



Canadian Fuels
ASSOCIATION



**Land Spill Emergency
Preparedness Program**

Response Strategies for Petroleum Road Transportation Incidents



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Part 1 - Introduction

This manual contains recommended practices and applies to all individuals and organizations responsible for hazardous material incidents involving hydrocarbon products. It provides standard operating guidelines for responding to such incidents.

Although similar, each incident must be evaluated separately for unique risks. The operating guidelines provided must be amended to fit the specific incident.

The objectives of this training program are to assist the responder in the following areas.

- Basic cargo tank design features
- Damage assessment process
- Likely methods of container breach/release
- Understanding product behavior
- Personal protective equipment requirements
- Spill and leak control procedures
- Describe loading/unloading methods
- Incident Command System

The sections in this manual include guidelines, photos and diagrams, and personal commentary collected from actual response incidents to help guide responders in plain language. The personal commentary is listed in blue within the manual pages.



Part 2 - Definitions

Bond Cable	a cable that connects two like objects to ensure continuity and equalize potential energy between them
CANUTEC	Canadian Transport Emergency Centre of the Department of Transport.
Class 3	substances that are liquids or liquids containing solids in solution or suspension are included in Class 3, Flammable Liquids, if they have a flash point less than or equal to 140 °F (60°C).
Combustible Liquid	any liquid having a flash point at or above 100°F (37.8°C).
Consignor	a person in Canada who is named in a shipping document as the consignor, imports or who will import dangerous goods into Canada, or has possession of dangerous goods immediately before they are in transport.
Evacuation zone	the downwind areas evacuated for the purposes of ensuring public safety.
Flammable liquid	any liquid having a flash point below 100°F (37.8°C).
Flash point	the lowest temperature at which the application of an ignition source causes the vapors of a liquid to ignite near the surface of the liquid or within a test vessel.
FR	means flame retardant (i.e. FR coveralls)



Ground Cable	a cable connected from an object to an earth point for the purpose of dissipating static energy from the object.
Hot Zone	is the area in all directions and in close proximity to the involved unit. Anyone who enters should wear respirators and FR chemical protective clothing as appropriate. No entry should be conducted without a partner, without a backup team, without an assignment, and without being monitored from outside the Hot Zone.
Imminent accidental release	<p>means, for dangerous goods in transport in a large means of containment, that there has been an incident and</p> <p>(a) there is likely a need to remove or transfer all or a portion of the dangerous goods to another large means of containment;</p> <p>(b) there is damage to the means of containment which, if not corrected, could result in an accidental release of the dangerous goods in a quantity or emission level that exceeds those set out in the table to subsection 8.1(1) of Part 8, Accidental Release and Imminent Accidental Release Report Requirements; or</p> <p>(c) the large means of containment is lost in navigable waters.</p>
Isolation zone	the immediate areas in close proximity of an incident based on a radius which includes upwind areas.



Incident Command System (ICS)	a standardized approach to managing emergency incidents that provides a clear organizational structure and a common language for all responders.
Large means of containment	means of containment with a capacity greater than 450 L.
Lower explosion limit (LEL)	refers to the lowest concentration of gas/fumes/vapors required to produce fire in an ignition source like flame or heat.
Non-Polar/Immiscible	incapable of mixing or attaining homogeneity
OV Cartridges	organic vapor cartridges
Packing group	group in which dangerous goods are included based on the inherent danger of the dangerous goods; Packing Group I indicates great danger, Packing Group II indicates medium danger, and Packing Group III indicates minor danger.
Permit for equivalent level of safety	means an authorization issued under section 31 of the Act to conduct an activity in compliance with the conditions of that authorization instead of with the requirements of these Regulations.
Polar / Water Miscible	two or more liquids capable of being mixed to form a homogeneous substance
PPE	Personal Protective Equipment
Primary class	means the first class shown in column 3 of Schedule 1.
Responsible Party	the owner of the cargo tank involved in the incident



Safety mark	includes a design, symbol, device, sign, label, placard, letter, word, number or abbreviation, or any combination of these things, that is to be displayed (a) on dangerous goods, on means of containment or transport used in handling, offering for transport or transporting dangerous goods, or at facilities used in those activities; and (b) to show the nature of the danger or to indicate compliance with the safety standards prescribed for the means of containment or transport or the facilities.
Shipping document	document that relates to dangerous goods being handled, offered for transport or transported and that contains the information required by Part 3, Documentation, relating to the goods.
Shipping name	an entry in upper case letters (capitals) in column 2 of Schedule 1, but does not include any lower-case descriptive text except to determine the classification of dangerous goods.
Small means of containment	means of containment with a capacity less than or equal to 450 L.
Subsidiary class	class shown in parentheses in column 3 of Schedule 1.
Technical name	chemical name or another name currently used in a scientific or technical handbook, journal or text but does not include a trade name.
UN number	A four-digit number that identifies hazardous materials. Some hazardous



	<p>substances have their own UN numbers, while sometimes groups of chemicals or products with similar properties receive a common UN number.</p>
<p>Vapor</p>	<p>the dispersion in air of imperceptible particles of a liquid or solid in its normal state.</p>
<p>Vapor Density</p>	<p>the density of vapor in relation to that of air. Air is given a vapor density of one, the vapor density would indicate whether a gas is denser (greater than one) or less dense (less than one) than air. The density has implications for released product and personnel safety. If a container can release a dense gas, its vapor could sink and, if flammable, collect until it is at a concentration sufficient for ignition.</p>



Section 3 – Incident Planning

3.1 – Developing an Incident Response Plan

Internal Incident Response Planning is an essential part of emergency preparedness. The development of land and water-based emergency plans requires numerous elements to ensure your organization is prepared in the event of a hydrocarbon-based incident.

A planning team should be developed within your organization to allow for multiple visions, opinions and individual expertise to enhance your final response plan.

Each geographic area provides unique risks and challenges, such as river and waterway access, that only local contractors understand best. These risks need to be discussed in advance and included in your response plans.

It is a useful exercise to establish in advance resources that can be utilized during a response such as sub-contractors, rental companies and specialized services along with their 24 hour phone numbers.

3.2 – Review and Training

The review and training of response plans are critical components of emergency preparedness. It is important to ensure that all documentation and contact information is up-to-date and accurate. Annual reviews of plans, guidelines, and field documents are essential to ensure that they remain relevant and effective.



Mock scenarios should also be conducted to test the effectiveness of the response plans. This includes activating third-party service providers to ensure that everyone knows their roles and responsibilities. After the mock scenario, it is important to conduct a debrief with all participants to identify areas of strength and weakness.

Debriefs are especially important because they allow individuals who physically complete the tasks within the plan to provide valuable feedback. This feedback can be used to improve response plans, identify areas where additional training may be needed, and ensure that everyone involved in the response is prepared for an emergency.



Section 4 – Responsibilities

4.1 – General Responsibilities

This section outlines the basic responsibilities within the Land Based Preparedness program, focusing specifically on the Carrier, Product Owner, ECRC Dispatch, and Response Contractor.



Land Based Preparedness

Response Roles and Responsibilities



Activity	Carrier	Product Owner	ECRC Dispatch	Response Contractor
Incident Notifications (regulatory)	X			
ECRC Activation	X	X		
Contractor Activation			X	
Assess Situation				X
Secure Site				X
Evaluate Hazards				X
Determine Appropriate PPE				X
Coordinate Equipment and Resources				X
Product Removal and Transfer				X
Truck Salvage	X			
Spilled Product Recovery				X
Incident Command	X	X		
Provide Media Relations	X	X		
Government Relations	X	X		
Claims and Complaints	X	X		
Interim Storage of Recovered or Transferred Product				X
Final Disposal of Recovered Product	X	X		
Site Remediation	X	X		



4.2 – Assisting the Responsible Party

The information outlined in the previous section clearly defines who is responsible for which tasks under the LSEP program. To ensure clear communication and all expectations are met the Response Contractor should communicate with the Responsible Party (RP) at the onset of the response to ensure no delays. Here is a list of questions to consider:

1. Has towing been arranged?
2. Who and when will they be on-site?
3. What is the new destination for the transferred product?
4. Have they arranged for a transfer trailer, or should we do it?
5. If the RP is arranging a transfer trailer, what products were last contained in the compartments?
6. What are the compartment sizes of the transfer trailer?
7. Have they made the required notifications to all agencies?
8. Who will be the on-site contact from the Responsible Party?
What is their phone number?
9. Who should media requests be directed to?
10. Who will be completing the remediation of the site if required?



Section 5 – Tank Design/Assessment

5.1 – General Design

When it comes to cargo tanks that transport refined hydrocarbon petroleum products, they are generally classified as either MC-306 or DOT/TC 406 series tanks. Although the transition between the two occurred around 1990, several elements remained the same while others changed. Here are the key elements associated with each cargo tank series:

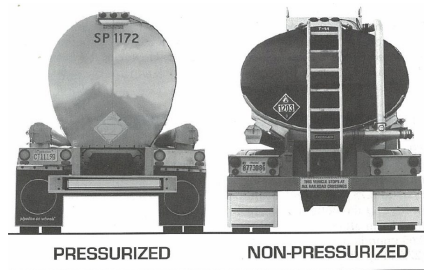
Returning Elements

- Aluminum Construction
- Shape remained oval or elliptical
- Designed to melt at 1200°F
- Non-pressurized tanks (3 psi)
- Remote closures



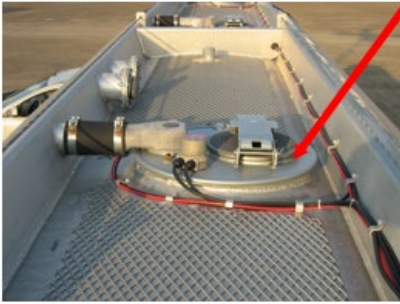
New Elements

- Thicker shell material
- Better overturn protection
- Void or vapor spaces in-between compartments



5.2 – Cargo Tank Components

Manways – Both series of cargo tanks have similar manways or hatches. The most visible change is the amalgamation of primary components on top of the trailer into the manway plate. These components include the scully device used to detect loading levels, the vapor recovery line, and the manway itself.



406 Series



306 Series

Vapor Recovery Lines – Both series of cargo tanks have similar vapor recovery systems. These systems provide a closed-loop system that allows the trailers to be loaded with the hatches closed while covering all the vapors as the product is loaded.



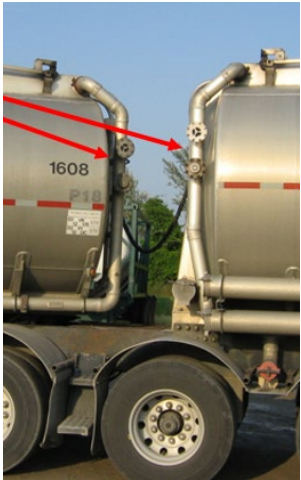
These vapor recovery systems are equipped with various styles of pressure and vacuum relief vents. The locations of these vents vary depending on many factors ranging from trailer configuration, straight truck, B-trains, trailer manufacturer, etc.

The following pictures depict the multiple locations these vents are located:

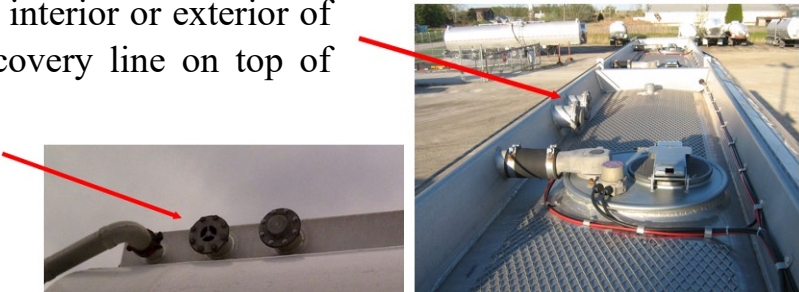
Rear head of trailer on vapor line.



On vapor lines in-between the trailers on a set of B-trains



On either the interior or exterior of the vapor recovery line on top of the trailer.



In addition to the traditional style of relief vents normally seen, new combination vents are now being used in a multi-functional application for both positive and negative pressure.



Due to geographical locations, not all areas will see trailers equipped with this style of vapor recovery system. This inconsistency can cause severe distress during a response due to modifications made to the trailers operating in these regions, which may have the system disconnected or leave the vapor line open and susceptible to the product being released if the vents do not hold on top of the trailer.



It is also common for national carriers to relocate trailers into areas where vapor recovery systems are not required. Responders must be very diligent during their assessment of the cargo tank to identify whether the unit is equipped with the system.

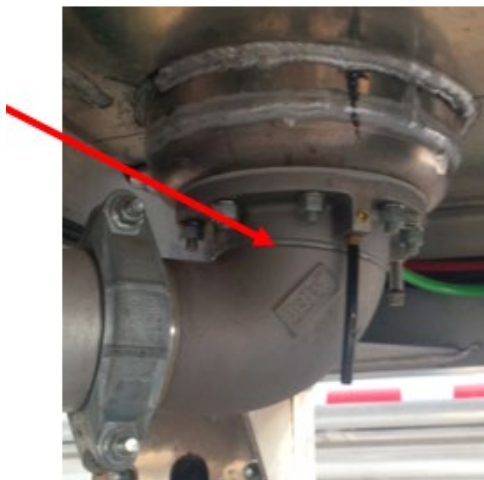


Emergency Closures – All cargo tanks must be equipped with remote closures that, when activated, will close all discharge valves on the trailer. These valves can be operated via air, cable, or hydraulics. These emergency closures are traditionally found on the front driver's fender of the trailer. The legislation allows the closures to be located anywhere on the trailer, provided they are not within 10ft. of the discharge valve.

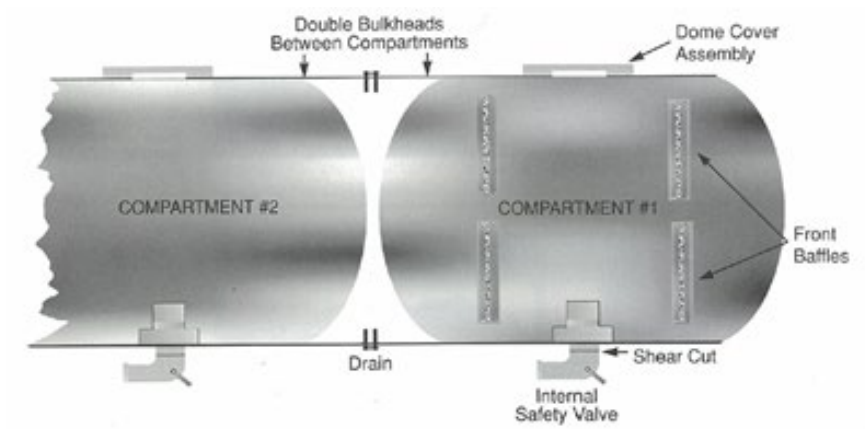


Regardless of the location, legislation requires these closures to be predominately marked. Responders may find one closure controls multiple discharge valves or a potential to have all discharge valves controlled by one closure.

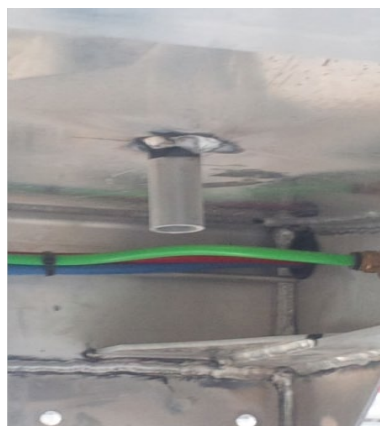
Shear Points – Both the 306 & 406 series of cargo tanks have a shear point built into the design on every discharge valve. These shear points are intended to break away in the event of an impact, protecting the integrity of the cargo tank and allowing the piping to break away. In the 400 series of cargo tanks, this shear point has had the thickness of the aluminum reduced by at least 30%.



Vapor/Void Spaces – The 406 series is unique in its anatomy. Each compartment is an individual tank separate from the other compartments. During assembly, these individual tanks are wrapped with aluminum material to form what we see as a complete trailer. This process creates a vapor or void space between the compartments, which are equipped with drain ports on both the top and bottom portions of the shell.

