

Mr. Wheeler has experience in laboratory and industrial chemistry, process engineering, and water treatment plant design and operation. Mr. Wheeler performs and assists with testing to assess water treatment options and helps prepare trade-off studies to select preferred treatments. As a member of the design team, Mr. Wheeler helps convert results and studies into full-scale working treatment solutions by performing reverse osmosis modeling, calculations regarding media filtration and ion exchange, pump sizing, and system mass balances.

## Project Experience:

### **1,000 gpm Tailings Reclaim Water Treatment Plant, Jerritt Canyon Gold, Elko NV Engineering Manager**

Mr. Wheeler is currently on the design team for the final design of a 1,000 gpm treatment system for tailings reclaim water and stored water volumes that have been concentrated by evaporation and reuse through the mill. The system is comprised of chemical oxidation and pretreatment, a coagulation/flocculation plate settler, a microfiltration skid, three reverse osmosis skids, and a polishing stage of ion exchange vessels. Mr. Wheeler helped lead the reverse osmosis modeling and executed ion exchange modeling to determine vessel sizes and estimate loading rates based on water quality. He also helped lead the bench scale testing and comprehensive pilot testing that determined the chemical requirements, treatment steps, polishing requirements, and equipment configuration necessary to treat water with extremely high dissolved metals concentrations (~16,000 ppm TDS) to nearly deionized levels. The effluent treatment is required to meet Nevada Profile I standards for disposal via injection wells.

### **3,000 gpm Water Treatment Plant, MPW, Freeport, TX**

Mr. Wheeler assisted with the preliminary design of a treatment system for an Ultrafiltration and Reverse Osmosis water treatment facility to provide cooling and boiler makeup water at an industrial plant. Mr. Wheeler performed water balance calculations and pump sizing for the preliminary design of this plant. He also assisted in specifying clarifiers for the initial pretreatment needed for proper filtration. Linkan was able to optimize design and construction of the plant resulting in an estimated 30 percent reduction of the anticipated capital costs.

### **2000 gpm Mine Dewatering Treatment Plant, Barrick Turquoise Ridge, Golconda, NV**

Barrick Gold requested the design of a new water treatment plant to replace their existing arsenic treatment plant. As a member of the design team for the new plant, Mr. Wheeler has performed hydraulic design, water balance design, pipeline design, pump sizing, vendor submittal review, and plant equipment specification for eventual procurement. This plant is designed to receive the water from underground dewatering and mine drainage that cannot be discharged without treatment. A key element to this plant design is the use of nanofiltration spiral-wound membranes to remove sulfates to dischargeable levels.

### **4,000 gpm TCM Leach WTP, Barrick Goldstrike, Carlin, NV**

Mr. Wheeler served as a substitute supervisor/operator at the water treatment plant in TCM leach circuit, which functions entirely through the use of spiral-wound ultrafiltration and reverse osmosis. He performed process troubleshooting and data analysis, assisted with an additional pretreatment design, performed emergency cleanings and maintenance, and supervised filtration membrane change out teams.

### **15,000 m<sup>3</sup>/day Masbate WTP, B2 Gold, Philippines**

Mr. Wheeler was part of the water treatment plant commissioning team for this project. He was involved in troubleshooting during equipment malfunction and conducted plant operator training. He also performed water quality analyses and on-site bench testing to help facilitate process decisions. He was part of the collaboration to issue the plant O&M manual along with other standard operating procedures. After commissioning, he assisted in the installation design and procurement of a new inline cyanide detection system.

#### **Registration:**

- Chemical Engineer, EIT

#### **Education:**

- B.S., Chemical Engineering,  
Brigham Young University, 2014

#### **Relevant Qualifications:**

- Process Design
- Pipeline Design
- Hydraulics Design
- Water Balance
- Procurement
- Water Treatment Plant Operation
- Municipal System Operation
- Water Chemistry Analysis

#### **Certifications:**

- Certified Water Operator (NV)
  - ♦ Treatment (Full)
  - ♦ Distribution (Full)
- MSHA Surface Mining

#### **Years of Experience:**

- 3

**2,000 gpm McLaughlin Temporary Water Treatment Plant, Homestake Mining Company, CA**

Mr. Wheeler is currently part of the team designing of a 2,000 gpm treatment to prepare excess water from a historic pit lake for environmental discharge. The treatment technologies consist of coagulation/clarification, filtration, reverse osmosis, and ion exchange. Challenges include exceptionally high levels of Boron and manganese and difficulties associated with the installation of a major plant at a closed mining facility. Due to the challenges and temporary nature of this project, a creative pairing of various mobile units is required for function and cost savings. Mr. Wheeler helped lead preliminary reverse osmosis modeling, prepared a list of process options involving various technologies, and helped specify filtration and ion exchange equipment. He also assisted in performing bench testing to determine the optimal pretreatment scheme essential for proper function of reverse osmosis equipment.

**1,400 gpm Smith Mine Dewatering Water Treatment Plant, Jerritt Canyon Gold, Elko NV**

Mr. Wheeler is currently part of the team designing of a 1,400 gpm treatment system for underground mine dewatering discharge. The treatment technology is a vendor-packaged system of coagulation/filtration and adsorption that is being installed inside an existing building. Challenges include designing all ancillary systems such as influent and effluent delivery pipelines, interconnecting pipe headers, tanks, valves, and discharge pump systems that are not included in the vendor package. All electrical improvements and SCADA interconnections are included with the design.