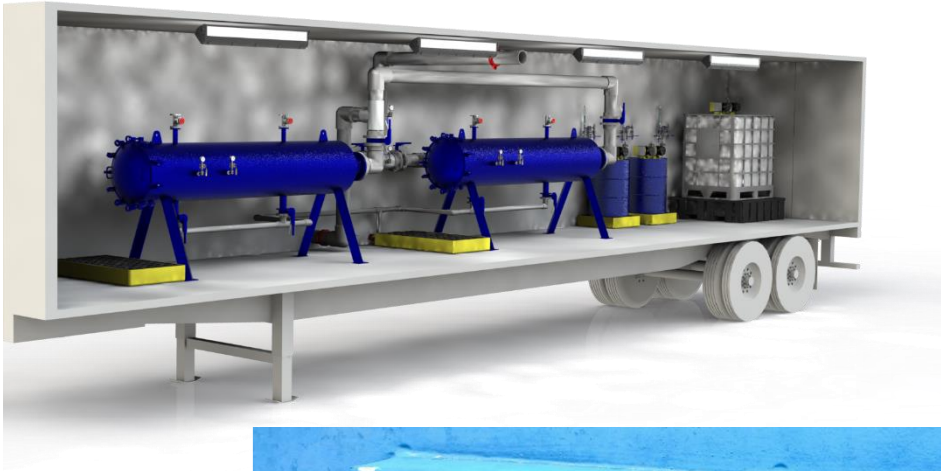


Bag Filter System

AQUEN USA offers a bag-filter system to remove particles and colloidal matter from the feed water. The high capacity bag filter housings can contain bags of various materials, lengths, and particulate-removal capabilities. Oil removal bags are also available. The filters can be operated in parallel or as individual housings.

The filter housings are enclosed in a 1997 48' refrigeration trailer. The trailer has been modified to include a 36" man door, utility outlets, lights, electric heat and a transformer to convert 480V 3ph to 208V 1ph.



- Up To 800gpm each vessel @ 190 psi between -20C up to 100C
- 7ea Bag Filters in Each Vessel
- Bags Available in a Variety of Micron Rating, Length (up to 80") and Materials
- 6" 150# Inlet/Outlet Flanges, 2ea Vent Ports, 2ea Pressure Measurement Ports
- Utilized in a variety of pond remediation, source water and flowback applications

CPS Filtration Inc.

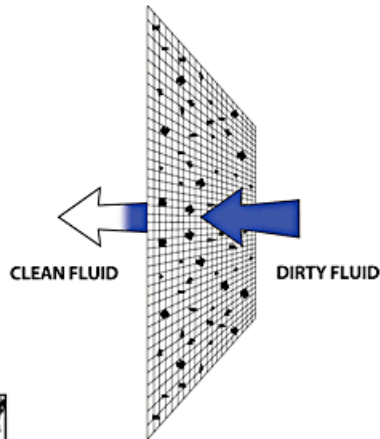
Clear Process Solutions

Quality Products For Demanding Environments

Standard Mesh Liquid Filter Bags

Monofilament & Multifilament

- Micron ratings from 1 to 1500
- All industry standard and custom sizes available
- High flow/low pressure drop media
- Surface-retention filtration
- Wide chemical compatibility
- Sewn construction
- Handles standard on all bags
- Choice of steel ring or molded plastic flanges
- Economical removal of non-deformable contaminants
- Non-fiber releasing
- Good removal efficiencies
- Temperature ratings to 350°F
- Polyester and nylon materials meet FDA regulations for contact under CFR21, section 177.1520
- Silicone-free construction



Mesh Bag Materials



Multifilament Mesh media is woven from threads made of smaller fibers. Bags made from this material are low cost and disposable.



Monofilament Mesh is woven from single-fiber threads. The openings are square and uniform. Bags made from this material have excellent strength.

