



## Manhole/Vault dewatering filtration

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[www.PFILTERS.com](http://www.PFILTERS.com)

# The necessity of dewatering

- Crew Safety entering manhole/vault (OSHA)
- Protection of equipment
- Ability to work in a cleaner environment

Early 1920s



2022



# What's in the water?

## Oils

- Surface run-off
- Equipment Leaks

## Sediments

- Surface run-off
- Tidal flows

## Metals

- Vault equipment
- Run-off



# Effects of unfiltered water on environment

- **Turbidity from Sediments**: Decreased Aquatic life
- **Oils**: can be toxic to humans, plants & animals and can seep into ground water
- **Metals**: can be toxic to humans, animals and plant life



# Hierarchy of Rules for Dewatering

## Clean Water Act:

Prohibits discharging  
“nuisance” into  
navigable waters.



## State/Local:

Tasked with defining  
“nuisance” and  
enforcing limits.



## Utility:

Must meet discharge  
requirements to avoid  
penalties.

# BMP's over the years



## Generic/Single Layer Dewatering Bags & Socks



- Generally 150-400+ micron rating
  - Not fine enough particulate removal to consistently remove target TSS contaminants from water to meet discharge requirements.
- Little oil retention.
- Risky connections to hoses
  - susceptible to blow-off/unfiltered backflow.

# Industry transition to the Pure<sup>®</sup> Filter Sock

- Need for an encompassing solution that:
  - Simultaneously removes Oils & suspended solids, on-site in order to meet discharge requirements.
  - Achieves a workable flow rate with 2" & 3" pumps.
  - Reduces vacuum truck reliance.
  - Easy to implement as a standard tool.
  - Made in the USA





# What is the Pure<sup>®</sup> Filter Sock technology?

- A proprietary multi-stage high efficiency filtration system that can remove:
  - Oil Sheen to non-detect
  - Suspended solids down to 1 micron.
- The Pure<sup>®</sup> Filter Sock range of filters includes proprietary and patented filtration technologies including the Next-Gen PP<sup>™</sup> engineered filtration fabrics all made in the USA.
  - These proprietary technical fabrics are the result of 3 years of R&D with tier 1 research university engineering faculty.



## Surface Filtration



Particles form a layer on top of the filter.

## Depth Filtration



Particles are removed throughout the entire filter depth.



Size and scale are approximate.



# Third Party Testing

## Test 1 : Sil-Co-Sil 106

TSS EPA Testing method 106.2

TSS of 2274 Mg/L unfiltered  
(with 260MG/L used oil)

Sample Time (minutes)	% Removal
1	99.84
2	98.36
4	99.60
8	99.45
15	98.73
32	98.10

## Test 2 : Cinder Clay

TSS EPA Testing method 106.2

TSS of 1900 Mg/L unfiltered  
(with 300MG/L used oil)

Sample Time (minutes)	% Removal
1	100.00
2	100.00
3	100.00
4	100.00
5	100.00
6	100.00
7	100.00
8	100.00
9	100.00
10	100.00

## Test 3 : Top Soil/Sand/Foundry

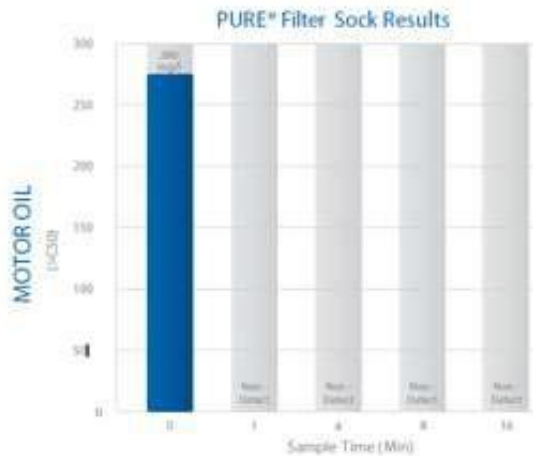
TSS EPA Testing method 106.2

TSS of 2700 Mg/L unfiltered  
(with 260MG/L used oil)

Sample Time (minutes)	% Removal
5	99.99
10	99.99
15	99.99
30	99.99
45	99.99
60	99.99

TRI Environmental.

The tests confirm that our filter removes solids down to 1 micron with an average of 99% efficiency.





## Pure<sup>®</sup> Filter Sock

- No crew downtime waiting for Vac Truck
- Smallest work zone/lane closure
- Workable in tight areas (cars/alleys)
- Can combine with manifold at large sites
- If water is clean, filter life not expended
- ~85% reduction in operational costs compared to Vac Truck.

VS.

## Vac Truck

- Hourly & Per Gallon Treated Rate
- Good for spills
- Can take hours for arrival
- Traffic dependent
- Increased lane closures/emissions

# Small Change. Big Result.

- Pumping 500 gallons might not seem like much, but over time the collective amount is significant.

- 1000 pumping events of 500 gallons each is equivalent to the cumulative volume of an Olympic sized swimming pool of discharged water.

*One pint of oil can produce a slick of approximately one acre of water and contaminate two million gallons of water.*

*One quart of oil that ends up down a storm drain can contaminate one million gallons of water.* -EPA



# Filtration Customization

Pure<sup>®</sup> Filter Socks can be customized to help remove:

- Target contaminants
- Very large volumes of water

What dewatering issues are you facing?



Thank you for listening!



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