

## Training on CEMS

### Capacity building For Coal-based Power Sector

Dates: 19 - 22 July, 2022

Venue: EPCO, E5, Paryavaran Parisar, Arera Colony, Bhopal, Madhya Pradesh 462 016

DAY 1; 19 July 2022

Topics	Resource Person	Timeline
<i>Inauguration</i>	<i>Chairman, MS- MPPCB</i>	<i>930-1000</i>
<i>Welcome and introductory round</i>	<i>Rajendra Chaturvedi, Scientist, MPPCB</i>	
<i>About the Programme</i> <i>CEMS in the coal-fired power plants- Report and Findings</i>	<i>Lesley Sloss ICSC</i>	<i>1000-1030</i>
<i>Tea Break</i>		<i>1030-1100</i>
<i>Overview of CEMS &amp; Programme Structure</i> <i>Basics of CEMS, experiences in India and Challenges</i>	<i>Sanjeev K Kanchan ICSC</i>	<i>1100-1130</i>
<i>CEMS guidelines in India</i> <i>Takeaway for equipment selection, suitability, correct implementation</i>	<i>J. S. Kamyotra Ex- MS- CPCB</i>	<i>1130-1300</i>
<i>Lunch break</i>		<i>1300-1400</i>
<i>Quality Assurance &amp; Control for CEMS- USA System</i> <i>Performance Test requirements, Tests procedures</i> <i>Test for quality assurance, quality control- US</i>	<i>R. Sean Warden QSTI Trainer, USA</i>	<i>1400-1500</i>
<i>Quality Assurance &amp; Control for CEMS- European System</i> <i>QAL system, AST</i> <i>Lab-based and Field Test procedures and Infrastructure requirements</i>	<i>Roland Zepeck IBD, Germany</i>	<i>1500-1600</i>
<i>Role of Laboratories in CEMS</i> <i>Laboratory jobs in CEMS, CEMS empanelment/accreditation</i>	<i>J. S. Kamyotra Ex. MS- CPCB</i>	<i>1600-1630</i>
<i>CEMS implementation in EU</i> <i>Experience of CEMS, regulation and implementation, new trends</i>	<i>David Graham (Online) Tech. Consultant, Uniper</i>	<i>1630-1700</i>
<i>CEMS implementation in USA</i> <i>Experience of CEMS, regulation and implementation</i>	<i>Jeff Ryan (Online) Sr. Scientist, USPEA</i>	<i>1630-1700</i>
<i>Tea Break &amp; End of the day</i>		

Topics	Resource Person	Timeline
<b>CEMS Selection- PM &amp; Gaseous-</b> Reference to Thermal power plant Guidance for specification, tendering, selection, after sales support	Sankar Kannan, SICK	930-1015
<b>PM CEMS fundamentals-</b> Reference to Thermal power plant Suitability and limitations Maintenance- alignment, cleaning, calibration factor etc.	R. Sean Warden, QSTI Trainer, USA  Sanjeev K Kanchan, ICSC	1015-11:00
<b>Tea Break</b>		<b>1100-1130</b>
<b>Gaseous CEMS fundamentals-</b> Reference to Thermal power Suitability and limitations- PM, SO <sub>2</sub> , NO <sub>x</sub> , O <sub>2</sub> , CO <sub>2</sub> Maintenance- Span, drift, alignment, cleaning etc. & solution	Roland Zepeck IBD, Germany	1130-1215
<b>CEMS installation and setting-</b> Reference to Thermal Power plant Correct installations- PM, SO <sub>2</sub> , NO <sub>x</sub> , O <sub>2</sub> , CO <sub>2</sub> , Hg Correct setting, Data connectivity and standardization	R. Sean Warden, QSTI Trainer, USA	1215-1300
<b>Lunch break</b>		<b>1300-1400</b>
<b>PM CEMS calibration</b> SRMs- BSEN 13284-1, IS: 11255 Part 1 or EPA method 17 or EPA method 5 or BS ISO 9096:2003, Calibration process	Ashish Gupta Director, Envirotech	1400-1530
<b>Gaseous CEMS calibration-</b> Reference to Thermal power Calibration system setup- tubing and cylinder set-up Calibration check, Remote calibration	Sankar Kannan, SICK	1530-1615
<b>Mercury monitoring-</b> Reference to Thermal power Suitability, limitations, CEMS, Sorbent-trap Maintenance issues & solution	Roland Zepeck IBD, Germany	1615-1715
<b>Plan for next day plant visit</b>	Ashish Gupta Sankar Kannan Roland Zepeck R. Sean Warden	1715-1730
<b>Tea Break &amp; End of the day</b>		

**DAY 3; 20 July 2022**  
(Bus starts 7:30 am onwards)

Topics	Resource Person	Timeline
<i>Bus to plant site</i>	<i>MPPCB</i>	<i>800-1100</i>
<i>Programme at plant</i> <i>Tea &amp; refreshment</i> <i>Brief intro and safety instruction by plant</i>	<i>Plant/MPPCB</i>	<i>1100-1200</i>
<i>Batchwise hands-on-experience</i> <i>Guide 1- Takes two groups (each for 20 mins)- PM monitoring</i> <i>Guide 2- Takes two groups (each for 20 mins)- Gaseous monitoring</i>	<i>Ashish Gupta</i> <i>Sankar Kannan</i> <i>R. Sean Warden</i> <i>Roland Zepeck</i>	<i>1200-1400</i>
<i>Lunch break</i>		<i>1300-1400</i>
<i>Demo continue until finish</i>		<i>1400-1600</i>
<i>Finish of the site visit</i> <i>Closing meeting, Thanks giving to the plant</i>	<i>MPPCB, ICSC</i>	<i>1600-1630</i>
<i>Bus Return from plant to accommodation</i>	<i>MPPCB, ICSC</i>	<i>1630-1930</i>
<i>End of the day</i>		

**DAY 4; 22 July 2022; 9:30 am onwards**  
Individual to carry laptops/iPads (for assessment)

<b>Topics</b>	<b>Resource Person</b>	<b>Timeline</b>
<b>Data Acquisition, Handling and Analysis</b> <i>DAS architecture, Regulatory requirement, Data Analysis,</i>	Aditya Sharma, Scientist E, CPCB	930-1030
<b>MPPCB Data Handling System</b> <i>System, experiences and lessons</i>	Pracheer Dixit, MPPCB	1030-1100
<b>Tea Break</b>		<b>1100-1130</b>
<b>Group/ individual assessment</b> <i>Sharing online questions (multiple choice and short questions)</i>	ICSC	1130-1300
<b>Lunch Break</b>		<b>1300-1400</b>
<b>Closing, Feedback and Certification</b>		
<b>Arriving of Guests</b>		
<i>Summarizing the training programme, Certificates</i>	ICSC	1400-1430
<i>Closing of events</i>	MS/Chair-MPPCB	1430-1500
<i>Vote of Thanks</i>	MPPCB/ICSC	1500-1530
<b>Gala Dinner</b>	<b>7:30 pm onwards</b>	

### **CONTACT PERSON(S)**

MPPCB- Rajendra Chaturvedi, Scientist, MPPCB,  
Pracheer Dixit, MPPCB

ICSC- Sanjeev K Kanchan, [sanjeevkanchan11@gmail.com](mailto:sanjeevkanchan11@gmail.com), 8800855090