Changsha Kaifu WWTP – Wastewater Treatment, China
Wastewater | Case Study

Hunan Xinyuan Water Co., Ltd.

Xinyuan Water Co., Ltd, Hunan – is a subsidiary of Xinyuan Group. The company is focused on investment and operation of the water services. As Municipal BOT project, Changsha Kaifu WWTP was invested and currently operated by Xinyuan Water company.

The Client’s Needs

Located at Jinxi Development Area in Kaifu District, Changsha city, Kaifu WWTP serves 620,000 citizen. In 2014, the client starts the plant upgrading project in order to meet the China National Sewage Discharge Standard Class IA.

Key Figures

- Client: Hunan Xinyuan Water Co., Ltd.
- Contract date: 2016
- Year of delivery: 2017
- Capacity: 300,000 m³/d
- Selected process: Multiflo™, Biostyr®, Actiflo® Turbo

The Solution

Veolia proposed Biostyr® PDN for secondary treatment and Actiflo® Turbo for tertiary treatment in the upgrading line with 200,000 m³/d.

For the new extension line with 100,000 m³/d, Veolia provided the combination of Multiflo™ for the primary treatment, Biostyr® Pre-DN and Biostyr®-N for the secondary treatment as well as Actiflo® Turbo for the tertiary treatment.

Conclusion

To minimize the OPEX of the plant, Biostyr® Pre-DN was applied so as to reduce the consumption of external carbon source.

Kaifu WWTP project is the first project to apply Biostyr® Pre-DN process in China and also advanced Multiflo™ design. The correct process selection and the excellent operation lead to the better-than-expected results.
**Process Description**

The process designed by Veolia for 2 treatment lines:

- Upgrading the existing line: Biostyr® PDN filter + Actiflo® settler
- New extension line: Primary Multiflo™ settler + Biostyr® Pre-DN + N+ Actiflo® Turbo settler

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### Parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>COD</th>
<th>TSS</th>
<th>NH4-N</th>
<th>TN</th>
<th>TP</th>
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<tbody>
<tr>
<td>Required Effluent Standard 1A</td>
<td>&lt;50 mg/l</td>
<td>&lt;10 mg/l</td>
<td>&lt;5 mg/l</td>
<td>&lt;15 mg/l</td>
<td>&lt;0.5 mg/l</td>
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<tr>
<td>Final Effluent Quality</td>
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<td>&lt;10 mg/l</td>
<td>&lt;1.5 mg/l</td>
<td>&lt;15 mg/l</td>
<td>&lt;0.5 mg/l</td>
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</tbody>
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