Proceedings of the 17th Annual North American Waste-to-Energy Conference
NAWTEC17
May 18-20, 2009, Chantilly, Virginia, USA

NAWTEC17-2322

THE DESIGN AND OPERATION OF AN ADVANCED NOx CONTROL SYSTEM ON THE NEW 636TPD MWC AT THE LEE COUNTY WTE FACILITY

Alexander S. Dainoff
Regional Sales Manager, Fuel Tech Inc.
Stamford, CT 06901 USA

Dennis Anacker, P.E.
Manager of Project Engineering, Covanta Energy Corporation
Fairfield, NJ 07007 USA

ABSTRACT

In September of 2007, a new 636TPD Municipal Waste Combustor was brought on line at the Lee County WTE Facility in Fort Myers, FL operated by Covanta Energy. This unit was the first new Waste to Energy unit built in the United States in a number of years and included a lower permitted daily average NOx emissions requirement of 110ppm @ 7%O2 while maintaining ammonia slip to less than 10ppm.

To meet this new stringent NOx emissions requirement, the boiler was designed with advanced combustion controls including Flue Gas Recirculation combined with a urea based Selective Non-Catalytic Reduction Process to provide a combined NOx reduction of approximately 70% while maintaining the required ammonia slip.

The SNCR System provided by Fuel Tech was designed with 3 levels of seven wall injectors installed in the upper furnace. Both boiler load and Furnace Gas Temperature were used as a feed forward control with the CEM NOx signal as a feed back to automatically select the injector levels and reagent feed rates to maintain the targeted NOx while also maintaining ammonia slip control.

This paper will outline the design considerations, the details of the process and the operation of the systems on this unit.

INTRODUCTION

In September of 2007, a new 636TPD Municipal Waste Combustor was brought on line at the Lee County Waste to Energy Facility in Fort Myers, FL operated by Covanta Energy. This unit was the first new Energy From Waste (EFW) unit built in the United States in a number of years and included a lower permitted average NOx emissions requirement of 110 ppm @ 7% O_2 with an ammonia slip limit of less than 30 ppmdv @ 7% O_2.

To meet this new stringent NOx emissions requirement, the boiler was designed with advanced combustion controls including Flue Gas Recirculation combined with a urea based Selective Non-Catalytic Reduction (SNCR) system to provide a combined NOx reduction of approximately 70% while maintaining the required ammonia slip.

The SNCR System provided by Fuel Tech was designed with 3 levels of seven wall injectors installed in the upper furnace. Both boiler load and furnace flue gas temperature were used as a feed forward control with the CEM NOx signal as a feed back to automatically control reagent feed rates to maintain the targeted NOx, while also maintaining ammonia slip control. Selection of the injection levels was designed to be either manual or automatic.

This paper will outline the design considerations, the details of the process and the operation of the systems on this unit.