

**Emergency Response and Preparedness Plan
Propane Levac Propane Inc.
5697 Ste-Catherine St, St-Isidore
(The Nation Municipality), Ontario**

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1.0 INTRODUCTION

The health and safety of its employees, the public, and protection of the environment are integral to Propane Levac Propane's business. To protect these interests, Propane Levac Propane ("Levac Propane") has developed this Emergency Response and Preparedness Plan ("ERPP").

1.1 Purpose

This ERPP is designed to help prevent, manage, and mitigate emergencies involving propane at the Levac Propane facility. It is intended to protect the public, property and environment from the consequences of a propane emergency. This ERPP has been developed to comply with applicable provisions of several provincial and federal statutes.

1.1.1 Ontario Regulation 211/01

This document has been developed primarily to comply with the applicable provisions of *Ontario Regulation 211/01, "Propane Storage and Handling"* under the *Technical Standards and Safety Act* pertaining to Risk and Safety Management Plans ("RSMP"). *Ontario Regulation 211/01, "Propane Storage and Handling"* requires all propane retail outlets, filling plants, cardlock/keylock, private outlets, and container refill centres to develop and submit an Emergency Response and Preparedness Plan as part of a Risk and Safety Management Plan. This ERPP has been developed to meet the applicable provisions of *Ontario Regulation 211/01* for RSMPs.

1.1.2 Environmental Emergency Regulations

This ERPP has also been developed to comply with the applicable provisions of the *Environmental Emergency Regulations* under the *Canadian Environmental Protection Act* pertaining to Environmental Emergency Plans for propane emergencies. Under the *Environmental Emergency Regulations* of the *Canadian Environmental Protection Act, 1999*, propane installations having combined storage equal to or greater than 4.5 metric tonnes (approximately 2,345 USWG) must prepare an Environmental Emergency ("E2") Plan. This ERPP has been developed to comply with the requirements for an E2 Plan for propane emergencies under the *Environmental Emergency Regulations*.

1.1.3 Transportation of Dangerous Goods Regulations

The federal *Transportation of Dangerous Goods Regulations* requires every transporter or importer of propane to have an approved Emergency Response and Assistance Plan ("ERAP") if propane is contained in one or more means of containment, at least one of which has a storage capacity in excess of the ERAP threshold.

Levac Propane currently has approval for ERAP #2-0010-340, which has been registered, reviewed and accepted by Transport Canada.

1.1.4 CSA-Z731-03 (R2014): Emergency Preparedness and Response

Levac Propane has further designed this ERPP to meet applicable clauses of the voluntary standard, CSA-Z731-03 (R2014) *Emergency Preparedness and Response*. The standard is directed towards the development of tools and systems to support emergency preparedness and response in industry. This ERPP meets the applicable clauses set out by CSA-Z731-03 (R2014) for “Emergency Response Plans”.

1.2 Scope and Limitations

This ERPP has been developed for propane emergencies only, including fires at Levac Propane’s bulk propane plant in The Nation Municipality, Ontario. Coverage includes the general public surrounding the facility that may be affected by the consequences of a propane emergency occurring at the facility. This document is designed to address propane emergencies such as propane releases and on-site fires. Although this ERPP has been developed for propane emergencies, it provides no guarantee for the successful mitigation of all propane emergencies at Levac Propane.

1.3 Review and Update of the ERPP

This ERPP shall be updated as required to provide current propane emergency mitigation measures and to take into account any changes at the facility. Only a Program Coordinator listed in the table below may make changes to this ERPP.

Table 1: Authorized Person as Program Coordinator

Position	Name
President	Jean-Marc Levac
Vice President	Christian Levac

Review of this ERPP will be performed at least annually, and subject to the following:

1. the company staffing structure changes;
2. there is a change or modification to the propane distribution systems;
3. following any activation of the ERPP; and
4. upon demand from the local Fire Department.

1.4 Distribution and Location of the ERPP

This ERPP has been distributed to internal and external parties listed in Table 2. When updated, any changes to the ERPP must be forwarded to the persons or organizations authorized to have a copy. This ERPP is site specific to the Levac Propane facility and its location(s) at the facility is included in Table 2. Employees taking on roles in this ERPP acknowledge receipt and understanding of all sections of the ERPP and are aware of its on-site location(s) by signing the Distribution Form.

Table 2: Distributed Copies of the ERPP and their Locations

Number of ERPP Copies	Location / Person	Contact
1	St-Isidore Fire Station 25 Arena Street St-Isidore, Ontario K0C 2B0	Tobias Hovey, Fire Chief
1	The Nation Filling Plant	5697 Ste-Catherine St. St-Isidore, Ontario
1	Head Office	5552 Ste-Catherine St. St-Isidore, Ontario
1 (electronic)	Program Coordinator	Jean-Marc Levac
1 (electronic)	Technical Director	Etienne Levac
1 (electronic)	Technical Advisor	Stephane Watheir
1 (electronic)	Evacuation Warden	Martial Brabant

2.0 DEFINITIONS AND ABBREVIATIONS

- **Accidental Release:** Unplanned discharge, emission, explosion, outgassing or other escape of propane.
- **ASME:** American Society of Mechanical Engineers
- **BLEVE:** Boiling Liquid Expanding Vapour Explosion
- **CANUTEC:** Canadian Transport Emergency Centre of the Department of Transport
- **CPA:** Canadian Propane Association
- **CSA:** Canadian Standards Association
- **Emergency Response Personnel:** All parties described herein under “Roles and Responsibilities” and any other personnel who may be appointed by authorities to participate in emergency response actions.
- **EMS:** emergency medical services
- **ERAC:** Emergency Response Assistance Canada; entity which administers and implements the ERAP.
- **ERAC Response Centre, ERAP Emergency Number:** Phone number to activate the ERAP, 1-800-265-0212.
- **ERAP:** Emergency Response and Assistance Plan, under the *Transportation of Dangerous Goods Regulations*
- **ERPP:** Emergency Response and Preparedness Plan
- **LEL:** lower explosive limit
- **LFL:** lower flammable limit
- **LPG:** Liquefied Petroleum Gas
- **Major Release:** Any sustained accidental release characterized by the rapid uncontrolled release of propane (e.g. a line break). These releases are characterized by the formation of fog and loud noises and may pose a threat to public safety. Sources for these releases include, but are not limited to, failed valves, fittings, piping.
- **Minor Release:** May be defined as a slow controlled release of propane (e.g. an improperly closed valve). These releases are characterized by a persistent smell of mercaptan, observation of frost patches forming on equipment, or a “hissing” noise. Finding the source may require the use of a leak detection fluid or gas detector. These releases are not considered to be propane emergencies if mitigated within 24 hours.
- **Muster Area:** Designated assembly point during a propane emergency evacuation.
- **Propane Emergency:** Any emergency involving propane related hazards covered by this ERPP, including fires.
- **RSMP:** Risk and Safety Management Plan, under *Ontario Regulation 211/01*
- **SAC:** Spills Action Centre
- **SDS:** safety data sheet
- **TDG:** Transportation of Dangerous Goods
- **TSSA:** Technical Standards and Safety Authority
- **UFL:** upper flammable limit
- **USWG:** United States Water Gallon, a measure of volume
- **VCE:** Vapour Cloud Explosion

3.0 ROLES AND RESPONSIBILITIES

This ERPP specifies the scope of the participants’ activities before and during a propane emergency. Their roles and responsibilities are defined in this section, which details what on-site actions are expected of them. An organization chart has been provided below to facilitate decision making and condenses the information provided by this section.

The following organization chart displays the command structure which is the system designed for the response to a propane emergency at Levac Propane. The Technical Director and Operations Lead will be under the direction of one or more parties within the external Emergency Services Unified Command Structure.

If personnel from Emergency Response Assistance Canada (“ERAC”) have arrived on-site, they may assume the roles of “Operations Lead” and “Company Operations Team,” as appropriate. Remedial Measures Advisors and/or Response Team Leads may assume the role of Operations Lead, while Response Team Members will perform the duties of the Company Operations Team.

