



2010 ANNUAL REPORT

Of the Sewage Treatment Systems

Technical Advisory Committee



January 2011



Executive Summary

Section 3718.03 of the Ohio Revised Code (ORC) creates the Sewage Treatment Systems (STS) Technical Advisory Committee (TAC), outlines its membership, identifies individuals granted the authority to appoint committee members, and provides guidelines concerning the committee's responsibilities and procedures. Paragraph (G) of ORC 3718.03 requires the chairperson of the committee to prepare an annual report concerning the activities of the committee and submit the report to the general assembly. The purpose of this report is to fulfill that requirement.

TAC scheduled monthly meetings to review products in 2010. During 2010, TAC reviewed fourteen STS or components from ten manufacturers. Of the fourteen reviews, eight were requests to modify previous approvals and six were requests for approval of new STS or components.

The systems and components recommended for approval in 2010 by TAC have provided for the use of soil absorption system area sizing reductions, soil depth credits to reduce the thickness of soil required below a soil absorption system, and approval for constantly meeting the effluent quality standards outlined in the Ohio Environmental Protection Agency's (Ohio EPA) National Pollutant Discharge Elimination System (NPDES) General Permits for household STS.

Other activities and actions of the committee included the modification of the *Alternative Leaching Trench Special Device Approval*, revision of the committee's *Application Checklist for ORC 3718 Review and Standards, Guidelines, and Protocols for ORC 3718 Review*, and considerable work toward the development of technical standards for the use of pressure distribution in leaching trenches. The committee also developed guidance for acceptable sampling locations for NPDES discharging systems and an acceptable tracking mechanism for contractor qualifications for contractors performing service and maintenance on sewage treatment systems within the state.

Amended Substitute Senate Bill 110 of the 128th General Assembly modified Ohio Revised Code 3718.03 and 3718.04 to make significant changes to the composition and procedures of the committee. These changes included the requirement for the committee to choose from among its members a chairperson and vice chairperson. Committee members elected Mark Stump (Ohio EPA) to the position of committee chairman and Mark Tumeo (Academic) to the position of vice-chairman of the committee.

TAC will continue to work with system manufacturers to review and recommend approval or disapproval of new technologies to the Director of Health, and will actively pursue the research, development, and timely approval of innovative and cost-effective alternative technologies as required under section 3718.03 (F)(4) of the Ohio Revised Code.

Sewage Treatment Systems Technical Advisory Committee Membership and Meetings

The Sewage Treatment Systems Technical Advisory Committee (TAC) membership and appointment authority is outlined in Section 3718.03 of the Ohio Revised Code. The members of TAC during 2010 were:

2010 TAC Member	Company	Representing
Dick Bachelder* Kevin Jehl	Advanced Drainage Systems, Inc.	Manufacturer
Ralph Benson, RS	Clermont County Health District	OEHA Sanitarian
Matt Deaton	Ohio Department of Natural Resources, Division of Soil and Water Resources	Soil Scientist, ODNR
Ernie Stickler		Public Member
Scott Hetrick	Norweco, Inc.	Manufacturer
Raymond Saporito, MPH, RS*	Ashtabula County Combined Health District	AOHC Health Commissioner
Mark Fehring	Fehring Services	System Installer
Mark Stump, PE	Ohio EPA	Engineer
Charles Patterson, RS	Clark County Combined Health District	AOHC Health Commissioner
Mark Tumeo, PhD, JD, PE	Cleveland State University	Academia
Rebecca Fugitt, MS, RS	Ohio Department of Health	Director of Health Representative
Walt Sandefur**	Sandefur Consulting	Professional Engineer
***		Designer
***		Township's Association

* Mr. Bachelder's and Mr. Saporito's terms ended July 21, 2010. Both members continued to serve on the committee for the 60 day period following the expiration of their term as allowed in the Revised Code. Mr. Saporito was reappointed to his previously held position. Mr. Bachelder did not pursue reappointment and the Industry Representative position remained vacant until Dec. 1, 2010 when Kevin Jehl was appointed to the position.

**Mr. Sandefur was appointed to the Professional Engineer position on December 1, 2010. Since the December meeting was canceled, Mr. Sandefur did not participate in a committee meeting in 2010.

***The Designer and Township's Association positions were not filled in 2010.

Amended Substitute Senate Bill Number 110 of the 128th General Assembly modified Ohio Revised Code 3718-03 to add three new positions on the committee beginning September 17, 2010. These positions include a representative of a statewide organization representing townships, a person with demonstrated experience in the design of sewage treatment systems, and a registered professional engineer with experience in sewage treatment systems. The bill also modified the requirement for the academic member to include a person who is active in teaching or research in the area

of on-site systems. Walt Sandefur, with Sandefur Consulting, was appointed to the professional engineering position on December 1, 2010. Since the December meeting was canceled, Mr. Sandefur did not participate in a committee meeting in 2010.

