CASE STUDY

PEERLESS
A CECO ENVIRONMENTAL BRAND

330MW POWER PLANT RECEIVES SELECTIVE CATALYTIC REDUCTION (SCR) UPGRADE

For more than 40 years, Peerless has engineered retrofit solutions for existing power plants and industrial facilities. Driven by their commitment to protecting people, the environment and industrial equipment, Peerless develops solutions that improve operational efficiency and meet emissions control requirements.

CECO Peerless partnered with a utility power plant in the northeastern United States to upgrade its aging emissions control system. The project presented an opportunity to address longstanding operational challenges, reduce operating costs and improve emissions control compliance.



THE CHALLENGE: A COSTLY AGING SYSTEM

The facility operated a 330 MW oil-fired boiler equipped with a Selective Catalytic Reduction (SCR) system. The system was originally installed in the 1990s to reduce nitrogen oxide (NOx) emissions and was failing to meet current emissions standards.

Over time, the existing system became increasingly difficult and costly to operate. The system relied on steam to vaporize ammonia before injecting it into the exhaust gas, adding to operating costs. Meanwhile, the ammonia injection grid was prone to plugging, affecting performance and reliability. For years, the facility struggled to consistently operate its SCR system within its NOx emissions limits.

THE SOLUTION: A MODERN SCR UPGRADE

Peerless replaced the existing ammonia vaporization and injection equipment with a new direct-injection SCR system designed for the plant's existing infrastructure.

Using in-house engineering expertise and its patented computational fluid dynamics (CFD) modeling approach, Peerless optimized reagent injector placement to support effective ammonia distribution and NOx reduction.

The Project Included:

- A climate-controlled enclosure housing a fully redundant SCR control system.
- An upgraded ammonia and air control system with a new programmable logic controller (PLC).
- New injection distribution modules and injectors within the boiler house.
- Turnkey installation and integration with the plant's existing system.

The Peerless team managed the project from engineering through installation, completing the retrofit safely and efficiently within the scheduled outage window.

CUSTOMER BENEFITS

- 30% less ammonia consumption, reducing reagent use while supporting emissions reduction goals.
- Lower operating costs by eliminating steam consumption for ammonia vaporization and removing the blowers previously used to supply the injection grid.
- Improved reliability through upgraded injection and flow control equipment, reducing equipment issues and downtime for repairs.
- Improved emissions performance, helping the facility meet its NOx emissions requirements while maintaining low NOx emissions and ammonia slip.

Together, these improvements delivered a more reliable, efficient and cost-effective emissions control system.

> We are very pleased with the design and development of our SCR upgrade. The new system has met all emission criteria, decreased ammonia consumption and reduced operator/machine interactions. Early troubleshooting and modifications were quickly addressed which has created a perpetual relationship with CECO.
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> *Utility Power Plant Outage Coordinator and Maintenance Supervisor*

With more than **1,500 SCR units** in operation and installations across more than 100 industrial facilities worldwide, Peerless brings decades of emissions management experience and expertise to our customers.

Whether you need replacement parts, a plant assessment or a complete SCR retrofit, the Peerless team can help improve system performance, reduce operating costs and meet emissions requirements.

LOOKING TO IMPROVE YOUR EXISTING SCR SYSTEM?
CONTACT PEERLESS TO EXPLORE THE RIGHT SOLUTION FOR YOUR FACILITY.

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