Babcock Power ENVIRONMENTAL

SUCCESS STORIES

WISCONSIN ELECTRIC POWER COMPANY

SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM

LOCATION SOUTH OAK CREEK POWER PLANT, OAK CREEK, WI, U.S.A.
CAPACITY 273-336 MWs

PROJECT OVERVIEW

Babcock Power Environmental was contracted to design, procure, fabricate and deliver two complete Selective Catalytic Reduction Systems (SCRs) to control NOX emission from four Pulverized Coal (PC) fired units ranging in capacity from 273-336 MW firing Powder River Basin (PRB) coal. The SCRs are placed downstream of the Airheater(s) and as such require heating of the Flue Gas (FG) prior to introduction into the SCR, making this a unique, first of a kind application. Our scope of supply includes a Gas-to-Gas Heater (GGH), a Steam Gas Heater (SGH), SCRs, Ductwork, Aqueous Ammonia Tank Farm with one truck unloading station, two Ammonia tanks (horizontal bullet type) and two 100% Ammonia transfer pumps mounted on one Ammonia transfer skid.

PERFORMANCE MEASUREMENTS

NO_x @ SCR Outlet	0.06 lbs/MBtu
NH_3 Slip	0.27 ppm @ 3% O_2
SO_2 to SO_3 Conversion	n/a
GGH Heater Leakage	4.8% (avg)
SGH Subcooled	57°F
SCR System P	6.5 iwc (avg)
Gas Temp Lvg GGH	506°F (avg)
Gas Temp Lvg SGH	531°F (avg)
SGH Steam Consumption	27,910 lb/hr

DESIGN PERFORMANCE MEASUREMENTS

NO_x @ SCR Outlet	0.07 lbs/MBtu
NH_3 Slip	2 ppm @ 3% O_2
SO_2 to SO_3 Conversion	0.5%
GGH Heater Leakage	≤ 5.0%
SGH Subcooled	≥ 50°F
SCR System P	≤ 14.6 iwc
Gas Temp Lvg GGH	509°F ± 5°F
Gas Temp Lvg SGH	≥ 530°F
SGH Steam Consumption	≤ 31,688 lbs/hr

PERFORMANCE RESULTS

Performance measurements reported at left were recorded during acceptance testing by an independent third party under contract with the end user.