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**SUBJECT: Comment Letter - Proposed Water Recycling Policy**

I was asked to comment on the policy, and unfortunately my schedule is such that detailed study and comments are not possible prior to mid-November. From my brief skim through the document, I provide the following comments:

- TDS is not a good measure of salinity when considering effluents. Even tertiary effluent (see attached data) contains a considerable amount of stable dissolved organics that show up in a TDS test. If you want to keep track of salinity I suggest use of the TDFS (total dissolved fixed solids) test. With full mineral (i.e., salt) scans on effluents, the TDS value is often much greater than the sum of the minerals. People often wonder "What minerals are we missing?" The missing "minerals" are dissolved organics.

- The policy should have extensive discussion and legal analysis of California Water Code Section 13523.2 the "salinity exception", and the various types of "requirements" that a regional water board may issue for a water recycling project. I've attached pages from a recent class given by the Board's Training Academy.

- Recycling in much of the inland areas is already being practiced indirectly as a matter of fact. Much of the effluent from the Sacramento Regional WWTP, Auburn, Lincoln, Redding, Stockton, etc., is "recycled" by cities and farmers using river water directly or via the California Aqueduct. Much of the effluent absorbed into the ground is also reused from the groundwater resource. Groundwater recharge is facing new proposed regulations (see attached reference). These de facto reclamation projects and regulations should be discussed if they are not already. Again, I had very little time to view the policy.

- With the de facto reclamation that is occurring in much of the inland areas of California, The focus of the policy should be on improved reclamation in the coastal areas where once-used

potable water is discharged to oceans, a true loss of the water resource. Coastal areas are also commonly water short and still growing. Specifically, I think the policy should recognize the differences between reclamation in the inland areas and coastal areas. I also think the policy should recognize differences between water importing areas of the state and water exporting areas. Groundwater use or non-use is a key aspect of any reclamation policy.

- The policy should address the legal water rights issues associated with removing effluent discharges from surface waters for subsequent direct reclamation purposes.
- The policy should be clear that water conservation and reclamation are designed to stretch the state's limited water resources to sustain growth in California, not the existing people who are being asked to conserve water or reclaim effluent. The core of the environmental analysis related to the water recycling policy would be focused on the growth inducing effects of water recycling and on the groundwater quality impacts caused by effluent reclamation.
- A final note, water conservation increases the concentrations of salts and other contaminants in wastewater and effluent, thus, making the effluent less suitable for recycling in general.

Sincerely,

**ECO:LOGIC ENGINEERING**

Richard E. Stowell, PE, PhD

Attachments

## An Example of Actual Tertiary Effluent "Salinity" Data

| | Effluent "Salinity" Measurements | | |
|---|---|---|---|
| Sample | EC, µS/cm | TDS, mg/L | TDFS, mg/L |
| 1 | **981** | **234** | **176** |
| 2 | **958** | **218** | **166** |
| 3 | **851** | **259** | **214** |
| 4 | **955** | **248** | **177** |
| Average | **936** | **240** | **183** |
| WQO | **700*** | **450*** | **450** |

*Based on the proposition that salts, not organic acids or sugars, are the contaminants being monitored

EC data indicate an effluent salinity problem, when in fact no problem exists.

## Effluent Salinity Issues

- **Irrigation of plants results in evapotranspirative concentration of effluent salt (see diagram on next page). Different crops remove different amounts of salt.**
- **The evapotranspiratively concentrated salt must be leached from the soil to:**
  - Groundwater; or
  - Surface water (e.g., via tile drains); or,
  - A brine conveyance and disposal system.
- **Is such salinity degradation of groundwater or surface water acceptable?**
- **Water Code §13523.2 " salinity exception" states:**

> A regional board may not deny issuance of water reclamation requirements to a project which violates only a salinity standard in the basin plan.

- **How should we comply with or change this law with respect to legislative intent regarding salinity and reclamation?**

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## Types of Permits Covering Reclamation

- **Waste Discharge Requirements (WDRs) per Water Code §13263. Note, this section discusses "requirements". The term "waste discharge requirements" is a description of the nature of the requirements, rather than a defined term.**
- **Water Reclamation Requirements per Water Code §13523(a). These are the requirements specifically named in the "Salinity exception" (§13523.5).**
- **Master Reclamation Permit per Water Code §13523.1 includes WDRs (§13523.1 (b)(1)). These are also known as "master recycling permits" and "water recycling requirements" per Water Code §13050(r) and §13263(h).**

## Rapid Infiltration or Injection into Freshwater Resources

- **Regulations are currently under development:**

www.dhs.ca.gov/ps/ddwem/waterrecycling/PDFs/rechargeregulationsdraft-01-04-2007.pdf

- **The current regulation (Title 22 §60320) states:**
  - DHS will make recommendations to the Regional Board.
  - The Regional Board will develop requirements with input from CEQA (i.e., the discharger), the public, DHS, etc.