



Soot Recovery System- Steel Dynamics LaFarga Copperworks

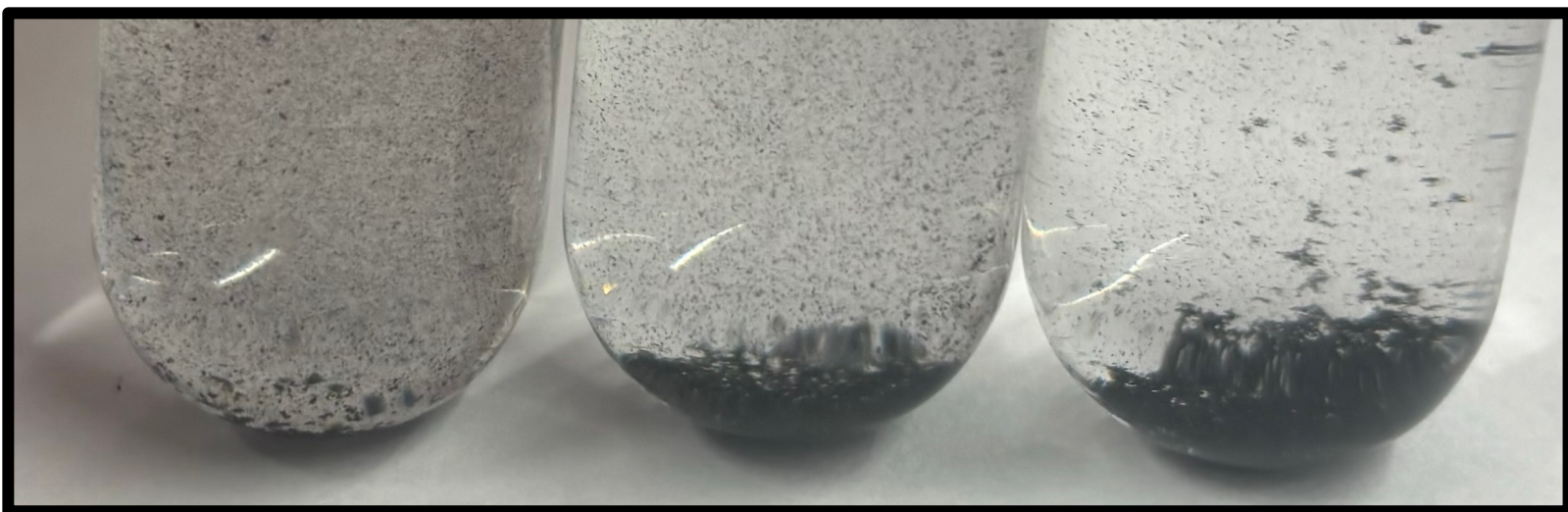
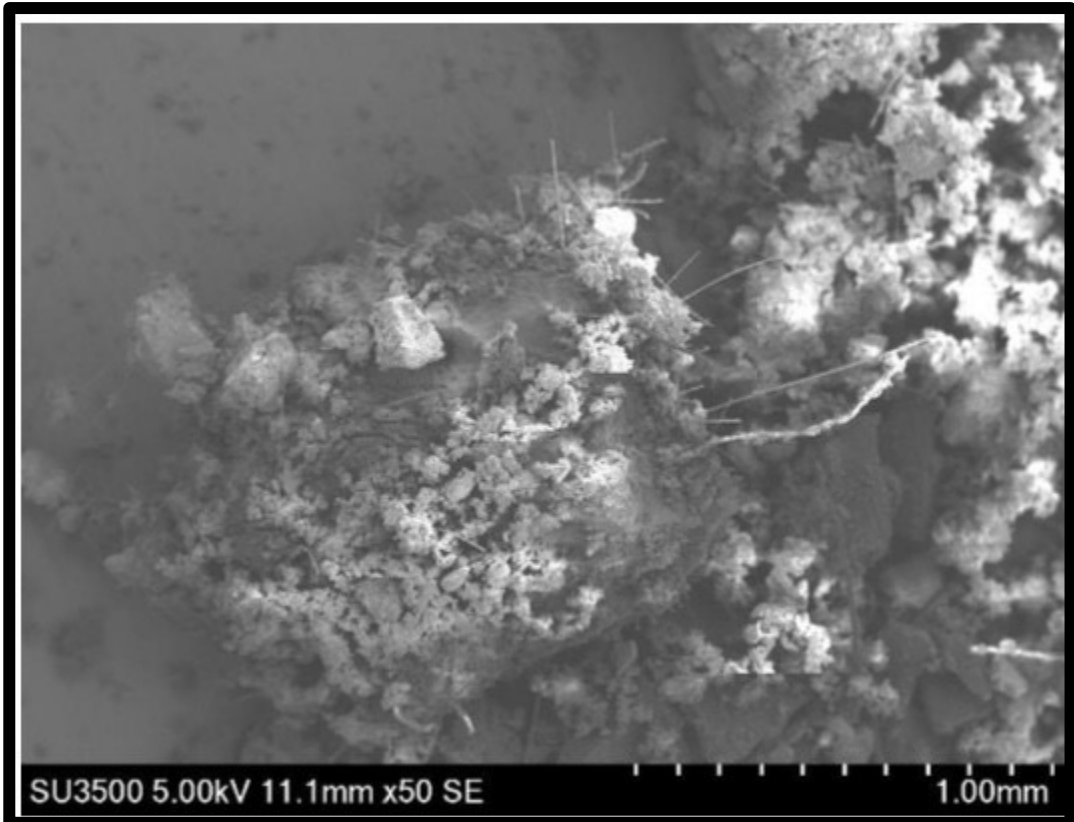
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Introduction

