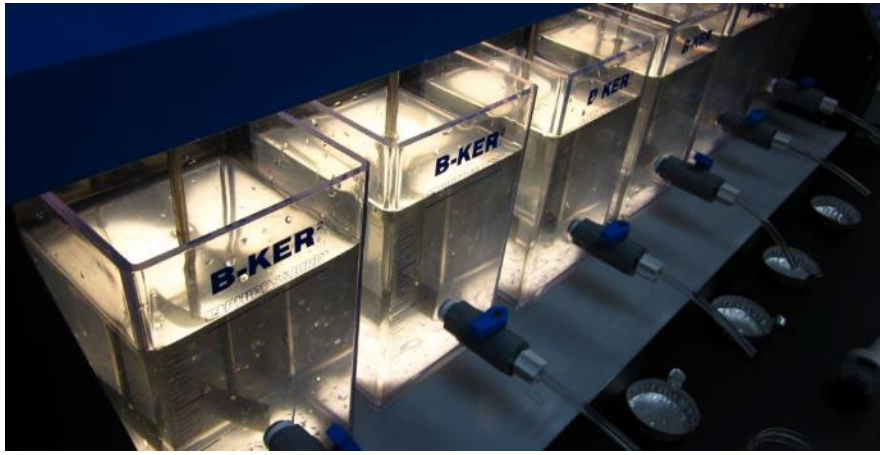
Associated Engineering

CANADA BEST MANAGED COMPANIES Platinum member





WTP Optimization to Support Continuous Performance Improvement and Facility Planning

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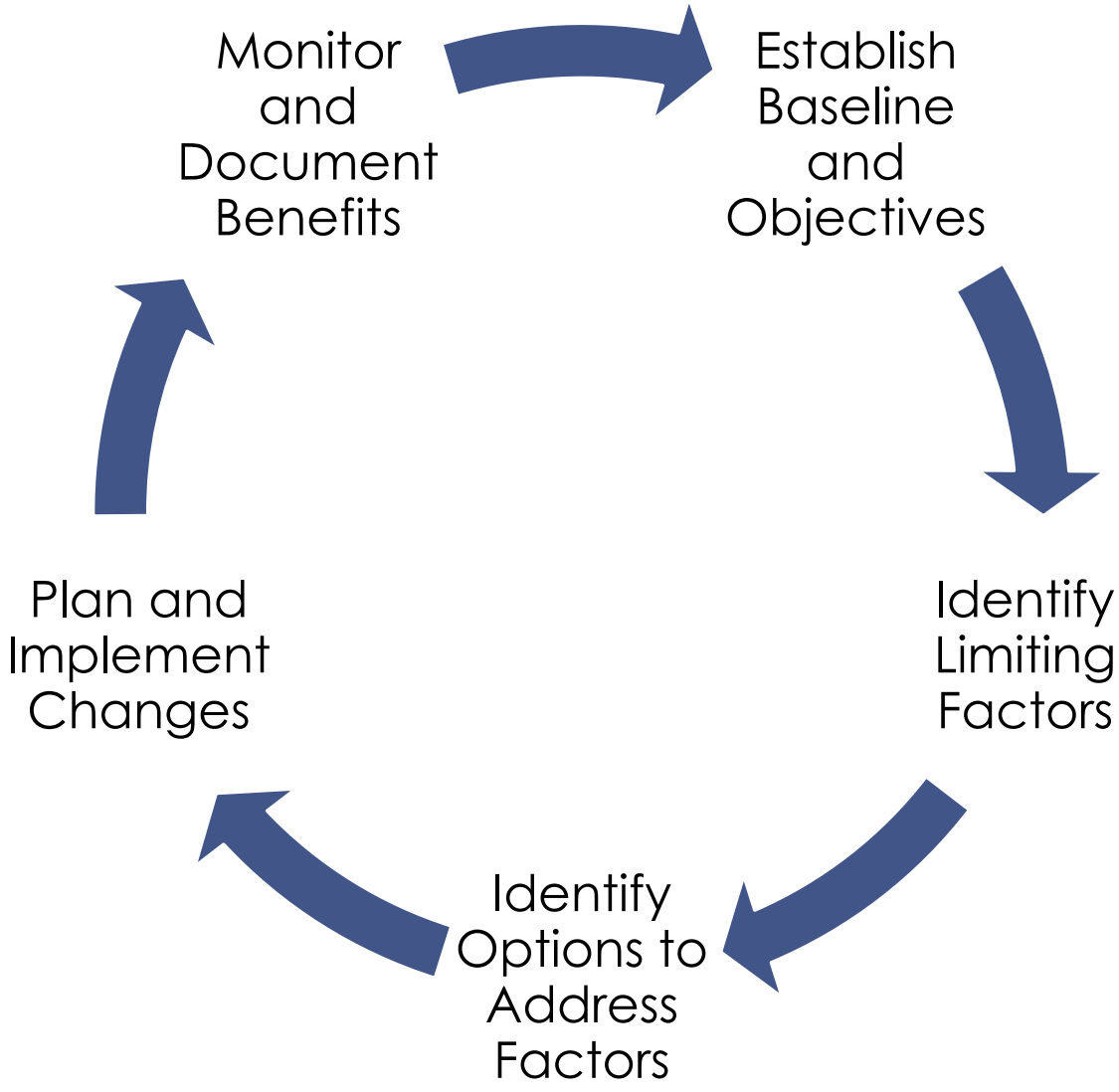
Why Optimization?

