

Todd Thompson, P.E.
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State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

June 1, 2007

RE: Peer Review of California's Proposed Rule for OWTS

Dear Sirs:

Please find enclosed my review of the proposed rule for OWTS in the State of California. I summarized my review below. Comments are divided into two parts: a.) issues regarding the rule draft language and b.) issues regarding the scientific basis of the proposed rule.

a.) Comments regarding rule draft language (as provided as Enclosure 4: Draft Regulations – Peer Review):

- p. 2. Separate definitions of "Electronic deliverable format" from "Engineered Fill". Present as two paragraphs rather than one.

- p. 4. "Waste discharge requirement". Provide acronym, should read "Waste discharge requirements" or "WDRs"

Note: This acronym has not been introduced anywhere before it is mentioned in §24901(e) for the first time.

- p. 4, §24901(c)(1) operate either a new OWTS or an OWTS that has been relocated, expanded, repaired or replaced with a capacity...".

Comment: While it is clear what is meant with "relocated and replaced", what constitutes an expansion or repair? Is this defined somewhere?

- p. 6, §24910(j)(8) a list of substances that could cause a condition of pollution or nuisance if discharged to the OWTS, including but not limited to pharmaceutical drugs and water softener regeneration brines; and".

Comment: While there is ample evidence that brines from water softeners can adversely affect the performance of OWTS, it remains unclear why also "pharmaceutical drugs" are mentioned but other organic chemicals that might have a more severe impact, such as personal care products,

household chemicals, etc., are not? What is the basis for this selection? While implied, the language chosen also is not clear that what is meant here refers to "unused or/and expired pharmaceutical drugs" that are disposed via the OWTS rather than pharmaceutical drugs that are excreted via urine and faeces after they were administered to humans. Considering the occurrence level of common household chemicals or the mass loading that is generated after expired or leftover household chemicals are disposed via OWTS, these chemicals (including cleaning agents, detergents, nail polishing solutions, pesticides, etc.) will likely cause a significant upset in an OWTS.

I suggest the following language: "a list of substances that could cause a condition of pollution or nuisance if discharged to the OWTS, including but not limited to household chemicals, pesticides, pharmaceutical drugs and water softener regeneration brines; and"

- p. 7, §24910(u). "MBAS" is not defined anywhere. "Nitrate" is capitalized but shouldn't.

b.) Comments regarding the scientific basis of the proposed rule:

After carefully reviewing the draft regulation, I conclude that the proposed rule is based upon sound scientific knowledge, methods, and practices and provides a comprehensive framework for operation and monitoring of OWTS in California.

The only comment I have refers to monitoring requirements as outlined in §24910(t and u) and the intention to protect public health:

The proposed rule is considering monitoring of groundwater to measure the impacts of the OWTS discharge on the underlying groundwater. With the overarching concept to protect public health and the intention of the SWRCB to establish baseline-monitoring information, the underlying approach of this monitoring requirement is good and the proposed parameters (i.e, total coliforms and minerals as outlined in (u)) are appropriate. What is not clear are the frequency and conditions under which monitoring is conducted.

The monitoring requirement calls for an initial sampling after 30 days of construction of the OWTS, followed by samples collected every five years. Since most OWTS owners will likely choose to monitor the domestic well rather than a newly installed monitoring well downstream of the OWTS, there is a good likelihood that a 30 day time period is not sufficient to determine whether the domestic well is hydraulically connected to the plum of the OWTS. This determination could also be affected by how and when the sample is collected (e.g., pumping to steady-state conditions prior to sampling vs. grab sampling at the tap; sampling during dry-weather vs. wet-weather period; sampling during the same season (winter vs. summer), etc.). Since the next sample will be collected after 5 years, there is a chance that the owner utilizing the domestic well can be at risk for a significant time period. I assume the reasoning for monitoring after 5 years was the outcome of balancing the financial burden of monitoring costs to the owner and the likelihood of putting the public at risk. However, a potential impact of the OWTS operation on the domestic well will likely establish after a couple of months and this impact might not be discovered for several years to come. The Wisconsin Administrative Code (Comm 83.52 Responsibilities (1)(c) a.) is requiring monitoring at an interval of 12 months or less. This seems to be a more appropriate time period to assess a potential impact of the OWTS on drinking water derived from a domestic well and to establish long-term monitoring data for the SWRCB for OWTS operation.

The SWRCB might want to consider revising the monitoring frequency to for example 30 days, 1 year, 3 years and every 5 years thereafter. Clear guidance should be given to how and when a representative sample is collected.

If you have any questions, please do not hesitate to contact me at 303-273-3401 or via E-mail at jdrewes@mines.edu. I would like to thank you for the opportunity to review the proposed rule.

Sincerely,

A handwritten signature in black ink, appearing to read "Jörg E. Drewes". The signature is written in a cursive style with a large initial "J".

Dr. Jörg E. Drewes
Associate Professor of Environmental Science & Engineering
Director, Advanced Water Technology Center (AQWATEC)

