

**Level 2 Risk and Safety Management Plan
W.O. Stinson & Son Ltd.
382 Highway 15
Township of Rideau Lakes, Ontario
(Volume 1 of 2)**

prepared on behalf of:

**W.O. Stinson & Son Ltd.
4728 Bank Street
Ottawa, Ontario
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by:



Stirling Engineering Inc.
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on:

July 20, 2022

Stirling Engineering Inc. Reference # 19097

8.0 EMERGENCY RESPONSE AND PREPAREDNESS PLAN

W.O. Stinson & Son has developed an Emergency Response and Preparedness Plan (“ERPP”) which is designed to help prevent, manage, and mitigate emergencies involving propane at the Smiths Falls filling plant. It is intended to protect the public, property, and environment from the consequences of a propane emergency. The ERPP has been developed to comply with applicable provisions of Ontario Regulation 211/01, Environmental Emergency Regulation under the Canadian Environmental Protection Act, and CSA Z731-03 (2014) *Emergency Preparedness and Response*.

The ERPP considers two types of releases from the facility: on-site (generally small) releases and off-site or external releases.

Most aspects of the ERPP are associated with post-incident response and are not considered preventative. Some components of the ERPP, however, are designed to mitigate damage or prevent incident escalation. Where appropriate, these aspects of the ERPP have been factored into the quantitative risk assessment in Section 10.0.

8.1 Requirement for Emergency Response Assistance Plan

W.O. Stinson & Son is required to have an Emergency Response Assistance Plan (“ERAP”) approved by Transport Canada because it consigns bulk propane in quantities above the threshold limit of 3,000 L (793 USWG) as specified in Part 7 of the TDG Regulations.

W.O. Stinson & Son has ERAP 2-0010-338, which is administered by Emergency Response Assistance Canada (“ERAC”), a subsidiary of the CPA.

8.2 Requirement for Environmental Emergency Plan

The bulk filling plant is required to prepare an Environmental Emergency (“E2”) Plan and file schedules with Environment Canada because the bulk storage quantity will be above the threshold of 4.5 tonnes.

W.O. Stinson & Son has adopted the ERPP as the E2 Plan, and is developing the Schedules for filing.

8.3 W.O. Stinson & Son On Site Emergency Response Plan

The ERPP has been developed to provide further direction and clarification of responsibilities to the staff and management of W.O. Stinson & Son for propane releases and incidents. The plan outlines how the company personnel will notify external agencies and assemble key staff to communicate, collaborate, coordinate, manage, and recover from an emergency.

The plan includes the following components:

- duties and responsibilities of personnel involved in management of an emergency;
- hazards associated with handling and use of propane;
- facility information;
- propane emergency prevention measures;
- how to initiate emergency shutdown to stop product flow and isolate power to electrical devices;

- a list of emergency equipment and resources available to during an emergency;
- evacuation procedures in case of propane leak or fire;
- review and update of the ERPP; and
- a site plan.

The ERPP describes evacuation procedures, both internal and external, and what actions are to be taken in during a propane leak or fire at or in the vicinity of the facility. The ERPP also includes how to stop a propane flow feeding a fire and the location of the emergency shutdown devices.

A copy of the current ERPP is provided in Appendix H.

8.3.1 Activation

In the event of a propane emergency, the plan can be activated by placing a call to “911” with the option of calling the ERAC call centre.

8.4 **Emergency Planning**

The following sections have been included to summarize the external emergency response and preparedness for the W.O. Stinson & Son Smiths Falls facility. For further details, the appropriate sections within the ERPP, included in Appendix H of the RSMP, have been referenced.

8.4.1 Names or Positions of Persons Authorized to Set Emergency Procedures In Motion

The person or persons identified in the ERPP as authorized to set emergency procedures “in motion”, and to take charge and coordinate off-site action will be established through the “Emergency Services Unified Command Structure”, as described in Table 3 – “Emergency Roles and Their Respective Responsibilities” of the ERPP.

8.4.2 Arrangements For Receiving Early Warning of Incidents, Alert and Call-Out Procedures

Early warning of incidents during an emergency can be completed by W.O. Stinson & Son personnel or property neighbors calling “911” as described in Section 8.2 of the ERPP.

8.4.3 Arrangements for Coordinating Resources Necessary to Implement the External Emergency Plan

Additional equipment and resources that may be used in the event of a propane emergency are owned by Emergency Response Assistance Canada and are made available by calling the ERAC Call Centre. Activation of the ERPP and the coordination of additional resources are described in the ERPP.

8.4.4 Arrangements for Providing Assistance With On-Site or Off-Site Mitigation Actions

Equipment resources identified above, as well as designated W.O. Stinson & Son personnel listed in Table 4 of the ERPP may be used to assist with on-site or off-site mitigation.

8.4.5 Arrangements for Providing the Public With Specific Information

As described in Figure 1 - “Incident Command Organizational Chart” of the ERPP, and in Table 3 – “Emergency Roles and Their Respective Responsibilities” of the ERPP, communication to the public will generally be provided by the Emergency Services Unified Command Structure. Subject to prior approval by the Unified Command Structure, additional limited communication may be provided by the W.O. Stinson & Son Company Spokesperson.

8.4.6 Arrangements for Provision of Information to the Emergency Services of Other Municipalities

The provision of information to other municipalities is to be coordinated by the Emergency Services Unified Command Structure, as described in Table 3 – “Emergency Roles and Their Respective Responsibilities” of the ERPP.

