

# M U H A M M A D U M A I R K H A L I D

- WATER/WASTE WATER, SENIOR MANAGER OPERATION & MAINTENANCE
- WATER/WASTE WATER, SENIOR PROCESS ENGINEER
- PLANT CHEMIST
- WATER/POWER PLANT/PROCESS EXPERT

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enrumair21



## S U M M A R Y

I am a highly accomplished professional with over **thirteen years of experience** in diverse working environments. My expertise lies in various areas, including water treatment plants (EDI, RO and demineralization), power plant chemistry (steam water cycle, boiler and cooling water in open and closed loops) and waste water treatment plants (SBR (LUCAS) biological + conventional). I possess strong skills in water, waste water and fuel laboratory operation and management, as well as water, steam and waste water analysis. I am adept at fuel analysis, covering fuel oil, lube oil, coal and biomass. Additionally, I excel in projects management, erection and commissioning, as well as water management, Coal & Biomass Power Plants, CCPP, Steam turbine and raw water turbines, water conservation and water recycling. I am well-versed in sustainability practices, environmental compliance, ISO standards and 5S principles. Ensuring health, safety and environmental standards is a priority for me. Moreover, I have a proven track record in employee training and development. My expertise extends to chemical cleaning processes and boil-out procedures for boilers. I am experienced in management practices and possess strong leadership abilities.

## P R O F E S S I O N A L S K I L L S

- |                                       |                                    |  |
|---------------------------------------|------------------------------------|--|
| • Water and waste water Treatment     | • Energy Conservation              | • Process Safety                         |
| • Operation and Maintenance           | • Renewable Energy                 | • Environmental Impact Assessment        |
| • Water Quality Analysis              | • Net Zero Carbon Emissions        | • HSE & 5S                               |
| • Waste Water Quality Analysis        | • Team Leadership                  | • Utilities                              |
| • Water Resource Management           | • Management                       | • Technical Report Writing               |
| • Water Conservation                  | • Problem Solving                  | • Pilot Studies and Scale-Up             |
| • Water and waste water Recycling     | • Team Building                    | • Cross-Functional Collaboration         |
| • Cooling Towers                      | • Training and Mentoring           | • Process Safety                         |
| • Power Plant                         | • Data Analysis and Interpretation | • Regulatory Compliance                  |
| • High Pressure Boilers               | • Chemical Dosage Optimization     | • Cost Estimation and Financial Analysis |
| • Boiler Chemistry                    | • Process /Chemical Engineering    | • Communication and Presentation Skills  |
| • Fuel                                | • Process Optimization             | • Continuous Improvement                 |
| • Coal Analysis                       | • Equipment Design and Selection   | • Critical Thinking                      |
| • Biomass Analysis                    | • SAP                              | • ERP Oracle                             |
| • Biomass and Coal Fired Power Plants | • Raw Water Turbines               | • Steam Turbine                          |

## W O R K E X P E R I E N C E S

### Sapphire Finishing Mills Limited, Raiwind Manga Road Lahore, Pakistan.

Water Treatment Plant, Waste Water Treatment Plant & Power Plants (Coal + Biomass Power Plant, Gas & Diesel Engines, HVAC Chillers & Utilities Boilers)

Senior Manager Water Treatment Plant, Waste Water Treatment Plant & Fuel • Aug 2018 - Present day

- Operation and maintenance of Water Treatment Plants, including Reverse Osmosis (RO) Plants and Electrodeionization (EDI).
- Operation and maintenance of Waste Water Treatment Plants, including Biological Sequencing Batch Reactor (SBR) (LUCAS), Advanced Oxidation Process and Dissolved Air Flotation (DAF).
- Proficient in Power Plant Chemistry, specifically in the areas of Steam Water Cycle, Boiler Chemistry and Cooling Water Chemistry for both Open and Closed Loop systems.
- Management and operation of Water, Waste Water and Fuel Laboratories.
- Conducting analysis of Water, Steam, Waste Water and Fuel (Coal, Biomass, Fuel Oil and Lube Oil).
- Expertise in Water Management, including water conservation and recycling practices.
- Procurement and management of chemicals and instruments for Plant and Laboratory operations.
- Environmental monitoring and control, ensuring compliance with certification audits for customers such as Levi's Co, Jack & Jones, Bestseller, C&A, Walmart, American Eagle, Kontoor, ANF and Decathlon.
- Conducting sustainability analysis using Key Performance Indicator (KPI) data related to water, energy, greenhouse gases, carbon footprint and solid waste.
- Effective management of staff within Water Treatment Plant and Waste Water Treatment Plant teams as the department manager.
- Erection, commissioning and operational facets of Coal & Biomass-fired Power Plants, also the management of steam turbines.

