

Pentane Emissions Management Plan

Introduction

Plasti-Fab manufactures sustainable insulation products for construction and home renovation markets. Our insulation products provide customers with energy saving solutions which in turn provide emissions reduction potential that reduce environmental impacts. The purpose of this plan is to address the requirement identified in Manitoba Conservation and Stewardship Environment Act License No. 3098 issued to Plasti-Fab Ltd.

Scope

This management plan will address the requirement identified in License No. 3098 section 11b, pentane emission management plan to comply with the 1997 Canadian Council of Ministers of the Environment's (CCME), Environmental Guideline for the Reduction of VOC Emissions from the Plastics Processing Industry.

Plan Details

CCME 1997 Guideline, Reduction of VOC Emissions from the Plastics Industry (CCME PN 1276, July 1997) section 9.2 requires any EPS manufacturing facility to use bead (resin) containing less than 5% VOC by weight. The expandable polystyrene foam manufacturing process involves an initial expansion step using equipment known as an "expander". The expansion step determines the density of the foam to be produced. Density is the means for differentiating the various product types sold to insulation customers. Plasti-Fab manufactures and sells products at several densities in the range 9.5 kg/m³ to 40 kg/m³. The Winnipeg facility uses an older type of continuous expander equipment which operates at atmospheric pressure. This particular continuous expander is not capable of achieving density below 20 kg/m³ unless bead with >6.5% VOC is used as the raw material. Above 20 kg/m³ Plasti-Fab can utilize the low VOC (<5.0%) resin and this is currently being done. In 2013, 40% of all the resin consumed contained <5% VOC. In order to process all Plasti-Fab foam product types using bead with <5% VOC, the facility would need to purchase and install a modern pressurized batch expander.

Plasti-Fab's initial plan was to select the required equipment and replace the existing expander with a new batch expander. A preliminary engineering review was conducted to determine the specifications for the new equipment and the space required to fit the expander into the facility. After conducting this review the engineering team concluded the new expanders available would not fit into the facility due to height and space restrictions. In order to implement the required equipment change will require a building expansion. The cost of this project is now estimated to be > \$4,000,000 due to the required building expansion.

Conclusions

Due to the significant capital investment involved, Plasti-Fab requests additional time to complete the engineering review of the building expansion and to determine if this capital expenditure is economically viable. This is a significant capital investment and requires additional time to plan and design followed by quoting and inclusion in the company's long term capital approval and planning process. Plasti-Fab will continue to use <5% VOC bead whenever possible based on product and application requirements. Our goal will be to use, at a minimum, 40% of the total bead with <5% VOC until it is deemed economical and feasible to expand the facility and install the necessary equipment.

Ambient Styrene Concentration Monitoring Plan

Introduction

Plasti-Fab manufactures sustainable insulation products for construction and home renovation markets. Our insulation products provide customers with energy saving solutions which in turn provide emissions reduction potential that reduce environmental impacts. The purpose of this plan is to address the requirement identified in Manitoba Conservation and Stewardship Environment Act License No. 3098 issued to Plasti-Fab Ltd.

Scope

This monitoring plan will address the requirement identified in License No. 3098 section 11a, ambient styrene concentration monitoring plan.

Plan Details

Plasti-Fab operates several EPS insulation manufacturing facilities throughout Canada. These facilities operate in compliance with all provincial and federal licensing and reporting requirements. All facilities utilize the same raw materials and in general the same processing equipment. It is Plasti-Fab's position that air emissions will be similar in each location independent of the location. Extensive stack testing and air dispersion modeling was recently conducted at our facility in Vancouver, BC which confirmed compliance to the locally imposed requirements for styrene and pentane emissions. It is Plasti-Fab's belief the results of the testing and modeling in BC could be applied to other locations.

Plasti-Fab contracted AMEC Environment & Infrastructure to review the testing and dispersion modeling conducted in BC in order to determine if there might be any concern for styrene emissions at the Winnipeg facility. A report by AMEC, "Air Emissions Assessment Plasti-Fab Ltd. 2485 Day Street, Winnipeg" (attached), concluded that ambient concentration of styrene from the Winnipeg facility would be well within the requirements identified by Manitoba Conservation (Ontario 24 hour maximum acceptable styrene concentration of 400 $\mu\text{g}/\text{m}^3$). The assumptions made in this review are; the relative sizes of the facilities is directly proportional to the concentration of styrene emissions and dispersion modeling for MB facility would yield similar results to modeling conducted in BC.

