



May 30, 2017

Wes Markus  
Lafarge Canada Inc.  
10511, 15<sup>th</sup> St. S.E.  
Calgary, Alberta  
T2H 2H5

**Re: Noise and Particulate Monitoring for Lafarge – Stoney Trail #1**

Dear Wes Markus;

Attached are results of the monitoring for the period April 2017 for noise, TSP and PM2.5 particulate. A B&K model 2236 meter was used for noise, and the Airmetrics Minivol model for particulate. Winds were measured with a R.M. Young Model 5103 anemometer. Precipitation was recorded with a Texas Instruments model TE25M rain gauge.

Data recovery for all parameter was 100% during the monitoring period.

There was no exceedance for the sound level.

There was one exceedance of the Alberta Air Quality Objective for PM2.5 and none for TSP.

Please call if there are any questions regarding the results.

Yours truly,

**PROMET ENVIRONMENTAL GROUP LTD.**

A handwritten signature in black ink, appearing to read "Bill Murray", written over a horizontal line.

Dr. William (Bill) Murray  
President

WM/NO  
Cc: Travis Coates  
Enc.



## MONTHLY REPORT SUMMARY

**Stoney Trail #1**  
**Name/Location**

**Lafarge Canada Inc.**  
**Company**

**April 2017**  
**Monitoring Period**

<b>Continuous Ambient Monitoring</b>				
<b>Parameter</b>	<b>% Time Operational</b>	<b>Average</b>	<b>Maximum</b>	<b>Number of Hours above Guideline</b>
Sound dB A	100%	50	66	0
PM2.5 $\mu\text{g}/\text{m}^3$	100%	15.5	32.1	1
TSP $\mu\text{g}/\text{m}^3$	100%	39.4	61.0	0
Wind Speed km/h	100%	11	31	-
Precipitation mm	100%	-	4.8	-
Trailer Temperature	100%	5	18	-

Sound level is analyzed only for wind speed less than 11 km/h and precipitation less than 3 mm/hour

### COMMENTS:

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The regulation for industrial areas is 85 dB A any time.

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The PM2.5 Standard is 30  $\mu\text{g}/\text{m}^3$  for the day.

