



Introducing a breakthrough in physical/chemical treatment...

OPCTTM Process

Optimized Physical/Chemical Treatment

OPCT™ uses selected elements
of **existing** technology...

- 💧 Chemical Addition
- 💧 Flash Mixing
- 💧 Flocculation
- 💧 Sludge Dewatering
- 💧 Sludge Disposal

...in combination with WaterSmart's
unique, *cutting-edge* technology

for results thought **impossible** until now!

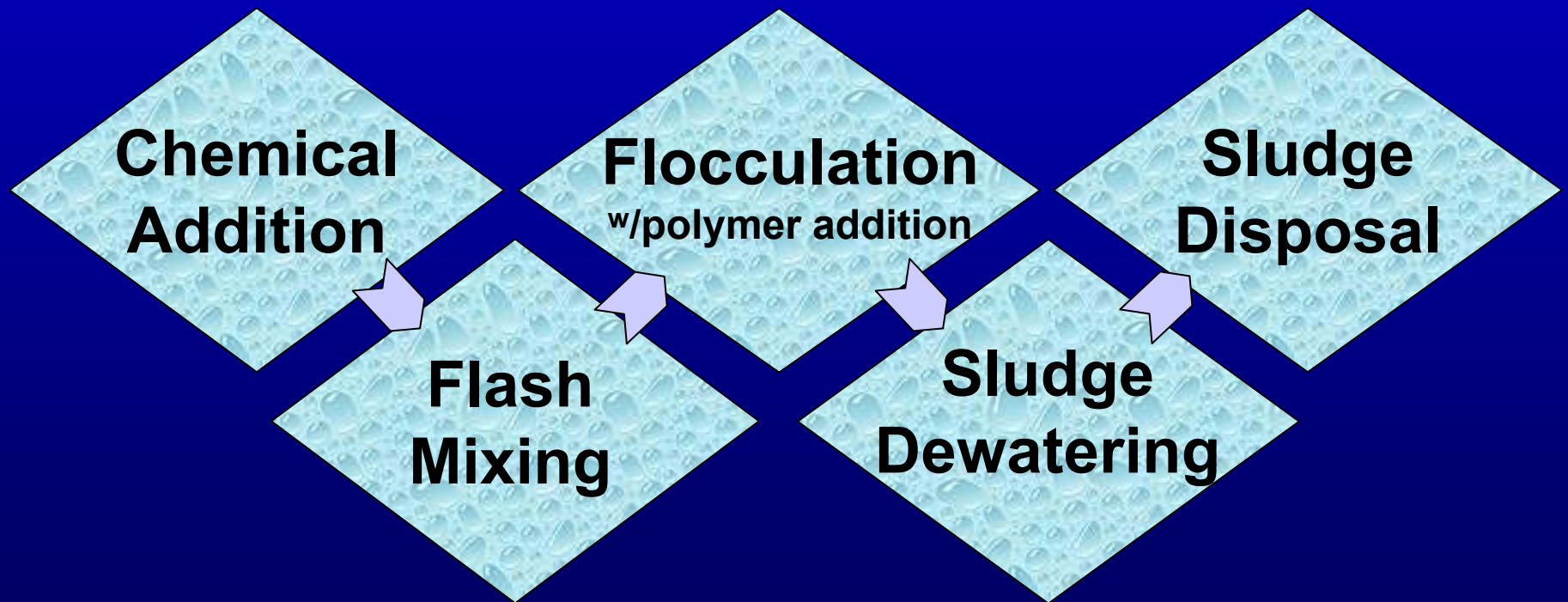
Individual Steps in Existing Physical/Chemical Treatment Technology

1. Chemical addition--alum or iron salts are typical
2. Flash Mixing--rapid mixing for 1-3 minutes.
3. Flocculation (with or without polymer addition)--gentle mixing for 20-30 minutes.
4. Clarification--particle separation for 2-4 *hours*.
5. Filtration at 1-5 GPM per square foot, typical.

And the auxiliary requirements of:

- Sludge Thickening
- Sludge Dewatering
- Filter Backwashing

The OPCT™ Process



OPCT™ *eliminates*

- 💧 Clarification
- 💧 Filter Backwashing
- 💧 Media Filtration
- 💧 Sludge Thickening
- 💧 Filter Backwash Water Management

Simplifying the process saves **time.**

Approximate time per step in minutes

	Flash Mixing	Flocculation	Clarification	Filtration	Sludge Thickening	Sludge Dewatering	Sludge Disposal	Total Time
Existing Technology	1-3	20-30	120-240	4-6	20-480	200-300	Req'd	150 minimum
OPCT™ Process	1	2	0	0	0	5-10	Req'd	13 maximum

Simplifying the process saves **space**.

