##### Flint

Read Case study 39 “Water Crisis in Flint” in your textbook and create a post describing the ethical decisions ignored with the scandal, and the repercussions of the decisions.

Also, answer the question, “are all forms of dishonesty unethical”? Give specific examples.

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**Case study 39**

Water Crisis in Flint

Flint, Michigan, in 2011, was a financially challenged city of nearly 98,000 people, many of them living below the national poverty line, when the state of Michigan took control of the bankrupt citys pursestrings. In 2014, the city, which had been purchasing treated water from Detroit, decided to reduce costs by taking water from Lake Huron and treating it in city-owned treatment plants. While the pipeline necessary to transport the Lake Huron water was being constructed, the city planned to temporarily draw raw water from the Flint River. In April 2014, the citybegan pumping water from the Flint River to its water treatment plant. Although the Flint River had been the source of its raw water many years earlier, subsequent development had resulted in significant degradation ofthe water source which now required a higher level of chlorination to safely disinfect the water.The new water began to cause issues with the public and local industry. Fecal coliform bacteria were detected in the municipal supply, and the city increased the chlorination to levels considered risky for some members of the public. General Motors in Flint switched from the city water to a private source because of concerns that the water was corrosive. Residents began to complain about the discolored water at their taps. In February 2015, a resident contacted the theU.S. EPA complaining about the discolored water and expressing her concern that it was making her children sick. Subsequent testing indicated that her water contained a high level of lead, from 7 times to more than 30times the maximum allowable lead levels of 15 ppb.The heavily chlorinated river water proved to be highly corrosive, and during the 18 months it was used, it removed the passivating film on the inside of water pipes and leached lead from service lines and fixtures, and carried the lead to the taps in the homes of Flint residents. Monitoring and adding phosphates to treated water is a standard method of water treatment to develop and maintain a corrosion-preventingpassivating film in pipes and fixtures. Engineers charged with operating municipal water treatment facilities know to check phosphate levels in the water. The AP report of a meeting between MikeGlasgow, who supervised the laboratory at the water treatment plant, with Michigan Department of Environmental Quality District engineer Mike Prysby and a consulting engineer gives a clue about the source ofthe problem. Glasgow, probably under pressure bythe city to hold water treatment costs down, asksPrysby how often his staff would need to check onthe phosphate levels in the water. Glasgow testified that Prysby responded,You dont need to monitor phosphate because youre not required to add it.Glasgow indicated that both he and the consulting engineer at the meeting were surprised by theresponse. They both undoubtedly recognized that their costs would be significantly less if they did monitor and maintain phosphate levels, yet neither ofthese two engineers questioned the surprising response of the MDEQ regulator. Glasgow said,Then we went on to the next question.As Flint allowed the highly corrosive water to flow through the aging municipal water supply system,pipes corroded, leaks began to increase, and most importantly, lead was leached from lead service lines(not used today), from soldered joints in copper service lines (lead-free solder is required today), and from brass fixtures (lead-free brass alloys are required today). High levels of lead have exposed the residents,particularly young children, to significant risk of harm.High levels of lead in the blood can severely affect both mental and physical development. Very highlevels can be fatal. Repairs to the damaged system,which could have been prevented by proper mainte-nance of the passivating film inside the pipes and fixtures by monitoring and adjusting phosphate levels,will be very expensive.The problem seems to stem from the meeting described. Three engineers discussed the problem of monitoring and maintaining phosphate levels in thewater in the system. Each of the three, given theirrespective positions and responsibilities, should haveunderstood this problem, which would be basic knowledge to an engineer experienced in water treatment and municipal water supply. Prysbys reply,Youdont need to monitor phosphatemay have beentechnically correctif there was not a MDEQ require-ment to add or monitor phosphate,129but water treat-ment engineers know they must not allow corrosive conditions to develop. And both Glascow and the con-sulting engineer present, who were both surprised bythis statement, quietly accepted it, perhaps because of the implied cost savings, rather than challenging it as questionable engineering practice. The impression isthat the financial pressures of the bankrupt city drovethese two engineers to make an irrational decision notto monitor and maintain phosphate levels based on theverbal statement of the regulator that monitoring wasnot required by regulation.Both Prysby and Glasgow, along with one other,were later charged with criminal conduct because oftheir actions.