FINAL Toxic Substance Reduction Plans

Latham Pool Products Inc.
Ajax, Ontario Facility

December 9, 2013

BASIC FACILITY INFORMATION			
Substances Included in the Plans			
▪ Ethyl Alcohol (CAS No. 64-17-5) ▪ Styrene (CAS No. 100-42-5) ▪ Acetone (CAS No. 67-64-1)			
Facility Identification and Site Address			
Company Name	Latham Pool Products Inc.		
Facility Name	Ajax, Ontario facility		
Facility Address	Physical Address:	Mailing Address:	
	430 Finley Avenue, Ajax, Ontario L1S 2E3	383 Elgin Street Brantford, Ontario N3S 7P5	
Spatial Coordinates of Facility	UTM Zone 17 UTM Easting: 658357 UTM Northing: 4855799		
Number of Employees	35		
NPRI ID	0000007139		
Parent Company (PC) Information			
PC Name & Address	Latham Pool Products Inc.	383 Elgin Street Brantford, Ontario N3S 7P5	
Percent Ownership for each PC	100%		
Business Number for PC	892347972		
Primary North American Industrial Classification System Code (NAICS)			
2 Digit NAICS Code	32 (Manufacturing)		
4 Digit NAICS Code	3261 (Plastic Product Manufacturing)		
6 Digit NAICS Code	326121 (Unlaminated Plastic Profile Shape Manufacturing [US])		
Facility and Planner Contact Information			
Facility Public Contact	Harold Brooks	Latham Pool Products Inc.	
	Email: haroldbrooks@lathampool.com	787 Watervliet Shaker Road Latham, NY 12110	
	Phone: 5189511014		
Facility Technical Contact	Harold Brooks	Latham Pool Products Inc.	
	Email: haroldbrooks@lathampool.com	787 Watervliet Shaker Road Latham, NY 12110	
	Phone: 5189511014		
Person who	Karri Legarrie	RWDI AIR Inc.	

BASIC FACILITY INFORMATION		
Prepared the Plan	Email: karri.legarrie@rwdi.com	92A South Cumberland Street Thunder Bay, Ontario P7B 2V3
	Phone: (519) 823-1311 x 2510	
Planner Responsible for Making Recommendations	Karri Legarrie	RWDI AIR Inc.
	Planner Licence No.: TSRP0065	Same as Person who Prepared the Plan
	Email: karri.legarrie@rwdi.com	
	Phone: (519) 823-1311 x 2510	
Highest Ranking Employee	Mohamed Rasheed	Latham Pool Products Inc.
	Email: mohamedrasheed@lathampool.com	Same as facility address
	Phone: 905-428-6990 x 5034	
Planner Responsible for Certification	Karri Legarrie	RWDI AIR Inc.
	Planner Licence No.: TSRP0065	Same as Planner Responsible for Making Recommendations

EXECUTIVE SUMMARY

While Latham Pool Products Inc. (Latham) is committed to being an industry leader in their manufacturing processes, and as a result, minimize any negative impact on the environment, the government of Ontario has introduced a toxics reduction program that compliments these commitments. The toxics reduction program is driven by the *Toxics Reduction Act, 2009* and Ontario Regulation 455/09 (General) made under that act. The Act and Regulation require facilities in the manufacturing and mineral processing sectors that meet certain criteria to undertake toxic substance accounting to better understand the quantities of toxic substances that are used, created, transformed, destroyed, released, disposed of, transferred for recycling and contained in product. For each prescribed substance, regulated facilities must develop a plan that examines how the amount of the substance used or created at the facility could be reduced or eliminated. The plans must be certified by the facility's highest ranking employee as well as a licensed toxic substance reduction planner.

This document presents the toxic substance reduction plans for each of the following substances:

- Ethyl Alcohol (CAS No. 64-17-5)
- Acetone (CAS No. 67-64-1)
- Styrene (CAS No. 100-42-5)

While the Act and Regulation require that a separate plan is developed for each substance, plans for multiple substances can be rolled into a master document such as this. Included in this document are basic facility information, descriptions of each process that uses the toxic substances, toxic substance accounting information, estimates of direct and indirect costs to the facility associated with each toxic substance, options considered for the reduction of use or creation of toxic substances, technical and economic feasibility analyses of the reduction options, statements of objectives and targets for reduction, details of reduction option implementation decisions and plans, planner recommendations, and plan certifications.

Our Ajax facility intends to reduce and eliminate, where possible, any listed substances wherever technically and operationally feasible.

The Ajax facility will implement the technically and operationally feasible reduction option associated with materials/feedstock substitution to reduce the use of Ethyl Alcohol. Latham intends to reduce the use of Ethyl Alcohol by 100% (13.1 tonnes). The estimated reduction is planned to be implemented within 2 years provided final product testing when using the materials/feedstock substitute is proven to be successful.

No reduction options will be implemented for styrene or acetone under this plan because they are either not technically feasible; the amount of reduction expected does not warrant the time and effort required to track any potential savings; or, they could not be verified due to fluctuations in our process due to the human factor involved. However, Latham will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce these substances in the future.

TABLE OF CONTENTS

APPENDICES

1. INTRODUCTION

While Latham Pool Products Inc. (Latham) is committed to being an industry leader in their manufacturing processes, and as a result, minimize any negative impact on the environment, the government of Ontario has introduced a toxics reduction program that compliments these commitments. The toxics reduction program is driven by the *Toxics Reduction Act, 2009* and Ontario Regulation 455/09 (General) made under that act. The Act and Regulation require facilities in the manufacturing and mineral processing sectors that meet certain criteria to undertake toxic substance accounting to better understand the quantities of toxic substances that are used, created, transformed, destroyed, released, disposed of, transferred for recycling and contained in product. For each prescribed substance, regulated facilities must develop a plan that examines how the amount of the substance used or created at the facility could be reduced or eliminated. The plans must be certified by the facility's highest ranking employee as well as a licensed toxic substance reduction planner.

The requirements under the Act and Regulation were rolled out in two phases. Phase I was valid until December 31, 2011, and the requirements only applied to the list of 47 priority substances identified in Table A of the Regulation. Phase II commenced January 1, 2012, after which the requirements applied to all of the substances listed in the current NPRI notices and acetone.

The required toxic substance accounting is performed annually and documented in detail under separate cover; however, a summary of key information from year 2012 accounting is provided within this document. The required toxic substance reduction plans for each substance are contained in this document.

Based on calendar year 2012 operations, three Phase II substances were reportable under the Act and Regulation.

The Phase II substances, listed below, require toxic substance reduction plans to be prepared. These plans are contained in this document.

- Ethyl Alcohol (CAS No. 64-17-5)
- Acetone (CAS No. 67-64-1)
- Styrene (CAS No. 100-42-5)

Included in this document are:

- basic facility information;
- descriptions of each process that uses the toxic substances;
- toxic substance accounting information;
- estimates of direct and indirect costs to the facility associated with each toxic substance;
- options considered for the reduction of use or creation of toxic substances;
- technical and economic feasibility analyses of the reduction options;
- statements of objectives and targets for reduction; and
- details of reduction option implementation decisions and plans, planner recommendations, and plan certifications.

2. FACILITY DESCRIPTION

The Latham facility is located in Ajax, Ontario. Further administrative and contact information for the facility has been provided in the Basic Facility Information section of this report.

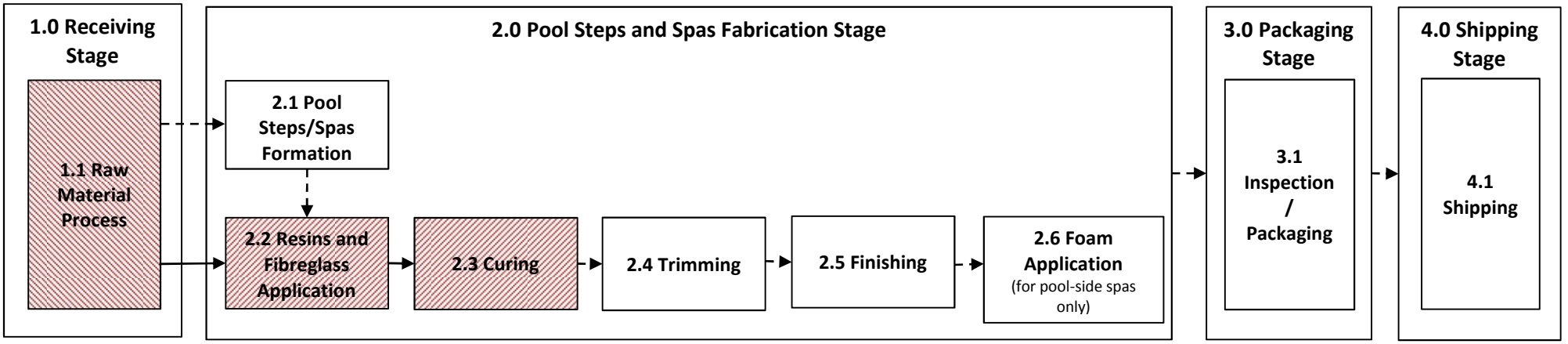
The Ajax facility manufactures pool steps and spas. The facility has identified four (4) stages that use and/or create the prescribed toxic substances as illustrated in Figure 1:

- **Receiving Stage:** Raw materials such as reinforcing resins, fiberglass materials and solvents are received and issued through the raw material process.
- **Pool Steps and Spa Fabrication Stage:** Raw materials are transferred to the pool steps and spa fabrication stage where processes take place, such as: the molding of acrylic sheets, the application of reinforcing resins and fiberglass to pool steps/spa forms, the curing of resins and fiberglass materials; the trimming of the pool forms finishing of pool steps/spas, and the foam application (for pool-side spas only).
- **Packaging Stage:** Upon reaching the packaging stage, the completed pool product is inspected and packaged appropriately.
- **Shipping Stage:** Upon reaching the final shipping stage, the completed pool product is shipped to clients/market.

Further details of each process that use or create toxic substances are provided in Appendices A1, B1 and C1. Details include how, when, where and why the substances are used or created and in what quantities, as well as detailed process flow diagrams for each relevant stage of operation.

Figure 1: Master Stages and Processes

Master Stages and Processes for Latham Pool Products Inc. - Ajax, Ontario



Legend

Processes where ethyl alcohol, acetone and styrene are present

3. TOXIC SUBSTANCE ACCOUNTING RECORDS & REPORTING

Section 9 of the Act requires the owner and the operator of a facility to ensure that, for each process at the facility that uses or creates a prescribed substance, the substance is tracked and quantified to show how it enters the process, whether it is created, destroyed or transformed during the process, how it leaves the process and what happens to it after it leaves the process. Section 12 of the Regulation specifies details of the accounting requirements including the records that must be generated for each substance.

The required toxic substance accounting will be performed by the Ajax facility annually and documented in detail under separate cover. The process flow diagrams are provided in Appendix A1, B1 and C1 for each prescribed substance. For each of the prescribed substances, the accounting records include the following information:

- Identification and description of stages and processes that use or create the prescribed toxic substance;
- Detailed process flow diagrams;
- Details on the selection of Best Available Methodology, or combination of methods, to track and quantify the prescribed toxic substance;
- Detailed estimates for tracking and quantifying the amounts of a prescribed toxic substance in each process that uses or creates a toxic substance; and
- Comparison of inputs and outputs and explanation of no "approximate" balance (if any).

