

STS Technical Advisory Committee MEETING MINUTES

Date: Tuesday – January 8, 2008

Time: 10:00 AM to 2:00M

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance (08 of 10 were present):

AOHC Health Commissioners – Ray Saporito, Ashtabula County, and Martin Tremmel, Union County
General Public – Stephen Hovancsek, retired PE/PS

ODNR Soil Scientist – Tim Gerber

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

OEPA DSW Engineer – Mark Stump

Academic: Dr. Mark Tumeo, Cleveland State University

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

Manufacturer Representative: Mike Price, Norweco, Inc. and Dick Bachelder, PSA, Inc—Excused
Installer/Service Provider –Position vacant

Guests: Bob Mayer of American Manufacturing; Steve Branz of Bord na Mona; Trent Lydic of Jet Inc.,
Ron Suchecki of Hoot Systems, Jeff Luthnam of Consolidated Treatment Systems, Zak Sherman of
Infiltrator Inc. Mike Felton of StreamKey, and Sean McGuigan and Mike Market from Presby

Other ODH participants: Gene Phillips, Amy Wood, and Dusten Gurney

Agenda review: Introductions were made by all in attendance.

Meeting Minutes: The TAC members reviewed the December 11, 2007 meeting minutes.

A motion was made by Mark Tumeo and seconded by Stephen Hovancsek for approval of the December 11, 2007 meeting minutes as submitted. TAC members present voted in favor of approving the minutes as submitted.

Product Presentations

Hoot Aerobic System: Applied for 1,000 fecal/two foot credit requirements

Ron Suchecki from Hoot Aerobic System gave his presentation to the TAC committee. Ron built on his past approvals of BOD/TSS and his approval for the one foot credit reduction with fecal less than 10,000. The presentation today provided data demonstrating fecal counts of less than 1,000 for a two foot credit reduction. The geometric means of fecal coliform equaled 632.

Discussion from the TAC members:

The committee asked Mr. Suchecki if the data presented was with or without the UV disinfection. Mr. Suchecki informed the committee this data was without UV disinfection. The product was able to provide those lower fecal counts due to the fact that trash traps are built in or in front of the units tested. Mr. Suchecki stated that in the 500 & 600 gallon units have the trash trap is built in but in the 750 & 1,000 have a size equivalent tank provided prior to the pretreatment unit. This allows for three day detention time of the effluent.

Discussion was held on temperatures at the WACO testing site and the summer months (testing period) and the temperature on the influent and its effect on the CBOD. This generated more questions on the variations of the ANSI/NSF testing and its data.

Mark Tumeo stated that he thought the record should reflect that Hoot's comments on 3rd-party accredited data points out that the same problems exist with "accredited" data that exist with data collected in other ways. As Hoot points out, suppliers can try different accredited facilities until they get results they like. Reports can portray data in different ways, and companies can "forum shop" for the best results. Hence, while 3rd-party data is reported in a very understandable format, the same validity issues arise with it as with other data, and hence, it remains essential that the TAC review data carefully and with an eye towards analysis, regardless of the source.

- Stephen Hovancsek made a motion to approve the Hoot H Series (500,600,750 & 1,000 gallon) for achieving the 1,000 fecal reduction for the two foot soil depth credit as long as it specified the trash traps/settling tanks prior to the pretreatment tank. Ray Saporito seconded the motion. Roll call voted held and motion for approval carried.

Jet Inc.

Trent Lydic approached the board about the data supplied to the TAC for the recent approval of the Jet system as an NPDES system that can only discharge to waters other than Lake Erie. He requested an amendment to his original approval to permit the Jet system to discharge to Lake Erie.

The data Jet Inc. supplied showed that the fecal counts were all below 50. The standard to discharge directly to the waters of Lake Erie is less than 126 E Coli.

Discussion from the TAC members:

Discussion was held by TAC and Mr., Lydic on the differences between low fecal counts and the General Permit standards for the 126 E. coli. There was no E Coli data supplied in the application and the TAC recommended that Jet obtain some joint sampling for both fecal and E Coli and find a mathematical relationship between the two parameters. If that relationship could be determined then Jet could use the data gathered to show that this system could be used for a direct discharge to waters of Lake Erie.

- After the discussion Mr. Lydic then requested that his motion for amendment be withdrawn and he will come back to the TAC when he has the required data.
- TAC members concurred with Mr. Lydic on his request.

Presby Environmental Inc.: Applied for BOD/TSS and 10,000 fecal /one soil depth credit.

Sean McGuigan of Presby Environmental Inc. from New Hampshire was present to answer any questions about the data he supplied in the summary pages and any other questions that the TAC members may have had.

Discussion from the TAC members:

Discussion again was held on the Indiana soils table and loading chart and how that compares to the Tyler Table. Mr. McGuigan informed the TAC that Presby had hired a hydrologist to help prepare the table requested from the December TAC meeting. He stated the hydrologist was doing research to convert data on soil loading rates and lineal loading rates and that this data/table should be ready in the next two-three weeks.

TAC members also discussed the data being presented and Dr. Tumeo inquired about the layout of the data and how it was hard to read. After Dr. Tumeo laid out all the data he was able to review the data submitted. The TAC members continued to have many questions regarding the Presby test data..

It was determined that Presby had not fulfilled the requirements of providing data and information that was asked of them in at the December 2007 meeting.

Rebecca Fugitt informed the TAC members of three Presby systems that were already installed in Ohio without the proper approval. TAC members were stunned to learn a county would install a non-approved system in Ohio. Rebecca also informed the TAC members that Van Wert County in the Northwest had applied for and received experimental concurrence for the installation of 25 Presby systems in that county which is one of the proper way for approval to use this product.

- No action taken at this meeting due to lack of required information mentioned in the December 2007 meeting.
- The TAC members were informed that next month they will have to make a motion to approve or disapprove the application due to the ninety day deadline.

Special Device for Drip Distribution: Mark Tumeo went through his revised continuous flush drip distribution special device approval. Mark informed the TAC members where the major differences were in the draft compared to the general drip distribution special device approval.

TAC members discussed some issues such as how much sludge builds up in the dosing chamber, equal distribution of effluent and filtration. Discussion was held on if testing of effluent in dosing chamber was needed, proper sampling protocols, and who would review the testing data to ensure that the stated effluent standards were being disbursed into the drip field if the flush water came back to the dosing chamber instead of the pretreatment tank. Standards of treatment will be needed to prevent the clogging of the tubing and emitters.

It was mentioned that a general review checklist would be nice for the locals to use when reviewing plans.

Mark Tumeo will revise and bring back to the February meeting.

