

# BIOSOLIDS

## *Wastewater Program*



**KYLE ARRINGTON**

Riverside Park Water

Reclamation Facility Manager



# BIOSOLIDS 101



## WHAT ARE BIOSOLIDS?

*Biosolids are a product of municipal wastewater treatment facilities that are primarily organic, semisolid product resulting from the wastewater treatment process and can be beneficially recycled.*

## AGENDA

- **OVERVIEW & HISTORY**
- **REGULATIONS**
- **LAND APPLICATION PROGRAM**
- **BENEFITS & CHALLENGES**



# EVOLUTION OF BIOSOLIDS

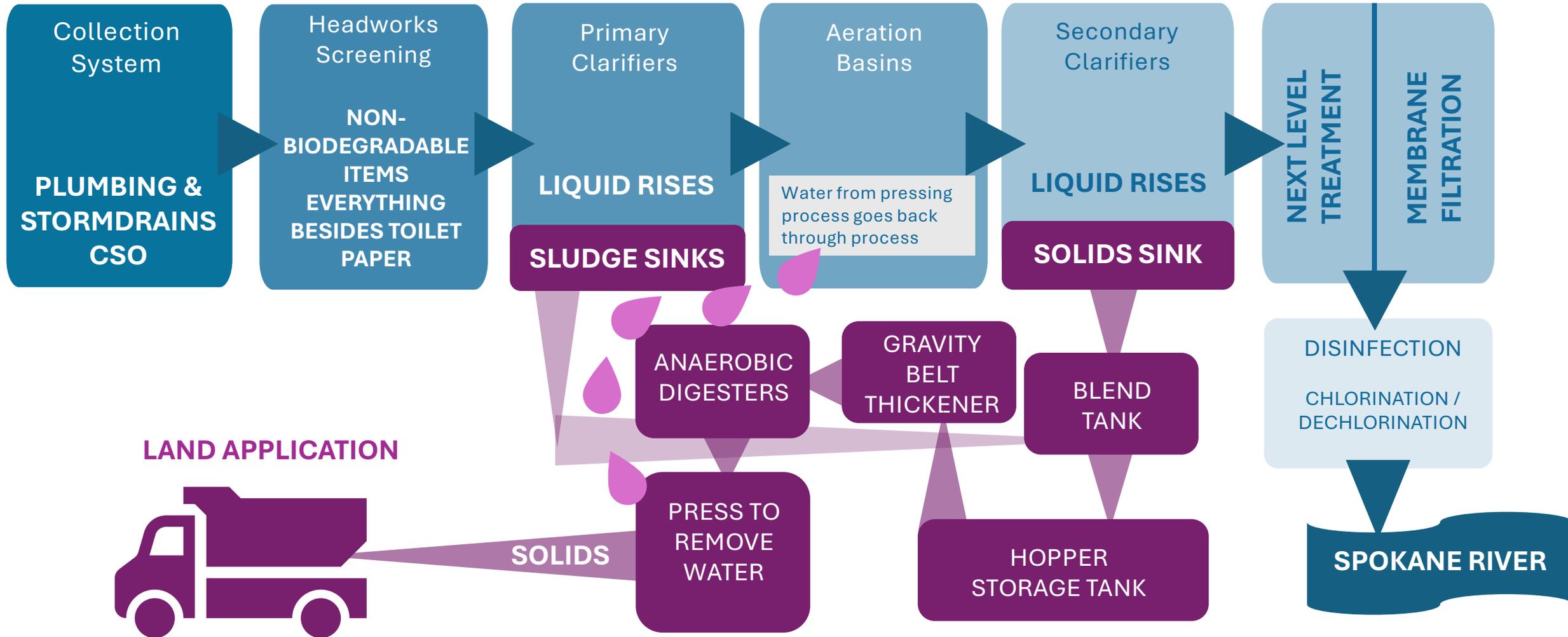


- Humans have **successfully used human waste to fertilize agricultural land for thousands of years**
- Currently about **half of biosolids created in the U.S. are applied to land**, majority going to agriculture
- **Treatment Plants** - Human feces-based fertilizer vs. raw human waste
- Riverside Park Water Reclamation Facility **began applying biosolids to land in 1982**
- Still have **some original farmers participating** in program
- **No reported cases of sickness** from City application workers, farmers, or general public to date





