

# “How Dry I Am”

Solutions for the Pharmaceutical Industry To Meet  
the new NC Water Restrictions

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# Case Study

# Evaluation of Water

# Conservation Projects

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# Presentation

- Facility Description
- Water Conservation (WC) Program History
- Identification and Ranking of WC Projects
- Brief Description of Selected WC Projects



# Facility Description

- Pharmaceutical Biotech Facility
- Located in North Carolina
- Produces Vaccines
- Uses City Water
- Generates and Uses WFI
- Has RO water treatment trains which includes MMF and Carbon Filters
- Has Cooling towers and chillers



# Program History

- Have active Water Conservation Program
- Evaluated and Implemented several small water conservation projects prior to 2007
- Installed water meters around site in 2007
- Received NC Bio Biomanufacturing Water/Wastewater Survey in Dec 2007
- Developed Drought Contingency Plan
- Goal – Reduce water use 10% / 5 years



# Identification and Ranking of Projects

- Formed multi-disciplinary team
- Brainstormed Ideas – all Ideas welcomed
- Identified Information on for each Idea



## Identification and Ranking of Projects con't

- Information developed for each Idea:
  - Water Savings
  - Capital Cost
  - Cost Savings (based on water cost and savings)
  - Implementation Time
  - Return on Investment
  - Ratio – Capital Cost to Annual Water Savings (\$/gal)
  - Obstacles for each project – Validation, feasibility, etc.

## Identification and Ranking of Projects con't

- Ranked projects by different criteria
- Had WC Team rate each project on a 1- 3 scale.
- Averaged Team ratings and ranked projects in three groups – Best / good / low
- Documented rationale for ranking of each project
- Selected Projects from “Best” group to Implement
- [Fessler - WC Project- Final\\_Rev3.0.xls](#)