TAC/ODH Reports:

Rebecca briefly discussed

- The TAC had received their copy of the TAC report to the General Assembly on 01/07/08. Any comments are due back to Rebecca by Friday 01/11/08. Rebecca gave thanks to all that helped in bringing this information together. (ODNR and EPA)
- Sewage Program updates—staffing—Nathan Johnson from Fairfield County will be joining ODH on February 4, 2008
- Next TAC meeting is February 12, and will be held at ODNR, Building I.

Meeting adjourned at 2:05 p.m.

Approved on 2-12-08 as signified by:



Rebecca Fugitt, TAC Chairperson


Mark Stump, TAC Secretary

Sewage Treatment Systems Technical Advisory Committee **MEETING MINUTES**

Date: Tuesday – February 12, 2008

Time: 10:00 AM to 2:00M

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance (05 of 09 were present):

AOHC Health Commissioners –Martin Tremmel, Union County

ODNR Soil Scientist – Tim Gerber

Manufacturer Representative: Mike Price, Norweco, Inc. and Dick Bachelder, PSA, Inc

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

Via Phone Conferencing

AOHC Health Commissioners – Ray Saporito, Ashtabula County

Academic: Dr. Mark Tumeo, Cleveland State University

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

OEPA DSW Engineer – Mark Stump-Excused

General Public –Position Vacant

Installer/Service Provider –Position vacant

Guests: Mike Stoll of Netafim USA, Steve Branz of Bord na Mona; Michelle Laliberty, Chris Mandich and Trent Lydic of Jet Inc., Brian McQuestin and Ron Suchecki of Hoot Systems, Mike Felton and Joe Keiser of StreamKey, David Presby and Mike Market from Presby, Steve Miller, soil scientist, Dick Noiland, Cary Feller of Active Aeration Inc., Brock Wanless of Ring Ind. and Dave Diehl of Diehl Tek.

Other ODH participants: Nathan Johnson and Dusten Gurney

Agenda review: Introductions were made by all in attendance.

Meeting Minutes: The TAC members reviewed and made slight changes to the January 8, 2008 meeting minutes.

A motion was made by Dick Bachelder and seconded by Martin Tremmel for approval of the January 08, 2008 meeting minutes as submitted and amended. TAC members present voted in favor of approving the minutes as submitted.

Product Presentations

Norweco: A modified request from Norweco and Mr. Price was presented to the TAC to request the option of a pump lock out (failsafe) option to their already approved NPDES system for which the treatment train is Singular Model TNT + UV Disinfection + Re-aeration basin and Service Pro/Telemetry. The original approval for that was granted on May 17, 2007.

Discussion from the TAC members:

Dick Bachelder inquired about being able to modify a simple request without having a separate application. Rebecca stated she discussed the issue with ODH legal counsel and was informed that since it was just a simple minor change of a part at the end, that only a modified journal entry was needed.

Martin Tremmel asked if this change would interrupt the treatment and Mr. Price stated it would not interrupt the treatment train but is just another fail safe option for homeowners that are not running telephone lines into new build homes.

Discussion was held by all on what would constitute a minor change with what would be a major change and what would need a new application for modifications. Could the TAC members just direct ODH to approve the minor changes and bring the major changes to the TAC committee?

- Martin Tremmel made a motion to modify the approval to add the pump lock out option for the failsafe mechanism for the NPDES system Singular Model TNT + UV Disinfection + Re-aeration basin. Tim Gerber seconded the motion. Roll call vote—Four approved, 1 abstained. Motion carried.

Procedural questions were brought up and the TAC members decided that it would be useful to have a policy on minor and major modifications to approvals.

Hoot Aerobic System: Applied for NPDES approval for waters other than Lake Erie

Mr. Suchecki briefly discussed the application which has built on the past approvals of the Hoot System for BOD/TSS, and fecal coliform less than 10,000 and 1,000. This application also included the ammonia, additional fecal coliform, and dissolved oxygen data. This application also included the 500, 750 and 1,000 gallon system diagrams. In the power point presentation design specifications, dissolved oxygen data with remote telemetry using NSF monitoring was presented.

Discussion from the TAC members:

Questions about the NSF monitoring program were asked. What happens when alarm goes off? Mr. Suchecki stated that the alarm panel communicates with the auto-dialer, which then sends out text messages, emails, cell phones to service provider, and homeowner to alert them the system has gone down and what it wrong with the system. Local health department may also have remote access to view the system data.

Questions were raised about the data presented and on how the BOD data from 2001 (from Baylor), fecal coliform data from 2003 and DO data from 2008 (NSF data) could be used together to be considered under one application. Questions were raised as to whether the data was collected from the same unit. It was noted that the same unit was left in the ground from the Baylor study which merged with NSF (in 2002) and that all three data points were taken from the same unit. This is the same data, and same system, just different report dates on the H500 unit.

Mr. Suchecki stated for the DO data, they upgraded the blower units and made them bigger to run an extra line to the re-aeration basin so another blower did not have to be used in the unit. With the bigger blower unit then only an air line had to be placed in the post re-aeration basin. Mr. Suchecki stated the all NPDES models will have a blower identification plate with the correct blower size with each unit. The units will be sold to installers that way.

Discussion was held on only the two weeks of DO data that was submitted. The TAC committee was informed that previous approvals have been done with only two weeks of data. Dr. Tumeo stated that there is no physical/chemical reason to run the test for any additional time due to the temperature and DO relationship.

Discussion occurred again on how the fecal coliform data can be so low without disinfection. Mike Price stated he gets calls from manufacturers expressing concern or interest on these fecal counts of less than 2000 without disinfection and felt compelled to bring these concerns to the committee.

Dr. Tumeo stated that this unit is unique but those retention times according to laws of physics and biology suggest that this can work.

- Mike Price made a motion to further evaluate this application by the TAC members due to the questions raised by industry here in Ohio on the capability of the systems to consistently meet the DO levels. Due to lack of second, motion died.

Martin Tremmel asked that drawings showing the larger blower and its specifications be added for the NPDES systems, so when blowers are removed that the proper sized blowers are replaced.

Martin also wanted the size of the pipe in the re-aeration basin called out also on the specification sheets, along with the T and extensions (need size and lengths noted). Martin also questioned the NSF monitoring if it would work with digital, web, wireless or DSL lines.

- Martin Tremmel made a motion for approval of the Hoot System with all the additional information and data to be submitted. No second, motion dies.

Dr. Tumeo stated that this unit is unique but those retention times according to laws of physics and biology suggest that this can work. That the data was collected by 3rd party under those conditions and it shows what it shows.

