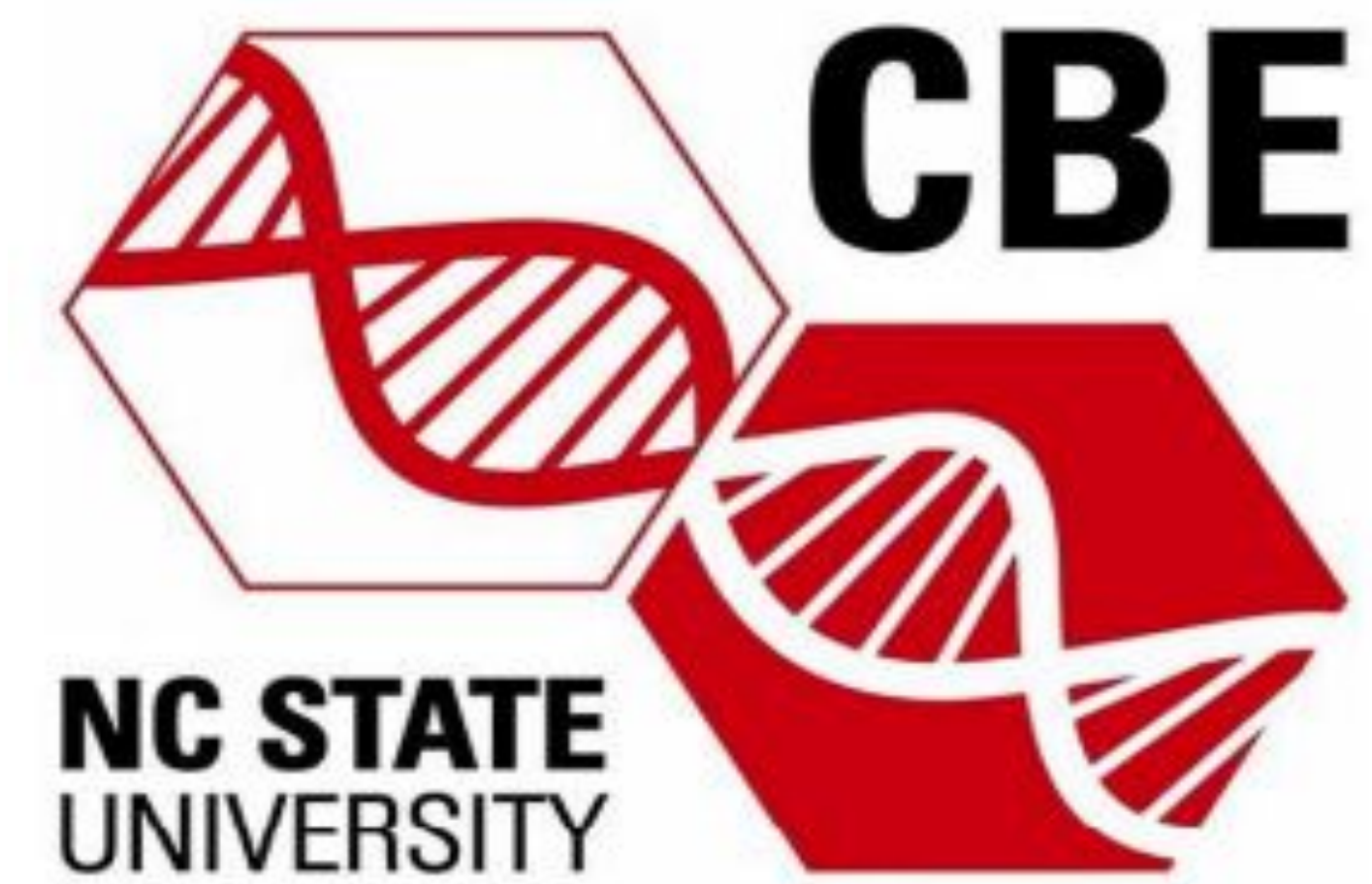


# Fluorine Abatement Process Optimizations and Improvements

Aaron Dornseif, Leyao Huang, Akhil Jayanty, Andrew Schultz, and Jake Tynch

