

# Toxic Reduction Plan

## BASIC FACILITY INFORMATION

Substance Name & CAS #	PM	NA - M08
	PM10	NA - M09
	PM2.5	NA - M10
	VOC	NA - M16
	alpha-pinene	80-56-8
	beta-pinene	127-91-3
	d-Limonene	5989-27-5
	Methanol	67-56-1
<b>Facility Identification and Site Address</b>		
Company Name	Resolute Growth	
Facility Name	Atikokan Sawmill	
Facility Address	601 Sapawe Road	
Coordinates	UTM Zone 15 Easting 621960 Northing 5403161	
Number of Employees		70
NPRI ID		29073
<b>PARENT COMPANY INFORMATION</b>		
Name & Address	Resolute FP Canada Inc., 111 Duke St., Suite 5000 Montreal, Quebec H3C 2M1	
Percent Ownership		100%
Business Number		
<b>PRIMARY NAICS CODES</b>		
2 Digit NAICS Code		32
4 Digit NAICS Code		3211
6 Digit NAICS Code		321111
<b>COMPANY CONTACT INFORMATION</b>		
Facility Public Contact	<i>Maxine Langlais, General Manager, 1-807-624-2401</i>	
Facility Technical Contact	<i>Nancy Plante, Environmental Coordinator, 1-807-929-1557 Ext 444324</i>	
Person Who Prepared Plan	<i>Aimee Matheson Rainy Lake Technical Solutions 807-276-4753</i>	
Parent Company Contact	<i>Pascale Lagacé, Vice President Environment and Climate Change 514-394-3675</i>	
Planner Responsible for Making Recommendations	<i>Name/Company/Address/Tel Pascale Lagacé, Vice President Environment and Climate Change, 514-394-3675</i>	<i>Planner Licence # TSRP0073</i>
Planner Responsible for Certification	<i>Name/Company/Address/Tel # Pascale Lagacé, Vice President Environment and Climate Change, 514-394-3675</i>	<i>Planner Licence # TSRP0073</i>

<b>Product name:</b>	<b>PM Total</b>	<b>CAS#:</b>	<b>NA - M08</b>
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	Use	Creation	Release to Air	Release to Water	Disposal	Contained in Product	
2015	0	14.0790	14.0790	0	0	0	T/y

**USE: Statement of Intent**  
 Resolute Growth - Atikokan Sawmill does not use Particulate Matter in the process, therefore this plan will not address a reduction in use.

**CREATION: Statement of Intent**  
 Particulate Matter is coincidentally manufactured as a byproduct in wood products manufacturing operations. This substance is released primarily from process vents and outdoor storage of process by-products. It is also created as a fugitive emission from Road Dust generated by trucks using the facility roads. Given the absence of feasible options, Resolute Growth - Atikokan Sawmill does not intend to reduce the creation of Particulate Matter at this time. The facility feels it has reduced the creation of Particulate Matter to the greatest extent that can be reasonably expected. The facility has demonstrated compliance with Ontario Regulation 419/05 which deals with substance specific ground level concentration limits of substances including all those found in this plan. The facility is in compliance with its Environmental Compliance Approval (ECA) which approves and provides limits for specific substances. The facility is also in compliance with the MOE's requirement to implement "Fugitive Dust Best Management Practices" which minimizes the creation of fugitive dust and particulate matter.

**OBJECTIVES:**  
 Resolute Growth is committed to reviewing the creation of Particulate Matter. We will investigate options to reduce or eliminate the creation of Particulate Matter within our process.

**STAGES and PROCESSES**  
 Detailed calculations and process information including flow charts are included in our TRA spreadsheets electronically and are available upon request from the Environmental Coordinator on site.

**TOXIC SUBSTANCE ACCOUNTING INFORMATION:**  
 The methods for quantifying PM are included in our TRA spreadsheets electronically and are available upon request from the Environmental Coordinator on site.