Figure 1: Incident Command Organization Chart

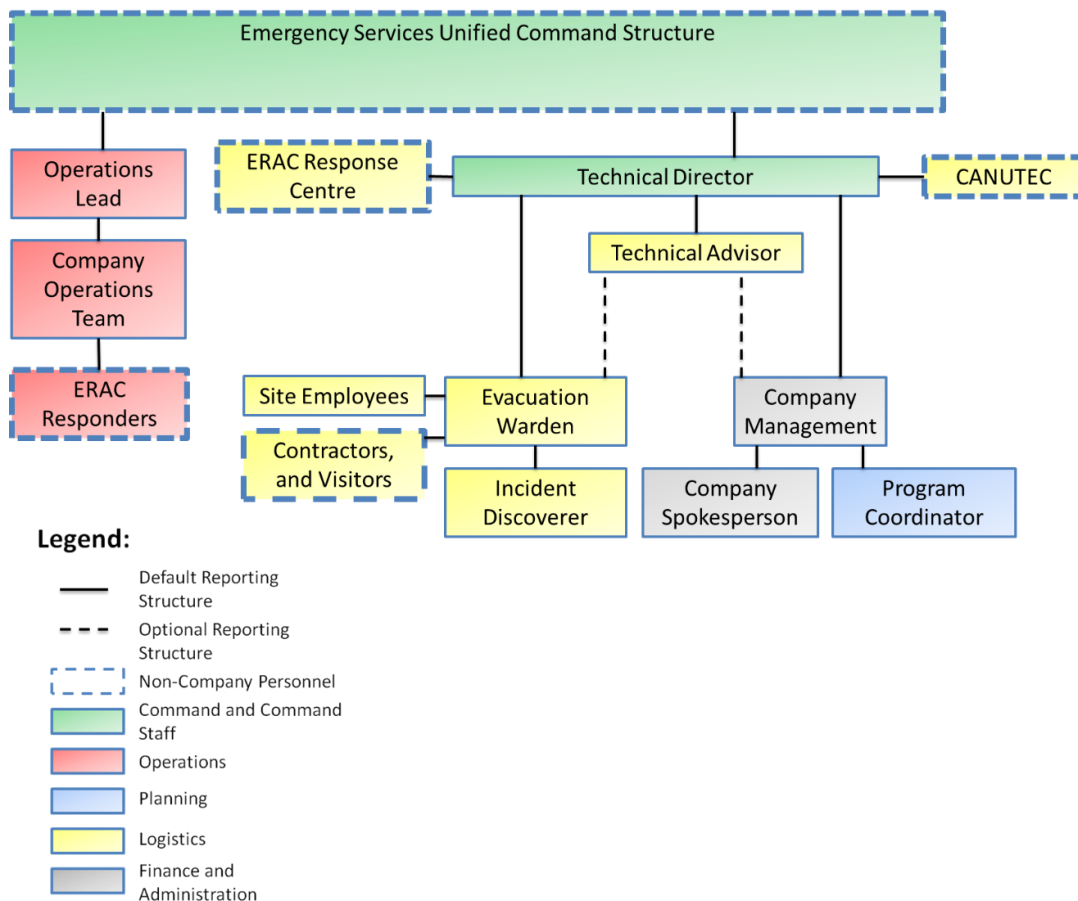


Table 3: Emergency Roles and Their Respective Responsibilities

Position	Preparedness	Response
Emergency Services Unified Command Structure	<ul style="list-style-type: none"> • As required 	<ul style="list-style-type: none"> • As required
Company Spokesperson	<ul style="list-style-type: none"> • Know Levac Propane policies and mandate. • Know Levac Propane products and services. • Complete media training. 	<ul style="list-style-type: none"> • Report to the Company Management. • Act as on-site media spokesperson • Receive public inquiries and concerns and communicate information to the public. • Consult with Emergency Services Unified Command Structure prior to ALL media releases. • Provide the media and public with details related to the propane emergency. • Issue public statements on behalf of Levac Propane. • Communicate the end of the propane emergency to the public as directed by the Emergency Services Unified Command Structure. • Simplify technical information when addressing the general public.

Position	Preparedness	Response
<p>Program Coordinator</p>	<ul style="list-style-type: none"> • Develop and maintain this ERPP. • Consult with local representatives (internal and external) from various technical backgrounds (fire, municipal emergency authority, CPA) in developing the ERPP. • Be the only authorized person to make changes to the ERPP and ensure that all copies are current. • Ensure all employees and personnel in the ERPP are familiar with the Plan and their expected roles. • Responsible for the distribution and tracking of the ERPP and forwarding any Plan updates to Plan holders as required. • Maintain and retain all records associated with this ERPP. • Verify and update internal and external emergency contacts as necessary. • Verify the inventory of emergency equipment and resources on-site against the list provided in this ERPP. • Inspect the emergency equipment and resources. 	<ul style="list-style-type: none"> • Report to the Company Management as required.

Position	Preparedness	Response
<p>Technical Director</p>	<ul style="list-style-type: none"> • Have a current copy of this ERPP. • Be competent with this ERPP. • Be capable of mobilization and departure for a propane emergency within 1 hour, if practical, of being notified of such an emergency. 	<ul style="list-style-type: none"> • Report to the Emergency Services Unified Command Structure. • Direct the Technical Advisor. • Be capable of providing a continuous response on a 24-hour day basis. • Travel to the location of the propane emergency if not already at site. • Serve as a liaison between the Emergency Services Unified Command Structure, Technical Advisor and Company Management. • Consult with the ERAC Response Centre continuously during a propane emergency and arrange requests for additional resources with the Emergency Services Unified Command Structure as needed. • Consult with the Emergency Services Unified Command Structure and provide advice regarding risks and appropriate steps to be taken at the emergency site to preserve public safety (i.e. advise on evacuation distances, if necessary). • Ensure that further transportation of LPG from the propane emergency site is done in a safe and legal manner. • Complete and submit a written ERPP debriefing report on the emergency within five days. • Attend regular meetings with the Emergency Services Unified Command Structure and other Directors as scheduled by the Emergency Services Unified Command Structure. • Attend the debriefing meetings.

Position	Preparedness	Response
ERAC Response Centre		<ul style="list-style-type: none"> • Answers calls to the 24-Hour Emergency Number 1-800-265-0212. • Maintain regular communications with the Technical Director or alternate as warranted. • Acquire additional resource people or equipment as necessary. • Upon completion of the propane emergency, call all parties to close all reporting loops (including standby resources).
Technical Advisor	<ul style="list-style-type: none"> • Have a current copy of this ERPP. • Be competent with this ERPP. • Provide technical support to the Program Coordinator for the selection and maintenance of emergency equipment inventory. 	<ul style="list-style-type: none"> • Report to the Technical Director. • Follow the instructions of the Technical Director. • Debrief and obtain any information from the person who initially discovered the emergency. • Assure the Emergency Services Unified Command Structure that the company is prepared to provide assistance with the propane emergency. • Assure the Emergency Services Unified Command Structure of their technical expertise in propane and familiarity with company equipment and procedures. • Attend internal debriefing meetings. • Record event milestones.

Position	Preparedness	Response
Company Management	<ul style="list-style-type: none"> • Designate the following roles to employees of the company: <ul style="list-style-type: none"> ○ Program Coordinator; ○ Technical Director; ○ Technical Advisor; ○ Operations Lead; ○ Company Operations Team; ○ Company Spokesperson; and ○ Evacuation Warden. • Provide appropriate training to all employees taking on the roles listed above. 	<ul style="list-style-type: none"> • Report to the Technical Advisor. • Approve public statements issued to the public by the Company Spokesperson on behalf of Levac Propane. • Attend internal debriefing. • Advise the Technical Advisor if capable and requested to do so. • Approve any funds needed for propane emergency operations as requested by the company's Finance Personnel
Evacuation Warden	<ul style="list-style-type: none"> • Have a current copy of this ERPP and know its contents. • Maintain facility sign-in/sign-out sheet. • Know the location of the Muster Areas. • Understand the criteria for Muster Area selection during an emergency. 	<ul style="list-style-type: none"> • Receive notification of a propane emergency from the person discovering it. • Check the wind direction and accordingly select the appropriate Muster Area from the defined locations. • Issue a call for evacuation, and communicate Muster Area selection to on-site personnel. • Obtain the sign-in/sign-out sheet and employee list. • Proceed to the appropriate Muster Area and designate an individual to call 911, the ERAC Response Centre, CANUTEC, Spills Action Centre (SAC), TSSA, and Ontario Ministry of Labour as required (See 6.0) • Verify attendance against the facility sign-in/sign-out sheet and employee list to ensure all personnel have collected in the Muster Area. • Report results of attendance and the evacuation status to the Technical Advisor.
Employees, Contractors, and Visitors	<ul style="list-style-type: none"> • Be familiar with the evacuation areas, and evacuation procedure outlined in this ERPP 	<ul style="list-style-type: none"> • Receive the call for evacuation from the Evacuation Warden • Follow the evacuation procedure outlined in this ERPP

Position	Preparedness	Response
Operations Lead	<ul style="list-style-type: none"> • Know the command structure as presented in this ERPP. • Be competent in the use of all emergency response equipment and emergency response procedures. • Be aware of the locations of emergency equipment on-site. 	<ul style="list-style-type: none"> • Report to the Emergency Services Unified Command Structure. • Act as liaison between Emergency Services Unified Command Structure and the Company Operations Team. • Direct mitigation actions of Company Operations Team as instructed by the Emergency Services Unified Command Structure. • Assist Company Operations Team with mitigation actions. • Request permission from Company Management to obtain additional resources that require additional funding.
Company Operations Team	<ul style="list-style-type: none"> • Know the command structure as presented in this ERPP. • Be competent in the use of all emergency response equipment and emergency response procedures. • Be aware of the locations of emergency equipment on-site. 	<ul style="list-style-type: none"> • Follow instructions of Operations Lead. • Perform mitigation actions (e.g. emergency transfers, monitoring, isolate releases) as instructed.

