



International Ozone Association Pan American Group



Regional Conference Ozone Technical Tour

Wednesday, August 27, 2008

Orlando, Florida, USA

Please join us for the 2008 International Ozone Association - Pan American Group's technical tour in Orlando.

This unique look into the inner workings of Disney's water attractions and the Orlando area's drinking water treatment shows just how versatile **Ozone** treatment can be in sustaining life in all its forms.

First, we head to the "biggest facility ever dedicated to man's relationship with the underwater world" - the 6 million gallon **Living Seas** aquarium in **Disney's Epcot Center**.

The Living Seas is the world's largest inland salt water aquarium and achieves complete exhibit water turnover every three (3) hours. The 33,333 gpm water treatment flow rate makes this aquatic life support operation the equivalent of a 48 MGD municipal water or wastewater treatment plant.

The treatment train includes pressurized sand filtration, carbon filtration and **Ozone** injection.

And like any good treatment plant, Living Seas has a filter backwash reclaim system. Overall, the treatment process maintains healthy conditions for

the animals on exhibit and exceptional water clarity for the viewing public.



Next, we move from the seas back to the land. **The Land Pavillion** aquaculture facility provides fresh fish daily to the numerous Walt Disney World restaurants. This is not your average freshwater



fish farm. The turnover rate of its 25,000 gallon freshwater system with four tanks and two sets of aqua tubes, is just 1 hour. Pressurized sand, carbon

filtration and **Ozone** control suspended solids, as well as pathogen, ammonia and oxygen levels, allowing high density aquaculture operations.

Where better to have a boxed lunch, than overlooking **Typhoon Lagoon** after visiting the water treatment system at **Shark Reef**?

Shark Reef is an attraction at Disney's 56 acre Typhoon Lagoon tropical water park. This 362,000 gallon shallow salt water pool allows snorkelers to

get up close & personal with live sharks and schools of tropical fish.

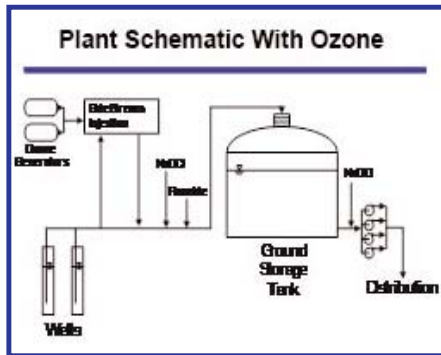


For those daring enough to enter, park guests swim between two pools separated by a sunken tanker while viewing the sharks and dazzling colors of the myriad of reef fish in crystal clear waters. Non-swimmers and the faint of heart enjoy a great view from inside the tanker. *(Snorkeling not part of tour!)*

Shark Reef must simultaneously meet both Florida swimming pool and Disney aquatic life support standards, while delivering the water clarity expected at a pristine Caribbean island for adventurers. This requires a 3,000 gpm pressurized filtration and **ozonation** system. In an unusual change in operating protocol, reverse osmosis is used to dewater the salt water after rain events. The permeate is discharged and concentrate is returned to the reef pool to maintain salinity.

Last but not least, we head to the **Toho Drinking Water Treatment Plant (WTP)** in

Kissimmee, Florida. **Ozone** is known to many utilities treating surface waters for delivering multiple benefits including improved



filtered water turbidity and suspended solids, reduced chemical consumption, bacteria, virus and parasite inactivation, organic oxidation, improved water taste, diminished odor and reduced disinfection byproduct levels.

In central Florida, most raw water supplies are from ground water sources. These ground waters



are typically of high quality but contain Hydrogen Sulfide (H_2S/S^{2-}) imparting aesthetically unpleasant taste and odor.

Ozone is used to oxidize Hydrogen Sulfide directly to Sulfate ion (SO_4^{2-}) without production of elemental Sulfur and therefore eliminates the need for filtration.

The Toho WTP **ozonation** system, designed by Malcolm Pirnie, includes two 400 ppd at 9% wt. Ozone generators to treat between 4.3 and 9.8 MGD with 1.0 to 1.8 mg/L H_2S and was commissioned in 2007. The Toho WTP is the first in Florida to use pressurized *side stream Ozone contacting* to oxidize and disinfect ground water in a fraction the footprint of neighboring **Ozone** systems.

Interested? Register today!

**** We must limit this technical tour to the first 50 registered individuals. ****

Our motor coach bus will depart from Disney's Coronado Springs Resort at 9:00 AM SHARP on Wednesday, August 27, 2008. A boxed lunch is provided to all tour attendees.

The bus will drop off those looking to go directly to Orlando International Airport BEFORE returning to the resort. Our anticipated airport drop off time is approximately 3:00 PM, however this is subject to change.

TO REGISTER, PLEASE VISIT US ONLINE AT : WWW.IO3A.ORG/ORLANDO.HTML



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