8.4.7 Public Notification or Alerting System

The public notification system in the ERPP consists of verbal notification. Door-to-door notification may also be used, as determined by the Emergency Services Unified Command Structure, depending on the nature and scope of the incident.

8.4.8 Off-Site Assistance Coordination with Municipal Evacuation Requirements

The provision for off-site assistance for an evacuation is to be coordinated through the Technical Director as described in Table 3 – “Emergency Roles and Their Respective Responsibilities” of the ERPP, in consultation with the Emergency Services Unified Command Structure so that assistance, if required, matches the municipal evacuation plan.

8.4.9 Internal and External Evacuation Plans

Internal evacuation plans are described in Figure 3 – “Activation and Notification Flow Chart”, of the ERPP as well as in the step-by-step procedure of the ERPP.

External evacuation plans are situation specific and have not been included in the ERPP. Evacuation of external locations cannot be pre-determined, and should be assessed by the Emergency Services Unified Command Structure based on conditions at the time of the incident.

8.4.10 Reception Information, Transportation, Evacuation Facilities, and Responsibilities for Coordinating Affected People

The internal evacuation plan specifies that the Evacuation Warden is to coordinate the evacuation, on foot, to one of the two pre-designated muster locations, as described in Table 3 – “Emergency Roles and Their Respective Responsibilities” of the ERPP.

External evacuation, if required, is to be determined by the Emergency Services Unified Command Structure and may require implementation of the municipal Emergency Response Plan. External evacuation may include shelter in place.

8.5 First Responders

8.5.1 Municipal Fire Fighting

The W.O. Stinson & Son Smiths Falls facility is located in the jurisdictional area of the Rideau Lakes Fire & Rescue. The Rideau Lakes Fire & Rescue is a composite force, utilizing both full-time and volunteer firefighters, and operating out of four stations in the Township of Rideau Lakes.

Rideau Lakes Fire & Rescue has an automatic aid agreement with the neighbouring Smiths Falls Fire Department that will provide first response to the filling plant. The Smiths Falls Fire Department is located approximately 5 km north of the facility at:

77 Beckwith Street North
Smiths Falls, Ontario
K7A 2B8

In the event of a first response, 2 full stations from the Rideau Lakes Fire & Rescue would be dispatched along with neighbouring fire services, as required. The approximate first response time to the Smiths Falls facility will be 6 to 8 minutes with a full complement for support in approximately 8 to 14 minutes. The number of suppression personnel available on a first alarm would be 22, including the Fire Chief and Deputy/Assistant Chief.

Available apparatus of the fire service includes 4 tankers and 4 pumpers, with a total pump capacity of 4,600 gallons per minute (“GPM”). Municipal pressurized water is not available at the W.O. Stinson & Son Smiths Falls facility, however the closest approved water supply is located 4 km from the facility with a maximum pump capacity of 1,250 GPM. It would take approximately 10 to 15 minutes to establish this water supply.

8.5.2 Emergency Medical Services

Emergency Medical Services for the Township of Rideau Lakes is provided by the Leeds Grenville Emergency Medical Services (“EMS”).

The Leeds Grenville EMS has seven permanent stations located through the counties of Leeds and Grenville, out of which five operate 24 hours a day. The service consists of 60 full time and 52 part time primary and advanced care paramedics, with a service fleet of fifteen (15) ambulances.

8.5.3 Municipal Emergency Response Plan

The United Counties of Leeds and Grenville has a municipal emergency response plan as required under the *Emergency Management and Civil Protection Act, R.S.O 1990*. The plan is designed to:

“...establish within the Counties an emergency plan in support of all constituent municipalities for the provision of:

- *the most timely and efficient acquisition and deployment of requested human and material resources;*
- *the coordination of inter-municipal, agency and provincial response activities;*