**TARGETS:**

	Quantity	Unit	Description of Targets	Targeted Timeframe
USE	N/A			
CREATION	N/A			

Product name:	PM Total
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CAS#:	NA - M08
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<b>COST ESTIMATES:</b>
Use
Particulate Matter is not used at this site

Creation	Quantity of 'Product' generated at Stage	Units of 'Product'	Toxic Substance Created (kg)	Toxic as % of 'Product' Generated	Cost 'product' Annual Production	Cost of Toxic	Notes
Sawmill	16336	MBF	1747	0.0107%	\$ 7,351,200.00	\$ 786.15	* Cost based on market cost of saleable product (estimate\$450/MBF)
Natural Gas Fired Kiln	665663	m <sup>3</sup>	20	0.004%	\$ 72,491	\$ 3.06	Estimate \$0.1089/m3 1 kg NG = 1.406 m <sup>3</sup>
Planer (Shaving system and transfer sawdust to trucks)	50808	MBF	8213	0.016%	\$ 4,178,958	\$ 675.52	* Cost based on Cost of Shavings if sold
Babbit Hood	2721.00	kg	6	0.000%	\$ 27,210	\$ 0.06	* Cost based on purchase cost of Babbit (estimated at \$10/kg)
Fugitive Releases - Road Dust	0.00	kg	4083		\$ 4,124	\$ -	* Cost is based on replacement cost of road material
		<b>Sum</b>	14069			\$ 1,465	

<b>Disposed</b>
Particulate Matter is not disposed at this site

Released	Quantity of 'Product' generated at Stage	Units of 'Product'	Toxic Substance Created (kg)	Toxic as % of 'Product' Generated	Cost 'product' Annual Production	Cost of Toxic	Notes
Sawmill	16336	MBF	1747	0.0107%	\$ 7,351,200.00	\$ 786.15	* Cost based on Total Cash Cost of Saleable Product
Natural Gas Fired Kiln	665663	m <sup>3</sup>	20	0.004%	\$ 72,491	\$ 3.06	* Cost is negligible
Planer	50808	MBF	8213	0.016%	\$ 4,178,958	\$ 675.52	* Cost based on Cost of Shavings if sold
Babbit Hood	2721.00	kg	6	0.000%	\$ 27,210	\$ 0.06	* Cost based on purchase cost of Babbit (estimated at \$10/kg)
Fugitive Releases - Road Dust	0.00	kg	4083		\$ 4,124	\$ -	* Cost is based on replacement cost of road material
		<b>Sum</b>	14069			\$ 1,465	

<b>Transferred</b>
Particulate Matter is not transferred from this site.

<b>Contained in Product</b>
Particulate Matter is not contained in the product.

Product name:	PM Total
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CAS#:	NA - M08
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Toxic Substance Reduction Options - must have one in each category		
Reduction Category	Description and Rational of Reduction	Option
Materials and Feedstock Substitution	Particulate Matter is generated as a by-product of the process, no material substitution is feasible.	No Options Identified
Product Design or Reformulation	A by-product from processing the wood is the main source of particulate matter emissions. Product design or reformulation does not make sense.	No Options Identified
Equipment or Process Modifications	Particulate matter is released into the air as a by-product from processing the wood. In-plant dust collection system is in place to capture releases into the air.	No Options Identified
Spill and Leak Prevention	Particulate matter is contained in the wood so there is no possibility of a spill of Particulate Matter on site.	No Options Identified
Onsite Re-use or Recycling	There is no possibility of onsite recycling or reuse of Particulate Matter	No Options Identified
Improved Inventory Management or Purchasing Techniques	Fugitive Releases of particulate matter are generated from storage piles of chips and sawdust.	Minimize storage piles wherever possible and control excess inventory.
Training and Improved Operating Practices	For combustion sources, TPM emissions are primarily related to the air pollution control equipment and combustion efficiency. Improperly tuned or operated equipment will generate increased TPM emissions.  For sawmill sources, the baghouse collects particulate matter before it is released from the vents. Proper operation and maintenance of equipment is required to ensure baghouse is operating efficiently.	Review maintenance procedures for air pollution control equipment.  Review maintenance procedures for sawdust collection equipment.

