GEORGIA DEPARTMENT OF PUBLIC HEALTH

Kathleen E. Toomey, M.D., M.P.H., Commissioner / Brian Kemp, Governor

2 Peachtree Street, NW, 15th Floor
Atlanta, Georgia 30303-3142

dph.ga.gov

November 29, 2018

To: Technical Review Committee Members

From: R. Chris Rustin, DrPH, Secretary

Re: 36th TRC Meeting Minutes – Meeting date November 29, 2018

Members Present: Chris Rustin, Don Loggins, Mark Harden, Thomas Martin, Michael Fugate, George McClure, Jennifer Morley, Lawton Davis, Bill Durham, Jim McClain

Members Absent: Danny Johnson, Mark Risse, Thomas Bowden, and Tim Thornton

Visitors: John Ford, Richard Crumbly, Stephen Brown, Eric Daniels, Harold Kilgore, Sharon Kilgore, Steve James, Christina Ferguson, Jerome Deal, Johnathan Terry, Thomas Vanderboom, Chris Kumnick, Larry Forbes, John Forbes, Tom Schmitt, and Julie Barnett

Call to Order: Meeting was called to order by Chairman Lawton Davis at 1:02 PM.

Adoption of Minutes: Thomas Martin made a Motion to approve minutes from the 35th TRC meeting by, motion receives a second by George McClure. Motion unanimously approved

Election of Officers: George McClure made a motion to nominate the current officers for reelection. The motion received a second by Jim McClain. Motion unanimously approved. Officers for the next year will be as follows: Lawton Davis – Chairman, Mike Fugate – Vice-Chairman, and Chris Rustin – Secretary.

New Business, First Item: DPH Land Use Program Update

Chis Kumnick, Land Use Program Director, gave an update to the TRC regarding statewide Land Use Program activities. He also discussed the creation the District Land Use Standards and what their future roll will be. Next, he discussed the upcoming update of the DPH Manual for On-Site Sewage Systems. George McClure asked about performance vs prescriptive standards and if that would be included. Chris Kumnick advised that this is something the State office would be looking at and all edits will be reviewed and approved by the TRC. Jim McClain asked if consideration to the Well Water Council rules will be considered. Mr. Kumnick advised this will evaluated to assure there are no conflicts and happy to share draft with the well water council through him as their representative. Thomas Vanderboom then presented some examples of potential future manual updates. George McClure asked about the timelines for revising the manual. Mr. Kumnick advised the first step was getting out a reformatted manual to to Dr. Rustin and the TRC by January 2019. Then the Department will provide drafts for each section for the TRC to review, edit and approve. The Department wants to edit section by section to we are methodical about any changes.

New Business, Second Item: Repair Area Discussion

Harold Kilgore of Gravelator, Inc. gave a presentation regarding the requirement of conventional replacement area for new site permitting of existing lots.

Mr. Kilgore began his presentation by discussing the history of drainfield products and expressing his opinion that different geographic areas of Georgia should have different installation standards.

Mr. Kilgore then expressed his concern regarding the requirement of conventional replacement area. His opinion is that DPH should focus more on OSSMS operator education and new technologies.

He then presented design examples of systems installed on challenging sites that involved special engineering and soil evaluations. He stated that people should be rewarded for their willingness to take special measures for system installations. He feels that repair area should match area from the primary system based on the new technology that is out there.

Mr. Kilgore then presented the results of a survey he conducted regarding the replacement area language. He said only 2 out of 100 state and county employees responded to his survey. He also said that only 50 out of 400 other surveys were returned to him completed.

Mark Harden told Mr. Kilgore that he instructed staff in his district not to participate in the survey. Mr. Harden felt that was the wrong venue for getting feedback and advised the TRC was the subject matter experts that should be engaged.

George McClure then recommended that the Department and Committee consider moving towards performance-based standards instead of prescriptive standards.

Chris Kumnick then pointed out to the committee that we must consider protection of State waters in our decision making. He also discussed the fact that DPH does not have the authority to require operation and maintenance, making measurable performance standards a challenge to enforce.

Chris Kumnick and George McClure then discussed maintenance requirements, the authority of the local BOH's and resources to enforces operational permits.

Richard Crumbly of Infiltrator then remarked that his company would rather see State of Georgia enforcement of operational permits rather than the local BOH's to ensure consistency of applications

Harold Kilgore ended his comments by stating he supports the TRC and the work it is doing to improving the manual and thanking the TRC for hearing him speak and for considering his concerns.

Public Comments

Larry Forbes of Sullivan and Forbes, LLC spoke during the public comments period. Mr. Forbes company redevelops and remodels existing homes and home sites around Lake Lanier. He said

that the local health department has changed the way existing lots are evaluated for redevelopment. He claimed conventional replacement area was not required for his projects in the past and now it is. He gave a couple of examples. He requested the TRC consider language that would allow redeveloped existing sites to be approved without conventional replacement area under the condition that both the primary and reserve system are installed at the time of home construction.

Tom Schmitt, a Certified Soil Classifier from north Georgia, offered his opinion that a lot of land is encumbered by the requirement of full sized conventional replacement area. He also said that he had never seen a conventional gravel system installed as a replacement.

Jim McClain then asked Chris Kumnick to explain the legal procedure the department and committee must follow for making a rule change. Chris Kumnick explained the difference between the OSSMS Manual and the Rules of the Department of Public Health. He also went on to detail the official procedure for making a rule change.

Larry Forbes followed up with wanting a considering standard or SOP so they know what to expect and have an avenue to working with existing lots.

Julie Barnett of Harry Norman Realtors offered her comments regarding the redevelopment of existing lots. She gave an example of a valuable lake lot being limited because of poor soil conditions and the requirement for conventional replacement area. She stated that they wanted to build a 5-bedroom home, but due to the rock limitations, the health department allowed a three bedroom home on the lot. She also inferred through an analogy that homeowners should not be required to install a conventional system for a replacement.to a failing primary system.

Chairman Davis adjourned the meeting at 3:12 PM.

Georgia Department of Public Health

J. Patrick O'Neal, M.D., Commissioner | Nathan Deal, Governor

2 Peachtree Street NW, 15th Floor
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dph.ga.gov

September 29, 2017

To: Technical Review Committee Members

From: R. Chris Rustin, DrPH, Secretary

Re: 35th TRC Meeting Minutes – Meeting date September 29, 2017

Members Present: Chris Rustin, Don Loggins, Mark Harden, Thomas Martin, Michael Fugate, George McClure, Jennifer Morley, Lawton Davis, Mark Risse, and Tim Thornton

Members Absent: Danny Johnson, Hwan Cho, Bill Durham, Thomas Bowden, and Jim McClain

Visitors: John Ford, Richard Crumbly, Dave Lentz, Stephen Brown, Harold Kilgore, Adam Stell, Glenn Sofgee, Scott Uhlich, Phil Freshley, Fred Vengrouski, Bron Bradley

Call to Order: Meeting was called to order by Chairman Lawton Davis at 10:31 am.

Adoption of Minutes: Motion to approve minutes from the 34th TRC meeting by George McClure, second by Mark Hardin. Discussion ensued.

Thomas Martin objected to the proposed draft minutes. He requested a change to the summary of the comments he made regarding repair area. The committee approved the change to the draft minutes and agreed to make the additional comments by Thomas Martin available on the DPH webpage for public review.

Mark Harden reminded Thomas Martin that minutes were not the same thing as a transcript.

Motion to approve the amended minutes of the 34th TRC by George McClure. Motion was seconded. Chairman Lawton Davis called for a vote. Motion approved with a majority vote.

New Members and Reappointments: Each member of the TRC was introduced, as well as new members Jennifer Morley, Tim Thornton, and Chris Rustin. Mr. Thornton will fill the land developer position. Ms. Morley will fill the soil scientist position. Chris Rustin will fill the state office position. Chris Rustin also thanked Phil Freshley (former TRC member) for his dedication and many years of service on the TRC.

Election of Officers: Chris Rustin nominated Lawton Davis for Chairman, second by George McClure. No discussion, motion passed unanimously. Mark Harden nominated Mike Fugate, second by Chris Rustin. No discussion, motion passed unanimously.

New Business, First Item: Presby Environmental, Inc. - Proposed Advanced Enviro-Septic (AES) Product Approval Modification

Fred Vengrouski spoke on behalf of Presby Environmental, Inc. regarding the proposed modifications to the existing AES product approval. The following are the proposed modifications along with Mr. Vengrouski's comments:

1) *Approval of trench loading rates for sizing 3.5 and 4.0 foot width AES system configurations*. (note: the current approval for these AES configurations requires bed loading rates for system sizing).

    - Mr. Vengrouski claims, per Presby Inc.'s legal counsel, that because a similar product was granted approval for trench loading rates with 4 foot configurations, the TRC is required to grant the same approval for the AES product.

2) *Removal of time dosing requirement for bed system installations*. (note: the current approval for these AES configurations requires a one hour resting period between doses).

3) *Approval of the AES product for use with high strength wastewater without pretreatment*. (note: the current AES product approval requires septic tank effluent to be pre-treated

    - Mr. Vengrouski claimed the NSF Standard 40 requirement is not being applied consistently by DPH in Georgia. He feels that there is a misapplication of the requirement. Mr. Vengrouski said that if this request is not granted, Presby, Inc. will appeal to a court of law.

4) *Removal of 1:6 length to width ratio requirement for bed system installations*. (note: the current approval for the AES product requires beds to be configured with a width-to-length ratio of 1:6)

    - As requested by the Standards Sub-committee in a prior meeting, Mr. Vengrouski presented a letter from Presby, Inc. indicating that removing the 1:6 width to length ration will not adversely affect the performance of the AES product when used in a bed application.

Thomas Vanderboom then read the Standards Subcommittee Report concerning Presby's request. The subcommittee recommendations were as follows:

Presby AES Request #1 – Committee consensus is that the Presby AES product configuration is not conducive for equal distribution of effluent across a trench width greater than 3 feet. The Sub-Committee does not recommend approval of this request.

Presby AES Request #2 – Committee consensus is that the Presby AES product configuration is not conducive for equal distribution of effluent doses across the entire length of a bed. The Sub-Committee does not recommend approval of this request.

Presby AES Request #3 – Committee consensus is that Presby needs to produce documentation of success with treatment of high strength domestic wastewater and propose a sizing standard for this type of application before this request can be given any further consideration.

Presby AES Request #4 – Committee recommends approval of this proposal and requests correspondence from Presby acknowledging removal of this requirement will not adversely affect the performance of the AES system.

Thomas Vanderboom was asked by one of the standards subcommittee members what the opinion of the DPH legal counsel was regarding the comparison of products. Thomas Vanderboom reported that the General Counsel for DPH recommended the TRC make approval determinations based on the merits of individual products performance where there are differences in product design. He said the department believes that the Presby AES product differs from the Eljen GSF in design and function.

Mr. Vengrouski offered the opinion that the two products were similar and that it was a point of law rather than technology. He also said that the department stepped outside of the Manual when it granted

Eljen approval for 4-foot trenches. Additionally, Mr. Vengrouski said that Presby, Inc. would consider submitting studies to support his request but felt that it was now a legal matter.

Scott Uhlich reminded the committee that the Eljen 4-foot trench approval was given under manual provisions for bed systems, which requires dosing.

Mark Risse then asked the sub-committee members if there were any more reasons for the 4-foot trench width denial.

Thomas Martin asked Scott Uhlich about a study regarding effluent movement in a trench. Mr. Martin questioned whether or not the AES product can effectively equally distribute effluent throughout the piping network.

Scott Uhlich pointed out that the EPA Manual for On-Site Wastewater Treatment Systems recommends a maximum trench width of 3 feet to maintain aerobic conditions. In order to maintain aerobic conditions in a 4 foot trench, considered a bed system in the manual, the Eljen product was required to use dosing.

Phil Freshley then mentioned that Steve Dix, an independent engineer, presented studies on the performance of the Eljen product in a 4 foot trench.

Fred Vengrouski replied that he feels the Presby, Inc. AES product is at a disadvantage and this has caused damage to his company.

Mark Harden then proposed that the Presby, Inc. 4 foot trench width request go back to the Standards Sub-committee for further review.

George McClure made a motion to accept the Standards Sub-committee report. Second by Mark Risse.

George McClure then amended motion to accept the standards sub-committee recommendations pending additional information from Presby, Inc. in support of their request for consideration by the Standards Sub-committee

Thomas Martin reminded the committee that DPH has not approved Eljen for use with high strength wastewater either.

Mr. Vengrouski then raised concern about ATU's being allowed to treat high strength wastewater and not the Presby, Inc. AES.

Mike Fugate pointed out that the Presby, Inc. AES was approved as a drainfield product and have different standards than ATU's.

Thomas Vanderboom then advised Mr. Vengrouski the differences between ATU's and drainfield products and why DPH views them as different devices.

Mr. Vengrouski disagreed and claimed his company is being held to a different standard.

Phil Freshley asked if maintenance contracts were required for the Presby AES and Eljen GSF products. Thomas Vanderboom confirmed that they were.

Chairman Lawton Davis then called for a vote on the current motion. Motion to accept Standards Sub-committee report regarding the Presby AES request was approved.

New Business, Second Item: Proposed Manual Changes and Additions to Section D, Section C and Section B

Section D – Riser and Lid Systems

Thomas Vanderboom explained the rationale for the new riser and lid systems language change. The language for concrete riser and lid systems was slightly reorganized, but not changed. The language for non-concrete riser and lid systems was changed to standardize requirements for risers constructed of materials other than concrete that met the criteria regarding physical material requirements, riser collar rigidity, lid crush resistance, and security.

Motion was made George McClure to accept the proposed language. Second by Don Loggins. Motion passed unanimously without discussion.

Section C – Saturated Hydraulic Conductivity Appendix

Thomas Vanderboom presented the proposed Saturated Hydrualic Conductivity document to the committee. This document was created and passed by the Soils Sub-committee to provide recommended guidance to approved consultants for performing constant head permeameter testing. He explained that this was a guidance document only and that an approved consultant may use other methods for determining Ks. He also said that the Ks to percolation rate conversions were prepared by Dr. David Radcliffe of UGA.

Motion to approve the document by Mark Risse. Motion receives a second. A discussion followed.

Thomas Martin said that he thought it was a good document. He did, however, voice concerns over the sizing table. He believes the referenced application rates will exceed the measured saturated hydraulic conductivity for certain approved drainfield products.

Phil Freshley offered the opinion, based on a table he created, that the current sizing criteria used by DPH is causing some systems to be hydraulically overloaded. Mr. Freshley believes that the DPH should review drainfield sizing based on current science.

A discussion followed involving Thomas Vanderboom, Thomas Martin, and Phil Freshley regarding current application rates relative to systems smaller than conventional.

Thomas Martin gave the opinion that there is a conflict between equivalencies and application rates.

Mark Risse believes that the TRC should keep the document and make adjustments to the sizing criteria in the manual in the future.

Thomas Martin said that the Soils Sub-committee was charged with finding a method to properly size a primary system. He claimed that currently approved products were not sized correctly.

Harold Kilgore agreed with Thomas Martin and Phil Freshley regarding drainfield sizing. He also gave the opinion that DPH should consider prohibiting the installation of serial systems and instead require systems to have equal distribution.

Thomas Martin presented additional information referring to long-term acceptance rates and the current sizing criteria.

Phil Freshley commented that he would like to see current product sizing approvals addressed.

Chairman Lawton Davis then called for a vote on the motion to approve the Saturated Hydraulic Conductivity Guidance Document.

Motion to approve the document passes with 8 “in favor” and 1 “opposed”.

Thomas Martin made a comment that he feels the document is in conflict with the Manual.

Mark Risse suggested that the columns in the document be switched to avoid confusion.

Section B – Repair Area Language

Thomas Vanderboom then read the proposed new language regarding repair area requirements for certain existing lots of record. This addition would be inserted into Section B.

(E) *Replacement area requirements for lots approved for single family home development with an onsite sewage management system prior to April 1, 2008* - Where special soil studies and engineered site plans indicate suitability, replacement area shall at least be equivalent in size to the primary onsite sewage management system absorption field. Site specific soil permeability tests and data may be required to determine site suitability. This provision does not waive lot sizing requirements as adopted by local county boards of health.

Motion approve by George McClure, second by Mark Harden. Floor open for discussion.

Thomas Martin feels we have products in Georgia that are undersized. Because of this, he believes that the TRC should not approve of a reduced length replacement area.

Chris Rustin then informed the committee that that are approximately 8,000 OSSMS failures per year in Georgia, a small fraction of Georgia’s 1.7 million systems. He also said that current DPH data does not indicate a higher rate of failure with the gravel equivalency products.

Thomas Martin asked for failure data from the department. He claimed the current data was incomplete.

Chris Rustin told the committee that, according to our reported failure data, the most common reason for OSSMS failure is lack of maintenance by the homeowner.

Thomas Martin asked for a rules interpretation regarding the provision in the Manual for lots approved for development with 50% reduced length systems. A discussion followed.

Phil Freshley voiced concerned that an engineer may take a soil classifiers measured Ks value and use it to develop a loading rate for system design.

Thomas Vanderboom said that soil classifiers should be interpreting the Ks data themselves and reporting a percolation rate or loading rate as required in Section C of the Manual and as indicated in the Ks guidance document.

Thomas Martin gave the opinion that system design safety factors are not large enough.

Chairman Lawton Davis then called for a vote on the motion.

Motion did not pass with 5 “opposed” and 4 “in favor”.

Meeting adjourned

Georgia Department of Public Health

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March 15, 2017

To: Technical Review Committee Members

From: R. Chris Rustin, DrPH, Secretary

Re: 34th TRC Meeting Minutes – Meeting date March 15, 2017

Members Present: Scott Uhlich, Don Loggins, Mark Harden, Thomas Martin, Michael Fugate, George McClure, Phil Freshley, Lawton Davis, Bill Durham, and Danny Johnson

Visitors: John Ford, Stephen Brown, Harold Kilgore, Adam Stell, Matt Gravitt, Shannon Stancil, Glenn Sofgee, Chuck South, and Lavrne Calvert

Call to Order: Meeting was called to order by Chairman Lawton Davis at 10:34 am.

Introduction of New Members: Each member of the TRC was introduced as well as new member Tim Thornton. Mr. Thornton will fill the land developer position. He was not able to attend.

Adoption of Minutes: Motion to approve minutes from the 33rd TRC meeting by Mark Harden, second by George McClure. Motion unanimously passed.

Old Business: Proposed DPH Manual change for repair area requirements, Section B

Thomas Vanderboom read the new proposed language created by the TRC Standards Subcommittee. It was as follows:

5. System Replacement Area – For lots approved for development prior to April 1, 2008, where special soil studies, site specific soil permeability data, and engineering design indicate suitability, replacement area shall be at least equivalent in size to the primary on-site sewage management system absorption field. This provision does not waive lot sizing requirements as adopted by the local Boards of Health.

Motion to approve by George McClure, second by Mark Harden. The second opened the floor to discussion.

Thomas Martin voiced concerns about the special study (level 4) language in the Manual. His concern was that system designers may derive a loading rate from a percolation rate for class I systems without a special study (level 4) soil report. He was also concerned that some of the class I loading rates charts were too aggressive. He believes repair areas area currently being undersized. He then asked installer Matt Gravitt to speak. ***See Amendment Note #1.***

Matt Gravitt claimed that approximately one half of the failed systems he looks at do not have appropriately sized repair areas.

George McClure recommended that the developer or site designer should be held accountable in these cases. He recommended detailed site planning for these smaller lots.

Thomas Martin then asked Shannon Stancill to speak. Shannon spoke about a lot that did not have sufficient repair area. He believes it is the homeowner that destroys the repair area much of the time. ***See Amendment Note #2.***

Georgie McClure replied that this particular circumstance was not a builder issue, but a homeowner issue.

Matt Gravitt provided statistics regarding his own company's repair installations. He said most of these repairs were 50% reduced length systems.

Thomas Martin gave the opinion that there are not enough guidelines in the Manual for high intensity soil reports (level 4's). ***See Amendment Note #3.***

Harold Kilgore asked to speak. He presented OSSMS rules and regulations language from the states of TN, FL, NC, and SC. He claimed that TN, SC, NC, and AL have less restrictive repair area requirements. He recommended DPH consider not allowing serial systems and use more LPP systems and engineered designs. He also recommended more stringent requirements for contractor certification.

Thomas Martin voiced concerns about aggressive loading rates the TRC has approved for some products. He would like to see site specific measured data. ***See Amendment Note #4.***

George McClure questioned how specific repairs were performed.

Mark Harden replied that all repairs must meet the same requirements as new systems in the Manual.

The concept of loading rates was then brought up.

Scott Uhlich advised that 15 years ago, the Soil Scientists could not agree on how to use loading rates. Scott went on to explain to the Committee why the April 1, 2007 date was in the Manual for prior approved lots.

Phil Freshley discussed the concept of Long Term Acceptance Rates (LTAR's)

Thomas Martin read correspondence from an anonymous product manufacturer acknowledging that each OSSMS site has different conditions for installations and that site specific measured data should be considered when designing systems. He also stated that counties are not consistently requiring detailed site plans. ***See Amendment Note #5.***

Phil Freshley asked the Committee to consider how much safety factor is needed for smaller lots of record.

John Ford pointed out some of the differences between state rules in the southeast.

Mike Fugate reminded the Committee North Carolina uses 120 gallons per day per bedroom as their design flow rate for residential systems.

Thomas Martin then asked his clients (Chuck South and Laverne Calvert) to speak regarding their failing drip emitter system. Mr. South has a home in Fulton county with a malfunctioning drip emitter system that was installed in 1994. ***See Amendment Note #6.***

Mark Harden reminded the Committee that in 1994, each county was responsible for their own OSSSMS rules and regulations. He also stated the rules and science has and will continue to advance through the years. He recommended the TRC launch the Soils Subcommittee first, and then reconsider the repair area language afterwards.

Phil Freshley requested a peer reviewed document from the Soils Subcommittee.

Thomas Martin asked Scott Uhlich for a deadline for the Soils Subcommittee to work under. ***See Amendment Note #7.***

Scott Uhlich requested that the Soils Subcommittee have something by the end of the year.

George McClure made a motion to table the repair area language discussion. Second by Mark Harden.

Motion unanimously passed.

Thomas Vanderboom then reviewed with the TRC the proposed members and goals of the Soils Subcommittee. He will also serve as the Chairman.

George McClure made a motion to approve the proposed Soils Subcommittee. Second by Scott Uhlich.

Motion unanimously passed.

Scott Uhlich then set a tentative date of late July 2017 for the next TRC meeting. He asked the Soils Subcommittee have an update of their progress at that time.

Meeting adjourned at 11:56 am.

Amended Notations: At the request of Thomas Martin, the following notations were amended and approved at the 35th TRC meeting.

Note 1: Thomas Martin indicated that a higher intensity soil evaluation, with site specific measured soil data (saturated soil hydraulic conductivity tests) coupled with soil morphology and other site-specific considerations, should be performed on lots where a reduction in repair area is desired for improvements. Thomas Martin expressed concern with the practice of using estimated percolation rates provided in the Level 3 soil evaluation report to index current sizing charts/tables which are too aggressive and not defendable based on current soil science and standard engineering principals. Consequently, the soil classifier should be responsible and accountable for providing the proper application rate to size the proposed OSSMS based on the results from the higher intensity soil evaluation.

Thomas Martin also indicated that designated repair area on many existing lots is not sufficient to support a full-size conventional absorption field as required per the current Manual. Therefore, reducing the repair area will result in even less area to install a code compliant system for repair. Because of insufficient area, some repairs do not meet "code" and are a patch at best.

In addition, Thomas Martin indicated that the purported DPH 0.8% failure rate for OSSMS is not representative of what professionals and installers observe in practice. Using his subdivision as an example, the failure rate of OSSMS appears closer to 11% or greater.

Thomas Martin then asked Matt Gravitt, owner of Banks Septic, to share his experience in assessing OSSMS failures and lack of sufficient repair area.

Note 2: Thomas Martin then asked Shannon Stancil of J Turn Construction to likewise share his experience in assessing OSSMS failures and lack of sufficient repair area. Shannon expressed multiple issues surrounding the limited area available to repair absorption fields including situations where the homeowner encroaches into the designated repair area with landscape improvements, essentially making the area unusable for repair.

Note 3: Thomas Martin suggested the Manual include guidance documentation for performing higher intensity soil evaluations with site specific measured data for those lots where a reduction in repair area is desired for improvements.

Note 4: Thomas Martin voiced concerns about aggressive loading/application rates currently approved by the TRC for some products. Consequently, the soil classifier should provide the appropriate loading/application rate for the proposed system based on a higher intensity soil evaluation and site-specific measured data when a reduction in repair area is requested.

Note 5: Thomas Martin read the below email excerpt from an anonymous product manufacturer:

"…We work in an industry where the code provides the minimum requirements for system design and construction. All too often those minimums become norms and then the standard. Every site is not a cookie cutter design. Every site has its own characteristics which may make the minimums unacceptable. I typically default to the people on the ground to make the call on what the soil can do and what the homeowner is going to do. Safety factors in design flow and soil application, even the ones in the code, do not fit every home. Soils can experience damage or show signs that are not characteristic with the parent material. Homeowners may install a shower which uses 50 gallons a minute. This is why the people on the ground are the last defense for the homeowner. They are the ones who shoulder the burden to design systems which homeowners expect to last for 30 years…"

Note 6: Thomas Martin then asked his clients, Chuck South and Laverne Calvert, to speak regarding their failing drip emitter system. Mr. South has a home in Fulton County with a malfunctioning drip emitter system that was installed in 1994. Mr. South then inquired about funds or programs to assist financially in the repair of his system.

Thomas Martin followed up by using the South/Calvert site as an example of the consequence of not having appropriate designated repair area for a conventional type system and the unexpected cost to the homeowner when an alternative system must be repaired and/or replaced. At the end of the day, the homeowner is burdened with the expense of repairing the failing system at a cost of $20K - $40K+, not the typical $3K - $6K generally associated with a conventional system repair. Even more concerning is the fact that after spending $40K to repair the system, there is no guarantee the system will perform long term.

The proposed Manual change to reduce the repair area is generally about using an alternative, non-conventional type system to permit a lot for a new home. The implication is that these lots are not being permitted because of the repair area requirement. However, Environmental Health indicates that these lots are indeed being permitted when the soils are suitable; the issue is the desired number of bedrooms.

Note 7: Thomas Martin requested Scott Uhlich establish a milestone schedule for the Soils Subcommittee to follow.

Georgia Department of Public Health

Brenda Fitzgerald, MD, Commissioner | Nathan Deal, Governor

2 Peachtree Street NW, 15th Floor
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March 15, 2017

To: Technical Review Committee Members

From: Scott Uhlich

Re: 33rd TRC Meeting Minutes – Meeting date February 7, 2017

Members present: Scott Uhlich, Don Loggins, Mark Harden, Thomas Martin, Mike Fugate, George McClure, Mark Risse, Lawton Davis, Nicole Nichols, Jim McClain

Visitors: Thomas Vanderboom, Fred Vengrouski, Bron Bradley, Harold Kilgore, Betty Sleeth

Call to Order: Meeting was called to order by Chairman Lawton Davis at 10:10 am.

Adoption of minutes: Motion to approve minutes from the 32nd meeting by George McClure, second by Mark Risse. All approved.

Introduction of new members: Scott Uhlich introduced the following new committee members – Thomas Martin (Engineering), Don Loggins (County Environmentalist), Danny Johnson (Community Affairs), and Jim McClain (Well Driller). Scott also mentioned members will be reappointed and officers elected at the July meeting.

New Business: Presby Environmental, Inc. Advanced Enviro-Septic

Product modification request for the Presby Environmental, Inc. Advanced Enviro-Septic (AES) was presented. The modification request is as follows:

1. A reduction in the required amount of AES product per bedroom from 7 pipe units per bedroom to 5. The hydraulic loading rate for trench/bed sizing will remain the same.
2. Increase the amount of fines (particles passing through a #200 sieve) in the specified product sand from 2% to 3%.
3. A reduction in the amount of sand on top of the AES product from 6 inches to 3.

Thomas Vanderboom presented the Sub-Committee's report on the Presby Environmental AES proposal. The Sub-Committee recommended approval for all product modification requests. Thomas advised all proposed modifications matched the configuration used in the AES NSF 40 test trial.

Mark Harden offered a motion to approve the modifications as stated above, second by Don Loggins. The motion was approved by all members present.

New Business: Proposed New Repair Area Language

New language for repair area requirement was presented to the Committee. The proposed new language was as follows:

On-Site Sewage Management Systems General Site Provisions (p. B-1)

4. **System Replacement Area –** An on-site sewage management system construction permit shall be denied unless there exists on the property an unobstructed area suitable for the installation of an approved replacement system equal in size to the proposed primary system.

Thomas Vanderboom presented the opinions from members of the Sub-Committee, as well as a separate opinion memorandum offered by Phil Freshley. Phil was not able to attend the meeting.

Scott Uhlich discussed repair area concepts and the rationale used to develop current requirements.

George McClure clarified that lot sizes were not proposed to change with the new language. He advised the main concern was for existing lots of record.

Thomas Martin asked Scott Uhlich what the reasonable expectation is for longevity of an on-site system. Scott's estimate was approximately 25-30 years with proper maintenance. Thomas Martin then referenced a study by Larry West on the subject of saturated hydraulic conductivity of biomats in existing on-site systems. His concern was current loading rates for some approved products exceed the biomat ksats found in the study. Scott mentioned the study was not conducted on systems producing class I effluent. Thomas Martin's concern was the long term performance of smaller systems. He also voiced concern regarding aggressive application rates of currently approved class I systems (ex. Eljen and Presby). He advocated the use of ksat data by soil professionals in lieu of estimated or converted perc rates.

Mark Risse gave the opinion that the proposal would lower the bar of the minimum standards in the Manual and full sized replacement area should be required.

Thomas Martin asked about adjusting loading rates for individual products. Scott explained how loading rates were derived for each product in past TRC meetings. Thomas also expressed concern about aggressive loading rates for some of the approved alternative systems and feels the system owners could be at risk. George McClure's response was that this is a separate issue and should not be considered in the current debate regarding repair area.

Mike Fugate stated that it is hard to quantify a safety factor for margin of error during the site development process.

Harold Kilgore was called on to speak as a visitor. He offered support of the proposed repair area language. Harold would like to see DPH look for other alternatives when dealing with existing lots of record that would include site evaluations and system designs on a case-by-case basis.

Scott Uhlich then offered a compromise that would require site specific data, including high intensity soil reports (level 4's) and engineered designs, for sites with less than conventional replacement areas. He also remarked it is the responsibility of the soil classifier to set the criteria for testing required to develop an opinion on soil conditions.

Mark Harden commented that conventional system repair area was a safety factor site development. His concern was site development may adversely affect the repair area. George McClure advised the local environmentalist should turn down the approval if permit conditions are not followed and the builders must be held responsible in such situations.

The discussion turned to long term acceptance rates. Both George McClure and Mark Harden (as well as others on the Committee) supported the idea of using LTAR's in future additions of the Manual.

Scott Uhlich then made a suggestion to table the repair area proposal.

George McClure reiterated the intent of the proposed repair area language is to address existing lots of record (existing platted lots) that were approved for development under older lot sizing requirements that no longer exist.

Scott suggested the Committee consider using language that would allow acceptance of lots platted prior to the adoption of the new standard.

Nicole Nichols suggested adding a section to the Manual that would specifically deal with approval conditions for these old lots.

Betty Sleeth was then called on to speak. She said landowners and developers feel the current rule is arbitrary. She encouraged the Committee to come up with a solution to avoid potential legislative consequences.

George McClure made a motion to table the repair area proposal, second by Mark Harden. The motion was approved. It was the consensus of the Committee to send the proposal back to the Sub-Committee for further review, with a final proposal to be presented at the next TRC meeting to be held in approximately 30 days.

In closing, Scott Uhlich mentioned there was a committee created to research the feasibility of implementing LTAR's about 10 years ago. He also agreed to have Thomas Vanderboom create a Sub-Committee that would look into the application of LTAR's again.

Motion to adjourn was approved at 11:38 am.

GEORGIA DEPARTMENT OF COMMUNITY HEALTH

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Clyde L. Reese, III, Esq., Commissioner Sonny Perdue, Governor

February 22, 2012

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 32nd TRC meeting held February 22, 2012.

The 32nd TRC meeting was held on February 28th, 2012 at the Macon Bibb County Health Department, 171 Emery Highway, Macon, Georgia. Chairman Dr. Davis called the meeting to order at 1:18 P.M.

Members in Attendance: Dr. Lawton Davis, Bill Fortune P.E., William Durham, Scott Uhlich, Dr. Mark Risse, and George McClure

Guests: Chris Kumnick, Chris Peterson, Stephen Brown, Jim Free, and Ben Berteau

Order of Business:

1. **Call to Order**

2. **Review of minutes** from the 31st TRC meeting. Motion to approve made by Bill Durham, seconded by Mike Fugate. Minutes approved.

3. **New Members:** Chris Kumnick stated that Todd Jones is replacing Dewayne Tanner on the committee in the County EH Manager's position. Also, the Department is accepting nominations to fill the Land Developer's vacancy on the committee. Scott Uhlich informed the committee of the Department's intent to re-appoint all of the existing members. The appointment is for a three year term.

4. **Election of officers**: After a brief discussion, George McClure made a motion to nominate Dr. Davis as Chairman and Phil Freshly as Vice Chairman. Dr. Risse offered a second. Motion passed unanimously. As required by the Onsite Rules and Regulations, the Secretary's position on the committee is held by the State Office Representative.

5. Old Business:

   Department of Community Health to Department of Public Health: Chris Kumnick, State Land Use Program Director, detailed the transition for the Department of Community Health to the Department of Public Health. He

discussed in detail how this affects the current Department of Human Resources' Rules and Regulations, as well as the organization structure of the new department.

Summary of held TRC Standards Committee meetings: Chris Kumnick detailed the meetings held by the sub-committee since the last full TRC meeting. He informed the committee that the Infiltrator Quick 4 and ADS's low profile chamber systems are still in the sub-committee review process. Also currently under review, is the experimental request from an ATU manufacturer. The sub-committee felt that the manufacturer needs to meet the NSF Standard 40 requirement.

6. **New Business:** Product approvals.

1) Presby Environmental, Inc.: Advanced Enviro Septic Treatment System:

Dave Presby distributed examples of the product and explained its function as a biosystem (white fabric filter, skimmer tabs and the green fiber mat that traps solid particles and in bacterial growth). He stated that his product has the NSF Std 40 approval, and has been used extensively in Canada and Australia. It uses C33 sand and aids in the aerobic bacterial growth in the system. It exceeds the current ATU effluent standards. Chris Kumnick, Land Use Program Director, stated that the subcommittee examined the third party tests, and is proves that the product meets the Class 1 effluent standard. He further explained that our current manual does not allow this product to be installed in a bed configuration. A draft copy of the design manual was distributed with the parts in question highlighted in gray. Those sections may necessitate manual revisions, but needed further examination by the sub-committee. The white highlighted sections in the design manual were approved by the subcommittee. Dr. Davis read the subcommittee's motion to approve the contents in the design manual, including the exclusion to the additional six inch (6") trench width. It is considered replacement area and is time dosed. Chris Kumnick stated that the draft design manual will have the gray sections removed prior to being distributed statewide. Bill Fortune made a motion to accept the subcommittee's motion to approve the design manual. George McClure offered a second. Motion passed unanimously. Dave Presby discussed placing the sand bed system on a sloping terrain. The density of the soil would dictate to what degree of slope could accommodate the system. Section F of the Onsite Sewage Manual has different requirements for types of systems that can be placed on slopes. Chris Kumnick stated that the subcommittee thinks that this issues has to be addressed with a manual revision to mound/area fill systems. George McClure made a motion to defer this issue back to the subcommittee for further evaluation. Bill Durham offered a second. Motion passed unanimously.

2) PTI, Inc; MPS-3611

PTI's 11 pipe configuration is different than the previous configuration in that force if being applied to force the product in the 36 inch wide trench. PTI, along with the sub-

committee approval, is asking for a 25% sizing reduction. The bundles measure 37" wide, but will only get allowance for 36". The committee also examined soil burden prior to approving the reduction. PTI originally asked for a 27-29% reduction, but settled for the 25% reduction as recommended by the subcommittee. PTI currently gets as 33% reduction in Mississippi and South Carolina, and a 40% reduction in Alabama. The subcommittee motion is to provisionally approve the product design manual until it is update with the 25% reduction. It currently references a 29% reduction. Dr. Davis read the subcommittee's provisional approval motion. Bill Durham offered a second. Motion passed unanimously.