Improve Performance

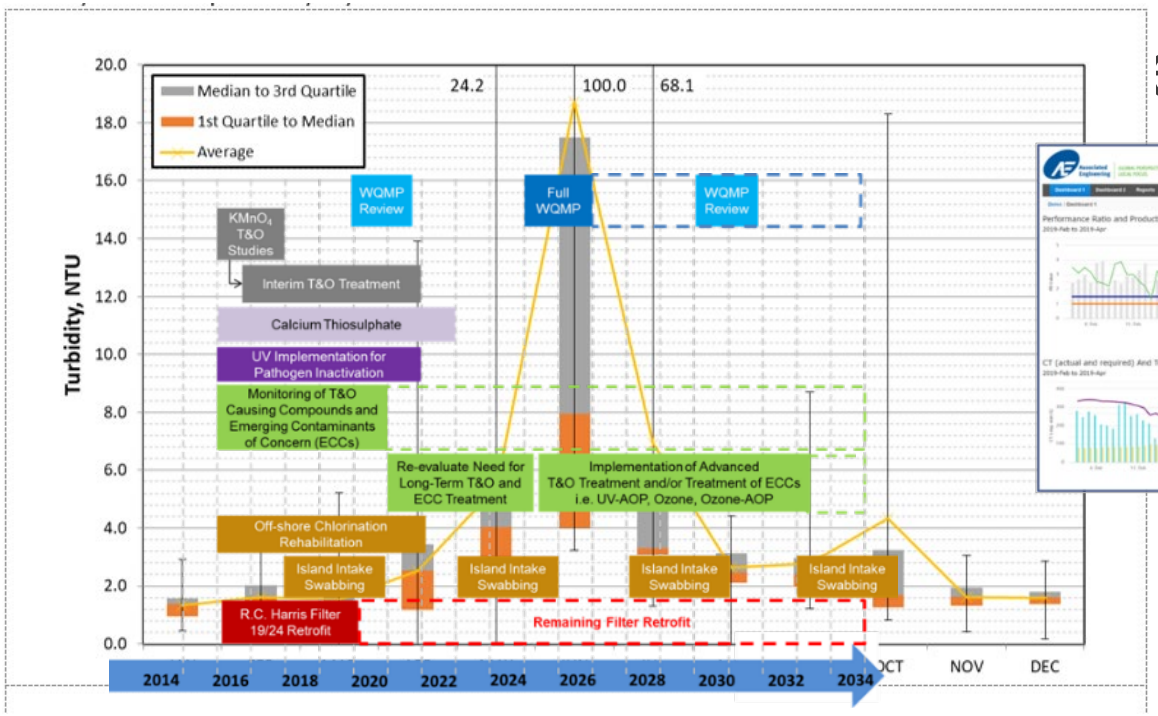
- Water Quality
- Capacity
- Regulations
- Defer Capital $
- Reduce O&M
- Improve Reliability
- Operational Flexibility
- Reduce Residuals
- New Objectives

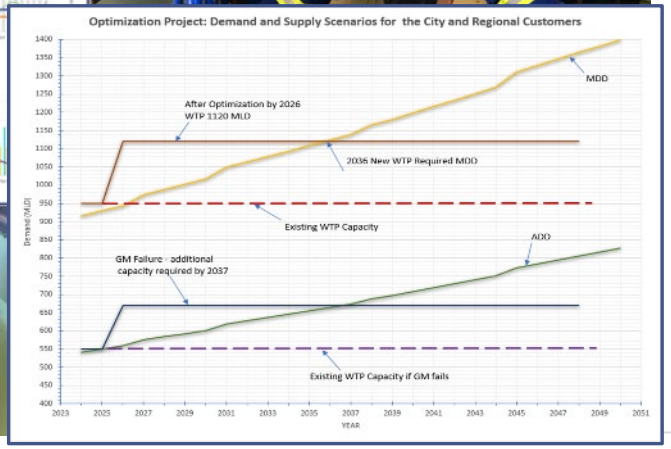
Steps in Optimization Process



Getting Started

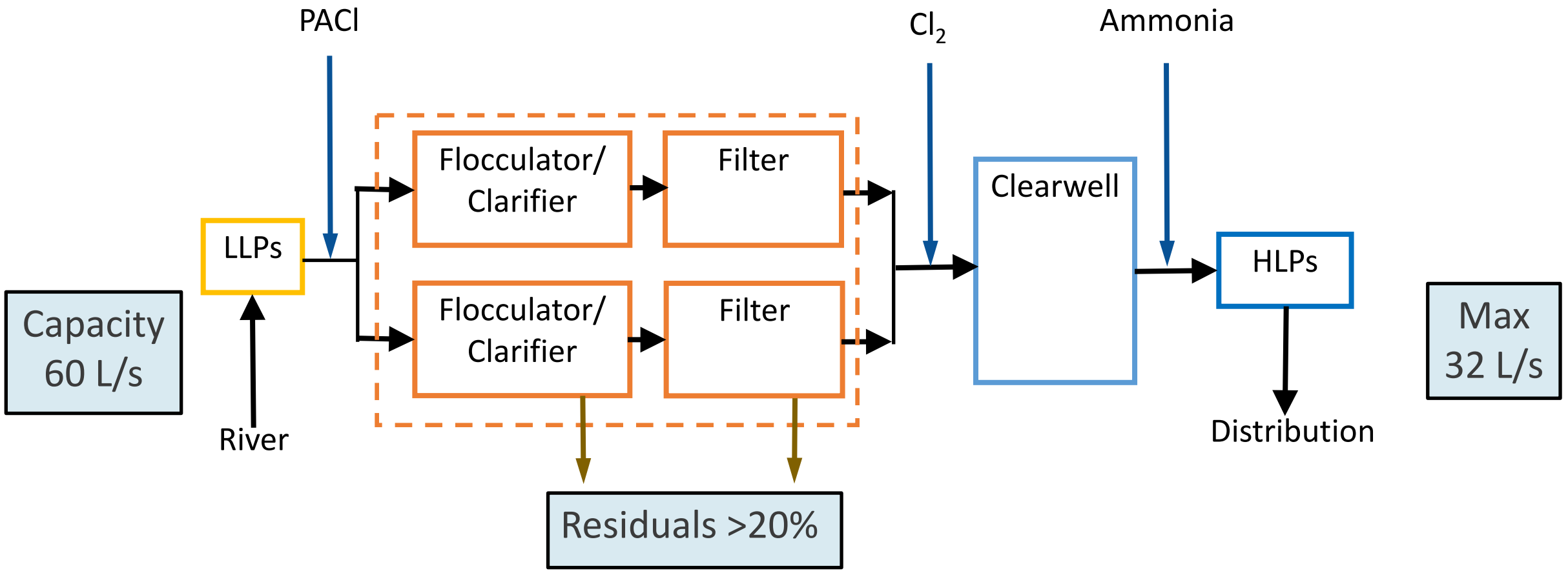
- Assign Optimization Team
- Understand baseline performance
- Confirm desired outcome
- ent and





