate remedial action for the prevention or mitigation of pollution.

The Director may reduce or suspend operations to protect the environment during a condition or emergency until the authorized works have been restored and/or corrective steps have been taken to prevent unauthorized discharges.

During and/or after the emergency event or condition, the Permittee must conduct appropriate sampling and analysis of discharges, which may be equivalent to or more stringent than the monitoring requirements of this permit and/or applicable statutory requirements. As the results of such sampling become available, the Permittee must provide the results to the Mining Director, Environmental Protection, or a designated Officer. The Director may require additional monitoring or reporting at any time by specifying such in writing to the Permittee.

The Permittee must prepare contingency plans outlining emergency procedures to be undertaken in the event of emergency incidents that may result in a significant

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(most recent)



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for Director, *Environmental Management Act*
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release of contaminants to the environment.

2.4 **Bypasses**

The discharge of contaminants which have bypassed the authorized treatment works is prohibited unless the prior approval of the Director is obtained and confirmed in writing.

2.4.1 **Dryer Stack Bypass**

The Dryer Bypass is closed during operation of the dryer and open only to vent heat from the dryer during shutdown conditions. Routine bypass of the authorized works in Section 1.1.3 is authorized only when the dryer is not operating.

2.5 **Process Modifications**

The Mining Director, Environmental Protection, must be notified via e-mail or mail prior to implementing changes to any process that may affect the quality and/or quantity of the discharge.

2.6 **New Works**

Plans and specifications for new pollution abatement works and upgrades to existing works must be submitted via e-mail or mail to the Mining Director, Environmental Protection before construction commences. Works must be constructed in accordance with approved plans.

Upgrading of the treatment works may be required at any time at the direction of the Director, based on monitoring results, and/or any other pertinent information.

2.7 **Fugitive Dust Control**

The Permittee must suppress fugitive dust created within the operation. The Director may require the Permittee to implement additional monitoring and/or control measures considered necessary for the achievement of ambient air quality objectives.

2.7.1 **Fugitive Dust Control Plan**

The Permittee must prepare a comprehensive Fugitive Dust Control

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for Director, *Environmental Management Act*
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Plan which considers all sources of fugitive dust emissions from the mine site.

The Permittee must implement the Fugitive Dust Control Plan of June 20, 2015. The plan must be updated at least every five years and submitted to the Director. Updates to the plan must consider all sources of fugitive dust from the coal preparation plant and related mine facilities and must be prepared by a qualified professional. Implementation of the Plan must be to the satisfaction of the Director.

2.8 Standard Conditions

For the administration of this Permit, all gaseous volumes must be converted to standard conditions of 293.12 °K and 101.325 KPa with zero percent moisture.

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3. MONITORING REQUIREMENTS

The following monitoring program must be performed by the Permittee. The approximate locations of the monitoring sites are as shown on the attached Site Plan.

3.1 Monitoring Program

The Permittee must carry out the following monitoring program:

3.1.1 Source Monitoring

<u>Site No.</u>	<u>Description</u>	<u>Total Particulate (mg/m³)</u>	<u>Flow (m³/s)</u>
E102593	Dryer Stacks	BA*	BA*
E210047	Breaker Stack	BA	BA
E210060	Raw Coal Silos Upper Vent Stack	---	---
E210054 E210055	Clean Coal Silos Stacks (2)	---	---
E210052	Raw Coal Silos Bottom Vent Stack	---	---
E210048	Dryer Incline Belt	---	---

BA = Biannual stack samples (twice per year at approximately equal time intervals)
* = each stack must be sampled during each sampling event

Any source sample that exceeds a permit limit must be sampled again within 1 month of becoming aware of the exceedance.

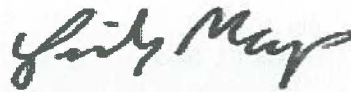
3.1.2 Ambient Monitoring

<u>Site No.</u>	<u>Description</u>	<u>PM10</u>	<u>PM2.5</u>
E262137	Downtown Sparwood Centennial Square (DTAM)	Cont	Cont
0250184	Whispering Winds (WWTP)	Cont	Cont
E206193	Michel By-Products Plant (MBPP)	Cont	Cont

Cont = SHARP and GRIMM continuous data averaged hourly

Continuous data for a given time period will be considered valid if 75% of the

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data for that time period has been captured.

3.1.3 Meteorological Monitoring

<u>Site No.</u>	<u>Description</u>	<u>Requirements</u>
E262137	Downtown Sparwood Centennial Square (DTAM)	Temperature , wind speed, wind direction
0250184	Whispering Winds (WWTP)	Temperature, wind speed, wind direction
E206193	Michel By-Products Plant (MBPP)	Temperature, wind speed, wind direction

3.2 Plant Operating Conditions

For the purpose of validating the sampling data, the plant feeding the stack being sampled must be under normal operating conditions. Plant operation rate at the time of sampling must be recorded, and must be at least 75% of nominal load during sampling.

Source monitoring data must be accompanied by process data relevant to the operation of the source of the emission(s) and to the performance of the pollution abatement equipment involved in the testing.

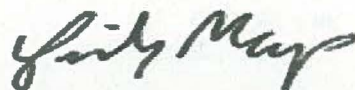
3.3 Sampling and Analytical Procedures

Sampling is to be carried out in accordance with the procedures described in the most recent edition of the "British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples", or by suitable alternative procedures as authorized by the Director.

Analyses are to be carried out in accordance with procedures described in the most recent edition of the "British Columbia Environmental Laboratory Methods Manual for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air Samples", or by suitable alternative procedures as authorized by the Director.

Copies of the above manuals may be purchased from the Queen's Printer Publications Centre, P. O. Box 9452, Stn. Prov. Gov't., Victoria, British Columbia, V8W 9V7 (1-800-663-6105 or 250-387-6409). Copies of the manuals are also available at all Environmental Protection offices.

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for Director, *Environmental Management Act*
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3.4 Pollution Control Works Maintenance

The maintenance records of authorized works in Sections 1.1-1.6 must be retained by the Permittee for inspection on site a minimum of 3 years.

3.5 Future Monitoring

The Director may specify in writing additional monitoring as required for the protection of the environment. This may include sampling of environmental media and the preparation and submission of related reports.

3.6 Quality Assurance

All data of analyses required to be submitted by the permit must be conducted by a laboratory acceptable to the Director, as detailed in Section 3.3, and the Environmental Data Quality Assurance Regulation of the *Environmental Management Act*.

The permittee must provide a Quality Control Plan by June 20, 2015. This Plan must be prepared by a qualified professional and implemented to the satisfaction of the Director. This Plan must be updated at least every 5 years and submitted to the Director for approval.

3.7 Valley Wide Monitoring Plan

The Permittee must participate in a comprehensive ambient monitoring program that considers emissions from all Teck Coal Limited mines in the Elk valley. This program must be prepared and implemented by a qualified professional. This program must be conducted to the satisfaction of the Director.

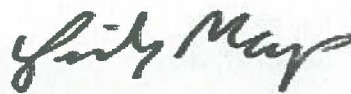
The terms of reference for the monitoring program must be submitted to the Director for review by September 30, 2014.

The draft monitoring program must be submitted to the Director for approval by December 31, 2014.

3.8 Qualified Professional

All documents submitted to the Director must be signed by the author. Reports where an opinion or recommendation is expressed regarding data analysis,

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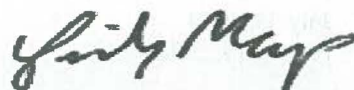
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interpretation, assessment and/or design must also be sealed by an appropriate qualified professional, who in doing so takes professional responsibility for the content of the document. A qualified professional is defined as follows:

"Qualified Professional" means an applied scientist or technologist specializing in an applied science or technology applicable to the duty or function, including, if applicable and without limiting this, agronomy, biology, chemistry, engineering, geology or hydrogeology and who

- i. is registered with the appropriate professional organization, is acting under that organization's code of ethics and is subject to disciplinary action by that organization, and
- ii. through suitable education, experience, accreditation and/or knowledge, may be reasonably relied on to provide advice within their area of expertise.

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4. REPORTING REQUIREMENTS

4.1 Noncompliance Reporting

The Permittee must immediately contact the Mining Director, Environmental Protection or an Officer designated by the Director as per Section 2.3. Written confirmation of all non-compliance events is required by e-mail within 24 hours of the original notification unless otherwise directed by the Mining Director, Environmental Protection. Analytical results relevant to non-compliances must be submitted to the Mining Director, immediately upon results being obtained by the Permittee.

4.2 Quarterly Report

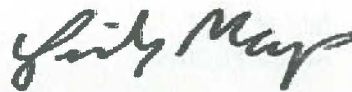
The Permittee must submit the results of the source monitoring program (Section 3.1.1) directly into the Ministry of Environment's EMS database within 30 days of the end of the quarter in which the samples were collected.

The Permittee must submit the results of the ambient monitoring program (Section 3.1.2) electronically. Raw data from continuous samplers is to be submitted in a text file to the Mining Director, Environmental Protection or designate within 30 days of the end of the quarter in which the samples were collected.

The Permittee must submit a Quarterly non-compliance report to the Mining Director, Environmental Protection or designate. All submissions under this section must include a detailed summary and discussion of each non-compliance with the requirements of this permit using statistical and graphical analysis where appropriate. This includes identifying:

- i. Source test report prepared by the qualified professional, for source tests that occurred during the quarter,
- ii. Air quality results exceeding current Ministry Ambient Air Quality Objectives (or other criteria as specified by the Director),
- iii. Air quality results exceeding permit limits,
- iv. Missing data or other QA/QC issues,
- v. Any reportable incidents related to air quality, occurring in the quarter,
- vi. Measures being taken to reduce or eliminate non-compliances.

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The Quarterly Report is due within 30 days of the end of the quarter in which the samples were taken.

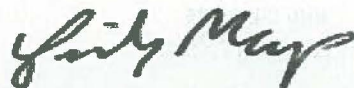
4.3 Annual Report

The Permittee must submit annually a report covering the results of the monitoring program specified in Section 3. The review must include but not be restricted to:

- i. A summary and analysis of ambient data collected as itemized in the monitoring program, this summary should include, but is not limited to, the following information:
 - a. Continuous Air Quality Data:

PM2.5	PM10
# valid monitoring days per month	
# valid monitoring days (per quarter and for entire year)	
# valid monitoring hours (per quarter and for entire year)	
Annual hourly mean and standard deviation	
Hourly percentiles (0,10,25,50,75,90,95,98,100)	
Hourly exceedances of provincial objectives (level A,B,C), # exceedances and %	
Annual daily mean and standard deviation	
Daily average by day of week and by season (Spring: Mar, Apr, May; Summer: Jun, Jul, Aug; Fall = Sep, Oct, Nov; Winter = Dec, Jan, Feb)	
Daily (12 am-12 am) percentiles (0,10,25,50,75,90,95,98,100)	24 hr. Running average percentiles (0,10,25,50,75,90,95,98,100)
Daily (midnight to midnight) exceedances of provincial objectives (level A,B,C), # exceedances and %	24 hr. Running average exceedances of provincial objectives (level A,B,C) as # exceedances and %

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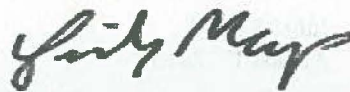


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- b. For each station, provide a graphical trend analysis for the air quality as has been measured since the station's inception.
- ii. For each Meteorological station, wind roses.
- iii. A summary and analysis of source data collected, with a summary of any exceedances of the permit limits, and a trend analysis using current and historical data,
- iv. Summary of the loading rate during the time of source sampling as it compares to the typical loading during the remainder of the year.
- v. Laboratory quality assurance/quality control data, associated field blanks, and duplicate analysis results with discussion of any discrepancies.

