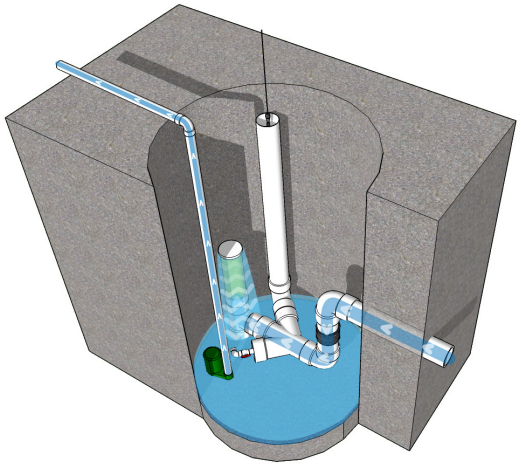
Versatile and Proven Solutions for Secondary Containment Compliance

INSTALLATION GUIDE FOR VIPOR-SOWF SYSTEM

Operation and Maintenance

OPERATION

The VIPOR – SOWF (Vault Integrated Pump and Oil Redundancy – Sump Oil Water Filtration) system is an automatic oil filtration system that evacuates water from secondary containment vaults and sumps. The VIPOR – SOWF polishes and captures sheen as it evacuates water with complete shutoff capabilities in the event of an oil discharge.



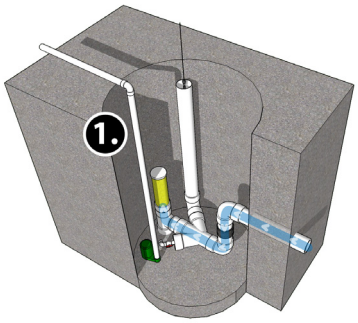
Under normal conditions when water drains into the VIPOR – SOWF system, the 6-inch pre-filter (25 micron) captures small sediment. Next, water enters the 6- x 24-inch HFF (Hydrocarbon Flow Filter) where hydrocarbons and most volatile organic compounds will be removed from the water to a non-detectable level while meeting federal SPCC mandates. Should a major hydrocarbon release occur, the VIPOR – SOWF stops the flow. Water rises in the standpipe and activates the float switch that sends a signal to alarm for system attention.

BILL OF MATERIALS

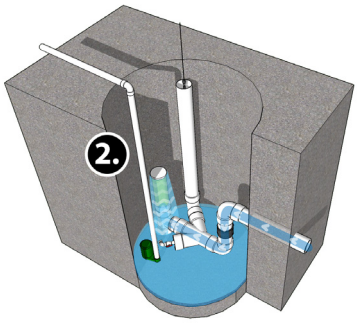
- VIPOR – SOWF – 6-inch PVC (polyvinyl chloride) assembly (C.I.Agent)
- 6- x 24-inch HFF (Hydrocarbon Flow Filter) (C.I.Agent)
- Zoeller® M98 dewatering submersible pump (C.I.Agent)
- Float switch (C.I.Agent)
- 2-inch PVC pipe with 1½-in NPT PVC threaded adapter
- 10-ft length of 2-inch flexible hose (C.I.Agent)
- 2-inch PVC fittings – 45- & 90-degree elbows (may vary by location) (Contractor)
- 2-inch no-hub coupling (Contractor)
- Stainless steel band clamps
- PVC primer and cement (C.I.Agent)
- PTFE thread-sealing tape (C.I.Agent)

INSTALLATION GUIDE

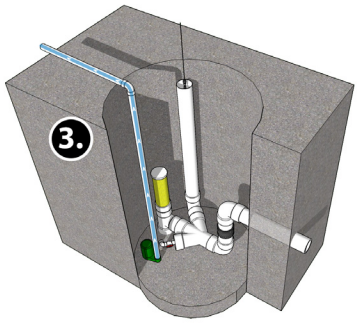
The VIPOR-SOWF system requires site-specific installation adjustments or modifications. Sites vary in design such as the position of the water inlet in the sump sidewall, the depth of the containment sump, etc.



