

Minutes of the TAC Meeting for the Water Reclamation and Reuse Regulations
August 3, 2006

The TAC meeting began at approximately 9:30 a.m. Dr. Ellen Gilinsky, Director of the DEQ Water Quality Division, welcomed members and guests. Mr. James Golden was unable to make the meeting, so Dr. Gilinsky facilitated the meeting in his place. Ms. Valerie Rourke briefly addressed administrative issues and requested any changes to the agenda. A request was made to discuss Part III of the regulation first, but after some discussion it was decided to follow the existing agenda and review the parts of the regulation in numerical order.

DEQ staff distributed a revised schedule for completion of the draft regulation. The schedule has been adjusted to allow DEQ staff to submit the final draft to the State Water Control Board in early November. The next (and last) meeting of the TAC will be held on 10/04/06 at the DEQ Central Office, 629 East Main Street, Richmond.

The floor was then given to the Chair/Co-chair of the Disinfection and Nutrient Subcommittees to present their latest recommendations and findings to the TAC.

Mr. Allan Brockenbrough presented the findings and recommendations of the Nutrient Subcommittee first. The subcommittee did not reach consensus on the degree to which nutrients will be managed in the irrigation reuse category. However, Subcommittee members did agree that irrigation should be defined as supplemental, meaning only application of what is needed to optimize crop growth. The subcommittee agreed there would be no concerns for nutrient impacts to State waters if irrigating with reclaimed water meeting biological nutrient removal (BNR) that achieves 1 mg/l Total P and 8 mg/l Total N. No nutrient management plans (NMPs) or monitoring would be required for residential or bulk irrigation reuses of reclaimed water meeting BNR.

The subcommittee continues to sort through expectations for non-BNR treatment levels. Three scenarios were discussed:

- (1) The subcommittee has currently proposed no restrictions for non-BNR water for residential irrigation, except that the generator will report annually on gallons applied and nitrogen and phosphorus loadings. This will be a simple report to DEQ and will serve as a rough check to prevent irrigation abuses. A general agreement will be required between the generator and the residents and could be as simple as a service agreement with an educational component.
- (2) The subcommittee has currently proposed a Nutrient Management Plan (prepared by a certified nutrient management planner) for irrigation with non-BNR water by bulk irrigation users. The bulk user would hire the planner. The NMP associated with this use would not need to be approved by DCR. The recertification of the planner would be considered the mechanism for state oversight. Discussions continue on the generator's responsibility to insure implementation of the NMP by the bulk irrigation user.
- (3) The subcommittee has currently proposed requirements for a DCR approved NMP for bulk irrigation users when the user is also the generator. Discussion followed on potential for abuse (over application to avoid surface discharges) with the counterpoint that expensive golf courses, managed by professionals, will not over apply any water, much less reclaimed water.

Dr. Marcia Degen distributed a written summary of the findings and recommendations of the Disinfection Subcommittee. The summary discussed the subcommittee's process and their sensible

approach to address disinfection issues raised by the TAC. The majority of subcommittee members were in consensus on all recommendations.

In the summary, disinfection issues addressed by the subcommittee were broadly grouped into three categories, including bacterial standards, turbidity and TSS, and TRC.

Bacterial Standards: For bacterial standards, EPA recommends a median value to evaluate bacterial data; while the VPDES permit program embraces geometric mean to evaluate bacterial data. The assumption was made that the indicator species in the current VPDES permit program are the same for reuse. The subcommittee examined approaches in eight states. Five use median values; three use geometric mean. The subcommittee applied the two approaches from a utility's standpoint and, following a data analysis exercise, determined there was little difference between maximum geometric mean results and median. Their conclusion was to recommend geometric mean and a single sample maximum for the bacterial standard of both Level 1 and Level 2 because it is something facilities are familiar with.

The subcommittee examined three states with geometric mean ranges from 14 colonies/100 ml to 25 colonies/100 ml. North Carolina (14 colonies/100 ml) is the same as our shellfish standards. For Level 1, the subcommittee recommended using a geometric mean of 14 colonies/100 ml for fecal coliform and a geometric mean of 11 colonies/100 ml for both *E. coli* and enterococci bacteria. Additionally, the subcommittee recommended a single sample maximum value of 49 colonies/100 ml for fecal coliform, 34 colonies/100 ml for *E. coli*, or 24 colonies/100 ml for enterococci. For Level 2, the subcommittee recommended a geometric mean of 200 colonies/100 ml for fecal coliform, 126 colonies/100 ml for *E. coli*, and 35 colonies/100 ml for enterococci. Additionally, the subcommittee recommended a single sample maximum value of 800 colonies/100 ml for fecal coliform, 235 colonies/100 ml for *E. coli*, and 104 colonies/100 ml for enterococci.

