



**VEEDER-ROOT  
MANIFOLD SIPHON BREAK VALVE  
INSTALLATION INSTRUCTIONS**

Technical Manual  
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**MANIFOLD SIPHON  
BREAK VALVE INSTALLATION**

**Manual Number 576013-829**

**VEEDER-ROOT**   
Environmental Products

125 POWDER FOREST DR., SIMSBURY, CT 06070-2003 U.S.A. (203) 651-2700



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**ATTENTION INSTALLER:  
READ THIS IMPORTANT SAFETY  
INFORMATION  
BEFORE BEGINNING WORK**

This product is to be installed and operated in the highly combustible environment of a gasoline storage tank. It is essential that you carefully read and follow the warnings and instructions in this manual to protect yourself and others from serious injury, explosion, or electrical shock.

For safety reasons, we have taken particular care in the design of this product to limit the power in the wiring to the fuel tanks and to keep that wiring physically separated from any other wiring. It is your responsibility to maintain the effectiveness of these safety features by installing this product in accordance with the instructions and warnings which follow. Your failure to do so could create danger to life and property.

Leaking underground tanks can create serious environmental and health hazards. It is your responsibility to install this product in accordance with the instructions and warnings found in this manual.

Failure to install this product in accordance with its instructions and warnings will result in voiding of all warranties connected with this product.

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**WARNING: TO AVOID ELECTRICAL SHOCK WHICH COULD KILL YOU, BE SURE AC POWER TO THE TLS-350 MONITOR AND SUBMERSIBLE PUMPS IS OFF DURING INSTALLATION.**



**WARNING: EXPLOSION COULD OCCUR IF THE VENT VALVE OR OTHER WIRES SHARE CONDUITS OR TROUGHS WITH THE TLS-350 INTRINSICALLY SAFE PROBE, SENSOR, AND THERMISTOR WIRING. CONDUITS AND WIRING TROUGHS FROM TLS-350 PROBES, SENSORS AND THERMISTORS MUST NOT CONTAIN ANY OTHER WIRES.**



**WARNING: EXPLOSION AND/OR EQUIPMENT DAMAGE COULD OCCUR IF CONDUITS DO NOT ENTER THE TLS-350 MONITOR THROUGH THEIR DESIGNATED PREFORMED KNOCKOUTS.**



**WARNING: IN INSTALLATION OF THIS PRODUCT, COMPLY WITH THE NATIONAL ELECTRICAL CODE; FEDERAL, STATE, AND LOCAL CODES; AND OTHER APPLICABLE SAFETY CODES.**



**WARNING: TO PROTECT YOURSELF AND OTHERS FROM BEING STRUCK BY VEHICLES, BLOCK OFF YOUR WORK AREA DURING INSTALLATION OR SERVICE.**



**WARNING: FAILURE TO COMPLY WITH THESE WARNINGS COULD RESULT IN DEATH, SERIOUS PERSONAL INJURY, PROPERTY LOSS AND EQUIPMENT DAMAGE.**



## SECTION 1. INTRODUCTION

### A. GENERAL

This manual describes installation procedures for the Manifold Siphon Break Valve, Part Number 330020-031 in a TLS-350 UST Monitoring System designed and manufactured by the Veeder-Root Company, 125 Powder Forest Drive, Simsbury, CT 06070-2003.

When a vertical bar **|** appears next to text or illustrations, information has been added or revised in this printing.

### B. DAMAGE CLAIMS

1. Thoroughly examine all components as soon as received.



**NOTE:** Insist that the carrier's agent verify the inspection and sign the description.

2. Immediately notify the delivering carrier of damage or loss in person or by telephone. Mail written confirmation within 48 hours. Railroads and motor carriers are understandably reluctant to make adjustments for damaged merchandise unless inspected and reported promptly.
3. Risk of loss or damage to merchandise remains with the buyer. It is the buyer's responsibility to file a claim with the carrier involved.
4. Immediately advise your Veeder-Root representative, distributor, or the factory so that we may assist you.

### C. RETURN SHIPPING

All return shipments of Veeder-Root products must be prepaid. If the product is damaged, return it in the original shipping container. Veeder-Root will not accept liability for damage caused by improper packing. Address the shipment to Veeder-Root Co., 6th Avenue at Burns Crossing, Altoona, Pennsylvania 16603.

