

CVEN 5534: Wastewater Treatment

Assignment 1: Due Tuesday, 1/20

BACKGROUND

In 1905, Pennsylvania passed a law forbidding the discharge of untreated sewage from new sewerage extensions and extensions of existing sewerage systems into streams. The law was administered by the State Board of Health, staffed mostly by physicians.

In 1910, Dr. Samuel Dixon, the Pennsylvania Commissioner of Health, required Pittsburgh to submit a comprehensive plan for replacing the city's combined sewer system [both sewage and stormwater] with a separate sanitary sewer system and treatment plant. This plan was a condition for receiving a temporary discharge permit. The city hired two well-known sanitary engineers, Allen Hazen and George Whipple, to make recommendations. After a year of investigation, Hazen and Whipple made what the Engineering Record called: "The most important sewerage and sewage disposal report made in the United States."

Hazen and Whipple estimated that replacing Pittsburgh's combined sewers with a separate system and building a treatment plant would cost Pittsburgh taxpayers a minimum of \$46 million [in 1912 dollars!], not including any costs for disruption of city activities during construction. At the same time, they calculated that if Pittsburgh did not replace the combined sewers and treat the wastewater, the 26 towns located downstream from Pittsburgh on the Ohio River, who did not treat their drinking water, could then provide filtered water for their residents for a far lower cost. Hazen and Whipple argued that no precedent existed "for a city's replacing the combined system by a separate system for the purpose of protecting water supplies of other cities." They concluded in their recommendation to the City that "no radical change in the method of sewerage or of sewage disposal as now practiced by the City of Pittsburgh is necessary or desirable."

Engineering opinion at the time overwhelmingly support the Hazen and Whipple report and viewed the controversy as an issue as to "how far engineers are at liberty to exercise their own judgment as to what is best for their clients and how far they must give way to their medical colleagues."

Uncertain of his ability to compel Pittsburgh to build a separate system and treat its sewage, Dixon retreated and issued the city a temporary discharge permit without the plan. The State Commissioner of Health continued to issue such permits to the city until 1939.

ASSIGNMENT:

Suppose it is 1910 and you have just read the Hazen and Whipple report, but you had the level of technical and environmental knowledge we have today. Write a letter to the editor of the Engineering Record expressing your views. Include in this letter considerations that were apparently not taken into account by Hazen and Whipple and discuss how they might result in a different recommendation. AT A MINIMUM, these should include: costs and benefits, the definition of “client,” environmental ethics, multiple use of resources, concept of use of tax money to build treatment plants to benefit non-taxpayers.

Length: 3 – 5 typed pages, double spaced.