Status of Expert Panel Efforts
DPR - Potable Reuse

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Panel Co-Chairs

March 3, 2016
Advisory Group Meeting

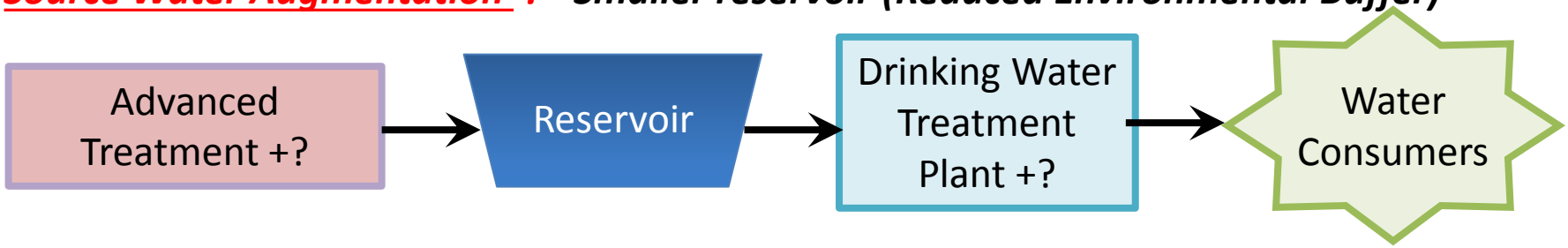
Topics Covered

- ***Potable Reuse – examples (reminder)***

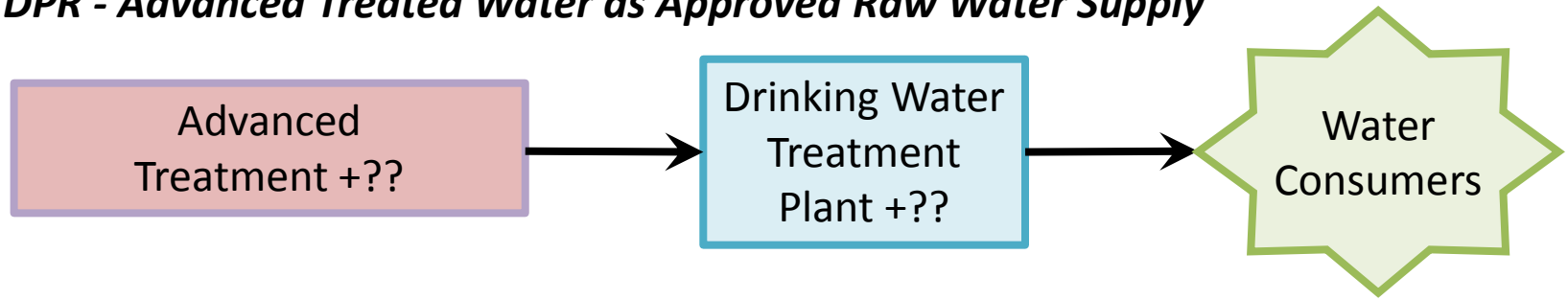
- ***Evaluating Feasibility of DPR Criteria***
  - ***Overarching Questions***
  - ***Status of Briefing Papers and Panel Feasibility Report***
  - ***Preliminary Findings – Antibiotic paper***
  - ***Panel Schedule***

POTABLE REUSE- Configurations
SWA (Reduced Environmental Buffer) and DPR

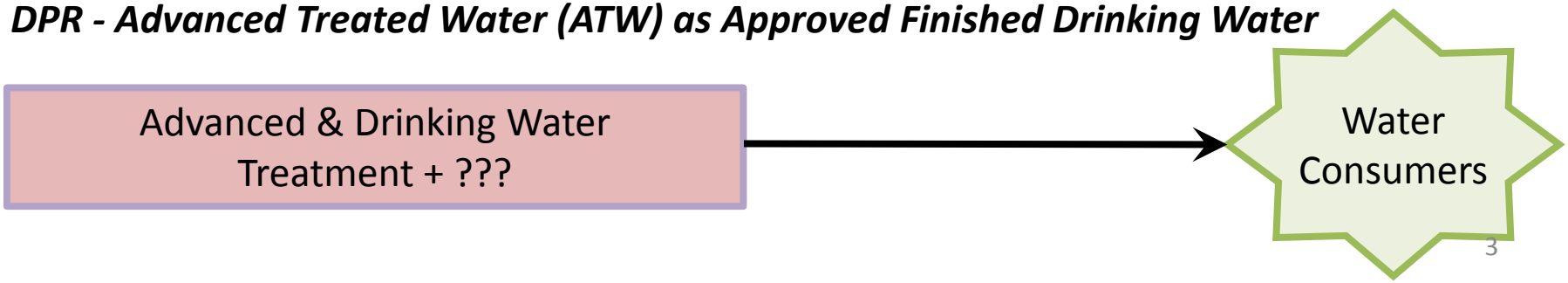
Source Water Augmentation ?– Smaller reservoir (Reduced Environmental Buffer)