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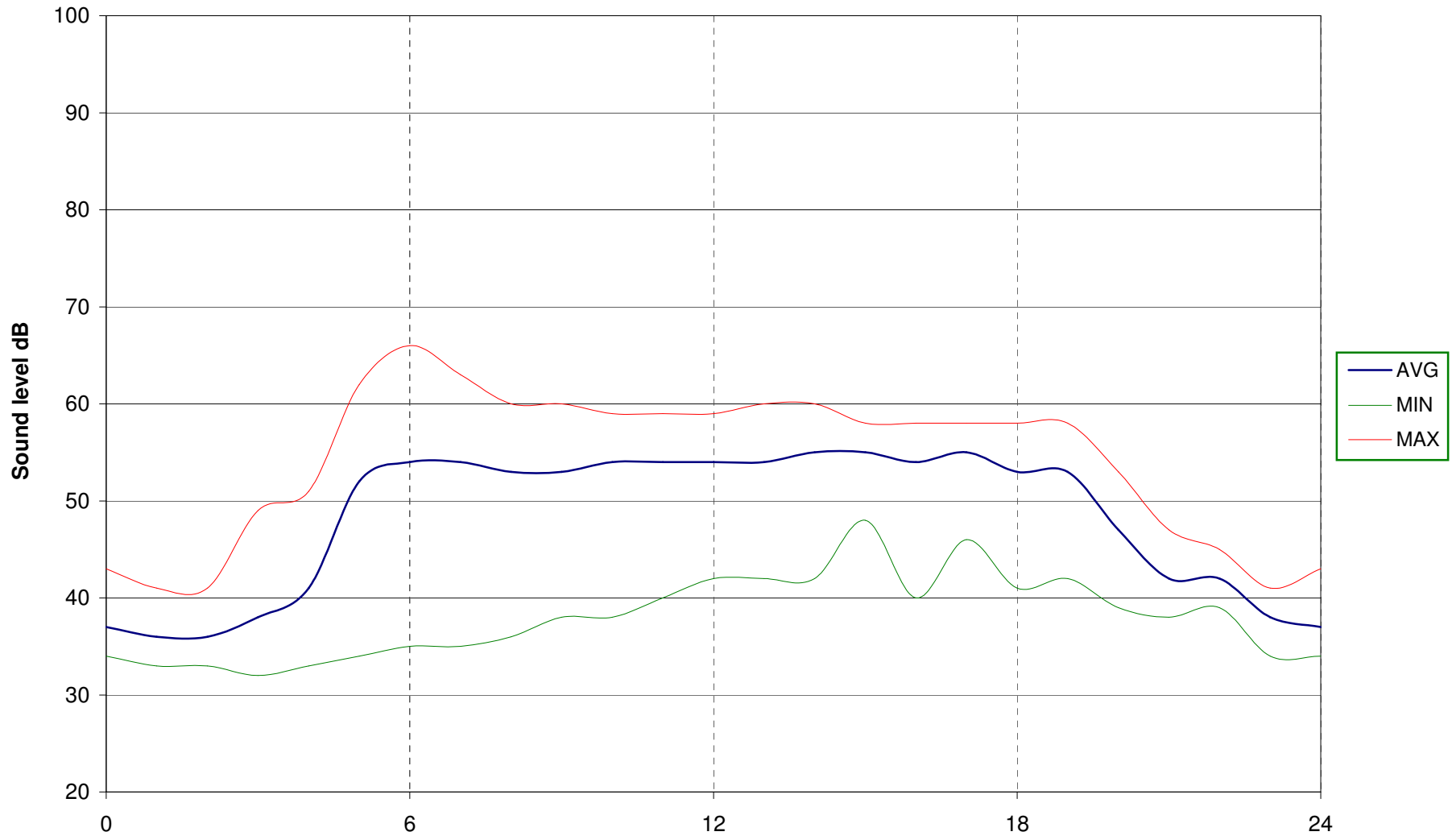
The TSP Objective is 100  $\mu\text{g}/\text{m}^3$  for the day.

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One 24 hour sample of PM2.5 and TSP is taken every 6<sup>th</sup> day following the federal NAPS schedule.

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# Sound Level by Hour of the Day

