The “RESPONDER Flare”

aka “***The Dragon Slayer***”

by: Responder Training Enterprises, LLC

Version 1.4.13

Patent Application No.: 62/531,487

Assembly

&

Operating Guide

RESPONDERTRAINING.COM

Ronald D. Huffman

Responder Training Enterprises, LLC.

12/30/2024

Thank you for purchasing our 1-inch propane flaring system. My intention in creating and producing this product was to provide response and service organizations with a quality tool that would exceed anything else currently on the market and last the owner for years to come.

As a career and volunteer firefighter, I know how important it is to respond with the tools you need to get the job done quickly and safely. The Responder Flare was designed to be set up without the need for tools. It's designed to operate on flat and unlevel surfaces and provide you with flow capabilities unlike any other commercially available flaring system. The Responder Flare has been designed to operate on incidents that require limited flow capabilities and support the flow capacities needed for highway, rail, and bulk storage facilities.

The option to flow liquid or vapor using 1-inch components can provide your agency the ability to start forcing a tank into auto refrigeration or lower the liquid level much quicker than smaller systems.

Dubbed the "Dragon Slayer" by one of our customers, this flaring system has an industrial look and feel due to its quality, solid, heavy-duty construction.

If you have any questions, concerns or comments please contact me.

Be safe brothers and sisters

Ronald D. Huffman
Owner, Responder Training Enterprises, LLC
(765) 524-4848 Mobile

Designer, manufacturer and distributor of this and many other propane response tools and soon we will be including CNG options as well.

Call me anytime for response tools or our one-of-a-kind propane training course, ***"Propane Response – 101 to Advanced Tactics"!***

*Photo of the "**Dragon**" looking down on me during a Propane Live Fire class taught in Greenfield IN.*

Table of Contents

All pressurized gas components used in the construction of our Propane Flare are either UL or CSA listed components.

READ AND FOLLOW ALL SAFETY INFORMATION

IF YOU ARE UNSURE STOP!

REREAD THE INSTRUCTIONS OR

CONTACT RESPONDER TRAINING ENTERPRISES FOR ASSISTANCE

Specifications

Name:	"Responder Flare" aka **"The Dragon Slayer"**
SKU:	FLARE-SSRF1
Flare Stack:	1 inch 304 Stainless Steel
Flare Height:	10 feet
Footprint:	4 legs = 64 Square Foot
Base:	Adjustable for uneven surface
Inlet:	1 inch
Outlet:	1 inch
Flow Capacity:	1300+ GPH
BTU:	91,000,000 + per hour
Clearance Required:	Incident specific, based on radiant heat produced. At full flow, a *minimum* of 100-foot radius and vertical clearance is required based on the heat produced.
Product:	LPG (vapor or liquid) Use with any other material voids all warranties expressed or implied unless specifically approved by the manufacture.

Highlighted text: Indicates special attention should be applied to the information provided

IMPORTANT*: *Prior to operating the Responder Flare and any of its accessories you must fully read, understand, and follow the information in this document. IF YOU ARE UNSURE OF HOW TO CONDUCT ANY FUNCTION OR OPERATION "STOP", CONSULT THIS DOCUMENT OR CONTACT RESPONDER TRAINING ENTERPRISES, LLC. FOR CLARIFICATION.

FLARING OPERATIONS ARE INHERENTLY DANGEROUS. Failure to follow the appropriate safety measures could result in serious injury or death. In addition to this product literature all appropriate local, State and Federal codes, regulations and guidelines must be identified and followed at all times.

Only personnel that have received proper training and understand the proper use of this product(s) and associated equipment should operate the Responder Flare and/or any of its accessories during training or incident response.

WEAR APPROVED PPE INCLUDING: GLOVES, BODY, HANDS, EYES and RESPIRATORY PROTECTION DURING SET-UP AND OPERATIONS.

A copy of this document should be kept with the flare at all times

Read before using the warranty, liability and additional special information found at the end of this document.

