**Advanced Topics—Mover (MVR6) Package Problems**

**Mover Problem—1a**

We will be taking a steady-state version of the McDonald Valley problem with the lake and streamflow routing packages that you previously created (streamflow routing problem 1b) and use the mover (MVR6) package to move ‘excess’ streamflow from the last SFR reach to the lake in order to mitigate the effect of groundwater withdrawals on lake levels. In addition to changing the problem to a steady-state problem, the reach bottom elevations in streamflow routing package have been modified so that the stage in the downstream reach with base flow and runoff contributions is 0.05 feet.

1. Copy the files in advanced\_topics/mover/mvr0 directory to the empty advanced\_topics/mover/mvr1a directory.
2. Add the MOVER keyword to the OPTIONS block of the LAK8 (at.lak) and SFR8 (at.sfr) package files.
3. Create a MVR6 input file using the MVR6 Example Input File in the MODFLOW 6 – Description of Input and Output (p. 125 to 126) document as a template. Add the MVR6 package (at.mvr) to the GWF name file (at.nam).
4. Change MAXMVR and MAXPACKAGES to 1 and 2, respectively, in the DIMENSIONS block.
5. Remove existing entries from the PACKAGES block and add the name of the LAK6 (LAK-1) and SFR6 (SFR-1) packages.
6. We will start moving streamflow from the downstream reach to the lake in the third stress period so change BEGIN PERIOD 1 to BEGIN PERIOD 3 and END PERIOD 1 to END PERIOD 3.
7. Remove existing entries from the PERIOD block and add the following to the block  
     
   SFR-1 18 LAK-1 1 FACTOR 0.1

This will move 10% of the downstream streamflow to the lake.

Exercise 1:

Determine the MVR6 FACTOR that results in a lake stage that is the same as the predevelopment lake stage (10.7 feet) at the end of stress period 3. \_\_\_\_\_\_\_\_\_\_\_\_

Exercise 2:

Convert the MVRTYPE to UPTO and determine the value required to achieve the same lake stage that was achieved with the FACTOR MVRTYPE. \_\_\_\_\_\_\_\_\_\_\_\_