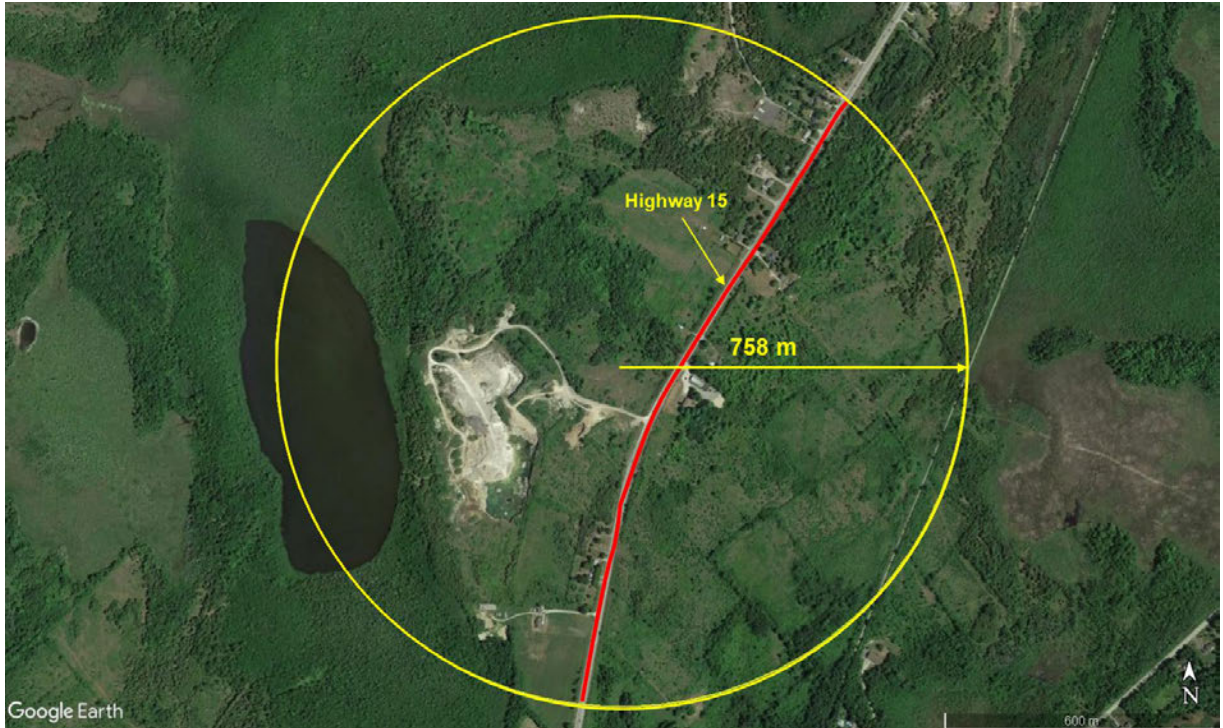
- *liaison between municipalities, boards of education, public utilities, industry, Ministries of the Province of Ontario and other public and private services and agencies.”*

The plan is designed to provide staff and the Municipal Emergency Control Group (“MECG”) with guidelines for the pre-emergency, emergency, and post-emergency phases. The MECG is comprised of the following members:

- Warden;
- Emergency Operations Manager (Chief Administrative Officer);
- Community Emergency Management Coordinator;
- Chief, Paramedic Services;
- Director of Community and Social Services;
- Director of Corporate Services; and
- Director of Public Works.

Individual responsibilities are further detailed in the plan for each member. The MECG may function without the presence of all members in the group, however all members must be notified whenever the plan is activated. The group can be supported by additional members throughout an emergency. The Community Emergency Management Coordinator is responsible for coordinating with Emergency Management Ontario and other allied agencies.

Hazard Distance = 758 m



(Google Earth 2022)

Largest Vessel Setback From Property Boundaries

GPS co-ordinates:
416,837 m Easting, 4,968,337 m Northing, Zone 18T (WGS84)

Municipalities within the Hazard Distance:
Township of Rideau Lakes

Municipal Clerk:
Mary Ellen Truelove
Township of Rideau Lakes
1439 County Road 8
Delta, Ontario
K0E 1G0

Facility Municipal Address:
382 Highway 15
Township of Rideau Lakes, Ontario

Facility Legal Description:
CON 3 PT LOT 9 PT LOT 10 HWY 15
Geographic Township of South Elmsley
Township of Rideau Lakes



(Google Earth 2022)



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Ontario

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SHEET 1 OF 1

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**Emergency Response and Preparedness Plan
W.O. Stinson & Son Ltd.
382 Highway 15
Township of Rideau Lakes, Ontario**

Prepared by:

**W.O. Stinson & Son Ltd.
4728 Bank Street
Ottawa, Ontario**

Last Revised on:
July 20, 2022

List of Revisions

Date	Revision	Authorized Reviser	Authorization
July 20, 2022	<ul style="list-style-type: none">Issued with RSMP	Robert Wilson (Stirling Engineering Inc.) authorized by John Armstrong	

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1.0 INTRODUCTION

The health and safety of its employees, the public, and protection of the environment are integral to W.O. Stinson & Son Ltd.'s business. To protect these interests, W.O. Stinson & Son Ltd. ("W.O. Stinson & Son") 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 W.O. Stinson & Son facility in the Township of Rideau Lakes, Ontario, near Smiths Falls. 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* 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

Under the *Environmental Emergency Regulations* of the *Canadian Environmental Protection Act, 1999*, propane installations having an individual propane storage container system equal to or greater than 4.5 metric tonnes (approximately 2,345 United States Water Gallons ("USWG")) must prepare an Environmental Emergency ("E2") Plan and submit the required Schedules to Environment Canada.

This ERPP has also been prepared 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.

1.1.3 Transport of Dangerous Goods Regulations

The federal *Transportation of Dangerous Goods Regulations* requires every transporter, importer or consignor of propane to have an approved Emergency Response 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.

W.O. Stinson & Son has approval for ERAP #2-0010-338, which has been registered, reviewed and accepted by Transport Canada.

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

W.O. Stinson & Son 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 the W.O. Stinson & Son bulk propane plant at 382 Highway 15 in the Township of Rideau Lakes, 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 W.O. Stinson & Son.