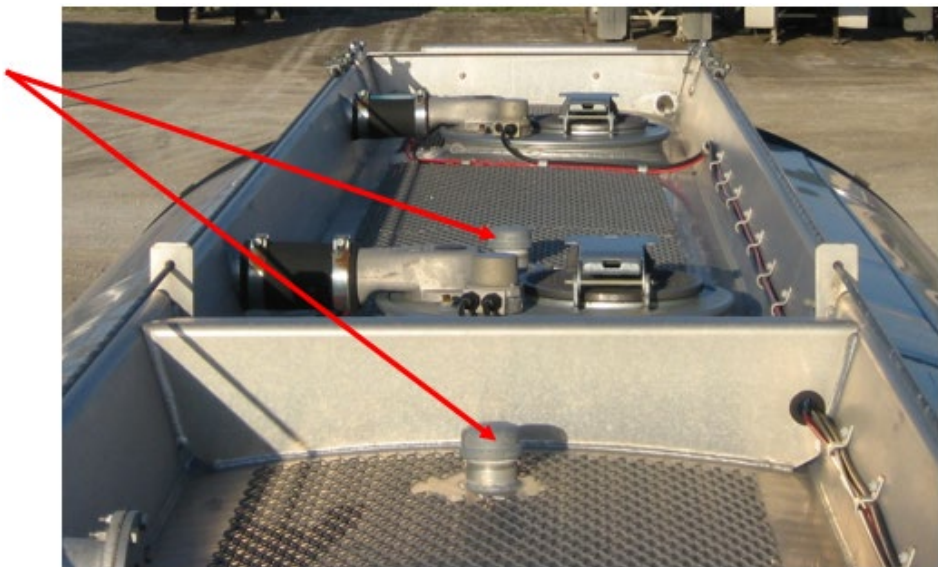


These vapor spaces play a valuable role in detecting minor leaks during normal daily service and require the bottom port of the vapor space to be left in the open or unplugged position at all times.

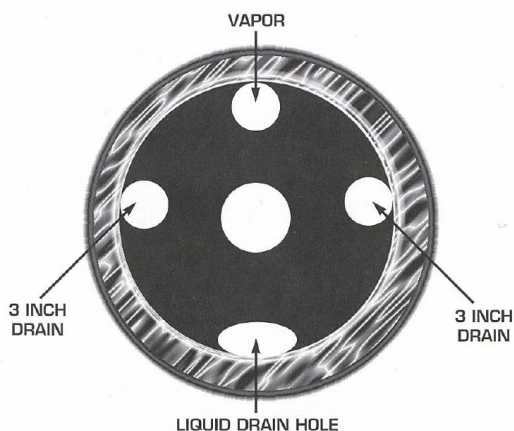


Bulkheads may leak into vapor spaces, releasing product via the bottom port hole. Experience has shown these drain ports can be either equipped with an internal or external threaded nipple ranging in sizes from 1/4" to 1" or not threaded at all, as illustrated in the picture above. To combat this problem, it is recommended that response organizations equip themselves with threaded plugs and caps ranging in size to seal the drains if they begin to leak.

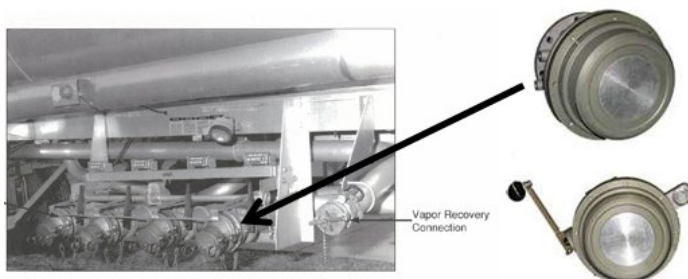
The ports on the top of the trailer, however, may be closed and left in the closed position during normal operation; only the bottom port must be left in the open position. Suppose the product has leaked into this vapor space. In this case, these ports or drains are a valuable tool for alignment purposes when choosing a location to drill to ensure you do not come into contact with the interior bulkheads.



Interior Compartment Baffles – Responders may find some trailers have compartments equipped with baffles to assist in reducing product movement and increasing trailer stability. These baffles are equipped with ports at the top and bottom, along with each side of the baffle and a center hole. Baffles normally do not interfere with the transfer of a product if in a roll-over position but may become a factor if the trailer has rolled over but is not directly on its side. When this occurs, the product can become partially trapped behind the baffle. If this product is not accessible via the manway after the fluid level has been reduced, an additional hole may need to be drilled into the same compartment. Since the utilization of baffles is not consistent, the driver of the unit, if available, is the greatest source as to the presence of any baffles.



Loading/Unloading API Fittings – Fuel trailers are equipped with a dry disconnect fitting system which requires special fittings to enable product transfer. It is recommended that this system be left alone and transfer the material via a drilled-hole method in a roll-over situation.

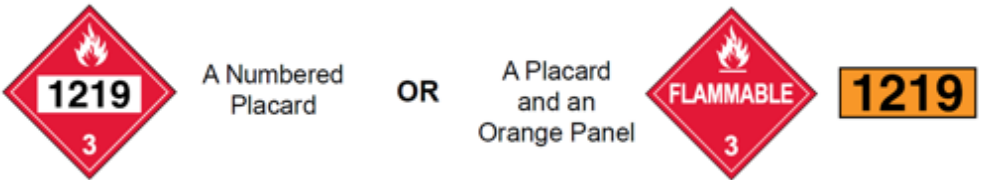


5.3 – Safety Marks & Placards

Placards – Trailers that transport a product classified as a Class 3 Flammable Liquid Material must display placards on all four sides. These placards must remain on the trailer from the point before loading the product into the trailer until the trailer has been cleaned and purged of any residue and vapors.



ID Numbers – In addition to displaying the placard representing the associated hazard class, the trailer must also display the identification number(s) to identify the product on board. These ID numbers may be displayed on the trailer in one of two ways, either on a white rectangle on the face of the placard or an adjacent orange panel beside the placard.



A provision has been granted for Class 3 Flammable Liquids to only display one ID number if multiple products are in different compartments. This provision requires the display of the ID number of the product with the lowest flashpoint. However, given the growing presence of Ethanol UN 3475 and its unique properties, legislation has been amended to ensure its presence is always displayed on the trailer.



Examples of Placarding Options



Load may contain various types of flammables in small means of containment.



Load contains gasoline and may contain other flammable liquids with a higher flashpoint (i.e., diesel).



Load contains diesel fuel and may contain other flammable liquids that have a higher flashpoint (i.e., furnace oil).



Load contains ethanol and may contain other flammable liquids that have a higher flashpoint (i.e., diesel or furnace oil).



Load contains gasoline and ethanol and may also contain other flammable liquids that have a higher flashpoint (i.e., diesel or furnace oil).



5.4 – API Color Wheels

In addition to the information displayed via the placard and ID number, trailers may also be equipped with API color wheels. These markers further identify what types of products are in specific compartments. Such identification may reference octane or grade of fuel or in the event of a diesel product, whether it is clear or dyed.



These markers may cause some hurdles for responders:

- 1) These are not regulated markers under the Transportation of Dangerous Goods Regulations and may not be accurate.
- 2) The markers may move during the incident since they rotate like a clock and are not locked into position like a placard.

As mentioned earlier, the driver is the best source of information as it relates to the nature of the products in certain compartments for transfer purposes.



Section 6 – Incident Site Arrival

6.1 – General Responsibilities

When you arrive at the incident site, there will be a lot of activity that may restrict us from gaining access. The following is a general list of elements that should be completed either en route to the site or physically on site.

In Route Communications

1. Contact 911 to advise them of your location, route taken to the incident site, vehicle descriptions, call-back numbers, and anticipated arrival time.
2. Contact an on-scene fire representative to walk through the securement of the vapor recovery vents if possible.
3. Contact Responsible Party to find out information on the following elements.
 - a. Have notifications been completed?
 - b. Has a transfer trailer been arranged?
 - c. What is the destination of the transfer material?
 - d. Who will be the on-site contact, name, and number?
 - e. Is the driver on-site and available?
 - f. Who should media requests be directed to?
4. Utilize available software to evaluate the site prior to arrival.





On-Site Elements

- a. Park all vehicles minimum of 100 ft. upwind of an incident.
- b. Check into Incident Command
- c. Conduct safety briefing with all responders and Incident Command.
- d. Conduct site evaluation
- e. Conduct tank evaluation.



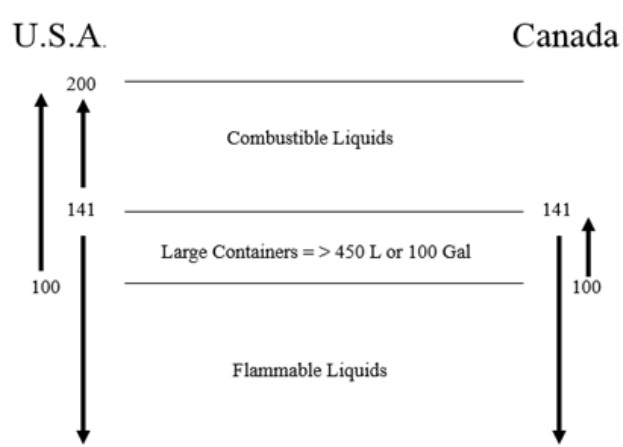
Section 7 – Product Properties

7.1 – Class 3 Flammable Liquids

Products classified as Class 3 Flammable Liquid have been tested to determine both their flashpoint and their boiling point. To be classified as a Class 3 Flammable Liquid, products must have a flashpoint lower than or equal to 60°C (141°F) using the closed-cup test method.

Class 3, Flammable Liquids, are subcategorized into one of the following packing groups:

- (a) Packing Group I, if they have an initial boiling point of 35°C or less and any flash point;
- (b) Packing Group II, if they have an initial boiling point greater than 35°C and a flash point less than 23°C (73°F); or
- (c) Packing Group III, if the criteria for inclusion in Packing Group I or II are not met.



Two unique conditions can contribute to misleading information identifying the materials involved.

1. Materials classified as a Class 3 Flammable Liquid are not regulated during shipments if offered in small means of containment (<450L, 100G) and have a flashpoint of 37.8°C (100°F) or higher. Due to this exemption, a carrier may have 90 – 45 gal drums on board with no placards or ID numbers displayed.
2. For cross-border shipments into the United States, the ceiling for Flammable and Combustible Liquids has been extended up to 93°C (200°F). For shipments within this extended range, either entering or leaving Canada, they must have the placards and ID numbers displayed, providing a warning, unlike a domestic shipment of the same material, which would not require the presence of either the placard or the ID numbers displayed.

7.2 – General Properties

Once on-site and the responder has verified the materials involved are classified as a Class 3 Flammable Liquid, several other components that make up the material's personality must be reviewed to determine how that individual product will behave during the response. The following list will assist the responder in determining the product's unique traits to be able to respond effectively.



Once you've identified the placard on the trailer products to the right of your placard may also be present on the trailer

							
UN Number	Proper Shipping Name	Class	Packing Group	ERG	Approximate Flashpoint	Vapour Density	Status in Water
3	Ethanol, with more than 10% ethanol	3	II	127	-43c or -45f	4 - 5	Floats
3	Ethanol	3	II or III	127	16c or 62f	1.59	Mixes
3	Flammable Liquids, N.O.S.	3	I,II,III	128	FN1 & FN2	Unknown	Floats
3	Fuel, aviation, turbine engine	3	I,II,III	128	FN1	4 - 5	Floats
3	Petroleum Crude Oil	3	II or III	128	FN1	4 - 5	Floats
3	Kerosene	3	III	128	37 to 65 °C 100 to 150 °F	4 - 5	Floats
3	Diesel Fuel or Fuel Oil No. 1, 2, 4, 5 or 6	3	III	128	>52c or 126f	4 - 5	Floats



Section 8 – Documentation

8.1 – General Requirements

If the cargo tank displays placards, documentation should be readily visible to someone entering the truck's cab. Documentation is often kept in the pocket inside the driver's door.

If the cargo tank is detached from the power unit and displays placards, the documentation will be in a waterproof container on the trailer's front driver's side fender. It must be marked “documentation” or equivalent.



The requirements for marking the shipping document with the phrase “Residue Last Contained” has changed. If a cargo tank has been emptied of all products but has not been cleaned out and still contains the residual material, a shipping document **may** be marked with the phrase “Residue Last Contained”. The receiver of the product is also not required to sign the shipping document. These changes could make it difficult to determine if a cargo tank is full or empty but still has residual material.



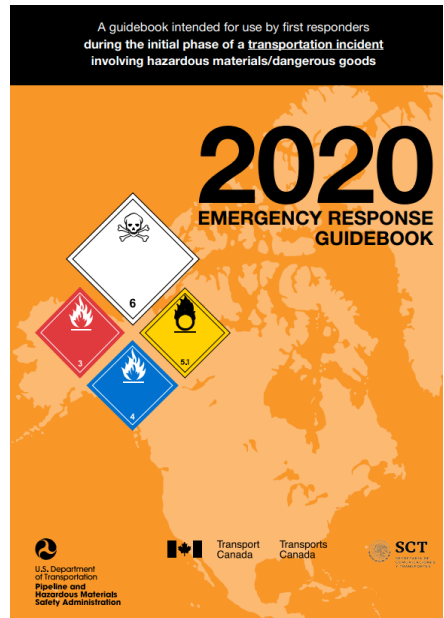
Other useful information on the face of the bill of lading, if present, is a 24-Hour Emergency Phone number that can be accessed in the event of an emergency. The intent of the phone number is to be able to receive technical information relating to the load and the cargo tank involved. In addition to gaining information from the 24-hour number, a shipper may list the product's ERG number from the Emergency Response Guidebook. We will cover this information in the following section.

In all cases, the driver can provide the greatest assistance regarding the status of the material in the trailer. The driver may be conducting several smaller deliveries and can provide insight into which compartments are empty and which are full.



Section 9 – 2020 ERG Book

The 2020 Emergency Response Guidebook (ERG2020) was developed jointly by Transport Canada and the U.S. Department of Transportation for use by firefighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving dangerous goods. **It is primarily a guide to aid first responders in quickly identifying the specific or generic hazards of the material(s) involved in the incident and guidelines to protect themselves and the general public during the initial response phase of the incident.** For the purposes of this guidebook, the “initial response phase” is the period following arrival at the scene of an incident during which the presence and/or identification of dangerous goods is confirmed, protective actions and area securement are initiated, and assistance of qualified personnel is requested. It is not intended to provide information on dangerous goods' physical or chemical properties.



This guidebook will assist responders in making initial decisions upon arriving at the scene of a dangerous goods incident. It should not be considered a substitute for emergency response training, knowledge or sound judgment. ERG2020 does not address all possible circumstances associated with a dangerous goods



incident. It is primarily designed for a dangerous goods incident on a highway or railroad.

ERG2020 incorporates dangerous goods lists from the most recent United Nations Recommendations and other international and national regulations. The book is separated into distinct sections providing several routes to obtain the basic response information associated with the response.



White Pages – Displays placards along with road and rail container types and their associated guides.



RESPONSE GUIDE TO USE ON-SCENE

USING THE SHIPPING DOCUMENT, NUMBERED PLACARD, OR ORANGE PANEL NUMBER

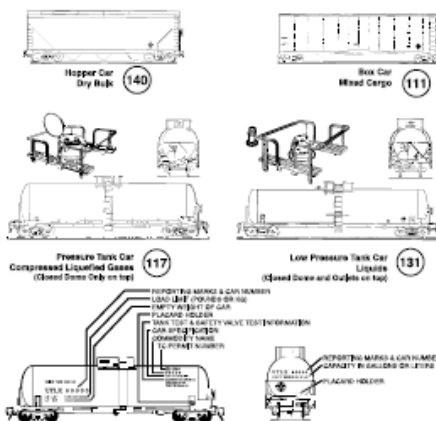


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RAIL CAR IDENTIFICATION CHART



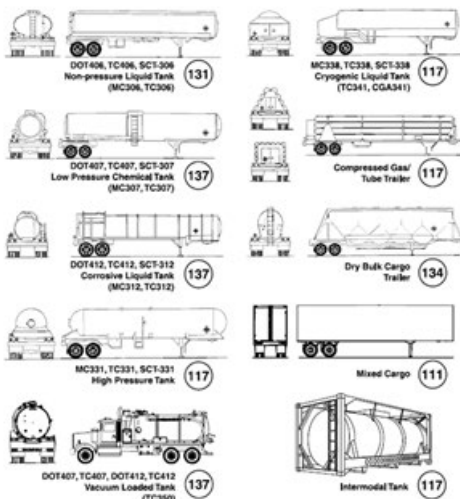
CAUTION: Emergency response personnel must be aware that rail tank cars vary widely in construction, fittings and purpose. Tank cars could transport products that may be solids, liquids or gases. The products may be under pressure. It is essential that products be identified by consulting shipping documents or train consist or contacting dispatch centers before emergency response is initiated.

