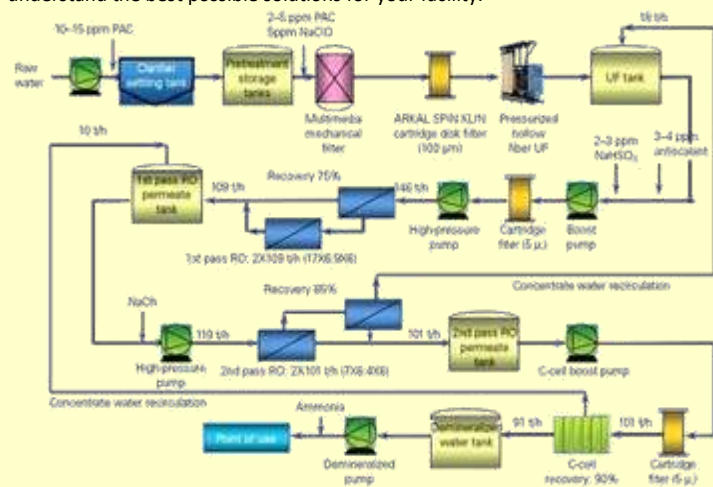


**JUSCHEM Presents 2 Days Highly Interactive workshop on  
“Significance of Industrial Water Treatment and Water Management”**

**Introduction**

Industrial Water treatment is used to optimize most water-based industrial processes, such as heating, cooling, processing, cleaning, and rinsing so that operating costs and risks are reduced. Poor water treatment lets water interact with the surfaces of pipes and vessels which contain it. Industrial water treatment systems meet a variety of purification and separation needs. They can range from relatively compact and straightforward to complex, multiunit processes that serve a variety of applications. Since industrial water treatment is a complex family of technologies and systems, this training will focus on giving a high-level overview of the technologies that are typically used and summarize how they work, helping you to better understand the best possible solutions for your facility.



**The training seminar will feature:**

- Water Sources and impurities
- Scheme of Pre-treatment, types of treatment
- Filtration, their types and calculations
- Disinfection and their types with calculation
- De Mineralization Plant (UF, RO, DM)
- Trouble shooting of WTP including UF, RO & DM plant
- Soft Logbook – analytics with calculations (algorithms and transfer functions)
- Normalization of permeate quality, RO system operation parameters and check points
- Shutdown & preservation
- What to monitor, what should be the KPI or leading indicators for to understand the performance of RO
- Membrane Cleaning and Troubleshooting

**Training Methodology**

This training seminar will be conducted along workshop principles with formal lectures and interactive examples, which will result in the active participation of all delegates. There will be ample opportunities for active, open discussions and sharing professional experiences on various industrial applications.

**Objectives**

**By the end of this training seminar, the participants will be able to:**

1. Know the best type of equipment and chemicals you need
2. Identify cause premature failure of water treatment plant and RO membranes
3. Identify cause of inefficiency or ineffectiveness of WTP and implement best practices
4. Calculate the normalized data for RO through long algorithms and transfer functions
5. Inform the right time for shutdown, days before he is going to schedule

**Organizational Impact**

1. The Quantity and Quality (efficiency and Effectiveness) will significantly improve if the operation is streamlined as per best practices
2. Shutdown frequency shall reduce and O&M Cost of RO operation shall reduce.
3. Understanding of process and can be converted to process driven rather than expert driven system.
4. On completion of this seminar the delegates will be able to analyze the various dynamics of RO Fouling & Failures and will be able to suggest corrective and preventive action to avoid costly downtime and improve life of membrane element.

