

ES476 Hydrology – Pacific Northwest Groundwater Exposition Field Trip -Field Guide Summary Questions

Review the field guide, use your web resources and answer the following review questions / define the following terms:

Key Word Definitions:

Hollow stem auger

Cable tool drilling

Air rotary drilling

“Casing”

“Well Screen”

Split spoon

Blow counts

Shelby tube

Grout

Slotted screen

Riser pipe

Sand pack

Tri-cone rotary bit

Well log

Drillers log

Short answer / essay:

1. List the 5 objectives of proper well design.
2. List the 5 types of hydrogeologic information that is required for the proper design of wells.
3. What are the two main elements of a “well”?
4. Why is the diameter of the well casing important when designing a well?
5. List three reasons why a well should be completed to the bottom of an aquifer.
6. What types of field data are used to determine the best aquifer producing zones in the subsurface?
7. List the 4 type of aquifer conditions or “hydrogeological situations” that are typically encountered, and/or should be considered when installing a well.
8. Describe the process of rotary drilling and the aspects of this technique that result in a “clean hole” that is well-ready.
9. List the 6 functions of drilling fluids.
10. What is the difference between air-rotary and mud-rotary drilling?
11. What is a “tremmie pipe” and how is it used to install a well?
12. Why are the type of sand pack and screen opening widths important when designing a well?