Drawing a Static Water Level Map from a Model of a Cone of Depression

Part I: Make a 3-D model of a cone

1. Cut out the outline of the cone template by following the bold lines.
2. Fold the paper to form a cone, matching up the measurement lines which represent the static water levels.
3. Tape the edges of the cone together.

Examine the measurements on your cone of depression. Describe where the water level is the lowest. Where is the water level the highest? _____

A cone of depression forms in an aquifer around the base of a water well as water is pumped out. Explain how the name, cone of depression, describes what happens to the water level in the aquifer.

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How will the size of a cone of depression change if water is continued to be pumped out?

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Part II: Make a map from a cone

1. Gently flatten your cone in order to cut out a thin strip of each measurement line. You will have 3 circular strips of paper.
2. Place your circular strips of paper on a blank sheet of paper, organizing your circles in sequence with the smallest in the center.
3. With a pencil, trace the outline of each circle on the paper. Record the corresponding measurement for each circle.

Groundwater will move down a slope within an aquifer. Draw an arrow on your map to show the direction of water flow.

Compare the map you drew to the map with the cone of depression in the 2000 ft aquifer in Baton Rouge. What similarities can you find?

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How is your model different?

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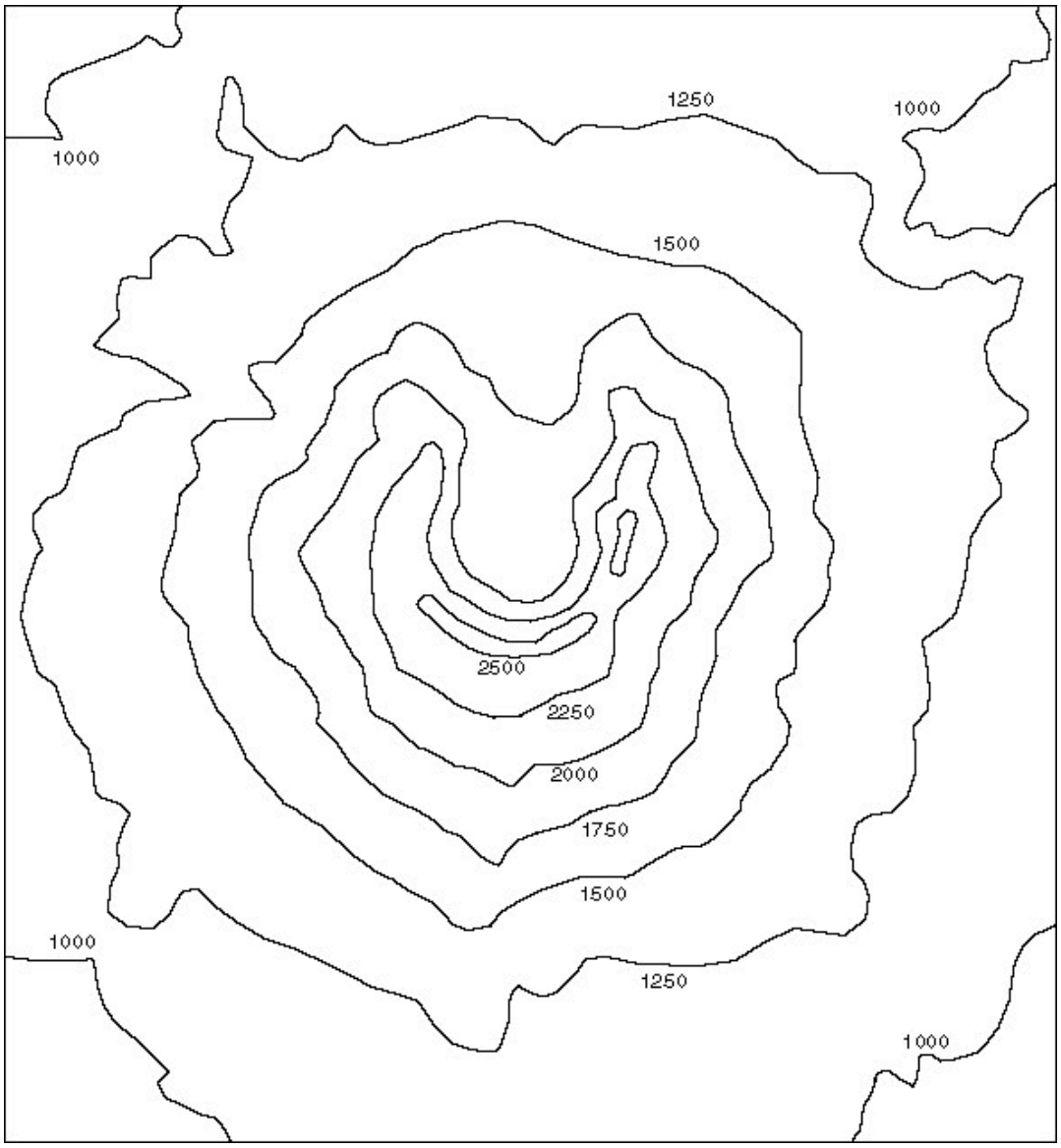
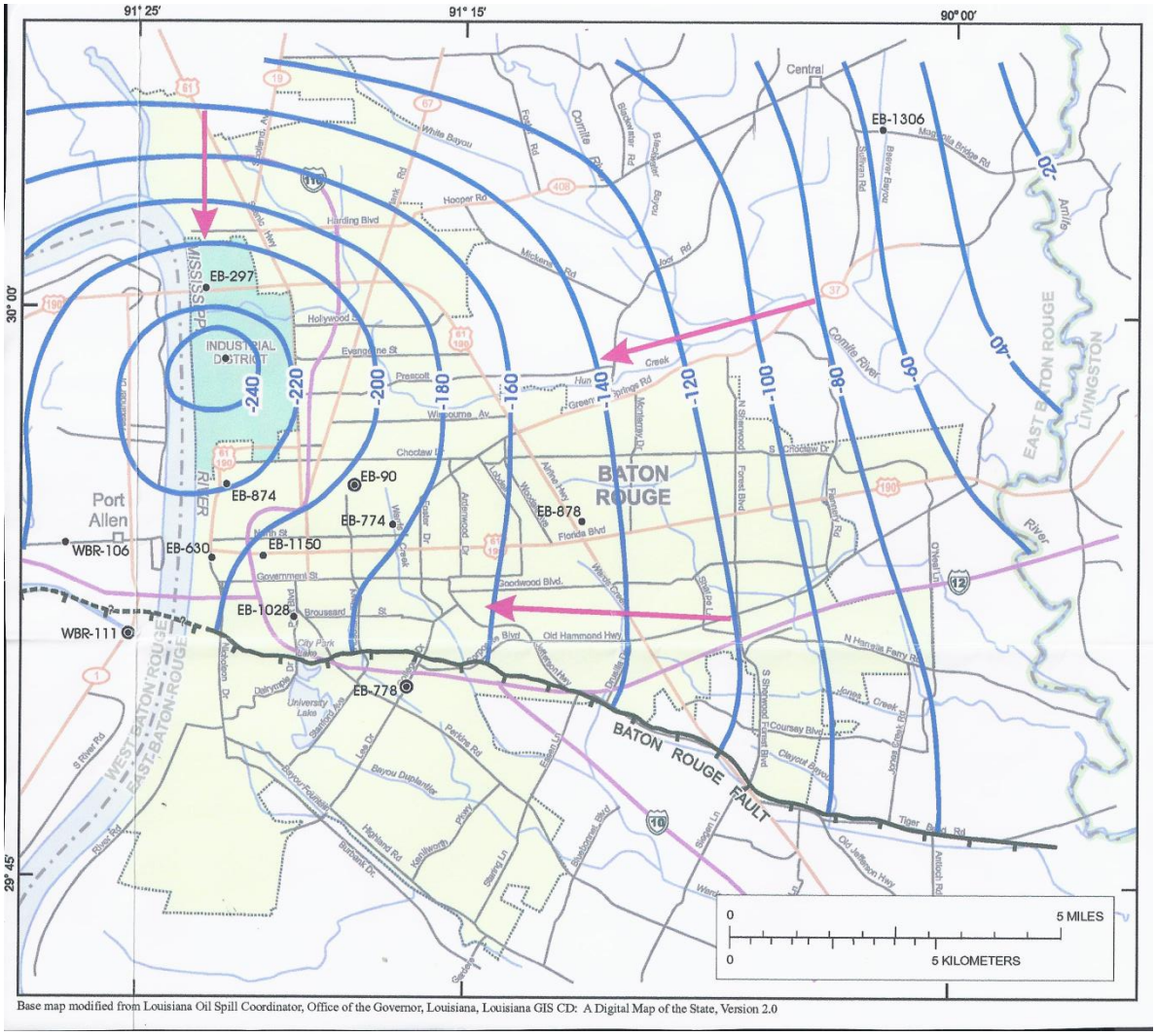
Part III: Compare the BR static water level map with a topographic map.

	Topographic Map - Volcano	**Static Water Level Map – Cone of Depression**
Contour lines represent:	**elevation**	**water level**
Describe the general shape of contour lines.		
What is the distance between contour lines?		
Where is the location of "highest" point?		
Contour lines closer together represent (steep or gentle slope)		
Contour lines farther apart represent (steep or gentle slope)		
Describe the direction water would flow.		

Topographic Map – Volcano http://volcano.oregonstate.edu/topographic-cardboard-volcano



Static Water Level Map, 2000 foot Aquifer BR, La. – Cone of Depression (Tomaszewski and Accardo, 2004)



Base map modified from Louisiana Oil Spill Coordinator, Office of the Governor, Louisiana, Louisiana GIS CD: A Digital Map of the State, Version 2.0