Dick Bacheider agreed with Martin that all the changes will need to be noted in the specs of the system. He also questioned who determined the size of the blower on the different sized systems. Mr. Suchecki stated the engineers at NSF evaluated for tested parameters. NSF allows for a range of 10%-30 % on all systems.

Dr. Tumeo reiterated that data/information on the trash traps was required to be in the specs because it was integral to the treatment numbers it was achieving.

Ralph Benson questioned the tank instructions as vague and that the re-aeration basin was of different material and that unit may float. Mr. Benson asked that clear directions be added on installation of these units. Mr. Suchecki stated he will add that systems must be bedded in pea gravel.

- Dick Bacheider made a motion to table for one month so Hoot Aerobic Systems can make the required changes to diagrams and installations specifications as noted. Martin Tremmel made a second. (Motion redrawn later)

Following that motion Mr. Suchecki asked if there could not be a modification to that motion. Since he has time conflicts with the next two TAC meetings, he was asking that ODH could go ahead and approve his system as long as all the items have been met. Dick questioned if the TAC would be ok with ODH approving the system upon review of all the needed information.

Dick Bacheider withdraws his motion.

- Martin Tremmel moved to recommend approval of the Hoot 500, 750, and 1,000 gallon systems as proposed contingent on ODH review of the changes and recommendations of the air pressure sizing, blower model and sizing, diagram and length of air pipe, drawing changes as noted, bedding of tanks, and O&M manual changes. Tim Gerber seconds the motion. Roll call vote—4 yes, 1 abstain. Motion carries.

Presby Environmental Inc.: Applied for BOD/TSS and 10,000 fecal /one soil depth credit.

David Presby from New Hampshire was present to answer any questions about the proposed amendment to his original submission. Presby submitted a request to use the Tyler Table for the soil loading rates, but retain the bed configuration and maximum trench length of 100 feet. Presby is still requesting a bed configuration for its systems, but was not able to provide the report from the hired hydrologist that was to provide supporting data on soil loading rates and lineal loading rates as proposed.

Due to family situations the hydrologist report was not finished nor presented to the TAC committee that was requested in the December 2007 meeting.

Discussion from the TAC members:

Dr. Tumeo stated that there are two different and separate issues with this application. They are:

1. Performance of the system to reduced BOD/TSS and fecal coliform demonstrated with data to achieve the soil depth credits using the Tylor Table.
2. Non-gravel trench sizing per loading rates has not been established.

Discussion was held with David Presby and Mark Tumeo over these two issues. There has been no company yet that has asked for non-gravel trench configuration and Ohio has not yet developed that policy. It would be wise for the TAC committee to look into this issue.

The data presented have a problem with since it is not in trench configuration but a bed configuration. There was concern expressed that this system/bed sizing was not provide enough area to absorb the liquid released at the rate of 5.1gal/day/lineal foot which would create a hydrologic loading issue and that liquid would go anaerobic. Mr. Presby discussed this data and stated the hydrology issues would be answered because he claimed that his systems are already 2.5x the size they would need to be according to Tyler table.

Ralph Benson has some design questions for Mr. Presby. Why did he change the loading rate from 2.4 to 2.0 gallon per ft. for the 2.4 gallon per ft. which was noted in the original application. Presby stated they were ok for this loading rate. Mr. Benson expressed concern over why only two trenches were being used if you have a soil that loads at 2.4 gal/ft. What is the problem with this?

Presby answered that in reality it would still load at 5.1 gal/day/lineal ft. That long term acceptance rates for his systems are 5.1 gal/ft. Dr. Tumeo stated that long term acceptance rate is set by the soil conditions. Mr. Presby stated yes it is because his effluent is near treated water quality and really reflects the soil absorption rates.

Dr. Tumeo asked how the TAC is going to approve non-gravel systems designs due to the issue of long term acceptance rates, and also that the TAC should not approve this type of loading rates on an adhoc/system by system basis.

Dick Bachelder again asked at what points were the samples taken. It was pointed out that the samples were taken at 6" and 12" from the bottom of the pipe at the sand/soil interface. Dick questioned when dealing with a 1 ft separation, then one needs to know the data and where within the system these samples were taken for sizing purposes.

Ralph stated that for LLR of 2.4 gal/ft/day, if you assume basal loading rates at .4 gpd the absorption area needs to be 6 ft wide and if it is .6 gpd then only 4 ft wide.

- David Presby withdrew his application from the TAC committee until the hydrology study is done. He will have to make a written submission of his request to ODH.

After the withdrawal of this submission more discussion was held on Darcy's Law and the saturated flow versus non saturated flow issue.

Special Device Approval for Continuous Flush Drip Distribution: Mark Tumeo went over his 2nd draft for comments from the TAC committee.

Discussion was held on the testing requirements of the effluent noted in section 3.3 G (4) and G(5) from the dosing tank and that this dosing tank had to be pumped or cleaned every six months. It was determined instead of making it mandatory to pump the tank. that it should be part of the 6 month service contract to inspect the tank and determine if pumping was needed. Mike Price noted that instead of sampling the dosing tank, that the assurance party service provider could make detailed observations and file those reports yearly with ODH for the first five years. This checklist would include turbidity, dosing chamber contents, proper pretreatment and filtering taking place, check flow rates, and etc.

Again in section 3.3 G(2) it was discussed about the filter requirements. It appeared that filtering of the effluent before distribution to the drip tubing would be covered in another section, and that the filter requirement was not about protecting the pump in the dosing tank.

- Mike Price made a motion to recommend approval of the continuous flush drip distribution assurance contingent upon acceptance of changes to be provided by February 19 as per the TAC discussion. Martin Tremmel seconded. Roll call vote—5 yes. Motion carries.

TAC/ODH Reports:

Rebecca briefly discussed

- Informed TAC that the Spray Irrigation Special Device Assurance should be presented to them in March. Two interested parties have submitted their information.
- The TAC members decided to form a workgroup to discuss a special device approval for Alternative/Non-Gravel trench specifications and sizing. Dick Bachelder agreed to chair the workgroup, with TAC members Tim Gerber, Dr. Tumeo, and other interested public members to participate on this workgroup. A conference call will be scheduled prior to March 11, 2008.
- Next TAC meeting is March 11, 2008 and will be held at ODNR, Building E, Assembly Center
- Tim Gerber made a motion to adjourn and seconded by Dick Bachelder. Motion carried and meeting adjourned.

Approved on 3-11-08 as signified by:



Rebecca Fugitt, TAC Chairperson



Mark Stump, TAC Secretary

STS Technical Advisory Committee MEETING MINUTES

Date: Tuesday – March 11, 2008

Time: 10:00 AM to 12:25PM

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance [8 of 11 were present]:

AOHC Health Commissioner – Raymond Saporito, MPH, RS, Ashtabula County Health Dept.