<b>Detailed Estimate of Reduction</b>
The emissions calculated are based on emission factors and source testing. Whether any of the options identified will be implemented or not, they have no quantifiable reduction unless the production quantities are reduced. There are no plans to reduce production levels at this current time.

<b>Options that are Technically/Economically Feasible</b>
There are currently no identified options that are technically or economically feasible. We are committed to explore new technology to reduce the creation of this substance as it becomes available.

<b>Implementation Plan</b>
No options to implement.

<b>Product name:</b>	<b>PM 10</b>	<b>CAS#:</b>	<b>NA - M09</b>
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	Use	Creation	Release to Air	Release to Water	Disposal	Contained in Product	
2015	0	8.2670	8.2670	0	0	0	T/y

**USE: Statement of Intent**  
 Resolute Growth - Atikokan Sawmill does not use Particulate Matter in the process, therefore this plan will not address a reduction in use.

**CREATION: Statement of Intent**  
 Particulate Matter is coincidentally manufactured as a byproduct in wood products manufacturing operations. This substance is released primarily from process vents and outdoor storage of process by-products. It is also created as a fugitive emission from Road Dust generated by trucks using the facility roads. Resolute Growth - Atikokan Sawmill does not intend to reduce the creation of Particulate Matter at this time due to no feasible options identified. Despite the sawmill's statement of intent, the facility feels it has reduced the creation of Particulate Matter to the greatest extent that can be reasonably expected. The facility has demonstrated compliance with Ontario Regulation 419/05 which deals with substance specific ground level concentration limits of substances including all those found in this plan. The facility is also in compliance with its Environmental Compliance Approval (ECA) which approves and provides limits for specific substances. The facility is also in compliance with the MOE's requirement to implement "Fugitive Dust Best Management Practices" which minimizes the creation of fugitive dust and particulate matter.

**OBJECTIVES:**  
 Resolute Growth is committed to reviewing the creation of Particulate Matter. We will investigate options to reduce or eliminate the creation of Particulate Matter within our process.

**STAGES and PROCESSES**  
 Detailed calculations and process information including flow charts are included in our TRA spreadsheets electronically and are available upon request from the Environmental Coordinator on site.

**TOXIC SUBSTANCE ACCOUNTING INFORMATION:**  
 The methods for quantifying PM are included in our TRA spreadsheets electronically and are available upon request from the Environmental Coordinator on site.

**TARGETS:**

	Quantity	Unit	Description of Targets	Targeted Timeframe
USE	N/A			
CREATION	N/A			

Product name:	PM 10
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CAS#:	NA - M09
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<b>COST ESTIMATES:</b>
Use
Particulate Matter is not used at this site

<b>Creation</b>							
Location	Quantity of 'Product' generated at Stage	Units of 'Product'	Toxic Substance Created (kg)	Toxic as % of 'Product' Generated	Cost 'product' Annual Production	Cost of Toxic	Notes
Sawmill	16336	MBF	1248	0.0076%	\$ 7,351,200.00	\$ 561.60	* Cost based on market cost of saleable product (estimate\$450/MBF)
Natural Gas Fired Kiln	665663	m <sup>3</sup>	20	0.004%	\$ 72,491	\$ 3.06	Estimate \$0.1089/m <sup>3</sup> 1 kg NG = 1.406 m <sup>3</sup>
Planer (Shaving system and transfer sawdust to trucks)	50808	MBF	5831	0.011%	\$ 4,178,958	\$ 479.60	* Cost based on Cost of Shavings if sold
Babbit Hood	2721.00	kg	4	0.000%	\$ 27,210	\$ 0.04	* Cost based on purchase cost of Babbit (estimated at \$10/kg)
Fugitive Releases - Road Dust	0.00	kg	1164		\$ 1,176	\$ -	* Cost is based on replacement cost of road material
		<b>Sum</b>	8267			\$ 1,044	

