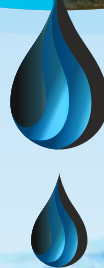


**DESIGN AND OPERATIONAL
STRATEGIES FOR SUSTAINABLE
WASTE WATER TREATMENT**

&

**ZERO LIQUID
DISCHARGE**

March 16-17, 2020
CICU, Near BSNL Exchange,
Ludhiana



DESIGN AND OPERATIONAL STRATEGIES FOR SUSTAINABLE WASTE WATER TREATMENT

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ZERO LIQUID DISCHARGE

Careful design and efficient operation of ZLD systems play a vital role in achieving regulatory compliance. The Central Pollution Control Board (CPCB) directions on installation of online wastewater treatment plants further demands foolproof operations of the wastewater treatment plants irrespective of main plant operations and process upset conditions. Basic knowledge on natural environmental processes, physicochemical principles and chemical unit operations are essential for efficient operation of the wastewater treatment plants.

Important Topics to be covered on How to Reduce Operating Cost of ZLD :

1. Robust Pretreatment
2. Energy Consumption Reduction,
3. Reduced Down Time Scenarios
4. Skill Levels Upgradation
5. Technological Interventions Needed
6. Standard Master Checklist for Preventive Maintenance
7. Learning from Industrial Case Studies told by Speaker(s)

COURSE OUTLINE

DAY 1

Session 1: Current Wastewater Management Regulations, Goals and Regulatory Concerns

Course Content: Wastewater discharge standards, Industry specific water usage and wastewater discharge, New Regulations on Effluent Irrigation Management Central and State Pollution Control Board requirements, Introduction to Zero Liquid Discharge (ZLD) and the associated water quality objectives and challenges in ZLD.

“
DETAILED EXPLANATIONS ABOUT ZLD DESIGN & IMPLEMENTATION TOPICS
”

- PANIPAT CO-OP SUGAR MILLS LTD.

“
LINKING ALL PARAMETERS WHILE EXPLAINING ZLD CASE STUDIES: VERY INFORMATIVE
”

- TATA STEEL BSL LTD.

Session 2: Overview of Wastewater Treatment Programs (Primary and Secondary Treatment)

Course Content: Overview of unit operations in primary and secondary treatment, objectives of primary and secondary treatment, Definition of water quality parameters, latest methods of analysis of various water pollutants, laboratory requirements for operating a ZLD plant etc

Session 3: Importance of Primary Treatment Systems in ZLD

Course Content: Objectives and various types of primary treatment, advantages of primary treatment in the downstream ETP systems, operational issues in ZLD plants arising out from inadequate primary treatment systems etc.

Session 4: Advanced Physico-Chemical (Primary) Treatment Techniques

Course Content: Advanced treatment techniques like extended coagulation, electro-coagulation, advanced oxidation etc and their application in ZLD plants. Merits of advanced pre-treatment over conventional primary treatment techniques.

Session 5: Overview of “Biological Treatment Facilities – Fundamentals and Troubleshooting”

Course Content: Importance of biological treatment systems in ZLD, monitoring and troubleshooting of biological treatment, biological activity tests, toxicity of effluents, oxygen supply, controlling parameters in biological treatment, Bio augmentation, online monitoring systems. Design and troubleshooting of pumps, blowers, diffusers, surface aerators, clarifier rake arms, sludge handling systems etc.

DAY 2

Section 6: Advanced Biological Treatment I – Membrane Bio Reactor (MBR)

Course Content: Concepts of MBR, Membrane types, design criteria, microbiology of MBR systems, membrane fouling and antifouling strategies, advantages of MBR over conventional treatment units, monitoring and troubleshooting of MBR etc.

Section 7: Advanced Biological Treatment II – Moving Bed Bio-film Reactor (MBBR)

Course Content: Science behind MBBR technology, growth of biofilm, design criteria, various types of bio-film carriers, bacterial types in MBBR systems, advantages of MBBR over conventional treatment units, monitoring and troubleshooting of MBBR etc.

Section 8: “Concepts of Design, Operation and Troubleshooting of Membrane Technologies (UF and RO)”

Course Content: Filtration mechanism in UF and RO membranes, types of membranes, design criteria, inlet wastewater characteristics, operation and maintenance of membranes, instrumentation and automation requirements in membrane plants, membrane fouling, anti-fouling strategies, reject management etc

Section 9: Multiple Effect Evaporators (MEE)

Course Content: Various evaporation technologies, types of evaporators, capacity of evaporators and steam consumption, fouling of evaporators and antifouling strategies, sludge management, capital and operating cost of MEE systems etc.



ABOUT THE KEY SPEAKER:

Mr. V.S Bhaskar
Sr. General Manager
Environment & Sustainability

He is an environmental engineer with over 25 years of experience in environmental, engineering design, and management programs. He obtained his Masters degree in environmental engineering and management from the Indian Institute of Technology (IIT) – Kanpur. His fields of expertise include Water and Waste Water Engineering, Watershed management, Environmental Impact assessment studies, Implementation of P2P & Waste minimization, Air Quality Modelling and Management.