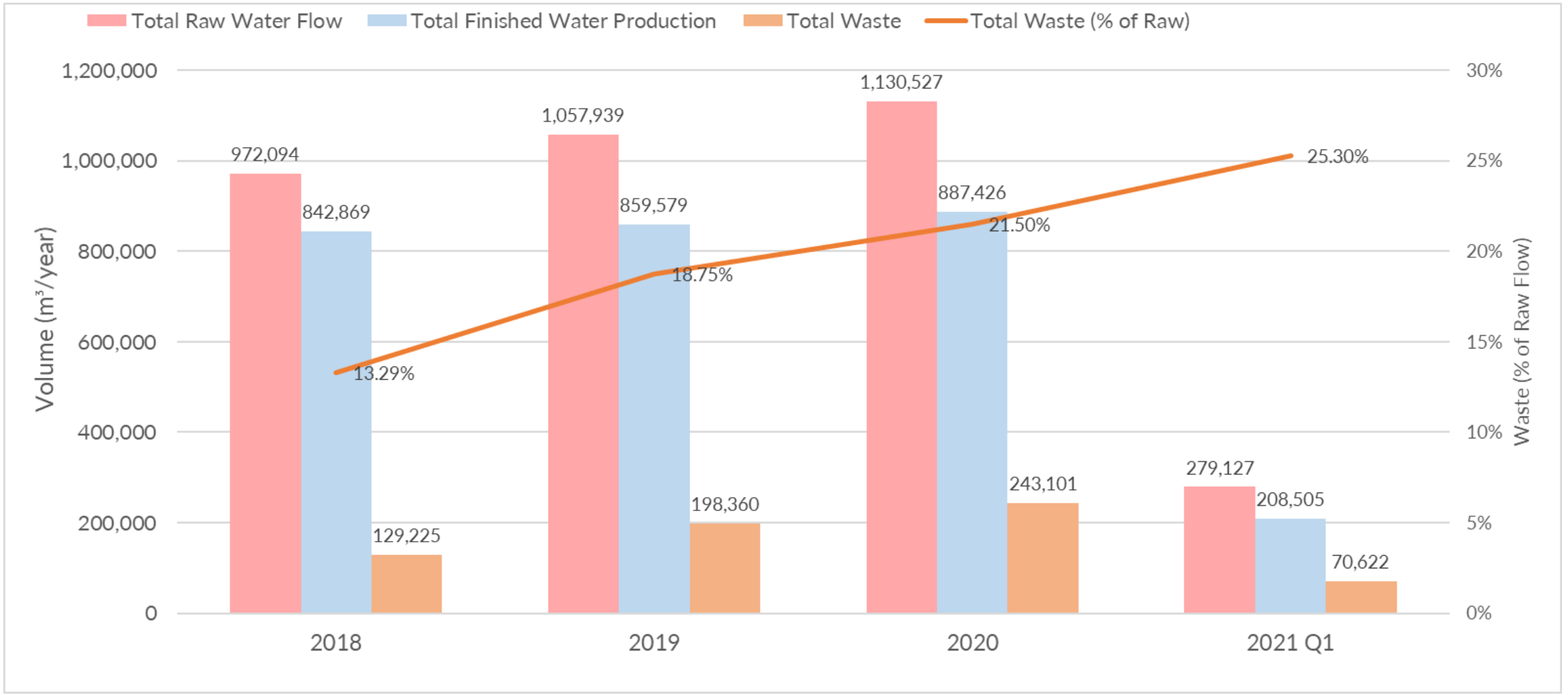
Case Study 1 – WTP with Packaged Treatment System (60 L/s)

