



**CENTRAL POLLUTION CONTROL BOARD
ZONAL OFFICE (SOUTH)
BENGALURU**

Training Report on “Source Emission Monitoring and Measurement Techniques by experts from VTT-Finland” conducted during November 26-28, 2013.

Central Pollution Control Board, Delhi has signed a MoU with VTT-Finland with an objective to share the technologies adapted in Finland for odour measurement, fugitive emissions and source emission monitoring and to check the technology feasible for Indian conditions and if suits technically then same may be recommended to India especially in the field of odour measurement and fugitive emissions measurement. As the part of the study, numbers of training programmes were organized by the CPCB, Delhi.

In view of the above, the “Hands-on training programme on Source Emission Monitoring and Measurement techniques by experts from VTT-Finland” was organized by CPCB, Delhi during November 26-28, 2013 in which Ms. Anjana Kumari V, Scientist ‘B’ from CPCB south Zonal office, Bangalore was nominated.

The three days training involved series of lectures and demo by the CPCB officials on the techniques adapted for source emission monitoring in India and Finland, what are all the major difference in the techniques etc followed by one day field visit to NTPC, Dadri in order to give the demo on source emission monitoring procedure followed in India. And the final day the programme was schedule with the discussions on the field monitoring.

The first day of training was started with welcoming address by Mrs Mita Sharma the project co-ordinator followed by presentation on the project status i.e what are all the steps followed in the course of the project etc.



After the tea break, the training programme continued by the presentation from Shri. Kamal Kumar an official from CPCB Agra office on experience at Finland on stack monitoring for particulate matter and gases. His presentation covered the details on the source emission monitoring procedure followed in Finland starting from the pre-visit of the site in order to check the safety aspects and monitoring locations, laboratory preparation such as drying of filter which will be used at the monitoring location, conditioning of the instruments, safety measures which are adapted for monitoring purpose and quality checking by the monitored data and documentation.

It was found that the major difference when compared to Finland source emission monitoring is that in Finland they have adapted FTIR (Fourier Transform Infrared Spectroscopy) technology for gases analysis in which the composition of gases were analyzed by passing Infrared rays through the flue gas which in turn connected to the laptop with supporting software so that online readings can be seen from the laptop with all the setup. The second major difference is that they are using thin sheet of quartz filter. For conditioning, the filter paper is weighed along with the filter holder and thimble and filter complete set are dried by oven drying at 160° C whereas in India glass fibre thimble is used for PM analysis and only thimble is conditioned by oven drying at 120°C. The presentation was followed by many discussions on the advantages and disadvantages of FTIR technology etc.

In the second session of the training presentation was given by Shri P. Krishnamurthy, Scientist 'C' on In-stack monitoring method i.e the procedure followed in India for Source Emission Monitoring for PM and gaseous analysis, the presentation also gave the clear picture on calculation part at the time of stack monitoring such as calculation of traverse points, estimation of flue gas composition using flue gas analyzer, determination of moisture content, static pressure, flue gas velocity etc followed by the demo on pre-post laboratory preparations for field monitoring, chemicals to be taken as absorbent for sulphur dioxide as well as nitrogen dioxide, conditioning of the thimble by oven drying at 120°C etc.



Shri.P.Krishnamurthy was giving the demo on NO₂ analysis using volumetric flask.

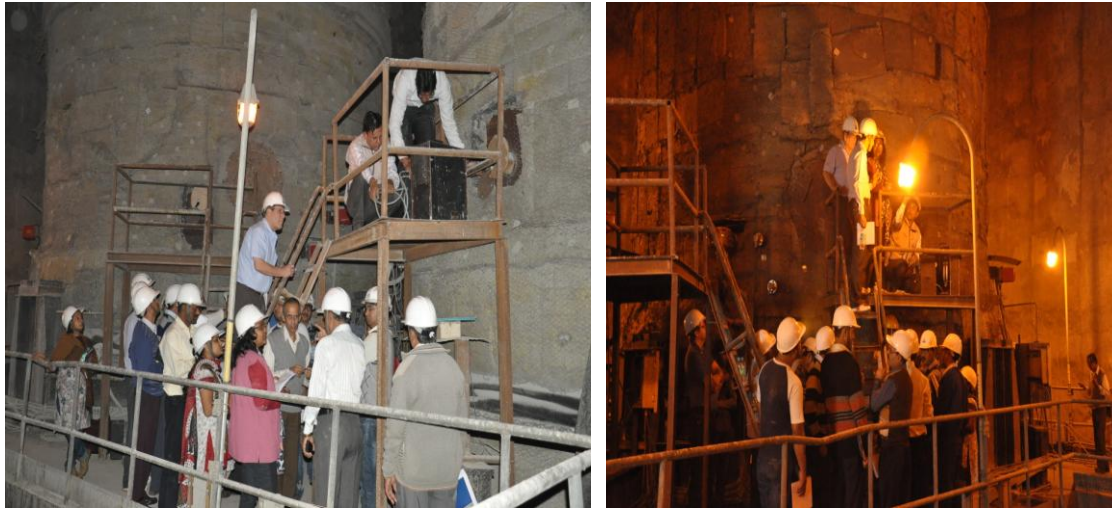
Shri P.Krishnamurthy presentation was followed by Shri Sanjay Kumar Scientist 'C' of CPCB presentation which gave the details on out-stack monitoring method which also used for analysis of dioxins and furans along with PM and other gaseous pollutants.



The first day training programme was ended with discussions and clarifications on the procedure followed for source emission monitoring on both in-stack as well as out-stack monitoring method.



The second day of training programme was schedule for field visit to NTPC, Dadri a thermal power plant of total capacity 2654 MW of power generation. The day started by the presentation of Mrs. Mita Sharma for purpose of visit followed by the presentation of experts by VTT-Finland on the projects of and developments of VTT in last 50 years. Then the presentation was given by Dr.Anil Kumar Jain, Assistant Director of NTPC, Dadri presenting the details on their production capacity, Environmental management facilities etc. After the presentation completed, all the participants were taken to the stack of about 225m height in order to give the demo on how the stack monitoring will be carried out in the field. Shri.Krishnamurthy was explained on the field calculations which are done during the monitoring.



Stack monitoring at NTPC, Dadri

The third day of the training programme scheduled for clarifications and discussions on the field monitoring done at NTPC, Dadri. All the doubts, questions are clarified by Shri Abhijit Pathak an official of CPCB expert in source emission monitoring.

The session was ended with vote of thanks by Mrs. Mita Sharma.

The training programme was very informative on the techniques followed and practiced in Finland for source emission monitoring, the procedure followed in India for stack monitoring for PM, gaseous pollutants, dioxins & furans, halides metals etc., what are the problems being faced during the time of monitoring and it also gave the comprehensive information on how to overcome the problems etc.

(Anjana Kumari V)
Scientist 'B'