## SECTION 2. PRODUCT DESCRIPTION

The Manifold Siphon Break Valve Kit, Part No. 330020-031 consists of:

- a Solenoid Valve, Part No. 576008-464
- (2) Electrical Connectors, Part No. 576008-056
- a Sealing Pack, Part No. 514100-304
- Installation Instructions, Part No. 576013-829



**NOTE:** Fittings and piping to the valve are not provided in the Kit.

Also note this feature requires at least one TLS-350 4-relay or Two Input/Two Relay Output Interface Module.



**NOTE:** If the pump tank port is already connected to a line leak detector, you will need to install a tee fitting on the port in order to install the valve correctly.

## SECTION 3. SITE PREPARATION

### A. INITIAL VACUUM CHECK

Before installing the siphon break valve, take a system vacuum reading to ensure that the valve does not impact the siphon system performance.

1. Install a "tee" fitting into the vacuum line (Figure 1 on page 2). Attach a vacuum gauge that reads in units of inches of mercury.
2. Energize the submersible pump. Verify that the vacuum is 15 inches of mercury or greater. If vacuum level is less than 15 inches of mercury, refer to the submersible pump manufacturer's recommended troubleshooting procedures for siphon systems.



**CAUTION:** DO NOT INSTALL THE SIPHON BREAK VALVE UNLESS YOU ARE OBTAINING A VACUUM OF 15 INCHES OF MERCURY OR GREATER. **INSTALLING THE VALVE WITH INSUFFICIENT VACUUM WILL CAUSE POOR SIPHON SYSTEM PERFORMANCE!**



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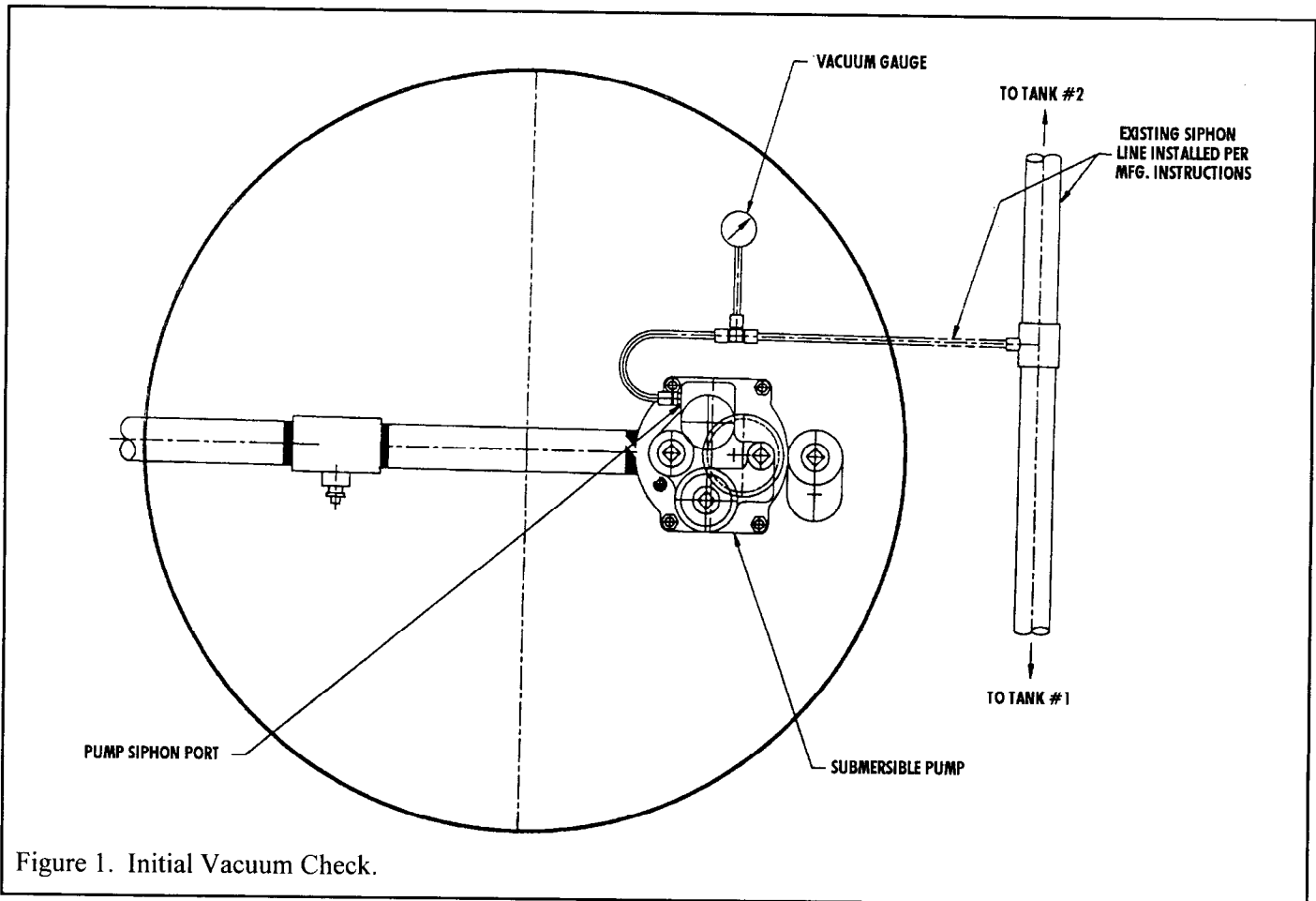


