TURBIDEX FILTER

MEDIUM !!! NEW POSITIVE REFERENCES

Report Bypass-Filter based on TURBIDEX Filter material

Location: Paper-Factory Germany
Application: Treatment 25 m³/h Surface Water to Boiler Feed Water
Process-Chain: Surface Water - Iron-based flocculation - Ultrafiltration - Activated Carbon Filtration - Softening - ReverseOsmosis in serial/parallel operation - BoilerFeed water
Problem: Turbidity Riverwater bleeks existing Ultrafiltration
Solution of problem:
Operation-Mode 1: Inline - Pretreatment of Ultrafiltration (UF) with TURBIDEX-Filter
Operation-Mode 2: bypassing UF for availability of clear water during backwash-UF
Operation-Mode 3: bypassing TURBIDEX-Filter during own backwash

Result:
Installation of Filter was done in October 2014
TURBIDEX-Filter is in Operation
No blocking of UF since the operation of the new TURBIDEX-Filter

Filter drawings as built:
Turbidex is natural zeolite mineral of volcanic origin, used for water filtration, flocculation enhancement, heavy metal removal, oily waste absorption, solidification/stabilization.

Benefits of Turbidex:

- **With filtration efficiency in the 3 to 5 micron range**, Turbidex enhanced performance results in downstream cost savings for chemicals, filter cartridges, membrane cleaning, membrane life, etc.
- **With nominal service flow rates up to 15gpm/ft²** in pressure filters, Turbidex allows significant savings in initial equipment costs when compared to traditional media. Turbidex allows for **peak flow rates up to 20gpm/ft²**.
- Traditional sediment filtration media rely on mechanical straining to remove suspended solids for turbidity reduction. Turbidex filtration medium incorporates **straining as well as ion exchange, sedimentation and flocculation** to produce crystal clear water.
- Due to very high surface area, the loading capacity of Turbidex medium is up to **1.5 times greater than multi-media and up to 2.8 times greater than sand filters**. This results in longer run times with less frequent backwashing, resulting in significant water savings.
- **Weighing 50-70% less than traditional media**, using Turbidex will result in substantial freight savings.
- A single medium versus multiple media simplifies ordering, shipping and warehousing. Loading one media allows for a quick and easy installation.
- **Very resistant to chemicals** (chlorine, acid, etc).

<table>
<thead>
<tr>
<th></th>
<th>Flow rate m/h Pressure filters</th>
<th>Flow rate m/h Gravity filters</th>
<th>Filtration efficiency</th>
<th>Loading factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>19-29</td>
<td>5-7</td>
<td>25-30 micron</td>
<td>X</td>
</tr>
<tr>
<td>Multi-media</td>
<td>29-37</td>
<td></td>
<td>12-15 micron</td>
<td>1.5X</td>
</tr>
<tr>
<td>Turbidex</td>
<td>37-49</td>
<td>10-12</td>
<td>3-5 micron</td>
<td>2.8X</td>
</tr>
</tbody>
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