



# VIPOR System

## Installation and Operation Manual

***Vault Integrated Pump and Oil Redundancy System***  
Manufacturer's Recommended Installation and Operation Process for  
Underground Vaults and Substation Containment Sumps



Manufactured by: **C.I.Agent Solutions®**, LLC  
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Familiarize yourself and your crew with the installation methods described in this manual. Deviation from the methods described in this manual may void product warranty and insurance policy. If you have any questions on the installation methods described in this manual, contact your sales representative or the manufacturer before you start to install.

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# BEFORE YOU START...

## PRODUCT STORAGE

The C.I.Agent® VIPOR should be stored in a covered area prior to use. Keep the product in its shipping container. Store at ambient temperatures.



The C.I.Agent® EVAC Filtration System

## SITE PREPARATION

**Step 1:** Evacuate all water in the sump area where the VIPOR is to be installed. The C.I.Agent® EVAC Filtration System can be used to manually pump the filter discharge prior to installation.

**Step 2:** Clear all debris and sediments in the sump or low areas of the vault.

# TOOLS AND SUPPLIES...

## THE VIPOR IS AN INTEGRATED SYSTEM INCLUDING:



VSF Sediment Filter Ring



Pre-filter



Filter Strainer



C.I.Agent Agent-Q Filter



Submersible Pump



SCADA High-Level Alarm



Sediment Filter Sock (for substation sumps water inlet)



C.I.Agent Quick Deployment Boom lining inside of Filter Strainer and outer bottom of Pre-filter (not shown)

# TOOLS AND SUPPLIES...cont.

## THE VIPOR IS AN INTEGRATED SYSTEM INCLUDING...cont.:

- 1 - Pre-filter
- 1 - C.I.Agent Agent-Q Filter
- 1 - Filter Strainer
- 1 - Submersible Pump (1/2 HP 115VAC with 25 ft. cord)
- 1 - Level Control (submersible)
- 1 - VIPOR Test Tool
- 1 - SCADA High Level Alarm
- 2 inch PVC Snorkel wire port with 2 inch rubber No-Hub
- 1½ inch PVC union

## TOOLS YOU WILL NEED:

- Hammer Drill
- ½ inch Masonry bit
- ¼ inch Masonry bit
- Hack saw

## MATERIALS YOU WILL NEED:

- Aluminum Drive Anchors
- Metal Strap
- 2 Redhead Concrete Anchors ½ inch x 1 inch
- 2 Stainless Steel Eyebolts 5/16 inch
- 2 Pieces of aluminum or stainless wire
- 2 Stainless Steel Turnbuckles
- 4 Stainless Steel wire clamps
- 1 Piece of Cable (aluminum or stainless steel)
- Or other means of securing VIPOR in place

# INSTALLATION...The VIPOR

The C.I.Agent® VIPOR (Vault Integrated Pump and Oil Redundancy) System comes with the patented C.I.Agent® Agent-Q Filter Core (US Patent 8,986,822) that provides complete shutoff in the event of a significant hydrocarbon release, thus keeping any hydrocarbons from ever reaching the pump. The main core filter comes with a Velcro® attached Pre-Filter that filters sediments and nuisance hydrocarbons keeping the main filter in a good flowing condition.

The VIPOR comes integrated with a ½ HP Pump that is fully submersible and capable of 100 percent duty cycle. The VIPOR discharges through a 1½ inch Female National Pipe Thread (NPT) connection from the top through a PVC union. The VIPOR also comes with UL listed, integrated 115 VAC heavy duty cord/plug coming from the top of the VIPOR, passing through a 2-inch PVC snorkel.



1. Evacuate all water in the sump area where the VIPOR is to be installed. The C.I.Agent® EVAC Filter can be used to manually pump and filter discharge.
2. Identify location for VIPOR and clear all debris and sediments in the sump or low area of the vault. Identify discharge piping and/or hose.

## INSTALLATION — *The VIPOR...cont.*

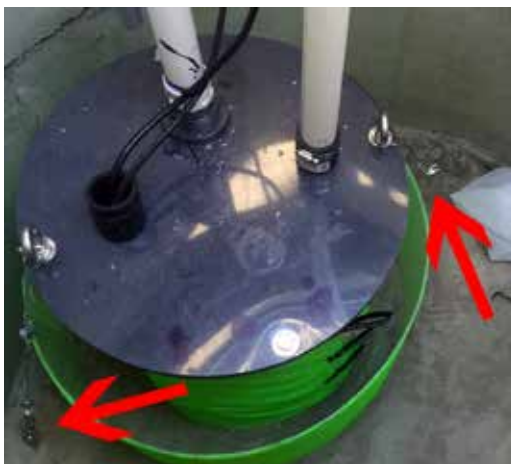


3. Lower the VIPOR assembly into the vault. Only lift the VIPOR assembly using the top O-Ring and Plug.
4. Place the VIPOR inside of the VSF Sediment Ring. Once in position, unthread and remove the plug.
5. Attach 1½ inch PVC union on the pump discharge. Plumb discharge out accordingly.
6. Attach the discharge 1 ½ inch PVC pipe to the top of the pump. Tighten until very snug.
7. The VIPOR needs to be secured to the floor of the vault. This can be done in several ways with the end result of keeping the VIPOR Filter and Pump in place so it does not move or tip over.

The most common method:

- a. Drill two (2) holes in the vault floor to mount redheads evenly across the VIPOR six (6) inches away from the base.
- b. Place securing eyes on the two (2) red-heads for securing cable.
- c. Cut a piece of cable long enough to go from one redhead eye on one side of the VIPOR over the top of the VIPOR to another red-head eye on the other side.
- d. Thread and secure the cable eye. Loop the cable over the middle of the VIPOR and back down the opposite side to eye. Use a stainless steel turnbuckle to tighten the cable.