Water enters sump



Water flows through filter



Pump evacuates filtered water from sump

TOOLS REQUIRED

- Reciprocating saw
- Drill
- Drill bit 3⁄16-inch
- Screw driver
- Nut driver

STEP BY STEP INSTALLATION PROCESS

1. Pump all standing water from the containment area and floor sump through a C.I.Agent EVAC filter bag to capture sheen.
2. Clean the floor sump until it is free of dirt, mud, scum, debris and trash. The immediate area where the pump is to be placed must be thoroughly cleaned to avoid clogging the pump intake and causing pump failure.
3. Assemble and install the VIPOR – SOWF assembly on the floor of the sump using the PVC primer and cement. *(**Tip:** Dry fit each component mark with a permanent marker to get proper alignment before cementing.)*
    a. Determine if a (6-inch) SW/PVC adapter is required to make connection to the intake pipe from the containment. Attach adapter if required.
    b. Position the double wye assembly so the 2-inch ball valve is on the side closest to the ladder.

c. Attach a 90-degree elbow to the double wye on the branch away from the ladder. The top of the stand pipe should be at the same height as ground level. The stand pipe with the float switch needs to be located away from the ladder.

d. Attach the tee to the double wye's center branch with the cap side down.

e. Attach the 6-inch to 4-inch cleanout to the top of the tee.

f. Attach a 90-degree elbow to the inlet brand of the double wye closest to the water inlet.

g. The final connection to the sump inlet will require a 90-degree elbow and a 6-inch no-hub rubber union. A short length of 6-inch pipe may be required to make the connection between the two elbows.

h. Once all components have been assembled, apply PTFE tape to the threads of the HFF filter and thread it into the cleanout at the top of the tee.

i. Install the float switch in the top of the stand pipe.

4. Cut a length of 2-inch PVC pipes (2- to 3-feet).
   a. Using the PVC primer and cement, attach the (1½- to 2-inch) male adaptor to pipe.
   b. Apply PTFE tape the threads of the adaptor and thread into the pump.
   c. Drill a 3⁄16-inch hole in the pipe slightly above the top of the pump as directed by the pump manufacturer. *(**Tip:** apply PTFE tape to all threaded PVC caps and plugs*)

5. Attach the float assembly to the pipe so that the bottom of the float is slightly above the base of the pump body.
   a. Adjust the float stop on the stem by sliding it up until it is about an inch below the top of the stem.
   b. Attach a 2-inch rubber no-hub coupling to the top of the pipe.

6. Position the pump on sump floor nearest to the water outlet.

7. Measure and cut length of 2-inch PVC pipe to go from the rubber no-hub coupling to the drain outlet on the sidewall of the sump, or through the lid of the sump to be plumbed onto the substation yard. Two-inch fittings, 45- and 90-degree elbows may be needed to plumb the water outlet pipe. Note: flexible tubing may be used in lieu of PVC pipe.

MAINTENANCE

Perform maintenance on the VIPOR – SOWF on a monthly basis and/or after a significant rain event.

Note: The frequency of maintenance varies by job site, depending on how much dirt exists in the containment that can clog the pre-filter. Some sites require less frequent maintenance, and some after every rain event. The customer should check after the first few rain events. The amount of sediment caught in the pre-filter should give an indication of maintenance frequency.

1. Maintenance consists of visual inspection—by removing or lifting sump lid—to determine if the sump has been pumped.
2. In the event of a high-level alarm:
    a. Check to see if there is standing water in the sump. If so, that could indicate there is a problem with the pump
    b. If there is no water in the sump, the HFF or pre-filter has clogged. To clean the pre-filter, open the 2-inch ball valve and allow the water to drain to the pit so that the pump can remove the water. Remove the HFF filter and inspect the pre-filter for debris. Remove all dirt and re-assemble.