House Speaker, Representative Budish filled two committee vacancies on December 1, 2010. Representative Budish appointed Kevin Jehl, with Advanced Drainage Systems, Inc., to the manufacturer position previously held by Dick Bachelder with the same company. Representative Budish appointed Dan Lark, with the Lake County General Health District, to the Ohio Environmental Health Association position held by Ralph Benson with the Clermont County General Health District through the end of 2010. Mr. Bachelder and Mr. Benson brought a large amount of knowledge and experience to the committee while serving in the respective positions since the committee's inception in 2007.

TAC scheduled monthly meetings to review products in 2010. When no products were scheduled for review, the meeting was cancelled. TAC held nine regular monthly meetings in 2010. The committee canceled the regularly scheduled August meeting due to a lack of products scheduled for review. Although meetings were scheduled for February and December, weather and road conditions made travel for several committee members difficult and the meeting was canceled due to a lack of quorum.

A complete record of the meeting summaries for each monthly meeting and the recommended approvals that were made may be found on the Ohio Department of Health (ODH) website at:

<http://www.odh.ohio.gov/odhPrograms/eh/sewage/tac1.aspx>.

Sewage Treatment Systems and Components Reviewed by TAC

TAC reviewed fourteen STS or components from ten manufacturers. Of the fourteen reviews, eight were requests to modify previous approvals and six were requests for approval of new STS or components. One request from HydroAction Industries included several modifications to the manufacturers previously approved STS treatment train and after much discussion the request was withdrawn. Instead, the manufacturer informed the committee that he would submit each modification as a single request.

The systems and components recommended for approval in 2010 by TAC have provided for the use of soil absorption system area sizing reductions, soil depth credits, and approval for consistently meeting the effluent quality standards outlined in the Ohio Environmental Protection Agency's (Ohio EPA) National Pollutant Discharge Elimination System (NPDES) General Permits for household STS. A soil absorption area sizing reduction allows a homeowner who is installing a STS system or component approved for meeting specified standards to install a soil absorption system utilizing a smaller footprint. This is beneficial to homeowners who have limited area in which to install their STS. A soil depth credit allows a homeowner who is installing a STS system or component approved for meeting specified standards to install a system using less thickness of soil beneath the soil absorption component than is required by state or local rule. This is beneficial to homeowners who have lots with shallow soils and will provide many homeowners the option to install subsurface soil absorption components instead of mounded systems. The committee also recommended approval for treatment trains designed to meet the effluent quality standards outlined in the Ohio EPA NPDES General Permits for household STS. These approvals provide a wider market of system choices for homeowners who are unable to install soil absorption components on their existing lots and must install systems that discharge to the surface of the ground.

2010 TAC Product Review Summary

Manufacturer	Product	Application Date	TAC Meeting	Approval Date (ODH Director)	Notes
Winelco, Inc.	Univirex 36 Ultraviolet Disinfectant	7-1-2009	1-12-10 4-13-10	5-10-10	4
Clearstream Wastewater Systems, Inc.	Clearstream Wastewater System	12-22-09	1-12-10	3-22-10	5
Norweco, Inc.	Singular Green	3-9-10	3-9-10	3-31-10	1
Ecological Tanks, Inc.	Aqua-Safe with tertiary filter	1-21-10	3-9-10		
Presby Environmental, Inc.	Advanced Enviro-Septic Treatment System	3-26-10	4-13-10	6-23-10	
Orenco Systems, Inc.	AdvanTex AX20RT	4-21-10	5-11-10	5-26-10	1
BioMicrobics, Inc.	BioMicrobics MicroFast Models	4-21-10	5-11-10 6-15-10	7-16-10	
HydroAction Industries, Inc.	HydroAction Aeration Treatment Unit AP Series	6-15-10	6-15-10	7-16-10	1,3
Bord na Mona	Puraflo Peat Filter with Bottomless Type A Pad Dispersal	5-27-10	6-15-10 7-13-10	7-26-10	1
Bord na Mona	Puraflo Peat Filter with Mounded Pad Dispersal	5-27-10	10-12-10	11-5-10	1, 3
HydroAction Industries, Inc.	HydroAction Aeration Treatment Unit AP Series	8-20-10	9-14-10	-----	1, 2
BIONEST Technologies, Inc.	BIONEST System	9-23-2010	10-12-10 11-9-10	12-1-10	
HydroAction Industries, Inc.	HydroAction Aeration Treatment Unit AP Series (Concrete)	11-23-10	11-9-10	12-1-10	1
Norweco, Inc.	Singular Green (new design)	11-1-09	11-9-10	12-1-10	1

