<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Current Contact Information</th>
<th>Model or Product Designation</th>
<th>Clarifier Type</th>
<th>Pathogen log_{10} Removal Credit</th>
<th>Clarifier / Filter Loading Rate (gpm/ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BWS, Inc. Municipal Water Group (formerly American Water Technology, Inc.)</td>
<td>Chris Beebe <a href="mailto:chris@bwsmunicipal.net">chris@bwsmunicipal.net</a> (530) 722-4555</td>
<td>MB/WF series A</td>
<td>Pressurized Downflow garnet and coarse media</td>
<td>Virus 2 1B, Giardia 2.5/2B, Cryptosporidium 2</td>
<td>5 / 3 C</td>
</tr>
<tr>
<td>WesTech (formerly Culligan and Siemens)</td>
<td><a href="http://www.westech-inc.com">www.westech-inc.com</a> (801) 265-1000</td>
<td>Multi-Tech</td>
<td>Pressurized Downflow</td>
<td>Virus 2 1B, Giardia 2.5/2B, Cryptosporidium 2</td>
<td>3 / 3 C</td>
</tr>
<tr>
<td>AWC Water Solutions (formerly Pacific Keystone and Corix)</td>
<td>Michael Morris <a href="mailto:mikem@awcwater.com">mikem@awcwater.com</a> <a href="http://www.awcwater.com">www.awcwater.com</a></td>
<td>AC Clarifier</td>
<td>Upflow-nonbuoyant coarse sand</td>
<td>Virus 2 1B, Giardia 2.5/2B, Cryptosporidium 2</td>
<td>10 / 5 D</td>
</tr>
<tr>
<td>Pata Engineering</td>
<td>No information available on the company</td>
<td>PV-10, PV-20</td>
<td>Downflow</td>
<td>Virus 2 1B, Giardia 2.5/2B, Cryptosporidium 2</td>
<td>3-6 / 3 D</td>
</tr>
<tr>
<td>Infilco Degremont</td>
<td>No information available on the company</td>
<td>PV-24</td>
<td>Upflow-nonbuoyant media</td>
<td>Virus 2 1B, Giardia 2.5/2B, Cryptosporidium 2</td>
<td>5-10 / 6 D</td>
</tr>
<tr>
<td>WesTech (formerly Siemens Microfloc)</td>
<td><a href="http://www.westech-inc.com">www.westech-inc.com</a> (801) 265-1000</td>
<td>Trident; Tri-Mite</td>
<td>Upflow-buoyant media</td>
<td>Virus 2 1B, Giardia 2.5/2B, Cryptosporidium 2</td>
<td>10 / 5 D</td>
</tr>
<tr>
<td>Roberts Filter Co.</td>
<td><a href="http://www.robertsfilter.com">www.robertsfilter.com</a> (610) 583-3131</td>
<td>Pacer II</td>
<td>Upflow-nonbuoyant media</td>
<td>Virus 2 1B, Giardia 2.5/2B, Cryptosporidium 2</td>
<td>10 / 5 D</td>
</tr>
<tr>
<td>Serck Baker</td>
<td>No information available on the company</td>
<td>Hi-Rate Pressure Filtration</td>
<td>Inline, High rate</td>
<td>Virus 1, Giardia 2</td>
<td>Up to 9 NTU E_1, 12 gpm/ft²</td>
</tr>
<tr>
<td>EPD Wearnes (USA) Inc</td>
<td>(866) 299-5929 <a href="http://www.epdusa.net">www.epdusa.net</a></td>
<td>EPD Alternative Filtration</td>
<td>Inline, High rate, dual stage</td>
<td>Virus 1, Giardia 2</td>
<td>Up to 6 NTU E_1, 12 gpm/ft²; Up to 20 NTU E_1, 5 gpm/ft²</td>
</tr>
</tbody>
</table>
## California Surface Water Treatment Rule
### Alternative Filtration Technology Summary – CCF/Pressure Filters/Bag and Cartridge Filters

