

The background of the slide is a photograph of a marina. In the foreground, a wooden dock extends from the bottom center towards the middle of the frame. On either side of the dock, several sailboats are moored. The boats have white hulls and various colored sails (blue, white, and red) are visible. The water is calm, reflecting the boats and the sky. In the far background, a city skyline with various buildings is visible under a blue sky with some clouds. The entire image is overlaid with a semi-transparent blue filter.

# Reliability Centered Maintenance (RCM) Program Update

3/14/2024

Madison Metropolitan Sewerage District

A white, stylized wavy line graphic that spans horizontally across the bottom of the slide, positioned below the text of the Madison Metropolitan Sewerage District.



# What is RCM?

- RCM is a sub-set of wholistic Asset Management
  - Cradle to Grave
- It focuses on maintaining and extending useful life of equipment through improvements in operations and maintenance practices
  - Capturing Data for Design, Installation, and Decommissioning

# RCM Strategy

## 1. Results of Efficiency Initiatives

1. Planned Work
2. Scheduled Work
3. Inventory

## 2. Effectiveness of work to impact Strategic Focus Areas

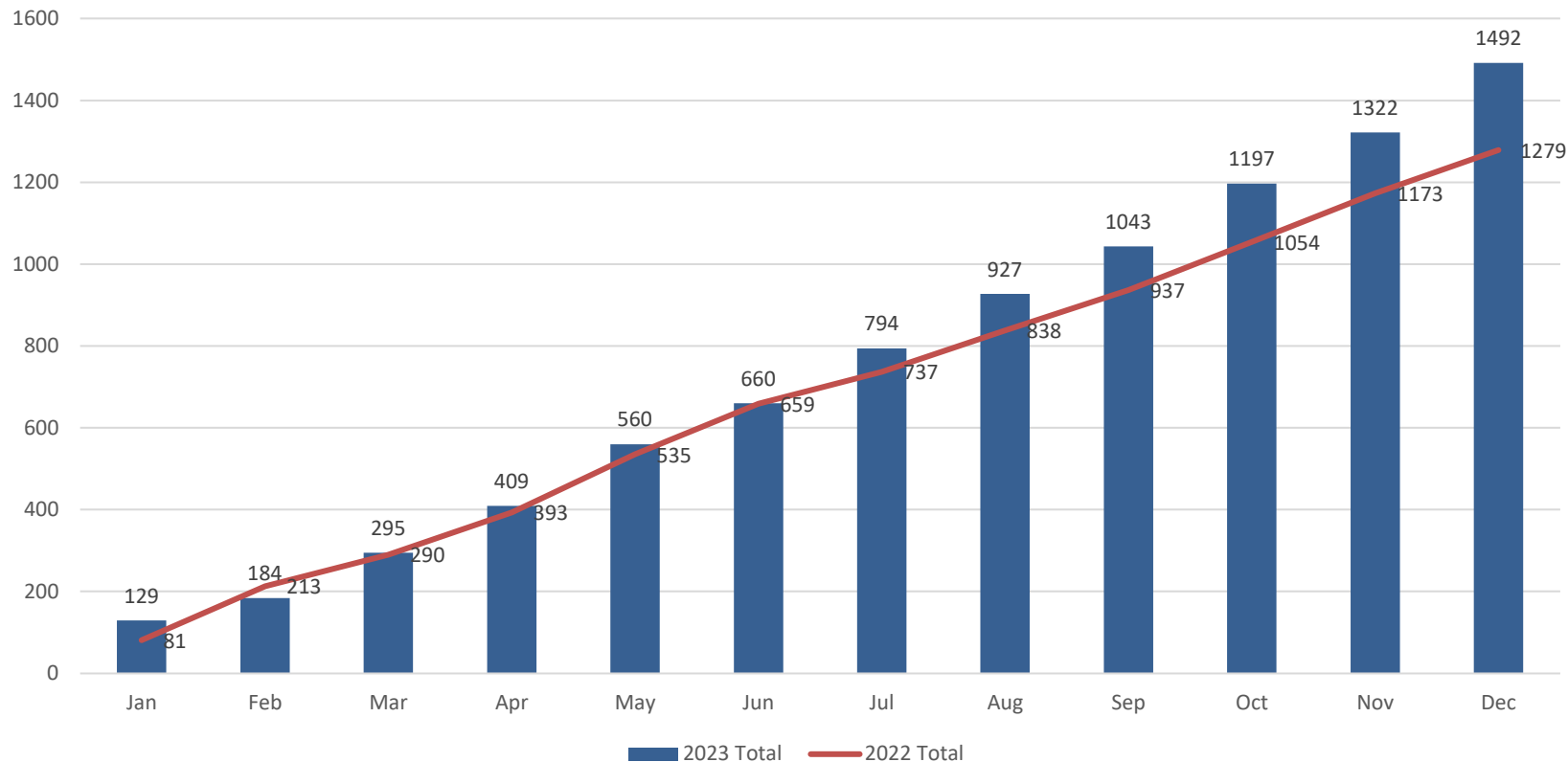
- Shift more work to before catastrophic failure
- Safer, Less Risk to Process, Less \$\$