Frequency of monitoring was addressed by the subcommittee as well. For Level 1 facilities, daily monitoring for fecal coliform, *E. coli* or enterococci (whichever organism is appropriate) should be required. For Level 2 facilities, monitoring frequency should be similar to what is used in a VPDES permit for wastewater treatment facilities based on design flow.

Turbidity and TSS: For Level 1 facilities, TSS is not recommended as a disinfection standard because results are delayed, not continuous, and fail to give an instantaneous picture of the system. Turbidity is recommended as the disinfection standard for Level 1 and the subcommittee supported the standards of 2 NTU average and 5 NTU max in the proposed regulation.

For Level 2 facilities, the subcommittee supported the monthly average ≤ 30 mg/l and maximum weekly average of 45 mg/l for TSS proposed in the regulation.

The subcommittee conducted a survey of eight other states regarding the method of turbidity monitoring required in their regulations and found that all had continuous monitoring. For more perspective, the Virginia drinking water regulations were examined. The subcommittee concluded that for Level 1, continuous monitoring was preferred over grab sampling. However, a grab sample could be utilized when an online meter went down – this mirrors the drinking water regulations. For continuous monitoring, the subcommittee supported recording one sample every hour for a minimum number of daily data points or more frequently if desired by the reclaimer. The daily average would be calculated as the arithmetic mean of all data recorded over a twenty four hour period. An alarm system

to alert the operator when the turbidity exceeds 5 NTU was recommended as was a requirement to immediately initiate an investigation into the cause of the exceedance within one hour of the alarm. Additionally, when assessing the maximum for turbidity, if the monitoring results of the resample are confirmed to exceed 5 NTU for the duration of an hour, the water should be diverted to retreatment, to a VPDES permitted discharge, or to reuses requiring reclaimed water treated to less stringent standards (but not less than Level 2). There was some discussion by the subcommittee about automatic diversion at 10 NTU, but the subcommittee eventually concluded that the 5 NTU standard would be more protective of human health.

Total Residual Chlorine: For Level 1 facilities, the subcommittee recommended TRC monitoring similar to turbidity. This included continuous online monitoring at the end of the contact tank or contact period with a daily average value of 1 mg/l, alarm if below 1 mg/l and investigation within one hour of alarm to determine cause of exceedance, with diversion from level 1 reuse if the TRC remained below the minimum (1 mg/l) for one hour. The subcommittee also recommended that reclamation systems be allowed to have minimum TRC standards less than 1 mg/l if demonstrated through a chlorine reduction program to provide disinfection equivalent to that achieved at a minimum TRC of 1 mg/l. This option is currently available to VPDES permitted wastewater treatment plants.

For Level 1 facilities that utilize chlorine for disinfection, continuous on-line monitoring of TRC at the end of the contact tank (or contact period) should be required. For Level 2 facilities the subcommittee decided that TRC monitoring should be in accordance with VPDES permit limits.

The general consensus of the TAC was that wastewater monitoring methods and frequencies in VPA and VPDES permits should carry over to the same parameters in reclaimed water.

TAC members were asked to review the Disinfection Subcommittee's summary of findings and recommendations and provide comments. Section II will be revised to incorporate the subcommittee's recommendations, as appropriate

Because the Disinfection Subcommittee established for Level 1 a geometric mean of 14 colonies/100 ml for fecal coliform, there was question as to whether it was now safe to apply Level 1 reclaimed water to food crops that would be consumed raw. North Carolina, which has the same standard for all reclaimed water, does not allow irrigation of "direct food chain crops" with reclaimed water. After some discussion, the TAC concluded that as long as the reclaimed water did not come into contact with the portions of the crop that would be consumed raw, irrigation with reclaimed water should be allowed. This could be accomplished by drip irrigation, among other possible options.

Following presentations by the Nutrient and Disinfection Subcommittees, the TAC reviewed the latest revisions to Parts I and II of the regulation. Comments are presented as bullet items according to section as follows:

General

- Layout of the regulation is often confusing and difficult to follow.
- The regulation should be streamlined to keep qualifiers in guidance not in the regulation
- DEQ is often accused of "regulating through guidance" so while the staff will consider these specific comments DEQ wants the regulation to be complete. Members were reminded that the

proposed regulation is a “technical regulation” and should, therefore, have complete, and often complex, requirements included.

9VAC 25-740-10 Definitions

- There is already a definition for “reuse” in the law. Why do you need a definition for “Direct beneficial use”?
- Secondary treatment that meets the definition of secondary treatment in 40 CFR 133 does not necessarily meet 30 mg/l BOD and TSS. Therefore, the second sentence of the definition should be deleted.
- Depending on how indirect potable reuse is addressed within the regulation, the definition for it may need modification.