Figure 1. Initial Vacuum Check.

**SECTION 4. SIPHON BREAK VALVE  
INSTALLATION**



**WARNING: TO AVOID ELECTRICAL SHOCK THAT COULD KILL YOU, BE SURE AC POWER TO THE TLS-350 MONITOR AND THE SUBMERSIBLE PUMP IS OFF DURING INSTALLATION.**

1. Turn off power to the submersible pump and the TLS-350.
2. Connect the Siphon Break Valve (Part No. 576008-464) to the tank manifold lines (Figure 2 on page 3), making sure the arrow on the bottom of the valve is oriented as shown. You can make the connection to the pump tank port after system checkout. The valve is supplied with 3/8-inch NPT female ports to facilitate connection to 3/8-inch tubing.



**NOTE:** Ensure correct orientation of the valve ports. Incorrect orientation can cause loss of siphon.

**SECTION 5. CONDUIT INSTALLATION**

Wiring from the TLS-350 console to the valve can share conduit with wiring from the submersible pump relay box to the submersible pump if the conduit is large enough to accept two additional #18 AWG or larger wires.



**WARNING: AN EXPLOSION COULD OCCUR IF SIPHON BREAK VALVE SHARES CONDUITS OR TROUGHS WITH TLS-350 INTRINSICALLY SAFE WIRING. UNDER NO CIRCUMSTANCES CAN THE VALVE WIRING SHARE CONDUIT WITH TLS-350 PROBE, SENSOR, OR THERMISTOR WIRING! THE SIPHON VALVE WIRING IS NOT INTRINSICALLY SAFE.**

1. Run explosion-proof, rigid metal conduit from the power area of the TLS-350 monitor to the manhole. Knockouts for 3/4", 1", or 1-1/4" conduit are provided in the TLS-350. If sharing the submersible pump conduit, run explosion-proof, rigid metal conduit from the submersible pump relay box to the TLS-350.