# Efficiencies Realized – Work Planning

“Get the right maintenance work ready to go!”

# of Work Orders Planned – 2022 vs. 2023

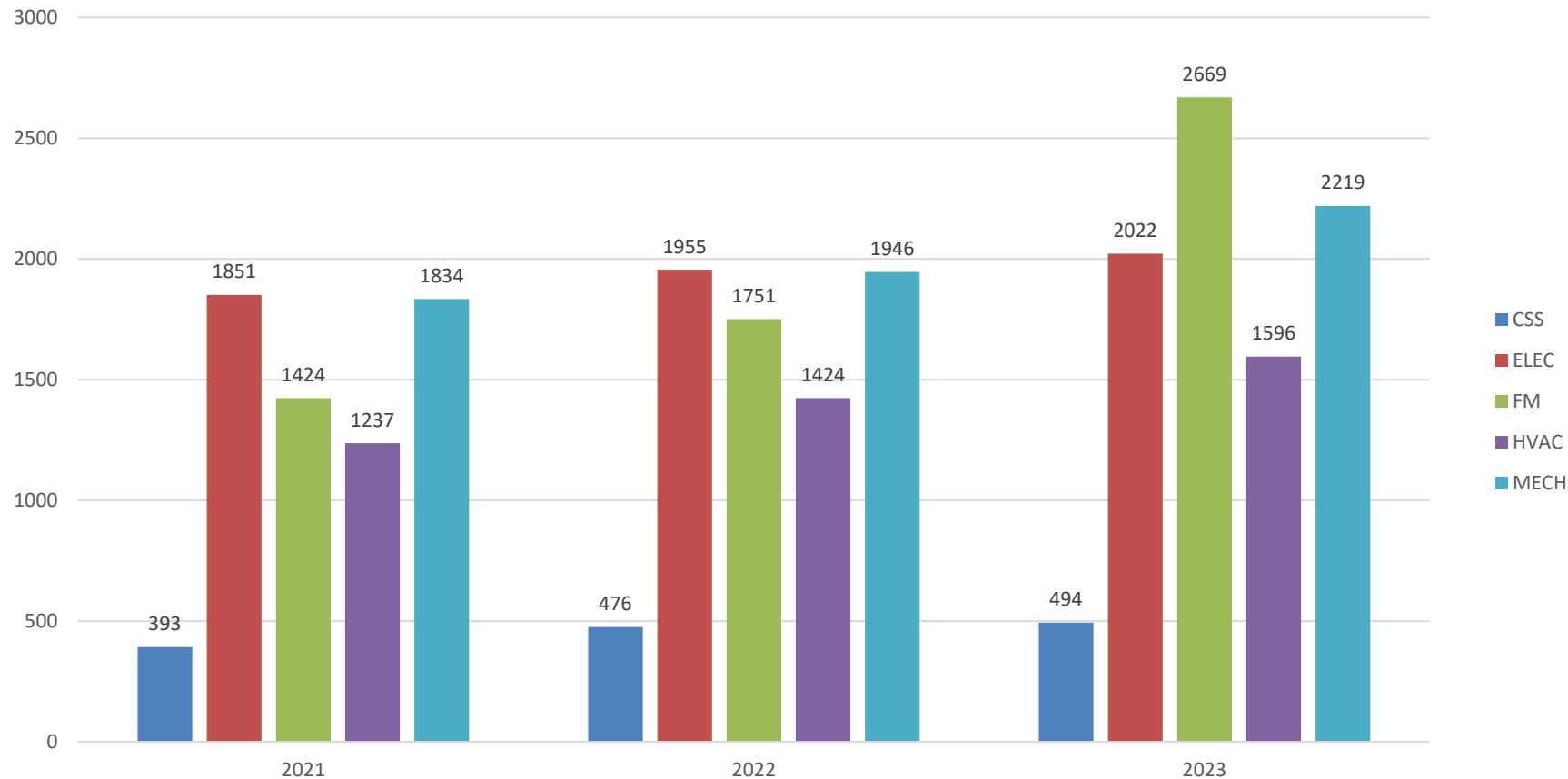


**17%  
Increase  
over  
2022**