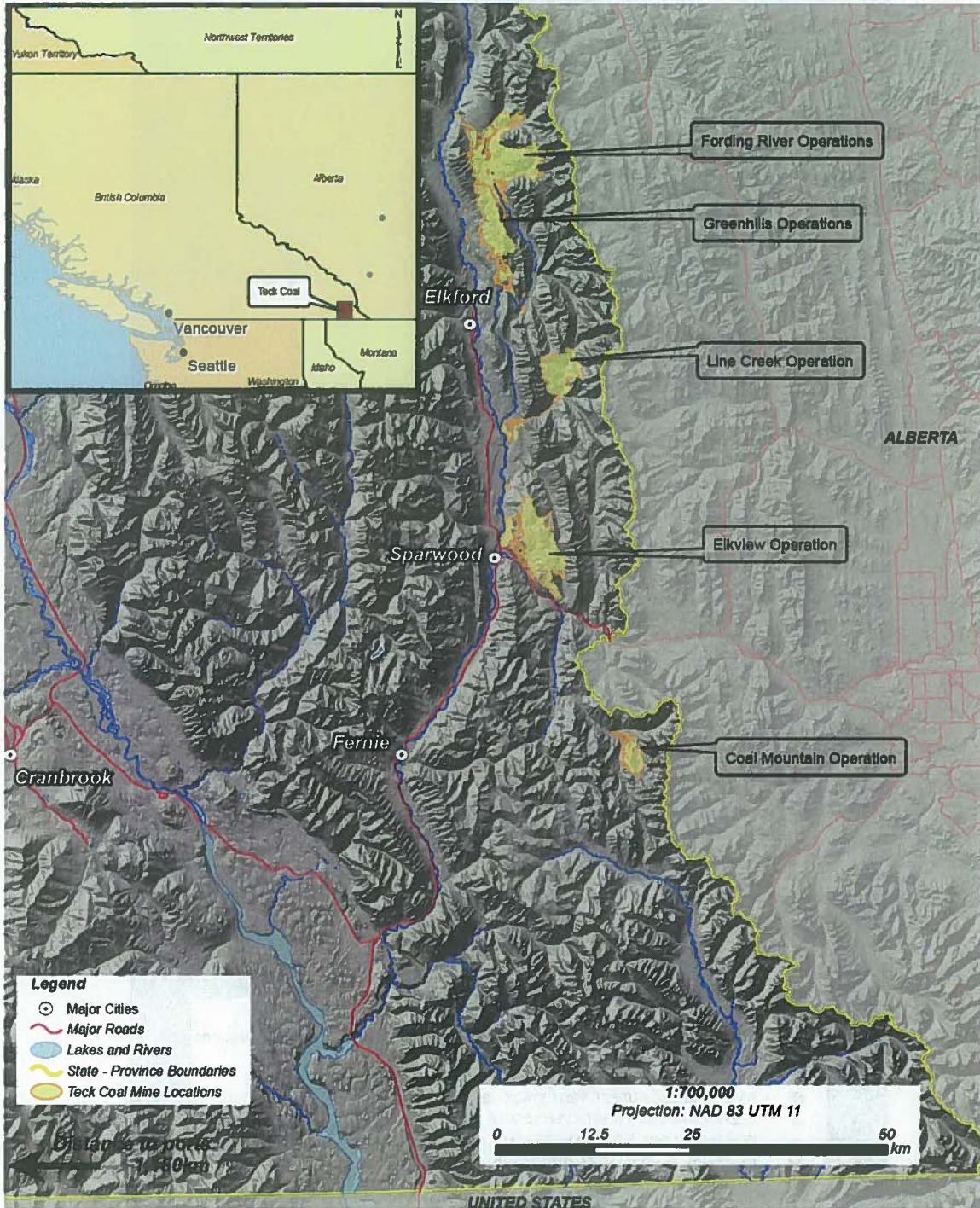
The annual report is due March 31st of each year, and must cover the previous calendar year. These reports must be completed in such a form as they can be released to the public.

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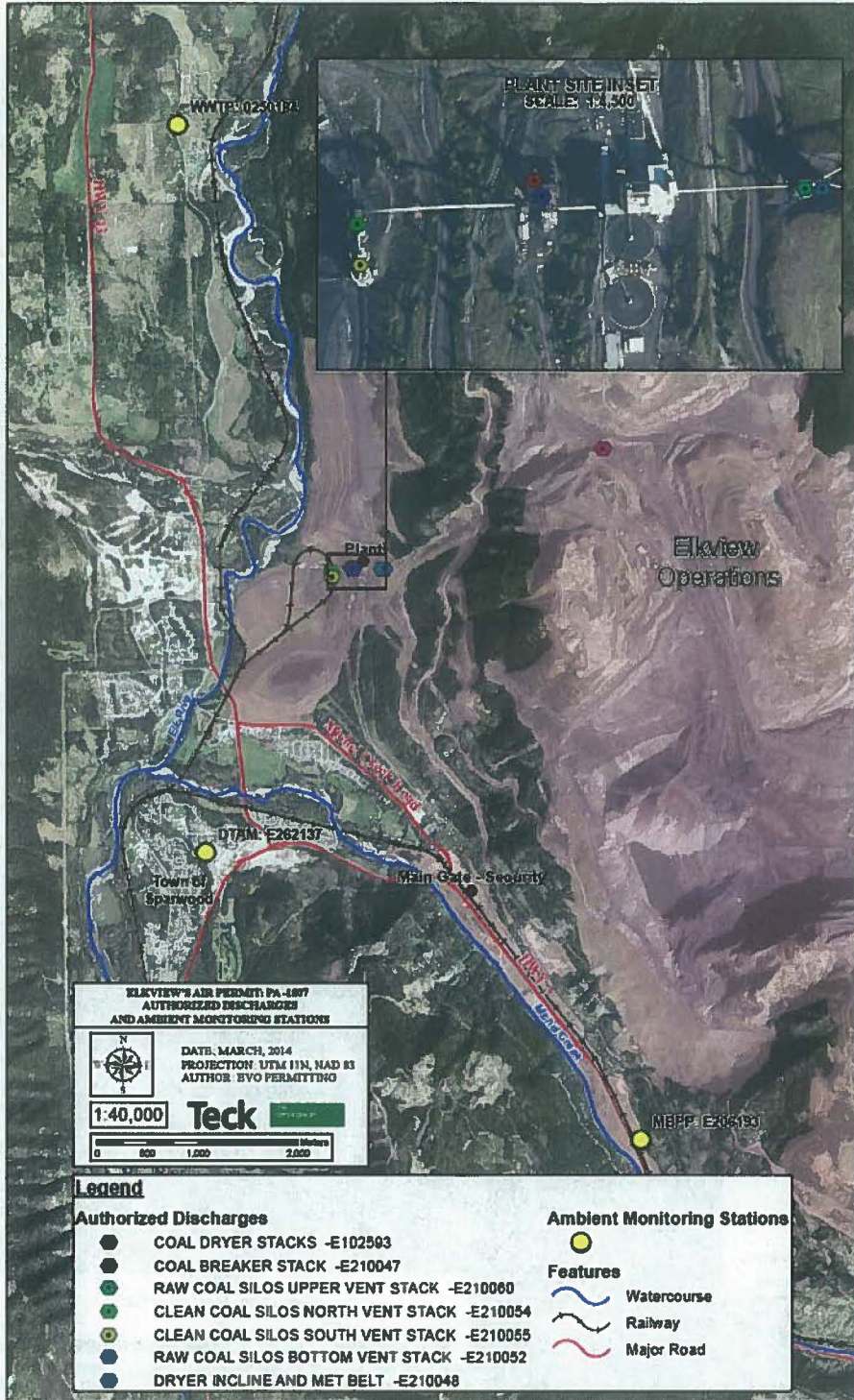
Location Map



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Site Plan



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August 17, 2015

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Appendix B – Air Quality and Dust Control Management Plan

Air Quality and Dust Control Management Plan

March 2017
Version 1.1

Version History

Version	Date	Submission Requirement	Final Draft Submitted to
1.0	February 2016	Plans submitted with the BRE Environmental Assessment Certificate (EAC) Application	EAO and BRE Working Group
1.1	March 31, 2017	Updated Plan to include requirements under Certificate #M16-01, Condition 2 and 17.	MEM and MOE

Consultation History

Version	Consultation Period	Summary of Consultation	Agencies Consulted with
1.0	2013-2015	Comments received during the Baldy Ridge Extension Environmental Assessment process.	EAO and BRE Working Group

Prepared by:

Version	Prepared by	Reviewed by	Signed Off
1.0	Melissa Brown	Lucy Eykamp	Chris Stroich
1.1	Jessica Trembley	Casandra Knooihuizen	Marty Hafke

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Appendix A	Mitigations to Minimize Potential Effects From the Baldy Ridge Extension Project
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1 Introduction

Activities at Teck Coal Limited's (Teck) Elkview Operations (EVO) include mining, waste rock handling, processing and rail loading of coal. The potential for air quality effects is primarily associated with particulate matter (PM) and generation of greenhouse gases (GHGs). The primary sources of fugitive dust generated at EVO include the use of haul roads, light vehicle roads and mining activities such as, spoiling of waste rock and blasting. The main source of GHG's is from vehicle and mining equipment emissions. It is recognised that future mining activity will progressively move closer to residences and we are committed to working with the community to minimize the effects from mining caused changes in air quality to the surrounding community.

The Air Quality and Dust Control Management Plan (the Plan), takes into consideration existing operations and the future expansion of the Baldy Ridge Extension (BRE) Project. The purpose of this Plan is to greatly reduce or avoid the potential for adverse effects from mining caused changes to air quality by implementing and maintaining management and operational practices outlined in this Plan.

This Plan defines:

- our management objectives to control air quality (Section 2);
- commitments and conditions required by our permits and regulations are referenced (Section 3);
- procedures and practices, including timing of these management actions and reflect best management practices and industry standards (Section 4);
- key milestones for reviewing and updating the Plan (Section 5);
- responsibility of implementing this Plan (Section 6);
- communication of the Plan (Section 7);
- change management (Section 8); and
- information management (Section 9).

We employ an adaptive management approach, as site conditions and monitoring dictate or as new technologies emerge, to meet our management objectives. Through on-going air quality monitoring and management, and updating and validating our predictive models, EVO will be able to implement changes to mining practices to manage predicted changes future mining may have on air quality. Monitoring and regular review of the results represent the core adaptive management activities of the Plan that will guide improvement.

This Plan will be reviewed annually and updated as needed; for example as a result of a major change in scope, regulatory requirement or after a non-compliance or an otherwise concerning incident; to incorporate changes in procedures and responsibility. Mitigations in the Plan will be assessed at a frequency required to ensure they are effective and adaptively managed as conditions and technology change, or in the event new potential adverse effects are identified, to meet our air quality and dust control objectives.

At EVO, we currently have a number of Standard Practices and Procedures (SP&Ps) and operational controls related to air quality management, as indicated in Table 1. These SP&Ps will continue to be followed in addition to implementing the Plan. The Plan should be considered as an overarching document to these procedures, SP&Ps will take precedence to this Plan if there are any discrepancies until the management plan is updated. Elkview Operations SP&Ps conform to the British Columbia (BC) Health, Safety and Reclamation Code (BC Ministry of Energy, Mines and Petroleum Resource 2008).

