

## **Control of pollution from sugar Industries**

A sugar factory, whether it is processing cane or beet, can potentially generate significant amounts of pollution. The main areas where this can occur (in order of potential importance) are:

- Water abstraction and discharge
- Air Pollution from chimneys
- Odours
- Noise
- Dust

It should be noted that water borne pollutants from sugar factories are, with few exceptions, degradable organic compounds and as such are easily treated although discharge quantities can be considerable in the first instance.

SKIL is able to assist its Clients with all aspects of environmental control, including problem analysis, system and equipment specification, supervision of installation and technical assistance during commissioning and implementation.

SKIL's approach to this potential problem is threefold:

- reduce the discharge quantities involved
- lower pollutant concentrations in discharges
- effectively treat discharges before release

### **Water**

Sugar factories require significant amounts of water in order to operate effectively and inevitably discharge organic laden effluent.

SKIL's initial approach is to optimise water use and hence discharge quantities through the use of pinch technology. This simplifies the task of treating the discharge although is limited by the water content of the crop.

### **Stack Emissions**

Both cane and beet factories discharge combustion products into the atmosphere via chimney systems.

Whilst the fuels used (bagasse, possibly supplemented by auxiliary fossil fuel, in cane mills and fossil fuels in beet factories) are quite different, the environmental control principles are the same.

In the case of cane mills, the discharge consists almost exclusively of fine particulate matter and smoke due to incomplete combustion of fuel. NO<sub>x</sub> tends to be low and SO<sub>x</sub> effectively only comes from the auxiliary fuel.

In beet plants where coal or oil is employed as fuel, NO<sub>x</sub> and SO<sub>x</sub> are potential

pollutants. Additionally, in beet factories with pulp drying equipment, the chimney discharge problems associated with the fuel being used are supplemented by an odour problem due to sugar destruction and similar processes in the drying plant.

SKIL specialists are able to assist with the control of stack emissions and would:

- optimise the combustion efficiencies of boilers
- investigate process and other problems affecting steady boiler operations
- recommend ways of overcoming fuel quality difficulties economically
- specify additional flue treatment equipment in order to achieve emission objectives

## **Odour**

Unpleasant odours from sugar plants, in addition to the chimney discharges, mainly occur in settlement/ treatment lagoons.

SKIL adopts an approach aimed at reducing the BOD/COD loading in the discharges before examining ways to reduce the odour problem. Once this is done the odour aspect can be dealt with, usually by enhanced anaerobic treatment where the odours can be contained and ultimately burned with the bio-gas which is generated.

## **Noise and Dust**

Certain parts of the plant are inevitably noisy, even under normal operations. SKIL can identify such points and if necessary quantify the noise levels.

Recommendations can be made regarding changes which can be made to protect both factory personnel and nearby residents from excessive noise pollution.

Most dust problems are best handled by improving cleanliness although lime plant can be fitted with suitable dust control equipment.