### Projects:

- Led the project as the Project Head for the erection, commissioning and operations of the "New Waste Water Treatment Plant (400 m<sup>3</sup>/hr)" project. This included implementing an Advanced Form of SBR (LUCAS) with Advanced Oxidation Process and Polishing DAF, with the objective of achieving Zero Liquid Discharge (ZLD). The project was executed in collaboration with Waterleau, Belgium.
- Successfully managed the complete working and commissioning of new Water, Steam and Coal Laboratories.
- Spearheaded the upgradation and automation, including SCADA implementation, of the existing Water Treatment Plant (146 m<sup>3</sup>/hr).
- Oversaw the erection and commissioning of a new 250 m<sup>3</sup> Buffer Tank to enhance the storage capacity of RO water.
- Executed the sand replacement project for both Sand Filters, which involved sand blasting and installation of new rubber lining for improved efficiency.
- Planned and executed the upgradation of all dosing systems in the Engineering Department, ensuring the safe handling of chemicals.
- Managed the replacement of 108 membranes in both RO Trains at the existing Water Treatment Plant (146 m<sup>3</sup>/hr).
- Led the upgradation and modification of Online Sampling Units at the Co-generation Power Plant to enhance functionality and accuracy.

## **Century Paper & Board Mills Limited, Bhai Pheru, Pakistan.**

*58MW Power Plants (28MW Combined Cycle Power Plant, 12MW HFO/Diesel Engines & 18MW Co-generation Coal Fired Power Plant)*

### Assistant Manager Power Plant • Mar 2016 - Jul 2018

- Proficient in the operation of Water Treatment Plants, including Reverse Osmosis (RO) Plants, Electrodeionization (EDI) Units, Mixed Bed Polisher Units and Water Softeners.
- Erection, commissioning and part of operations of Coal Fired Power Plant and Steam Turbine.
- Conducting chemical analysis of water and waste water samples to assess their quality and compliance with regulatory standards.
- Applying chemical treatments to optimize the quality of boiler feed water, ensuring efficient and safe operation of boilers.
- Implementing chemical treatments for cooling water systems and closed cooling systems to prevent scale, corrosion and microbiological growth.
- Performing chemical analysis of fuel oil and lube oil samples to evaluate their quality and suitability for use in various processes.
- Conducting coal analysis to determine its composition, quality and suitability for combustion in power generation.
- Monitoring and controlling environmental parameters to ensure compliance with regulatory requirements and maintain environmental sustainability.
- Responsible for managing and arranging the procurement of chemicals and instruments for both the plant and laboratory.
- Leading and supervising a team of 18 employees in the Chemical Department, providing guidance, performance management and fostering a collaborative work environment.

### Projects:

- Successfully executed the final erection and commissioning of various systems and units, including RO Plants, EDI Units, Mixed Bed Condensate Polishing Units, Cooling Tower, Dosing Systems, Sampling Room and Water, Oil and Coal Laboratories.
- Conducted the boil out process for two coal-fired boilers, each with a capacity of 65TPH, 56 Bar Pressure ensuring optimal performance.
- Implemented an Automatic Side Stream Filter with a capacity of 250 m<sup>3</sup>/hr for the cooling towers at Co-generation Power Plant #3, improving water quality and system efficiency.
- Executed the replacement of multimedia (sand and anthracite coal) in the Multimedia Sand Filter, enhancing the filtration process and system performance.