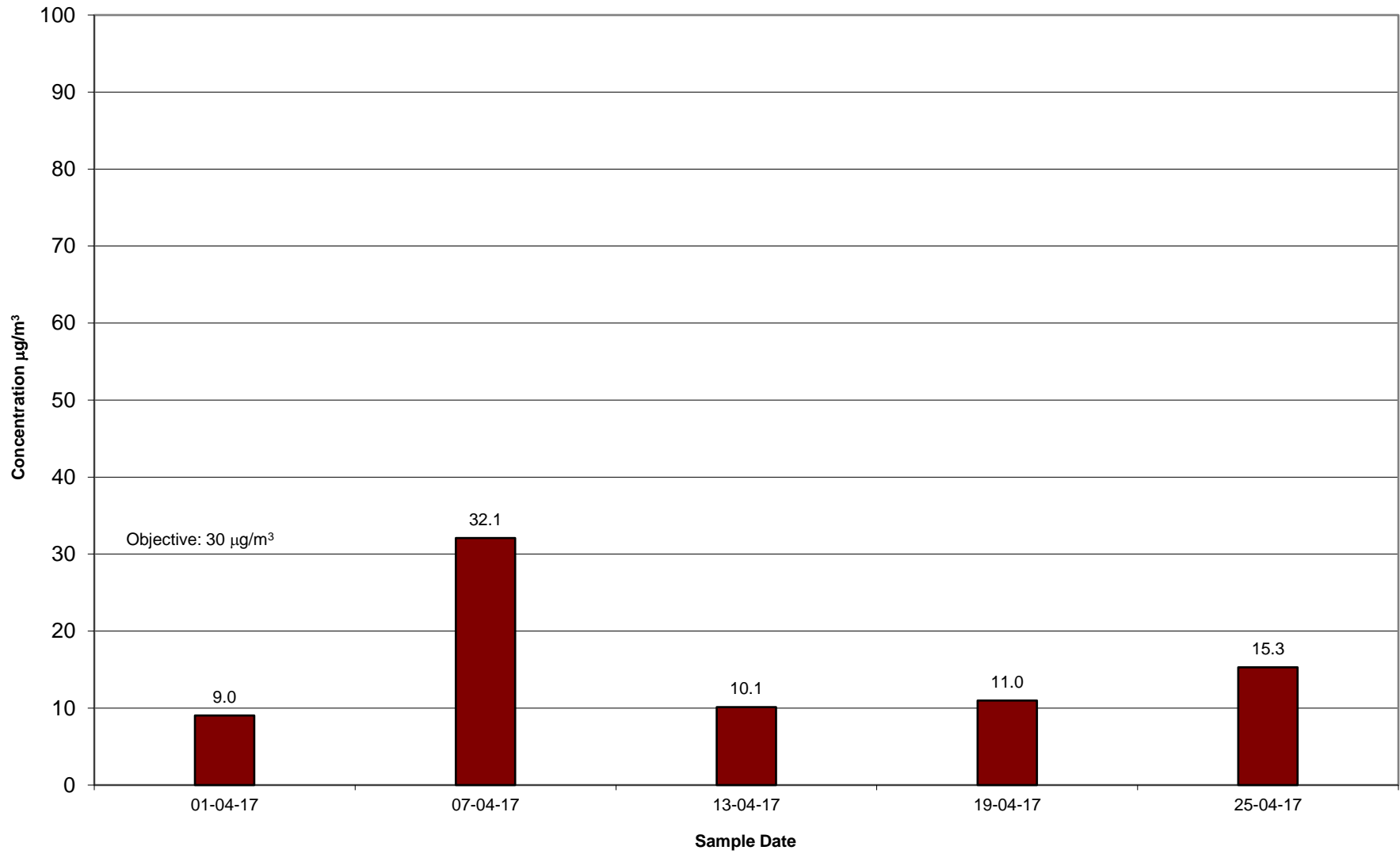


Stoney Trail #1

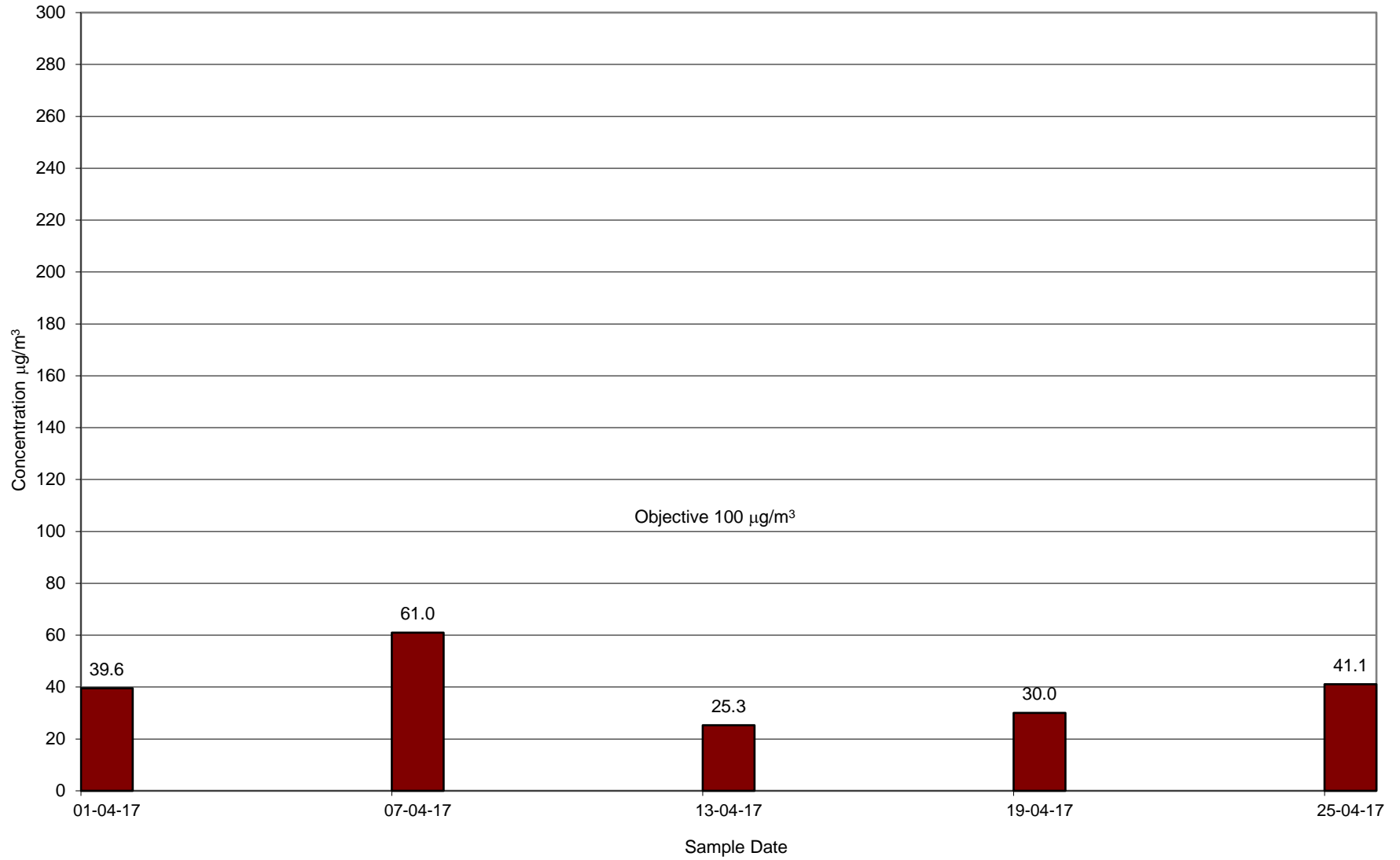
Hour

April 2017

PM2.5 at Lafarge Stoney Trail #1 April 2017

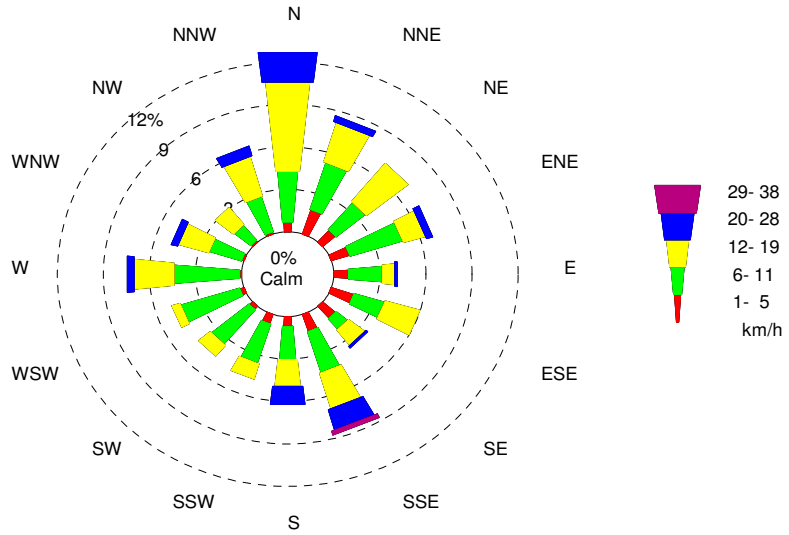


TSP at Lafarge Stoney Trail #1 April 2017



Wind rose for APR 2017  
Stoney Trail 1

Bar length is proportional to frequency of winds from its direction



SOUND LEVEL [dBA] Leq 1 hour  
 Lafarge Canada Inc.  
 Stoney Trail 1  
 STATION 620  
 APR 2017