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

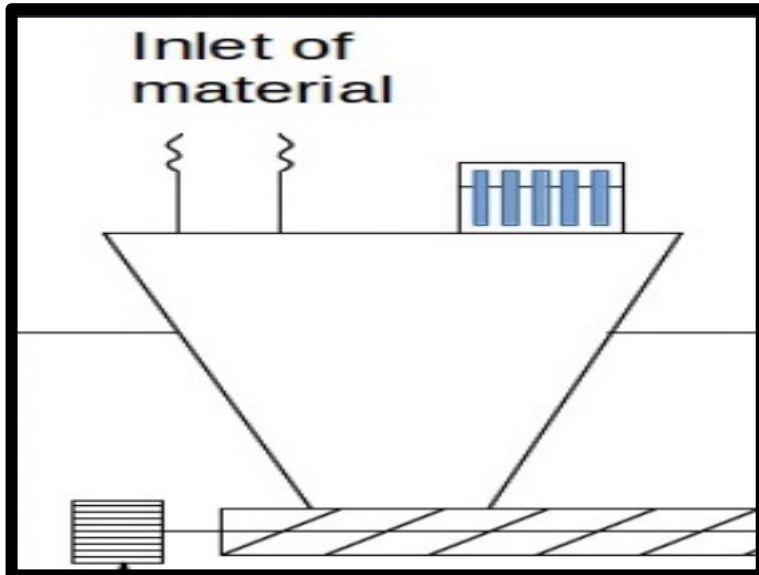
Pre-Flocculated Water

Post-Flocculated Water