7. **Motion to adjourn. Meeting adjourned at 2:37 p.m.**

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August 24, 2010

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 31st TRC meeting held August 24, 2010.

The 31st TRC meeting was held on August 24th, 2010 at the Macon Bibb County Health Department, 171 Emery Highway, Macon, Georgia. Chairman Dr. Lawton Davis called the meeting to order at 10:00 AM.

Members in Attendance: Dr. Lawton Davis, Bill Fortune P.E., Dewayne Tanner, Phil Freshley, Scott Uhlich, Dr. Mark Risse, Nicole Nichols and Mark Harden.

Guests: Chris Kumnick, Todd Jones, Stan Coppage, Todd Harrell, Vaughn Berkheiser, Jim Pericaud, Dick Bachelder, Lee Starks, Chris Peterson, Stephen Brown, Jim Free, Ben Berteau, and Josh Tyson.

Order of Business:

1. **Call to Order**

2. **Review of minutes** from the 30th TRC meeting. Motion to approve made by Phil Freshley, seconded by Bill Fortune. Minutes approved.

3. **New Members:** After a brief discussion describing Dewayne Tanner's move and job change from County Manager to Southwest Health District EH Director it was decided that he would step down from the TRC and serve the committee on the TRC Standard sub-committee. Todd Jones was then introduced and appointed to the TRC committee filling the County EH Manager position left vacant by Dewayne Tanner. Todd had served the committee for many years as a member of the Standards sub-committee.

4. **Election of officers**: After a brief discussion of the duties and frequency of meetings Scott Uhlich nominated the existing officers for another year of service as officers. Dr Davis as Chairman, Phil Freshley as Vice Chairman and Scott Uhlich as Secretary. Scott Uhlich then made a motion that was seconded by Phil Freshley and passed unanimously.

5. **New Business:** Product approvals.

DHR

B. J. Walker, Commissioner

Georgia Department of Human Resources • Division of Public Health • Sandra Elizabeth Ford, M.D., MBA, Acting Director
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March 18, 2008

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: **Minutes of the 27th TRC meeting held March 17, 2008.**

The 27th TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on March 17, 2008. Dr. Lawton Davis called the meeting to order at 10:00 AM.

Members in Attendance: Lawton Davis, M.D., Bill Fortune, P.E., Bill Durham, Phil Freshley, Mat Harper, Scott Uhlich, Dewayne Tanner, Ernest Earn and Mark Harden.

Guests: Steve Dix, Stan Coppage, Jim Free, Todd Jones, Chris Kumnick, Ben Berteau and attorney.

Order of Business:

1. Call to Order
2. Review of minutes from the 26th TRC meeting. Motion to approve made by Mark Hardin. Minutes approved.
3. New Members: Mr. Uhlich informed the committee that Dr. Mark Risse would be added to the TRC to replace Dr. Larry West. Mr. Uhlich discussed with the committee members the progress toward finding an engineer for the open engineering position on the committee. Mr. Uhlich will e-mail the information on the applicants for review by the committee members.
4. Old Business:

   A. Eljen GSF system: The standards sub-committee report was presented by Scott Uhlich. Mr. Uhlich discussed the review process concerning the Eljen Geotextile Sand Filter system. The Eljen GSF system currently is provisionally approved under Class I effluent standards contained in the Department's Manual for On-site Sewage Management Systems. The standards sub-committee held meetings and conference calls with representatives from Eljen. The standards sub-committee noted the following features of the Eljen GSF system. The Eljen GSF system provides a two tiered process utilizing fabric modules surrounded by an approved coarse sand to achieve effluent quality superior to Class I standards. Test results submitted by the company involved 3 different application methods:

timed dosing, demand dosing and gravity flow. Test results indicated each application method exceeded Class I effluent standards. In addition to product test results, additional third party research was submitted in support of increased application rates beyond the current provisional approval.

The sub-committee supports increase loading rates for soil conditions when the limiting condition is 2 or more feet below trench or bed bottom. The sub-committee recommends allowing up to a 50% reduction in absorption field size for absorption rates of 60 minutes per inch or less; and 40% reduction for slower absorption rates. The committee recommends that no reduction in absorption field be allowed when the limiting condition is less than 2 feet below trench or bed bottom. This recommendation is consistent with current requirements in the Department's Manual for On-site Sewage Management Systems.

Due to the passive nature of the system, the sub-committee recommends requiring assistance as needed three year service policy.

TRC Sub-Committee Recommendations
Eljen GSF Geotextile Sand Filter system

1. The A42 Eljen GSF module is approved to be installed in a four foot (4') trench. The application rate for trenches will be used but must be demanded dosed and installed meeting the bed installation requirements.

2. Eljen GSF system is approved at 2' separation for a 50% sizing reduction until 60 min/in PercRate and a 40% after at increased PercRates.

3. Eljen GSF systems are approved for bed installations with demand dosing to a distribution box. Doses shall be 3.5 gallons or less per module which does not require timed dosing.

4. Eljen GSF system must offer a three year technical assistance service policy. No maintenance visits are required.

Steve Dix, representing Eljen, discussed the test results and application methods with the committee members. Committee members discussed the demand dosing to a distribution box. The demand dose will release a volume of water based on the number of modules to be dosed in the absorption field. For serial gravity flow, Mr. Dix explained that the biomat on the fabric wrapped module would cause wastewater flow through the module to slow and the excess wastewater will follow the path of least resistance through the solid pipe to the next module by gravity flow. A motion to approve the sub-committee recommendations for the Eljen GSF system was made by Mark Hardin. Motion approved.

B. ICC Flowtech System: The standards sub-committee completed review of testing information submitted by ICC concerning the Flowtech Drainage System. Mr. Uhlich

discussed the review process. ICC initially requested approval as a "like product" asserting their Flow Tech system was exactly the same as the Ring Industrial Company EZflow System. Mr. Uhlich informed ICC that the TRC required specific product testing information. ICC submitted third party test information for the ICC Flowtech FTS123H-1 Drainage System from Uniform Engineering. This information included product schematics, contact area test results, storage volume test results and load bearing test results. The company failed to provide sufficient information for the sub-committee to complete a review on the ICC Flowtech FTS75H-1. FTS94H-1, FTS103H-1 and FTS142H-1 Drainage Systems. Based on the information submitted for the ICC Flowtech FTS123H-1 Drainage System, the sub-committee has the following recommendations.

TRC Sub-Committee Recommendations – ICC Flowtech

1. After review of independent third party test results on contact area impact on trench bottom and side wall, and review of aggregate storage volume data, the sub-committee recommends an equivalency factor of **.75** for the **ICC Flowtech FTS123H-1 Drainage System.**

2. Due to the fact that insufficient information has been submitted, the sub-committee could not make a recommendation on the **FTS75H-1, FTS94H-1, FTS103H-1 and FTS142H-1 Drainage System.**
   No Schematics provided identifying trench bottom and side wall contact area per model.
   No volume calculations submitted.

Ben Berteau, Ring Industrial Group, raised a point concerning ICC's lack of system installation history in Georgia and surrounding states. He indicated the committee should consider the lack of field supported data, and limit or control system distribution. He indicated North Carolina limited the number of system installations to 200. Discussion among committee members centered on whether the TRC should recommend limiting the number of installations in the state until verification of product quality in field use is determined. The committee determined quality control compliance would be addressed at the time of system installation through the inspection process. Sub-standard product would be denied approval at the time of inspection. County health departments had the capability of reporting quality control problems to the state office. If necessary, the state office can address the product approval with the TRC. Motion was made by Mark Hardin to accept the sub-committee recommendation to approve the ICC Flowtech FTS123H-1 system at an equivalency factor of .75 and place no state limit on the number of system installations. Motion approved.

5. New Business:

A. Aquaklear Aerobic Treatment Unit. Mr. Uhlich provided the members with a copy of a letter of complaint signed by the Chairman of the Boards of Health and the District Medical Director from the Valdosta Health District. Mr. Uhlich discussed the problems

Valdosta was experiencing and the state office was having with the company compiling with the submittal of service reports.

B. USEPA recognition: Mr. Uhlich provided the members with a copy of the U.S. Environmental Protection Agency recognition of The State of Georgia for management of onsite sewage systems. Mr. Uhlich thanked the members for their contribution to the DHR program.

1) EZflow 904HP

Chris Kumnick, Land Use Program Director, presented the application of EZFlow requesting the 904HP configuration. He stated that the committee had previously reviewed and approved the 9" product and the only modification that was being considered was the manufacturer would have 4 bundles all with conveyance pipes increasing the storage volume. The 9" product is currently approved with 1 bundle having a conveyance pipe and 3 bundles without. Storage volume was the limiting factor in the previous approval. Chris Kumnick told the committee that the TRC Standards Sub-committee recommends accepting the new configuration and that the gravel equivalence factor earned under the standard merits a 25 % reduction. Ben Berteau from Infiltrator Systems, Inc said the request was simply following the standard in the rule. Dick Bachelder, ADS, Inc., asked how the sizing calculations were determined. Ben Berteau repeated that the previously accepted third party tested contact area and storage were Berteau used. Dick Bachelder asked if the storage claims were calculated under any load. Ben Berteau said that they were and the same method was used as the previous configurations submitted to the committee. Mark Harden made a motion to *approve the EZflow 904HP configuration for use in the State at a 0.75 gravel equivalency factor including manufacturer and Department installation requirements as proposed.* Second by Phil Freshley and passed unanimously.

2) Infiltrator Systems, Inc. Quick 4 Plus Chambers

Ben Berteau then introduced ISI new Quick 4 Plus Chamber products to the committee. The new chambers added support "legs" or columns to strengthen the product but more importantly allowed a low profile chamber to maintain the open bottom area and still meet H-10 loading. Details of the different products were discussed.

The number of louvers on the Quick 4 Plus chamber were improved by increasing the number of them. There was also a endcap developed for the LP chamber. The discussion changed to sizing. Phil Freshley mentioned that as a soil scientist he felt they all should be a 1:1 with gravel. Ben favored categories. Some of the earned EQ factors had a decimal point out to the hundredth place. That opened the discussion to rounding to fit a group or to whole numbers. Mark Hardin quickly brought up the question asking where rounding would "start or stop" in the standard. The committee agreed that rounding down to whole numbers or "boxes" helped the builder, installers, and EH staff but the committee should never round up. ISI was willing to round their EQ Factor for the standard LP from .97 to 1.0. The EQ36 LP was going to stay at 1.53.

Dick Bachelder questioned what data were used for the new louver configuration for calculating sidewall area. The previous flow-through study was used because the new louvers increased open area over previous configurations in the study. Lee Stark asked about open bottom area and storage calculations. ISI said that third party testing calculated the open area supporting the reduction. The LP product did require full ponding, on a serial trench installation, before the step-over to meet the storage requirement in Georgia. This is new for chamber products in Georgia. Scott Uhlich

asked about whether the new product met H-10 loading. Ben Berteau said that it had but that he will send the third party original testing to the Department.

Scott Uhlich then made the motion *to provisionally approved with conditions, the Inflitrator Quick 4 Plus products EQ36LP, Standard LP, Standard, and High Capacity for use in the State at 1.53, 1.0, 0.75, and 0.65 gravel equivalency factors, respectfully as proposed. The Manufacture must supply the Department for review and approval 3rd party H-10 testing and a product design and installation manual for the new products.* The motion was seconded by Phil Freshley and passed 6 to 2 with the descending votes made because of the rounding the EQ factor wanting to wait until we received a signed copy of the H-10 testing and a manufacturer's Install and Design Manual were submitted.

3) Eljen GSF

Stan Coppage asked the committee to consider Eljen's request to expand their approval to consider high strength effluent, high peak flows in bed and mounds. Phil freshly said it was the responsibility of EPD to consider non-domestic strength effluent and large systems and that Eljen didn't need a Department product approval for their consideration. Scott Uhlich brought up the previous discussion for a 2K to 10 K permit with EPD. Mark Harden suggested that the manufacture submit details and recommendations for design requirements for these systems. Chris Kumnick said that the Standard Sub-committee and Department could review a revised Eljen Design and Install Manual and approve it if it met the current Onsite Manual. The Eljen Guide didn't need TRC approval if it met the Onsite Manual criteria. Chris Kumnick suggested a motion *to approve Eljen GSF for non-residential applications having domestic strength wastewater (less that 200 mg/l CBOD and TSS) and with daily flows up to 10K GPD meeting the Onsite Sewage Manual's requirements based on a revised Georgia Eljen Design and Install Guide.* Mark Harden made the motion with Nicole Nichols the second. The motion was passed unanimously by the committee.

4) Orenco Systems, Inc. AdvanTex AX20N

Todd Harrell of Orenco Systems, Inc requested approval for the AdvanTex AX20N unit based on 3rd party equivalent testing for NSF 245. Chris Kumnick explained that in the previous year the committee approved the NSF 245 Standard (50% total Nitrogen reduction). The approved language for the new GA standard said that either NSF listed or a equivalent 3rd party testing meeting the 245 standard would be allowed. Orenco Systems submitted a Pennsylvania State study following and exceeding the protocol in the NSF 245 Standard. There was a brief discussion about the standard and 50 % of total N rather than 10 mg/l nitrate requirements of EPD. The 3rd party study was found to be sufficient and Phil Freshley made a motion *to accept the third party testing submitted by Orenco System, Inc. to be equivalent to NSF Standard 245 protocol and to approve the AdvanTex AX20N for use in Georgia.* The motion was seconded by Mark Harden and passed unanimously.

6. **Motion to adjourn.** Passed unanimously.

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Clyde L. Reese, III, Esq., Commissioner Sonny Perdue, Governor

November 23, 2009

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 30th TRC meeting held November 17th, 2009.

The 30th TRC meeting was held at the November 17, 2009 at the Macon Bibb County Health Department, 171 Emery Highway, Macon, Georgia. Vice Chairman Phil Freshley` called the meeting to order at 10:00 AM.

Members in Attendance: Bill Fortune P.E., Dewayne Tanner, Phil Freshley, Scott Uhlich, George McClure, Dr. Mark Risse, Mike Fugate, P.E., Nicole Nichols and Mark Harden.

Guests: Chris Kumnick, Greg Harless, Jim Pericaud, Dick Bachelder, Lee Starks, Chris Peterson, Stephen Brown, Jim Free, Ben Berteau, Bobby Barnes, and Josh Tyson.

Order of Business:

1. **Call to Order**

2. **Review of minutes** from the 29th TRC meeting. Motion to approve made by Dr. Mark Risse, seconded by Dewayne Tanner. Minutes approved.

3. **Old Business:** *Plastic Riser Standard*. Chris Kumnick, Land Use Program Director, presented language for adoption into the Department's Manual for On-site Sewage Management Systems concerning general requirements applicable to plastic septic tank risers and lids (See Attached: Appendix A). Mr. Kumnick further explained the background and purpose for bringing the standard up for adoption. In the previous TRC meeting, the committee tabled the approval in order to have time to research testing methodologies for plastic septic risers. None were found and the TRC Standards Sub-committee verified that ASTM and IAPMO material standards listed in the proposed plastic riser standard were industry consistent and used by other states having similar regulations. The Standards Sub-committee recommended approval as proposed. There were no public comments made. Mark Harden made a motion to adopt the Polythylene, Fiberglass and Polypropylene Septic Tank Risers and Lids Standard for inclusion into the Department's Onsite Sewage Management Systems as presented. Mike Fugate seconded the motion, motion approved unanimously.

4. **New Business:** *Product Approvals; ICC Technologies, LLC, Flowtech 9",12", 13", and 14" gravel alternative products.* Chris Kumnick presented a summary of the TRC Standards Sub-committee meeting. ICC and Unifour Engineering have requested a review and approval of newly proposed product modifications. It was also determined that there was a mistake in the gravel equivalency calculations used to obtain the previous provisional approve for this product. The sub-committee requests that the product be brought back to the TRC for re-approval.

The first modification requested by ICC to their product is to reduce the aggregate's specific gravity and apparent density from 1.42 to 1.00 pounds /ft³. Bobby Barnes, P.E presented new test results which they ask to replace the previously submitted third party test results. He explained that while reducing bulk apparent density the expansion characteristics maintain geometry and structural uniformity on the aggregate. The Flowtech© synthetic aggregate test was preformed by Unifour Engineering & Testing Laboratories, PC, following ASTM C127-04 "Standard Test Method for Density, Relative Density and Absorption of Coarse Aggregate".

Secondly, the manufacturer requests that the TRC accept the results of new testing which reduces the previously approved contact footprint or open bottom area measured when the product is loaded. Bobby Barnes explained to the committee that Unifour Engineering re-created the methodology and procedures used by Ring Industries for the similar EZflow aggregate approval process. He also noted that the new contact area test used the modified aggregate with the apparent density of 1.00 pounds per ft³. Results showed an open bottom area of 88.6% or an effective contact area of 11.4%. ICC agrees to round up to a 20% contact area similarly agreed to in the EZflow approval by Ring.

Chris Kumnick told the committee that the TRC Standards Sub-committee recommends accepting these new third party test results and replace those previously submitted. The sub-committee has re-calculated the gravel equivalency factors for these products (at applied for configurations) and verified that the previous approved reductions are now merited. During the public comment period, Ben Berteau, Infiltrator Systems Inc., explained that it had taken Ring Industries many years and a lot of work to reduce their product's apparent density from 1.7 pounds/ft³ to 1.0 lbs/ ft³. He also cautioned the committee to take into account the lack of any manufacturing history of ICC in the septic industry. Mr. Berteau also explained that although ICC presents themselves as the "same" they have been legally recognized they are "different" and any familiarity that the committee might have towards the similar EZflow products is not applicable because this is a different product and is something new for this manufacturer and committee to review. Bobby Barnes told the committee that technologies have improved over the years and now allow faster modification than when Ring made their changes to their aggregate. Dick Batchelder, ADS Inc. informed the committee that ADS would be the Georgia distributor and they have a history throughout the state with offering quality products and technical support. Chris Kumnick added that the Flowtech Drainfield System is just now being introduced around the country and recommends that the TRC grant a provisional approval and during a one year period instruct our staff to watch for any possible initial quality issues. Items to look for may include misshaped aggregate, a "bulleted" product, inconsistent diameters and/or loose fitting netting possible caused

from under fill, etc. His office would ask the local EHS to forward any concerns to the Department so the committee can consider them during the provisional approval period.

A motion was made by Mark Harden to replace previously submitted tests and accept the most recent third party testing showing footprint width and open bottom area. Calculations for gravel equivalency will use a 20% contact area. To provisionally approve each of the ICC products, Flowtech Drainage System **FTS94H-1, FTS123H-1, FTS133T-1 and FTS142H-1;** and Composite Encasement Products **FTSG94H-1, FTSG123H-1, FTSG133T-1 and FTSG142H-1** with the apparent density of 1.00 pounds per ft^3 having the diameters of 9", 12", 13" and 14" with both netting and composite encasements and using 0.85, 0.75, 0.65, and 0.75 gravel equivalency factors, respectfully for one year. Seconded by Mike Fugate, motion passed unanimously.

5. **Motion to adjourn.**

Attached: Appendix A, *Polyethylene, Fiberglass and Polypropylene Septic Tank Risers and Lids Standard*

Appendix A:

The following plastic riser standard was adopted by the Georgia Department of Community Health's Technical Review Committee (TRC) on November 17, 2009.

Polyethylene, Fiberglass and Polypropylene Septic Tank Risers and Lids

The following general requirements are applicable to plastic septic tank risers and lids.

1. Materials: Resins and sealants used in the riser manufacturing process shall be capable of effectively resisting corrosive influences of liquid components of sewage as well as withstanding the physical factors that may affect the structural integrity of the risers. Materials used shall be formulated to withstand vibration, shock, normal household chemicals, by-products of sewage digestion, hydrostatic soil pressures.

2. Physical Properties: Risers shall be so constructed that all parts of the riser and lid shall meet the following requirements:

Polyethylene – Made from HDPE type 3, having density of .941 to .965, in accordance with ASTM D-3350 and ASTM D-1248, Class B with UV stabilizer.

a) Ultimate Tensile Strength: Minimum - 2,400 PSI when tested in accordance with ASTM D-638, Standard Method of Test for Tensile Properties of Plastics.
b) Flexural Strength: Minimum - 80,000 PSI when tested in accordance with ASTM D-790, Standard method of Test for Flexural Properties of Plastics.
c) Equivalent ASTM, CSA, IAPMO, AASHTO or any ANSI certified third party testing may be accepted.
d) One or all of the following assembly stress tests may be accepted: 7.5 inches Hg vacuum with minimal joint seal deflection; compressive to 2500 lbs. center loading; compressive to 4500 lbs. full assembly and center loading; compressive to 6000 lbs. uniform loading; compression to deformation at 500 psi @ 3000 lbs. load or at 1000 psi @ 6000 lbs. load; or ASTM D-1784 tested in accordance with AASHTO M304M.

Fiberglass – Having a minimum 30% fiberglass reinforcing and UV stabilized.

a) Ultimate Tensile Strength: Minimum -12,000 PSI when tested in accordance with ASTM D- 638, Standard Method of Test for Tensile Properties of Plastics.
b) Flexural Strength: Minimum -19,000 PSI when tested in accordance with ASTM D-790, Standard Method of Test for Flexural Properties of Plastics.
c) Flexural Modulus of Elasticity: (Tangent) Minimum -800,000 PSI when tested in accordance with ASTM D-790, Standard Method of Test for Flexural Properties of Plastics.
d) Equivalent ASTM, CSA, IAPMO, AASHTO or any ANSI certified third party testing may be accepted.
e) One or all of the following assembly stress tests may be accepted: 7.5 inches Hg vacuum with minimal joint seal deflection; compressive to 2500 lbs. center loading; compressive to 4500 lbs. full assembly and center loading; compressive to 6000 lbs. uniform loading; compression to deformation at 500 psi @ 3000 lbs. load or at 1000 psi @ 6000 lbs. load; or ASTM D-1784 tested in accordance with AASHTO M304M.

Polypropylene – Having a minimum 30% glass filled copolymer and UV stabilized.

a) Ultimate Tensile Strength: Minimum -13,000 PSI when tested in accordance with ASTM D- 638, Standard Method of Test for Tensile Properties of Plastics.
b) Flexural Strength: Minimum -16,000 PSI when tested in accordance with ASTM D-790, Standard Method of Test for Flexural Properties of Plastic.
c) Flexural Modulus of Elasticity: (Tangent) Minimum - 875,000 PSI when tested in accordance with ASTM D-790, Standard Method of Test for Flexural Properties of Plastics.
d) Flexural Modulus of Elasticity: (Secant) Minimum -700,000 PSI when tested in accordance with ASTM D-790, Standard Method of Test for Flexural Properties of Plastics.
e) Equivalent ASTM, CSA, IAPMO, AASHTO or any ANSI certified third party testing may be accepted.
f) One or all of the following assembly stress tests may be accepted: 7.5 inches Hg vacuum with minimal joint seal deflection; compressive to 2500 lbs. center loading; compressive to 4500 lbs. full assembly and center

loading; compressive to 6000 lbs. uniform loading; compression to deformation at 500 psi @ 3000 lbs. load or at 1000 psi @ 6000 lbs. load; or ASTM D-1784 tested in accordance with AASHTO M304M.

3. Plastic Septic Tank Riser Lids shall withstand the following stress testing:

a) 150 lbs. / sq. ft. uniform live load.
b) 1500 pound 10 by 10-inch area center loading in accordance with ASTM C- 890.

4. Attachment to tank: For installation on new concrete tanks, plastic risers must be attached by means of an integrally (cast in place) molded casting ring. Installation of plastic risers onto existing tanks may be achieved with the use of a bolt on attachment ring, adhesive mastic, or epoxy adhesive compatible with both plastic and concrete. Risers that are part of a plastic tank manufacturer's proprietary integrated tank and riser system may be attached by screw type threads molded into the tank and riser.

5. Watertight Assembly: Plastic riser lids shall be so constructed as to be watertight. Risers and lids shall be sufficiently tight when installed to preclude the entrance of surface or ground water into the tank for the designed life of the assembly. Riser segments and lid attachment must include an o-ring gasket or bead of mastic to seal those joints.

6. Security: Provision shall be made in the construction of plastic septic tank riser lids to prevent unauthorized entry or removal when the access openings are at or above ground level. Lids shall be fastened to the riser by use of stainless steel nuts and bolts or other lockout mechanism.

7. Safety: The heavy wedge access opening cover for concrete tanks must be maintained in place in conjunction with plastic risers; however, where the plastic riser manufacturer provides a safety net placed immediately beneath the riser lid, the concrete wedge cover may be removed. In addition, plastic riser lids should present a level slip resistant surface. Smooth domed lids are not recommended.

8. Workmanship: Risers and Lids shall be of uniform thickness and free from defect that may affect their serviceability or durability.

9. Longevity: Proof from an independent testing laboratory shall be submitted substantiating a minimum life expectance of twenty years service for the intended use of the risers and lids.

GEORGIA DEPARTMENT OF
COMMUNITY HEALTH
Division of Public Health

Rhonda M. Medows, MD, Commissioner *Sonny Perdue, Governor*

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July 22, 2009

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 29th TRC meeting held July 21, 2009.

The 29th TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on July 21, 2009. Lawton Davis, M.D. called the meeting to order at 10:00 AM.

Members in Attendance: Lawton Davis, M.D., Bill Durham, Phil Freshley, Scott Uhlich, George McClure, Dr. Mark Risse, Mike Fugate, P.E., Thomas Bowden, Matt Harper, Nicole Nichols and Mark Harden.

Guests: Chris Kumnick, Todd Jones, Dick Bachelder, Stan Coppage, Jim Free, Ben Berteau, Bobby Barnes, Ted Green, Josh Tyson, and Todd Harper, Ewing Barnett.

Participating by conference call: James Bell and member, Dewayne Tanner

Order of Business:

1. Call to Order

2. Review of minutes from the 28th TRC meeting. Motion to approve made by George McClure. Minutes approved.

3. Election of Officers. Motion to approve Lawton Davis, M.D as Chairman, Phil Freshley, as Vice-Chairman and Scott Uhlich as Secretary by George McClure. Motion approved.

4. Old Business – NSF/ANSI Standard 245. Chris Kumnick, Program Director, presented language for adoption into the Department's Manual for On-site Sewage Management Systems concerning the recognition of nitrogen reduction technologies. The following was proposed:

   Nitrogen Reduction – In areas of the State which have been identified that must reduce nitrogen in surface and ground water, the Department has adopted NSF/ANSI Standard 245, or equivalent, to evaluate residential wastewater

DHR

B. J. Walker, Commissioner

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August 13, 2008

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 28th TRC meeting held August 12, 2008.

The 28th TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on August 12, 2008. Scott Uhlich called the meeting to order at 10:00 AM.

Members in Attendance: Bill Fortune, P.E., Bill Durham, Phil Freshley, Scott Uhlich, George McClure, Dr. Mark Risse, Mike Fugate, P.E., Thomas Bowden, Ernie Earn and Mark Harden.

Guests: Chris Kumnick, Greg Harless, Sharon Steiner, Todd Harper, Judy Fortune, Bron Bradley and Dewey Conrad.

Order of Business:

1. Call to Order
2. Review of minutes from the 27th TRC meeting. Motion to approve made by Ernie Earn. Minutes approved.
3. New Members: Mr. Uhlich introduced the new members, Dr. Risse and Mike Fugate, P.E., to the committee members.
4. Standards sub-committee membership: Scott Uhlich recommended the addition of Dr. Radcliff, UGA professor, to the standards sub-committee. Dr. Radcliff is conducting a research project on on-site sewage management systems at the UGA Griffin campus. Dr. Radcliff brings expertise in soil hydraulics and modeling to the sub-committee. Scott Uhlich requested that Chris Kumnick be added to the standards sub-committee to replace himself as the department representative. Recommendations approved. New members, Mike Fugate and Dr. Risse were invited to participate on the sub-committee.
5. Election of officers: Motion to nominate Dr. Lawton Davis as Chairperson and Phil Freshley as Vice-chairperson by George McClure. Scott Uhlich to serve as Secretary as required by by-laws. Motion approved.
6. New Business:
   National Sanitation Foundation International (NSF) Standard 46: Scott Uhlich reviewed with the committee members Filter Requirements for Residential Gravity Flow Septic Tank Systems. The TRC had adopted ANSI/NSF Standard 46 as the compliance criteria for filter approval in the State. NSF has recently adopted new ANSI/NSF Standard 46 criteria for residential gravity flow filters. The language

contained in the Department's Manual for On-Site Sewage Management Systems requires filters to be in compliance with the most current standards. The TRC members affirmed the requirement that filters approved for use must meet the most current ANSI/NSF Standard 46.

NSF Standard 245: The National Sanitation foundation recently established ANSI/NSF Standard 245 which establishes testing criteria for nitrogen reduction systems. Sharon Steiner, NSF representative, discussed the testing program and criteria used by NSF. NSF Standard 245 centers on treatment systems of 1500 gallons/day or less reducing nitrogen levels by 50%. Phil Freshley asked about design built nitrogen reduction systems. Discussion about alternative approved testing options similar to Aerobic Treatment Systems. Discussion regarding review of technology greater than 1500 gpd. Committee requested the Department draft language to incorporate approval of nitrogen reduction technology into the Department's Manual.

Old Business:

Scott Uhlich informed the committee of on going maintenance problems associated with AquaKlear aerobic treatment units. Problems are being identified in the Valdosta Health District and continue to be evaluated. The committee re-affirmed that regularly scheduled maintenance of the unit is required to be provided by the manufacturer for the first three years at no cost to the owner/resident. Failure to provide the required maintenance will result in suspension of the product approval.

Motion to Adjourn:

technologies designed for nitrogen reduction. Technologies tested against Standard 245 must either be Standard 40 certified or be evaluated against Standard 40 and must meet all requirements of Aerobic Treatment Units found in the manual including but not limited to application standards, operation and maintenance, and service related obligations.

A pre-treatment system must meet the following effluent concentrations in order to meet Standard 245:

CBOD -25 mg/l
TSS - 30 mg/l
Total Nitrogen – at least a 50% average of influent TKN
Ph - 6.0 to 9.0

Motion to approve made by Phil Freshley. Motion approved.

5. New Business:

A. Chris Kumnick presented a summary of the TRC standards sub-committee which met twice since the previous TCR meeting. The meetings were conducted online using WebEx, a web conferencing tool.

The first meeting was held on April 30th, 2009 and discussed Infiltrator Systems, Inc. application to review the SMART ROCK product. The application was latter withdrawn. A proposed plastic riser standard was also introduced and lastly Mr. Larry McEver, P.E. spoke to the subcommittee proposing sand lined trenches. The topic quickly changed to sand filters and was tabled until additional information could be submitted to the sub-committee for consideration.

The second sub-committee meeting was held May 28th, 2009 and included discussion on Eljen Corporation request to amend their current product approval; ICC Technologies proposed modification to their product and completed application for additional products, and Bio-Microbics, Inc. application to approve the RetroFast models for class I application in the State.

B. Chris Kumnick explained the background and purpose for bringing the plastic riser standard to the TRC for adoption. Currently, the Department has plastic risers provisionally approved. As additional requests for product review are submitted to the state a standard similar to the concrete riser standard found in the Manual is needed. Dr. Mark Risse questioned the application of the ASTM material standards or similar, as appropriate measures to determine suitability or predict performance failure in a riser application. Public comment from Todd Harper, Tuf-Tite Inc, explained their testing through IAPMO. There was discussion by the committee members as to the necessity and purpose of the different plastic materials standards which lead to tabling the proposed standard until additional information could be brought back to the TRC for consideration.

C. Bio-Microbics RetroFast product asked to be approved for use in the state meeting Class I effluent. Chris Kumnick explained that the product has gone through equivalent NSF Standard 40 testing under NSF/ETV. However, NSF Standard 40, by definition, does not include the small flows represented in these models. A motion was made by George McClure to approve the RetroFast products as requested with an additional requirement that the RetroFast 0.15, 0.25, and 0.375 models must be installed in Department approved precast or plastic tanks only. Motion was approved.

D. Eljen Corporation, Inc. requested that their GSF system be approved for commercial applications. The current approval is for residential application only. Chris Kumnick stated that there was no testing data supplied by the manufacturer in their request to support application with high strength effluent. Further more the standards sub-committee was concerned with the systems ability to ensure equal distribution in beds with large flows. Phil Freshley stated that larger flows may require complications in design such as pump sizing and may require engineer design. The subcommittee did approve the proposed Eljen sizing table which uses daily flow per module in low strength wastewater (having less than 200 mg/l of CBOD and TSS) applications. Scott Uhlich proposed that the GSF system could be used for commercial flows less than 600 gallons per day. Dr. David Risse asked that the sizing table be corrected so that the labeling on the table is in compliance with the existing residential tables previously approved. Phil Freshley made the motion to approve the Eljen GSF system for use in commercial application for daily flows no more than 600 per day and with wastewater strength less than 200 mg/l CBOD and TSS. Motion was approved.

E. ICC Technologies, LLC requested approval for their Flowtech 9" 12" 13" and 14" gravel alternative products. The manufacturer's request also included a modification to their previous approved netting encasement. The new encasement includes a non-woven geotextile fabric. Bobby Barnes explained the results of the product re-test preformed by Unifour Engineering & Testing Laboratories, PC, the netting/fabric composite encasement improved the performance of the product. George McClure asked specifics about the different installation configurations. ICC asked that the 9" product be allowed for horizontal installation in a 36" trench, the 12" product will be installed horizontally in a 36" trench as well, the 13" product will be installed in a 30" trench in a triangular configuration, and the 14" product will be install in a 30" to 36" trench horizontally. Chris Kumnick stated that the 12" product was previously provisionally approved but since no product had been installed during the previous year period that ICC asks that the provisional approval be extended by an additional year. He said, that because of comments from the previous TRC approval, that the sub-committee also recommends that a one year provisional approval be applied to the other diameters too. Mr. George McClure made a motion to provisionally approve each of the Flowtech 9", 12", 13", and 14"products with both the netting and composite encasements with 0.85, 0.75, 0.65, and 0.75 gravel equivalency factors, respectfully, for one year. Motion was approved

6. Other Business: Mr. Ben Burteau spoke to the committee to explain the recent acquisition of Ring Industrial Group by Infiltrator Systems, Inc. Infiltrator Systems, Inc. will now distribute and support the EZflow products with the continued local help

of Mr. Jim Free and Mr. Ewing Barnett. Mr. Ben Burteau will assist the state with any regulation affairs specific to the products carried by Infiltrator Systems, Inc.

7. Motion to Adjourn

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B. J. Walker, Commissioner

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March 18, 2008

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: **Minutes of the 27th TRC meeting held March 17, 2008.**

The 27th TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on March 17, 2008. Dr. Lawton Davis called the meeting to order at 10:00 AM.

Members in Attendance: Lawton Davis, M.D., Bill Fortune, P.E., Bill Durham, Phil Freshley, Mat Harper, Scott Uhlich, Dewayne Tanner, Ernest Earn and Mark Harden.

Guests: Steve Dix, Stan Coppage, Jim Free, Todd Jones, Chris Kumnick, Ben Berteau and attorney.

Order of Business:

1. Call to Order
2. Review of minutes from the 26th TRC meeting. Motion to approve made by Mark Hardin. Minutes approved.
3. New Members: Mr. Uhlich informed the committee that Dr. Mark Risse would be added to the TRC to replace Dr. Larry West. Mr. Uhlich discussed with the committee members the progress toward finding an engineer for the open engineering position on the committee. Mr. Uhlich will e-mail the information on the applicants for review by the committee members.
4. Old Business:

   A. Eljen GSF system: The standards sub-committee report was presented by Scott Uhlich. Mr. Uhlich discussed the review process concerning the Eljen Geotextile Sand Filter system. The Eljen GSF system currently is provisionally approved under Class I effluent standards contained in the Department's Manual for On-site Sewage Management Systems. The standards sub-committee held meetings and conference calls with representatives from Eljen. The standards sub-committee noted the following features of the Eljen GSF system. The Eljen GSF system provides a two tiered process utilizing fabric modules surrounded by an approved coarse sand to achieve effluent quality superior to Class I standards. Test results submitted by the company involved 3 different application methods:

timed dosing, demand dosing and gravity flow. Test results indicated each application method exceeded Class I effluent standards. In addition to product test results, additional third party research was submitted in support of increased application rates beyond the current provisional approval.

The sub-committee supports increase loading rates for soil conditions when the limiting condition is 2 or more feet below trench or bed bottom. The sub-committee recommends allowing up to a 50% reduction in absorption field size for absorption rates of 60 minutes per inch or less; and 40% reduction for slower absorption rates. The committee recommends that no reduction in absorption field be allowed when the limiting condition is less than 2 feet below trench or bed bottom. This recommendation is consistent with current requirements in the Department's Manual for On-site Sewage Management Systems.

