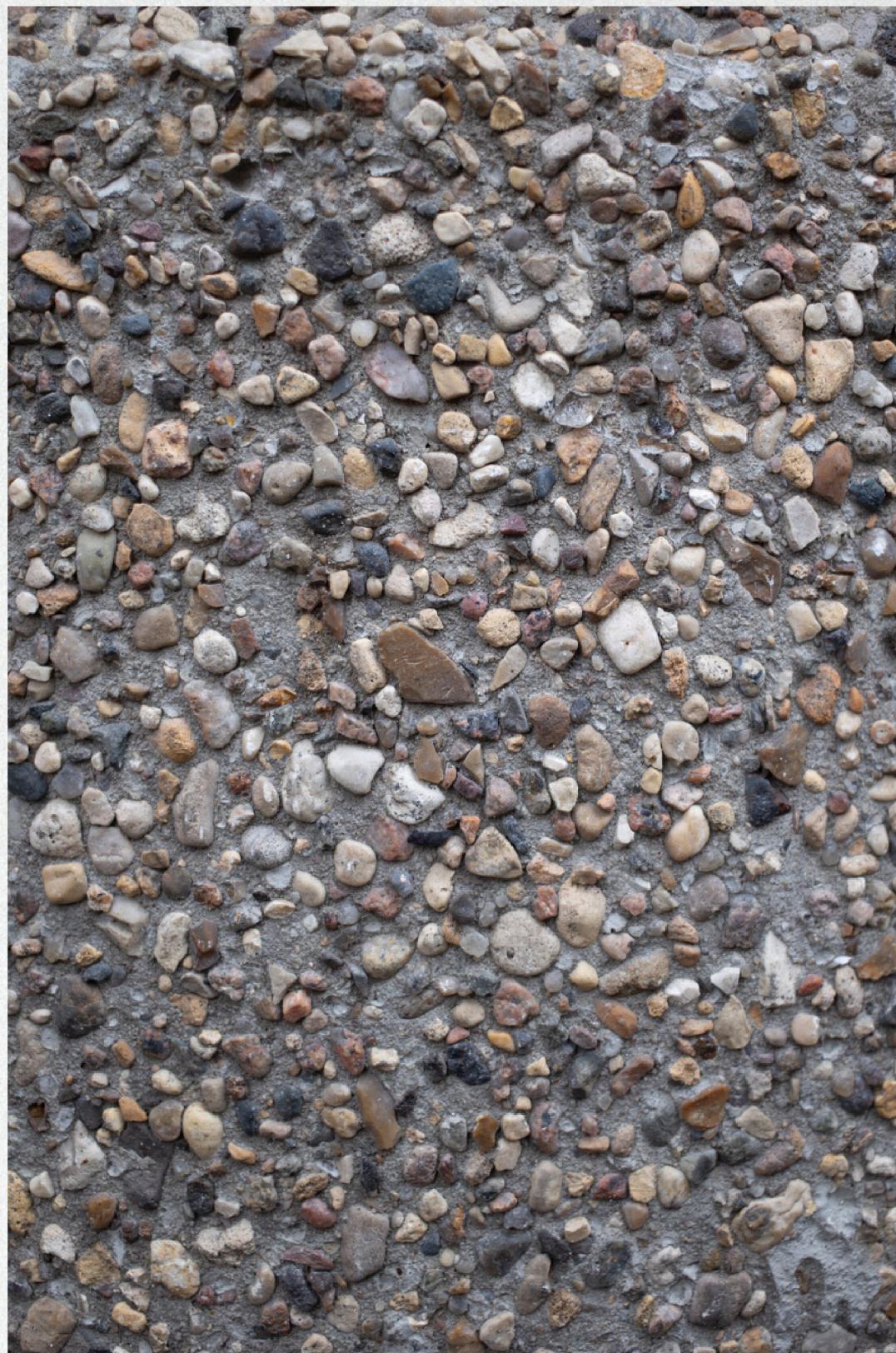
