

## Sedimentation Basins at the Zai Water Treatment Plant

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**Figure 1: Mixing Basins at Zai Water Treatment Plant**

After the coagulant is added, the water flows through three successive mixing basins (shown at left), where each basin has a decreasing mixing speed and an increasing floc size. After the third basin, the flow enters the sedimentation basin (shown below). Water in the sedimentation basin has a hydraulic residence time of 30 minutes. During that time, a 4% concentration of sludge is vacuumed out of the bottom of each basin and sent to recovery ponds, where the sludge is separated from the water and the water is sent back through the treatment process.

After water leaves the sedimentation basin, it flows to the filtration basin.

An alternative design can be found at the Wadi Al-Arab Water Treatment Plant, which doesn't use a sedimentation basin but instead uses the filtration basins to remove flocs from the flow.

Another alternative design was found at the new sedimentation basin at the Zai plant, where water flowed out of the top of the basin to the sand filters, rather than flowing out the bottom in the older basins.



**Figure 2: Sedimentation Basins at Zai Water Treatment Plant**