Dealing with Recreational Water Illness

Even in clear water, there can be problems lurking. Without proper maintenance, pool and spa water can be contaminated with bacteria and parasitic pathogens. These are commonly known as recreational water illnesses (RWIs) and are becoming more of a concern. RWIs are caused by pool water contaminated with bacteria or parasitic pathogens that are released by swimmers. In many cases chlorine or bromine are effective at killing most pathogenic bacteria. However, some germs are very resistant to standard sanitizers.

One highly chlorine-resistant parasite that can be present in pool water is *Cryptosporidium,* commonly referred to as Crypto. Crypto is introduced to swimming pool water from swimmers who release fecal material into the water. In its oocyst stage, Crypto is protected by a thick outer shell, so it can remain viable in properly chlorinated water for six to seven days. When swallowed by swimmers, Crypto can cause severe symptoms such as diarrhea, stomach cramps, fever, nausea and vomiting. Crypto cysts are approximately 4–6 microns in size and can pass through most sand filters. Even in D.E. filters, which pick up material down to 4 microns, Crypto can elongate and pass through the media.

In two separate presentations at the 2004 World Aquatic Health Conference, the Centers for Disease Control and Prevention (CDC) recommended enhanced filtration using clarifiers as a viable means of reducing the risk of Crypto outbreaks ("Recreational Water Outbreaks and Lessons Learned," Dr. Michael Beach; "Research Advances on the Inactivation of Chlorine-Resistant Pathogens Like *Cryptosporidium,*" Dr. Joan M. Shields). At the 2006 World Aquatic Health Conference, evidence was presented that showed the enhanced filter trapping of Crypto in sand filters using a two-part polymer system (*Cryptosporidium* Removal from Swimming Pools by Sand Filters, James Amburgey, PhD).

SeaKlear PRS effectively enhances filtration by trapping algae, *Cryptosporidium, E. coli* and *Giardia* in the pool filter. Independent studies indicate that **SeaKlear PRS** reduces *Cryptosporidium* in pool water by 99.9%. **SeaKlear PRS** studies show a 99% reduction in *E. coli* in pool water.

The EPA has reviewed **SeaKlear PRS** and determined that it traps *Cryptosporidium* in the pool filter. In addition, **SeaKlear PRS** is patented for the entrapment of Crypto cysts by pool filters.

Note: SeaKlear PRS and **SeaKlear Spa PRS** are filter-enhancement products and are not sanitizers. Regulated levels of an approved sanitizer must be maintained.

In addition to enhancing filtration by trapping *Cryptosporidium, E. coli, Giardia* and algae in the pool's filter, **SeaKlear PRS** can also be used to turn a swimming pool "swamp" into a clear and clean pool in about 24 hours. Look for more detail on this in the "Algae" section.

SeaKlear® SeaKlear® Spa

Traps Crypto!

PRS

SeaKlear PRS and **SeaKlear Spa PRS** are advanced, two-stage treatments that keep pool, spa and hot tub water clean and pristine. PRS enhances filtration by trapping *Cryptosporidium*, *E. coli, Giardia* and algae in the pool's filter.

- Reduces water's turbidity and recovery time, especially during peak bather load
- Enhances the filter's ability to trap particles down to 0.5 microns
- Removes oil better than the leading enzyme products

Dosage:

- **SeaKlear PRS Stage 1:** Use 4 fl. oz. per 20,000 gal.
- **SeaKlear PRS Stage 2:** Use 4 fl. oz. per 20,000 gal.

Note: Do not add both **SeaKlear PRS Stage 1** and **SeaKlear PRS Stage 2** at the same time.

Item Code	Item Description	UPC	#/Case
1130001	SK PRS—Stage 1 & 2, 1 quart each	90609	6
1130002	SK PRS—Stage 1 & 2, 1 gallon each	90600	2
1140104	SKS PRS—Stage 1 & 2, 1 pint each	90613	6

TESTED & CERTIFIED WQA INDEPENDENTLY
Water Quality Association

Readers' CHOICE 2007 POOL & SPA NEWS

MVP 2007 MOST VALUABLE PRODUCTS

This product is tested and certified by WQA against NSF/ANSI 60.