3.1 Emergency Contacts

Lists for internal and external emergency contacts have been compiled and provided in the following two tables:

Table 4: Internal Emergency Contacts at Levac Propane

ERPP Role	Name	Contact Information
Company Spokesperson Program Coordinator	Jean-Marc Levac <i>President</i>	Cell Phone: (613) 858-8968
Technical Director	Etienne Levac	Cell Phone: (613) 858-8990
Technical Advisor	Stephane Wathier	Cell Phone: (613) 227-5136
Company Management	Christian Levac	Cell Phone: (613) 858-8315
Operations Lead	Howard French	Cell Phone: (613) 264-7434
Operations Lead	Stephane Boisvert	Telephone: (450) 522-7744
Evacuation Warden	Martial Brabant	Cell Phone: (613) 620-9886

Table 5: External Emergency Contacts

Organization	Description of Resource	Contact Information
Fire, Medical, Police	Emergency Services	911
ERAC Response Centre	ERAP Number (Plan 2-0010-340)	1 (800) 265-0212
TSSA	Regulatory Body – Fuel Safety	1 (877) 682-8772
CANUTEC	Canadian Transport Emergency Centre	613-996-6666
Spills Action Centre	Ontario Ministry of the Environment – Spill Reporting	1-800-268-6060
Ontario Ministry of Labour	Health & Safety Contact Centre	1-877-202-0008
WSIB	Workplace Safety and Insurance Board	1-800 387-0750
The Nation Municipality Fire Hall	General Number	(613) 632-1105
Hawkesbury F.D. (dispatch)	Fire Department Dispatch	(613) 632-4111

All the resources/contacts identified above have been advised of their inclusion and responsibilities as parties of this ERPP if required.

Regulatory reporting requirements include:

- for all spills or major releases of propane that are sustained for 10 minutes or more, or could pose a danger to public safety, the Spills Action Centre (“SAC”) must be notified; reporting to SAC meets the reporting requirements for both the Ontario Ministry of the Environment and for the Technical Standards and Safety Authority (“TSSA”);
- reporting an emergency involving dangerous goods to the police will satisfy immediate reporting requirements for Transport Canada, however any accidental release from a cylinder which has suffered a catastrophic failure must also be reported to CANUTEC;
- any incident that causes critical injury or death must be reported immediately to the Ministry of Labour; written notice must also be provided within 48 hours; and
- any workplace injury must be reported to the WSIB within 3 days of incidence.

4.0 TECHNICAL INFORMATION

4.1 Hazard Identification

Propane is a flammable gas that is stored and handled in a compressed liquid form. Propane is not considered a toxic substance, and impacts to the environment are limited to the hazards identified in the following subsections.

4.1.1 Compressed Gas

Propane is stored in its liquid form and can expand 270 times its size when converted to the gas phase. The proper shipping name of propane is Liquefied Petroleum Gas (“LPG”) and the Transportation of Dangerous Goods (“TDG”) placard for LPG in large means of containment is illustrated below in Figure 2. The placard shows that LPG is a Class 2 flammable gas with a UN (United Nations) Number of 1075.

Figure 2: TDG Placard for Liquefied Petroleum Gas (LPG)



4.1.2 Flammable

Propane is regarded as a fire hazard since it can flash at temperatures as low as -104°C (-155.2°F), with an ignition source. At ambient conditions, the lower and upper flammable limits (LFL and UFL) of propane are 2.1% and 9.5%, respectively.

4.1.3 Frost Bite

Due to the significant drop in temperature when expanding from liquid to vapour phase, propane can cause frostbite on contact with skin and is capable of causing severe damage on contact with the eyes.

4.1.4 Asphyxiant

In the gas form, propane can act as an asphyxiant by displacing oxygen but otherwise is non-corrosive, non-toxic and non-irritating to the eyes. Propane vapours are also heavier than air and will seek low lying areas.

For additional physical and chemical characteristics of propane, consult the safety data sheet (“SDS”) provided in Appendix A.

Typical hazards at a propane facility may pose a threat to public safety, property and the environment. Such events can occur due to human activities (i.e. operator/driver mistakes) or equipment failure and those addressed by this ERPP have been identified as follows:

- Accidental releases of propane; and
- Fires.

A reasonable worst case scenario for a propane facility would consist of a fire at a bulk tank leading to a Boiling Liquid Expanding Vapour Explosion (“BLEVE”). Such an event includes rupture of the pressure vessel, resulting in an explosion with a shockwave and a fireball.

4.1.5 Vapour Cloud Regime

The environmental emergency that would impact off-site property, and is more likely than a BLEVE to occur would be a liquid propane release between 0.25” and 1” equivalent, leading to a Vapour Cloud Explosion (“VCE”), a jet fire and then possibly a BLEVE. It should be noted that this environmental emergency has been calculated to have a probability of less than 1 in 100,000 years.

A VCE can affect a large area surrounding a propane release. The following addresses the size of a vapour cloud. For the purposes of consequence analysis, the regime of a vapour cloud is considered to be the duration and dimensions of a vapour cloud. Potential for ignition of the vapour cloud in this analysis is considered to be within the region of the vapour cloud that has a concentration greater than or equal to half of the lower explosive limit of propane (“LEL”), approximately 1.05% by volume. A conservative estimate of the possible flash fire region can be considered using the same half LEL concentration.

The regime of a vapour cloud release is controlled by several factors. The most important factors are:

- leak size;
- initial bulk tank contents;
- terrain roughness; and
- weather conditions.

The difference between vapour cloud duration and dimensions can be large depending on the above factors. Examples of variations in the regime are described below and were calculated using EFFECTS software.

The calculated vapour cloud dimensions for an initially 55% full bulk tank from a 0.25” diameter leak are approximately 5 m in length (downwind distance from release point) by 2 m in width (crosswind) distance from release point). Increasing the size of the leak to 3” will increase the dimensions to approximately 490 m in length and 320 m in width.

The calculated propane release duration time for an initially 55% full bulk tank from a 0.25” diameter leak is approximately 48 hours. Increasing the initial fill percentage to 85% with the same 0.25” diameter leak will increase the release duration to approximately 75 hours. Increasing the size of the leak to 3” will reduce the release time to approximately 25 minutes from an initially 55% full tank and under winter conditions.

The vapour cloud size dimensions are the steady state dimensions that are reached after approximately one to five minutes, depending on the regime of the cloud. Steady state conditions are reached when the dispersion of the cloud is in equilibrium with the amount of propane flowing through the leak. Because the amount of propane flowing through the leak is only marginally affected by the initial percentage fill of the bulk tank, the steady state dimensions of the vapour cloud are not considered to be affected by the contents of the bulk tank. The duration is the only factor that is considerably affected by the contents of the bulk tank.

Two weather conditions were considered to affect the dimensions of a vapour cloud during a release; the temperature and wind conditions. An increase in temperature will increase dispersion, decreasing the size of the vapour cloud; however, this effect is minimal. An increase in wind will increase dispersion has a much greater effect of decreasing the size of the vapour cloud. Temperature conditions are described in degrees Celsius and wind conditions are described using Pasquill atmospheric stability classes. The "Pasquill Atmospheric Stability Class" system uses letters to denote the stability of the atmosphere. The letters "A" through "F" are used with "A" being very unstable and "F" being stable. Calculated vapour cloud dimensions between weather conditions of atmospheric stability of F and a temperature of -10°C, and atmospheric stability of D and a temperature of 23°C can range from 490 m in length and 315 m in width to 296 m in length and 75 m in width.

The terrain roughness can be described by roughness factors of "R1", "R2", and "R3." Open areas correspond to a relatively low degree of surface roughness, characterized as a factor of "R1". Areas consisting of brush and shrubs correspond to a relatively moderate degree of surface roughness, characterized as a factor of "R2". Larger treed areas or buildings correspond to a relatively high degree of surface roughness, characterized as a factor of "R3". The difference between a roughness factor of R1 and R3 can change the vapour cloud dimensions of a 3" diameter leak from 296 m in length and 75 m in width, to 172 m in length and 66 m in width, in summer conditions. An increase in roughness increases the dispersion of the vapour cloud, decreasing its overall dimensions.

