



Graywater

HEALTH AND WELL BEING COMMITTEE

APRIL 12, 2016

Agenda

- ▶ Definitions?
- ▶ Legislative background
- ▶ Why are we here?
- ▶ Allowed uses of graywater
- ▶ Next steps

What is Graywater?

▶ Definitions

- ▶ **Black Water** – sewage or wastewater containing food scraps or water flushed from toilets
- ▶ **Graywater** - wastewater collected from bathroom and laundry room sinks, bathtubs, showers, and laundry machines within residential, commercial, or industrial buildings or institutional facilities for the purpose of being put to beneficial uses.
- ▶ **Recycled Water** - sewage or wastewater that has been treated to remove solids and impurities, and used in for irrigation, to recharge ground water aquifers, and to meet commercial and industrial water needs.
- ▶ **Potable Water** – water which is suitable for drinking and food preparation

Legislative / Regulatory Background

- ▶ State
 - ▶ Legislation – HB13-1044
 - ▶ WQCC Regulation 86
 - ▶ State Plumbing Code
- ▶ Denver
 - ▶ City Plumbing Code
 - ▶ Graywater Ordinance and Rules and Regulations

Why Are We Here / Next Steps

- ▶ Authorize a voluntary program allowing beneficial reuse of graywater in Denver
 - ▶ Graywater ordinance adoption by Council
 - ▶ Authorize Board of Environmental Health to develop rules and regulations and design criteria
 - ▶ Give CPD and DEH authority to implement a City graywater program
 - ▶ Define legal geographic extent of program
 - ▶ Rules and regulations and design criteria adoption by BEH
 - ▶ Program implementation by CPH and DEH

Why Reuse Graywater?

- ▶ City's 2020 sustainability goals
 - ▶ Community goals
 - ▶ Reduce per capita use of potable water in Denver by 22% over a 2001 baseline
 - ▶ Keep the rate of increase of consumption of potable water below the rate of population growth
- ▶ The Colorado Water Plan (2015)
 - ▶ Achieve 400,000 acre-feet of municipal and industrial water conservation by 2050