# Efficiencies Realized – Work Scheduling

Total Tasks Finished Per Year by Department (PMI, PMC, Repair, Project) - Excluding Emergencies



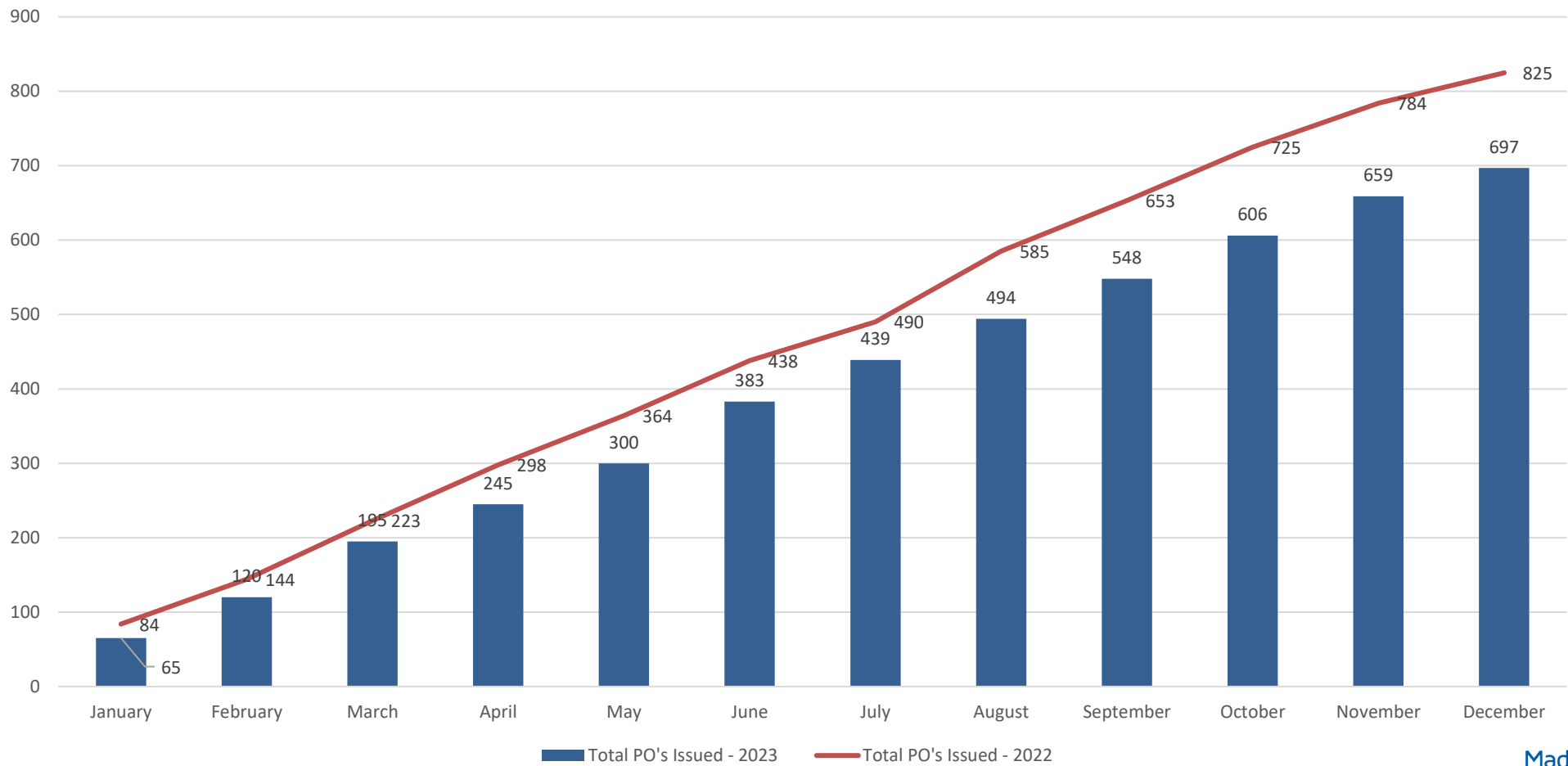
“Work together to create Efficiencies!”