Table 6 is given as a quick reference tool to determine the duration, length, and width of a cloud from a release from the 45,000 USWG storage tank. Variables considered include:

- leak sizes of 0.25", 1", 2", 3" and 6";
- initial bulk tank content percentages of 55%, 70% and 85%;
- terrain roughness factors of R1, R2, and R3;
- winter conditions of atmospheric stability of F and a temperature of -10°C, and summer conditions of atmospheric stability of D and a temperature of 23°C.

It should be noted that vapour cloud dimensions are independent of the initial fill percentage.

Appendix C gives a simplified version of this table using the most conservative terrain roughness factor which is suitable for quick reference.

Table 6: Vapour Cloud Regime Chart - 1 x 45,000 USWG

Initial Bulk Tank Contents (%fill)		Leak Size (Approximate Diameter)										
		0.25"		1"		2"		3"		6"		
		Weather Condition										
		Winter (-10°C, F)	Summer (23°C, D)	Winter (-10°C, F)	Summer (23°C, D)	Winter (-10°C, F)	Summer (23°C, D)	Winter (-10°C, F)	Summer (23°C, D)	Winter (-10°C, F)	Summer (23°C, D)	
55%	Duration (hrs)	48	47	3.2	3	0.8	0.8	0.4	0.4	0.1	0.1	
	Terrain Roughness	Vapour Cloud Dimensions										
	R1	Length (m)	6	15	105	87	282	188	489	296	928	650
		Width (m)	2	2	56	17	173	43	315	75	424	97
	R2	Length (m)	10	12	78	63	202	138	349	217	723	476
		Width (m)	5	2	53	15	149	38	268	66	350	82
	R3	Length (m)	9	8	57	48	151	108	265	172	586	382
Width (m)		6	2	51	16	138	39	241	66	312	79	
70%	Duration (hrs)	60	52	3.8	3.5	1	0.9	0.5	0.4	0.1	0.1	
	Terrain Roughness	Vapour Cloud Dimensions										
	R1	Length (m)	6	15	105	87	282	188	489	296	928	650
		Width (m)	2	2	56	17	173	43	315	75	424	97
	R2	Length (m)	10	12	78	63	202	138	349	217	723	476
		Width (m)	5	2	53	15	149	38	268	66	350	82
	R3	Length (m)	9	8	57	48	151	108	265	172	586	382
Width (m)		6	2	51	16	138	39	241	66	312	79	
85%	Duration (hrs)	75	56	4.6	3.7	1.2	0.8	0.5	0.4	0.1	0.1	
	Terrain Roughness	Vapour Cloud Dimensions										
	R1	Length (m)	6	15	105	87	282	188	489	296	928	650
		Width (m)	2	2	56	17	173	43	315	75	424	97
	R2	Length (m)	10	12	78	63	202	138	349	217	723	476
		Width (m)	5	2	53	15	149	38	268	66	350	82
	R3	Length (m)	9	8	57	48	151	108	265	172	586	382
Width (m)		6	2	51	16	138	39	241	66	312	79	

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How to use this table:

There are four variables to select on this table: leak size, weather condition, initial tank contents, and terrain roughness. These variables will determine the calculated leak duration, vapour cloud length, and vapour cloud width. An example is shown for the use of this table with the factors of a 1", winter release, initially 70% full storage vessel, and a terrain roughness of 2.

5.0 FACILITY INFORMATION

Levac Propane is located at 5697 Ste-Catherine St. in The Nation Municipality, Ontario and has a total fixed storage capacity of 49,000 USWG of propane which is used for bulk distribution by delivery trucks. The maximum expected quantity of propane stored at Levac Propane at any time during a calendar year is 564,000 USWG. The largest propane bulk tank at the Levac Propane facility has a storage capacity of 45,000 USWG.

The location of the propane bulk tanks, storage areas and on-site buildings have been provided in the site plans attached in Appendix B. There are two site plans: one providing the overhead view of the facility and one providing an overhead view of the surrounding area with muster points.

5.1 Emergency Shutdown Equipment

In the event of an emergency, emergency shutoff buttons can be used to stop the flow of propane. Power can also be isolated from the breaker panel located on-site. The location of the emergency stops and breaker panel at the facility are shown in the site plan provided in Appendix B.

5.2 Emergency Equipment and Resources

For small incidents requiring an emergency response, Levac Propane maintains emergency response equipment in their bulk trucks as listed in Table 7.

Table 7: Levac Propane Emergency Equipment

Quantity	Description of Resource	Location
1	Adapter, filler hose (safety back check 1¼" Acme)	Bulk Truck
1	Gloves, protective coated	Bulk Truck
1	Flashlight, sparkless, non-submersible, electrically classified Class 1 Division 1	Bulk Truck
1	Hammer, sparkless	Bulk Truck
1	Wrench for pipes, minimum 18", sparkless	Bulk Truck

For larger incidents requiring an emergency response, Levac Propane may request assistance from ERAC. Depending on the nature of the emergency, ERAC may dispatch a Remedial Measures Advisor and/or a Response Team. These responders may bring to the emergency equipment listed in Table 8 and Table 9, as stated in the ERAP #2-0010-340 document.

Table 8: ERAC Remedial Measures Advisor Equipment Standard

Quantity	Description of Resource
1	Hand-held flashlight (Class 1, Groups C & D, CSA or ULC approved)
1	Certified Bump or Calibration Gas
1	Container of leak detection liquid
1	Set Class 1, Zone 1 gas detection equipment which is capable of continuously monitoring lower explosive limits, oxygen and hydrogen sulphide maintained to manufacturer's recommendations
1	Set fire retardant clothing
1	Pair gloves, rubber
1	Pair gloves or mitts, leather
1	Hard hat with winter liner
1	Pair rubber safety boots
1	Pair safety boots
1	5 point reflective tear away safety vest with ERAC RMA logo
1	Rain suit, fire retardant
1	Set eye protection
1	Set hearing protection
1	Basic first aid kit
1	Mini tape recorder OR clipboard, paper and markers
1	Binoculars / Monocular
1	Roll barrier tape, 100 yards
1	Pipe wrench, 8"
1	Pipe wrench, 14"
1	Camera or cell phone with camera
1	Tape measure
1 each	Pressure gauge (0-30 psi, 0-100 psi, 0-300 psi)
1	Roll duct tape
1	Crescent wrench, 12"
1	Set pliers
1	Safety harness and lanyard
1	Cellular phone, with internet and email access
1	Set dissipative material
1	Emergency Response Guidebook, latest edition

Table 9: ERAC Response Team Equipment Standard

TRANSFER EQUIPMENT	
Quantity	Description of Resource
2	Pumps, or 1 pump and 1 compressor, for two simultaneous transfers, including power unit
350 ft.	Liquid hoses, 2", rated for LPG use (with spare gaskets), for two simultaneous transfers
150 ft.	Vapour hoses, 1 or 2", rated for LPG use (with spare gaskets), for two simultaneous transfers
8	"Snappy Joe" manual or pneumatic emergency remote shutoff valves, for two simultaneous transfers
2 sets	bonding and grounding equipment, including 6 50' cables, bonding clamps, grounding rods, plates or foil
1	typical multimeter
500 cubic feet	Nitrogen bottles
24	Rail tank car seals
1 each	Flare stack, minimum 2' flare pot (liquid flaring), with pilot or ignitor, and flame arrestor
2 each	Pressure gauges, 0-30 psi, 0-100 psi, 0-300 psi
SAFETY EQUIPMENT	
Quantity	Description of Resource
6	Class 1, Zone 1 gas detection equipment which is capable of continuously monitoring lower explosive limits, oxygen and hydrogen sulphide
1	Class 1, Zone 1 gas detection equipment which is capable of continuously monitoring butadiene in ppm
1 set	Certified bump/calibration gas (pentane) and calibration equipment, with manufacturer's instruction booklet
4	Self-contained breathing apparatus, high pressure or 30 minute industrial grade or better
4	Air bottles for self-contained breathing apparatus (spare)
8	Full face respiration masks
24	Organic vapour respiration mask cartridges
4	Harness and lanyard, for fall arrest
2	Air horn
1	Wind sock
1	Hard copy or ERAP and SDS/technical briefs (alternatively cell phone with access to internet and email)
4 sets	Rail tank car tank chocks
4	Blue flags or blue lights (to signal track closure)
3+	Fire extinguishers (20 lb), ABC
1 per vehicle	Fire extinguishers (10 lb), ABC
1	Binoculars
1	Cell phone with internet and email access, satellite phone to be rented if going to area with no cell coverage

Table 9: ERAC Response Team Equipment Standard (cont.)