<b>Disposed</b>
Particulate Matter is not disposed at this site

<b>Released</b>							
Location	Quantity of 'Product' generated at Stage	Units of 'Product'	Toxic Substance Created (kg)	Toxic as % of 'Product' Generated	Cost 'product' Annual Production	Cost of Toxic	Notes
Sawmill	16336	MBF	1248	0.0076%	\$ 7,351,200.00	\$ 561.60	* Cost based on Total Cash Cost of Saleable Product
Natural Gas Fired Kiln	665663	m <sup>3</sup>	20	0.004%	\$ 72,491	\$ 3.06	* Cost is negligible
Planer	50808	MBF	5831	0.011%	\$ 4,178,958	\$ 479.60	* Cost based on Cost of Shavings if sold
Babbit Hood	2721.00	kg	4	0.000%	\$ 27,210	\$ 0.04	* Cost based on purchase cost of Babbit (estimated at \$10/kg)
Fugitive Releases - Road Dust	0.00	kg	1164		\$ 1,176	\$ -	* Cost is based on replacement cost of road material
		<b>Sum</b>	8267			\$ 1,044	

<b>Transferred</b>
Particulate Matter is not transferred from this site.

<b>Contained in Product</b>
Particulate Matter is not contained in the product.

Product name: PM 10

CAS#: NA - M09

Toxic Substance Reduction Options - must have one in each category		
Reduction Category	Description and Rational of Reduction	Option
Materials and Feedstock Substitution	Particulate Matter is generated as a by-product of the process, no material substitution is feasible.	No Options Identified
Product Design or Reformulation	A by-product from processing the wood is the main source of particulate matter emissions. Product design or reformulation does not make sense.	No Options Identified
Equipment or Process Modifications	Particulate matter is released into the air as a by-product from processing the wood. In-plant dust collection system is in place to capture releases into the air.	No Options Identified
Spill and Leak Prevention	Particulate matter is contained in the wood so there is no possibility of a spill of Particulate Matter on site.	No Options Identified
Onsite Re-use or Recycling	There is no possibility of onsite recycling or reuse of Particulate Matter	No Options Identified
Improved Inventory Management or Purchasing Techniques	Fugitive Releases of particulate matter are generated from storage piles of chips and sawdust.	Minimize storage piles wherever possible and control excess inventory.
Training and Improved Operating Practices	For combustion sources, TPM emissions are primarily related to the air pollution control equipment and combustion efficiency. Improperly tuned or operated equipment will generate increased TPM emissions.  For sawmill sources, the baghouse collects particulate matter before it is released from the vents. Proper operation and maintenance of equipment is required to ensure baghouse is operating efficiently.	Review maintenance procedures for air pollution control equipment.  Review maintenance procedures for sawdust collection equipment.

**Detailed Estimate of Reduction**  
 The emissions calculated are based on emission factors and source testing. Whether any of the options identified will be implemented or not, they have no quantifiable reduction unless the production quantities are reduced. There are no plans to reduce production levels at this current time.

**Options that are Technically/Economically Feasible**  
 There are currently no identified options that are technically or economically feasible. We are committed to explore new technology to reduce the creation of this substance as it becomes available.

**Implementation Plan**  
 No options to implement.

<b>Product name:</b>	<b>PM 2.5</b>	<b>CAS#:</b>	<b>NA - M10</b>
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	Use	Creation	Release to Air	Release to Water	Disposal	Contained in Product	
2015	0	4.225	4.225	0	0	0	T/y

**USE: Statement of Intent**  
 Resolute Growth - Atikokan Sawmill does not use Particulate Matter in the process, therefore this plan will not address a reduction in use.

