

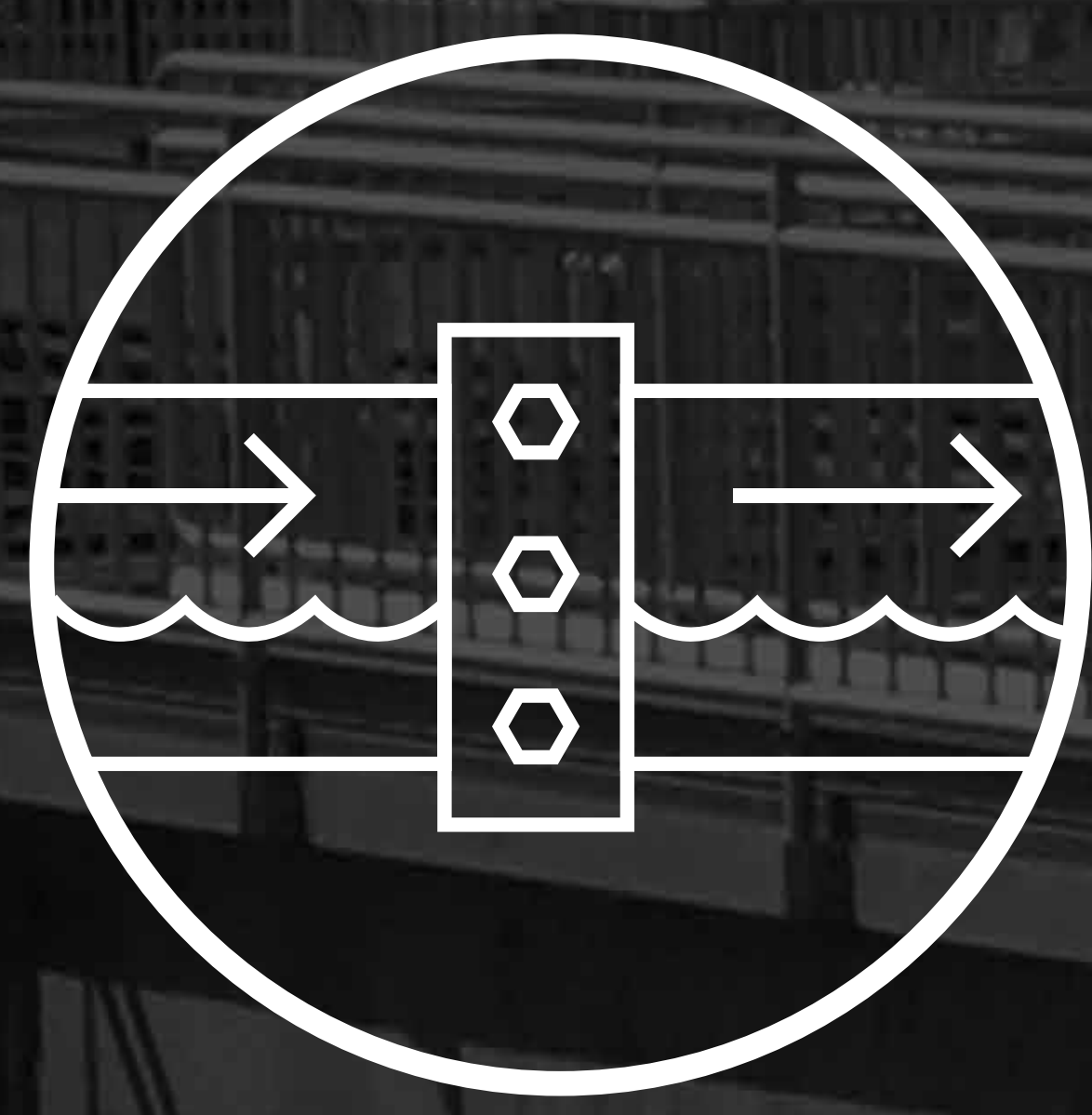


# Staying Current: Putting Knowledge to Work

## SOLUTIONS THROUGH SCIENCE PRODUCING RESULTS FOR TMWA CUSTOMERS

Multiple branches of physics, engineering and chemistry bring knowledge and solutions to TMWA as we continually search for better ways to make the most of the water we have.