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 Persons as Program Coordinator

Position	Name
General Manager	John Armstrong
Health and Safety Coordinator	Scott Stinson

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 W.O. Stinson & Son Smiths Falls 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	Contact Person
1 (electronic)	Rideau Lakes Fire & Rescue – Station #2 20 Colborne Street, Portland, Ontario K0G 1V0	Scott Granahan Fire Chief/Community Emergency Management Coordinator sgranahan@rideaulakes.ca (613) 928-2251 ext. 237
1 (electronic)	W.O. Stinson & Son Head Office 4728 Bank Street Ottawa, Ontario K1T 3W7	John Armstrong jarmstrong@wostinson.com (613) 822-7400
1 (electronic)	W.O. Stinson & Son Rideau Lakes Yard	John Armstrong jarmstrong@wostinson.com (613) 822-7400
1 (electronic)	W.O. Stinson & Son Bulk Truck	N/A

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.
- **ERPP:** Emergency Response and Preparedness Plan
- **ERAP:** Emergency Response and Assistance Plan, under the *Transportation of Dangerous Goods Regulations*
- **ERPP:** Emergency Response and Preparedness Plan
- **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.
- **LFL:** lower flammable limit
- **LPG:** liquefied petroleum gas
- **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 Gallons, a measure of volume

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 W.O. Stinson & Son. 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 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

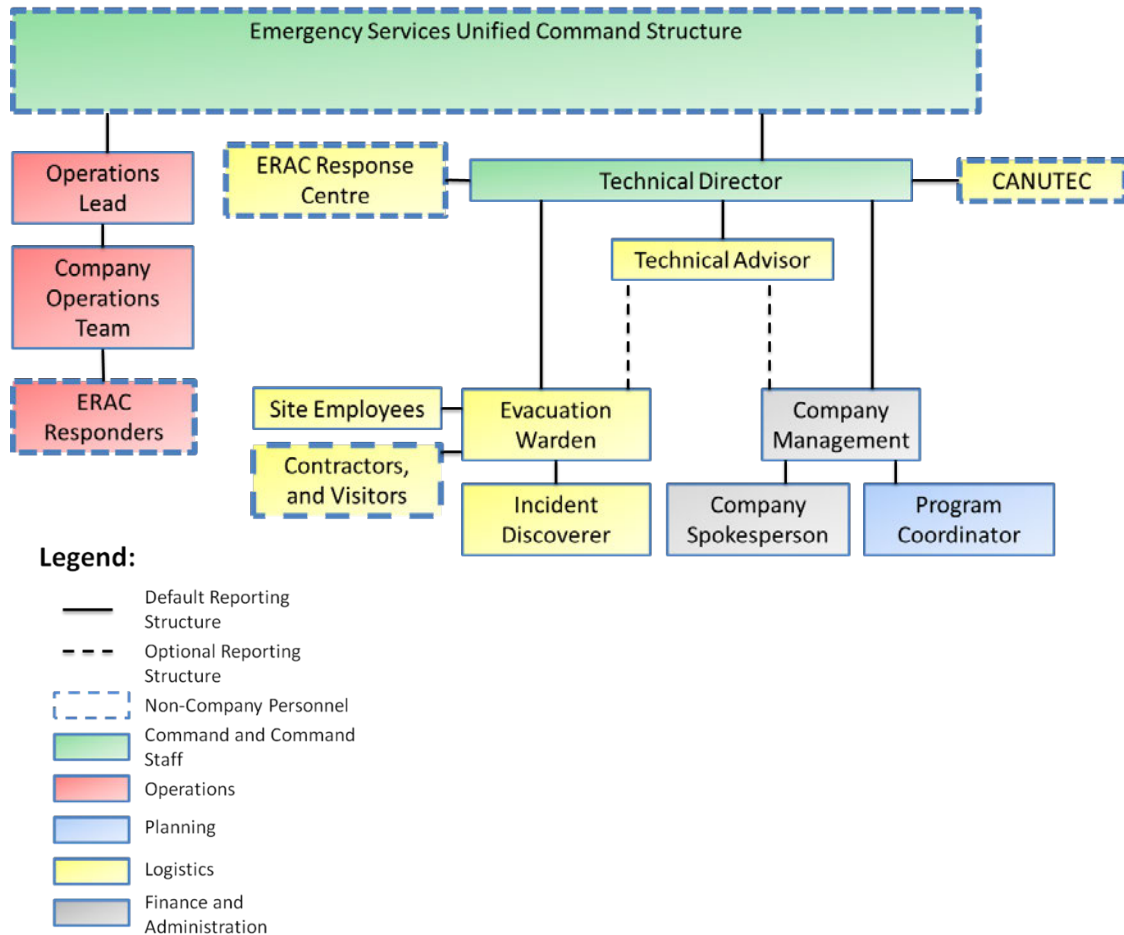


Table 3: Emergency Roles and Their Respective Responsibilities

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 W.O. Stinson & Son policies and mandate. • Know W.O. Stinson & Son 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 W.O. Stinson & Son. • 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 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.

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 W.O. Stinson & Son. • 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. • 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. • Put on the white helmet and reflective vest and collect the Evacuation Kit. • Issue a call for evacuation, and communicate Muster Area selection to on-site personnel. Proceed to the chosen Muster Area with the Evacuation Kit 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 Table 5). • 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 on 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 on 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, fixing 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 the W.O. Stinson & Son Smiths Falls Facility