- (1) Modification to a previous approval
- (2) Request withdrawn via email
- (3) Manufacturer requested an extension to the statutory 90 day review period
- (4) Winelco, Inc.'s July 30, 2009 limited approval required the manufacturer to return to the Jan. 2010 meeting to present performance data collected from systems installed under the 2009 limited approval.
- (5) A second request from Clearstream Wastewater Systems was denied as recommended by TAC.

Other TAC Activities and Actions

Special Device Approvals

TAC worked with the Ohio Department of Health and other stakeholders to modify the *Alternative Leaching Trench Special Device Approval*. The modifications to the special device approval include uniform standards for the use of tire chips as an alternative aggregate in these soil absorption units and guidance concerning the estimation of soil and lineal loading rates and use of the Tyler Table. These modifications addressed concerns expressed by local health districts and the general public.

Through the creation of a subcommittee workgroup, TAC worked with ODH to develop standards for the use of low pressure distributed leaching trenches. The creation of these standards was the result of the hard work of a committee workgroup consisting of several TAC members: Rebecca Fugitt (ODH), Ralph Benson (OEHA), Matt Deaton (ODNR), Dick Bachelder (Industry/ADS), and Dr. Mark Tumeo (Academic), external industry stakeholders: Zak Sherman with Infiltrator, Inc., and Mike Felton with StreamKey, Inc., local health department staff: Matt Beckman with the Seneca County General Health District, Todd Paulus with the Stark County Combined General Health District, and Laura Kramer-Kuns with the Lake County General Health District, and ODH staff, Nathan Johnson and Amy Wood. Although the workgroup was able to establish reasonable design standards for these soil absorption units, the workgroup was unable to agree on policy issues surrounding the use of the technology and drafting of a special device approval did not proceed. The standards developed by the workgroup will be made available to the ODH Rules Advisory Committee to be used as a resource during the drafting of future rules.

The process and authority for approval of STS, components, and technologies that differ from rule as special devices is found under OAC Rule 3701-29-20 (C). These special device approvals are listed on the ODH website at:

<http://www.odh.ohio.gov/odhPrograms/eh/sewage/sewmore.aspx>

TAC Application Checklist, and Standards, Guidelines, and Protocols for ORC 3718 Review

Section 3718.03 (F) of the Revised Code requires TAC in cooperation with the department of health to develop standards, guidelines, and protocols and an application form for ORC 3718 Review.

Amended Substitute Senate Bill 110 of the 128th General Assembly modified Ohio Revised Code Section 3718.04 to change the timeframes for submission, review, and approval or disapproval of applications submitted to the TAC for consideration. ODH has sixty days to complete an application review, and thirty days to provide completed applications to the TAC. The TAC shall review and make a recommendation concerning the applications approval or disapproval within ninety days of receiving the applications. Finally, the Director will have an additional sixty days to make a final decision on

approval/disapproval of an application. The Director is provided authority to establish and include any terms and conditions associated with approval, design, installation and use of a product. Paragraph (E) defines the process for appeal of a decision issued by the Director regarding an application. Paragraph (F) describes the process for requesting a modification to an existing approval, and paragraph (G) describes the revocation and subsequent appeals process for an approved product.

The committee revised the *ORC 3718 Review Checklist, and Standards, Guidelines, and Protocols for ORC 3718 Review* to reflect these changes in the committee's review process. These documents can be found on the ODH website at: <http://www.odh.ohio.gov/odhPrograms/eh/sewage/tac1.aspx> .

Sampling of NPDES Systems

The committee researched and provided significant guidance concerning the development of uniform standards for acceptable sampling locations and sample port specifications for systems installed under the coverage of the Ohio Environmental Protection Agency's (OEPA) National Pollutant Discharge Elimination System (NPDES) General Permits for Household STS.

Contractor Qualifications

The committee had much discussion over concern expressed by local health departments regarding the registration of contractors without specific means to verify that those individuals have been trained on particular pretreatment systems they may be installing and or servicing. In response to this discussion, the committee recommended that manufacturers of sewage treatment system treatment trains approved for use in the state of Ohio be required to provide documentation as proof of certification for those individuals or companies qualified to oversee installation, install, or service their products. In addition, the qualified individuals or companies shall retain said documentation and provide it to the department or board of health upon request.