Day	1	2	3	4	5	6	7	8	9	10	11	Hour 12	13	14	15	16	17	18	19	20	21	22	23	24	Avg
1																									
2	35	37	37	36	36	42	43	43	42	40	39		43	43	44	48	40			43	44	43	42	37	40
3												C				55	55	58	57	58	50	45	40	37	53
4	36	40	37	48			54			53	54			56						53	47	40	39	49	
5	35	34	35	36	42	57	60	56	55	56				56	58	56	56	54	55	55			40	37	53
6	35	36	36	37	47	55	51	51												50	45	43	42	38	46
7	36	35	35	35	50	62	66	56	56	55	52	54	58	59	59	58		58		57	49	44	43	41	55
8													46								42	41	41	39	42
9	37	38	36	35	36	39	40	42	36	40															38
10	35	34	35	35	40	53	54	55				53		53	60	55	53								51
11			33	49	35	54		63					50	51	51				46	42	47	44	44	39	49
12	37	36	38	41	43	53	55	62	55	55										52	53	47	44	41	51
13	43	41	41	39	40	46	46	47	47	49	52	48		42	43	51	52	51	51	52	42				47
14														47	50					45	43	38	43	36	44
15	38	35	38	38	39	40	42	44	41	42															40
16					33	40	40	43	40	42															40
17									58	58	59							54	47						52
18	39	40	40	40	45	58	60	60	59	59	58	59	59	56								43	40	44	52
19	38	36	34	37	37	54	58	60	60	60										53	56			44	55
20	36	34		35	39	54	54	55	55	56	56	57	58	57			54	55						39	53
21													57	52	55	57	58	58							56
22					41		45		43	42											51				43
23		36	33	33	34	34	35	35	42	38	38	40	42	44	42								41	42	39
24	34	33	33	35	39	56	58		58	58	58	57	58	60	58	58									55
25																									44
26	35	34	34	35	40		56	56	56								56				52	43	43	40	49
27	34	34	33	33	40	56	58	58	57	57	57	58													53
28	34	34	35	32	40	57	56	54	53	53				54	54	55	57	57	57	58	52	41	42	34	52
29	37	36	34	34	51	40	44	44	42	42	42	44								43	42	39	38	39	41
30	37	34	36	34	37	37	40	41												41					38
AVG	37	36	36	38	41	52	54	54	53	53	54	54	54	54	55	55	54	55	53	53	47	42	42	38	
MAX	43	41	41	49	51	62	66	63	60	60	59	59	59	60	60	58	58	58	58	58	53	47	45	41	
MIN	34	33	33	32	33	34	35	35	36	38	38	40	42	42	42	48	40	46	41	42	39	38	39	34	

\*\*\* SOUND DATA REPORTED ONLY FOR WIND SPEED < 11.5 KM/H \*\*\*

Percent of time operational: 100  
 Monthly Average: 50      Monthly Maximum: 66      Monthly Minimum: 32  
 Median: 43.0  
 \*\*\* No Exceedances of Guideline \*\*\*

SOUND METER CALIBRATIONS

DATE	TIME	STANDARD	RESPONSE	ERROR
APR 3, 2017	11	94.0	93.7	-.3

ABSTRACT OF THE WIND  
Lafarge Canada Inc.  
Stoney Trail 1  
STATION 620  
APR 2017