ERPP Role	Name	Contact Information
Program Coordinator Company Spokesperson Technical Director	Scott Stinson	Home Phone:
		Work Phone: (613) 822-7400
		Cell Phone: [REDACTED]
		Email: sstinson@wostinson.com
	John Armstrong	Home Phone: [REDACTED]
		Work Phone: (613) 822-7400
		Cell Phone: [REDACTED]
		Email: jarmstrong@wostinson.com
Operations Lead Technical Director	Nick Lepage	Home Phone: [REDACTED]
		Work Phone: (613) 822-7400
		Cell Phone: [REDACTED]
		Email:
Technical Advisor (Secondary Contact)	Tom Tinsley	Home Phone:
		Work Phone: (613) 623-4207
		Cell Phone: [REDACTED]
		Email: ttinsley@wostinson.com
Company Management	Eric Stinson	Home Phone: [REDACTED]
		Work Phone: (613) 822-7400
		Cell Phone: [REDACTED]
		Email: estinson@wostinson.com
	David Stinson	Home Phone: [REDACTED]
		Work Phone: (613) 822-7400
		Cell Phone: [REDACTED]
		Email: dstinson@wostinson.com
Evacuation Warden Company Operations Team	Joel Bennet	Home Phone: N/A
		Work Phone: (613) 623-4207
		Cell Phone: [REDACTED]
		Email: jbenett@wostinson.com
Evacuation Warden	Bulk Truck Driver on site	Home Phone:
		Work Phone:
		Cell Phone:
		Email:
Evacuation Warden	Receptionist on duty	Home Phone:
		Work Phone:
		Cell Phone:
		Email:

Table 5: External Emergency Contacts

Organization	Description of Resource	Contact Information
Fire, Medical, Police	Emergency Services	911
ERAC Response Centre	ERAP Number (Plan 2-0010-338)	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
Residents of 400 Highway 15	Location of Primary Muster Area	-
Residents of 370 Highway 15	Location of Secondary Muster Area	-

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 any 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 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 Transport 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.

4.2 Risks to Public

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 error) or equipment failure and those addressed by this ERPP have been identified as follows:

- accidental releases of propane; and
- fires.

4.2.1 Reasonable Worst-Case Scenario

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 that can propel tank fragments.

4.2.2 Vapour Cloud Regime

The environmental emergency that would impact off-site property, and is more likely to occur than a BLEVE 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 occurrence of less than 1 in 100,000 years at this site.

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 (“LEL”) of propane, 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 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 64 hours under winter conditions. Increasing the initial fill

percentage to 85% with the same 0.25” diameter leak will increase the release duration to approximately 99 hours. Increasing the size of the leak to 3” will reduce the release time to approximately 30 min from an initial 55% fill 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 489 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 by a factor of “R1”. Areas consisting of brush and shrubs correspond to a relatively moderate degree of surface roughness, characterized by a factor of “R2”. Larger treed areas or buildings correspond to a relatively high degree of surface roughness, characterized by 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 reference tool to determine the duration, length, and width of a cloud. Variables considered include:

- leak sizes of 0.25”, 1”, 2” and 3”;
- 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: Full Vapour Cloud Regime Chart – 1 x 58,795 USWG

		Leak Size (Approximate Diameter)								
		0.25"		1"		2"		3"		
		Weather Condition								
Initial Bulk Tank Contents (%fill)		Winter (-10°C)	Summer (23°C)	Winter (-10°C)	Summer (23°C)	Winter (-10°C)	Summer (23°C)	Winter (-10°C)	Summer (23°C)	
55%	Duration (hrs)	64	63	4.3	4.0	1.1	1.0	0.5	0.5	
	Terrain Roughness	Vapour Cloud Dimensions								
	R1	Length	6	15	105	87	282	188	489	296
		Width	2	2	56	17	173	43	315	75
	R2	Length	10	12	78	63	202	138	349	217
		Width	5	2	53	15	149	38	268	66
	R3	Length	9	8	57	48	151	108	265	172
Width		6	2	51	16	138	39	241	66	
70%	Duration (hrs)	80	69	5.1	4.5	1.3	1.1	0.6	0.5	
	Terrain Roughness	Vapour Cloud Dimensions								
	R1	Length	6	15	105	87	282	188	489	296
		Width	2	2	56	17	173	43	315	75
	R2	Length	10	12	78	63	202	138	349	217
		Width	5	2	53	15	149	38	268	66
	R3	Length	9	8	57	48	151	108	265	172
Width		6	2	51	16	138	39	241	66	
85%	Duration (hrs)	99	75	6.1	4.9	1.6	1.3	0.7	0.6	
	Terrain Roughness	Vapour Cloud Dimensions								
	R1	Length	6	15	105	87	282	188	489	296
		Width	2	2	56	17	173	43	315	75
	R2	Length	10	12	78	63	202	138	349	217
		Width	5	2	53	15	149	38	268	66
	R3	Length	9	8	57	48	151	108	265	172
Width		6	2	51	16	138	39	241	66	

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How to use this table:

There are four variables to select on this table: leak size, weather condition, initial bulk 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 bulk tank, and a terrain roughness of 2.

5.0 FACILITY INFORMATION

The facility will be located at 382 Highway 15 in the Township of Rideau Lakes, Ontario and has a total fixed storage capacity of 60,794 USWG of propane, which is used for the transfer and storage of propane to and from bulk propane trucks and filling of propane cylinders. The maximum expected quantity of propane stored at the W.O. Stinson & Son Smiths Falls facility at any time during a calendar year is 168,794 USWG. The largest propane bulk tank at the facility has a storage capacity of 58,795 USWG.

The W.O. Stinson & Son Smiths Falls facility also has diesel storage on site consisting of one (1) 2,200 L aboveground tank and one (1) 4,500 L aboveground tank.