Mesh Bag Styles

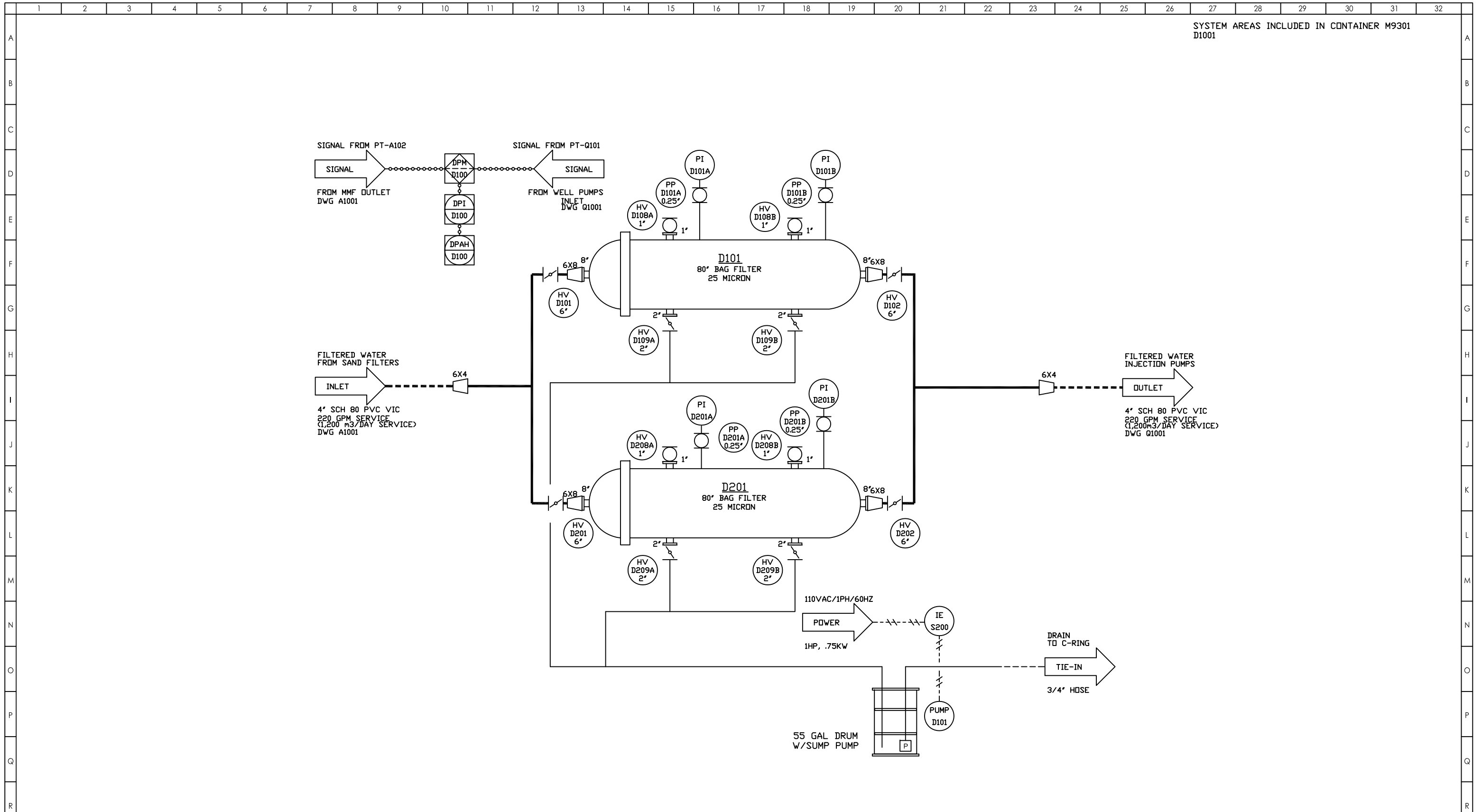
Steel-ring bags have a galvanized steel ring (stainless steel optional) sewn into the top of the bag. They are supplied with sewn seams standard.


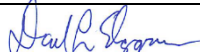
Plastic flange bags have a specially-designed flange sewn to the top of the bag. They are supplied with sewn seams standard (welded collars available upon request).

Mesh Materials	Micro Ratings																			
	1	5	10	25	35	45	50	75	100	125	150	175	200	250	300	400	600	800	1000	1500
NMO = Nylon Monofilament	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
POMO = Polypropylene Monofilament									•	•	•	•	•	•	•	•	•	•		
NMU = Nylon Multifilament									•	•	•	•	•	•	•	•	•	•		•
PEMU = Polyester Multifilament									•	•	•	•	•	•	•	•	•	•		•

Ordering Information

Media Type	Micron Rating	Bag Dimensions			Ring / Flange Styles	Options
		Size	Diam.	Length		
NMO = Nylon Monofilament	See Chart	P1 = 7.06"	16.5"		S = Galvanized steel	H = Handle (Standard on all ring style bags)
POMO = Polypropylene Monofilament	See Chart	P2 = 7.06"	32.0"		SS = Stainless steel	EB = Edge binding
NMU = Nylon Multifilament	See Chart	P3 = 4.12"	8.0"		PP = Polypropylene ring	A = Auto seams
PEMU = Polyester Multifilament	See Chart	P4 = 4.12"	14.0"		T = Titanium	TTA = Turn, top stitch, auto seam
		P5 = 4.12"	24.0"		P = AJR-P Flange	RC = Reverse collar
		P7 = 5.50"	15.0"		F = AJR-F Flange	
		P8 = 5.50"	21.0"		OSS = AJR-OSS	
		P9 = 5.50"	31.0"		DS = Draw string	
		P11 = 8.50"	16.0"		NR = No ring	
		P12 = 8.50"	30.0"			
		C1 = 7.31"	16.5"			
		C2 = 7.31"	32.5"			
		RP-1 = 8.0"	30.0"			
		RP-2 = 8.0"	40.0"			
		PC-1 = 9.0"	20.0"			
		PC-2 = 9.0"	30.0"			
		X1 = 4.35"	8.0"			
		X2 = 4.35"	14.0"			
		XO1 = 6.0"	22.0"			