Further detail of where each required record can be found is provided in Table 1.

These accounting records form the basis of the estimated use or creation reductions found within each plan.

Table 1: TRA Accounting Records and Reporting

Toxics Reduction Act and O. Reg. 455/09 Requirements				Data Source/Document/Rationale
Reg. Section	**Element**	**Description**	**Detail**	
12(1)	Toxic Substance Accounting	Substance is tracked and quantified in accordance with the Regulation	1. Amount that enters a process	Calculations are documented in "A1/B1/C1 – Process Flow". The values reported are documented in Environment Canada's Single Window Information Manager (SWIM).
			2. Amount that is created	
			3. Amount that is destroyed or transformed	
			4(i) Amount that is released, disposed and/or transferred	
			4(ii) Amount contained in product unless it is a Part 4 CAC or VOC	
12(2)	Toxic Substance Records	Facility maintains certain records as prescribed in the Regulation	1. Record that describes stages and processes where substance is used or created	The records are included in the Toxic Substance Reduction Plans dated December 9, 2013.
			2. Process flow diagram showing substances	
			3. & 4. Record of tracking and quantification of substance for each calendar year and mass balance analysis	
			5. Record of methodology used and explanation of why method was chosen	

4. DIRECT & INDIRECT COST ANALYSIS

Subsection 18 (1) of the Regulation requires that toxic substance reduction plans contain estimates of direct and indirect annual costs related to the substance being:

- Used or created at the facility;
- Released from the facility;
- Disposed of by the facility;
- Transferred from the facility; and
- Contained in product that leaves the facility, if it is a NPRI substance, other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice.

Direct and indirect costs were assessed for each of the identified toxic substances. Details are presented in Appendices A3, B3 and C3.

These values were obtained from the accounting department and the Manufacturing Engineering Manager. To gather this information, the Manufacturing Engineering Manager relied on various departments such as the accounting/purchasing department.

5. TOXIC SUBSTANCE REDUCTION OPTIONS

5.1 Reduction Plan Statement of Intent

Paragraph 1 of subsection 4 (1) of the Act stipulates that toxic substance reduction plans must contain a statement from the owner or operator of the facility regarding their intention to reduce the use or creation of toxic substances at the facility. If the owner or operator does not intend to reduce the use or creation of the substance, then as per paragraph 2, reasons must be provided and included in the plans.

Based on the assessment of reduction options described in this section, the Ajax facility has developed such statements of intent for each of the toxic substances identified for its facility. These statements can be found in Appendices A2, B2 and C2 along with reduction objectives and targets.

5.2 Objectives and Targets

Paragraph 3 of subsection 4 (1) of the Act stipulates that toxic substance reduction plans must contain a statement of the objective of the plan, including any targets for reducing the use or creation of the substance at the facility.

Based on the assessment of reduction options described in this section, the Ajax facility has developed such objectives for each of the toxic substances identified for its facility. These statements can be found in Appendices A2, B2 and C2 with the statements of intent.

5.3 Reduction Options

Paragraph 5 of subsection 4 (1) of the Act stipulates that toxic substance reduction plans must contain descriptions and analyses of options that were considered for reducing the use and creation of the toxic substances at the facility. Paragraph 1 of subsection 17 (1) of the Regulation specifies that at least one option for each of the following categories of toxic substance reduction methods must be identified:

1. Materials or Feedstock Substitution
2. Product Design or Reformulation
3. Equipment or Process Modification
4. Spill and Leak Prevention
5. On-Site Reuse or Recycling
6. Improved Inventory Management or Purchasing Techniques
7. Training or Improved Operating Practices

If an option cannot be identified for a category listed above, then an explanation of why no option could be identified must be provided.

In addition to identifying options, the following analyses must be performed for each option:

- Estimates of the amount by which the use of the substance at the facility will be reduced, if the substance is used at the facility;
- Estimates of the amount by which the creation of the substance at the facility will be reduced, if the substance is created at the facility;
- Estimates of the amount by which the discharges of the substance to air, land or water will be reduced, if the substance is discharged to air, land or water; and
- Estimates of the amount of the substance contained in product leaving the facility that will be reduced, if the substance is a NPRI substance other than a substance that is identified as a criteria air contaminant or a volatile organic compound in the NPRI Notice and is contained in product that leaves the facility.

These descriptions and analysis have been provided for each of the toxic substances identified for the facility in Appendices A2, B2 and C2.

5.4 Technical Feasibility of Options

Paragraph 4 of subsection 17 (4) of the Regulation stipulates that toxic substance reduction plans must contain a list of the options discussed above that have been determined to be technically feasible.

Details of the technical feasibility analyses for each of the options identified for each substance are provided alongside the identified options in Appendices A2, B2 and C2.

5.5 Economic Feasibility of Options

Paragraph 5 of subsection 17 (1) of the Regulation stipulates that toxic substance reduction plans must contain an economic feasibility analysis of each option that was found to be technically feasible. The economic feasibility analysis should include any anticipated savings that could result from implementing the option and the anticipated payback period for the option.

Details of the economic feasibility analyses for each technically feasible option for each substance are provided alongside the identified options in Appendices A2, B2 and C2.

5.6 Option(s) to be Implemented

Paragraph 6 of subsection 4 (1) of the Act stipulates that toxic substance reduction plans must contain a statement identifying technically and economically feasible options that will be implemented, or a statement that none of the options will be implemented. In addition, paragraph 7 stipulates that for each reduction option that will be implemented, the facility must include:

- A description of the steps that will be taken to implement the option;
- A timetable for those steps;
- The estimated reductions in use, creation, discharges to air, land, water and amount contained in product (expressed as percentage as well as specified units of measurement) resulting from implementation of the option; and
- The anticipated date for achieving the reductions in use and creation.

For each option that was selected for implementation for each substance, the details above have been provided in Appendices A2, B2 and C2. Where no options were selected, statements to that affect are provided in those appendices.

6. PLANNER RECOMMENDATIONS

As required under section 18.2 of the Regulation, a review of the completed Plan must be carried out by a Licenced Planner for the overall purpose of identifying opportunities for improvement. Accordingly, all aspects of this Plan have been assessed and, where applicable, recommendations for improvement have been provided in the following areas:

1. Expertise relied upon in preparing the plan;
2. Data and methods used in toxic substance accounting;
3. Process descriptions and process flow diagrams;
4. Analysis of input/output balances;
5. Descriptions of how, when, where and why a substance is used or created;
6. Additional technically and economically feasible reduction options not included in the plan that might result in equal or greater reductions;
7. Reduction estimates prepared for each identified reduction option;
8. Technical and economic feasibility analyses;
9. Direct and indirect costs associated with the use, creation, release, disposal, transfer and the amount contained in product of the toxic substance; and
10. Implementation steps and timelines in the plan and whether they are likely to be achieved.

Planner recommendations and rationale for those recommendations have been included in Appendices A4, B4 and C4 along with the planner's licence and contact information.

7. PLAN CERTIFICATIONS

Subsection 4 (2) of the Act and section 19 of the Regulation stipulate that the completed Plan must be certified by the “highest ranking employee” at the facility who has management responsibilities relating to the facility. The highest ranking employee must certify that he or she has read the plan and is familiar with its contents, that the plan is factually accurate, and that the plan complies with the Act and Regulations. All documents and records requiring certification by the highest ranking employee must be certified personally.

Subsection 4 (3) of the Act and section 19.1 of the Regulation stipulate that the completed Plan must be certified by a “licenced toxic substance reduction planner” as defined in subsection 1 (1) of the Regulation. The licenced planner must certify that he or she is familiar with the processes at the facility that use or create the toxic substance; agrees with the estimated reductions in use, creation, and/or discharge of targeted substances given the implantation of selected options; and that the plan complies with the Act and Regulation.

7.1 Certification by Highest Ranking Employee

As of December 9, 2013, I, Mohamed Rasheed, certify that I have read the toxic substance reduction plans for the toxic substances referred to below and am familiar with their contents, and to my knowledge the plans are factually accurate and comply with the *Toxics Reduction Act, 2009* and Ontario Regulation 455/09 (General) made under that Act.

Substance	Date of Certified Plan
Ethyl Alcohol (CAS No. 64-17-5)	December 9, 2013
Styrene (CAS No. 100-42-5)	December 9, 2013
Acetone (CAS No. 67-64-1)	December 9, 2013

M-A-Rasheed Dec- 9th 2013

Mohamed Rasheed
Plant Manager
Latham Pool Products Inc., Ajax

7.2 Certification by Licenced Planner

As of December 9, 2013, I, Karri Legarrie, certify that I am familiar with the processes at the Latham Pool Products Inc. Ajax facility that use or create the toxic substances 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 the toxic substance reduction plans referred to below for the toxic substances and that the plans comply with the Act and Ontario Regulation 455/09 (General) made under that Act.

Substance	Date of Certified Plan
Ethyl Alcohol (CAS No. 64-17-5)	December 9, 2013
Styrene (CAS No. 100-42-5)	December 9, 2013
Acetone (CAS No. 67-64-1)	December 9, 2013

Karri Legarrie, Planner Licence TSRP0065
Air Quality Senior Scientist / Toxic Substance Reduction Planner
RWDI AIR Inc.

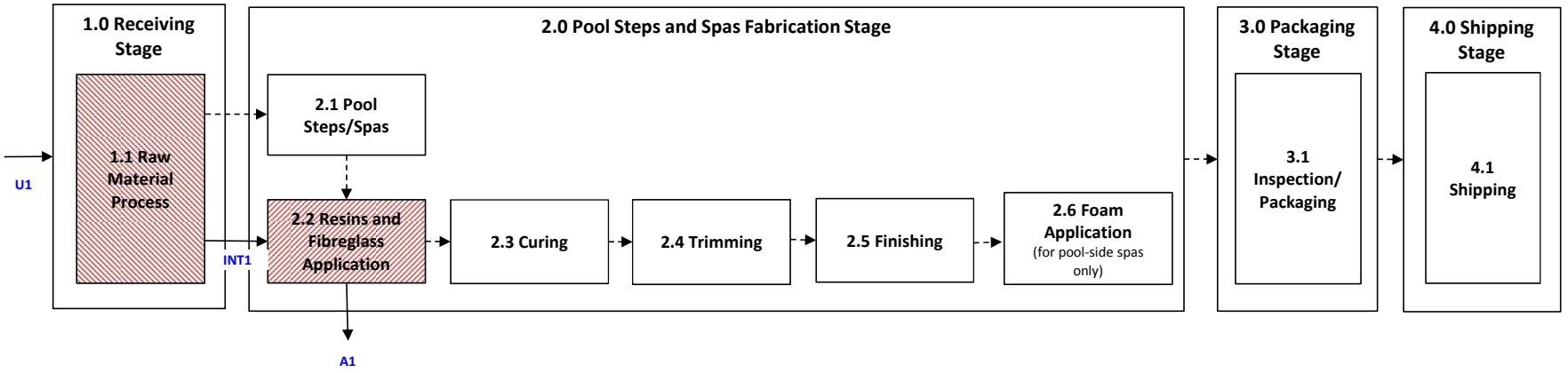
APPENDIX A

Toxic Substance Reduction Plan: Ethyl Alcohol

APPENDIX A1

Process Flow and Description

Process Flow Diagram for Ethyl Alcohol



LEGEND:

U Toxic substance enters the ***process***

A ***On-site release*** of toxic substance to air

INT Intermediate step to describe movement of toxic substance from stage to stage

A process where ethyl alcohol is rpresent

Solid arrow denotes presence of ethyl alcohol

Dashed arrow denotes absence of ethyl alcohol

Process Description for Ethyl Alcohol
Raw Material Resin - Ethyl Alcohol is present as an ingredient in the LABI 1721 Resin (U1). This material is transferred from the Receiving Stage to the Resin and Fibreglass Application process (INT1), where it is applied to the pool steps/spas forms in the Glassing Booths. During the Resin and Fibreglass Application process, air emissions containing ethyl alcohol are released (A1) through glass booth exhaust stacks.

