KRR PROSTREAM
Enhancing Process, Production & Performance

CASE STUDY: Filter Bag Cleaning at a UK EfW Facility

In September 2011 KRR ProStream successfully completed our first Online Filter Bag Cleaning project at a UK energy from waste facility.

The plant in question operates two lines with a total throughput of approximately 160,000 tonnes of municipal waste each year, producing around 95,000 mw/h of electricity. The Plant Manager was aware of the effectiveness of Online Filter Bag Cleaning, having already had one clean carried out by F.O.S.®, the German inventors of the technology. Following the appointment of KRR ProStream as the exclusive UK suppliers of the service he contacted us to discuss the second clean at his plant.

Before scheduling the actual cleaning, trained members of the KRR ProStream team visited the site to collect sample bags for testing. We sent these bags to the specialist F.O.S.® laboratory in Germany so that they could assess the extent of the performance improvements that would result from a full scale clean. These tests are conducted free of charge for all potential customers who express an interest in our Online Filter Bag Cleaning service. The customer then has the opportunity to consider the test results in detail before we ask them to commit to the project.

The laboratory investigations determined that the gas-side of each sample bag taken from the baghouse was heavily coated with dust and agglomerates, with fouling accounting for approximately one third of the total sample weight. Prior to cleaning, tests to assess the permeability of the sample bags using air at 200Pa returned an average of 26 l/dm^2. After simulated cleaning in the lab, this value increased by more than 400% to an average of 116 l/dm^2, only four units lower than the performance of brand new bags.

In light of the extremely positive results achieved in the laboratory, we were asked to proceed with a complete clean for both lines of the facility. A team of three KRR ProStream personnel cleaned a total of 2240 bags over a period of 10 working days. A comparison of some key plant operating parameters from before and after the project quickly demonstrates its effectiveness.

Average Values when Steam Production exceeds 20t/h	**Before FOS Operations**		**After FOS Operations**	
	Line 1	*Line 2*	*Line 1*	*Line 2*
ID Fan Damper Position (%)	85.7	79.8	87.9	76.2
Steam Flow (t/h)	29.8	29.7	33.5	35.2
Baghouse Differential Pressure (mBar)	23.1	23.1	16.9	16.5

Average calculations based on the figures above show an 18.82% increase in steam flow and a 27.71% reduction in differential pressure across the filter bags. Taken together, these improvements to the performance of the baghouse indicate an increase in the facility's overall waste treatment and power generating capacities, amounting to estimated gains of 18.2% for both electricity and gate fee income[1].

[1] We assume that 18.2% of improved steam production corresponds to the equivalent increase of electricity generation waste processed.