SUPPORT EQUIPMENT	
Quantity	Description of Resource
4	Class 1 Zone 1 radios
1	Generator sufficient to power response trailer requirements, lights, battery chargers
4	Flood lights, minimum 500 Watt
1	Pipefitter's tripod or vice
2	Lifting bag and rope
1	Tool box, equipped with wire brush, scrapers, pipe tape, box wrenches, adjustable wrenches, measuring tape, pliers
3 each	Pipe wrenches, 24" and 36"
1	Emergency Response Guidebook
PERSONAL PROTECTIVE EQUIPMENT	
Quantity	Description of Resource
1 per responder	High visibility fire retardant clothing, appropriate for weather conditions
1 per responder	5 point tear away reflective safety vest
1 set per responder	Chemical and nitrile rubber gloves
1 set per responder	Leather work gloves or mitts
1 per responder	Hard hat
1 set per responder	Safety work boots
1 set per responder	Rubber safety boots with puncture resistant soles
1 set per responder	Eye protection, safety glasses, safety goggles, and face shields
1 set per responder	Hearing protection, plugs or ear muffs
1 per responder	Fire retardant rain suit
1 per responder	Flashlight, hand held or helmet mounted, Class 1 groups C&D

5.3 Communication System

Levac Propane has developed two primary communication systems for use in response to a propane emergency. The first is a verbal on-site notification system that sends the call for evacuation from the facility. The second system, consisting of 2-way radios and cell phones, is used by emergency response personnel to maintain contact with each other while dealing with the emergency.

5.3.1 Evacuation Notification

The on-site notification system is comprised of verbal notification initiated by the Evacuation Warden. In addition most employees carry 2-way radios allowing for constant communication during an emergency.

5.3.2 Communication during Emergency

Communications between on-site emergency response personnel is facilitated by the efforts of Levac Propane. Levac Propane has 2-way radios to be distributed among incident command authorities including, but not limited to, the Incident Commander, Technical Director and Advisor, Operations Director and Lead, Company Management, and the Evacuation Warden. The radios will provide unbroken communications between all company emergency response authorities and any municipal or other external parties who are provided with 2-way radios.

For communications with other required company personnel who are off-site at the time of the propane emergency, telephone landlines or cellular phones may be used for establishing emergency communication. The cell phone numbers, home phone numbers, and pager numbers of necessary company personnel are provided in Section 3.1: Emergency Contacts.

5.4 Muster Areas

Two muster areas where employees will evacuate in the event of an emergency have been identified in this plan. Unless circumstances dictate otherwise, personnel should evacuate to the primary muster area. It is primarily the responsibility of the Evacuation Warden to decide which muster area is appropriate. The locations of the muster areas are as follows:

- primary evacuation area (South - #1): entrance way located at 5715 Ste-Catherine St.; and
- secondary evacuation area (North - #2): Levac Propane parking area located at 5552 Ste-Catherine St.

Muster areas are also identified on the overhead view of the facility which can be found in Appendix B.

6.0 EMERGENCY PREPAREDNESS

6.1 Propane Emergency Prevention

Propane emergency prevention and overall safety is primarily achieved through facility design and construction, and compliance with applicable standards. The use and handling of propane, and procedures followed for the receipt of propane at the facility are according to the requirements of Canadian Standards Association (“CSA”) B149.2-15 *Propane storage and handling code*, as adopted by the Technical Standards and Safety Authority (“TSSA”). In addition, the bulk propane tanks at The Nation facility are designed and built according to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code: Section VIII, Division 1.

Levac Propane also prevents propane emergencies or their escalation through the following measures:

- Preventative maintenance checks and programs;
- Operating procedures and maintenance of facility documentation;
- Selection of the proper mode of transport and transportation equipment suitable for the tasks or loads;
- Developing, maintaining and implementing Levac Propane Health and Safety policies (WHMIS, First Aid programs, etc.)
- Operator competence and training ; and
- Processes and procedures to ensure that changes in design, service or staff are managed to minimize impacts on operations.

The elements above are described and documented in a separate Levac Propane Health and Safety Manual or Policy.

The *Transportation of Dangerous Goods Regulations* under the direction of Transport Canada, also plays a role in ensuring the safe handling, transport and delivery of propane. *Transportation of Dangerous Goods Regulations* requires specific shipping documents, a level of driver training, product identification on shipping vehicles, and a registered company specific ERAP for certain installations.

6.2 Training

Employees at Levac Propane required to handle propane have received accredited training through the Canadian Propane Association (“CPA”). Similarly, bulk truck drivers have received approved TDG training.

7.0 PUBLIC AWARENESS AND EDUCATION

The hazards of propane that may affect off-site personnel in the event of a propane emergency have been communicated to The Nation Municipality and The Nation Fire Department. Additional information is available to the public in an SDS for propane attached in Appendix A, as well as through the publication of this ERPP on the TSSA website at:

<https://www.tssa.org/Modules/document/document.aspx?param=6AMOOHnLoaJj51A5Hs1Q9MSQ1AeQuAleQuAl>

As a member of the CPA, Levac Propane is knowledgeable of the public safety campaign undertaken by the association. The following website provides information on propane safety:

<http://www.propane.ca/en/about-propane/safety>

In the event of an emergency, the designated Company Spokesperson at Levac Propane will facilitate initial and subsequent communications with the public and the media under the direction of the Emergency Services Unified Command Structure.

Through verbal contact and the publication of this ERPP, community members most likely to be affected by an emergency have been provided with important contact information that includes key personnel at Levac Propane and government/municipal organizations.

Notification of the end of an emergency to all those affected is the responsibility of the Communications Director. The Communications Director will proceed with announcing the end of an emergency when indicated to do so by the Incident Commander. Communication of such information is to be done by means of telephone or media.

8.0 EMERGENCY RESPONSE PROCEDURES

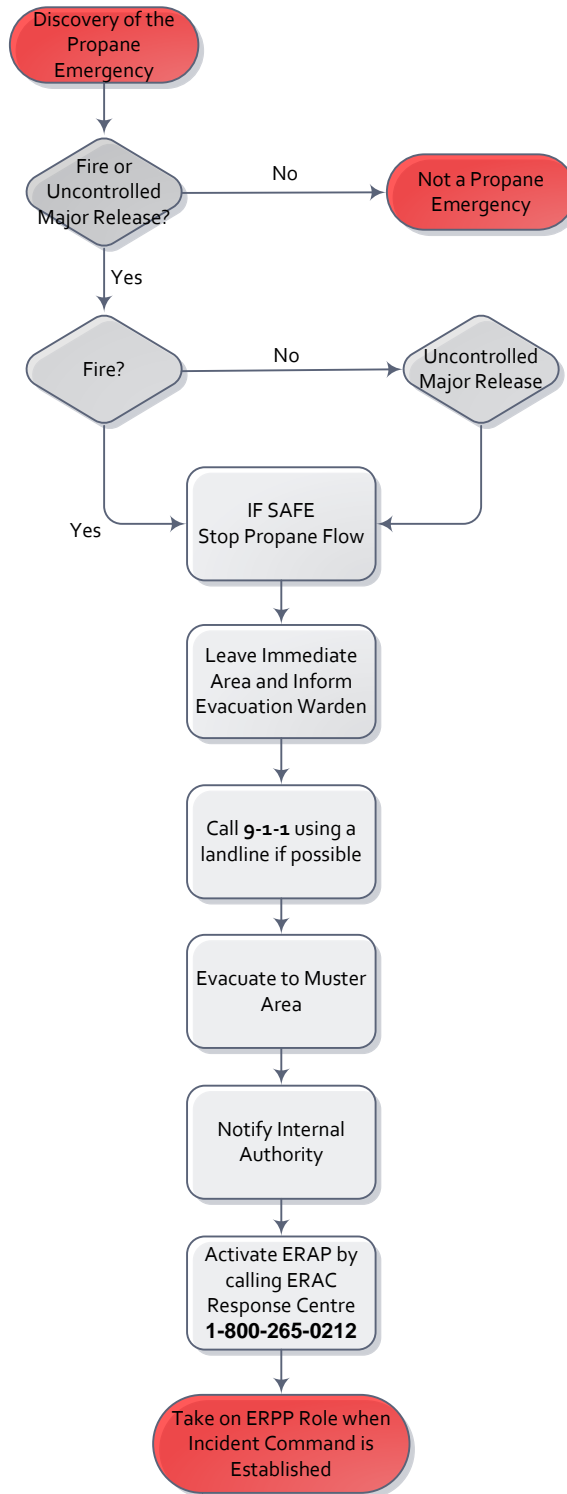
8.1 Activation of the ERPP, ERAP and Notification of the Emergency

In the event of a propane emergency, 911 will have been called unless there is a minor release. The ERPP and ERAP should be activated by an employee at Levac Propane. This employee is designated by the Evacuation Warden to activate the ERPP and ERAP, and must do so by calling the ERAC Response Centre. Upon activation of the plans and after successfully evacuating, the designated employee should ensure that the proper authorities have been promptly notified. Contact information has been provided in Table 5. Examples of regulatory reporting requirements have also been provided in Section 3.1.