The information stenciled on the sides or ends of tank cars, as illustrated above, may be used to identify the product utilizing:

- the commodity name shown; or
 - the other information shown, especially reporting marks and car number which, when supplied to a dispatch center, will facilitate the identification of the product.
- * The recommended guides should be considered as last resort if the material cannot be identified by any other means.

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ROAD TRAILER IDENTIFICATION CHART



CAUTION: This chart depicts only the most general shapes of road trailers. Emergency response personnel must be aware that there are many variations of road trailers, not illustrated above, that are used for shipping chemical products. The suggested guides are for the most hazardous products that may be transported in these trailer types.

- * The recommended guides should be considered as last resort if the material cannot be identified by any other means.

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The yellow-bordered section of the guidebook arranges all the proper shipping names by their UN ID Number to assist in determining the appropriate hazard guide. Caution must be exercised if the ID number is utilized to find the guide number. An exemption exists for Class 3 Flammable Liquids. If multiple Class 3 Flammable Liquids are being shipped, only the product with the lowest flashpoint must have its product ID displayed.

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
1173	129	Ethyl acetate	1199	132P	Furfural
1175	130	Ethylaldehyde	1199	132P	Furfuralaldehydes
1176	129	Ethyl borate	1201	127	Fossil oil
1177	130	3-Ethylbutyl acetate	1201	128	Gasol fuel
1177	130	Ethylbutyl acetate	1202	128	Fuel oil
1179	130	3-Ethylbutylacrylate	1202	128	Fuel oil, no. 1,2,3,4,5,6
1179	127	Ethyl butyl ether	1202	128	Gas oil
1180	130	Ethyl butyrate	1202	128	Heating oil, light
1181	135	Ethyl chloroacetate	1203	128	Gasohol
1182	135	Ethyl chloroformate	1203	128	Gasoline
1183	135	Ethylchloroacetate	1203	128	Motor spirit
1184	131	Ethylene dichloride	1204	128	Paint
1185	131P	Ethyleneimine, stabilized	1204	127	Nitroglycerin, solution in alcohol, with not more than 1% Nitroglycerin
1185	127	Ethylene glycol monomethyl ether	1204	128	Heptane
1185	128	Ethylene glycol monomethyl ether acetate	1207	130	Hexaldehyde
1190	129	Ethyl formate	1208	128	Hexane
1191	129	Ethylhexaldehydes	1208	128	Hexachloro
1191	128	Octyl aldehydes	1210	128	Ink, printer's, fat-soluble
1192	128	Ethyl laurate	1210	128	Printing ink, flammable
1193	127	Ethyl methyl ketone	1210	128	Printing ink related material
1193	127	Methyl ethyl ketone	1212	128	Isobutane
1194	131	Ethyl nitrate, solution	1212	128	Isobutyl alcohol
1195	129	Ethyl propionate	1213	128	Isobutyl acetate
1196	135	Ethylchloroacetate	1214	130	Isobutylamine
1197	127	Extracts, flavoring, liquid	1216	128	Isocyanates
1197	127	Extracts, flavoring, liquid	1216	130P	Isoprene, stabilized
1199	132	Formaldehyde, solution, flammable	1218	128	Isopropanol
1199	132	Formaldehyde, solutions (Formic)	1219	128	Isopropyl alcohol
1199	132P	Furfuraldehydes	1220	128	Isopropyl acetate
			1221	130	Isopropylamine
			1222	130	Isopropyl nitrate

The blue-bordered section of the guidebook arranges all the proper shipping names in alphabetical order to assist in determining the appropriate hazard guide.

Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
Gas, refrigerated liquid, oxidizing, n.o.s.	122	3311	Helium powder, wetted with not less than 25% water	170	1306
Gas cartridges	116	2037	Hexane	121	1046
Gas identification set	123	6036	Hexane, compressed	121	1046
Gasohol	128	1203	Helium, refrigerated liquid (cryogenic liquid)	120	1003
Gas oil	128	1202	Heptadecane	128	2278
Gasoline	128	1203	Heptane	128	1206
Gasoline and ethanol mixture, with more than 10% ethanol	127	3475	Heptane, n-Heptane	128	2278
Gas sample, non-pressurized, flammable, n.o.s., not refrigerated liquid	116	3167	Hexachloroacetone	168	2601
Gas sample, non-pressurized, poisonous, flammable, n.o.s., not refrigerated liquid	119	3168	Hexachlorobenzene	162	2729
Gas sample, non-pressurized, poisonous, n.o.s., not refrigerated liquid	128	3169	Hexachlorobutadiene	161	2729
Gas sample, non-pressurized, toxic, flammable, n.o.s., not refrigerated liquid	119	3168	Hexachlorocyclopentadiene	161	2606
Gas sample, non-pressurized, toxic, n.o.s., not refrigerated liquid	128	3169	Hexachlorophene	161	2675
Gas	163	2818	Hexadecyltrichlorosilane	168	1783
Gas	163	2818	Hexachloropentane	168	1783
Genetically modified micro-organisms	171	3245	Hexadecane	190	2458
Genetically modified organisms	171	3245	Hexaethyl tetraphosphate, liquid	161	1611
Geraniol	119	2192	Hexaethyl tetraphosphate, solid	161	1611
Ger	163	2818	Hexaethyl tetraphosphate and compressed gas mixture	123	1612
Glycerol alpha-monocholethrin	163	2689	Hexafluoroacetone	126	2420
Glycidaldehyde	181P	2022	Hexafluoroacetone hydrate	161	2552
Guanidine nitrate	143	1487	Hexafluoroacetone hydrate, liquid	161	2552
Gu	163	2818			
Helium powder, dry	186	2545			



Once the appropriate guide number has been determined, turn to the orange section of the guidebook to find the assigned response guide for the product involved.

GUIDE 127	FLAMMABLE LIQUIDS (POLAR/WATER-MISCIBLE)	ERG2012	ERG2012	FLAMMABLE LIQUIDS (POLAR/WATER-MISCIBLE)	GUIDE 127
POTENTIAL HAZARDS					
FIRE OR EXPLOSION <ul style="list-style-type: none"> • HIGHLY FLAMMABLE. Will be easily ignited by heat, sparks or flames. • Vapors may form explosive mixtures with air. • Vapors may travel to source of ignition and flash back. • Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). • Vapor explosion hazard indoors, outdoors or in sewers. • Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. • Runoff to sewer may create fire or explosion hazard. • Containers may explode when heated. • Many liquids are lighter than water. 					
HEALTH <ul style="list-style-type: none"> • Inhalation or contact with material may irritate or burn skin and eyes. • Fire may produce irritating, corrosive and/or toxic gases. • Vapors may cause dizziness or suffocation. • Runoff from fire control may cause pollution. 					
PUBLIC SAFETY					
<ul style="list-style-type: none"> • CALL EMERGENCY RESPONSE. Telephone Number on Shipping Paper first, if Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover. • As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. • Keep unauthorized personnel away. • Stay upwind. • Keep out of low areas. • Ventilate closed spaces before entering. 					
PROTECTIVE CLOTHING <ul style="list-style-type: none"> • Wear positive pressure self-contained breathing apparatus (SCBA). • Structural firefighters' protective clothing will only provide limited protection. 					
EVACUATION <ul style="list-style-type: none"> • Large Spill <ul style="list-style-type: none"> • Consider initial downwind evacuation for at least 300 meters (1000 feet). • Fire <ul style="list-style-type: none"> • If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. 					
		EMERGENCY RESPONSE			
		FIRE <p>CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be ineffectual.</p> <p>Small Fire</p> <ul style="list-style-type: none"> • Dry chemical, CO₂, water spray or alcohol-resistant foam. <p>Large Fire</p> <ul style="list-style-type: none"> • Water spray, fog or alcohol-resistant foam. • Do not use straight streams. • Move containers from fire area if you can do it without risk. <p>Fire Involving Tanks or Car/Trailer Loads</p> <ul style="list-style-type: none"> • 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. • 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. 			
		SPILL OR LEAK <ul style="list-style-type: none"> • ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). • All equipment used when handling the product must be grounded. • Do not touch or walk through spilled material. • Stop leak if you can do it without risk. • Prevent entry into waterways, sewers, basements or confined areas. • A vapor suppressing foam may be used to reduce vapors. • Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. • Use clean non-sparking tools to collect absorbed material. <p>Large Spill</p> <ul style="list-style-type: none"> • Dike far ahead of liquid spill for later disposal. • Water spray may reduce vapor, but may not prevent ignition in closed spaces. 			
		FIRST AID <ul style="list-style-type: none"> • Move victim to fresh air. • Call 911 or emergency medical service. • Give artificial respiration if victim is not breathing. • Administer oxygen if breathing is difficult. • Remove and isolate contaminated clothing and shoes. • In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. • Wash skin with soap and water. • In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin. • Keep victim warm and quiet. • Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. 			

First responders at the scene of a dangerous goods incident should seek additional specific information about any material in question as soon as possible. The information received by contacting the appropriate emergency response agency, by calling the emergency response telephone number on the shipping document, or by consulting the information on or accompanying the shipping document may be more specific and accurate than this guidebook in providing guidance for the materials involved.



The green-bordered section establishes isolation and protective evacuation zones for certain chemical warfare agents and materials that produce toxic gases upon contact with water. These products are identified in the yellow and green sections by a green highlighted entry.

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material	Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
1611	151	Hexaethyl tetraphosphate	1636	154	Mercury cyanide	n-Butylamine	132	1125	Butyric anhydride	156	2739
1611	151	Hexaethyl tetraphosphate, liquid	1637	151	Mercury gluconate	N-Butylamine	153	2738	Butyronitrile	131	2411
1611	151	Hexaethyl tetraphosphate, solid	1638	151	Mercury iodide	Butylbenzenes	128	2709	Butyl chloride	132	2353
1612	123	Hexaethyl tetraphosphate and compressed gas mixture	1639	151	Mercury nucleate	n-Butyl bromide	130	1126	Buzz	153	2819
1613	154	Hydrocyanic acid, aqueous solution, with less than 5% Hydrogen cyanide	1640	151	Mercury oleate	Butyl chloride	130	1127	BZ	153	2810
1613	154	Hydrocyanic acid, aqueous solution, with not more than 20% Hydrogen cyanide	1641	151	Mercury oxide	n-Butyl chloroformate	155	2743	CA	159	1694
1613	154	Hydrocyanic acid, aqueous solution, with not more than 20% Hydrogen cyanide	1642	151	Mercuric oxycyanide	sec-Butyl chloroformate	155	2742	Cecodylic acid	151	1572
1613	154	Hydrocyanic acid, aqueous solution, with not more than 20% Hydrogen cyanide	1642	151	Mercury oxycyanide, desensitized	tert-Butylcyclohexyl chloroformate	156	2747	Cadmium compound	154	2570
1614	152	Hydrogen cyanide, stabilized (absorbed)	1643	151	Mercury potassium iodide	Butylene	115	1012	Cesium	138	1407
1616	151	Lead acetate	1644	151	Mercury salicylate	Butylene	115	1075	Cesium hydroxide	157	2682
1617	151	Lead arsenates	1645	151	Mercuric sulfate	1,2-Butylene oxide, stabilized	127P	3022	Cesium hydroxide, solution	154	2681
1619	151	Lead arsenites	1645	151	Mercuric sulphate	Butyl ethers	128	1149	Cesium nitrate	140	1451
1620	151	Lead cyanide	1645	151	Mercury sulfate	n-Butyl formate	129	1128	Calcium	138	1401
1621	151	London purple	1645	151	Mercury sulphate	tert-Butyl hypochlorite	135	3255	Calcium, metal and alloys, pyrophoric	151	1573
1622	151	Magnesium arsenate	1646	151	Mercury thiocyanate	N,n-Butylimidazole	152	2690	Calcium alloys, pyrophoric	135	1855
1622	151	Mercuric arsenate	1647	151	Ethylene dibromide and Methyl bromide mixture, liquid	n-Butyl isocyanate	155	2485	Calcium arsenate	151	1573
1624	154	Mercuric chloride	1647	151	Methyl bromide and Ethylene dibromide mixture, liquid	tert-Butyl isocyanate	155	2484	Calcium arsenite and Calcium arsenite mixture, solid	151	1574
1625	141	Mercuric nitrate	1648	127	Acetonitrile	Butyl mercaptan	130	2347	Calcium arsenite and Calcium arsenite mixture, solid	151	1574
1626	157	Mercuric potassium cyanide	1648	127	Methyl cyanide	n-Butyl methacrylate, stabilized	138P	2227	Calcium carbide	138	1402
1627	141	Mercurous nitrate	1649	131	Motor fuel anti-knock mixture	Butyl methyl ether	127	2350	Calcium chloride	140	1452
1629	151	Mercury acetate	1650	153	beta-Naphthylamine	Butyl nitrites	129	2351	Calcium chloride, aqueous solution	140	2429
1630	151	Mercury ammonium chloride	1650	153	beta-Naphthylamine, solid	Butyl propionates	130	1914	Calcium chloride, solution	140	2429
1631	154	Mercury benzoate	1650	153	Naphthylamine (beta)	Butyltoluenes	152	2667	Calcium chloride	140	1453
1634	154	Mercuric bromide	1650	153	Naphthylamine (beta), solid	Butyltrichlorosilane	155	1747	Calcium cyanamide, with more than 0.1% Calcium carbide	138	1403
1634	154	Mercurous bromide	1651	150	Naphthylthiourea	5-tert-Butyl-2,4,6-trinitro-m-xylene	149	2956	Calcium cyanide	157	1575
1634	154	Mercury bromides	1652	150	Naphthylurea	Butyl vinyl ether, stabilized	127P	2352	Calcium dithionite	135	1923
1634	154	Mercurous bromides	1653	151	Nickel cyanide	1,4-Butylenediol	153	2716	Calcium hydride	138	1404
1636	154	Mercuric cyanide	1654	151	Nicotine	Butylaldehyde	129	1129	Calcium hydrosulfite	135	1923
			1655	151	Nicotine compound, solid, n.o.s.	Butyraldixime	129	2840	Calcium hydrosulphate	135	1923

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TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

ID No.	Guide No.	NAME OF MATERIAL	SMALL SPILLS (From a small package or small leak from a large package)				LARGE SPILLS (From a large package or from many small packages)		
			First ISOLATE in all Directions Meters (Feet)	Then PROTECT persons Downwind during-		First ISOLATE in all Directions Meters (Feet)	Then PROTECT persons Downwind during-		
				DAY Kilometers (Miles)	NIGHT Kilometers (Miles)		DAY Kilometers (Miles)	NIGHT Kilometers (Miles)	
1765	156	Dichloroacetyl chloride (when spilled in water)	30 m (100 ft)	0.1 km ¹ (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	1.0 km (0.6 mi)	
1766	156	Dichlorophenyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	2.1 km (1.3 mi)	
1767	155	Diethyl dichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	1.1 km (0.7 mi)	
1769	156	Diphenyl dichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	30 m (100 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)	



Section 10 – PPE/Personal Safety

10.1 – Respiratory Protection

Traditionally, a fire department will be on-site at most incidents involving an overturned cargo tank. We will outline the standards utilized within the fire service to eliminate any opportunity for confusion during conversations upon time of arrival.

NFPA 1072 is the standard fire departments follow and outlines the various respiratory protection levels. There are four levels within the standard, which are outlined below:



Level D – traditional coveralls, Tyvek, work gloves, no respiratory protection



Level C – Coveralls, Tyvek, CPF suits, half mask cartridge respiratory protection





Level B – CPF suits, SCBA respiratory protection (non-gas tight)



Level A – Gas tight suits, SCBA respiratory protection

NIOSH has developed a visual standard for air purifying cartridge respirators to identify what types of exposures various cartridges can be used for, regardless of the manufacturer.