Due to the passive nature of the system, the sub-committee recommends requiring assistance as needed three year service policy.

TRC Sub-Committee Recommendations
Eljen GSF Geotextile Sand Filter system

1. The A42 Eljen GSF module is approved to be installed in a four foot (4') trench. The application rate for trenches will be used but must be demanded dosed and installed meeting the bed installation requirements.

2. Eljen GSF system is approved at 2' separation for a 50% sizing reduction until 60 min/in PercRate and a 40% after at increased PercRates.

3. Eljen GSF systems are approved for bed installations with demand dosing to a distribution box. Doses shall be 3.5 gallons or less per module which does not require timed dosing.

4. Eljen GSF system must offer a three year technical assistance service policy. No maintenance visits are required.

Steve Dix, representing Eljen, discussed the test results and application methods with the committee members. Committee members discussed the demand dosing to a distribution box. The demand dose will release a volume of water based on the number of modules to be dosed in the absorption field. For serial gravity flow, Mr. Dix explained that the biomat on the fabric wrapped module would cause wastewater flow through the module to slow and the excess wastewater will follow the path of least resistance through the solid pipe to the next module by gravity flow. A motion to approve the sub-committee recommendations for the Eljen GSF system was made by Mark Hardin. Motion approved.

B. ICC Flowtech System: The standards sub-committee completed review of testing information submitted by ICC concerning the Flowtech Drainage System. Mr. Uhlich

discussed the review process. ICC initially requested approval as a "like product" asserting their Flow Tech system was exactly the same as the Ring Industrial Company EZflow System. Mr. Uhlich informed ICC that the TRC required specific product testing information. ICC submitted third party test information for the ICC Flowtech FTS123H-1 Drainage System from Uniform Engineering. This information included product schematics, contact area test results, storage volume test results and load bearing test results. The company failed to provide sufficient information for the sub-committee to complete a review on the ICC Flowtech FTS75H-1. FTS94H-1, FTS103H-1 and FTS142H-1 Drainage Systems. Based on the information submitted for the ICC Flowtech FTS123H-1 Drainage System, the sub-committee has the following recommendations.

TRC Sub-Committee Recommendations – ICC Flowtech

1. After review of independent third party test results on contact area impact on trench bottom and side wall, and review of aggregate storage volume data, the sub-committee recommends an equivalency factor of **.75** for the **ICC Flowtech FTS123H-1 Drainage System.**

2. Due to the fact that insufficient information has been submitted, the sub-committee could not make a recommendation on the **FTS75H-1, FTS94H-1, FTS103H-1 and FTS142H-1 Drainage System.**
   No Schematics provided identifying trench bottom and side wall contact area per model.
   No volume calculations submitted.

Ben Berteau, Ring Industrial Group, raised a point concerning ICC's lack of system installation history in Georgia and surrounding states. He indicated the committee should consider the lack of field supported data, and limit or control system distribution. He indicated North Carolina limited the number of system installations to 200. Discussion among committee members centered on whether the TRC should recommend limiting the number of installations in the state until verification of product quality in field use is determined. The committee determined quality control compliance would be addressed at the time of system installation through the inspection process. Sub-standard product would be denied approval at the time of inspection. County health departments had the capability of reporting quality control problems to the state office. If necessary, the state office can address the product approval with the TRC. Motion was made by Mark Hardin to accept the sub-committee recommendation to approve the ICC Flowtech FTS123H-1 system at an equivalency factor of .75 and place no state limit on the number of system installations. Motion approved.

5. New Business:

A. Aquaklear Aerobic Treatment Unit. Mr. Uhlich provided the members with a copy of a letter of complaint signed by the Chairman of the Boards of Health and the District Medical Director from the Valdosta Health District. Mr. Uhlich discussed the problems

Valdosta was experiencing and the state office was having with the company compiling with the submittal of service reports.

B. USEPA recognition: Mr. Uhlich provided the members with a copy of the U.S. Environmental Protection Agency recognition of The State of Georgia for management of onsite sewage systems. Mr. Uhlich thanked the members for their contribution to the DHR program.

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July 24, 2007

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 26th DHR Technical Review Committee meeting

The 26th TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on August 21, 2007. Dr. Lawton Davis, Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Dr. Lawton Davis, Scott Uhlich, Mark Harden, Bill Fortune, P.E., George McClure, Phil Freshley, Matt Harper, Rusty Bowdon and Dewayne Tanner.

Guests in Attendance: Todd Jones, Dick Bachelder and Lee Starks

Order of Business:

1. **Call to Order**.
2. **Review of Minutes from the 25th TRC meeting**.
   Motion to approve minutes made by George McClure. Minutes unanimously approved.
3. **New Member:** Mat Harper was introduced as a new member. Mat is an environmental planner with the Atlanta Regional Commission. Mat is working with the Metropolitan North Georgia Water Planning District. Scott Uhlich also mentioned an engineer would be added to the TRC to replace Larry Chapman. Some members requested that engineering expertise needed for the committees work be considered by DHR when considering the appointment.
4. **Election of Officers:**
   A motion was made by George McClure to retain Dr. Lawton Davis as chairperson and Dr. Larry West as vice-chairperson. Motion unanimously approved. Scott Uhlich will remain as secretary as required by TRC by-laws.
5. **Standards sub-committee**: Scott Uhlich requested the appointment of Todd Jones to the standards sub-committee. Motion to appoint Todd Jones to the standards sub-committee was made by Phil Freshley. Motion unanimously approved.
6. **New Business**:
   ADS ARC24 Chamber: Mr. Dick Bachelder presented a request to the committee regarding approval of the ARC24 chamber. The discussion centered around 2 issues. First issue discussed involved the assessment of the ARC 24 sidewall equivalency. Mr. Bachelder presented information identifying the fact that the ARC 24 chamber has more open sidewall area than the Infiltrator EQ 26 chamber, recently approved by the TRC. Therefore, the ADS ARC 24 should be given equivalent sizing as compared to the Infiltrator EQ35 chamber. The standards sub-committee determined that ADS should test the performance of the side wall on their product (ARC24) and not utilize performance testing obtained on a competitor's product (EQ36).

   In addition Mr. Bachelder took issue with the evaluation of sidewall efficiency, which the standards sub-committee accepted from the Infiltrator Standard Quick4 chamber. Scott

Uhlich, standards committee member, explained that the sidewall of the Infiltrator Standard Quick4 was the same louver configuration found on the Infiltrator EQ36 and that the EQ36 provided greater sidewall height and open area. Mr. Uhlich explained that the standards sub-committee concluded that the louvered area of the EQ36 would perform in a manner at least equivalent to the standard chamber (with less sidewall area). The committee gave no additional credit to the EQ36, even though the product had greater open sidewall area. Mr. Bachelder acknowledged the sub-committees conclusions of sidewall performance were acceptable. Mr. Bachelder wanted the committee to acknowledge the ADS ARC24 chamber sidewall as equivalent to the Standard Quick4. The committee determined the ADS ARC24 had a similar but different louvered configuration and determined ADS needed test data on their product's performance.

Mark Hardin addressed a second issue concerning the ADS ARC24 product regarding storage volume. The standards sub-committee determined the storage volume of the ARC24 chamber did not meet the standard regarding storage volume. Mr. Bachelder acknowledged that the ARC24 did not meet the storage volume standard but wanted the TRC to consider the difference negligible and approve the ARC24 equivalent sizing criteria as compared to the Infiltrator EQ36 chamber.

The TRC requested that Mr. Bachelder provide additional test data for the ARC24 chamber on the sidewall and storage volume. A motion was made by George McClure to send the ADS ARC24 chamber back to the standards sub-committee to review additional test data. Motion approved.

7. **Other Business:** Matt Harper presented information regarding the activities of the Metropolitan North Georgia Water Planning District and how these activities impact on-site sewage management systems.

8. Meeting adjourned at 11:30 AM.

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February 7, 2007

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 25th DHR Technical Review Committee meeting

The 25th TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on February 7, 2007. Dr. Lawton Davis, Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Dr. Lawton Davis, Scott Uhlich, Mark Harden, Larry Chapman, P.E., Bill Fortune, P.E., Ernie Earn, Bill Durham, Rusty Bowdon and Dewayne Tanner.

Guests in Attendance: Greg Harless, Jim Free, Kyle Parish, Rob Roberts and Ewing Barnett.

Order of Business:

1. **Call to Order**.
2. **Review of Minutes from the 24th TRC meeting**.
   Motion to approve minutes made by Ernie Earn. Minutes unanimously approved.
3. **Old Business:**

   A. Infiltrator Quick4 Equilizer24 and Infiltrator Quick4 Equilizer36 chamber models. Scott Uhlich presented the standards sub-committee report. The sub-committee has reviewed the third party information submitted by Infiltrator. The chamber models reviewed are similar to previous approved Quick4 chamber models. These two chamber models have similar sidewall properties but are narrower chambers. The committee reviewed the infiltrative surface area, the storage volume and the structural load test results. The sub-committee recommends approval of the Quick4 Equilizer24 chamber model with an equivalency factor of 1.5 and recommends approval of the Quick4 Equilizer36 chamber model with an equivalency factor of 1.0. Larry Chapman made a motion to approve the Quick4 Equilizer24 and Quick4 Equilizer36 chamber models as recommended by the standards sub-committee. Motion unanimously approved.

   B. Ring Industrial Group EZflow 0705H. Scott Uhlich presented the standards sub-committee report. The sub-committee reviewed the third party information submitted by the Ring Industrial Group. The EZflow 0705H is similar to previously approved EZflow systems. The EZflow0705H is a lower profile product with a bundle diameter of 7 inches. The sub-committee reviewed the infiltrative surface area and volume calculations submitted. The sub-committee recommends approval of the EZflow 0705H system with an equivalency factor of 1.15. Ernie Earn made a motion to approve the EZflow 0705H system as recommended by the standards sub-committee. Motion unanimously approved.

   C. The standards sub-committee was requested by the Ring Industrial Group to review the approval of the 8-inch modified gravel system. Scott Uhlich explained that the 8-inch

modified system was approved prior to the adoption of rule 290-5-26-.20 Standards for Non-Conventional On-Site Sewage Management Systems. The sub-committee reviewed the 8-inch modified system in accordance with rule 290-5-26-.20 as a non-conventional system. Based on the infiltrative surface area and the storage volume requirements in rule 290-5-26-.20, the sub-committee recommends revising the equivalency factor for the 8-inch modified gravel system from an equivalency factor of 1.2 to an equivalency factor of 1.5. Motion to approve the sub-committees recommendation was made by Ernie Earn. Motion unanimously approved.

4. **Other Business**: Mr. Uhlich advised the committee that DHR was working with the Statewide Water Council concerning the Statewide Water Plan. Discussion regarding on-site sewage systems by this group included the need for long term monitoring and maintenance planning by local county governments for existing systems. Mr. Uhlich also informed the committee that the coastal area was becoming concerned about reducing nitrate levels. Mr. Uhlich advised the committee that they may be asked for recommendations on these issues. Mr. Uhlich informed the committee about the recommendations from the Senate Septage Study committee. The study committee report recommends that EPD permit all land application sites; that the statute be revised to remove the requirement for local county government approval of land application sites and that DHR strengthen manifesting requirements for tracking illegal disposal.
5. **Next meeting date**: To be determined
6. **Motion to adjourn**

DHR

B. J. Walker, Commissioner

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November 7, 2006

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 24th DHR Technical Review Committee meeting

The 24th TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on November 6, 2006. Dr. Lawton Davis, Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Dr. Lawton Davis, Scott Uhlich, Mark Harden, Larry Chapman, P.E., Bill Fortune, P.E., Phil Freshley, George McClure, Larry West, Ernie Earn and Dewayne Tanner.

Guests in Attendance: Todd Jones, Steve Dix, Stan Coppage, John fortune, Judy fortune, Shawn Fallin, Trey Tucker, Les Koberg, Mike Fugate, Bron Bradley, Steve Branz, Ted Greene, David Morgan, Truett Kastner and Jim Free.

Order of Business:

1. **Call to Order**.
2. **Review of Minutes from the 23rd TRC meeting**.
   Motion to approve minutes made by George McClure. Minutes unanimously approved.
3. **Election of Officers**: Chairman – Lawton Davis, M.D. Nominated by George McClure. Unanimously approved. Vice-chairman – Larry West. Nominated by George McClure. Unanimously approved. Secretary – Scott Uhlich. Established by by-laws.

4. **Old Business:**
   A. Elgin In-Drain system – Scott Uhlich reported that the standards sub-committee had met and completed their review of the Elgin Geotextile Sand Filter system. Mr. Uhlich reported on the standards sub-committee recommendations as follows:
      1. Based on effluent testing submitted by the company, the committee recommends provisional approval as an advanced treatment system producing a Class I effluent quality. Provisional approval for 1 year pending completion of NSF Standard 40 testing.
      2. The committee recommends using application rates established in the Departments Manual for On-Site Sewage Management Systems, Table FT-7, for Class I effluent.
         a. Utilize trench application rates with modules spaced 7 foot on center.
         b. Utilize bed application rates with modules spaced less than 7 foot on center.

         c. The committee recommends that the current guidelines for domestic wastewater application for absorption fields designed for Class I effluent, including time dosing and equal distribution

required on bed absorption field designs, be applied as established in the Departments Manual for On-Site Sewage Management Systems.

Steve Dix, representing Elgin, provide additional information to the committee regarding the product. Mr. Dix reviewed the product with the committee explaining how the product functions. The system utilizes a series of channels in each module to facilitate treatment and distribution. Mr. Dix explained how the system provides treatment of the wastewater through the product panels and through a sand fill prior to discharge to the native soil. Mr. Dix proposed using trench application rates in a bed configuration. Mr. Dix presented information on Wisconsin mound system effluent sampling in support of his request. Stan Coppage illustrated how the effluent is applied to the sand media.

The committee discussed concerns regarding equal distribution of the effluent. The absorption field system is loaded at one end with effluent and not uniformly to each module. Mr. Dix proposed utilization of a distribution box to assist with equal distribution.

Larry Chapman made a motion to send the approval request back to the sub-committee to consider new information. Motion seconded. Committee discussed current application rates and pressure distribution requirements as applicable to this product.

George McClure made a substitute motion to grant provisional approval for one year based on the sub-committee recommendations. Motion unanimously approved.

5. **New Business**: Todd Jones presented information regarding proposed changes in the Department's Manual for On-Site Sewage Management Systems regarding Aerobic Treatment Units (ATU).
    a. The Department proposes requiring a "trash tank" be utilized prior to an ATU. The size of the trash tank to be equivalent to the 24 hour wastewater flow from the facility served. Any ATU tested using ANSI/NSF Standard 40 may be excluded from this requirement if the ATU has a trash compartment as part of their NSF approval.
    b. Submission of maintenance reports. The following to be added into the manual " the NSF Onsite Monitoring Program or equivalent, accessible by the Department, District, county and homeowner, may be used in lieu of the maintenance reporting requirements if such reporting system includes the information required by the Department."
    c. Contractor Service Provider: Any contractor installing or performing work on an Advanced Treatment System (ATS) must be provided with a certification or card that demonstrates their completion of the manufacturer certification program. All Advanced Treatment System manufacturers must submit a listing of their certified installers and service providers with their annual maintenance reports. Any additions or deletions to this list must be submitted to the Department and county.

Dewayne Tanner made a motion to approve the recommendations as presented. Motion

unanimously approved. Proposed implementation date of January 1, 2007.

6. **Other Business**: Mr. Uhlich indicated to the committee three members will need to be replaced.
7. **Next meeting date**: To be determined
8. **Motion to adjourn**

DHR

B. J. Walker, Commissioner

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June 20, 2006

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 23rd DHR Technical Review Committee meeting

The 23rd TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on June 19, 2006. Dr. Lawton Davis, Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Dr. Lawton Davis, Scott Uhlich, Mark Harden, Larry Chapman, P.E., Bill Fortune, P.E. and Dewayne Tanner.

Guests in Attendance: Ben Berteau, Kyle Paris, Ewing Barnett, Stephen Brown, Todd Jones, Steve Dix, and Stan Coppage.

Order of Business:

1. **Call to Order**.
2. **Review of Minutes from the 22nd TRC meeting**.
   Motion to approve minutes made by Mark Harden. Minutes unanimously approved.
3. **New Business:**
   a. Ring Industrial Group EZ1303T – Scott Uhlich informed the committee that due to installation problems, the trench width for installing the EZ1303T product was revised from a 36 inch trench width to a 30 inch trench width. This change was necessary so the trench sidewall could support the product so the product would remain in a triangle configuration. This change did not affect the equivalency factor approved for the product. The standards sub-committee reviewed and approved the revision.
   b. Ring Industrial Group EZ1402H – Ben Berteau reviewed with the committee the third party data and calculations provided to the committee for review. The Standards sub-committee was provided the information by e-mail and then polled. Four (4) sub-committee members responded with all recommending approval of the EZ1402H with a 25% reduction or .75 equivalency factor. Mark Harden asked about the trench width of 36 inches with the product only being 29" wide. Ben Berteau stated that installation instructions would require one side to be backfilled first so the 2 bundles would be pressed against the opposing trench sidewall and held in place. Dewayne Tanner asked about the type of backfill. Ben Berteau stated that clean native soil excavated from the trench would be suitable backfill. Larry Chapman made a motion to approve the EZ1402H with a .75 equivalency factor. Motion unanimously approved.
   c. Elgin In-Drain system – Scott Uhlich stated that the standards sub-committee was currently reviewing the Elgin system. This product is a unique system that is not installed in a typical trench type configuration. The product has been

installed in a limited area of the state as an experimental system. These installations were in problem soils. District and county environmental staff have reported the system has performed very well in these situations. Steve Dix, representing Elgin, provide additional written materials to the committee regarding the product. Mr. Dix reviewed this material with the committee explaining how the product functions. The system has been utilized primary in the northeastern states where the company is located. Mr. Dix explained how the system provides treatment of the wastewater through the product panels and through a sand fill prior to discharge to the native soil. The committee determined an installation manual developed for Georgia was needed before the committee could render a decision regarding product approval.

4. **Other Business**: None
5. **Next meeting date**: To be determined
6. **Motion to adjourn**

DHR

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April 25, 2006

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 22nd DHR Technical Review Committee meeting

The 22nd TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on April 21, 2006. Dr. Lawton Davis, Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Dr. Lawton Davis, Dr. Daryl Rowe, Scott Uhlich, Mark Hardin, Phil Freshly, and Larry Chapman, P.E.

Guests in Attendance: Marc Maroschak, Doug Everson, Gregory Herbert, Dr. Kevin Sherman, Scott Thomson, Mike Maroschak, Rocky Rocco, Chris Peterson, Jim Free, Kyle Paris, Ewing Barnett, Stephen Brown, Bettie Sleeth, Charles Schaffer, Carl Thompson and Todd Jones.

Order of Business:

1. **Call to Order**.
2. **Review of Minutes from the 21st TRC meeting**.
   Motion to approve minutes made by Mark Hardin. Minutes unanimously approved.
3. **Old Business**:
   a. Plastic Tubing Industries, Inc. – Mr. Everson handed out additional information on the multi-pipe system. Dr. Sherman went over this information in a PowerPoint presentation. The multi-pipe system was installed in 2 locations in Georgia under Dr. Sherman's direction. A 36 inch wide trench was dug and the trench bottom chalked. A 10 foot section of the multi-pipe system was installed and covered with 2 feet of soil cover with a backhoe like a typical installation. The range of pipe contact for each pipe ranged from ¾ to 1.5 inches. The predominate amount of contact per pipe was 1.5 inches. Dr. Sherman used 1.5 inches of contact area per pipe in his calculations determining effective trench bottom area. Dr, Sherman discussed the MPS 13-12, a new configuration, with the addition of an additional pipe on top to increase the product height to approximately 13 inches. Dr. Sherman reviewed his calculations including the 1.5 inch contact area/pipe and an increase in equivalent sidewall height. His calculations include a trench bottom width of 37 inches. Dr. Sherman went through the same calculations for the MPS-11-12, MPS-12-12 and MPS-9-12. Dr. Sherman also discussed calculations related to the MPS-13-36, new configuration, with an increase in bottom width (37") with an addition of one pipe to the bottom and 5 pipes on top, with 1.5" contact area/pipe.

      Scott Uhlich suggested the committee address the soil contact issue. The new

field test results reported by Dr. Sherman reduce the soil contact area per pipe from 2 inches to 1.5 inches. Mark Hardin suggested the committee review the MPS-13, MPS-11 and MPS-9 related to the change in contact area per pipe. Dr. Sherman reviewed soil contact pictures taken at the field test with the committee members. The committee members discussed the method of installation, soil cover and field test results.

Scott Uhlich asked Dr. Sherman if the companies request for the MPS-13, MPS-11 and MPS-9 were based on calculations with the only change being the reduction of pipe contact area from 2 inches (as originally calculated) to 1.5 inches based on the new field tests. Dr. Sherman indicated the new calculations were based on a contact area of 1.5 inches/pipe on the trench bottom.

A motion was made by Dr. Rowe to accept the trench bottom pipe contact area / pipe at 1.5 inches as presented by Dr. Sherman. Motion unanimously approved.

Scott Uhlich made a motion to approve the MPS-13 to a 25% reduction or .75 equivalency factor, MPS-11 to a 10% reduction or .9 equivalency factor and the MPS-9 to a 12% increase or 1.12 equivalency factor. Motion unanimously approved.

The committee began discussion of the new products being presented. Mark Hardin made note of the product width of 37 inches being used in calculations for trench bottom area. Mr. Hardin stated that the maximum trench width allowed by regulation is 36 inches. Mr. Everson asked where this was located in the regulations. Mr. Uhlich stated the regulation is found in the Departments Manual for On-Site sewage Management Systems in Section F. Mr. Hardin read the regulation to the committee from the manual. The committee agreed the trench bottom width shall be calculated based on a 36 inch trench width.

Scott Uhlich asked Dr. Sherman about the benefit associated with the addition of a single pipe in the middle of the 36 inch wide trench. The company's rational is this additional pipe will increase the effective sidewall area of the product. Mr. Uhlich questioned if the wastewater would move laterally over 14 inches to reach the undisturbed sidewall of the trench. Phil Freshly, soil scientist, discussed the problem with disturbed fill material surrounding this additional pipe on top. Mr. Uhlich asked Mr. Everson if the company considered addition of a complete row of pipes across the top to intersect with the undisturbed sidewall. Company did indicate they had considered the option but rejected it as cost prohibited. The consensus of the committee members was that the addition of a single pipe on top did not increase the sidewall efficiency of the product.

Mr. Everson asked the committee to focus on the new MPS-13-36 product. The company moved one pipe from the top row to the bottom row to increase the overall trench bottom infiltrative area. The committee again noted the calculations included a trench width of 37 inches. The committee members discussed the placement of the loose pipes on the ends. The company demonstrated that there were two 5 pipe void bundles banded together to provide structural support and to keep the product aligned. The loose pipes

place on each end would be held in place by the trench wall and banded bundles. A distribution pipe would be placed on top between the two 5 pipe bundles. The committee discussed the placement of the outside bottom pipe, its elevation, contact with the soil and relationship to trench bottom calculations. The committee determined the trench bottom area would be based on 8 bottom pipes in contact with the trench bottom area. The committee reviewed calculations based on a 36 inch trench bottom width, an 8.6 inch product height and a pipe contact area of 1.5 inches per pipe on the trench bottom.

Mr. Chapman made a motion to approve the MPS-13-36 at a 35% reduction. Motion died for lack of second.

Scott Uhlich made a motion to approve the MPS-13-36 at a 33% reduction or .67 equivalency factor contingent on the company submitting installation guidelines to the Department. Motion unanimously approved.

4. **Other Business**: None
5. **Next meeting date**: To be determined
6. **Motion to adjourn**

DHR

B. J. Walker, Commissioner

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March 28, 2006

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 21st DHR Technical Review Committee meeting

The 21st TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on March 27, 2006. Dr. Daryl Rowe, Vice- Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Daryl Rowe., Scott Uhlich, Mark Hardin, George McClure, Bill Fortune, P.E., Phil Freshly, Bill Durham, Dewayne Tanner, Larry Chapman, P.E., Ernest Earn, and Dr. Larry West.

Guests in Attendance: Marc Maroschak, Doug Everson, Gregory Herbert, Dr. Kevin Sherman, Scott Thomson, Mike Maroschak, Chris Peterson, Mark Hardin, Jim Free, Kyle Paris, Ben Berteau, Ewing Barnett, Stephen Brown, Bettie Sleeth and Todd Jones.

Order of Business:

1. **Call to Order**.
2. **Review of Minutes from the 20th TRC meeting**.
   Motion to approve minutes made by Dewayne Tanner. Minutes unanimously approved.
3. **Old Business**:
   a. Plastic Tubing Industries, Inc. – Doug Everson discussed the previous meeting and the questions that were raised concerning sizing in Florida, fabric placement and wicking, and effluent distribution through the pipe. Mr. Everson indicated Scott Thomson, Chris Peterson and Dr. Sherman would be presenting information to the committee.

   Scott Thomson presented information on the Florida product approval which does not provide for linear reduction. Florida requires the same linear length for the 13-pipe system, 11-pipe system and 9-pipe system. Florida does provide for foot print reduction of 33% for the 9-pipe system in a 2 foot trench configuration and approximately a 36% foot print reduction in a bed configuration. Scott Thomson discussed the proper fabric placement with a 4 foot wide geotextile fabric with the 13-pipe system. Since the fabric is between the pipe and soil, the company indicated that fabric wicking occurs. The distribution of effluent through the distribution pipe was discussed. The pipe has two holes with a 60 degree offset on the bottom. The corrugations in the pipe serve as a dam to allow suspended solids to separate out. The placement of the holes to the side allows better distribution than a pipe with holes directly on the bottom. Bill Durham asked if the company was stating that an equal amount of water flows out each hole throughout the system. Mr. Thompson indicated the pipe provided better distribution than a pipe with a hole directly in the bottom but not equal distribution. Mr. Thompson provided a list of failures in Florida during the 2004 year for all on-site sewage systems installed. Committee asked for a failure rate evaluation on the MPS system. The company did not

submit failure rate data.
Mark Hardin illustrated that in Florida the linear length of the 13-pipe, 11-pipe and 9-pipe systems was 100 feet as compared to 100 linear feet of gravel. The sub-committee's recommendation for sizing in Georgia is as follows:
13-pipe system is 80 linear feet as compared to 100 linear feet of gravel, which is better than Florida's rating.
11-pipe system is 100 linear feet as compared to 100 linear feet of gravel, which is the same as Florida's rating.
9-pipe system is 120 linear feet as compared to 100 linear feet of gravel, which is an increase as compared to Florida's rating.
Mr. Uhlich pointed out that the sub-committees recommendation provided both the 11-pipe and 9-pipe systems with a reduction in trench bottom area because the 11 and 9 pipe systems are narrower than the 36 inch wide conventional system in Georgia.

Chris Peterson presented information on the sidewall area of the MPS system. The evaluation was conducted in Orange County, Florida in a fine sandy soil. Dr. Sherman, third party evaluator, was not present. The company installed a 10 foot section of product, placed fabric and hand back filled with 6 to 7 inches of soil. Committee questioned the method of installation as not being representative of a typical installation in Georgia (hand backfilling and minimal amount of soil cover). Mr. Peterson indicated that the sidewall of the product circumference as measured on an angle is 10 inches. The sub-committee analysis was based on an 8.5 inch product height. The committee explained that the vertical plane of the undisturbed trench sidewall infiltrative surface area was the basis for the sidewall evaluation. Mr. Everson stated this presentation was for information only and that company understood that the evaluation did not meet the third party requirement since Dr. Sherman did not conduct the evaluation.

Dr. Sherman presented information on the product evaluation he conducted. Dr. Sherman stated he received the equations from the sub-committees analysis. Dr. Sherman stated that it was a rational method for making sense of something very complicated. He reviewed with the committee the sub-committees analysis of the 9-pipe system based on the adopted standards. Mr. Sherman presented information on a field test conducted in Moultrie, Georgia in a Tifton soil (sandy clay). Dr. Sherman agreed with the committee that over time the sidewall of the product would be in complete contact with the soil without void spaces. Mr. Peterson had indicated that the placement of the fabric over the product would hold the soil off the product in areas creating void spaces along the sidewall. System installation was hand backfilled with 7 inches of soil. The contact area of the individual pipe on the trench bottom was measured in the range of ¾ inch to 1.5 inches. Based on these measurements, Dr. Sherman used a 1 inch contact area for each pipe in his calculations. Based on the circumference of the pipe along the sidewall, the sidewall is calculated as 1.04sq.ft./ft. The committee questioned the installation method of hand backfilling. Typical installation is with a backhoe dumping soil on the product. Typical installations in the majority of the state have soil cover of 2 feet or more. Mr. Uhlich and Mr. Freshley explained that the sidewall is evaluated based on the undisturbed vertical plane of the trench sidewall not the circumference of the product or product angle. Mr. Uhlich indicated that on two previous submittals by the company, two previous engineers determined the contact area to be 2 inches for each pipe.

Mr. Everson indicated that the company went to the 2 hole pipe to achieve better distribution of the effluent. The presence of the geotextile fabric allows the water exiting the holes to be wicked to the soil surface. Mr. Everson stated the company was a small business. Mr. Greg Herbert, PTI attorney, stated that PTI had less than 100 employees

and should be given consideration as a small business. Mr. McClure questioned Mr. Herbert about the company's gross product sales as being a condition for consideration as a small business. Mr. Herbert did not know and the owner would not provide the information. Mr. McClure stated he believed the committee also has to consider the health, safety and welfare of the citizens of Georgia. Mr. Hardin asked Mr. Herbert if he was asking the committee to evaluate their product based on a different set of standards. Mr. Herbert stated he could not answer that question but his position was the committee had to take into consideration his clients status as a small business. Mr. Uhlich stated that the Department had delayed implementation of the rule for one year to mitigate the economic impact on small business. The Technical Review Committee has allowed each company to submit third party data, data from other states and other performance data to support their request.

Mr. Everson requested approval for the PTI MPS 13-pipe at a 35% reduction, the MPS 11-pipe at a 28% and the MPS 9-pipe at a 12% reduction.

Mr. Earn made a motion to have the sub-committee re-evaluate based on the information presented today. No second.

Mr. McClure asked about trench bottom area reduction verses linear length reduction. Mr. Uhlich stated that the PTI products were getting a trench bottom reduction because they were narrower than the 36 wide conventional gravel system. Mr. Hardin stated that the company wanted a reduction equivalent to taller and wider products. In addition they were asking for a reduction greater than that granted in Florida for the 13-pipe system. The company also wanted the bottom contact area to be evaluated based on 1 inch instead of two inches but the 1 inch evaluation was conducted with minimal soil cover and hand covered. Typical installation is with a backhoe.

Mr. Sherman asked if the committee had considered the holes and slots. Mr. Uhlich indicated that the sub-committee had considered the fact that holes and slots were present in the contact surface area of the pipe. If the holes and slots were not present, the contact area would have been subtracted from the overall infiltrative surface area. The sub-committee gave the contact area 50% credit in calculating the effective infiltrative surface area due to the presence of holes and slots.

Mr. Hardin made a motion to accept the standards sub-committee recommendation with the provision that PTI could submit additional data for re-consideration at a later date.
MPS 13-pipe system – 20% reduction or .8 equivalency factor
MPS 11-pipe system – no reduction or 1.0 equivalency factor
MPS 9-pipe system – 20% additional length or 1.2 equivalency factor.
Motion seconded.

Mr. Everson asked under what load the other products were evaluated. Mr. Uhlich stated that EZflow had submitted load data with a range up to 4 feet of soil cover. The sub-committee evaluated those products contact area under a load equivalent to 2 foot of soil cover.

Mr. Freshley asked Mr. Everson if the product could be reconfigured in a manner that would provide additional reduction under the current standard. Mr. Everson stated their product has a fabric cover the other products do not have and the committee should consider the sidewall area equivalent due to the wicking of the fabric. The committee discussed problems in the state with fabric wrap products. Previous fabric wrap products

installed in the southern have of the state had problems with the fabric clogging which caused the systems to fail prematurely. Dr. Sherman indicated that this type fabric was different. Mr. Uhlich asked Dr. Sherman if he had evaluated the fabric for clogging in Florida. Dr. Sherman indicated he had not because Florida does not consider sidewall area in their evaluation.

Mr. Tanner called the question to be moved.

Mr. Hardin re-stated his motion that the sub-committee recommendation be approved with a provision for re-evaluation should the company provide additional data. Mr. McClure indicated this was mitigation to them as a small business, allowing them another opportunity to present additional data.
Motion approved.

Mr. Everson requested another opportunity to meet with the committee prior to the April 27th implementation date.

Mr. McClure requested that the committee be provided a transcript of the meeting being recorded by PTI. Mr. Herbert stated he would provide the transcript.

4. **Other Business**: None
5. **Next meeting date**: The next meeting date for the TRC will be April 21, 2006.
6. **Motion to adjourn**

DHR

B. J. Walker, Commissioner

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February 28, 2006

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 20th DHR Technical Review Committee meeting

The 20th TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on February 28, 2006. Dr. Lawton Davis, M.D., Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Lawton Davis, M.D., Scott Uhlich, Stan Coppage, George McClure, Bill Fortune, P.E., Phil Freshly, Bill Durham, Dewayne Tanner, Larry Chapman, P.E., Ernest Earn, Rusty Bowden and Dr. Larry West.

Guests in Attendance: Mark Maroschak, Chris Peterson, Doug Everson, Gregory Herbert, Dr. Kevin Sherman, Scott Thomson, Mike Maroschak, Mark Hardin, Jim Free, Carl Thompson, Mark Fricke, Bron Bradley, Kyle Paris, Al Schnitkey, Ben Berteau, Ewing Barnett, Stephen Brown, Lee Starks, Mike Fugate, Ted Greene, David Moore, Tyler Newman and Todd Jones.

Order of Business:

1. **Call to Order**.
2. **Review of Minutes from the 19th TRC meeting**.
   Motion to approve minutes made by Ernie Earn. Minutes unanimously approved.
3. **Old Business**:
   a. Standards Sub-committee Report: Larry Chapman, chairman, asked Scott Uhlich to present the sub-committee report. Scott Uhlich, secretary, stated the standards sub-committee met 4 times over the previous six months. Meetings were held with the Ring Industrial Group, Infiltrator Chamber Systems, Inc., Advanced Drainage Systems and Plastic Tubing Industries, Inc. The sub-committee discussed the standard with each company and its application to each product. The committee reviewed and evaluated the independent third party test data submitted by each manufacturer. The sub-committee is prepared to make recommendations for consideration by the full committee. These recommendations were provided to each committee member in a handout. Mr. Uhlich suggested the TRC hear from each manufacturer.
   b. Lee Starks representing Advanced Drainage Systems requested approval, based on the adopted standard, for the following chamber systems.
      ARC36 chamber at a 25% reduction
      ARC36HC (High Capacity) chamber at a 35% reduction
      BioDiffuser 11-inch Standard chamber at a 25% reduction
      BioDiffuser 14 inch High Capacity chamber at a 35% reduction
      BioDiffuser 16 inch High Capacity chamber at a 35% reduction
      Hancor Standard EnviroChamber at a 25% reduction
      Hancor High Capacity SF EnviroChamber at a 35% reduction

Hancor High Capacity SW EnviroChamber at a 35% reduction

Scott Uhlich stated the sub-committee had evaluated the information submitted by Advanced Drainage Systems and based on this evaluation was recommending approval with the following reductions and equivalency factors.
ARC 36 chamber – 25% reduction or .75 equivalency factor
ARC 36 HC chamber – 35% reduction or .65 equivalency factor
BioDiffuser 11 inch Standard chamber – 25% reduction or .75 equivalency factor
BioDiffuser 14 inch High Capacity chamber – 35% reduction or .65 equivalency factor
BioDiffuser 16 inch High Capacity chamber – 35% reduction or .65 equivalency factor
Hancor Standard EnviroChamber – 25% reduction or .65 equivalency factor
Hancor High Capacity SF Envirochamber – 35% reduction or .65 equivalency factor
Hancor High Capacity SW EnviroChamber -35% reduction or .65 equivalency factor

George McClure made a motion to approve the chamber systems as recommended by the standards sub-committee. Motion approved.

c. Carl Thompson, representing Infiltrator Chamber Systems, Inc., requested approval, based on the adopted standards, for the following chamber systems.
Quick4 Standard chamber at a 25% reduction
Quick4 W Standard chamber at a 25% reduction
Quick4 High Capacity chamber at a 35% reduction
Infiltrator High Capacity chamber at a 35% reduction
Infiltrator High Capacity Sidewinder chamber at a 35% reduction

Scott Uhlich, secretary, stated the sub-committee had evaluated the information submitted by Infiltrator on the Quick4, Quick4 W and Quick4 High Capacity chambers. Based on this evaluation, the sub-committee was recommending approval with the following reductions and equivalency factors.
Quick4 Standard chamber – 25% reduction or .75 equivalency factor
Quick4 W Standard chamber – 25% reduction or .75 equivalency factor
Quick4 High Capacity chamber – 35% reduction or .65 equivalency factor

Mr. Uhlich indicated that the information submitted by Infiltrator for the provisionally approved Infiltrator High Capacity chamber and Infiltrator High Capacity Sidewinder chamber had been reviewed by the sub-committee and TRC during previous meetings. Based on previous evaluations of this information, Mr. Uhlich recommended approval with the following reductions and equivalency factors.
Infiltrator High Capacity chamber – 35% reduction or .65 equivalency factor
Infiltrator high Capacity sidewinder chamber – 35% reduction or .65 equivalency factor

George McClure made a motion to approve the chamber systems as recommended by the standards sub-committee and Mr. Uhlich. Motion approved

d. Ben Berteau, representing the Ring Industrial Group, requested approval, based on the adopted standards, for the following EZflow systems.
EZ0904-H at a 15% reduction
EZ1203-H at a 25% reduction
EZ1303-T at a 35% reduction

Scott Uhlich, secretary, stated that the sub-committee had evaluated the information submitted by Ring Industrial Group on the EZflow systems. The committee reviewed the

contact area of the individual bundles as well as the contact area of the aggregate. Based on this evaluation, the sub-committee was recommending approval with the following reductions and equivalency factors.
EZ0904-H – 16% reduction or .84 equivalency factor
EZ1203-H – 25% reduction or .75 equivalency factor
EZ1303-T – 35% reduction or .65 equivalency factor.
Mr. Uhlich indicated the sub-committee did not object to changing the recommendation on the EZ0904-H to a 15% reduction or .85 equivalency factor as requested by the company.