Optimization Objective

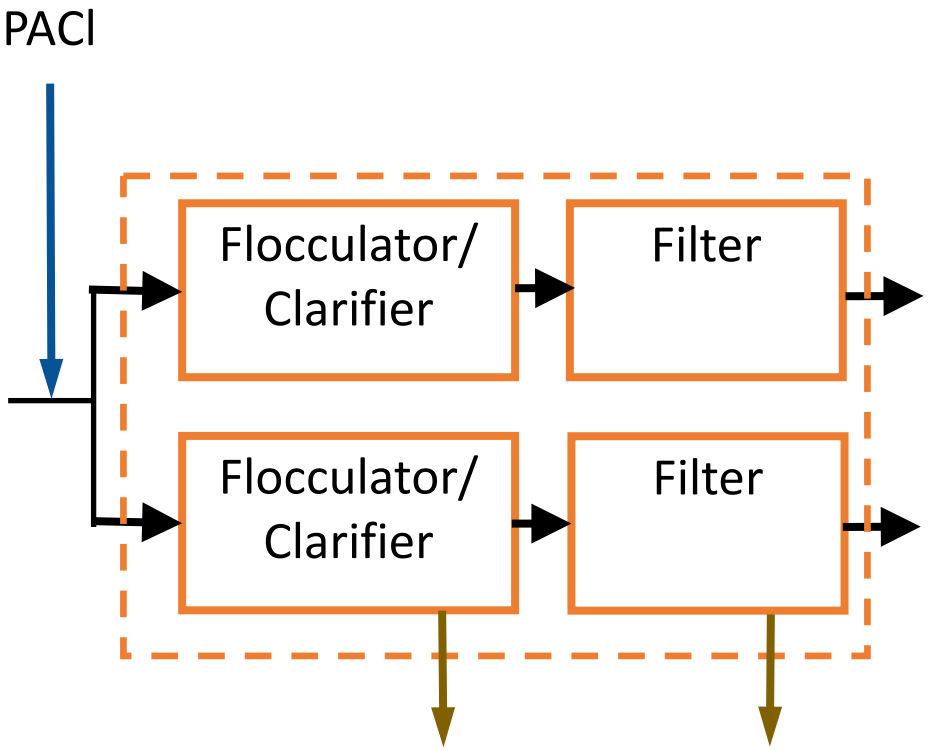


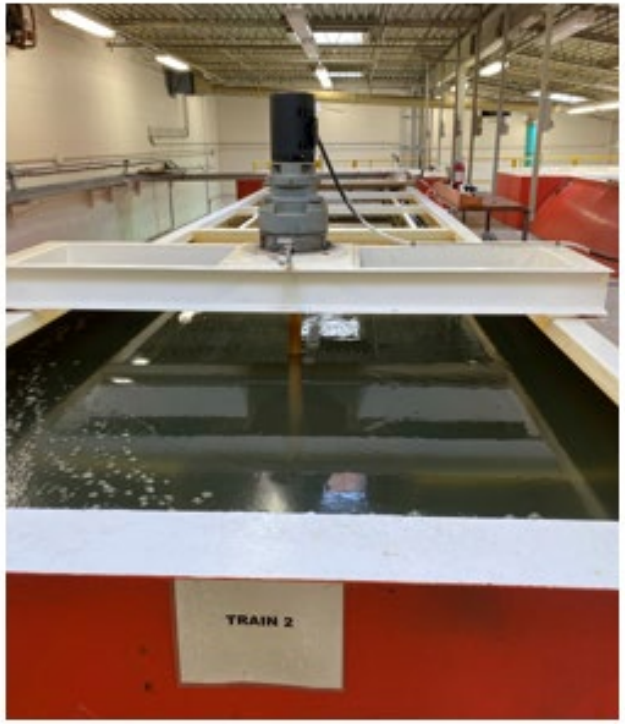
Objective: increase net production

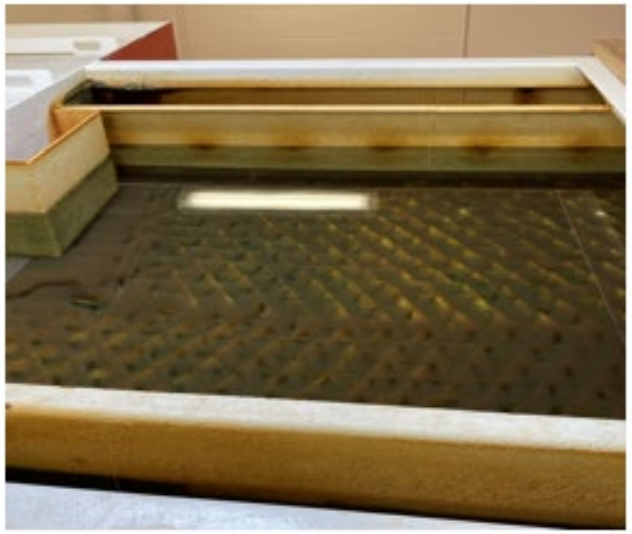
Limiting Factors



Limiting Factors (cont.)