A black-striped (Organic Vapours) or yellow-striped (Organic Vapours / Acid Gas) cartridge can be utilized for hydrocarbons.



If available, a full-face respirator is the respirator of choice. In addition to raising the protection value from 10x to 100x exposure, it also eliminates the need for safety glasses and protective goggles. The differences in the cartridges are the elements of charcoal inside the mask. A black striped mask has 100% of its charcoal treated for hydrocarbons, while the yellow striped cartridge has 50% treated for acid gases and the other 50% treated for hydrocarbons. The downfall to using a yellow-striped cartridge is the shortened life expectancy before a responder can sense vapor through the mask since there is 50% less hydrocarbon charcoal in the cartridge.

10.2 – Protective Clothing

In a non-splash environment, all responders potentially exposed to areas that may have flammable vapors must wear a flame-retardant garment. This garment is required in addition to the respiratory equipment listed above.



In a potential splash environment, all responders exposed to contact with the product must wear an appropriate poly-coated Tyvek-style suit on top of their FR garment. There are many styles of splash suits available, but care must be taken to ensure the suit used is compatible with hydrocarbons and will not induce static.



To ensure no product enters the splash suit, responders must tape all potential routes of entry, such as the hood around the full-face respirator, the zipper, and the sleeves where they attach to the gloves. Taping is very simple but can cause great discomfort



if not completed properly. First, have the responder being taped stretch their arms wide to position the suit on the arm to eliminate any restriction of movement after the taping is completed. Second, tape the sleeve/glove assembly in a layered effect, starting at the hand and taping towards the shoulder. This approach will create a layered effect allowing the loose product to run down the arm like a shingle on a roof. Lastly, always end the taping by folding the tape over to form a “tab” This tab will allow quick and reliable egress from the suit by either the responder or others assisting the responder by having a “grab” point to remove the tape.

10.3 – Protective Footwear

Lastly is our footwear. Footwear is often overlooked and can produce a negative environment if not careful. Regular rubber boots can produce static-causing sparks and should be removed from the affected zones where vapors and product may be present. Omega-rated footwear is the approved footwear for environments



that may have flammable vapors or products within them. The Omega symbol indicates that the material used in the boots' manufacturing does not induce static which could cause ignition.

10.4 – Gloves and Hand Protection

Our hands have the greatest potential of coming into contact with the material involved. Contact could result from general handling of equipment to significant exposure due to a product release. To ensure our hands are protected, all responders should wear a double layer of gloves to protect the skin in the event the outer layer is torn or removed, reducing the risk of contact with our skin. The outer layer must be compatible with petroleum products, while the inner layer may be a nitrile disposable style.



A good habit is to wear multiple layers of your inner nitrile gloves. This enables inner layers to be removed safely.

10.5 – Personal Floatation Devices

Waterways are often involved in our response activities. Working near or at a water's edge can cause new or unseen risks, which often get greater the longer the responder is working due to fatigue and complacency. A personal floatation device (PFD) or life jacket must be worn at any time a responder is within 5 feet of the edge of the water, regardless of the tasks being completed.



Section 11 – Site Assessment

11.1 – General Assessment

Traditionally the fire service will be on-site when you arrive and may have completed some form of a general site assessment. If so, consult with the on-scene commander before completing your own assessment.

Site assessments are designed to identify the extent of existing damage caused by the incident and potential high-risk items to monitor should the incident escalate.

Considerations while completing a site assessment include the following:

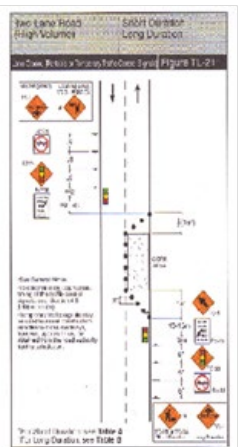
1. Wind directions.
2. Removal of people present in downwind areas.
3. The presence of waterways.
4. Low-lying areas where vapors from the product could collect, such as ditches, manholes, and catch basins, regardless of whether there is a physical product.
5. Utility lines may interfere with or potentially create an energy risk.



6. The proper control of vehicles located on public roadways can create additional hazards. Ensure all vehicles are parked no closer than 100' away in an upwind position with all vehicles located on the same side of the road that you are working.
7. Various Provincial pieces of legislation outline standards for temporary conditions while working along a road's edge. These legislations outline various speed zones, traffic density, and line of site issues and then assign a template to be utilized for those conditions.



Most contractors do not have the appropriate equipment, personnel, and training to execute these templates. It is recommended that the contractor has communication in advance with local road maintenance companies in their areas to arrange service agreements and 24-hour activation phone numbers.

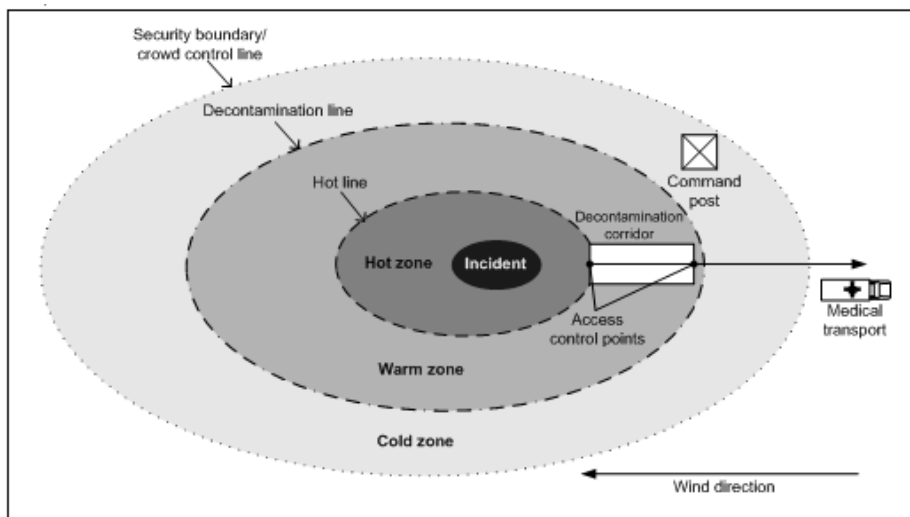


11.2 – Establishing Protective Zones

If not already established by the fire service, protective zones must be implemented to provide safety barriers to those individuals not directly involved with the damaged cargo tank. These zones are traditionally called the Hot – Warm – Cold zones or the Red – Yellow – Green zones and outline who is authorized to be inside of which zone.

The following list will outline the structure and the traditional functions of each zone:





1. The hot zone (or red zone) is the area in close proximity to the actual or highest potential for exposure to the materials involved. Only individuals completing a task on the cargo tank are allowed in this area, provided they are equipped with the appropriate personal protective equipment.
2. The warm zone (or yellow zone) is the transition area between the exclusion and support zones. This area is where responders enter and exit the hot zone, and decontamination activities occur.
3. The cold zone (or green zone) is the area of the site that is free from exposure, and that may be safely used as a planning and staging area.

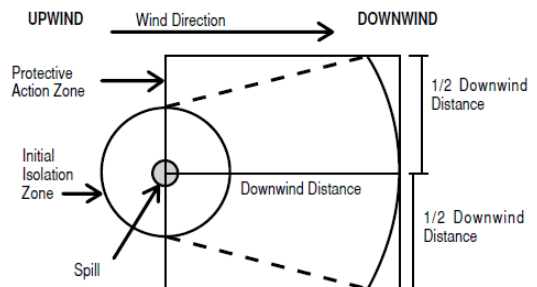


11.3 – Air Monitoring

Air monitoring must be conducted throughout the entire response and not just at the onset of the incident. The vapor density of petroleum products is heavier than air and will settle into low-lying areas. Due to this behavior, how we take air readings has to be specific. Ensure the air monitor is located no more than one foot off the ground. This is where the vapors will collect, not at waist height. Be sensitive to catch basins, manholes, and ditches, take readings in these areas, and fasten a rope to the monitor to allow it to be lowered to the bottom of the catch basin to ensure a proper reading is obtained. A reading of 10% LEL is the maximum level allowed before it is deemed to be a flammable environment.

These readings can be affected by the wind, which can move vapor further away into low-lying areas, which act as a collection points. Downwind evacuation areas are established based on the geographic area, wind direction and speed, air monitor readings, and isolation areas.

Be sure to communicate your readings to the incident commander, who will record the information on the site task sheets.



Section 12 – Spill Containment

12.1 – General Approach

Incidents involving hydrocarbons are traditionally very similar in their behaviors, except for incidents involving ethanol products that have been released will react very similarly regardless of the environment they are released into and are made up of 2 primary elements: liquids & vapors.

If contained with no release, there is no reason to apply foam that most fire departments are equipped with. If released and depending on the quantity of material released, a decision has to be made to either berm and contain the material or cover it and absorb it. If time permits, make an adequate berm to prevent product(s) from migrating to low-lying areas. Before the arrival of the responders, there may have been a decision made to cover the spilled material with sand material to contain it.



The primary concerns with hydrocarbon products are the vapors and the vapor density being heavier than air (>1), causing the vapors to settle into low-lying areas, including catch basins and ditches. These vapors may collect without the product physically entering the ditch and can be controlled with an application of foam or with a



high-volume fan placed upwind, purging the low-lying area of the collected fumes.

12.2 – Absorbent Products

There are several styles of absorbent products, from pads to pillows, socks to booms, in addition to loose or granular absorbent products. These products have been color coded similar to respirator cartridges to allow for easy identification for the proper selection.

Listed below are several styles of absorbent materials and their primary uses.



Peat-based absorbent material – highly absorbent, the material is hydrophobic, so it will float on water to assist in cleaning sheens and brooms easily on uneven surfaces.



General purpose absorbent pads – general purpose pads, socks, etc., are grey in color and are highly absorbent but have a very short life. The advantage/disadvantage of general-purpose pads is they will absorb all fluids, including water.



Hydrophobic absorbent pads – these pads, socks, etc., are white in color, will only absorb hydrocarbons, and float on top of the water.



Chemical absorbent pads – these pads, socks, etc., are designed for aggressive chemicals and acids and are often green or pink in color. These pads are designed to resist melting upon contact with solvents or acids. These pads will absorb water.





Plug n Dyke – comes in dry or pre-mixed containers and is an excellent product to plug tears or holes in containers constructed from any material.



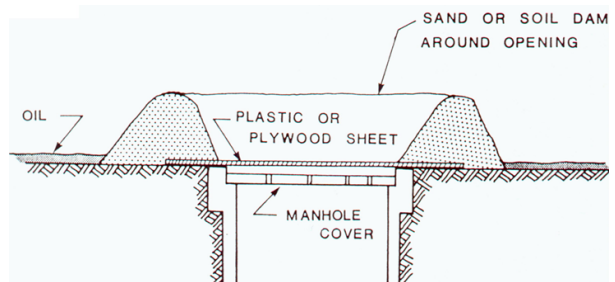
Water Activated Foam Plug – comes in both a golf ball and a football size patch that is water activated and forms a solid patch in 2 minutes. This is an excellent patch for uneven or irregularly shaped punctures.



Plug and Patch Kits – comes in various configurations with a wide assortment of wooden and rubber plugs, oversized patches, and non-sparking tools necessary for safe installation.

12.3 – Control Devices

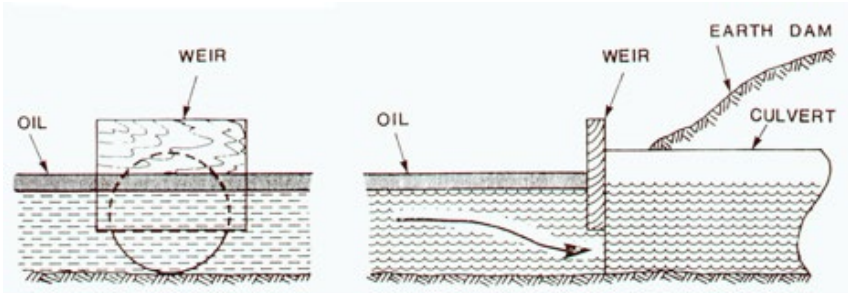
As mentioned above, the vapors from hydrocarbon products are traditionally heavier than air and will settle into low-lying areas such as manholes and catch basins. To control these risks, use a non-permeable material such as plastic or wood to cover the manhole to prevent the vapors from collecting. If the product was released, consider absorbent socks or loose granular material to form a berm around the catch basin to prevent any liquid from entering.



Culverts in rural locations can act as an excellent base for installing a wood barrier to control product that has entered the water-filled ditch. Since most hydrocarbons other than ethanol are non-miscible (won't mix or blend) in water, consider placing your

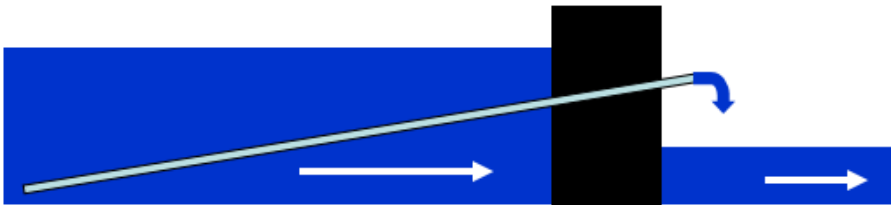


barrier approximately 6 inches below the water level to ensure you capture the product while not impeding the natural flow of the water in the ditch.



Another style of a control device for a water-filled ditch with a non-miscible product on top of the water is underflow dams. The theory of an underflow dam involves trapping the collected product on top of the water while allowing the water in the ditch to continue to flow.

The first underflow dam is a pipe dam. This method is extremely easy to install, requiring only a long length of a 4" diameter pipe and some earth or a sufficient amount of playground-style bags of sand. When installing the dam and pipe combination, angle the pipe to a level that will represent the minimum water level on the upstream side of the dam. By utilizing a longer length of pipe, you greatly reduce the chance of creating a vortex at the dam wall and having product entrain through the pipe.



Flow of Water

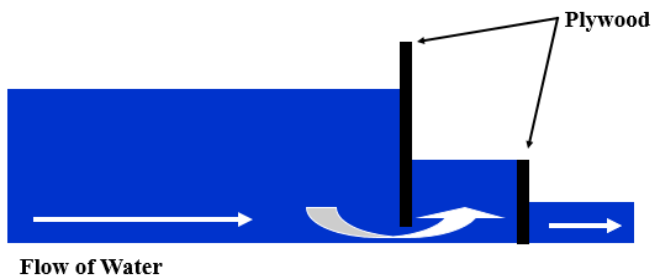




Attention must be given to the velocity of the flow in the ditch. It may be necessary to install several pipes to allow for sufficient water flow and avoid overflowing the dam. Alternatively, a larger diameter pipe could be used based on the ditch size or several pipes placed at varying levels to act as safeguards, as pictured above. This method does not need a lot of water in the ditch. The picture below shows minimal water running with effective results.



Another style of underflow is the two-board underflow system. It is also very effective in controlling non-miscible products if released into waterways while maintaining their integrity as water levels rise and lower. This ability makes this style attractive since it can be left on site for several weeks or months to collect product and sheen off the surface of the water as water levels change.



This style of underflow has the ability to control the flow of the water in the affected ditch. Picture it like a water tap in a sink. The closer the tap is to being closed, the less the water flows through. Same here; the closer the two boards are together, the less water will flow through, causing the water to rise on the upstream side of the underflow. The further apart the two boards are, the more water can pass through the system.



Section 13 – Cargo Tank Stabilization

13.1 – Tank Assessment

Completing a physical assessment of the cargo tank involved in the incident as quickly as possible is paramount in reaching a successful completion without any surprises. When this assessment happens may vary. If the product has already been released, that must take priority to ensure it is contained to protect human life and property. If no product has been released and there are no obvious signs of impairment to the environment, then get the assessment completed as soon as possible, even before grounding the unit.

Completing an assessment on the cargo tank is not by luck. You have to follow a pre-determined checklist to remind the responder of all the elements involved. This checklist has been provided to serve as a baseline and be able to be given to the incident commander for future reference.

