Minutes of the TAC Meeting for the Wastewater Reclamation and Reuse Regulations
March 30, 2006

The TAC meeting began at approximately 9:30 a.m. DEQ staff introduced the guest speaker for the meeting, Dr. David York, the Water Reuse Coordinator for the Florida Department of Environmental Protection. Dr. York provided an introduction and background information on the Water Reuse Program in Florida. Dr. York also prepared and presented more detailed information on topics specifically requested by the TAC concerning water reuse regulations in Florida. During his presentation, Dr. York openly responded to all questions from the TAC, offering tremendous expertise and experience on a variety of water reuse issues. Dr. York provided a copy of his presentation on compact disk to DEQ staff, which is to be made available to the TAC and the general public on the DEQ internet website.

Following Dr. York's presentation, which extended into the afternoon, the TAC resumed work on the Wastewater Reclamation and Reuse Regulation. Based on comments made during the previous TAC meeting, DEQ staff prepared draft standards of treatment for reclaimed water to be reviewed and discussed by the TAC. The TAC proceeded to go through each item of the drafted language and provided the following comments:

- To "A." add "welfare and safety" following "public" to be consistent with other water regulations.
- For "B. Minimum standards of treatment for reclaimed water", Level 1 and Level 2 treatment were developed as agreed upon by the TAC at their previous meeting.
- For Level 1, DEQ staff were able to generate instantaneous maximum limits for E. coli and enterococci using the instantaneous maximum for fecal coliform of 14/100 ml and translator formulas. The instantaneous maximum limit for both E. coli and enterococci is 11/100 ml.
- It will be possible for a facility that currently has a VPDES permit for a point source discharge and also reclaims water for reuse to have two sets of limits in the VPDES permit. One set will be for the point source discharge and the other for the reclaimed water.
- Level 1 does not provide a number other than "non detectable" for the median of Fecal coliform, E. coli or enterococci. Therefore, it is presumed that the level of detection for the organisms will be determined by whatever method of detection is used. The lowest number derived by the method of analysis is not truly zero or non detectable, but rather a limit, below which the number of organisms is unknown. That said, would it be more prudent to specify a number that is the detection limit of the method of analysis instead of "non detectable" for Fecal coliform, E. coli or enterococci? Some VPDES permits, such as those issued to UOSA and LCSA, already have numerical bacterial limits in lieu of "non detectable" contained in the permits based on the detection limit of the analytical method. It may be that the intent of the EPA Guidelines to specify "non detectable" rather than the numerical detection limit of the method of analysis to allow a permittee flexibility with regard to what method they can use for analysis.
- A possible solution would be to include in the treatment standards the lowest detection levels of the most commonly used methods of bacterial analysis rather than "non detectable".
- Detection limits for various methods of bacterial analysis are already provided in 40 CFR. A VPDES permit will specify the method of bacterial analysis to use with the associated detection limit of that method. This is agreed upon by the permittee before accepting the terms and conditions of the permit.
- In a sense, a numerical standard is placed in the permit rather than included in the regulation.
- The use of "non detectable" in the proposed regulation should remain to encompass all appropriate methods of analysis. A specific method of bacterial analysis and detection limit will continue to be

placed in the VPDES permit. If not already provided in VPA permits, agency guidance can be developed to require similar standards in VPA permits.

