

Reflection

1. Assuming normal operation the most frequent pressure range observed when the pump is on is 8 – 10 PSI. While the most frequent pressure range observed when the pump is off is 0 – 2 PSI. The most frequent pressure range observed when the solenoid valve is on is 8 – 10 PSI. The most frequent pressure range observed when the solenoid valve is off is 0 – 2 PSI. In an abnormal operational state, the pipeline will either not be at a pressure between 0 – 30 PSI and be stuck around one specific range instead of it being varied amongst all ranges.
2. The environmental effects of deliberate attacks against the nation's oil and gas pipelines include potential wildfires due to explosions, leakage that damages surrounding soil, vegetation, and water. This will have adverse effects on the environment through the potential leakage of oil into water effectively poisoning it. In terms of the societal impacts people will either run to gas stations to hoard as much gas/oil as they can or resort to not going to work as they cannot travel to work. This would in turn affect the economy as people will not be able to work due to limited gas/oil for travel.
3. During the attack on the Colonial Pipeline malware/ransomware was used to conduct the cyberattack through a VPN account. This was done to disrupt the economy and for monetary value. The Stuxnet attack was different in terms of goal and how it was accomplished. Stuxnet was first put on computers of outside companies that were connected to the nuclear program as they will be unknowing carriers of the malware effectively transferring it to other computers as they were used. The goal behind this attack was to cripple Iran's nuclear program first and foremost but they wanted to disrupt the presidency of Mahmoud Ahmadinejad as his election was shrouded in anger due to the results.