George McClure made a motion to approve the EZ0904-H, EZ1203-H and EZ1303-T as recommended by the standards sub-committee. Motion approved.

e. Doug Everson, representing Plastic Tubing Industries, addressed the committee. Mr. Everson stated that PTI was a small company out of Orlando, Florida and do not have millions of dollars to conduct research. Mr. Everson indicated Dr. Kevin Sherman would be making a presentation to the committee to explain the company's position. Mr. Everson handed out some additional information, just obtained, regarding the geo-textile fabric covering the multi-pipe bundles. Mr. Everson described the multi-pipe system containing bundles of void pipes and presented a sample to the committee. Mr. Everson requested approval, based on the adopted standard, for the following Multi-Pipe System (MPS). Mr. Everson stated that based on the information submitted, the MPS was entitled to the following reductions.
MPS 13-pipe 44% reduction on infiltrative surface area, MPS 13-pipe at a 39 reduction based on storage volume.
MPS 11-pipe at 36% reduction based on infiltrative surface area, MPS 11-pipe at a 28% reduction based on storage volume
MPS 9-pipe at a 22% reduction based on infiltrative surface area, MPS 9-pipe at a 13% reduction based on storage volume.
Mr. Everson stated the product has been used in Florida since 1992 and the MPS 9-pipe system is approved for a 36% reduction in Florida.

Dr. Kevin Sherman, introduced himself and indicated he was representing PTI as an independent third party evaluator. Dr. Sherman indicated he was hired by PTI in 2005 to provide a second opinion on work provided to the committee on the PTI MPS from Harry Wild, P.E. from Florida. Dr. Sherman indicated he provided technical evaluation of Mr. Wild's material in a letter submitted as part of PTI's submittal packet. Mr. Sherman presented a power point presentation describing the Multi-Pipe System, the company's provisional approval and discussed Harry Wild's evaluation of the MPS system.

Mr. Uhlich explained that the sub-committees evaluation included the contact area of the pipes directly on the soil surface. Information provided by PTI indicated each pipe has a 2 inch wide contact area beneath each pipe extending the length of the pipe. This contact area was evaluated as obstructed areas functioning equivalent to gravel. The open areas between the pipes were evaluated as unobstructed areas.

Dr. Larry West explained that the committee was looking at the contact area of the product under a load. The amount of solid surface as compared to open area for water to exit the product through the holes to the soil surface. Phil Freshly explained that the ridges and valleys in contact with the soil are factors that determine effective infiltrative surface. Dr. Sherman referenced Mr.Wild's photos as illustrating the product contact area. Dr. West explained the openness of this contact area is relevant in determining effective

infiltrative area.

Discussion occurred between Mr. Everson and the committee concerning the fabric and wicking action.

Dr. Sherman indicated he would like to see the numbers and how the sub-committee arrived at their recommendations. Mr. McClure asked Dr. Sherman if he now understood what kind of information the committee was looking for in terms of soil contact. Dr. Sherman said he had a basic understanding of what the committee was asking for but not how the sub-committee numbers were derived. Phil Freshly explained that the committee was looking for what your physical equivalency of gravel is. We need to evaluate your product the same way we have evaluated the other products.

Mr. Everson requested the committee approve the MPS 13-pipe at a 35% reduction. Mr. Sherman indicated he would need three weeks to evaluate the product and submit calculations. Mr. Uhlich indicated he would send Dr. Sherman the sub-committees calculations. Mr. Everson asked the committee to approve the MPS products as requested or allow the company time to submit additional data to support their position.

Dewayne Tanner made a motion to approve the sub-committees recommendation with the understanding that PTI could come back to the committee with additional data and the approval could be changed. Second by Bill Durham. George McClure asked if PTI MPS had a provisional approval. Scott Uhlich said the provisional approval was granted based on a settlement agreement. The provisional approval was based on PTI's recommendations and not on a Department evaluation. Mr. Coppage asked Doug Everson if he was asking the committee to table their approval if the committee was not prepared to approve the product as requested by PTI. Mr. Everson indicated that was his request to give Dr. Sherman an opportunity to provide some additional information. George McClure made a motion to table the approval of the PTI for 30 days until the next meeting. Motion approved. Dr. Davis requested that PTI provide failure data from the state of Florida.

4. **Other Business**: Dr. Davis recognized Stan Coppage for his contribution to the TRC. Stan is retiring and this was his last official meeting.
5. **Next meeting date**: The next meeting date for the TRC will be March 27 or 28, 2006. Mr. Uhlich asked Mr. Everson and Dr. Sherman if this would allow enough time for them to evaluate and provide additional information. Mr. Everson and Dr. Sherman indicated these dates were acceptable.
6. **Motion to adjourn**

DHR

B. J. Walker, Commissioner

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May 23, 2005

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 19th DHR Technical Review Committee meeting

The 19th TRC meeting was held at the DHR Training Center in the Riverside Corporate Center on Riverside Drive, Macon, GA. on May 23, 2005. Dr. Daryl Rowe, Vice-Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Scott Uhlich, Stan Coppage, George McClure, Bill Fortune, P.E., Phil Freshly, Bill Durham and Dr. Daryl Rowe.

Guests in Attendance: Jim Free, Carl Thompson, Richard Crumley, Todd Jones, Mike Fugate, Carl ring, Theo Terry, Al Schnitkey, Charles Schaffer, Chris Kumnick, Stephen Brown, Lee Starks, Dick Bachelder, Ted Greene, Bob Neurath, Rocky Rocco, Scott Thompson, Chris Peterson, John Campbell and Shawn Luton.

Order of Business:

1. **Call to Order**.
2. **Review of Minutes from the 18th TRC meeting**.
   Motion to approve minutes made by George McClure. Minutes unanimously approved.
3. **New Business**:
   A. Provisional approval request by Advanced Drainage Systems for the BioDiffuser Hi ARC 36 Chamber. Dick Bachelder reviewed, with the committee, product information submitted and distributed prior to the meeting. Mr. Bachelder requested that the committee grant a provisional approval for a 50% absorption trench length reduction as compared to a conventional 36-inch wide conventional gravel absorption trench. This provisional approval is similar to the provisional approvals granted by the committee to the PSA 16-inch and 14–inch Hi-Capacity BioDiffusor chamber, Hancor High Capacity chamber and Infiltrator Hi-Capacity Quick4 chamber. Scott Uhlich stated that the Department did not object to a provisional approval provided Advanced Drainage Systems, Inc provided product measurements verifying the submitted CAD drawing dimensions, satisfactory AASHTO H-10 vehicle load test results and that the company understood the provisional approval was only until the Department implements rules for non-conventional on-site sewage management systems. Mr. Bachelder indicated that

he accepted and understood the provisional approval was contingent on DHR acceptance of the product measurements, structural test results and that the product's provisional approval was subject to review and approval by the TRC once rules for non-conventional on-site sewage management systems were implemented by DHR. George McClure made a motion to provisional approve the Advanced Drainage System BioDiffuser Hi-Capacity ARC 36 chamber at a 50% reduction contingent upon DHR acceptance of the product measurements, satisfactory structural test results (AASHTO H-10) and that the provisional approval was only granted until such time that the Department implements rules for non-conventional on site sewage management systems. Motion unanimously approved.

B. Provisional approval request for the Advanced Drainage System BioDiffuser ARC 36 chamber. Dick Bachelder reviewed with the committee product information submitted and distributed prior to the meeting. Mr. Bachelder discussed the product dimensions, sidewall design and storage volume information. Mr. Bachelder compared this information to the six-part standard for non-conventional on-site sewage management systems adopted by the Department of Human Resources. Scott Uhlich recommended that the Standards sub-committee conduct a product review based on the six part standard for non-conventional on-site sewage management systems and make a recommendation to the full TRC. Mr. Bachelder questioned why he needed to go through the sub-committee for a provisional approval. Mr. Uhlich indicated that this is the process the TRC adopted at the last meeting. In addition, the information submitted by Advanced Drainage Systems on the product was based on CAD drawings and not a review of the actual built product. Mr. Bachelder indicated he accepted this explanation and was willing to accept the Department's recommendation for a review by the Standards sub-committee. George McClure made a motion for a review by the Standards sub-committee for a recommendation concerning an approval for the BioDiffusor ARC 36 chamber. Motion unanimously approved.

C. Dennis Koerner with the Ring Industrial Group requested a review of the EZ1203-H and EZ0904-H by the Standards sub-committee for approval under the adopted six part standard for non-conventional on-site sewage management systems. George McClure made a motion to send the product approval request to the Standards sub-committee for a recommendation. Motion Unanimously approved.

D. Provisional approval request for the Hancor High Capacity SW EnviroChamber. Shawn Luton reviewed, with the committee, product information distributed prior to the meeting. Mr. Luton explained the improvements made to this product as compared to the current provisionally approved High Capacity Envirochamber product at a 50% reduction. The primary improvement of the SW model is an increase in open sidewall area from the current provisionally approved model. Mr. Uhlich indicated the Department did not object to a provisional approval at a 50% reduction until such time as the Department implements the adopted standards for non-conventional on-site sewage management systems. George McClure made a motion to provisionally approve the Hancor High Capacity SW EnviroChamber for a 50% reduction in absorption trench length as compared to a

36-inch wide conventional absorption trench, until such time as the Department of Human Resources implements rules for non-conventional on-site sewage management systems. Motion unanimously approved.

4. **Other Business**: Phil Freshley indicated he was observing problems with reduced length chamber systems in fine textured soils. The problem may be due to the turbulent flow of water across the soil surface and then fine material settling back out clogging the soil surface. Discharging from the septic tank through the top of the chamber unit stirs up the soil. He has observed chamber units sinking into the soil surface reducing storage capacity of system and infiltration of soil into the side louvers. He expressed concerns about absorption field reductions under certain soil conditions and recommended reduction limits be established for certain limiting soil conditions.
5. **Next meeting date**: No specific date set. Standards sub-committee June/July? Next TRC in August?
6. **Motion to adjourn** meeting made by Scott Uhlich. Motion unanimously approved.

DHR

B. J. Walker, Commissioner

Georgia Department of Human Resources • Division of Public Health • Stuart T. Brown, M.D., Acting Director
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404-657-2700 • FAX: 404-657-2715

March 31, 2005

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 18th DHR Technical Review Committee meeting

The 18th TRC meeting was held at the Cupola at Plantation Centre, 6324 Peake Road, Macon, GA. on March 28, 2005. Lawton Davis, M.D., Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Scott Uhlich, Stan Coppage, George McClure, Larry Chapman, P.E., Bill Fortune, P.E., Rusty Bowden, Bill Durham, Dewayne Tanner and Lawton Davis, M.D.

Guests in Attendance: Jim Free, Carl Thompson, Dan Beardsley, Richard Crumley, Bettie Sleeth, Mark Harden, Todd Jones, Larry West, Mike Fugate and Ben Berteau.

Order of Business:

1. **Call to Order**.
2. **Review of Minutes from the 17th TRC meeting**.
   Motion to approve minutes made by George McClure. Minutes unanimously approved.
3. **Election of Officers**: George McClure made a motion to retain the current slate of officers with Lawton Davis as Chairman and Darryl Rowe as Vice-Chairman. Secretary specified in Bylaws as the member representing Environmental Health Section of Department of Human Resources, which is Scott Uhlich. Motion unanimously approved.
4. **New Business**:
   A. Standards sub-committee report. Larry Chapman asked Scott Uhlich to present the sub-committee report (see enclosed report) on trench spacing. Scott discussed the information provided by Phil Freshley and Larry West, soil scientists, to the sub-committee. The soil scientists determined a trench spacing of 7-foot on center would provide adequate absorption and treatment of effluent for soils with a percolation rate of less than 75 minutes per inch. Bill Durham raised a question about the ability of equipment to install a system at this reduced trench spacing. George McClure indicated he felt existing equipment was available or would be made available by the industry to meet this need. Scott Uhlich stated that a homebuilder/installer, present at the sub-committee meeting, indicated to the sub-committee that the current rubber tire backhoe was capable of installing trenches

at the 7-foot spacing. Also, manufacturers present at the sub-committee meeting indicated that other types of trenching equipment were available that could be utilized. Scott Uhlich stated that the rule would not prohibit greater trench spacing but was a minimum spacing requirement. George McClure made a motion to accept the sub-committees recommendation to establish a minimum absorption trench spacing of 7-foot on center for soils that have a percolation rate of less than 75 minutes per inch. Motion unanimously approved.

B. Provisional approval request by Infiltrator Systems, Inc. for the Quick4 High Capacity Chamber. Carl Thompson reviewed, with the committee, product information submitted and distributed prior to the meeting. Mr. Thompson requested that the committee grant a provisional approval for a 50% absorption trench length reduction as compared to a conventional 36-inch wide conventional gravel absorption trench. This provisional approval is similar to the provisional approvals granted by the committee to the PSA 16-inch BioDiffusor chamber, Hancor High Capacity chamber and similar Cultec chamber. Stan Coppage asked Scott Uhlich for a recommendation from the Department. Scott Uhlich stated that the Department did not object to a provisional approval provided Infiltrator Systems, Inc provided satisfactory AASHTO H-10 vehicle load test results and that the company understood the provisional approval was only until the Department adopts and implements rules for non-conventional on-site sewage management systems. Carl Thompson indicated that Infiltrator Systems, Inc understood the provisional approval was contingent on DHR acceptance of the structural test results and that the products provisional approval was subject to review and approval by the TRC once rules for non-conventional on-site sewage management systems were adopted and implemented by DHR. Rusty Bowden made a motion to provisional approve the Infiltrator systems, Inc. Quick4 High Capacity chamber at a 50% reduction contingent upon DHR acceptance of satisfactory structural test results (AASHTO H-10) and that the provisional approval was only granted until such time that the Department adopts and implements rules for non-conventional on site sewage management systems. Motion unanimously approved.

C. Provisional approval request for the Infiltrator Quick4 Standard Chamber. Carl Thompson reviewed with the committee product information submitted and distributed prior to the meeting. Mr. Thompson discussed the product dimensions, sidewall design and study on sidewall throughput rates. He discussed the storage volume measurements conducted at Clemson University. Mr. Thompson request a provisional approval based on the six part standard recommended to the Department of Human Resources, currently being considered for adoption by the Department. Mr. Thompson indicated that Infiltrator's application of the six part standard by their engineers indicated a 33% reduction in trench length, as compared to a 36-inch wide gravel absorption trench, was recommended. However, Mr. Thompson indicated he was aware the Department's review and application of the six part standard recommended a 25% reduction. Mr. Thompson indicated that Infiltrator Systems, Inc. was willing to accept the Department's recommendation provided it was a provisional approval and that a review by the Technical Review Committee would be made after the Department adopted and implemented rules for non-conventional on-site sewage

management systems. Scott Uhlich was asked by the committee for a recommendation. Mr. Uhlich indicated that the Department recommended a provisional approval at a 25% reduction subject to a review and approval by the TRC at such time the Department adopts and implements rules for non-conventional on-site sewage management systems. Rusty Bowden made a motion to accept the Department's recommendation for a provisional approval at a 25% reduction in absorption trench length as compared to a conventional 36-inch wide gravel absorption trench subject to review and approval by the TRC at such time that the Department adopts and implements rules for non-conventional on-site sewage management systems. Motion unanimously approved.

5. **Other Business**: Bill Durham asked about the process for product approval once the Department adopts rules for non-conventional systems. Scott Uhlich stated that he had been discussing this issue with the Department's Attorneys. The Department Attorneys have recommended the following process to the TRC. The request for product approval will come to the Department. The Department will schedule a meeting between the manufacturer and the standards sub-committee. The standards sub-committee will make a recommendation to the full TRC. The TRC will meet and consider the sub-committee recommendation. The TRC's recommendation regarding product approvals will be sent to the Department. Mr. Uhlich recommended the TRC maintain the same standard sub-committee membership with Larry Chapman as the sub-committee chairman. Stan Coppage made a motion that the standards sub-committee members remain the same with Larry Chapman as chairman. Motion unanimously approved.
   Scott Uhlich also discussed with the committee the need for an impartial review of the products. Members with a financial interest in a product must recluse themselves from the process. Bill Durham asked how that was defined. George McClure indicated that if you gained financially from the decision you must recluse yourself. Scott Uhlich indicated he would ask the attorney for advice on this issue.
6. **Next meeting date**: No specific date set. Standards sub-committee in May? Next TRC in June?
7. **Motion to adjourn** meeting made by Stan Coppage. Motion unanimously approved.

Jim Martin, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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November 22, 2003

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 17th DHR Technical Review Committee

The 17th technical review committee meeting was held at the DHR Training Center on Riverside Drive, Macon, Georgia on November 21, 2003. Lawton Davis, M.D., Chairman, called the meeting to order at 10:00 AM.

Members in Attendance: Daryl Rowe, Scott Uhlich, Stan Coppage, William Durham, George McClure, Phillip Freshley, Dewayne Tanner, Ernie Earn, Larry Chapman, Bill Fortune, P.E. and Lawton Davis, M.D.

Guests in Attendance: Jim Free, Dick Bachelder, Shawn Luton, Truet Kastner, Bettie Sleeth, Carl Thompson, Al Schnitkey, Ben Berteau, Charles Schaefer, Craig Collins, Roy Moore, Dennis Koerner.

Order of Business:

1. **Call to order by Chairman.**

2. **Review of minutes from the 16th Technical Review Committee meeting.** Motion to approve minutes made by Dewayne Tanner. Minutes approved.

3. **New Business:**
   A. Addition of a minimum system length requirement to the adopted Standards for On site Sewage Management Systems. Carl Thompson representing Infiltrator Systems Inc. presented a proposal to add the following language: "7. Additionally, any newly installed non-gravel system must measure at least 75% of the length of a conventional 36 inch wide gravel system." In addition, Infiltrator Systems Inc will voluntarily change their manufacturer's recommendation and sign a legal covenant with the Department of Human Resources to waive it's right to install currently approved product according to the "prior approved status" as provided in the current law.

   B. Addition of a safety factor to the adopted Standards for On Site Sewage Management Systems. Al Schnitkey presented an argument against the proposed minimum system length. Discussed adding a safety factor instead

of a minimum system length. Discussed some issues related to the Administrative Procedures Act and legislative revision to Act 280.

The members discussed both proposals. Industry representatives in attendance provided input. Dick Bachelder, Shawn Luton and Charles Shaeffer expressed concerns. A motion was made by Phil Freshley to table the discussion. Seconded by George McClure. Motion did not pass.
Dewayne Tanner made a motion to add the following language to the adopted standards “any newly installed non-gravel system must measure at least 75% of the length of a conventional 36 inch wide gravel system” subject to Infiltrator Systems Inc. voluntarily changing their manufacturer’s recommendation to the 25% reduction cap prior to application of the standards. Seconded by Bill Fortune. Motion passed. Opposed George McClure, Ernie Earn and Larry Chapman.

4. **Adjourn:** Motion was made to adjourn. Motion approved. Meeting adjourned at 11:45 AM.

Jim Martin, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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July 29, 2003

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the 16th DHR Technical Review Committee

The 16th technical review committee meeting was held at the DHR Training Center on Riverside Drive, Macon, Georgia on July 28, 2003. Lawton Davis, M.D., Chairman, called the meeting to order at 10:00 AM.

Members in attendance: Daryl Rowe, Scott Uhlich, Stan Coppage, William Durham, Thomas Bowden, George McClure, Phillip Freshley, Dewayne Tanner, Bill Fortune, P.E. and Lawton Davis, M.D.

Order of Business:

1. **Call to order by Chairman.**

2. **Review of minutes from Emergency Technical Review Committee meeting.**
   Motion to approve minutes made by George McClure. Minutes approved.

3. **Election of Officers.**
   Motion to retain current officers made by George McClure.
   Lawton Davis, M.D. - Chairman
   Daryl Rowe - Vice-Chairman
   Scott Uhlich - Secretary

   Motion Approved.

4. **Old Business:**
   Standards Sub-Committee Report on Class I effluent standards: Scott Uhlich presented the standards sub-committee recommendation on the standards and guidelines for systems producing a class I effluent quality. Mr. Uhlich discussed the proposed testing requirements for Class I effluent systems. Class I effluent systems requesting approval from the Department of Human Resources must meet ANSI/NSF Standard 40 testing requirements for Class I effluent. Mr. Uhlich discussed guidelines concerning absorption field sizing and installation criteria related to systems producing Class I effluent. Bill Fortune expressed opposition to the proposed absorption field sizing criteria contained in the proposed Class I

effluent chart. Various members discussed the proposed infiltration rates for Class I effluent. George McClure made a motion to approve the Standards and Guidelines for Class I Effluent (documents attached) for application by the Department of Human Resources as proposed by the Standards Sub-Committee. Motion approved.

5. **New Business:**
   A. Cromaglass Wastewater Treatment System: Mr. Bert Gerber presented information to the committee on the Cromaglass system. Mr. Gerber was requesting approval for the Cromaglass system as a Class I effluent system. After discussion with committee members, the membership determined that additional information was required. Mr. Gerber agreed to bring additional information to the committee related to the adopted Class I effluent standards.
   B. AASHTO H-10 Load rating for chambers: Carl Thompson, representing chamber manufacturers, requested a change in the installation requirements found in the Georgia Department of Human Resources (DHR) Manual for On Site Sewage Management Systems related to chambers. Mr. Thompson proposed a change that would allow a chamber installation with 6 inches of final soil cover capable of supporting a 4,000-lb/axle load without collapsing, fracturing or breaking. Committee members discussed concerns regarding driving over the system after installation with landscape equipment and/or construction vehicles. Mr. Thompson acknowledged that additional soil cover (12") would be needed to bridge the absorption trench during construction. Phil Freshley made a motion to approve the following language to be added to the Department's Manual for On Site Sewage Management Systems; Chambers must be capable of supporting temporary construction loading of 16,000 lbs/axle (American Association of State Highway and Transportation Officials H-10 load) without collapsing, fracturing or breaking. Additional temporary soil cover above the final grade may be used to bridge this load during construction. Chambers in the final installed configuration must be capable of supporting a 4,000-lb/axle load without collapsing, fracturing or breaking. Motion approved.

6. **Adjourn:** Scott Uhlich made a motion to adjourn. Motion approved. Meeting adjourned at 11:30 AM.

Jim Martin, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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March 22, 2003

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the emergency meeting of the DHR Technical Review Committee

The emergency technical review committee meeting was held at the Cupola at Plantation Centre on Peake Road, Macon, Georgia on March 21, 2003. Daryl Rowe, Vice-chairman, called the meeting to order at 10:30 AM.

Members in attendance: Daryl Rowe, Scott Uhlich, Stan Coppage, William Durham, Thomas Bowden, Lewis Strickland, George McClure, Phillip Freshley, Ernest Earn, Jerry Colwell, Larry Chapman, P.E., and Bill Fortune, P.E.. Dr. Lawton Davis arrived late.

Guests: Bettie Sleeth, Charles Schaefer, Donald Sackman, Mark Hardin, Matt Marlar, Kyle Paris, Tom Weaver, Michael Lloyd, Steve Kinney, Stephen Brown, Brian Chriske, Ted Greene, Todd Harper, Pat Goodrich, Shawn Luton, Jim Free, Richard Crumley, Carl Thompson, John Tebeau, Rocky Rocco, Roy Moore, and Dan Bearsley.

Order of Business:

1. **Call to order by Vice-Chairman.**

2. **Opening Statement**
   Daryl Rowe welcomed guests. Members introduced themselves.

3. **Review of minutes from 15th Technical Review Committee meeting.**
   Motion to approve minutes made by Ernie Earn. Minutes approved.

4. **Presentation of Commissioners Report.**
   Mike Smith, Director of Environmental Health and Injury Prevention Branch, presented a report submitted to the Commissioner of the Department of Human Resources regarding the adoption and implementation of standards related to the approval of on-site sewage management systems.

5. **Old Business:**
   Standard Sub-committee Report. Larry Chapman, Sub-Committee Chairman, discussed the committee's recommendation for on-site sewage management system standards. Mr. Chapman asked Scott Uhlich to explain the proposed standards. Mr. Uhlich went through each item of the proposed standards and

answered questions from the members. A motion was made by Larry Chapman to approve the on-site sewage management system standards as presented (see attached document) and recommend their application by the Department of Human Resources.
Motion approved.

6. **Motion to Adjourn:** Phil Freshley made a motion to adjourn. Motion approved. Meeting adjourned at 11:45 AM.

Contact:
Scott A. Uhlich
Department of Human Resources
Division of Public Health
Environmental Health Section
404-657-6534

Gary B. Redding, Acting Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director
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October 4, 2001

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the fifteenth Technical Review Committee meeting

The fifteenth meeting of the TRC was held at the DHR Training Center on Riverside Drive, Macon, GA. on October 3, 2001. Dr. Lawton Davis called the meeting to order at 10:00AM.

Members in attendance: Dr. Lawton Davis, Scott Uhlich, Stan Coppage, George McClure, Jim Crowdis, Jimmy Durrence, Phil Freshley, Dewayne Tanner, Larry Walker, Larry Chapman and Jerry Colwell.

Guests: Mark Hardin, Ben Jones, Jim Free, Mike Hoover, John Tebeau, Jeffrey Williams, David Click, Jim Nichols, Carl Thompson, Steve Dix, Bob Siecrist, Charles Schafer, Houston Crumpler, Roy Moore, Tom Weaver, Dennis Koerner, Ed Festa, Dick Bachelder, Truet Kastner, Mark Fricke, Theo Terry, Todd Harper, Steve Brann, Doug Everson, Steve Barry, Luke Robataille, Wilder Lucas, Rocky Rocco, Scott Thomas, Marc Maroschak, Tony Huff, Michelle Newhouse, Jay Johnson, Martin Hally, Ben Berteau, Kevin White, Sam Robertson, Bill Vanhouse, Ismail Jaleh, Mike Fugate and Tres Areand

Order of Business:

1. **Call to order by chairman**
2. **Opening statement**
   Dr. Davis welcomed guests.

3. **Review of minutes from the fourteenth meeting.**
   Motion to approve minutes by Larry Walker. Unanimously approved.

4. **Old Business:**
   Standards Subcommittee Report: Larry Chapman, Sub-committee Chairman, open the discussion for presentations pertaining to the product review standards adopted by the Technical Review Committee for evaluating on-site sewage management systems. The following companies made oral presentations: Infiltrator Chamber Systems, Plastic Tubing Industries, Ring Industrial Group, Cultec, Bord Na Mona, and Premier Tech.
   The following companies submitted written information only: Advanced Drainage Systems, EcoPure.

5. **Adjourn:** The meeting was adjourned at 5:00PM

Gary B. Redding, Acting Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director
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July 20, 2001

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the fourteenth Technical Review Committee meeting

The fourteenth meeting of the TRC was held at the Cupola at Plantation Centre, Peake Road, Macon, GA. on July 17, 2001. The meeting was called to order by Dr. Lawton Davis at 10:15AM.

Members in attendance: Dr. Lawton Davis, Scott Uhlich, Stan Coppage, George McClure, Bill Fortune, Jim Crowdis, Earnest Earn, Jimmy Durrence, Darryl Rowe, Phil Freshley, Dewayne Tanner, Larry Walker, Larry Chapman and Bill Durham.

Guests: Greg Harless, Bettie Sleeth, Jay Johnson, Mike Maroshack, Scott Thomson, Steve Helurich, Charles Shaefer, Mike Fugate, Mark Fricke, Jim Free, James Nichols, Shawn Luton, Louie Rocco, Steve Kinney, Larry Stewart, Wilder Lucas, Martin Hally, Ted Greene, Todd Harper, Pat Goodrich, Doug Everson, Dick Bachelder, Dennis Koerner, Michael Lloyd, Sam Robertson, and Theo Terry.

Order of Business:

1. **Call to order by chairman**
2. **Opening statement**
   Dr. Davis welcomed guests.

3. **Review of minutes from the thirteenth meeting.**
   Motion to approve minutes by Jim Crowdis. Unanimously approved.

4. **Old Business:**
   A. Standards Subcommittee Report: Larry Chapman, subcommittee chairman, began discussion of the review process that the sub-committee went through formulating their recommendations based on the standards adopted by the Technical Review Committee. Meetings were held with each manufacturer during this process.

   Mr. Chapman asked Mr. Uhlich to present the recommendations regarding the Crumpler Gravelless Pipe System. Mr. Uhlich provided the written calculations and discussed the recommendation. A motion to approve the standards subcommittee recommendation on installation standards for the Crumpler gravelless pipe system was made by Larry Chapman. Ernie Earn seconded motion. Discussion was introduced by Bill Durham regarding the standards adopted by the Technical Review Committee for product evaluation. Jim Nichols, Infiltrator systems, and Steve Dix, Infiltrator systems

raised objections to the current adopted standards. David Click, Infiltrator systems, stated that Infiltrator did not have input into the development of the standard as they applied to chambers. Mr. Uhlich objected and stated that Infiltrator had a representative, Jim Free, at every meeting of the standards subcommittee. Mr. Uhlich pointed out that Steve Dix, Infiltrator Systems, made a presentation to the standards subcommittee during the development of the standards and that all meetings were open for the manufacturing community to provide input. Mr. Earn raised a point of order to the discussion since it did not pertain to the motion. Mr. Earn withdrew his second of Mr. Chapman's motion. George McClure made a motion to table the presentation of the standards subcommittee recommendations pending a review of the adopted standards. Earn Earn seconded the motion. The motion passed 7 for, 4 against, and 3 abstained. Considerable discussion occurred. Mr. Michael Lloyd and Dr. Koerner, EZflow Systems, objected to the motion and requested that their product review be addressed.

Later in the meeting, Larry Chapman made a motion to "untable" the presentation of the standards committee report. Seconded by Dewayne Tanner. Discussion center around applying the current standards to all products excepts chamber systems and allow the subcommittee recommendations on those products to be presented. Motion was denied by a vote of 2 for and 12 against the motion.

B. Plastic Tubing Inc. Corr-A-Guard: The Corr-A-Guard system is a gravelless pipe product similar to the Crumpler Gravelless Pipe System. Scott Uhlich made a motion to provisionally approve the PTI Corr-A-Guard system to be installed based on the same provisional approval criteria established for the Crumpler Gravelless Pipe System. The provisional approval will remain in effect until the Technical Review Committee establishes standards for gravelless pipe systems. Motion unanimously approved.

C. Zabel Aerocell: Theo Terry, Zabel, raised questions regarding the information required by the TRC for class I effluent product approval. Considerable discussion occurred regarding the adopted third party testing requirements established by the TRC. George McClure made a motion to table the approval of the Aerocell until the standards subcommittee reevaluates the adopted standards. Motion seconded by Dr Rowe. Motion passed 5 for, 3 against, and 6 abstained.

D. Eco-Pure 300 series Peat Moss Biofilter: Mr. Uhlich explained approval of the EcoPure system is pending third party documentation requirements adopted by the TRC for systems producing class I effluent. Since the TRC approved a previous motion to reevaluate the standard, Mr.Uhlich made a motion to table this matter until the TRC resolves the questions concerning the current third party testing requirements for Class I effluent. Motion unanimously approved.

5. New Business:

A. Zabel Versa Tee: Theo Terry presented information the versa tee product. This is a tee for installation inside septic tanks. Motion to approve the "Versa Tee" was made by Bill Durham. Unanimously approved.

6. Other Business

A. Election of Officers
Chairman. Nominations were opened for chairman. R. Lawton Davis was nominated. There were no other nominations. The vote to appoint Dr. Davis as chairman of the TRC was unanimously approved.

Vice-Chairman- Nominations were opened for vice-chairman. Dr. Darryl Rowe was nominated for vice-chairman. There were no other nominations. The vote to appoint Dr. Rowe vice-chairman of the TRC was unanimously approved.

B. Education - Dr. Bob Rubin made an educational presentation on a study he is currently involved with. This study is an evaluation of water movement through the soil. Information on four systems was presented. These systems involved in the study are conventional gravel, Crumpler gravelless pipe, EZflow 1003 vertical, and chambers.

7. **Next meeting date:**
   Technical Review Committee meeting will be September 26, 2001

8. **Meeting adjourned at 3:30PM**

Gary B. Redding, Acting Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director
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May 22, 2001

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the thirteenth Technical Review Committee meeting

The thirteenth meeting of the TRC was held at the Cupola at Plantation Centre, Peake Road, Macon, GA. on May 17, 2001. The meeting was called to order by Dr. Lawton Davis at 10:00AM.

Members in attendance: Dr. Lawton Davis, Scott Uhlich, Stan Coppage, George McClure, Bill Fortune, Laurie Cook, Sam Banks, and Jim Crowdis.

Guests: Greg Harless, Bettie Sleeth, Jay Johnson, Mike Maroshack, Scott Thomson, Steve Helurich, Charles Shaefer, Mike Fugate, Mark Fricke, Jim Free, Shawn Luton, Louie Rocco, Steve Kinney, Larry Stewart, Wilder Lucas, Martin Hally, Ted Greene, Todd Harper, Pat Goodrich, Doug Everson, Dick Bachelder, and Theo Terry.

Order of Business:

1. **Call to order by chairman**
2. **Opening statement**
   Dr. Davis welcomed guests.

3. **Review of minutes from the twelfth meeting.**
   Motion to approve minutes by George McClure. Unanimously approved.

4. **Old Business:**
   Scott Uhlich reported that the Standards subcommittee had not finalized their recommendations regarding PSA BioDiffusor Chamber systems, Hancor EnviroChamber, Crumpler Gravelless Pipe and Cultec chamber systems.

5. **New Business:**
   A. NORWECO, Inc. Singulair 950 and 960 Wastewater Treatment Systems: Sam Banks made a motion to approve the Singulair 950-600GPD, 950-750GPD, 950-1000GPD, 950-1250GPD, 950-1500GPD and Singulair 960-500GPD, 960-750GPD, 960-1000GPD, 960-1250GPD, 960-1500GPD. This motion does not include approval of any lift/pump tank. Pump tanks must meet the requirements in the DHR Technical Manual for On Site Sewage Management Systems. Motion unanimously approved.

B. Advanced Drainage systems, Inc., Multi-Pipe system: Dick Bachelder presented information on the 9-pipe multi-pipe system and the 11-pipe multi-pipe system. Discussion concerning the H-10 load rating was raised. Mr. Bachelder indicated tests were in the process of being conducted. Discussion on the clogging of the fabric wrap was raised. Discussion on infiltrative surface masking and design criteria was raised. Stan Coppage made a motion "to table any decision on the approval of the 9-pipe and 11 pipe multi-pipe systems until the Standards subcommittee could review the information and make a recommendation to the Technical Review Committee. Motion was unanimously approved.

C. Clearwater Sand Bed Design: No representative from Clearwater, Inc was present to make a proposal. Insufficient information was available for the committee to review. Scott Uhlich made a motion to table discussion of the Clearwater Sand Bed. Motion unanimously approved.

