

NETRA at Ramagundam Site Feedback

By CH SAMMAIAH

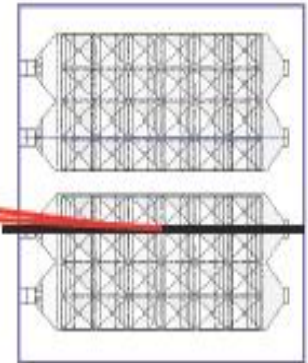
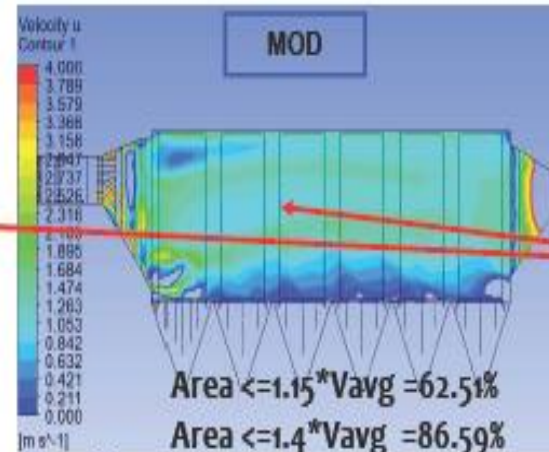
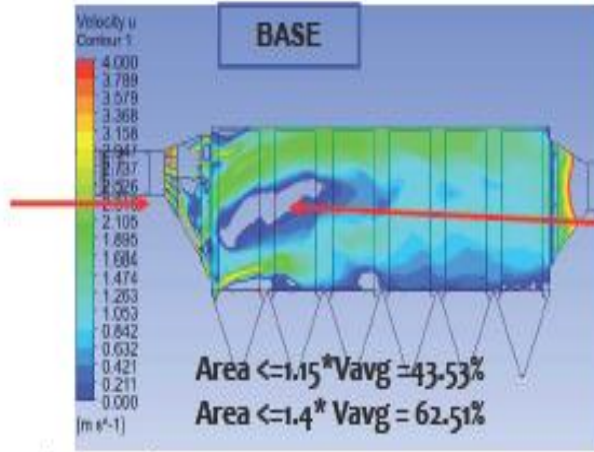
DY. General Manager (O&M AHP)

DATE : 17.01.2020

Project is successfully carried out by NTPC , Ramagundam O& M Team:

- 1) Flue gas heat recovery for Air-Conditioning of Unit 4 ESP Control Room
- 2) ESP internal modification using CFD Analysis for SPM reduction in U#4 (SPM reduced from 190 to 122 mg/Nm³)
- 3) Flue gas utilization for pH reduction of re-circulating ash pond water (ETP-III)
- 4) Health assessment of SH & RH Headers of Ramagundam, Unit #5, 6
- 5) Unit7 Corrosion mapping done during BTL opportunity, two tubes just about to failure identified
- 6) ESP Pre and Post Modification test done by M/S SGS

Performance Improvements through ESP GD Screen modifications in U4, 500 MW



Modifications carried out in Dec 17- Jan 18:

- Newly designed inlet splitter plate
- Additional GD Screen with 80mm hole in the funnel between splitter plate and existing GD screen
- Modified GD Screen with different holes and no blocking plate

- Reduced ID Fan power consumption
- Reduced ESP R&M Cost

APC reduction upto 1.72 MU/Year and saving upto 40 lakh/Year

CFD Base Modification ESP Inlet Funnel

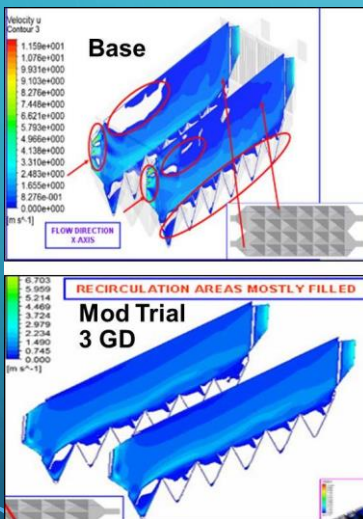


Netra Projects in Ramagundam:

ESP Performance Improvement in Ramagundam # 4

Salient Details:

- Based on CFD Modeling Modification carried out Splitter plates, GD Screen and Hopper divider Plates
- Site replace defective mechanical elements like emitting and collecting electrodes, wrapping mechanism
- Measurement indicates reduction in SPM by 122 mg/Nm³



FG flow: Before and After



Model of re-design splitter plates



New GD screen with variable diameter holes

**CFD BASD MODIFICATION
UNIT-4 ESP NTPC RAMAGUNDAM**



After Two Years condition of Inlet Funnel Splitters:



Expenditure Details of the Project :

SL No.	Description	Cost
A. Execution Cost:		
01	Execution cost for ESP	4400000.00
02	Supervision cost ESP (BHEL)	5066000.00
03	Execution cost for outlet duct modification	2327000.00
Total expenditure for execution and supervision		11793000.00
B. Material cost :		
01	Structural steel (6mm Plate ,angle ,channel) 86.5 MT	3376000.00
02	Structural steel for outlet duct modification 30 MT	1294000.00
03	GD screen sheet 320 Nos	8110000.00
Total Material Cost		12780000.00
TOTAL PROJECT COST (A+B)		Rs. 24573000.00

ESP Outlet Dust Monitoring :



ESP Inlet Dust Monitoring :



Unit 6 Pre Modification Test data (By M/s SGS)

Inlet Pre modification			
	Dust Conc. (gm/Nm ³)	Mass Flow Rate (Kg/s)	Mass Flow Rate (Ton/Hr)
Average	34.74	99.67	358.80
Outlet Pre modification			
	Dust Conc. (mg/Nm ³)	Mass Flow Rate (Kg/s)	Mass Flow Rate (Ton/Hr)
Average	190.85	108.39	390.21

Unit 4 Post Modification Test data (By M/s SGS)

Inlet Post modification			
	Dust Conc. (gm/Nm ³)	Mass Flow Rate (Kg/s)	Mass Flow Rate (Ton/Hr)
Average	39.29	95.67	344.44
Outlet Post modification			
	Dust Conc. (mg/Nm ³)	Mass Flow Rate (Kg/s)	Mass Flow Rate (Ton/Hr)
Average	122.00	105.04	378.14

Remarks: After Post Modification in U4 the average value of SPM was around 122 mg/nm³ in comparison to Pre modification of U6 190 mg/nm³

Thank You