Succession Planning Initiatives at the South Essex Sewerage District Salem, Massachusetts

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WRIGHT-PIERCE ≈
Engineering a Better Environment

SESD
South Essex
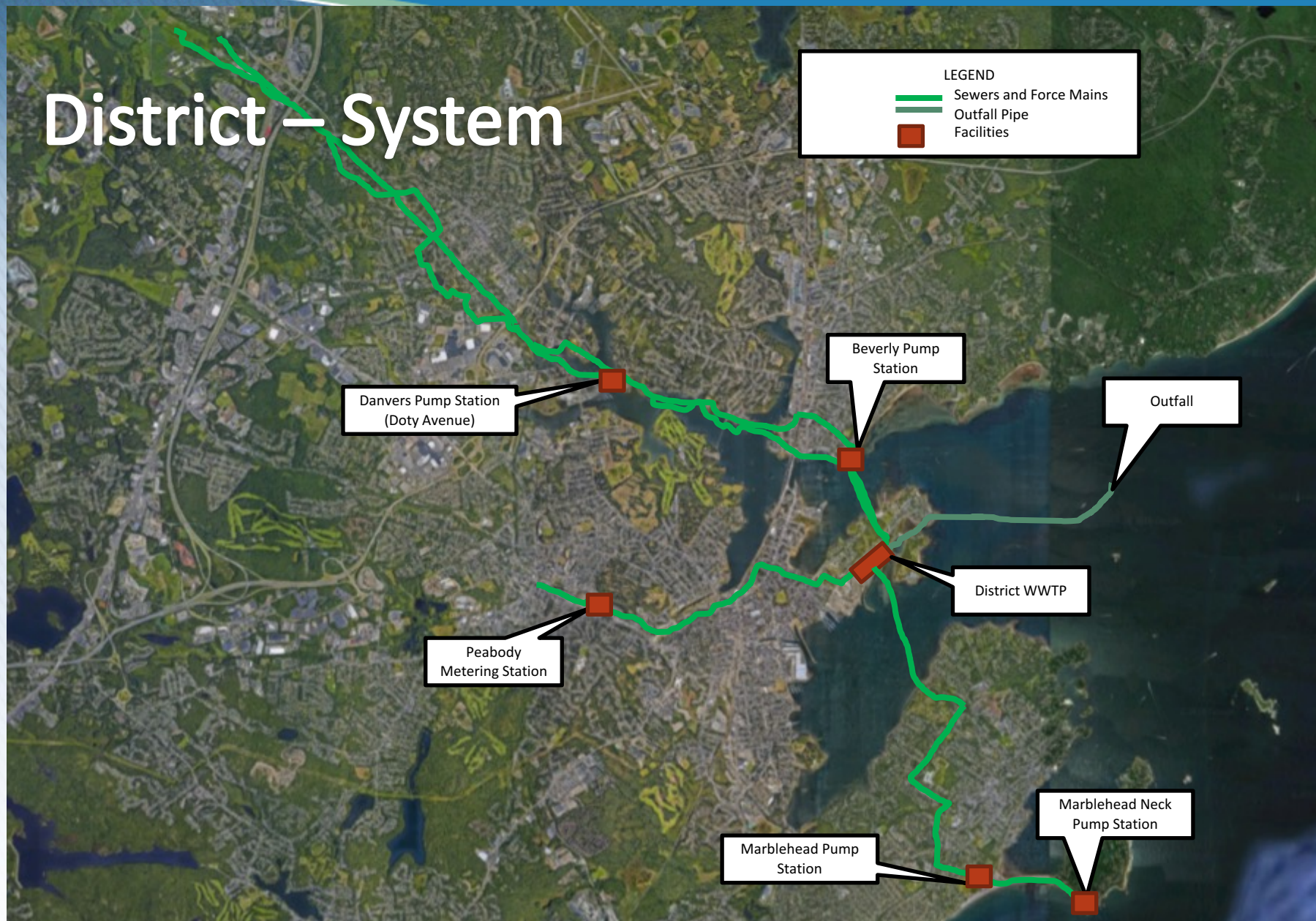Sewerage District

Outline

- Acknowledgments
- District overview
- Challenges
- Review and Findings
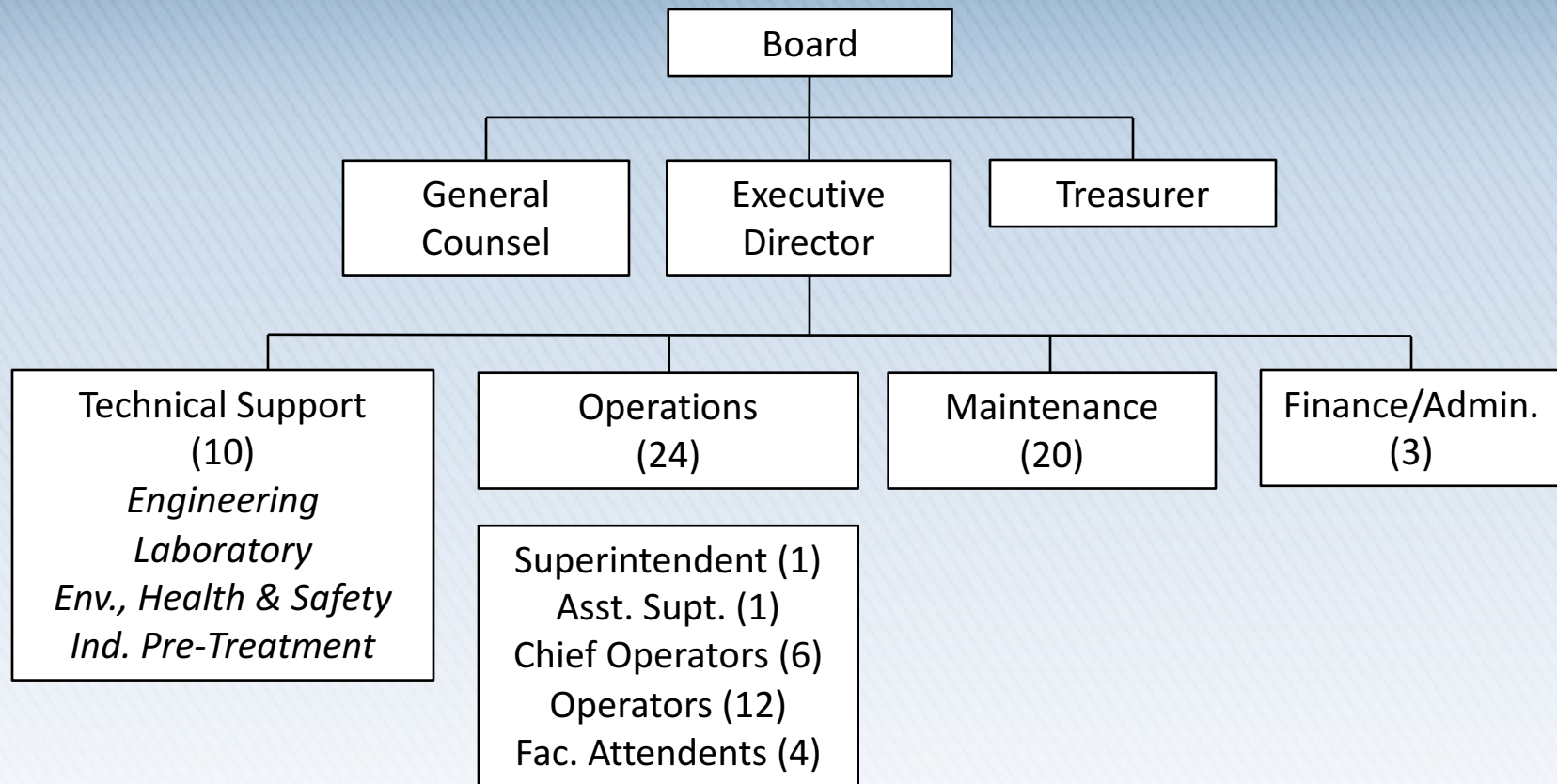- Implementation
- What is Next