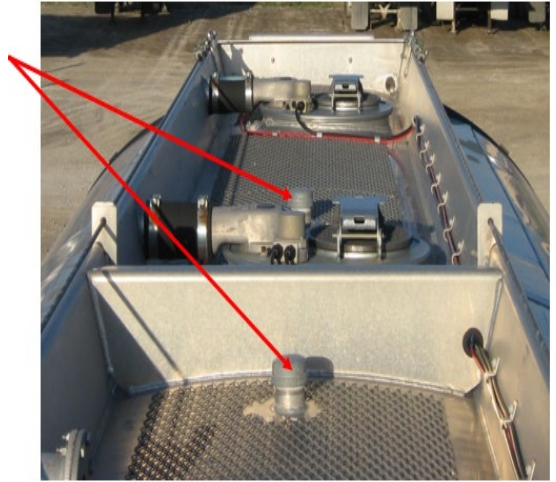
13.2 – Assessment Components

This section will outline all the components that should be considered during the evaluation process at the initial stages of the incident.

1. Check the truck's cab for the paperwork to help guide you.
2. Establish how many compartments are on the trailer.



3. Establish if the trailer is 306 or 406 series, the easiest way to identify this coding is by visually looking at the hatch assembly and the presence of ports indicating vapor spaces between the compartments.



4. Check and secure the hatch assembly to prevent weeping. A hatch assembly can go from not leaking to a full leak with little or no notice. Securing the hatch can be accomplished in various ways by asserting moderate pressure on the assembly.



5. Check the vapor recovery line, specifically the vents associated with the vapor recovery system. Each system is equipped with pressure relief and a vacuum relief device. As mentioned in the hatch inspection, the pressure relief device can go from not leaking to a full leak with little or no notice. Secure the pressure vent in any manner to restrict its operation.



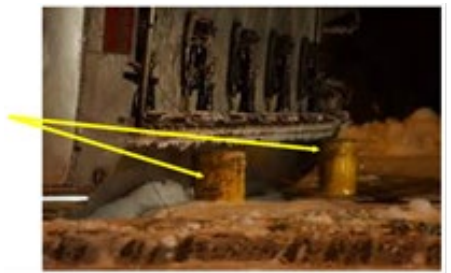
6. Check the vapor recovery vents on top of the trailer. It is not uncommon for these lines to loosen and to be able to be moved by hand pressure.



7. Next, check the bottom ports to see if they appear to be leaking, indicating that the compartments' bulkhead has been compromised. While inspecting the bottom port, make a notation of the size and type of thread on the port (inside or outside), if any.



8. If any of the above-mentioned components are leaking, place some form of containment underneath to prevent any product from reaching the natural environment. Pay special attention to the pails utilized during an incident involving flammable materials. Do not use white plastic pails, as they can induce static and create a spark. Be sure to only use metal pails to capture materials. These pails should also be equipped with a bond cable to be attached to the cargo tank.



9.



Section 14 – Grounding & Bonding

14.1 – General Approach

The grounding and bonding element is the foundation for controlling energy introduced to the damaged unit during the incident and, consequently, a successful product transfer. Although grounding and bonding sound very similar, they serve two separate functions despite being connected.

Grounding – connecting an object such as the damaged trailer, the receiving trailer, or a transfer pump to an earth point. The purpose of a ground cable is to transfer energy from an object to an earth point. The purpose of the earth point is to dissipate the energy into the earth, neutralizing the energy in the object.

Bonding – connecting any two objects, such as damaged and receiving trailers, hoses at a transfer pump, a downpipe to the trailer, etc. During transfers, static electricity from flow operations increases in unequal amounts on both the damaged and undamaged units. This build-up of electricity can jump a gap as an exterior spark. This energy becomes large enough to ignite close-by flammables. The purpose of the bond cable is to equalize the energy between the two objects during the transfer process.



Bonding Cable



Static electricity is generated through movement from one container to another. By providing a method of grounding & bonding, we can remove three of the four conditions for ignition:

1 A means to generate a spark. The continual flow of product will increase static energy over time. Removing this accumulation lessens the ability to generate this spark.

2 Enough static charge to bridge this “gap” By grounding all transfer appliances and containers; this reduces the total amount available to bridge any “gap” thus eliminating charge to create a spark.

3 A Spark with enough ignition energy. Grounding and bonding reduce ignition energy and can keep it below its peak spark levels.

4 Flammable atmospheres.

The ultimate issue for contractors is “how” to accomplish these goals. There are several official sources regulating the format for bonding and grounding. However, selecting the appropriate grounding method becomes a problem for response teams. As a result, the team leader must choose the one that best fits the safety requirements of the incident from the available options. It is essential to communicate the preferred system to all team members well before an incident involving these cargo tanks happens. Be sure that everyone is “on the same page” as to which technique will be used on-scene.



14.2 – Selection of a Ground Point

The selection of a ground point is critical from the standpoint of quality and the speed of establishment. There are two basic types of ground points available for use during an incident. They are an established or pre-existing ground point or a self-created ground point. The goal of selecting a ground point is to achieve a connection point to the earth that has the greatest ability to disperse static energy from the damaged unit via a ground cable.

14.3 – Establishing a Ground Point

The selection and establishment of a ground point should be given the highest priority other than controlling established leaks that have occurred before arriving on site. The selection and use of a pre-existing ground point offer greater speed in establishing it and a potentially better pathway for dissipating energy.

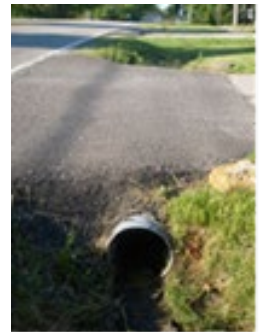
Examples of pre-established ground points could include the following:



Utility Pole Anchor



Fence Post



Driveway Culvert

The selection and use of a temporary ground point has to consider several items before committing to its establishment such as underground utilities and soil conditions.



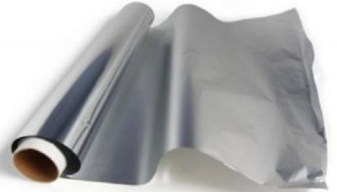
Examples of created ground points include:



Ground Rod



Ground Plate
Preferred



Aluminum Foil

14.4 – Qualifying a Ground Point

Once the ground point has been established, we have the responsibility to test the quality of the ground point to ensure it either meets or exceeds industry standards. To test a ground point, regardless if it is pre-established or self-made, we utilize a Megger meter to test the quality in terms of Ohms of resistance with the earth.

The Megger is very simple and consistent to operate. One of the three leads is connected to the ground point, with the remaining two leads stretched out parallel to each other and attached to pins inserted into the earth. Once set up, the “test” button can be depressed, resulting in a number display appearing on the digital screen of the meter.



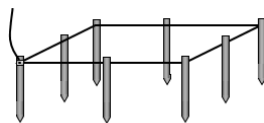
A reading of 25 (ohms) is our target; however, if a reading of 25 or less is achieved on the first reading, steps should be taken to reduce that number even further.



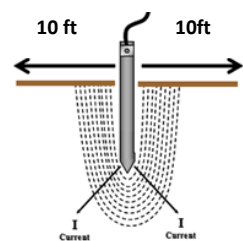
14.5 – Improving a Ground Point

Once tested, there are several options to improve the quality of a ground point, including any of the following:

1. Ensure the ground point is saturated with water or is located in an area high in moisture, such as a wet ditch.
2. Before the ground point is with water, saturate the ground point with salt, which will enhance the conductivity once the water is introduced.
3. Establish additional ground points using a bond cable to connect the multiple ground points.
4. When establishing multiple ground points to achieve 25 Ohms or lower, keep the individual ground points at least 10ft. away from each other to allow for the maximum dispersion of energy into the earth.



Multiple Rod Electrode



14.6 – Dissipating the Energy

Once the ground point has been established and tested and the cables have been connected, the damaged cargo tank must be allowed to sit for a minimum of 30 minutes to allow any stored energy to dissipate via the ground point into the earth. For every



ohm higher than 25 ohms, allow one additional minute of resting time to allow for energy dissipation. For ease of processing, use 30 ohms as your start line to calculate how much additional time is required.

For Example:

- If the Megger reads 45 ohms, allow a rest period of 45 minutes.
- If the Megger reads 53 ohms, allow a rest period of 53 minutes.

14.7 – Retesting a Ground Point

Once your ground point has been established, it is critical to retest it every 30 minutes to 1 hour to ensure the quality of the ground point remains. Retesting is required due to changing environmental conditions such as sun and wind, which can dry the soil affecting the readings. It is a good practice to consistently saturate the soil at the ground point with water to help ensure its quality. Due to the potential of current being transferred via the ground cable to the cargo tanks, ensure you have the ground cables at the ground point disconnected during the retesting period. All activity involving the trailer must cease until the cables are reconnected.

14.8 – Connecting and Disconnecting Ground Cables

Grounding the damaged cargo tank has to be given the highest priority if no other environmental conditions, such as a leaking trailer, exist upon arrival. A specific methodology deals



with the order in which the ground cables are connected and disconnected. This methodology is outlined in the charts listed below, which include single trailers, b-train configurations, and connection and disconnection sequences. The following is a list of elements that will assist in a safe sequence:

1. Always wear Omega-rated footwear to eliminate any static energy.
2. Keep the ground cable curled up in your arms, and don't allow it to drag on the ground behind you, creating a pathway to the earth.
3. Always connect the cables to the actual tank, if possible, to ensure proper contact. Several trailers may have an insulator made of foam, rubber, or wood between the cargo tank and the frame of the trailers to prevent the corrosion and oxidation of two different metals.



14.9 – Testing Cable Connections

During the connection process, each connection point must be tested with an ohm meter to ensure continuity. The target reading on the ohm meter is “0” meaning zero ohms of resistance at the point of connection, allowing any stored energy to dissipate quickly via that connection point.



To conduct the testing, an Ohm meter is required with external leads on the unit. A meter with an audible alarm eases the testing process but is not required. To conduct the connection test, touch one probe to the actual cargo tank while you touch the far end of the ground cable connected to the cargo tank. This method will verify the connection on the cargo tank along with the continuity of the ground cable itself. You are looking for a reading of 0 ohms on the meter screen.

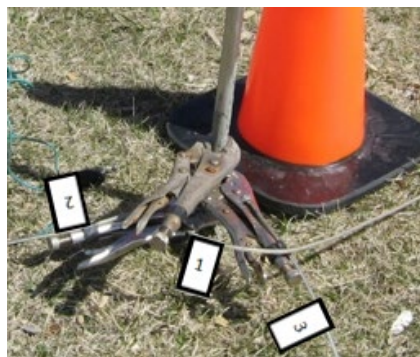


14.10 – Location of Bond Cables

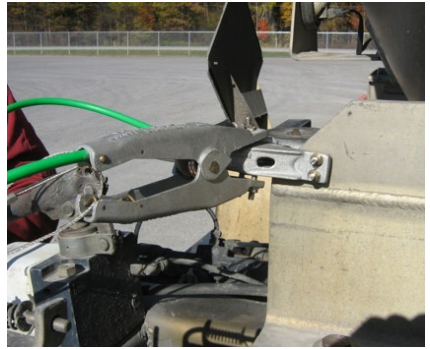
Ground and bond cables are the same cables but are used for different purposes. This situation can create an environment where a person may remove the wrong cable from either the cargo tank or a ground point, thinking they were removing a different cable, creating a potentially negative environment.

Two simple steps can be taken to help ensure this mistake does not happen:

1. Number all cables on each end of the cable near the clamp. This action will assist in identifying which cable is being disconnected.



Consider stacking the last cable connected on top of the previously attached cable. On the cargo tank, you would attach the bond cable on top of the ground cable. This action will allow the individual greater ease in identifying which cable is the bond cable during the removal process. Following this methodology, ground clamps can also be stacked on top of each other at a ground point in the order they are affixed. This will also allow for easier identification during the removal process.



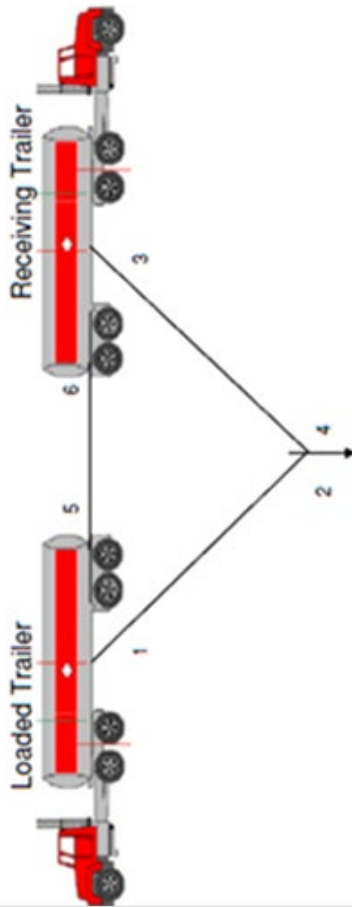
2. When utilizing the stacked methodology, an individual has to ensure proper testing with an Ohm meter to verify a proper connection. As described above, testing a connection of a ground cable to a cargo tank involves placing one end of the meter lead on the tank and the second end on the far end of the clamp of the cable that is curled up in your arm. This theory also applies to testing a stacked clamp. One end is placed on the cargo tank, and the second is placed on the clamp at the far end of the bond cable wrapped up in your arm. This procedure will re-verify the original connection for the ground cable and also provide new verification of the connection between the bond clamp and the existing ground clamp that is already in place. In addition to this verification, it will verify the continuity of the bond cable to the far end of the cable.



One problem that has the potential to occur comes from where the original ground cable is attached to the overturned cargo tank. Since the ground cable is left in place until the cargo tank is uprighted, pay special attention to where it is originally affixed to the trailer. Think about the top area of the trailer; if you attach it there, you stand a good chance of having it pulled off during the uprighting process as the trailer articulates back onto its wheels. Ensure you pick a location that causes the cable the least amount of travel as the cargo tank is being uprighted.



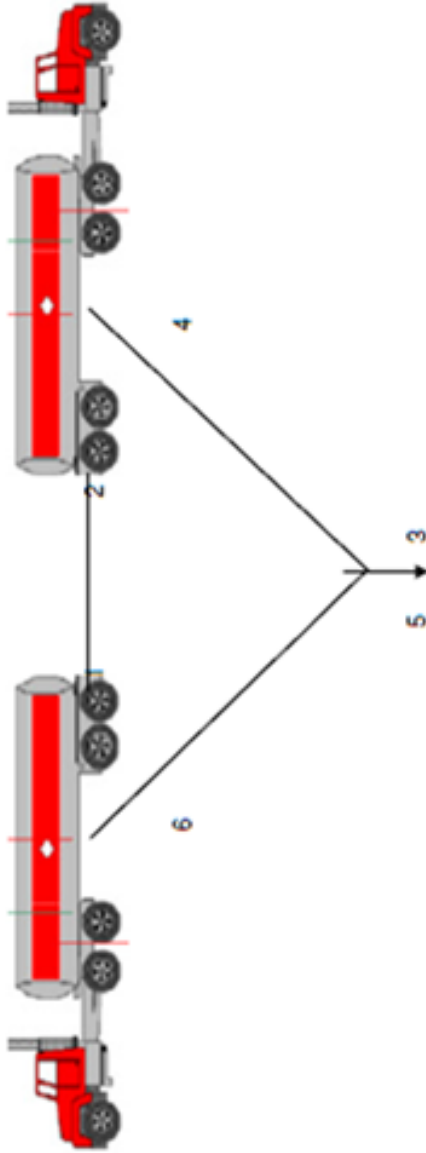
Connecting the Ground & Bond Cables



- 1 Attach one end of the first ground cable to the loaded trailer (1)
- 2 Using an Ohm meter test from the tank to the far end of the ground cable
- 3 Attach the other end of the first ground cable to the grounding point (2)
- 4 Using an Ohm meter test from the grounding point to the ground cable
- 5 Attach one end of the second ground cable to the receiving trailer (3)
- 6 Using an Ohm meter test from the tank to the far end of the ground cable
- 7 Attach the other end of the second ground cable to the grounding point (4)
- 8 Using an Ohm meter test from the grounding point to the ground cable
- 9 Attach one end of the bond cable to loaded trailer (5)
- 10 Using an Ohm meter test from the tank to the far end of the ground cable
- 11 Attach the other end of the bond cable to the receiving trailer (6)
- 12 Using an Ohm meter test from the tank to the ground cable