Field Tests & Testimonials

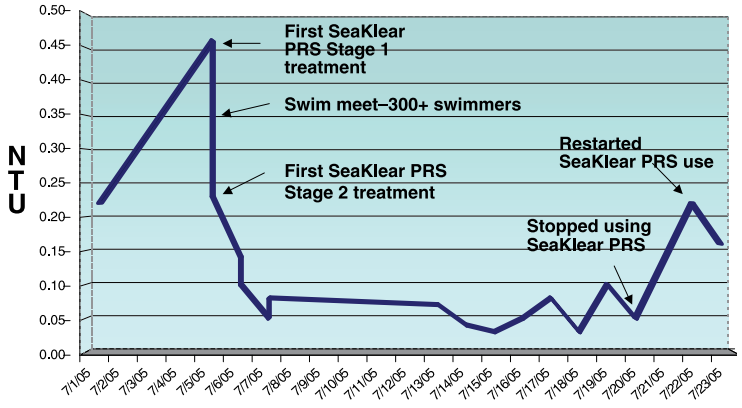
Fairwood Golf & Country Club

Fairwood Golf & Country Club is located outside Seattle, Wash. The chart below shows turbidity levels in Fairwood's 155,000-gallon pool during a three-week period in July 2005.

First, Fairwood treated its pool with **SeaKlear PRS Stage 1.** A swim meet was held six hours after the initial **SeaKlear PRS Stage 1** treatment. The bather load during the swim meet was approximately 300 swimmers over a three-hour period. After the swim meet, the pool was treated with **SeaKlear PRS Stage 2.**

The pool was treated daily with **SeaKlear PRS** for eight days and then treated twice a week for two weeks.

"We have seen remarkable results with **SeaKlear PRS.** Not only with water clarity, but with the overall function of our sand filters. We are backwashing less, and the pool has never looked so good," said Aaron Whittecar, Fairwood Golf & Country Club Facility Maintenance Manager.



*Regular doses of **SeaKlear PRS** lower turbidity and keep it down, even during peak bather loads.*

A Texas Facility Field Study

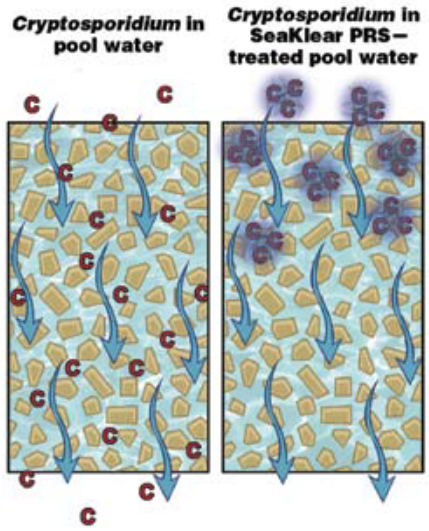
A large facility in Texas started using **SeaKlear PRS** in 2007 as part of a closely monitored field study. During the study, the pool was initially dosed with **SeaKlear PRS Stage 1** and **SeaKlear PRS Stage 2** on a daily basis for a two-week period and then once per week for six months. Data collected from this study showed a particle shift from smaller to larger particles during the initial daily treatment. The shift became more dramatic with long-term use. This shift in particle size demonstrates the capabilities of **SeaKlear PRS** to floc small, submicron-sized particles into larger clumps that can then be removed by the filter.

Facility at a Glance

Location:	Texas
Gallons:	860,000
Dosage:	1.34 gallons each of **SeaKlear PRS Stage 1** and **SeaKlear PRS Stage 2** per week
Bather Load:	600–800 swimmers daily
Current System:	Chlorine and **SeaKlear PRS**
Cost to Implement SeaKlear PRS:	$1,200–$2,500
Estimated Cost for Alternate UV:	$50,000–$100,000
Estimated UV Maintenance Cost:	$20,000 per 10,000 hours of use
Annual Cost of SeaKlear PRS:	$5,000–$6,000

Not only did the scientific findings support the product's claims of enhanced filtration, but the facility also noticed the difference. Prior to using **SeaKlear PRS,** the facility had been on chlorine and filtration. Facility management was interested in adding **SeaKlear PRS** to enhance the filtration of Crypto and other RWIs. **SeaKlear PRS** was appealing because, unlike other options, it uses the filter to naturally remove contaminants from the pool instead of circulating them back in.

The facility continued to use **SeaKlear PRS** to trap Crypto, *E. coli* and *Giardia* but noted improved water quality as an added benefit. Since starting the treatment, the facility, along with its patrons, has noticed a difference in water clarity. The facility quickly did the math on adding **SeaKlear PRS** to its weekly maintenance. Factoring in the added drop in clarifier cost, the facility decided it couldn't afford not to. Patrons commented on the cleanliness of the pool and its appearance.



*When added to the pool water, **SeaKlear PRS** gathers Crypto into large, stable flocs that can then be removed by the filter.*