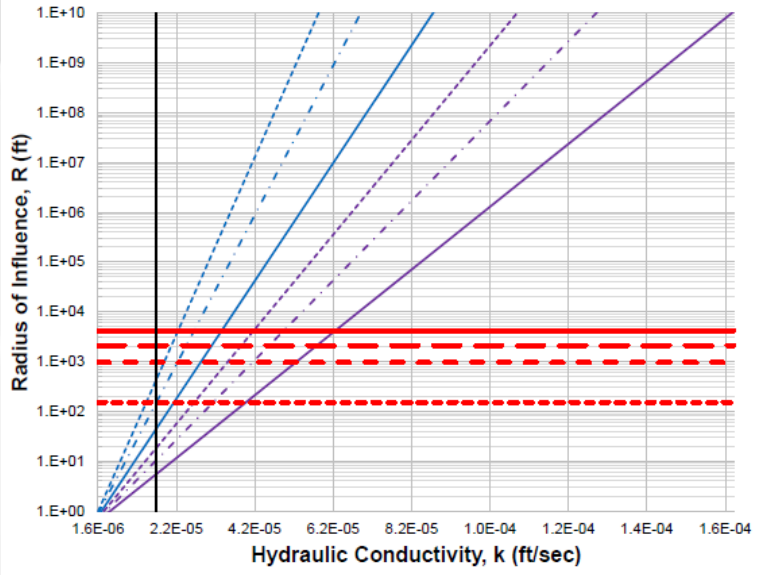
Mundell & Associates, Inc.
110 South Downey Avenue
Indianapolis, Indiana 46219-6406
Phone: 317-630-9060, Fax: 317-630-9065,
Email: info@MundellAssociates.com
www.MundellAssociates.com

CASE HISTORY

Groundwater Resource Analysis for a Proposed Confined Feeding Operation (CFO) and its Potential Impact on Neighboring Private Residential Wells

Challenge:
MUNDELL was asked to review a proposed confined feeding operation (CFO) and evaluate the potential groundwater capacity at a Site located in east-central Indiana. In addition, MUNDELL was asked to evaluate the potential impact that the CFO's planned groundwater pumping rate of 25 gallons per minute (gpm) would have on a neighboring property who had concerns that the water quantity and quality of their private well would be negatively impacted.

Action:
MUNDELL completed a photo-lineament analysis, reviewed historical photography, and reviewed published geologic and hydrogeologic information in the area to evaluate the groundwater capacity at the Site. Next, MUNDELL developed a groundwater model using the Thiem equation for unconfined aquifer settings to evaluate the potential drawdown for the expected pumping rates considering the range of hydrogeologic conditions that may be present at the Site. Using this model, MUNDELL conducted a sensitivity analysis to evaluate the likelihood that the neighboring residential well would be impacted by a single or multi-well pumping system at the proposed CFO.



Results:
Based on MUNDELL's review of published information in the area, MUNDELL determined that it was highly unlikely that the local unconsolidated and bedrock aquifer systems could produce a high-yielding well. As such, at least two (2) wells would most likely be needed at the Site to meet the required yield of 25 gpm. MUNDELL's groundwater model indicated that two (2) groundwater wells pumping at a combined 25 gpm would most likely reduce the capacity of the neighboring private well. Given these findings, if the CFO project were to proceed, MUNDELL recommended that on-Site aquifer testing be completed to determine the Site-specific aquifer response to pumping.