Tracking and Quantification of Ethyl Alcohol

Amount Of Ethyl Alcohol That Enters The Process
Quantification Method - Raw Materials Process (U1):
Mass Balance – Ethyl Alcohol contained in raw material (i.e. resin) (U1) was calculated from supplier provided MSDS information showing constituent concentrations by weight and the quantities of issued materials (feedstock) from the Receiving Stage.
Best Available Method Rationale:
Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. As such, the data quality level is considered above average.

Amount Of Ethyl Alcohol Released To Air			
Quantification Method - Resin Application Process (A1):			
Mass Balance – The amounts of ethyl alcohol released to air from the Resin and Fibreglass Application process (A1) was calculated from supplier provided MSDS information showing constituent concentrations by weight and the quantities of issued materials (feedstock) from Receiving Stage.			
Best Available Method Rationale:			
Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. Also since ethyl alcohol is a volatile compound, it is reasonable to assume that 100% of the ethyl alcohol in the issued material is released through air emissions. As such, the data quality level is considered average.			
Calculation of Ethyl Alcohol released to the air:			
A1	Source:	Resin and Fibreglass Application	
	Annual Emissions (tonnes) =	1.31E+01	[Refer to NPRI Calculations]

Input/Output Balance for Ethyl Alcohol

	Input (tonnes)		Output (tonnes)	Process Flow	Data Quality
1.0 Receiving Stage					
Total Ethyl Alcohol Entering Raw Material Process	1.31E+01			U1	AA
Total Ethyl Alcohol Exiting Raw Material Process			1.31E+01	INT1	A
Input/Output Balance: U1=INT1	1.31E+01	=			
			1.31E+01		
Unaccounted for material =			**0.00E+00**		
2.0 Pool Steps/Spas Fabrication Stage					
Total Ethyl Alcohol Entering the Resin and Fibreglass Application Process	1.31E+01			INT1	A
Total Ethyl Alcohol Released to Air from Resin and Fibreglass Application Process			1.31E+01	A1	A
Input/Output Balance:INT1=A1	1.31E+01	=			
			1.31E+01		
Unaccounted for material =			**0.00E+00**		

Comment on Input/Output Balance Results

After investigating the input/output balance results for all processes, no missing sources of data and no calculation errors were found. It should be noted that the raw material entering the Resin and Fibreglass Application process (INT1) and being emitted to the atmosphere (A1) are not tracked or recorded. They were calculated based on conservative assumptions and mass balance principles supported by facility records and supplier MSDSs. The input/output balance is zero for all processes, because it was assumed that 100% of the ethyl alcohol entering the Raw Material Stage (U1) is emitted to the atmosphere. Therefore the input/output balance is considered to be reasonable and acceptable. The facility will continue to look for alternate methodoligies that provide more reliable data for calculating INT1 and A1 other than the current best available method, and will evaluate and implement these methodoligies in accordance with the Act and Regulation.

Facility Wide Input/Output Balance

	Input (tonnes)		Output (tonnes)	Process Flow
Total Ethyl Alcohol Used	13.1		0	U
Total Ethyl Alcohol Created	0		0	C
Total Ethyl Alcohol Released to Air	0		13.1	A
Total Ethyl Alcohol Transferred Off-Site	0		0	TR
Total Ethyl Alcohol Destructed	0		0	D
Total Ethyl Alcohol Disposed to Landfill	0		0	DIS
Total Ethyl Alcohol Released to Water	0		0	W
Total Ethyl Alcohol Contained in Product	0		0	CIP
Input/Output Balance: U+C=A+TR+D+DIS+W+P	13.1	=		
			13.1	
Unaccounted for material =			**0.0**	

Comment on Input/Output Balance Results:

APPENDIX A2

Option Analysis

A2: Option Identification and Analysis - Ethyl Alcohol CAS# 64-17-5

STATEMENT OF INTENT TO REDUCE THE USE AND/OR CREATION OF ETHYL ALCOHOL

Latham Pool Products, Inc. is committed to being an industry leader in our manufacturing processes, and as a result, minimizing any negative impact on our environment. Therefore we are fully committed to operate our manufacturing plant(s) in accordance with all applicable environmental laws and regulations. In particular, our Ajax facility intends to reduce and eliminate, where possible, any listed substances wherever technically and operationally feasible.

OBJECTIVES OF THE PLAN AND ANY TARGETS

Latham Pool Products Inc. in compliance with the Toxics Reduction Act (2009) and O. Reg. 455/09, intends to reduce the use of Ethyl Alcohol by 100% (13.1 tonnes). This reduction is based on the successful final product testing. The estimated reduction is planned to be implemented within 2 years. Latham Pool Products Inc. will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce this substance in the future.

DESCRIPTION OF WHY ETHYL ALCOHOL IS USED AND/OR CREATED

Latham Pool Products Inc. is a manufacturer of vinyl pool liners, fiberglass reinforced spill-over spas and swimming pool steps for residential markets. Ethyl Alcohol is present at a 5% concentration in the raw material, LABI 1721 polyester resin. Latham Pool Products Inc. uses Ethyl Alcohol as a chemical component in one of the two approved fiberglass base resins. This chemical is used as a viscosity enhancer in this resin. Product testing will be required to validate if any negative impacts to the quality of the final product Latham Pool Products Inc. does not create this substance and in the event that this option does not successful we will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce the use of this substance in the future.

DESCRIPTION OF OPTION TO BE IMPLEMENTED OR RATIONAL FOR WHY NOT

One option was selected to be implemented under Materials or Feedstock Substitution: Substitute LABI 1721 with a similar resin not containing ethyl alcohol.

Option Category	Option Description	2012 Reportable Quantities					Technical Evaluation	Economic Evaluation	Reduction Plan	Timeline	Implement (Yes or No)
		Use	Creation	Discharge		In Product					
				Air	Land						
1. Materials/feedstock sub	Substitute LABI with a similar resin not containing ethyl alcohol.	13.1	0	13.1	0	0	TECHNICALLY FEASIBLE OPTION: We know this option is feasible because one of our current approved supplier's (Univar - Hexion), supplies us with a resin that does not contain ethyl alcohol at all. Our other supplier (Progress / CCP) has indicated that they can supply us the same resin without the Ethyl Alcohol and that we apparently used this EA free resin years ago. We feel confident that this alternative resin will work for us but we will need to verify through product testing. This testing will need to be completed in the future to verify that they can supply us with a VE free resin that works in our application.	Not required - There is no additional cost expected with the purchase of this resin	Test the EA free resin in our process and product from CCP. Approve the use of this resin (As a required 2nd source) if the testing goes as expected.	Sample MSDS review and process product testing to completed in the next 3-6 months. Product bonding environmental testing next 6 months - 1 year. Assuming all testing goes as expected full approval and implementation of the elimination of Ethyl Alcohol within 2 years	YES
Estimated Reduction (tonnes per year)							By implementing this option no other estimates of reductions were calculated as this substance is now eliminated from the use within the processes at Latham Pool Products Inc.				
	Baseline	13.1	0	13.1	0	0					
	New Estimated Amount	0	0	0	0	0					
	Reduction	13.1	0	13.1	0	0					
	% Reduction	100%	0%	100%	0%	0%					
2. Product design/reformulation	Use of a thicker acrylic sheet to reduce the quantity of resin used for reinforcement of pool steps.	13.1	N/A	13.1	N/A	N/A	NOT TECHNICALLY FEASIBLE OPTION: This option is still in the conceptual stage at this time. This concept would need to be evaluated further, then thoroughly tested and most importantly be cost effective. At this point we feel this option as limited chance of success and we do not have the resources to take on this project.	N/A	N/A	N/A	N/A
	Use of higher levels of filler or alternative fillers that would allow for increased filler quantity in resin mix and a decrease in resin quantities.	13.1	N/A	13.1	N/A	N/A	NOT TECHNICALLY FEASIBLE OPTION: Our suppliers have indicated that other manufacturers are using higher levels of fillers but the exact parameters or end products are not know. Initial thoughts are higher levels of fillers are better suited for Gel-coat laminating as opposed to bonding to acrylics. This is not a proven alternative at this time.	N/A	N/A	N/A	N/A
3. Equipment or process modification .	Replace existing spray tips with new tips to minimize overspray of resin.	13.1	N/A	13.1	N/A	N/A	TECHNICALLY FEASIBLE OPTION: Option easy to implement. - estimated reduction of 25 lbs of total overspray per week (EA would only be a portion of this amount)	Option implemented outside of this plan without consideration of economic evaluation.	Replaced the spray tips on both spray guns.	10/25/2013	NO
4. On-site reuse or recycling	Reuse of resin - collect resin in container to be used in stripping during testing of spray gun each morning (at start of shift)	13.1	N/A	13.1	N/A	N/A	TECHNICALLY FEASIBLE OPTION: Testing has been completed. Estimate savings 2 kg per day (EA would only be a portion of this amount).	Option implemented outside of this plan without consideration of economic evaluation.	Reuse resin from spray gun testing.	10/18/2013	NO
5. Spill and leak prevention	No option.	13.1	N/A	13.1	N/A	N/A	NO OPTION IDENTIFIED: because there have not been any spills in the history of the company, as there is minimal manual transfer.	N/A	N/A	N/A	N/A
6. Inventory management/purchasing techniques	No option.	13.1	N/A	13.1	N/A	N/A	NO OPTION IDENTIFIED: because there has been no losses due to expired materials. Just in time delivery is an inventory management practice for Latham.	N/A	N/A	N/A	N/A

A2: Option Identification and Analysis - Ethyl Alcohol CAS# 64-17-5

STATEMENT OF INTENT TO REDUCE THE USE AND/OR CREATION OF ETHYL ALCOHOL

Latham Pool Products, Inc. is committed to being an industry leader in our manufacturing processes, and as a result, minimizing any negative impact on our environment. Therefore we are fully committed to operate our manufacturing plant(s) in accordance with all applicable environmental laws and regulations. In particular, our Ajax facility intends to reduce and eliminate, where possible, any listed substances wherever technically and operationally feasible.