8.2 On-site Activation and Notification Procedures

An activation and notification flowchart has been provided below in Figure 3. The flow chart shows steps to take before and after activating the emergency plans. It also shows the proper authorities to notify after the discovery of a propane emergency. The flow chart summarizes actions to take from the beginning of a propane emergency until the Incident Command Structure is established.

Figure 3: Activation and Notification Flow Chart



The following is a generalized outline of activation, notification and emergency procedures to follow during a propane emergency.

Step 1 - Identify the situation

- For a frost bite, stop any activity being performed and seek first aid immediately.
- For a propane emergency such as fire or an accidental release, follow the steps below:

Step 2 - **IF** it is possible to stop flow of product while evacuating,

- Stop product flow **IF SAFE** to do so by either:
 - Activating one of the emergency shut-off buttons;
 - Pressing the emergency stop button on the query system;
 - Shutting off the pump by cutting the power supply;
 - Relieving the pressure in the pneumatic system;
 - Etc...
- Do **NOT** attempt to put out even a small propane-fed fire unless you are able to cut off the supply of gas to the flame.

Step 3 - Leave the immediate area,

- Inform Evacuation Warden of location of fire or release
- Initiate the Evacuation Procedure
- Isolate area for at least 170 m in all directions
- Restrict access to isolated area

Step 4 - Call 9-1-1 using a landline if possible to speed up the dispatch of emergency resources

- Have emergency information ready:
 - Nature of emergency (fire or release);
 - Facility location;
 - Building name and address;
 - Identify the safe approach route (based on Muster Area selection);
 - Call-back number;
 - Location of fire or release;
 - Duration of the fire or release; and
 - Any other relevant information

Step 5 - Proceed to designated Muster Area

- **IF** in doubt of Muster Area location, look for the Evacuation Warden identifiable through the “white” hat and reflective vest.
- **DO NOT** start any vehicle - walk, do not run to Muster Area

Step 6 - Notify Internal Authority

- Call company 24-hr emergency hotline at **1-800-465-4927** (Head Office)
- Notify Technical Director/Advisor and/or Company Management.

Step 7 - Call ERAC Response Centre at **1-800-265-0212** and **ACTIVATE** the ERAP

- Have emergency information ready:
 - Nature of emergency (fire or release);
 - Facility location;
 - Building name and address;
 - Call-back number;
 - Location of fire or release;
 - Duration of the fire or release; and
 - Any other relevant information.

Step 8 - Take on ERPP role when the Incident Command Structure is established

8.3 On-site Evacuation Procedure

Evacuation to a safe area is necessary to protect employees in case of an emergency. Levac Propane has developed a system to communicate the requirement for evacuation to all employees on-site. Employees are to evacuate to one of two muster areas where they will be counted and given direction on how to proceed. The following instructions describe the evacuation procedures set out by Levac Propane for employees, contractors and visitors:

1. Obey the call for evacuation;
2. Follow instructions of the Evacuation Warden;
3. Proceed to the designated Muster Area. If in doubt of Muster Area location, look for the Evacuation Warden identifiable through the “White” hat and reflective vest then proceed to their location.
4. During evacuation personnel shall:
 - a. NOT stop for valuables;
 - b. shut off electrical appliances and fuel fired equipment;
 - c. leave lights on;
 - d. close doors and windows;
 - e. WALK, never run while evacuating;
 - f. evacuate via the shortest and safest route;
 - g. remain in the Muster Area until instructed otherwise by the Evacuation Warden;
 - h. assist the Evacuation Warden with the head count;
 - i. give any information about the propane emergency or about persons who might still be in the facility to the Evacuation Warden or Emergency Services Unified Command Structure; and
 - j. NOT re-enter the facility for any reason until told to do so by the Emergency Services Unified Command Structure or Evacuation Warden.

8.4 Off-site Evacuation Procedure

Members of the public that may be affected by a propane emergency are advised to wait for further instruction from municipal authorities and the Emergency Services Unified Command Structure.

9.0 RECOVERY

After a propane emergency, the following recovery procedure is to be followed:

- Adequately ventilate all areas that may have accumulated any gas to safe levels of propane concentration in air of less 25% of the lower flammable limit (LFL) of propane, (i.e. an equivalent of less than 0.5% propane concentration by volume in air).
- Dispose of debris.
- Although propane is not considered to be an environmental hazard, spills and leaks of other hydrocarbon fuels stored at The Nation facility must be cleaned up after an emergency.

9.1 Compensation

CPA member and non-member parties who participated in response to the Levac Propane propane emergency shall be compensated appropriately. Remedial Measures Advisors and Response Team Members shall be compensated according to the compensation schedules defined in the ERAP #2-0010-340 document.

10.0 APPENDICES

Emergency Response and Preparedness Plan (ERPP)
Propane Levac Propane Inc.
5697 Ste-Catherine St., The Nation Municipality, Ontario

Appendix A

Propane SDS

Section 1: IDENTIFICATION

Product Name: Propane

Synonyms: Propane HD-5; Propane Odorized; Propane Non-Odorized.

Product Use: Industrial applications.

Restrictions on Use: Not available.

Manufacturer/Supplier: Plains Midstream Canada ULC, and Affiliates
Suite 1400, 607 – 8th Avenue SW
Calgary, Alberta
T2P 0A7

Phone Number: 1-866-875-2554

Emergency Phone: USA - CHEMTREC 1-800-424-9300 / CANADA - CANUTEC 1-888-CAN-UTEC (226-8832), 613-996-6666 or *666 on a cellular phone

Date of Preparation of SDS: April 11, 2016

Section 2: HAZARD(S) IDENTIFICATION

GHS INFORMATION

Classification: Flammable Gases, Category 1
Gases Under Pressure - Compressed Gas
Simple Asphyxiant

LABEL ELEMENTS

Hazard Pictogram(s):  

Signal Word: Danger

Hazard Statements: Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary Statements

Prevention: Keep away from heat, sparks, open flames, and hot surfaces. – No smoking.

Response: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.

Storage: Store in a well-ventilated place.
Protect from sunlight.

Disposal: Not applicable.

Hazards Not Otherwise Classified: Not applicable.

Ingredients with Unknown Toxicity: None.

This material is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200). This material is considered hazardous by the Hazardous Products Regulations.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	Common name / Synonyms	CAS No.	% vol./vol.
Propane	Not available.	74-98-6	90 - 100
Ethane	Not available.	74-84-0	1 - 5
1-Propene	Propylene	115-07-1	1 - 10
Butane	Not available.	106-97-8	0.25 - 2.5
Methane	Not available.	74-82-8	0 - 0.5

Section 4: FIRST-AID MEASURES

Inhalation: If inhaled: Call a poison center or doctor if you feel unwell.
Acute and delayed symptoms and effects: May displace oxygen and cause rapid suffocation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Eye Contact: If in eyes: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor.
Acute and delayed symptoms and effects: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result. May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. If on skin: Wash with plenty of water. Get immediate medical advice/attention. Do not rub affected area. Remove non-adhering contaminated clothing. Do not remove adherent material or clothing.
Acute and delayed symptoms and effects: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside. May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

Ingestion: Not a normal route of exposure.
Acute and delayed symptoms and effects: Not a normal route of exposure.

General Advice: In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

Note to Physicians: Symptoms may not appear immediately.

Section 5: FIRE-FIGHTING MEASURES

FLAMMABILITY AND EXPLOSION INFORMATION
Extremely flammable gas. Contains gas under pressure; may explode if heated. Will be easily ignited by heat, sparks or flames. Will form explosive mixtures with air. Vapors from liquefied gas are initially heavier than air and spread along ground. Vapors may travel to source of ignition and flash back. Cylinders exposed to fire may vent and release flammable gas through

pressure relief devices. Containers may explode when heated. Ruptured cylinders may rocket. **DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.**

If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Sensitivity to Mechanical Impact: This material is not sensitive to mechanical impact.

Sensitivity to Static Discharge: This material is sensitive to static discharge.

MEANS OF EXTINGUCTION

Suitable Extinguishing Media: Small Fire: Dry chemical or CO₂.

Large Fire: Water spray or fog. Move containers from fire area if you can do it without risk.

Unsuitable Extinguishing Media: Not available.

Products of Combustion: Oxides of carbon. Oxides of sulphur.

