

Cleaner Production in the Regional Special Waste Incineration Plant (RSWI)

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The company Valorec Services Inc., with 330 employees in Switzerland, is a subsidiary of Veolia Environment Group (old company named Vivendi Environment), which is a leading company with four divisions covered all environmental service activities: Vivendi Water, Onyx (waste management), Dalkia (energy) and Connex (transport) with operations in more than 100 countries. As a subsidiary we are specialized in the incineration of hazardous solid, pasty, liquid and gaseous waste by high-temperature.

The applied technologies in the RSWI are as following:

- Rotary kiln with after burning chamber
- Boiler for heat recovery
- Multistage wet scrubber
- SCR System for NO_x conversion
- Waste water treatment

Cleaner Production in the RSWI

Our purpose is, with continuous process optimizing to reduce the plant operation cost and to dispose waste economically.

To reach this purpose, our plant manager, Mr. Wagner was very interested in project "Cleaner Production" through reading local newspaper and decided to participate in the Cleaner Production project *Impulse Environment*.

The project has been carried out in several stages in our plant:

Quick Scan during plant visiting:

The first stage means Quick Scan. The project manager, Mr. Buser with students from FHBB visited our plant. During visiting the information from the plant has been transferred to the project team. It was revealed that there are potentials for Cleaner Production.

Material- and heat balance

After the plant visiting a report has been written by FHBB for further activities. The following activities focused on the cooling water consumption and flue gas treatment system. As a consequence, a material-and heat balance of the plant was performed by students of FHBBs chemical department with computer simulation combined with plant data supplied by plant chemical engineer. The simulation results showed a high difference between the theoretical calculated water flow and the plant real consumption figures.

Measurement of water flow on plant pipe lines

In order to analyse what is real water flow in the plant a mobile flow measuring meter has been used on six key pipe lines for many days. It was found that there was high water flow consumption in the cooling system at head of the rotation kiln.

Discussion between project team FHBB and plant manager/chemist/engineer

Based on computer simulation and the plant measuring results a report has been written by project leader Mr. Buser from FHBB. In that report many very valuable suggestions for the improvement of plant operation have been analysed and listed including cost calculation for additional investment. In following meeting all of improvement suggestions

have been discussed between FHBB project team and plant manager, chemist and engineer.

Action

After the meeting an action program with change control and risk analysing has been defined by plant manager/chemist for increasing a temperature set point of the cooling system at rotation kiln head to reduce plant water consumption. After the change of the parameter and optimising of level control in water tank, the cooling water consumption reduced about 35 m³/h. This amount corresponded to 45% of the plant water consumption or in CHF 60000 to 70000 per year.

This example demonstrates that even fully automated, modern plants have significant saving potential.