Disconnecting the Ground & Bond Cables

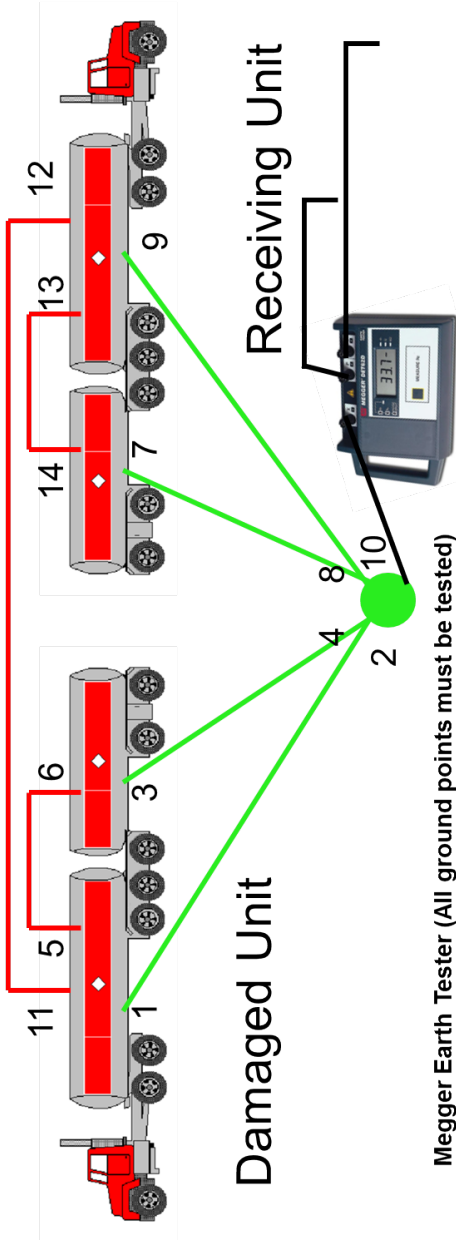


- 1 Disconnect the bond cable from the empty trailer (1)
- 2 Disconnect the other end of the bond cable from the loaded trailer (2)
- 3 Disconnect the loaded trailers ground cable from the grounding point (3)
- 4 Disconnect the second end of the ground cable from the loaded trailer (4)
- ***Complete the next steps only after the empty trailer has been up righted
- 5 Disconnect the empty trailers ground cable from the grounding point (5)
- 6 Disconnect the second end of the ground cable from the empty trailer (6)





Connecting Grounds & Bonds



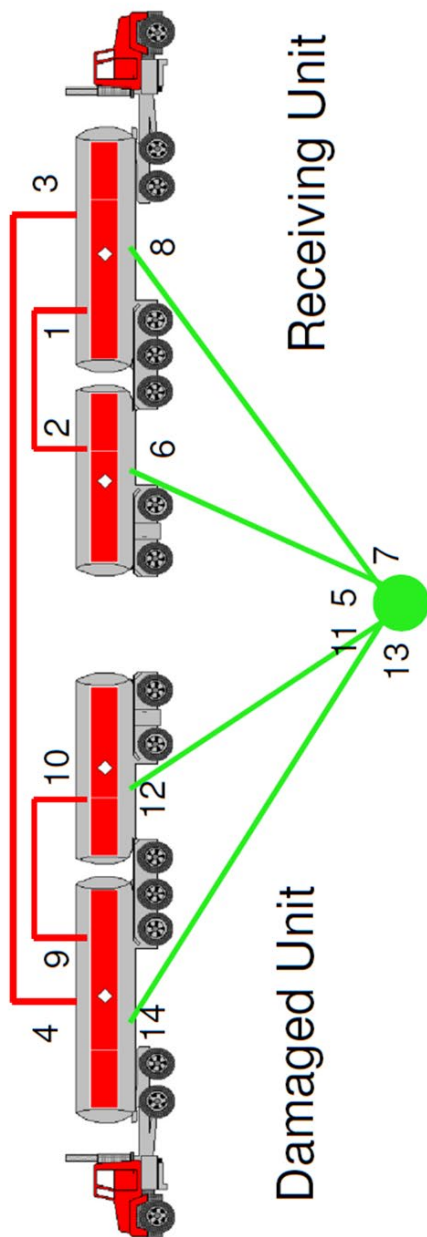
Megger Earth Tester (All ground points must be tested)

- 1 Attach the shortest cable to the ground point, then stretch the 2 remaining cable out and connect to pins
- 2 Depress the "Measure" button, target reading is 25 ohms or lower – **Retest the ground point every 20 – 30 minutes by disconnecting all ground cables from ground point prior to depressing test button – Reattach cables to ground point and retest connections with Ohm meter when complete**

Ground Cables = Green Bond Cables = Red

- 3 Attach one end of the first ground cable to the loaded lead trailer (1) and then to the ground point (2)
- 4 Attach one end of the second ground cable to the loaded pup trailer (3) and then to the ground point (4)
- 5 **Attach one end of the second bond cable to the loaded lead trailer (5) and then to the loaded pup trailer (6)**
- 6 Attach one end of the fourth ground cable to the empty pup trailer (7) and then to the ground point (8)
- 7 Attach one end of the third ground cable to the empty lead trailer (9) and then to the ground point (10)
- 8 **Attach one end of the first bond cable to the loaded lead trailer (11) and then to the empty lead trailer (12)**
- 9 **Attach one end of the third bond cable to the empty lead trailer (13) and then to the empty pup trailer (14)**

Disconnecting Grounds & Bonds



Ground Cables = Green Bond Cables = Red

- 1 Disconnect one end of the first bond cable from the loaded lead trailer (1) and then the loaded pup trailer (2)
- 2 Disconnect one end of the second bond cable to the empty pup trailer (3) and then the empty lead trailer (4)
- 3 Disconnect one end of the first ground cable at the ground point (5) then the loaded pup trailer (6)
- 4 Disconnect one end of the second ground cable at the ground point (7) then the loaded lead trailer (8)
- 5 **Leave remaining 2 ground cables and 1 bond cable in place until the unit is up righted**
- 6 Disconnect one end of the second bond cable to the empty pup trailer (9) and then the empty lead trailer (10)
- 6 Disconnect one end of the third ground cable at the ground point (11) then the empty pup trailer (12)
- 7 Disconnect one end of the fourth ground cable at the ground point (13) then the empty lead trailer (14)



Section 15 – Drilling Procedures

15.1 – Preparation Elements

Drilling holes into a damaged cargo tank that has rolled over is a critical step in the transfer and recovery process. The act of drilling itself can be very simplistic but can also be very problematic at the same time if not both properly prepared and executed.

Preparation is the key to successful drilling, ranging from having a sufficient air source, length of air line, and sufficient air drills and accompanying hole saws.

Let's start with ensuring the cargo tank is secure to enable responders to mount the damaged unit. Use a strap(s) as needed from the recovery company on-site to prevent movement, not only now but during the product transfer period. As the fluid is decanted from the trailer, the damaged unit will have a greater tendency to roll or rotate.



Next is the air source. A sufficient dependable air source is the key to successful drilling. A sufficient air source can allow a hole to be drilled within 2 – 3 minutes, while a deficient air source can extend the time required to drill a single hole into the 10 – 15-minute range. Depending on the number of holes required, this delay could



significantly impact the response. In addition to drilling, a sufficient air source is also a critical factor if an air-powered double diaphragm pump will be utilized as the transfer mechanism.

Next, we move to the drills and hole saws required. Our experience has shown that a hole saw ranging in size from 2 ½” to a 3” saw in diameter is sufficient to allow for a downpipe to enter the compartment and requires less air than drilling a 4” diameter hole.



Now that we have discussed the air source requirements and hole saw options, the next element in the preparation is the drills themselves. When purchasing air drills for drilling fuel trailers, consider purchasing drills with low CFM elements. The more air you can conserve, the better. Low RPMs allow for a more controlled drill without using unnecessary air. Have multiple drills ready and available regardless of the time of year. By having multiple drills ready, the time involved in unseen delays, from freezing to pilot bits dropping out of the hole saw and requiring replacing, is greatly reduced.



Local businesses that offer commercial tire repair services are an excellent and dependable source of compressed air. Their mobile units typically come equipped with high-capacity compressors that can power the large impact drivers necessary for changing tires. As there are multiple hose sizes and connection styles, it is advisable to keep a variety of air fittings to prevent any unnecessary delays.



15.2 – Drilling the Cargo Tank

If possible, drill all the holes before the receiving trailer arrives, which will speed up the transfer process. However, no responder should ever mount the damaged trailer until the grounds are in place and the trailer has had the opportunity to sit the required amount of time to dissipate any stored energy. When mounting the trailer, use a secured ladder to ensure stability. Once on top of the trailer, maintain a low center of gravity, always keeping at least one knee touching the trailer while drilling. In addition to staying low to the tank, a responder should always keep their back to the main body of the trailer. This will reduce the chance for a responder to accidentally step backward and off the end of the trailer.

Responders should always have flame retardant coveralls on while drilling, along with Omega-rated footwear, a full-face respirator equipped with OV cartridges, hand protection, and a hard hat.

When starting to drill a hole, the responder must keep the drill upright until the pilot bit penetrates the compartment. It is common to experience a release of pressure from the compartment during the penetration, which occurs due to the trailer's damage and the resulting "crushing" effect. Once the tank is breached, the responder should tilt the drill on an angle that allows the pilot bit to remain in the pilot hole while allowing just one side of the hole saw to cut the aluminum. As drilling nears completion, be sure not to cut the tank 100% but rather leave a small tab that allows the responder to utilize a screwdriver in the



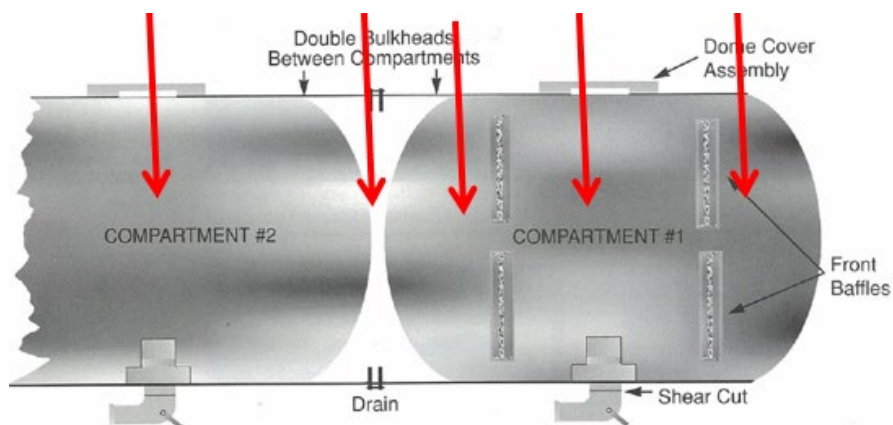
pilot hole and pry the “cookie” away from the trailer removing the risk of having the “cookie” drop into the compartment.

A common problem responders experience during drilling is attempting to push too hard on the drill. Aluminum is a soft material, and the drill should be feathered, decreasing the time required to drill while conserving your air supply.

The last remaining steps in the drilling process are:

1. Determining where to drill
2. How many holes are required
3. Securing the holes once drilled.

To simplify the decision of where to drill into a primary compartment, responders should use a consistent methodology that prevents hitting an interior compartment baffle. Aligning the drilling with the hatch of the involved compartment ensures that there are no unexpected obstacles inside. The number of holes required will depend on various factors, such as the trailer's position on the ground, the number of compartments involved, and the presence of baffles hindering product flow. For a 400 series trailer, drilling may also be necessary for the vapor spaces between compartments if there is a bulkhead leak.



Lastly, once the holes have been drilled, the responder should cover the holes with Chem-Tape or a Duct-Tape style of tape, preventing the vapors from escaping from the compartment. This tape should be removed during the transfer of that specific compartment and re-applied and left in place during the balance of the response, including the uprighting of the damaged cargo tank.



The section did not cover the use of cutting oil during the drilling process, which is a personal choice. Although it may slightly speed up drilling time, it can cause problems when taping the holes due to poor adhesion to aluminum. Moreover, using cutting oil creates the need for a second responder on top of the unit, increasing the risk of slip and fall accidents. To further minimize the possibility of such incidents, it is advisable to discuss with the fire department the avoidance of foaming the top of the damaged cargo tank. Since vapors are heavier than air, foam concentration should be in low-lying or product-exposed areas.



Section 16 – Product Transfers

16.1 – General Procedures

The transferring of flammable liquids poses unique and specific risks that may not be associated with other products. Several steps should be followed during the transfer process to eliminate the risk of spills or incidents:

1. Ensure the damaged and receiving trailers are grounded and bonded properly.
2. Verify the compartment sizes on the receiving trailer along with the product last contained in the compartment to eliminate contamination.
3. Ensure the damaged trailer is secured from movement. This can be accomplished by placing straps around the barrel of the trailer provided by the towing recovery company.
4. Transfer the product via the manway on top of the receiving trailer.
5. All individuals on top of the trailer must have appropriate PPE as outlined in Section 10 of this manual.
6. Be cautious of fumes from the receiving trailer. This trailer often goes unnoticed as most of the attention is focused on the damaged unit. Since the receiving trailer is being filled with the manway open, the vapors are getting pushed out via the manway as the fluid level rises.

Due to this risk, air monitoring must be conducted at all times in the vicinity of the transfer.



7. Downpipes should be used on both the damaged and receiving trailers. This methodology prevents the product from free-falling into the receiving trailer. Maintaining contact between the manway and the downpipe during the compartment transfer is important.
8. Ensure visual communication between the two responders on top of the trailers and the operator of the transfer pump.
9. Once a compartment is emptied, do not attempt to transfer the downpipe and transfer the hose to the next compartment as a single unit, it is just too heavy and awkward, causing a severe environment for a slip and fall coupled with a spill of material.

It's a good idea to place a quarter turn valve on the ends of the hoses in-between the downpipe and hose assembly to both assist in the relocation to the next compartment and assist in priming the transfer pump when pumping resumes.

10. Re-tape the drilled holes once the compartment has been transferred. This will help control the vapors contained within that compartment.
11. Utilize the ladder on the receiving trailer to secure the transfer hose and position it on the walkway on top of the trailer. The pulsing action of a diaphragm pump can cause damage to the exterior of the receiving trailer if the hose is draped over the side of the trailer.
12. In addition to securing the transfer hose to the ladder, ensure you secure all the fittings in the transfer system so they remain in the closed position and do not vibrate open during the transfer.



13. Utilize a log to determine which compartments have what products in them and which compartments they will be transferred into on the receiving trailer.
14. During the debrief, request the fire service remain on standby with a charged line to provide a light spray in case of an incident during the transfer.

16.2 – Order of Transfer

There is always the possibility of having multiple products on board a trailer despite having a single placard on the side. We must transfer the products in a safe manner and in the proper order to reduce the chance of contamination. The following table will identify the order of transfer given a scenario of a full range of products on board.

1. Transfer all diesel products first, then gasoline products.
2. Within the diesel products, transfer clear diesel products first, followed by any dyed diesel products. This will eliminate the risk of getting residual dyed diesel into clear diesel.
3. Within the gasoline family, transfer the highest octane first (91), then the middle octane (89), finishing with the lowest octane (87).
4. Finally, transfer any ethanol products on board the damaged cargo tank.



To significantly reduce pumping time, inquire with the Responsible Party whether the material will be transferred for additional delivery, in which case you must adhere to the chart below, or if it will be returned to the refinery, in which case you may pump and blend the product in any sequence.

Order of Pumping

1. Clear diesel
2. Dyed diesel
3. 91 octane gasoline
4. 89 octane gasoline
5. 87 octane gasoline
6. Ethanol



Section 17 – Uprighting Trailer

17.1 – General Responsibilities

As outlined in Section 4 of this manual, trailer salvage and towing is the primary responsibility of the Carrier and not the Response Contractor. However, the Response Contractor may be asked to coordinate or support the Carrier in completing these tasks. If the Carrier assumes full responsibility for this task, the Response Contractor must still be involved from an observation role to ensure certain basic elements are included to ensure a safe recovery.