Conclusions

Based on the AMEC report Plasti-Fab is not planning any additional action at our Winnipeg facility.

14 May 2014

File: WX17111

Plasti-Fab Ltd.
2485 Day Street,
Winnipeg, Manitoba
April 2014

**Reference: Air Emissions Assessment
Plasti-Fab Ltd., 2485 Day Street, Winnipeg, Manitoba.**

Attention: Mr. John Brazzale

1.0 INTRODUCTION

AMEC Environment & Infrastructure, a division of AMEC Americas Limited (AMEC) was authorized by Mr. John Brazzale of Plasti-Fab Ltd. (Plasti-Fab) to complete an air emissions assessment for the Plasti-Fab foam manufacturing facility located at 2485 Day Street in Winnipeg, Manitoba, here in referenced as (the 'Site'). The facility is currently in receipt of a draft Environmental Licence issued by Manitoba Conservation and Water Stewardship (MCWS).

2.0 OBJECTIVES

The objective of the assessment was to determine applicable methodology to be used to determine and assess concerns expressed by MCWS in regards to the measurement of airborne emissions of styrene and pentane from the facility operations.

3.0 FACILITY DESCRIPTION AND PROCESS OPERATIONS

The main operation of the Site includes the manufacturing of expanded polystyrene foam products used for insulation, packaging, or cut shapes. The raw product used in this process consists of polystyrene beads that are delivered to the Site in large cardboard crates. The process begins with the heating of these polystyrene beads, causing them to expand. After curing for a number of days the expanded beads are again heated with steam and pressed into foam blocks. Once formed, these foam blocks are then cut with a hot-wire knife into the required dimensions.

The facility process also has an expander unit to pre-form polystyrene beads with steam, a boiler unit to produce steam used during the forming process, several storage bags to cure beads, a block mould, a foam block storage area, a cutting area, a warehouse area and a facility shipping and receiving dock.

The main waste products produced during the forming process used on Site include the end-cuts of the formed polystyrene foam board, foam shavings and waste polystyrene beads. These waste materials are collected in an external blower shed and are either recycled back into plant operations or sent for disposal to the municipal landfill.

4.0 SURROUNDING LAND-USE

The land use surrounding the Plasti-Fab facility (at the time of the assessment) was determined to consist of a mixture of residential/park, commercial and industrial land uses, as described below.

- North of the Site: An undeveloped industrial lot followed by commercial / industrial properties and a drainage ditch.
- South of the Site: A commercial and manufacturing property (Markwill Industries Limited) followed by Varsteel Limited and further commercial / industrial and residential properties beyond.
- East of the Site: Day Street, immediately followed by a manufacturing property (Amsted Rail – Griffin Wheel Company).
- West of the Site: The Transcona Bioreserve (parkland) with residential properties beyond.

5.0 REGULATORY

It is noted from Section 4 of the draft Manitoba Environmental Licence that-“the Director may, at discretion, require the Licensee to investigate specific areas of concern including emission systems and to determine the environmental impact associated with the release of any pollutant from the development.” Section 11 of the draft Manitoba Environmental Licence stipulates that “the Licensee must submit both styrene and pentane emission management plans within 90 days of commencement of the Licence” and, under Section 12, “shall monitor and manage styrene and pentane emissions”.

General Site Location and Surrounding Land-use can be found in Appendix A
Plasti-Fab draft Environmental Licence can be found in Appendix B.

6.0 AIR EMISSIONS ASSESSMENT

Apart from the facility heating and cooling equipment, sources of current air or fugitive emissions at the Site are limited to steam venting from steaming equipment, styrene emitted indoors from the hot-wire foam block cutting process, propane burning forklifts used in the warehouse, and pentane vapours released indoors from the raw polystyrene beads. Previous Indoor air sampling for styrene completed on Site has indicated occupational exposure concentrations in the range of 2-5 ppm styrene, well below the styrene TLV of 50ppm. No measurement data for pentane was presented for this report.

In August 2012, a report was prepared for Plasti-Fab by Levelton Consultants to document the results of an emissions survey conducted on 24 April 2012 at the Plasti-Fab facility located at 679 Aldford Avenue, in Delta, BC. AMEC understands that the Delta facility is similar in

configuration to the Winnipeg facility, and that the production processes are also very similar in terms of production rates at the two locations.

Testing for styrene from this facility was conducted in accordance with the US EPA Method 0030 to identify the discharge concentration of styrene and EPA Method 18 was used to determine the pentane emissions.