6. Other Business

A. Membership rotation: A rotation schedule was handed out to the Technical Review Committee members. Five individuals are scheduled for rotation each year prior to the July business meeting. Members may be re-appointed. For members representing organizations, the organization can make a recommendation to the Department for member appointment.

7. Next meeting date:

Technical Review Committee meeting will be July 17, 2001

8. Meeting adjourned at 12:00PM

Gary B. Redding, Acting Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director
Georgia Department of Human Resources • Division of Public Health • Environmental Health & Injury Control Branch
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April 3, 2001

To: Technical Review Committee members

From: Scott A. Uhlich, Secretary

Re: Minutes of the twelfth Technical Review Committee meeting

The twelfth meeting of the TRC was held at the Riverside Corporate Center, Riverside Drive, Macon, GA. on March 29, 2001. The meeting was called to order by Dr. Lawton Davis at 10:10AM.

Members in attendance: Dr. Lawton Davis, Scott Uhlich, Daryl Rowe, Stan Coppage, George McClure, Larry Walker, James Durrence, Bill Fortune, Bill Durham, Laurie Cook, Larry Chapman, Doug Cabe, Sam Banks, Jim Crowdis, and Ernie Earn.

Guests: Greg Harless, Bettie Sleeth, Michael Tidwell, Bob DiTullio, Chris DiTullio, Wayne Lister, Ed Tate, John Vanderbosh, Michael Hollingsworth, Ted Greene, Charles Shaefer, Mike Fugate, Mark Fricke, Jim Free, Steve Kinney, David Morgan, Michael Lloyd, Carl Lindell, Truet Kastner, Larry Stewart, Tara Fortune, and Wilder Lucas.

Order of Business:

1. **Call to order by chairman**
2. **Opening statement**
   Dr. Davis welcomed guests.

3. **Review of minutes from the eleventh meeting.**
   Motion to approve minutes by Bill Durham. Unanimously approved.

4. **Old Business:**
   IMS Steel Slag Aggregate: Information from IMS was distributed prior to the meeting. A letter from the Department of Natural Resources, Geological Survey Branch was reviewed. The Geological Survey Branch expressed concern about potential groundwater contamination from the steel slag aggregate. The Geological Survey Branch recommended that a number of septic tank systems be installed with steel slag aggregate in different soil conditions as experimental systems for evaluation. Darryl Rowe made a motion to deny the request by IMS to approve steel slag aggregate for use in septic tank system absorption lines. Motion unanimously approved.

5. New Business:

A. National Wastewater Systems Solar Air 500 and Solar Air 800: Scott Uhlich made a motion to approve the Solar Air 500 and Solar Air 800 Aerobic Treatment System Units only. This motion does not include approval of any lift/pump tank. Pump tanks must meet the requirements in the DHR Technical Manual for On Site Sewage Management Systems. Motion unanimously approved.

B. Eco-Pure 300 Series Peat Moss Biofilter: John Vanderbosch, Eco-Pure representative, presented information on the 300 Series Peat moss Biofilter system. The following conditions were agreed upon by the manufacturer and the TRC:

1. Time dosing of the unit will be required at a manufacturer recommended rate of 20 gallons per dose.
2. Each individual unit is approved to serve a 3-bedroom house only. Multiple units may be used for larger homes.
3. If a gravel bed is utilized for soil application, 12 inches of gravel depth is required. All other absorption fields must meet the requirements in the Department's Technical Manual.
4. Dosing/Pump tanks must meet the requirements in the Department's Technical Manual.
5. A maximum 40% reduction in absorption field size as recommended by the manufacturer.
6. All systems must be designed by a registered engineer as recommended by the manufacturer.
7. During installation, backfilling around the unit must be pea gravel, gravel, or sand according to the manufacturers' recommendation.

Discussion regarding the NSF/ANSI Standard 40 protocol third party testing requirement occurred. Eco-pure agreed to provide the Department and TRC with documentation meeting the testing requirement. Motion by George McClure to approve the Eco-Pure 300 Series Peat Moss Biofilter System, pending documentation being submitted meeting ANSI/NSF Standard 40 protocol third party testing requirements, based on the requirements stated above. Motion unanimously approved.

C. Clearwater Drip Irrigation Line: Requirements in the Department's Technical Manual require pressurized drip emitter line to be approved and warranted for wastewater use. Documentation was submitted by Clearwater, Inc., approving and warranting the product for wastewater application. Motion to approve by George McClure. Unanimously approved.

D. Cultec Chamber Systems: Bob DiTullio, Sr. presented information on the Cultec chamber system. Considerable discussion occurred regarding the fabric wrap. Scott Uhlich recommended that the issues regarding the provisional approval of the Cultec system as well as the BioDiffusor chamber system, the EnviroChamber system, and the Crumpler Gravelless Pipe system be reviewed by the Standards subcommittee. The provisional approvals granted by the TRC for BioDiffusor, Enviro-chamber and Crumpler expire on May 10. 2001. The Standards subcommittee would meet with each company and apply the standards adopted by the TRC. The Standards subcommittee would then present a recommendation to the full TRC at the next scheduled meeting. The committee accepted the recommendation and tabled further discussion until the next meeting.

6. **Other Business:**
   A. Ernie Earn informed the TRC members about recent changes in the Environmental Protection Division policy regarding on site sewage systems with a waste flow in excess of 10,000 gallons. The Department of Human Resources under a Memorandum of Understanding with the EPD is authorized to permit on site systems for projects with a total waste flow of 10,000 gallons or less. The Departments have been working under a draft agreement that allowed a joint review and then permitting by the health department for systems with waste flows greater than 10,000 gallons. The EPD office has determined that problems have occurred with some of these systems. Therefore, all facilities with a total design flow in excess of 10,000 gallons utilizing an on site sewage system must be permitted through the EPD office. Considerable discussion followed.

   B. Scott Uhlich provided the TRC members with a list of the approved septic tank effluent filters. The filters on this list meet the requirements established by the TRC.

7. **Next meeting date:**
   Standards subcommittee meeting will be April 24, 2001
   Technical Review Committee meeting will be May 17, 2001

8. **Meeting adjourned at 2:00PM**

DHR

Audrey W. Horne, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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December 19, 2000

To: Technical Review Committee Members

From: Scott A. Uhlich, Secretary

RE: Minutes of the tenth Technical Review Committee (TRC) meeting

The tenth meeting of the TRC was held at Riverside Corporate Center, Riverside Drive, Macon, GA. on November 16, 2000. The meeting was called to order by Dr. Davis, Chairman, at 10:00Am.

Members in attendance: Dr. Lawton Davis, Scott Uhlich, Laurie Cook, Stan Coppage, Sam Banks, Bill Durham, Bill Fortune, Larry Chapman, Jimmy Durrence, George McClure, Larry Walker, Jim Crowdis, and Doug Cabe.

Guests: Greg Harless, Michael Lloyd, Tom Weaver, Mark Harden, Jeff Gary, Truet Kastner, Bob DeHart, Jay Johnson, Charles Schaefer, Larry Stewart, Elizabeth Smith, David Click, Jim Free, Wilder Lucas, Theo Terry, David Morgan, Mike Fugate, Steve Branz, Bob DiTullio, Jr., Bob DiTullio, Sr., and Randy Sandford.

Order of Business:

1. **Call to order by Chairman**

2. **Opening Statement:**
   Dr. Davis welcomed members and guests

3. **Appointment of new member**
   Introduce new member Jim Crowdis.

4. **Review of minutes from ninth meeting:**
   Motion to approve minutes made by George McClure. Unanimously approved.

5. **Old Business:**
   Mr. Bill Fortune revisited the issue of fairness with regard to the reduction in absorption field area allowed for one type of treatment system producing a Class I equivalent effluent and not for other approved Aerobic Treatment Units. Considerable discussion occurred. Mike Fugate, with Board Na Mona, spoke regarding their product approval as compared to a drip irrigation system. Wilder Lucas stated that he is working on a committee at NSF and that they are in the process of revising NSF Standard 40 to broaden the scope of what is considered Class I effluent. The chairman tabled additional discussion until the Standards sub-committee reported.

6. **New Business**

   A. Zabel AeroDiffuser Model ATS-AD-500 Aerobic Treatment Unit – Unanimously approved through written polling procedure. No member dissenting.

   B. Mo-Dad-II Aerobic Treatment Unit Models 600, 750, and 1,000 – Unanimously approved through written polling procedure. No member dissenting.

   C. Sam Banks brought up a proposal to locate existing absorption lines with the use of magnets and a detection instrument. Magnets would be placed in the absorption lines prior to backfilling. Laurie Cook, Bill Fortune, and Truet Kastner provided comment. Mr. Banks requested the TRC make some type of decision regarding adding this requirement to system installations. The Committee declined to act on this issue and no motion was made.

D. Wilder Lucas spoke on the Canadian Environmental Technology Verification certification program. The purpose of the organization is to monitor on site sewage technology similar to ANSI/NSF. Canadian authorities would like to develop a reciprocal type agreement with Georgia regarding product approval.

7. Other Business

A. Standards Committee Report: Larry Chapman presented information on the proposed standards recommended by the subcommittee for adoption. The following standards were proposed:

1. Sidewall and trench bottom has equal disposal capability without masking.
2. Masking is 50% for the conventional gravel absorption trench.
3. The infiltrative surface is the wetted bottom and sidewall area at full ponding.
4. Masking is considered to be ½ of the 50% for sidewall area in conventional gravel absorption trench.
5. The minimum storage volume required for a system shall be 1.5 times the peak daily design flow in gallons per day.
6. The absorption trench area required is based on the most hydraulically limiting soil horizon that comes into contact with the infiltrative surface of the sidewall, trench bottom, and for a distance 1 foot below the trench bottom.

Mark Hardin, Standards subcommittee member, diagramed for illustration the explanation of the bottom and sidewall infiltration/masking issue for different types of systems.

Infiltration areas for a conventional 36 inch wide gravel trench system.

Sidewall = 12 inches x .75 = 9 inches of infiltration area
2 Sidewalls x 9 inches = 18 inches of infiltration area

Trench bottom = 36 inches x .5 = 18 inches of infiltration area

Total infiltration area for conventional gravel
= 18" (sidewall) +18" (trench bottom) = 36 inches total infiltration area

After considerable discussion concerning infiltration surface, acceptable masking calculations, fairness in the application of standards, consideration of sidewall absorption rates, and separation distances for field lines and restrictive layers, the following motion was made by Scott Uhlich: A motion to approve the six factors as standards to be utilized for evaluating on site sewage management systems. Motion approved. (6 for, 5 against, 2 abstain). (For-Scott Uhlich, Larry Walker, Stan Coppage, Jimmy Durrence, Jim Crowdis, and Lawton Davis; Against-Sam Banks Larry Chapman, Bill fortune, Bill Durham, and George McClure ; Abstain- Doug Cabe and Laurie Cook)

A discussion on effluent standards involving defining Class I effluent was re-introduced. Discussion occurred involving requiring NSF/ANSI certification for any system obtaining class I effluent approval. Dr. Davis made the following motion "To accept third party testing from an accredited testing facility showing the system meets ANSI/NSF Standard 40 testing requirements for Class I effluent". Motion unanimously approved.

Discussion occurred involving reduction in absorption field area for systems producing a class I equivalent effluent. A table was presented on acceptable infiltration rates for single family residential application for class I equivalent effluent. A discussion regarding the difference in infiltration area between a bed type and a trench type absorption field design. Scott Uhlich informed the committee that currently the rules and regulations do not allow gravel bed absorption fields. Bill Fortune made a motion to approve the chart for infiltration rates for single family residential application for class I equivalent effluent. Mr. Uhlich requested the chart be amended to not allow the use of bed absorption fields on soils with percolation rates that exceed 90 minutes per inch. Larry Chapman requested the motion be amended to require time dosing for gravel bed application. The following revised motion was made by Bill Fortune: A motion to approve the infiltration rate chart for single family residential application for class I equivalent effluent as revised to limit bed type absorption fields to soils that percolate at 90 minutes per inch or less, and to require time dosing when bed absorption fields are utilized. Motion approved. (10 for, Scott Uhlich and Larry Walker against).

8. Motion to Adjourn – Meeting adjourned at 2:30PM

DHR

Audrey W. Horne, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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October 19, 2000

To: Technical Review Committee Members

From: Scott A. Uhlich, Secretary

RE: Minutes of the ninth Technical Review Committee (TRC) meeting

The ninth meeting of the TRC was held at the Ryan's Steakhouse, Northside Drive, Macon, Ga. on September 12, 2000. The meeting was called to order by Dr. Davis, Chairman, at 10:00Am.

Members in attendance: Dr. Davis, Scott Uhlich, Ernest Earn, Stan Coppage, Sam Banks, Bill Durham, Bill Fortune, Larry Chapman, Jimmy Durrence

Guests: Greg Harless, Bettie Sleeth, Michael Lloyd, Jim Free, Wilder Lucas, Theo Terry, David Morgan, Pres Allinder, George Allison, Mike Fugate, Steve Kinney, Jay Johnson, Julie Bertils, Wes Combs.

Order of Business:

1. **Call to order by Chairman**

2. **Opening Statement:**
   Dr. Davis welcomed members and guests

3. **Review of minutes from eight meeting:**
   Motion to approve minutes made by Ernest Earn, seconded by Sam Banks. Unanimously approved.

4. **Appointment of new member**
   Jim Crawdis was recommended to the Department of Human Resources to replace Lucy Jenkins and provide representation from the Department of Community Affairs.

5. **Old Business:**
   Larry Chapman presented a handout on concrete risers for informational purposes.

6. **New Business**

   A. Alliance 500 Aerobic Treatment Unit – Unanimously approved through written polling procedure. No member dissenting.

   B. Hydro-Action Aerobic Treatment Unit Models G-500, CLP-G-500, G-900, G-1000, G-1100, and G-1500 – Unanimously approved through written polling procedure. No member dissenting

   C. Bill Fortune raised issue regarding absorption field reductions for aerobically treated waste. Mr. Fortune stated that reductions should be provisionally approved until the standards sub-committee recommended a standard. Mr. Uhlich stated that the Department preferred to wait until the TRC heard from the standards sub-committee on the issue. Ernie Earn asked if Aerobic Treatment Units would be considered for approval if they were tested by an ANSI approved lab and shown to meet NSF Standard 40 for residential wastewater treatment units. Mr. Uhlich indicated that ATUs tested by ANSI approved labs and meeting the standard would be considered for approval.

   D. Zabel Aerocell Advanced Wastewater Treatment System – Wes Combs presented information on the system. Most of the data submitted was on the "Waterloo Biofilter". Mr. Combs stated that the Aerocell System was an adaptation of the Waterloo Biofilter. Stan Coppage asked if Zabel

was asking for approval of the filter modules and recirculating device. Mr. Combs indicated that Zabel was only asking for approval of the modules and recirculating device. Bill Fortune and Ernie Earn expressed concerns about third party review of secondary treatment devices and what constitutes acceptable third party review. Bill Fortune made a motion to table the approval of the Zabel Aerocell. Motion passed.

E. Plastic Tubing, Inc. Corr-A-Guard gravel-less system - Jay Johnston presented information on the gravel-less pipe system. Mr. Johnston asked for a provisional approval, the same as was granted by the TRC for Crumpler gravel-less pipe.. Mr. Uhlich raised questions regarding the comparison of the infiltrative surface of the gravel-less pipe as compared to a gravel trench. Mr. Uhlich stated that the PTI proposal did not provide an equal area of infiltrative surface as compared to a conventional gravel trench.. Mr. Uhlich stated that the Department had concerns regarding the provisional approval granted by the TRC for the Crumpler gravel-less system. Discussion about the equal comparison of products occurred. Jim Free recommended that all products be required to provide a warranty. Truet Kastner recommended the committee back up and only approve products on a foot for foot basis with conventional gravel until standards for comparison were developed. Ernie Earn made a motion to provisionally approve the PTI gravel-less pipe. The conditions of approval would be the same as Crumpler gravel-less pipe. Motion was disapproved. (2 votes for, 6 against). PTI was advised that approval of their product would be reconsidered after the TRC adopted standards.

F. Infiltrator Chamber Systems – Jim Free requested a review from the TRC regarding the absorption field sizing being applied in the Albany and Valdosta Districts for the Infiltrator high Capacity chamber system.. The Albany and Valdosta Districts are allowing a 40% reduction in absorption line length for the infiltrator chamber system. This was based on the manufacturer's recommendation. Infiltrator is now recommending a 50% reduction in absorption line length in these Districts with a minimum number of 12 units to be installed on any single-family residential system. Mr. Uhlich stated that the infiltrator chamber units had approximately a 32-inch infiltrative bottom surface and that the reduction should be based on a 32-inch wide conventional gravel system.. Mr. Free stated that they had always been granted a 50% reduction as compared to a 36-inch wide conventional system. Mr. Uhlich stated that the chart provided by Infiltrator to the Department and TRC indicated a 50% reduction in trench bottom square footage. Mr. Free stated that the chart provided for review was not accurate and requested it not be considered. Considerable discussion occurred. Ernie Earn made the following motion "The infiltrator high capacity chamber is approved for installation in every county of the state pursuant to the manufacturer's recommendations, including sizing of no less than 50 percent of trench length of a conventional system designed for equal flows in similar soil conditions". Motion was approved. After the motion Dr. Davis asked for an interpretation of the motion. Mr. Uhlich and Mr. Coppage stated that the motion required Infiltrator to be sized and designed based on the actual trench bottom infiltrative surface as compared to conventional system of the same width. Other members disagreed and stated that they believed that the chamber system should be compared to a 36-inch wide conventional absorption line. Mr. Uhlich stated that he believed this violated the law and stated that the TRC was basing the approval of other products on their actual infiltrative surface. Due to the interpretation being applied, Mr. Uhlich and Mr. Coppage requested that their vote on the motion be changed to "against the motion".

7. Other Business

A. Standards Committee Report: Larry Chapman updated the TRC members on the progress of the committee. The committee is developing standards on sidewall absorption, masking factors, disturbed earth and aerobic treatment. The committee has been obtaining input from a number of sources. The committee will present a written recommendation to the full TRC at the next meeting.

B. Truet Kastner presented information to the TRC on the "Grease Guzzler". The grease guzzler is a bacterial additive that breaks down grease. Mr. Kastner also discussed a micro-filter he was utilizing on some of his pressurized drip emitter systems.

8. Motion to Adjourn – Meeting adjourned at 2:30PM

DHR

Audrey W. Horne, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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August 10, 2000

To: Technical Review Committee Members

From: Scott A. Uhlich, Secretary

RE: Minutes of the eighth Technical Review Committee (TRC) meeting

The eighth meeting of the TRC was held at the Executive Conference Center Room 211,Calloway Gardens, Pine Mountain, Georgia on July 14, 2000. The meeting was called to order by Daryl Rowe, Vice-Chairman, at 10:00Am.

Members in attendance: Daryl Rowe, Scott Uhlich, Ernest Earn, Stan Coppage, Sam Banks, Larry Walker, Doug Cabe, Bill Durham, Bill Fortune, Larry Chapman, Laurie Cook

Guests: Carl Johnson, Bettie Sleeth, Michael Lloyd, Tom Weaver, Jim Free, Wilder Lucas, Theo Terry, Davis Morgan, Ken Dickson

Meeting Minutes: Meeting was recorded on cassette tape.

Order of Business:

1. **Call to order by Vice-Chairman**

2. **Opening Statement:**
   Darryl Rowe welcomed members and guests

3. **Review of minutes from seventh meeting:**
   Scott Uhlich requested clarification regarding the approval and motions made for Priemer Tech ST-650 Biofilter. Motion to approve made by Larry Chapman was based on manufacturer recommendations on drainfield sizing up to a 50% reduction in conventional trench bottom area. Scott Uhlich asked for clarification regarding the TRC approval of EZflow. Discussion centered around installation criteria. Minutes, as presented, approved sizing criteria and not installation methods. TRC determined approval was based on sizing criteria. Motion to approve minutes was made by Earnest Earn, seconded by Laurie Cook. Unanimously approved.

4. **Appointment of new member**
   Jim Crawdis was recommended to the Department of Human Resources to replace Lucy Jenkins and provide representation from the Department of Community Affairs.

5. **Old Business:**
   Ken Dickson, Environmental Health Section office, presented information on the certification of contractors and pumpers. Sam Banks raised concerns that certification cards being issued by the department did not distinguish between employees and the company. Mr. Banks stated that if employees left the company and started their own business there would be no tracking to ensure they paid the required certification fee. Scott Uhlich noted that the certification review board had recommended that employee cards be distinguished from company cards by some method. Mr. Uhlich stated that the Environmental Health Section office would review the matter.

   Scott Uhlich informed the TRC that Premier Tech had submitted sizing criteria to the State office that differed from the original information submitted for review to the TRC. TRC determined that approval was based on and limited to the original information submitted to the Department. Premier Tech may ask for a another review.

Bill Fortune began a discussion regarding the recommendation made by the TRC to the Department to allow a 50% reduction for aerobic treatment. Mr. Fortune requested that the Department amend the manual and write an approval letter allowing up to a 50% reduction in convention drainfield area if aerobic treatment units are used for pre-treatment. Mr. Morgan, Delta Environmental, supported Mr. Fortune's frustration that inequity existed on this issue. Some subcommittee members disagreed on what exactly was recommended to the Department regarding aerobically treated waste. Dr. Rowe stated that sub-committee reports must be submitted in writing to the full TRC. Mr. Uhlich stated that the Department was working with the TRC Standards sub-committee to address this issue.

Discussion was opened on EZflow regarding installation methods. Scott Uhlich stated that the Department required trenches to be dug the width of the product configuration to provide contact with undisturbed soil and to provide uniform sidewall support so the product retained it's shape during backfilling. Michael Lloyd, EZflow representative, objected to this requirement and requested approval to dig the trenches wider than the product configuration and allow staking for support. Considerable discussion resulted by the TRC members. During this discussion, Michael Lloyd agreed to meet the Department's installation requirements for digging the trenches.

6. New Business

A. Mighty Mac Model 500, Model 600, Model 750 ATU: Motion to approve by Sam Banks, seconded by Larry Walker. Unanimously approved.

B. Cajun Aire Model 500, Model 750, Model 1000 ATU: Motion to approve by Laurie Cook, seconded by Sam Banks. Unanimously approved.

C. Zoeller Residential Filter P/N 170-0078: Motion to provisionally approve the filter until such time that the TRC and Department adopt standards for effluent filters by Sam Banks, seconded by Larry Walker. Unanimously approved.

D. Zoeller Distribution Box P/N 173-0001: Ken Zoeller presented information on the distribution box. The distribution box has a self-leveler inside that would allow installation without a concrete slab under the box or without pouring concrete around the box. Motion to approve the distribution box by Bill Fortune, seconded by Bill Durham. Unanimously approved. Motion to approve manufacturer's installation method by Scott Uhlich, seconded by Sam Banks. Unanimously approved.

E. Cultec Chamber System: Mike DiTullio presented information on the Cultec Chamber System. Cultec Models Contractor EZ-24, Contractor 75, Contractor 100, Contractor 125, and Recharger 180. Scott Uhlich recommended approval be limited to a 50% reduction in trench bottom square footage for each chamber model. Sam Banks made a motion to provisionally approve the Cultec Chamber System Models; Contractor EZ24, Contractor 75, Contractor 100, Contractor 125, and Recharger 180 based on the manufacturer's recommendations not to exceed a 50% reduction in trench bottom square footage for one year or until such time that the TRC develops standards for chamber systems. System installation must meet the DHR Rules and Regulations for On Site Sewage Management Systems. Motion seconded by Stan Coppege. Motion approved (9 ayes, 1 abstain).

F. Filter Standard: Scott Uhlich presented a proposal to adopt by reference the most current version of American National Standards Institute/ NSF International (ANSI/NSF) Standard 46 entitled "Evaluation of Components and Devices Used in Wastewater Treatment Systems, specifically Section 10 of Standard 46, "Filtration devices for residential gravity flow septic tank systems". A motion to adopt the standard as presented for inclusion in the manual was made by Bill Fortune, seconded by Bill Durham. Approved Unanimously. A motion was made by Sam Banks that all provisionally approved filters would be given 6 months to meet the adopted standard. Seconded by Larry Walker. Unanimously approved.

G. Dr. Rowe recommended that all motions include a reference that the motion must meet the Rules and Regulations for On Site Sewage Management Systems established by the Department of Human Resources. Motion by Sam Banks, seconded by Stan Coppage. Motion unanimously approved.

7. Other Business

A. Standards Committee Report: Larry Chapman updated the TRC members on the progress of the committee. The committee is developing standards on sidewall absorption, masking factors, disturbed earth and aerobic treatment. The committee has been obtaining input from a number of sources. Bob Rubin, soil scientist from NC State University, and Steve Dix presented information to the committee at a recent meeting. The committee will present a written recommendation to the full TRC at a later date.

B. Scott Uhlich suggested a method to improve the approval process for aerobic treatment units and filters. Mr. Uhlich suggested that the Department approve any ATUs or filters that meet the standards established in the manual without having to wait until a TRC meeting. Discussion resulted in a procedure where the Department would notify the TRC members by letter of any ATUs or filters meeting the standards. Department would issue an approval if no TRC members objected within 10 days.

8. A motion to adjourn was made by Scott Uhlich. Motion was approved**.**

DHR

Audrey W. Horne, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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June 1, 2000

MEMORANDUM

TO: Technical Review Committee

FROM: Carl W. Johnson, Secretary, Technical Review Committee

SUBJECT: Minutes of the seventh Technical Review Committee (TRC) Meeting

The seventh meeting of the TRC was held at Ryan's Steakhouse in Macon on May 10, 2000. The meeting was called to order by the Chairman, Lawton Davis, M.D. at approximately 10:00 AM.

TRC members in attendance: Carl W. Johnson, Laurie Cook, Stan Coppage, Larry Chapman, Larry Walker, George McClure, John W. "Bill" Fortune, Bill Durham, Doug Cabe, Lawton Davis, and Earnest Earn.

TRC members absent: Jimmy Durrence, Daryl Rowe, Sam Banks and Lucy Jenkins.

Guests in attendance: Michael Fugate, Jim Free, Wilder Lucas, Theo B. Terry III, David Morgan, Michael Lloyd, Tom Weaver, Ken Pankow, Sam Robertson, Dick Bachelder, Charles Schaefer, Tom Krakauskas, Scott Uhlich, Mark Harden, Warren Abrahams and Davis Moore.

Meeting minutes: Carl Johnson taped and recorded the minutes of the seventh TRC meeting on three 120 minute cassette tapes. The tapes and minutes will serve as the official meeting record.

Order of business:

1. **Call to order by Chairman:**
2. **Opening ceremonies:**
   Welcome, member and guest introductions and other administrative details were made by the Chairman.
3. **Review of minutes from sixth meeting:**
   Based upon a **motion** by George McClure and seconded by Bill fortune, the minutes of the sixth meeting on March 23, 2000 were **approved.**
4. **Old Business:**
   A. Premier Tech Ecoflo ST-650 Biofilter Peat System
   Larry Chapman, Subcommittee Chairperson, reported on the committee's review and gave a brief report on developing a generic standard for bio-peat systems for inclusion into the Department's manual. Mr. Chapman made a motion, seconded by Mr. George McClure, to grant a provisional approval for one year for the installation and operation of the Premier Tech Ecoflow ST-650 Peat System until a standard for peat systems is developed for inclusion into the Department's manual. Motion included allowing installation based on manufacturer's recommendation up to a 50% reduction in trench bottom square footage. Units achieving a Class 1 effluent quality as defined in the Department's manual will allow a 12 inch vertical separation from groundwater as measured from

the installation trench bottom. Motion unanimously approved.

B. Crumpler Plastic Pipe, Inc

Doug Cabe presented information regarding Crumpler Gravelless Plastic Pipe products CPP 8" and CPP 10". Discussion regarding this product occurred centering around a study and paper conducted by Professor A.R. Rubin, North Carolina State University. Discussion regarding which soil textures and areas of the State suitable for installation occurred. A motion was made by Doug Cabe, seconded by Laurie Cook?, to grant provisional approval for one (1) year for the Crumpler Gravelless Pipe CCP 8" and CCP 10" Systems to be installed using trench lengths and installation recommendations identified in Dr. Rubins report. Installation is restricted to soils with loamy, clay loam, sandy clay, or clay soil textures in the following Land Resource Areas located above the fall line: Southern Appalachian, Blue Ridge, Southern Peidmont, and Sand Mountain. Motion passed. (Ayes: 5, Nays 4, Abstain: 1)

C. EZ Flow 1003-H, 1003-T, 1003-V, 1203-H, 1203-T

Michael Lloyd, Director Engineering and Sales RAPAC, Inc., Tom Weaver, Sam Robertson, and Ken Pankow presented information on the EZ Flow Patented Houck Drainfield System. Scott Uhlich, Director Land Use and Engineering, Environmental Health Section presented a report by the DHR Product Review Committee. Discussion centered around application rates. DHR Product Review Committee recommended equivalency factors as follows; 1003H - .4, 1003T - .3, 1003V - .6, 1203H - .25, 1203T - .28. EZ Flow recommended equivalency factors as follows; 1003H - .33, 1003T - .25, 1003V - .166, 1203H - .25, 1203T - .166. Mr. Uhlich pointed out the DHR Product Review Committee believes the 1003V equivalency factor of .166 allows a decrease in trench area greater than the 50% reduction allowed by law. Discussion followed regarding how conventional drainline length is determined and relates to State Law. Larry Walker raised concerns regarding the vertical system performance, stating now that repairs were required to be permitted there was an increase in failures being reported. Larry also had concerns with the installation method regarding the digging of the trench wider than the product configuration. Mr. Pankow and Mr. Lloyd stated that their systems have a very low failure rate in the State. Mr. Uhlich stated that sizing of the drainfield must be based on the most hydraulically limiting soil horizon encountered along the sidewall and trench bottom area of the product configuration. Earnest Earn made a motion to provisional approve the EZflow 1003H, 1003T, 1003V, 1203H, and 1203T based on the manufacturers recommended sizing criteria, not to exceed a 50% reduction in conventional drainline length, for a period of one year or until the TRC adopts standards for the product. Motion was seconded and approved.

5. New Business

A. Tuff-Tite Effluent Filter Model EF-4

Carl Johnson presented information and recommended provisional approval pending the adoption of filter standards by the TRC. Bill Durham made a motion to provisionally approve the filter, seconded by Earest Earn. Motion passed unanimously.

B. Approved Filter List

Carl Johnson submitted a list of all filters reviewed and provisionally approved by the TRC to date.

C. Standards Committee

Dr Davis appointed Larry Chapman to form a committee to develop a recommendation to the TRC for standards for sizing various on site sewage management systems.

D. PSA BioDiffusor 16" High Capacity Chamber System

Dick Bachelder, PSA Representative, provided information regarding the chamber product. Mr. Bachelder requested provisional approval for this product. He stated that this product is intended to eventually replace the provisionally approved PSA BioDiffusor 14" Chamber System. A motion was made by George McClur, seconded by Earnest Earn, to provisionally approve the PSA BioDiffusor 14" Standard and 16" High Capacity Chamber system for a period of one year or until such time as the TRC develops standards for chamber systems. Unanimously approved.

E. Senate Bill 1390

Warren Abrahams, State Office Consultant, reported on the passage of this recent legislation and the provisions relating to the on site sewage program. Attention was made to the provisions relating to the legislative oversight requirement to changes in the rules and manual.

F. Changes in TRC membership

Lucy Jenkins has resigned her position as the At-Large Community Affairs representative. Discussion centered around the appointing authority, DHR Commissioner or designee. Also, discussion regarding the need for 5 members to rotate off according to by-laws. This will need to take place at the July meeting. Also an election of officers will be required by-laws at the July meeting.

redone in summarized format. Carl 5-11-00

MINUTES
DHR TECHNICAL REVIEW COMMITTEE MEETING (5th)
12/13/99

Dr. Lawton Davis, Chairman for the Committee, called the meeting to order at 10:10 am.

Attending:
Carl Johnson, Doug McCabe, Bill Durham, Bill Fortune, George McClure, Larry Walker, Stan Coppage, Larry Chapman, Laurie Cook, James Durrence, Lawton Davis, Sam Banks

Not Attending: Daryl Rowe, Ernest Earn, and Lucy Jenkins

Visitors: Jamela Franklin, Wilder Lucas, Jim Free, Mike Fugate, Greg O'Donnell, David Morgan, Don Martin, Gloria Hanes, Tom Weaver, Michael Lloyd, Dewayne Fields, David Moore, Truett Kastner, Theo Terry, John Vanderbosh, Johnnie Johnston, Carl Linoell, Craig Linsell

Dr. Lawton Davis made a motion to approve the minutes of the previous meeting._____seconded the motion. Minutes were approved unanimously. Carl Johnson and Jamela Franklin taped the meeting. Four 60-minute tapes recorded the meeting. The tapes, two-tape transcript, and the minutes will serve as the official record for the TRC meeting.

Old Business:
Laurie Cook introduced Jim Free, who assisted her subcommittee, to make a presentation on Studor Vents, one of the items listed on the survey.

Mr. Free stated that the Studor Vents are listed in the Infiltrator **Design Manual** as an acceptable, approved way of venting. They don't recommend venting the systems. However, in some instances, if the design engineer or environmentalist feels that the system drainfield chamber system needs to be vented for oxygen exchange or any other purpose; the **Infiltrator** manual recommends to use any turn 180-degree turndown, which will be above the ground surface. But, as an option, the subcommittee recommends putting a **Studor Vent**, a brand named one-way air vent or any other one-way air vent, in the valve box to extend only slightly above the ground surface.

A question was raised in the past if the **Studor Vent** is an approved product.
Jim Free received and circulated information from **Studor** that stated that it is an approved product. He also received information from **Oatey**, another air vent company, which is also an approved product. He circulated papers, which showed the NSF, PMO,....., ASSE approvals. To vent the chambers to the surface without leaving the homeowner with a visible turndown in the yard, a valve box with a one-way air vent inside would be the solution.

In the past someone asked whether the TRC needs to approve one way air vents. Jim's report was a fact-finding search in response to the question.

Discussion ensued about alternatives to the one way air vents, which would not require approval. Laurie Cook stated the reason for the survey/fact finding search was to empower the inspectors in the field to approve or disapprove vents where appropriate.

A member commented that the TRC is supposed to have a listing of all products and the ways that they can be approved. This is a mandate, according to the member, for TRC. Discussion about the exceptions to the standard approval situations occurred. Approval is per installation per manufacturer's recommendation.

The TRC has a very comprehensive set of installation instructions, which are listed and were reviewed by the department before they were published. Carl Johnson referred to the manual to answer the approval question.

A committee member stated that the issue before the committee was whether a specific manufacturer of a given one-way valve has been approved. Carl stated that the committee has not received a request from **Studor** for the committee's approval of the company's valve. A committee member stated that the committee might be overstepping its boundaries to question a company that has its general use plumbing product NSF and it is currently used inside residences.

Laurie Cook stated that Mr. Free was only bringing the information to the TRC and his report is not tied to **Infiltrator** in any way. Stan Coppage stated that there should be a uniform standard for one-way vents that is approved.

Carl Johnson stated that the committee should go to the manufacturer to ask for the company's authorized uses for the valve. Another committee member stated that the manufacturers are not seeking approval from the committee. Someone else stated that the manufacturers do not realize that there is a problem. Stan Coppage stated it may be like Schedule 40. Since manufacturers have not addressed the TRC for Schedule 40 FVC pipe.....

Motion was made to approve any NSF approved.....Motion was **seconded** and passed **unanimously.**

Laurie Cook's Presentation

She discussed brick and mortal risers that some contractors built on-site. According to Laurie, some contractors prefer to build their own. As an Environmentalist inspecting the risers, she noticed that some may have water seepage depending upon the location. Stan Coppage asked if the TRC is concerned with the engineering. He also asked if the committee could put an "as built" approved drawing in the manual to ensure that the riser is structurally correct. Larry Chapman commented that the risers should be constructed on non-shrinking ground because if the ground shrinks problems will occur. Stan Coppage inquired if the committee could get a generic "this is what needs to happen" statement from engineering to avoid future problems.

Bill.....stated several counties have to cast in the ringing covers to the cones(check this, Carl!) for sanitary sewage. Some members questioned whether this issue needed to be added to the manual. Larry Chapman expressed an interest in doing further research on this topic. Dr. Davis asked Larry if he could write something that the TRC could review and approve. Once approved it could be included in the manual.

Laurie made a visual presentation about sandline trenches. These are drainfield/absorption fields used in Coweta County, as well as in some other counties. The type A sandline is 36 inches wide(standard trench width) with 12 inches of gravel. This is the old conventional system. Underneath this would be 30 inches of coarse river sand with another 12 inches of gravel #5 or #57. This was started in Coweta County in the 1970s for use of repair of existing systems that had failed. They were probably on lots where owners had installed swimming pools or circular drives and they were limited on space.

