



FILTRATION

Drinking Water Filtration Case Study Middle East

HydroFLOW® maintained low filtered-water turbidity through seasonal changes while substantially reducing the need for alum flocculant.



Low Turbidity All Year



Winter Alum Use



Low Outlet Turbidity



Summer Alum Use



BEFORE & AFTER

BEFORE

- Fine particles challenged sand filtration
- Alum was required for flocculation
- Spring inlet turbidity reached 10–12 NTU

AFTER

- ✓ Filtered-water turbidity remained low
- ✓ No alum was used during winter
- ✓ Very little alum was needed during summer



OVERVIEW

The drinking water treatment facility serves local communities in the Middle East, treating river water through an initial 50-micron filter, eight rapid sand filters and disinfection. Fine suspended particles can be difficult to capture through sand filtration alone, while seasonal changes in incoming water quality create additional filtration challenges.



CHALLENGE

The plant needed to maintain low finished-water turbidity while reducing its reliance on alum flocculant.

- Fine particles were difficult to capture by filtration alone
- Spring inlet turbidity reached 10–12 NTU
- Alum in backwash water created an environmental concern



SOLUTION

HydroFLOW® unit was installed downstream of the initial 50-micron filter, approximately 6 m before the first sand filter. A static mixer downstream supported flocculation.

UNIT INSTALLED

1 × HydroFLOW® Custom 8"

INSTALLATION POINT

~6 m before first sand filter

FILTRATION SYSTEM

8 rapid sand filters

WATER SOURCE

River Water



INSTALLATION

Custom 8" unit before sand filters



RESULTS

Low Turbidity Maintained

Filtered-water turbidity remained consistently low despite seasonal inlet changes.

0 Winter Alum

The filtration system operated throughout winter without alum addition.

10–12 NTU Peaks Managed

During spring peaks, alum was used only briefly at 2 ppm.

Summer Alum Use

With inlet turbidity around 1–2 NTU, very little alum was required.



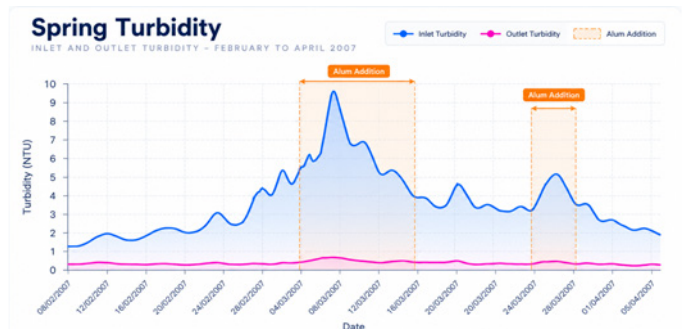
GRAPHS

Winter Turbidity Performance



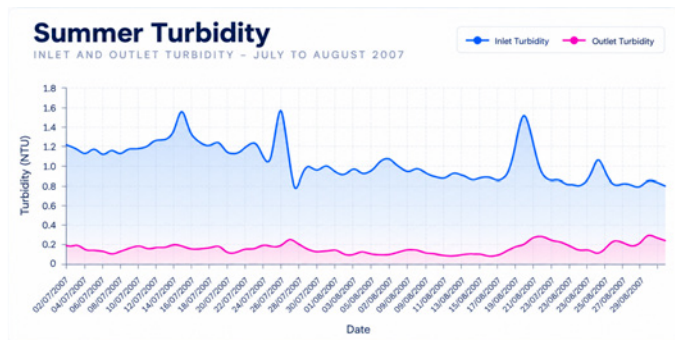
Outlet turbidity remained consistently low throughout winter despite fluctuations in incoming water, with no alum required.

Spring Turbidity During Peak Conditions



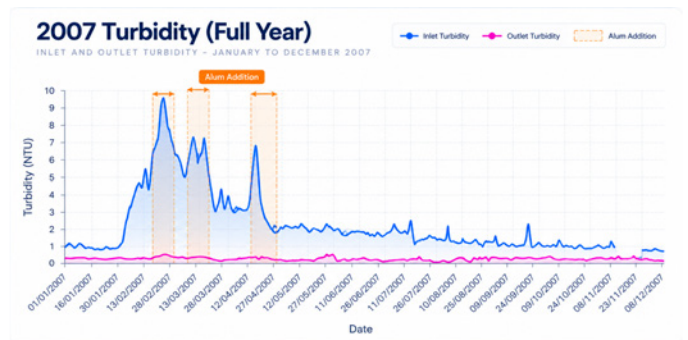
Outlet turbidity remained low during major spring inlet peaks, with brief alum additions used during the highest-turbidity periods.

Summer Turbidity Performance



Outlet turbidity remained consistently low through summer while inlet turbidity varied, with very little alum required.

Full-Year Turbidity Performance



Outlet turbidity remained consistently low despite substantial seasonal variation in incoming water and limited alum use.

KEY TAKEAWAY

Summary

HydroFLOW® maintained low filtered-water turbidity despite major seasonal changes in incoming river water. Alum use fell to zero in winter and remained very low in summer, with only brief 2 ppm additions during spring peaks.



LOW TURBIDITY ALL YEAR

0

WINTER ALUM USE



SUMMER ALUM USE

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