

ASIA CASE STUDY PROCESSING/MANUFACTURING PLANTS

INTRODUCTION

The quality and quantity of wastewater generated from food processing enterprises vary greatly depending on the products and procedures used. It is typically composed of organic carbon nitrogenous organics, suspended solids, and oil and grease. The environmental laws imposed on wastewater discharge are getting more stringent nowadays, specifically on nutrient concentration levels. Finding an effective, safe, and economically viable solution without the costly system upgrade is challenging.

CASE STUDY 1. MEAT PROCESSING PLANT IN THE PHILIPPINES

An ISO 22000 certified hotdog and marinated meat processing plant in the Philippines has a wastewater generation of 300 to 350 m^3 /day. Its wastewater treatment plant is a modified conventional activated sludge that consists of an oil separator, equalization tank (EQT), sequencing batch reactor (SBR), chlorination tank, and sludge digester tank. The high accumulation of oil, grease, and solids hindered the biological treatment in the SBR tank, leading to not meeting the regulatory agency's effluent guidelines.

Solution: Along with SBR treatment cycle adjustment, Microbe-Lift IND was recommended to be applied in the EQT and SBR with the following dosing rates:

Cycle	Dosing Point	Month 1 (gallons)	Monthly Maintenance (gallons)
1st	SBR	8.6	3.2
	EQT	3	2
2nd	SBR	8.6	3.2
	EQT	3	2
TOTAL		23.2	10.4

Result:

One of the significant challenges in this project is reducing phosphate and ammonia. These parameters were not part of the design considerations since they are not listed on the original important parameters mandated by the regulatory agency. Incorporating Microbe-Lift in the

treatment process prevented the need to upgrade the system and incur penalties for discharge violations.



SBR Tank. Before and after 2 Weeks of Microbe-Lift Treatment



Effluent Sample. Month 2 and Month 6

Parameters	Before Treatment	Month 1	Month 4	Month 6	Effluent Standard	Remarks
BOD (mg/L)	148	61	46	5	50	Passed

TSS (mg/L)	145	303	100	6	100	Passed
Oil and Grease (mg/L)	8	8	5	<1	5	Passed
Ammonia (mg/L)	16	2	3.6	<0.005	0.5	Passed
Nitrate (mg/L)	1.6	0.83	0.92	1.6	14	Passed
Phosphate (mg/L)	13	7.7	1.6	1	1	Passed

Laboratory Analysis Results