The facility sources tested during this program included:

- Block mould steam vent
- Expander exhaust vent
- Vacuum exhaust

Three discrete styrene test runs were performed on each source with a sampling duration of 20-minutes per test run.

Table 1. Emission results based on the above referenced Delta facility test data.

Source	Stack height (m ag)	Flow rate (dscm/s)	Temp (°C)	Styrene Concentration (mg/dscm)	Styrene Emission rate (g/s)	Pentane Concentration (mg/dscm)	Pentane Emission rate (g/s)
Block Mould Steam vent	8.8	2.12	49.8	95.0	0.2014	869	1.842
Expander exhaust	8.1	0.321	57.3	29.7	0.0095	320	0.1027
Vacuum exhaust	8.0	0.045	39.7	101.2	0.0046	637	0.0287

In terms of production rates at the two locations, typical and maximum rates (lbs of product processed) are provided in Table 2. AMEC has also provided the expected adjustment factor for the proportional emission production of styrene and pentane based on the production capacity differences from the two facilities, as shown in Table 2.

Table 2. Adjustment Factors Based on Relative Production Indicator

	Delta facility	Winnipeg facility	Emission Adjustment Factor
Max Production Capacity (lb/month)	1,000,000	350,000	0.350
Typical production capacity (lb/month)	600,000	200,000	0.300

Using the most conservative adjustment factor from Table 2 on the Winnipeg flow rates, results in the adjusted emission rates are shown in Table 3.

Table 3. Emissions Based on Adjusted Data

Source	Flow rate (dscm/s)	Temp (°C)	Styrene Concentration (mg/dscm)	Styrene Emission rate (g/s)	Pentane Concentration (mg/dscm)	Pentane Emission rate (g/s)
Block Mould Steam vent	0.742	49.8	95.0	0.0705	869	0.645
Expander exhaust	0.112	57.3	29.7	0.00333	320	0.0358
Vacuum exhaust	0.0158	39.7	101.2	0.00160	637	0.0101

Dispersion modeling, carried out by Levelton using the CALPUFF air dispersion on the Delta facility data, predicted a maximum 1-hour offsite concentration of styrene as 53.5 ug/m³ and pentane as 487.8 ug/m³. These impacts were compared by Levelton against the Texas Commission on Environmental Quality (TCEQ) Limits (110 ug/m³ for styrene and 4,100 ug/m³ pentane – both 1-hour averages). Levelton concluded that no predicted health impacts or odour issues were likely to occur from the facility. It is also noted from the dispersion modeling isopleths that impact concentrations will drop by more than 50% within the first 500m from the facility.

Manitoba Conservation only references a 24 hour maximum acceptable limit for styrene of 400 ug/m³. The Province of Ontario, to which MCWS will look for guidance, has the same limit for styrene and also a 1-hour screening limit of 4,200 ug/m³ for pentane.

7.0 CONCLUSION

Given the above test data and assuming the facilities are similar and can be scaled proportionally as per indications found in Tables 2 and 3, AMEC is of the opinion that the assessment of facility emissions using the Delta test data will result in a conservative emissions estimate for the Winnipeg plant. In this case, and noting that the closest sensitive receptors in Winnipeg will be more than 720 metres west of the plant, it is believed that the facility is capable of meeting established guidance for both styrene and pentane emissions.

8.0 CLOSURE

No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of a standardized environmental protocol is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the property, given reasonable limits of time and cost.

This report was prepared for the exclusive use of Plasti-Fab Manitoba and is intended for the site located at 2485 Day Street in Winnipeg, Manitoba. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. Should additional parties require reliance on this report, written authorization from AMEC will be required.

With respect to third parties, AMEC has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

This report and its findings are based on data and information provided to Plasti-Fab Ltd. by Levelton Consultants and reviewed and interpreted by AMEC. It is based solely on a review of information and data obtained by AMEC as described in this report and discussions with a representative of the owner/occupant, as reported herein. Except as otherwise maybe specified, AMEC disclaims any obligation to update this report for events taking place, or with respect to information that becomes available to AMEC after the time this report was issued.

In evaluating the property, AMEC has relied in good faith on information provided by other individuals noted in this report. AMEC has assumed that the information provided is factual and accurate. In addition, the findings in this report are based, to a large degree, upon information provided by the current owner/occupant. AMEC accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

AMEC makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

This Report is also subject to the further General Conditions in Appendix C.