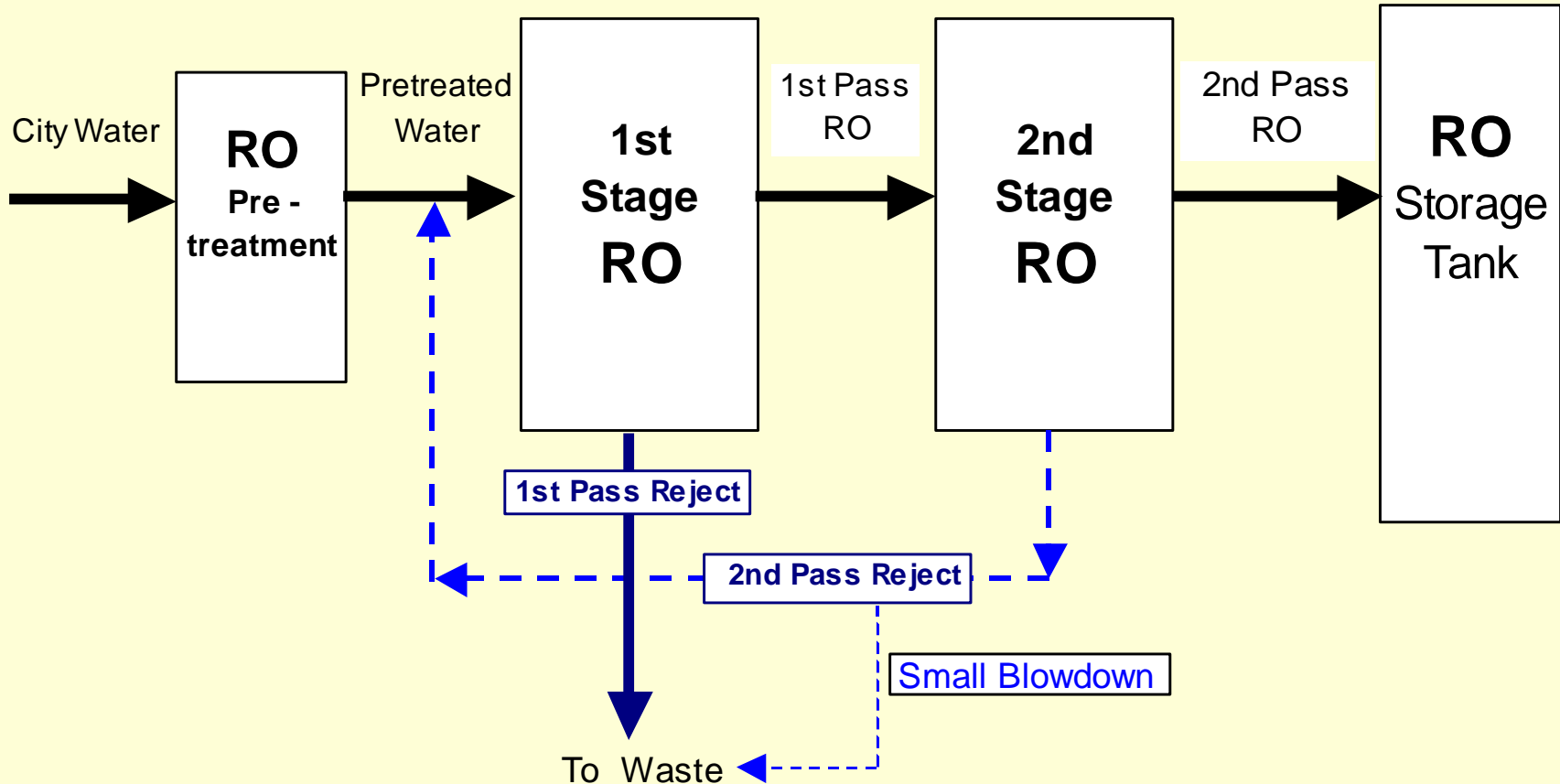
# Project Selection

- Selected 3 projects
- Implementation – within 12 months
- Focused on one – developed additional information on two
- Two additional projects selected for long term implementation

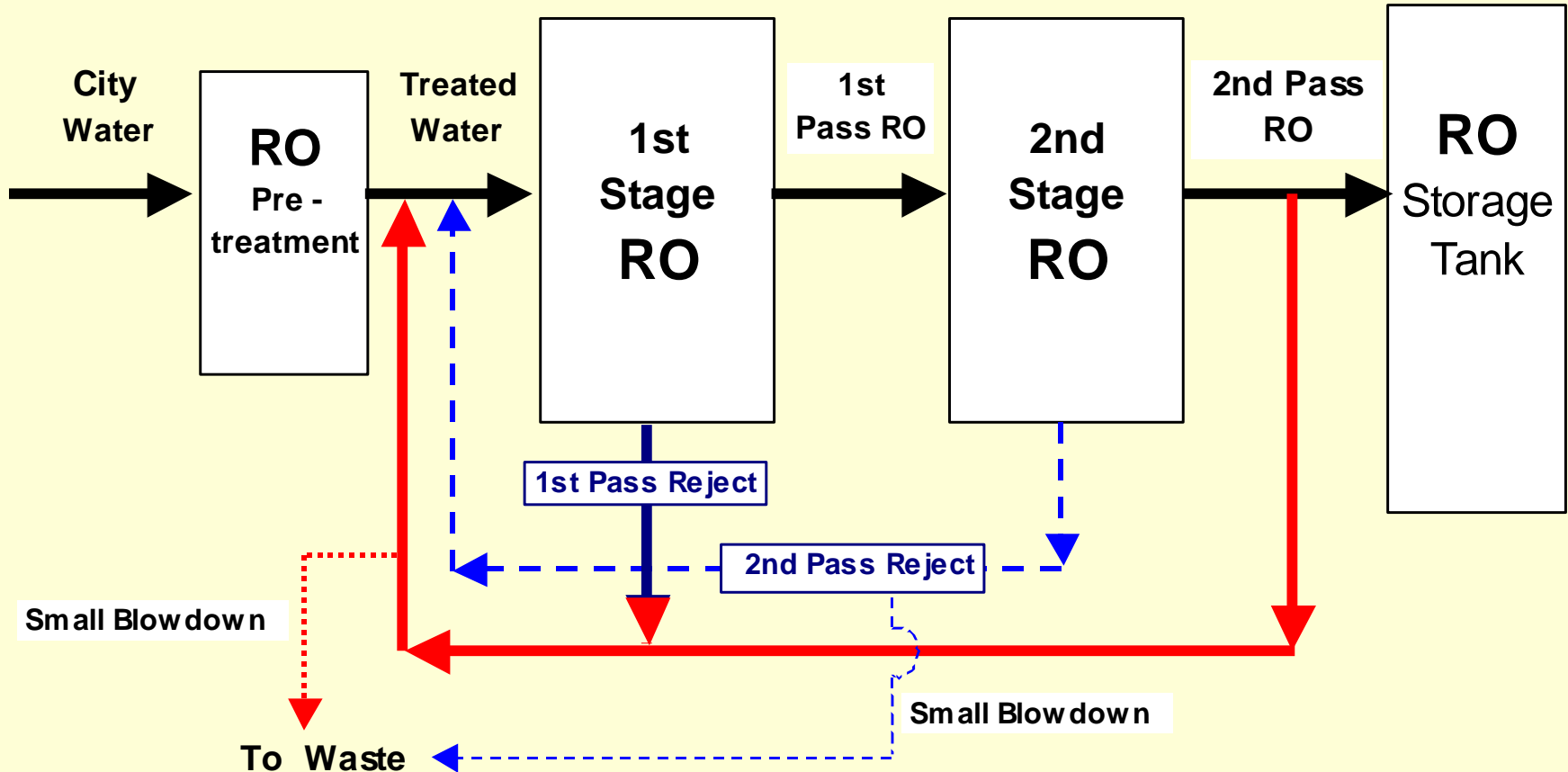
# Project Selection

<b>Project</b>	<b>Capital Cost (\$)</b>	<b>Annual Water Savings</b>	<b>ROI (Years)</b>
# 1 Recycle RO Reject when not Filling RO Tank	75	4 – 6 %	< 1
# 2 Recycle Filter Backwash	300	4 – 6 %	3 - 4
# 3 Recycle RO Reject and AHU Condensate	300	4 – 6 %	3 - 4

