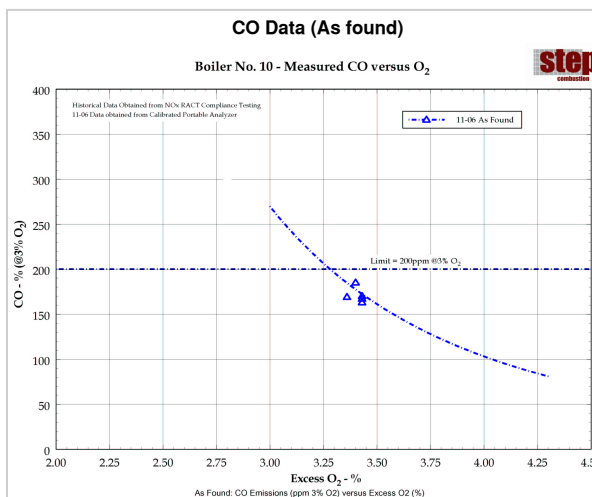


Combustion Tuning to Meet State Compliance Testing (120 kpph Industrial Boiler)

STEP Combustion was contacted by an international chemical company to provide combustion expertise and support to reduce CO emissions from their natural-gas fired 120 kpph industrial boiler. CO emissions on the unit had been steadily increasing since Low NOx retrofits were installed in the mid 1990's and had recently exceeded their state mandated limits when NOx emissions were below their limit (Increases in O2 caused NOx emissions to exceed permitted limits).

The following day, STEP Combustion arrived on-site and began obtaining historical emissions data, measuring current emissions, and assessing changes that have been made since CO has become an issue. The OEM burner manufacturer had recommended changes to the fan inlet however no improvements had been realized. Baseline testing including operations, performance, and emissions data were obtained by STEP Combustion. Results from preliminary testing revealed that emissions had in fact increased to the permitted limits and that the client was dangerously close to failing their upcoming compliance test. Subsequently, burner tuning was performed in order to reduce CO back to normal levels.

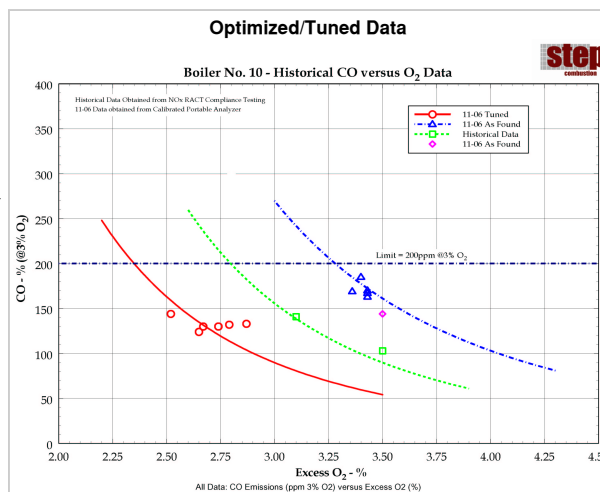


The Solution...

STEP Combustion adjusted several burner operating parameters such as flame stabilizer position, spin register and slide damper positions to optimize CO combustion. Additionally, potential sources of the increased emissions characteristics were identified. Sources for the increased emissions included:

- Improperly fit Flame Stabilizer
- Changes in Burner Quarl Geometry from Outage Work

The final configuration yielded a characteristic emission curve as shown:



Why STEP Combustion?

STEP Combustion boasts over 10 years of experience in combustion tuning and low emissions burner technologies. Our experience includes a multitude of projects including:

- Low NOx Burner Retrofits
 - Oil
 - Gas
 - Solid Fuels
- Performance (Efficiency) Testing
- Emissions Testing
- Troubleshooting & Project Management

STEP Combustion's extensive experience with modeling, design, field implementation, and verification makes us uniquely suited to provide efficient, economical, and dependable results.

Please contact us for more information or to discuss your specific application.