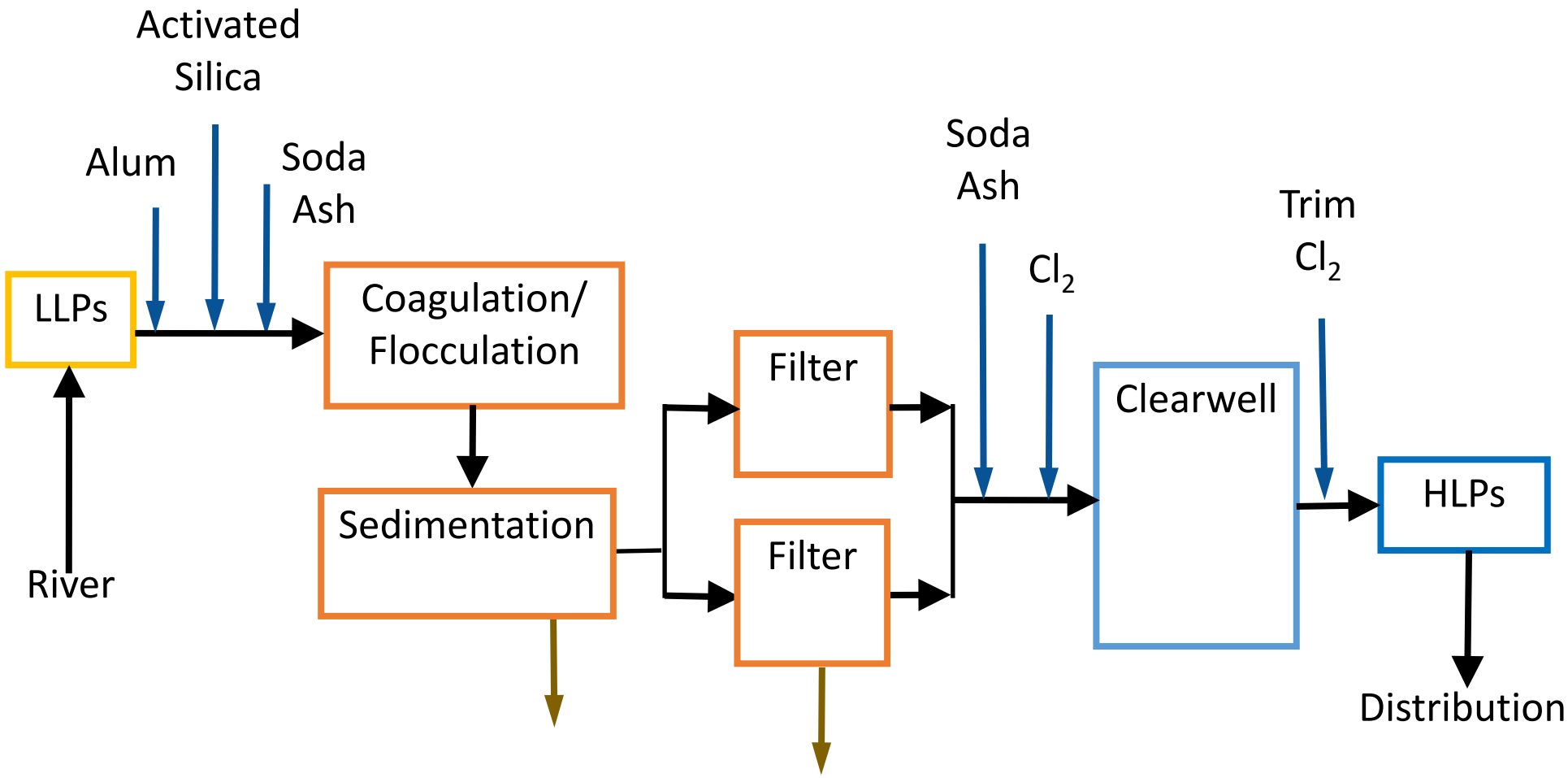


Optimization Plan

1. New LLP VFDs and modified control strategy
2. Jar testing to identify optimal coagulant dosing strategy
3. Review filter backwash protocol

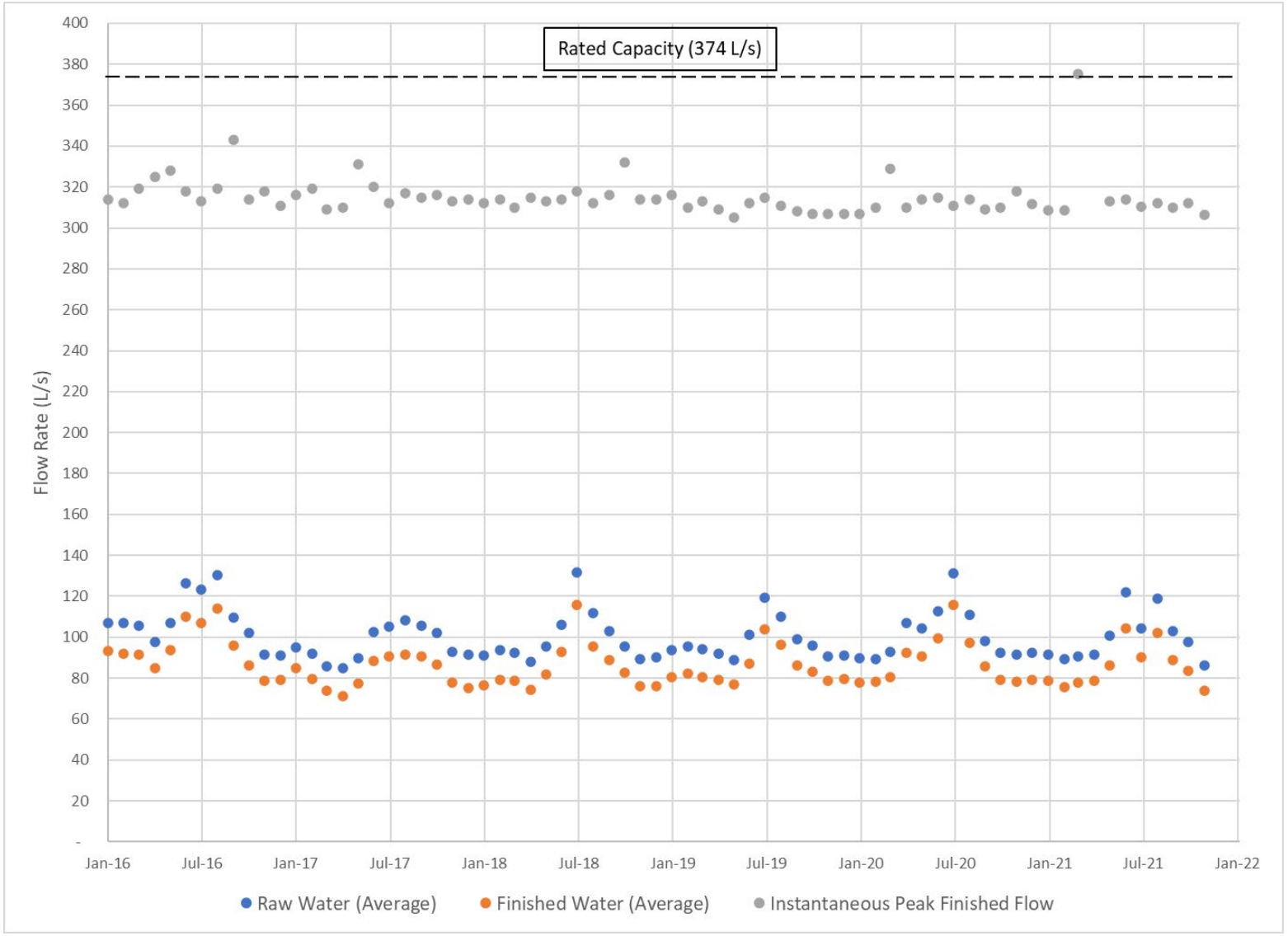
Case Study 2 – Conventional WTP (374 L/s)