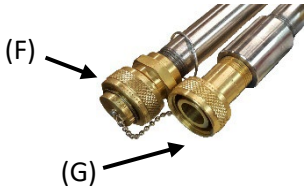
CAUTION: Pinch/Scissor points exist. Moving parts can create a pinch or cutting action, ensure that no body parts are placed at any location where two components cross or may cause injury.

Set-Up and Assembly

1. Open the storage bag and unpack all the components.
2. Stand the base section and loosen the slide lock (A).
3. While holding the top of the base steady and maintaining control, slowly lower Slide (B) and allow the legs to extend.

4. Slide the Pilot Burner Assembly (C) onto the upper flare stack and down to the stop collar (D).
5. Ensure that the Pilot Burner control valve (E) is in the off position as pictured.
6. Remove the brass male ACME protective cap (F) and attach the upper section of the flare stack with the pilot burner to the base section (G) (female ACME).

Note: Use caution to ensure that the upper section does not tip and fall during this process. If multiple personnel are available connect the upper and base sections while holding them near horizontal.



7. Stand the connected flare assembly.

8. Connect the pilot burner hose clip to the end of a leg as pictured.
9. Locate the Pilot Burner supply tank in a safe area.
10. Attach the regulator to the propane supply.
11. Attach the 1-inch supply line and any necessary extensions and adapters to the main LPG source.
12. Make sure that the regulator is OFF.
13. While maintaining flare stability, raise slide (B) and "lean" the flare stack enough so that the pilot flare can be reached for lighting.
14. Open the Pilot Burner control valve (E) (if equipped).
15. Slowly open the regulator and feed pressure the Pilot Burner.
16. As soon as you hear or see propane vapor light the pilot.

17. Stand the complete assembly and secure the slide lock (A).
    a. Under normal operations it is not necessary to stake or weight the legs of the "RESPONDER FLARE", but it may be done to decrease the possibility of tipping due to identified and unforeseen circumstances.
    b. ***ALL 4 LEGS OF THE FLARE MUST BE ON THE GROUND DURING FLARING OPERATIONS.***

NOTE: All flares should be stabilized when used on un-level surfaces or a grade greater than 10 degrees and if intentionally tilted.

Flaring Operations

FOLLOW YOUR DEPARTMENTS Personal Protective Equipment (PPE) SOP/SOG's for all flare operations.

Prior to starting a flaring operation ensure that a clear burn area capable of supporting the estimated radiant heat in all directions is available. At ***full flow*** (1300+ gph liquid), a 100-foot *minimum* radius and at full flow, a *minimum* of 100-foot radius and vertical clearance is required based on the heat produced, ***it may be necessary to increase this distance based on actual scene conditions and exposures.***

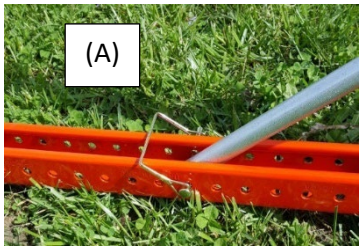
> *For example: Flaring a small cylinder will not require as large an area as a bobtail or bulk storage tank.*

When flaring liquid, it's recommended that a handline be available to suppress small ground fires and protect components that may be damaged by exposure to flames or radiant heat.

Adjustable Base Option*:* With the "Responder Flares" adjustable base it's possible to tilt the flare stack. This option allows you to direct any burning liquid that is blown out or runs down away from rubber supply lines.

Using the tilt base,

1. Stabilize the flare and remove opposite spring clips on two legs (A).
2. Tilt the flare DOWNWIND.
3. Tilt the flare to the desired angle and reinstall the pin(s).



Always place the leg pin UNDERNEITH the leg for storage. OPPOSITE of what is shown (A).

Final Inspection Before Ignition

1. Prior to igniting the flare ensure that all connections are tight.
    a. It should not be necessary to wrench tight connections, but light pressure may be applied using an appropriate tool.