The District Service Area

District – System

LEGEND
Sewers and Force Mains
Outfall Pipe
Facilities

Danvers Pump Station (Doty Avenue)

Beverly Pump Station

Outfall

District WWTP

Peabody Metering Station

Marblehead Neck Pump Station

Marblehead Pump Station
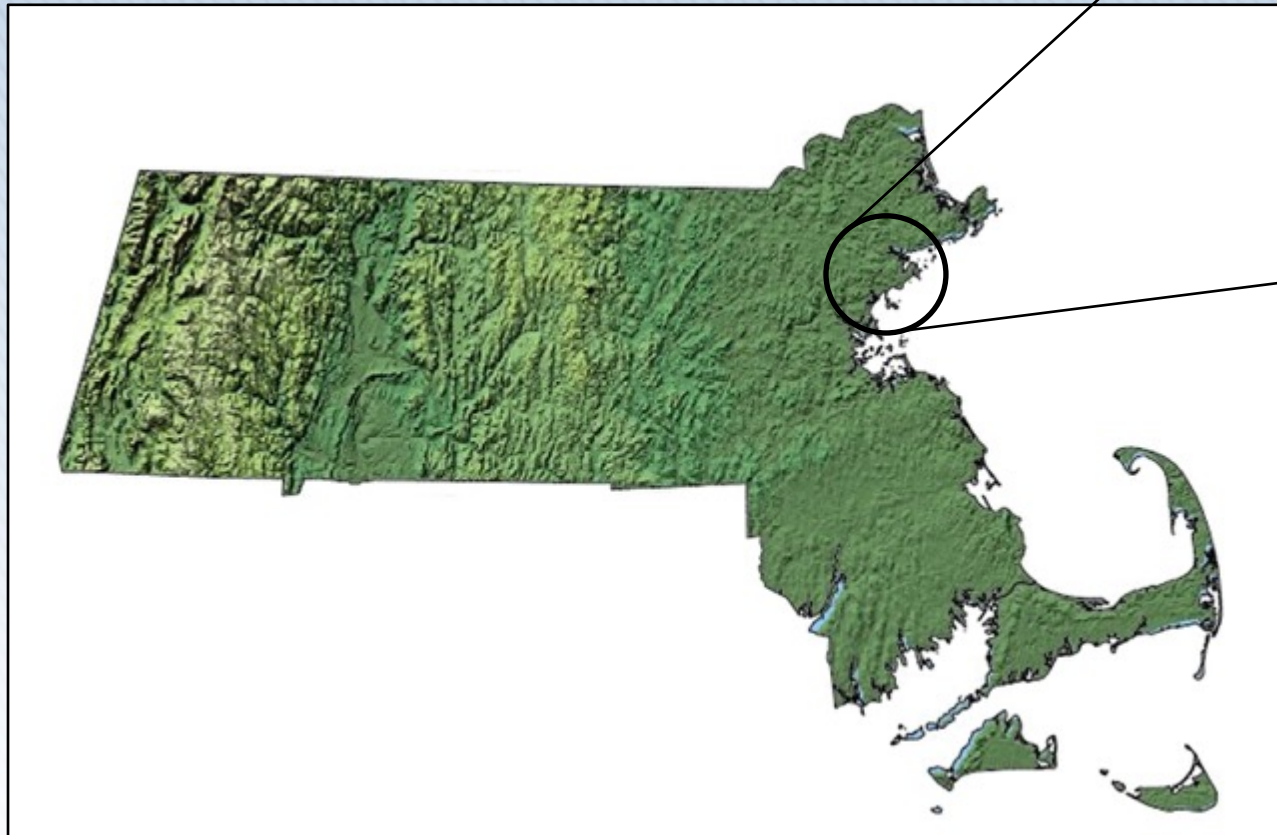
District – WWTP

District – Organizational Chart

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                              │  Board  │
                              └─────────┘
              ┌──────────────────┼──────────────────┐
      ┌───────────┐      ┌────────────┐      ┌───────────┐
      │  General  │      │ Executive  │      │ Treasurer │
      │  Counsel  │      │  Director  │      │           │
      └───────────┘      └────────────┘      └───────────┘
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| Technical Support (10) *Engineering* *Laboratory* *Env., Health & Safety* *Ind. Pre-Treatment* | Operations (24) | Maintenance (20) | Finance/Admin. (3) |

