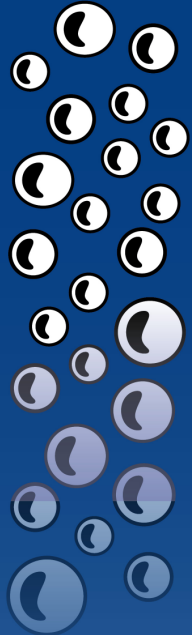




**G E M**  
Gas Energy Mixing By CWT



## CASE STUDY

## MIDDLE EASTERN CUISINE

### INTRODUCTION

A major processor of hummus, salsas, salads and sauces had outgrown their original facility in central New York City and was expanding to a new location. The company, who takes great pride in their strong reputation for production of healthy food items, wanted their new facility to be state-of-the art, sustainable and expandable.

### CHALLENGE

When their consultants were reviewing options for wastewater treatment, they looked to Clean Water Technology, Inc. (CWT) for alternatives to conventional treatment technologies. They had heard about CWT's Gas Energy Mixing (GEM) technology at WEFTEC (Water Environment Federation's Technical Exhibition and Conference) when CWT's Chief Scientist presented a paper on "New Developments in Mixing, Flocculation and Flotation for Industrial Wastewater Pretreatment and Municipal Wastewater Treatment," in October 2005. Looking for a more efficient solid/liquid separation technology than traditional technologies such as "dissolved air flotation" (DAF), they focused on the GEM System due to its better contaminant removal, more efficient chemical usage, drier sludge, expandability and flexibility to changing streams, all within a significantly smaller footprint than any DAF unit. The small footprint and expandability were very important to the client as they knew that the plant would expand exponentially in the future.

### SOLUTION

The consultant arranged for samples to be sent to CWT's laboratory from the New York facility to get an idea of what level of contaminant removal they could expect and what type of chemical dosing would be required to obtain optimal results. Table 1 below shows the results of the laboratory analysis performed by CWT:

**TABLE 1: GEM REDUCTIONS – 24 Hour Composite Sample**

PARAMETER	INFLUENT	EFFLUENT	PERCENT REDUCTION	COAG/CAT/ANI
TSS (ppm)	5,080	25	99%	400/20/10
COD (ppm)	12,3300	2,300	81%	
Turbidity (NTU)	>1,000	6	99%	

Upon receipt, the 24 hour composite sample was very turbid. Results showed easy to break, good flocs. High rates of contaminant removal overall were expected based on this sample. However, because the Client and the consultant knew that their wastewater would vary due to the daily changes in product runs, they sent two subsequent grab samples. The results are shown in Tables 2 and 3 below:

<b>TABLE 2: GEM REDUCTIONS – Sample 2 : Grab</b>				
<b>PARAMETER</b>	<b>INFLUENT</b>	<b>EFFLUENT</b>	<b>PERCENT REDUCTION</b>	<b>COAG/CAT/ANI</b>
TSS (ppm)	4,100	25	99%	100/20/10
COD (ppm)	11,000	3,300	70%	
Turbidity (NTU)	>1,000	10	99%	

<b>TABLE 3: GEM REDUCTIONS – Sample 3: Grab</b>				
<b>PARAMETER</b>	<b>INFLUENT</b>	<b>EFFLUENT</b>	<b>PERCENT REDUCTION</b>	<b>COAG/CAT/ANI</b>
TSS (ppm)	400	25	92%	80/20/10
COD (ppm)	3,800	3,000	22%	
Turbidity (NTU)	556	12	94%	

The client purchased a GEM System 75/150 designed to run at flows below 75 gallons per minute (gpm) and up to 150 gpm or 216,000 gallons per day (gpd). Original flow was 115,000 gpd. This unit is expected to handle all 5-year Clients expansion plans.



## **CHEMICAL USAGE**

All three samples came in at a pH of 3.0 and were increased to 5.8 – 6.2 before testing. This was also done on the full scale installation to ensure that Client would need to use minimal chemistry while gaining consistent and optimal results despite the daily changes in product lines run.

## **SUMMARY**

The GEM System at this site has been operational since July 2009. The GEM System 75/150 currently is running at 150 gpm and giving excellent results to the Client. If the Client had chosen any other kind of treatment it wouldn't be able to have grown with it as it did with the GEM System. Client reports that they are very satisfied with CWT's GEM System, installation and after installation service.