HOUR DAY	ALL TIMES ARE L.S.T.						SPEED [km/h]						ANEMOMETER HEIGHT 10 m						MEAN SPD	MAX VEL	PREV DIR	MISS OBS								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18					19	20	21	22	23	24		
1	W	W	WNW	WSW	SW	WNW	SW	SSE	WSW	W	W	WNW	WNW	WNW	W	W	NNW	N	N	N	NNW	NNW	NW	ESE			W	0		
2	SE	S	SE	N	WNW	WSW	SW	N	N	NNW	NNE	NE	NE	N	E	S	SW	NNW	N	NW	W	W	WNW	NW			N	0		
3	NNW	N	N	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	NNE	NNE	ENE	ESE	SE	SE	SSE	S	S			N	0		
4	SSW	WSW	W	WNW	WNW	WNW	NW	NW	NW	NW	SSW	S	S	S	SSW	W	W	W	W	W	W	W	W	W			W	0		
5	WSW	W	WSW	WSW	WSW	SW	SSW	S	S	S	S	SSW	WSW	WSW	W	SW	SSW	W	WSW	WSW	SW	WSW	WSW	SW			WSW	0		
6	SSW	SSW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	S	S	S	S	S	S	S	S	S	S			SVL	0		
7	SW	SSW	SSW	ESE	SSE	ESE	NNW	NNE	NE	NNE	NNW	SSE	SSW	SE	SSE	SSE	S	SSE	SSE	SSW	W	NNW	NW	W			SSE	0		
8	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	W	W	WNW	WNW	NNE	ENE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ESE	NNE	E			WNW	0		
9	NE	E	SSE	E	CLM	SE	E	ENE	ESE	SE	E	ENE	ESE	SSE	S	S	S	S	SSE	SSE	S	SSE	S	S			S	0		
10	S	SSW	SW	SW	SW	W	SW	SW	W	W	WSW	WSW	W	WSW	W	W	WSW	W	W	W	W	NNW	NNW	NW			W	0		
11	NW	WNW	NW	WNW	NNW	NNW	NNW	N	N	N	NNE	NE	NE	E	E	SSE	E	E	ENE	N	N	NNW	NNW				N	0		
12	N	NNE	NNE	NNE	ENE	NE	NE	ENE	ESE	ESE	ESE	SE	SE	SE	SE	ESE	ESE	ENE	S	WSW	SSE	NNE	E			ESE	0			
13	NNE	NNE	NE	ENE	E	ENE	ENE	ENE	NE	NE	NNE	NNE	NNE	NNE	N	N	N	NNW	NNW	NNW	N	NNW	NNW				NNE	0		
14	NNW	N	NNW	NNW	NNW	NNW	NNW	NNW	N	N	N	N	N	N	N	W	WNW	WNW	NNE	NNE	NNE	N	N				N	0		
15	N	WNW	SSW	S	E	ENE	ENE	NE	N	NNE	NNE	NNE	N	N	N	N	N	N	N	N	N	N	N				N	0		