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AMEC Environment & Infrastructure
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Shawn MacGillivray, B.A., AMRT
Senior Project Scientist

Reviewed By:



Michael Bertram, P. Eng.
Senior Environmental Engineer

APPENDIX A
GENERAL SITE LOCATION AND SURROUNDING LAND-USE



CITY OF WINNIPEG

amec
Environment & Infrastructure
Plasti-Fab Ltd.

**SITE LOCATION PLAN
ENVIRONMENT ACT PROPOSAL REPORT
2485 DAY STREET
WINNIPEG, MANITOBA**

Drawn: N/A	Scale: ~1:150 000	Date: APR/2013	Project No.: WX17111	Figure: 1
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Environment & Infrastructure

PLASTI-FAB LTD.

**SITE AND SURROUNDING LAND
 ENVIRONMENT ACT PROPOSAL REPORT
 2485 DAY STREET
 WINNIPEG, MANITOBA**

Drawn: N/A

Original Scale: 1:10 000

Date: APR/2013

Project No.: WX17111

Figure: 2

APPENDIX B
DRAFT ENVIRONMENTAL LICENCE

LICENCE

Licence No. / Licence n°

DRAFT

Issue Date / Date de délivrance

XX, 2014

In accordance with *The Environment Act* (C.C.S.M. c. E125) /
Conformément à la *Loi sur l'environnement* (C.P.L.M. c. E125)

Pursuant to Section 11(1) / Conformément au Paragraphe 11(1)

THIS LICENCE IS ISSUED TO:/CETTE LICENCE EST DONNÉE À:

PLASTI-FAB LTD.; "the Licencee"

for the continued operation of the Development being the Plasti-Fab Manitoba Facility, located at 2485 Day Street, Winnipeg and in accordance with the Proposal dated July 30, 2013, additional information provided on October 7, 2013 and January 13, 2014, and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence;

"accredited laboratory" means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation and Water Stewardship to be equivalent to the SCC, or be able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

"affected area" means a geographical area, excluding the property of the Development;

"approved" means approved by the Director or assigned Environment Officer in writing;

"approved facility" means a facility operating in accordance with the requirements of *The Environment Act* and the Regulations thereunder;

"closure plan" means a plan indicating the actions to be taken for the closure of the Development;

"Director" means an employee so designated pursuant to *The Environment Act*;

"Environment Officer" means an employee so designated pursuant to *The Environment Act*;

"fugitive emissions" means particulate matter escaping from sources within the development property into the atmosphere other than through any of the emission stacks or vents;

"noise nuisance" means an unwanted sound, in an affected area, which is annoying, troublesome, or disagreeable to a person:

- a) residing in an affected area;
- b) working in an affected area; or
- c) present at a location in an affected area which is normally open to members of the public;

if the unwanted sound

- d) is the subject of at least 5 written complaints, received by the Director in a form satisfactory to the Director and within a 90-day period, from 5 different persons falling within clauses a), b), or c), who do not live in the same household; or
- e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses a), b), or c) and the Director is of the opinion that if the unwanted sound had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90-day period, from 5 different persons who do not live in the same household;

"odour nuisance" means a continuous or repeated odour, smell or aroma, in an affected area, which is offensive, obnoxious, troublesome, annoying, unpleasant, or disagreeable to a person:

- a) residing in an affected area;
- b) working in an affected area; or
- c) present at a location in an affected area which is normally open to members of the public;

if the odour, smell or aroma

- d) is the subject of at least 5 written complaints, received by the Director in a form satisfactory to the Director and within a 90-day period, from 5 different persons falling within clauses a), b), or c), who do not live in the same household; or
- e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses a), b), or c) and the Director is of the opinion that if the odour, smell or aroma had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90-day period, from 5 different persons who do not live in the same household;

"opacity" means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background;

"operator" means the company or person who is responsible for the day-to-day maintenance and operation of the Development;

"particulate matter" means any finely divided liquid or solid matter other than water droplets;

"particulate residue" means that part or portion of an atmospheric emission which is deposited onto a surface;

"point source" means any point of emission from a Development where pollutants are emitted to the atmosphere by means of a stack;

"pollutant" means a pollutant as defined in *The Environment Act*;

"post-closure plan" means a plan indicating the actions to be taken for the care, maintenance, and monitoring of the Development after closure, that will prevent, mitigate, or minimize the threat to public health and the environment;

"QA/QC" means quality assurance/quality control;