AOHC Health Commissioner – Martin Tremmel, MPA, RS, JD, Union County Health Dept.

Academic – Mark Tumeo, PhD, JD, PE, Cleveland State University

Installer/Service Provider – Mark Fehring

ODNR Soil Scientist – Tim Gerber

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

OEHA Sanitarian – Ralph Benson, RS, Clermont County Health District

OEPA Engineer – Mark Stump, PE

Not present:

Manufacturer Representatives: Mike Price, Norweco, Inc., General Public, Ernie Stickler, and Dick Bachelder, PSA, Inc—Excused

Guests:

Steve Branz, John Payne and Charles Ray of Bord Na Mona; Michelle Laliberte and Trent Lydic of Jet Inc.; Cary Feller of Active Aeration; Steve Miller, soil scientist; Dick Noland, Union County resident; Brock Wanless of Ring Ind.; and Zak Sherman of Infiltrator Systems

Other ODH participants: Nathan Johnson and Amy Wood

Agenda review: Introductions were made by all in attendance. New TAC member representing installers/service providers, Mark Fehring was introduced

Meeting Minutes: The TAC members reviewed the January 8, 2008 meeting minutes. Changes included noting that TAC members participating via phone conference could not vote. Other grammatical errors and additions were addressed.

A motion was made by Mark Tumeo and seconded by Ralph Benson for approval of the February 12, 2008 meeting minutes as submitted and amended. TAC members present voted in favor of approving the minutes as submitted.

Rebecca Fugitt stated that the December 2007 meeting minutes needed signed by Mark Stump and would be sent to him via inter office mail.

Product Presentations

Bord Na Mona Environmental: Applied for fecal coliforms $\leq 1,000$ cfu/100 ml for two foot soil credits, fecal coliforms ≤ 200 cfu/100 ml for restricted surface application, fecal coliforms ≤ 20 cfu/100 ml for unrestricted surface application and NPDES approval for discharge to waters of the state including Lake Erie. The system presented for approval is the Puraflo® Type B wastewater treatment system with Salcor UV disinfection model 3G, the discharging system included a re-aeration basin.

John Payne the VP and manager of the Bord Na Mona Onsite Division presented test data and system information to the TAC committee. Mr. Payne built on the past approval of BOD/TSS.

Discussion from the TAC members:

Mark Tumeo noted that data was presented from 3 different system configurations and questioned which system Bord Na Mona was seeking approval. He also questioned the mixed data from 3 different units, integrity of data being affected by other testing going on, and having only one month of data on the system up for approval. Dr. Tumeo discussed the differences and methods of testing total coliform, fecal coliform and E. coli. John Payne provided clarification on the testing data sequence of events and treatment train tested.

Steve Branz noted the suggestions Ralph Benson had made for Bord Na Mona's Puraflo manual and that those would be addressed.

Mark Stump addressed Dissolved Oxygen (DO) data. The pump was changed at the end of November which increased the DO significantly; the influent DO had also changed. John Payne said that it was due to air temperatures. Dr. Tumeo asked if the second motor could achieve proper DO in warmer temperatures.

Martin Tremmel initiated a discussion on the type of peat used in the Puraflo system and questioned how Bord Na Mona would assure that the proper peat is being replaced in the tank at time of service. It was concluded that the peat replacement would be addressed in the service contract and assured through the requirement of Bord Na Mona certified service providers.

Further discussion of the Puraflo system was conducted in regards to cost, operation and maintenance, peat life, and operation and maintenance training.

Mark Tumeo noted that the ammonia data required for NPDES approval was not included in the application.

Mark Tumeo made two motions. The first motion to approve the Puraflo® Type B wastewater treatment system with Salcor UV disinfection model 3G for both one and two soil depth credits based on fecal coliform ≤ 1000 and restricted spray applications based on fecal coliform results. The second motion was to postpone consideration of the NPDES treatment train approval until more data is presented for ammonia, dissolved oxygen, and E. coli.

Ralph Benson seconded the motions.

A roll call vote was made and the motions were approved. Mark Stump could not vote until governor's office officially re-appoints his position on the TAC.

Discussion of Spray Irrigation Draft Special Device Approval (SDA): Rebecca Fugitt introduced the draft special device approval prepared by the Ohio Department of Health Sewage Program. The SDA is a merger of two separate special device approval drafts each submitted by Dr. Mike Rowan, OSU and Chad Antle, PE respectively.

Discussion from the TAC members:

A general discussion followed regarding use of linear loading rates, soil absorption loading rates, and what conditions would constitute an NPDES permit. Mark Stump stated that this application could not be covered under the current General NPDES permit.

Steve Miller asked if there was any consideration of use in soils with less than 12 inches of unsaturated soil. He thought Pennsylvania had an 8 inch requirement. Rebecca Fugitt stated that Dr. Karen Mancl and Dr. Rowan were concerned with loading rates/application to less than 12 inches of soil. Mark Tumeo suggested increasing buffers when applying to soils with decreasing depths of unsaturated soil.

Dr. Tumeo stated that this unit is unique but those retention times according to laws of physics and biology suggest that this can work.

No further action was taken by the TAC on the draft Spray Irrigation special device approval.

Intermittent Sand Filter Bioreactor Draft Special Device Approval

Rebecca Fugitt announced that Dr. Karen Mancl with the Ohio State University submitted an Intermittent Sand Filter Bioreactor special device approval draft for ODH review. ODH staff will be working with OSU to modify the information submitted to a special device language format.

Discussion of Alternative Trench Special Device Approval: Mark Tumeo provided an update on the conference call that was held on March 7, 2008. Dr. Tumeo stated that the committee/task group is determining rationale for scientific design and for infiltration loading rates, and he will prepare some draft documents for discussion by the workgroup.

Discussion on TAC/ODH activity report for legislature/study commission (ORC 3718.04 (G)):

Rebecca Fugitt distributed bound copies of the ODH Study Commission report and binders with the TAC Study Commission Report. She also passed out copies of ORC 3718.03 and 3718.04 and requested comments on the content of the 2007 annual report that is required.

Discussion from the TAC members:

Mark Tumeo suggested incorporating all TAC meeting minutes into an appendix as well as a summary table of approvals with the dates of those approvals so the minutes can be easily referenced.

Martin Tremmel suggested a separate section for different approval types.

Mark Tumeo suggested a section with issues that the TAC has encountered such as determining how much data is acceptable from applicants, Operation and Maintenance, and remediation.