Table 1 Relevant Standard Practices and Procedures and Operational Controls

SP&P Number	SP&P Name
GN050.	Vehicle Idling Policy
PR.003	Lagoon and River Inspections
PR.011	Dryer Operations
MO.006	Reclamation
n/a	Permit 1807 Quality Assurance and Quality Control Plan
n/a	Inactive Tailings Facilities: Lagoons A,B, &C Operating, Maintenance and Surveillance Manual
n/a	Tailings Deposition: Lagoon D Operating, Maintenance and Surveillance Manual
n/a	Coarse Coal Refuse Operating, Maintenance and Surveillance Manual
n/a	Tailings Deposition: West Fork Facility Operating, Maintenance and Surveillance Manual
n/a	Inactive Tailings Facilities: Lagoons A,B, &C Emergency Preparedness Plan and Emergency Response Plan
n/a	Lagoon D Tailings Facility: Emergency Preparedness Plan and Emergency Response Plan
n/a	Sediment and Erosion Control Plan
n/a	Soil Salvage Management Plan
n/a	Waste and Materials Management Plan

n/a = not applicable; SP&P = Standard Practices and Procedures.

2 Objectives

The objectives of the Plan are to ensure that activities at EVO that can generate dust, particulate matter or GHGs and potentially effect air quality are defined and ensure that we avoid or minimize potential effects on employee health, and on the health of community members, vegetation and wildlife.

The Plan encompasses all mining activities. Specifically, the Plan focuses on managing the following mine-activity related aspects:

- Continuing to identify sources or fugitive dust from:
 - haul roads and active mining areas;
 - light vehicles roads, parking lots;
 - raw coal cable belt, coal stockpiles, train cars;
 - Coarse Coal Refuse Pile, tailings facilities, lagoons,
 - in-pit and exploration drilling; and
 - areas exposed to past mining.
- Greenhouse gas emissions from vehicles and facilities.

3 Scope and Scale

The EVO property is located in the front ranges of the Rocky Mountains adjacent to the community of Sparwood, BC, in the southeast corner of the province. Through future mine expansions, mining will progressively move closer to the community.

The scope of the Plan is directly defined as activities that can generate fugitive dust, particulate matter or GHGs occurring within the permitted active disturbance boundary of the operation or any construction activities that are directly associated with the operations that may exist outside of the disturbance boundary. The Plan is in effect during all phases of mining which includes active closure and ceases to be in force at final closure of the operation.

Components of this Plan have been developed with input from:

- relevant regulatory guidelines; and
- qualified professionals in the field of air quality assessment.

We have undertaken consultation with Sparwood Council, local residents and First Nations to obtain their feedback on current and future concerns regarding air quality and this has been incorporated into the management actions outlined in this Plan.

3.1 Regulations, Permits and Initiatives

The Plan is intended to comply with all relevant federal and provincial acts, regulations and guidelines, and objectives, including:

- BC *Mines Act* (1996):
 - Health, Safety and Reclamation Code.
- BC *Environmental Management Act* (2002).

The Plan also sets out management practices that, in part, manage aspects related to EVO's permits, including:

- Permit PA-1807 authorizing discharge of emissions to air from the coal mining operation under the provisions of the BC *Environmental Management Act* (2002);
- Permit PE-107987 authorizing the discharge of effluent water and emissions to air at the Maxam Explosives Plant site under the provisions of the BC *Environmental Management Act* (2002);
- Annual reporting of greenhouse gas release to Environment Canada's National Pollutant Release Inventory, under the authority of the Canadian *Environmental Protection Act* (1999).

Per Section 1 of PA-1807 permit, EVO is authorized to discharge emissions to air at authorized locations, each with specific rates of discharge and effluent characteristics for Total PM and flow. Elkview Operations operates four continuous ambient air quality monitoring stations in the surrounding community and monitoring and reporting conditions are defined in PA-1807 (refer to PA-1807 for more details).

In addition to the above regulatory requirements, Teck is a member of the Mining Association of Canada, and is committed to participating in and achieving strong performance in the Towards Sustainable Mining (TSM) program for Energy and Greenhouse Gas Management. Under this program, Teck has set short and long term targets for reducing GHG's at all operations and identified management practices that require operations to manage their GHG emissions through the implementation of monitoring and reporting practices, control measures, and the setting of GHG performance targets. To meet our TSM targets, EVO monitors the use of diesel fuels, natural gas use at the coal dryer and electricity. Fugitive methane sources are also tracked and reported. The TSM program requires that operations annually self-assess and report on their performance against the protocol criteria, and to have these self-assessments externally verified every three years, with the next external verification scheduled at EVO for 2016. This assurance process helps to ensure that operations remain diligent in implementing strong management practices to manage GHG emissions.

3.2 Air Quality Guidelines

The Federal and Provincial governments outline air quality objectives and standards for dustfall, PM and GHGs. These objective limits can be found on the BC government website for BC Air Quality. Under PA-1807, EVO reports against ambient quality guidelines for PM_{2.5} and PM₁₀.

3.3 Baldy Ridge Extension Project Environmental Assessment Certificate Mitigations

The Plan also sets out management practices implemented to minimize potential residual effects from mining to air quality associated with the proposed BRE Project (Table 2). Elkview Operations has submitted an application for an Environmental Assessment Certificate for the BRE Project, intended to extend mining operations at EVO. The BRE Project is subject to review under the British Columbia *Environmental Assessment Act* (2002). Mitigations, commitments and monitoring and follow up programs to prevent or minimize potential effects from the BRE Project are presented in Table 3 and their execution and effectiveness are managed in this Plan

The implementation of mitigations related to air quality at EVO will be tracked through the Air Quality and Dust Control Plan. Each mitigation presented in Table 3 has a uniquely coded reference number (e.g., BRExxx); and in many cases represents a summary of mitigations with similar content and/or similar operational management. While the wording for each summarized mitigation in Table 3 is intended to meet the intent of multiple mitigations used throughout the assessment, each is listed individually for future reference, with its corresponding location within the EA and unique BRE identifier to track implementation at EVO (Appendix A).

Table 2 Baldy Ridge Extension Project Environmental Assessment Certificate Mitigations

Reference	Relevant Environmental Design Features or Mitigations (Summarized)
BRE001	<p>Implement the Air Quality and Dust Control Management Plan, including implementing existing EVO practices to control dust and other air emissions and minimize effects.</p> <ul style="list-style-type: none"> • Watering of haul roads • Apply water to problem areas • Use of chemical dust suppressants, • Minimizing engine idling (as per EVO's No Idle Policy) and • Maintain combustion equipment and vehicles.

Reference	Relevant Environmental Design Features or Mitigations (Summarized)
	<ul style="list-style-type: none"> • Minimizing haul distances. • Use of on-site car wash). • Inject water during drilling and use a dust skirt around the drill deck. • Limit the size and slope angle of coal stockpiles to keep them manageable for dust control. • Limit hauling distances. • Monitor load out stockpile daily and apply water and tackifying agent to problem areas as required. • Water tunnel and conveyors to control dust. • Spray haul roads with water or chemical suppressant. • Maintain combustion equipment regularly. • Maintain light vehicle main access roads and parking lots by grading, sweeping, watering and applying dust suppressants. • Train cars are loaded to capacity and pack down to reduce turbulence. • Spray loaded train cars with water and then a flocculent mixture to prevent fugitive dust release. Trains cars undergo a second flocculent application en route to port. • Use high wind alarms at the Plant to identify high wind events. • Use a hydro seeder to apply water, seed and mulch to any areas around the process plant, Lagoons and CCR Pile which have the potential to generate dust. • Apply a water tackifying agent on coal stockpiles as required. • Continue to implement Coarse Coal Rejects Operating, Maintenance and Surveillance (Section B9.23) and combusting waste management practices (Section B9.25) for fire prevention and management. <p>The implementation of effective dust-control mitigations such as road watering will also serve to reduce the predicted PM10. Particulate matter monitoring will be used determine actual particulate matter levels resulting from the Project.</p>
BRE002	<p>Continue to implement measures outlined in the TSM Energy and GHG Program for EVO:</p> <ul style="list-style-type: none"> • No Idling Policy at EVO. • EVO has transitioned to lighter haul truck boxes.
BRE003	<p>Continue to employ the following design features as per EVO's waste (air) discharge permit PA-01807 (MWLAP 2004) issued under the Waste Management Act to reduce air emissions from the Process Plant:</p> <ul style="list-style-type: none"> • Cyclones (4), fan, high energy wet scrubbers (2), ducts and stacks (2) at the fluidized bed coal dryer. • Dust collection hoods, ducts, fans, cartridge-style dust collector and stack at the coal breaker. • Cartridge-style dust collectors, fans, ducts, dust collection hoods, venturi scrubber and stack at the raw coal silos cartridges at the breaker feeders, coal breaker, breaker screens and raw coal chutes. • Venturi scrubbers (2), fans, ducts and stacks at clean coal conveyors and silos. • Dust collection hoods, ducts, fans, venture scrubber and stack at the dryer incline belt and met belt stack.
BRE004	<p>As required, undertake on-site trials of technology to mitigate for dust (i.e., use of sprinkler systems, dust suppressants or other technology as available). Based on results from the trials, model validation and ongoing monitoring results incorporate new technology from the on-trials into current fugitive dust management actions as required.</p>
BRE005	<p>As a member of the Mining Association of Canada, Teck is committed to participating in and achieving strong performance in the Towards Sustainable Mining (TSM) program. Under the program, the Energy and Greenhouse Gas Management Protocol sets forth management practices that require operations to manage their GHG emissions through the implementation of monitoring and reporting practices, control measures, and the setting of GHG performance targets. The TSM program requires that operations annually self-assess and report on their performance against the protocol criteria, and to have these self-assessments externally verified every three years, with next external verification scheduled at EVO for 2016. This assurance process helps to ensure that operations remain diligent in implementing strong management practices to manage GHG emissions. EVO would continue to implement these measures and monitoring as part of the TSM program for the Project.</p>
BRE006	<p>Continuation of the existing EVO air monitoring program consistent with the requirements of existing permit PA-1807 issued under the Environmental Management Act and incorporating updates as required to satisfy Teck's Regional Air Monitoring Program. All four stations measure, PM10, and PM2.5 and collect meteorological data. One station also measures TSP and another also measures CO, NOX, and SO2. The metrological parameters collected include temperature, relative humidity, and wind speed and direction. This monitoring program would continue for the Project.</p>
BRE007	<p>In 2017 undertake a study by a qualified professional to identify additional air quality monitoring stations in order to update and validate model results based on monitoring data.</p>

4 Air Quality and Dust Control Management

The following sections outline specific management actions to manage the potential effects of mining on air quality and dust and to meet permit and regulatory guidelines. Section 4.1 of the Plan satisfies requirements under Permit PA1807 for a Fugitive Dust Control Plan.

4.1 Fugitive Dust

The below sections define the operational procedures and preventative actions to control fugitive dust. Under Permit PA-1807, EVO must suppress fugitive dust created within the operation

With respect to fugitive dust we employ operational procedures and preventative actions to control for fugitive dust at the following locations:

- haul roads and active mining areas;
- light vehicle roads and parking lots;
- raw coal cable belt;
- coal stockpiles;
- loaded train cars;
- coarse coal refuse pile;
- tailings storage areas;
- lagoons; and
- areas exposed from past mining.