2. Ensure that all rubber components are protected from sharp edges that may rub and cause damage.
3. Ensure that the Responder Flare is stable. If for any reason it's believed that the flare is in danger of tipping or sliding, adding weight using sandbags or similar items or staking the legs are all acceptable options.
4. Ensure that all areas are clear of ignitable materials including items susceptible to radiant heat damage such as vinyl siding, painted items plastics, glass, etc..
    a. Ensure that you have an appropriate quantity of Pilot Burner fuel supply tank. Depending on operational duration it may be necessary to have multiple tanks that can be switched out to allow them to warm up and regain pressure due to auto-refrigeration if you do not shut down the pilot burner.
5. Verify that all personnel and others are in a safe area and are aware of operational tactics and hazards.

Ignition

1. With the Pilot Burner operating and the flare set, slowly open the valve on the bulk tank or cylinder until the main flare ignites.
2. Continue opening the valve slowly until it's fully open or the excess flow in the supply source seats.
    a. If the excess flow seats, identify the valve location (for example: half open) and then shut OFF the BULK SUPPLY valve.
        i. Wait until the excess flow valve re-opens (usually indicated by a single click).
    b. Slowly re-open the tank valve to a point just before the excess flow shuts.
    c.

Pilot Burner Supply Change

Due to the limited capacity or auto-refrigeration of the Pilot Burners supply tank it may be necessary to switch out the supply during flaring operations *if it is maintained during sustained operations.*

Option #1

1) To maintain an operating flare, slightly reduce the supply to the main flare to ensure that excess flow does not shut while the Pilot Burner supply is replaced,
2) Turn off the Pilot Burner supply and switch out the tank.
3) Slowly open the Pilot Burner supply valve until the pilot re-lights
    i. Due to the Pilot Burner valves position (full open) you must use caution when opening the supply valve or the excess flow in the tank connector may activate.

ii. If the pilot does not re-light, close the tank valve, reduce the pressure regulator to 0 psi and wait for the excess flow to re-open (click) and SLOWLY open tank valve again, then increase the regulator pressure to normal operating pressure.

4) Once lit open the main flare feed again to the previous position.

Option #2

1) Shut off the main burner fuel supply.
2) Shut off the pilot burner fuel supply.
3) Change out pilot burner supply tank.
4) Re-light the pilot burner as described on page 4.

NOTE: FEED LINES AND THE FLARE STACK MAY BE EXTREMELY COLD DUE TO THE EXPANDING LIQUID AND AUTO-REFRIGERATION. THE PILOT BURNER and FLARE TIP MAY BE EXTREMELY HOT. USE CRYOGENIC or DRY APPROPRIATE PPE TO LESSEN THE POSSIBILITY OF FREEZING TO EQUIPMENT OR TO PREVENT BURN INJURIES!

5) With the Pilot Burner operating, slowly open the valve on the bulk tank or cylinder until the main flare ignites.
6) Continue opening the valve until it's fully open or the excess flow in the supply source seats.

d. If the excess flow seats, identify the valve location (for example: half open) and then shut OFF the valve.

i. Wait until the excess flow valve re-opens (usually indicated by a single click).

e. Slowly re-open the tank valve to a point just before the excess flow shuts.

3. Immediately after ignition and continuously during operations visually inspect all connections for leaks. A liquid leak detection solution should be used on all connections according to the solution manufacturer's recommendations.

I. Any identified leaks must be addressed as soon as possible.

II. Any leak that cannot be stopped while under pressure requires operations are terminated until repairs can be made.

FLARING OPERATIONS MUST BE MONITORED CONTINUOUSLY.

NEVER LEAVE A FLARING OPERATION UNATTENDED.

FOLLOW ALL SAFETY RULES

Terminating Operations and Flare Storage

Upon completion of flaring operations:

1. Shut off the supply to the main burner.
2. Once the main burner fire dies out, shut OFF the supply valve on the pilot burner tank.

CAUTION: Flare components may be HOT or COLD. Use appropriate personal protective equipment at all times. Flare components can be cooled, and ice removed using a handline.