Protection of Firefighters: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Vapors may cause dizziness or asphyxiation without warning. Some may be irritating if inhaled at high concentrations. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating and/or toxic gases. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

Section 6: ACCIDENTAL RELEASE MEASURES

Emergency Procedures: As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded.

Personal Precautions: Do not touch or walk through spilled material. Use personal protection recommended in Section 8.

Environmental Precautions: Not normally required.

Methods for Containment: Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray

to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Do not direct water at spill or source of leak.

Methods for Clean-Up: Prevent spreading of vapors through sewers, ventilation systems and confined areas. Isolate area until gas has dispersed. CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

Other Information: See Section 13 for disposal considerations.

Section 7: HANDLING AND STORAGE

Handling:

Keep away from heat, sparks, open flames, and hot surfaces. – No smoking. Pressurized container: Do not pierce or burn, even after use. See Section 8 for information on Personal Protective Equipment.

Storage:

Store in a well-ventilated place. Protect from sunlight. Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Keep out of the reach of children.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component

Propane [CAS No. 74-98-6]

ACGIH: Asphyxia

OSHA: 1000 ppm (TWA), 1800 mg/m³ (TWA);

Ethane [CAS No. 74-84-0]

ACGIH: Asphyxia

OSHA: No PEL established.

Propylene [CAS No. 115-07-1]

ACGIH: 500 ppm (TWA); A4 (2005)

OSHA: No PEL established.

Butane [CAS No. 106-97-8]

ACGIH: 1000 ppm (TWA); (2012)

OSHA: 800 ppm (TWA) [Vacated];

Methane [CAS No. 74-82-8]

ACGIH: Asphyxia

OSHA: No PEL established.

PEL: Permissible Exposure Limit

TWA: Time-Weighted Average

C: Ceiling

Engineering Controls: Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, gas, etc.) below recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT (PPE)



- Eye/Face Protection:** Safety glasses are required. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3-92 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.
- Hand Protection:** Wear protective gloves. Wear cold insulating gloves. Consult manufacturer specifications for further information.
- Skin and Body Protection:** Wear protective clothing.
- Respiratory Protection:** If engineering controls and ventilation are not sufficient to control exposure to below the allowable limits then an appropriate NIOSH/MSHA approved air-purifying respirator that meets the requirements of CSA Standard CAN/CSA-Z94.4-11, or self-contained breathing apparatus must be used. Supplied air breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.
- General Hygiene Considerations:** Handle according to established industrial hygiene and safety practices.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquefied gas.
Colour:	Colourless.
Odour:	Odourless, unless odourized with ethyl mercaptan (skunky odour).
Odour Threshold:	Not available.
Physical State:	Gas.
pH:	Not available.
Melting Point / Freezing Point:	-185.6 °C (-302 °F)
Initial Boiling Point:	-42.2 °C (-44 °F)
Boiling Point:	-42 °C (-43.6 °F)
Flash Point:	-104.4 °C (-155.9 °F) (Closed Cup)
Evaporation Rate:	Not available.
Flammability (solid, gas):	Extremely flammable gas.
Lower Flammability Limit:	2.1 %
Upper Flammability Limit:	9.5 %



SAFETY DATA SHEET

Propane

Date of Preparation: April 11, 2016

Vapor Pressure: 192 psig at 37.8 °C (100 °F)
Vapor Density: 1.52 to 1.6 (Air = 1)
Relative Density: 0.51 to 0.59 (Water = 1)
Solubilities: Insoluble in water.
Partition Coefficient: n-Octanol/Water: Not available.
Auto-ignition Temperature: 449.9 °C (841.82 °F)
Decomposition Temperature: Not available.
Viscosity: Not available.
Percent Volatile, wt. %: Not available.
VOC content, wt. %: Not available.
Density: 0.5035 g/cm³
Coefficient of Water/Oil Distribution: Not available.

Section 10: STABILITY AND REACTIVITY

Reactivity: Contact with incompatible materials. Sources of ignition. Exposure to heat.
Chemical Stability: Stable under normal storage conditions.
Possibility of Hazardous Reactions: Not available.
Conditions to Avoid: Contact with incompatible materials. Sources of ignition. Exposure to heat.
Incompatible Materials: Strong acids. Strong bases. Oxidizers. Oxides of nitrogen. Chlorine. Halogens.
Hazardous Decomposition Products: Not available.

Section 11: TOXICOLOGICAL INFORMATION

EFFECTS OF ACUTE EXPOSURE

Product Toxicity

Oral: Not available.
Dermal: Not available.
Inhalation: Not available.

Component Toxicity

Component	CAS No.	LD ₅₀ oral	LD ₅₀ dermal	LC ₅₀
Propane	74-98-6	Not available.	Not available.	Not available.
Ethane	74-84-0	Not available.	Not available.	Not available.
Propylene	115-07-1	Not available.	Not available.	86000 mg/m ³ (rat); 4H
Butane	106-97-8	Not available.	Not available.	658000 mg/m ³ (rat); 4H



SAFETY DATA SHEET

Propane

Date of Preparation: April 11, 2016

Methane 74-82-8 Not available. Not available. Not available.

Likely Routes of Exposure: Eye contact. Skin contact. Inhalation.

Target Organs: Skin. Eyes. Respiratory system. Blood. Cardiovascular system. Liver. Kidneys. Nervous system.

Symptoms (including delayed and immediate effects)

Inhalation: May displace oxygen and cause rapid suffocation. May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Eye: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. The pain after contact with liquid can quickly subside. Permanent eye damage or blindness could result. May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin: Contact with rapidly expanding or liquefied gas may cause irritation and/or frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside. May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

Ingestion: Not a normal route of exposure.

Skin Sensitization: Not available.

Respiratory Sensitization: Not available.

Medical Conditions Aggravated By Exposure: Not available.

EFFECTS OF CHRONIC EXPOSURE (from short and long-term exposure)

Target Organs: Skin. Eyes. Respiratory system. Blood. Cardiovascular system. Liver. Kidneys. Nervous system.

Chronic Effects: Not available.

Carcinogenicity: Product is not classified as a carcinogen. See Component Carcinogenicity table below for information on individual components.

Component Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Prop 65
Propylene	A4	Group 3	Not listed.	Not listed.	Not listed.

Mutagenicity: Not available.

Reproductive Effects: Not available.

Developmental Effects

Teratogenicity: Not available.

Embryotoxicity: Not available.

Toxicologically Synergistic Materials: Not available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not available.
Persistence / Degradability: Not available.
Bioaccumulation / Accumulation: Not available.
Mobility in Environment: Not available.
Other Adverse Effects: Not available.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Instructions: Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

Section 14: TRANSPORT INFORMATION

U.S. Department of Transportation (DOT)

Proper Shipping Name: UN1075, PETROLEUM GASES, LIQUEFIED, 2.1
Class: 2.1
UN Number: UN1075
Packing Group: Not applicable.
Label Code:



Canada Transportation of Dangerous Goods (TDG)

Proper Shipping Name: UN1075, PETROLEUM GASES, LIQUEFIED, 2.1
Class: 2.1
UN Number: UN1075
Packing Group: Not applicable.
Label Code:



Section 15: REGULATORY INFORMATION

Chemical Inventories

US (TSCA)

The components of this product are in compliance with the chemical notification requirements of TSCA.

Canada (DSL)

The components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.



SAFETY DATA SHEET

Propane
Date of Preparation: April 11, 2016

Federal Regulations

United States

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III

Component	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (lbs.)	CERCLA RQ (lbs.)	Section 313	RCRA CODE	CAA 112(r) TQ (lbs.)
Propane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Ethane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Propylene	Not listed.	Not listed.	Not listed.	313	Not listed.	10000
Butane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000
Methane	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	10000

State Regulations

Massachusetts

US Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

Component	CAS No.	RTK List
Propane	74-98-6	Listed.
Ethane	74-84-0	Listed.
Propylene	115-07-1	Listed.
Butane	106-97-8	Listed.
Methane	74-82-8	Listed.

New Jersey

US New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

Component	CAS No.	RTK List
Propane	74-98-6	SHHS
Ethane	74-84-0	SHHS
Propylene	115-07-1	SHHS
Butane	106-97-8	SHHS
Methane	74-82-8	SHHS

Note: SHHS = Special Health Hazard Substance

Pennsylvania

US Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

Component	CAS No.	RTK List
Propane	74-98-6	Listed.
Ethane	74-84-0	Listed.
Propylene	115-07-1	E
Butane	106-97-8	Listed.
Methane	74-82-8	Listed.

Note: E = Environmental Hazard



SAFETY DATA SHEET

Propane
Date of Preparation: April 11, 2016

California

California Prop 65: This product does not contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Section 16: OTHER INFORMATION

Disclaimer:

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for their own particular use.

