

# Chemical Feed

## Keeping the Chlorine Flowing

**PNWS AWWA**

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**Salem, OR**

# Introductions:

- **Instructor:**

- Don Van Veldhuizen  
Technical Training Manager

- **Sponsoring Organization:**

- USA Bluebook/AWWA

# Agenda

- **Chlorine History**
- **Chemical Storage and Day Tanks**
- **Chemical Feed Pumps**
- **Chemical Compatibility**
- **Injection Point**
- **Summary**

# Chlorine History

- **Discovered**
- **First Uses**
- **Systems using Chlorine**

# System Importance

- **Protect Public, Employees, Equipment**
- **Meet Regulatory Requirements**
- **Aesthetics**

# Storage and Day Tanks

- Chlorine Degradation
- Dilution
- Tank Configurations



# Chemical Feed Pumps

- **Types**
  - Diaphragm
  - Peristaltic
  - Progressive Cavity
  - Others???



# Diaphragm

- Long history
- Precise control
- Moderate to high discharge pressures
- Inexpensive





# Peristaltic

- Lower maintenance
- Little or no off-gassing
- Good suction head
- Inexpensive



# Progressive Cavity

- Wide range of discharge pressures
- Good solids and viscous pass-thru
- Good suction head
- Little surging



# Chemical Feed Pumps (cont'd)

- **Sizing**
  - **Operational Parameters**
  - **Growth/Reduction**
  - **CTs**



Source Water Pump Output (gpm) x Required Dose (mg/L) x 1440  
Solution Strength of Hypochlorite Solution (mg/L)

# Chemical Feed Pumps (cont'd)

- **Suction Head**
  - Elevation
  - Friction Losses
  - Specific Gravity



# Chemical Feed Pumps (cont'd)

- **Discharge Pressure**
  - Pressure at Injection Point
  - Changes in Elevation
  - Head Loss in Feed Line



# Chemical Compatibility

- **Nature of Chlorine**
  - Corrosive
  - Prone to scale

# Injection Point

- **Mixing/CTs**
- **Maintenance**
- **Additional Chemical Additions**
  - **Potential reactions**
  - **Premature reactions**

# Summary

- **System Set up Criteria**
  - Storage and Feed?
  - Feed Pump and concerns?
  - Chemical Compatibility?
  - Injection?





# Questions?

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## **USA Bluebook**

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