Another mention was made by Rebecca Fugitt to include the willingness of TAC to help with pilot studies of new STS technologies.

Pending applications for TAC review: Rebecca Fugitt announced the pending application of the Multi-Flo sewage treatment system by Consolidated Treatment Systems, Inc. ODH has been contacted by a future applicant, Eljin In-Drain for approval of BOD/TSS reduction. ODH has sought guidance from its legal department to determine whether ODH can review this application under the current special device approval (for pretreatment components) or whether this applicant will need to provide an application to the TAC.

Sewage Program updates to the TAC: Rebecca Fugitt gave updates on the Sewage Treatment System Study Commission and subcommittee meeting. Topics included:

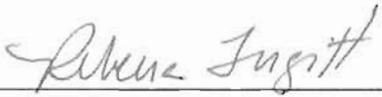
- Chris Schraff's letter identifying the "Coalition's" five key issues which include clarifying the definitions of bedrock and seasonal water.
- Discussion of operation and maintenance requirements
- Identifying what the issues really are
- Surface discharge

Rebecca Fugitt noted that ODH Sewage Program staff met with the Soil Inventory Board for guidance based on science and national definitions for addressing the "Coalition's" request for defining bedrock and seasonal water.

Rebecca Fugitt described the second ODH report to the Study Commission which will include a survey of local health districts. She described the survey and mentioned that it will serve as a guide to estimate the state's need of financial assistance for sewage treatment.

Upcoming TAC meetings: The next TAC meeting is Tuesday, April 08, 2008 in the same ODNR location. The November meeting falls on Veterans Day. The TAC was asked to consider an alternative day to meet. ODNR Building E meeting room is scheduled throughout the year except the month of December in which it will be held in building I.

Approved on 4-8-08 as signified by:



Rebecca Fugitt, TAC Chairperson



Mark Stump, TAC Secretary

Sewage Treatment Systems Technical Advisory Committee **MEETING MINUTES**

Date: Tuesday – April 8, 2008

Time: 10:00 AM to 2:00M

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance (09 of 10 were present):

AOHC Health Commissioner –Raymond Saporito

Installer/ Service Provider – Mark Fehring, Fehring Services

Public – Ernest Stickler, Environmental Engineering Service

OEPA DSW Engineer – Mark Stump

ODNR Soil Scientist – Tim Gerber

Manufacturer Representative - Dick Bachelder, PSA, Inc

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

Academic - Dr. Mark Tumeo, Cleveland State University

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

Not Present:

AOHC Health Commissioner –Martin Tremmel, Union County Health Department, Excused

Manufacturer Representative –Position Vacant

Guests:

Charles Ray of Bord na Mona; Chris Mandich, Terry Fischer, and Craig Morton of Jet Inc., Dick Noland, Cary Feller and Debora Graves of Active Aeration Inc., Brock Wanless of Ring Ind., Bennette Burks of 3-Engineering, LLC, and Jeff Luthman of Consolidated Treatment Systems.

Other ODH participants: Nathan Johnson and Amy Wood

Agenda review: The agenda was modified to reflect that Bord na Mona Environmental was seeking recommendation for approval for discharge to the waters of Lake Erie.

TAC membership changes: Rebecca announced that Mike Price, representing manufacturers, had resigned from the TAC. Rebecca announced that Martin Tremmel, representing the AOHC, had accepted a position with the Ohio Department of Health, and will be resigning at a future date.

Meeting Minutes: The TAC members reviewed and made slight changes to the March 11, 2008 meeting minutes. Mark Stump was provided corrected minutes of the February TAC meeting. Mark Stump signed the January TAC minutes.

A motion was made by Mark Tumeo and seconded by Tim Gerber for approval of the March 11, 2008 meeting minutes as submitted and amended. TAC members present voted in favor of approving the minutes as submitted.

Product Presentations

Bord na Mona: Applied for approval of Bord na Mona Puraflo Type B wastewater treatment system with Salcor 3G UV disinfection, reaeration, and telemetry for discharge to all waters and the waters of Lake Erie.

Charles Ray of Bord na Mona returned to present ammonia data that was missing from the submittal supplied to TAC before the March 11, 2008 meeting. Mr. Ray also presented the results of further fecal coliform and dissolved oxygen testing. Charles Ray stated that the

geometric mean of the fecal coliform was not below 20 mg/L and withdrew the request for recommendation for approval of the treatment train for unrestricted surface application.

Discussion from the TAC members:

Mark Tumeo noted that the E. coli counts provided in Bord na Mona's submittal were at times greater than the fecal coliform counts. Discussion was held by all concerning the relationship between E. coli and fecal coliform bacteria.

Ray Saporito made a motion to recommend Bord na Mona Puraflo Type B wastewater treatment system with Salcor 3G UV disinfection, reaeration, and telemetry for approval for discharge to the waters of Lake Erie.

Ernie Stickler seconded the motion. Mark Stump was not permitted to vote pending his reappointment to the TAC by the governor's office. A roll call vote was made and the motion was approved.

Dick Bachelder – Yes
Ray Saporito – Yes
Ralph Benson – Yes
Mark Tumeo - Yes

Tim Gerber – Yes
Mark Fehring – Yes
Ernie Stickler – Yes

Rebecca Fugitt apologized for not introducing Ernie Stickler at the beginning of the meeting. Mr. Stickler holds a Class IV operators license and has operated a number of wastewater treatment plants in southwest Ohio. Mr. Stickler currently sits on the Operator Training Commission of Ohio's Board of Trustees.

Jet, Inc.: Request to modify existing approval for the J-1500 BAT media plant for a one foot soil depth credit without the use of UV disinfection. Request to modify the existing approval of the J-1500 BAT media plant with Salcor 3G UV disinfection, reaeration, and either telemetry or pump lockout for NPDES discharge to the waters of Lake Erie.

Terry Fischer of Jet, Inc. presented fecal coliform results for testing of the J-1500 BAT media plant without disinfection and results of testing provided to illustrate the relationship between fecal coliform and E. coli counts.

Discussion from the TAC members:

Dick Bachelder expressed concern about the submittal of non third party testing results. Mr. Bachelder stated that the committee must be careful when accepting data provided by companies doing their own testing. Terry Fischer stated that Jet, Inc. is providing data in addition to their already submitted, third party data.

Mark Tumeo requested the standard deviations of the Ohio data and the provided E. coli and fecal coliform data. Mr. Tumeo explained that, with the statistical calculations, Jet, Inc. could prove that the data from both tests reflect the same population counts. Terry Fischer stated that the standard deviations had not been calculated.