*NOTE: Can also be secured as shown in picture to left.*





## INSTALLATION — The VIPOR...cont.



8. Feed the power cord through the 2 inch PVC snorkel port. Secure the snorkel to the top of the pump with a 2 inch rubber NoHub. Tighten until very snug. (*Note: This also serves as the vent tube.*)
9. Install the power cord into a suitable tested electrical receptacle.
10. Attach the high-level SCADA alarm at the highest point on the vent tube above the pump. Tighten hose clamp until very snug.
11. For substation containment vaults, attach the sediment sock to the containment outflow. Secure with a hose clamp.



Completed VIPOR System installation for substation containment

## ***OPERATION of the VIPOR***

Under normal conditions, should water enter the vault, the water will filter through the VIPOR Pre-Filter, through the VIPOR Main Filter core, and into the pump area. When enough water enters the pump area inside of the Main Filter Core, the level controls will automatically activate the pump. The pump will discharge all the water within the pump area at a rate of approximately 30 GPM.

### **NOTE:**

*Should minor amounts of hydrocarbons or sediment be present, they will be filtered at the Pre-Filter stage. The VSF Sediment Filter, Sediment Sock and Pre-Filters will need to be maintained from time to time to keep flow moving through the system.*

*Should a major hydrocarbon release occur, the C.I.Agent® polymer inside the VIPOR*

*Main Filter will SOLIDIFY the hydrocarbons before they reach the pump. This solidified wall will not allow water into the pump and the vault will continue to fill, activating the high-level SCADA alarm.*

*The hydrocarbon release will need to be cleaned up. C.I.Agent® Oil Solidifier Granules are an excellent choice to remove the hydrocarbon from the water.\* The VIPOR Pre-Filters and Main Filter will need to be replaced. For both C.I.Agent® Agent-Q and VIPOR filters, contact your C.I.Agent® Solutions representative at 502-267-0101.*

*\*In substations, all of the contaminated stone in the containment field must be removed and the liner must be de-contaminated prior to installing the new VIPOR Filter or System.*

## ***MAINTENANCE of the VIPOR***



If over time the water level in the vault or sump gradually rises, sediment has begun to impact the Pre-Filter. Evacuate the vault manually using the EVAC Filtration System, and pull apart the Velcro® releasing the Pre-Filter. The Pre-Filters could be backwashed and reapplied depending on the sediment it contains. Once backwashed, the Pre-Filter can be reapplied for several more months of maintenance free operation. If the Pre-Filters are spent, it will need to be replaced. Contact your C.I.Agent® Solutions representative at 502-267-0101.

*NOTE: The manufacturer recommends manual inspections of installed VIPOR Systems once every six months.*

# WARRANTY

C.I.Agent Solutions® warrants to the purchaser of its products, that the C.I.Agent® Oil Containment and/or Hydrocarbon/Water Filtration System for which the customer received this warranty, was designed, developed, and/or fabricated using all due reasonable commercial care and good manufacturing practices. C.I.Agent Oil Containment and/or Hydrocarbon/Water Filtration System shall be free from defects in material and workmanship.

C.I.Agent Solutions further warrants the performance of their C.I.Agent Oil Containment and/or Hydrocarbon/Water Filtration System to prevent the release of hydrocarbons due solely to the failure of the materials and workmanship of the product. The performance warranted herein is contingent upon the installation of the C.I.Agent Oil Containment and/or Hydrocarbon/Water Filtration System being performed under the direct supervision of a C.I.Agent Solutions Factory Representative and/or a C.I.Agent Solutions Factory Certified Contractor. Said performance warranted herein is further contingent upon each C.I.Agent Oil Containment and/or Hydrocarbon/Water Filtration System being installed in strict accordance with the C.I.Agent Solutions' or C.I.Agent Storm•Water Solutions' Installation Manual, supported by a step-by-step photographic documentation of the installation to be sent to C.I.Agent Solutions upon completion of the installation.

Upon receipt and review of the photographic installation documentation, C.I.Agent Solutions will issue to the Customer a Certificate for Pollution Insurance for coverage of up to \$7,000,000 to address the cost of clean up solely related to the performance of the C.I.Agent Oil Containment and/or Hydrocarbon/Water Filtration System as warranted herein.

C.I.Agent Solutions' sole obligation under this warranty is to repair or replace the product as warranted herein, at C.I.Agent Solutions' option. Repair or replacement shall not apply to products that have been expended, damaged, or consumed during the capture or filtration of hydrocarbons/waters from sources they were designed to contain and/or filter. C.I.Agent Solutions must be notified in writing of any claim under this warranty within 30 days of any claimed lack of conformity of the Product.

**Warranty Limitations** — In no event shall C.I.Agent Solutions be liable for any loss, inconvenience or damage, whether direct, incidental, consequential or otherwise, resulting from breach of any expressed or implied warranty or condition, of fitness for a particular purpose or otherwise with respect to this product, except as set forth herein. This warranty is not to confer any additional legal, jurisdiction or warranty rights to the customer other than those set forth herein.

**Warranty Exclusions** — It is the customer's responsibility to regularly examine the Product to determine if damage has occurred during the normal operation and/or maintenance of equipment at the site of the C.I.Agent Oil Containment and/or Hydrocarbon/Water Filtration System installation to determine the need for repair or replacement. This warranty does not cover the following:

Products that have been modified, neglected, misused, abused, or damaged by natural disasters.

Damage to the Product resulting from improper use or occurrence during the normal operation and maintenance of equipment at or near the Product.



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