Superintendent (1)
Asst. Supt. (1)
Chief Operators (6)
Operators (12)
Fac. Attendents (4)

Challenges to SESD Operations

Similar	Specific
• Aging infrastructure • Aging work force • Imminent retirements • Limited qualified applicants for jobs • Rising energy and fuel costs • Rising labor costs • Competing demands for limited funds	• Complicated and unique facility • Many daily paper forms • Limited data integration • Underutilized work order process • Communications between Operations/Maintenance/Engin. • Relationships between Management and Union • Peak wet weather flow mgmt

Challenge: Internal Communication.

- Ops & Maint. Divs
  - Separate Building
  - Different shifts & lunch periods
  - Comm. challenges
- Management staff transitions
- Union employee transitions
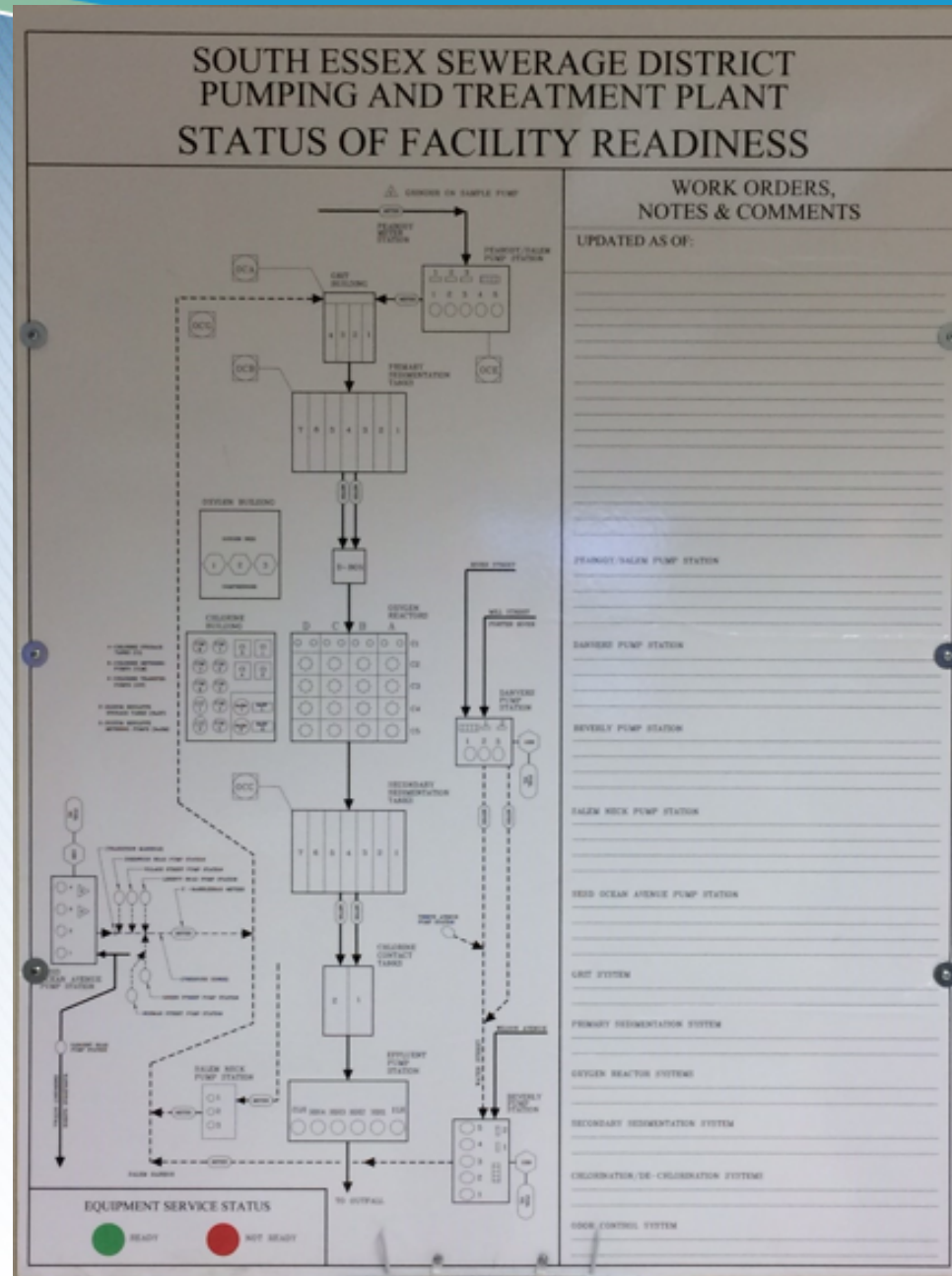
Challenge: Inefficient Use of Ops Staff

