Wastewater treatment

WATER QUALITY Water Quality and Wastewater Management Word Count: 500 I. Introduction It is standard practice—especially in the Western part of the United States—to inject treated wastewater into the ground, where it is added to the groundwater table. Based on the fact of managing a large water district with a local city council member insisting upon secondary treated wastewater instead of tertiary treated wastewater, the following research is going to investigate the difference between the two types of wastewater. Here, what is going to be accomplished is: 1) a comparison-contrast of secondary water treatment methods to tertiary water treatment (also known as advanced or final water treatment) methods, in the context of the wastewater treatment process; 2) a discussion of the appropriate uses of reclaimed water; and 3) an explanation as to whether a recommendation should be made for secondary or tertiary treatment for groundwater recharge, if the water were to indeed end up being used for drinking—with rationale. II. Comparison-Contrast of Secondary to Tertiary Wastewater Treatment Secondary treatment of wastewater is considered the next logical step after primary treatment, which basically reduces or eliminates certain substances from the water that are hurtful. According to the Water Environment Federation (2007), “ Secondary treatment reduces the concentrations of dissolved and colloidal organic substances and suspended matter in wastewater” (pp. 2-11). Tertiary wastewater treatment goes even further, removing even more harmful parts of wastewater such as disease-carrying elements. According to the National Research Council (1996), “ Tertiary treatment is used at municipal wastewater treatment plants when receiving water conditions or other uses require higher quality effluent than that produced by secondary wastewater. Disinfection for control of

pathogenic microorganisms and viruses is the most common type of tertiary treatment” (pp. 49). Thusly, it seems that tertiary wastewater treatment would probably be more thorough and cleansing in scope that necessarily just secondary wastewater treatment. Tertiary wastewater cleansed would be ideally used to drink. III. The Appropriate Uses of Reclaimed Water The appropriate use of reclaimed water includes letting the public know about it. According to the American Water Works Association (2009), “…the public [should be made] aware of reclaimed-water use” (pp. 67). Reclaimed water systems should definitely be cleaned out periodically as well, in order to facilitate health standards—and to ensure water quality. According to Asano (2007), “ It is good practice to flush the reclaimed water distribution network periodically because reclaimed water systems [have biofilm build-ups versus] potable water systems. Flushed reclaimed water can be discharged to the wastewater collection system, or with appropriate waste discharge permits…” (pp. 1188). IV. A Recommendation for Secondary or Tertiary Treatment for Groundwater Recharge, If It Were To Be Used for Drinking Water If secondary or tertiary treatment were options to possibly be used for recharge of the water table in the ground, it would be recommended that tertiary treatment be used. This is based on the fact that tertiary treatment is more stringent and is effectively rid of pathogens harmful to people. V. Conclusion The following issues were addressed: the comparison-contrast of secondary to tertiary water treatment methods, in the context of the wastewater treatment process; the appropriate uses of reclaimed water; and issuing a recommendation for either secondary treatment or tertiary treatment for groundwater discharge, if it were to be used for drinking. REFERENCES American Water Works Association. (2009). Planning for the

distribution of reclaimed water. US: American Water Works Association. Asano, T. (2007). Water reuse: issues, technologies, and applications. US: McGraw-Hill Professional. National Research Council. (1996). Use of reclaimed water and sludge in food crop production. US: National Academies Press. Water Environment Federation. (2007). Operation of municipal water treatment plants. US: McGraw-Hill Professional.