Date of Preparation of SDS: April 11, 2016

Version: 2.1

GHS SDS Prepared by: Deerfoot Consulting Inc.
Phone: (403) 720-3700

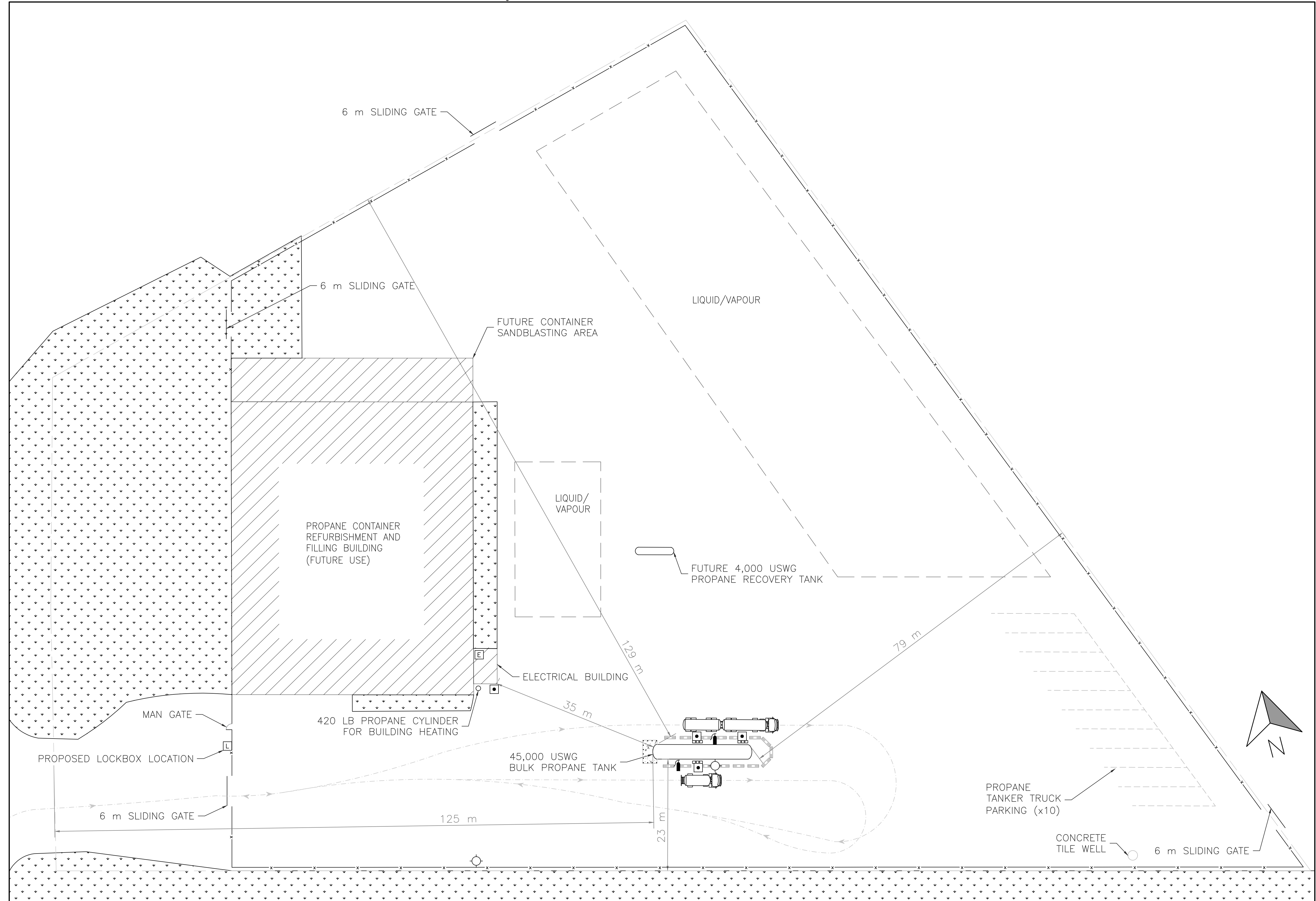
Emergency Response and Preparedness Plan (ERPP)
Propane Levac Propane Inc.
5697 Ste-Catherine St., The Nation Municipality, Ontario

Appendix B

Site Plan

LEGEND

- x — FENCE
- - - - - PROPERTY BOUNDARY
- - - - - TRUCK PATH
- / — SLIDING GATE
- ⤵ PEDESTRIAN GATE
- ▬ NEW JERSEY STYLE CONCRETE BARRIER
- BOLLARDS
- [] PROPANE CONTAINER STORAGE AREA
- [] TRUCK PARKING
- ▬ PROPANE TRANSFER BULKHEAD
- EMERGENCY SHUTDOWN BUTTON
- LOCK BOX
- ELECTRICAL SHUTDOWN LOCATION
- LIGHT STANDARD
- ⬮ FIRE EXTINGUISHER
- [] GRASS/TURF
- [] CONCRETE PAD
- [] BUILDING/STRUCTURE



SITE PLAN

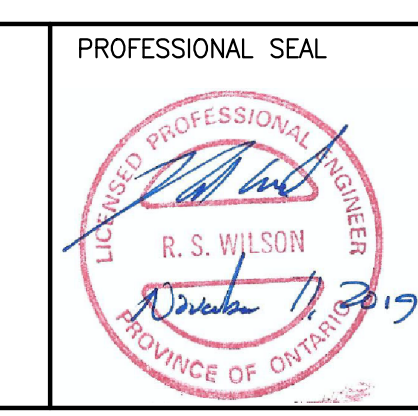
DATE	1	2	3	4	5
NOV 11/19					

DATE	No.	REVISION

NOTES

THIS DRAWING IS DIAGRAMMATIC IN NATURE AND INTENDED TO SHOW ONLY SITE FEATURES ASSOCIATED WITH PROPANE SAFETY. CONTRACTORS TO VERIFY ALL DIMENSIONS.

NOT FOR CONSTRUCTION



PROJECT MGR: R. WILSON

DESIGNED: T. MCRAE
 DRAWN: T. MCRAE
 CHECKED: R. TROUTMAN
 APPROVED: R. WILSON

SHEET SIZE: ARCH D
 SCALE: 1:400
 UNITS: METRIC

PROJECT

LEVEL 2 RISK AND SAFETY MANAGEMENT PLAN

PROPANE LEVAC PROPANE INC.

THE NATION MUNICIPALITY, ONTARIO

DRAWING TITLE

BULK FILLING PLANT: SITE PLAN

DRAWING NUMBER

18061-SK-001

Stirling Engineering Inc.

P.O. BOX 313
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Emergency Response and Preparedness Plan (ERPP)
Propane Levac Propane Inc.
5697 Ste-Catherine St., The Nation Municipality, Ontario

Muster Locations



(Google 2019; imagery 2016)

Emergency Response and Preparedness Plan (ERPP)
Propane Levac Propane Inc.
5697 Ste-Catherine St., The Nation Municipality, Ontario

Appendix C

Vapour Cloud Regime Table with Roughness Factors

		Leak Size (Approximate Diameter)							
		0.25"		1"		2"		3"	
		Weather Condition							
		Winter (-10°C)	Summer (23°C)	Winter (-10°C)	Summer (23°C)	Winter (-10°C)	Summer (23°C)	Winter (-10°C)	Summer (23°C)
Duration (hrs)	55% Initial Fill	48.5	47.5	3	3	1	1	0.4	0.3
	70% Initial Fill	60.5	52	4	3.5	1	1	0.5	0.4
	85% Initial Fill	74.5	56.5	4.5	4	1	1	0.5	0.4
Vapour Cloud Dimensions (m)	Length	6	15	105	87	282	188	489	296
	Width	2	2	56	17	173	43	315	75

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Instructions for how to use this table: There are three variables to select on this table: leak size, weather condition, and initial bulk tank contents. These variables will determine the calculated leak duration, vapour cloud length, and vapour cloud width. An example is shown for the use of this table with the factors a 1", winter release, and initially 70% full bulk tank:

		Leak Size (Approximate Diameter)							
		0.25"		1"		2"		3"	
		Weather Condition							
		Winter (-10°C)	Summer (23°C)	Winter (-10°C)	Summer (23°C)	Winter (-10°C)	Summer (23°C)	Winter (-10°C)	Summer (23°C)
Duration (hrs)	55% Initial Fill	48.5	47.5	3	3	1	1	0.4	0.3
	70% Initial Fill	60.5	52	4	3.5	1	1	0.5	0.4
	85% Initial Fill	74.5	56.5	4.5	4	1	1	0.5	0.4
Vapour Cloud Dimensions (m)	Length	6	15	105	87	282	188	489	296
	Width	2	2	56	17	173	43	315	75

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