Optimization Objectives

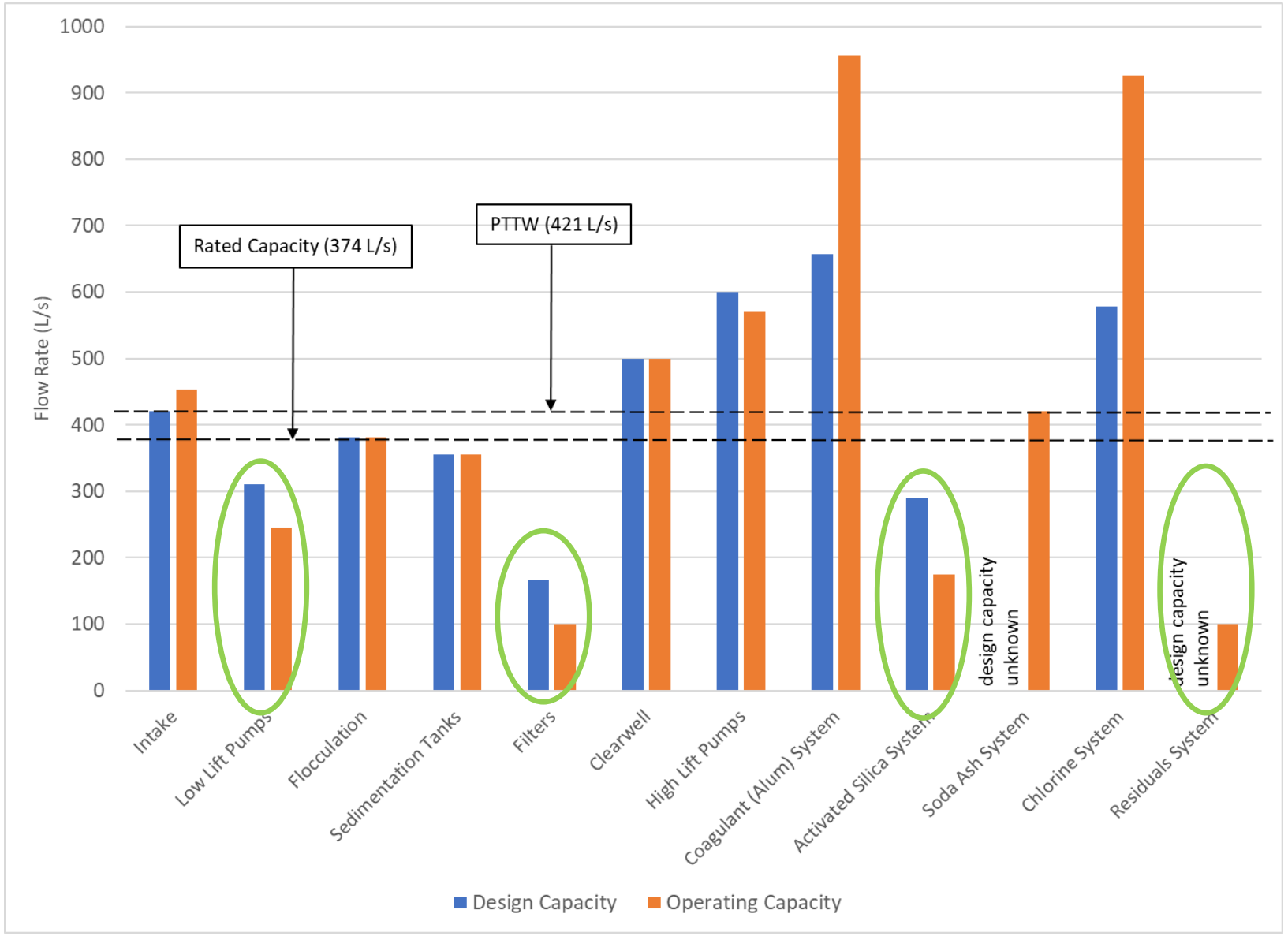


Objectives: increase production, improve performance, provide redundancy and inform facility planning

Limiting Factors



Limiting Factors (cont.)



Optimization and Immediate Capital Works Plan

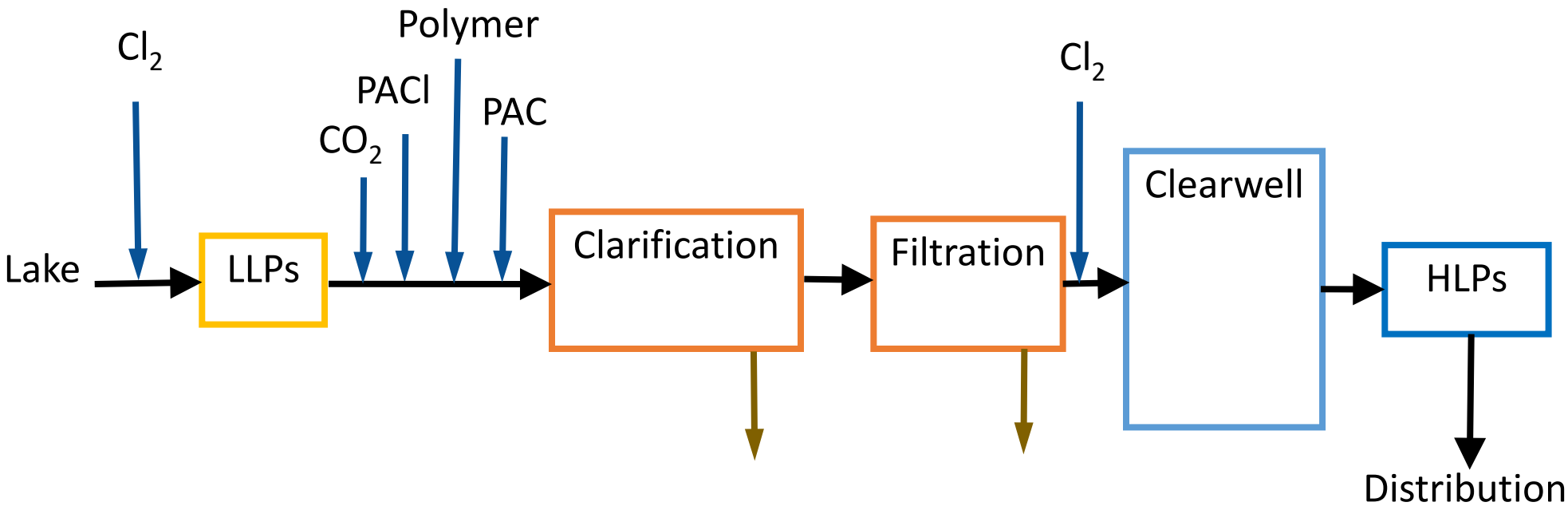
1. Reinstate flash mixing, upgrade filters and increase residuals management capacity
2. Pilot-testing of deeper filter media bed configuration
3. Jar testing to optimize pre-treatment

