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

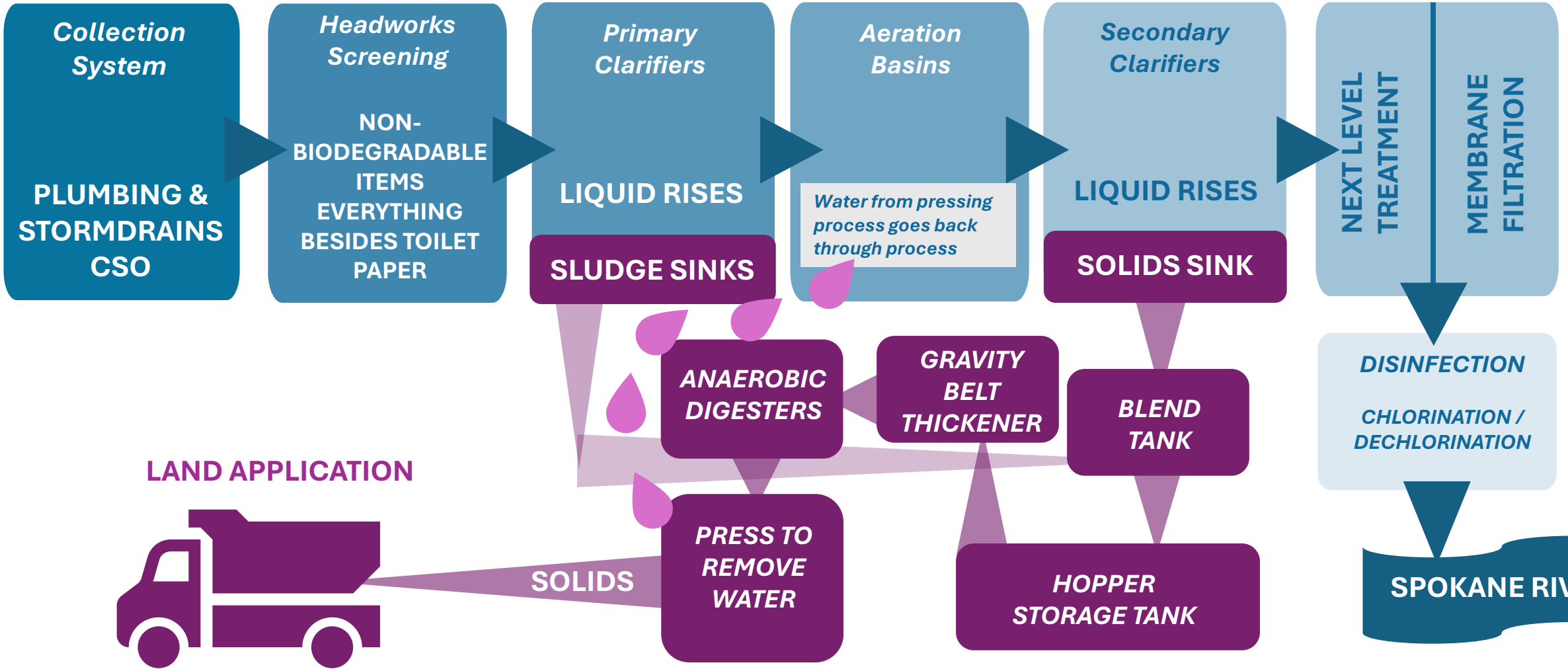
- **OVERVIEW & HISTORY**
- **REGULATIONS**
- **LAND APPLICATION PROGRAM**
- **BENEFITS & CHALLENGES**

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


HAULING
PRESSING & DEWATERING
DIGESTERS
PRIMARY CLARIFIERS
BIOLOGICAL TREATMENT
HEADWORKS SCREENING
SECONDARY CLARIFIERS
OUTFALL
NEXT LEVEL TREATMENT
Spokane River
W Heroy Ave
W Northwest Blvd
N Rustle St
W Rockwell A
N Riverside S
Aubrey L White Pkwy

TREATMENT PROCESS



REGULATIONS

HISTORY

1987
Clear Water Act addresses sewage sludge

1993
EPA establishes regulations for biosolids

1998
WA further amends sewage sludge requirements

2007
WAC emphasizes benefits of biosolids land application

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?