Allowed Graywater Sources & Uses

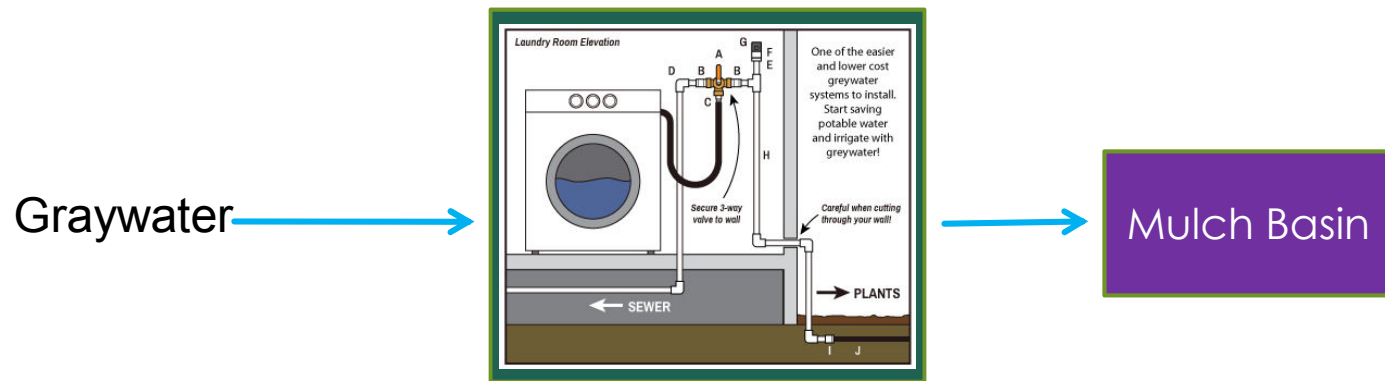
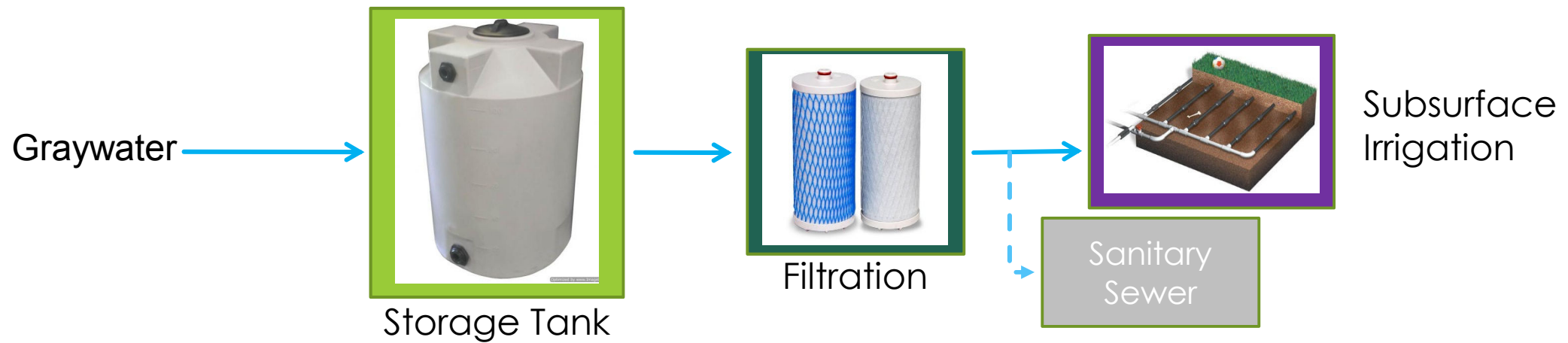
▶ Sources

- ▶ Wastewater collected from:
 - ▶ Bathroom and laundry room sinks
 - ▶ Bathtubs and showers
 - ▶ Washing machines

