POTABLE REUSE CRITERIA DEVELOPMENT

IN CALIFORNIA

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TYPES OF POTABLE REUSE

- Conventional (unplanned) – waste discharges to a source of supply
- Indirect (IPR) –replenish or augment a groundwater or surface source of water
  - The resulting source may end up being 100% recycled water
- Direct (DPR) – reclaimed water directly into water treatment plant or directly into a distribution system

INDIRECT POTABLE REUSE
MAKE A SOURCE OF WATER

HEALTH AND SAFETY CODE
CALIFORNIA SAFE DRINKING WATER ACT

- "Pure, wholesome, potable, and healthy water"

- Drinking Water Program permits Public Water Systems
  - Permit addresses individual water sources and prescribes suitable controls and treatment for all contaminants
  - CDPH has experience approving:
    - Good water sources – standard treatment
    - Impaired sources - need extra treatment
    - Extremely impaired sources (Policy 97-005) – extensive study and treatment
    - Planned IPR

THE CALIFORNIA WATER CODE REQUIRES

- Advisory Group on Direct Potable Reuse
  - Represent various community interests including environmental, environmental justice, water systems, ratepayers, and health officers

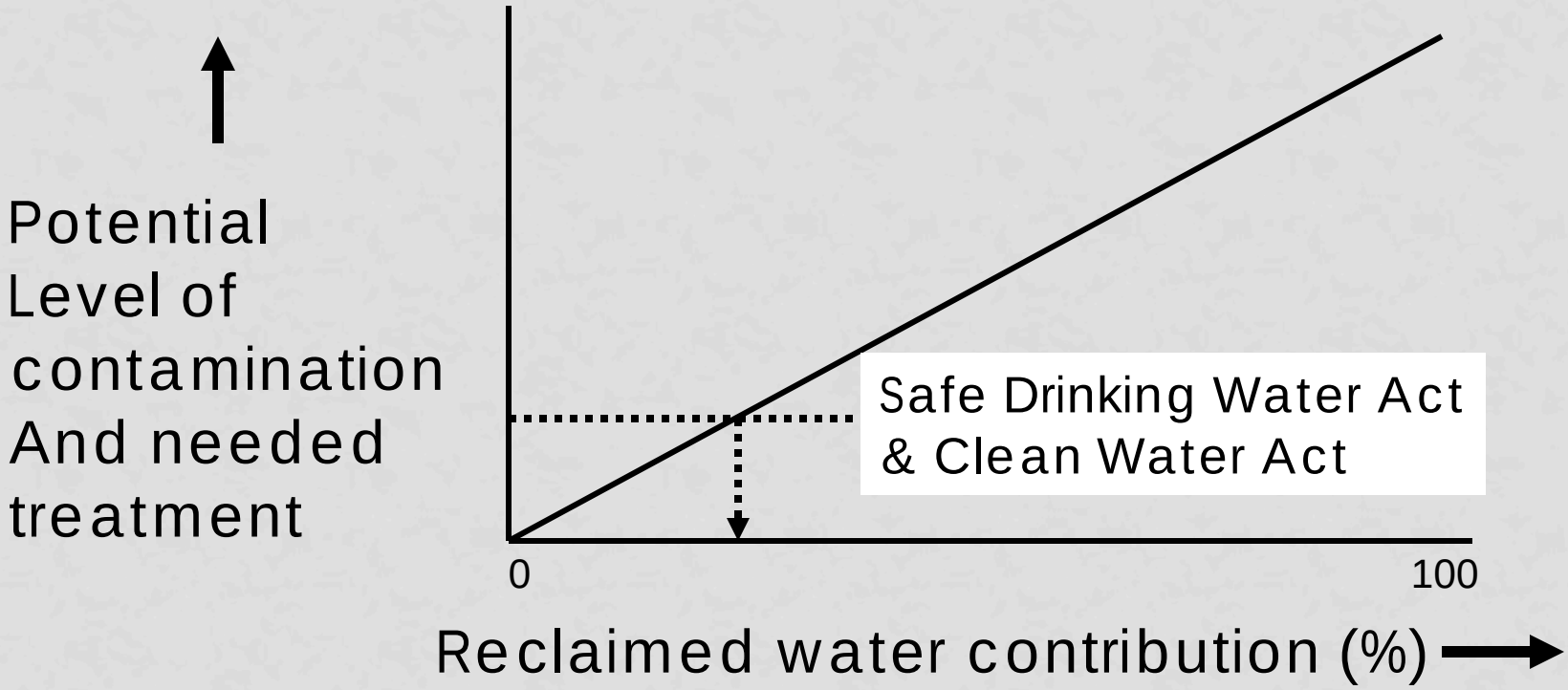
- Expert Panel on Surface Water Augmentation IPR (evaluate proposed criteria) and Direct Potable Reuse (determine the feasibility of developing criteria)
  - Representing the relevant scientific and engineering fields