Key actions and procedures used at Elkview to control fugitive dust includes but are not limited to:

- Use water trucks to control fugitive dust on haul roads, active mining areas, light vehicle roads and parking lots, when safe to do so.
- Use snow in winter on dry roads to control dust.
- Use water injection system during drilling to control dust emissions on the drill pad, both in-pit and during exploration drilling.
- Sweep and maintain paved surfaces as needed.
- Apply chemical dust suppressants to light vehicle access roads as required.
- Control dust generated by the coal cable belt in the tunnel with water.
- Conduct preventative maintenance on dust suppression infrastructure; including water trucks, tanks and other equipment.
- Apply tackifying agent and water to loaded rail cars prior to transport.
- Use wind alarm (greater than 45 kilometres per hour) to trigger actions to mitigate potential dust generation from the Coarse Coal Refuse pile, lagoons and plant area.

- Apply a water tackifying agent on coal stockpiles as required.
- Use a hydro seeder to apply water, seed and mulch to any areas around the Process Plant, Lagoons and Coarse Coal Refuse Pile which are generating dust.
- Manage and monitor beaching area at the tailings facilities to assist in dust control.
- Progressively reclaim disturbed areas as they become available to minimize exposed surfaces.
- Incorporate wind breaks, natural, topographical or artificial (such as wind fences) where possible and required.
- Undertake trials on new technologies and products to enhance dust control as required (e.g. Sprinkler System Trial).

4.1.1 Haul Roads and Active Mining Areas

Heavy equipment and light vehicles work in active mining areas and travel along haul roads and various access roads. These activities apply mechanical force to road surfaces and generate fugitive dust. The most active areas, such as where shovels are loading trucks and heavily traveled roads, are the highest priority for dust suppression.

Fugitive dust is primarily controlled through the use of water trucks. Water trucks are operated by the Mining Operations department and may be used throughout the year as required. During freezing conditions, watering may be temporarily suspended to prevent the creation of a safety hazard. Through the winter and when safe to do so, EVO may use graders and/or loaders to spread snow onto dry roads to prevent dusting.

Where appropriate, EVO will also use dust suppression additives to water, which are also applied using water trucks.

Drilling operations are conducted with water injection systems on the drill for controlling dust.

All persons working for or on behalf of Teck are trained to recognize and report dust events to their supervisor.

Finally, when feasible, EVO conducts trials on new technologies and products which may enhance dust mitigation as required

4.1.2 Light Vehicle Roads and Parking Lots

Some roads and parking lots on the site are intended for use by light vehicles only. Although they are not normally subjected to the weight of heavy equipment as active haul roads are, they still experience mechanical force which can generate fugitive dust.

Mine Operations and the Road Crew maintain light vehicle roads and parking lots by grading as needed, sweeping paved surfaces as needed, watering access roads, and applying dust suppressants (magnesium chloride, and calcium chloride) as required. Typically magnesium chloride is applied in May, June and September as a dust suppressant.

4.1.3 Raw Coal Cable Belt

Elkview's coal processing plant has a cable belt (conveyor) which feeds the plant with raw coal. This cable belt runs through a tunnel along part of its length. Water is applied in the tunnel using hoses to control dust. Process Plant personnel conduct daily inspections along the length of the cable belt.

They plan and conduct preventive maintenance, repairs as necessary, and washing (of the tunnel) as necessary.

Conveyor belts that operate in the process plant are all fully enclosed and do not allow dust to be released to the environment.

4.1.4 Coal Stock Piles

Wind blowing around coal stockpiles can result in the loss of fine coal and windborne transport as fugitive dust.

To minimize the release of dust (and the loss of coal product), EVO limits the size and slope angle of stockpiles to keep them manageable for working (e.g. with loaders) and for dust control. Mine Operations (Road Crew) monitors the load out stockpiles daily using an inspection sheet and applies water and tackifying agent (anionic flocculant) to exposed surfaces as required.

4.1.5 Train Cars (loaded with coal)

Processed coal is loaded into train cars at the mine site then transported by rail from the Elk Valley to terminals near Vancouver, B.C. The train cars are not covered on top, so coal is exposed during the trip.

To prevent fugitive dust release during transport, coal is loaded to capacity in the train car and packed down to reduce turbulence. Loaded cars pass under a water spray bar which pre-wets the coal, allowing for improved flocculant percolation in the next step. Cars then pass under a second spray bar, which sprays a mixture of water and food-grade glycerin over the entire width of the exposed coal. This produces a thick crust on the coal which prevents fugitive release during transport. Loaded trains receive a second application of water and food-grade glycerin in Tappen, B.C. to reduce drying out of the crust and potential fugitive dust generation while the train is en route to the port.

4.1.6 Coarse Coal Refuse

Coarse coal refuse (CCR) is a solid waste stream from the coal process plant. CCR is hauled by truck to a disposal area and dumped. As the name implies, CCR consists of larger diameter (coarse) particles which are less prone to being transported by wind than smaller (fine) particle solids.

The control room in the Coal Process Plant has a high wind alarm which is activated when wind speeds reach 45 km/hour. When this occurs, the control room will contact the Mine Operations Road Crew by radio. The Road Crew will use a mobile hydroseeder, which is equipped with a small water cannon, to apply water, seed and mulch to any areas around the process plant and CCR which are generating dust. The Road Crew applies water to the access roads to the CCR disposal area. This road is regularly traveled by haul truck, which transports reject material from the process plant to the CCR disposal area.

Progressive reclamation is also conducted to minimize exposed surfaces on the CCR disposal area. This includes, but is not limited to topsoil placement, heli-seeding, heli-fertilizing and hydro seeding. Environmental Officers are responsible for ensuring progressive reclamation is carried out on the CCR disposal area as needed

4.1.7 Tailing/Fine Coal Rejects

Fine tailings is the other significant waste stream from the coal process plant. Unlike CCR, which is solid and dry, tailings is a slurry which is transported via pump and pipeline to the disposal area, the West Fork tailings area, or Lagoon D in emergency situations.

As tailings is a slurry, it is very dilute and wet. The disposal area is generally saturated and/or under free water, so they do not normally produce fugitive dust. The Engineering (Geotechnical) Department monitors the beach area at the West Fork tailings area and Lagoon D and advises Road Crew what spigots to open/close for dust and tailings management.

4.1.8 Lagoons

There are several “lagoons” at EVO which are either past tailings disposal areas (Lagoons A, B, C) or secondary tailings disposal areas (Lagoon D). As they are not regularly or have not been used for tailings disposal for some time, significant drying has occurred. The fine solids from the tailings are left behind as a lagoon dries, and these can result in the generation of fugitive dust. The lagoons area in particular receives significant focus from EVO for dust prevention and control, as they are proximal to the highway and the community of Sparwood.

The control room in the Coal Process Plant has a high wind alarm which is activated when wind speeds reach 45 km/hour. When this occurs, the control room will contact the Mine Operations Road Crew by radio. The Road Crew will use a mobile hydroseeder, which is equipped with a small water cannon, to apply water, seed and mulch to any exposed areas on the lagoons which are generating dust. The Road Crew may also use a tackifying agent (such as an anionic flocculant) mixed with water for spraying to reduce dust.

The lagoon areas contain some natural wind breaks. Where this is not the case, EVO has installed wind fences to mitigate windborne fugitive dust. The Road Crew regularly inspects the wind fences and conducts maintenance and repair as necessary.

The Environment department plans and coordinates progressive reclamation at the lagoons as area becomes available to be reclaimed. Revegetation of areas helps to stabilize materials and reduce dust.

4.1.9 Areas Exposed from Past Mining

Once mining in an area has been completed, equipment is relocated to an active area. Although there is no longer activity from heavy equipment, some fugitive dust can still be generated if an area is exposed to weathering and high winds.

The Environmental department plans and facilitates the reclamation program. Various reclamation activities are conducted annually during snow-free periods, but specific activities and their extent will vary from year to year. Reclamation ultimately results in revegetation of areas, which has the benefit of stabilizing materials and preventing generation of fugitive dust. Wind breaks (natural or planned, such as establishment of rows of trees) are incorporated into reclaimed landscapes.

4.2 Greenhouse Gases

Sources of GHG emissions at EVO include the use of diesel fuels, natural gas use at the coal dryer and fugitive methane sources. As per our commitments under the TSM Energy and GHG Program to reduce GHG emissions and increase energy efficiency at EVO, we are implementing management actions as outlined in our 3-Year Energy Action Plan. This includes continued implementation of anti-idling policy (GN050. Vehicle Idling Policy).

Future projects and projects in process will continue to be defined for the operation to meet our TSM commitments and will be implemented as feasible.

4.3 Monitoring

The air monitoring program in place at EVO complies with requirements set out in Permit PA-1807. It includes source testing of the biannual stack testing of the coal dryer and breaker stack as well as continuous ambient air quality and metrological monitoring.

As per PA-1807, EVO participates in a comprehensive regional ambient monitoring program that considers all emissions from all Teck coal mines in the Elk Valley. Monitoring locations which are monitored under PA-1807 at EVO are also incorporated in the regional ambient monitoring program and help effect regional initiatives.

In addition to the permit required monitoring, EVO also undertake the following monitoring and maintenance on dust control measures for effectiveness; as per operational controls in Table 1:

- Regular inspections of the cable belt in the tunnel for effective dust suppression.
- Preventative maintenance of dust suppression equipment, including water trucks and storage tanks.
- Preventative maintenance and washing of tunnel infrastructure.
- Regular inspections of coal stockpiles and application of water /tackifying agent as needed.
- Regular inspection of wind fences on Lagoons in plant area.
- Regular inspection of fine tailings facilities.
- Regular audits of the no-idling procedure.

Based on results from the on-site trials, model validation, public feedback and review of monitoring trending data for dust and PM, EVO will incorporate new technology into current fugitive dust management actions as required.

4.4 Employee and Contractor Training

All employees and contractors receive thorough training during their orientation before being authorized to work on-site. Training includes reading and understanding all relevant SP&Ps. Employees are trained on SP&Ps that are applicable to their specific job function during orientation and are required to review the SP&Ps regularly during their employment. All Teck employees are trained on and are required to review SP&Ps related to air quality and dust control.

Employees are required to review all the relevant SP&Ps (Table1) and their associated Computer Based Training modules at the start of employment and according to the SP&P review schedule. Employee training is tracked and managed by a software application called SiteLine.

The risk of generating fugitive dust associated with contractor work is evaluated in the Environment, Health and Safety Work Plan and, if required, Environmental Protection Work Plans (EPWP) are developed, as per CS.001 Contractor Management. These Plans are reviewed and approved by the Environmental Department prior to any work commencing. If work is required that could generate dust, best management practices for dust control and management are required in the EPWP, could include, but is not limited to specific mitigations including:

- use of water trucks;
- avoid working during high wind or dry conditions; and
- follow reporting procedures if a high level dust event occurs.

5 Key Operational Milestones

Key operational milestones are presented in Table 3.