## **Bestway Cement, Chakwal, Pakistan.**

*WHR Power Plant & Coal Fired Boilers (CFBs)*

### Assistant Manager Chemical • Dec 2015 - Feb 2016

- Proficient in the operation of Reverse Osmosis (RO) Plants, ensuring the effective treatment and purification of water.
- Conducting comprehensive chemical analysis of both water and waste water samples to assess their quality and compliance with regulatory standards.
- Applying appropriate chemical treatments to optimize the quality of boiler feed water and the cooling water system, preventing scale, corrosion and microbial growth.
- Monitoring and controlling environmental parameters to ensure compliance with regulatory requirements and maintain a safe and sustainable environment.
- Responsible for managing and arranging the procurement of chemicals and instruments for both the plant and laboratory, ensuring an efficient supply chain.
- Serving as a coordinator for the Quality Management System, ISO 9001:2008 and Health, Safety and Environment (HSE) initiatives, ensuring compliance with applicable standards and fostering a culture of continuous improvement.

## **Bulleh Shah Packaging Private Limited, Kasur, Pakistan.**

*41MW Power Plant*

### Plant Chemist & HSE Manager • Jan 2012 - Nov 2015

- Proficient in the operation of Water Treatment Plants, specifically the Demineralization Plant, ensuring the efficient treatment and purification of water (110 m<sup>3</sup>/hr).
- Conducting thorough chemical analysis of water and waste water samples to evaluate their quality and adherence to regulatory standards.
- Implementing chemical treatments for optimizing the quality of boiler feed water, ensuring optimal performance and safety of boilers. (High-Pressure Boiler (96 Bar Pressure, 150 TPH), LP Boilers (15 Bar & 9 Bar)).
- Applying appropriate chemical treatments to maintain the cleanliness and efficiency of the cooling water system and auxiliary cooling system.
- Performing chemical analysis of fuel oil and lube oil samples to assess their quality and suitability for use in power generation processes.

- Monitoring and controlling environmental parameters to ensure compliance with regulatory requirements and maintain a safe and sustainable working environment.
- Monitoring heat rate and efficiency metrics to assess and improve the overall performance of the power generation facility.
- Responsible for managing and arranging the procurement of chemicals and instruments for both the plant and laboratory, ensuring a smooth supply chain.
- Serving as the Health, Safety and Environment (HSE) Manager, ensuring compliance with HSE regulations and standards at the site. Leading internal audits within OMS Private Limited and leading the OMS team during external audits.
- Fulfilling the role of Training Executive, organizing on-the-job trainings for staff to enhance their skills and knowledge.
- Acting as the Team Leader for ISO 9001-2008, ISO 14001, OHSAS 18001 and 5S, overseeing their implementation and maintenance in the power house.
- Managing a team of 10 employees within the Chemical Department, providing guidance, performance management and fostering a collaborative work environment.

#### Projects:

- I was a valued member of the project team responsible for overseeing the Biomass Boiler project, which had a capacity of 150 TPH.

## **Faisalabad Oil Refinery Karachi, Pakistan.**

### Chemical Engineer • Apr 2011 - Dec 2011

- Held the position of Plant In-charge for the Reverse Osmosis (RO) Plant, overseeing its operation and maintenance to ensure the production of high-quality purified water.
- Served as the Plant In-charge for the Pure Drinking Water Section, managing all aspects of its operation and ensuring the production of safe and clean drinking water.
- Conducted comprehensive chemical analysis of both RO water and drinking water samples to assess their quality, purity and compliance with regulatory standards.
- Acted as the coordinator for ISO 9001-2008 and ISO 22000-2005 certifications, overseeing the implementation and maintenance of quality and food safety management systems. Also, performed internal audits to ensure adherence to the established standards.
- Managed a team of 22 employees within the Chemical Department, providing leadership, guidance and performance management to foster a productive and collaborative work environment.

#### Project:

- *Erection & Commissioning of New RO Plant (15 m<sup>3</sup>/hr). Including piping modifications.*

## **ID-Water Technologist, Guddu, Pakistan.**

*1015MW Combined Cycle Power Plant (600MW CCP (General Electric) & 415MW CCP(Siemens)), Thermal Power Station, Guddu.*

### Chemical Engineer • Mar 2010 - Mar 2011

- Demineralization plant operation.
- Hydrogen plant operation.
- Water/waste water chemical analysis.
- Boiler feed water and cooling water system chemical treatment.
- Fuel oil and lube oil chemical analysis.
- Environment monitoring and control.