"solid waste" means solid waste as defined in *Manitoba Regulation 150/91*, or any future amendments thereto, respecting waste disposal grounds, excluding waste rock;

"stack" means a duct, pipe, chimney, vent, opening or other structure through which pollutants are emitted to the atmosphere;

"Standard Methods for the Examination of Water and Wastewater" means the most recent edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Waterworks Association and the Water Environment Federation; and

"volatile organic compound (VOC)" means any organic compound which participates in atmospheric photochemical reactions, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonates, ammonium carbonate, and other compounds which may be exempt by the Director;

"wastewater" means any liquid containing a pollutant as defined in *The Environment Act*, associated with or resulting from the Development which is discharged into the environment.

GENERAL TERMS AND CONDITIONS

This Section of the Licence contains terms and conditions intended to provide guidance to the Licencee in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

1. The Licencee shall implement a high standard of equipment maintenance and good housekeeping and operational practices with respect to the Development, at all times.
2. The Licencee shall reduce the production and dissemination of wastes by initiating and maintaining waste reduction and waste recycling programs.
3. The Licencee shall submit all information required to be provided to the Director or Environment Officer under this Licence, in writing, in such form (including number of copies), and of such content as may be required by the Director or Environment Officer, and each submission shall be clearly labelled with the Licence Number and Client File Number associated with this Licence.
4. In addition to any of the limits, terms and conditions specified in this Licence, the Licencee shall, upon the request of the Director:
 - a) sample, monitor, analyze and/or investigate specific areas of concern regarding any segment, component or aspect of pollutant storage, containment, treatment, handling, disposal or emission systems, for such pollutants or ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, for such duration and at such frequencies as may be specified;
 - b) determine the environmental impact associated with the release of any pollutant(s) from the Development;
 - c) conduct specific investigations in response to the data gathered during environmental monitoring programs; or
 - d) provide the Director, within such time as may be specified, with such reports, drawings, specifications, analytical data, descriptions of sampling and analytical procedures being used, bioassay data, flow rate measurements and such other information as may from time to time be requested.
5. The Licencee shall, unless otherwise specified in this Licence:
 - a) carry out all preservations and analyses on liquid samples in accordance with the methods prescribed in the most current edition of Standard Methods for the Examination of Water and Wastewater or in accordance with equivalent preservation and analytical methodologies approved by the Director;
 - b) carry out all sampling of, and preservation and analyses on, soil and air samples in accordance with methodologies approved by the Director;
 - c) have all analytical determinations undertaken by an accredited laboratory; and
 - d) report the results to the Director, in writing and in an electronic format acceptable to the Director, within 60 days of the samples being taken.

6. The Licencee shall designate an employee, within 60 days of the date of issuance of this Licence, as the Licencee's Environmental Coordinator, whose job description will include assisting the Licencee in complying with the limits, terms and conditions in this Licence and assisting Senior Management of the Licencee to manage environmental issues at the Development. The name of the Environmental Coordinator shall be submitted in writing to the Director within 14 days of appointment.

SPECIFICATIONS, LIMITS, TERMS, AND CONDITIONS

Respecting Air Emissions – Limits

7. The Licencee shall not emit particulate matter from the Development such that:
 - a) particulate matter:
 - i. exceeds 0.23 grams per dry standard cubic metre calculated at 25 degrees Celsius and 760 millimetres of mercury, corrected to 12 percent carbon dioxide for processes involving combustion, from any point source of the Development;
 - ii. exhibits a visible plume with an opacity of greater than 5 percent at any point beyond the property line of the Development; or
 - iii. results in the deposition of visible particulate residue at any time beyond the property line of the Development; or
 - b) opacity from any point source of the Development equals or exceeds:
 - i. 20 percent as the average of any 24 consecutive opacity observations taken at 15 second intervals;
 - ii. 20 percent for more than 16 individual opacity observations within any 1 hour period; or
 - iii. 40 percent for any individual opacity observation
8. The Licencee shall not cause or permit a noise nuisance to be created as a result of the construction, operation, or alteration of the development, and shall take such steps as the Director may require to eliminate or mitigate a noise nuisance.
9. The Licencee shall not cause or permit an odour nuisance to be created as a result of the construction, operation, or alteration of the Development, and shall take such steps as the Director may require to eliminate or mitigate an odour nuisance.

Respecting Air Pollution Control Equipment

10. The Licencee shall direct all air streams that contain a pollutant(s) of concern to the Director to a pollution control device which has been designed for and demonstrated to be capable of reducing, altering, eliminating or otherwise treating the pollutant(s).