DPR - Advanced Treated Water as Approved Raw Water Supply



DPR - Advanced Treated Water (ATW) as Approved Finished Drinking Water



Evaluating DPR Criteria Feasibility Overarching Questions

- ***Overarching Questions:***
  - **Definition of DPR (continuum) including absence of an environmental buffer.**
  - **The availability and reliability of recycled water treatment technologies.**
  - **Multiple barriers and sequential treatment processes that may be appropriate at wastewater and water treatment facilities.**
  - **Available information on health effects.**
  - **Mechanisms to protect public health from off-spec water.**
  - **Monitoring needed to ensure the protection of public health.**
  - **Other scientific or technical issues that may be necessary, including the need for additional research.**

DPR Briefing Paper Topics & Status

- ***Expert Panel Feasibility Report Outline – outline***
- ***Briefing paper topics*** *(Internal)**:***
  - ***Bioassays (Bioanalytical Tools) – NEARING COMPLETION***
  - ***Quantifying Treatment Facility Reliability – well underway***
  - ***Analytical Methods/Tools - well underway***
  - ***Molecular and Other Pathogen Monitoring Methods - outline***
  - ***Antibiotic Resistant Bacteria (ARB) and Antibiotic Resistant Genes (ARG) in water – NEARING COMPLETION***
  - ***Comparative Health Risks - outline***
  - ***Public Health Surveillance – outline (rely on WRRF 14-14)***

DPR Briefing Paper Topics & Team Lead Authors

- ***Bioassays (Bioanalytical Tools)* –** Dr. Bull (Drs. Crofton and Dennison)
- ***Quantifying Treatment Facility Reliability* –** Drs. Haas, Drewes, Nelson, McCarty, and Anderson
- ***Analytical Methods/Tools* –** Drs. Sedlak and Drewes
- ***Molecular and Other Pathogen Monitoring Methods* –** Drs. Rose and Nelson
- ***Antibiotic Resistant Bacteria (ARB) and Antibiotic Resistant Genes (ARG) in water* –** W Jakubowksi (Drs Reinke, Schwab***)***
- ***Comparative Health Risks* –** Drs. Olivieri, Crook (Drs. Pecson and Drewes)
- ***Public Health Surveillance* –** Dr. Wade (rely on WRRF 14-14)

Antibiotic Briefing Paper
Preliminary Overall Finding - Summary

- Based on Comprehensive Review (100+ refs reviewed)
- Antibiotic resistance is a valid and serious **Worldwide** public health concern.
- Risk levels associated with ARB/ARG in water have not been determined.
- Currently it is unclear whether water is a significant disseminator of ARB and ARG relative to other sources.
- Considering all the available information, concentrations of ARB/ARG from waters subjected to both secondary and advanced DPR treatment would likely be equal to or lower than that from current water sources entering drinking water treatment plants
- Thus, risk levels would be comparable to, or less than, those associated with current source waters.

Antibiotic Briefing Paper
Other Preliminary Findings - Summary

- ARB and ARG are found in other environments such as soils and other source waters (not necessarily impacted by wastewater).
- There are currently no standardized tests for ARB/ARG in environmental samples.
- Determination of ARB/ARG concentrations in water can be helpful in assessing performance of treatment processes for removal of AR determinants.
- The Expert Panel believes it is important to continue to characterize the role of potable water reuse in disseminating antibiotic resistance.
- Ongoing research in the US, Europe, and Asia is looking at other sources (hospitals, agriculture) besides wastewater of ARGs and ARBs and their removal by different treatment processes.

Updated Meeting Schedule & DPR Briefing Paper Topics

- Feb 23-24 (DONE) - Bioassay; Reliability; ARB/ARG; Outline
- March 30-31 -Reliability; Comparative Risk (approach)
- April 13-14 -Chemical & Molecular (pathogen) monitoring; Reliability
- May 11-12 -Prelim. Research Recommendations; Comparative Risks; Public Health Surveillance (draft notes)
- June (early) -Draft Panel Report; Public Health Surveillance (small workgroup)
- June 29-30 -Final Draft Report
- July (mid) -Final Draft to SWB DDW staff