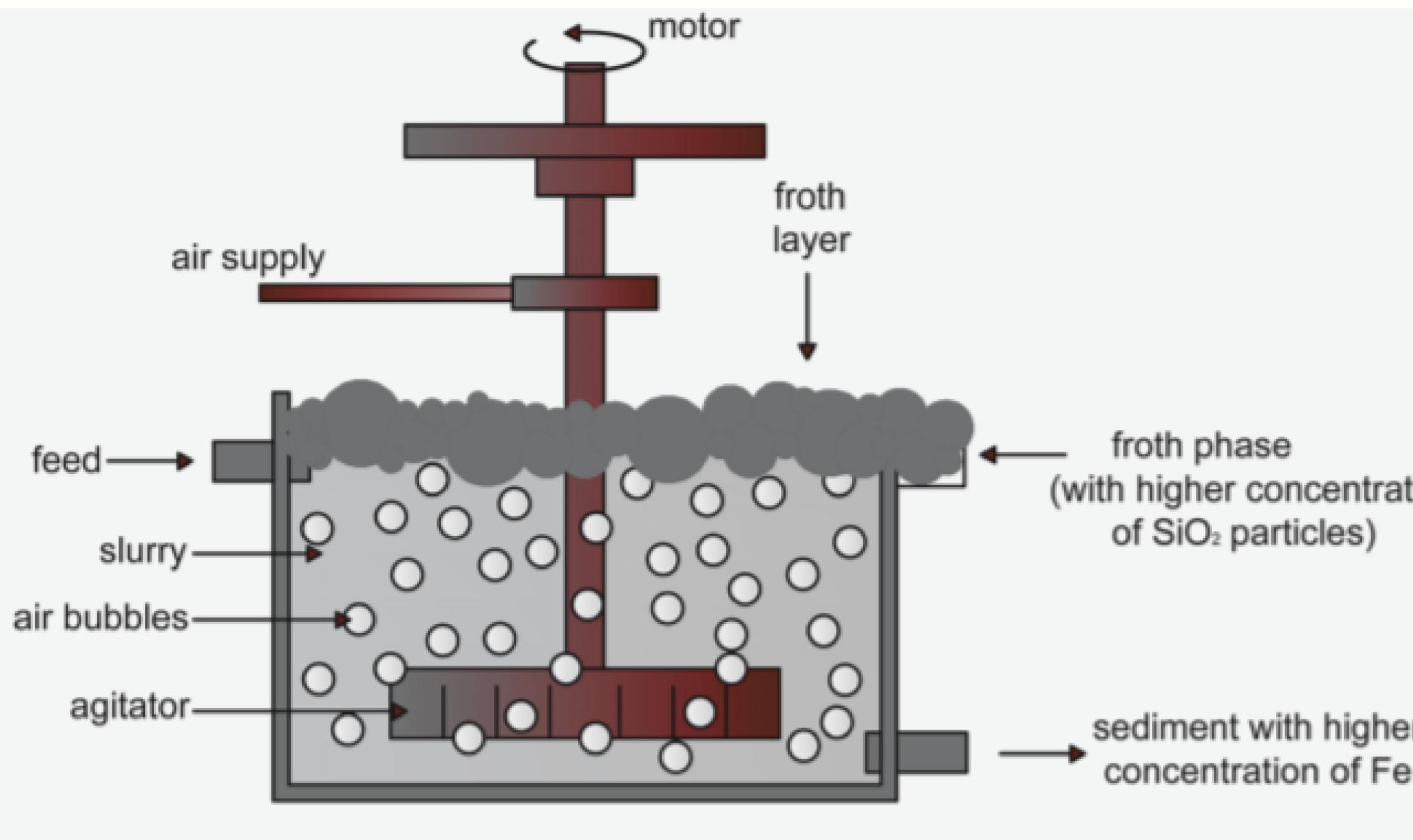