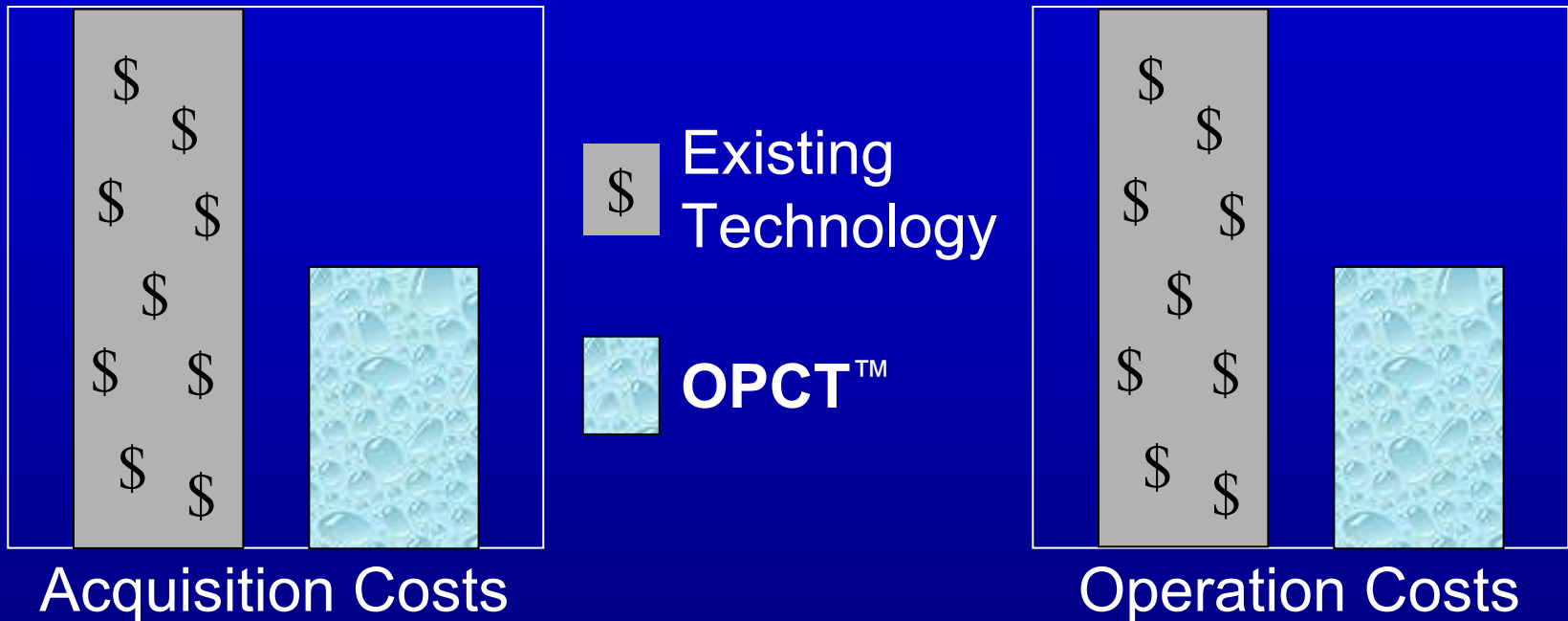


OPCT™ requires about 25% of the space required by commonplace physical/chemical treatment plants.

The accelerated OPCT™ process accomplishes much greater treatment per square foot.

Even existing physical/chemical treatment plants, including dissolved air flotation, can be easily upgraded to the OPCT™ process, thereby reducing the size of the treatment facility through the decommissioning of unnecessary equipment.

Simplifying the process saves **money**.



Less equipment translates into extremely attractive procurement and operational costs. When measured against traditional physical/chemical treatment equipment the OPCT™ process costs about half as much to purchase. The OPCT™ process can also halve plant operating costs.

OPCT™ is *flexible*

Contaminants Removed

- 💧 Alkalinity
- 💧 Dissolved Organics
- 💧 Emulsified Oils
- 💧 Hardness
- 💧 Heavy Metals
- 💧 Iron & Manganese
- 💧 Suspended Solids
- 💧 Turbidity

Applications Include

- 💧 Groundwater Treatment
- 💧 Surface Water Treatment
- 💧 Landfill Leachate
- 💧 Softening
- 💧 Stormwater Runoff
- 💧 Lagoon Decommissioning
- 💧 Toxic, Hazardous, and Radioactive Wastewaters

Routine plant operation can be batch or continuous and process control can be manual or automatic. The OPCT™ process can be ordered factory assembled or on an engineered component basis. The tremendous versatility of the OPCT™ process means it can be tailored to fit virtually all physical/chemical water treatment projects, municipal or industrial.

OPCT™ is *reliable*

- ◆ Through the elimination of unnecessary flow transfer and associated equipment, process complexity is minimized--a simpler system always translates into greater reliability.
- ◆ Less equipment means less lead time necessary to complete manufacturing. Quicker delivery helps keep plant construction schedules on time and under budget.
- ◆ Process automation substantially diminishes chemical feed costs while eliminating treatment upsets due to changes in raw water characteristics.
- ◆ Automated controls also reduce required operator skill, thus increasing plant efficiency.
- ◆ End users can be confident of total quality control, because OPCT™ process plants can be supplied skid-mounted, factory assembled, and fully tested prior to shipment.

OPCT™!

Complexity minimized,
reliability maximized!

Lower procurement & operational costs.

Process Simple

Automated controls mean minimal operator skills.

Low Cost

User Friendly

Less equipment means less lead time for manufacturing.

Accelerated treatment = higher flow rates in less space.

Quick Delivery

Plants can arrive skid-mounted, factory assembled and fully tested.

Quality Control

Minimal Space