

Eagle Rheostat: Baking in the Heat



Ryan Leitner and Luigi Delgado

Working on vintage 1930's equipment presents challenges that require creativity and innovation. Recently Engineer **Luigi Delgado** from WSO's Hydroelectric Team and Engineering Tech **Ryan Leitner** from ESG's Corrosion Control Team had to come up with creative ways to replace a failed rheostat for the Eagle Mountain pumping plant after a vendor was not able to repair the device. A rheostat is a large variable resistor which is analogous to the volume control on an old radio. The device is integral to the efficiency and operation of the pumps and the pumps will not run without it. Components within the rheostat can generate temperatures as high as 1,400 °F and require an insulating compound that can withstand this heat and maintain electrical insulation to prevent shorting of the conductive wires.

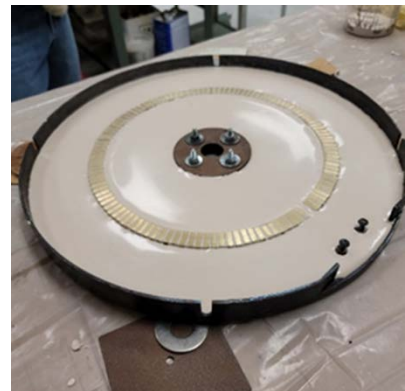
Ultimately a ceramic-based insulating cement was used as the base material and a specially formulated high temperature epoxy was used as filler to control cracking due to thermal expansion. Luigi worked closely with the ceramic and epoxy manufacturers to repair the rheostat. The rebuilt rheostat was then installed on Eagle Pump Unit No. 1 and the unit was successfully returned to service in early June. This repair allowed Eagle Mountain pumping plant to maintain a spare pump to support Metropolitan's 8-pump flow operation. Considering the extraordinary drought conditions, we face this year, Luigi's innovative work, along with the rest of team's efforts, truly helps to ensure Metropolitan's reliable deliveries during this critical year.



Failed Rheostat



Thermal Testing New Material



Rebuilt Rheostat