A site plan has been included in Appendix B. This document includes the tank and storage locations as well as locations of access and egress routes to the facility, emergency equipment, emergency shutoffs, fire routes and on-site fire suppression equipment. Also included in Appendix B is an overhead view of the facility. This diagram illustrates the primary and secondary muster areas.

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 scale emergencies, or to provide interim emergency assistance, W.O. Stinson & Son maintains emergency response equipment in their bulk trucks as listed in Table 7.

Table 7: 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 incidents requiring immediate and higher-level emergency response, W.O. Stinson & Son 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 #2-0010-338 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, Division 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	Reflective tear away safety vest or equivalent
1	Rain suit
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
1	Tape measure or dent gauge
1	Pressure gauge (0 to 300 lbs minimum)
1	Roll duct tape
1	Crescent wrench, 12"
1	Set pliers
1	Safety harness and lanyard
1	Cellular phone
1	Set dissipative material

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, Division 1 gas detection equipment which is capable of continuously monitoring lower explosive limits, oxygen and hydrogen sulphide
1	Class 1, Division 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	Windsock
1	Hard copy or ERAP and MSDS/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 Div. 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	Toolbox, 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 earmuffs
1 per responder	Fire retardant rain suit
1 per responder	Flashlight, handheld or helmet mounted, Class 1 groups C&D

The nearest Response Team is based at the Drain-All offices in Ottawa, Ontario. Other Response Teams are located in Brantford, Ontario and Barrie, Ontario.

The nearest RMA is based out of Madoc, Ontario. The next nearest RMAs are based out of Gravenhurst, Ontario, and Barrie, Ontario.

Once an evacuation of the premises is initiated, the Evacuation Warden shall bring the “Evacuation Kit” to the selected Muster Area. This Evacuation Kit can be found on each bulk truck and shall contain:

- up to date employee list with contact numbers;
- copies of this ERPP;
- hard hat;
- reflective vest; and
- charged cellular phone.

5.3 Communication System

W.O. Stinson & Son 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 cellular 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 a verbal notification initiated by the Evacuation Warden. When activated, the auditory signal indicates an evacuation order to all on-site personnel. If necessary, vehicle horns may be used to draw attention to the Evacuation Warden.

5.3.2 Communication during Emergency

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

5.4 Muster Areas

Two muster areas where employees will evacuate to in 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 muster area: at the driveway to 400 Highway 15 to the south; and
- secondary muster area: at the driveway to 371 Highway 15 to the north.

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”) B149.2-20 *Propane storage and handling code* as adopted by TSSA. In addition, the bulk propane tank at the Smiths Falls facility is designed and built according to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code: Section VIII, Division 1.

W.O. Stinson & Son also protects against 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 W.O. Stinson & Son 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 separate W.O. Stinson & Son documents, as well as in W.O. Stinson & Son standard operating procedures.

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 the W.O. Stinson & Son Smiths Falls facility 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 properties and individuals that may be affected by an off-site emergency have been identified in Table 10 below:

Table 10: Affected Public Contact Information

Name of Resident / Company	Address	Telephone Number
Campbell's Trucking	384 Highway 15	(613) 283-1693
Bernie's Nearly New Shoppe	381 Highway 15	(613) 282-7037
Residential Property	383 Highway 15	-
Primary Muster Area	400 Highway 15	-
Secondary Muster Area	370 Highway 15	-

Propane hazards have been communicated to the Rideau Lakes Fire & Rescue. 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=6AMOOHnLoaJj5lA5Hs1Q9MSQ1AeQuAleQuAl>

As a member of the CPA, W.O. Stinson & Son 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 W.O. Stinson & Son will facilitate initial and subsequent communications with the public and the media under the direction of the Emergency Services Unified Command Structure.

Through 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 W.O. Stinson & Son and government/municipal organizations.

Notification of the end of an emergency to all those affected is the responsibility of the Company Spokesperson. The Company Spokesperson will proceed with announcing the end of an emergency when indicated to do so by the Emergency Services Unified Command Structure. Communication of such information is to be done by means of telephone or media.