- Both Level 1 and 2 require daily monitoring for bacteria (Fecal coliform, E. coli or enterococci). According to the proposed standards adopted from the EPA Guidelines for Water Reuse, the median number of bacteria is based on the bacteriological results of the last seven days for which analyses have been completed. Therefore, if you monitor 30 days in a single month, do you use the results of only the last seven days of monitoring to establish the median number?
- Monitoring requirements for all the treatment standards currently contained in the proposed regulation are those contained in the EPA Guidelines and agreed upon by the TAC at their last meeting. However, the regulation does not need to rigidly adhere to all the EPA Guidelines if a justification is provided to do otherwise.
- It was initially interpreted that the median value for bacterial analyses might be based on only the last seven days of analyses (out of 30) in a month. However, that would not indicate problems, such as facility upset, which might exist during the first three weeks of the month and be resolved prior to the last seven days of monitoring.
- Could it be that the median value recommended by the EPA Guidelines is a rolling median?
- Further clarification is needed on the method of determining median number for the bacterial standards contained in the EPA Guidelines and the proposed regulation.
- VPDES permits require bacterial monitoring daily for facilities with a capacity greater than 2 mgd and less frequently for facilities with a capacity less than 2 mgd. Reduced monitoring frequency (i.e., once per week) for larger facilities with a capacity greater than 2 mgd can be granted based on a history of compliance and if disinfecting by chlorination is provided. Total residual chlorine (TRC) is monitored for adequate disinfection and bacteria, such as Fecal coliform, are monitored as a check or backup.
- In a case where you have a facility that is only performing bacterial monitoring once per week, would your median number then be based on your last seven days for which you completed analyses even when they are not consecutive and may not all be within the same month?
- Florida regulations specify the median value for Fecal coliform be base on a minimum of 10 samples of reclaimed water, each collected on a separate day during a period of 30 days.
- The EPA Guidelines for Water Reuse do not provide this level of detail regarding the method for determining median values. The proposed regulation will need to provide more details about determining median values for bacterial analyses performed daily (i.e., select samples at specified intervals or use a rolling median for the month) and weekly (i.e., only samples within a 30-day period).
- A suggestion was to use a geometric mean rather than a median value for the bacterial standards in the regulation. Geometric mean is used in VPDES permits for surface water discharges but could also be applied to reclaimed water. For water reuse, the median number rather than a geometric mean is the more accepted monitoring and reporting method used nationally.
- There was some objection to using a geometric mean. If sampling daily, all the data should be used to develop the median value. Also, the regulation pertains to water reuse and not a point source discharge and the TAC should apply the EPA Guidelines and not the VPDES permit for development of the reclaimed water treatment standards.
- Per the method in the EPA Guidelines for determining median values, what use is a median value based on the last seven days of completed analyses, unless reporting the bacteriological monitoring results weekly? One possible reason might be as a running measure to determine whether or not the batch of treated water at the present should go to reject for further disinfection before being sent to the distribution system for reuse.
- Another problem with using a geometric mean instead of a median value is that a value must be assigned to analyses below the detection limit (i.e., a number equivalent to the detection limit) and

if the value of the detection limit is used in the calculation when a non-detectable result is recorded, a geometric mean could easily violate the standard. A value greater than zero but significantly less than the method detection limit would need to be identified to use in the statistical calculation for the non-detected results to make the geometric mean workable.

- There was general consensus from the TAC, that a median value rather than a geometric mean should be used for bacteria in the treatment standards.
- Locations for sampling need to be addressed. This can be included under the section on "Reclaimed water monitoring requirements for reuse."
- Concern was raised again regarding the lack of a reference to the method to allow alternative chlorine disinfection requirements other than those specified in the proposed regulation. Such a procedure already exists in the VPDES permit manual to reduce chlorine dosage and contact times. The procedure does not change the bacteriological standard, just the method of achieving it with chlorine disinfection. The procedure need not be included in the proposed regulation, but will remain in the VPDES permit manual and can be included in the VPA permit manual. There was a request that the footnote to the TRC requirement in the regulation reference the availability of procedures that a permittee can use to obtain a reduced chlorination CT performance limit.
- The word "filtration" should be removed from Level 2.
- For Level 2, the instantaneous maximum for Fecal coliform is currently 400/100 ml. The old criteria had a weekly geometric mean of 400/100 ml. This has been replaced by a single sample maximum of 1000/100 ml that only applies for a single sample taken in a month. If more than one sample is taken in a month, then a geometric mean is applied.
- For Levels 1 and 2, should the bacteriological standards be any more stringent than the limits of the VPDES permit to avoid two sets of reporting and two different ways of handling the analytical data? In a situation where a facility is treating to achieve Level 2 at the VPDES permitted discharge point, which can be diverted to reuse (essentially tapping off the outfall line), it would be desirable to use only one set of reporting requirements and one method of handling the analytical data in the permit.
- If the same sampling point were to be used to monitor a point source discharge and reclaimed water quality from a facility, consideration should be given to making the monitoring requirements between the permit limits and the regulation treatment standards as consistent as possible.
- The basic questions for Level 1 and 2 treatments are - should the bacterial standards be the same as the limits in a VPDES permit for a discharge, and for the proposed reuses, is there any reason for the disinfection criteria to be more restrictive or protective? It should be noted that this would only apply where your reuse involves a discharge to surface waters of the state.
- Some bacteriological limits in VPDES permits could be more stringent than those in the proposed regulation for a reuse that is also a discharge to surface waters due to other existing regulations or policies (i.e., the Occoquan or Dulles Watershed Policies).
- For Level 2 treatment, there should be a weekly maximum for BOD_5 of 45 mg/l. This is consistent with what is contained in VPDES permits for a comparable level of treatment.
- Item C. was meant to state that the minimum treatment necessary to consider water reclaimed for reuse is Level 2. This appears to conflict with Item F. in the same section, which discusses reclamation of industrial wastewater and indicates that such treatment will be determined on a case-by-case basis. Because item C. appears to be redundant and creates more confusion than clarification, it will be struck from the regulation.
- Item D. required that the reclaimed water for a specific reuse meet the minimum standards of treatment at the point where the reclaimed water becomes reused. This might require the reclaimed water to be additionally treated during distribution, following uncovered storage or both. Members of the TAC did not agree with this requirement and referred to the EPA Guidelines Table 4-13, Footnote #2 which states that "Unless otherwise noted, recommended quality limits apply to the