**NOTE:** The junction box in the manhole must be within 12 inches of the siphon break valve location.

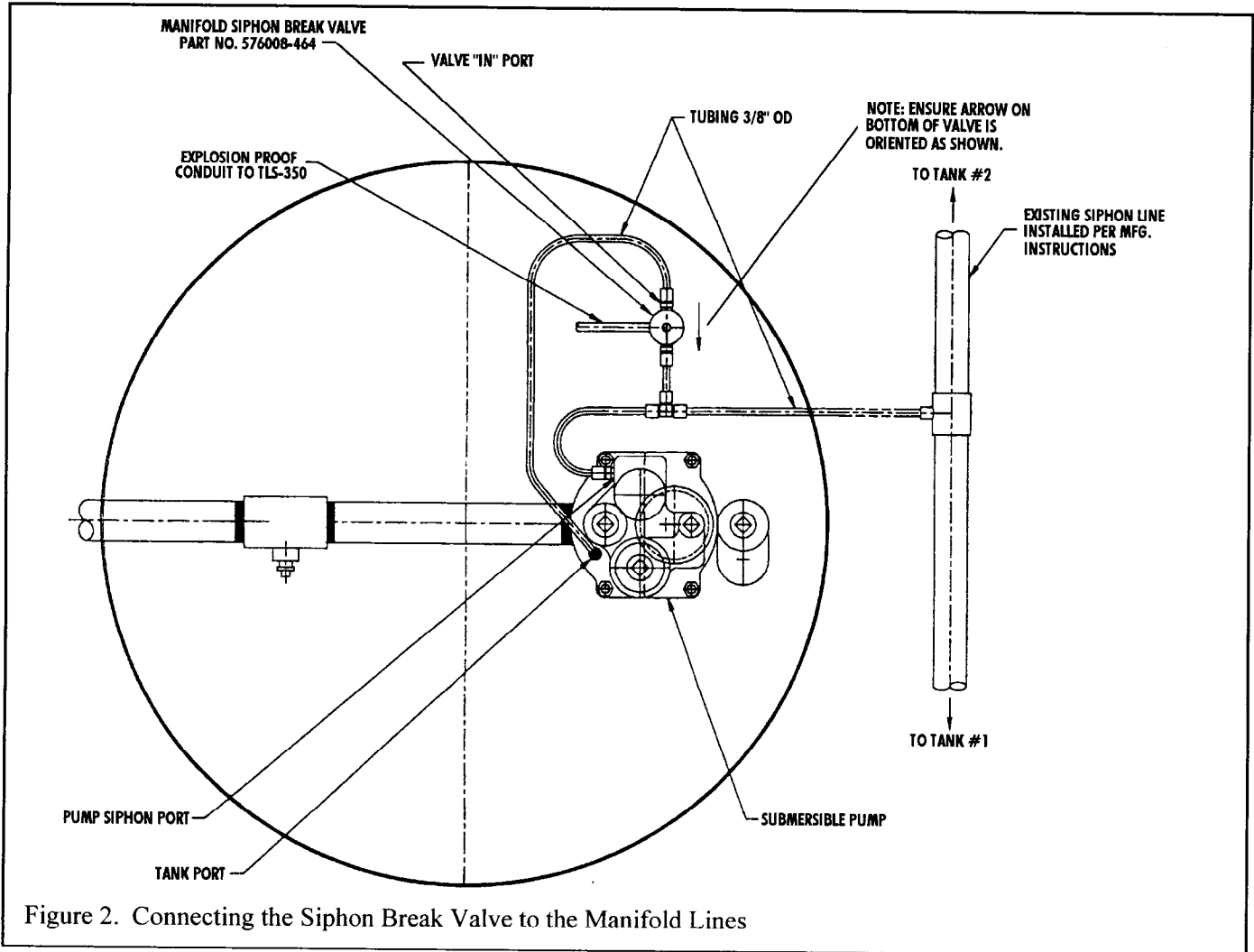


Figure 2. Connecting the Siphon Break Valve to the Manifold Lines

2. Install an explosion-proof junction box on the manhole end of the conduit run.
3. Run explosion-proof conduit between the valve and its junction box in the manhole. The valve has two - 12" leads extending from a 1/2" threaded conduit entry.
4. Using the explosion-proof conduit, install the leads from the valve to the junction box.

**A. WIRING CONNECTIONS**

1. Pull two #18 AWG gas and oil resistant or larger color-coded or marked wires between the power area of the TLS-350 and the valve junction box.

according to the NEC (NFPA 70) and the Automotive and Marine Service Station Code (NFPA30A) since they pass from a Class I, Division I area into a nonhazardous area.

2. Connect the wires to the 4-Relay Output Module or the Two Input/Two Relay Output Interface Module, as needed (see Figure 3 or Figure 4, as applicable). The modules in the TLS-350 come with connectors in place. **Do not remove the connector from the module during wiring.** Terminal identifications appear only on the module bracket. Removing the connector from the module increases the risk of wiring errors.