Table 3 Key Operational Milestones

Milestone Description	Milestone Driver	Frequency	Date	Responsibility
Annual Revision of the Plan	BMP	Annual	June 30	Environmental Superintendent
5 year update to the Ministry of Environment: Fugitive Dust Control Plan	PA-1807	Every 5 years	5 years post initial submission	Environmental Superintendent
Biannual dryer and breaker stack samples	PA-1807	2x per year	Scheduled Annually	Environmental Coordinator
Ambient monitoring at three permitted stations	PA-1807	Continuous	Continuous	Environmental Coordinator
Meteorological monitoring at three permitted stations	PA-1807	Continuous	Continuous	Environmental Coordinator
Annual and quarterly reports	PA-1807	Quarterly; Annual	30 days after end of quarter; 31 March	Environmental Coordinator
Study by a qualified professional for additional monitoring and to validate predictive model	BRE EAC	Once	2017	Senior Environmental Coordinator
Review of on-site trials, dusting events and public feedback and need for additional dust control measures.	BMP	Annual	June	Environmental Superintendent Operations Superintendent
GHG TSM reporting	BMP	Annual	May	Environmental Coordinator
GHG NPRI reporting	Regulatory need	Annual	June 1	Environmental Coordinator
TSM Verification Audit	BMP	Every 3 years	2016	Environmental Coordinator
Update 3- year Energy Plan	BMP	As required	Updated 2016	Environmental Coordinator

BMP= Best Management Practice, EAC= Environmental Assessment Certificate; GHG = greenhouse gas; NPRI = National Pollutant Release Inventory; TSM = Towards Sustainable Mining (Mining Association of Canada).

6 Roles and Responsibilities

The General Manager is responsible for fulfilling all conditions and commitments associated with permits held by Teck for EVO. The General Manager designates responsibilities related to air and dust control to the following roles at EVO:

- Mine Operations (Superintendent Operations):
 - Implement the Plan.
 - Dispatch water trucks/ hydro seeder/drill water trucks as needed.
 - Regularly inspect coal stockpiles and wind fences and apply mitigations as needed.
 - Apply dust suppressants and additives as required and scheduled.

- Implement EVO's 3 –Year Energy Action Plan.
- Implement trials as required.
- Environment Department (Superintendent Environment):
 - Implement the Plan.
 - Work with other departments to assess needs for trials and tests of new technologies, procedures and dust suppressant products.
 - Work with other departments to implement additional dust control measures based on monitoring results and public feedback.
 - Plan, manage and monitor progressive reclamation.
 - Co-ordinate annual revisions and updates of the Plan as required.
 - Conduct monitoring and reporting requirements in PA-1807.
 - Implement EVO's 3 –Year Energy Action Plan, fulfill GHG TSM and National Pollutant Release Inventory reporting requirements.
 - Coordinate with Community and Aboriginal Affairs Manager to report air quality monitoring results.
- Process Plant (Superintendent Processing):
 - Implement the Plan.
 - Conduct regular inspections and preventative maintenance facilities.
 - Monitor, maintain and respond to wind speed alarms.
 - Implement EVO's 3 –Year Energy Action Plan
- Engineering (Superintendent Engineering):
 - Implement the Plan.
 - Work with other departments to assess needs for trials and tests of new technologies, procedures and dust suppressant products.
 - Regular inspections of tailings facilities.
- Community and Aboriginal Affairs (Manager Community and Aboriginal Affairs):
 - Receive feedback from the community and help EVO coordinate Teck responses to questions.
 - Provide community engagement support, including annual reporting of air quality results as described in the EVO Community Engagement Plan.

Missed milestones (Table 3) and responsibilities escalate to the responsible role's immediate supervisor, names and contact numbers of personnel currently assigned to these roles are available from the Human Resources department at EVO.

7 Information Management

7.1 Safety and Environmental Incident Reporting

Training programs for all employees and contractors working situations that can generate or be affected by air emissions and dust are incorporated into the site specific training. All workers, both Teck employees and contractors, are required to successfully complete task specific training to ensure Health, Safety and Environmental concerns are fully understood.

Environmental incidents are reported as per EVO's Environmental Management System and safety incidents are reported as per EVO's Emergency Response Procedure. All safety and environmental incidents are tracked in SiteLine.

7.2 Monitoring, Record Keeping and Reporting

Effective monitoring and record keeping is required to review the implementation of the Plan and to develop and implement improvements as required. Monitoring and records are managed in accordance with operational Environmental Management System requirements and maintained in a secure data storage system.

Data collected through environmental monitoring programs is subject to defined quality assurance and quality control plans. The data is stored in a secure location and be available for use in future studies and assessments.

All data requests and deliveries of reports or assessments will be the responsibility of the Superintendent, Environment.

7.2.1 Dust Incident Tracking Tool

To improve dust incident tracking, EVO developed and implemented a dust calendar used by EVO and Teck Communities Group, The tracking tool stores community feedback, air alerts and equipment operations. Inputs to the dust calendar may include:

- Water trucks down for maintenance
- Additional sprinkler systems placed on active dumps
- Suppressant application on access roads
- Community feedback
- Air alerts indication potential dusting events

7.3 Audits, Review and Improvement

Air quality data is reviewed upon receipt and summarized quarterly and annually. Results will be evaluated against the corresponding dust mitigation measures. Regular evaluation will identify opportunities for improvement and ensure focus is maintained on the plan. Components of the monitoring program and results will be audited annually. Results of the audits and any resulting actions will be incorporated into SiteLine at EVO to allow for continual improvement.

The Plan, and any amendments thereto, must be implemented to the satisfaction of a Qualified Professional throughout construction, operation and closure.

7.4 Communications with Communities of Interest

Teck encourages the public to provide feedback regarding air quality and dust related concerns (and all matters related to Teck) through the Teck Elk Valley Feedback Mechanism. All feedback will be received by Community and Aboriginal Affairs (CAA) and responses will be coordinated by CAA and EVO.

We are committed to continue to engage regularly with key communities of interest throughout operations. Key communities of interest include, but are not limited to, the District of Sparwood and the residents of the town of Sparwood, specifically the residents of Michel Creek Road due to their proximity to the EVO.

After a dusting event that results in adverse effects to the community, or obtaining public feedback or complaints regarding air quality or dust; EVO will review the cause and effect of the dusting event or complaint and the effectiveness of existing dust current control procedures, as described in the EVO Community Engagement Plan.

Elkview Operations will provide annual updates on ambient air quality results from the current monitoring program to the local community (i.e. the District of Sparwood and Council) as described in the EVO Community Engagement Plan.

7.4.1 Socio-Community and Economic Effects Management Plan

We are committed to continue to engage regularly with the District of Sparwood in accordance with Condition 21 of the BRE EAC, throughout EVO's mine life. In collaboration with the district of Sparwood we are developing a Socia-Community Economic Effects Management Plan. The purpose of the Socio-Community Economic Effects Management Plan is to monitor any adverse social-community and economic effects attributable to the mine expansion in Sparwood, develop adaptive management processes and report any potential adverse effects from the expansion of mining on the District of Sparwood.

8 Change Management

Changing any part of this management plan requires a formalized process to be used. If significant changes to objectives, management plan structure, key operational milestones, related SP&Ps,

communication and/or information management are being planned it is required that the Management of Change procedure be followed. All minor edits or updates to the management plan will be controlled through SharePoint versioning settings and content approval functions.

9 Conclusion

We recognize mining is getting closer to the community and the importance of effective control of fugitive dust and other air quality emissions.

This Plan defines our objectives and mitigations at EVO to manage and control potential air emissions and dust impacts. With the implementation of this Plan, it is expected that EVO will continue to manage any potential impacts to the community, wildlife and vegetation. This Plan will evolve as new information and data becomes available through monitoring, regulatory guidance and technology improvements to meet our air quality and dust control objectives.

10 References

- BC Ministry of Energy, Mines and Petroleum Resource. *British Columbia Health, Safety and Reclamation Code*. 2008.
- BC MOE (British Columbia Ministry of Environment). 2014. *British Columbia Ambient Air Quality Objectives*. 4 pp.
- Canadian Council of Ministers of the Environment. 1999. *Canadian National Ambient Air Quality Objectives: Process and Status*. 8 pp.
- Government of Canada. 2013. *Objectives for Ambient PM_{2.5} and Ozone [Canadian Ambient Air Quality Standards (CAAQS) for PM_{2.5} and Ozone]*. Canada Gazette Part I. 147(21). pp. 1243-1246.
- Teck (Teck Coal Limited).2015. *Fugitive Dust Control Plan*. Teck Coal Limited, Elkview Operations, Sparwood, BC.

11 Acts and Regulations

Note: S.B.C. = Statute of British Columbia; R.S.B.C. = Revised Statute of British Columbia

Environmental Assessment Act. S.B.C. 2002. c.43. Available at: <http://www.bclaws.ca>.

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Mines Act. R.S.B.C. 1996. c293. Available at:

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96293_01.

Appendix A

Mitigations to Minimize Potential Effects from the Baldy Ridge Extension Project

The implementation of mitigations related to air quality and dust control at EVO will be tracked through the Air Quality and Dust Control Plan. Table A-1 lists each individual mitigation, commitment and monitoring and follow-up plan used in the assessment to prevent or minimize potential effects from the BRE Project.

To aid in site implementation and tracking, mitigations with similar content and/or similar operational management are summarized (Appendix B9.8-1, Table 3) with a uniquely coded identifier for tracking purposes (e.g., BRExxx). While the wording for each summarized mitigation in Appendix B9.8-1, Table 3 is intended to meet the intent of multiple mitigations used throughout the assessment, each is listed individually for future reference, with its corresponding location within the EA and unique BRE identifier (Table A-1).

Table A-1 Mitigations to Minimize Potential Effects From the Baldy Ridge Extension Project

BRE Mitigation Ref #	EA Section	Relevant Environmental Design Features or Mitigations
BRE001	B2.2.1 Terrain, Surficial Geology and Soils	Implement the Air Quality and Dust Control Management Plan (Section B9.8 and Appendix B9.8-1), including implementing existing EVO practices to control dust and other air emissions (e.g., watering of haul roads and use of dust suppressants, minimizing engine idling (as per EVO's No Idle Policy) and maintenance of vehicles, minimising haul distances, use of on-site car wash).
BRE001	B2.3.1 Ecosystems B2.3.2 Vegetation B2.3.3 Wildlife	Implement an Air Quality and Dust Control Management Plan, and Noise Control Plan (Section B9.8, Appendix B9.8-1; and Section B9.9, Appendix B9.9-1), including implementing existing EVO practices to control dust and other air emissions (e.g., watering of roads and use of dust suppressants, no idling policy, and maintenance of vehicles).
BRE001	B2.3.4 Fish	Implement the Air Quality and Dust Control Plan (Section B9.8 and Appendix B9.8-1), including implementing existing EVO practices to control dust and other air emissions (e.g., watering of roads and use of dust suppressants, minimizing engine idling and maintaining vehicles).
BRE001	B2.1.1 Air Quality and Climate	Implementation of the Air Quality and Dust Control Management Plan (Section B9.8 and Appendix 9.8-1), including measures: <ul style="list-style-type: none"> for fugitive dust control, such as application of water or chemical suppressant to coal stockpiles, haul roads, progressive reclamation, high wind alarms, maintenance of equipment;
BRE001	B2.1.1 Air Quality and Climate	<ul style="list-style-type: none"> Implement the Air Quality and Dust Control Management Plan (Section B9.8 and Appendix B9.8-1). Apply water to problem areas. Spray roads with water or chemical suppressant.
BRE001	B2.1.1 Air Quality and Climate	<ul style="list-style-type: none"> Implement the Air Quality and Dust Control Management Plan (Section B9.8 and Appendix B9.8-1). Limit hauling distances. Spray dust suppressant or water on trafficked roadways.