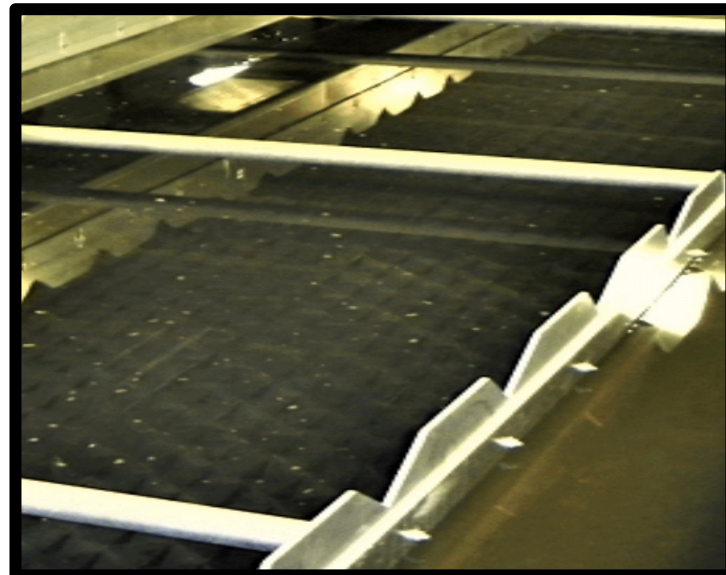
Existing Process Design



Turbidity Meter

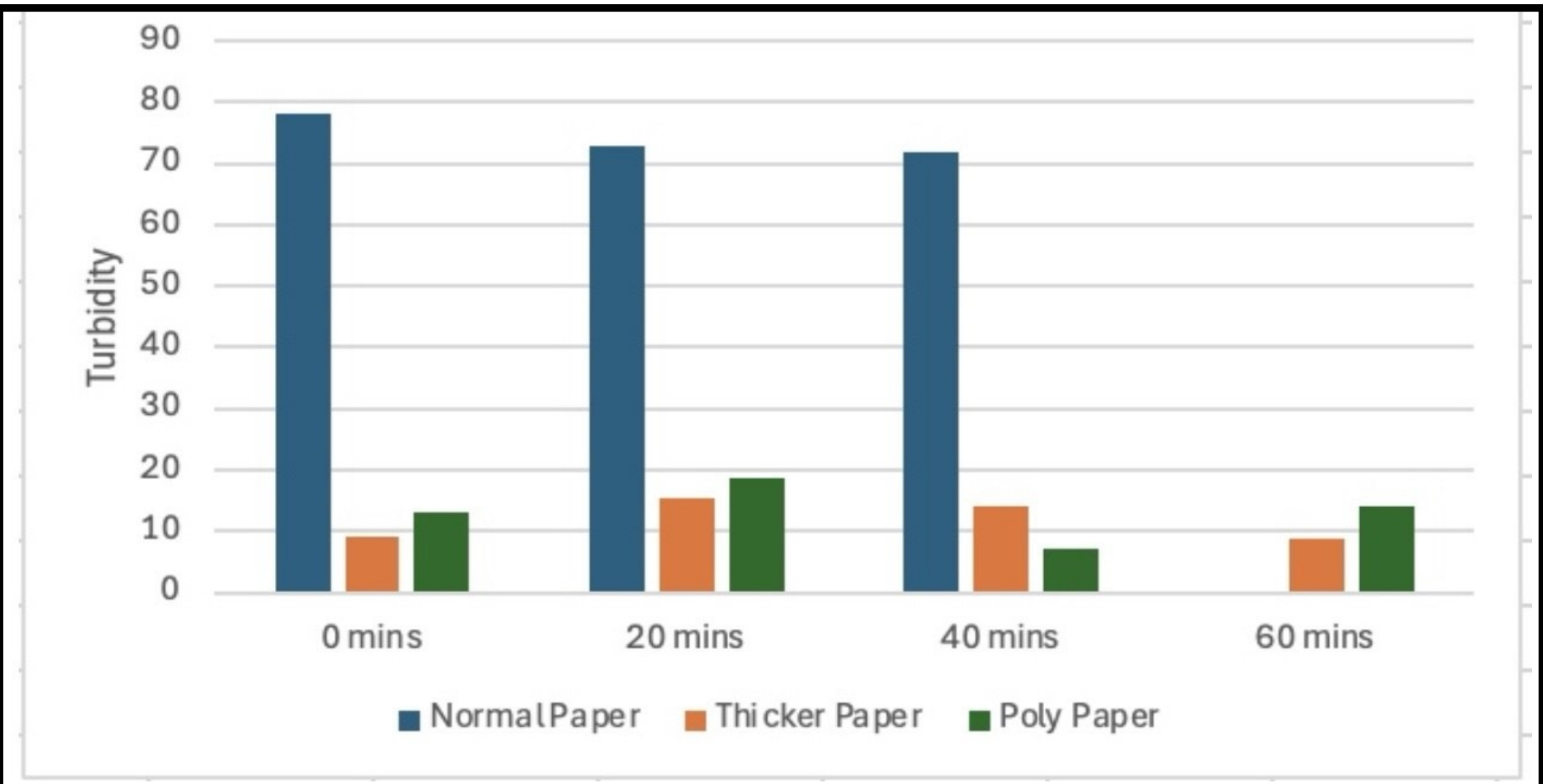


Hopper

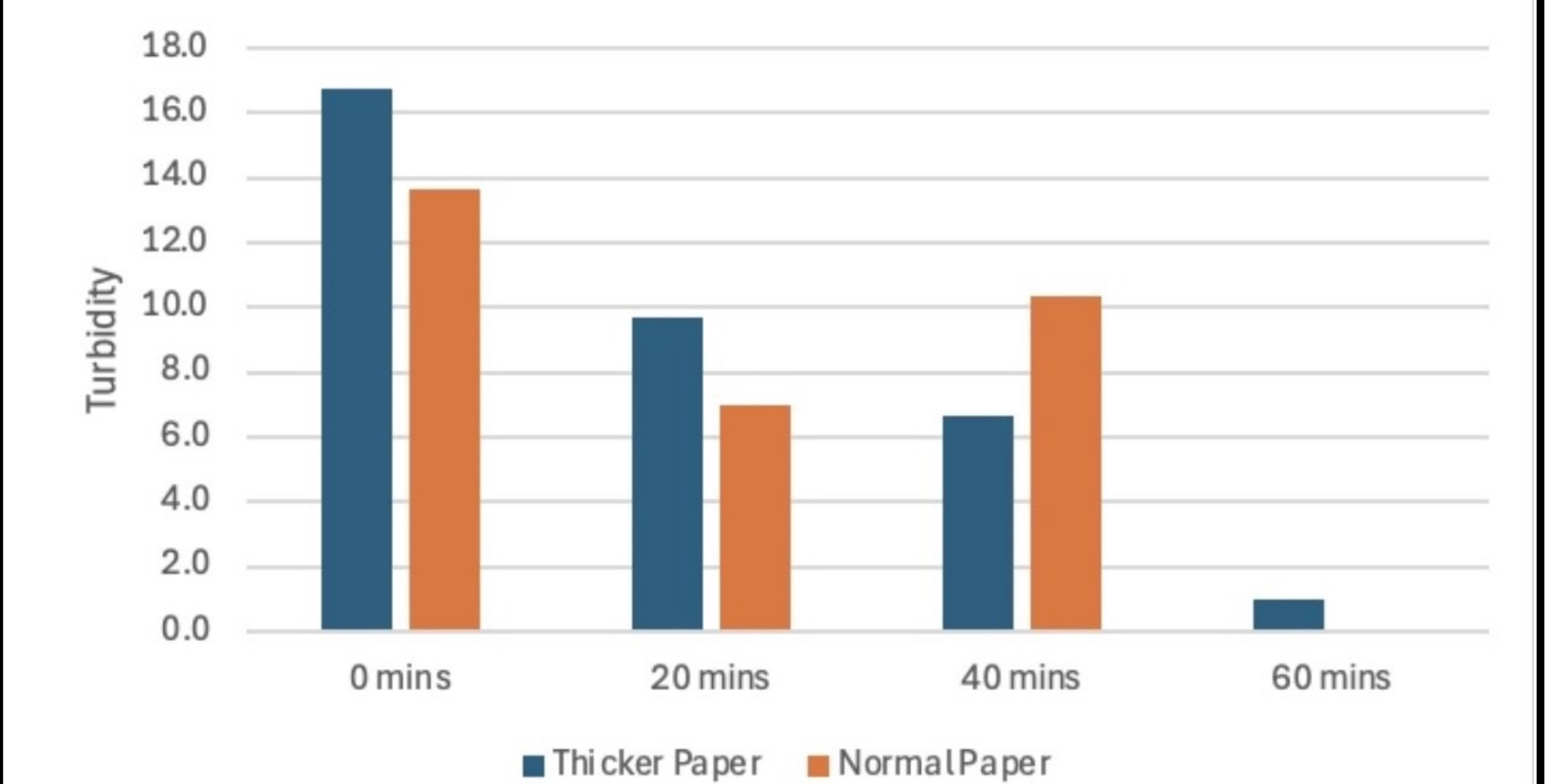


