

Soot Recovery System- Steel Dynamics LaFarga Copperworks

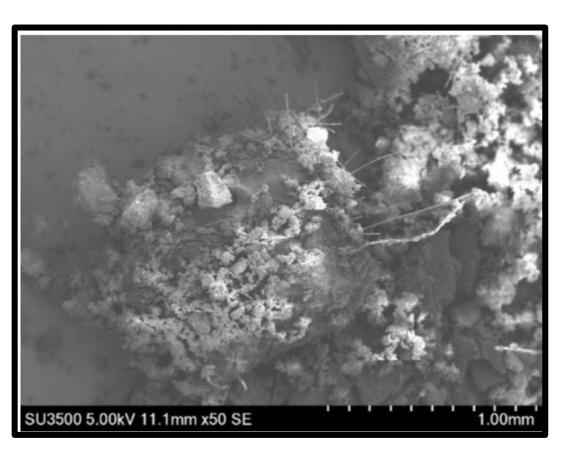
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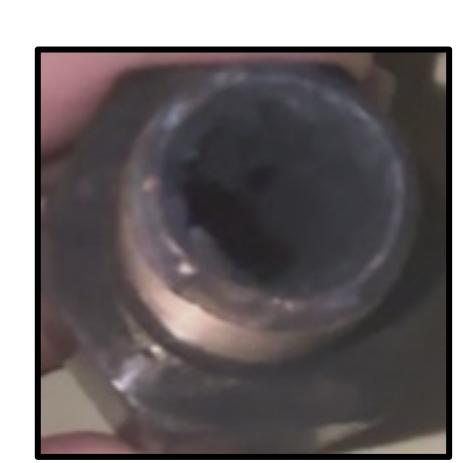


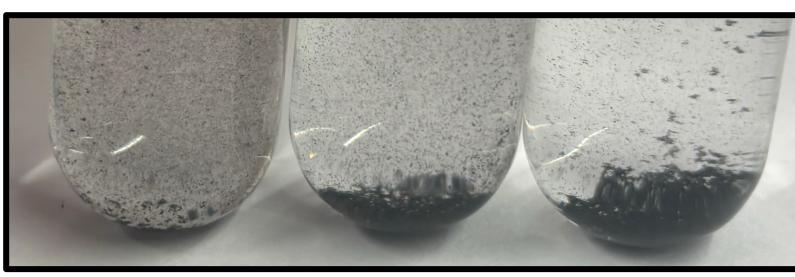
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Introduction

PROBLEM: Due to an expansion, the filter system cannot handle the amount of fluid flow and no longer filters out all the soot along with clogging the nozzles in the wheel.







Filtered Water

Pre-Post-Flocculated Flocculated Water

Water

Water

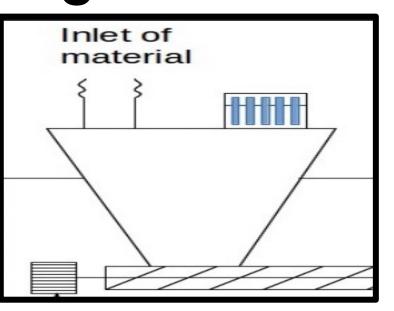
OBJECTIVE: Design an improved soot recovery system which includes continuously turbidity measurements, flocculant choices, flocculant dosage rates, separation filter, filter paper, in the spatial requirements provided.

SOLUTIONS: Design an improved existing system or design a new system while adding the addition of a continuous turbidity monitor in the process.