9VAC 25-740-40 Permitting requirements

- Item A. - Who will be issued the permit? DEQ makes the determination as to who must apply for a permit, either VPA vs. VPDES. Generator, distributor, and end users and their relationship through contracts/agreements were discussed, as well as reporting requirements for overflow incidents.
- Item F. - Delete “and will not be subject to the requirements of this regulation” from the last sentence.

9VAC 25-740-50 Exclusions and prohibitions

- What is the difference between exclusions and prohibitions? Excluded from the regulation are activities that do not need a permit under this regulation and may be covered by other regulations or law. Some activities are outright prohibited by this regulation.
- Item A.3.a. – A number of TAC members representing POTWs took exception to the new language inserted in this item and requested that it be replaced with the old language of the previous version. DEQ staff explained that where non-potable water is used at a treatment works, worker exposure to pathogens or chemical health hazards may still be a concern. The TAC concluded that A.3.a needs further clarification to state that part of the intent here is it to provide chlorine residual following UV disinfection.
- Item A.4 – This pertains to use of recycled or reclaimed water at industrial facilities. Simplify the language of this exclusion as it is difficult to tell what would not be included here.
- Item A.6 – This language references both what is excluded and not excluded from the regulation due to a VPDES permitted discharge. Eliminate language describing what is not excluded from this item. Language about what is not excluded should be provided elsewhere as something that is included under the regulation.
- Item B.4 - This should be revised to state that reuse of reclaimed water for food and “beverage” preparation is prohibited.

9VAC 25-740-60 Relationship to other Board regulations

- The word “specific” is used in a couple places in reference to what are general requirements. Staff will review and delete the word “specific” as appropriate.

- Item D – There was discussion on “demonstrating” that reuses are not alternate transport mechanisms for nutrient loads. No changes to the regulation will result from this discussion.

9VAC 25-740-70 Delegation of authority

- This section was moved to the very end of the regulation in Part III.

9VAC 25-740-80 Standards of treatment for reclaimed water

- The word “treatment” is not appropriate for the title of this section. It should be removed.
- Item A – The flow terminology for TRC should be consistent with what is contained in the SCAT regulations. Replace “maximum daily flow” with “peak flow”.
- A.1 and B. - Per the recommendations of the Disinfection Subcommittee, the TSS standard and monitoring requirements for Level 1 should be eliminated.

9VAC 25-740-90 Reclaimed water monitoring requirements for reuse

- A.3 – Per the recommendations of the Disinfection Subcommittee, the TSS and monitoring requirements for Level 1 should be eliminated.
- A.6 – Compliance monitoring for BOD₅ and CBOD should include “or as specified in VPDES or VPA permit”.

Part III, the newest and last portion of the regulation, was reviewed separate from Parts I and II by the TAC. Only completed or partially completed sections of Part III were reviewed. Comments are presented as bullet items according to section as follows:

9VAC 25-740-100 Minimum size requirements

- Item A. - Systems with flow less than 0.1 mgd, compliance issues, Florida regulations and Virginia nutrient trading regulations were discussed. The TAC recommended that the minimum size requirement be eliminated. Instead, consider operator training/certification requirements and financial assurance. DEQ staff will discuss operator training requirements with the DEQ Operator Training Program coordinator. Revise the section title to address operator classes.
- Item B. – Based on changes to the preceding Item A., Item B. should be eliminated.

9VAC 25-740-110 Application for Permit

- A.1 – There was general discussion concerning the Reclaimed Water Management Plan (RWM Plan) and its relationship to nutrient trading credits. The RWM Plan could be used to determine nutrient credits and to verify that nutrients would not be lost to non-point sources. Accountability for non point source losses was raised. Reuse inefficiencies and losses need to be considered and accounted for in facility trading allocations.
- A.1.a(1) – “all end users” is not realistic. After discussion, the TAC agreed that “users” should be changed to “uses”.
- A.1.a(2) – Clarify language such that contracts will be required for bulk users, while agreements will be required for residential users.