OBJECTIVES OF THE PLAN AND ANY TARGETS

Latham Pool Products Inc. in compliance with the Toxics Reduction Act (2009) and O. Reg. 455/09, intends to reduce the use of Ethyl Alcohol by 100% (13.1 tonnes). This reduction is based on the successful final product testing. The estimated reduction is planned to be implemented within 2 years. Latham Pool Products Inc. will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce this substance in the future.

DESCRIPTION OF WHY ETHYL ALCOHOL IS USED AND/OR CREATED

Latham Pool Products Inc. is a manufacturer of vinyl pool liners, fiberglass reinforced spill-over spas and swimming pool steps for residential markets. Ethyl Alcohol is present at a 5% concentration in the raw material, LABI 1721 polyester resin. Latham Pool Products Inc. uses Ethyl Alcohol as a chemical component in one of the two approved fiberglass base resins. This chemical is used as a viscosity enhancer in this resin. Product testing will be required to validate if any negative impacts to the quality of the final product Latham Pool Products Inc. does not create this substance and in the event that this option does not successful we will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce the use of this substance in the future.

DESCRIPTION OF OPTION TO BE IMPLEMENTED OR RATIONAL FOR WHY NOT

One option was selected to be implemented under Materials or Feedstock Substitution: Substitute LABI 1721 with a similar resin not containing ethyl alcohol.

Option Category	Option Description	2012 Reportable Quantities					Technical Evaluation	Economic Evaluation	Reduction Plan	Timeline	Implement (Yes or No)
		Use	Creation	Discharge		In Product					
				Air	Land						
7. Training or improved operating practices	Implement training with new spray gun tips to minimize overspray and waste of FG resin.	13.1	N/A	13.1	N/A	N/A	TECHNICALLY FEASIBLE OPTION: Option easy to implement.	Option implemented outside of this plan without consideration of economic evaluation.	Train all operators on the use of new spray gun tips.	10/25/2013	NO
	Develop procedure for reuse resin mix collected during spray gun test at the start of each morning shift.	13.1	N/A	13.1	N/A	N/A	TECHNICALLY FEASIBLE OPTION: Option easy to implement.	Option implemented outside of this plan without consideration of economic evaluation.	Develop procedure for spray gun testing.	10/18/2013	NO

Notes:
1) Use and discharge estimates are based on current year data and are subject to normal production variation

APPENDIX A3

Direct and Indirect Costs

A3: Direct and Indirect Costing for Ethyl Alcohol

Categories	Overall Result	Ethyl Alcohol Costs	Comments / Assumptions
Direct Costs			
RESINS AND GELCOATS	**$ 925,287.00**	$ 34,671.47	- see working sheet for detail breakdown
CLEANING & TOOL SUPPLIES	**$ 2,000.00**	$ 33.00	- 33% of cleaning and tool supplies used for the application of resin containing containing ethyl alcohol x ethyl alcohol concentration (5%) for LABI 1721 Resin
Direct Costs	**$ 927,287.00**	$ 34,704.47	
Indirect Costs			
Labour Costs			
1) Production			
SALARIES AND SUPPLEMENTAL (production staff)	**$ 784,712.00**	$ 23,541.36	- assumed 28 production staff; all staff could rotate positions - 80% staff on production floor handling resins and product x 75% of the total resin purchased contains ethyl alcohol x ethyl alcohol concentration (5%) in LABI 1721 Resin
2) Management			
SALARIES (Management and Floor Supervision)	**$ 173,685.00**	$ 1,075.72	- total number of employees = 31; assumed 1 Facility Manager, 1 Floor Supervisor and 1 Shipping Person - 10% management stafff x ethyl alcohol concentration (5%) in LABI 1721 Resin
WORKMEN'S COMP INS (Management and Floor Supervision)	**$ 5,350.00**		
EMPLOYER HEALTH TAX (Management and Floor Supervision)	**$ 3,387.00**		
EMPLOYMENT INSURANCE (Management and Floor Supervision)	**$ 3,875.00**		
CANADA PENSION PLAN (Management and Floor Supervision)	**$ 7,703.00**		
GROUP INSURANCE (Management and Floor Supervision)	**$ 15,933.00**		
R.R.S.P EXPENSE (Management and Floor Supervision)	**$ 5,211.00**		
Total Labour Costs	**$ 999,856.00**	$ 24,617.08	
Facility Operations			
OFFICE SUPPLIES	**$ 3,000.00**	$ 3.00	- 2% of the office supplies related to resins - 2% x ethyl alcohol concentration (5%) in LABI 1721 Resin
GROUNDS/BLDG R&M	**$ 35,000.00**	$ 875.00	- assumed 50% of total plant usage x ethyl alcohol concentration (5%) in LABI 1721 Resin
R&M EQUIPMENT	**$ 25,000.00**	$ 468.75	- 37.5% (3 of the 8 processes have equipment to be maintained with the use of the resins) - 37.5% x ethyl alcohol concentration (5%) in LABI 1721 Resin
WASTE DISPOSAL	**$ 30,000.00**	$ -	N/A
SHOP SUPPLIES	**$ 28,000.00**	$ 1,050.00	- assuming shop supplies distributed evenly to all processes; 6 of the 8 processes are related to use of the resins and gel coats (containing ethyl alcohol) - 75% x ethyl alcohol concentration (5%) in LABI 1721 Resin
FORKLIFT	**$ 15,000.00**	$ 247.50	- 33% of Forklifts time assumed to be alloted to moving finished product (other 66% assumed for unloading/moving acrylic sheets, thermo-forming) - 33% x ethyl alcohol concentration (5%) in LABI 1721 Resin
MEALS/ENTERTAINMENT	**$ 1,000.00**	$ -	N/A
RENT	**$ 127,654.00**	$ -	N/A
TELEPHONE	**$ 1,900.00**	$ -	N/A
REALTY & BUS TAXES	**$ 63,870.00**	$ -	N/A
ALARM SECURITY	**$ 1,200.00**	$ -	N/A
HEALTH & SAFETY	**$ 5,000.00**	$ 150.00	- assumed only the 28 production staff have PPE - 80% staff have PPE to handle resin x 75% (wt) of the resin contains ethyl alcohol x ethyl alcohol concentration (5%) in LABI 1721 Resin
ENVIRONMENTAL EXP	**$ 10,000.00**	$ 3,300.00	- as there are only 3 substance reported, assumed that 33% of the annual NPRI costs are associated with ethyl alcohol
SUPPLEMENTAL ENVIRONMENTAL	**$ 18,940.00**	$ 6,250.20	- the average environmental capital costs over the years of 2010, 2011 and 2012 was taken to be representative - 33% of the annual ECA, source testing, TRA costs related to ethyl alcohol
Facility Operations	**$ 365,564.00**	$ 12,344.45	
Total Ethyl Alcohol Costs		**$71,666.00**	

APPENDIX A4

Planner Recommendations

A4. PLANNER RECOMMENDATIONS

Ethyl Alcohol (CAS 64-17-5)

1. Expertise relied upon in preparing the plan;

Latham Pool Products Inc. is a manufacturer of vinyl pool liners, fiberglass reinforced spill-over spas and swimming pool steps for residential markets. Ethyl Alcohol is present at a 5% concentration in the raw material, LABI 1721 polyester resin. The plans were developed from input by the Manufacturing Engineering Manager and Plant Manager (Highest Ranking Employee).

RECOMMENDATIONS:

- Continue to engage senior management and operations personnel in the annual toxic substance accounting and planning process. The use of a team may facilitate both plan development by drawing on a wide range of expertise and organizational knowledge and, plan implementation by generating broad based support.

- Continue to reference the Ontario Ministry of the Environment website for additional sources of information such as technical guidance documents pertaining to the toxic substance accounting, planning and reporting and best management practices. Financial assistance is also available for some facilities to help them off-set the costs for conducting a pollution prevention assessment, accounting for toxic substances and toxics reduction planning.

2. Data and methods used in toxic substance accounting;

The facility relied on source-specific information to calculate the **USE** (U1) quantity. Source specific information included, MSDS containing ethyl alcohol concentrations and the 2012 inventory records of purchased quantities of resin (in kilograms). Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. As such, the data quality level is considered above average.

NO RECOMMENDATION:

- No other alternatives were identified during the evaluation of best available methods that would yield a higher level of data quality/reliability. MSDS records are a common method of obtaining highly reliable data. Quantities of LABI 1721 purchased are tracked and recorded by the purchasing department and the facility assumes that quantities purchased are equivalent to the quantities used. This method was considered reliable, since the facility has indicated that they have no losses due to expired material and their purchasing practice is a “just-in-time” delivery.

The quantity of ethyl alcohol **ON-SITE RELEASE** to air from the Resin and Fibreglass Application process (A1) was calculated from supplier provided MSDS information showing constituent concentrations by weight, the quantities of issued LABI 1721, and an assumed 100% loss of ethyl alcohol. Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. Also since ethyl alcohol is a volatile compound, it is reasonable to assume that 100% of the ethyl alcohol in the issued material is released through air emissions. As such, the data quality level is considered average.

NO RECOMMENDATION:

- No other alternatives were identified during the evaluation of best available methods that would yield a higher level of data quality/reliability. It is reasonable to assume a 100% loss of ethyl alcohol as this substance is a volatile compound.

3. Process descriptions and process flow diagrams;

The movement of the toxic substances associated with ethyl alcohol was described and identified in each stage and process.

NO RECOMMENDATION:

- Sufficient detail of the fate of ethyl alcohol throughout the process was accurately described and shown in the process flow diagram.

4. Analysis of input/output balances;

NO RECOMMENDATION:

- After investigating the input/output balance results, no missing sources of data were found, and no calculation errors were found. The input/output balance at each process level was zero.

5. Descriptions of how, when, where and why a substance is used or created;

Descriptions of how, when, where and why the substance is used, are documented.

NO RECOMMENDATION:

- The process flow diagram provides sufficient detail to describe how the substance enters the process and leaves.

6. Additional technically and economically feasible reduction options not included in the plan that might result in equal or greater reductions;

   Reduction Option Categories: Materials/Feedstock Substitution, Product Design/Reformulation, Equipment or Process Modification, On-site reuse or recycling, Spill and leak prevention, Inventory Management/Purchasing Techniques, Training or Improved Operating Practices

NO RECOMMENDATION:

- Since the facility has decided to implement an option for Material/Feedstock Substitution which will result in a 100% reduction in the use of ethyl alcohol, no further recommendations were considered. However, if the facility has no future intentions of using raw materials containing ethyl alcohol, then perhaps implementing an environmental purchasing practice indicating this to suppliers could be an option to consider in the future.

7. Technical and economic feasibility analyses;

NO RECOMMENDATION:

- The reduction plans summarize the technical and economic merit of the options considered.

8. Reduction estimates prepared for each identified reduction option;

The facility has decided to implement a reduction option under Materials/Feedstock Substitution which provided an estimate of reduction of 100% and 13.1 tonnes to be achieved in 2 years.

RECOMMENDATION:

- Develop a method to track and quantify the reduction achieved from the implementation of this option. This information will be used to update the annual SWIM report until the reduction is achieved.