**CREATION: Statement of Intent**  
 Particulate Matter is coincidentally manufactured as a byproduct in wood products manufacturing operations. This substance is released primarily from process vents and outdoor storage of process by-products. It is also created as a fugitive emission from Road Dust generated by trucks using the facility roads. Given the absence of feasible options, Resolute Growth - Atikokan Sawmill does not intend to reduce the creation of Particulate Matter at this time. The facility feels it has reduced the creation of Particulate Matter to the greatest extent that can be reasonably expected. The facility has demonstrated compliance with Ontario Regulation 419/05 which deals with substance specific ground level concentration limits of substances including all those found in this plan. The facility is in compliance with it's Environmental Compliance Approval (ECA) which approves and provides limits for specific substances. The facility is also in compliance with the MOE's requirement to implement "Fugitive Dust Best Management Practices" which minimizes the creation of fugitive dust and particulate matter.

**OBJECTIVES:**  
 Resolute Growth is committed to reviewing the creation of Particulate Matter. We will investigate options to reduce or eliminate the creation of Particulate Matter within our process.

**STAGES and PROCESSES**  
 Detailed calculations and process information including flow charts are included in our TRA spreadsheets electronically and are available upon request from the Environmental Coordinator on site.

**TOXIC SUBSTANCE ACCOUNTING INFORMATION:**  
 The methods for quantifying PM are included in our TRA spreadsheets electronically and are available upon request from the Environmental Coordinator on site.

**TARGETS:**

	Quantity	Unit	Description of Targets	Targeted Timeframe
USE	N/A			
CREATION	N/A			



Product name:	PM 2.5
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CAS#:	NA - M10
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<b>COST ESTIMATES:</b>
Use
Particulate Matter is not used at this site

<b>Creation</b>							
Location	Quantity of 'Product' generated at Stage	Units of 'Product'	Toxic Substance Created (kg)	Toxic as % of 'Product' Generated	Cost 'product' Annual Production	Cost of Toxic	Notes
Sawmill	16336	MBF	720	0.0044%	\$ 7,351,200.00	\$ 324.00	* Cost based on market cost of saleable product (estimate\$450/MBF)
Natural Gas Fired Kiln	665663	m <sup>3</sup>	20	0.004%	\$ 72,491	\$ 3.06	Estimate \$0.1089/m3 1 kg NG = 1.406 m <sup>3</sup>
Planer (Shaving system and transfer sawdust to trucks)	50808	MBF	3367	0.007%	\$ 4,178,958	\$ 276.94	* Cost based on Cost of Shavings if sold
Babbit Hood	2721.00	kg	2	0.000%	\$ 27,210	\$ 0.02	* Cost based on purchase cost of Babbit (estimated at \$10/kg)
Fugitive Releases - Road Dust	0.00	kg	116		\$ 118	\$ -	* Cost is based on replacement cost of road material
						\$ 604	

<b>Disposed</b>
Particulate Matter is not disposed at this site

<b>Released</b>							
Location	Quantity of 'Product' generated at Stage	Units of 'Product'	Toxic Substance Created (kg)	Toxic as % of 'Product' Generated	Cost 'product' Annual Production	Cost of Toxic	Notes
Sawmill	16336	MBF	720	0.0044%	\$ 7,351,200.00	\$ 324.00	* Cost based on market cost of saleable product (estimate\$450/MBF)
Natural Gas Fired Kiln	665663	m <sup>3</sup>	20	0.004%	\$ 72,491	\$ 3.06	Estimate \$0.1089/m3 1 kg NG = 1.406 m <sup>3</sup>
Planer	50808	MBF	3367	0.007%	\$ 4,178,958	\$ 276.94	* Cost based on Cost of Shavings if sold
Babbit Hood	2721.00	kg	2	0.000%	\$ 27,210	\$ 0.02	* Cost based on purchase cost of Babbit (estimated at \$10/kg)
Fugitive Releases - Road Dust	0.00	kg	116		\$ 118	\$ -	* Cost is based on replacement cost of road material
						\$ 604	

<b>Transferred</b>
Particulate Matter is not transferred from this site.