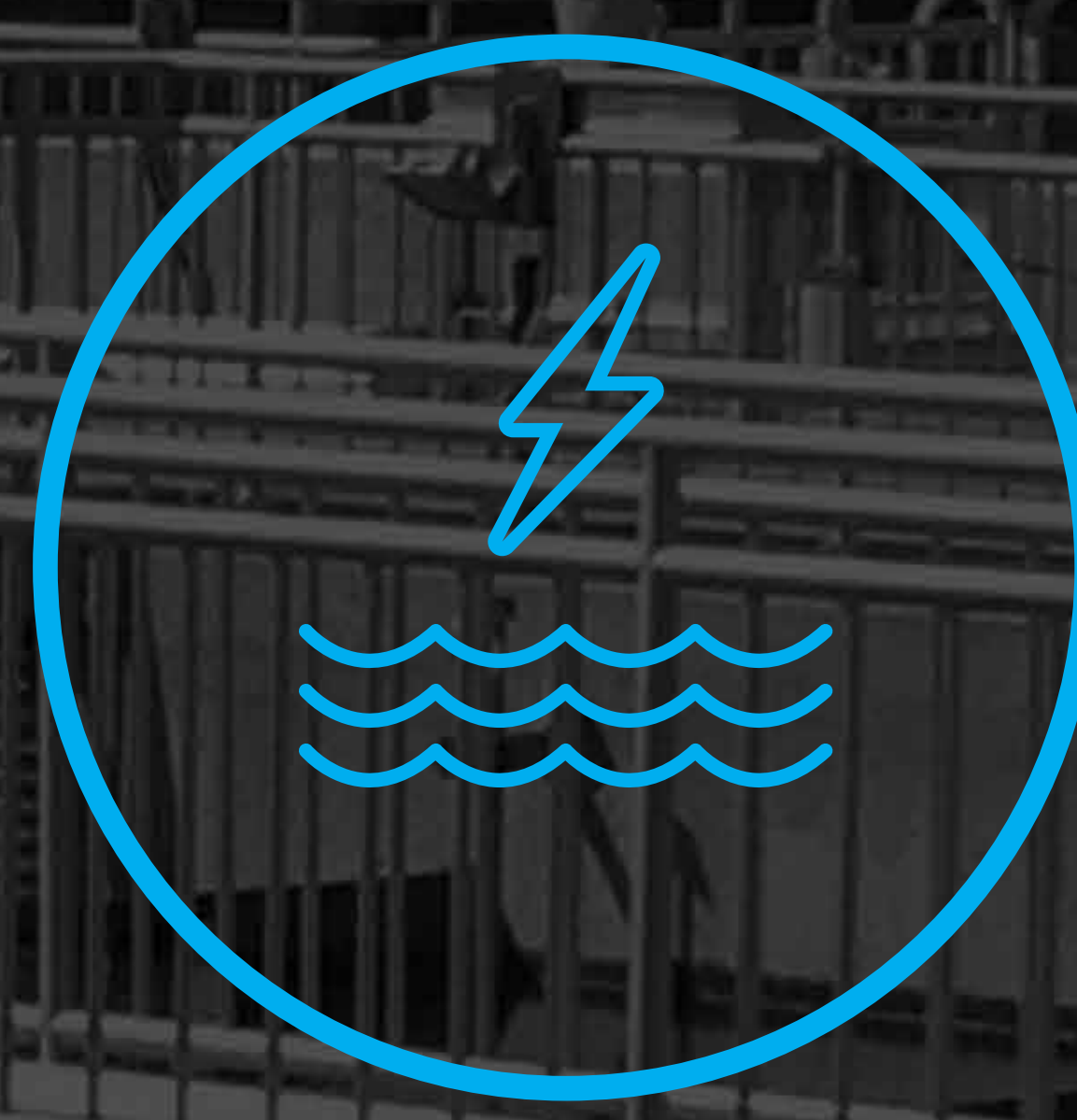
### MECHANICS OF MOTION



Instead of replacing 2008's earthquake-damaged wooden flume near Mogul, TMWA invested in 3 miles of underground pipe. Containing the flow within a pipeline allows for the use of a gravity-driven, inverted-siphon effect—rather than pumping—to deliver water to the Chalk Bluff Water Treatment Plant.

✓ Annual Power Savings \$400,000

### POWER OF HYDROLOGY



TMWA's three hydroelectric plants have a cascading configuration, using run-of-river forces to produce clean, renewable power. Our plants can annually generate 45,300 Megawatt hours (on average during normal years)— which is usually enough to operate both the Chalk Bluff and Glendale Treatment Plants for the entire year.

✓ Reduces Carbon Footprint

### FORCES OF GRAVITY



To protect against rockslides on a 110-year-old flume section near the Fleish Hydroelectric facility, TMWA tunneled 1,100 feet into the mountainside to replace the exposed structure. Prior to this project, the last repair of 300 feet of flume came with a \$1.1 million price tag. The Fleish Tunnel eliminated this expense and returned the slope to its natural state.

✓ Eliminates Reoccurring Repairs

### RESEARCH & INNOVATION



Research partnerships with Desert Research Institute and UNR's Nevada Water Innovation Campus hold promise to advance many facets of water use in our region. Additionally, TMWA's Truckee River Fund has granted \$9 million (spurring an additional \$16 million in matching funds) to 138 projects to protect and enhance water quality, water resources and the watershed of the Truckee River.

✓ Reclamation and Reuse  
✓ Watershed Protection    ✓ Treatment Technologies

With a staff in the top quartile of efficient utilities<sup>1</sup> and TMWA's prudent management practices and capital improvement planning<sup>2</sup>, TMWA is ready and able to bring forward the right solutions at the right time on behalf of our community.

<sup>1</sup>American Water Works Association, 2016

<sup>2</sup>Moody's Investor's Service, 2017

