Zero Energy Consumption for Grease Plant

Singapore Healthcare Management 2014

KK Women's and Children's Hospital
SingHealth

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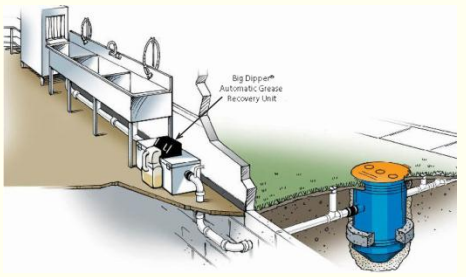
BACKGROUND

The existing Grease & Solid Separator Plant Units have been in operation since 1997 for the removal of grease & solid wastes from the Kitchen and Food Court wastewater before they are being discharged into the PUB Main Sewerage line.

Due to regular wear and tear, these Grease Plant Units have often broken down and caused chokages in the kitchen waste pipe-lines, solid waste overflows from collection containers causing spillage to plant room floor, grease accumulation in the separation tanks and plant room odours.



AIM

To eliminate these problems, this project aims to replace the plant units with high separation efficiency and low maintenance cost via facilities improvement.

METHODOLOGY

Maintenance feedbacks were studied in detail to identify issues with high occurrence frequency.
Key users had brainstorming sessions to determine suitable proposed system design by vendors that facilitates easy maintenance to be implemented to maintain a healthy sanitary system and contributes towards a greening of a sustainable Singapore.

RESULT

Before

After

- **Significant Reduction of Chokes in Kitchen Waste Pipe-Lines**
- **No More Solid Waste Overflows from Collection Containers due to Change in System Design**
- **No More Grease Accumulation in Separation Tanks due to High Separation Efficiency in Newly Installed Grease Plant Units**
- **Plant Room Odours Significantly Reduced due to Odour-Tight Covers Being Fitted in the New Grease Separators**

EXISTING GREASE PLANT POWER CONSUMPTION

S/No.	Description	Qty	Consumption/unit (kW)	Operation hr/day	Sub-Total (kWh)
1	Solid Disintegrator	2	0.75	20.5	30.75
2	Solid Compactor	1	0.25	20.5	5.13
3	Automatic oil & Grease Removal Unit				
	* Heater	1	1.5	4	6.00
	* Skimmer motor	1	0.06	4	0.24
4	Grease Lift Pump (2 units: Duty & Standby)	1	0.75	0.4	0.30
Total:					**42.42**
Power consumption for 2 units Grease Plant:					**84.83**
Utility Charges @ 20.60¢/kWh/day:					**$ 17.47**
Utility Charges @ 20.60¢/kWh/month:					**$ 541.72**
Utility Charges @ 20.60¢/kWh/year:					**$ 6,500.69**

Potential Cost Savings of $6,500 Per Annum as the New Installations Do Not Consume Electricity

CONCLUSION

After implementation of the replacement, the followings were achieved:
- ✓ Hospital operation efficiency enhanced by zero system break down.
- ✓ Hygiene and cleanliness of the plant room being enhanced and ultimately satisfaction level of the maintenance team.
- ✓ Lower maintenance cost.