- Extensive paper insp. forms
- Labor intensive processes:
  - Solids processing
  - Odor control
  - Cleaning covered tanks
- Some work not getting done:
  - Valve exercising
  - Space cleaning
  - Equipment insp.

Challenge:
Peak Flow Mgmt.

- Regular daily duties
- No secondary by-pass
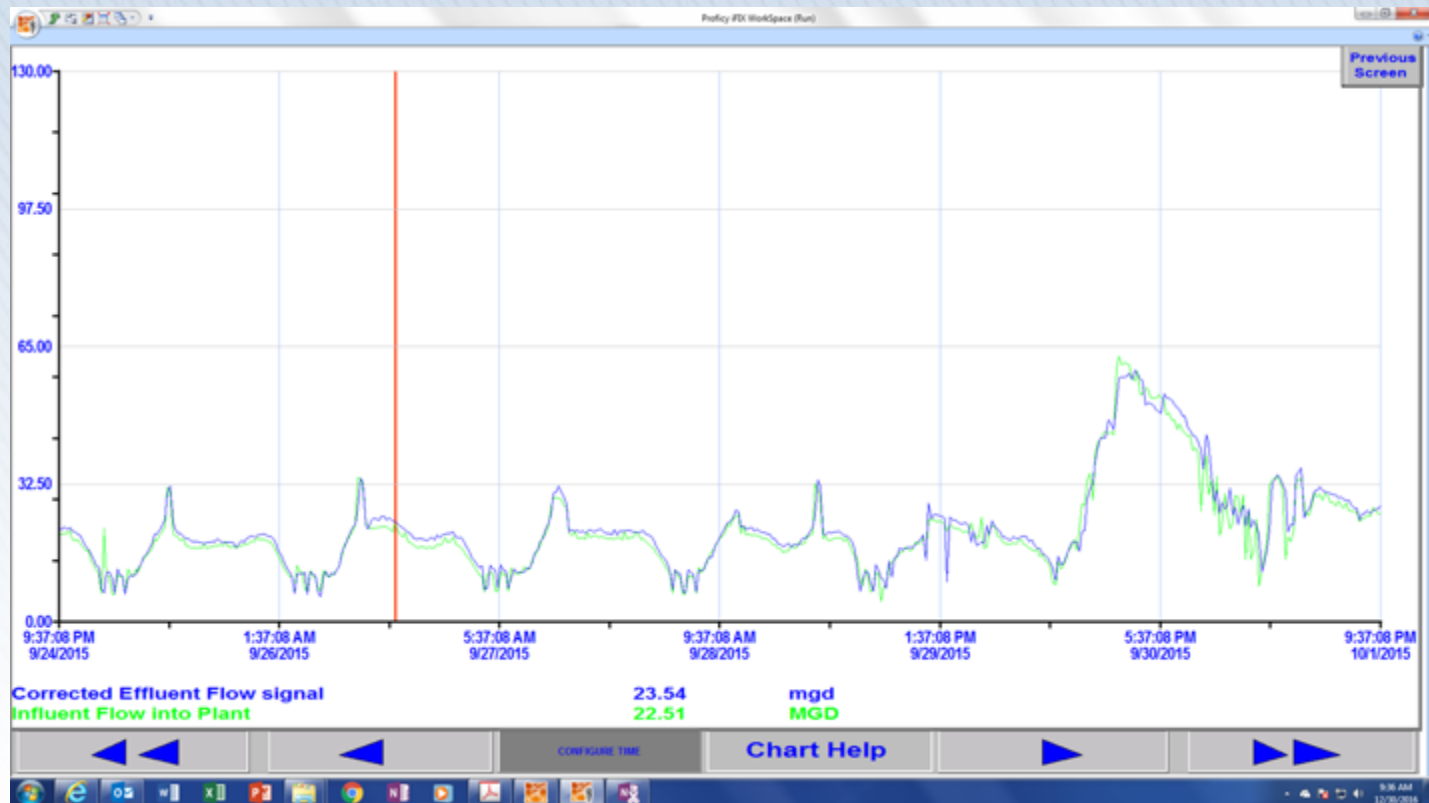
Operations and Process Efficiency Review