17.2 – Uprighting Strategies

Listed below are several basic elements that should be considered when the task of uprighting is being conducted:

1. Ensure the ground cable is left in place until the cargo tank has been uprighted.
2. To ensure the ground cable will not be detached, double-check to ensure the cable is attached to the cargo tank at a location with minimum travel.
3. If the cargo tank being uprighted is a set of B-trains, leave both ground cables in place along with the bond between the two trailers. This will add an extra layer of insurance if one of the two ground cables is accidentally detached during the process.
4. If using the drilled hole method to transfer the product, ensure the drilled holes have been taped over, which will assist in containing any vapors inside the compartment.



5. The truck trailer assembly has the potential to slide on the ground just before beginning to go upright. This potential could cause a spark, so it is recommended to ask the fire service to lay a blanket of foam in this slide area to reduce the threat of a spark.

6. Although the 406 series of cargo tanks have thicker wall material, the recovery company must use straps around the barrel of the trailer versus a cable. A cable could put too much pressure on the aluminum and cut into it, similar to a knife into butter. These straps may already be in place to secure the cargo tank from movement during the product transfer portion of the response.



7. The placement of the straps is imperative. The strongest location on the barrel is directly over the vapor spaces in-between the two compartments.



8. Regardless if the unit involved is a straight truck, tractor-trailer, or B-train trailer, all configurations should be uprighted as one unit.



Section 18 – Decontamination

There are two basic styles of decontamination stations, wet and dry. The decision on what style best fits your needs will be based on a site risk assessment for your particular response.

Dry decon stations are often used when there is no imminent risk of responders being splashed with the material but allow for a barrier point for responders to remove dirty gloves, protective clothing, and footwear before walking into the unrestricted areas.

Wet decon stations are often used when there is an imminent risk of responders being splashed or coming in contact with material requiring scrubbing down prior to removing any affected articles.

Regardless of which station best fits your needs, the area where your decon station will be positioned should have tarps laid down with a disposable pool protecting the environment from any contaminants generated during the decon process. The decon process might be as simple as garbage bags for affected articles, small pressurized hand sprayers with soap and water to rinse off PPE, to having the fire service on standby to wash the responders of any affected materials before leaving the decon line.



Section 19 – Notification Requirements

The notifications required by legislation are the responsibility of the Responsible Party under the Land Spill Emergency Program (LSEP). To assist the Responsible Party in fulfilling their obligations, this section will outline the basic information required if the product has been released or there is an imminent threat of a release.

Provincial Reporting Agencies

For a release of any quantity of class 3 flammable liquids

Province/ Territory	Agency	Report Line
Alberta	Alberta Environment	800-222-6514
British Columbia	Ministry of the Environment	800-663-3456
Manitoba	Manitoba Conservation	204-945-2100
New Brunswick	Department of the Environment	800-565-1633
Newfoundland and Labrador	Department of Environment	709-729-1771/6483
Northwest Territories	Department of Environment and Natural Resources	867-920-8130
Nova Scotia	Nova Scotia Department of Environment and Labour	800-565-1633
Nunavut	Department of Environment	867-920-8131
Ontario	Ministry of the Environment	800-268-6060
Prince Edward Island	Department of Environment, Energy and Forestry	800-565-1633
Quebec	Ministry of the Environment	866-694-5454
Saskatchewan	Saskatchewan Environment and Resource Management	800-667-7525
Yukon Environment	Environment Yukon	867-667-7244

Federal Reporting Requirements

Class 3 flammable liquid – PG I, II any quantity or PG III 30L

Transport Canada	Canutec	613-996-6666
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Reporting Information Required

Callers name?	
Call back number for the caller?	
Company name of caller?	
Name of responsible party?	
Contact of responsible party?	
Call back number for responsible party?	
Location of the incident?	
Time of the incident?	
Nature of the incident?	
Product information?	
Amount released?	
Any water or sewers impacted?	
Has a contractor been activated?	
If so, who?	
Contractors contact person?	
Contractors call back number?	
Time of arrival on site?	
Who hired the contractor?	
Will there be liquid waste generated?	
Will there be hazardous solids generated?	
Will you need an Emergency Generator Number?	
Time of next update call?	

Information for an Emergency Generator Number

Carriers C of A number	
Receivers C of A number	
Waste class number	
Volume of waste generated	
Manifest number	



Section 20 – Debrief Activities

20.1 – Why Debrief?

Mistakes made in the workplace can be painful, but they can also be instructive if we learn from them. The same goes for successes. An organization can learn from both by understanding what worked and what didn't in an individual exercise or response. However, we often fail to take the time to reflect on our achievements or setbacks, rushing onto the next challenge without analyzing what was learned.

Time constraints, worries about hurting people's feelings, or a lack of understanding of how to conduct a debriefing can lead to crucial performance-enhancing steps being overlooked. Properly executed debriefing can provide invaluable insight into how to proceed in the future and help an organization sustain progress and overcome obstacles.

20.2 – Structure of a Debrief

To effectively debrief after an exercise or response, there are three important steps to consider:

Step 1 - Setting up the Debrief:

Start by explaining to your team why debriefing is necessary, whether it's to improve for the next time, analyze a unique situation, capitalize on strengths, or learn from mistakes. Encourage all team members to participate and provide their opinions during the discussion, while keeping the conversation focused on the response itself. To ensure the meeting stays on



track, have someone who wasn't directly involved in the project facilitate the meeting, and avoid turning it into a complaining or self-congratulatory session.

Step 2 - Covering the Essentials:

During the debrief, take a brainstorming approach to the questions and listen to the team's observations without initial comment. Start by asking what went well, and identify the key ingredients that contributed to the project's success, including essential tasks and key positions. Consider what the team enjoyed about the process from both a team, personal, and project perspective, and think about how energy for the project was sustained over its duration.

Step 3 - Next Steps:

When considering what could be improved, use a brainstorming format and stay open to non-defensive feedback. Think about the feedback received and identify specific steps to make a difference next time, whether it's adding more detail to instruction documents or other improvements. Finally, create a list of ideas for next steps, assign accountability, and establish a timeline for when the work will be finished.

In summary, a debrief meeting is an essential tool for learning and improvement, providing staff the time to reflect on past triumphs and ways to improve. To ensure proper communication, consider posting the results for those not on-site to review. By taking ownership of how a project becomes a success story, building a team, sustaining energy, and motivating everyone involved, debriefing can help boost performance and drive success.



Section 21 – Media Relations

21.1 – General Responsibilities

Interacting with the media is a highly sensitive aspect of the response process, and the Responsible Party bears full responsibility for it. Under no circumstances should a contractor engage with the media, as doing so could significantly increase their liability.

As part of Section 4's outlined procedures, contractors should request contact information from the Responsible Party, including the media representative's name, position, and contact number, which can be quickly provided in the event of a media inquiry.

If a contractor is approached by a media representative, they must collect the representative's contact information and immediately forward it to the Responsible Party contact. Contractors must be very cognizant and sensitive to the definition of "media" which encompasses various means and channels of communication, including newspapers, radio, television, and general communication and information shared between individuals.

During site safety meetings, it's crucial to remind all responders to refrain from engaging in general conversations regarding the incident's nature, including speculation about its cause and the response cost. Such discussions must be avoided with individuals such as tow truck drivers, the general public, and local restaurant patrons.



Media Ground Rules:

- Media should never be in the incident exclusion zones
- Take discussions out of sight
- Do not discuss events with public
- Refer all questions to IC
- Do not give personal numbers
- Never talk about an incident, ongoing or past
- Pass requests for interviews to the client

Responder Relations Focus:

- Police
- Fire
- Government: Federal or Provincial
- Client-supplied contractors/teams

Remember:

- First impressions count
- Be professional in appearance and manner
- Establish working relationships, confidence, and trust



Section 22 – Appendices



INCIDENT RESPONSE FOLDER

Date: _____

Location: _____

Responsible Party: _____

Responsible Party Contact: Name _____

Office _____

Cell _____

Email _____

On-Site Contact Info: Name _____

Position _____

Office _____

Cell _____



Folder Contents

	Sheet	Element
Left Side	1	Enroute to Site
	2	Notes Page
	3	Contact Information
	4	Site Safety Plan
	5	Last Minute Risk Assessments
<hr/>		
Right Side	6	Securing the Site Upon Arrival
	7	Securing the Trailer
	8	Selecting a Ground Point
	9	Grounding and Bonding
	10	Drilling the Trailer
	11	Transferring the Product
	12	Uprighting the Trailer
	13	Government Notifications
	14	Site Map
	15	Debrief Form



Checklist for Team Leader

(Read this information en-route to the incident as refresher points to use during the incident)

EnRoute Communications

- | | |
|--------------------------|---|
| <input type="checkbox"/> | Did you call 911 to tell them about time of arrival, taping vents, hatches, drain plugs etc.? |
| <input type="checkbox"/> | Do you know who you are to contact on site once you arrive? |
| <input type="checkbox"/> | Did you get the Responsible Party's contact information? (Sheet 3) |
| <input type="checkbox"/> | Who will you be meeting on site from the Responsible Party, contact number? (Sheet 3) |
| <input type="checkbox"/> | Did you ask the Responsible Party who media requests should be directed to? (Sheet 3) |
| <input type="checkbox"/> | Did you remind the Responsible Party about completing all required notifications? (Sheet 3) |
| <input type="checkbox"/> | Has the Responsible Party arranged for towing and if so how long? (Sheet 3) |
| <input type="checkbox"/> | Has the Responsible Party arranged for a transfer trailer? (Sheet 3) |

Upon Arrival

- | | |
|--------------------------|--|
| <input type="checkbox"/> | Make sure you park up wind upon arrival to the incident site & 100' away minimum |
| <input type="checkbox"/> | Make sure you find the on-site Incident Command contact upon arrival |
| <input type="checkbox"/> | Check to see if the driver is available |
| <input type="checkbox"/> | Ask if the shipping document was obtained from the driver or cab or last contained tube? |
| <input type="checkbox"/> | Ask the Responsible Party about the destination of the transferred material |
| <input type="checkbox"/> | Verify compartment sizes of involved truck |

Site Safety & Security

- | | |
|--------------------------|--|
| <input type="checkbox"/> | Conduct a good tailgate meeting, have workers sign it off along with contractors |
| <input type="checkbox"/> | Remove all cell phones, pagers, lighters etc.... |
| <input type="checkbox"/> | Remind responders about FR coveralls, Omega boots, safety glass for site inspection |
| <input type="checkbox"/> | Remind responders about the 3 ft. Rule (no conversations outside of 3 ft. of each other) |
| <input type="checkbox"/> | Review Response Guides 127, 128 as applicable |
| <input type="checkbox"/> | Establishing Zones 100', 200' and 1000' |

Site Assessment

- | | |
|--------------------------|--|
| <input type="checkbox"/> | Remind responders to inspect all potential affected areas including low lying areas |
| <input type="checkbox"/> | Inspections should include catch basins, ditches and check for potential ground points |
| <input type="checkbox"/> | Make sure you stay close to the ground while conducting air monitoring |
| <input type="checkbox"/> | Don't cut the battery cables if LEL is present (Sheet 6) |
| <input type="checkbox"/> | Is your product miscible or immiscible in water? Booms or dams? |



PPE

<input type="checkbox"/>	Full face respirator with black or yellow cartridge while drilling or transferring (Sheet 4)
<input type="checkbox"/>	Flame retardant coveralls in non-splash environments
<input type="checkbox"/>	Boots should bear the Omega emblem for anti-static
<input type="checkbox"/>	Gloves should go under the sleeves of coveralls
<input type="checkbox"/>	If wearing splash suits, tape from wrist towards the shoulder

Tank Inspection

<input type="checkbox"/>	Give the tank evaluation sheets to the responders (Sheet 7)
<input type="checkbox"/>	Check the spec plate for cargo series
<input type="checkbox"/>	Tape off the vapour vents on the vapour recovery lines if present
<input type="checkbox"/>	Secure the hatches
<input type="checkbox"/>	If the drain plugs are in, leave them in
<input type="checkbox"/>	If the drain plugs are out, is there signs of leakage
<input type="checkbox"/>	Are there any dents or gouges in the tank
<input type="checkbox"/>	Are there any placards displayed
<input type="checkbox"/>	Were you able to retrieve the documentation

Response Plan

<input type="checkbox"/>	Conduct a short review with responders on the elements in this section
<input type="checkbox"/>	Discuss grounding point criteria, established, wet areas, up wind etc.
<input type="checkbox"/>	Megger reading should be 25 ohms or less
<input type="checkbox"/>	Bond multiple points if necessary, let sit 30 mins min plus 1 min for each ohm over 25
<input type="checkbox"/>	Ground damaged vehicle in advance of receiving truck
<input type="checkbox"/>	Ground directly to the tank if possible
<input type="checkbox"/>	Follow grounding protocol for proper order (see sheets)
<input type="checkbox"/>	Ground receiving truck upon arrival then place bonds between trucks
<input type="checkbox"/>	Stack bond clamps on top of ground clamps



Drilling

<input type="checkbox"/>	Conduct a short review with responders on the elements in this section
<input type="checkbox"/>	Review plan with fire dept., have line charged with clear escape path, do not foam top of trailer
<input type="checkbox"/>	Wear proper PPE
<input type="checkbox"/>	Start compressors at trailer prior to bring them to the damaged truck
<input type="checkbox"/>	Have 2 drills available
<input type="checkbox"/>	Bring pliers and screw driver with you for cookie
<input type="checkbox"/>	Stay on your knees while drilling with you butt to the fat part of the tank
<input type="checkbox"/>	Once the hole is drilled, tape hole and number cookie for Responsible Party

Transferring

<input type="checkbox"/>	Conduct a short review with responders on the elements in this section
<input type="checkbox"/>	Double check Megger reading
<input type="checkbox"/>	Prepare pumps and hoses while trucks are dissipating (30 mins)
<input type="checkbox"/>	Ensure receiving trucks compartment sizes and last contained
<input type="checkbox"/>	Communicate which compartment to pump from and into
<input type="checkbox"/>	Re-tape holes at completion of transferring

Vehicle Uprighting

<input type="checkbox"/>	Conduct a short review with responders on the elements in this section
<input type="checkbox"/>	Remove receiving truck from site
<input type="checkbox"/>	Leave last ground cable(s) on damaged truck
<input type="checkbox"/>	Foam area in front trailer (slide area)
<input type="checkbox"/>	Use straps not cables

Incident Termination

<input type="checkbox"/>	Ensure you are released by Fire Dept.
<input type="checkbox"/>	Ensure you are released by the Responsible Party
<input type="checkbox"/>	Conduct a de-brief as soon as possible



Time	Event / Notes
1 ()	
2 ()	
3 ()	
4 ()	
5 ()	
6 ()	
7 ()	
8 ()	
9 ()	
10 ()	
11 ()	
12 ()	
13 ()	
14 ()	
15 ()	
16 ()	
17 ()	
18 ()	
19 ()	
20 ()	
21 ()	
22 ()	
23 ()	
24 ()	
25 ()	
26 ()	
27 ()	
28 ()	
29 ()	
30 ()	2



Incident Command Checklist

This checklist will serve as a reminder of tasks that should be considered

EnRoute Communications

- 1 Responsible Party Contact
Name _____
Office _____
Cell _____
Other _____
- 2 On-Site Contact Info
Name _____
Office _____
Cell _____
- 3 Estimated Arrival Time _____
- 4 Has towing been arranged? Yes _____ No _____
If so, who will be coming? Name _____
- 5 Has a transfer trailer been arranged? Yes _____ No _____
If so, who will be coming? Name _____
- 6 Did the R/C complete all notifications? Yes _____ No _____
- 7 Who should media requests be referred to?
Name _____
Company _____
Number _____

Upon Arrival

- On-site I/C Name _____
Fire Department Name _____
Fire Department Rep. _____
Police Department _____
Police Dept. Rep. _____

3



SITE SAFETY PLAN

Carrier: _____ Location: _____ Date: _____

Material Involved: _____ Quantity: _____

Underground Utilities Involved? Yes No Emergency Locates Required? Yes No

Outside Contractors on Site? Yes No Plan Reviewed with Contractor? Yes No

On Site First Aider? _____ Closest Hospital? _____ GPS? Yes No

Have all cell phones, pagers, lighters been removed? Yes No Evacuation Alarm Device? _____

On Site Representative in Control of Site Safety Plan: _____

PPE Required: <input type="checkbox"/> FR Coverall <input type="checkbox"/> Poly-Coated Tyvek <input type="checkbox"/> Inner Nitrile Gloves <input type="checkbox"/> Outer Gloves <input type="checkbox"/> Full Face Respirator <input type="checkbox"/> Hard Hat <input type="checkbox"/> CSA & Omega Footwear <input type="checkbox"/> Reflective Vest