Table A-1 Mitigations to Minimize Potential Effects From the Baldy Ridge Extension Project (continued)

BRE Mitigation Ref #	EA Section	Relevant Environmental Design Features or Mitigations
BRE001	B2.1.1 Air Quality and Climate	<p>Continue to implement measures outlined in the Air Quality and Dust Control Management Plan (Section B9.8 and Appendix B9.8-1) for fugitive dust control such as:</p> <ul style="list-style-type: none"> • Inject water during drilling and use a dust skirt around the drill deck. • Limit the size and slope angle of coal stockpiles to keep them manageable for dust control. • Monitor load out stockpile daily and apply water and tackifying agent to problem areas as required. • Water tunnel and conveyors to control dust. • Spray haul roads with water or chemical suppressant. • Maintain combustion equipment regularly. • Maintain light vehicle main access roads and parking lots by grading, sweeping, watering and applying dust suppressants. • Train cars are loaded to capacity and pack down to reduce turbulence. • Spray loaded train cars with water and then a flocculent mixture to prevent fugitive dust release. Trains cars undergo a second flocculent application en route to port. • Progressively reclaim the CCR Pile. • Use high wind alarms at the Plant to identify high wind events. • Use a hydro seeder to apply water, seed and mulch to any areas around the process plant, Lagoons and CCR Pile which have the potential to generate dust. • Apply a water tackifying agent on coal stockpiles as required. • Progressively reclaim exposed areas from past mining.
BRE001	B2.2.1 Terrain, Surficial Geology and Soils	Implementing of dust control measures as per the Air Quality and Dust Control Management Plan (Section B9.8 and Appendix B9.8-1);
BRE001	B4.2. Visual Aesthetics	Controlling dust through the Air Quality and Dust Control Management Plan (Section B9.8 and Appendix B9.8-1) to minimize visual effects;
BRE001	B6.2 Human & Wildlife HRA	The implementation of effective dust-control mitigations such as road watering (refer to the Air Quality and Dust Control Management Plan in Section B9.8 and Appendix B9.8-1) will also serve to reduce the predicted PM10. Particulate matter monitoring will be used determine actual particulate matter levels resulting from the Project.
BRE001	B6.2 Human & Wildlife HRA	Continue to implement the No Idling Policy at EVO
BRE001	B6.2 Human & Wildlife HRA	Maintain combustion equipment regularly.
BRE002	B2.1.1 Air Quality and Climate	<p>Implementation of the Air Quality and Dust Control Management Plan (Section B9.8 and Appendix 9.8-1), including measures:</p> <ul style="list-style-type: none"> • to reduce greenhouse gas (GHG) emissions, such as Elkview Operations (EVO) No Idling Policy.
BRE002	B2.1.1 Air Quality and Climate	<p>Continue to implement measures outlined in the TSM Energy and GHG Program for EVO (see also Section B9.8 and Appendix B9.8-1):</p> <ul style="list-style-type: none"> • No Idling Policy at EVO. • EVO has transitioned to lighter haul truck boxes.
BRE003	B2.1.1 Air Quality and Climate	Continue to employ the following design features as per EVO's waste (air) discharge permit PA-01807 (MWLAP 2004) issued under the Waste Management Act to reduce air emissions from the Process Plant:

Table A-1 Mitigations to Minimize Potential Effects From the Baldy Ridge Extension Project (continued)

BRE Mitigation Ref #	EA Section	Relevant Environmental Design Features or Mitigations
		<ul style="list-style-type: none"> • Cyclones (4), fan, high energy wet scrubbers (2), ducts and stacks (2) at the fluidized bed coal dryer. • Dust collection hoods, ducts, fans, cartridge-style dust collector and stack at the coal breaker. • Cartridge-style dust collectors, fans, ducts, dust collection hoods, venturi scrubber and stack at the raw coal silos cartridges at the breaker feeders, coal breaker, breaker screens and raw coal chutes. • Venturi scrubbers (2), fans, ducts and stacks at clean coal conveyors and silos. • Dust collection hoods, ducts, fans, venture scrubber and stack at the dryer incline belt and met belt stack.
BRE004	B2.1.1 Air Quality and Climate	As required, undertake on-site trials of technology to mitigate for dust (i.e., use of sprinkler systems, dust suppressants or other technology as available). Based on results from the trials, model validation and ongoing monitoring results incorporate new technology from the on-trials into current fugitive dust management actions as required.
BRE005	B2.1.1 Air Quality and Climate	In addition to EVO's air monitoring requirements under air permit PA-01807, EVO also manages for and monitors the use of GHG generating sources. As a member of the Mining Association of Canada, Teck is committed to participating in and achieving strong performance in the Towards Sustainable Mining (TSM) program. Under the program, the Energy and Greenhouse Gas Management Protocol sets forth management practices that require operations to manage their GHG emissions through the implementation of monitoring and reporting practices, control measures, and the setting of GHG performance targets. Teck has set short and long term targets for reducing GHGs at all operations, and for EVO this includes the implementation of the No Idling Policy and transition to light haul truck boxes. To meet targets, EVO monitors the use of diesel fuels, natural gas use at the coal dryer and electricity, with verified methodology to estimate the resulting emissions of carbon dioxide. Fugitive methane sources are also tracked and reported. The TSM program requires that operations annually self-assess and report on their performance against the protocol criteria, and to have these self-assessments externally verified every three years, with next external verification scheduled at EVO for 2016. This assurance process helps to ensure that operations remain diligent in implementing strong management practices to manage GHG emissions. EVO would continue to implement these measures and monitoring as part of the TSM program for the Project.
BRE006	B2.1.1 Air Quality and Climate	There is an existing air monitoring program in place at EVO which is in accordance with requirements set out in air permit PA-01807 issued by the BC Ministry of Water, Land, and Air Protection (now the BC MOE) under the BC <i>Waste Management Act</i> (MWLAP 2004). All four stations measure, PM10, and PM2.5 and collect meteorological data. One station also measures TSP and another also measures CO, NOX, and SO2. The metrological parameters collected include temperature, relative humidity, and wind speed and direction. This monitoring program would continue for the Project. • Continue to comply with monitoring and reporting conditions outlined in PA-1807.
BRE006	B6.2 Human & Wildlife HRA	Continuation of the existing EVO air monitoring program (including ambient air quality monitoring of particulate matter), consistent with the requirements of existing permit PA-1807 issued under the Environmental Management Act and incorporating updates as required to satisfy Teck's Regional Air Monitoring Program.
BRE007	B2.1.1 Air Quality and Climate	In 2017 undertake a study by a qualified professional to identify additional air quality monitoring stations in order to update and validate model results based on monitoring data.

Appendix C – 2016 Daily Average Data

	Downtown Sparwood Centennial Square (DTAM/E262137)		Whispering Winds Trailer Park (WWTP/0250184)		Michel By-Products Plant (MBPP/E206193)	
	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)
1/1/2016	7.02	7.63	4.13	3.11	7.64	10.01
1/2/2016	11.62	13.68	6.49	4.72	8.55	15.42
1/3/2016	14.99	20.14	11.20	13.20	10.91	15.19
1/4/2016	17.43	15.13	9.61	6.89	12.10	14.74
1/5/2016	13.60	10.37	8.16	4.40	9.39	11.45
1/6/2016	20.21	22.60	13.49	8.32	17.84	20.83
1/7/2016	8.01	6.55	8.87	4.80	19.36	20.16
1/8/2016	5.34	8.54	5.38	4.06	7.21	12.32
1/9/2016	7.68	15.40	6.72	6.41	10.28	19.35
1/10/2016	7.25	12.18	8.17	4.74	9.13	12.67
1/11/2016	4.07	6.28	6.36	3.52	5.51	7.25
1/12/2016	1.26	1.73	2.12	1.39	0.97	1.28
1/13/2016	1.28	1.64	1.87	1.19	1.85	2.70
1/14/2016	1.05	1.28	2.06	1.48	2.27	2.83
1/15/2016	3.63	4.20	2.55	1.51	1.34	1.90
1/16/2016	6.18	11.07	5.72	3.98	10.33	11.52
1/17/2016	5.74	6.55	6.81	4.22	6.89	7.68
1/18/2016	0.71	1.11	2.18	1.39	1.33	2.08
1/19/2016	1.31	1.88	3.31	2.22	2.02	2.81
1/20/2016	2.90	2.73	4.01	2.54	3.06	3.84
1/21/2016	2.03	1.56	2.70	1.80	0.63	0.88
1/22/2016	0.89	0.68	1.69	0.85	0.51	0.64
1/23/2016	3.72	2.56	3.95	2.17	3.30	4.29
1/24/2016	1.89	1.01	2.96	2.50	2.38	3.05
1/25/2016	4.57	6.02	4.06	3.64	2.61	3.38
1/26/2016	2.66	4.25	3.30	3.38	2.16	3.01
1/27/2016	1.15	1.47	2.58	2.27	0.91	1.44
1/28/2016	0.73	1.27	0.82	0.74	0.51	0.57
1/29/2016	2.46	3.01	2.60	1.63	2.02	3.03
1/30/2016	0.81	2.01	1.31	1.18	0.62	1.17
1/31/2016	3.60	16.30	3.45	7.21	1.80	4.18
2/1/2016	5.61	30.10	2.79	12.33	2.64	7.97
2/2/2016	8.79	57.43	6.35	20.26	5.68	13.86
2/3/2016	5.76	35.45	5.06	16.31	6.23	10.95
2/4/2016	2.78	3.68	1.69	4.20	0.76	1.40
2/5/2016	1.41	2.98	2.12	2.64	0.87	1.16
2/6/2016	2.77	3.00	0.90	1.15	0.71	1.36
2/7/2016	6.73	11.57	2.32	4.64	1.65	5.71
2/8/2016	7.66	17.47	7.77	3.94	3.42	7.69
2/9/2016	4.82	14.83			4.64	7.24
2/10/2016	3.41	12.23	7.97	2.04	4.82	7.69
2/11/2016	4.57	14.48	6.06	3.54	1.98	4.18
2/12/2016		9.46	4.21	3.05	2.73	3.66
2/13/2016		1.19	1.64	0.97	0.85	1.59
2/14/2016		3.02	2.65	0.95	0.36	0.57
2/15/2016		10.49	1.81	3.74	0.83	2.94
2/16/2016		13.61	0.97	0.93	1.08	2.29
2/17/2016		21.57	4.33	3.19	8.98	14.98
2/18/2016		5.24	1.87	1.51	3.54	4.62
2/19/2016	0.71	5.04	1.32	0.75	0.78	1.73
2/20/2016	0.60	3.42	1.68	1.53	0.47	0.56
2/21/2016	1.12	11.00	3.57	4.34	1.66	3.94
2/22/2016	1.51	17.23	2.26	5.23	1.32	2.83
2/23/2016	8.21	45.25	3.56	9.51	3.54	6.46
2/24/2016	7.08	33.81	6.60	14.54	5.49	19.23
2/25/2016	9.36	40.09	4.25	9.42	6.18	16.90
2/26/2016	5.46	34.16	4.10	13.13	5.36	10.36
2/27/2016	2.33	6.96	2.22	4.70	2.09	4.62
2/28/2016	1.61	4.94		3.64	0.97	1.20
2/29/2016	1.15	5.49		1.81	0.66	1.71
3/1/2016	2.28	10.16	1.96	3.90	2.30	3.80
3/2/2016	0.65	3.86	0.66	1.08	0.84	1.37
3/3/2016	1.15	3.71	0.95	1.09	1.11	1.83
3/4/2016	4.99	26.60	0.93	1.78	1.13	2.60
3/5/2016	3.19	11.85	2.95	4.72	1.39	1.93
3/6/2016	2.50	3.90	2.40	2.95	1.61	1.97
3/7/2016	2.80	6.95	1.84	2.87	0.96	1.53
3/8/2016	1.28	2.50	1.01	1.59	1.09	2.37
3/9/2016	4.85	27.62	2.21	8.34	2.75	8.13
3/10/2016	1.18	4.30	1.40	2.66	2.10	3.45
3/11/2016	4.15	20.99	1.98	5.83	2.52	10.36
3/12/2016	2.80	9.76	3.33	5.04	2.06	2.99
3/13/2016	1.12	6.07	2.00	2.01	1.63	4.36
3/14/2016	0.73	4.68	2.95	3.53	1.09	2.47
3/15/2016	1.09	11.85	3.44	7.84	1.06	2.30
3/16/2016	2.79	18.88	1.36	6.43	2.05	4.07
3/17/2016	4.14	20.36	3.10	5.77	1.86	3.54
3/18/2016	8.75	42.44	5.77	10.85	2.58	7.08
3/19/2016	5.72	28.62	6.99	12.23	3.36	10.47
3/20/2016	8.01	31.83	11.92	13.18	5.15	16.74
3/21/2016	4.44	22.89	8.88	5.46	2.66	4.42

