Industrial wastewater control and cooperation in the WWTP Helsinki Region Environmental Services Authority (HSY)

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Content of the presentation

- Parties involved in the industrial wastewater issues
- Industrial wastewater, definition
- How we control industrial wastewaters at HSY
- What kind of Industrial Wastewater Contracts we have
- One example of an industrial wastewater agreement
- Role of City of Helsinki Environmental Services in management of Industrial sewage
Parties involved in the industrial waste water issues

- **Municipality**
  The municipality approves the operating area of the water supply plan. The operating area is such that the water supply company is able to handle water supply economically and properly.

- **The Water Utility**
  Under the Water Supply Act, the water supply company supplies to its customers drinking water and arranges the treatment of sewage water and rainwater. The each property in the operation area of the water supply plant must be connected to the plant's sewer.
Parties involved in the industrial waste water issues

• Industrial company
The industrial company is a customer that produces waste water that can have a different quality from residential wastewater. The operator must be aware of the quality of the effluent, the emissions of substances and the effects of the operation.

• State environmental authorities
The state environmental authorities grant environmental permits to industrial companies and monitor the compliance with permit conditions

• Municipal Environmental Protection Authorities
The environmental protection authority of the municipality carries out environmental issues at the local level. They also grant some environmental permits to industrial companies
Parties involved in the industrial waste water issues

Other supervisory authorities

- Relating to control of chemicals, the environmental authorities work in co-operation with health, occupational safety, rescue and safety authorities. The Finnish Safety and Chemicals Agency has centralized all national issues related to the control of chemicals.
Industrial wastewater

Industrial wastewater is called water that differs in *quantity or quality* from normal household wastewater.

Food industry, surface treatment, paint, textiles, chemicals and graphic industries  
Health Care, Laboratories  
Waste treatment plants, yards, power generation, laundries, workshops, construction sites  
Landfill, PIMA waters=soil contamination, car washing and maintenance
Industrial wastewater -
The main things to keep in mind considering sewage network and receiving WWTP

• Occupational Safety and Health
  – People working in pumping stations etc.
• Sewage network
  – Clocking, corrosion
• Wastewater treatment plant
  – Biological treatment
• Reuse of sludge
• Receiving water after treatment
Industrial wastewater quality

Does industrial waste water include Harmful or hazardous substances? Can we treat it?
Industrial wastewater control at HSY

Feedback

Industrial party
Agreement
Monitoring of the wastewater
Results of waste samples via laboratory
Processing of the results

HSY Control Services
Information
Inspections with environmental authority
Sampling
Contracts, statements
Processing of the results

Network and pumping stations

Wastewater treatment plant

Receiving water

measurement and control
Industrial Waste Water Contracts in the HSY area

Food industry (juice factory, confectionery, meat processing, fish processing plant, bakery)
Surface treatment, machinery industry (metal, paint, color paint factory)
Washing industry, concrete factories, research institutes, container washing
Techno-chemistry and Pharmaceutical industry
Treatment Hazardous Waste
Port operations
Energy production

Approximately 70 contracts in the area
The Industrial Wastewater Agreement is needed when….

- The amount or quality of industrial wastewater can have an impact on workers' safety, the state of the sewerage system, the wastewater treatment process, the quality of the sludge or receiving water.

- It is necessary to set processing requirements, limit values, monitoring programs for industrial wastewater.

- The waste water load is high and wastewater charge is higher than normal fee.
The Industrial Wastewater Agreement is needed when….

• The Industrial wastewater agreement is good to make at the same time as accession treaty
• Industrial wastewater agreement can also be made afterwards
• The Industrial wastewater agreement can be made with the owner of the property or with the industrial company
• The industrial wastewater agreement is usually made when the industry has the environmental permit
• Cooperation with the environmental authorities is important before making the agreement
• The necessity of the industrial wastewater agreement is finally determined by the water utility on a case-by-case basis
How to make an agreement with an industrial party

The water utility sends the application to Industry

The customer reports issues related to wastewater: chemicals, process, volumes

The water utility estimates the need for the agreement

Customer follows general instructions

No agreement

HSY prepares contract, which the customer accepts

Agreement
Industrial wastewater agreements

- The permit conditions set limit values for wastewater for example to heavy metal, fat and solids waste water
- Wastewater monitoring program is drawn up by agreement. The monitoring program records the sampling site, sampling frequency and the subjects
- In addition, the industrial plant complies with general wastewater limit values a
Monitoring of the wastewater quality

The wastewater sample is taken from the wastewater treatment process if possible.

OR

A wastewater sample is taken from the wastewater manhole.
The quality of wastewater in the milk industry

- Industrial wastewater is mainly generated by washing lines and dishes
- Organic material comes from milk and consists of milk sugar, protein and fat
- The BOD / COD ratio is about 0.65 to 0.7
- Milk fat is difficult to break down
- The COD concentration may be from 2000 to 4500 mg / l
- Phosphorous load is low
- Nitrogen comes from nitric acid and nitrogen in protein
- The waste water temperature can be high
Wastewater from the milk industry may cause

- Corrosion in the sewage network
- Odor problems (hydrogen sulphide) in the sewage network, pumping stations and in residential areas
- Grease in the sewage network
- Process problems in the WWTP: overload of the organic matter
Industrial Waste Agreements in the HSY area

Example: Food industry
Special conditions

This agreement covers wastewater from industrial company (pre-treated in this case to reach the values)

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<td>Suspend solid</td>
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<tr>
<td>Grease</td>
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<td>pH</td>
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<tr>
<td>Temperature</td>
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Grease removal tank
Summary of cooperation

• Co-operation with environmental authorities is important. HSY has meetings twice a year with environmental authorities of the area (cities Helsinki, Espoo, Vantaa)
• Co-operation in HSY is also very important (sewage network, wastewater treatment, billing)
• The Industry informs about the emissions to HSY or call to treatment plant’s control room
• HSY gives feedback to industrial plant about wastewater sample results
• Communicating to all parties is essential
• There can never be too much information
• Maintaining contact information is important
Wastewater treatment plant will work better when industrial wastewater is treated at source
Thank you for your attention!