



G E M
Gas Energy Mixing By CWT



CASE STUDY

MEAT AND STEAK PACKAGING

INTRODUCTION

A specialty manufacturer and supplier of fine quality, portion controlled meat products such as quick frozen beef, ground beef, pork, veal, turkey, and chicken, was looking for a wastewater pretreatment technology that would perform better than their existing dissolved air flotation (DAF) process. The Client was in need of a wastewater treatment technology that was more reliable than their existing unit and could support their increased capacity. Client had difficulty keeping up with capacity as well as difficulty in ordering and receiving replacement parts.

CHALLENGE

The Client took great pride in their product line, and didn't want their reputation to rest on a piece of equipment that could not keep up with their demand. Their existing wastewater room was very small, with no additional room for a second DAF.

When the Client researched "DAF alternatives" online, they came across Clean Water Technology, Inc. (CWT) that offered a solid/liquid separation unit that claimed to be smaller in size, more adaptable to changing streams, flexible in terms of flows and loadings and required less chemistry than conventional DAF technology.

SOLUTION

Client did a cost analysis of their current system in terms of chemical dosing, sludge output (% dryness by solids) and the increased contaminant loadings they had started to experience. Upon review of CWT's Gas Energy Mixing (GEM) System including a visit to CWT's production facility in Los Angeles and site visits locally, the Client decided to replace their waste water system with CWT's GEM System Technology. CWT was able to guarantee extremely low waste reductions (99% +/- 10% TSS, COD and Turbidity reductions and 98% +/- 10% BOD reductions.) as shown in Table 1 below:

TABLE 1: GEM REDUCTIONS

PARAMETER	INFLUENT	EFFLUENT	PERCENT REDUCTION	COAG/CAT/ANI
TSS (ppm)	22,000	20	99%	50/'20/10
BOD5 (ppm)*	33,200	667	98%	
COD (ppm)	45,000	950	99%	
Turbidity (NTU)	>1,000	5	99%	

* From Independent Laboratory Client uses GRAS polymers and sends sludge to renderer.

As shown in Table 1, Client's wastewater is very high in contaminant loading. The GEM System's unique design allows reductions from 200 ppm of TSS and FOG up to 18,000 ppm TSS and FOG with no increase in unit size or capital costs. These significant removal rates are due to the use of centrifugal force that separates the solids from the liquids in the GEM Systems hydrocyclones. The client was able to

observe this phenomena at CWT's fabrication facility through a Plexiglas pilot unit that shows how the motion in the heads, and the stringent control of mixing speed and mixing energy in each head, fosters the unprecedented high rate of contaminant capture. Since installation, the Client remains extremely pleased with the GEM System's effluent parameters compared to the values they achieved with the DAF predecessor. Client is also aware that should the need arise for lower BOD values, CWT could provide a follow up technology with a secondary treatment process.

CHEMICAL USAGE

CWT has been informed that the chemical usage of the GEM System since replacement of the DAF unit has been reduced while contaminant removal has increased significantly.

SLUDGE COSTS

Sludge is reportedly 12% off the beach of the GEM unit and continues to decant for 2-3 days resulting in 1/3 of the sludge hauling costs than previously incurred before.

EASE OF OPERATION



Tight Flocs Using Dual Flocculant Approach



Clean Water off GEM System at Site

The Client reports that his daily and weekly maintenance of the GEM System requires very little attention which allows him to complete other tasks in a timely manner.