A Closer Look into Flotation Analysis Data

MINERAL ORE
FLOTATION ANALYSIS
USING PYTHON



Background

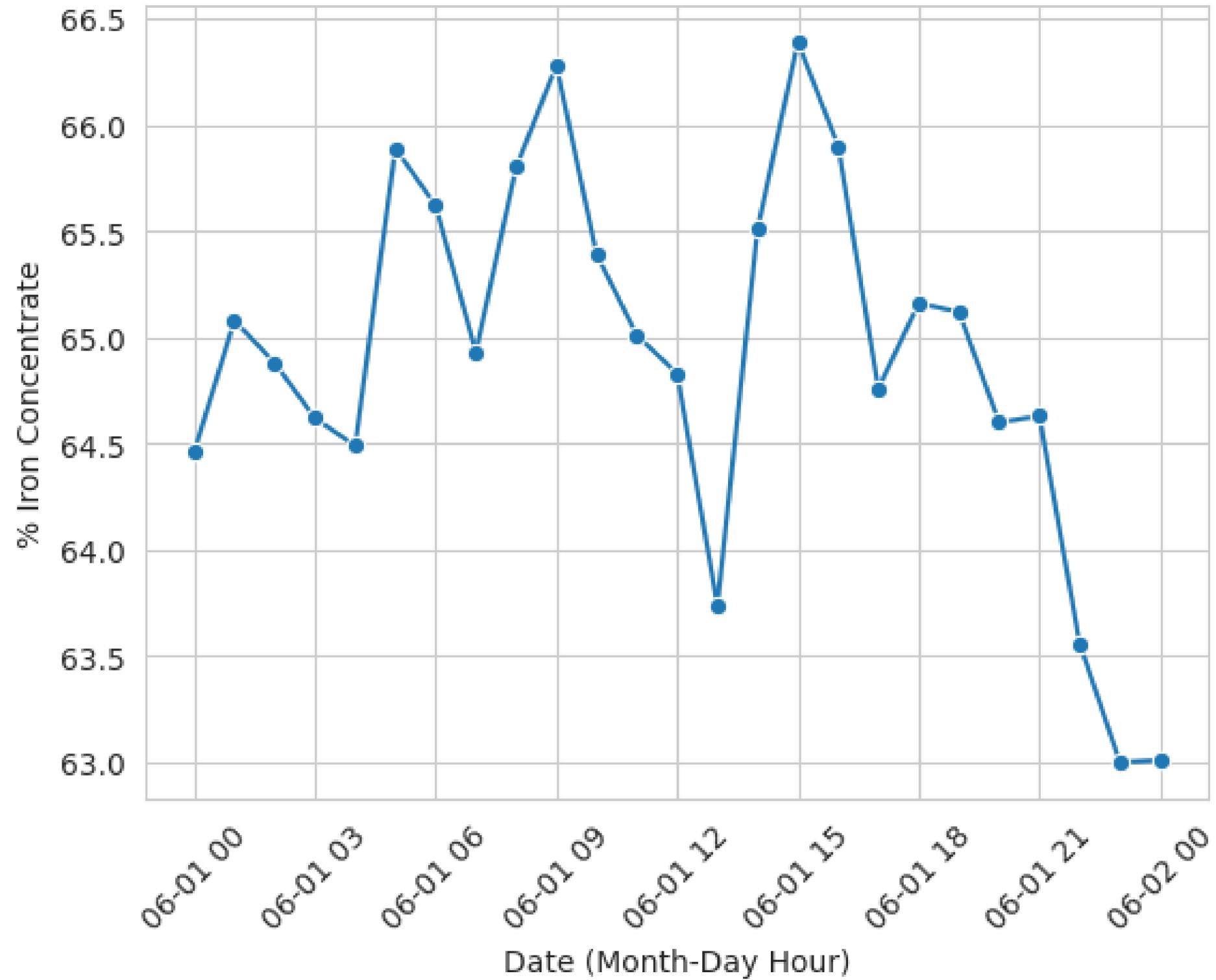


For this project, I provided analysis using mineral ore flotation testing for a manufacturing mining company.

In short, the flotation process involves separating clumps of minerals known as ores by adding various chemical reactors and air bubbles to water, allowing the extracted minerals to float to the water's surface.

I was asked to investigate an incident that occurred June 1, 2017 by observing the changes in mineral concentration hourly throughout the day. To do this, I analyzed the following 4 main variables: % Iron Concentrate, % Silica Concentrate, Ore pulp pH, and Flotation Column 05 Level.

