



Lowest emissions
Highest ambitions



CASE STUDY

THREE ESPs. ALL BELOW 1 MG/NM³

Reducing emissions far below target.

At its Svappavaara pelletising plant in northern Sweden, LKAB wanted to increase production. Approval came with one condition: dust emissions also had to come down. The existing flue-gas cleaning equipment dated back to 1969, so LKAB needed more than a simple replacement. It needed a solution that could meet tougher emissions requirements, deliver high long-term availability and be installed without putting production at unnecessary risk.

For LKAB, the key was not simply to meet the new limit on day one. The new installation also had to support stable, higher level production for the long term. With only one planned maintenance stop each year, reliability and availability were central to the project from the outset. And it had to be delivered at a plant where additional downtime is particularly costly.

Three ESPs. One complete solution.

The Svappavaara plant produces around 3.8 million tonnes of iron ore pellets per year. Airnord – then operating as FLSmidth Airtech – delivered a complete turnkey solution centred on three new Type E electrostatic precipitators for the UDD, DDD and TPH exhaust systems.

The scope included:

- Complete design and engineering
- Three new three-field ESPs
- Dust transport systems
- ID fans and dampers
- Field instruments and gas analysers
- Complete ductwork, including wear lining
- Access systems
- Mechanical and electrical installation
- Training and commissioning

This gave LKAB one partner responsible for the complete installation – from engineering and equipment supply through erection, commissioning and start-up.



10 days to get it right

The challenge was not only what had to be installed, but how. Svappavaara lies north of the Arctic Circle, where weather adds another layer of complexity. More importantly, the project allowed just 10 days for the final tie-in to the plant.

With little room for surprises, preparation started early. LKAB, Airnord and the other project partners planned the installation in detail before the shutdown began. 3D scanning gave the engineering team an accurate picture of the existing plant, allowing the new installations to be checked for potential clashes before equipment reached site.

The preparation paid off. The complete tie-in was carried out within the planned 10-day window.

“We are very satisfied with FLSmidth’s performance during both the design and construction phases. It was very impressive how their team was able to successfully complete the erection work within the planned 10-day tie-in and how flexible they were in co-operating with our partners and suppliers.”

– Joakim Winsa, Planning and Design Manager, LKAB

10 mg/Nm³ guaranteed.

Below 1 measured.

The contractual dust emission guarantee was 10 mg/Nm³. Performance testing in January 2014 measured:

- UDD exhaust: 0.3 mg/Nm³
- DDD exhaust: 0.7 mg/Nm³
- TPH exhaust: 0.3 mg/Nm³

For LKAB, the project delivered more than regulatory compliance. It combined ultra-low emissions with reliable equipment, a tightly controlled shutdown and successful execution under demanding site conditions.

The numbers tell the story:

Three ESPs, all below 1 mg/Nm³, connected to the plant within a 10-day tie-in.

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