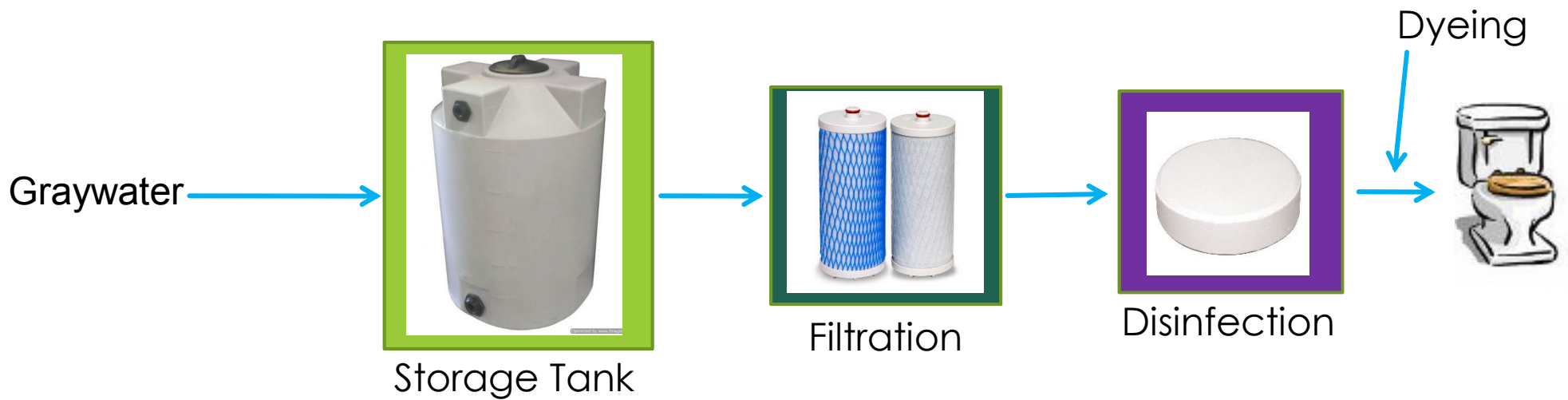
▶ Uses

- ▶ Toilet flushing
- ▶ Subsurface (underground) irrigation

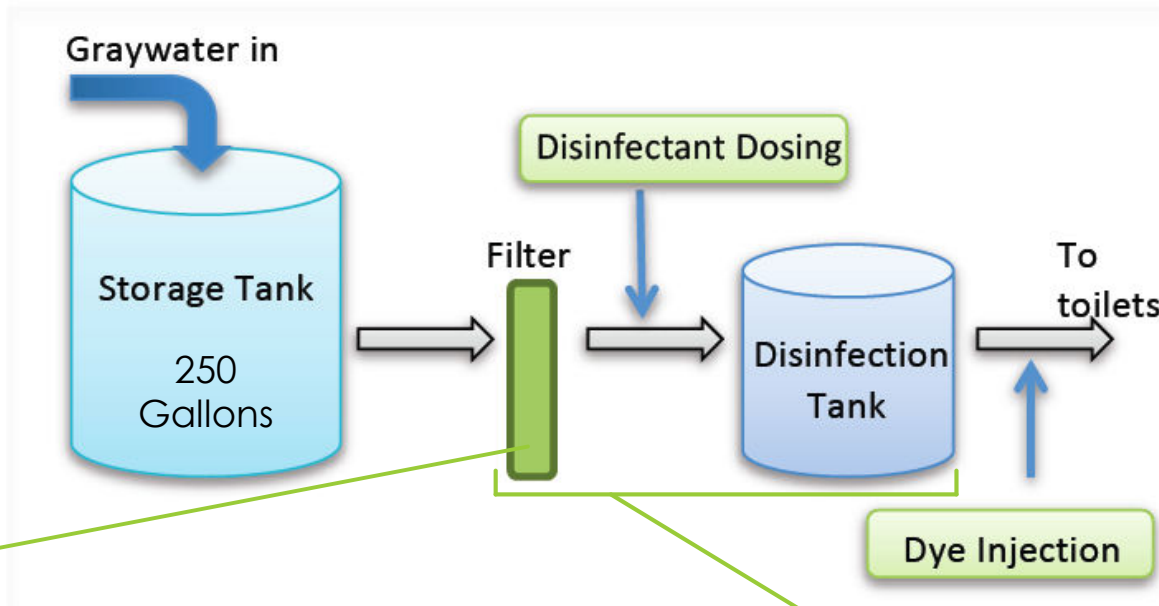
Allowed Uses – Subsurface Irrigation



Allowed Uses – Toilet Flushing



CSU - Aspen Hall Graywater System



Stakeholder Outreach and Feedback

Outreach Efforts

- ▶ Apartment Association
- ▶ Colorado Greywater
- ▶ Colorado Hotels and Lodgers
- ▶ CSU
- ▶ Denver Housing Authority
- ▶ Denver Water
- ▶ Homebuilders Association
- ▶ US Green Building Council – Denver Chapter

General Feedback

- ▶ Excited for the program
- ▶ Would like the City to help with education and outreach to members
- ▶ Want to make sure it's voluntary
- ▶ Thought that concern about construction defects may limit implementation

Next Steps / Roles and Responsibilities

- ▶ Next steps
 - ▶ Ordinance adoption by Council
 - ▶ Rules and regulations and design criteria adopted by BEH
- ▶ Roles and Responsibilities
 - ▶ CPD
 - ▶ DEH

QUESTIONS?

Keith Fox - Community Planning and Development

Sonrisa Lucero – Mayor's Office of Sustainability

Jon Novick - Department of Environmental Health

Sybil Sharvelle, PhD – Urban Water Center, Colorado State University