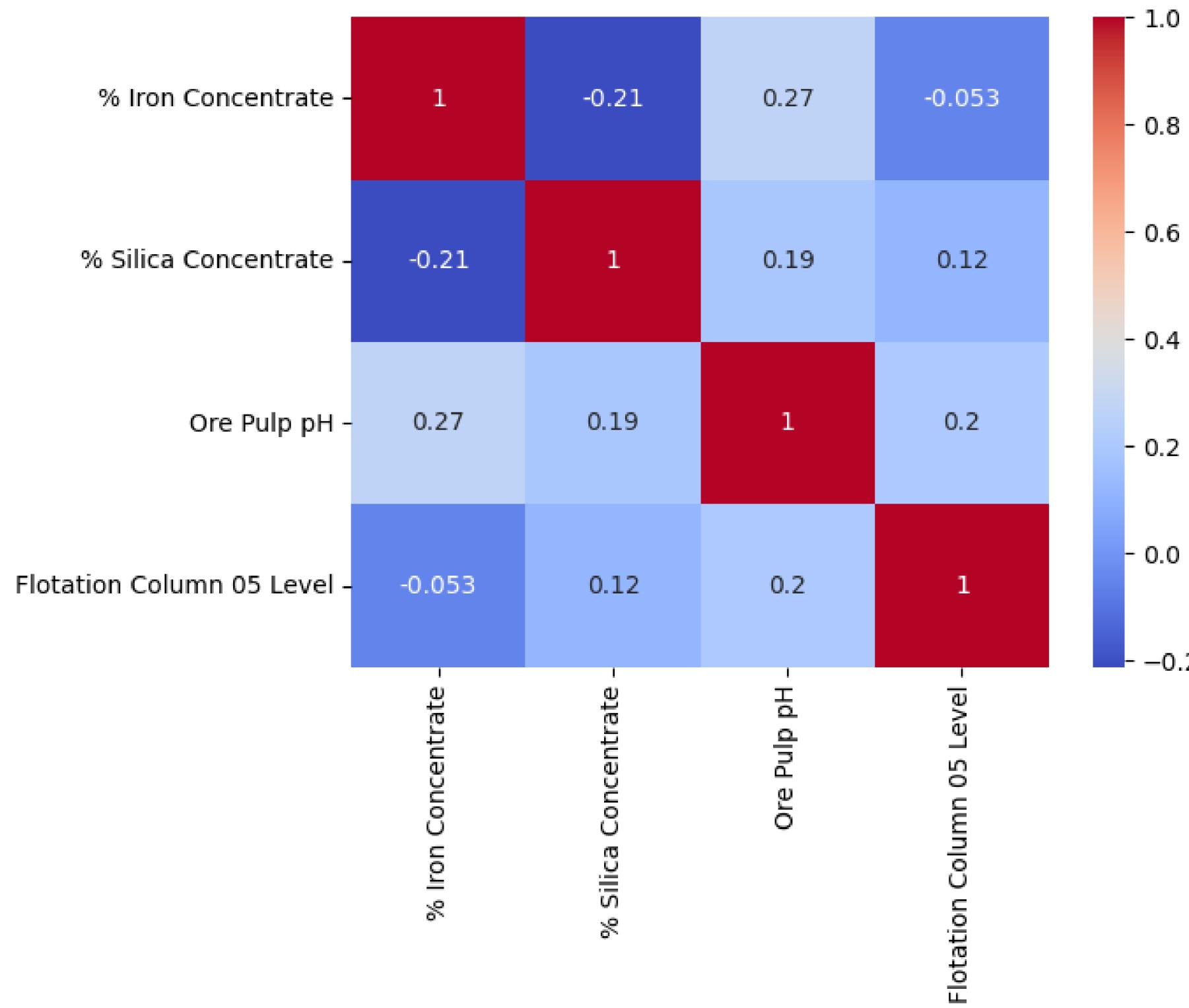
READ MORE



The Problem

Did an incident large enough to impact the iron concentrate purity level occur June 1, 2017?