reclaimed water at the point of discharge from the treatment facility." Monitoring during distribution or after storage following treatment is not necessary and will discourage reclamation. It is better to focus on good treatment standards than requirements to maintain the standards after treatment.

- Item D. will be changed to state something similar to what is contained in the EPA Guidelines as follows:

  "Reclaimed water for reuse shall meet minimum standards of treatment in accordance with this regulation at the point of discharge from the treatment facility."

  This requirement will apply to storage that is part of the reclamation treatment system, but will not apply to reclaimed water after it is discharged to a distribution system, directly to a reuse or storage that is not part of the reclaimed water treatment system. Additional language can be added to this requirement regarding its applicability to reclamation treatment system storage.
- There will be regrowth of bacteria (i.e., total coliform) in a distribution system. Florida does require that reclaimed water used for aquifer storage and recover be disinfected just before pumping to groundwater. This is not a water reuse regulatory requirement but a groundwater protection regulatory requirement in Florida.

The TAC facilitator recommended that a more efficient way to comment on draft sections of the proposed regulation might be to submit comments in writing. DEQ staff would then revise the sections in response to comments and send them to the TAC again for review before the next TAC meeting. One TAC member inquired as to how everyone would have the opportunity to see what comments other TAC members submitted. A possible solution offered was to consolidate all the comments of the TAC and make them available either via e-mail or post at a specific site. Some verbal discussion will still be needed on issues, but an effort should be made to reserve time at the TAC meetings for issues that might not otherwise be dispensed by written comments and responses. One TAC member commented that sufficient time must be provided to review materials sent out by DEQ staff. If there is insufficient time between meetings, it may be necessary to adjust the schedule of the meetings, planning them more than a month apart. No decisions regarding these proposals were made at the meeting.

Two subcommittees will be organized to address issues related to disinfection standards and nutrients. The disinfection subcommittee will develop alternative performance standards and demonstration requirements for disinfection by methods other than chlorination. Reference materials to be used by the subcommittee should include the NWRI - UV Guidelines for Drinking Water and Water Reuse: Second Edition (2003). Other issues regarding appropriate bacterial standards for reclaimed water treatment that were raised earlier in the meeting, should also be addressed by this committee. These issues will be outlined more specifically by DEQ staff to assist the subcommittee.

The second subcommittee will be organized to examine and develop recommendations on: (1) how nutrients will be regulated differently for irrigation and indirect groundwater reuses compared to land treatment of wastewater, (2) reuses that may need nutrient management plans, and (3) appropriate irrigation rates based on maximum plant nutrient uptake vs. field capacity. This subcommittee will also look at the feasibility of developing a treatment standard comparable to treatment level 1 (developed by the TAC) with nutrient limitations, that if achieved will exempt any reuse of that reclaimed water from permitting requirements or require, at most, a general permit.

Both subcommittees will be organized and will begin work before the next meeting of the TAC in April. Each subcommittee is anticipated to consist of four to five TAC members. A DEQ staff person

will be assigned to each committee. TAC members were requested to notify DEQ staff by e-mail if they wanted to participate on a subcommittee. Many TAC members volunteered for a subcommittee verbally at the meeting. The written purpose of each subcommittee distributed during the meeting will be revised and redistributed by e-mail. Chairpersons for each subcommittee will be established after names of all volunteers are received.

Comments were solicited from any persons at the meeting not on the TAC. None were received.

At approximately 3:30 p.m., the meeting was adjourned.