Temporary Filtration during Filter Upgrades

- 50 L/s temporary filtration capacity required during filter upgrades to meet demand

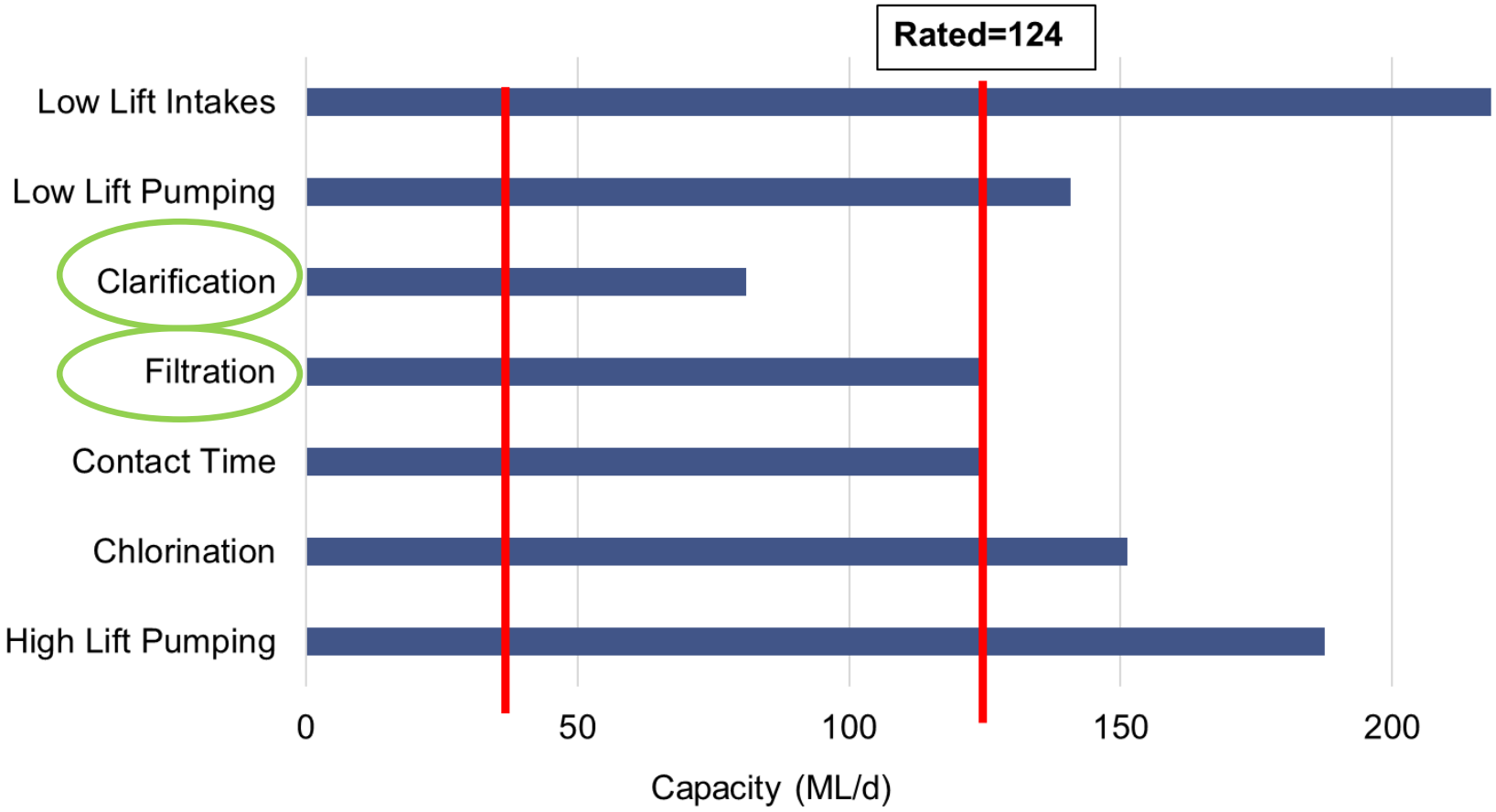
Case Study 3 – Conventional WTP (124 ML/d)

Optimization Objectives



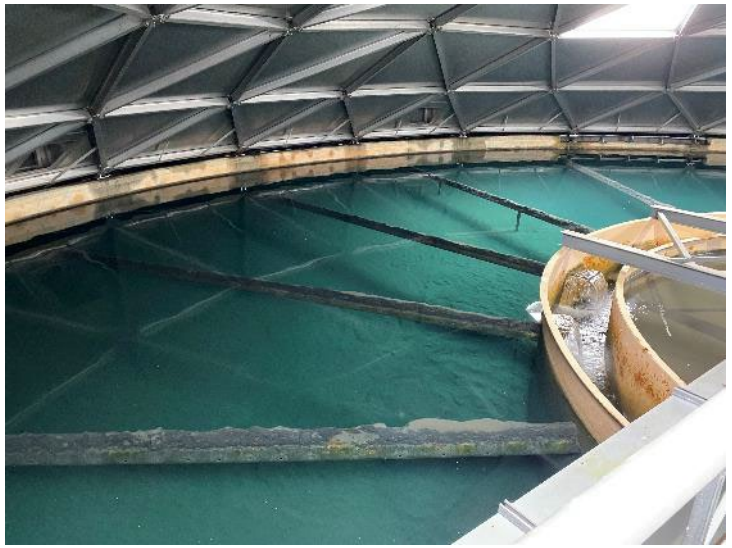
Objectives: improve resiliency, increase capacity to support growth and inform facility planning

