

**Draft Alluvial Hydrogeology Report Review**  
**23 June 2009**  
**Institute for Water and Watersheds**

**Version Reviewed – pdf file dated June 2009 downloaded from IRZ website**

**Overview of Review**

Given the breadth of topics in the report, this review is organized by topic as opposed to a line-by-line review.

The report is very comprehensive with respect to the hydrology and water quality data presentation. The geologic overview is well done with the inclusion of the original cross sections. The bulk of the specific comments focus on the figures. General comments on the text follow:

- Check for “data was” versus “data were” throughout text as the presentation is not consistent. Change to plural (data were).
- Page 13 refers to the scale (1 inch equals one mile). This scale will change with printing and viewing on a computer screen. Suggest removing.
- Page 17 “Grondfos” should be “Grundfos”.
- Page 24 – This section describes how the County Line Aquifer is “structurally bound”, but it is not clear if these are depositional boundaries or structural geologic boundaries such as faults.

**Figure 1**

Suggest adding other headings in legend to differentiate the CGA from the CGA subareas, i.e., identify what the letters “A-H” are in the legend, along with the other CGA subareas.

**Figure 2**

Suggest showing the orientation of the cross section on Figure 1 or Figure 3. Suggest adding principal geographic features such as city names, highways, other easily recognizable features on the section. See Figure 7 for an example.

#### **Figure 4**

Is this a contour map of the erosional surface on the top of the basalt, or a structure contour map on the top of one of the basalt units? If it is a structure contour map on the top of a basalt unit, which basalt unit? Suggest also adding the orientation of the cross section from above.

#### **Figure 6**

Suggest using labels B-B' and C-C' for sections since Figure 2 already uses A-A' designation.

#### **Figure 7**

Green numbers are hard to read on computer screen. Suggest using a different color.

#### **Figure 8**

What do the read letters refer to (SP = Poorly Graded Sand?). Suggest adding in the legend or explanation.

Where does Section A-A' cross Section B-B' (see how the companion section shows there the sections cross)?

What is the vertical exaggeration on all sections that have vertical exaggeration?

Label units on all cross sections in report consistently.

Where is the groundwater elevation on this section? See Figures 26 and 27 that depict the groundwater elevation on the sections.

#### **Figure 12**

Add "Surface" after Potentiometric so that it reads "Potentiometric Surface"

Note the CGA subareas are not labeled the same as in Figure 13 (see Sub-area E on Figure 13 – it is not on Figure 12). Check all figures for consistent labeling.

Suggest adding a label for "Spike Gulch" since it is referenced in the text. Suggest adding a label for the boring drilled on 16 April as referenced in Section 4.2 of text to guide the reader.

#### **Figure 16**

What are the elevation units for the DEM? The units appear to be metric.

### **Figure 20a**

Suggest adding labels where the river gains, i.e., where the groundwater level is above the river stage, and where the river loses, i.e., where the groundwater level is below river stage.

### **Figure 20b**

Same comment as Figure 20a. Why the color change for the lines?

### **Figure 23**

I am not certain about the value of this figure. Why not check the locations of quarries with DOGAMI and DOGAMI-MLRR? Is there value in differentiating between abandoned, operating, and permitted quarries?

### **Figures 26, 27, 28**

Labels for units not consistent with other figures such as Figures 7 and 8 (colors different)

Suggest another color than green, as it is difficult to read.

Capitalize "Pleistocene"

What is line with small upside down triangle (the water table)? Description is already in the notes, but it is not readily apparent to the casual reader what this symbol refers to.

Where to the cross sections "cross" the other sections? What is the vertical exaggeration?

### **Figure 32**

Is it necessary to show all well hydrographs on same figure? This makes it difficult to read. Suggest using two representative hydrographs and mention in the text that other hydrographs have comparable responses.