

# New Recycled Water Regulations

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Brennon Flahive

[bflahive@socwa.com](mailto:bflahive@socwa.com)

Environmental Compliance Administrator  
South Orange County Wastewater Authority

# South Orange County Wastewater Authority

- JPA, Ten Member Agencies
  - El Toro Water District
  - Trabuco Canyon Water District
  - Moulton Niguel Water District
  - Irvine Ranch Water District
  - City of San Clemente
  - Santa Margarita Water District
  - Emerald Bay Sanitary District
  - City of San Juan Capistrano
  - City of Laguna Beach
  - South Coast Water District

# South Orange County Wastewater Authority (SOCWA)

- Manage two Ocean Outfalls & NPDES
- Manage two Master Recycled Water Orders Region 8 & 9
- Operate four Wastewater Treatment Plants
- Three SOCWA plants produce recycled water

# South Orange County Wastewater Authority (SOCWA)

## ■ 2 Ocean Outfalls

- Permit capacity            70 MGD
- Current flow rate        32 MGD
- 8 POTWs
- 3 Desalters
- 1 Groundwater treatment unit

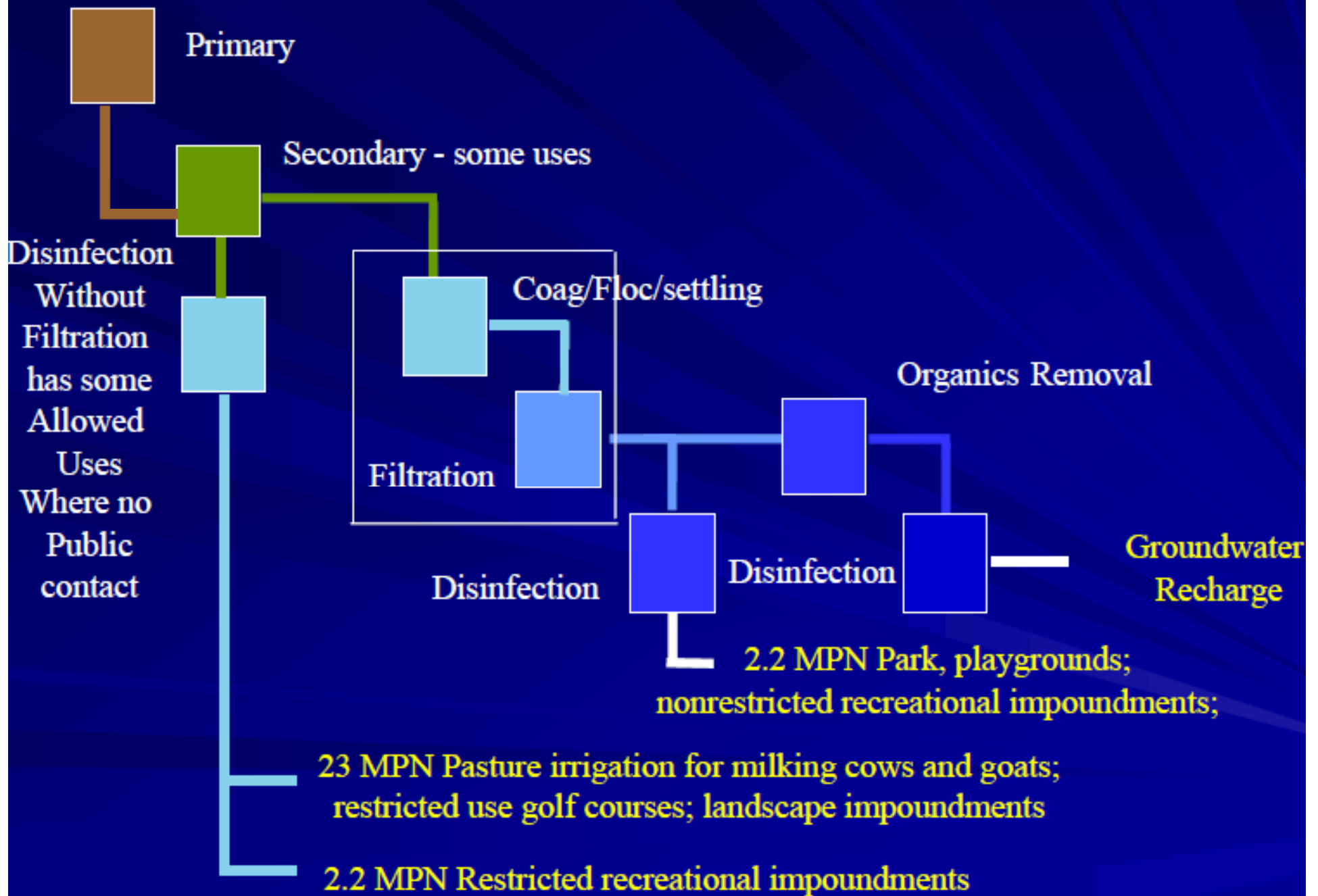
# South Orange County Wastewater Authority (SOCWA)

