BOILER AND GAS TRAIN UPGRADES RESULT IN HIGH EFFICIENCY AND INCREASED SAFETY

BOILER CASE STUDY

J.R. Simplot Company

Helm, CA

SCR Project & Control Retrofit

CUSTOMER APPLICATION AND KEY CHALLENGES

J. R. Simplot Company is one of the largest privately held food and agri-business companies in the nation. The Lathrop-Helm facility produces high quality nitrogen and phosphate fertilizers for professionals in agriculture, the turf trade, nurseries, the feed business, and industrial applications.

The plant operated a 50kppm IWT auxiliary boiler to start their main boiler processes. Once the main boiler process generates enough heat to become self-sufficient, the auxiliary boiler goes off-line. The auxiliary boiler had been in use since the 1950's, and required emissions control improvement as well as upgrades to meet current code and safety requirements.

J.R. Simplot opted for a retrofit and upgrades to meet their requirements and contacted R.F. MacDonald Co. to assist with their equipment project.

J. R. Simplot offers growers the highest quality dry and liquid fertilizers on the market

THE R.F. MACDONALD CO. ANALYSIS & SOLUTION

After J.R. Simplot opted to retrofit and upgrade an existing auxiliary boiler at the Helm facility, R.F. MacDonald Co. designed and integrated emissions control improvements with the installation of a Selective Catalytic Reduction System (SCR), Boiler Control System Upgrade, Gas Train Modification, and the installation of new ladders and platforms to safely access APCD emissions test ports.

The SCR base is an Anhydrous Ammonia Control Skid with a Haldor Topsøe catalyst. The setup also included a three-tank system with heat trace. The boiler control upgrade included an Allen Bradley CompactLogix based metered control panel, with an AB PanelView Plus touch screen, fully accessible from an operator control room. The control panel was designed to regulate both the boiler and the SCR ammonia flow control systems.

Final upgraded boiler with SCR system and new platforms, ladders, and grating

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The new Anhydrous Ammonia control system for SCR

The gas train modification was required to meet current codes and increase the overall safety of the system. The new gas train included Maxon Main Gas Valves, an ungraded pilot block and bleed vents, a Leslie Control Valve, and new pressure switches.

R.F. MacDonald Co. also installed new platforms, ladders, handrail and grating to allow workers to safely access APCD emissions test ports, and conduct manual checks on the equipment.

PROJECT RESULTS

The project was successfully installed and is currently in operation and meeting all emission requirements. While many customers opt to decommission an old boiler, R.F. MacDonald Co. provided considerable savings by upgrading a mechanically sound boiler to current emission, code and safety standards.

Retrofit of an Older Existing Boiler Helped Save Full Replacement Costs, While Meeting Current Emission and Safety Standards

A completely new gas train was designed to meet current code and safety standards