



G E M
Gas Energy Mixing By CWT

CASE STUDY

COMMERCIAL LAUNDRY

INTRODUCTION

A large, prestigious Hotel in the Cayman Islands had limited fresh water resources. Their goal was to find a technology that would allow them to clean and recycle their used laundry water back into their laundry process.

CHALLENGES

Surrounded mostly by water and a few other luxury hotels, the Hotel needed a solution that required a small footprint, generated minimal noise be cost-effective, and clean the water to the point that it could be reused in the laundry process.

In their search, the Hotel made a list of goals and priorities. They wanted to be able to reuse their laundry water back into the front end of the laundry facility without jeopardizing the cleanliness of their linens, towels, uniforms, etc. Furthermore, they had an overall water conservation goal (throughout their chain of hotels) to reduce water used for Hotel operations such as laundry, cleaning, cooking, etc. This made their search more difficult as many of the technologies they learned about were limited by their inability to handle higher contaminant loadings without expanding or adding additional features. Furthermore, the other systems had a much larger footprint than the Hotel could accommodate.

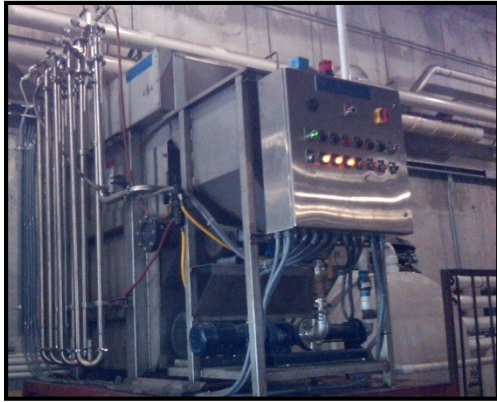
SOLUTION

During their search for the best available technology, the Hotel was introduced to Clean Water Technology (CWT). Based upon previous experience, CWT provided the following data:

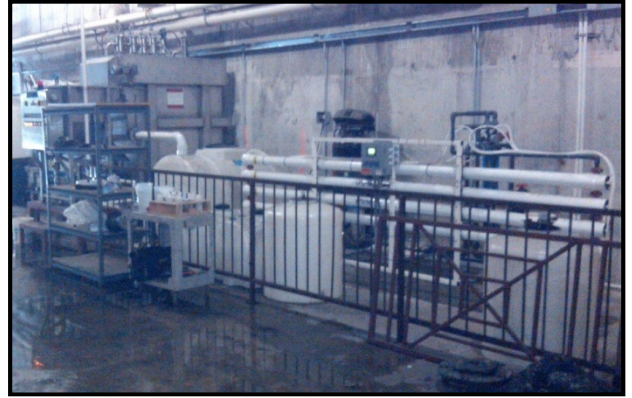
TABLE 1	COD BEFORE	COD AFTER	TSS BEFORE	TSS AFTER	CHEMICAL USE (PPM)			TOTAL CHEM USED (PPM)
SAMPLE 1								
GEM	12,450	1,250	1,800	130	0	10	0	10
% Reduction		90%		93%				
DAF	12,350	2,300	1,700	125	994	115	0	1,109
% Reduction		81%		93%				+ 1,099
<i>THE DAF REQUIRED 1,099 PPM MORE POLYMER TO ACHIEVE THE SAME OR LESS % REDUCTION THAN THE GEM SYSTEM</i>								
SAMPLE 2								
GEM	10,950	1,100	1,500	90	0	8	0	8
% Reduction		90%		94%				
DAF	11,010	3,380	1,900	233	560	86	0	646
% Reduction		69%		88%				+638
<i>THE DAF REQUIRED 638 PPM MORE POLYMER TO ACHIEVE THE SAME OR LESS % REDUCTION THAN THE GEM SYSTEM</i>								

CWT recommended the Gas Energy Mixing (GEM) System followed by Ultrafiltration (UF). This provided the highest level of contaminant removal using the least amount of chemistry, the smallest footprint and flexibility to handle higher flows and contaminant loading in the future.

GEM SYSTEM PERFORMANCE



GEM SYSTEM



ULTRAFILTRATION SYSTEM

The benefit of the GEM System followed by UF is shown below:



Left: Laundry Effluent
Before Treatment

Middle: Effluent After
GEM Treatment

Right: Effluent After
GEM / UF Treatment

SUSTAINABILITY

The GEM System provided the Client with a System that was efficient, had a small footprint, used polymer sparingly and was most effective at treating their laundry water for reuse.

ADAPATABILITY

The GEM and UF Systems are expandable with no capital expenditures to meet higher flows or loadings.