- 9 Recycled Water Facilities
- 220 square mile service area
- Serving population 500,000
- 17,000 ac/ft Recycled Water 2008
- Over 2000 Recycled Water Use Sites  
in Region 9

# Factors Promoting Water Recycling

- 95% dependant on imported potable water
- Limited Ocean Outfall capacity until early 1980s
- As development increased, irrigation demands also increased
- SOCWA Member Agencies have 40 year history of recycled water reuse

# Source Control



# Regional Plant AWT Facility 9.0 MGD



# CCT @ Coastal Treatment Plant



# Recycled Water Pump Station



# Evolving Recycled Water Regulations - SWRCB

- Recycled Water Policy (adopted May 2009)
- Recycled Water General Permit
  - Goal of promoting increased recycled water production/use
  - Provide uniform statewide requirements

# Recycled Water Policy

- Policy states, "California is in a water supply crisis and must expand recycled water use"
- Set goals to increase recycled water use over 2002 levels by 1 million acre-feet per year by 2020
- and 2 million ac-ft by 2030

# Recycled Water Policy

- Purpose:

- To increase recycled water use in a manner that fully implements state and federal water quality laws and regulations in order to enhance the environment and put the waters of the state to the fullest use

# Recycled Water Policy

- Policy defines the roles and jurisdiction of state agencies with respect to recycled water:
  - State Water Board
  - Regional Water Boards
  - CDPH
  - Department of Water Resources
  - Public Utilities Commission

# State Water Board's Policy Role

- Establish general policy governing recycled water permitting
- Provide oversight of Regional Board permitting practices
- Develop a General Permit for irrigation use of recycled water

# CDPH Recycled Water Role

- Protection of human health & drinking water supplies
- Develop criteria for each use of recycled water
- Interface with Regional Boards to establish permit conditions to protect public health

# Regional Water Boards' Role

- Protect surface and groundwater resources in their region
- Issue permits that implement the Policy and CDPH Title 22 regulations
- Use their authority to encourage use of recycled water

# California Department of Water Resources

- Review and update the California Water Plan every 5 years
- Evaluate the current and potential future uses of recycled water
- Issue bond funding to provide incentives for recycled water use

# Major Policy Element

## Salt & Nutrient Management Plans

- All RB to develop Salt/Nutrient Management Plans for each basin/sub-basin within 5 years
- Stakeholder driven process, locally funded, flexibility in design of plans
- Intent is salt and nutrient plans help manage water quality objectives and beneficial uses of the water basins
- Within 1 year of adoption the Regions must implement their salt & nutrient plans

# Salt & Nutrient Plan Flexibility

The degree of complexity of plans dependent on several factors:

- Complexity of the basin
- Source water quality
- Stormwater recharge
- Hydrology
- Aquifer water quality

# Incidental Runoff

- Policy addresses incidental runoff but leaves door open to take additional action (NPDES, WDR)
- Incidental Runoff is not:
  - Use Site irrigation design flaw
  - Result of over application
  - Intentional overflow
  - Due to negligence

# Landscape Irrigation Projects must have Operations & Management Plan

- with BMPs to:
  - Detect Use Site leaks and make corrections within 72 hours or before release of 1000 gallons, whichever occurs first
  - Address proper Use Site irrigation system design and sprinkler head function
  - Limit Use Site recycled water application during rain events
  - Manage recycled water impounds, no overflow unless 25 year storm event or greater

# Policy Streamline Permitting Element

- New Landscape Irrigation Projects
  - Eligible for enrollment under statewide general permit if:
    - Project meets Title 22 Regs. for treatment and Use Site
    - Project has an Operations & Management Plan (agronomic rates of application)
    - Complies with the established salt & nutrient management plan
    - Producer monitors and communicates with users on Use Site nutrient application