THE CALIFORNIA WATER CODE ALSO REQUIRES

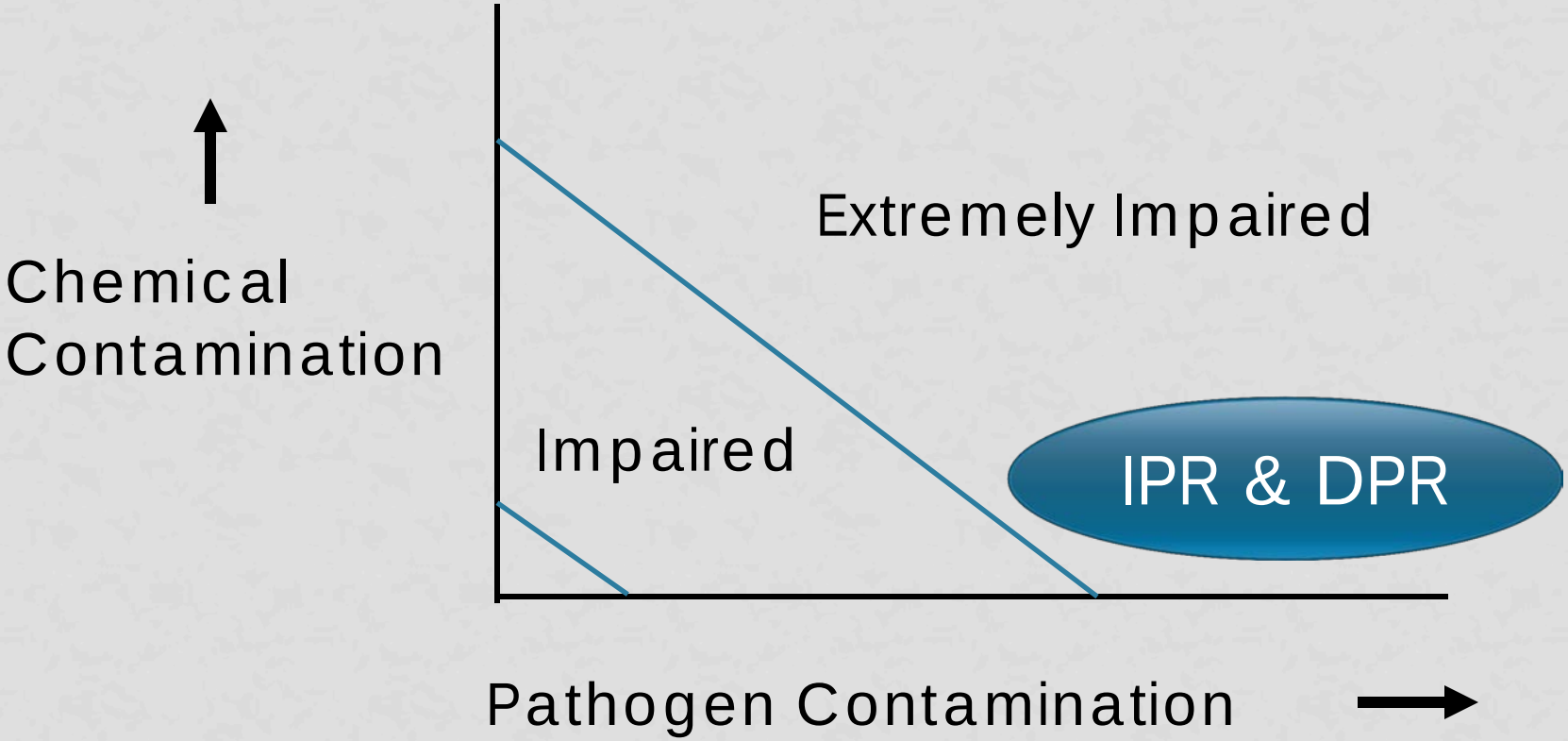
- By December 21, 2016, the SWB must adopt criteria for surface water augmentation if the expert panel finds that the proposed criteria would adequately protect public health.

- By December 31, 2016, the SWB shall investigate and report to the Legislature on the feasibility of developing uniform water recycling criteria for direct potable reuse.

