Problem Set 1

CENG 340–Introduction to Environmental Engineering
Instructor: Deborah Sills

September 1, 2013

Due Date

Monday 9 September, in class.

Learning Goals

1. Become familiar with the environmental engineering profession.
2. Know where to find information on local water quality in the U.S.
3. Apply commonly used units to express environmental measurements.

Questions

1. My former colleague, Dr. Gretchen Heavner, works for an environmental engineering firm in Seattle, WA, called Floyd|Snider. Dr.Heavner will attend our class virtually on September 13th to answer questions about what environmental engineers do. To prepare, go to Floyd|Snyder's website at http://floydsnider.com, read about their services, expertise, projects, and business approach, and compose two questions for Dr. Heavner. Make sure your questions are thoughtful, specific, and demonstrate that you looked carefully at the website.

2. On Friday, a student in CENG340 asked me whether it's safe to drink the tap water in Lewisburg. I told him that I drink the water, but that it's best to check. Luckily, the local water utility provides such information on their website. Take a look at the information provided in this document, and answer the following questions:

   - What is the source of the water?
   - Are there any violations? If not are there any constituents that are at levels close to being violations?
   - If so, are the violations for physical, biological, or chemical constituents?

   Since there are no violations at the local drinking water utility, try to find the same information for the utility that serves your home. Go to this information at the "Local Drinking Water Information" page of EPA's website. If you can't find the information for where you

live, look at the information for the closest place you can find, and answer the same three questions listed above.

3. Benzene is associated with petroleum products and is typically found in contaminated soil beneath gas stations. What is the maximum contaminant level (MCL) of benzene (in units of mg/L) allowed in drinking water (hint: read the first two sections of Ch. 10 in the textbook, which were assigned for last Wednesday)? Express this drinking water standard in terms of (a) ppm, (b) ppb, and (c) moles/m^3.