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 stewards 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 devices.
  - 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.
Example 1

Horizontal centrifugal station that is aging and has experienced loss of prime issues
Example 1
Consider retrofitting to vertical turbines
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.
• WHAT is a retrofit
• WHY might you want to consider retrofitting
• WHEN might a retrofit make sense… and when it doesn’t
Thank you!