MAD RIVER WELL FIELD DAM IMPROVEMENTS
DAYTON, OH

SERVICES
Mass Concrete Thermal Modeling

APPROX. PROJECT SIZE
$3,830,000

KEY PERSONNEL
Mark Dixon, Project Manager

REFERENCE
Greg Siefring
RB Jergens Contractors Inc.
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Photo of existing dam, showing broken portion of dam
(Credit: Ohio EPA Preliminary Finding of No Significant Impact and Environmental Assessment)

Tourney Consulting Group (TCG) was contracted through RB Jergens Contractors Inc. to perform a thermal analysis to determine if the proposed concrete placements for the 12 ft tall dam wall are considered mass concrete at risk for excessive temperature rise and thermal cracking during early ages and provide justification to the Owner.

The project specifications were reviewed in detail, industry standards for mass concrete were considered, and computer thermal modeling was completed using the concrete mix design, environmental details, and formwork/curing insulation. TCG was able to successfully verify that smaller lift heights of the 12 ft tall wall and proposed mix design were not at risk for excessive internal concrete temperature rise or temperature gradients and not considered mass concrete. Therefore, a thermal control plan or additional thermal control beyond what is required for standard concrete was not considered necessary.

In addition, we were able to satisfy the Owners concerns that the new concrete lift pour will not negatively affect the temperature differential of the previously completed lift placement. The next lift could be poured as early as 7 days after the previous concrete placement. Our computer model was capable of modeling these detailed scenarios to provide justification to the Owner.