

Dry Cells and Drawdown Averaging for Estimating Modeled Available Groundwater from Desired Future Conditions

In MODFLOW, when the layer type is set to unconfined (LAYCON = 1) or confined/unconfined (LAYCON = 2 or 3) model cells will go dry if the water level drops below the base of the cell. If the rewetting package is not used, the cell drops out of the simulation and pumping discharge and recharge for the cell will stop. The cell is then inactive throughout the remainder of the simulation.

In the cases where MODFLOW layer type is set to confined (LAYCON = 0), where transmissivity and storage coefficient are constant for the entire simulation, model cells do not go dry in the sense that the cells still receive recharge and pumping and will remain active even if the water level drops below the base of the cell. For these cells, we will consider the cell dry if the water level drops to or below the base of the cell. If a model cell is dry or inactive at the reference year the cell will not be used for drawdown averaging or for calculating the modeled available groundwater.

If the model cell goes dry sometime during the simulation, the drawdown for the cell will be capped at the difference between the water level at the reference year and the elevation of the cell base.

We will check drawdown per the desired future condition statement and calculate modeled available groundwater for 2020, 2030, 2040, 2050, 2060, 2070, and 2080. If the desired future condition does not extend through 2080, we will only provide modeled available groundwater for the planning horizon specified in the desired future condition statement to the groundwater management area; for purposes of regional water planning we will repeat the last calculated modeled available groundwater values to the end of the appropriate regional water planning horizon to provide suggested modeled available groundwater values to regional water planning. Pumping from cells which go dry during a decade will be included in the modeled available groundwater total for the decade, but not for subsequent decades if the cell remains dry.

For questions, contact:

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