**Overview**

The Brazos Regional Public Utility Agency (BRPUA) Surface Water Treatment System consists of lime softening contact clarifiers as pretreatment to ultrafiltration and reverse osmosis membranes. To improve plant performance, WesTech worked with BRPUA to develop a comprehensive and efficient retrofit strategy to expand the UF system capacity to 10 MGD using a PVDF outside-in membrane module. This project also accounted for future expansion of up to 15 MGD through use of a sustainable higher flux rate and improved recovery.

WesTech has designed a system that will achieve the goals of increased flow rate and reduced chemical cleaning within the constraints of a retrofit and upgrade. In addition to increasing capacity, WesTech has used value engineering to reuse major components and reduce cost, including the supply of a comprehensive controls package system to update the UF system.

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**Project Summary**

**BRPUA Surface Water Treatment System**

**Location:**
Granbury, Texas, USA

**Application:**
Potable Water

**Process:**
Lime Softening Contact Clarifiers
  - Ultrafiltration
  - Reverse Osmosis

**Size:**
7,000 gpm/10 MGD

**Design Flux:**
60.2 gfd

**Highlights**

- Lime softening process and polymer dosing compatibility
- Flow rate expansion of 10 MGD with future capacity up to 15 MGD
- Membrane technology upgrade: PVDF, outside-in, 0.01 µm
- Performance improvements: recovery, flux, chemical cleaning
- Retrofit execution: <1 week system downtime during transition

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**RESULTS**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Overall Capacity Increase Within Existing Footprint</td>
<td>87.5%</td>
</tr>
<tr>
<td>UF System Recovery</td>
<td>97.3%</td>
</tr>
<tr>
<td>Average Filtrate Turbidity</td>
<td>0.016 NTU</td>
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</tbody>
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