9. Direct and indirect costs associated with the use, creation, release, disposal, transfer and the amount contained in product of the toxic substance;

The level of detail to which a facility chooses to examine their costs will vary, but it must be shown that both direct and indirect costs were considered. Understanding the full cost of a toxic substance is a key step in preparing a plan. Without having the complete baseline costs for a facility's processes and operations, it would not be possible to accurately analyze the potential for savings associated with toxic substance use and creation reduction options.

An estimate of direct and indirect costs were calculated using the 2012 facility operating budget details and LABI 1721 resin costs provided by the Manufacturing Engineering Manager.

The total fixed costs associated with the use, creation and release of ethyl alcohol in 2012 was $34,704.47. The total quantifiable indirect costs associated with the use, creation and release of ethyl alcohol in 2012 was $39,961.53. The total cost associated with the use, creation and release of ethyl alcohol in 2012 was $71,666.00.

NO RECOMMENDATION:

- Both direct and indirect costs were considered.

10. Implementation steps and timelines in the plan and whether they are likely to be achieved.

The identified reduction option to be implemented included a timeline of 2 years to be achieved.

RECOMMENDATION:

- Develop a method to track the progress of actions implemented as noted in the options analysis table for ethyl alcohol. This information will be used to update the annual SWIM report until the reduction is achieved.

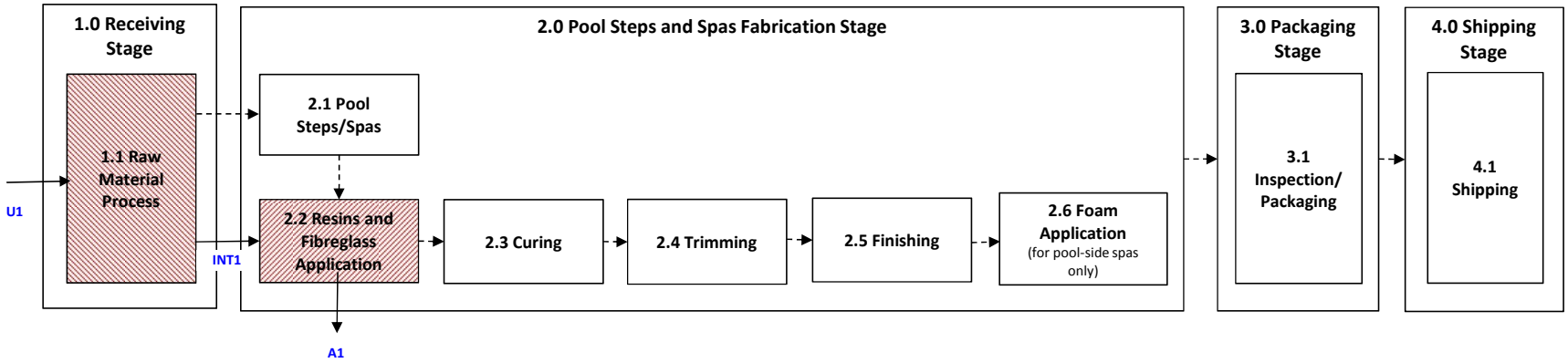
APPENDIX B

Toxic Substance Reduction Plan: Acetone

APPENDIX B1

Process Flow and Description

Process Flow Diagram for Acetone



LEGEND:

U Toxic substance enters the ***process***

A ***On-site release*** of toxic substance to air

INT ***Intermediate step*** to describe movement of toxic substance from stage to stage

A process where acetone is present

Solid arrow denotes presence of acetone

Dashed arrow denotes absence of acetone

Process Description for Acetone
Raw Material Solvents -
Acetone is present as a solvent (U1). This material is transferred from the Receiving Stage to the Resin and Fibreglass Application process (INT1), where it is used to clean the rolling brushes and resin spraying guns. During the Resin and Fibreglass application process, air emissions containing acetone are released through the glass booth exhaust stacks (A1).

Tracking and Quantification of Acetone

Amount Of Acetone That Enters The Process
Quantification Method - Raw Materials Process (U1):
Mass Balance – Acetone contained in raw materials (i.e. solvents) (U1) was calculated from supplier provided MSDS information showing constituent concentrations by weight and the quantities of issued materials (feedstock) from the Receiving Stage.
Best Available Method Rationale:
Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. As such, the data quality level is considered above average.

Amount Of Acetone Released To Air			
Quantification Method - Resin and Fibreglass Application Process (A1):			
Mass Balance – The amounts of acetone released to air from the Resin and Fibreglass Application process (A1) was calculated from supplier provided MSDS information showing constituent concentrations by weight and the quantities of issued materials from the Receiving Stage.			
Best Available Method Rationale:			
Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. Also since acetone is a volatile compound, it is reasonable to assume that 100% of the acetone in the issued material is released through air emissions. As such, the data quality level is considered average.			
Calculation of Acetone released to the air:			
A1	Source:	Resin and Fibreglass Application	
	Annual Emissions (tonnes) =	1.04E+01	[Refer to NPRI Calculations]

Input/Output Balance for Acetone

	Input (tonnes)		Output (tonnes)	Process Flow	Data Quality
1.0 Receiving Stage					
Total Acetone Entering Raw Material Process	1.04E+01			U1	AA
Total Acetone Exiting Raw Material Process to Resin and Fibreglass Application			1.04E+01	INT1	A
Input/Output Balance: U1=INT1	1.04E+01	=			
			1.04E+01		
Unaccounted for material =			**0.00E+00**		
2.0 Pool Steps/Spa Fabrication Stage					
Total Acetone Entering the Resin and Fibreglass Application Process	1.04E+01			INT1	A
Total Acetone Released to Air from Resin and Fibreglass Application Process			1.04E+01	A1	A
Input/Output Balance: INT1=A1	1.04E+01				
			1.04E+01		
Unaccounted for material =			**0.00E+00**		

Comment on Input/Output Balance Results

After investigating the input/output balance results for all processes, no missing sources of data and no calculation errors were found. It should be noted that the raw material entering the Resin and Fibreglass Application (INT1) and being emitted to the atmosphere (A1) are not tracked or recorded. They were calculated based on conservative assumptions and mass balance principles supported by facility records and supplier MSDSs. The input/output balance is zero for all processes, because it was assumed 100% of the acetone entering the Raw Material Stage (U1) is emitted to the atmosphere. Therefore the input/output balance is considered to be reasonable and acceptable. The facility will continue to look for alternate methodoligies that provide more reliable data for calculating INT1 and A1 other than the current best available method, and will evaluate and implement these methodoligies in accordance with the Act and Regulation.

Facility Wide Input/Output Balance

	Input (tonnes)		Output (tonnes)	Process Flow
Total Acetone Used	10.432			U
Total Acetone Created	0			C
Total Acetone Released to Air			10.432	A
Total Acetone Transferred Off-Site			0	TR
Total Acetone Destructed			0	D
Total Acetone Disposed to Landfill			0	DIS
Total Acetone Released to Water			0	W
Total Acetone Contained in Product			0	CIP
Input/Output Balance: U+C=A+TR+D+DIS+W+P	1.04E+01	=		
			1.04E+01	
Unaccounted for material =			**0.00E+00**	

Comment on Input/Output Balance Results:

APPENDIX B2

Option Analysis

B2: Option Identification and Analysis - Acetone CAS#67-64-1

STATEMENT OF INTENT TO REDUCE THE USE AND/OR CREATION OF ACETONE

Latham Pool Products Inc. is committed to being an industry leader in our manufacturing processes, and as a result, minimizing any negative impact on our environment. Therefore, we are fully committed to operate our manufacturing plant(s) in accordance with all applicable environmental laws and regulations. In particular, our Ajax facility intends to reduce and eliminate, where possible, any listed substances wherever technically and operationally feasible.

OBJECTIVES OF THE PLAN AND ANY TARGETS

Latham Pool Products Inc., in compliance with the Toxics Reduction Act (2009) and O. Reg. 455/09, does not intend to reduce the use of Acetone under this plan. Latham Pool Products Inc. will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce this substance in the future.

DESCRIPTION OF WHY ACETONE IS USED AND/OR CREATED

Latham Pool Products Inc. is a manufacturer of vinyl pool liners, fiberglass reinforced spill-over spas and swimming pool steps for residential markets. Acetone is present at a 100% concentration in the raw material, Acetone. Latham Pool Products Inc. uses Acetone as a cleaning agent in fiberglass application operations at this facility on both the spray gun systems and the hand tools used to process the product after spraying. This chemical is one of the best and most cost effective cleaners available for these types of resins. Latham Pool Products Inc. does not create this substance and we will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce the use of this substance in the future.

DESCRIPTION OF OPTION TO BE IMPLEMENTED OR RATIONAL FOR WHY NOT

No reduction options will be implemented under this plan because they are either not technically feasible, the amount of reduction expected does not warrant the time and effort required to track any potential savings or they could not be verified due to fluctuations in our process due to the human factor involved. However, Latham Pool Products Inc. has chosen to implement some of these options outside of this plan realizing that there is no downside and any savings realized is beneficial to both our cost and the environment.

Option Category	Option Description	2012 Reportable Quantities					Technical Evaluation	Economic Evaluation	Reduction Plan	Timeline	Implement (Yes or No)
		Use	Creation	Discharge		In Product					
				Air	Land						
1. Materials/feedstock substitution	Replace Acetone with Thermaclean.	10.432	N/A	10.432	N/A	N/A	NOT TECHNICALLY FEASIBLE OPTION: An potential alternative to Acetone called Thermaclean was tested recently in our process and it was not found to be acceptable in our process. The material does not dry quickly enough and was leaving a residue that did not disappear on the back of our parts. This is deemed unacceptable from a product quality standpoint.	N/A	N/A	N/A	N/A
2. Product design/reformulation	No Option	10.432	N/A	10.432	N/A	N/A	NO OPTION IDENTIFIED: - because where resin is present there will always be a need for the use of cleaning agents for roller brushes and spray gun.	N/A	N/A	N/A	N/A
3. Equipment or process modification	Use of step cans.	10.432	N/A	10.432	N/A	N/A	TECHNICALLY FEASIBLE OPTION : Implement the use of step cans to minimize evaporation during spray gun cleaning.	Option implemented outside of this plan without consideration of economic evaluation. Also important for safety reasons!	Implement the use of step cans.	Within 3 Months	NO
4. On-site reuse or recycling	No Option	10.432	N/A	10.432	N/A	N/A	NO OPTION IDENTIFIED: - because the facility already reuses acetone.	N/A	N/A	N/A	N/A
5. Spill and leak prevention	No Option	10.432	N/A	10.432	N/A	N/A	NO OPTION IDENTIFIED: - because the facility already has a spill and leak prevention procedure in place and there has been no recordable spills or leaks in the past few years.	N/A	N/A	N/A	N/A
6. Inventory management/purchasing techniques	No Option	10.432	N/A	10.432	N/A	N/A	NO OPTION IDENTIFIED: - because the facility inventory is monitored by staff and is communicated weekly with purchasing agent, to keep inventory low. Since this material is recycled the inventory is regularly off more then the systems shows.	N/A	N/A	N/A	N/A
7. Training or improved operating practices	Develop and implement procedures to ensure acetone barrels are covered when not in use. Minimize losses due to evaporation.	10.432	N/A	10.432	N/A	N/A	TECHNICALLY FEASIBLE OPTION : Option easy to implement.	Option implemented outside of this plan without consideration of economic evaluation.	Develop and implement acetone storage procedures.	12/15/2013	NO