Respecting Air Emission Monitoring

11. The Licencee shall submit to the Director for approval, within 90 days of the issuance of this Licence:
 - a) an ambient styrene concentration monitoring plan; and
 - b) a pentane emission management plan to comply with the 1997 Canadian Council of Ministers of the Environment's (CCME), *Environmental Guideline for the Reduction of VOC Emissions from the Plastics Processing Industry*.
12. The Licencee shall monitor styrene and manage pentane emissions in accordance with the approved plans submitted pursuant to Clause 11 of this Licence.
13. The Licencee, upon written request from the Director, shall provide a stack or stacks including all necessary sampling facilities for the sampling of air emissions at the Development. The stack or stacks shall be provided:
 - a) at a location(s) and within a time frame satisfactory to the Director; and
 - b) to the specifications and in accordance with the most recent version of Manitoba Conservation Guideline, *Guideline for Stack Sampling Facilities*, unless otherwise approved by the Director.
14. The Licencee, upon a written request from the Director, shall submit a detailed plan which is acceptable to and approved by the Director, for the sampling and analysis of potential air pollutants, released as stationary point and fugitive emissions, including any compounds determined by the Director. The plan shall identify the rationale for the sampling, the ways and means by which the sampling program will be implemented including any special measures or methods which would be necessitated by influencing factors such as unfavourable weather conditions, the need for large or additional sample volumes, the need for multiple sampling runs, the methods used for the sampling and the analysis for each compound, the detection level to be attained, a comprehensive QA/QC program, and other items as may be identified by the Director.
15. The Licencee shall perform all stack sampling in accordance with the most recent version of Manitoba Conservation Report No. 96-07, *Interim Stack Sampling Performance Protocol*, unless otherwise approved by the Director.
16. The Licencee shall arrange the scheduling of the sampling program submitted pursuant to Clause 14 of this Licence such that a representative of Manitoba Conservation and Water Stewardship is available to monitor and audit the implementation of the sampling program.
17. The Licencee shall complete the sampling of emissions according to the approved plan submitted pursuant to Clause 14 of this Licence, within a timeframe to be determined by the Director.

18. The Licencee shall submit a report, for the approval of the Director, of the completed sampling and analysis plan approved pursuant to Clause 14 of this Licence, within 60 days of the receipt of the analytical results of that sampling plan. The report shall contain at minimum:
- a) the raw data collected;
 - b) a discussion of the sampling and analytical portions of the program including any anomalies of sampling and analysis; and
 - c) a discussion of the significance of the data gathered with specific attention to:
 - i) the significance for potential acute and chronic impacts to health or environment from exposure to concentrations of the compounds detected;
 - ii) the need for risk assessment of the impact of emissions;
 - iii) the need for the establishment of ambient air monitoring stations;
 - iv) the need for dispersion modeling of emissions;
 - v) results and conclusions of the QA/QC program; and
 - vi) other issues as may be determined by the Director.
19. The Licencee, upon the written request of and in a timeframe stipulated by the Director, shall comply with any air emission or ambient air quality criteria specified by the Director for any pollutant of concern to the Director which has been identified pursuant to Clause 4, 7, 10, or 18 of this Licence.

Respecting Chemical Storage and Spill Containment

20. The Licencee shall provide containment for all vessels containing chemicals in each area of the development where the chemicals are stored, loaded, transferred, used or otherwise handled, in compliance with the National Fire Code of Canada (2010), or any future amendment thereof, such that any product leakage or spillage and any contaminated liquid generated is contained within the Development and contamination of groundwater and surface water is prevented.
21. The Licencee shall, in a manner approved by the Director, remove and dispose of all spilled dangerous goods.

Respecting Wastewater

22. The Licencee shall not discharge wastewater beyond the boundaries of the Development except any discharge which is directed to the City of Winnipeg wastewater collection system in accordance with the requirements of the City of Winnipeg.

Respecting Solid Waste

23. The Licencee shall dispose of all solid waste generated at the Development only at a waste disposal ground operating under the authority of a permit issued pursuant to

Manitoba Regulation 150/91 or any future amendment thereof, or a Licence issued pursuant to *The Environment Act*.