<b>Contained in Product</b>
Particulate Matter is not contained in the product.

Product name: PM 2.5

CAS#: NA - M10

Toxic Substance Reduction Options - must have one in each category		
Reduction Category	Description and Rational of Reduction	Option
Materials and Feedstock Substitution	Particulate Matter is generated as a by-product of the process, no material substitution is feasible.	No Options Identified
Product Design or Reformulation	A by-product from processing the wood is the main source of particulate matter emissions. Product design or reformulation does not make sense.	No Options Identified
Equipment or Process Modifications	Particulate matter is released into the air as a by-product from processing the wood. In-plant dust collection system is in place to capture releases into the air.	No Options Identified
Spill and Leak Prevention	Particulate matter is contained in the wood so there is no possibility of a spill of Particulate Matter on site.	No Options Identified
Onsite Re-use or Recycling	There is no possibility of onsite recycling or reuse of Particulate Matter	No Options Identified
Improved Inventory Management or Purchasing Techniques	Fugitive Releases of particulate matter are generated from storage piles of chips and sawdust.	Minimize storage piles wherever possible and control excess inventory.
Training and Improved Operating Practices	For combustion sources, TPM emissions are primarily related to the air pollution control equipment and combustion efficiency. Improperly tuned or operated equipment will generate increased TPM emissions.  For sawmill sources, the baghouse collects particulate matter before it is released from the vents. Proper operation and maintenance of equipment is required to ensure baghouse is operating efficiently.	Review maintenance procedures for air pollution control equipment.  Review maintenance procedures for sawdust collection equipment.

**Detailed Estimate of Reduction**  
 The emissions calculated are based on emission factors and source testing. Whether any of the options identified will be implemented or not, they have no quantifiable reduction unless the production quantities are reduced. There are no plans to reduce production levels at this current time.

**Options that are Technically/Economically Feasible**  
 There are currently no identified options that are technically or economically feasible. We are committed to explore new technology to reduce the creation of this substance as it becomes available.

**Implementation Plan**  
 No options to implement.

<b>Product name:</b>	VOC's Total and Speciated
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<b>CAS#:</b>	NA - M16, 80-56-8, 127-91-3, 5989-27-5, 67-56-1
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NOTE: VOC's and speciated VOC's (alpha-pinene, beta-pinene, d-limonene, and methanol) are created in the same processes and therefore this plan addresses all reportable VOC's as one)

2015	Use	Creation	Release to Air	Release to Water	Disposal	Contained in Product	
Total VOC's	0	56.49	56.49	0	0	0	T/y
Speciated VOC's							
Methanol	0	5.0	5.0	0	0	0	T/y
d-limonene	0	1.3	1.3	0	0	0	T/y
beta-pinene	0	1.9	1.9	0	0	0	T/y
alpha-pinene	0	15.2	15.2	0	0	0	T/y

**USE: Statement of Intent**

Resolute Growth - Atikokan Sawmill does not use VOCs in the process, therefore this plan will not address a reduction in use.

**CREATION: Statement of Intent**

VOCs are contained naturally in the wood. This substance is released during the drying process of lumber. Resolute Growth - Atikokan Sawmill does not intend to reduce the creation of VOCs at this time due to no feasible options identified. The facility feels it has reduced the creation of VOCs to the greatest extent that can be reasonably expected. The facility has demonstrated compliance with Ontario Regulation 419/05 which deals with substance specific ground level concentration limits of substances including all those found in this plan. The facility is in compliance with it's Environmental Compliance Approval (ECA) which approves and provides limits for specific substances.