Advisors: Sam Silver and Colin Tattersall

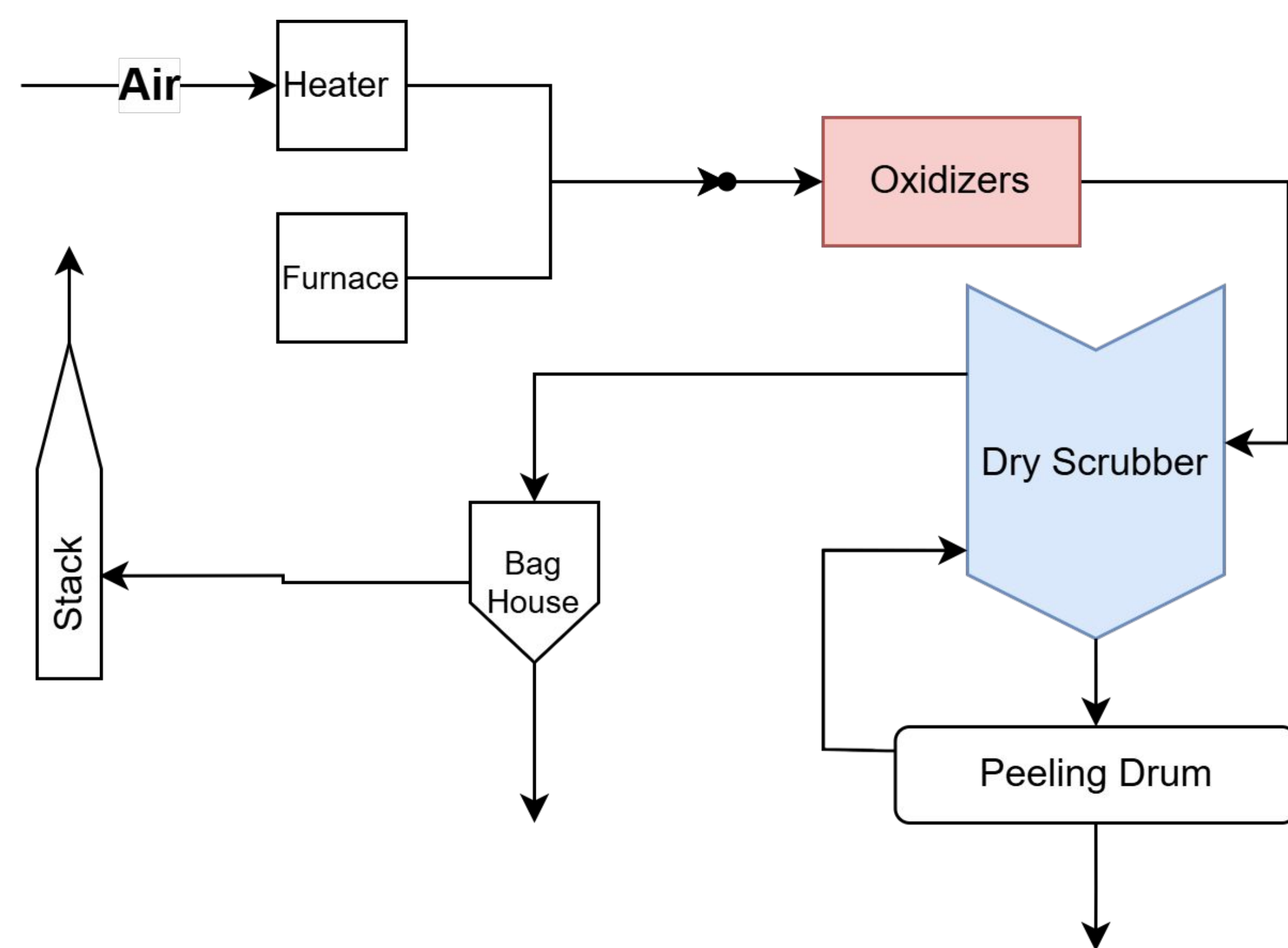


## Goals and Motivation

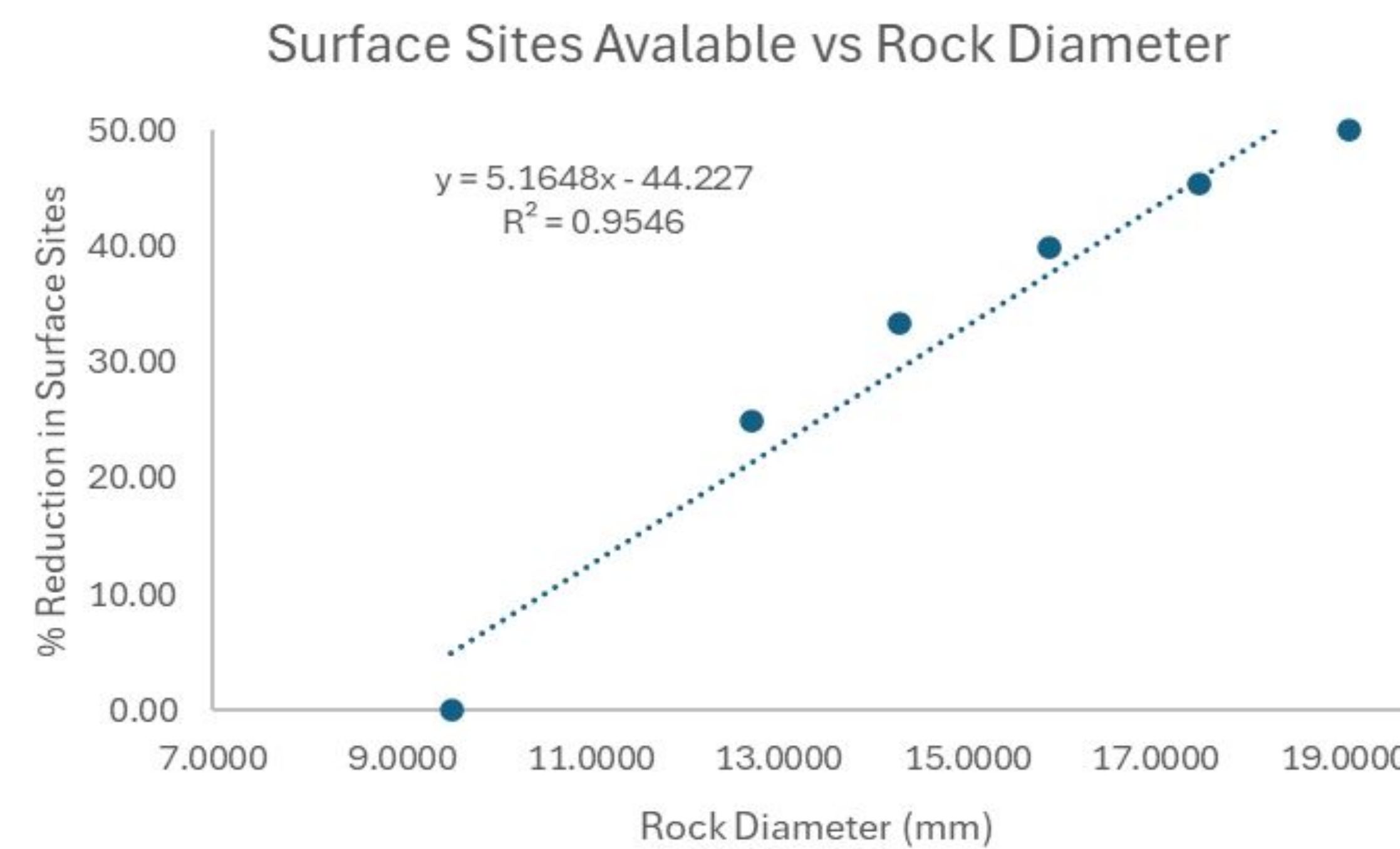
**Goal:** Improve the efficiency of the FAB system and increase its capacity.

**Motivation:** FAB system improvements allow for increased production while maintaining safe and clean operating conditions.