Filter Paper Fi

Existing Process Design





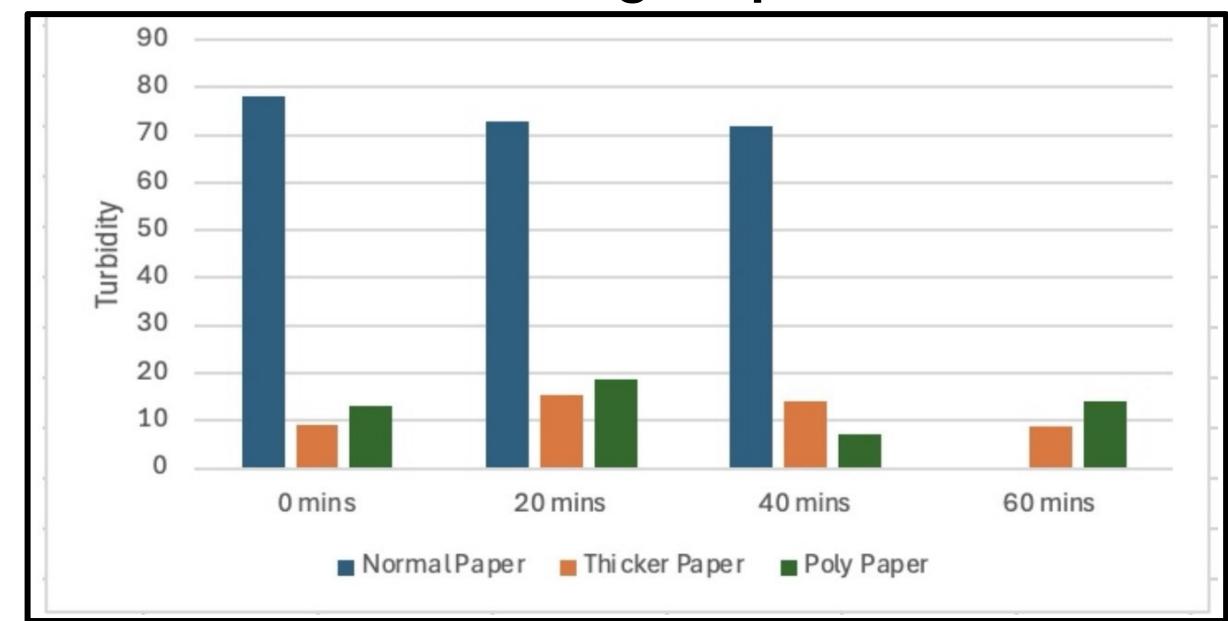


Turbidity Meter

Hopper

Filter

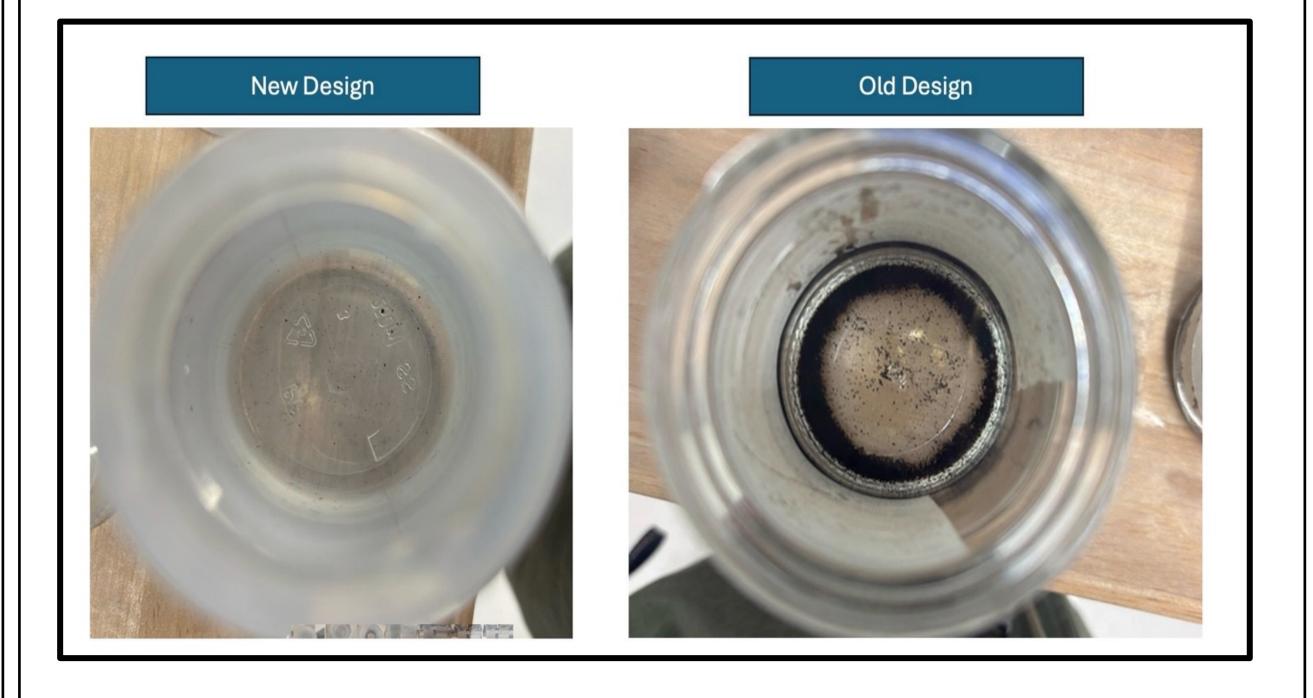
Testing Paper

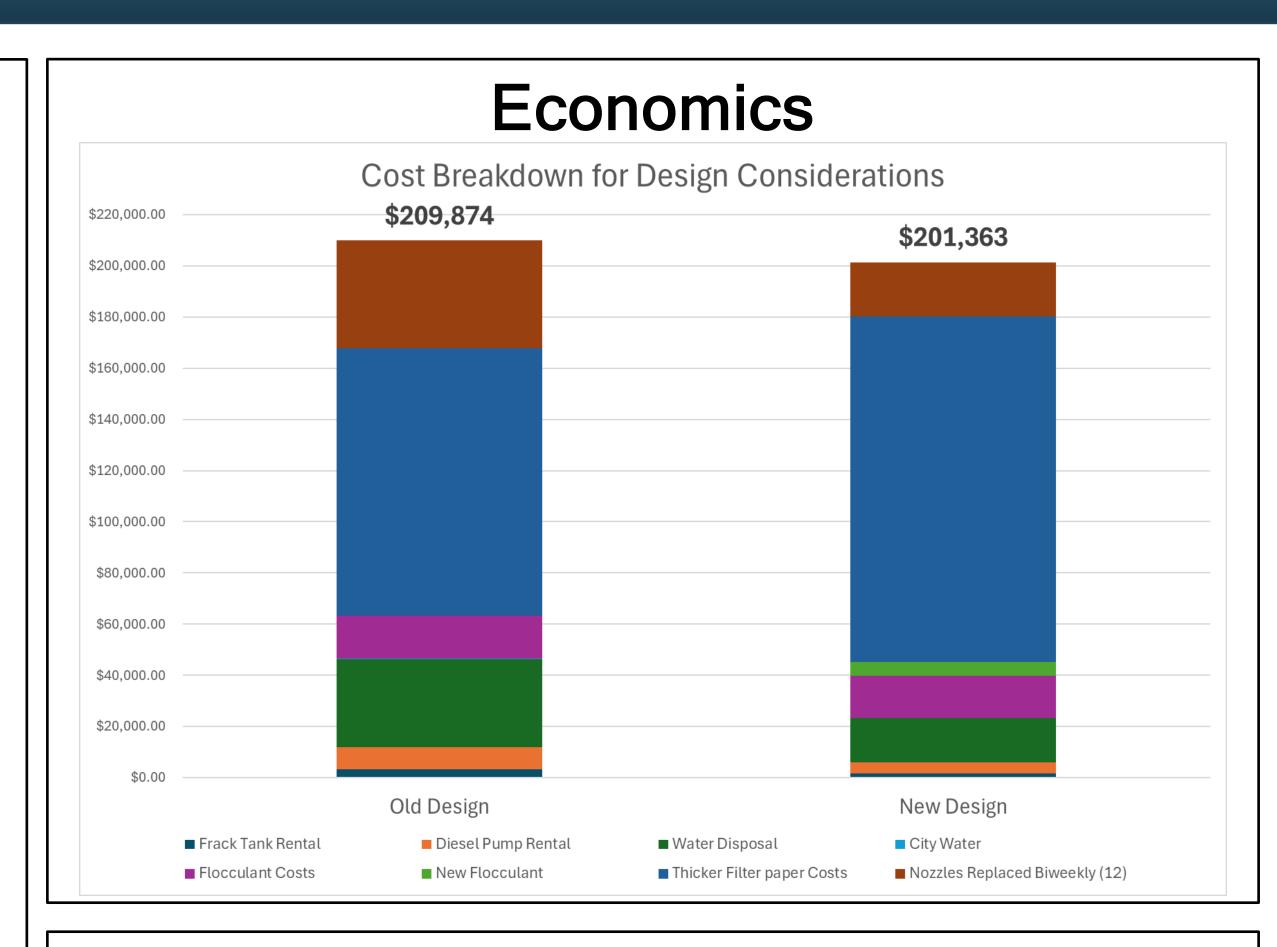


Testing Flocculants

18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0 mins
20 mins
40 mins
