Environmental Cleanup and Restoration  CE/ESR 410/10

Things to Know for the FINAL Exam
(Key Concepts for Your Understanding)

A few things from the first part of the class will, of course, be relevant to the final exam, but the final exam will emphasize the materials presented since the midterm.

1. Be familiar with the major advantages and disadvantages of pump & treat remediation
2. Know the factors that contribute to the creation of abandoned contaminated sites (brownfields)
3. Be familiar with the general ways reactive permeable barriers can be installed
4. Know the major pros and cons of reactive barriers
5. For the Superfund case studies, I don’t expect you to memorize every detail, but you should be able to explain why particular approach was used at a site, and how it is working out.
6. Understand the concept of capture zones in groundwater and why they are important to pump and treat remediation.
7. If I give you a simple flow net diagram for a contaminated site, be able to interpret what would constitute the capture zone of a given well, or, how you might create a capture zone.
8. No calculations will be required, but be able to use information about hydraulic conductivity to say something about the behavior of water in an aquifer. (E.g., if I showed you a diagram of an aquifer and gave you info about $K_h$, you should be able to discuss what the general flow pattern would look like and where the water would flow fast or slow).
9. Know the principle difference in the behaviors of NAPLs and DNAPLs and how that affects the type of cleanup approach.
10. Know how the adsorption of contaminants to soils affects cleanup strategies, and why.
11. If I gave you some facts about a hypothetical site, be able to discuss a plausible strategy for cleaning up the site and defend your selection. (In other words, given a set of facts, tell me a reasonable approach that would be appropriate and explain why it is a good idea).
12. Review the various “alternative” CVOC cleanup methods and understand the principle features, situation where they make sense, situations where they don’t make sense. For example, I might ask you to consider several specific techniques and tell me which ones would work for very deep groundwater contamination and which one will probably not work for that; or, which methods can be used to stimulate biodegradation, and which ones do not.