8.0 EMERGENCY RESPONSE PROCEDURES

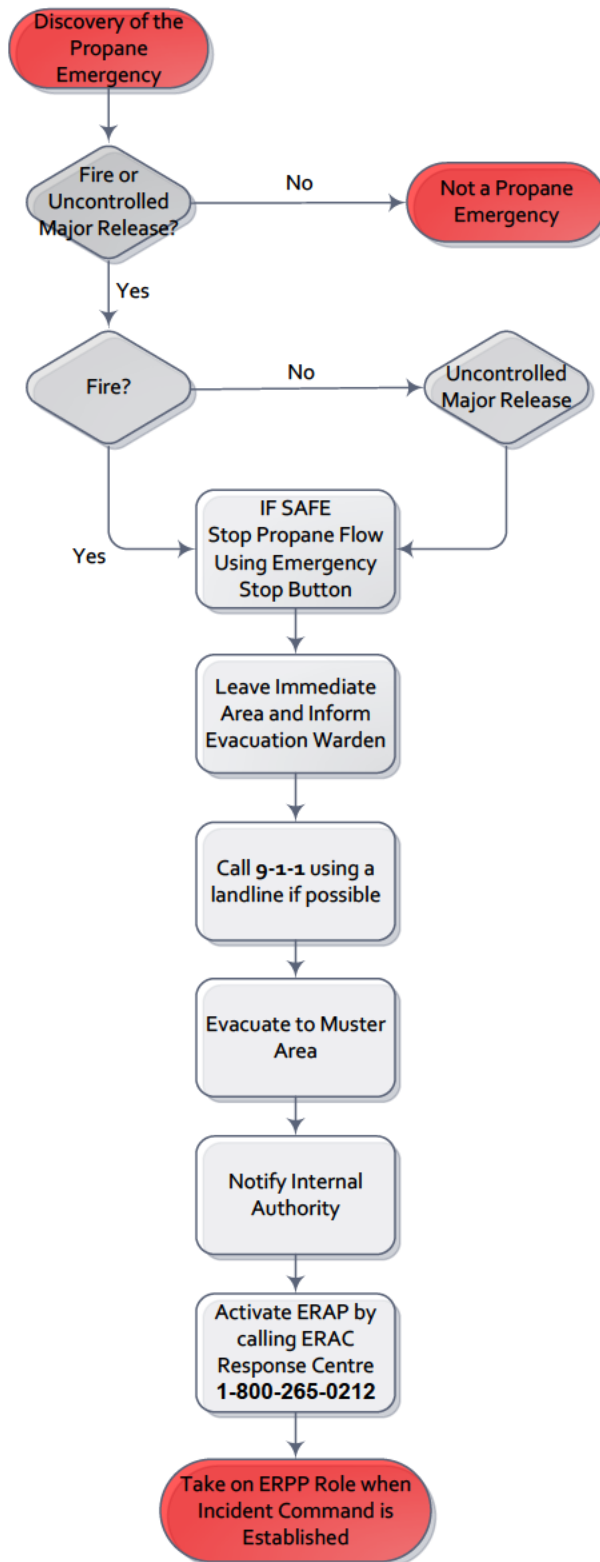
8.1 Activation of the ERPP, ERAP and Notification of the Emergency

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 W.O. Stinson & Son. This employee is designated by the Evacuation Warden to activate the ERPP and ERAP, and must do so by calling the ERAC Response Center. 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 180 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;
 - 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.
- Walk, don’t run to Muster Area

Step 6 - Notify Internal Authority

- Call company 24-hr emergency hotline at **1 (800) 267-9714**
- 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 Evacuation Procedure

Evacuation to a safe area is necessary to protect employees in case of an emergency. W.O. Stinson & Son 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 W.O. Stinson & Son 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 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

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 than 25% of the lower flammable limit (LFL) of propane (< 0.5%)
- dispose of debris.
- although propane is not considered to be an environmental hazard, spills and leaks of other hydrocarbon fuels stored at the W.O. Stinson & Son Smiths Falls facility must be cleaned up after an emergency.

9.1 Compensation

CPA member and non-member parties who participated in response to the W.O. Stinson & Son propane emergency shall be compensated appropriately. Remedial Measures Advisors and Response Team Members shall be compensated according to the payment schedules found in the ERAP #2-0010-338 document.

10.0 APPENDICES

Emergency Response and Preparedness Plan (ERPP)
W.O. Stinson & Son Ltd.
382 Highway 15, Township of Rideau Lakes, 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 Extremely flammable gas.

Statements: 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

Table with 5 columns: Component, CAS No., LD50 oral, LD50 dermal, LC50. Rows include Propane, Ethane, Propylene, and Butane.



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)
W.O. Stinson & Son Ltd.
382 Highway 15, Township of Rideau Lakes, Ontario

