McDonald Valley Calibration Exerciss
Stage 2

CALIBRATION FOR PREDEVELOPMENT CONDITIONS USING PRE-EXISTING INFORMATION

During this stage of the exercise you will calibrate your flow model for predevelopment conditions using the existing information that we have provided. Calibration involves selectively adjusting aspects of your model,such as hydraulic parameters and boundary conditions, so that the simulated results reproduce the observations as closely as possible. Remember not to fall into the trap of treating calibration solely as a curve fitting procedure. You should always try to adjust parameters within ranges that you can justify based on what you know about the system and to avoid adjusting parameters in ways that cannot be supported. That almost always means your "calibrated" model will be less than perfect when you are finished. However, the calibration process can provide you with a great deal of insight into what hydrologic features are really important in controlling the function of the ground water system. You can use this insight to plan your field work so that you will be able to obtain new data to fill in gaps in areas that are of critical importance.

As you construct your calibrated model, keep the following things in mind:

1. What are the critical elements of the hydrology of the McDonald Valley ground water system that the model must reproduce?

2. To what parameters is the model most sensitive?

3. What are the critical gaps in information and what kind of data should be collected to fill those gaps.

Attached are some worksheets to help you summarize the results of your calibration analysis.

Calibration Exercise -- Stage 2

Worksheet

1. The head at the water table (layer 1) for cells:

well number	row	column	head	(Simulated - Observed)
3	7	21		
6	17	19		
8	19	7		
11	27	6		
14	31	7		
16	37	2		
17	38	23		

2. The hydraulic conductivity in layer 1 for cells:

row	column	hydraulic conductivity
19	7	
38	23	
7	21	

3. The river conductance (or a range if it was not a constant).

4. On one of the attached map worksheets, sketch the hydraulic conductivity distribution in model layer 1.

5. On one of the attached map worksheets, sketch the distribution of the clay layer.

6. The vertical conductivity value for the clay (or a range if it was not a constant).