	Downtown Sparwood Centennial Square (DTAM/E262137)		Whispering Winds Trailer Park (WWTP/0250184)		Michel By-Products Plant (MBPP/E206193)	
	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)
3/22/2016	7.49	27.72	7.17	12.71	6.34	7.81
3/23/2016	2.94	15.69	2.78	5.87	2.79	3.57
3/24/2016	1.28	5.14	2.55	2.89	0.52	0.63
3/25/2016	3.83	7.53	2.88	1.57	1.82	2.37
3/26/2016	2.28	10.14	1.08	3.01	0.95	1.44
3/27/2016	2.07	8.41	4.36	4.92	1.30	3.17
3/28/2016	2.78	7.76	4.46	4.14	2.50	3.71
3/29/2016	6.39	28.39	3.87	6.70	3.12	7.22
3/30/2016	4.92	26.45	4.62	10.74	3.62	10.84
3/31/2016	4.96	13.55	1.98	6.30	1.58	3.12
4/1/2016	25.81	8.21	11.27	5.05	9.33	5.40
4/2/2016	23.36	6.68	10.08	5.77	6.46	4.48
4/3/2016	17.78	6.65	8.83	5.04	7.23	4.04
4/4/2016	11.51	3.49	8.57	3.63	6.67	3.65
4/5/2016	6.04	1.76	2.35	1.33	2.27	1.54
4/6/2016	10.16	1.86	4.99	2.32	15.75	2.85
4/7/2016	17.19	3.80	7.39	2.78	10.62	3.26
4/8/2016	19.23	6.57	11.11	5.21	21.59	9.05
4/9/2016	24.84	6.37	12.42	5.14	51.07	17.74
4/10/2016	10.08	2.05	18.03	5.72	3.80	2.48
4/11/2016	21.42	5.07	12.94	8.30	14.36	8.56
4/12/2016	17.65	7.67	10.54	14.15	11.76	6.41
4/13/2016	7.38	3.40	6.38	4.11	4.17	2.93
4/14/2016	11.37	6.23	5.18	2.66	10.02	4.05
4/15/2016	10.49	5.95	8.13	7.23	5.65	3.38
4/16/2016	10.02	6.23	6.99	12.30	7.06	4.22
4/17/2016	12.38	7.94	7.82	7.74	8.30	4.79
4/18/2016	20.30	9.59	11.86	8.50	18.70	7.02
4/19/2016	18.63	7.79	11.90	11.55	14.35	7.14
4/20/2016	23.39	9.19	22.36	9.42	24.91	8.70
4/21/2016	23.32	9.95	19.64	17.06	27.22	8.71
4/22/2016	23.29	8.63	20.26	9.21	18.57	7.45
4/23/2016	13.85	7.99	12.54	5.42	10.80	7.66
4/24/2016	6.77	4.09	6.97	3.45	7.71	6.70
4/25/2016	4.36	2.22	3.64	2.22	4.22	3.20
4/26/2016	4.98	3.31	5.09	4.38	5.59	4.60
4/27/2016	9.22	5.92	7.06	4.21	9.94	7.91
4/28/2016	10.18	4.48	11.02	3.59	6.68	4.99
4/29/2016	9.92	4.61	10.47	5.12	7.60	5.21
4/30/2016	9.57	4.56	7.35	5.07	6.54	3.24
5/1/2016	17.77	7.81	8.89	3.53	12.03	4.28
5/2/2016	16.60	5.04	9.55	4.46	10.54	3.66
5/3/2016	18.78		9.79	5.51	10.54	5.43
5/4/2016	21.57		12.91	6.11	28.02	7.84
5/5/2016	15.17		10.34	6.31	13.03	7.99
5/6/2016	13.36		8.42	2.92	14.00	7.44
5/7/2016	17.97	6.36	14.96	7.27	15.63	8.13
5/8/2016	14.74	5.67	8.27	5.35	19.49	7.82
5/9/2016	7.38	1.97	2.68	2.00	2.28	1.40
5/10/2016	8.78	3.05	7.00	2.49	7.25	2.55
5/11/2016	9.92	2.94	5.85	2.95	4.81	2.73
5/12/2016	3.63	1.44	2.54	2.57	3.33	2.89
5/13/2016	13.49	5.96	9.17	5.96	19.68	11.39
5/14/2016	14.28	7.42	9.95	7.17	15.09	11.23
5/15/2016	11.48	5.07	7.28	5.31	9.92	7.25
5/16/2016	12.70	5.41	11.21	5.49	15.17	7.49
5/17/2016	13.88	5.64	8.73	4.70	12.95	6.36
5/18/2016	16.21	7.61	10.06	5.74	20.15	10.38
5/19/2016	6.87	2.88	4.21	2.51	3.80	2.77
5/20/2016	5.30	2.32	3.76	2.53	3.28	2.66
5/21/2016	3.93	1.36	2.92	1.76	2.02	1.50
5/22/2016	2.06	0.36	1.49	1.33	0.85	0.68
5/23/2016	2.55	1.10	3.39	2.31	1.72	1.34
5/24/2016	8.46	3.17	4.58	3.05	4.75	3.45
5/25/2016	7.83	4.18	6.86	4.05	7.29	5.18
5/26/2016					7.11	5.47
5/27/2016					5.49	4.51
5/28/2016					4.86	4.06
5/29/2016					4.24	3.19
5/30/2016					2.96	1.91
5/31/2016					5.96	3.34
6/1/2016					12.20	5.30
6/2/2016					5.54	3.55
6/3/2016					5.60	2.75
6/4/2016					8.38	3.97
6/5/2016					14.72	4.68
6/6/2016					15.11	5.43
6/7/2016	23.61	10.92	19.41	7.43	31.18	11.93
6/8/2016		7.84	14.90		29.04	8.94
6/9/2016		3.52	6.99		7.86	4.56
6/10/2016		5.12	7.72	5.95	9.56	6.21

	Downtown Sparwood Centennial Square (DTAM/E262137)		Whispering Winds Trailer Park (WWTP/0250184)		Michel By-Products Plant (MBPP/E206193)	
	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)
6/11/2016		2.51	2.21	2.00	1.72	1.25
6/12/2016	3.83	1.57	1.66	1.29	1.06	0.73
6/13/2016	8.57	3.82	4.23	2.46	5.64	2.98
6/14/2016	8.59	2.51	2.93	1.75	4.53	1.54
6/15/2016	7.04	3.27	3.36	2.48	2.38	1.32
6/16/2016	6.61	3.19	2.47	1.55	3.94	2.04
6/17/2016	7.83	3.75	2.70	1.11	2.45	1.13
6/18/2016	9.70	4.79	5.24	2.61	10.80	3.12
6/19/2016	2.21	0.69	2.39	0.80	1.04	0.73
6/20/2016	6.50	2.66	4.96	1.34	4.07	2.11
6/21/2016	11.52	3.02	8.43	2.83	6.46	3.27
6/22/2016	7.93	2.73	6.94	2.63	5.67	3.39
6/23/2016	10.46	4.05	9.04	3.05	11.54	4.18
6/24/2016	3.61	1.24	2.08	0.71	1.88	1.32
6/25/2016	3.92	1.50	3.53	1.09	1.60	1.11
6/26/2016	5.51	3.58	5.17	2.13	4.30	2.75
6/27/2016	11.02	6.12	9.50	3.11	10.03	4.21
6/28/2016	12.42	6.33	11.69	5.09	9.77	4.81
6/29/2016	15.03	6.48	16.74	5.99	10.03	4.98
6/30/2016	14.84	6.81	13.29	5.56	11.65	6.68
7/1/2016	6.66	10.44	3.93	9.70	6.07	12.12
7/2/2016	6.04	10.68	3.74	8.89	4.59	7.65
7/3/2016	2.86	7.58	2.42	6.14	2.63	6.12
7/4/2016	2.13	7.32	3.29	6.61	1.91	4.36
7/5/2016	1.65	5.51	1.09	2.41	2.17	3.02
7/6/2016	1.87	4.11	1.01	2.76	2.08	3.07
7/7/2016	2.44	4.18	1.05	3.00	2.35	3.83
7/8/2016	1.98	3.67	1.34	2.64	1.75	2.90
7/9/2016	2.67	5.46	1.25	3.61	1.49	2.37
7/10/2016	1.92	4.28	1.25	3.74	2.43	4.01
7/11/2016	2.00	3.71	1.67	4.43	2.33	3.63
7/12/2016	2.46	3.93	1.09	3.40	2.35	3.58
7/13/2016	2.78	4.01	1.34	3.98	2.91	4.43
7/14/2016	2.59	3.38	1.46	4.69	2.53	3.99
7/15/2016	4.54	4.05	2.97	7.81	5.37	7.68
7/16/2016	2.07	1.83	2.46	3.26	2.59	3.57
7/17/2016	3.37	3.27	3.90	4.28	3.06	4.79
7/18/2016	7.70	6.79	6.54	10.43	7.55	11.68
7/19/2016	4.06	5.20	2.66	5.50	3.80	5.54
7/20/2016	2.90	6.62	2.62	4.44	2.75	5.98
7/21/2016	4.32	11.71	3.62	6.64	5.46	24.46
7/22/2016	6.12	16.81	7.11	11.99	6.16	15.60
7/23/2016	2.22	4.71	2.39	5.70	3.85	5.45
7/24/2016	3.95	9.35	3.05	6.32	6.98	12.17
7/25/2016	5.36	10.09	4.07	8.19	6.46	13.39
7/26/2016	4.24	13.57	4.26	8.48	7.19	13.72
7/27/2016	3.41	10.87	2.53	7.64	4.94	9.47
7/28/2016	4.90	7.44	2.77	9.09	4.28	7.98
7/29/2016	5.57	13.97	6.28	10.72	4.18	8.51
7/30/2016	4.69	12.51	5.04	9.66	3.25	5.49
7/31/2016	3.73	8.80	3.09	7.07	4.43	6.34
8/1/2016	2.39	9.14	1.84	3.57	2.58	4.39
8/2/2016	5.33	16.33	6.72	14.84	5.80	13.12
8/3/2016	4.86	20.43	4.58	17.37	6.07	15.23
8/4/2016	3.91	13.65	5.48	10.48	5.94	9.21
8/5/2016	5.06	22.59	6.03	16.70	7.33	20.15
8/6/2016	6.60	17.80	5.44	13.21	7.62	12.35
8/7/2016	5.71	15.05	6.00	10.14	6.97	10.81
8/8/2016	5.93	11.05	5.20	9.23	7.51	15.69
8/9/2016	6.55	11.62	3.73	8.71	7.13	12.55
8/10/2016	3.98	9.01	2.95	7.08	4.80	7.03
8/11/2016	4.84	8.10	3.48	7.67	4.88	7.98
8/12/2016	4.93	10.26	4.37	8.77	5.51	11.97
8/13/2016	7.07	14.21	5.60	10.36	7.27	17.39
8/14/2016	7.00	15.22	7.07	11.42	9.02	18.21
8/15/2016	6.20	14.88	6.22	11.26	6.13	12.71
8/16/2016	7.42	17.52	4.77	11.05	9.65	23.14
8/17/2016	7.71	21.35	5.67	19.50	10.52	22.15
8/18/2016	3.00	9.83	2.88	6.88	4.88	9.22
8/19/2016	3.27	7.13	2.65	4.38	4.86	8.01
8/20/2016	4.13	10.77	4.17	8.83	5.40	9.27
8/21/2016	8.96	17.51	6.84	14.75	9.25	18.97
8/22/2016	5.95	14.38	5.31	9.34	9.29	15.57
8/23/2016	0.80	5.18	0.92	2.55	1.55	6.00
8/24/2016	2.09	8.35	1.56	3.10	3.77	9.67
8/25/2016	3.05	13.21	3.05	6.42	6.17	13.36
8/26/2016	3.92	7.85	2.60	6.12	3.80	5.31
8/27/2016	7.32	12.20	6.17	11.40	7.32	17.92
8/28/2016	7.01	19.42	4.84	13.47	5.90	12.45
8/29/2016	6.57	14.73	4.21	10.32	6.77	14.91
8/30/2016	12.21	22.50	9.67	18.83	13.04	25.07