DEGREE OF POTABLE REUSE



SOURCE QUALITY



POTABLE REUSE REGULATION PRINCIPLES

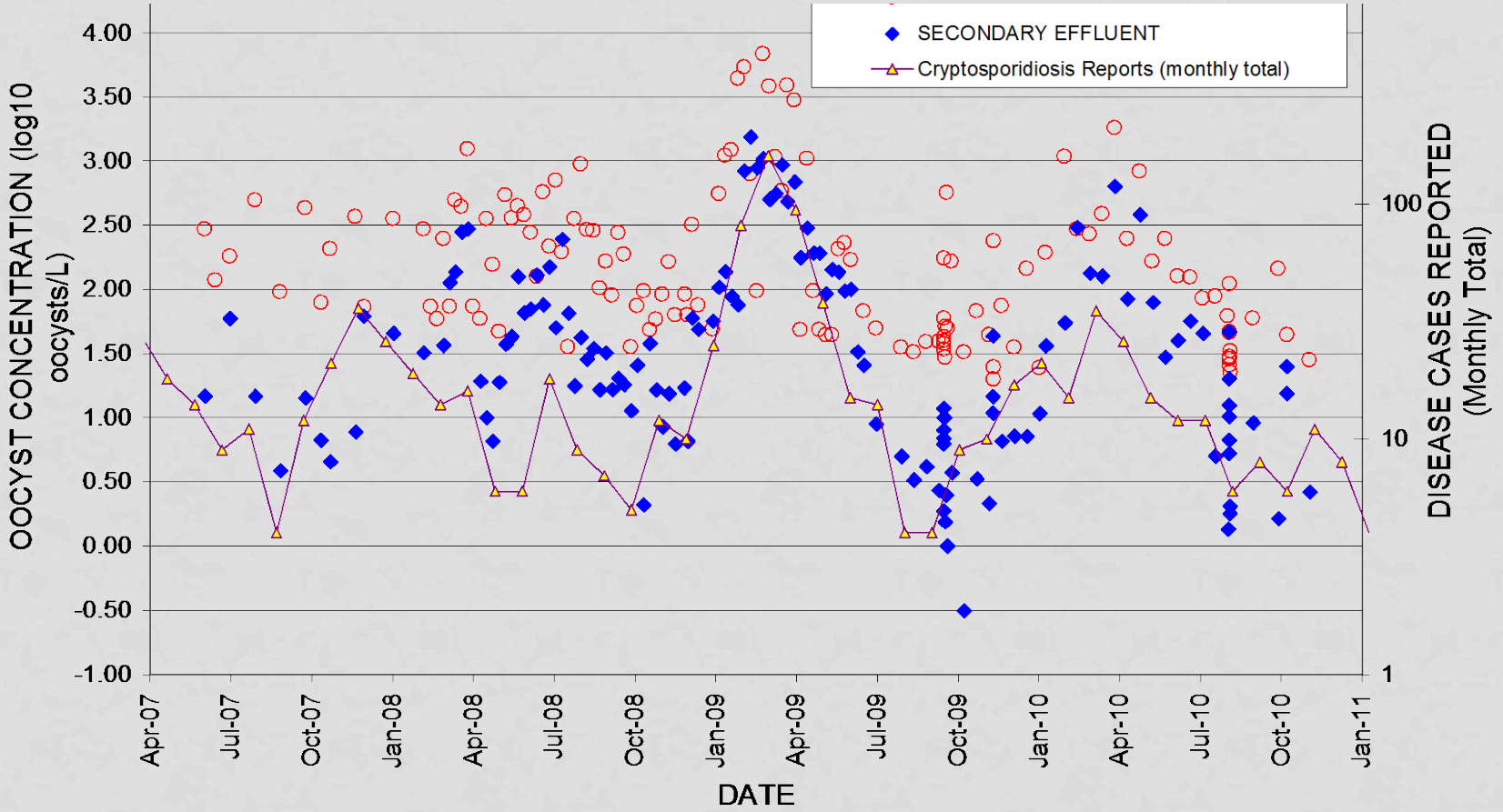
- Make a “safe” drinking water
- Low tolerable risk
  - 10^{-4} annual risk of infection
  - Meet all drinking water standards
  - Unregulated chemicals controlled to match good conventional supplies (as a minimum)
    - Potentially harmful organic material found in wastewater (TOrCs, CECs, PhACs, PCPs, et cetera)
    - Chronic exposure risk
- Multiple barriers for pathogens and chemicals

PATHOGENIC MICROORGANISMS

- Acute risk
- Set a log reduction treatment requirement
- Raw sewage to finished drinking water
  - 12-log Virus
  - 10-log *Giardia*
  - 10-log *Cryptosporidium*

CRYPTOSPORIDIUM

MELBOURNE



MULTI-BARRIER PATHOGEN CONTROL

- Multiple barriers for reliability
  - Minimum number of significant barriers specified
- A project may select any set of treatment barriers that meet the total log reduction required
- Validate LRV with challenge test or report
- Verify performance

POTABLE REUSE REGULATION STATUS

- Groundwater Recharge IPR
  - Regulations adopted
- Surface Water Augmentation IPR
  - Draft requlation largely accepted by the expert panel
  - Formal regulation proposal expected this year
- Direct Potable Reuse
  - Expert Panes has begun investigation of criteria feasibility

Questions?