Discussion was held by all concerning Jet, Inc.'s request to use fecal coliform testing results to prove compliance with the E. coli standard. Discussion was also held concerning Jet, Inc.'s rationale for the request. Jet, Inc. claims that E. coli counts will always be less than fecal coliform counts because E. coli is a subset of fecal coliform. Mark Tumeo stated that the rationale for the request is scientifically valid, but that there is a policy issue concerning the use of fecal data when the standard is written for E. coli. Mark Stump stated that OEPA policy did not prohibit the use of fecal counts to satisfy the E. coli standard and that OEPA would not have a problem with it.

Motions were made by Dick Bachelder to recommend the modification of existing approval of the J-1500 BAT media plant to include approval of a one foot soil depth credit without disinfection and the modification to the existing approval of the J- 1500 BAT media plant, Salcor 3G UV disinfection, reaeration, and telemetry or pump lockout for NPDES discharge to the waters of Lake Erie.

Discussion was held by all concerning the acceptance of data provided by companies conducting their own testing. Dick Bachelder recommended that the committee assess the request without strong consideration of the Ohio data because recommendation for approval should be based on independent data. Mark Tumeo stated that the third party data was sufficient to recommend the modification for approval.

Mark Tumeo seconded the motions. A roll call vote was made and the motion was approved.

Tim Gerber – Yes
Mark Fehring – Yes
Mark Tumeo – Yes
Ernie Stickler - Yes

Ray Saporito – Yes
Ralph Benson – Yes
Dick Bachelder – Yes

Consolidated, Inc.: Applied for approval of the Multi-Flo FTB 0.5, 0.6, 0.75, 1.0, and 1.5 pretreatment components for a one foot soil depth credit. Applied for approval of the Multi-Flo FTB 0.5, 0.6, 0.75, 1.0, and 1.5 pretreatment components and Salcor 3G disinfection for a two foot soil depth credit. Applied for approval of the Multi-Flo FTB 0.5, 0.6, 0.75, 1.0, and 1.5 pretreatment components, Salcor 3G disinfection, reaeration, and telemetry for NPDES discharge to all waters except Lake Erie.

Bennette Burks requested to modify Consolidated, Inc.'s application to include NPDES discharge to the waters of Lake Erie in light of the committee's previous recommendation.

Bennette Burks presented an overview of the pretreatment component to the committee.

Discussion from the TAC members:

Ray Saporito stated that some local health districts require the use of a trash trap in front of the Multi-Flo unit. This is done to provide a buffer before the system, especially because homeowners do not regularly maintain their systems. Discussion was held by all concerning local health districts requirement for the use of a trash trap and policy of such requirements. Bennette Burks stated that as manufacturer, they have concerns about the use of trash traps because they may reduce the needed organic load to the system, especially with the use of large trash trap tanks.

Mark Tumeo asked about the retention time of each model. Bennette Burks stated that the retention time in each model is twenty-four hours.

The committee reviewed and discussed the submitted data. The committee found it difficult to find the data in the submittal and had difficulty determining how data was related to different treatment trains. Mark Tumeo suggested that future application submittals include data summary tables in spreadsheet form for all tested parameters. Mark Tumeo noted that the submittal did not include summer data for ammonia testing.

Dick Bachelder expressed concern about the required maintenance of the unit. Bennette Burks stated that maintenance is required on the unit every six months.

Dick Bachelder made a motion to recommend the approval of Multi-Flo FTB 0.5, 0.6, 0.75, 1.0, and 1.5 pretreatment components for a one foot soil depth credit and a two foot soil depth credit

when used in conjunction with a Salcor 3G disinfection unit based on the supplied Novatek data. Mark Fehring seconded the motion.

Ray Saporito made a motion to amend Dick Bachelder's motion. The amendment would allow local health districts the latitude to require a trash trap, with a volume not to exceed 500 gallons, to precede the pretreatment component. Mark Fehring seconded the motion. Dick Bachelder stated that this was a policy issue and he did not like to set policy with technical approvals. Mark Tumeo agreed and stated that there could be wide variability on what local health districts may require. Ray Saporito stated that homeowners will likely choose a cheaper system and a trash trap will make a difference on who they choose. It was noted that the use of a trash trap could add several thousand dollars to the cost of a system. Ray Saporito mentioned that ODH had issued an opinion stating that it was permissible for local health districts to require the use of a trash trap in local rules. Rebecca Fugitt noted that this would have been true for local health district rules adopted prior to the adoption of HB 231, but now ORC Section 3718.03 and ORC Section 3718.04 place authority with the TAC and the ODH director to approve products and these portions of the Revised Code are not suspended. Rebecca Fugitt agreed to request that ODH legal counsel review the issue of local health district authority to require the use of trash traps in local rules. Mark Stump stated that by proposing this modification to an approval, the TAC is setting a precedent for many other issues. Mark Tumeo stated that the legislature enacts laws and the manufacturers can claim that statute trumps local rules. Dick Bachelder stated that he does not believe it is the role of the TAC to ask a manufacturer to modify an application by making these proposed changes.

A role call vote was made on the proposed modification to the amendment:

Ray Saporito – Yes	Ernie Stickler – No
Mark Fehring – Yes	Mark Tumeo – Yes
Dick Bachelder – No	Ralph Benson – No
Tim Gerber - No	

The motion to amend the previous motion failed.

A role call vote was held on the original motion and the motion passed.

Mark Fehring – Yes	Ralph Benson – Yes
Ernie Stickler – Yes	Mark Tumeo – Yes
Dick Bachelder – Yes	Tim Gerber – Yes
Ray Saporito – No	

Ralph Benson noted that he has comments on the installation manual and checklist that he will provide to Bennette Burks separately. Bennette Burks requested the committee's recommendation for approval for NPDES discharge to the waters of Lake Erie. Mark Tumeo suggested that the committee require a table, summarizing all Stark County, Ohio testing data, an updated table, summarizing all Novatek data including post aeration DO, summer ammonia data, and an installation checklist before considering the request. Based on the submittal of the data, this discussion would be placed on next months agenda. There was no motion to recommend approval of the unit for NPDES discharge to the waters of Lake Erie.

Discussion of Alternative Trench Special Device:

Mark Tumeo updated the committee on his efforts to create a special device document for alternative leaching trenches. He is working on putting together saturated hydraulic conductivity values for the soils as provided by Tim Gerber. He is also looking at the long term acceptance rates and hydraulic loading rates from the Tyler Table and will be putting together background information on various parameters that control trench baseline loading. Mark is also collecting

published literature on the issue and hopes to report on his findings at the next TAC meeting and begin drafting the document soon.

