

THE CHEMICAL FREE SOLUTION FOR YOUR POOLS, SPAS AND DECORATIVE WATER FOUNTAINS

TRIANGULAR WAVE
TECHNOLOGIES IONGUARD
AND ENHANCED CONTROL
POOL MANAGEMENT
SYSTEM



DEPOSIT CONTROL

BIO-CONTROL

PURIFICATION



TRIANGULAR WAVE TECHNOLOGIES SOLVES THESE COMMON PROBLEMS WITH ITS DEPOSIT CONTROL & IONGUARD PURIFICATION SYSTEMS FOR SWIMMING POOLS, SPAS, AND DECORATIVE WATER FEATURES.

COMMON PROBLEMS WITH CONVENTIONAL POOL TREATMENT SYSTEMS

- *Algae and bacteria growth, corrosion, scale and bio-film accumulation in water lines and equipment*
- *Deterioration of water lines and equipment from harsh chemicals*
- *High electrical costs from operating inefficiencies (heating and pumping equipment)*
- *Use of chemicals (chlorine, bromine, etc.)*
- *Labor costs for cleaning, maintenance, and supervision*
- *Complaints related to harsh chemical odors (usually from chlorine) and resulting irritation of the eyes and mucous membrane, as well as bleached swimwear, hair discoloration, etc.*

Each of these problems can be addressed with TWT's Enhanced Control Pool Management Systems, consisting of TWT Deposit Controllers, Reaction Chambers, and IonGuard Purification Subsystems with Copper/Silver Electrodes. These highly effective systems and method of maintenance work in two ways:

- *The deposit control microprocessor with the attached reaction chamber produces an electromagnetic field through which the re-circulated pool water flows for treatment*
- *The IonGuard system provides purification of the water*

The TWT Enhanced Control Pool Management System offers pool maintenance firms an opportunity to reduce their material and labor costs, lessen the storage and handling of the chemicals now used, and increase profits. In combination with the pool's filter and pump systems, the complete TWT system augments the chemical treatment normally applied by controlling the habitats where bacteria, algae, and bio-film grow. When these habitats are uniformly controlled and/or eliminated, the pool maintainer can reduce the usage and handling of harsh chemicals, and use less labor in the performance of his (contracted) services.

ALGAE AND BACTERIA GROWTH

Bacteria and algae must attach to something (such as pipes, equipment or pool walls) to feed and reproduce. The triangular wave electromagnetic field generated by the patented TWT Deposit Controller prevents this attachment by keeping bacteria and algae dispersed in the water. With the contaminants "in solution", the IonGuard Purification Unit goes to work, killing the algae and bacteria by producing copper and silver ions, a proven and safe method for control. This "chemical-free" method of treatment produces no negative effects on people, no damage to equipment, and no pollution of the environ-

ment. It is the safest known deposit control and purification method for controlling algae and bacteria, and eliminates side-effects.

CORROSION, SCALE AND BIOFILM ACCUMULATION IN LINES AND EQUIPMENT

The TWT Enhanced Control Pool Management System attacks this problem by causing contaminants to repel from each other and from the surfaces of pipes and equipment, with its enhanced surface charge on particles in the water. Bio-corrosion is prevented because biofilm, its home, is never given the opportunity to form on the surfaces.

DETERIORATION OF LINES AND EQUIPMENT FROM HARSH CHEMICALS

Many of the chemicals used in water treatment (chlorine especially) cause PVC pipes to become brittle, resulting in the need for extensive maintenance and/or replacement. These chemicals also reduce the useful life of the rest of the equipment in the system.

HIGH ELECTRICAL COSTS (HEATING AND PUMPING EQUIPMENT)

The electricity required for heating pools and pumping water can be a considerable expense. As the TWT Enhanced Control Pool Management System reduces scaling and corrosion in the heating elements, the elements work more efficiently, reducing electrical costs for heating the water. Similarly, many pool, spa and decorative water feature operators feel the need to operate their pumps continuously to enhance the filtration process and produce clear water. As the TWT Enhanced Control Pool Management System eliminates clouding contaminants, the use of the pumps to obtain satisfactory levels of clarity can be greatly reduced, usually to 1/3 or less of a routine operation. Additionally, as the corrosion and scale are eliminated, the pumps operate more efficiently, resulting in reduced electricity costs, as with the heating elements.

CHEMICAL USE (CHLORINE, ETC.)

While necessary, chlorine treatment of swimming pools is not only costly, but also objectionable in terms of practical, aesthetic and health considerations. As a chemical, chlorine has a corrosive effect on pool lines and equipment, resulting in periodic replacement. Although chlorine has been the accepted standard for treating water (and in fact a minimum residual level of chlorine is required in commercial pools), smaller amounts will create other problems.

Alternatively, the TWT Enhanced Control Pool Management System will enable desired reduction in chemical treatment, while maintaining appropriate levels of purification.

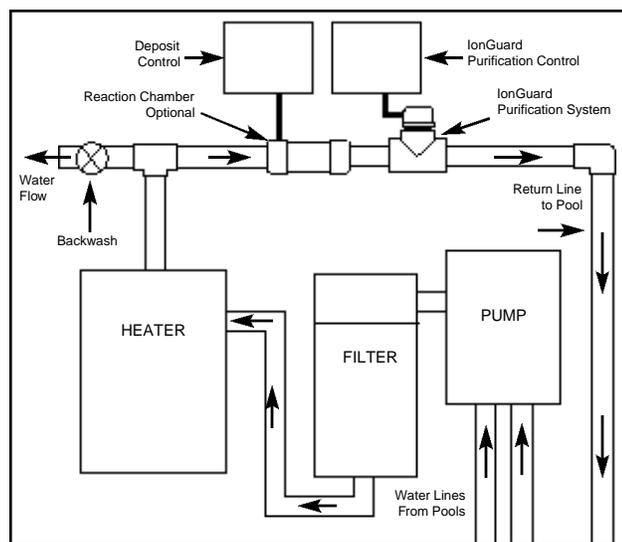
LABOR COSTS FOR CLEANING, MAINTENANCE AND SUPERVISION

The TWT Enhanced Control Pool Management System allows routine pool maintenance to be accomplished more quickly and efficiently, allowing the maintenance company to service more pools and accounts with existing staff levels. The TWT units are virtually maintenance-free. The IonGuard unit requires only routine inspection and periodic changes of the electrodes (usually annually depending upon usage). However, in contrast to the frequent tasks of traditional pool maintenance, the tasks associated with the TWT systems are minimal. This reduced maintenance permits reduced labor costs per pool.

COMPLAINTS RELATED TO ODOR (CHLORINE, FISHY SMELL, ETC.)

The chemical odor and other unpleasant odors are removed. Perhaps more significant than the odor control benefit, the treated water produced by the swimming pool systems (although not recommended for drinking) is actually rendered to an acceptable level for drinking, in case of accidental ingestion. Finally, the cost savings on chemicals, electricity, labor, increased life cycles of equipment and other uses is sufficient enough to pay for the system in 18 months or less. In contrast to current pool maintenance programs, the system will result in significant cost savings. More importantly, it will provide swimmers with a clean, odorless and healthier swimming environment.

Clearly, in comparison to traditional pool maintenance programs, the TWT Enhanced Control Pool Management System will result in significant cost savings and increased profits.



Typical installation overview of equipment room