**NOTE:** All wires must be designed for use in the presence of gasoline and oil and must be #18 AWG or larger. The conduit must be sealed



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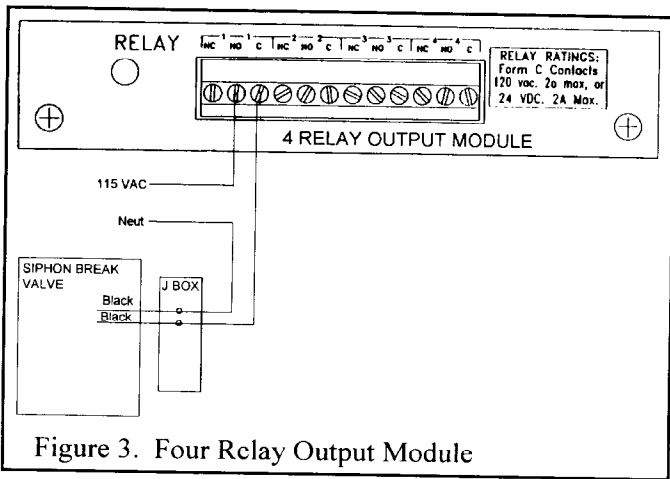


Figure 3. Four Relay Output Module

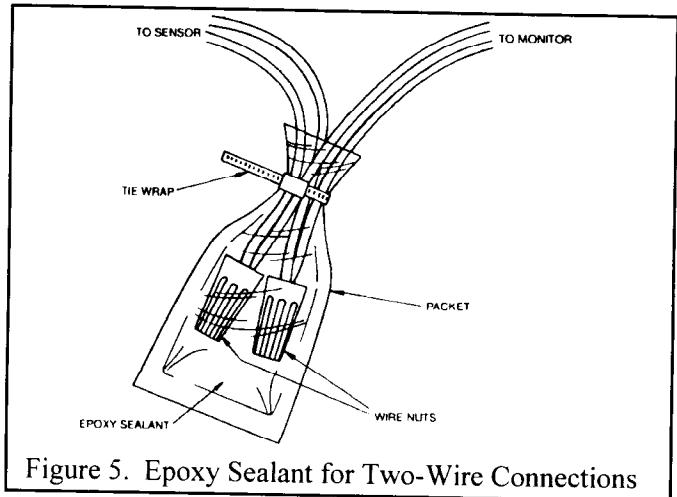


Figure 5. Epoxy Sealant for Two-Wire Connections

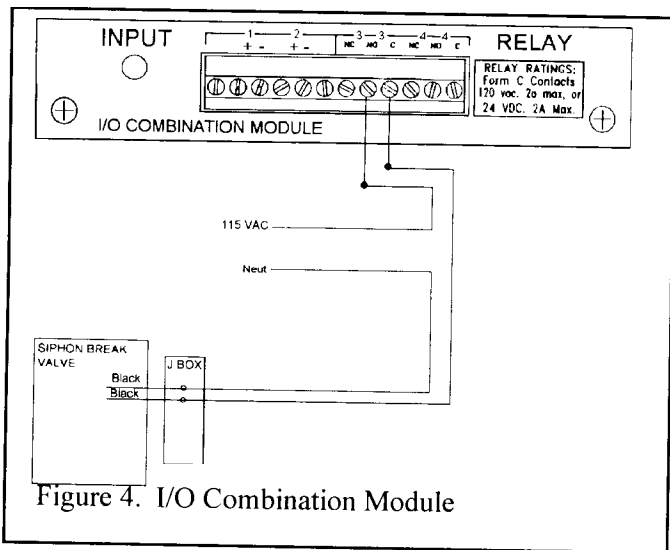



Figure 4. I/O Combination Module

- Using wire nuts, connect the wires from the valve to the field wires in the junction box.

 **NOTE:** Seal wire nut connections at this time using the epoxy sealant furnished with each Kit.

- Seal wire nuts with epoxy sealant using one bag for two wire nut connections (Figure 5).



**CAUTION:** IF MORE THAN TWO WIRE NUT CONNECTIONS SHARE AN EPOXY SEALANT BAG, THE CONNECTIONS WILL NOT BE PROPERLY SEALED. IMPROPER SEALING OF THE CONNECTIONS WILL RESULT IN POSSIBLE SYSTEM FAILURE.