Filter

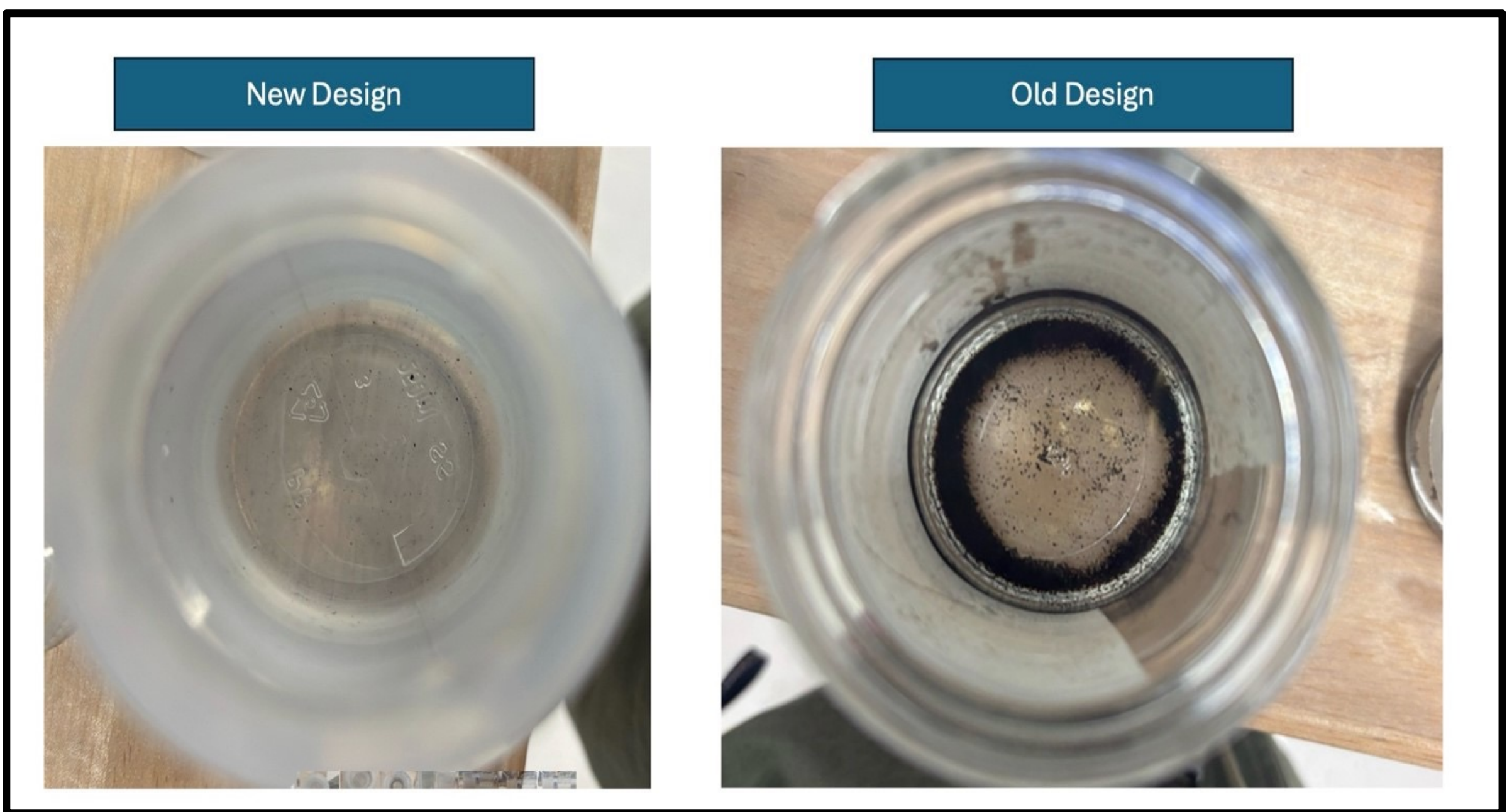
Testing Paper



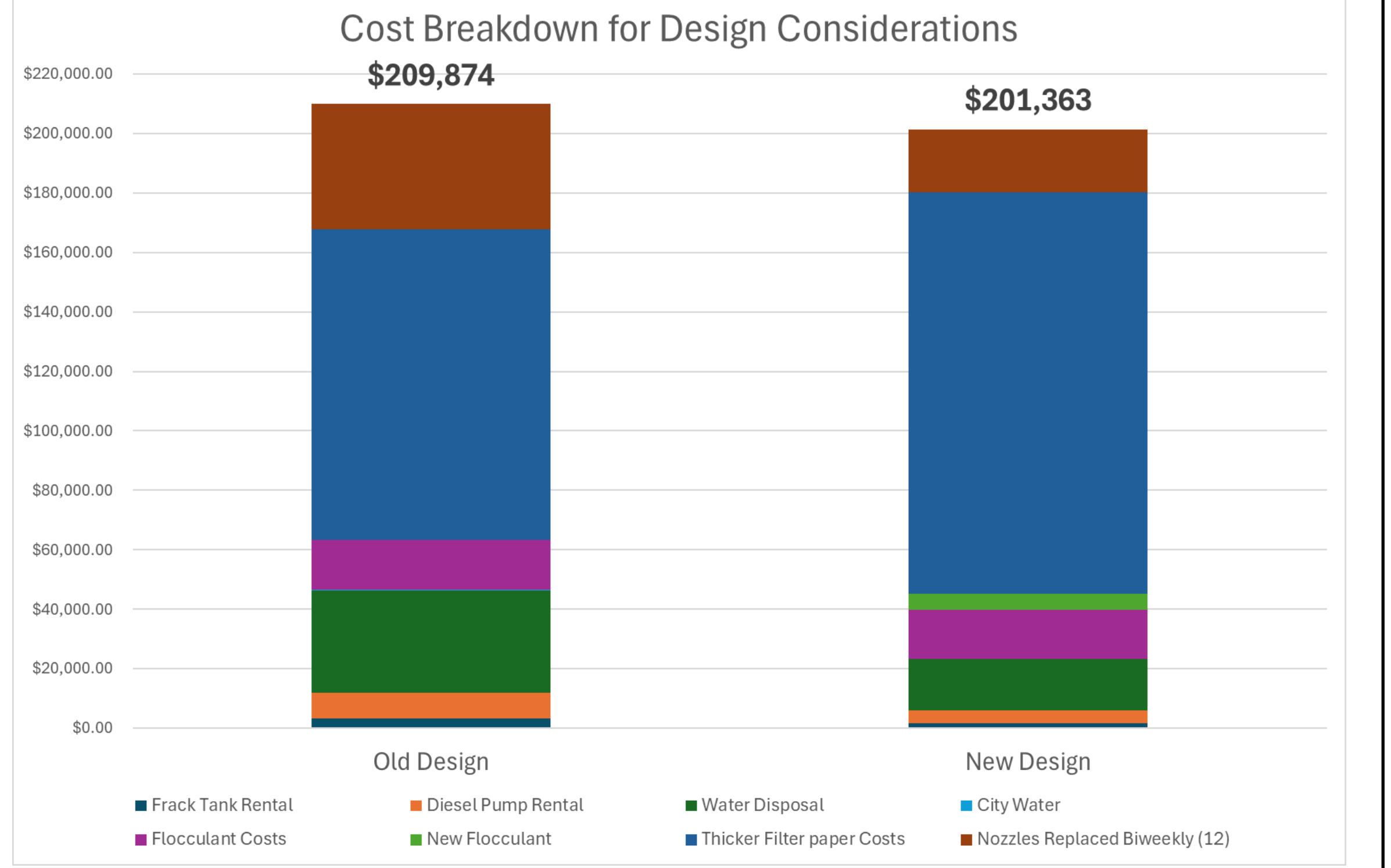
Testing Flocculants



