

SUCCESS STORIES FIRST LIGHT – MT. TOM

POWER STATION

LOCATION HOLYOKE, MA, U.S.A. CAPACITY 155 MW

PROJECT OVERVIEW

First Light Mt. Tom power station worked with Babcock Power Environmental (BPE) to meet industry emission, consumption and mercury removal standards. BPE supplied the power station with a Selective Catalytic Reduction (SCR) system to remove NO_x. BPE provided a Turbosorp[®] Circulating Dry Scrubber to remove SO₂, SO₃, HCI, and HF and a fabric filter for particulate emission control.



Turbosorp[®] CDS

continued on back

4

BABCOCK POWER ENVIRONMENTAL SOLUTION

Babcock Power's Selective Catalytic Reduction system uses 19 weight % aqueous ammonia as the reagent. The ammonia liquid is sprayed and distributed uniformly in the flue gas, upstream of the SCR reactors, using Delta Wing® static gas mixing technology. This mixing technology provides homogeneous gas mixing and reagent injection in one application, with no moving parts in the gas stream. Delta Wing technology requires minimum tuning during startup and commissioning and little, if any, annual tuning of the SCR.

BPE's Turbosorp dry scrubbing technology enhances contact of finely atomized water, hydrated lime and flue gas through high levels of solid recirculation in a fluid bed reactor. The hydrated lime reagent and finely atomized water are injected independently into the Turboreactor to lower the flue gas temperature and enhance acid gas reactions. Upon leaving the Turboreactor, the solid particles that comprise the fluid bed material are separated from the flue gas in a fabric filter bag house and recycled back to the reactor. Turbosorp technology is ideally suited for coals with sulfur contents below 3.0% with typical acid gas removal efficiencies greater than 97%.





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PERFORMANCE MEASUREMENTS

NO_x Removal NO_x Emissions NH₃ Slip SO₂ to SO₃ Conversion SO₂ Removal SO₂ Emissions SO₃ Removal SO₃ Emissions Mercury Removal

Particulate Emissions

* measured before replacing worn bags.

91% 0.055 lb/106Btu < 1.5 ppm <1.3% 96.8% 0.066 lb/106Btu 82% 0.16 ppm 96.7% w/o activated carbon 99.6% w/ activated carbon 0.0055 lb/106Btu*



^ SCR

DESIGN PERFORMANCE MEASUREMENTS Fuel & Flue Gas	
Type NO _x Flow	Bituminous coal 0.6 lb/10 ⁶ Btu 453,000 Wet SCFM
SCR Reagent No. Reactors	19 wt. % NH³ 2 Material Carbon Steel
CDS Reagent Reactor Material FF Modules/Bags ID Booster Fan	Hydrated Lime Carbon Steel 12 / 6″ dia. x 24 ft long - PPS 1 at 700,000 acfm

PROJECT RESULTS

First Light Mt. Tom power station achieved all emission, consumption and mercury removal guarantees.





BabcockPower