



SoCal Section of SME On Line Meeting– Thursday March 11, 2021

Selective Heat Treatment of Ores: Shaking up Economics of Mineral Recovery

PRESENTED BY: Tracy M. Holmes, P.Eng, President of Jenike & Johanson Ltd

TIME: 5:45 – 7:00 pm Pacific Time

RSVP: By accepting invite to the meeting and placing on your calendar

HOSTED BY: SoCal Section of SME

COST: No Charge

ABSTRACT

Crushing and grinding rocks uses significant energy. Up to 50% of the total energy used in mineral processing can be just for particle size reduction. As ore bodies age and grades decline, increasingly higher energy input is required for comminution, which increases costs and the carbon footprint of these operations. A step change in energy reduction is required to meet the future demand of these processes. A promising technology, selective heat ore treatment, utilizes microwave energy to create microcracks, to significantly improve the comminution efficiency. In addition, microcracks result in fracture along the boundaries between the valuable mineral and host rock, allowing mineral recovery at a larger particle size, thereby reducing the energy input further and decreasing challenges around tailings management. A significant reduction in energy consumption and often an associated increase in throughput for existing equipment can extend the lives of mines with degrading ore grades. This technology not only will improve margins in operating plants, but also extend return on invested capital in plants that would otherwise be uneconomical to operate. The current state of the technology as it is applied to Canadian ores, specific ore characteristics found through testing to be candidates for this technology, and the anticipated benefit over existing processes will be presented.

BIOGRAPHY

Tracy M. Holmes, P.Eng. is President of Jenike & Johanson Ltd. She received her B.A.Sc. in Civil Engineering from the University of Waterloo in Ontario. She specializes in designing and evaluating bulk solids handling systems. Over her 25+ years with J&J, she has provided consulting services to a broad spectrum of national and international clients. She has authored and presented technical papers on subjects including reliable bulk solids handling, effective bin and feeder design, shipping of fine moist cargoes, silo structural failures and maintenance and innovation. In addition to being included in conference proceedings, her papers have been published in periodicals including *CIM Journal*, *Powder & Bulk Engineering*, and *World Coal*.





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