Notes:

1) Use and discharge estimates are based on current year data and are subject to normal production variation

APPENDIX B3

Direct and Indirect Costs

B3: Direct and Indirect Costing for Acetone

Categories	Overall Result	Acetone Costs	Comments / Assumptions
Direct Costs			
ACETONE	**$ 16,228.00**	$ 16,228.00	- see working sheet for detail breakdown
CLEANING & TOOL SUPPLIES	**$ 2,000.00**	$ 660.00	- 33% of the cleaning and tool supplies used for the application of resin are cleaned using acetone x acetone concentration (100%)
Direct Costs	**$ 18,228.00**	$ 16,888.00	
Indirect Costs			
Labour Costs			
1) Production			
SALARIES AND SUPPLEMENTAL (production staff)	**$ 784,712.00**	$ 125,553.92	- assumed 28 production staff; all staff could rotate positions - 80% staff on production floor x 20% of their time is spent handling acetone x acetone concentration (100%)
2) Management			
SALARIES (Management and Floor Supervision)	**$ 173,685.00**	$ 21,514.40	- total number of employees = 31; assumed 1 Facility Manager, 1 Floor Supervisor and 1 Shipping Person - 10% management staff x acetone concentration (100%)
WORKMEN'S COMP INS (Management and Floor Supervision)	**$ 5,350.00**		
EMPLOYER HEALTH TAX (Management and Floor Supervision)	**$ 3,387.00**		
EMPLOYMENT INSURANCE (Management and Floor Supervision)	**$ 3,875.00**		
CANADA PENSION PLAN (Management and Floor Supervision)	**$ 7,703.00**		
GROUP INSURANCE (Management and Floor Supervision)	**$ 15,933.00**		
R.R.S.P EXPENSE (Management and Floor Supervision)	**$ 5,211.00**		
Total Labour Costs	**$ 999,856.00**	$ 147,068.32	
Facility Operations			
OFFICE SUPPLIES	**$ 3,000.00**	$ 60.00	- 2% of the office supplies related to acetone - 2% x acetone concentration (100%)
GROUNDS/BLDG R&M	**$ 35,000.00**	$ 17,500.00	- assumed 50% of total plant usage x acetone concentration (100%)
R&M EQUIPMENT	**$ 25,000.00**	$ 3,125.00	- 12.5% (1 of the 8 processes have equipment to be maintained (i.e. Raw Material Process) - 12.5% x acetone concentration (100%)
WASTE DISPOSAL	**$ 30,000.00**	$ -	N/A
SHOP SUPPLIES	**$ 28,000.00**	$ 7,000.00	- assuming shop supplies distributed evenly to all processes; 2 of the 8 processes are related to use of the acetone - 25% x acetone concentration (100%)
FORKLIFT	**$ 15,000.00**	$ -	N/A
MEALS/ENTERTAINMENT	**$ 1,000.00**	$ -	N/A
RENT	**$ 127,654.00**	$ -	N/A
TELEPHONE	**$ 1,900.00**	$ -	N/A
REALTY & BUS TAXES	**$ 63,870.00**	$ -	N/A
ALARM SECURITY	**$ 1,200.00**	$ -	N/A
HEALTH & SAFETY	**$ 5,000.00**	$ 800.00	- assumed only the 28 production staff have PPE - 80% staff have PPE for handling acetone x 20% of their time is spent handling acetone x acetone concentration (100%)
ENVIRONMENTAL EXP	**$ 10,000.00**	$ 3,300.00	- as there are only 3 substance reported, assumed that 33% of the annual NPRI costs are associated with acetone
SUPPLEMENTAL ENVIRONMENTAL	**$ 18,940.00**	$ 6,250.20	- the average environmental capital costs over the years of 2010, 2011 and 2012 was taken to be representative - 33% of the annual ECA, source testing, TRA costs related to acetone
Facility Operations	**$ 365,564.00**	$ 38,035.20	
Total Acetone Costs		**$201,991.52**	

APPENDIX B4

Planner Recommendations

B4. PLANNER RECOMMENDATIONS

Acetone (CAS#67-64-1)

1. Expertise relied upon in preparing the plan;

Latham Pool Products Inc. is a manufacturer of vinyl pool liners, fiberglass reinforced spill-over spas and swimming pool steps for residential markets. Acetone is present at a 100% concentration in the raw material, Acetone. Latham Pool Products Inc. uses Acetone, as a cleaning agent in the fiberglass application operations at this facility, on both the spray gun systems and the hand tools used to process the product after spraying. This chemical is one of the best and most cost effective cleaners available for these types of resins. Latham Pool Products Inc. does not create this substance and we will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce the use of this substance in the future. The plans were developed from input by the Manufacturing Engineering Manager and Plant Manager (Highest Ranking Employee).

RECOMMENDATIONS:

- Continue to engage senior management and operations personnel in the annual toxic substance accounting and planning process. The use of a team may facilitate both plan development by drawing on a wide range of expertise and organizational knowledge and, plan implementation by generating broad based support.
- Continue to reference the Ontario Ministry of the Environment website for additional sources of information such as technical guidance documents pertaining to the toxic substance accounting, planning and reporting and best management practices. Financial assistance is also available for some facilities to help them off-set the costs for conducting a pollution prevention assessment, accounting for toxic substances and toxics reduction planning.

2. Data and methods used in toxic substance accounting;

The facility relied on source-specific information to calculate the **USE** (U1) quantity. Source specific information included, MSDS containing acetone concentrations in and the 2012 inventory records of purchased quantities (in kilograms). Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. As such, the data quality level is considered above average.

NO RECOMMENDATION:

- No other alternatives were identified during the evaluation of best available methods that would yield a higher level of data quality/reliability. MSDS records are a common method of obtaining highly reliable data. Quantities of raw materials purchased are tracked and recorded by the purchasing department and the facility assumes that quantities purchased are equivalent to the quantities used. This method was considered reliable, since the facility has indicated that they have no losses due to expired material and their purchasing practice is “just-in-time” delivery.

The quantity of acetone **ON-SITE RELEASE** to air from the Resin and Fibreglass Application process (A1) was calculated from supplier provided MSDS information showing constituent concentrations by weight, the quantities of issued Acetone, and an assumed 100% loss of acetone. Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. Also since acetone is a volatile compound, it is reasonable to assume that 100% of the acetone in the issued material is released through air emissions. As such, the data quality level is considered average.

NO RECOMMENDATION:

- No other alternatives were identified during the evaluation of best available methods that would yield a higher level of data quality/reliability. It is reasonable to assume a 100% loss of acetone as this substance is a volatile compound.

3. Process descriptions and process flow diagrams;

The movement of the toxic substances associated with acetone was described and identified in each stage and process.

NO RECOMMENDATION:

- Sufficient detail of the fate of acetone throughout the process was accurately described and shown in the process flow diagram.

4. Analysis of input/output balances;

NO RECOMMENDATION:

- After investigating the input/output balance results, no missing sources of data were found, and no calculation errors were found. The input/output balance at each process level was zero.

5. Descriptions of how, when, where and why a substance is used or created;

Descriptions of how, when, where and why the substance is used are documented.

NO RECOMMENDATION:

- The process flow diagram provides sufficient detail to describe how the substance enters the process and leaves.

6. Additional technically and economically feasible reduction options not included in the plan that might result in equal or greater reductions;

   Reduction Option Categories: Materials/Feedstock Substitution, Product Design/Reformulation, Equipment or Process Modification, On-site reuse or recycling, Spill and leak prevention, Inventory Management/Purchasing Techniques, Training or Improved Operating Practices

NO RECOMMENDATION:

- The facility has indicated that they will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce the use of this substance in the future. No further recommendations were identified.

7. Technical and economic feasibility analyses;

NO RECOMMENDATION:

- The reduction plans summarize the technical and economic merit of the options considered.

8. Reduction estimates prepared for each identified reduction option;

NO RECOMMENDATION:

- No reduction options were identified for acetone; therefore, reduction estimates were not required.

9. Direct and indirect costs associated with the use, creation, release, disposal, transfer and the amount contained in product of the toxic substance;

The level of detail to which a facility chooses to examine their costs will vary, but it must be shown that both direct and indirect costs were considered. Understanding the full cost of a toxic substance is a key step in preparing a plan. Without having the complete baseline costs for a facility's processes and operations, it would not be possible to accurately analyze the potential for savings associated with toxic substance use and creation reduction options.

An estimate of direct and indirect costs were calculated using the 2012 facility operating budget details and acetone costs provided by the Manufacturing Engineering Manager.

The total fixed costs associated with the use, creation and release of acetone in 2012 was $16, 888.00. The total quantifiable indirect costs associated with the use, creation and release of acetone in 2012 was $185,103.52. The total cost associated with the use, creation and release of acetone in 2012 was $201,991.52.

NO RECOMMENDATION:

- Both direct and indirect costs were considered.

10. Implementation steps and timelines in the plan and whether they are likely to be achieved.

NO RECOMMENDATION:

- No reduction options were identified for acetone; therefore, implementation steps and timelines were not required.

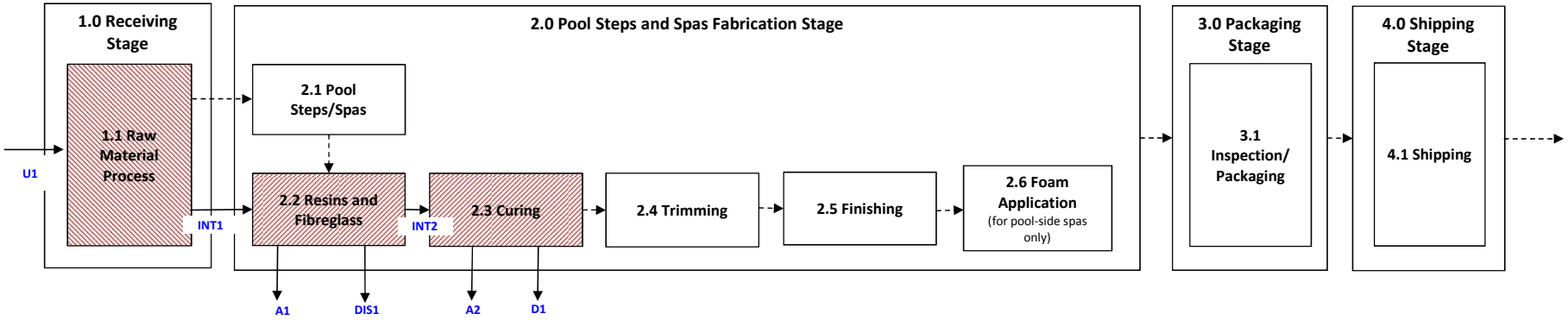
APPENDIX C

Toxic Substance Reduction Plan: Styrene

APPENDIX C1

Process Flow and Description

Process Flow Diagram for Styrene



LEGEND:

U Toxic substance enters the ***process***

A ***On-site release*** of toxic substance to air

INT ***Intermediate step*** to describe movement of toxic substance from stage to stage

D ***Destruction*** of styrene

A process where styrene is present

Solid arrow denotes presence of styrene

Dashed arrow denotes absence of styrene

Process Description for Styrene

Raw Material Resins and Gel Coats -

Styrene monomer is present as an ingredient in resins and gel coats (U1), as a reactive diluent. These materials are transferred from the Receiving Stage (INT1) to the Resin and Fibreglass Application process where they are applied to the pool steps/spas forms. During the Resin and Fibreglass Application process, air emissions containing styrene monomer are released (A1) through glass booth exhaust stacks and small quantities of resins containing styrene monomer are disposed (DIS1) if necessary. The pool steps and spas with resin applied are sent (INT2) to the curing floor. When the pool steps and spas are initally moved to the curing floor, some air emissions containing styrene monomer are released (A2) through the curing exhaust. The curing process takes place on the curing floor, whereby, the styrene monomer enables the resin/gel coat to cure from a liquid to a solid by crosslinking (polymerization) the unsaturated polymer chains to form a complex three-dimensional polymer network. There is no residual styrene monomer remaining (D1) after the curing process is complete.