Election of Chairman and Vice Chairman

Amended Substitute Senate Bill 110 of the 128th General Assembly modified Ohio Revised Code Section 3718.03 to change the makeup of the TAC. The ODH representative is designated as secretary for the TAC and may vote on actions taken by the committee. The statute also states that the TAC shall annually select from among its members a chairperson and a vice-chairperson. Committee members elected Mark Stump (Ohio EPA) to the position of committee chairman and Mark Tumeo (Academic) to the position of vice-chairman of the committee.

Challenges and Findings

Evaluation of combined technologies

During 2010, the majority of the applications provided to TAC were for manufactured pretreatment components that treated the sewage effluent either prior to discharge to a soil absorption unit or surface water. Two manufacturers provided requests that combined the treatment system and soil absorption unit.

One of these technologies included a specially designed distribution pipe and sand configuration that, according to the manufacturer's claims, provided treatment of sewage beyond primary treatment. The pipe is placed within a sand bed sized according to conditions of the site.

A second review was a modification request for a previously approved STS. The manufacturer requested approval of soil absorption units that do not meet the statewide minimum standards or special device rules following their previously approved STS. The manufacturer requested approval of two soil absorption unit types: a below grade bed configuration and a mounded configuration.

These reviews presented a challenge in that TAC was accustomed to reviewing pretreatment components based on effluent standards achieved at the end of a mechanical device and soil absorption configurations separately. The committee had limited experience reviewing combined treatment/soil absorption units.

Anticipating these requests after reviewing a similar technology in 2009, TAC had discussed how to conduct the reviews and determined that the systems would have to be evaluated with consideration of two factors:

1. the treatment achieved at the point of discharge to the soil or surface
2. how the system achieved *proper hydraulic loading* to the soils

Since it had anticipated these requests, TAC and ODH were able to provide the manufacturers information concerning the types of performance information that would be needed to support their claims and facilitate efficient review of the requests.

Review of Performance Information collected from discharging systems

The TAC performs the function of reviewing requests for approval of products and treatment trains that consistently meet the discharge effluent limits outlined in the Ohio EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Household STS.

The committee evaluates information provided by the manufacturer to support performance claims. Typically, performance information includes effluent sampling results collected as part of a third party testing protocol and does not include information from systems installed and operational in the field.

ODH and the Ohio EPA collected field sampling data from local health districts from operating discharging systems that were installed from 2007 through 2010 and issued coverage under the Household NPDES General Permit. The information was collected to evaluate how the various approved STS treatment trains were performing in the field and also to gauge how effective local health districts programs have been in obtaining the information. Based on the number of permit registrants since January 1, 2007 to present, the Ohio EPA estimated that approximately 5,000 to 6,000 sample results should have been available. However, the agency reported that only 500 sample results were actually submitted. The committee discussed the lack of enforcement of the sampling and maintenance contract requirements of the General Permit, the issues local health districts face with enforcement of these Permit requirements, and how to consider the issue when making recommendations to the Director of Health in the future. The results of the collected performance information and their applicability to future recommendations were also discussed at several committee meetings. It is expected that these items will continue to be topics of conversation as the committee's process of review continually improves and evolves.

Renewal of the Ohio EPA NPDES General Permit

The Ohio EPA's Household NPDES General Permits for discharging STS will expire January 1, 2012. The committee had several discussions concerning possible changes to the permits and how these changes could affect the committee's current review process. TAC will continue to work with the Ohio EPA and ODH in order to properly adjust the committee's review process as necessary to facilitate timely and appropriate reviews of STS and components.

Review of components of a STS

During 2010, the majority of the applications provided to TAC were for sewage treatment systems that treat the sewage effluent either prior to discharge to a soil absorption unit or surface water. One request, which began in 2009, was for an ultraviolet disinfection(UV) unit. The UV disinfection unit manufacturer was requesting approval for use of his disinfection device as a substitute to ultraviolet disinfection units included in approved treatment trains. The product was provided limited approval in 2009 with a condition that the manufacturer of the ultraviolet disinfection unit would return in 2010 and present performance information collected from systems installed under the limited approval. The UV disinfection unit proprietor returned to TAC in 2010. After reviewing the new performance information, the committee recommended that the Director of Health allow for the substitution of the UV disinfection device to all treatment trains when requested by the treatment train manufacturer. Furthermore, TAC recommended that ODH administratively review and approve similar requests from other treatment train manufacturers to promote and facilitate approval of the products.

An overview of these ancillary, but related discussions were recorded in the meeting summaries which are available on the ODH website:

<http://www.odh.ohio.gov/odhPrograms/eh/sewage/tac1.aspx>