**OBJECTIVES:**

Resolute Growth is committed to reviewing the creation of VOCs. We will investigate options to reduce the creation of VOCs within our process.

**STAGES and PROCESSES**

Detailed calculations and process information including flow charts are included in our TRA spreadsheets electronically and are available upon request from the Environmental Coordinator on site.

**TOXIC SUBSTANCE ACCOUNTING INFORMATION:**

The methods for quantifying VOC's are included in our TRA spreadsheets electronically and are available upon request from the Environmental Coordinator on site.

**TARGETS:**

	Quantity	Unit	Description of Targets	Targeted Timeframe
USE	N/A			
CREATION	N/A			

<b>Product name:</b>	VOC's Total and Speciated
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<b>CAS#:</b>	NA - M16, 80-56-8, 127-91-3, 5989-27-5, 67-56-1
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NOTE: VOC's and speciated VOC's (alpha-pinene, beta-pinene, d-limonene, and methanol) are created in the same processes and therefore this plan addresses all reportable VOC's as one)

<b>COST ESTIMATES:</b>
Use
VOCs are not used at this site

Creation							
Location	Quantity of 'Product' generated at Stage	Units of 'Product'	Toxic Substance Created (kg)	Toxic as % of 'Product' Generated	Cost 'product' Annual Production	Cost of Toxic	Notes
Lumber Kiln TOTAL VOC's	57003	MBF	56500.0	0.099%	\$ 25,651,350	\$ 25,425.00	* Cost based on Total Cash Cost of Saleable Product
Methanol	57003	MBF	5000.0	0.009%	\$ 25,651,350	\$ 2,250.00	* Cost based on Total Cash Cost of Saleable Product Speciated VOC's are included in total VOC cost and should not be cumulative.
d-limonene			1300.0	0.002%		\$ 585.00	
beta-pinene			1900.0	0.003%		\$ 855.00	
alpha-pinene			15200.0	0.027%		\$ 6,840.00	

<b>Disposed</b>
VOCs are not disposed at this site

Released							
Location	Quantity of 'Product' generated at Stage	Units of 'Product'	Toxic Substance Created (kg)	Toxic as % of 'Product' Generated	Cost 'product' Annual Production	Cost of Toxic	Notes
Lumber Kiln TOTAL VOC's	57003	MBF	56500.0	0.099%	\$ 25,651,350	\$ 25,425.00	* Cost based on Total Cash Cost of Saleable Product
Methanol	57003	MBF	5000.0	0.009%	\$ 25,651,350	\$ 2,250.00	* Cost based on Total Cash Cost of Saleable Product Speciated VOC's are included in total VOC cost and should not be cumulative.
d-limonene			1300.0	0.002%		\$ 585.00	
beta-pinene			1900.0	0.003%		\$ 855.00	
alpha-pinene			15200.0	0.027%		\$ 6,840.00	

<b>Transferred</b>
VOCs is not transferred from this site.

<b>Contained in Product</b>
VOCs is not contained in the product.

<b>Product name:</b>	VOC's Total and Speciated
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<b>CAS#:</b>	NA - M16, 80-56-8, 127-91-3, 5989-27-5, 67-56-1
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NOTE: VOC's and speciated VOC's (alpha-pinene, beta-pinene, d-limonene, and methanol) are created in the same processes and therefore this plan addresses all reportable VOC's as one)