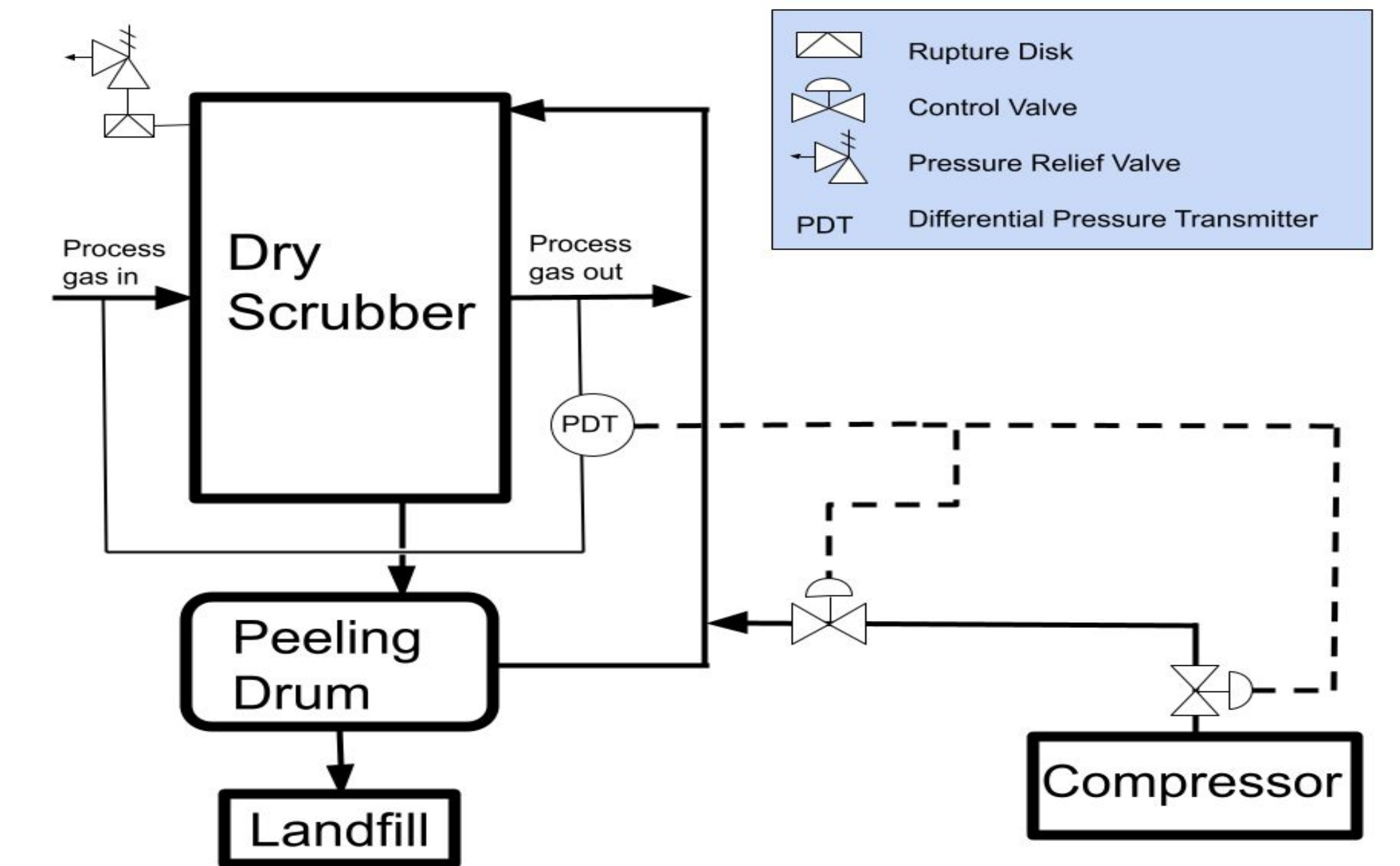
## Process Diagram



## Rock Size Optimization

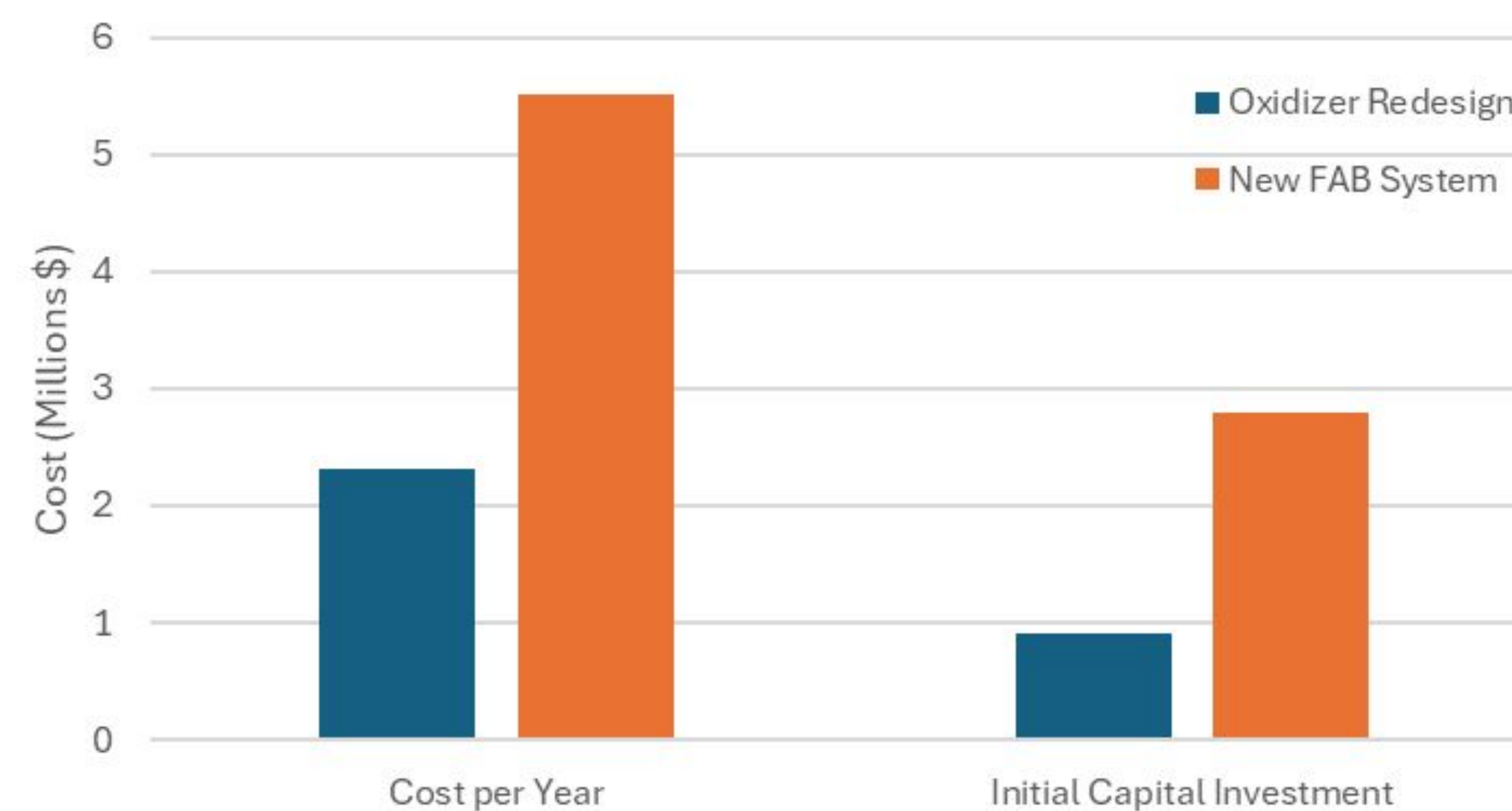


## Recycle Backup Automation

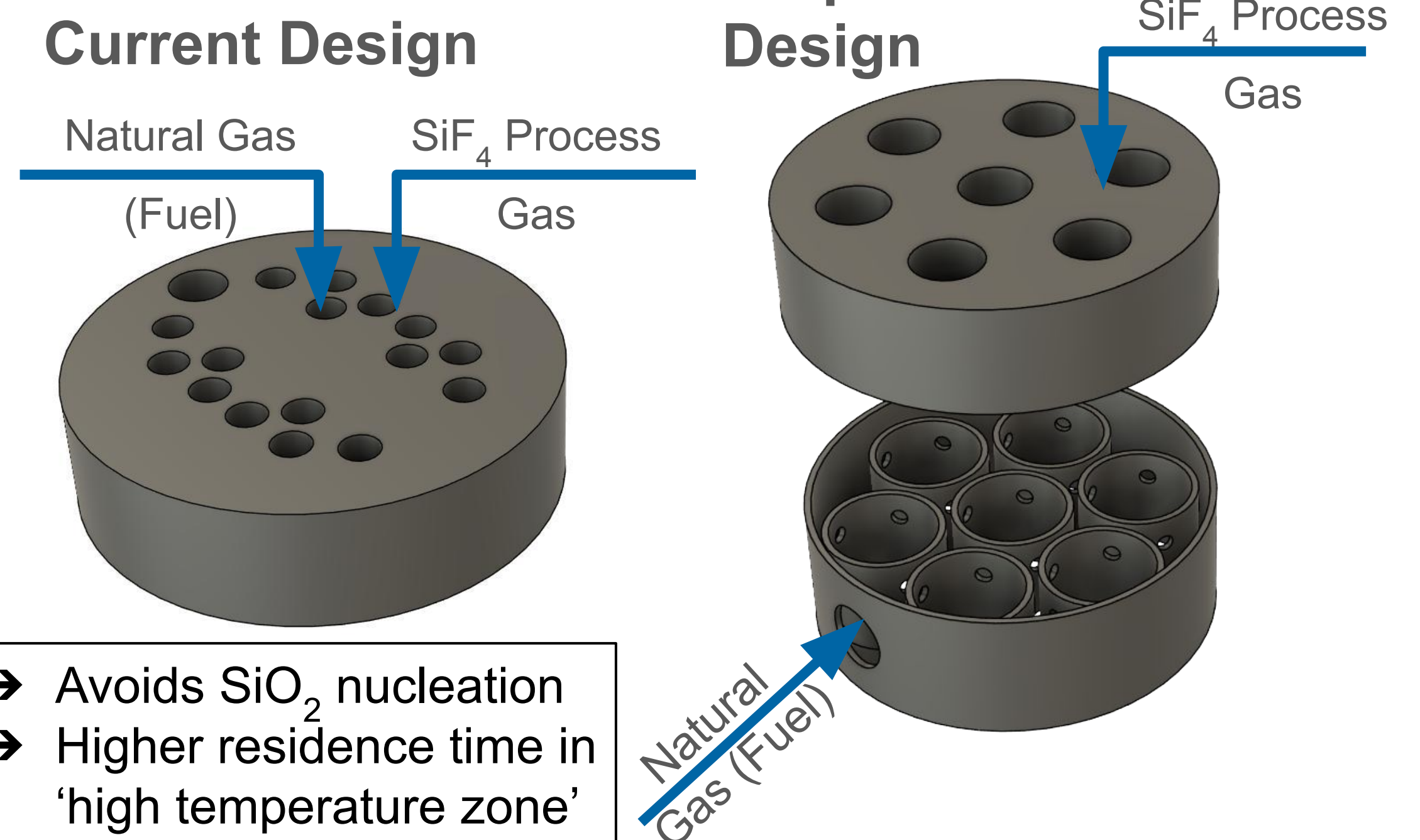