## **Pulp Mill, Packages Private Limited, Lahore, Pakistan.**

*One-Month Internship in July 2008*

## **Chemical Department, 1370 MW Thermal Power Plant, Muzaffargarh, Pakistan.**

*One-Month Internship in July 2007*

## **E D U C A T I O N A L   C R E D E N T I A L S**

### **MS Chemical Engineering**

*University of the Punjab (Lahore)*  
2014

### **BSc Chemical Engineering**

*Baha-ul-Din Zikiriya University (Multan),  
NFC IET Multan.*  
2009

### **Diploma of HSE Engineering**

*Modern Institute of Informatics &  
Management (MIIM) Islamabad, Trade Testing  
Board Directorate General of Technical  
Education & Manpower Training, Government  
of KPK.*  
2010

## ACHIEVEMENTS

1. Led upgradation project for existing waste water treatment plant. Managed erection, commissioning and operation of advanced SBR (LUCAS technology), advanced oxidation process, polishing DAF and chlorination chamber. Implemented sludge management system with centrifuge dewatering, water return & third-party incineration. Oversaw PKR 10B project & adherence to SLA agreements with OEMs.
2. Oversaw erection and commissioning of a containerized water treatment plant (80 m<sup>3</sup>/hr capacity) with 2 RO trains (53 m<sup>3</sup>/hr each), followed by EDI trains for ultra-pure water production. Maintained conductivity < 0.2 micro Siemens and silica < 20 ppb. Installed and operational online Silica Analyzer (HACH) without compromising on quality or cost.
3. Implemented online sampling units at co-generation power plant for feed water, live steam and steam drum blowdown. Utilized SWAN instruments and Dr Thiedig Instruments. Monitored pH, dissolved oxygen and conductivity of feed water, pH, cationic conductivity and de-gasification of live steam and pH and conductivity of steam drum sample.
4. In a leadership role, I successfully established a technical team for Water Treatment and Waste Water Treatment Plants. I developed operational guidelines, SOPs and KPIs for efficient operations. Additionally, I integrated and redefined the organizational structure, overseeing various departments including water treatment facilities, laboratory operations, fuel analysis, chemical dosing systems and power plant operations also did countless efforts for process optimization and chemical dynamics at the Waste Water Treatment Plant.

## CERTIFICATIONS

### **Environmental Management System, Auditor / Lead Auditor Training Course**

(18100) Based on ISO 14001:2015

RICI Co W.L.L, Dammam, Saudi Arabia



## TRAININGS / COURSES

### **Basic Water Treatment**

Nalco Water  
An Ecolab Company

### **Waste Water Management**

Certified training session by  
ZDHC Academy

### **Maintenance Training of**

Water Treatment Systems  
Harbin Electric International Co. Ltd.

### **Power Plant Chemistry Course**

O&M Solutions,  
Institute of Management & Technology

### **Heat Rate & Efficiency Improvement**

O&M Solutions,  
Institute of Management & Technology

### **CKIC 12th Training Seminar on Coal**

Changsha Kaiyuan Instruments Co., Ltd.  
Changsha, China.

### **Foundation Training in AWS Standard**

Alliance for Water Stewardship  
Lahore Pakistan.

### **Basic Fire Fighting Course**

Fire Fighting Department  
Bulleh Shah Packaging Pvt. Ltd. Kasur

### **Awareness & Internal Quality Auditing**

ISO 9001:2008 – QMS Requirements  
SGS Pakistan (Private) Limited

### **Power Sector Introduction**

O&M Solutions,  
Institute of Management & Technology

### **Sales & Application Training**

Sample Preparation Instruments  
Training Center in Idar-Oberstein  
Fritsch GmbH, Milling & Sizing Germany

## CITIZENSHIP INFO.

Nationality : Pakistani  
Passport # : TN4117354

## LANGUAGES

English Urdu Punjabi Sindhi