# Policy: Groundwater Recharge with recycled water

- Policy differs to current CDPH groundwater recharge guidance and a case by case regulatory approach
- All groundwater projects test for CEC annually and Priority Pollutants Semi-annually

# Chemicals of Emerging Concern

- Policy required the Water Board and CDPH to appoint a Blue-Ribbon advisory panel to guide future CEC monitoring requirements for recycled water
- Blue-ribbon advisory panel is charged with answering specific water quality management questions

# CEC Questions

- What CECs should be monitored
- What analytical methods/detection limits
- What are the toxicology effects of listed CECs
- Should the CEC list change based on type of treatment and recycled water use
- Are there testing surrogates
- What CEC levels trigger additional monitoring

# CEC Blue Ribbon Panel

## ■ Panel Members:

- Dr. Paul Andersen – Human Health Toxicologist
- Dr. Nancy Denslow – Biochemist
- Dr. Jorg Drewes – Civil Engineer
- Dr. Adam Oliveri – Epidemiologist/Risk Assessor
- Dr. Daniel Schlenk – Environmental Toxicologist
- Dr. Shane Snyder – Analytical Chemist

# CEC List Timeline

- May 2009 Panel Convened
- March 15, 2010 Draft recommendations (SWRCB)
- April 2010 Respond to Draft Comments
- May 4, 2010 Final Recommendations
- Nov. 10, 2010 SWRCB Adoption CEC monitoring

# CEC testing Criteria

Past studies recommended CEC testing based upon:

- occurrence in source water
- occurrence in reuse water
- removal through via soil aquifer treatment
- removal via W/WW treatment
- most frequently prescribed pharmaceuticals
- those that do not break down in the environment
- those CECs that show evidence of being; carcinogenic, toxic, or could cause antibiotic resistant

# National Source Water Survey

CEC	Use	Detected
■ dilantin	anticonvulsant	91%
■ meprobamate	anxiety	91%
■ sulfamethoxazole	antibiotic	91%
■ atrazine	herbicide	87%
■ carbamazepine	anticonvulsant	83%
■ gemfibrozil	cholesterol	78%
■ atenolol	heart disease	74%
■ trimethoprim	antibiotic	74%
■ estrone	hormone therapy	74%
■ naproxen	anti-inflammatory	70%
■ TCEP	flame retardant	65%

# Policy - Antidegradation

- State Board Resolution No. 68-16
  - Waters of the state shall be regulated to achieve highest water quality consistent with maximum benefit to the people of the state
  - Groundwater recharge has the potential to lower groundwater quality therefore proponent must demonstrate compliance with Res. 68-16
  - Landscape Irrigation projects may impact basins - Salt & Nutrient Management Plans intended to address antidegradation

# Statewide General Permit for Recycled Water

- Similar in concept to Statewide Stormwater & SSO permits
- Purpose is to apply consistent statewide recycled water requirements
- State Board adoption hearing July 7th

# General WDRs For Landscape Irrigation

## Use of Municipal Recycled Water

- CWC 13552.5

On or before July 31, 2009 the State shall adopt a general permit for landscape irrigation uses of recycled water ...

- General Permit Elements:

- Use Site nutrient tracking
- Use Site BMPs
- Further defines Incidental Runoff
- CEC monitoring requirements
- Priority Pollutant monitoring requirements

# Proposed General Permit

- Is intended to apply to landscape irrigation recycled water projects
- Producers operating under existing recycled water orders may apply for coverage under the general permit
- Applies only to Title 22 tertiary treated municipal recycled water
- Will not apply to ag, or industrial reuses, or projects serving residential irrigation systems

# Proposed General Permit

- Places an emphasis on Use Site Monitoring to prevent over application of water & nutrients
  - Proposed monthly Use Site monitoring
    - Volume of recycled water
    - Rainfall
    - Volume of additional water
    - Area of application (acres)
    - Water application rate
    - Nitrogen application rate

# General Permit

- Very prescriptive Use Site monitoring requirements
- Establishes very detailed BMPs
- Shifts Use Site focus from cross-connection prevention to agronomic application water and nutrient loading



# Unknowns

- How will Policy be implemented ?
- How will CEC and Priority Pollutant monitoring be added to exiting recycled water Orders ?
- How will the General Permit affect existing Orders ?

# Policy & General Permit Outcomes

- Monitor recycled water for CECs & PP
- Tighter control of recycled water Use Site runoff/over application
- Perhaps some level of Use Site nutrient loading tracking

# Questions