3. Disassemble the flare and all accessories in the reverse order of assembly.

CAUTION: Pinch/Scissor points exist. Moving parts can create a pinch or cutting action, ensure that no body parts are placed at any location where two components cross, seat or may cause injury.

4. Inspect all components for damage and remove the unit from service until repairs can be made including replacement of any damaged or defective items by a qualified service technician.
5. Ensure that all components are clean and dry before storing. Store all flare components in preparation for the next incident.

To limit odors, after each use connect the ends of the hoses together.

Use of any Responder Training Enterprises, LLC provided, manufactured equipment constitutes acceptance of the terms and conditions listed in this document.

Warranty: This warranty and use of the product(s) applies to the original purchaser. The manufacturer guarantees all components against failures in materials and/or workmanship for a period of ***1 year*** from the date of purchase. If any part of the purchased system fails due to materials and/or workmanship the purchaser must contact Responder Training Enterprises, LLC (RTE) for repairs, replacement, or refund of the original purchase price of the defective component at the discretion of RTE. RTE may require that the defective component be returned for inspection and repairs. The purchaser must contact Responder Training Enterprises to obtain a Return Goods Authorization number (RGA) prior to returning any component of the system. If the damaged item is deemed to be the result of improper use or neglect, RTE reserves the right to charge for service and/or repairs including shipping to and from RTE.

Do not ship items to anyone other than Responder Training Enterprises.
This warranty does not cover consequential damages resulting from the use of the product, including damage caused by flames or heat created during operations, loss of service availability and/or time involved due to warranty issues.

Manufacturer Liability Limitation: Failure to use this product in any manner or purpose other than intended by the manufacturer and/or for products other than identified or described and/or servicing the equipment by anyone other than Responder Training Enterprises, LLC employees or persons trained by Responder Trainings Enterprises, LLC to conduct service on the equipment and/or applying or installing unapproved alterations to any part of the system voids the warranty and releases the manufacturer from any and all liabilities including damages to equipment, property, injuries and/or death caused by the use of the product and any of its accessories.

NOTE: **If purchased through a third party:** Retailers are not responsible for this product in anyway other than suppling the products as promised. Retailers, persons, agencies, companies and/or corporations providing advertising may not be held liable for manufacturer defects in materials and/or workmanship, improper training unless the training was provided by the aforementioned and/or use of the equipment by the end user for statements and/or advertising made available by Responder Training Enterprises, LLC in any way.

If for any reason the equipment fails to function as intended, please contact Responder Training Enterprises, LLC immediately so that we can help you.

Thank you for purchasing this quality product.

Ronald D. Huffman
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Flare Optional Accessories

Optional Accessories

- ***Propane Response Specialist kit***
- ***The Flaring Kit – LPG/PHO/BHO***
- ***Compressed Natural Gas Vent/Flare Connector Kit***
- ***10-foot x ½ inch reduced flow valve assembly***
- ***25-foot 1 inch supply line with* 1 3/4" ACME connections**
- ***50-foot 1 inch supply line with* 1 3/4" ACME connections**
- ***Water Injection Kit***
- ***3 Port Welded 2-inch, Stainless Steel Manifold, Pressure tested to 500 psi***
- ***6 Port Welded 2-inch, Stainless Steel Manifold, Pressure tested to 500 psi***

