**ES473 Environmental Geology – Class Assignment Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Key Word Search on Soil and Groundwater Remediation**

Using internet, text, and other class resources, provide a brief a complete definition or description of the following terms, with a sketch, equation or cut-n-paste photo where required. Your work is best presented as neat, professional looking and word processed.

Apply the following class resources and readings as a basis for your search, in addition to any internet resources that you find:

Overview of Groundwater Remediation Techniques

<https://people.wou.edu/~taylors/g473/gwcont4.pdf>

Physical and Chemical Remediation Strategies

 <https://people.wou.edu/~taylors/g473/8_groundwater_remediation_technologies.pdf>

Wikipedia Groundwater Remediation Link

 <https://en.wikipedia.org/wiki/Groundwater_remediation>

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Groundwater regulations RCRA vs. CERCLA (what do the acronyms stand for? Summarize the intent of the environmental laws)
2. USEPA NPL (what do the acronyms stand for? Summarize the intent)
3. MCL vs. TMDL (what do the acronyms stand for? Describe meaning of each; provide examples)
4. Site Characterization: Phase I vs. Phase II vs. Phase III vs. Phase IV (describe the levels and differences in methodology)
5. NAPL vs. DNAPL vs. LNAPL (what do the acronyms stand for? Define and describe meaning)
6. Risk Assessment vs. Remedial Action (describe, how are they related?)
7. Contaminant Fate and Transport
8. Passive vs. Active Remediation (explain, provide examples of each)
9. Bioremediation
10. Soil Vapor Extraction (include sketch / image)
11. Natural Attenuation
12. Contaminant Plume (include sketch / image)
13. In Situ Treatment (explain and provide examles)
14. Grout Curtain (include sketch / image)
15. Synthetic Liner System (include sketch / image)
16. Surface Capping (include sketch / image)
17. Pump and Treat Systems (include sketch / image)
18. Collection Trench (include sketch / image)
19. Groundwater Capture Zone (include sketch / image)
20. Air Sparging (include sketch / image)
21. Permeable Reactive Barriers (include sketch / image)