24. The Licencee shall direct all recyclable materials generated at the Development to an approved recycling facility.

Respecting Emergencies

25. The Licencee shall, in the case of physical or mechanical equipment breakdown or process upset where such breakdown or process upset results or may result in the release of a pollutant in an amount or concentration, or at a level or rate of release, that causes or may cause a significant adverse effect, immediately report the event by calling 204-944-4888 (toll-free 1-855-944-4888). The report shall indicate the nature of the event, the time and estimated duration of the event and the reason for the event.
26. The Licencee shall, following the reporting of an event pursuant to Clause 25
- a) identify the repairs required to the mechanical equipment;
 - b) undertake all repairs to minimize unauthorized discharges of a pollutant;
 - c) complete the repairs in accordance with any written instructions of the Director; and
 - d) submit a report to the Director about the causes of breakdown and measures taken, within one week of the repairs being done.
27. The Licencee shall prepare, within 90 days of the date of issuance of this Licence, and maintain an emergency response contingency plan in accordance with the Canadian Centre for Occupational Health and Safety "Emergency Response Planning Guide" or other emergency planning guidelines acceptable to the Director.

Closure and Post Closure

28. Within one year prior to imminent closure of the Development, the Licencee shall submit, for the approval of the Director, a formal detailed Closure and Post Closure Plan for the Development.
29. The Licencee shall implement and maintain the approved Closure and Post Closure Plan.

REVIEW AND REVOCATION

- A. If in the opinion of the Director, the Licencee has exceeded or is exceeding or has or is failing to meet the specifications, limits, terms or conditions set out in this Licence, the Director may, temporarily or permanently, revoke this Licence.

5680.00 Plast-Fab Ltd.

Licence No. _____

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- B. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions set out in this Licence, the Director may require the filing of a new proposal pursuant to *The Environment Act*.

Tracey Braun, M. Sc.
Director
The Environment Act

Client File No.: 5680.00

APPENDIX C
GENERAL CONDITIONS

AMEC Environment & Infrastructure, A Division of AMEC Americas Limited
STATEMENT OF GENERAL CONDITIONS - ENVIRONMENTAL SERVICES

1. **STANDARD OF CARE** - In the performance of professional services, the CONSULTANT will use that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its professional practicing in the same or similar localities. No other warranty expressed or implied is made or intended by this agreement or by furnishing oral or written reports of the findings made. The CONSULTANT is to be liable only for damage approximately caused by the negligence of the CONSULTANT. The CLIENT recognizes that subsurface conditions may vary from those encountered at the location where borings, surveys, or explorations are made by the CONSULTANT and that the data, interpretations and recommendation of the CONSULTANT are based solely on the information available to him. The CONSULTANT will not be responsible for the interpretation by others of the information developed.

2. **SITE INFORMATION** - The CLIENT agrees to fully cooperate with the CONSULTANT with respect to the provision of all available information on the past, present and proposed conditions of the Site known to it or otherwise requested by the CONSULTANT.

The CONSULTANT agrees to include a review of all historical information obtained by the CLIENT or provided by the Client to assist in the investigation of the Site unless and except to the extent that such a review is limited or excluded from the scope of work to be performed by the CONSULTANT.

3. **FULL DISCLOSURE** - The CLIENT acknowledges that in order for the CONSULTANT to properly advise and assist the CLIENT in respect of the investigation of the Site, the CONSULTANT is relying upon full disclosure by the CLIENT of all matters pertinent to an investigation of the Site.

4. **DELAYS AND INTERRUPTIONS** - Should the CONSULTANT be delayed or interrupted by others in the performance of its services or be required to perform additional services as a result of any delay or interruption caused by others, the CONSULTANT shall be equitably compensated by the CLIENT for all costs, charges and expenses which it may incur as a result of such delay or interruption and any such additional services to be performed and any and all consequences resulting from such delay or interruption.

5. **USE OF WORK PRODUCT** - The CONSULTANT agrees to provide to the CLIENT interim reports outlining the progress of the investigation of the Site on a periodic basis and a final comprehensive report upon the completion of the investigation of the Site.

6. **COMPLETE REPORT** - This document being a part of the Report is of a summary nature and is not intended to stand alone without reference to the instructions given to the CONSULTANT by the CLIENT, communications between the CONSULTANT and the CLIENT, and to any other reports, writings or documents prepared by the CONSULTANT for the CLIENT relative to the specific Site described herein, all of which constitute the Report. Wherever the word "Report" is used herein, it shall refer to any and all of the documents referred to herein.

