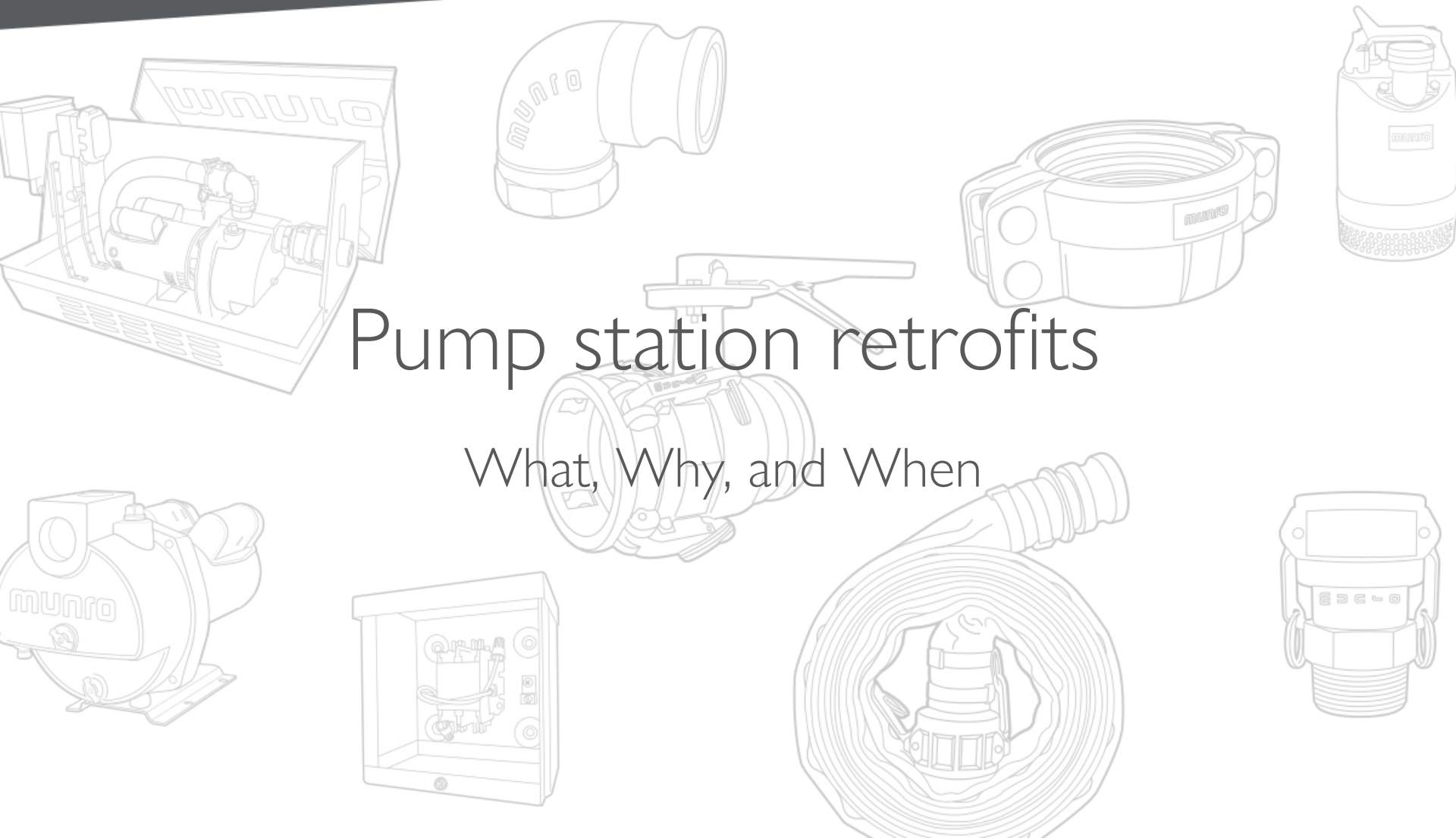
munro



Pump station retrofits

What, Why, and When

We'll discuss…

- WHAT is a retrofit
- WHY might you want to consider retrofitting
- WHEN might a retrofit make sense… and when it doesn't

What is a retrofit?

- Not one size fits all…
  - Updating existing equipment
  - Replacing broken or undersized components
  - Replacing the controls
  - Mostly new components
  - All new components built to align with existing plumbing and fixturing

What is a retrofit?

So, it could be…

Almost anything other than a brand new pump station that does not utilize existing plumbing

What is a retrofit?

- Things to consider
  - Age of the station
  - Condition of the station
  - Structural soundness
  - Mechanical soundness
  - Properly maintained
  - Is expansion needed now… or in the future
  - Could water or energy efficiency be improved?
  - Integration with irrigation management system

Why consider a retrofit?

- Use the existing infrastructure
  - Cost considerations
  - Avoid site damage
  - New approvals
  - Environmental considerations

Why consider a retrofit?

- Cost considerations
  - Changing the infrastructure can be cost prohibitive.
    - Engineering fees
    - New Buildings
  - Retrofitting allows savings on any components that can still be utilized

Why consider a retrofit?

- Avoid site damage
  - Changing the infrastructure can cause harm to established vegetation.
    - Removing old growth trees
    - Moving transformers
    - Extended heavy equipment use
  - Retrofits may mean less disruption

Why consider a retrofit?

- New approvals
  - Changing the infrastructure may require engineering approval
    - Engineered sump designs
    - Electrical designs
    - Civil Designs
  - Retrofits may not require new approvals

Why consider a retrofit?

- Environmental considerations
  - Retrofits may be environmentally friendly
  - We're good stewarts of resources when we reuse functional equipment – utilizing motors, controls, piping, etc.
  - Minimize scrap waste, motors, e-waist etc.

When might a retrofit make sense?

- Older pump stations may not utilize current technology.
  - VFDs and new pump product designs lead to higher efficiency.
  - US motor efficiency standards have changed and all new motors are required to meet the minimum DOE standards.
  - Pump efficiency rules have also changed and certain pump styles are now required to meet a minimum efficiency standards. (Horizontal centrifugal pumps).

When might a retrofit make sense?

- Older pump stations may not utilize current technology.
  - Energy companies may offer upgrade rebates for VFD's and premium efficient motors.
  - Eliminating antiquated hydraulic control valves. Pressure sustaining, pressure reducing valves and solenoid valves.

When might a retrofit make sense?

- New sensing devises.
  - Flow meter's with higher accuracy and lower flow range.
  - Pressure transducer's in place of pressure switches.

When might a retrofit make sense?

- Upgrading to PLC's.
  - Ability to control the pump station with higher accuracy.
  - Reporting capabilities, flow, pressure trends.
  - Remote monitoring.

When it makes sense…

Example 1

Horizontal centrifugal station that is aging and has experienced loss of prime issues

When it makes sense…

Example 1

Consider retrofitting to vertical turbines

When it makes sense…

Example 2

Existing 5 hp pump station utilizing a pressure sustaining valve

When it makes sense…

Example 2

Consider retrofitting by adding a VFD

When it doesn't make sense…

- New installation
- Structure failing or surrounding infrastructure not sound
- 3. New requirements for retrofit do not fit existing infrastructure.

Wrap up…

- WHAT is a retrofit
- WHY might you want to consider retrofitting
- WHEN might a retrofit make sense… and when it doesn't

munro

Thank you!