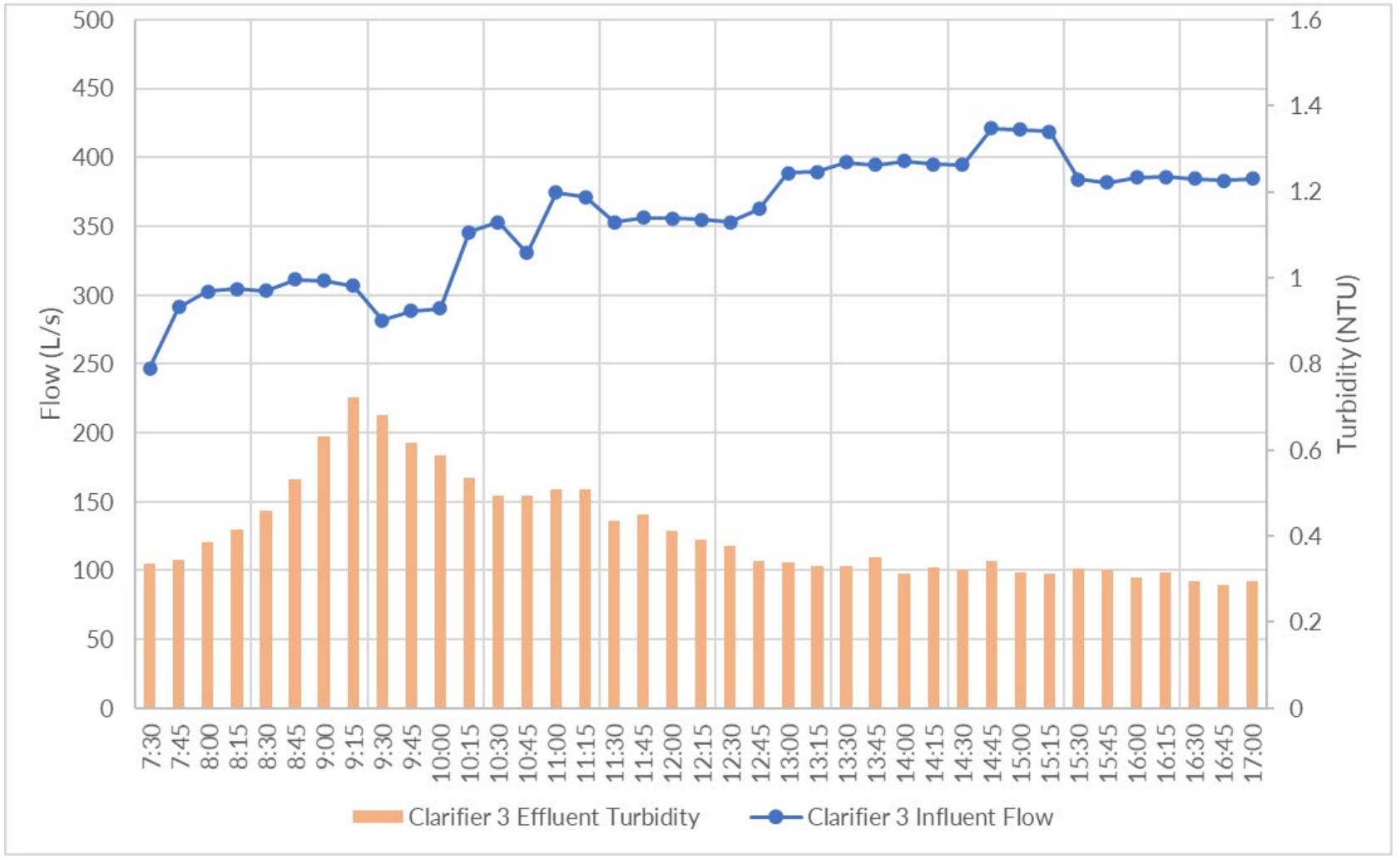
Limiting Factors



Pre-treatment:
-rapid mixing
-DAF
-Plate settlers

Full-Scale Stress Testing





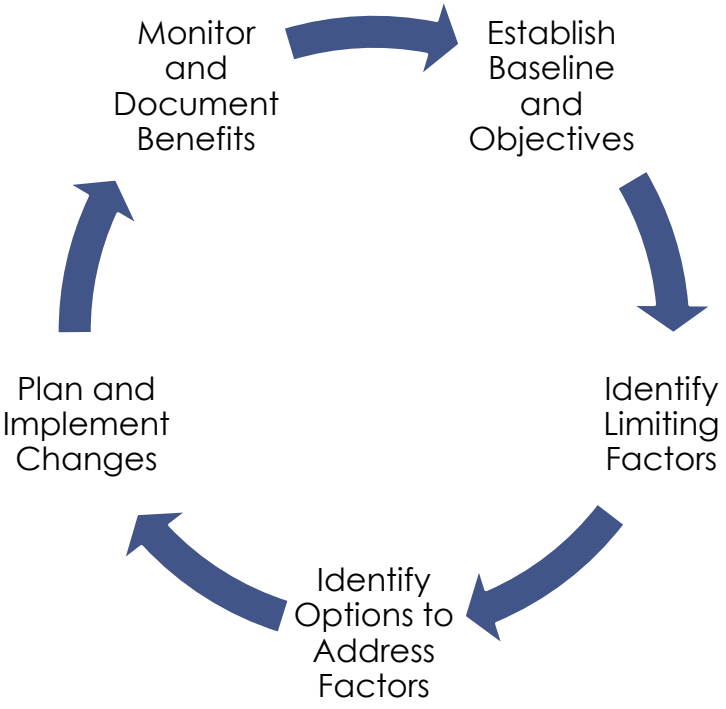
Optimization and Facility Plan

1. 2016 Capital Plan implementation on-going
2. Full-scale stress testing on-going
3. Routine jar testing to optimize DAF
4. Optimize filter performance and efficiency

Summary

Optimization Program

- Continuous improvement philosophy
- Establish baseline performance and optimization objectives
- Identify and address limiting factors
- Plan, monitor and implement
- Repeat!



Questions?

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