TAC Annual Report:

Rebecca Fugitt reviewed the report. The addition of a summary chart for each TAC approval was discussed by the committee. The creation of a challenges and findings section and the content of such a section were also discussed. Rebecca will draft these modifications and email them to the TAC for review.

Pending Applications:

Rebecca Fugitt informed TAC that that ODH staff is reviewing an application from Eljen Corporation for a Geotextile Sand Filter.

Rebecca Fugitt informed TAC that the special device documents for a sand bioreactor and spray application are still being created.

Sewage Program Updates:

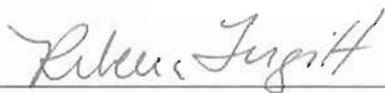
Rebecca Fugitt informed TAC that ODH staff has been working on the survey of local health districts for the second Study Commission Report.

Discussion was had by all about service contracts required in pretreatment unit approval. The committee expressed concern that homeowners may not renew service contracts as they expire. The committee also expressed concern that some local health districts may struggle to enforce the requirement for service contracts renewal.

The next TAC meeting is May 13, 2008 and will be held at ODNR, Building E, Assembly Center.

The meeting was adjourned.

Approved on 5-13-08 as signified by:

Rebecca Fugitt, TAC Chairperson

Mark Stump, Secretary

Sewage Treatment Systems Technical Advisory Committee

MEETING MINUTES

Date: Tuesday – May 13, 2008

Time: 10:00 AM to 2:30PM

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance (07 of 11) were present):

Installer/ Service Provider – Mark Fehring, Fehring Services

Public – Ernest Stickler, Environmental Engineering Service

OEPA DSW Engineer – Mark Stump

ODNR Soil Scientist – Tim Gerber

Manufacturer Representative - Dick Bachelder, PSA, Inc

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

Not Present:

AOHC Health Commissioner –Vacant

AOHC Health Commissioner –Raymond Saporito-Excused

Academic - Dr. Mark Tumeo, Cleveland State University-Excused

Manufacturer Representative –Scott Hetrick-Excused

Guests:

Charles Ray of Bord Na Mona; Trent Lydic of Jet Inc., Cary Feller of Stark Aeration, Brock Wanless of Ring Ind., Bennette Burks of 3-Engineering, LLC, Jeff Coomer of Consolidated Treatment Systems, Ron Suchecki and Brian McQuestion of Hoot Systems, Mike Corry from ISI and Bob Paulus from NSF International.

Other ODH participants: Nathan Johnson, Dusty Gurney and Gene Phillips

Agenda review: The agenda was modified to allow the introduction of Bob Paulus of NSF International and the Operation and Maintenance Monitoring program that NSF has set up.

Rebecca wanted to make sure the updated agenda reflected the discussion of the topic of local health departments requiring the use of trash traps on ATU units that were approved by the TAC and were tested by NSF International without the use of trash trap.

TAC membership changes: Rebecca announced that Scott Hetrick from Norweco had been appointed to represent manufacturers. Rebecca announced that Ohio Health Commissioner's Association will be providing a suggested appointment to the legislature.

Meeting Minutes: The TAC members reviewed and made slight changes to the April 8, 2008 meeting minutes. The minutes were modified to reflect that Ernest Stickler, Environmental Engineering Service works in the South-west area not South-east.

A motion was made by Tim Gerber and seconded by Dick Bachelder for approval of the April 8, 2008 meeting minutes as submitted and amended. TAC members present voted in favor of approving the minutes as submitted.

Amended Agenda

Rebecca talked about NSF coming to talk to the TAC committee in June on their Monitoring system and it could be one tool that could be used by the local health departments in the

Operation and Maintenance Programs. Bob Paulus from NSF gave a very brief overview of what will be presented at next months meeting.

Local Health District's requirements of the use of Trash Trap before TAC recommended and Ohio Department of Health Directors approved Aerobic Treatment Units (ATU's).

Rebecca gave a small history on what transpired since the April 8, 2008 TAC meeting. The TAC recommended approval of the Multi-Flo unit for one and two foot soil depth credits.

After the TAC meeting in April, Ray Saporito then sent a request to Martin Tremmel, Assistant Health Director at the Ohio Department of Health, that the Director approve the use of trash traps for some units. Mr. Saporito sent Mr. Tremmel information and research backing up his claims that trash traps are needed in front of ATU units that do not have a trash trap in the treatment train.

The Director's office wanted more information on this subject matter and felt that the TAC members should have been given this information prior to making their recommendations. He asked that this information be given to the TAC committee and to find out if they wanted to revisit that recommendation.

Copies were also provided of the response from Tom Bruursema of NSF International on this issue of what this does to the certification of the ATU's if tested, approved and certified by NSF without the trash trap.

A chart of all pretreatment units that were approved since January 2007 was handed out showing if there was a pretreatment unit within the treatment train or not.

TAC discussion followed with this additional information—

Dick Bacheider stated that the TAC committee needs to be very careful with the recommendation for approval of products. The committee's primary responsibility is to recommend approval or denial on products that are submitted and presented to them, and not to modify applications. Dick Bacheider inquired the opinion of ODH staff on this issue. Legal counsel for ODH concurs that ORC 3718.03 and 3718.04 provide sole authority for product review, recommendation and approval to the TAC and the Director, and that local health districts do not have authority to modify approved treatment configurations.

Dick Bacheider expressed concern that anyone alter in any way any application and approval of the TAC **recommendations** to the Ohio Director of Health. Dick also expressed that there should be further **technical** discussions on this issue when Ray Saporito could be present, but that policy discussion **should** be kept separate.

Discussion **was** held on various articles of information handed out. The discussions were between TAC members and the guests present at the meeting.

Dick Bacheider made the motion that the TAC re-affirms its previous approval of Consolidated Systems Multi-Flo as voted on at the April meeting, and Mark Fehring seconded the motion.

More discussion followed motion

Mark Stump asked if a designer can legally place a trash trap in front of the Multi-Flo unit if the TAC does not recommend this option for approval, and if the Director approves the unit as applied. If the designer or engineer placed one in front of unit then they accept the responsibility of that unit and possible problems that it may encounter.

Mark Fehring stated concern that the law restricts to only installing what is approved as tested. Mr. Fehring also stated that he knows that some local health districts restrict what products are used in some counties and that the customer is not given a choice and with off lot systems requiring both the telemetry and fail safe mechanisms.

Discussion was held on why people don't maintain service on their household sewage systems, and how to ensure that systems maintain their service. Other discussion occurred on how counties can ensure that service contracts are maintained and that people are renewing contracts.