In the 1980s the sandlines continued to be used due to increased construction that was occurring on new sites. They also were used due to contractors' errors. Coweta County had an ordinance requiring a replacement area before any site could be approved. During this time, the state rules were handed back down to the local governments and the state was not actively administering the sewage program.

In the 1990s it became used as a conventional system when the soils would allow it.. Because more lots were 35,000 square feet and due to the increase in monster sized homes and circular drives, it became widely used. It suits the soils in Coweta County well-Piedmont Soils. A very public lawsuit which appeared on the television show "20/20" involving Peachtree Landing Subdivision was a soils-related issue. Many problems existed there. The systems installed were conventional shallow systems. Several of the systems were repaired by putting in sandline systems which go deeper and get into the assortment layers of the soils.

Jeff Gary, former Coweta Health County District Director in 1996, had concerns since the State Office did not recognize the sandline system. Under Jeff's guidance, one of his staff wrote a letter to the State Office requesting the State Office to recognize the sandline system as an alternative to the conventional system. Since he never received a response, Jeff's office called the State Office. Jeff's staff did a survey to be in compliance with DHR as a result of the State Office's suggestion. His office was told to wait until the Technical Review Committee was formed. This system was listed in the County Ordinances and recognized as a conventional drainfield.....

Coweta Health Department conducted the survey, selecting 50 random sandline sites from the Department's records. Staff visited the properties/sites and made efforts to talk to the property owners if they were home. Laurie showed several examples of Type A sandlines that Mike Mahoney, an environmentalist, visited in 1973. The environmentalists would take the inspection report in an effort to locate the tank and to locate the drainfield. They would also try to verify if the existing system were the original and not a replacement.

In one slide, Laurie showed a residential site with a sandline, which was 100 linear feet that was installed in 1987. Between 1970s and the 1980s the county adopted a standard .....The slide showed two systems: one was a Type A with 100 linear feet and the other was conventional with 300 feet in the back. The house had a split system; it was a large home with a lake in the back of the property. The inspector's notes stated that there wasn't evidence of sewage failure and the homeowner hadn't had problems since the home was built. The home owner was the original owner.

Slide #2 showed The Comfort Inn, a hotel in Coweta County on interstate 85 at exit 8. The sandfill was installed in 1992; there wasn't any evidence of failure. It had two 3,000-gallon tanks and seven 100 feet of type A sandlines.

Slide #3 showed a business in Coweta County that Laurie inspected and reviewed; the sandline was installed in 1990. It had five 100 feet of type A sandlines. The department came up with the figure of approximately 2,000 gallons per day as the estimate. She talked with the Operations Manager in 1996 who advised Laurie that the drainfield had not been problematic. He further stated that he had a sandline on his personal property that had not been problematic. In Coweta she has experienced success with this well-known method for absorption fields.

When Act 280 became effective, Ade Oke, a former engineer for DHR, recognized sandlines. He included sand-filtered trench under the experimental category. Laurie produced a copy of a monitoring record kept in Fayette County. The system was installed in June 1998. She produced monitoring records for July, August, and September of this year. The records have observation ports. The averages were 9500 gallons per month, 8900 gallons per month, and no record was available for the last month.

Carl stated that when he worked in Henry County the difference between the approvals was that the County approved 200 foot systems in contrast to a 300 foot conventional (?) system. Regarding the types of soils, the County approved them only when there was a failure or two. Some examples would be if you had a brand new home and the soils report was wrong and you had rock city or there were some discontinuous rocks. During his seven-year tenure in Henry County, there was never a system that failed. There were 65 systems installed when Carl resigned in Henry County in January of 1998.

Laurie said that there was a Waffle House on one of the sandlines(?) The person that was designated to pump the system pulled the filter out and threw it to the bottom of the tank. This caused their lines to be filled up with grease. Her staff dug into it and realized that there was noticeable sand in the gravel spaces. There was a black , two inch layer of sand that had been there for approximately six or seven years. Any system would fail under those conditions.

Carl commented that sandline settling is no worse that conventional settling.

Carl and Laurie had discussed in the past ways to monitor these systems to gather data. The Coweta Environmental Health Department installed a few systems. She showed a four-inch PBC pipe. There was a cap on the bottom and it was also solid on the bottom. The bottom 12 inches had 5/8 inch holes and the pipe was 10 feet long and was at the bottom of the trench shown on the slide. The goal was to pull the effluent from the bottom 12 inches. This was a repair being done at the home of the Chairman for the Coweta Board of Health. He requested a sandline system due a system failure. A filter was inserted inside the tank and an observation port was inserted between the drainfield and the filter. The observation port's role was to test the filter.

After the installation of the trench, the 10 foot deep observation port was inserted at 50 feet and another at 100 feet. It was a repair and was installed in February, 1998. They revisited the site to do some testing. It was difficult to find leakage. The homeowner used approximately 330 gallons per day. They were unable to get any effluent from the port. The Environmentalist asked him to fill up his bath tub, etc., to flood the system for approximately 2 1/2/ hours; the environmentalist still was unable to get any reasonable samples.

What is the origin for the type A sandline? Laurie presented the **Overene**(check this, Carl) **Handbook** for review on this topic. The original copyright was 1927 and the most recent copyright is 1965. The **EPA Manual** also references this topic. They do it differently; in 1980 they(check this, Carl; to whom is she referring) show a venting system. In the previous one, they show it with a vertical underdrain discharging to the surface. When you research the old reference books, you will find what looks very similar. (Check what she means, Carl)

On another slide, Laurie showed the similarity from the same manual. There were eight inches of gravel around the four inch tile, 30 inches of filtered sand, and eight inches of gravel around the filtered tile. The only difference here is that there is a larger stone around the pipe. The manual showed 30-60 inches in width on the trench. This one does have the underdrain sample of the trench that discharges to the surface.

The manuals usually give the size factor of the sand. In the example on the slide, it stated, "Fine sands will soon clog and require replacement. Coarse sands should be used, preferably with an effective size between .4 and .6 millimeters and a unit perfomity (?) coefficient of not over 4.0. Since it is frequently difficult to obtain sand as coarse as that specified, effective size is as small as .25 millimeters may be used." Laurie stated that Coweta has been using sands in that range. But, Fayette County sent a sample to the lab to get an actual size of the sands. She was unable to get a copy of the lab results prior to the meeting.

The **EPA Manual** also states that the .25 millimeter size is the smallest acceptable size, but anywhere up to 1.5 millimeters in size is acceptable. Stan Coppage also brought several copies of one public health reference manual-? **Engineering Industrial Experiment Station, Bulletin #23, December 1948.** The publication covered the origin of the sandline trench; Laurie agreed. She stated that the main difference here is that Coweta County doesn't discharge to the surface. The soils receive secondary treatment.

Laurie stated that the **EPA Design Manual** covered several different types of filters. She read the following information about an intermittent sand filter. "Initially designed to be four to 10 feet deep; however, it was soon realized that the large experimental station that most purification of waste water occurred between the top nine to 12 inches of the bed. Additional bed depth did not improve the waste water purification to any significant degree. The most immediate depths used today range from 24 to 42 inches. The use of shallow filter beds helps to keep the cost of installation low. Deeper beds tend to produce a more constant fluent quality and are not affected severely by rainfall."

There was discussion about sandfilters. Laurie's presentation covered dry soils and she agreed with members that there are different options available.

Laurie presented a slide that showed District IV's location. Coweta County is located in the Piedmont Soils. The Environmental Health Office in Coweta County is just beginning to gather statistics. In the past, the Environmentalists only included information about the installation or the failure of a system; the type of system was not included. Currently, the name of the system is also noted. District IV's data gathered from July 1, 1999 until November 30, 1999, showed 2,199 sandlines installed and 9,900 gravels installed. The number of failures for sandlines has been 43; the number of failures for gravels has been 2,041. The 43 failures total is not necessarily part of the 2,199 total. Some of the 43 failures may have been installed during the 1970s, the 1980s, or the 1990s. Laurie stated that she was unable to make the distinctions from the data. She stated that she didn't want the failure totals to be misleading. To assume that the 43 failures are part of the 2,199 total would imply that there was a 20% failure rate for gravel and 1.9 for sands.

Stan Coppage asked, "What were some of the reasons for the 43 failures?" In Coweta County, the Environmental Health Department looked at the water usage and the soil conditions. Laurie stated that they don't know the answer. The data probably had not been kept and probably still may not being kept correctly by the Environmentalists in the field.. One of the goals for the Coweta Health Department is to maintain better records of the data.

With the passing of Act 280 in February, 1998, under Jeff Gary's guidance, the Health Department decided to go with 50% reduction. Historically, it was one to three. But, Coweta County is now doing it at 50%. Due to the passing of 280 and much discussion with Jeff and others in the field, these two types of sandlines emerged in Coweta County. The type A was also called the commercial and they are still installed in commercial jobs such as churches, shopping centers, and other sites. Coweta County doesn't have much municipal sewage.

For the residential sites, the Department allowed the contractors to use 24 inches of sand instead of 30 inches of sand. Instead of 12 inches of gravel on the bottom, the Department allowed the contractors to use six inches. Also, instead of 100 feet of .....soil, the Department required 150 feet. It has more materials in it now than it had in the past. This allows it to be kept more shallow. It may also be more useful in some situations that it may not have been in the past.

Using the **EPA Design Manual**, where it refers to the first nine to 12 inches being the most important in the sand, Coweta County hasn't experienced any problems with this design. Someone asked a question

about the amount of coverage needed. Laurie responded by stating that 12 inches would be the minimum that the Department would suggest. Someone asked , "Why does [Coweta County] require gravel at the bottom of the trench?" Laurie stated that it had been performed that way prior to her arrival. The follow up question asked if the Department had tried to NOT place gravel at the bottom of the trench. Laurie stated that they had tried this .

Carl Johnson stated that he has discussed this issue with some of the Southeastern Coastal states.....managers. He wanted to hear their responses regarding approving or disapproving these systems. Some of the managers expressed concern about the access of oxygen down to that depth. He stated that possibly the larger openings with the gravel will facilitate potential access to oxygen getting down in there. Laurie added that she attended some classes in North Carolina and she discussed this issue with Mike Cooper and Steve Berkowitz. When she was a County Manager in Coweta, she didn't want to be part of a time bomb that was brewing. They believe it was probably aerobic in the sand and that these soils were not saturated soils zones. They thought that it was an aerobic environment. Reading the manual seems to confirm that this is the reason for the success of the system.

Someone stated that in North Carolina the Health Department does the same thing except they do it with wet.....soils. They drain the soils. If you look at the procedures of the on-site waste water treatments, ...They have approximately four feet of wet clay and wet mud. If you dig that out, you can install the system. They call it the Famlico area (check this, Carl). Hoover has experimented with this; he actually was the author of a paper on sandlines in the proceedings before this one.

Carl Johnson asked the date the research was completed. Stan Coppage responded, "The proceedings were completed in 1998 and the one before was two or four years before. They were putting in those systems more than anything else." Carl stated that he had asked Steve Berkowitz for that information one and a half years ago and had not received it. Coppage stated that he received his info from Hoover. He said they were sandline .....; they had underdrains and they were within approximately one foot of the system. They were monitoring the air.....quality and they didn't have any problems.

Laurie Cook's Summary of Her Presentation
The original pipe base sandline with 54 inches of material total with(between?, check this, Carl) 12,30 and 12. Coweta County is very strict about using back hoe test pits to verify the 24 inch separation from the proposed trench bottom in any restrictive layers in the soils, rock, and/or water table. The sandline trench, traditionally, has been installed if it's upgraded from a basement no closer than 20 feet from the building's foundation . This procedure differs from the procedure in today's manual. Generally, sandlines do not have stepdowns(?) or downs (?). Historically, the sandlines were installed at a ratio of one to three.

In Coweta, the Health Department did not install them over 150 linear feet. Carl stated that Henry County adhered to 200 feet. With Act 280, Coweta County only allowed only a 50% reduction. Laurie chaired the subcommittee to investigate this issue since several contractors and builders needed to know if they will be able to continue using this product. Since there isn't a company that manufactures this product, there isn't anyone acting as an advocate for its usage.

Carl asked if Laurie had a written copy of her presentation. She informed him that she could make copies of an outline of the presentation, if necessary. He also stated that he would like to have the State write the basic approval procedures and then he would bring the procedures back to the TRC for approval. Someone commented that this is not a new technology; it has been tested for an extended period of time. Another committee member asked, "Does any system approved by a Board of Health during 1986—1998 that does

not meet the standards of the new manual have to appear before the Technical Review Committee?" Carl responded that it does have to be reviewed by the TRC.

There was lots of discussion about this topic. Stan Coppage stated that if a committee is organized to research this topic there is the use of soil exchanges also being used similar to this except there is no gravel in the bottom of the trenches. They're excavating out real clay vts(?) and getting into sea layers subsoil. Stan's department has done this procedure for many years without experiencing problems with gravel at the bottom of the trenches. He doesn't want to institutionalize it to the point that before they use it they would have to use gravel in the bottom of the trenches. He has talked with several people including Steve Dix. Steve made a presentation to Stan's district. Steve informed Stan that having gravel at the bottom is not useful. There are different opinions regarding the usefulness of having gravel at the bottom of trenches. Stan suggested that this is another topic that should be researched if it is sent to the committee.

A committee member asked Laurie if she had seen what the rock looks like at the bottom. Had the sands washed through it and clogged it. Laurie said that the sands had not clogged it. She stated that Coweta County has dug into commercial sites such as the Waffle House. They have noticed the discoloration in the top inches of the sand. But, at the gravel levels the sands are not washed into the lower gravel layer.

Another committee member commented that the sands a tendency to move; whereas, the gravel from a structural standpoint like in a public sewer the sands will be embedded in the gravel. This stabilizes it. He stated that it is more of a structural issue than a filter issue. There were other examples given regarding this topic.

Dr. Davis asked Laurie the names of the subcommittee members. They are Sam Banks, Larry Chambers, and Wilder Lucas. He suggested establishing a committee to develop something that the TRC could approve. Dr. Davis, also, asked if anyone else wanted to join the subcommittee.

Another committee member asked if there was any biomatting that occur in any of the failures. Laurie said that there was not any that was noticeable. Coweta County observed failures at commercial sites and grease was the major culprit. Another committee member asked if Coweta County tested any residential sites. Laurie stated that they have not had the opportunity to evaluate any failing residential sites.

Laurie reiterated that the manuals emphasized not using sands that are too small because they will clog. Dr. Davis asked Laurie if her subcommittee could write and bring some formal recommendations to the next meeting. She stated that she believed that they would be able to do so.

Presentation by The Peat Harvesting Company

The presenter said the main business for the company is harvesting peat which they use for .....fuel. Due to research from the 1980s, the company a number of other technologies using peat. One was Clear Flo which uses a very coarse, fibrous peat for microfiltrations(?). When they select peat, they look for growth requirements for micro-organisms which is a biological process. It is an aerobic system; any oxygen nutrients come from the sewage itself.

It is also a fixed film reactor, so it needs a solid .....for attachment. That allowed them to select a very coarse fibrous peat that gave the company a very large core volume in conjunction with a very large surface area. Those two characteristics combined make.....unique peat and it is very good for water retention, ...temperature changes and the recent chemical..... They generally refer to the coarse media as an open fibrous.....

The company has a wide range of bacteria of species from the low level bacteria fungi up to .....worms even in a mature system. The bacteria do most of the work. So, there is a wide range of bacteria in a peat filter. There are very high levels of bacteria microorganisms. Consequently, this is a very effective treatment.

There is an ecosystem that develops from the higher levels which graze on the mid-levels which, in turn, graze on the lower levels. Protozones, in particular, graze on bacteria. The peat filter doesn't clog up over time as a result. The grazing effect of the higher life forms at the lower levels keep the population in check.

The presenter made a quick summary of the treatment process of the septic tank that dotes on the media(?) that charges or activates the media. The treatment process begins; it's aerobic. The only byproducts are byproducts where aspirations.....on the water. There is no clogging due to the grazing effect. The end result is.....

Results from the domestic.....influence: Generally, a 10/10 quality for BOD and TSS which correlates to 95 to 96% reductions could.....conversion of ammonia to nitrates/nitrites. Fecal reduction is particularly good; usually there are one million going in and hundreds exiting.

What is PureFlo? It is a natural treatment and dispersal(?) systems. The company is involved with dispersal as well as disposal. The system can also be used as a pretreatment system to be plugged into an approved disposal system. It is a biological process which is designed for soils not suited for conventional drainfields. Initially, to assist percolation in slow draining soils the biological content is addressed by the effluent in the peat filter. No biomass builds up in the drainfields. By keeping the core spaces open, the system is able to go into more difficult soils. They usually do not go much above 120 .....

At the other end of the scale, for the quickly draining soils where there is minimal treatment the potential for ground water contamination is high. Pretreatment protects the .....environment. The modules are polyethylene, ...polyethylene. Small under gravel to underdrain the base of them. The peat is put in layers; there is a distribution grade/grate(?) inside the modules. They cover that grate/grade (?) with another layer of peat about four inches each. This suppresses odors and they also use Bioflor, another product, to treat gaseous emissions from municipal treatment plants.

Dispersal Options: The company can either run the drain from the filters into a gravel base or into a pipe type system. Normally, they do this procedure in groups one and two, but they do not do this procedure in groups three and four. They can also collect all the effluent.....They can, also, plug into any other approved disposal system. In some cases, the company can discharge. This usually requires some form of disinfection.

Quick Overview: .....Septic Tank: They would like to have an absolute filter to keep the grease out of the pump tank time dosed to the modules with a simplex control panel with gravel..... The modules are preassembled when they arrive at the sites. The installer does not have to construct a peat filter on site. It is pre-engineered as much as possible and pre-designed, also.

A lot of the systems are very close to the surface; they are upgrades or shallow placed because the company works in high water table conditions. The presenter showed several slides with different examples.

They can be arranged side by side or end to end. But, normally, the company likes to keep them in a long and narrow .....system so that the company gets good .....removal from the bed.

All of the company's systems have sample chambers to keep track of the performance of the effluent. The presenter showed a slide of one of the systems. The company uses mulch and put plants on it; they also will

use grass. The lids are left exposed; it's an aerobic process; there are ventals around the edge of all the lids with ½ in diameter. That is how air is passively drawn into the system.

The other type system is the trench system which has the septic and pump tank system . They pump up the modules. They also sit on gravel beds purely for support and stability so that the modules are level. Everything is collected at the base of the modules and may run into a drop box.

The force main(?) will be on the backside and on another side will be the treated effluent piped from the base. In this case, it goes to a drop box which will be another pressure-dosed pump station. North Carolina refers to them as Type A and Type B systems. The company has adopted those names as well. Type A means the .....and Type B means.....

Common Site Applications/Sites with Limited Space: These categories generally refer to high/low per.....of the soil conditions, shallow depths to ground water, restrictive layers of rock and environmentally sensitive areas near lakes, streams, and oceans. Initially, these are areas where the system is applied. Several slides were shown with different examples.

To protect the units from the sun, you can cover the lids with substances that will not impede air flow. In New Mexico, they use gravel. The units are UV treated. They have installed systems also in Rhode Island. They installed treatment units under the deck of a house. No effluent came from the units.

He showed a school which was a repair in Ohio with a 1500-1600 gallon per day system. It had 12 modules. Everything was pumped into the 12 modules and then everything was collected. It had a gravel bed for support. The company had gravity flow into a large infiltrator type of chamber system and flow out into a ballfield. This is an example of pretreatment before a chamber type system.

If they encounter very strong waste, the company will need to convert it to domestic strength waste to use their current sizers. They discovered if you try to design for the higher strength waste you will have to go on an organic loading rather than on a hydraulic loading which is not cost effective. Typically, they try to knock the waste down to domestic power by PureFlo; this works well in most cases.

Key Benefits with this System:

- Reduced area
- Straightforward installation
- Odor free natural systems
- High quality past performance
- Low operating and maintenance costs
- Two year warranty on the treatment process
- Media life expectancy is approximately 15 years

The media the company uses is almost 100% ligament(?); it is the root particle of.....which is a dog cotton plant that grows in peat .....They try to optimize the percentage of the fiber in the media. Ligament is a very tough natural material which enables it to last a long time. But with that amount of activity, it will eventually break down. The peat will behave like a finer peat which is unable to accept the same hydraulic .....

For some installations in South Carolina where they have put systems in between the septic systems and failed drainfields to try to rejuvenate the drainfields there is some good evidence to suggest that this can be accomplished with treated effluence. This is another good application.

One lesson the company learned was that if you do install a pretreatment unit you need to ensure that it can drain. In the case on the slide, the lines were already full of effluence and completely clogged. Initially, it tended to back into the unit. The modules must be able to freely drain if they are slotted in between an existing septic tank and an already clogged drainfield.

The company's systems are in approximately 15-16 states, including Alaska. The system in Alaska was covered and vented. However, this is not a normal procedure for the company.

Generally with single.....most biofilters-sand or foam, etc.-you typically will get a complete conversion of ammonia. Overall, you will probably get a 30-35% total nitrogen(?) reduction. With one to one recirculation, the company can increase it to 50-70%. They have kept a conservative recirculation ratio because the company's hydraulic loading seems to comprise some of the other treatment processes, particularly for fecal reduction. It seems there is a long residence time for fecal reduction. One time through seems to be what is important for fecal reduction.

Phosphorous at the bottom usually requires sites for absorption or something to precipitate phosphorous. Without adding something or changing the product, you won't have any phosphorous removal.

The company is doing some testing after ATUs to look at one peat filter as a polishing unit after an ATU system which is Delaware. They just started this research.

The presenter showed another system located in Virginia. It allowed a dry ditch discharge; they pretreat. A dry ditch has to be of a certain gradient and length. It has to be naturally forming and not man made. It is a function of necessity in the western part of North Carolina and Virginia.

One of the controls for pre-engineering and pre-assembled consistent media quality the company provides training to designers and health departments. They also provide hands on training for installers and certify the installers. They submitted data primarily from the Virginia study because the data looked specifically at the performance of peat filters with shallow depths to water tables. They have over 300 systems installed and no hydraulic failures. The presenter submitted data which showed the quality of effluent from the peat filters.

Question: "Do you address lateral application rates?"
Response: "No. In most cases, the company tries to keep the beds and trenches long and narrow because if you have a high water..... and a shallow installation you are looking at a ....."
Question: "Do you have any information on lateral application rates since you're asking us to approve the one foot from the water.....?"
Response: "No. We usually use the.....systems group in one and two; so it's virtually.....There are studies and research on lateral flows; I'm sure that we can find those. We haven't done any research ourselves."
A committee stated that he brought up the issue because on Wisconsin mound that require that if it's horizontal flow(?) away from the system there is a requirement of three to four gallons per linear foot. He wanted to know if this company would agree with this type of requirement.
Response: "The company would work with the TRC regarding this issue because some states like that approach; other states do not. There is not much point in standardizing because some states don't

recognize it. North Carolina is a very progressive state, but their vertical standoff for conventional trenches is only one foot. There is definitely a good body of practical information on systems that have been installed with only one foot vertical separation from the seasonal water table."
Presenter's Question: "Do you generally look at shallow installation as a function of lateral flow? Do you get into hydraulic .....?"
Committee member's response: "We don't. The information from the Wisconsin mound is the only place where this is addressed. That is why I'm asking you if we do approve this is there any concern about lateral application?"
Response: "The practical way to address that might be to put limitations on the dimensions of the .....system."

Carl Johnson stated that the answer might be the hydraulic loading rates. It is similar to what you would do for a drip irrigation system or another system where you would have a compromised soil acceptance rate. The committee member responded by stating that in the Wisconsin mound .....that has been adopted there is some concern that if you have horizontal flows off the site and a shallow water table you could have surface.....This would occur if you don't consider the lateral application rate.

Committee member's question: "Do we need to have the company address it in their application to us or do we need to address it separately from the company?" He stated that was the reason for his question to the presenter regarding information about the lateral application rate for the product.
Response: "The information would have to be pure scientific research and we haven't done any research on that. Based on experience and the number of installations we have done in other states and the practices in other states, we are comfortable with ....."
Another committee asked, "Where did these figures (in the materials) come from?"
Response: "That's a study done for the Virginia Health Department. That was a demonstration project there."

Question: "Is this third party testing?"
Response: "Yes. We have a lot more books that show extensive testing. That was done by Old Dominion University in Norfolk. We have only one study from Ireland that is independently verified, but all the rest of it is targeted by...."

Carl asked, "Are these the three items we're being asked....?"
Response: "That is basically what we're proposing ....."

Another committee member stated that the presenter was talking about two separate things: a seasonal high-water table and a hydraulically limited condition. He asked the presenter if the information presented addressed the hydraulically limited condition.
Response: "All the systems in Virginia were installed between six and 12 inches above the seasonal water table. For most of the sites the water tables existed between 18-24 inches from the surface. All of the study was done under shallow conditions."

Another committee member stated that he couldn't distinguish the nature of the substance.
Response: "It was mostly water.....We find if the rock is impermeable(?) you are going to have a fresh water .....
Committee member responded that this is where you will have your lateral flow conditions and this would be more of a concern to him than water tables.

Question: "Is this considered an ATU?"
Response: "No. It's a biological filter which uses peat as a media. We refer to it as a peat biolfilter; it's a fixed film reactor where the microbes are attached to the surface of the peat."
Another committee stated that it is just a filter with a drainfield on the end of it. He stated that he has seen some cases where they just sat on the bed. He wanted to clarify that this would not be the case. He asked if they would still have a drainfield the same size as they would have normally.

Response: "Not necessarily. There is one disposal where the effluent goes into the gravel pad which is also the drainfield."
Committee member: "Where will we benefit as .....? We're still going to have to put the same size drain filter that the permit is requiring. Is this correct?"
Response: "No. It depends on the design."

Committee member: "If we're looking at saving space, then this will save space. Are still going to put in a trench?"
Response: "The idea is that the application rate for the trench will be much higher because of the pretreated effluent. You could place the units somewhere in the soil that isn't very good. This could be soil off to the side of the property that is out of the way. You could go into a drainfield that is 50% the size of a conventional drainfield. So you are saving space."

Another committee member stated: "We haven't addressed that.....ATUs."
Carl stated that this was addressed in the original approval.
Laurie Cook stated it was in 1996 when they approved the products for use in Georgia.

Question: "What type loading rate(?) is the company getting on your beds?"
Response: "There is a table in the handout that shows by soil classification about three gallons of very highly drained soils. This is with very coarse sands. It drops off.....The table is in the manual."

A committee member stated that this is still three times higher than any other floating .....
Response: "It is only in .....of five or less which can certainly take the hydraulic loading. Most states don't go quite that high. North Carolina kept it under two. That's fine. If you're not comfortable with three gallon loading and .....rates five and less, we made this as a proposal."

Carl stated that the key is the hydraulic loading rate and the acceptance of the soil. He stated that this is a critical factor in the design of the system.
Someone identified himself as an employee for Delta Environmental. He stated that the system being discussed is an aerobic treatment that uses a fixed film media process that produces a quality effluent. He stated that they chose to go a different route regarding aerobic treatment. He stated that they don't oppose it being used at all. If you are going to make reductions based on quality effluent, they want to be considered the same. They want to have the same drainfield. They would like to have their effluent certified through .....They would like to be on equal footing if they are using quality effluent as a measure of drainfield sizing.

Someone commented, "The seal(?) on anything that comes in on what has been presented is where you have field data. There are effluent BODs in here; one is 600 plus; one is 400. They are turning out a consistent effluent. I have no problems with that."
Another committee member stated a year's test was under 10/10 and that's pretty consistent .
Another committee member stated that anyone that is asking for it should bring in the data and submit it.
Response: "There is no doubt in the fields installations are the best .....24 systems that were installed. The system gets a lot more stress under those circumstances."

Another committee member stated, "We're going to see a lot more pretreatments as time goes on. There are more coming. We need to be prepared for that." He stated that if a company presents a particular effluent quality then the TRC needs to tell the company the way the drainfield should look. This would eliminate having to make decisions on a case by case basis.

Someone stated that clean water coming from a delta pipe, etc. ..... "The water is equal once it's been through a treatment process. So we're looking at getting it uniformly into the dirt."
Someone else stated, "There is an interesting pattern in Pennsylvania which has a standard reduction for aerobic treatment systems. It's built into their code. It's one page; it's graphically done and very easy to work with. I will produce a piece from Massachusetts where on a media use only if you have a difficult situation they will go up to a 15% reduction. You can standardize this within your code for the industry. Other states have done it."

Bill Fortune: "We did it also. It is fine with me if we can do it for everyone."
Response: "We talked before we came in. These are the loading rates that we have come to trust based on our experience. Lots of times states will implement a standard percentage reduction to their current rates because you can't have 10 different manufacturers with 10 different loading charts. That is certainly acceptable to us. That is what is done in many other states. States tend to go different ways. That will be your decision. If you are going to manage future technologies, you will have to standardize reductions based on treatment performances."

Another committee member stated: "Mr. Chairman, I submit that we.....performance standard on which to base any reduction of field line, etc. That is one issue and the specific product is another issue. We need a benchmark that is for the quality of water or ....discharge before we can approve a specific product with any type of reductions. How long have you gathered data and done your testing?"
Response: "We have been in the US since 1993. We have been installing in Europe and Ireland since the mid 80s."
Committee member: "I understand. You have a 15 year peat life expectancy, so you probably have a two year warranty."
Response: "The warranty is if anything goes wrong with the media, basically if the system is abused, it would be difficult to say why the treatment performance isn't there. If it is hydraulically overloaded or if the water table is too high, it is going to be very difficult to go back."

Question: "Do consumers know what to do to insure the system operates properly?"
Response: "Yes, we do. It is a very passive treatment process. There are no moving parts in the peat filter. Nothing should go wrong with the media. If anything does, the company will address it."

A committee member stated that on the slides there were a lot of pumps, filters and mechanical parts.
Response: "Most of the parts you probably recognized. They are produced by our manufacturers. If we supply those with the system, we usually give a two year warranty on that, as well, even though most of the manufacturers only give us a one year warranty."

Truett Kastner: "I have over 600 aerobic treatment units installed in Georgia; everything runs fine for one or two years. If someone decides to add some .....chemical in the house, ...We then get stopped up sewers. When the sewers become clogged, how will they self clean?"
Response: "Do you .....septic tank .....?"
Kastner: "No. We use the FBR (?) System. I can bring it back pretty quickly, but I have to go out and remove the sludge from the filter."
Response: "A lot of the chemicals up to the limit can be handled in the septic tank. We, also, have a commercial effluent filter on the septic tank."
Kastner: "I have a system that is being installed that needs 9,000 square feet of drip emitter drainfield area. How are you going to go in with a small bed to eliminate 450 gallons which was taking me 9,000 square feet plus 9,000 backup area? This is common in this part of the country."

Response: "The technology the company uses was designed .....with a lot of control using pressure group emitters over a huge area."
Kastner: "We drip, just like you do."
Response: "The drip system is designed to spread effluent over a large area."
Kastner: "It does. It takes that to eliminate the water. If I place if ....., I will have a wet yard. Maybe, in soils that are .3,.4, or .5, this might work. I am referring to soils that are .15,..1, .05. How are you going to get rid of that.....?"
Response: "We're not proposing any infiltrations with which we're uncomfortable."

Kastner: "I know some of yours have gone in.....They went with it because we didn't enough room to put ours in the backup(?) I want to know how it got approved."
Response: "Johnny is our distributor here (who can answer that question.)"

Johnny: "I have been in the business for 26 years selling products. I represent Consolidated Products and I also sell aerobic treatment units. They can be used with different systems mounds, regular field lines, infiltrators or similar products. I am also the representative for .....I discovered that everyone is concerned about .....It doesn't matter what product it is nor does it matter who has received NSF approval. If it was maintained and it produced quality effluent consistently, this was a very important factor. The number of visitations and service calls made a difference. It doesn't matter if it's an aerobic system or a peat system. The amount of maintenance required makes the difference."

He requested that the TRC consider the maintenance required for the systems being reviewed.
Additionally, he stated, "A drip system has a lot of holes over a wide area; a pad is the size of the table that is covering every square inch of the soil in a drainfield." He expressed that this committee may be better off if it consults someone who is a soils scientist who can help them with the establishment of soils loading rates.
He stated, "We will be glad to supply you with anything from our factory. But if you want something from a local level, we can tell you what it does performance-wise because we have already seen it out there. We've already installed some systems as large as 24 modules in this state recently. We have some fairly large ones. We also have a fairly good running record already of what's been done locally in this state. This is not to say that every product has a perfect running record; that is not true. We look for you to look at the different products that you can put together. If it's a Zabel filter that goes along with our unit, fine. But we need something else. We are trying to achieve whatever that site needs."

A committee member asked, "Are we trying to approve the peat moss filters with the same drainfield size required for a conventional system or are we talking about this being a part of a new system where reduction of the required drainfield area is allowed? What are the numbers?"
Response: "The numbers they suggest are in the approval, but it looks like you will probably have to go with the percentage reduction from the ....."
Question: "Do we have the information to make that decision?"
Response: "No."
Carl stated, "I haven't been able to develop the specific recommendation for approval."
A committee member stated that there were other people in attendance who could provide Carl assistance with this issue.

Another committee member stated that there are different issues. He stated that one issue is the separation. Second issue-do we allow drainfield downsizing because of effluent quality? Committee members had agreed to address this topic earlier, but it never came up before now. He stated that a subcommittee should be formed to address the downsizing issue, which was based on water quality of the treated effluent allowable seasonal water table. Additionally,. the subcommittee should address the requirements for a linear application rate.

Another committee member stated, "We have drainfields out there that are based on 9,000 linear feet." Laurie Cook stated that there is already a reduction of footage being done at 50%.

Another committee member stated the TRC should give provisional approval to the Puroflo system with its current drainfield reduction until the issue of drainfield downsizing for different types of systems is resolved."

Presenter: "I think I understood from this morning that sandline trenches are going to get only a 50% drainfield downsizing, but that a two thirds reduction actually works. They can safely do a 50% reduction. What we are proposing is supported by good research. We are proposing an area reduction of either our loading rates or some percentage of reduction from your rates."
A committee member asked for a specific number.
There was a lot of discussion. The presenter finally stated that it would probably be in the 50% range.

Another committee member stated that there is no more than a 50% reduction in any drainfield. He stated that the company can't put it in their bed system. They would have to use a chamber system, Easy Lay system, etc.

Another committee member said that in the meantime everyone should do it so the TRC can resolve it.

Another committee member said that it isn't being done in the bed systems; it's being done where you come out from a 50% reduction into a chamber system.

Presenter: "We have loading rates proposed for a bed system, as well." There was much discussion concerning the company products that have been approved. Committee members asked Carl the status of the approval for the company's products. Carl stated that he has not had the opportunity to review the proposal from a design perspective. He stated that he thought the committee was only going to address from 20 inch to 12-inch separation for this meeting. After Carl reviewed the proposal, he had questions. He stated that there had been some reductions and vaguely remembers reading about a 30% reduction. He was unable to recall the specifics because he hasn't studied this in detail.

Someone stated that he just received a copy of the company's approval letter. Ade approved the company in 1996. The committee member (?) stated that Ade lacked the authority to approve the company.

Another committee member stated that this requires that the committee conduct a study. They already approved the company by putting the systems; he stated that the company should not be prevented from putting in the systems. In the interim, his recommendation was that the TRC should give the same footprints to the quality of effluent and use their loading rates until the TRC develops its own.

Carl stated that the only problem with the recommendation is that if there is something in the proposal that is different than the existing standards already in use there would be a tendency to use the existing standards in the manuals.

A committee member asked if Truett Kastner if they (the towns) are oversizing the dripping systems. Truett responded that he believed that the towns are oversizing. There was a lot of discussion about this issue.

A committee member stated, "Based on approvals that are already out there like Chamber Technologies- 50%. Based on water quality, would you start at the 50% and work down? With the conventional septic tank, you have a 50% reduction of a gravel trenchbed already." Carl responded by stating that the soil has to accept the water. This is the most important factor. It doesn't matter whether the water is clean or dirty. He stated that you have to identify what that specific soil on that specific site will accept.

Someone else stated that currently there are chamber systems that don't have downsizing. His concern was that if the TRC accepts the downsizing without having written standards in the manual the committee might be making an error. He suggested that **Puroflo** could use their product, but it should be with the same footprint as gravel until the TRC writes guidelines for aerobic treatment units and any effluent that has been treated. He stated that the committee lacks a standard guideline for approval of the units. He was not in agreement with selecting systems without a standard.