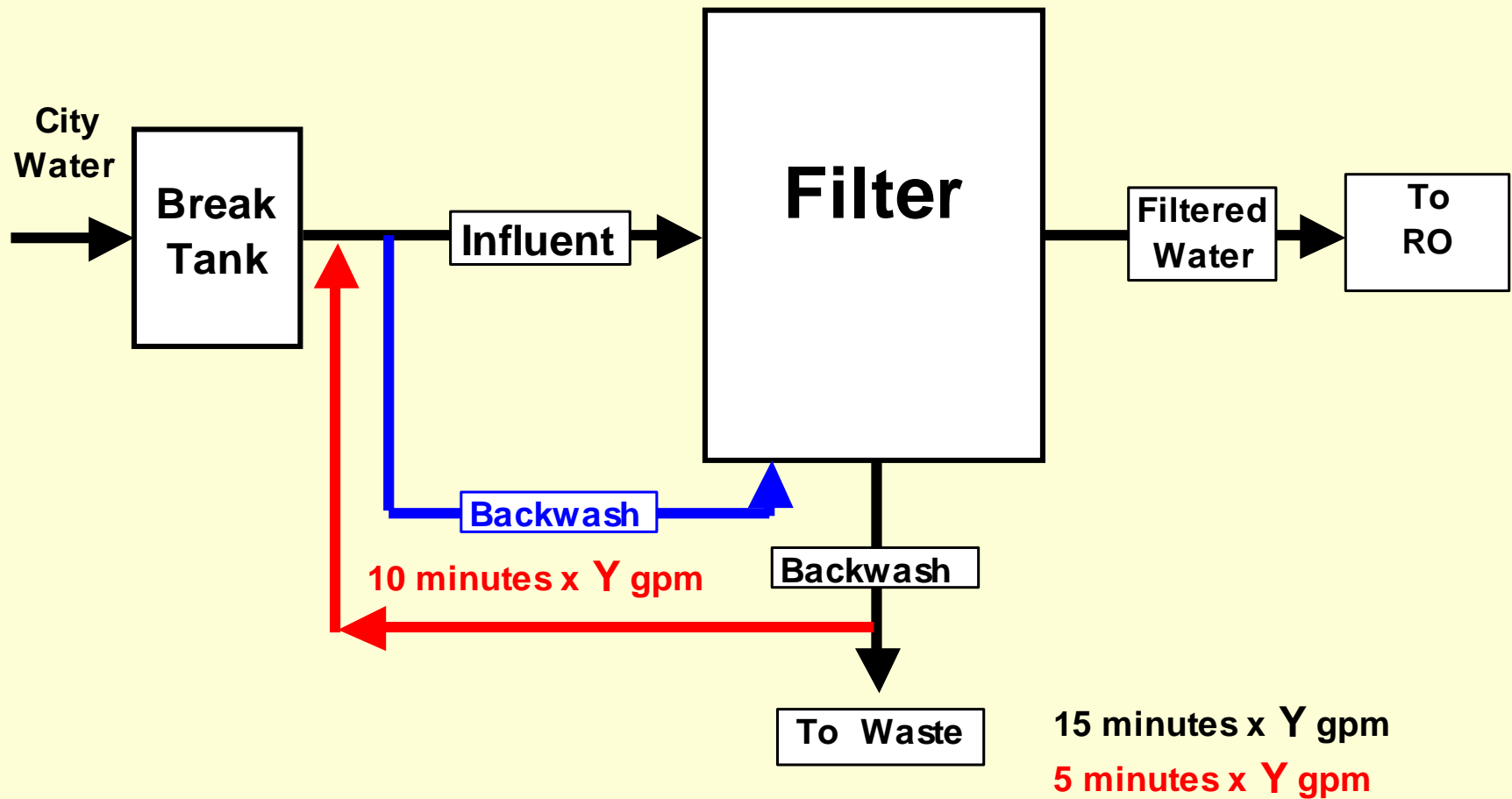
# Project # 1 – RO Reject Recycle



# RO Reject Recycle Con't



# # 2 Filter Backwash Recycle



# # 3 RO Reject Reuse