- A.1.a(3) – How will the permittees verify that users are complying with their contracts or agreements? The permittee will be required to address non-compliances as the permittee becomes aware of them. No formal inspection program will be required.
- A.1.b – After some discussion, it was recommended that the definition for BNR referenced in this item be revised to replace “seasonal” average with “annual” average to make it consistent with other DEQ nutrient regulations.
- A.1.b. – NMP requirements in relation to BNR were discussed. If BNR is met there should be no requirement for a NMP. If BNR is not met for bulk irrigation an NMP is required; if BNR is not met for residential irrigation, an NMP is not required but the RWM Plan shall include other measures to address nutrient loading throughout the service area. The discussion was followed with input from the turf grass industry on NMP requirements for bulk irrigation reuse by professional staff with a vested interest in the quality of their course turf vs. annual nutrient load reporting requirements by the generator or distributor for their residential users. DEQ staff maintained that the NMP is a good management tool to prevent abuse in circumstances where the generator and the user are the same. However staff agreed to reevaluate this requirement.
- A.1.b(1) – It was clarified that the end user is responsible for obtaining the NMP from a certified planner. Verifying proper implementation of the plan is considered the same as verifying compliance.
- A.1.b(2)(b) – One TAC member warned that residential metering was a big issue in Florida. Consequently, Florida does not require residential metering.
- A.1.b(2)(d) – It was clarified that monthly monitoring of N and P inputs would be reported annually.
- A.1.c(2) and A.1.e – DEQ staff will look further into the need to have these requirements at all.
- A.1.d. – It was clarified that NMPs must be revised every 3 to 5 years.

9VAC 25-740-150 CTC and CTO

- The language in this section parallels the CTC and CTO language in the SCAT Regulations, but unlike the SCAT Regulations, includes references to industrial wastewater. The TAC expressed difficulty working on the CTC and CTO language without knowledge of what other sections of Part III will contain. A discussion on CTC and CTO language was, therefore, premature.
- There were question as to whether CTC and CTO language was needed in this regulation since it is already included in the SCAT Regulations. The VDH representative on the TAC felt it was absolutely necessary to include this section in the regulation to address public health issues. It was also reiterated that the SCATS Regulations addressed only sewage, while this regulation addresses both sewage and industrial wastewater. North Carolina is the only other state allowing reclamation of industrial wastewater. This language could be duplicated for industrial wastewater and included as Part IV or approved on a case by case basis.
- Item B.2. - For revised plans, shouldn't the DEQ's review, evaluation and approval period be only 30 days and not 180 days? For revised plans, it should be 30 days.

9VAC 25-740-170 Pretreatment program

- DEQ staff indicated that the draft language for this section will be changed based on comments recently received from the agency's Pretreatment Program Coordinator.

9VAC 25-740-180 Operation and Maintenance

- One TAC member recommended that the operations and maintenance manual incorporate cross connection language from the EPA 2004 Guidelines for Water Reuse, page 3. DEQ staff indicated that this would be addressed under 9 VAC 25-740-130 (Reclaimed Water Distribution Systems).

9VAC 25-740-190 Access control and advisory signs

- Item A. – It was clarified that public access control would be required for the reclamation system and facilities directly connected to or in immediate vicinity to the of the reclamation system. Therefore, public access control would not, for example, apply to golf course ponds not directly connected or in the immediate vicinity of the reclamation system
- Item A. – It was also noted that public access control for wastewater treatment facilities is already addressed in the SCAT regulations.
- F. 1 and 2 – Access restrictions for lactating cattle and harvest of non-food crops for areas irrigated with Level 2 reclaimed water may already be addressed by the footnotes of the table in section 9 VAC 25-740-100. Delete these access restriction requirements, if appropriate, to eliminate redundancy.

9VAC 25-210 Record keeping

- Item B. – This requirement is too specific, demanding more than what is required in VPDES permits for wastewater treatment facilities. It was agreed to move “failure triggering an alarm” to item A and delete the remainder of item B.
- Item C. - Eliminate the reference to filing monthly reports with the Board and include language that mimics the VPDES Permit reporting language.
- Item D. - Change the end of the sentence to say shall be reported “in accordance with the permit”.

At the end of the meeting, DEQ staff informed TAC members that revised Parts I and II would be distributed to them for written comments. The TAC was also reminded that their next (and last) meeting would be held on Wednesday, 10/4/06, at DEQ’s downtown location.

Several TAC members expressed concern over the accelerated schedule, noting that indirect potable reuse had not been discussed, that much of Part II hadn’t been seen by the TAC yet, and that review of Section III could occupy all of the last meeting. TAC members noted the great value in being able to discuss the proposed regulation language as a group, rather than rely solely on submitting comments, when trying to understand how the regulation language is put together. Dr. Gilinsky noted that it is the intention of the Secretary of Natural Resources and the agency to complete the regulations and encouraged members to take advantage of the public comment period following the Board’s approval to move forward.

Dr. Greg Evanylo of Virginia Tech invited TAC members to a field day on 9/21/06 to be held at the reclamation facility of the Hampton Roads Sanitation District. Details will be forwarded to each TAC member.

Public comments by non-TAC attendees were solicited and none were received. The meeting was adjourned at approximately 3:30 p.m.