Tracking and Quantification of Styrene

Amount Of Styrene That Enters The Process
Quantification Method - Raw Materials Process (U1):
Mass Balance – Styrene contained in raw materials (i.e. resins and gelcoats) (U1) was calculated from supplier provided MSDS information showing constituent concentrations by weight and the quantities of issued materials (feedstock) from Receiving Stage.
Best Available Method Rationale:
Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. As such, the data quality level is considered above average.

Amount Of Styrene Released To Air
Quantification Method - Resin and Fibreglass Application Process (A1):
Mass Balance – The amounts of styrene released to air from the Resin and Fibreglass process (A1) was calculated using source testing results.
Best Available Method Rationale:
Source testing results are a reliable source to estimate the styrene emission rates from the Resin and Fibreglass Application process. To assess the styrene emissions, it was assumed that the Glassing booths (i.e. Resin and Fibreglass Application) operates 8 hour a day, 5 days a week, typical operating hours. As such, the data quality level is considered above-average.
Quantification Method - Curing Process (A2):
Mass Balance – The amounts of styrene released to air during the Curing process (A2) was calculated using source testing results.
Best Available Method Rationale:
Source testing results are a reliable source to estimate the styrene emission rates from the curing area. To assess the styrene emissions, it was assumed that the curing area operates 8 hours a day, 5 days a week, typical operating hours. As such, the data quality level is considered above-average.
Calculation of Styrene released to the air:

A1	Source:	Resin and Fibreglass Application		
	Annual Emissions (tonnes) =	1.11E+01	[Refer to NPRI Calculations]	--> updated with 2013 source testing results
	Annual Emissions from Resins (tonnes) =	1.11E+01		
	Annual Emissions from Gelcoats (tonnes) =	3.86E-03		
A2	Source:	Curing		
	Annual Emissions (tonnes) =	2.40E-01	[Refer to NPRI Calculations]	--> updated with 2013 source testing results

Amount Of Styrene Destroyed
Quantification Method - Curing Process (D1):
Mass Balance – The amount of styrene destroyed during the curing process (D1) was calculated as the balance of the quantities of purchased materials from receiving stage, quantities of styrene air emissions and disposals.
Best Available Method Rationale:
A mass balance was performed and it was assumed that the quantity of styrene that is not released to the air, is contained in product. As such, the data quality level is considered uncertain.
Calculation of Styrene destroyed:

D1	Annual Styrene Destroyed (tonnes):	1.11E+02	[Refer to NPRI Calculations]

Amount Of Styrene Disposed Off-Site
Quantification Method - Trimming Process (DIS1):
Mass Balance – The amount of transferred off-site for disposal (DIS1) was determined based on records of quantities of waste shipped off site as waste and supplier provided MSDS information showing constituent concentrations by weight.
Best Available Method Rationale:
Records of waste quantities and MSDS information showing constituent concentrations are highly reliable. As such, the data quality level is considered average.
Calculation of Styrene disposed on-site or off-site:

DIS1	Annual Waste Transferred Off-Site for Disposal (tonnes):	7.56E-01	[Refer to NPRI Calculations]
	Annual Waste Transferred Off-Site for Disposal from Resins (tonnes):	7.56E-01	
	Annual Waste Transferred Off-Site for Disposal from Gelcoats (tonnes):	0.00E+00	

Input/Output Balance for Styrene

	Input (tonnes)		Output (tonnes)	Process Flow	Data Quality
1.0 Receiving Stage					
Total Styrene Entering Raw Material Process	122.88			U1	AA
Total Styrene Exiting Raw Material Process			122.88	INT1	A
Input/Output Balance: U1=INT1	1.23E+02	=			
			1.23E+02		
Unaccounted for material =			**0.00E+00**		
2.0 Pool Steps/Spas Fabrication Stage					
Total Styrene Entering the Resin and Fibreglass Application Process	1.23E+02			INT1	A
Total Styrene Released to Air from Resin and Fibreglass Application Process			11.15	A1	A
Total Styrene Disposed during the Resin and Fibreglass Application Process			7.56E-01	DIS1	A
Total Styrene Exiting the Resin and Fibreglass Application Process			110.97	INT2	U
Total Styrene Entering the Curing Process	1.11E+02			INT2	U
Total Styrene Released to Air from Curing Process			0.239616	A2	A
Total Styrene Destroyed during the Curing Process			110.73	D1	U
Input/Output Balance: INT1=A1+A2+DIS1+INT3+D1	1.23E+02	=			
			1.23E+02		
Unaccounted for material =			**0.00E+00**		

Comment on Input/Output Balance Results

Facility Wide Input/Output Balance

	Input (tonnes)		Output (tonnes)	Process Flow
Total Styrene Used	122.88			U
Total Styrene Created	0.00			C
Total Styrene Released to Air			11.39	A
Total Styrene Transferred Off-Site			0.00	TR
Total Styrene Destructed			110.73	D
Total Styrene Disposed to Landfill			0.76	DIS
Total Styrene Released to Water			0.00	W
Input/Output Balance: U+C=A+TR+D+DIS+W+P	122.88	=	122.88	
Unaccounted for material =			**0.00E+00**	

Comment on Input/Output Balance Results:

APPENDIX C2

Option Analysis

C2: Option Identification and Analysis - Styrene CAS#100-42-5

STATEMENT OF INTENT TO REDUCE THE USE AND/OR CREATION OF STYRENE

Latham Pool Products Inc. is committed to being an industry leader in our manufacturing processes, and as a result, minimizing any negative impact on our environment. Therefore, we are fully committed to operate our manufacturing plant(s) in accordance with all applicable environmental laws and regulations. In particular, our Ajax facility intends to reduce and eliminate, where possible, any listed substances wherever technically and operationally feasible.

OBJECTIVES OF THE PLAN AND ANY TARGETS

Latham Pool Products Inc., in compliance with the Toxics Reduction Act (2009) and O. Reg. 455/09, does not intend to reduce the use of Styrene. Latham Pool Products Inc. will continue to investigate process efficiencies and continuous improvement initiatives in an effort to reduce this substance in the future.

DESCRIPTION OF WHY STYRENE IS USED AND/OR CREATED

Latham Pool Products Inc. is a manufacturer of vinyl pool liners, fiberglass reinforced spill-over spas and swimming pool steps for residential markets. Styrene is present in the raw materials, polyester resin, polylite resin, vinyl resin, and gel coats. The polyester and polylite resins contain styrene at a concentration of 35%, a concentration of 44% - 60% for vinyl resins and at a concentration of 46% for gel coats. Latham Pool Products Inc. uses styrene because it is a major component in the base fiberglass resins we use. This chemical is a necessary bonding and curing agent that is included in the base resin used to produce fiberglass reinforcing products. This fiberglass is a key reinforcement system that is added to our spa and swimming pool stair systems manufactured at this facility and therefore it is not possible to eliminate the use of styrene in our process.

DESCRIPTION OF OPTION TO BE IMPLEMENTED OR RATIONAL FOR WHY NOT

No reduction options will be implemented under this plan because they are either not technically feasible, the amount of reduction expected does not warrant the time and effort required to track any potential savings or they could not be verified due to fluctuations in our process due to the human factor involved. However, Latham Pool Products Inc. has chosen to implement some of these options outside of this plan realizing that there is no downside and any savings realized is beneficial to both our cost and the environment.

Option Category	Option Description	2012 Reportable Quantities					Technical Evaluation	Economic Evaluation	Reduction Plan	Timeline	Implement (Yes or No)
		Use	Creation	Discharge		In Product					
				Air	Land						
1. Materials/feedstock sub	Replace LABI 1721 Resin with a styrene free resin.	122.88	N/A	11.39	0.76	N/A	NOT TECHNICALLY FEASIBLE OPTION: Indication from technical people at our supplier (Hexion) these alternative resins were developed to work in the fiberglass laminating process and are not proven to bond to acrylic sheet at this time.	N/A	N/A	N/A	N/A
	Replace LABI 1721 Resin with a product that has a % concentration of styrene of less than 35%	122.88	N/A	11.39	0.76	N/A	NOT TECHNICALLY FEASIBLE OPTION: Both of our current resin suppliers technical experts indicate that we are currently using resins systems with the lowest content of styrene monomer (35%) that will allow for the necessary bonding to the acrylic sheet to fully crosslink and harden properly.	N/A	N/A	N/A	N/A
2. Product design/reformulation	Use of a thicker acrylic sheet.	122.88	N/A	11.39	0.76	N/A	NOT TECHNICALLY FEASIBLE OPTION: This option is still in the conceptual stage at this time. This concept would need to be evaluated further, then thoroughly tested and most importantly be cost effective. At this point we feel this option as limited chance of success and we do not have the resources to take on this project.	N/A	N/A	N/A	N/A
	Use more filler or alternative fillers in resin mix.	122.88	N/A	11.39	0.76	N/A	NOT TECHNICALLY FEASIBLE OPTION: Our suppliers have indicated that other manufacturers are using higher levels of fillers but the exact parameters or end products are not know. Initial thoughts are higher levels of fillers are better suited for Gel-coat laminating as opposed to bonding to acrylics. This is not a proven alternative at this time.	N/A	N/A	N/A	N/A
3. Equipment or process modification	Replace existing spray tips with new tips to minimize overspray of resin.	122.88	N/A	11.39	0.76	N/A	TECHNICALLY FEASIBLE OPTION: Option easy to implement. - estimated reduction of 25 lbs of total overspray per week (styrene would only be a portion of this amount) . This estimated reduction includes replacing the spray tips, training the operators and developing operating procedures.	Option implemented outside of this plan without consideration of economic evaluation.	Replaced the spray tips on both spray guns.	10/25/2013	NO
4. On-site reuse or recycling	Reuse of resin - collect resin in container to be used in stripping during testing of spray gun each morning (at start of shift)	122.88	N/A	11.39	0.76	N/A	TECHNICALLY FEASIBLE OPTION: Testing has been completed. Estimate savings 2 kg per day (styrene would only be a portion of this amount).	Option implemented outside of this plan without consideration of economic evaluation.	Reuse resin from spray gun testing.	10/18/2013	NO
5. Spill and leak prevention	no option.	122.88	N/A	11.39	0.76	N/A	NO OPTION IDENTIFIED: because there have not been any spills in the history of the company, as there is minimal manual transfer.	N/A	N/A	N/A	N/A
6. Inventory management/purchasing techniques	No option.	122.88	N/A	11.39	0.76	N/A	NO OPTION IDENTIFIED: because there has been no losses due to expired materials. Just in time delivery is an inventory management practice for Latham.	N/A	N/A	N/A	N/A
7. Training or improved operating practices	Implement training with the new spray gun tips to minimize overspray and waste of FG resin..	122.88	N/A	11.39	0.76	N/A	TECHNICALLY FEASIBLE OPTION: Option easy to implement. Savings are in combination with the savings related to the Equipment or process option total listed above.	Option implemented outside of this plan without consideration of economic evaluation.	Train all operators on the use of new spray gun tips.	10/25/2013	NO
	Develop and implement operating procedures for spray gun testing at the start of morning shift.	122.88	N/A	11.39	0.76	N/A	TECHNICALLY FEASIBLE OPTION: Option easy to implement. Savings are in combination with the savings related to the spill and leak prevention option total listed above.	Option implemented outside of this plan without consideration of economic evaluation.	Develop procedure for spray gun testing.	10/18/2013	NO