**The knowledge gained in this seminar will:**

1. Improve the way the WTP is operated and monitored
2. Improve the way RO operation/cleaning is done
3. Correlation with the inlet water quality
4. Give the delegates skill to analyze the type of problem and take corrective/preventive action
5. Give better insight to the increase life of Membranes
6. Avoid downtime of production due to WTP/RO plant shutdown

**Personal Impact**

1. Improved confidence when solving problems of WTP/RO plant
2. Better understanding of what is impacting these failures
3. Better knowledge of monitoring methodologies
4. Improved personal skills of taking proactive action
5. Better ability to troubleshoot difficult situations

**Who Should Attend?**

This training seminar is suitable to a wide range of professionals but will greatly benefit:

1. Operations, technical production & service professionals especially heads of the processes and their superiors
2. Technical professionals responsible for maintenance and repair of equipment, Mechanical maintenance
3. Professionals involved in inspection and reliability
4. Technical professionals dealing with risk assessment and integrity analysis
5. Technicians dealing with regulating and metering and other measurements
6. Water Chemistry / Power Plant Chemistry professionals

**2 Day's Agenda:**

**Day 1**

- Opening
- Understanding the need of this training
  - Industrial Water Treatment Pain points
- Sources of Water
- Impurities in Water
  - Major non-ionic impurities
  - Major cationic impurities
  - Major anionic impurities
  - Gaseous impurities
  - Bacteriological and microbiological impurities
- Effect of Impurities in water and their method of removal
- Objective of water treatment
- Schematic 1: Pre-Treatment for Hard ground Water
- Schematic 2: Pre-Treatment for Turbid surface Water
- Aeration
- Types of Aeration
  - Aeration Process
- Coagulation & Flocculation
  - Coagulation
  - Adjustment of Alkalinity & pH
  - Coagulant Aids
  - Flocculation
  - Rapid Mix or flash mixing
  - Mixing Devices & their design Basis
  - Flocculators
- The factors that influence sedimentation
- Clariflocculator or Solid Contact clarifier
- Types of Clarifiers
- Coagulation Chemicals (Coagulants)

**Day 2**

- Filtration
  - Filtration Process
  - Filter Media
  - Filtration layout
  - Basic Operation of Filters
- Thumb rules for designing a filter
- Important points on Filter
  - Disinfection Processes
  - Chlorination
  - Chlorine Calculation in water treatment
  - Chlorine demand
  - Chlorine residual
  - Breakpoint Chlorination
  - Factors governing chemical disinfection
- De Mineralizer Plant
- Troubleshooting Of Water Treatment Plant (Clarifier, Filters And Dm Plant)
- Membrane Technologies
  - Ultra filtration
  - Ro: Reverse Osmosis (RO):
  - Ro Feed Water Pretreatment Requirement
  - Brief Best Practices Reverse Osmosis Plant Operation

**Expert Profile Mr. S Banerjee** – Mr. S Banerjee is a seasoned power plant Chemistry and water treatment professional with in-hand experience of about 24 yrs after passing M.Sc. Applied Chemistry from Government Engineering College, Jabalpur in 1995. He has worked with India's Pioneer Water Treatment Company and with Giant Private Power Generators in India viz. Tata Power, Adani Power, Jindal Power, LPGCL as HOD Power Station Chemistry and Environment. He has both experiences of sub critical and super critical power plants, commissioning-O&M and troubleshooting of water treatment plants, boiler water, cooling water, stator water and waste water. He was also associated with a reputed Institute of Power Technology as a faculty on Water treatment and Power Plant Chemistry. He has presented many papers on water treatment, power plant chemistry and water management in national seminars and magazines and also **written a book "Practical Guide to Thermal Power Station Chemistry"**.

Few topics of Published Papers in International forums:

1. Reaching High COC in cooling water system to save water, energy and chemicals,
2. Flow Accelerated Corrosion and its prevention (emphasizing Oxygenated Treatment) and monitoring,
3. Monitoring of heat transfer in cooling water systems.
4. Significance of water and steam purity in Thermal Power Plant
5. Advanced Method to optimize RO membrane performance
6. Proactive Lead Fouling Indicator for all types of membranes
7. Using sensor data analytics – predictive modeling for improved effectiveness in Thermal Power Stations
8. Developing Organization Strategic Intents to Achieve Business Excellence through Hoshin Kanri Concept
9. Tracking, Tracing and Theft Evading: New Technologies Of Governance And The Mining Logistics Industries – Mining Industry