	Downtown Sparwood Centennial Square (DTAM/E262137)		Whispering Winds Trailer Park (WWTP/0250184)		Michel By-Products Plant (MBPP/E206193)	
	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)
8/31/2016	17.09	27.69	13.11	18.52	24.42	31.93
9/1/2016	9.95	17.68	7.06	9.45	12.81	23.51
9/2/2016	2.08	4.75	1.74	2.14	1.83	2.97
9/3/2016	1.56	3.64	0.86	1.64	1.02	1.36
9/4/2016	2.11	5.76	1.53	3.20	1.80	2.36
9/5/2016	2.98	4.68	1.71	3.54	3.80	4.78
9/6/2016	2.32	1.92	0.90	2.60	1.87	2.44
9/7/2016	2.13	2.07	2.75	4.54	1.92	2.78
9/8/2016	1.77	1.62	1.04	1.31	0.88	1.28
9/9/2016	2.65	2.72	0.92	1.51	1.31	1.98
9/10/2016	2.16	2.34	2.17	3.69	1.34	4.20
9/11/2016	2.08	1.63	0.58	1.16	1.05	1.32
9/12/2016	2.89	4.18	1.57	2.02	1.73	2.57
9/13/2016	2.71	7.37	1.77	2.58	2.97	5.68
9/14/2016	6.06	14.18	2.48	8.99	4.53	13.92
9/15/2016	8.05	15.65	2.66	9.91	5.37	12.05
9/16/2016	6.74	16.36	5.76	13.62	8.04	14.75
9/17/2016	2.17	6.62	2.31	5.74	2.48	6.20
9/18/2016	0.60	2.85	1.03	2.17	0.92	1.37
9/19/2016	2.03	6.27	2.14	3.91	3.06	4.37
9/20/2016	1.71	4.77	2.04	3.03	2.11	3.47
9/21/2016	1.97	5.32	2.95	4.45	2.94	3.88
9/22/2016	2.01	6.29	2.54	4.96	2.05	2.82
9/23/2016	1.85	6.98	1.55	4.56	1.90	2.86
9/24/2016	2.47	9.67	1.07	3.41	2.35	4.29
9/25/2016	2.95	3.03	1.90	5.09	3.07	5.13
9/26/2016	3.90	8.24	1.53	4.50	3.40	6.29
9/27/2016	5.12	13.70	2.00	9.88	3.34	10.74
9/28/2016	4.90	21.76	2.76	16.57	4.76	24.58
9/29/2016	10.31	24.24	9.62	18.79		
9/30/2016	7.30	14.78	7.29	11.31		
10/1/2016	3.63	7.72	3.65	3.52		
10/2/2016	4.24	8.42	3.19	5.25		
10/3/2016	4.22	11.06	2.99	7.77		
10/4/2016	3.58	10.48	3.57	6.85		
10/5/2016	3.58	7.52	4.55	6.46		
10/6/2016	8.10	13.93	5.78	7.45		
10/7/2016	7.87	9.50	4.42	4.84		
10/8/2016	3.09	2.33	2.90	2.65		
10/9/2016	1.44	1.13	0.68	1.85		
10/10/2016	1.60	1.74	2.21	3.37		
10/11/2016	3.03	4.44	1.40	1.68		
10/12/2016	6.16	11.13	3.10	2.43		
10/13/2016	8.73	12.55	6.29	5.78		
10/14/2016	1.73	2.56	1.84	2.14		
10/15/2016	2.24	3.10	2.07	2.28		
10/16/2016	0.70	1.29	0.92	1.49		
10/17/2016	2.04	3.21	1.45	2.00		
10/18/2016	2.50	2.88	2.15	3.20		
10/19/2016	6.35	11.81	6.08	5.22		
10/20/2016	3.37	4.92	3.24	2.49		
10/21/2016	8.10	12.35	3.44	3.93		
10/22/2016	7.59	13.83	5.86	5.61		
10/23/2016	9.91	15.32	7.46	8.77		
10/24/2016	18.47	24.82	8.26	10.67		
10/25/2016	7.16	12.03	4.52	6.64		
10/26/2016	6.78	13.72	6.41	7.98		
10/27/2016	5.86	4.69	3.84	4.66		
10/28/2016	4.67	9.54	2.52	5.22	2.59	3.90
10/29/2016	9.58	11.40	4.63	6.81	4.83	7.04
10/30/2016	8.69	10.21	4.34	7.34	4.02	6.23
10/31/2016	2.23	3.18	1.86	2.13	2.24	2.96
11/1/2016	2.88	3.76	1.71	1.92	0.85	1.33
11/2/2016	7.44	6.14	4.11	4.47	2.54	3.06
11/3/2016	15.59	15.84	7.00	7.85	4.99	6.95
11/4/2016	14.41	20.50	6.51	8.59	7.92	13.48
11/5/2016	8.82	12.56	5.70	6.65	4.56	6.25
11/6/2016	4.17	4.37	2.34	2.77	2.05	2.85
11/7/2016	4.90	8.78	3.74	5.65	2.76	5.24
11/8/2016	10.67	17.17	2.48	5.73	4.59	7.45
11/9/2016			6.30	9.29	6.32	11.71
11/10/2016	12.06	25.28	4.80	9.10	7.28	12.69
11/11/2016	8.52	15.82	5.85	8.15	8.50	20.48
11/12/2016			3.26	4.40	6.46	9.14
11/13/2016	4.89	2.20	1.32	1.83	1.24	1.58
11/14/2016	1.94	1.36	0.99	1.81	0.61	0.80
11/15/2016			3.27	3.78	2.35	2.96
11/16/2016			2.63	3.42	2.77	3.50
11/17/2016			3.29	2.60	2.70	3.20
11/18/2016	7.08	13.14	3.82	5.09	5.15	6.62
11/19/2016	6.50	10.06	5.60	6.48	6.60	8.19

	Downtown Sparwood Centennial Square (DTAM/E262137)		Whispering Winds Trailer Park (WWTP/0250184)		Michel By-Products Plant (MBPP/E206193)	
	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)	PM2.5 (ug/m3)	PM10 (ug/m3)
11/20/2016	5.15	4.84	2.28	2.85	2.81	3.86
11/21/2016	1.99	1.53	1.25	1.20	1.01	1.37
11/22/2016	6.78	7.65	4.52	3.89	3.04	4.16
11/23/2016	3.73	5.64	2.53	2.89	3.75	5.04
11/24/2016	2.48	3.04	0.59	1.84	1.48	2.72
11/25/2016	3.49	3.13	0.95	2.85	1.35	2.75
11/26/2016	4.63	4.40	2.95	5.63	2.57	3.71
11/27/2016	4.39	7.44	3.79	5.37	5.36	8.20
11/28/2016	2.91	5.55	3.57	2.72	2.63	4.63
11/29/2016	2.77	9.90	4.06	4.31	3.07	4.68
11/30/2016	2.20	6.43	4.42	4.59	2.55	4.34
12/1/2016	3.51	6.63	3.25	3.34	1.77	4.22
12/2/2016	2.81	5.03	3.39	4.37	1.62	3.32
12/3/2016	0.72	1.45	0.90	2.33	1.10	2.60
12/4/2016	1.19	2.14	1.52	2.52	1.67	4.72
12/5/2016	2.47	5.48	2.62	4.25	3.41	4.96
12/6/2016	1.79	5.09	3.33	5.68	3.52	3.79
12/7/2016	2.46	6.92	5.59	6.55	3.89	4.27
12/8/2016	2.21	11.59	5.59	6.82	4.38	8.50
12/9/2016	2.51	14.79	5.23	6.88	6.50	9.58
12/10/2016	4.42	11.35	4.29	8.11	7.95	10.81
12/11/2016	7.45	10.47	5.94	9.45	10.21	13.58
12/12/2016	7.60	13.69	6.45	10.31	3.29	3.74
12/13/2016	9.26	13.97	7.37	7.96	4.27	7.64
12/14/2016	11.25	13.11	6.92	9.21	4.51	8.23
12/15/2016	10.94	14.35	4.11	6.24	6.46	9.87
12/16/2016	12.24	17.23	9.75	11.25	12.55	15.95
12/17/2016	14.59	20.92	12.38	15.43	12.50	27.93
12/18/2016	7.04	13.57	7.00	12.23	7.12	11.19
12/19/2016	0.56	11.00	1.33	10.13	4.09	18.02
12/20/2016	1.46	9.85	1.53	3.03	1.63	3.84
12/21/2016	1.43	8.03	1.05	2.13	1.18	1.44
12/22/2016	3.57	17.37	2.39	3.97	2.33	6.75
12/23/2016	6.22	16.57	4.55	4.78	5.15	11.64
12/24/2016	6.60	8.09			6.72	8.05
12/25/2016	6.50	6.71	7.77	6.73	4.18	4.99
12/26/2016	3.72	6.28	5.78	6.35	5.41	7.54
12/27/2016	0.70	1.33	0.33	1.58	1.06	2.78
12/28/2016	1.49	2.26	1.02	2.22	0.87	2.06
12/29/2016	1.22	1.54	0.93	1.84	2.38	8.60
12/30/2016	2.64	2.75	5.44	5.03	0.89	2.31
12/31/2016	2.50	2.23	1.89	2.00	1.65	3.79