**Average  
15%  
Increase  
over  
2022**



# Efficiencies Realized - Inventory

PO's Issued per Month supporting Maintenance – 2022 vs. 2023



**2.5 Weeks  
of Labor  
we shifted  
to cleaning  
up our  
Inventory!**

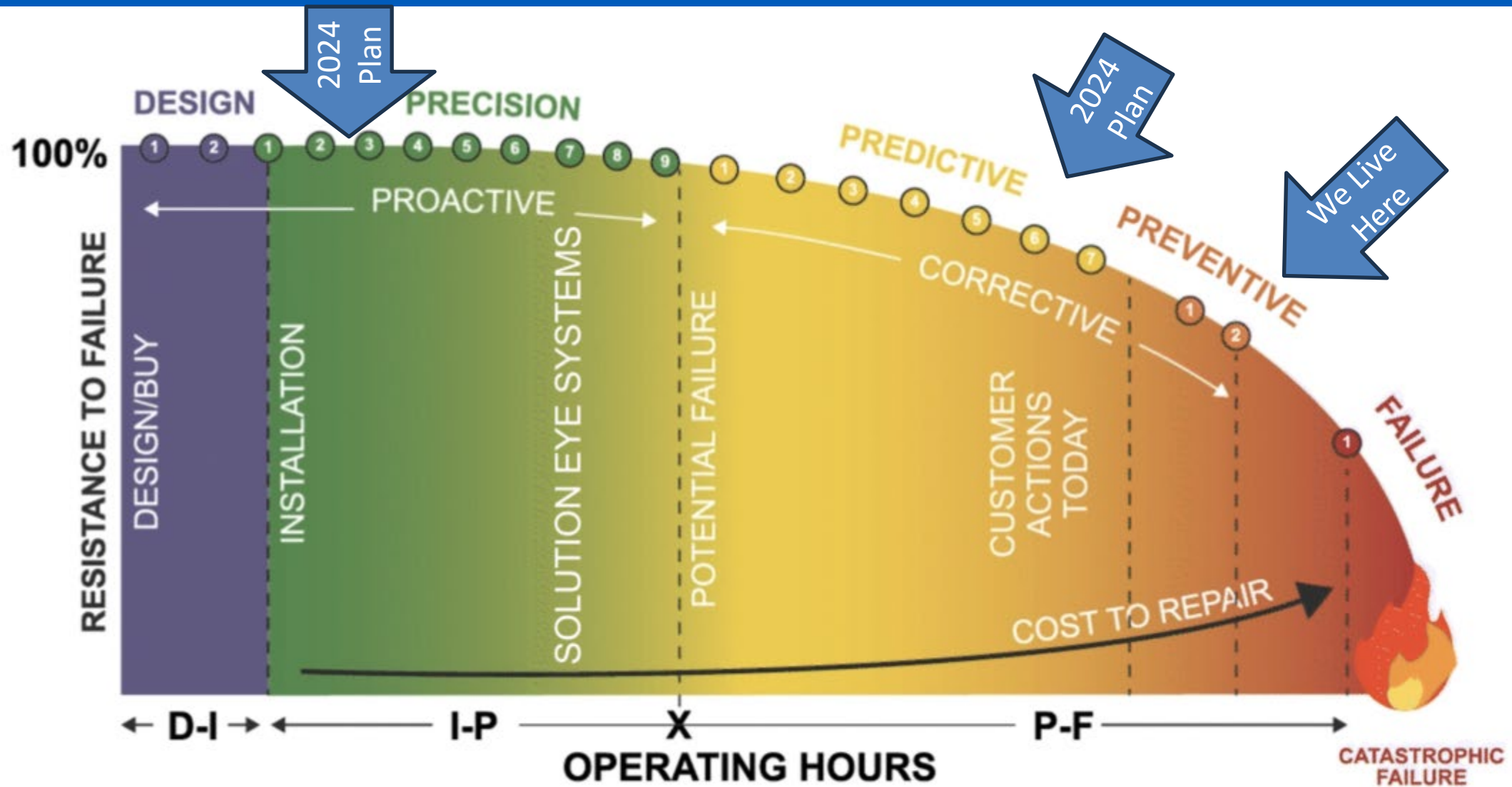


# Effectiveness

- Work Smarter Not Harder



# Predictive Maintenance (PdM)



<https://reliabilityweb.com/articles/entry/the-reliability-impact-within-the-p-f-curve>



# Effectiveness – Electrical Signature Analysis

- Analyze electrical signature (currents & voltages) to evaluate condition of mechanical components in motor and driven equipment
- ~100 Assets Analyzed – 3-5 Minutes/Asset
- **105 Defects found BEFORE FAILURE**