[illegible]

	<h1 style="margin: 0;">Fossil Water</h1> <h2 style="margin: 0;">Bag Filter Change Out Procedure</h2>	
Procedure No.:	Date: July 23, 2016	
Signature: 		

This procedure applies to all personnel, offices and activity related to the _____ Project. Any exceptions to this procedure must be approved, in writing, by the Operations Manager and Safety Manager.

1.0 PURPOSE

To establish the minimum requirements for personnel assigned to Fossil Water projects performing bag filter change out procedures.

2.0 SCOPE

The two Bag Filter housing system can be operated in parallel or individually. When in individual operation there is one filter housing in service and one clean housing in standby. In parallel operation, both housings are in production. In both cases, when the differential pressure in the operating housing rises above 20 psi (dp) the bag filter housing should be isolated and the bags replaced. This procedure describes both operations and how to take the housing out of service, manually replace the bags and bring the housing back into service.

3.0 PROCEDURE

3.1 General Requirements

3.1.1 Personnel Protective Equipment


In addition to PPE requirements established in the PPE Analysis - Personal Protective Equipment, may require some or all of the following:

- Standard PPE, plus
- Gloves, leather or nitrile.

3.2 If One Bag Filter Housing is in Operation

3.2.1 Bringing Clean Standby Housing into Service

- Close GREEN drain valves on the clean bag filter housing
- Open YELLOW inlet valve partially until water flows
- Allow vessel to purge air with BLUE vent valves open enough to vent housing
- Close BLUE vent valves once water escapes through vent valves
- Open YELLOW inlet valve completely
- Slowly open WHITE outlet valve until fully open

	<h1 style="margin: 0;">Fossil Water</h1> <h2 style="margin: 0;">Bag Filter Change Out Procedure</h2>	
Procedure No.:	Date: July 23, 2016	
Signature: <i>Paul R. Beggs</i>		


3.2.2 Changing Dirty Filters in Isolated Housing

- Slowly close YELLOW inlet valve to isolate the bag filter housing for which you want to change the filters
- Slowly close WHITE outlet valve
- Open each GREEN drain valves and set in the 4th notch on valve handle [Monitor drainage at discharge and adjust flow (green drain valves) to prevent overflow of receptacle under the trailer with sump pump.]
- Open red handles on BLUE vent valves enough to allow air to enter housing
- Confirm housing is drained by checking there is no flow into the drain barrel
- Open housing by loosening each latch with a pry bar and flipping the latches back to clear the door opening.
- Remove dirty bags and stack on spill pan under vessel head.
- Gently install clean bags using the PVC plunger being careful not to tear the bags
- Verify bag's plastic ring is seated in hole by pressing the plastic ring into position with the palm of your hand.
- Verify housing O-Ring is in place
- Close up housing by tightening latches with pry bar
- Let individual spent bag filter casings drain on containment pallet and then discard per the sites disposal requirements.

3.3 If Two Bag Filter Housings are in Operation

3.3.1 Changing Dirty Filters in Isolated Housing

- Slowly close YELLOW inlet valve to isolate the bag filter housing for which you want to change the filters
- Slowly close WHITE outlet valve
- Open each GREEN drain valves and set in the 4th notch on valve handle [Monitor drainage at discharge and adjust flow (green drain valves) to prevent overflow of receptacle under the trailer with sump pump.]
- Open red handles on BLUE vent valves enough to allow air to enter housing
- Confirm housing is drained by checking there is no flow into the drain barrel
- Open housing by loosening each latch with a pry bar and flipping the latches back to clear the door opening.
- Remove dirty bags and stack on spill pan under vessel head.

	<h1 style="margin: 0;">Fossil Water</h1> <h2 style="margin: 0;">Bag Filter Change Out Procedure</h2>	
	Procedure No.:	Date: July 23, 2016
	Signature: <i>Paul R. Sogun</i>	

- Gently install clean bags using the PVC plunger being careful not to tear the bags
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- Verify housing O-Ring is in place
- Close up housing by tightening latches with pry bar
- Let individual spent bag filter casings drain on containment pallet and then discard per the sites disposal requirements.

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- Close GREEN drain valves
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- Open YELLOW inlet valve completely
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4.0 REFERENCES

Personal Protective Equipment Analysis
Risk Hazard Analysis