## Economic Analysis

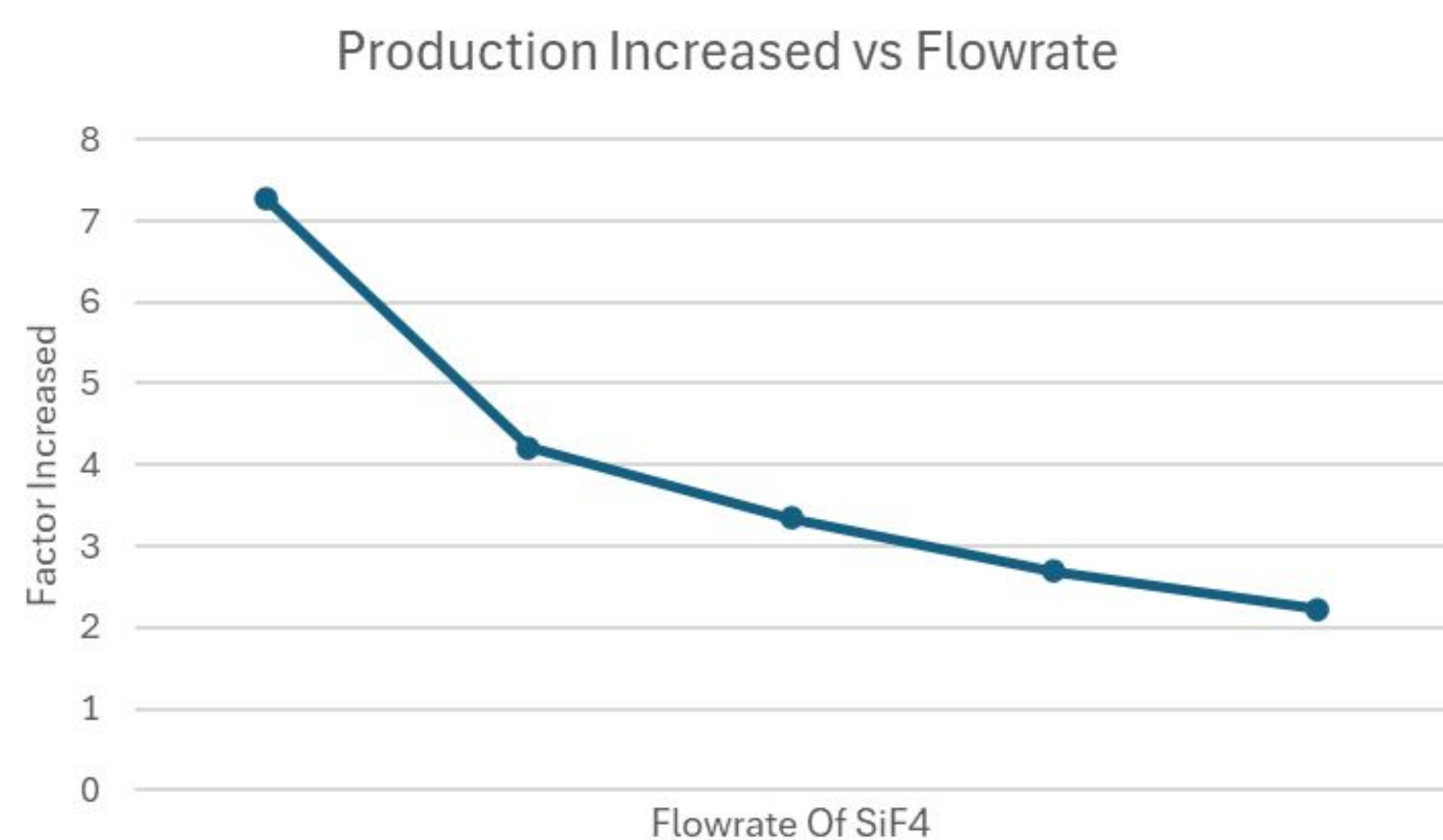
Cost Comparison - Redesign vs New System



## Proposed Oxidizer Design



## FAB Capacity Increase



**Acknowledgements:** We would like to thank our mentors Sam Silver, Colin Tattersall, and Greg Gausmann. Special thanks to Mike Gilgo and Carol Yates from Corning, and Dr. Bullard and Dr. Cooper for their support in this project.

## Conclusions

- Oxidizer design improvement provides significant cost savings; CFD modeling and FTIR trials can further refine this design
- Larger CaCO<sub>3</sub> rocks can be used; future experiments should be done to determine exact size.
- Adding Recycle Backup Automation improves reliability and reduces downtime of dry scrubber system.