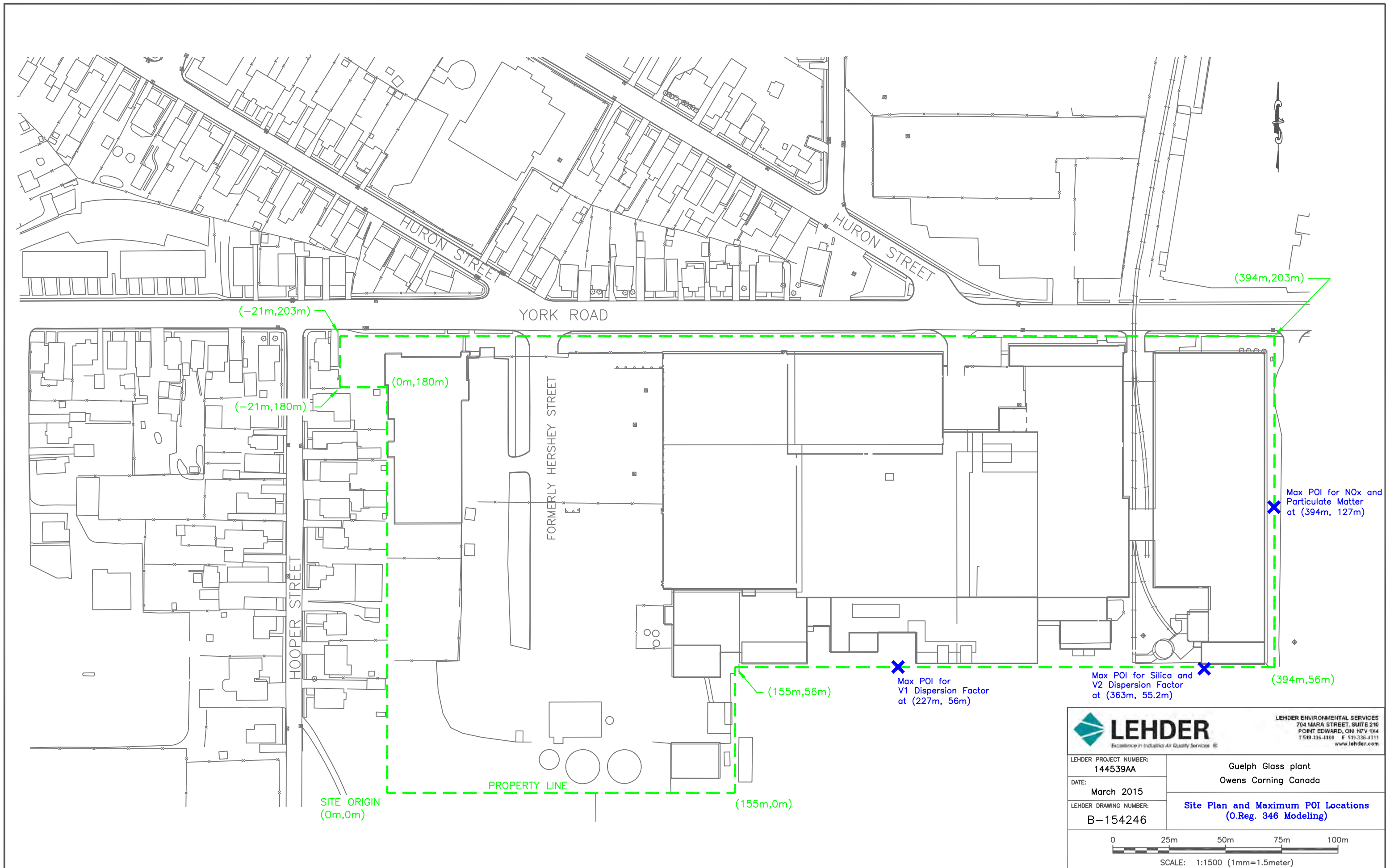


**Appendix H      Reg. 346 Modeling**



Reg 346 Stage 1 Modeling





**LEHDER**  
 Excellence in Industrial Air Quality Services

LEHDER ENVIRONMENTAL SERVICES  
 704 MARA STREET, SUITE 210  
 POINT EDWARD, ON N2V 1X4  
 T59-336-1101 F 519-336-4111  
 www.lehder.com

LEHDER PROJECT NUMBER: 144539AA	Guelph Glass plant Owens Corning Canada
DATE: March 2015	Site Plan and Maximum POI Locations (O.Reg. 346 Modeling)
LEHDER DRAWING NUMBER: B-154246	

0 25m 50m 75m 100m  
 SCALE: 1:1500 (1mm=1.5meter)

Source Id	Insignificant Emission Threshold	V1	V2
30 min Dispersion Factor ug/m3 / g/s	12000	94	394