Physical Hazards Product Vapours? Yes <input type="checkbox"/> No <input type="checkbox"/> Conduct air monitoring close to ground level Physical Product? Yes <input type="checkbox"/> No <input type="checkbox"/> Layer splash protection over Nomex coveralls Working Aloft? Yes <input type="checkbox"/> No <input type="checkbox"/> Stay on knees on top of trailer - do not stand Working in Traffic? Yes <input type="checkbox"/> No <input type="checkbox"/> Book 7 or equiv. must be followed for traffic conditions Water close by? Yes <input type="checkbox"/> No <input type="checkbox"/> PFD's must be worn within 4ft from edge

Decon <input type="checkbox"/> N/A <input type="checkbox"/> Dry Decon <input type="checkbox"/> Full Shower <input type="checkbox"/> Fire Department - Light Spray (avoid face area)

Air Monitoring <input type="checkbox"/> N/A <input type="checkbox"/> 4-Gas <input type="checkbox"/> PID <input type="checkbox"/> Tubes Name of Tube _____
--

Comments

Response Team _____ _____ _____ _____ _____ Outside Contractors _____
--

CONDUCT LMRA's BEFORE EACH TASK - SEE SHEET 5



LAST MINUTE RISK ASSESSMENTS

Conduct a quick tailgate meeting to discuss LMRA's prior to each group of tasks being started to remind responders of potential risks

Securing & Assessing the Site

- Keep all vehicles 100' away
- Check in with Incident Command
- Be aware of slip trip & fall conditions
- Establish zone protection (hot, warm, cold)
- Check for catch basins & low lying areas
- Air monitoring when cutting battery cables

Grounding & Bonding

- Select a ground point to allow uprighting
- Connect directly to the tank if possible
- Stack bond clamps on top of ground clamps
- Retest your ground point every 30 mins
- Be careful of underground utilities
- Put cones over ground/bond cables

Securing & Assessing Cargo Tank

- Ensure all cell phones, lighters etc. removed
- Use 2 people to cage a hatch
- Watch for product in vapour space drain
- Wear splash protection where required
- Tape from wrists towards your shoulder
- Have fire department ready for decon

Drilling

- Stay on knees, tank surface can be slippery
- Keep your body to the middle of the trailer
- Wear full face respirator while drilling
- Be aware of pressure in tank when drilling
- Tap holes over to control vapour
- Lower drills with hose attached, don't toss drills

Transferring Product

- Stay on knees, tank surface can be slippery
- Don't transfer downpipe as one unit
- Keep hoses of the side of receiving trailer
- Respect the 3' rule while communicating
- Ensure all camlocks are secured closed
- Have fire department ready for decon

Uprighting Vehicle

- Transfer units as one vehicle
- Remove last ground cable after uprighted
- Don't get content, be vigilant
- Be aware of product in vapour spaces
- Use straps not cables to upright trailer
- Place straps over bulkhead areas of trailer



Site Assessment

Safety Marks

Visible Placards Class _____ UN Number _____
 Trailer TC Code: 306 or 406

Documentation

Bill of Lading Number: _____
 Bill of Lading Obtained From? Driver / Cab / Last Cont. Tube

UN #	Shipping Name	Class	PG	Qty/Units	Octane	ERG
1						
2						
3						
4						

Bill of Lading - 24 hr. Phone Number _____

Environmental Inspection

Have any of the following areas been impacted by product?

	Location	Y/N	Detail	Time
Sewers				
Ditches				
Streams				
Other				
Other				

***If the product involved has ERG 127 the product will blend with water

Air Monitoring - tank - downwind - low areas - sewers - etc....

Location _____ Results _____ Time _____
 Location _____ Results _____ Time _____
 Location _____ Results _____ Time _____
 Location _____ Results _____ Time _____
 Location _____ Results _____ Time _____

Be sure to conduct air monitoring at the battery cables prior to cutting



Tank Assessment

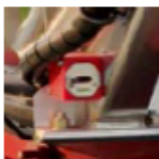
Check the following areas for signs of leaks or damage

Complete form & return to Incident Command

Remote Discharge Valve Shut Off Locations

Remote closures can be air, cable or hydraulic operated and can be found any where on the trailer not closer than 10ft. from a discharge valve.

All shut off locations must be marked



Top of the Tank



Hatches

Bulkhead
Plugs

Vapour
Recovery

Scully
Sensors

All hatches secure / no leaks?

Vapour recovery free of leaks?

General Dents?

7

Rear, Sides & Underneath of Trailer





Secure vapour line vents

Valves secure / free of leaks?

General dents?

Vapour Space Drains

Outside Threads



Inside Threads



Plastic Collar



General sign of leaks?

Bottom plugs free of leaks?

If the drains have plugs in them, leave them in place, DO NOT REMOVE

Discharge Valve Shear Points

Shear section on discharge valves



Choosing a Ground Point

Look for an existing permanent ground point

- Hydro pole anchors, fire hydrants, fence posts etc...

If not available

- Place grounding points in damp areas such as ditches

Testing a grounding point

- Connect the short lead of the Megger to the grounding point
- Stretch the other two leads away from the grounding point
- Ensure the leads are run perpendicular to the grounding point
- Depress and hold the button on the Megger until it begins to read
- The targeted reading is 25 Ohms or lower
- Ensure the reading is in Ohms and not K, Ohms

Bettering a ground

- Place the ground rods deeper into the soil
- Use multiple ground rods (10ft. apart) connected with bond cables
- Dig a pot around the ground rod and pour water around the rod
- Saturate the water around the ground rod with salt
- Chicken wire, aluminum foil, ground plates are also a possibility

Important Factors

- Ground systems must be allowed to sit for a minimum of 30 minutes
- Allowing the system to sit will allow static to dissipate
- No aggressive work such as drilling should occur before this time
- A general rule is 1 minute of wait time per 1 ohm (minimum 30 mins)
- Even if the Meggar is less than 25, attempt to reduce the ohms to 0
- If a reading of less than 25 is not possible you should pump slower



Grounding & Bonding

Select the type of trailer to be grounded/bonded

- Utilize the appropriate laminated grounding chart for procedures

PPE

- Be sure to always wear Omega rated footwear while grounding

Reminders for Successful Grounding & Bonding

- Always connect clamps directly on the tank if possible
- If not possible, use an ohm meter to test for 0 ohms between the connection point on the trailer and the tank itself to ensure continuity within the tank (rubber or wood between the tank and frame)
- Keep the cables wrapped up in your arms while connecting
- Test the connection by placing one lead directly on the tank and the second lead on the far end of the cable that is wrapped up in your arm. We are looking for 0 ohms.



- When connecting a ground cable and a bond cable at the same location, stack the bond clamp on top of the ground clamp for ease of identification. The bond clamp is the last one on, and the first one to be disconnected when stacked.



- Protect your cables from accidentally being disconnected. Housekeeping is the primary reasons for cable to become disconnected from hoses being drug over top of them to someone tripping on them. Place safety cones to identify their presence.

Drilling the Tank

The following elements will ensure a successful drill

PPE

- Be sure to always wear Omega rated footwear, FR coveralls, either a full face respirator or half mask with splash protection, gloves.

Reminders for Successful Drilling

- Always have a minimum of 2 drills and multiple hole saws ready
- Always inspect the tightness of the pilot bit to ensure it does not fall out
- Switch drills inbetween holes to ensure the pilot bit is tightened.
- Although cutting oil can be utilized, drilling dry always the hole to be tapped after drilling and transferring.
- Drill in line with the manway of the compartment to ensure you do not hit a baffle in the compartment.
- Be prepared to drill if necessary on the backside of the baffle and/or into the vapour space
- While on top of the trailer, be aware of working at heights and stay on your knees and do not stand up. Keep your back to the fat part of the trailer.
- Pierce the compartment with your drill in the straight up and down position and be ready for pressure to release when the shell is breached.
- Then angle your drill to allow a better control of the "cookie" while conserving your air supply.
- Leave a tag when drilling to allow you to use a screw driver and pliers to twist off the tank and not drop in.
- While transferring the drill from the top of the trailer never toss it but rather lower and raise the drill by using the air line.
- Always disconnect the drill from the air supply before touching either the hole saw or the pilot bit.
- Aluminum is the only material that can safely be drilled if the trailer contains a flammable material.



Product Transferring Checklist

- 1 How will you transfer (method)?
- 2 What will you transfer into?
- 3 Who supplied the transfer trailer?
- 4 Did you checked compartment size?
- 5 Were the last contained products checked?
- 6 What is the final destination?
- 7 Enter the license plate of the receiving unit
- 8 Do you have a site evacuation plan?
- 9 What do you have to conduct decon?
- 10 Did you conduct your LMRA's

Transfer Information

Loaded Trailer			Receiving Trailer			Transfer	
Comp	Product In Tank	Qty	Into Comp	Capacity	Last Product Contained	Time Start	Time Finish
1							
2							
3							
4							
5							
6							
7							
8							

Transferring Product - LMRA's

- | | |
|---|--|
| <ul style="list-style-type: none"> - Stay on knees, tank surface can be slippery - Don't transfer downpipe as one unit - Keep hoses off the side of receiving trailer - Conduct air monitoring at receiving trailer - Maintain contact with downpipe to manway | <ul style="list-style-type: none"> - Respect the 3' rule while communicating - Ensure all camlocks are secured closed - Have fire department ready for decon - Always transfer via manways - Don't let product free fall, use downpipes |
|---|--|



Uprighting Damaged Trailer

- 1 Has the towing been arranged?
- 2 Have you discussed the use of straps?
- 3 Are the straps placed over the bulkheads?
- 4 Have you left the ground cables in place?
- 5 Did you secure the bottom drains?
- 6 Did you apply foam in the initial slide area?
- 7 Ensure to upright as one unit
- 8 Did you remove unnecessary people?
- 9 Did you conduct your LMRA's?
- 10 Remove ground cables after uprighting



Notification Sheet for Reporting Spills

Agency names, contact numbers and reporting thresholds are on reverse side

CALLERS INFORMATION			
Name _____	Office # _____	Cell # _____	
Company Name _____	Company Address _____		
PROVINCIAL NOTIFICATION			
Time of Notification _____	File # _____	Representative _____	Comments _____
Follow Up Time: _____	Representative _____	_____	_____
Follow Up Time: _____	Representative _____	_____	_____
Time of Incident _____	Who Reported the Release to your Company? _____		
FEDERAL NOTIFICATION			
Time of Notification _____	File # _____	Representative _____	Comments _____
Follow Up Time: _____	Representative _____	_____	_____
Follow Up Time: _____	Representative _____	_____	_____
MUNICIPALITY NOTIFICATION			
Name _____	Dept _____	Phone# _____	Time _____
SITE INFORMATION			
Address of Site _____	City _____	County _____	
Owner of Material _____	City _____	Phone _____	
Company in Control _____	City _____	Phone _____	
PRODUCT INFORMATION			
UN# _____	Shipping Name _____	Class _____	PG _____
UN# _____	Shipping Name _____	Class _____	PG _____
Mode of Transport _____	Type of Container _____	TC/DOT Code _____	
Amount Released into Environment _____	Shipment Quantity _____		
Did the release enter any manholes, waterways, sensitive areas? _____			
STATUS OF RELEASE			
What happened to cause the release? _____			
Is the release contained? _____			
Has a contractor be contacted to clean the released material? _____		Contractors Name _____	
How long will the contractor take to get on site? _____			

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Jurisdiction	Agency	Report Line
Federal Notification	Transport Canada - Canutec	613-996-6666
Alberta	Alberta Environment	800-222-6514
British Columbia	Ministry of the Environment	800-663-3456
Manitoba	Manitoba Conservation	204-945-2100
New Brunswick	Department of the Environment	800-565-1633
Newfoundland / Labrador	Department of Environment	709-729-1771/6483
Newfoundland / Labrador	Coast Guard	709-772-2083
Northwest Territories	Department of Environment / Natural Resources	867-920-8130
Nova Scotia	Department of Environment and Labour	800-565-1633
Nunavut	Department of Environment	867-920-8131
Ontario	Ministry of the Environment	800-268-6060
Prince Edward Island	Department of Environment, Energy / Forestry	800-565-1633
Quebec	Ministry of the Environment	866-694-5454
Saskatchewan	Environment and Resource Management	800-667-7525
Yukon Environment	Environment Yukon	867-667-7244

Federal Reporting Thresholds

Class	Packing Group or Category	Quantity
1	II	Any quantity
2	Not applicable	Any quantity
3, 4, 5, 6.1 or 8	I or II	Any quantity
3, 4, 5, 6.1 or 8	III	30 L or 30 kg
6.2	A or B	Any quantity
7	Not applicable	A level of ionizing radiation greater than the level established in section 39 of the "Packaging and Transport of Nuclear Substances Regulations, 2015"
9	II or III, or without packing group	30 L or 30 kg

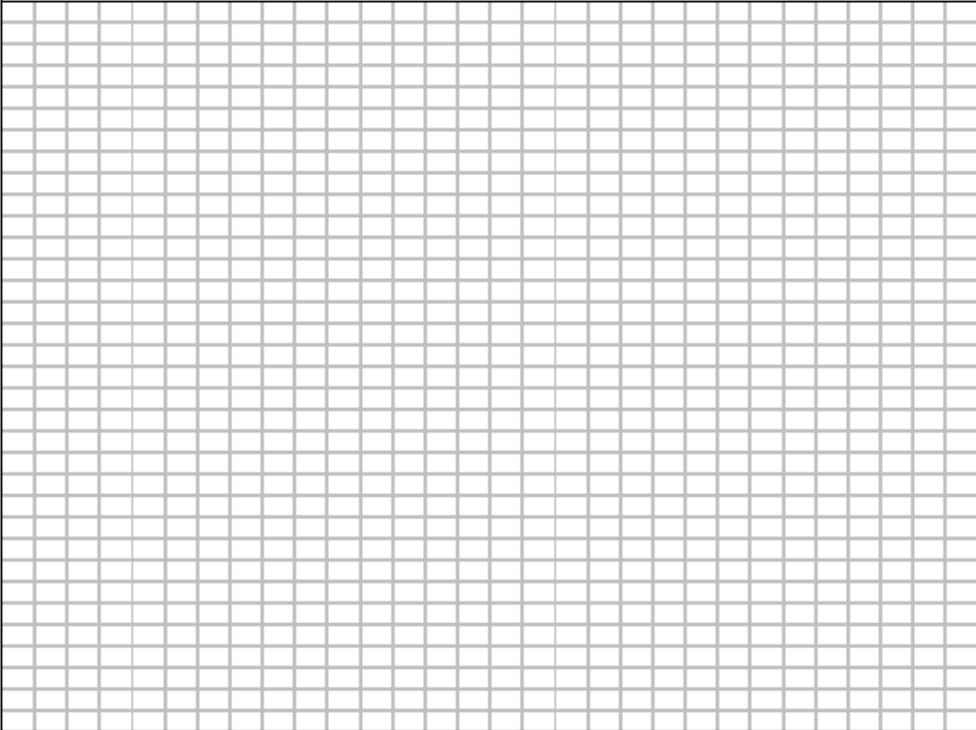
EMERGENCY GENERATOR NUMBER REQUIRED INFORMATION

Carriers Permit Number	
Receivers Permit Number	
Waste Class Number	
Volume of Waste Generated	
Manifest Number	



SITE DIAGRAM/SAMPLING MAP

Job _____ Location _____ Date _____


<p>Comments</p>

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INCIDENT REVIEW & DEBRIEF

Carrier: _____ Location: _____ Date: _____

General Nature of Job

Contractors Primary People On Site

Non - Contractors People on Site

Score the following elements on a scale out of 10 - Document any successes or opportunities that can be shared.

1. Securing the site - vehicle distances, shipping documents, wind directions,

2. Securing and stabilizing the Involved trailer

3. Finding and establishing an effective grounding point

4. Grounding and bonding the damaged and transfer trailers

5. Drilling the damaged trailer

6. Transferring the material into the receiving trailer

7. Uprighting the damaged trailer

8. Personal protective equipment

9. Traffic control

10. Miscellaneous Items

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