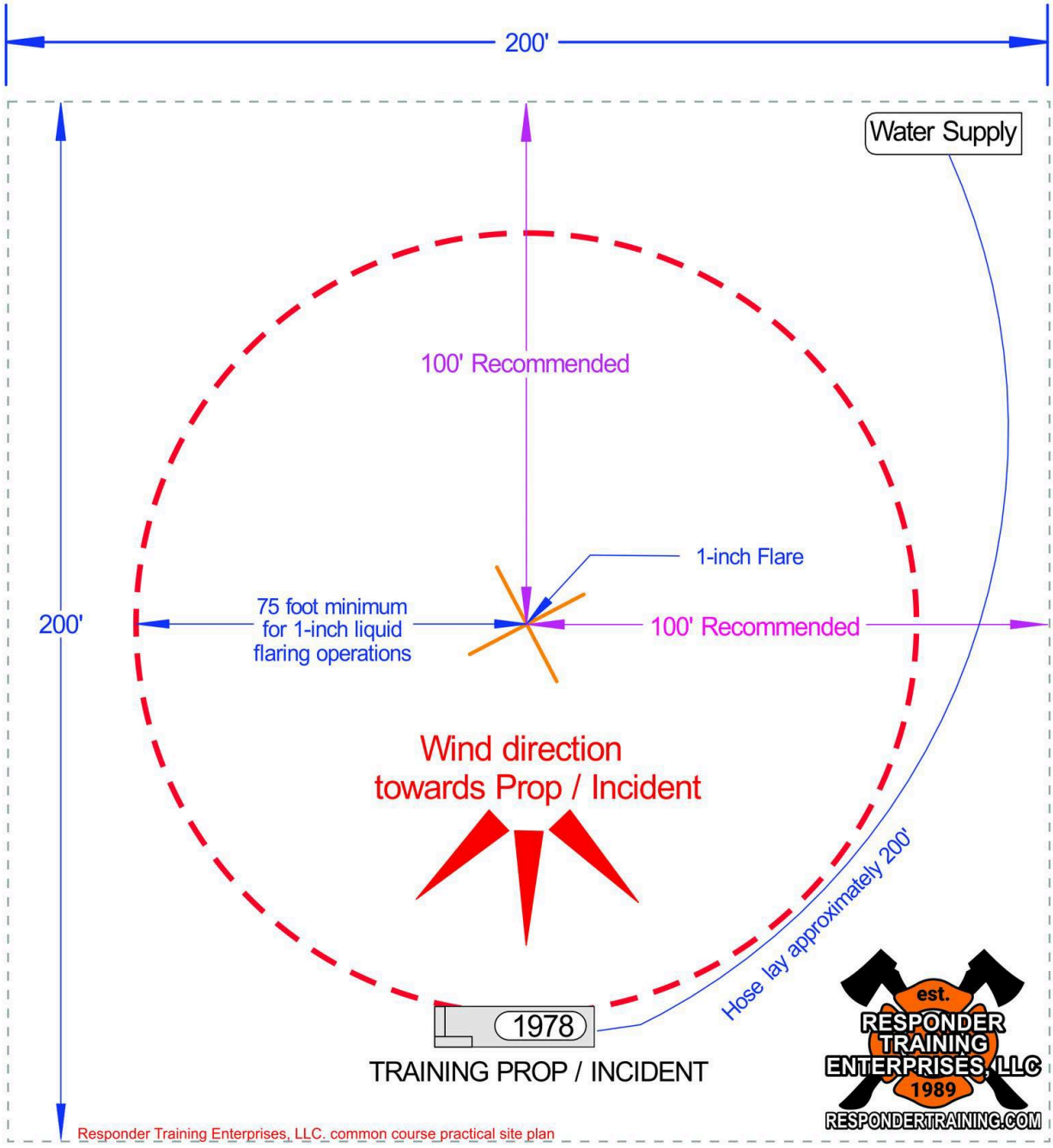
And more available at www.respondertraining.com Click on Equipment Sales, Browse our products, Response Kits

This is the site plan used for our “Propane Specialist, 101 to Advanced Tactics Course.

Responder Training Enterprises, LLC.

ResponderTraining.com

Propane Response - 101 to Advanced Tactics Class practical site plan/layout for Liquid Propane Flaring Operations using the 1-inch Responder Flare (AKA The Dragon Slayer)



These are the "minimum" distances "*commonly used*" by Responder Training Enterprises, LLC. based on the radiated heat produced while burning LIQUID propane using our 1-inch flare.

RESPONDER TRAINING ENTERPRISES - P.O. Box 182, Shirley IN 47384
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