Carl agreed with the committee member. Carl further suggested that a subcommittee be formed to address this topic since the issue could not be resolved during the meeting. He stated the presenter should write specifically the items that needed approval. The presenter submitted the initial proposal for review. Carl accepted the proposal and stated that the subcommittee should make recommendations to the TRC.

Another committee member stated, "There are two separate issues. We're looking at reducing drainfields based on the quality of the effluent; that's one big issue. A totally separate issue involves approving or disapproving a product. They have made a full presentation that looks like to me came October 15, 1997."

Someone else stated, "The problem is the reduction." Other committee members agreed. Another committee member stated, "While this subcommittee is studying over the proper loading rates, I think we should let all eight Class I effluents use the same footprints."

Some committee members disagreed.
Question: "So, what are we going to do with this one?" Someone responded, "There are some chambers that don't have a 50% downsizing." Other committee members disagreed and stated that all have a 50% downsizing. Someone stated that the state legislature made this decision in October 1998.

Carl disagreed and stated that the state legislature made the ruling for infiltrator systems only. The State Office provisionally extended this to include the other chamber manufacturers up to a 50% reduction for a specific chamber size.

Laurie Cook asked, "When the aerobic systems produced by different companies with the same water quality were approved, were they approved with such footprints in hand or were they just approved as an aerobic unit?"
A committee member responded, "In the rewriting of the regulations for a three or four month period, it was in there for a 50% reduction for a Class I effluent. This exceeds that. Then it was taken out."

Laurie stated, "Here is where I think we have a duty. This is their proposal and we have approved several things provisionally until they can be studied further. We need to look at the manufacturer's proposal as a whole and not try to take parts out without further study. If the other aerobic units want to come in and propose these 50% reductions, then that is another issue. We need to look at those separately."

Another committee member agreed. He stated that he would like to see data similar to this company's data presented on field conditions.

Lou Robitaille from **Premiere Tech**, a company that also manufactures peat biofilters, stated that they had gathered some studies from Jensen and other companies that normally do infiltration. He stated, " The earliest studies were in 1987, 1991, and 1994 with sandfilters. They had the same quality of effluents at the base of their sandfilters as at the base of their peat filters. They found in different types of soils you could

infiltrate between 3.7 to 13 gallons per square foot. That is a lot more than we see here for conventional systems. The 50% is not something that is over the top."
Lou Robitaille: "When they're asking for 50%, they're asking in reality for approximately 2.48 gallons per square foot. The studies that Congress and Seagress (?) show in that type soil we're talking 7.4 gallons per square foot.

Question: "Are you asking for 50% on a conventional system?"
Response: "No. When you have an effluent quality of 10 or 15 milligrams per liter BOD and TSS and the fecal coliform count of less than 20,000 colonies per ? 100 ml?, it should be considered that you're treating the water to a higher degree so that you can infiltrate more water in one square foot. This is true up to 75 minutes per inch. After that the soil becomes the factor and not the water. But lower than 75 minutes per inch, the water is the factor. "

Bill Fortune stated, "I have three drainfields in Florida. We're required to have a 5321; that means phosphorous-one; .....two, ...three and a five. This is as clean as the water can get. The drainfields are as large as this table. It isn't flooded; it's been in service for several years. It will work."
Another committee member stated, "This is on this soil condition. The soil is the key. It's harder to get a 25% reduction." Other members agreed.

Bill Fortune: "We get a lot more than 25%. Florida states that engineers are responsible; they don't care how you get it just since you get it. They check everyone every year. It works. The state of Florida says they don't care how we do it. Performance based systems are on performance; that is what we have – performance. It can be done. But, we're not getting the benefit of it in Georgia."

Laurie Cook agreed with Bill Fortune and she stated that the other manufacturers who want the same recognition need to come to the TRC again and make that proposal. It should state that their products are being used for those footprints(check this, Carl.)

Bill Fortune: "We thought we had to have NSF and we got NSF." He passed out some materials. "We're not going to act on this because it's not on the agenda. But one state is going to give us this footprint. Verbally, we've received it, but I want to have it in writing. This has been approved in another state; I can't say which state. Florida exceeds this. Since it's based on the engineering design, Florida states that if you can show them you can get it, you can get what you want. (check this, Carl) We were told this on the previous Wednesday."

Question: "So, if your engineers say that you do it, regardless of the Health Department's regulations, you can do it? What happens to the system itself? Are you out of business"
Fortune: "You have to do it. Yes."
Question: "What happens if you're relying on your engineers and your system fails? People say that the systems don't fail. I know where three or four are failing now. If it is NSF or any of them and your system fails, that engineer is not out there to repair it. These four people are paying $200,000 plus to fix it."
Question: "Larry, how much do you pay in errors and commissions insurance premiums per year?'
Response: "It's about two or three percent of your gross."
Committee member stated that Larry's response answered the question.

Laurie Cook stated, "I've seen the **Puroflo Pest System** coming into Georgia in some very difficult and challenging soils. It's working. The other manufacturers need to come back and ask for it, if that's what they want."

Dr. Davis stated, "We have a specific proposal before us. We need to do something with it. We've discussed it. Does anyone have a suggestion or a motion?" Dr. Davis then asked the presenter if he wanted to make any changes to the proposal before the vote.
Response: "It is pretty obvious that you're not comfortable approving it today. I can understand that."

A committee member stated, "We have a proposal before us and we've raised the issue of whether or not we're going to allow downsizing based on the quality of the effluent for other systems. What I would like to see us do is to decide to table it; pass it, or to deny it. We have other things on the agenda."
A **motion** was made and **seconded** to approve the **Puroflo System.**
Dr. Davis asked if it should be approved as experimental, temporary or whatever?

Another committee member suggested that the TRC read the proposal.
Presenter: "May I suggest something? I think you're uncomfortable with the loading because we're using our charts. Our charts maybe shouldn't be used here. You may want to come up with your own table or your own percentages so that other technologies can be sized by the same criteria. So, why don't you approve it as it is with either the percentage reductions from you current regulations, if you're more comfortable with that. Another option is that you can approve it as it is and revise the application rates whenever you do come up with your own percentage reductions for different effluent qualities and soil conditions."

Another committee member stated. "We're going to expect the same footprint unless you can tell us why we shouldn't have it. I don't know whether or not to put an amendment to this motion . When you pass this, it will be for everyone."
Other committee members stated it would not be for everyone.

Dr. Davis stated if the TRC is going to form a committee to review fecal reductions for effluents it would be prudent to state that if the committee's recommendation is for a lesser reduction than we're passing here then the proposal should be revised.
The presenter agreed.

Dr. Davis asked, "Do we already have a category that this will fit into? [The category would be] that this is approved experimentally or temporarily until such time as our subcommittee makes a recommendation."
There was a statement that it should be approved with the committee's same loading rates. Someone motioned to table the issue until the TRC becomes more informed. Discussion followed.

Dr. Davis accepted a **seconded motion to table the issue.** This took precedent over all **motions** on the floor. The table motion passed unanimously.

Another committee member recommended that Dr. Davis appoint a subcommittee to work on the soil loading issue, which is based on the quality of effluents.
Another committee member asked, "Where does this leave the presenters who are already selling their products and they're approved? What are they to do until the TRC meets again?"
Laurie Cook stated that the TRC needs to provisionally approve the Puroflo products. She also stated that she wanted to reword her motion.

Dr. Davis then asked, "Who on this committee feels that you know enough or are interested enough that you are willing to serve on a sub- committee to get something back to us in a timely fashion-by the next meeting?"

Another committee member stated, "They're asking also not just how much area but they're asking for a reduced setback of 30%. That means instead of being 100 feet from a well we're talking about being 70

feet from a well. That's a can of worms. They can ask for that, but I would be opposed to it. That needs to be addressed in the subcommittee. That is also something that they're proposing."

Carl stated, "That also addresses a change to the rule, not just to the manual. I think we may be a little bit hard put to think about changing the rule right now."

A committee member made a **motion** to vote on the manufacturer's first request and to deny, at least for now, the second request. These are provisional until the TRC receives the subcommittee's report. He recommended that #1 and #3 would have provisional approval and that #2 would not be approved for now.

Dr. Davis suggested that the TRC break for lunch and think about the motion over lunch.

When the meeting reconvened, Laurie Cook stated, "I would like to bring the issue up again about product that we just reviewed before lunch. I feel that we should consider making some type of provisional approval today because they've been doing business in Georgia. It doesn't seem right to tell them they can't do business in Georgia due to some of the issues we have concerns about."

Another committee member asked, "If we tabled it, do they continue to do it the way they've been doing it? We are not hindering them nor taking anything away from them if we leave it the way it is. Correct?"
Another committee member responded, "They're approved with the drainfields reduced 30% for the system and that might hurt."
Everyone agreed that they could continue to do business as usual..

Laurie Cook stated that they are asking for a 12-inch separation from the water table versus the 20-inch and that all the other aerobic systems have the 12-inch separation. She has seen it operate in very challenging soils. She stated that the TRC should recognize that fact so that the presenters would have accomplished something.

Laurie made a **motion** that the TRC adopt and approve the first three of the five recommendations that Pureflo submitted . She stated, "This would leave it open for the subcommittee to discuss the infiltrative surfaces. It only would be approval for the first three."
Dr. Davis reiterated Laurie's motion. Carl clarified by stating that the motion was for the first three sub paragraphs. The motion was **seconded.**

George asked, "Why do we have to make this motion .....?" Laurie stated that the only thing that needed approval is the 12-inch separation. Carl stated that the motion gives Pureflo a current legitimate approval.

The **motion** passed unanimously.

The Premier Tech/ Ecoflo Presentation:

Lou Robitaille made a presentation about **Premier Tech**, the manufacturers of peat-based biofilters. The company is based in Canada; the products are made and manufactured there, as well. Mr. Robitaille is based in Birmingham, Alabama; this is the location of the U.S. sales office.

Premier Tech is part of a holding company entitled **Premier Enterprises** which has been around since 1923. The company has over 1,200 employees in the U.S., Canada, Ireland, and Germany. It made over 140 million dollars in sales in 1998. It has 22 peat moss production plants throughout North America. They are able to produce a peat moss that is a constant and uniform product everywhere in North America. The company is, also, the most important, private research center on peat moss worldwide. The company uses 5 million dollars annually on peat research.

Premier Tech, the technological subsidiary of **Premier Enterprises**, came into existence in 1989. **Premier Tech** developed the technological products for **Premier. Premier Horticulture**, the sister company, mainly sells and promotes the horticultural peat products. They do packaging for peat producers, as well as for other companies that have fibrous materials similar to peat. Dupont is an example.

They acquired **Aron Systems** (check spelling, Carl.) , an Irish company, which makes sizing and screening equipment for compost. They also develop biotechnological products for horticultural purposes. They develop fungi, try to reproduce them on an industrial base, and they incorporate them into peat moss, compost, or other soils.

Mr. Robitaille works for **Premier Tech Environment**; this company develops wastewater treatment products for the environment. The main markets are the following: residential applications, commercial applications, small restaurants, hotels, camping sites, collective systems, small municipal systems, dairy farms, and sanitary landfills.

The company has been working on **Ecoflo** for the past 10 years in the areas of development and research. They worked mainly on the filter bed. From there, they developed the components and the adaptability of the product for commercial and widespread sales.

The research and development team consists of 25 members-engineers, biologists, Phds, etc. in all fields that relate to on-site wastewater treatment and to peat. They have over 55 systems installed in North America. Recently, the company began selling in mainland Europe.

The company developed the product in five phases. From 1986-1989, this was the exploratory phase; the company looked at various types of peat; they found 22 different types of peat that would treat wastewater from a residential application. They ran lab tests to determine the types of peat that would be best suited for wastewater treatment. The 1989-1994 phase was the experimental phase which focused on the technical constraint and evaluated the life of the peat bed. There were two prototypes under operating conditions; they were very large prototypes that had different types of filtering media in them. They were not the same as the ones that the company uses today.

From 1992-1994 the company had a demonstration phase; there were eight demo units operating in real life conditions. This company used this information to determine the best way to develop the product for installation.

The 1993-1994 stage was the pre-commercial stage. The company reviewed ways to reduce the cost by using prefabricated modular biofilter. They developed and monitored the first generation of biofilters.

From 1995-present the company has commercial systems which are sold at large and distributed throughout North America and Europe.

Premier Tech had the same type data as the previous presenter: BOD-10 milligrams, TSS-10 milligrams, and fecal coliform colonies per 25,000. They also have the ammonium concentration at 5 milligrams which is the same effluent quality as the previous presenter's. **Premier Tech** did not have the data available in the presentation materials.

The system is a conventional septic tank with an effluent filter at the outlet. They also use **Zabel A300** commercial to retain as many solids as possible in the septic tank. From there the water is sent via gravity feed or with a pump to the peat unit itself.

The product is comprised of a peat moss filtering medium. This is a consistent soil system since the company can manufacture and select the peat in its bogs that they have throughout North America. They then process that in its 22 plants.

The selection is a.....selection. For the treatment there is a special process that the company sprays on the peat which creates a chunky texture .

The company uses a fiberglass shell for the peat treatment that has a central support with a tipping bucket in the middle of the shell. The tipping from side to side distributes the water into distribution plates that have troughs and holes in various areas. This spreads the water uniformly over the top of the filtering beds. The water then percolates directly through the peat bed. It is then either infiltrated underneath or collected for discharge to an approved system.

It is 13 feet, 8 inches in length, seven feet, nine inches in width. This system does not have a bottom. This allows one to infiltrate directly underneath or to add a collecting bottom to the system from the outlet. This will enable the water to be discharged into a conventional or chamber drainfield, low pressure pipe (lpp), drip irrigation.

Question: "Do you have to assemble the unit on site when you don't have a bottom?"
Response: "It takes about an hour to assemble. It's really quite simple. The one with the bottom is preassembled."

One system is good for one to four bedrooms. In Georgia, 600 gallons per day would be adequate. Two units would be needed for five to six bedrooms. Our footprint is larger than the **Puroflo Peat System**; that is the reason that **Premier Tech** only requires two units and the other company requires two to three units.

Normally, **Premier Tech's** system is designed with 0 to 15 minutes per inch with an application rate coming out of the system of 2.56 gallons per square foot per day. It goes all the way down to 75 minutes per inch. If the soil quality in a given drainfield area goes from a very good soil to a lower percolating soil, the application rate that the company recommends will go down proportionately because the change in the soils' ability to absorb water.

Lou Robitaille developed a proposal for Georgia. He stated, "If you look at a conventional system in Georgia which would mean 5 minutes all the way up to 90 minutes, the absorption area required per bedroom ,ranging from 125 feet to 380 feet, would equate to 1.2 gallons per square foot per day all the way down to .39 gallons per square foot per day. Since we have a high treatment unit, the credit that we would want to have or like to have is 50%. That would turn out to be 2.4 gallons per square foot per day All the way down to .79 gallons per square foot per day. If we look at our usual rates, that is not much lower but it is lower than what we usually suggest. We're talking 2.56. This one is 2.4. As far as 75 minutes, we're talking .82. What we would recommend normally is .96.

Since we are treating the effluent to a high degree, we consider that the credit for treatment should be applied to the infiltrative area of the unit. Also, as an ATU we would ask for a 12 inch separation of the bottom of the drainfield from either seasonal water table or bedrock.

What does the system look like once it goes in? The water percs through the system and then directly into the soil. We have an eight inch gravel pad underneath the system; it acts as a separation between the peat moss and the soil that's in place."

A committee member stated that he noticed that the gravel extended beyond the edge of the peat chamber. Robitaille: "Yes. It would be the area required for the total infiltration. So, if you have a very good soil- five to 10 minutes per inch, what we would like to apply to it would be 1.82 or 1.85 gallons. That is why it is a bit larger than what the system would be. This would be sized according to the perc rate that is there but with the 50% proposal for a 50% drainfield size reduction.

We also have a system that can be above grade so we can have our 12 inch separation with the ground water, bedrock or other impervious layer. At this level we need a pump to send the water to the system. The system, itself, does not require any electrical or mechanical components. It is a passive system with a tipping bucket. We can gravity feed directly from the septic tank to the system without requiring any power."

Robitaille further stated, "We can bury the system all the way up to its shoulders in water since it's watertight. The limiting layers are very high. If it's just bedrock, we can bury the system all the way down and send the collected water to a pump chamber. Then we can discharge it either to a disinfection unit or to a water course disposal area, lpp or drip irrigation." He showed some examples of the way the system would look once the water has been collected. You could have either trenches or driplines.

He also discussed multiple applications. The system was developed for single developments and collective systems. As a result, the systems can be clustered with a septic tank per home and then sent to a pumping station. The water can then be divided using the number of units required for the flow as the base number.

In the overview of the design, Mr. Robitaille stated, "What we would have is the building itself. From there the water would be sent to the septic tank, the pumping chamber, from the pumping chamber into a distribution unit. That distribution unit would send the water equally to all systems that would be sitting either over a pad if infiltrated directly or collected and sent out to another absorption area."

He showed some applications that Premier Tech performed. In one example the water came from the septic tank into the distribution unit which sent the water out to different systems. In another design, the company performed an application in Florida. It showed a restaurant that had a tight site constraint with a failing system. Premier Tech replaced the failing chamber system. The company installed their system directly over the failed area. It has been over 2 ½ years since Premier Tech installed its system and it is operating smoothly. The area, according to the Robitaille, seems to have been remediated. There was a grease trap in the restaurant; there used to be an aerobic system for the restaurant, which Premier Tech removed.

Also, in Florida, Robitaille showed another example with 16 units which was also for a restaurant with the same design as the one above. It had a grease trap with aerobic treatment units to reduce the BOD. He stated from there it was sent to Premier's units for infiltration directly.

He showed a large parking lot with a road alongside it. There was a home in the back. The system for this site was installed 2 ½ years ago. The restaurant's owner had received an injunction from the county; he had to sample the units once per month for two years. The owner has now satisfactorily met the requirements. The injunction has been lifted.

Another slide showed a small Quebec,Canada, municipality which has 80 homes. Currently, each home is receiving one septic tank. Water is collected from these homes and sent to various pads which have 10 biofilters per pad. After treatment, the discharge from the pads sometimes is directly infiltrated underneath the system. Also, the discharge sometimes is collected and discharged into a water course. At other times the discharge is sent into a disposal bed. The system is quite adaptable.

Regarding maintenance, Premier Tech includes the seven year annual maintenance agreement in the purchase price. Every year the company goes to the sites and maintains the product at no additional cost to the homeowner. Peat moss has to be replaced every eight years.
When Premier Tech does replace the filter after eight years, the sale price of the new filter bed includes another seven year annual maintenance agreement. In essence, the company is maintaining the system throughout its lifespan.

Question: "Who does your maintenance.?"
Response: "We have our own maintenance group. They are based in Canada. But we have a crew that will visit the different areas. We have 200 systems in Florida which have been maintained during the past month. There isn't much to be done in Canada during the winter due to the cold and snow. The crew visits the States during the winter."

Question: "How much does it cost to replace the peat moss?"
Response: "It costs $650 and that includes the seven year annual maintenance."

Carl asked, "What do you do with the peat moss that is taken out?"
Response: "It is pumped with a regular vacuum, pump truck that you use for septic tanks. You can either land apply it , send it to land fill or if you have a sewage treatment plant you can send it there as well. We have studies from universities regarding used peat filter beds. There has been discussion about stabilizing it; bringing some amendments to it and even marketing it afterwards."

Question: "Did you say that there is a seven year annual maintenance agreement?"
Response: "Yes."
Question: "What does the owner have to provide?"
Response: "The owner doesn't have to do anything. We visit the site and do the inspection of the filter in the septic tank, of the peat filter itself. We notify the homeowner that the inspection has been done. The homeowner receives a report from us (regarding the inspection). The report is left with the homeowner or placed in the mailbox."

Mr. Robitaille stated that the date and the tasks performed are on the inspection report. Included in the report are the uses and misuses of the product. For example if paint is found in the system the homeowner is notified of the misuse.
Question: "Does the company require a certain pumping schedule?"
Response: "No. We do not since the system is gravity fed itself. We want during every pumping event we want approximately 15 gallons per event."
The committee member stated that he was referring to the pumping out of the septic tank.
Response: "We require the same [pumping schedule] that is required by the state."

The maintenance agreement between **Premier Tech** and the homeowner provides the following information:

- the homeowner's name
- the location of the system
- the date of the installation
- the condition of the system during installation

The company enters the information into its database. This allows the installer or the site repair crew to access the information when necessary. In some states the local or state county health official(s) may receive a copy of the maintenance agreement.

The peat has at least an eight year life span. A vacuum truck can remove the peat filter easily. The filter can be reused and when you replace the peat filter bed you don't have to excavate. You need only lift the lid; remove the tipping bucket and the distribution plates; vacuum out the peat; put in a new peat filter bed; put in the plates and the tipping bucket, and close it. This will last for eight years.

The company also trains authorized or certified installers. In order to install a product, **Premier Tech** must train the installer. The company also trains engineers, health units, inspectors, distributors, and customers.

The company has a catalog for the customers and an operations manuals for the systems. The company provides customers with a toll free number if they need customer service.
There is a two year warranty on manufacturing the filter bed components.

End of side 3

Question: "Is there a service contract or just an annual review?"
Response: "It is. But we're also looking at the condition of the peat filter bed."
Question: "In the third year if the peat bed goes bad, do you charge the homeowner for repairs or replacements"
Response: "If we determine that it's their fault, then yes."

Mr. Robitaille said that the following are the system's features:

- no electrical components
- gravity driven
- soil protector (the infiltration area)
- groundwater protector
- quick start up within 24 hours after shut down
- small space for the system
- performance unaffected by variance in daily flows
- landscaping flexibilities due to small size of system
- permanent solution due to its soil and groundwater protector qualities
- low maintenance product
- annual maintenance agreement

Question: "Since your system's performance is not affected by variance in daily flows, does that have anything to do with your sizing the system?"
Response: We're using a higher loading rate on the peat filter itself. What I'm proposing is a 50% reduction on a conventional drainfield system. This is exactly the same thing if you look at the regulations. We're not asking for more or less."
The committee member stated that that wasn't his question. He asked, "Are you using a difference in the way you ....."
Response: "If I understand your question, it has no relation to how we....."

The system comes with a shell, sampling port underneath, and a central support. They rest the shell over it and fill the shell with peat moss that comes in 30(?) bags per unit. They set the distribution plates ontop of the peat. This is placed in the tipping bucket; the water comes from the septic tank and is tipped from side to side. Then the water is distributed over the peat filter.

Question: "Do you have to excavate all the gravel to put in the bed?"
Response: "Let's say that you need 500 square feet due to the perc rate of the soil. You would excavate 500 square feet and put the gravel pad inside. Then you would put the unit in the center of the gravel pad. You would then cover the gravel with geoteaxtile fabric .and then cover with for the systems."

Laurie Cook stated that she needed to have the presenter clarify the perc rate in the manual. Mr. Robitaille stated that the perc rate is a guideline that the company gives out before an approval. He said that they are requesting that the ATUs have the 18 inch separation in the proposal.

Question: "Is this an ANSI certified lab?"

Response: "I do not know if the ANSI certification is for the lab itself."

A committee member commented that he doesn't know if any of the labs reviewed/discussed during this meeting were ANSI certified. Having ANSI certification was one of the TRC's criteria. He stated that the committee is not adhering to the criteria.

Another committee member asked if the labs were Canadian.
Response: "The labs are Canadian, [as well as from the States]."
Another committee member said that they should be ANSI certified. There was a lot of discussion about theANSI certification.

Someone commented that in one of the reports the company stated that the phosphorous was reduced to .56 and he found that level of reduction unbelievable with peat moss. He stated that peat increases phosphorous.
Presenter: "You're looking at a system in Florida. The reduction is approximately 8%. At this point in time, I'm not asking for credit for phosphorous."

Dr. Davis asked Mr. Robitaille what Premier Tech was requesting the TRC to do.
Response: "I'm asking for approval as a system compared to what the previous system has. We're asking for 50% reduction on the infiltration area that is required. We're also asking for 12 inch separation from any impervious layer."

Carl stated, "In all the data that you were essentially quoting averages and averages tend to shadow over all kinds of things."
Response: "Most of the systems and even in your regulations I was looking at the aerobic treatment units those are also averages."
Carl stated, "They also show individual readings."

A committee member stated, "Testing according to NSF/Standard 40 Class I ATUs is very different than what you see here. There is a minimum of a six month long test sampled each and every day. No sample can be discarded. So, when you say you have an average an ATU is sampled every day for a minimum of six months. With the test we just concluded, our BOD was zero on the last day. It would be unfair for me to give you a report of that day's data only. .....The protocol is the important part of testing."

Carl stated that that was a concern he had after reviewing the material the night before.

Mr. Robitaille stated that he has the data available but chose not to submit the data during meeting.
Carl asked if the lid is securable.
Response: "Yes, it is. It is bolted down ."
Carl: "What are the bolts made of?"
Response: "Stainless steel."

Carl: "In some of the other state approvals they indicated that you had Zabel A300 filters versus A 100 filters. [What does your company say about the type of filter to be used?]"
Response: "It depends on what the regulations [in the state] was and what our recommendation was relative to their regulations. It varies from state to state. We propose A 100 because we felt it was sufficient, but we can go to an A 300 as a backup, if that's specified by a state."

Carl asked, "How can you allow the water table to come up to the shoulder depth of the filter container? This is similar to putting it in a tank of water. This was difficult for me."

Response: "The video would have probably answered that question, if we had been able to show it. In the collection bottom, there is one foot of depth. In that one foot of depth we add one foot of crushed stone. So, we're adding weight to it. There is no buoyancy.

Once you put the crushed stone inside, the peat, the system itself, and the weight of the peat that has been drenched with water the weight totals approximately five or six thousand pounds."

Carl stated, "The problem I have with that still is that I can't imagine how the peat can function as a filter if it's totally saturated."
Response: "It's not totally saturated. It's a water tight system. It's enclosed."
Carl: "How do you get the sewage effluent through the filter media in such a configuration and discharged to the drainfield? Do you pump it out?"
Response: "Through the bottom into a pumping chamber. There are two bottoms."

Carl stated, "You mentioned something about 12 inches. Everything that I've read[from your company] stated that there are 8 inches of aggregate underneath."
Response: "We set the system on 8 inches of aggregate. The 12 inches that we're asking for is a separation; that is different. The total we're asking for is 20 inches. It's 12 inches of native soil and 8 inches of washed stone which the system sits on."

Carl stated, "You just lost me there. I'm thinking 12 inches separation from the water table."
Response: "[Yes]. In native soil."
Carl: "Okay."

Another committee member asked if the bottom of the rock is 12 inches from the water table.
Response: "Yes."

Carl stated, "I figured out for a given 45 minute perc rate from something showed in your manual that your drainfield requirements are much reduced for a two bedroom, 190 square foot drainfield area equates to a two bedroom, conventional 600 square foot drainfield at a 68.4% reduction. For a three bedroom home you show 250 feet for your system versus 900 feet, conventional which would result in a 72.3% reduction"
Response: "Yes, but that is not what we're requesting. That is what we normally set out. I look at your regulations and compared them to other regulations. Your infiltration rates are a lot more conservative than many other states. If you take this table, it equates to sometimes 40%, sometimes 50% reduction. In your case it equates to more because you are more conservative on the other side."

Carl: "Florida first approved a 30% reduction, then 40%. I couldn't figure out how. Then, Alabama didn't do anything. One year in Arizona they allowed an 8% reduction."
Response: "Actually [in Arizona] it was three times the flow rate."
Carl: "In Pennsylvania there was a 40% reduction. They approved it both as an alternative and experimental system. Maximum flow rate of nine gallons. What about [the cases] when you have a bathtub that is emptied?'
Response: "It's not a gravity fed system. We're above grade and have to pump the water. We recommend nine to 15 gallons per pumping event. If you have a lot of water coming in, the override flow controller will start the pump and you will just continuously send the water up to the system. But, ideally, we would like to have between nine and 15."

Carl, "What happens if you don't have the ideal?"
Response: "Nothing happens. We're just trying to optimize the system to its maximum. We know that if we go from nine to 15 we will get about one millimeter of water per event over the top of the filter bed and that will be the maximum treatment efficiency. If we don't have it, it doesn't deter the efficiency. It will

just not be optimized to the maximum. If we're pumping 15 gallons and we're optimizing the dosing, we might get two or three BOD at the outset. If we're not doing that, we might get ten."

Carl: "What is the crest(?) capacities of those units that are polyethylene and those that are fiberglass?"
Response: "They are all fiberglass. I don't have that data with me."
Carl: "We would want that."
Response: "There is not a problem providing [you the information].

Question: "Are you asking for approval for the system, the pumping station, and the floating .....?"
Response: "No. Those are ours; at this time we're not asking for that. We're asking only for the peat level."

A committee member stated they had a 50% reduction in the regulations in the past. The committee member stated, "It seems to me that you were better off provisionally approved for a 50% reduction. You're asking 50%. The mound system doesn't give you that. It seems like we should provisionally approve everybody until we get our report back or not approve anyone."
Another committee member concurred.

Another committee member stated that he doesn't remember the TRC approving anything for ANSI. He stated **Premier Tech** should receive provisional approval on their testing results if they are ANSI approved. If they're not ANSI approved, they don't get approved. That has been one of the criteria used in the past.

Carl asked, "How many systems do you have installed in the US?"
Response: "We have about a thousand systems and that has happened in the past three years."

Another committee member stated, "I've seen both of these products at trade shows. Just like the aerobic treatment system, there are failures with any system with septic tanks. But I think this is going to be a great system if done properly."

Another committee member stated, "I did like the maintenance agreement."

Dr. Davis asked if anyone else had any questions or recommendations. Laurie Cook asked, "Where does the peat come from?"
Response: "It comes from bogs in Quebec (Manitoba) and eventually.....We're also looking at one of our bogs in Cromwell, Minnesota. Obviously, there are no peat bogs in .....Minnesota."

Another committee member stated, "I make a motion that we table this until after our report comes back from the next meeting since it's going to involve the 50% reduction again and we can't do it at. Being ANSI approved at Standard 40 is quite different than being approved by a lab without an ANSI Standard 40 certification. That is how you get the Class I effluent; [you have the]Standard 40."

Another committee member stated that he thought that the criterion was having an ANSI approved lab.
Another committee member commented, "To get Class I effluent you have to have Standard 40. That is how Class I is defined as Class I. That is how you get your 12 inch separation."

Another committee member stated, "The criterion for Class I is a criterion. Standard 40 is another criterion. These are two different things."
Presenter: "Even if we would want to go through standard 40 certification, we couldn't do it currently because NSF doesn't have the facility to provide us with the same type of scheduling for testing. I talked to Tom Burrema .many times and they could not do it until very recently. That should apply to new products coming in."

Another committee member stated, "To go through NSF , we've been through it twice. It costs $50,000 or $75,000. The first time it was a year, now it's six months. That is a quite long way to have to go. Then I go over to D.....lab in Fort Myers and have D.....run tests for me. That is quite a difference. I'm just using that as an example. You come up with tests and be selective. They're not selective. You just go every day; you don't throw out any. Those are a lot of different tests. We need to treat everyone the same."

Carl asked, "Doesn't NSF have a monitoring program?"
The committee member responded: "Yes. They tested some of our systems this week."
Another committee member stated, "What you have, Carl, is the ANSI/NSF Standard 40 which sets the criteria. Then you have the ANSI accredited labs, which NSF is one of, and there are three other labs. As part of the ANTSEE accreditation, you must follow the Standard 40 Class I criterion. As part of your protocol procedure, you're required to go out every year. They have to inspect 10% of our people every year or anyone else that they certify. We have to pay them to do this. If you're following the ANSI protocol, there is an annual follow up. Until recently there was a requirement for a retest once every seven years. Currently, that is being reviewed to deal with new products and changes. But if they are following the ANSI protocol there will be follow up exams in the field."

Dr. Davis stated that there was a **motion** on the floor and he asked Bill Fortune to reiterate the **motion.** Bill stated that the discussion should be tabled until the TRC receives the report on the drainfields.

There was a **second.** Dr. Davis asked if there were other comments or any more discussion. Question: "Are we also going to ask about the certification?"
Carl responded, "Yes. Absolutely."

The motion **passed unanimously.**

Laurie Cook and her subcommittee made a detailed presentation on the guidelines for sandline trenches that had been originally scheduled for the next meeting. A subcommittee member stated, " Number One-We have guidelines for sandline trenches. The site evaluation would require a 10 foot deep test pit by a backhoe and a soil scientist's evaluation."
Laurie Cook clarified, "We have soil classifiers and soil scientists. It can be either or."
Question: "Does it have to be a backhoe?"
Laurie asked, "Are you asking if an auger hole would be adequate"
Response: "Our recent behind back code is the loader is much more invasive to the site when dealing with a small site. That is one of the reasons. Also, the .....hose is too small for the inspectors to evaluate the property. Maybe a soil classifier could do it."

There was several comments and discussion.
The subcommittee member continued, "Number Two-Sandline trenches installed next to a basement foundation shall not be closer than 20 feet of the foundation."

Question: "Why would 10 feet work for a conventional trench and not for that?"
Response: "They're deeper and there's more volume in the trench. This is traditionally the way it's been done. These guidelines are based on what's been done for years."

The subcommittee member continued, " Number Three-Sandline trenches shall be installed without step-downs or risers.
Number Four-No sandline trench linear footage shall be reduced by more than 50% of the conventional design. Number Five-No sandline trench shall exceed 200 linear feet."

Laurie stated, "That's all that has been done historically. You can eliminate the 200 feet if you want. Those are just guidelines."
The subcommittee member stated, "Number Six-The 54 inch material should be for commercial sites. The 42-inch material should be for residential sites. This is in accordance with these two drawings. Number Seven-a minimum of 12 inches of cover over the trenches. Number eight-we struck through."

Carl stated, "We have distribution fields that are no more than 125 feet. Generally speaking, we're not going to have risers in this drainfield."
A committee member stated, "Wait a minute now. It's 125 feet if it's .....There is no requirement on .....box; it can be 100 feet or 1,000 feet long."

Carl agreed and stated that you have to dose anything over 500 linear feet.

A committee member stated, "I make a **motion** to make those minutes to the manual with the minutes that were just made." (check this, Carl) Someone **seconded** the motion.

A committee member stated, "Let me make a clarification. One clarification is on the test that we say that it is.....type machine."
Other members said not to say anything.
Laurie Cook stated, "I'll tell you why said this. We had run into this in the fields where the builders wanted to use a Bobcat or to use something else. When we couldn't dig at 10 feet we would dig at eight feet. Then they wanted to.....regulators."

Another committee member stated, "I have run into this specifically. I have defended the county every time." Laurie Cook stated, "We're just going to say a 10 foot deep test pit is required."

Another committee asked, "Where does this leave soil exchanges if we.....?" Other committee members said it's the same thing. The same committee member asked, "Where does that leave that part of it?-Do we address it later?" Someone commented that it may be a separate issue.

Another committee member stated, "I just want to add one thing to this. Every time I dig a test hole I'm terrified of making sure that there is an access for someone to get out. I don't want us to put something in writing that will make us liable. If we put in writing that they will have dig a hole a certain way, make sure that there will be access for someone to get out."

Laurie Cook stated, "We don't promote people going into holes."
The same committee member replied, "I'm talking about if a kid fell in he would need access to get out."
Another committee member asked, "Do we need to put in here that it needs to be done in a safe manner?"
The committee member stated, "We need to put something in writing."

Carl stated, "We can't legally dig over five feet deep without shoring." Other committee members stated that it was four, according to OSHA. Another committee member stated, "You should say a ten foot deep test pit must be dug in compliance with OSHA regulations. That covers everything."

Another committee member suggested, "Let a soil scientist be there when you dig it. Take individual bucketfuls out for evaluation by the soil scientist until a 10 foot depth is reached. Then you cover it up. I wouldn't leave a 10 foot hole."
Another committee member stated, "Put the OSHA regulation requirement in and that will be sufficient."

Dr. Davis asked Laurie if she was including the OSHA regulation in the guidelines. She agreed to add it.
Dr. Davis reminded everyone that there was a **motion** that was **seconded**. Another committee member asked if the motion could be delayed since the TRC had made several changes. He wanted to wait until the committee received and reviewed the written version Laurie responded, "We were going to submit it to

the State Office. Builders and contractors are calling on a consistent basis inquiring when this is going to be reviewed by the TRC." Another committee member stated that he understood their concern, but he wanted to wait to see the revisions in writing due to the numerous changes made.

Carl commented, "It's going to be in writing within the minutes for approval at the next meeting. You will have a chance to approve it, disapprove it, or modify it. I agree with Laurie. In my opinion we need to move on."