Notes:
1) Use and discharge estimates are based on current year data and are subject to normal production variation

APPENDIX C3

Direct and Indirect Costs

C3: Direct and Indirect Costing for Styrene

Categories	Overall Result	Styrene Costs	Comments / Assumptions
Direct Costs			
RESINS AND GELCOATS	**$ 925,287.00**	$ 321,544.95	- see working sheet for detail breakdown
CLEANING & TOOL SUPPLIES	**$ 2,000.00**	$ 288.42	- 33% of cleaning and tool supplies used for the application of resin containing styrene x average styrene concentration (43.7%) for all resin products
Direct Costs	**$ 927,287.00**	$ 321,833.37	
Indirect Costs			
Labour Costs			
1) Production			
SALARIES AND SUPPLEMENTAL (production staff)	**$ 784,712.00**	$ 274,335.32	- assumed 28 production staff; all staff could rotate positions - 80% staff on production floor handling resins and product x average styrene concentration (43.7%) for all resin products
2) Management			
SALARIES (Management and Floor Supervision)	**$ 173,685.00**	$ 9,401.79	- total number of employees = 31; assumed 1 Facility Manager, 1 Floor Supervisor and 1 Shipping Person - 10% management staff x average styrene concentration (43.7%) for all resin products
WORKMEN'S COMP INS (Management and Floor Supervision)	**$ 5,350.00**		
EMPLOYER HEALTH TAX (Management and Floor Supervision)	**$ 3,387.00**		
EMPLOYMENT INSURANCE (Management and Floor Supervision)	**$ 3,875.00**		
CANADA PENSION PLAN (Management and Floor Supervision)	**$ 7,703.00**		
GROUP INSURANCE (Management and Floor Supervision)	**$ 15,933.00**		
R.R.S.P EXPENSE (Management and Floor Supervision)	**$ 5,211.00**		
Total Labour Costs	**$ 999,856.00**	$ 283,737.11	
Facility Operations			
OFFICE SUPPLIES	**$ 3,000.00**	$ 26.22	- 2% of the office supplies related to resins - 2% x average styrene concentration (43.7%) for all resin products
GROUNDS/BLDG R&M	**$ 35,000.00**	$ 7,647.50	- assumed 50% of total plant usage x average styrene concentration (43.7%) for all resin products
R&M EQUIPMENT	**$ 25,000.00**	$ 4,096.88	- 37.5% (3 of the 8 processes have equipment to be maintained with the use of the resins and gel coats) - 37.5% x average styrene concentration (43.7%) for all resin products
WASTE DISPOSAL	**$ 30,000.00**	$ 300.00	- assumed 0.1% of the waste disposed consists of styrene (by weight)
SHOP SUPPLIES	**$ 28,000.00**	$ 9,177.00	- assuming shop supplies distributed evenly to all processes; 6 of the 8 processes are related to use of the resins and gel coats (containing styrene) - 75% x average styrene concentration (43.7%) for all resin product
FORKLIFT	**$ 15,000.00**	$ 2,163.15	- 33% of Forklifts time assumed to be alloted to moving finished product (other 66% assumed for unloading/moving acrylic sheets, thermo-forming) - 33% x average styrene concentration (43.7%) for all resin products
MEALS/ENTERTAINMENT	**$ 1,000.00**	$ -	N/A
RENT	**$ 127,654.00**	$ -	N/A
TELEPHONE	**$ 1,900.00**	$ -	N/A
REALTY & BUS TAXES	**$ 63,870.00**	$ -	N/A
ALARM SECURITY	**$ 1,200.00**	$ -	N/A
HEALTH & SAFETY	**$ 5,000.00**	$ 1,748.00	- assumed only the 28 production staff have PPE - 80% staff have PPE to handle resin x 100% (wt) of the resin contains styrene x average styrene concentration (43.7%) for all resin products
ENVIRONMENTAL EXP	**$ 10,000.00**	$ 3,300.00	- as there are only 3 substance reported, assumed that 33% of the annual NPRI costs are associated with styrene
SUPPLEMENTAL ENVIRONMENTAL	**$ 18,940.00**	$ 6,250.20	- the average environmental capital costs over the years of 2010, 2011 and 2012 was taken to be representative - 33% of the annual ECA, source testing, TRA costs related to styrene
Facility Operations	**$ 365,564.00**	$ 34,708.95	
Total Styrene Costs		**$640,279.43**	

APPENDIX C4

Planner Recommendations

C4. PLANNER RECOMMENDATIONS

Styrene (CAS 100-42-5)

1. Expertise relied upon in preparing the plan;

Latham Pool Products Inc. is a manufacturer of vinyl pool liners, fibreglass reinforced spill-over spas and swimming pool steps for residential markets. Styrene is present in the raw materials, polyester resin, polylite resin, vinyl resin, and gel coats. The polyester and polylite resins contain styrene at a concentration of 35%, a concentration of 44% - 60% for vinyl resins and at a concentration of 46% for gel coats. The plans were developed from input by the Manufacturing Engineering Manager, Plant Manager (Highest Ranking Employee) and external resources such as raw material suppliers.

RECOMMENDATIONS:

- Continue to engage senior management and operations personnel in the annual toxic substance accounting and planning process. The use of a team may facilitate both plan development by drawing on a wide range of expertise and organizational knowledge and, plan implementation by generating broad based support.
- Continue to reference the Ontario Ministry of the Environment website for additional sources of information such as technical guidance documents pertaining to the toxic substance accounting, planning and reporting and best management practices. Financial assistance is also available for some facilities to help them off-set the costs for conducting a pollution prevention assessment, accounting for toxic substances and toxics reduction planning.

2. Data and methods used in toxic substance accounting;

The facility relied on source-specific information to calculate the **USE** quantity (U1). Source specific information included, MSDS containing styrene concentrations in and the 2012 inventory records of purchased quantities of raw materials containing styrene (in kilograms). Records of the purchased quantities and MSDS information showing constituent concentrations are highly reliable. As such, the data quality level is considered above average.

NO RECOMMENDATION:

- No other alternatives were identified during the evaluation of best available methods that would yield a higher level of data quality/reliability. MSDS records are a common method of obtaining highly reliable data. Quantities of raw material purchased are tracked and recorded by the purchasing department and the facility assumes that quantities purchased are equivalent to the quantities used. This method was considered reliable, since the facility has indicated that they have no losses due to expired material and their purchasing practice is “just-in-time” delivery.

The quantity of styrene **ON-SITE RELEASE** to air from the Resin and Fibreglass Application process (A1) was based on source testing data.

- No other alternatives were identified during the evaluation of best available methods that would yield a higher level of data quality/reliability. The source testing was conducted under operating conditions that were representative of the typical operations that could occur over the year.

3. Process descriptions and process flow diagrams;

The movement of the toxic substances associated with styrene was described and identified in each stage and process.

NO RECOMMENDATION:

- Sufficient detail of the fate of styrene throughout the process was accurately described and shown in the process flow diagram.

4. Analysis of input/output balances;

NO RECOMMENDATION:

- After investigating the input/output balance results, no missing sources of data were found, and no calculation errors were found. The input/output balance at each process level was zero.

5. Descriptions of how, when, where and why a substance is used or created;

Description of how, when, where and why the substance is used are documented.

NO RECOMMENDATION:

- The process flow diagram provides sufficient detail to describe how the substance enters the process and leaves.

6. Additional technically and economically feasible reduction options not included in the plan that might result in equal or greater reductions;

Reduction Option Categories: Materials/Feedstock Substitution, Product Design/Reformulation, Equipment or Process Modification, On-site reuse or recycling, Spill and leak prevention, Inventory Management/Purchasing Techniques, Training or Improved Operating Practices

RECOMMENDATION:

The facility indicated that no option was identified for Inventory Management/Purchasing Techniques because the facility inventory is monitored by staff and is communicated weekly with purchasing agent, to keep inventory low. Perhaps investigating the implementation of environmental purchasing practices could be an option to consider in the future. As part of the environmental purchasing practice, a technical evaluation must occur to ensure compliance with applicable regulations (i.e. O.Reg. 419/05) and current environmental compliance approvals for the facility.

For example, styrene is currently present in the raw materials, polyester resin, polylite resin, vinyl resin, and gel coats. The polyester and polylite resins contain styrene at a concentration of 35%, a concentration of 44% - 60% for vinyl resins and at a concentration of 46% for gel coats. The environmental purchasing practice could identify measures to be taken to ensure that new raw materials entering the facility contain styrene concentrations less than what is currently purchased.

7. Technical and economic feasibility analyses;

NO RECOMMENDATION:

- The reduction plans summarize the technical and economic merit of the options considered.

8. Reduction estimates prepared for each identified reduction option;

NO RECOMMENDATION:

- No reduction options were identified for styrene; therefore, reduction estimates were not required.

9. Direct and indirect costs associated with the use, creation, release, disposal, transfer and the amount contained in product of the toxic substance;

The level of detail to which a facility chooses to examine their costs will vary, but it must be shown that both direct and indirect costs were considered. Understanding the full cost of a toxic substance is a key step in preparing a plan. Without having the complete baseline costs for a facility's processes and operations, it would not be possible to accurately analyze the potential for savings associated with toxic substance use and creation reduction options.

An estimate of direct and indirect costs were calculated using the 2012 facility operating budget details spreadsheet and LABI 1721 resin costs provided by the Manufacturing Engineering Manager.

The total fixed costs associated with the use, creation and release of styrene in 2012 was $321,833.37. The total quantifiable indirect costs associated with the use, creation and release of styrene in 2012 was $318,446.05. The total cost associated with the use, creation and release of styrene in 2012 was $640,279.43.

NO RECOMMENDATION:

- Both direct and indirect costs were considered.

10. Implementation steps and timelines in the plan and whether they are likely to be achieved.

NO RECOMMENDATION:

- No reduction options were identified for styrene; therefore, implementation steps and timelines were not required.