16	N	N	N	N	NNW	NNW	N	SSE	SSW	S	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE				SSE	0		
17	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE				SSE	0		
18	N	N	NNE	NE	E	ENE	ENE	ESE	S	ESE	E	ENE	NE	NE	NNE	NE	NE	NNE	N	N	NNW	NNW					NE	0		
19	ENE	NNE	NNE	N	NNE	ENE	ESE	ESE	E	E	ESE	SSE	WSW	W	SW	WSW	SSW	SSE	SSE	S	SSW						NNE	0		
20	SW	W	WNW	WNW	WNW	WNW	WNW	W	SW	S	SE	SSE	SSE	SSE	S	W	NW	NW	NW	NNW	NNW	N						WNW	0	
21	N	N	N	NNE	NNE	N	N	N	N	N	NNE	N	NNW	NNE	E	SE	ESE	SSE	SSE	SSE	SSE	S	SSW				N	0		
22	SSW	WSW	W	WNW	N	N	NNE	ENE	NE	NE	ENE	ENE	E	E	N	NE	ENE	NE	ENE	ENE	ESE						SVL	0		
23	SE	SE	ESE	ESE	ESE	ESE	SE	SSE	S	SSW	SSE	ESE	NE	NE	ENE	ENE	ENE	E	E	NE	NE	NE					NE	0		
24	ENE	ENE	E	E	E	E	ENE	ENE	ENE	ENE	ENE	E	ESE	E	ENE	ENE	NE	NE	NE	NE	NE	NE					NE	0		
25	NNE	NNE	NNE	NNE	N	N	N	N	NNE	NNE	NNE	NNE	NE	NE	NE	ENE	E	ESE	ESE	ESE	SSE						NNE	0		
26	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE					SSE	0		
27	SSE	ESE	ESE	ESE	SE	SSE	S	WSW	SW	NW	ENE	NE	NNE	NE	N	NE	ENE	NE	NE	ENE	ENE						NE	0		
28	NE	NNE	NNE	N	WSW	W	N	N	N	NNW	NNE	NNE	NE	ESE	ENE	SE	SW	WSW	WSW	WSW	WNW						N	0		
29	WSW	W	WNW	WNW	WNW	W	WSW	W	WSW	WSW	SSW	SSW	SSW	SSW	SSW	WSW	WSW	WSW	WSW	SSW	SSW						WSW	0		
30	SSW	SSW	SW	WSW	SW	WSW	W	WNW	NW	NW	NNE	N	NNE	NNE	N	N	NE	N	NNW	NW	NNW						SVL	0		
MEAN																														
SPEED	11	10	10	9	9	9	9	9	10	12	12	13	13	13	14	14	14	14	13	12	11	11	11	11			11	31	N	0
NOTE:	Missing data represented by M; no clear prevailing direction represented by SVL; calm winds represented by CALM																													
	WS UPTIME 100 %      WD UPTIME 100 %																													

