

ABC'S OF WATER MANAGEMENT

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POTABLE VERSUS TREATED WATER SYSTEMS

Determining whether or not to implement a potable or a treated water system within a spray park requires careful consideration and analysis of the long term costs and benefits of each option – there are pros and cons to both types of systems. In some cases, the choice may be taken out of the hands of clients and be dictated by local regulations. More and more communities are requesting treated water systems be installed, particularly with larger park facilities.

The following comparison is provided to assist you in deciding between a potable or a treated water system:

Potable (Drain Away) Water Systems

Potable water systems operate from a city water line. The water is discharged through the Waterplay components and then flows to drains connected to a sanitary or storm system.

Basic Construction Requirements:

- ◆ Site preparation, plumbing, and electrical work.
- ◆ Play component installation.
- ◆ Slab construction.
- ◆ Commissioning.

Advantages:

- ◆ Ensures applicable health standards are met through use of City water supply.
- ◆ No monitoring of water quality required.
- ◆ Maintenance costs are reduced – no chemicals used and fewer components to be serviced (e.g. pumps).
- ◆ Less initial capital outlay required.
- ◆ Operational costs may be lower for a small water volume park.

Disadvantages:

- ◆ Operational costs increase with higher water usage.
- ◆ Spray park operations limited to enviro-flow nozzles.
- ◆ Water spray can be cold in more temperate environments.

Park Owner Responsibilities:

- ◆ Obtain construction permit from local health authority.
- ◆ Review design and gain official approval from a professional engineer.



Treated (Re-circulated) Water Systems

Recirculation systems utilize a collection tank, filters, pumps and chemicals to treat the water prior to re-use in the spray park. While the water circulates through the filtration and disinfection process, a second pump draws water from the collection tank for distribution within the spray park. The water is returned to the collection tank through the park drainage system.

Basic Construction Requirements:

- ◆ Site preparation, plumbing, and electrical work.
- ◆ Installation of water treatment equipment.
- ◆ Installation of holding tank.
- ◆ Play component installation.
- ◆ Slab construction.
- ◆ Commissioning.

Advantages:

- ◆ Consumes significantly less water than a potable system (approximately 60-85% less).
- ◆ Ideally suited to larger parks or areas where restricted water use policies are in place.
- ◆ Ongoing operational costs may be lower for larger parks with greater water usage.
- ◆ Larger displays of water may be used.
- ◆ Water spray is warmer.
- ◆ Environmentally responsible.

Disadvantages:

- ◆ Higher initial capital outlay for components and installation required.
- ◆ Ongoing maintenance to ensure applicable water quality health standards are met.
- ◆ Chemical storage and handling requirements must be addressed.

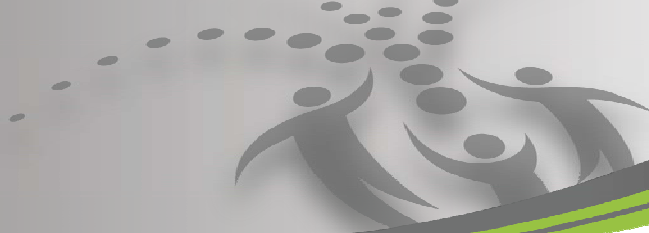
Park Owner Responsibilities:

- ◆ Obtain construction permit from local health authority.
- ◆ Review design and gain official approval from a professional engineer.
- ◆ Regular maintenance to ensure that the spray park is safe for use.
- ◆ Submission of water sample to laboratory for microbiological analysis in accordance with local health authority regulations.

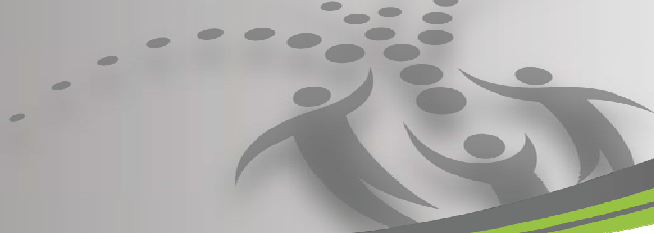
WATERPLAY WATER TREATMENT SYSTEM BENEFITS

Once the decision has been made to utilize a water treatment system, it is important to understand the differences between Waterplay's solution and other commercially available options:

ITEM	WATERPLAY	TYPICAL WTS	BENEFITS
Collection Tank			
Tank Size:	2000 gallons	1000 gallons	<ul style="list-style-type: none"> ◆ Large tank promotes increased chlorine disinfection time ◆ Optional baffle walls & circulation valves increase water circulation ◆ Baffle wall provides physical separation between untreated & filtered water ◆ Increased circulation prevents stagnant water, ensures disinfection throughout the tank
Level Control Valve:	Level control valve	Level control valve	<ul style="list-style-type: none"> ◆ Mechanical float control eliminates electrical service for the tank ◆ Little to no maintenance required ◆ Tank remains at operating level at all times
Piping:	Schedule 80 PVC standard	Schedule 40 PVC standard	<ul style="list-style-type: none"> ◆ Increased pipe wall thickness reduces risk of pipe failure due to unexpected pressure surges
Filtration System			
Filters:	Redundant Sand Filters with pressure gauge air release valve	Cartridge or single sand filter	<ul style="list-style-type: none"> ◆ Two sand filters are provided (typically) to increase filter area thereby reducing filter service rates ◆ Greater water clarity, decreased chemical consumption ◆ Longer filter runs resulting in less maintenance costs ◆ Less water consumption due to reduced filter backwash frequency ◆ Smaller pump can be employed due to reduced backwash flow rate required (reduced initial capital cost as well as ongoing operational costs)
Filtration Pump:	End suction centrifugal	End suction centrifugal	<ul style="list-style-type: none"> ◆ Totally Enclosed Fan Cooled Motors (TEFC) can be used in wet or humid conditions ◆ High efficiency motors reduce electrical consumption



ITEM	WATERPLAY	TYPICAL TWS	BENEFITS
Flow Meter:	Burkert 8045 ElectroMagnetic Flowmeter	Blue White or Paddle Meter	<ul style="list-style-type: none"> ◆ Electromagnetic flow meter provides 2% accuracy of filter service and backwash rates ◆ Clean in Place (CIP) system to reduce maintenance time ◆ Provides outputs to PLC for alarm, flow data logging, valve control ◆ Will operate in wide range of flow rates (filter service as well as backwash)
Chemical Controller:	Chemtrol PC 2000	Stantrol System 3	<ul style="list-style-type: none"> ◆ Automates chemical addition to the collection tank ◆ Eliminates incorrect chemical dosing rates ◆ Provides alarm conditions if water chemistry not within set parameters
Chemical Injection System:	Peristaltic Pumps	Peristaltic or Diaphragm Pumps	<ul style="list-style-type: none"> ◆ Peristaltic pumps provide consistent chemical addition to tanks ◆ Tubing replacement very simple, no diaphragms or springs to replace ◆ Pumps are self priming
Chemical containment tanks:	Polyethylene Storage Tanks with Secondary containment	Polyethylene Storage Tanks	<ul style="list-style-type: none"> ◆ Double containment tanks to prevent accidental spills, leaks or overfilling ◆ Secondary tank will hold 120% of primary tank volume
Piping:	Schedule 80 PVC Standard	Schedule 40 PVC	<ul style="list-style-type: none"> ◆ Increased pipe wall thickness reduces risk of pipe failure due to unexpected pressure surges
Features System			
Features Pump:	End Suction Centrifugal	End Suction Centrifugal	<ul style="list-style-type: none"> ◆ Totally Enclosed Fan Cooled Motors (TEFC) can be used in wet or humid conditions ◆ High efficiency motors reduce electrical consumption
Manifold:	Minimum 3" diameter, 304 Stainless Steel with 2" threaded inlet coupling. Bypass distribution valves and pressure gauge	Schedule 80 or 40 PVC without a pressure gauge	<ul style="list-style-type: none"> ◆ Stainless steel manifold with solenoid valves, integral pressure and flow control ◆ Pre-wired to Waterplay controller



ITEM	WATERPLAY	TYPICAL TWS	BENEFITS
Piping:	Schedule 80 PVC Piping Standard	Schedule 40 PVC	<ul style="list-style-type: none"> Increased pipe wall thickness reduces risk of pipe failure due to unexpected pressure surges
Electrical			
Treatment Controller:	Water Treatment equipment controller NEMA 4X, weatherproof, secure, and vandal resistant	Controller may or may not interface with chemical controller	<ul style="list-style-type: none"> Custom designed to interface with Waterplay controller Prevents spray park operation if alarm conditions occur All wiring and controls pre-wired to Waterplay controller
Skid			
Material:	Powder coated, steel skid with pipe frame	Fibreglass	<ul style="list-style-type: none"> Frame provides equipment, pipe & conduit support Lifting lugs & fork lift access holes provided for easier mobility
Standards			
	Designed to meet New York State Sanitary Code	May vary depending on location & supplier	<ul style="list-style-type: none"> New York State Sanitary Code is recognized as the highest standards in the industry.