- **242,930 kWh Increased Demand on Assets**
  - ~\$35,000 in potential energy savings



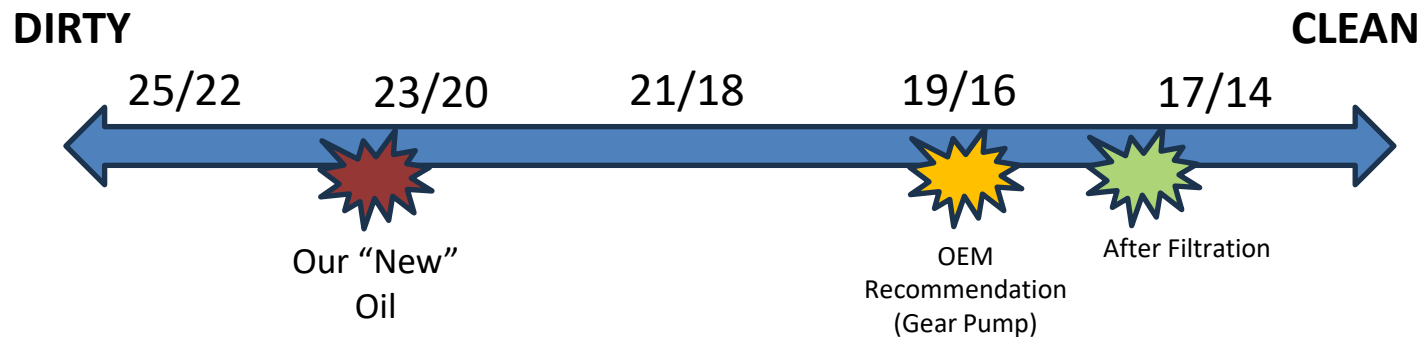
# Effectiveness – Precision Maintenance

- Signature Analysis Showed some key issues:
  - Lubrication
  - Alignment
- Training and Standardization
- **Stop Introducing Failures**



# Effectiveness – Lubrication Effectiveness

- Lubrication Filtration & Standards
- Increase Life Expectancy (2 Years)





# Effectiveness – Ultrasonic Testing



- Ultrasonic Technology can “hear” frequencies that a human ear can’t
- Catch minor mechanical / electrical defects
- **66% Decrease in Time**
- **307 Hours Saved Annually**





# Thank you

Madison Metropolitan Sewerage District

