

AME1: Blast Furnace Tap Bit Design: Phase II

Team Composition: ME/MET, MSE

Sponsor: ArcelorMittal

Project Description: Blast furnace tapping at ArcelorMittal's steel plant in East Chicago, IN requires the use of specially designed single-use tapping bits. These bits experience significant wear due to intense heat and pressure as they bore through tap holes filled with refractory clay. As a consequence of this operation bits can break within the tap hole before the hot metal is reached. Currently several drill bit designs are used to tap the furnace and the bit performance is based on operator perception. Last year, an AME team constructed a test rig employing a pneumatic rock drill to assist in gathering baseline bit performance data. This year, the test method will be developed and a range of test conditions will be evaluated.



Based on these findings and materials knowledge, the team will design and fabricate a bit for tapping ArcelorMittal's blast furnaces.