Appendix B

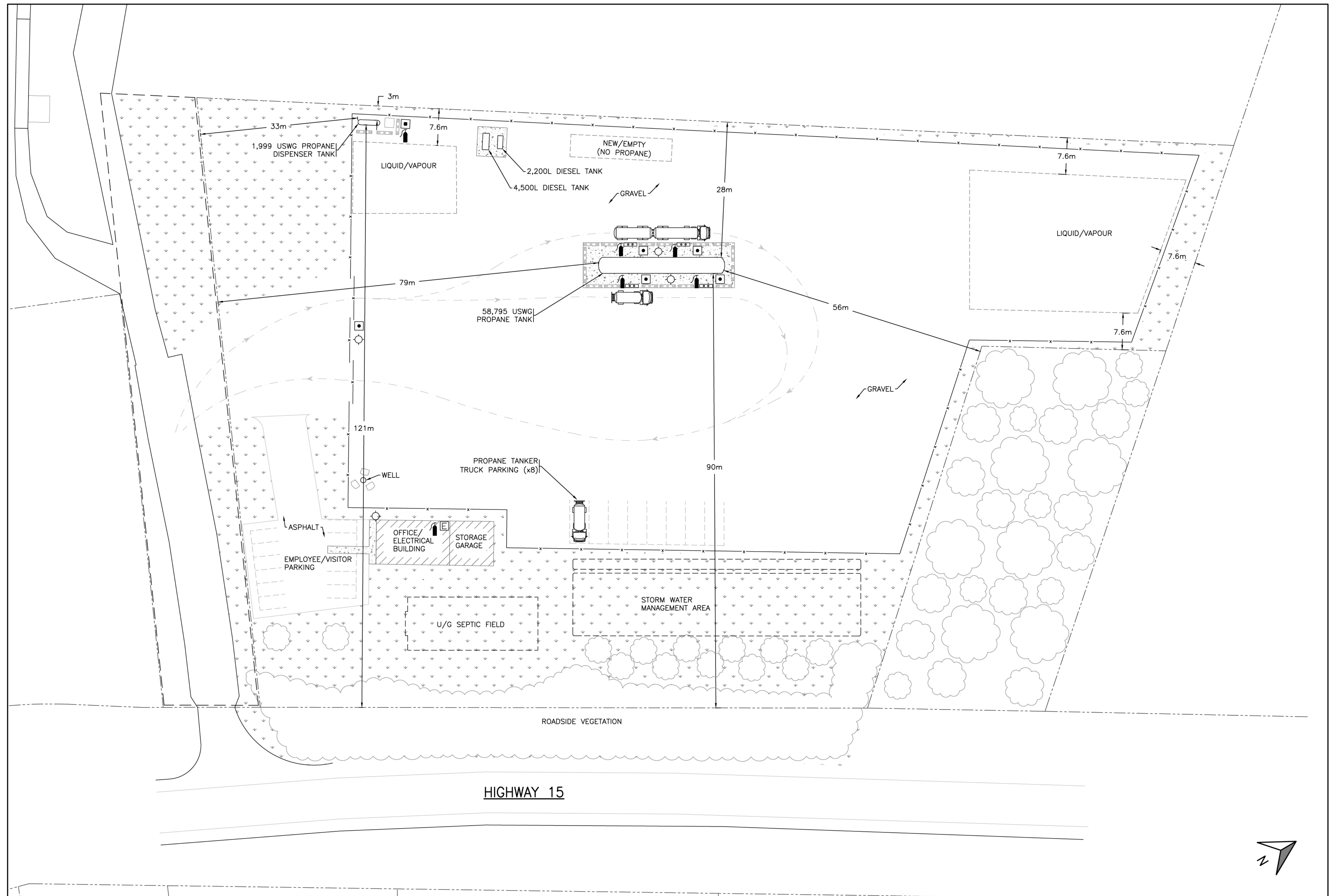
Site Plan & Muster Areas

Emergency Response and Preparedness Plan (ERPP)
W.O. Stinson & Son Ltd.
382 Highway 15, Township of Rideau Lakes, Ontario

Site Plan

	FIRE EXTINGUISHER
	LIGHT STANDARD
	JERSEY BARRIER
	ELECTRICAL SHUTDOWN
	EMERGENCY STOP
	DISPENSER EMERGENCY STOP
	PROPANE TANKER TRUCK PARKING
	EDGE OF PAVEMENT
	PROPERTY BOUNDARY
	EASEMENT
	TRUCK PATH
	FENCE
	SLIDING GATE
	BULKHEAD
	STRUCTURE
	PROPANE CONTAINER STORAGE AREA
	CONCRETE PAD
	TURF
	TREE

LEGEND



SITE PLAN

<p>JUL 18/22 / 0, ISSUED FOR RSMP</p>		<p>DATE</p>		<p>No. REVISION</p>		<p>DATE</p>		<p>NOTES</p> <p>THIS DRAWING IS DIAGRAMMATIC IN NATURE AND INTENDED TO SHOW ONLY SITE FEATURES ASSOCIATED WITH PROPANE SAFETY. CONTRACTORS TO VERIFY ALL DIMENSIONS.</p> <p>NOT FOR CONSTRUCTION</p>		<p>PROFESSIONAL SEAL</p>		<p>PROJECT MGR: R. WILSON</p> <p>DESIGNED: T. MCRAE</p> <p>DRAWN: B. MUSSELMAN</p> <p>CHECKED: R. TROUTMAN</p> <p>APPROVED: R. WILSON</p> <p>SHEET SIZE: ARCH D</p> <p>SCALE: 1:400</p> <p>UNITS: METRIC</p>		<p>PROJECT</p> <p>LEVEL 2 RISK AND SAFETY MANAGEMENT PLAN</p> <p>W. O. STINSON AND SON LTD</p> <p>RIDEAU LAKES, ONTARIO</p>		<p>DRAWING TITLE</p> <p>BULK FILLING PLANT: SITE PLAN</p> <p>DRAWING NUMBER</p> <p>19097-SK-001</p>		<p>Stirling Engineering Inc.</p> <p>P.O. BOX 313 INGLESIDE, ONTARIO K0C 1M0 TEL: 613.362.7847 FAX: 613.537.8523 WWW.STIRLINGENGINEERING.CA</p>	
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Emergency Response and Preparedness Plan (ERPP)
W.O. Stinson & Son Ltd.
382 Highway 15, Township of Rideau Lakes, Ontario

Muster Areas



Emergency Response and Preparedness Plan (ERPP)
W.O. Stinson & Son Ltd.
382 Highway 15, Township of Rideau Lakes, Ontario

Appendix C

Quick Reference Chart for Vapour Cloud Regime

		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	64	63	4.3	4.0	1.1	1.0	0.5	0.5
	70% Initial Fill	80	69	5.1	4.5	1.3	1.1	0.6	0.5
	85% Initial Fill	99	75	6.1	4.9	1.6	1.3	0.7	0.6
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 of 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	64	63	4.3	4.0	1.1	1.0	0.5	0.5
	70% Initial Fill	80	69	5.1	4.5	1.3	1.1	0.6	0.5
	85% Initial Fill	99	75	6.1	4.9	1.6	1.3	0.7	0.6
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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