Dr. Davis stated that if Laurie could read the changes that are being made. Laurie Cook stated, "I want to clarify something. When you say OSHA guidelines what is that requiring?" Another committee member asked why would the committee want to include regulations that did not originate with the TRC.

Laurie stated, "We deleted the part about the 200 foot trench ; that nothing would exceed that. Everything else is the same except for number one; site evaluation would require a 10 foot deep test pit dug in a safe manner for the site evaluator to review."

Dr. Davis stated, "So, we've moved and seconded it. We discussed; we've revised. I presume it's still moved and seconded." **The motion passed unanimously.**

BioBoxer Filters

Presenter stated, "We are .....filter that sets outside the septic tank. .....It's a very effective effluent filter. It's easily changed. When the filter is clogged .....reach groundlevel it fits right on the box. You take the canister out; put the filters in, and put it back in. You're set."
Question: "Does the homeowner do that?"
Response: "The homeowner can do it and the contractor can do it."

Question: "Is it going to clog up quickly?"
Response: "If you're working with a tank that is working within your standards, we're not having a problem with clogging. If the system is being abused, then there is nothing we can do about it. We've had some systems that were working fine. We had them tested and within four months, they were black as tar. The good thing about it was .....We kept it where it.....Premature –no. We haven't had....."

Question: "How long have you experimented with your system?"
Response: "We've been working with it now for about a year and a half."
Question: "Do you have any units that are a year and a half old that are not clogged?"
Response: "We have changed them all in that time. We haven't let any .....We just changed the owners."
The committee member asked, "Do you have a recommendation regarding changing the filters?"
Response: "We're saying for the first year change them periodically. Change them four times a year (quarterly) to see what the system is going to take. You may not have to change yours but once a year. I might have to change mine three times. I can't give you an answer based on what people are going to do."

Question: "Do you have a consumer total amount?"
Response: "Yes."

A committee member stated, "I think the biggest problem we had is that the other companies can't tell us how often they have to do theirs either. This one appears that it will clog up quicker than the others. Is the product meeting standards? In your warranty what type of chemicals are covered. Will Draino be a problem? That is one of the reasons it wasn't passed the last time."

Response: "Draino will not be a problem. If they are putting gas on the front end of the drainfield and it eats this up, they need to be calling you guys. That is our standard warranty."

Question: "What does it do for people who are abusing grease at home? Does it stop up for two days?"
Response: "It hasn't. It'll stop up quickly. I had one system that had three units on it . The orange growers in Florida were using the system. They tore us up in about six to eight weeks; they tore up Zabel, which was in the tank first. Then after they ate that up they got into us and they clogged us up. I can't do anything about five gallons of grease. Once again-we're trying to help systems to function properly."

Question: "How long has this container lasted?"
Response: "Five years."
Question: "How much is the replacement?"
Response: "We'll sell the cartridges to an installer like Sam Banks for $35.00."
Question: "How much is the initial cost to the contractor?"
Response: "Right now; it's about $80.00 if you're buying four or five."

Question: "Have you done any experimentation on washing machine effluent on these? Have you put it on washing machine or grey water lines?"
Response: "There were some fellows in Alabama who were talking about doing that because they had some type of water lines that they were doing that with. But we haven't done anything just for that. We're sticking strictly with septic tank sewage effluent.

A committee member stated that tanks don't have the cemented.....He stated, "The biggest concern we had, as Carl mentioned, is that it looks like it's going to clog up a lot. Is it meeting our provisional approvals on all filters that met our standards?"
Carl stated, "There's a big difference in the sizing and the potential for clogging of the filter when it reportedly is 95% effective at filtering particles down to 50 microns in size. One alternative to approval is as an experimental system. [We can] collect data over an extended period."

Another committee member disagreed. He stated, "A provisional approval will do what we're asking for."
Laurie stated, "Just for clarification, you're claiming that it filters out particles not BOD."
Response: "Yes. I'm not asking for anything for approval except the filter."
Laurie: "I'm asking for clarification about what it filters."
Response: "It filters just solids."

A committee member asked the presenter if he realized that at some point the TRC would have the NSF standards. He asked the presenter if the filter met NSF standards. Another committee member stated that no one knows what NSF is requiring.

Carl stated that he had copies of the NSF standards and that he would disseminate that for review even though this was not on the agenda for approval for this meeting. A committee member stated that he wanted the presenter to understand that a provisional approval was not permanent. Once the TRC establishes a standard for filters this company, as well as the other companies, would have to have their filters reviewed again using the new TRC standard.

Carl asked about the construction of the unit. The presenter stated, "The unit comes with two risers. Another riser increases the height by six inches."

Carl stated the reason he asked the question was the TRC is also approving risers. The risers are approved and the company does not manufacture them.

A committee member made a **motion** to approve the biobox's effluent filters using the same provisional approval standard applied to the other companies. The provisional approval would remain in place until the TRC receives the NSF guidelines. There was a **second** to the motion.

Question: "Does that approve just the stainless steel filter or is the box included?"
A committee member responded, "That's just approving the filter in the this type box.. If he changes the box, he will have to come before the committee to receive a new approval."

Another committee member asked, "Is that a **Tuff-Tite** box?"
Response: "Yes."

Dr. Davis asked again if anyone else wanted to make comments or to ask questions. **The motion passed unanimously.**

Bio Clear Waste Water Treatment System

The presenter stated, "This is essentially a trickling filter over a clarifier. Within the field of Environmental Health, this is considered an innovator of alternative technology. But, in essence, these are two very conventional forms of wastewater treatment."

END OF TAPE

DHR

Audrey W. Horne, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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December 10, 1999

MEMORANDUM

TO: Technical Review Committee

FROM: Carl W. Johnson, Secretary, Technical Review Committee

SUBJECT: Minutes of the Fourth Technical Review Committee (TRC) Meeting

The fourth meeting of the TRC was held at the Macon Public Health District Office on October 14, 1999.

TRC members in attendance: Carl W. Johnson, James Durrence, Laurie Cook, Stan Coppage, Larry Chapman, Larry Walker, George McClure, John W. "Bill" Fortune, Doug Cabe, Lawton Davis, and Sam Banks.

TRC members absent: William R."Bill"Durham, Daryl Rowe, Ernest U. Earn and Lucy Jenkins.

Guests in attendance: John W. Estep, Gloria Hames, Michael Fugate, Jim Free, Wilder Lucas and Theo B. Terry, III.

Meeting minutes: An attempt was made to record the meeting, and two 120 minute cassette tapes were produced. The minutes are summarized herein and, along with the cassettes will serve as the official record for this fourth meeting.

Order of business:

1. **Call to order by Chairman:**
   The meeting was called to order by Dr. Lawton Davis, M.D. at approximately 10:12 AM.

2. **Opening ceremonies:**
   Welcome, member and guest introductions and other administrative details were made by the Chairman.

3. **Review of minutes from third meeting:**
   Based upon a **motion** by Doug Cabe seconded by George McClure, the minutes of the third meeting on September 19,1999 were **approved** with minor corrections.

4. **Old Business:** Approval of Aqua Klear Aerobic Treatment Units.
   The following are points made by committee members:
   -Public Health interest must be adequately considered in all actions the TRC take.
   -to avoid a possible conflict of interest as a manufacturing competitor, Bill Fortune agreed to abstain from comments and voting on approval of Aqua Klear ATU systems.
   -lots of ATU's currently installed are apparently failing because they are not adequately maintained.
   -AquaKlear was invited by the Secretary to attend the TRC meeting but they declined; however, they requested copies of the recorder tapes for the third TRC meeting, and copies or access to the tapes will be provided in accordance with Department policies.
   -Manufacturers, both inside and outside of Georgia must certify their representatives who must be

available within the State for addressing service requirements and/or other issues associated with their ATU's.

-Any ATU's approved for use in Georgia must have a serviceability contract for maintenance service within 48 hours.

-ATU performance histories need to be considered for approval and continuation of sales approval.

-Third party laboratories providing data on onsite products should be American National Standards Institute (ANSI) certified.

-Systems approved as "Experimental" must have 3 years of performance data provided before final TRC approval may be given.

-Do we have adequate standards for ATU's ? A performance standards checklist is needed for all ATU's; to some extent this exists in the manual, but not in a handy checklist format. We need to guard against approving a system in such a way that we do not discover those installed have a problem, until after many of them are in failure.

Concern was expressed about doing "Provisional Approvals", but it was recognized that there is a tremendous difference between such an approval for a complex ATU system versus a simple sewage effluent filter.

-The Secretary provided verification that C-K associates (attachments 2) is currently certified by ANSI, thus validating their report that the Aqua Klear ATU's meet NSF Standard 40, class 1 approval criteria.

A **motion** was made by George McClure seconded by Sam Banks for approval of the Aqua Klear ATU's (models AK 500596, AK 600596, AK750596, AK 1000596 and AK 1500596). The **motion was approved** with 4 abstentions (Bill Fortune, Laurie Cook, Stan Coppage and Larry Chapman).

5. Sub-Committee Reports:

a. In Use Product Survey Sub-Committee: Laurie Cook, Sub-Committee Chairperson, gave a brief report of committee accomplishments. The sub-committee was charged with conducting an in-use onsite sewage product survey (see attached Survey Summary). Some items on the list (Tuf-Tite and Zabel products) would be addressed later in the meeting today. It was suggested that the sub-committee obtain a list of product model numbers and/or other appropriate information for items on the survey; if possible for presentation at the next meeting under old business.

- Laurie Cook also agreed to put together a presentation on the Type-A sandline drainlines currently in use in some Georgia Counties, for approval consideration by the TRC.

b. Criteria for System/Product Review: Any actions **Tabled**, pending further study. Although the By Laws and manual are currently available, review checklist forms for given types of systems and products for assisting the review and approval process still need to be developed by this sub-committee.

c. Manual Revisions on Slope: Stan Coppage reported that the sub-committee found no conflict between the corrections made to the manual regarding removal of the 35% slope cutoff in Section B, paragraph 4 (C) nor in the current wording in Section F, page F-1 (the first paragraph which also addresses drainfield location). After some discussion it was agreed that Larry Walker would research how other State On-Site Sewage Rules addressed use of slope cutoff limits or other means of protecting against sewage effluent side slope bleedout and report back to the TRC when his research is completed.

6. System/Product Reviews:

a. Tuf-Tite distribution boxes and risers: There was considerable discussion about requirements in Section E of the Manual for both concrete and molded plastic and fiberglass distribution boxes. It was recognized that the industry producing the molded plastic and fiberglass distribution boxes and drop boxes should be approached to develop a proposed standard for such devices for adoption by the TRC and incorporation in the Manual. Some points made were the following:

- There needs to be sufficient space underneath the inlet and outlet inverts to allow installation of inlet pipe turndowns where appropriate to diminish liquid turbulence and potential direct channeling to one outlet rather than uniform distribution of flow to all of the outlets.
- Reportedly, there may be some distribution boxes in use currently with no separation between the inlet and/or outlet inverts and the bottom of the box.

- In the case of concrete distribution boxes the spacing of the pipe openings from top or bottom, sidewall and distances between the successive outlets is important in assuring the structural capacity /strength of the box.

A **motion** was made by Sam Banks, seconded by George McClure to change the distance for the outlet invert in concrete boxes in the Manual [Section E, page E-1, paragraph (1) g] from "at least 6 inches" **to 3 inches** "above the inside bottom surface of the box". The **motion passed unanimously.**

The secretary reported that he had reviewed in detail the descriptive data and test data submitted by both Tuf-Tite and Zabel for their high density polyethylene products for use with concrete septic tanks. He reported that both manufacturers' data showed their products to have adequate compressive strengths, corrosive resistance, descriptive literature and associated information, and he recommended their products be approved by the TRC.

-Larry Chapman made a **motion** seconded by Sam Banks to provisionally approve the Tuf-Tite 7 and 9 hole distribution boxes subject to review again at such time as the TRC develops final revised criteria for such products for adoption in the Manual. The **motion was approved unanimously**.

-Sam Banks made the same **motion** as for distribution boxes above seconded by George McClure for approval of Tuf Tite l2, 20 and 24 inch diameter risers and lids. The **motion was approved unanimously**.

b. Zabel high density polyethylene risers and lids: George McClure called for a point of order since Mr. Theo Terry of Zabel Environmental Technology was present to afford him the opportunity to make a presentation on the Zabel products. Mr. Terry graciously declined in order to facilitate completion of other TRC business.

-A **motion** was made by Sam Banks seconded by Bill Fortune for provisional approval of the Zabel 20 and 26 inch (outside diameter) risers, lids and adapters subject to review again at such time as the TRC develops final revised criteria for such products for adoption in the Manual. The **motion was approved unanimously**.

c. Zabel Filter handle changes (models A100, A300, A100-HIP and A300-HIP):
This handle change kit is to make the filters more accessible for maintenance and easier to install/reinstall. All A100 and A300 models will be sold with the parts necessary to install a one (1) foot section of ½ inch Schedule 40 PVC pipe on a threaded male stud which is placed in the center of these filter lids. This is a change to these lids. A threaded adapter will allow the installer to adapt from the threaded connection on the filter lid by glueing it to the l/2 inch Schedule 40 PVC pipe. A l/2 inch PVC tee can then be glued on top of this one (1) foot long pipe handle to complete the assembly. Longer or shorter handles can be made; longer by adding a longer pipe or shorter by cutting the one foot pipe provided.

George McClure made a **motion** to approve changing the Zabel models A100, A300, A100-HIP and A300 HIP sewage effluent filter lids and incorporation of a kit for installing a one (1) foot handle of l/2 inch Schedule 40 PVC pipe and handle tee to these filters. The **motion was approved unanimously**.

d. Zabel filter material changes: After discussion, Sam Banks made a **motion** seconded by Bill Fortune to allow construction of Zabel sewage effluent filters (Models A1800, Al801, A1800-HIP and A1801-HIP) from ABS or similar material that meets or exceeds ABS grade 433. **Motion approved** with one opposing vote by George McClure.

e. Plasti Drain Polyethylene Septic Tanks: Further action **tabled** (See f. below).

f. AK Industries Polyethylene Septic Tanks: The following are some points noted.
-It was uncertain whether the review fee ($500.00) had been received from AK Industries by the State Office.
-Some of the drawings do not exist in the packets for structural design and sizing of the baffles.
-Is the gallonage of the tanks within the 4% limits?

-Further information needs to be gathered about both the Plasti Drain and AK Industries septic tanks and the review and approval may more appropriately be carried out by the State Program Office. So, further action was **tabled** pending completion of actions to be taken by the State Office.

g. EEEZZZWAY Bio-Boxer Filter: The following comments are noted.

-The Secretary passed around the expanded polystyrene filter element (only) for observation.

-The test report by the test lab indicates the filter is 95.9 % efficient in removing particulate matter smaller than 50 microns in size; this may very easily cause plugging of the filter very rapidly. On the Bio-Boxer brochure it says "95% removal of particles as small as 50 microns". Which is it?

-The filter beads need to be replaced from time to time for maintenance.

-The filter sets outside the septic tank and the filter element container is constructed of stainless steel.

-There is a warning in the warranty that introduction of certain chemicals into the septic tank system may be harmful, but there is no identification of specific chemicals of concern.

-Are the screws used for fastening the lid constructed of stainless steel or other corrosion resistant material?

-An EEEZZZWAY representative should be contacted and allowed to make a presentation to the TRC if so desired.

-NSF has a new standard for sewage effluent filters, but it is uncertain if the NSF Board has adopted it yet.

-The Bio-Boxer has been provisionally approved in Florida with a requirement to provide one year of performance reports on a quarterly basis.

-The Bio-Boxer can be approved on an experimental basis for installation of at least l0 filters in each District.

-The Secretary requested that the TRC members all review the BB submission package in detail preparatory to the next meeting.

-Further action was **tabled** pending State Office collection of any needed information and offering EEEZZZWAY the option of making a presentation before the TRC.

h. Bio-Weir Filter (Model DF): The filter manufacturer, Mr. John Estep, gave a brief report on the data package provided each TRC member and the following points are noted:

-The filter is very similar to the Zabel A1800 filter in terms of slit sizes and durability.

-Any rivets used in the filter are stainless steel.

-Bonding material/PVC cement is NSF approved.

-The top of the filter is marked with the manufacturer's name and once approved all filters will contain a serial number.

-The filter has been submitted to NSF for testing and approval.

-The slit openings are l/16 (0.06) inch wide exactly the same as one approved for Zoeller.

The Secretary stated the State Office recommends the filter be approved.

-A **motion** was made by Sam Banks, seconded by Larry Walker that the Bio-Weir model DF be provisionally approved for one year subject to review again once the TRC adopts permanent filter approval criteria.

-The **motion was approved unanimously**.

7. Other Business:

a. Clearwater System Drip Emitter and Emitter line spacing: Truett Kastner was invited by the State Office to attend, but he declined. Salient points follow:

-The request is for spacing the emitter lines on one foot centers and the emitters one foot apart on the line rather than the two foot line width and two foot emitter spacing. The Secretary read from the Manual, Section F, page F-21, paragraph C.7., "Typically, separation between emitter line laterals shall be at least two feet." This phraseology could allow lateral spacing of one foot centers.

-There is no reduction in drainfield sizing requested.

-The emitters, spaced one foot apart, are sized to deliver about l/2 the flow delivered by emitters spaced two feet apart on the emitter line.

-Further discussion **tabled** until next meeting. The Secretary would invite both Truett Kastner and Scott Uhlich to

attend the next meeting to discuss this issue.

b. BordNaMona Peat System: Mike Fugate, system representative was in the audience. It was agreed today's notification would allow everyone the 30 days needed to study the system, and Mr. Fugate would make a presentation at the next TRC meeting.

c. Premier Tech Peat System: Secretary to provide review information 30 days in advance of the next TRC meeting.

d. Additives:

-The Secretary stated that requests for approval had been received from two (2) manufacturers, with review fees paid and four or five additives were to be reviewed for approval. He advised that he would be attending the l5th Annual SE Coastal States On-Site Wastewater Program Managers Conference November l3th- l7th, l999; since additives were to be discussed at the Conference perhaps he could bring new information to the TRC regarding criteria for approval of existing additives.

-The State Office has no current criteria organized for additives approval except an article recently published in the Small Flows Clearinghouse which indicated that further research studies need to be conducted.

-It was pointed out that some additives probably have NO positive effects on sewage treatment while others may even be harmful.

-The Secretary read from the Manual, page A-24 (Chapter 290-5-26-.18 (3) "Additives"-Sewage system additives which are used to enhance the operation of an on-site sewage management system must be approved by the Department. No strong bases, acids, or organic solvents shall be used in the operation of the system."

-There are many additives currently being sold with no approval. There was some discussion as to whether the TRC should consider approval of the additives currently requested for approval unless the manufacturers were to provide data on how the additives improve the quality of the septic tank effluent waste stream.

e. Norweco Bio-Kinetic Wastewater Management System/Filter:

-The Secretary advised he should have information organized and ready to present at the next TRC meeting given that all needed information is received from the manufacturer in time to get it to the Committee for review.

f. There was some discussion about items of interest pertinent to TRC operations with the following salient points made:

-The State Environmental Health Office is not currently adequately reseourced to perform in a timely fashion the in-depth reviews of each system needed preparatory for a given system to go before the TRC for approval.

-Neither the State Environmental Health Office or the TRC have copies of all appropriate American Society for Testing and Materials (ASTM) Standards. It costs about $600.00 to become a member, then all the standards and updates could be made available on an ongoing basis. This should be a TRC budget consideration.

-There needs to be a good numbering system developed by the criteria subcommittee for tracking (TRC) reviews and approvals of all systems and products.

-There was some discussion as to whether the TRC would have an agenda at least 30 days in advance of the next meeting so it would allow adequate time to prepare for what would need to be voted on. It was pointed out that the current agenda reports some items that should be addressed at the next meeting.

-Wilder Lucas advised that the AWT request for approval of their BioClere waste treatment system had been in the queue since March 1999 or earlier so it should go on the agenda for next time. It was agreed the system should be added to the agenda for the next meeting.

-The Chairman summarized what would need to be addressed at the next meeting.

8. Next Meeting Date and Location: In order to facilitate adequate time for review and preparation it was suggested the next meeting occur on December l5, 1999, if possible. This recognized that Dr. Rowe could not attend on Tuesdays or Thursdays due to classes he teaches on those days this semester. The Chamber of Commerce would be reserved for

convenience in access and parking, if possible.

9. Adjournment: Dr. Davis adjourned the meeting at 2:55 p.m.

Attachment--In Use Product Survey

c: Mr. Michael Smith, Director, Environmental Health and Injury Control Branch
Mr. Jeff Gary, Director, Environmental Health Section
Land Use and Engineering Unit Staff
Technical Review Committee Files

MINUTES
DHR TECHNICAL REVIEW COMMITTEE MEETING
9/16/99

The meeting was called to order at 10:05 AM by Dr. Rowe, who as vice-chair was chairing the meeting as Dr. Davis was unable to attend.

Attending:
Carl Johnson, Ernest U. Earn, Stan Coppage, Bill Fortune, Lucy Jenkins, Laurie Cook, Larry Chapman, George McClure, Daryl Rowe, Sam Banks, Doug Cabe, Bill Durham and Larry Walker.

Not Attending:
Lawton Davis, James Durrence.

Visitors: Bill Cole, John W. Estep, Jim Free, Gloria Hames, Wilder Lucas, Mike Smith and Theo Terry.

Motion was made by George McClure to approve the minutes of the TRC meeting on August 12,1999, with minor corrections. Motion was seconded by Ernest U. Earn. Minutes were approved by unanimous vote. An attempt was made to tape record the meeting and three (3) sixty minute micro cassette tapes were produced. These tapes and the minutes will serve as the official record of the second TRC meeting.

There was a presentation by Ernest U. Earn on behalf of the by-laws committee. After discussion and review of the proposed by-laws, minor changes were proposed. Motion was made by George McClure to adopt the by-laws, as amended, second by Ernest U. Earn. Motion was approved by unanimous vote.

There was a presentation by Dr. Rowe on behalf of the criteria committee. There was much discussion on the proposed review process, including the need to define what is a product, to develop a fee schedule, and to clarify that discharge means discharge below the ground surface. After the discussion, it was agreed that the criteria committee should address the additional issues. A motion was made by George McClure to approve the proposed review process and a second was made by Sam Banks. The motion was adopted by unanimous vote.

A report was made by the secretary on behalf of DHR staff on the need to correct a problem with the manual. A motion was made by Ernest U. Earn and seconded by Doug Cabe to delete the last sentence on page B-1, section 4 (c), pertaining to slopes in excess of 35%. Motion was approved by unanimous vote.

A subcommittee was appointed by Dr. Rowe with Stan Coppage as chair and Doug Cabe and Doug Cabe as members to look at slope on page B-1 and F-1 as well as elsewhere in the manual to ensure there are no other conflicts. Report to be prepared for next committee meeting.

A report was made by the secretary on behalf of DHR staff on the need to approve distribution boxes and other products which are in use and may have been approved or provisionally approved in the past. A subcommittee was appointed by Dr. Rowe with Laurie Cook as chair (others volunteered to serve with Laurie on the committee) to review existing products in use, to bring forth to the next meeting a list of such products for interim approval by the committee. The submittal should also address the need for any fees and contain a recommended sunset date for the interim approval.

A report was made by the secretary on behalf of DHR staff on some legal issues and the use of the DHR webpage for information.

A report was made by the secretary on behalf of DHR staff on the need to review and approve additives. The subcommittee chaired by Laurie Cook was charged with adding additives to their list of products to review.

A report was made by the secretary on behalf of DHR staff that an application was complete by the Treit Filters Co. for their model EF-2540 effluent filter. After much discussion, a motion was made by Ernest U. Earn and seconded by Bill Durham to approve the Treit model EF-2540 filter thru August 20, 1999 subject to review as such time as the TRC develops/adopts final criteria for filters. The motion passed with no nays but 2 members (Laurie cook and Bill Fortune) abstained from voting.

A report was made by the secretary on behalf of DHR staff applications were complete for Hydro-Action and AquaKlear aerobic treatment units. There was much discussion on both units and on the type of certification each was reporting. A motion was made by George McClure and second by Sam Banks to review each application separate. Motion was adopted by unaminous vote.

A motion was made by George McClure and seconded by Ernest U. Earn to approve the Hydra-Action aerobic treatment units (models G-500, CLP-G-500, G-900, G-1000, and G-1100)based on their certification by NSF, Inc. The motion passed with no nays but 1 member (Laurie Cook) abstained from voting.

A motion was made by Ernest U. Earn and seconded by Carl Johnson to approve the AquaKlear aerobic treatment units (models AK500S96, AK600S96, AK750S96, AK1000S96, and AK1500S96) based on their certification by C-K laboratories, subject to verification that C-K laboratories was ANSI accredited to test to ANSI/NSF Standard 40 criteria. There was much discussion and a motion was made by George McClure, seconded by Bill Fortune to table until verification of the status of C-K laboratory regarding ANSI accreditation. The motion passed with no dissenting votes. This is to be placed under old business for the next meeting.

Additional areas which were discussed in the meeting:
- GOWA representation on the committee. There are currently 3 members represented on the board. Should there be a specific seat on the committee for a GOWA representative. This would require a rule change by DHR.
- System failure. There is no mechanism available for the committee to evaluate failures to determine

any systemic problems. Possible procedures were discussed and it was agreed that the area needed to be addressed.
- A control mechanism was needed to ensure that correct versions of the manual were in peoples hands in the field.

There was no new business.

Meeting was adjourned by Dr. Rowe at 3:10 PM.

*These minutes must go before the TRC for approval at the next meeting.

DHR

Audrey W. Horne, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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August 16, 1999

MEMORANDUM

TO: Technical Review Committee

FROM: Carl W. Johnson, Secretary, Technical Review Committee

SUBJECT: Summary of the Second Technical Review Committee (TRC) Meeting

The second meeting of the TRC was held at the Macon Public Health District Office on July 12, 1999. The meeting was called to order by the Chairman, Lawton Davis M.D. at approximately 10:02 AM.

TRC members in attendance: Carl W. Johnson, James Durrence, Laurie Cook, Stan Coppage, Larry Chapman, William R. "Bill" Durham, John W. "Bill" Fortune, Doug Cabe, Daryl Rowe, Lawton Davis, Ernest Earn and Sam Banks.

TRC members absent: Larry Walker, George McClure and Lucy Jenkins.

Guests in attendance: Jeff Gary, Jim Free,Wilder Lucas and Theo B. Terry, III.

Meeting minutes: An attempt was made to record the meeting, and two cassette tapes were produced. Meeting minutes summarized herein should be forthcoming in more detail at a later date and, along with the cassettes will serve as the official record for this second meeting.

Order of Business:

Call to order by Chairman:
Opening ceremonies:
Welcome, member and guest introductions and other administrative details were made by the Chairman.
Review of minutes from first meeting:
The minutes were approved with minor corrections.
Breakout into Sub Committees: Occurred at 10:15 A.M.
Bylaws Sub Committee-chaired by Ernest Earn.
Criteria Sub Committee-chaired by Daryl Rowe.
Vigorous discussion occurred in both committees until 12:00 Noon.

Sub Committee Reports:

By order of the Chairman, the TRC reconvened at 12:17 PM, and Mr. Earn, Bylaws Chairman, made the first report. The following topical areas of concern to be addressed were briefly noted with written recommendations to be provided to the TRC for consideration at the next meeting:

1. Period of appointment of TRC members; need for staggering terms to assure adequate continuity of experience and current knowledge of ongoing TRC operations
2. Provisions for possible member reappointment
3. Adherence to Roberts Rules of Order
4. What should constitute a quorum of member votes
5. Administrative requirements should a member resign from their position on the TRC
6. Minimum number of times the TRC should meet annually-3 times, more often if necessary
7. Term required for reelection of Chairman and Vice-Chairman designees
8. Various other related topics were also addressed

Criteria Subcommittee:

The report was made by Dr. Rowe, subcommittee Chairman at approximately 12:22 PM, and the following topical areas to be addressed were briefly noted with written recommendations to be provided to the TRC for consideration at the next meeting.

1. Time allowances for State Office, TRC to act on applications for system/products submitted for review/approval; maximum allowable turnaround time for a response to applicant requesting additional information from applicants.
2. Need for development of an ongoing data base of onsite systems/products submitted for to State Office and TRC
3. Need for development of form letters for: notifications to applicants and environmentalists of actions proposed/taken; notification of applicants when their information packets submitted would go before the TRC for consideration
4. 4. Need for State Office to report monthly to TRC number and type of application received for review/approval by TRC.
5. Time to be allowed for: an applicant to make a presentation about their system/product to the TRC and for the maximum time the TRC would allow for consideration of a given system/product.
6. Questions raised about current backlog/number of applications submitted to the State Office for review.
7. Various other related topics were also addressed.

Review sewage effluent filter approvals: Occurred at 12:32PM.

Considerable discussion focus upon:

1. Rationale for why the TRC should consider extending provisional approval of filters currently approved, which was due to expire on August 20, 1999
2. Whether provisional approvals should be given to other filters currently requesting approval
3. Status of National Sanitation Foundation (NSF) completion of a standard for testing and approval of such filters.
4. A brief report by Mr. Theo B. Terry of what is included in the new draft NSF sfilter standard
5. Whether the TRC should consider adopting an interim standard for such filters
6. Standard used by the State Office for filters currently provisionally approved; whether State Office had performed the same in-depth review of the three new products before the TRC for consideration. It was noted that the State Office had completed such an in-depth review of the filters manufactured by Polylock, recommending their approval by the TRC but had not been completed on the other two filters submitted for consideration
7. Various other related topics were also discussed

A Motion for approval by the TRC was made by Ernest U. Earn, and seconded by William R. Durham, that the State Office provisional approval of the Bio-Weir, Zabel and Zoeller filters be extended until August 20, 2000 subject to review at such time as the TRC develops/adopts final criteria for filters; the Motion was approved unanimously.

A Motion was made by Sam Banks and seconded by Ernest U. Earn that the same TRC provisional approval as given for Bio-Weir, Zabel and Zoeller filters be given to the Polylock filters; the Motion was approved unanimously.

Other business:

General discussion centered upon: the need for the State Office to publish a list of manufacturers currently producing and selling septic tanks in Georgia, and the need to move ahead with requiring them to submit their tank specifications to the State Office for review and approval and/or submission to the TRC for consideration where deemed appropriate; the need for development of budget for the TRC and various other topics needing further consideration by the State Office and/or TRC.

Determination of next meeting date:

The next TRC meeting would be at 10:00AM on September 16, 1999 with location yet to be determined.

Adjourn:

A Motion was made and seconded and the meeting adjourned at 2:50 PM.

cc: Michael R. Smith, Director, Environmental Health and Injury Control Branch
John Lee, Acting Assistant Director, Environmental Health and Injury Control Branch
Jeff Gary, Director, Environmental Health Section
Ade O. Oke, Director, Land Use and Engineering Unit
Land Use and Engineering Unit Staff
On-Site Sewage Program Files

DHR

Audrey W. Horne, Commissioner
Kathleen E. Toomey, M.D., M.P.H., Division Director

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August 12, 1999

MEMORANDUM

TO: Technical Review Committee

FROM: Carl W. Johnson, Secretary, Technical Review Committee

SUBJECT: Minutes of the Initial Technical Review Committee (TRC) Meeting

The initial meeting of the TRC was held at the Macon Public Health District Office on July 1, 1999. The meeting was called to order by Carl W. Johnson at approximately 10:15 AM, and he also presided as acting chairman.

TRC members in attendance: Carl W. Johnson, James Durrence, Laurie Cook, Larry Walker, Stan Coppage, Larry Chapman, George McClure, Doug Cabe, Daryl Rowe, Lawton Davis, Ernest Earn and Lucy Jenkins.

TRC members absent: William R. "Bill" Durham, John W. "Bill" Fortune and Sam Banks.

Guests in attendance: Jim Free, Ade O. Oke and Wilder Lucas.

Meeting minutes: An attempt was made to record the meeting, so two cassette tapes, primarily, and abbreviated notes by Lawton Davis, Lucy Jenkins and Carl Johnson summarized herein will serve as the official record for this initial meeting.

Order of business:

Welcome and member and guest introductions.

Selection of Chairperson: Dr. Lawton Davis, M.D., selected by unanimous vote.
Selection of Vice-chairperson: Dr. Daryl Rowe, Ph.D., selected by unanimous vote.

Development of Bylaws: A subcommittee was appointed and general requirements of bylaws discussed. Subcommittee members appointed were: Ernest Earn, Lucy Jenkins, Lawton Davis and Carl Johnson.

Development of criteria for submission of new onsite systems and products: A criteria subcommittee was appointed and many points discussed. During discussion it was noted that much of the criteria would be established in the draft Manual for On-Site Sewage Management Systems (hereafter, the Manual), which would hopefully be approved in the near future. Subcommittee members appointed were: Stan Coppage, Daryl Rowe, Larry Chapman, Laurie Cook, Doug Cabe, Ade Oke, Ernie Earns (or designee from EPD staff).

Development of TRC functional priorities: General discussion was held and goals/priorities to accomplish/initiate prior to the next meeting were established as follows:

- Manual should be first priority.
- The possibly of drafting a letter to legal department and Commissioner, Georgia Department of Human Resources (DHR), to release manual as soon as possible (ASAP) was discussed
- The appropriate channel of communication between the TRC and the Commissioner, DHR should be ascertained;
- Any inconsistencies in Rules and OCGA must be addressed
- Budgetary requirements must be established
- Legal liabilities must be assessed/established and appropriately addressed
- The two Subcommittees were charged with the goal to have recommendations ready for action by the TRC by the next meeting if possible.

Determination of next meeting date: Established as 10:00 A.M. on August 12, 1999 with location to be determined. Future meetings projected to occur on first Thursday of each month until such time as the TRC had accomplished all pressing business.

Other business: General comments about goals, need for the TRC to press forward ASAP, and generalized discussion follows in abbreviated meeting notes taken by Lucy Jenkins - ***detail for the minutes is available on the recorded cassette tapes maintained by the Land Use and Engineering Unit, Environmental Health Section.***

DHR On-Site Sewage Systems TRC
July 1, 1999
Meeting notes taken by Lucy Jenkins.

- Robert's Rules of Order were discussed. Committee decided to utilize the basic tenants of Robert's Rules.
- Subcommittee for bylaws formed. Ernie Earns, Lucy Jenkins assisted by Carl Johnson. Subcommittee should have draft bylaws by next meeting.
- Standards subcommittee consists of ???????
- Committee chair is ex-officio. One vote per committee member including chairman.
- Committee should have a minimum and maximum period of time to make decisions on proposed products/projects.
- Open Meetings Act amendments discussed. Committee discussed new requirements for posting of an agenda prior to the meeting and having a summary of the meeting available within two days of the meeting.
- No member may substitute with another person. Only the DHR commissioner can do this.
- Must ensure that there are no conflicts between the manual and the bylaws.
- Manual (not draft) should be distributed to each member.
- Manual should be first priority. Discussion to draft letter to legal department and commissioner to release manual.
- Codes changes. Look at codes procedures.
- Need a list of interim approved systems (products) before next meeting. Only unapproved is a polylock filter.
- Need to improve standards for system review.
- Need by laws prior to recommending approval of systems/products.
- Bylaws subcommittee should incorporate a transitional section of bylaws.
- Need to clarify discrepancies between DHR Rules and OCGA regarding the duties and responsibilities of this committee.
- Experimental systems are addressed in the manual. Ethical questions are addressed. The TRC must approve all experimental systems.
- By next meeting bylaws should be approved.

- Six products ?????
- Additives are defined in rules.
- Legal basis for approval and review of products. Current cost is $500.
- Ade Oke developing a "project code" for monies to be earmarked into for TRC budget.
- Need to estimate funding for the TAC. Committee must have a budget estimate.
- Typical cost for research and review 30K for a septic tank. Filter: negotiable but about 10K. Number of products reviewed per year is about 50.
- Develop an official list of approved independent researchers.
- Ernie has a protocol ANSE/NSF Process developed by EPD.
- Risers are not covered in manual. Need criteria.
- In budget, need to include cost of meeting transcription.
- Use examples of other states' bylaws.
- Have a lawyer brief us on Dos and Don'ts.
- July 12 is 1st septic certification course.

Priorities:

1. Letter requesting final manual
2. Address inconsistencies in Rules and OCGA
3. Budget
4. Assess legal liability
5. Develop Bylaws and standards
6. Determine whom the TRC answers to.

cc: Michael R. Smith, Director, Environmental Health and Injury Control Branch
John Lee, Acting Assistant Director, Environmental Health and Injury Control Branch
Jeff Gary, Director, Environmental Health Section
Ade O. Oke, Director, Land Use and Engineering Unit
Land Use and Engineering Unit Staff
On-Site Sewage Program Files