

# MEAT PROCESSING

## Food Industry, Italy

### Data

- Wastewater inlet  
COD 2,500 mg/l
- Production  
4,500 m<sup>3</sup>/day
- Year  
2001

### Parameters requested by the current Italian law and achieved by the plant

COD	<160 mg/l
BOD5	< 40 mg/l
Ammoniac nitrogen	< 15 mg/l
Nitric nitrogen	< 20 mg/l
Nitrous nitrogen	< 0,6 mg/l
pH	5.5 – 9.5
Suspended solids	< 80 mg/l
Phosphorus	< 10 mg/l

### Design & Build of a Wastewater Treatment Plant

#### The Client

Our client produces and sells a variety of beef products, including fresh, frozen, canned, both vacuum packed or packaged in a protective atmosphere. They also offer a complete range of cuts and processed hamburgers, ready pre-cooked meals, veal cutlets, grilled and roasted products. The company is the market leader in the frozen hamburger sector, with an annual production capacity of **40,000 tonnes**. They supply major international fast food chains and a number of market leading catering and retail operators. With its operating structure boasting several factories in Italy and many branches abroad, our client manages the whole production cycle, with a slaughtering capacity of 3,000 heads of cattle/day and the processing of more than 250,000 tons of meat a year.

#### The Challenge

Our client's initial requirement was to deal with a considerable increase in wastewater to be treated (from 2,000 to 4,500 m<sup>3</sup>/day), with an inlet COD value of 2,500 mg/l and an NKT value of 150 mg/l.

#### Our Solution

Due to our extensive knowledge and experience in the meat processing sector's production cycle, VWS Italia was able to supply a turn-key wastewater plant with a capacity of 4,500 m<sup>3</sup>/day.



Settling and recycling



Primary flotation



Pumping

# MEAT PROCESSING

## Food Industry, Italy

### Solutions & Technologies

#### Water line:

- Raising: to pump the wastewater up to the screen
- Screening: wastewater arising from the production process contains suspended solids which must be removed. This phase is carried out through IDRASCREEN™ self-cleaning fine screening units;
- Sand separation: the sand contained in the wastewater is separated through a dynamic sand collector;
- Balance Tank: the purpose of the Balance Tank is to eliminate surges in concentration within the wastewater from the production facility and to ensure that the feed to the downstream treatment plant is uniform and consistent in strength and flow;
- Primary flotation: IDRAFLOT™ units used to reduce the levels of fats, oil and grease from the wastewater to suitable levels, which would otherwise have a detrimental effect on the biological treatment system;
- Denitrification - Nitrification/Oxidation: the reduction of the dissolved organic load, both nitrogenous and carbonaceous, is carried out in a biological reactor made up of two units, one for de-nitrification and the other for nitrification. The water coming from the primary flotation tank flows into the de-nitrification tank. This is combined re-circulated liquor from the nitrification tank and the sludge recirculated from the settling tank;
- Settlement Tank: To allow separation of the biomass from the wastewater, to allow these solids to return to the biological reactor;
- Final flotation: To reduce the suspended solids content of the wastewater to a level suitable for discharge;
- Disinfection: To allow the water to be suitable for discharge

#### Sludge line:

- Sludge dewatering with dynamic extractor: This will reduce sludge discharge volume and corresponding disposal costs. Polymer make-up and dosing equipment has been included to maximise solids capture. The liquors from this section are sent to the main plant to be re-treated.