Rich experience of having worked on wastewater treatment design and research in implementing wastewater treatment solutions in industrial sectors such pharmaceutical, chemical, paper, textile and other critical sectors.

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- Refineries
- Food, Dairy and Beverages
- Electroplating
- Power Plants
- Battery Manufacturing
- Synthetic Organic Industry
- Uranium Mining
- Co-generation Units
- Coal Mining & coal Liquefaction
- Ethanol Production
- Microelectronics
- ETP, CETP, ZLD Plants

WHO SHOULD ATTEND

- ETP Operations Team
- Managers and Team Leaders of Environmental & Safety Department
- Corporate Design and Project Team
- Process & Product Design Team
- Research & Development Team



Punjab Pollution Control Board

The Punjab Pollution Control Board was constituted in the year 1975, after the enactment of Water (Prevention & Control of Pollution) Act, 1974 to preserve the wholesomeness of water. Subsequently, with the enactment of other environmental laws the responsibility to implement the provisions of such laws was also entrusted to the Punjab Pollution Control Board in the State of Punjab.

Objective of Board

- Control pollution at the source with due regard to techno-economic feasibility for liquid effluents as well as gaseous emissions.
- Ensure that natural waters are not polluted by discharge of untreated city sewage.
- Maximize reuse / recycling of sewage and trade effluents and to use the treated effluent on land for irrigation and for industrial purpose after appropriate treatment.
- Minimize pollution control requirements by judicious location of new industries and relocation industries wherever necessary.
- The functions are directed towards the effective control of water and air pollution and to maintain and restore the quality of water for various designated uses and of air.



Federation of Indian Chambers of Commerce & Industry (FICCI)

FICCI is an apex chamber of commerce & industry in the Country with its nationwide membership of over 1500 corporates and over 500 chambers of commerce and business associations. FICCI espouses the shared vision of Indian business and speaks directly and indirectly for over 2,50,000 business units. The Resource Conservation & Management (RCM) division was formed as part of FICCI's initiatives to promote and provide integrated services to the industries in enhancing their competitiveness and productivity, particularly through process optimization and improvements, sustainable use of resources (raw materials, energy, water etc.) and the effective management of wastes generated.

The key objectives of the FICCI RCM Division are to:

- Provide consulting services to all sectors of the Indian economy in the areas of Energy, Environment, Water, Fire & Occupational Safety and Plant Maintenance through Energy Audits, Water Audits, Environment Audits, Safety Audits and Equipment Diagnostic Studies.
- Sensitize all stakeholders like end users, technology providers (domestic & international), consultants, and government bodies to adopt various resource conservation options and technologies.
- Undertake detailed techno-feasibility studies in various sectors to identify technology gaps, and evaluate resource conservation potential.



Chola MS Risk Services

Cholamandalam MS Risk Services Limited is a 50:50 joint venture between INR 369 Billion (36,893 Crores) Murugappa Group, India and Mitsui Sumitomo Insurance Group, Japan and has a technical collaboration with InterRisk, a group company of Mitsui Sumitomo Insurance Group.

Established in year 1994, Cholamandalam MS Risk Services is a Chennai based Risk Consulting Company offering comprehensive Risk management & Engineering solutions in field of Safety, Health and Environment. The company has pioneered many innovative and specialized services catering to the needs of Asian & European markets for last 25 years. The organization has successfully executed more than 2500 projects (Domestic/International) which not only helped its clients maintain compliance but also optimize their EHS performance and set new benchmarks.

Cholamandalam MS Risk Services, an ISO 9001:2015 company, is a certified "Environment Impact Assessment" Consultant organization by NABET EIA Accreditation committee, a constituent of Quality Council of India. The organization was also declared "Risk Manager of the Year" in Asian Insurance Industry Awards and is the only Indian company to be approved as Safety Consultants by Kuwait Oil Company under section 31S till date. The company has collaboration with Process Map Infotech for its World Class Compliance and Risk management EHS Software Solutions for Indian market.



Chamber of Industrial & Commercial Undertakings (CICU)

Chamber of Industrial & Commercial Undertakings (CICU) is registered as a non-profit making society, which represents Industry & Trade Sectors of the State of the Punjab Since 1968. CICU represents more than 1200 Direct Members from the State of Punjab and 34 leading Association have also been affiliated with the Chamber having their associate members more than 13,000. This is the only organization in the State of Punjab which has got Country's Level First Award as BMO doing services for the development of MSME sector. Chamber is also the only Organization in Punjab which has been accredited as Silver Standard by the Quality Council of India, New Delhi.

Contact Us

Mr. M A Patil, Senior Director, FICCI

For Participation Registration and Programme Details kindly contact:

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Website : <http://ficci.in/sector-event-page.asp?sectorid=32>