Date of Last Calibration 060221

Make and Model of Instrument: RM Young5103

FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION  
Lafarge Canada Inc.  
Stoney Trail 1  
STATION 620  
APR 2017

SPEED [km/h]	WIND DIRECTION														TOTAL	PCT													
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW			NW	NNW											
< .5																												1	0
1- 5	5	13	8		7	11	8	9	5	5	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	88	12
6- 11	26	25	18	26	16	15	7	22	17	21	23	29	31	16	10	19	321	45											
12- 19	46	21	25	11	6	17	10	19	14	8	7	4	19	15	11	21	254	35											
20- 28	15	3	0	3	1	0	1	11	9	0	0	0	3	0	5	54	8												
29- 38	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0											
TOTAL	92	62	51	49	30	43	26	63	45	34	32	35	54	35	22	46	720	100											
PERCENT	13	9	7	7	4	6	4	9	6	5	4	5	8	5	3	6													
AVERAGE	14	11	11	10	9	9	10	13	13	9	9	10	12	12	12	13	11												





TRAILER TEMPERATURE  
Lafarge Canada Inc.  
Stoney Trail 1  
STATION 620  
APR 2017

Day	Hour																								Avg
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	7	7	7	7	7	7	6	6	8	10	11	12	13	13	14	15	14	12	11	7	5	3	1	0	8
2	-1	0	0	1	1	1	1	1	1	2	4	5	6	5	6	7	7	5	3	2	1	1	0	0	2
3	0	-1	-2	-3	-3	-4	-3	-1	0	2	2	3	4	6	7	8	8	9	6	3	0	-2	-2	-3	1
4	-3	-3	-3	-4	-4	-3	-3	-1	3	6	8	9	10	11	12	13	13	13	11	8	5	3	2	1	4
5	0	0	-1	-1	-1	0	0	3	6	9	11	13	13	14	15	16	15	15	13	11	10	9	9	8	8
6	8	7	6	6	6	6	6	6	10	11	14	15	16	16	16	16	16	16	16	14	11	9	8	7	11
7	5	3	2	1	1	0	1	2	3	4	5	6	6	9	10	10	11	12	13	10	7	5	4	4	6
8	5	5	5	4	4	4	3	5	6	7	9	11	14	13	12	12	13	10	7	6	4	3	2	2	7
9	1	2	2	2	2	2	1	2	2	4	5	6	7	7	7	7	6	5	4	3	2	2	2	2	4
10	2	2	1	0	-1	-2	-2	0	3	6	8	8	10	12	13	14	12	10	8	7	5	5	4	4	5
11	3	2	2	2	1	0	0	0	2	5	7	9	11	12	10	7	8	9	8	6	4	3	2	2	5
12	2	1	0	-1	-1	-1	0	0	1	3	4	5	6	6	6	5	5	4	4	4	5	5	5	5	3
13	3	3	3	2	2	2	2	2	2	3	4	6	8	9	8	8	8	6	5	4	3	3	2	2	4
14	2	2	1	1	1	1	1	1	2	3	4	6	8	10	11	12	13	12	10	7	3	1	0	-1	5
15	-2	-3	-3	-3	-4	-4	-3	-2	0	2	3	4	5	5	5	5	4	3	2	1	0	0	0	-1	1
16	-1	-1	-2	-2	-2	-3	-3	-1	2	2	3	5	6	7	8	9	10	10	8	6	5	3	3	2	3
17	2	2	1	1	0	0	0	0	1	2	4	7	9	10	12	13	13	11	9	8	6	4	3	2	5
18	1	1	0	0	0	0	0	1	3	5	8	12	14	16	14	13	12	12	12	9	7	7	6	6	7
19	4	3	3	3	2	2	2	3	5	9	11	12	13	14	14	15	16	16	15	12	10	8	6	5	8
20	4	3	3	4	3	3	4	5	7	8	11	14	15	16	17	18	16	14	13	11	9	8	7	6	9
21	5	5	5	4	4	4	4	4	4	4	4	5	6	8	11	13	13	13	13	10	8	6	4	4	7
22	4	3	2	2	1	1	1	1	4	6	9	10	11	11	12	13	12	10	9	7	5	4	3	2	6
23	2	2	2	2	2	2	2	2	3	4	5	8	12	14	15	15	14	11	8	6	5	4	3	3	6
24	2	2	2	2	2	2	1	2	2	3	3	4	4	4	5	5	5	4	3	3	4	4	4	3	3
25	1	0	0	0	-1	-1	-1	-1	0	2	4	6	7	7	7	6	5	4	3	2	1	0	-1	-1	2
26	-1	-1	-1	-1	-1	-1	-1	-1	0	1	2	3	3	4	5	5	5	4	4	3	2	2	2	2	2
27	2	2	2	1	1	1	1	2	3	6	8	10	10	10	11	10	9	9	8	6	4	3	2	1	5
28	1	1	0	0	0	0	0	2	3	4	7	9	9	9	11	11	13	12	10	8	5	3	2	2	5
29	2	2	2	2	3	2	2	4	8	10	12	14	15	15	15	15	15	16	14	11	9	8	7	6	9
30	6	6	6	5	5	4	4	6	10	13	13	13	13	11	11	10	11	9	7	6	6	6	6	5	8
AVG	2	2	1	1	1	1	1	2	4	5	7	8	9	10	11	11	11	10	8	7	5	4	3	3	3
MAX	8	7	7	7	7	7	6	6	10	13	14	15	16	16	17	18	16	16	16	14	11	9	9	8	8
MIN	-3	-3	-3	-4	-4	-4	-3	-2	0	1	2	3	3	4	5	5	4	3	2	1	0	-2	-2	-3	3

Percent of time operational: 100      M - missing data  
 Monthly Average: 5      Monthly Maximum: 18      Monthly Minimum: -4