60 mins
Thicker Paper
Normal Paper

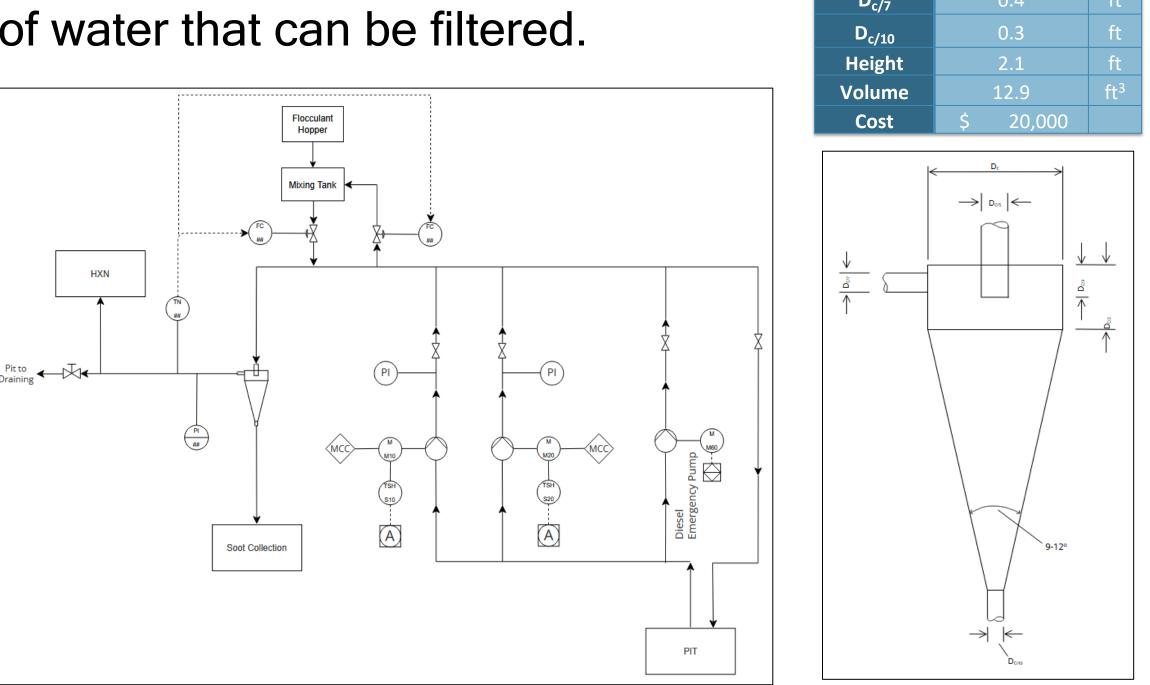
Plant Testing Design Comparison





Hydrocyclone

An alternative design to the current system would optimize spatial efficiency and increase the volume of water that can be filtered.



Selecting A Turbidity Meter

ABB Measurements

Short Lead Times

Immersion and Live Pipe Installation

Cost Efficient

Material Titanium

Acknowledgements

We would like to thank Steel Dynamics LaFarga Copperworks for the Senior Design Project. Thank you to the superiors of Roger Chase and Matt Reinoehl and Dr. Borden for the continued support during the process.