- Wanted to get a "report card"

Operations and Process Efficiency Review

- Phase 1 – Review/Discovery

- Phase 2 – Initial Implementation

Phase 1 Activities

- Site Review
  - Process Data and Compliance History
  - Liquids Treatment/Hydraulics
  - Solids Treatment & Odor Control
- Staff Interviews
  - Operations
  - Management & Engineering
- Documentation review

Phase 1
Key Findings

- Very good compliance record

- Lack of secondary by-pass is challenging

- Significant portion of labor is dedicated to solids handling

- Facility layout makes communication challenging

- Weak communication links between Operations, Maintenance and Engineering

Phase 1
Key Findings

- SCADA & process control infrastructure is limiting

- Significant generation of under-used data

- Limited data sharing between Operations, Maintenance and Engineering

- Work order system is inconsistently utilized

- Significant staff transition coming quickly

Phase 1
Operations Staffing

Position	No. Current	No. Target	No. Retiring by FY2019
Superintendent	1	1	0
Assistant Superintendent	1	1	1
Chief Operators	6	6	4
Operators	12	14	6
Facilities Attendents	4	4	0
Totals	24	26	11

Phase 2
Focus

- Update data collection/sharing approach
- Develop Operational Guide
- Develop training modules
- Improve communication on-site

Phase 2
Update Data Collection & Inspection Approach

- 22 paper logs

- Example: Daily Plant Walkthru Form

Phase 2
Update Data Collection & Inspection Approach

- All Shifts

- 1st Shift

- 2nd Shift

- 3rd Shift

- HACH Wims

Phase 2
Develop Operational Guide

Phase 2
Develop Operational Guide

- Typical summary table – grit removal

Item	Standard	High Flow	Low Flow
Sluice Gates	Fully Open to On-line Grit Tanks	Fully Open to On-line Grit Tanks	Fully Open to On-line Grit Tanks
Grit Tanks	3 Units	4 Units	3 Units
Grit Blowers	2	2	2
Air Control Valves	Fully open	Fully open	Fully open
Septage Receiving Stations	1	1	1
Septage Pumping	Automatic	Off	Automatic

Phase 2
Develop Training Modules

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On-Boarding Training Module

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Operations Training Module

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Phase 2
Improved Communication

- Initiated weekly meetings to discuss equipment status:
  - Operations, Maintenance, Engineering
- Assessing enhanced Computerized Maintenance Management System (CMMS)
- Increasing use of Hach Wims to leverage data
- Striving to accelerate communications across all divisions

Closing Remarks

- SESD transition planning effort focused on opportunity to improve operational efficiency.
- Change existing mindset of doing things the same way.
- As new operators come on-board, working to have new systems in place.
  - Maximize use of staff time/ tackle incomplete work
  - Improved reference materials
  - Improved communication
  - Improved data management systems
- Training of new and existing staff on new systems and new mindset.

Questions

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