Bottom Line

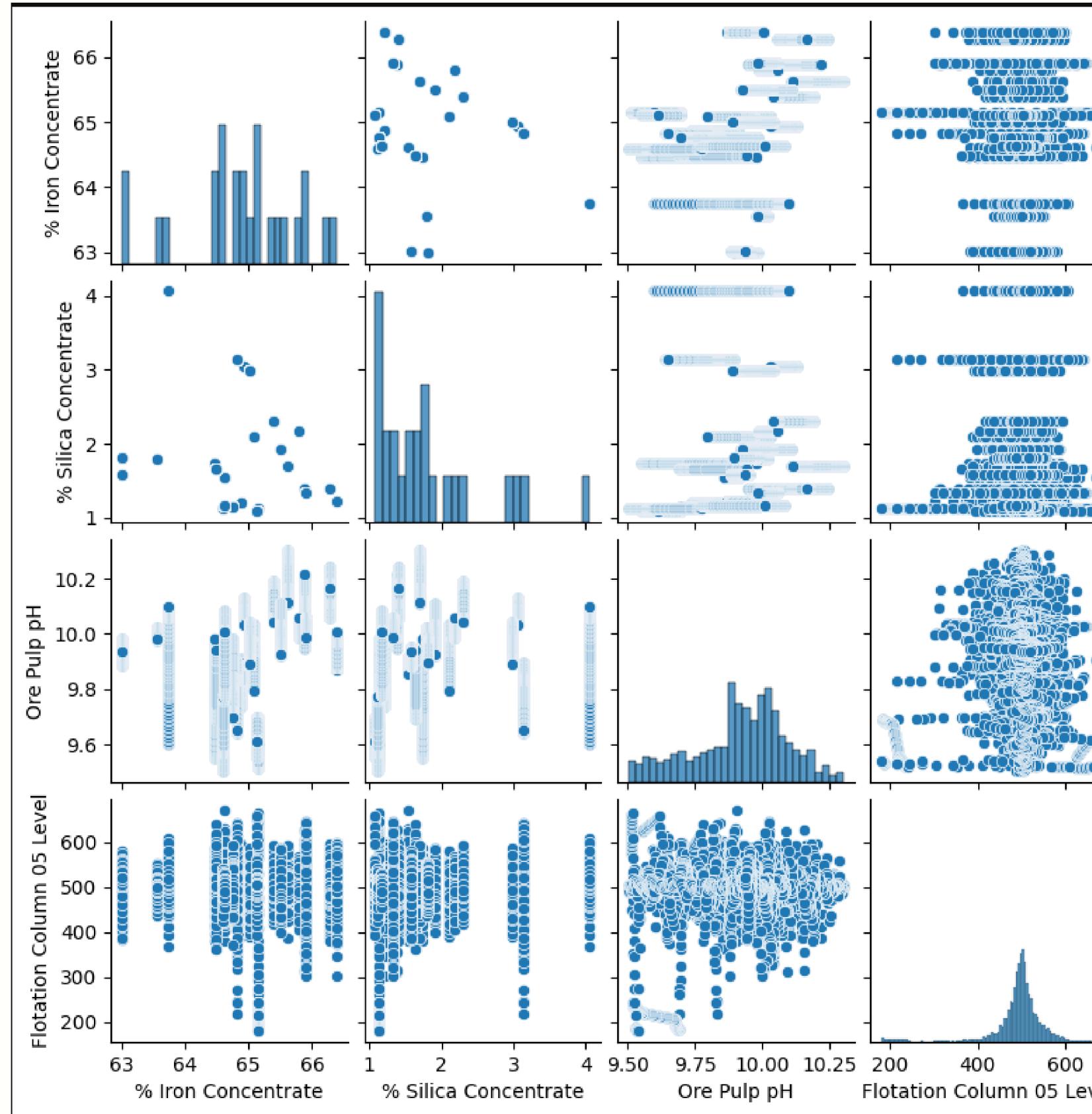


From the data sample provided, there was no major correlation between the four main variables used to provide flotation testing results on June 1, 2017. Therefore, it was unclear what caused the incident to occur during this time.

Replicating this analysis for the following month on July 1, 2017, resulted in increased correlations between the four main variables. There were stronger correlations between % silica concentrate and % iron concentrate as well as ore pulp pH and % silica concentrate.

Overall, I would recommend further investigation into the chemical reactant variables, amina and starch flow.

Key Insights



- The results in the pair plots show **% silica concentrate and % iron concentrate as a right-skewed distribution, suggesting that as the % iron concentrate increases, the % silica concentrate decreases showing an inverse relationship** between % iron concentrate and % silica concentrate.
- The correlation matrix confirms the inverse relationship between % silica concentrate and % iron concentrate with the **-0.21 coefficient**.
- The line chart shown on page 3 shows the % iron concentrate level dropping to **63% at the 22nd hour**.