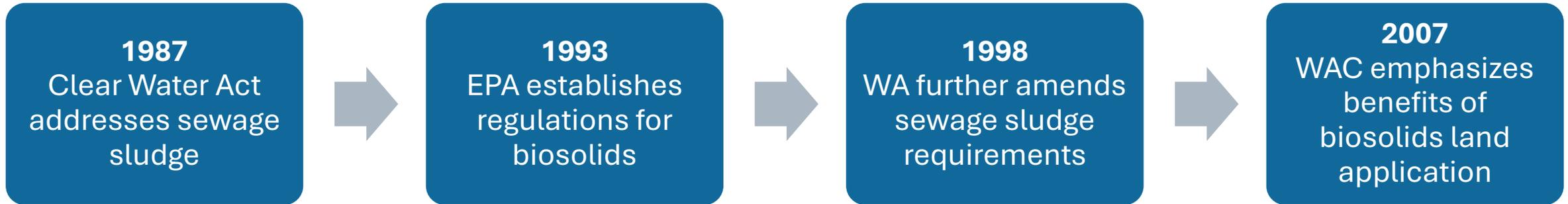
# TREATMENT PROCESS



# REGULATIONS



## HISTORY



## REQUIRED PERMITS

- **National Pollutant Discharge Elimination System (NPDES) Permit**  
Quarterly sampling & more wide range of sampling – not used for biosolid land application
- **Biosolids Permit**  
WA permit covering treatment, analysis, storage, land application, and more



# LAND APPLICATION PROGRAM



## GENERAL PLAN

- **Required for agricultural land application**
- Provides **general overview** of our program and City's compliance

## SITE-SPECIFIC PLAN

- **Required for agricultural land application**
- Provides **detailed sample plan**, site maps, landowner agreements, State Environmental Policy Act (SEPA) checklist, site signage, emergency spill response plan



# LAND APPLICATION PROGRAM cont...



## CURRENT PLAN

- **Deer Park and West Plains**
- **City owns and operates** complete process from **collection to land application**
- Program **starts and ends with sampling and analysis** of biosolids and soils
- **Coordination and planning with farmers** are the cornerstone of successful program
- Bunkering or **storage is required in freezing conditions** and restricts incorporation
- **De-bunkering** begins as soon as **temperatures and surface conditions allow**



# BENEFITS



- **Research indicates no environmental degradation or human health impacts**
- **Supports the Spokane River**
  - **Manages nutrients** discharged by treatment plant and **provides runoff buffer zone** to streams, lakes, and ponds
  - **Decreases** amount of **nitrogen in runoff**
  - Nutrient management **prevents algae blooms, protecting fish and wildlife**
- **Supports Farming**
  - **Nutrients are recycled** back to local area farms
  - Reduced runoff maintains and **improves soil health**, yields better crops
  - **Reduces dependence** on **chemical fertilizers**
  - **Increases soil water retention**



# CHALLENGES & OPPORTUNITIES



## CHALLENGES

- Negative Public Perception – odor, biosolids in food
- Storage Capacity – farmer attrition, urban sprawl, need back-up storage
- Contaminants and PFAS – Pharmaceuticals, PCBs, PFAS, what's to come...

## OPPORTUNITIES

- Forestry/Timber industry – rapid growth benefits
- Bioremediation and superfund sites
- Urban Gardens and City Greenscapes
- Emergency Back-Up
- Research collaboration with EWU, WSU, NWBiosolids, etc.
- Shifting the narrative and perception of biosolids for the community





# QUESTIONS?