



## ECO Pump - Installation and Operation Manual

**ECO Pump** (Environment Containment Output) is an environmentally friendly automatic way to ensure underground vaults with chronic water intrusion issues only discharge clean water.

### SCOPE

The ECO pump is an integrated system including:

- 1 - PRE-FILTER (1 or 50 micron)
- 1 - MAIN FILTER CORE (C.I. Agent inside)
- 1 - SUBMERSIBLE PUMP (1HP 115VAC with 25' cord)
- 1 – LEVEL CONTROLS (Submersible)
- 1 – CHECK VALVE (1.25" FNPT)

### INSTALLATION

The ECO Pump comes with the main C.I. Agent Filter Core that provides complete shutoff in the event of a significant hydrocarbon release, thus keeping any hydrocarbons from ever touching 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 ECO Pump comes with a 1HP Pump that is fully submersible and capable of 100% duty cycle integrated with a newly designed and patented fully submersible level control switch tested to millions of cycles. The ECO Pump discharges through a 1.25" Female National Pipe Thread (NPT) connection from the top through a check valve to prevent backflow. The ECO Pump also comes with UL listed, integrated 115 VAC heavy duty chord/plug coming from the top of the ECO Pump.

## Installation Procedures:

1. Evacuate all water in the sump area where ECO Pump is to be installed. C.I. Agent EVAC Filter can be used to manually pump and filter discharge
2. Clear at least a 12" diameter footprint of all debris and sediments in the sump or area of the vault
3. Place the pump ONLY (not the Main Filter Core) in the center of the cleared area. Ensure the pump is sitting level (no sediment/irregular cement or other anomalies in the pump seating area)
4. Place the Main Filter Core over the pump taking care to ensure:
  - a) The Level control float is free to move up and down.
  - b) The power cord is pulled through the top outside opening.
  - c) The pump discharge bulk head fitting has a gasket in good condition firmly in place.
  - d) The pump discharge bulk head fitting is placed through the center hole in the Main Filter Core.
  - e) The bottom seal for the Main Filter Core is flush with sump/vault floor.
5. Place the Cord Seal on the cord near the point it exits the Main Filter Core. Slide the Cord Seal down the cord until the Cord Seal seats on the opening of the Main Filter Core (ensuring the cord slack is pulled from the inside of the Main Filter Core). Using a 7/16" wrench tighten the hex nut on top of the Cord Seal until snug (DO NOT OVERTIGHTEN). Tug slightly on the Cord Seal and cord to ensure the seals are tight and installed properly so they do not leak.
6. Place the Bulk Head fitting nut on the pump discharge and tighten until very snug against the Main Filter Core top.
7. Place the check valve assembly on the pump discharge. Tighten until very snug.
8. Now the ECO Pump needs to be secured in place to the floor of the vault. This can be done in several ways, just as long as the goal is met, securing the ECO Pump Filter and Pump in place so it does not move or tip over. The most common method:
  - a. Drill (4) holes in the vault floor to mount redheads evenly around the ECO Pump base 6" - 10" away from the base.
  - b. Place securing eye's on the (4) redheads for securing cable.
  - c. Cut (2) pieces of cable long enough go from one redhead eye on one side of the ECO Pump over the top of the ECO Pump to another redhead eye on the other side of the ECO Pump.
  - d. Thread and secure the cable on eye (1), loop the cable over the middle of the ECO Pump and back down the opposite side to eye (2). Repeat this procedure from eye (3) to eye (4).

9. Install your discharge piping/hose to the top of the check valve assembly and tighten until sealed.
10. Install the power cord into a suitable tested electrical receptacle.
11. The system should be checked to ensure it is sealed and functioning properly.

## **Operation:**

Under normal conditions, should water enter the vault, the water will filter through the ECO Pump pre-filter, through the ECO Pump Main Filter Core and into the pump area. When enough water enters the pump area inside of the Main Filter Core (approximately 18" deep from the bottom of the ECO Pump) the level controls will automatically activate the pump and the pump will discharge all the water within the pump area (at the approximate rate of 15-30 GPM).

## **NOTES:**

The above water discharge should be observed to ensure discharged vault water does not create a hazard.

Should minor amounts of hydrocarbons or sediment be present, they will be filtered at the Pre-Filter. The Pre-Filter 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 of the ECO Pump main filter WILL SOLIDIFY and no hydrocarbons will make it to the pump. Further no water will make it to the pump and the vault will continue to fill.

The spill will need to be cleaned. C.I. Agent Oil Solidifier granules would be an excellent choice and the ECO Pump Pre-Filter and Main Filter will need to be replaced.

## **PERIODIC MAINTENANCE:**

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 Filter, and pull apart the Velcro releasing the Pre-Filter. The Pre-Filter could be backwashed, and reapplied. The Pre-filter can also be replaced with a new one. Now the sediment blockage should be clear and several more months of maintenance free operation should ensue, with the knowledge that oil and sediment will not be pumped to the environment.