Plant Testing Design Comparison



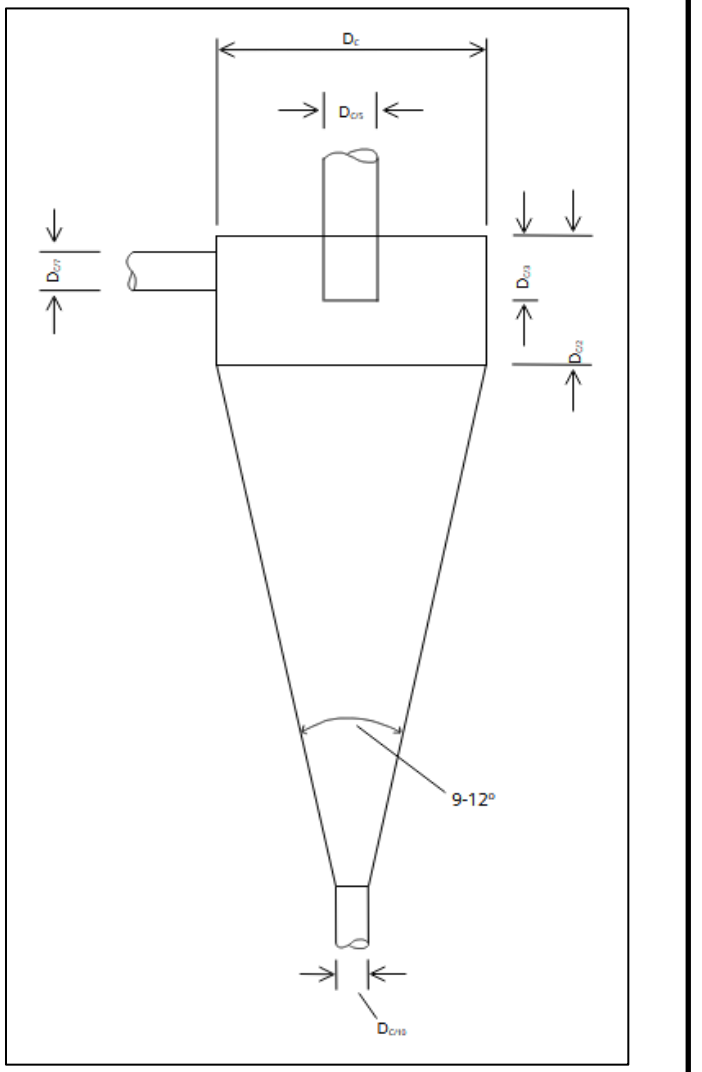
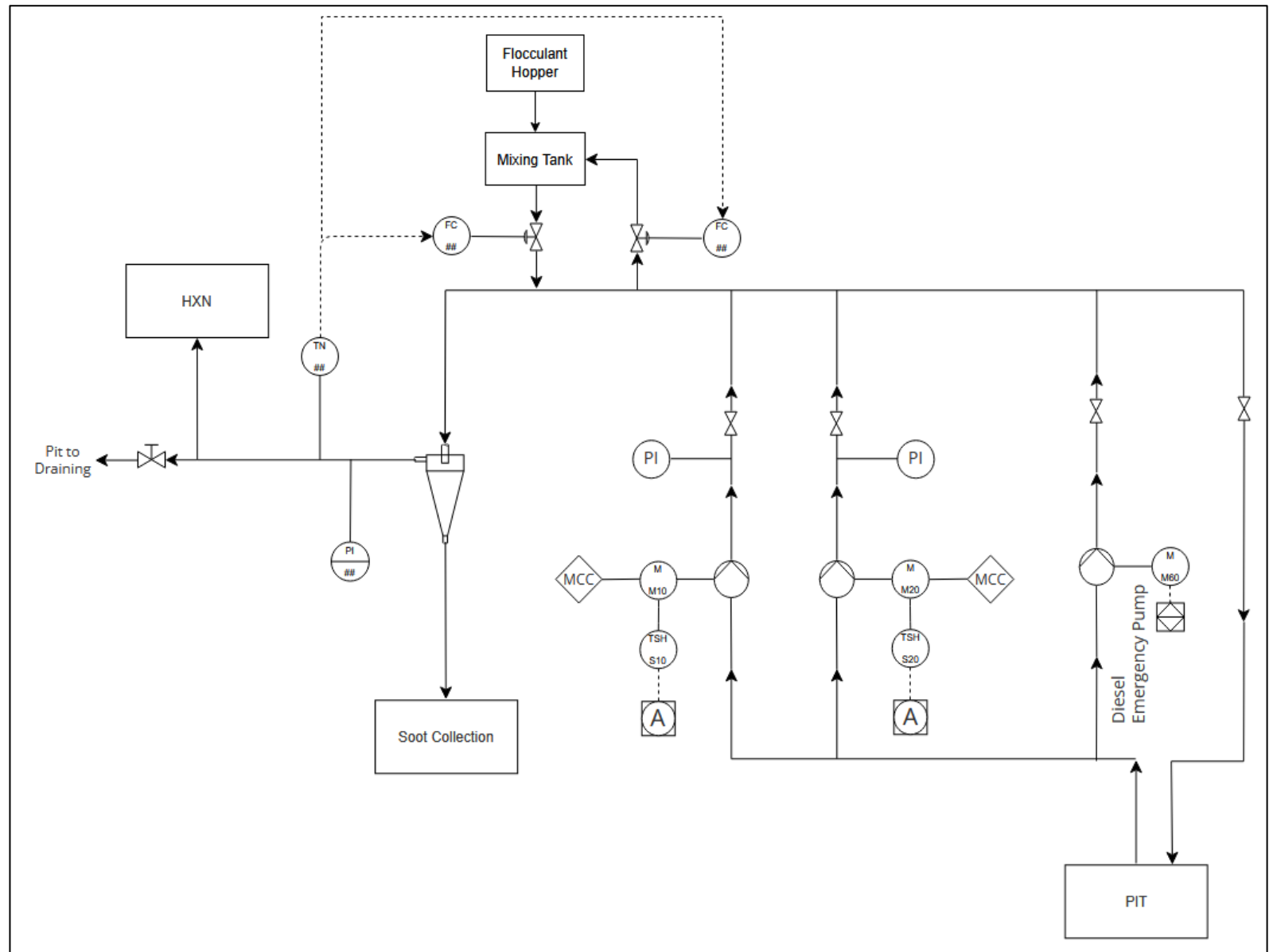
Economics



Hydrocyclone

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

Hydrocyclone Spec		
Inlet Flow	3.7	ft ³ /s
D _c	2.7	ft
D _{c/2}	1.3	ft
D _{c/3}	0.9	ft
D _{c/5}	0.5	ft
D _{c/7}	0.4	ft
D _{c/10}	0.3	ft
Height	2.1	ft
Volume	12.9	ft ³
Cost	\$	20,000



Selecting A Turbidity Meter

ABB Measurements

Short Lead Times

Immersion and Live Pipe Installation

Cost Efficient

Material Titanium

Acknowledgements

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Process Flow Diagram

