

**CWR 6126 – ADVANCED GROUNDWATER HYDROLOGY  
HOMEWORK No. 1 – SPRING 2023**

**Instructor: Professor Fuentes  
DUE DATE: January 24, 2023**

*Homework is graded over 100 % and all problems have same value. Homework must be individually completed, unless the instructor indicates otherwise.*

**Question A:**

In reference to the graphical description of the Hydrologic Cycle of Figure 1.1 of our textbook, identify the most possible physical paths of water recharge from surface waters to groundwater.

**Question B:**

Access the US Geological Survey website (USGS) and locate the 2015 report on “*Estimated Use of Water in the United States in 2015*”. Then answer the following:

- a) What were the total water withdrawals, in percentage, by main category in the United States?
- b) What were the fresh water withdrawals from both ground and surface sources in the States of Florida and New York (in million gallons per day)?

**Question C:**

Access a USGS product (e.g., “Groundwater Watch” or equivalent) in the USGS website and after selecting a groundwater well in Miami-Dade County, Florida, report the most recent provisional daily data value of groundwater elevation and explain what else can you get from the data available for that well.

Tip: [Groundwater Watch \(usgs.gov\)](http://groundwaterwatch.usgs.gov)

**Question D:**

Briefly describe the purpose of the following federal statutes (i.e., “acts” or “laws”) in protection of groundwater:

- a) SDWA
- b) RCRA
- c) CERCLA

**Question E:**

Find information about the Fukushima Daiichi nuclear disaster that was triggered by a tsunami that followed the Tōboku earthquake on March 11, 2011. Then list some of the radionuclides that contaminated the surrounding environment and are of most concern. Provide a list of your sources [or reference(s)].