### 30-min Screening POI

Ingredient ID	Contaminant	CAS #	30 min Emission Rate (g/s)	30 min Facility MAX GLC (ug/m3)	30 min POI Criteria (ug/m3)	Schedule	Limiting Effect	% of Criteria	Model Stage	Significant?
5	SULPHUR DIOXIDE	7446-09-5	1.68E+00	158	830	Schedule 2	health_vegetation	19%	Stage 1	Significant
584	ZINC OXIDE	1314-13-2	1.00E-01	9	100	Schedule 2		9%	Stage 1	Significant
423	HYDROGEN FLUORIDE -GASEOUS-GROWING SEASO	7664-39-3	1.73E-02	2	4.3	Schedule 2	vegetation	38%	Stage 1	Significant
421	HYDROGEN CHLORIDE	7647-01-0	1.04E-02	1	60	Schedule 2	health	2%	Stage 1	Significant
329	METHANOL (METHYL ALCOHOL, WOOD ALCOHOL)	67-56-1	5.40E-01	51	12000	Schedule 2	health	0%	Stage 1	Significant
318	ACETIC ACID	64-19-7	5.34E-01	50	2500	Schedule 2	Odour	2%	Stage 1	Significant
368	Chromium Compounds (Di-,Tri-,metallic)	7440-47-3	6.77E-04	0	1.5	Future	health	4%	Stage 1	Significant

157.552	
9.398	
1.625	
0.975	
50.605	
50.064	
0.064	

♀ OC Guelph 144539  
 V1 Dispersion Factor

## Property Line co-ordinates

# 1=( 0. 0.) # 2=( 0. 180.) # 3=( -21. 180.) # 4=( -21. 203.)  
 # 5=( 394. 203.) # 6=( 394. 56.) # 7=( 155. 56.) # 8=( 155. 0.)

## Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	x m	y m
V1 1	9.1	1.00	149.0	207.0	.0	226.	126.

♀

V1DF  
 MAXIMUM GROUND LEVEL CONCENTRATION  
 VERSION 2.00

Date: March 19 2015

Application No: 144539  
 Reviewer: Ali Elhussein

Data from file: V1DF.STK

Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	X m	Y m
1	9.1	1.00	149.0	207.0	.0	226.	126.

Single Source Maximum Ground Level Concentrations

Source	Stability	Maximum Conc (ug/m3)	Distance (m)	Wind Speed (m/sec)
1	C	63.814	104.	5.000
	D	113.56	104.	5.000

Maximum off-property ground level concentration 93.421 ug/m3  
 Stability D  
 Wind direction 270.745 deg  
 Wind speed 5.000 m/s  
 Coordinates 226.9 55.2 (m)

Maximum Concentration along the property line 93.779 ug/m3  
 Stability D  
 Wind direction 270.573 deg  
 Wind speed 5.000 m/s  
 Coordinates 227. 56. (m)

♀



♀ OC Guelph Project 144539  
 V2 Dispersion Factor

## Property Line co-ordinates

# 1=( 0. 0.) # 2=( 0. 180.) # 3=( -21. 180.) # 4=( -21. 203.)  
 # 5=( 394. 203.) # 6=( 394. 56.) # 7=( 155. 56.) # 8=( 155. 0.)

## Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	x m	y m
V2 1	5.4	1.00	139.0	58.0	.0	362.	127.

♀

V2DF  
 MAXIMUM GROUND LEVEL CONCENTRATION  
 VERSION 2.00

Date: March 19 2015

Application No: 144539  
 Reviewer: Ali Elhussein  
 Title: -

Data from file: V2DF.STK

Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	X m	Y m
1	5.4	1.00	139.0	58.0	.0	362.	127.

Single Source Maximum Ground Level Concentrations

Source	Stability	Maximum Conc (ug/m3)	Distance (m)	Wind Speed (m/sec)
1	C	170.49	29.	5.000
	D	249.44	29.	5.000

Maximum off-property ground level concentration 394.27 ug/m3  
 Stability D  
 Wind direction 270.830 deg  
 Wind speed 5.000 m/s  
 Coordinates 363.0 55.2 (m)

Maximum Concentration along the property line 392.68 ug/m3  
 Stability D  
 Wind direction 268.822 deg  
 Wind speed 5.000 m/s  
 Coordinates 361. 56. (m)

♀

Reg 346 Stage 2 Modeling



### 30-min Screening POI

Ingredient ID	Contaminant	CAS #	30 min Emission Rate (g/s)	30 min Facility MAX GLC (ug/m3)	30 min POI Criteria (ug/m3)	Schedule	Limiting Effect	% of Criteria	Model Stage	Significant?
1	PM - PARTICULATE MATTER	N/A - M08	7.48E-01	82	100	Schedule 2	visibility	82%	Stage 2	Significant
4	NITROGEN OXIDES (EXPRESSED AS NO2)	10102-44-0	3.41E+00	332	500	Schedule 2	health	66%	Stage 2	Significant
190	SILICA-RESPIRABLE (<10um DIAMETER), QUARTZ	14808-60-7	3.02E-02	12	15	1/2-hr Guideline	health	79%	Stage 2	Significant

Property line co-ordinates

# 1=( 0. 0.) # 2=( 0. 180.) # 3=( -21. 180.) # 4=( -21. 203.)  
 # 5=( 394. 203.) # 6=( 394. 56.) # 7=( 155. 56.) # 8=( 155. 0.)

Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	x m	y m
V1	1	9.1	3.30	149.0	207.0	.0	226. 126.
V2	2	5.4	.15	139.0	58.0	.0	362. 127.

Date: March 27 2015

Application No: 144539  
 Reviewer: Ali Elhussein

Data from file: V1V2Nxr2.STK nitrogen dioxide

Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	X m	Y m
1	9.1	3.30	149.0	207.0	.0	226.	126.
2	5.4	.15	139.0	58.0	.0	362.	127.

Single Source Maximum Ground Level Concentrations

Source	Stability	Maximum Conc (ug/m3)	Distance (m)	Wind Speed (m/sec)
1	C	210.59	104.	5.000
	D	374.74	104.	5.000
2	C	25.296	29.	5.000
	D	37.009	29.	5.000

All Stacks Tested

Maximum off-property ground level concentration 308.29 ug/m3  
 Stability D  
 Wind direction 270.745 deg  
 Wind speed 5.000 m/s  
 Coordinates 226.9 55.2 (m)

Maximum Concentration along the property line 332.33 ug/m3  
 Stability D  
 Wind direction .191 deg  
 Wind speed 5.000 m/s  
 Coordinates 394. 127. (m)

♀

Property Line co-ordinates

# 1=( 0. 0.) # 2=( 0. 180.) # 3=( -21. 180.) # 4=( -21. 203.)  
 # 5=( 394. 203.) # 6=( 394. 56.) # 7=( 155. 56.) # 8=( 155. 0.)

Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	x m	y m
V1	1	9.1	.65	149.0	207.0	.0	226. 126.
V2	2	5.4	.975E-01	139.0	58.0	.0	362. 127.



Date: March 27 2015

Application No: 144539  
 Reviewer: Ali Elhussein

Data from file: V1V2PMR2.STK

### Particulate

#### Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	X m	Y m
1	9.1	.65	149.0	207.0	.0	226.	126.
2	5.4	.975E-01	139.0	58.0	.0	362.	127.

#### Single Source Maximum Ground Level Concentrations

Source	Stability	Maximum Conc (ug/m3)	Distance (m)	Wind Speed (m/sec)
1	C	41.486	104.	5.000
	D	73.824	104.	5.000
2	C	16.618	29.	5.000
	D	24.313	29.	5.000

All Stacks Tested

Maximum off-property ground level concentration 81.620 ug/m3  
 Stability D  
 Wind direction .226 deg  
 Wind speed 5.000 m/s  
 Coordinates 396.2 126.7 (m)

Maximum Concentration along the property line 82.321 ug/m3  
 Stability D  
 Wind direction .191 deg  
 Wind speed 5.000 m/s  
 Coordinates 394. 127. (m)

Property line co-ordinates

# 1=( 0. 0.) # 2=( 0. 180.) # 3=( -21. 180.) # 4=( -21. 203.)  
 # 5=( 394. 203.) # 6=( 394. 56.) # 7=( 155. 56.) # 8=( 155. 0.)

Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	x m	y m
V1	1	9.1	.614E-02	149.0	207.0	.0	226. 126.
V2	2	5.4	.301E-01	139.0	58.0	.0	362. 127.

Date: March 19 2015

Application No: 144539  
 Reviewer: Ali Elhussein

Data from file: V1V2Silica.STK **Silica Modeling**

Virtual Sources

Number	Height m	Emission Rate gm/s	Width m	Length m	Angle deg	X m	Y m
1	9.1	.614E-02	149.0	207.0	.0	226.	126.
2	5.4	.301E-01	139.0	58.0	.0	362.	127.

Single Source Maximum Ground Level Concentrations

Source	Stability	Maximum Conc (ug/m3)	Distance (m)	Wind Speed (m/sec)
1	C	.39169	104.	5.000
	D	.69702	104.	5.000
2	C	5.1318	29.	5.000
	D	7.5082	29.	5.000

All Stacks Tested

Maximum off-property ground level concentration 11.890 ug/m3  
 Stability D  
 Wind direction 270.830 deg  
 Wind speed 5.000 m/s  
 Coordinates 363.0 55.2 (m)

Maximum Concentration along the property line 11.842 ug/m3  
 Stability D  
 Wind direction 268.822 deg  
 Wind speed 5.000 m/s  
 Coordinates 361. 56. (m)