Toxic Substance Reduction Options - must have one in each category		
Reduction Category	Description and Rational of Reduction	Option
Materials and Feedstock Substitution	All wood species contain VOC's, no material substitution in feasible.	No Options Identified
Product Design or Reformulation	Wood drying is the primary source of VOC emissions, the product is produced to a certain moisture specification for quality, no option is feasible.	No Options Identified
Equipment or Process Modifications		No Options Identified
Spill and Leak Prevention	VOCs is contained in the wood and released directly into the air, so there is no possibility of a spill of VOCs on site.	No Options Identified
Onsite Re-use or Recycling	VOC's are released during the drying process of lumber and no methods to capture the emissions have been identified.	No Options Identified
Improved Inventory Management or Purchasing Techniques	VOC's are contained in the wood and we do not purchase or store the material on site.	No options identified
Training and Improved Operating Practices	The following procedures are in place to minimize VOC emissions, 1 - the use of air flow baffling, 2 - stickering between layers of product 3 - kiln moisture control and optimization 4 - kiln operating control systems to maintain temperature 5 - maintenance of air circulation and heat source components	No options identified.

<b>Detailed Estimate of Reduction</b>
The emissions calculated are based on emission factors and source testing. Whether any of the options identified will be implemented or not, they have no quantifiable reduction unless the production quantities are reduced. There are no plans to reduce production levels at this current time.

<b>Options that are Technically/Economically Feasible</b>
There are currently no identified options that are technically or economically feasible. We are committed to explore new technology to reduce the creation of this substance as it becomes available.

<b>Implementation Plan</b>
No options to implement.

# TOXIC REDUCTION PLAN

## PLANNER'S RECOMMENDATIONS AND CERTIFICATION

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### FACILITY: Resolute Growth – Atikokan Sawmill

Company Name	Resolute Growth	
Facility Name	Atikokan Sawmill	
Facility Address	601 Sapawe Road, Atikokan, Ontario	
Planner Responsible for Making Recommendations	Pascale Lagacé, Vice President Environment and Climate Change, (514) 394-3675	TSRP0073
Planner Responsible for Certification	Pascale Lagacé, Vice President Environment and Climate Change, (514) 394-3675	TSRP0073

#### GENERAL RECOMMENDATIONS

None

#### SPECIFIC RECOMMENDATIONS

Toxic Substance: Total Particulate Matter, PM 10, PM 2.5

No specific recommendations

Toxic Substance: Total and Speciated VOCs

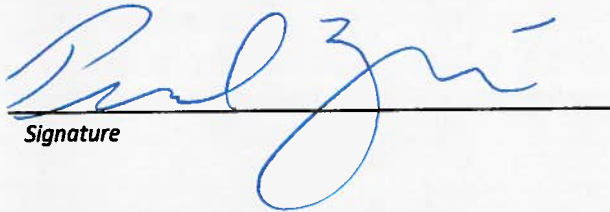
No specific recommendations

## CERTIFICATION BY LICENCED PLANNER

As of December 21, 2016, I, Pascale Lagacé certify that I am familiar with the processes at Resolute Growth Atikokan Sawmill that use or create the toxic substance referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the Toxics Reduction Act, 2009 that are set out in plan dated December 31, 2016 and that the plan complies with the Act and Ontario Regulation 455/09 (General) made under the Act.

### Toxic Substances:

PM Total  
PM 10  
PM 2.5  
Total VOCs  
alpha-pinene  
beta-pinene  
d-Limonene  
Methanol



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*Signature*

December 21, 2016

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*Date*


NAME: Pascale Lagacé  
TITLE: Vice President Environment and Climate Change  
COMPANY: Resolute Forest Products  
LICENCE # TSRP0073

**CERTIFICATION BY CERTIFYING OFFICIAL**

**As of December 31, 2016, I certify that I have read the Toxics Reduction plan for all substances below, and am familiar with their contents and to my knowledge the information contained in the report is factually accurate and the report complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 made under the Act.**

**Toxic Substances:**

**PM Total  
PM 10  
PM 2.5  
Total VOCs  
alpha-pinene  
beta-pinene  
d-Limonene  
Methanol**

  
\_\_\_\_\_  
*Signature*

**December 31, 2016**

\_\_\_\_\_  
*Date*

**NAME: Maxime Langlais  
TITLE: General Manager  
COMPANY: Resolute Growth – Atikokan Sawmill**