**NOTE:** Using epoxy sealant furnished with each sensor, seal wire nut and cable connections at this time.



**WARNING:** EPOXY SEALANT MAY BE IRRITATING TO EYES AND SKIN. MAY CAUSE SKIN SENSITIZATION IN SUSCEPTIBLE INDIVIDUALS. MAY BE ABSORBED THROUGH THE SKIN. EPOXY SEALANT CONTAINS EPOXY RESIN AND VINYL CYCLOHEXENE DIOXIDE. VINYL CYCLOHEXENE DIOXIDE HAS CAUSED SKIN CANCER IN ANIMAL TESTS.

**PRECAUTIONS:** AVOID EYE AND SKIN CONTACT. WEAR IMPERVIOUS GLOVES AND SAFETY GLASSES. USE ONLY IN WELL VENTILATED AREAS.



## B. SYSTEM CHECKOUTS

1. Install vacuum gauge to the "IN" port on the valve.
2. Energize the valve using the TLS-350 output relay. (Refer to the *TLS-350 System Operating Instructions*, Part No. 576013-610, for instructions on testing Output Relays).



**NOTE:** You must program the TLS-350 correctly for the siphon valve to operate during this test. Refer to the *TLS-350 System Setup Manual*, part number 576013-623 issued July 1993 or later for the proper setup procedures.

3. Energize the submersible pump. Verify that the vacuum level is approximately the same as initially measured. If vacuum level is less than initial reading, check fittings/piping for leaks.
4. De-energize the valve and remove the vacuum gauge, connecting piping as shown in Figure 2. You can reestablish the siphon by running the submersible pump for ten minutes.

## SECTION 6. WARRANTY CONDITIONS AND LIMITATIONS OF LIABILITY

### A. LIMITATIONS OF LIABILITY

We warrant that this product will be free from defects in materials and workmanship for a period of one (1) year from the date of installation or fifteen (15) months from the date of invoice, whichever occurs first. During the warranty period, we or our representative will repair or replace the product, if determined by us to be defective, at the location where the product is in use and at no charge to the purchaser.

We shall not be responsible for any expenses incurred by the user.

This warranty applies only when the product is installed in accordance with Veeder-Root's specifications, and a Warranty Registration and Checkout Form has been filed with Veeder-Root by an authorized Veeder-Root Distributor. This warranty will not apply to any product which has been subjected to misuse, negligence or accident; or misapplied; or used in violation of product manuals, instructions or warnings; or modified or repaired by unauthorized persons; or improperly installed.

## B. INSPECTION

You shall inspect the product promptly after receipt and shall notify us at our Simsbury office in writing of any claims, including claims of breach of warranty, within thirty days after you discover or should have discovered the facts upon which the claim is based. Your failure to give written notice of a claim within the time period shall be deemed to be a waiver of such claim.

## C. LIMITATION OF REMEDY AND WARRANTY

The provisions of Paragraph A are our sole obligation and exclude all other remedies or warranties, express or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, whether or not purposes or specifications are described herein. We further disclaim any responsibility whatsoever to you or to any other person for injury to person or damage to or loss of property or value caused by any product which has been subjected to misuse, negligence, or accident; or misapplied; or used in violation of product manuals, instructions or warnings; or modified or repaired by unauthorized persons; or improperly installed.

## D. LIMITATION OF DAMAGES

Under no circumstances shall we be liable for any incidental, consequential or specific damages, losses or expenses arising from this contract or its performance or in connection with the use of, or inability to use, our product for any purpose whatsoever.

## E. LIMITATION OF ACTIONS

No action regardless of form arising out of this contract may be commenced more than one year after the cause of action has accrued, except an action for nonpayment.

## F. COLLATERAL PROMISES

There are no representations, warranties, or conditions, express or implied, statutory or otherwise except those herein contained, and no agreement or waivers collateral hereto shall be binding on either party unless in writing and signed by you and accepted by us at our Simsbury office.

## G. INTERPRETATION

Rights and liabilities arising out of any contract with us shall be determined under the Uniform Commercial Code as enacted in Connecticut.

**VEEDER-ROOT**   
Environmental Products

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