**SWRCB-DDW Water Treatment Committee – June 2018**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Current Contact Information</th>
<th>Model or Product Designation</th>
<th>Pathogen log₁₀ Removal Credit</th>
<th>Turbidity Performance</th>
<th>Filter Loading Rate (gpm/bag)</th>
<th>Maximum Pressure Differential (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bag Filters</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Strainrite | Gregg Fischer  
Strainrite Companies  
Aqua-Rite DW Products  
(208) 336-6611  
(208) 867-6384 (cell)  
gffilter@aol.com  
www.strainrite.com  
Mark MacKenzie  
Western Regional Sales Manager  
The Strainrite Companies  
Cell (562) 755-6477 | Prefilter: HPM99-CC-2-SR  
Final Filter: HPM99-CCX-2SR; both in an AQ2-2 housing  
Or (old housing version no longer available for purchase)  
In a AQ2-2BSHD (350740) housing equipped with the AQC-1 compression device | 0  
2.5  
2 | 0.3 NTU 95% of the time  
Not to exceed 1.0 NTU≤ | 20  
25 |
| | | Prefilter: GD-PO-523-2  
Final Filter: GLR-PO-825-2  
(Prefilter no longer approved for use) | 0  
2  
1 | 0.3 NTU 95% of the time  
Not to exceed 1.0 NTU≤ | 10  
(w/ pref)  
3  
(w/out pref) |
| | | PS-520 PP-241  
GLR-PO-825-2  
(Both filters must be used in series) | 0  
2  
2 | 0.3 NTU 95% of the time  
Not to exceed 1.0 NTU≤ | 13  
(must be operated with both filters in series) |
| | | | | | | |
| **Cartridge Filters** | | | | | | |
| Harmsco | Alfredo Rizo-Patron  
arizopatron@harmsco.com  
Cyndi Benson  
Product & Process Development Engineer  
Harmsco Filtration Products  
561-848-9628  
cbenson@harmsco.com | MUNI 40-MP  
Cartridge - HC40-LT2 | 0  
2.5F  
2F | 0.3 NTU 95% of the time  
Not to exceed 1.0 NTU≤ | 30  
(1 filter) |
| | | MUNI 90-MP  
Cartridge – HC/90-LT2 | 0  
2.5F  
2F | 0.3 NTU 95% of the time  
Not to exceed 1.0 NTU≤ | 60  
(1 filter) |
| | | MUNI-1-2FL-304  
Cartridge – HC/170-LT2 | 0  
2.5F  
2F | 0.3 NTU 95% of the time  
Not to exceed 1.0 NTU≤ | 100  
(1 filter) |
| | | MUNI-3-3FL-304  
Cartridge – HC/170-LT2 | 0  
2.5F  
2F | 0.3 NTU 95% of the time  
Not to exceed 1.0 NTU≤ | 300  
(3 filters) |
California Surface Water Treatment Rule
Alternative Filtration Technology Summary – CCF/Pressure Filters/Bag and Cartridge Filters
SWRCB-DDW Water Treatment Committee – June 2018

<table>
<thead>
<tr>
<th><a href="http://www.harmsco.com">www.harmsco.com</a></th>
<th>MUNI-5-4FL-304 Cartridge – HC/170-LT2</th>
<th>0</th>
<th>2.5</th>
<th>2</th>
<th>500 (5 filters)</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gregg Fisher <a href="mailto:gffilter@aol.com">gffilter@aol.com</a> 208-336-6611</td>
<td>MUNI-8-6FL-304 Cartridge – HC/170-LT2</td>
<td>0</td>
<td>2.5</td>
<td>2</td>
<td>800 (8 filters)</td>
<td>30</td>
</tr>
</tbody>
</table>

BWS, Inc. Municipal Water Group (formerly American Water Technology) offers multiple system sizes under the MB/WF treatment series. All systems held to the same maximum clarifier and filter loading rates are expected to have equivalent performance.

DDW generally considers CCF systems as equivalent to direct filtration (2.0-log giardia, 2.0-log cryptosporidium, and 1.0-log virus removal credits) when they are operated to meet the following performance requirements:

- 0.3 NTU in at least 95% of measurements per month of combined filtered effluent samples
- Maximum turbidity not to exceed 1.0 NTU

In order for a CCF system to be granted with equivalent conventional treatment credit (2.5-log giardia, 2.0-log cryptosporidium, and 2.0-log virus removal credits), the individual filter effluent or combined filter effluent must be monitored on a continuous basis (no grab sampling option) and the filter performance will be based on the evaluation of data that is collected at 15-minute intervals.

Conventional Treatment Credit AFT listing can be granted to any CCF system with solids reduction ahead of a filter that meets standard filter media design criteria and meets the 0.15 NTU 95% of the time criteria during a one year demonstration period. Following successful demonstration, the performance requirement for the combined filtered effluent will be:

- 0.2 NTU, 95% of time, 15-minute measurements
- Maximum turbidity not to exceed 1.0 NTU

Multi-media pressure filter – maximum filter loading rate of 3.0 gpm/ft² allowed under the SWTR.

Multi-media gravity filter – maximum filter loading rate of 6.0 gpm/ft² allowed under the SWTR.

Source water maximum turbidity.

Removal credit is based on a single LT2 cartridge operation and additional 0.5 removal credit (Giardia and Crypto) is based on LT2 cartridges installed in series. Regardless of removal credit, each plant is required to provide a minimum of 0.5-log Giardia and 4-log virus inactivation.

Bag/Cartridge filters will be permitted with an initial turbidity standard of 0.3 NTU. Following one year of operation, an Alternative Filtration Technology One Year Report will be submitted to the DDW District office for review. Following the review, a final permitted turbidity standard will be set based on the local source water quality. The turbidity standard will be set between 0.2 NTU to 1.0 NTU. All existing permitted bag/cartridge filter systems’ turbidity standard may remain as currently permitted.
Disclaimer: This summary of accepted alternative filtration technologies has been extracted from the Division’s Alternative Filtration Technology Report (June 2001 Draft) and individual acceptance letters. It is not intended to be used as a standalone document for persons planning, designing, or operating a water treatment plant. The summary does not contain all exceptions or qualifications for the individual filtration technologies. Please consult the Division’s Alternative Filtration Technology report and the individual acceptance letters for additional details and recommendations.

Copies of the acceptance letters issued by the Division for the alternative filtration technology may be obtained from the Division’s District offices. The Alternative Filtration Technology Report may be downloaded from the Division’s website at:

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Publications.shtml

Review and approval of an alternative filtration technology listed in this summary for use on a particular public water system source will be handled on a case-by-case basis via the permit process by the DDW District offices.