In order to properly understand the suggestions, recommendations and opinions expressed herein, reference must be made to the whole of the Report. The CONSULTANT cannot be responsible for use by any part of portions of the report without reference to the whole report.

7. **LIMITATIONS ON SCOPE OF INVESTIGATION AND WARRANTY DISCLAIMER**

There is no warranty, expressed or implied, by the CONSULTANT that:

- a) The investigation shall uncover all potential contaminants, including asbestos, on the Site; or
- b) The Site will be entirely free of all Targeted Contaminants or other contaminants as a result of any cleanup work undertaken on the Site, since it is not possible, even with exhaustive sampling, testing and analysis, to document all potential contaminants on the Site.

Classification and identification of soils, rocks, geological units, contaminated materials and contaminant quantities have been based on commonly accepted practices in environmental consulting practice in this area.

The CLIENT acknowledges that:

- a) The investigation findings are based solely on the information generated as a result of the specific scope of the investigation authorized by the CLIENT;
- b) any assessment regarding the presence of contamination of the Site is based on the interpretation of conditions determined at specific sampling locations and depths and that conditions may vary between sampling locations;
- c) there can be no assurance that isolated pockets of contaminants are not located on the Site;
- d) any assessment is also dependent on and limited by the accuracy of the analytical data generated by the sample analyses;
- e) any assessment is also limited by the scientific possibility of determining the presence of contaminants for which scientific analyses have been conducted; and
- f) the analytical parameters selected are limited to those outlined in the CLIENT's authorized scope of investigation (in the absence of any evidence of potential contamination sources on the Site, which may warrant expanding the analytical parameters).

8. **REMEDIATION COST ESTIMATES** - Estimates of remediation costs can only be based on the specific information generated and the technical limitations of the investigation authorized by the CLIENT. Accordingly, estimated costs for remediation only represent the cost to clean up known contaminants that have been identified during the course of the investigation. As remediation of a Site is often an iterative exercise, estimated costs for remediation should only be interpreted to cover the first stage of any Site remediation until such time as verification samples indicate that the Site has been fully remediated and the CONSULTANT shall therefore not be liable for the accuracy of any estimates of remediation costs provided.

9. **CONTROL OF WORK AND JOBSITE SAFETY** - The CONSULTANT is only responsible for the activities of its employees on the jobsite. The presence of CONSULTANT personnel on the Site shall not be construed in any way to relieve the CLIENT or any contractors on Site from their responsibilities for Site safety. The CLIENT undertakes to inform the CONSULTANT of all hazardous conditions, or possible hazardous conditions which are known to him. The CLIENT also recognizes that the activities of the CONSULTANT may uncover previously unknown hazardous materials and that such a discovery may result in the necessity to undertake emergency procedures to protect CONSULTANT employees as well as the public at large and the environment in general. The CLIENT also acknowledges that in some cases the discovery of hazardous conditions and materials will require that certain regulatory bodies be informed and the CLIENT agrees that notification to such bodies by the CONSULTANT will not be a cause of action or dispute.

10. **LIMITATION OF RESPONSIBILITY**

Limitation of Liability - The CLIENT hereby agrees that to the fullest extent permitted by the law the CONSULTANT's total liability to CLIENT for any and all injuries, claims losses, expenses or damages whatsoever arising out of or in anyway relating to the Project, the Site, or this agreement from any cause or causes including but not limited to the CONSULTANT's negligence, errors, omissions, strict liability, breach of contract, or breach of warranty shall not exceed the amount agreed to under the project agreement between the AMEC Earth & Environmental and the CLIENT .

No Special or Consequential Damages - CLIENT and CONSULTANT agree that to the fullest extent permitted by law the CONSULTANT shall not be liable to CLIENT for any special, indirect or consequential damages whatsoever, whether caused by the CONSULTANT's negligence, errors omissions, strict liability, breach of contract, breach of warranty or other cause of causes whatsoever.

Indemnification - To the fullest extent permitted by law, the CLIENT agrees to defend, indemnify and hold the CONSULTANT, its agents, subcontractors, and employees harmless from and against any and all claims, defense costs, including attorney's fees, damages, and other liabilities arising out of or in any way related to CONSULTANT's reports or recommendations concerning this Agreement, CONSULTANT's presence on the project property, or the presence, release, or threatened release of asbestos, hazardous substances, or pollutants on or from the project property; provided that the CLIENT shall not indemnify CONSULTANT against liability for damages to the extent caused by the negligence or intentional misconduct of CONSULTANT, its agents, subcontractors, or employees.