Several guests stated that some states and counties placing restrictions on deeds that service contracts are mandated, and in some jurisdictions, local health districts have enforcement capability to require contracts. It was mentioned that some states/counties have the authority to impose a fee for system owners that do not maintain service contracts or repair systems.

Dick Bachelder stated he wanted to revisit this topic again next month under "old business" on the agenda.

Rebecca Fugitt mentioned there was a motion and second on the table. The motion made by Dick Bachelder was to re-affirm the previous approval of Consolidated Systems Multi-Flo as voted on at the April TAC meeting. Mark Fehring had seconded the motion.

Mark Stump was not permitted to vote pending his reappointment to the TAC by the governor's office. A roll call vote was made and the motion was approved.

Ralph Benson –Yes Ernie Stickler – Yes
Mark Fehring – Yes Dick Bachelder –Yes
Tim Gerber - Yes

Product Presentations

Hoot Systems:

Hoot Systems was asking for

- modification to their NPDES permit to discharge to waters of Lake Erie, with review of the E coli data presented.
- Fecal reduction below 200 colonies for restrictive spray application
- Modification to existing approved NPDES treatment train with a fail safe mechanism for use with or with out telemetry.

Ron Suchecki of Hoot Systems presented both the fecal coliform and E coli data of the 15 sample points. These samples were taken at the NSF Waco testing facility. The data showed a relationship between fecal and E. coli data. All fecal data and E. coli data presented in the geometric mean showed that it was all below 200 fecal and 126 E. coli thus able to meet the two parameters it was seeking. The system also had six months fecal data from previous approvals.

Mr. Suchecki also talked about his modification to the approved NPDES system with telemetry. He is seeking approval of using a failsafe mechanism with or with out the telemetry. Mr. Suchecki is finding some homes do not have land lines thus needing that fail safe mechanism, and that some regulatory agencies are requiring both telemetry and fail safe in the discharging systems. This failsafe was a resistor and could not be disabled, and it would not discharge if the dissolved oxygen or UV lamp had failed.

Discussion from the TAC members:

Dick Bachelder expressed concern about whether only the 15 test data points over 5 wks was enough?

Discussion followed that the results showed the expected variations and that Jet Inc had to show the same causal effect of fecal and e coli. All fecal data and e coli data presented in the geometric mean showed that it was all below 200 fecal and 126 e coli thus able to meet the two parameters it was seeking.

Mark Stump made a motion to approve Hoot application of NPDES discharge to discharge into the waters of Lake Erie, for meeting the 200 fecal standard in restrictive spray application and the modification to existing approval of the NPDES system with a fail safe mechanism with or without telemetry. The motion was seconded by Tim Gerber.

Mark Stump was not permitted to vote pending his reappointment to the TAC by the governor's office. A roll call vote was made and the motion was approved.

Ralph Benson –Yes Ernie Stickler – Yes
Mark Fehring – Yes Dick Bachelder –Yes
Tim Gerber - Yes

Consolidated, Inc.

Seeking approval for

- Multi-Flo FTB 0.5, 0.6, 0.75, 1.0, and 1.5 pretreatment components with Salcor 3GUV with re-aeration –NPDES discharge to waters of Lake Erie and waters other than Lake Erie (summary sheets of ammonia data and dissolved oxygen provided)
- Nayadic M-Series pretreatment components (M-6A, M-8A, M-1050A, M-1200A and M-2000A) for a one foot soil depth credit

Multi-Flo Unit

Bennette Burks presented an overview of the pretreatment component to the committee. Mr. Burks presented the TAC committee with a science lesson on why NSF has a delay start on the testing of units to get bacteria to build up. For bacteria that works with carbon it takes 20 minutes to produce large quantities of bacteria, but for nitrogen it takes bacteria 1-2 days to generate sufficient bacteria to start the treatment process.

It was discussed that temperature and bacteria growth is relational, and that nitrogen data (ammonia) is more sensitive to winter temperatures. Ammonia data from Florida from the week of April 30th was supplied to the committee. This consisted of 15 data points.

Dissolved oxygen (DO) and the testing done by Novatek data showed data points mostly above 6 ppm but some points were below the required 6.0 mg/l as required on the EPA general permit. Ohio EPA general permit states it must never fall below 6.0 mg/l. Mr. Burks stated that Novatek may have sampled for DO at different points in the re-aeration basin and that would give you a few points below the required 6.0 mg/l limit.

Discussion from the TAC members:

Dick Bachelder stated he felt there was plenty of data present while an email from Dr. Mark Turneo stated he would be uncomfortable with only 15 data points.

Mark Fehring stated that with all the sampling of the Multi-Flo units that he does in the southwestern area of Ohio, the DO has always been above the 6.0 mg/l limit.

Mark Stump still had some concerns that ammonia data may be exceeded on some days.

Dick Bachelder made a motion to recommend approval of Multi-Flo FTB 0.5, 0.6, 0.75, 1.0, and 1.5 pretreatment components with Salcor 3GUV with re-aeration for NPDES discharge to waters of Lake Erie and waters other than Lake Erie. Mark Fehring seconded the motion.

Mark Stump was not permitted to vote pending his reappointment to the TAC by the governor's office. A roll call vote was made and the motion was approved.

Ralph Benson –No Ernie Stickler – No
Mark Fehring – Yes Dick Bachelder –Yes
Tim Gerber - Yes

Nayadic Unit

Bennette Burks informed the TAC committee on the treatment process of the Nayadic unit and its history. The Nayadic unit had been previously approved by ODH for BOD/TSS standard 40 in February 2007.

The data presented to the TAC for the approval of one foot credit (>10,000 fecal) and two foot credit (>1,000 fecal) came from 3 random units in Ohio and tested for 10 days for a total of 30 sample points and it was noted that one system was being homeowner abused. The three random units all had sampling ports for the UV units and re-aeration basins.

Discussion from the TAC members

The TAC committee questioned Bennette Burks on the chain of custody and sampling protocol. Mr. Burks stated that was in the submitted information.

TAC had questions if the 3 random units were of the same size and had the same flow rates. Carey Feiler stated that the 3 units were all rated for 3 bedroom homes but could not answer the flow rate portion.

Much discussion was held on the lack of data presented to the committee.

Mr. Burks discussed the approval of the Multi-Flo and Salcor UV and asked if conditional approval could be given to Nayadic since the units are producing the same effluent.

Mark Stump stated the TAC does not just approve components but approves treatment trains and data is reviewed for each specific treatment train. Each applicant has had to supply the data for their application submission. The data must show operating condition with different flow rates and temperatures over time. The units selected should show varying situations.

Ernie Stickler was concerned with using the same sized UV with the bigger units in the application. It was discussed that the company would address that issue in the design manual on how larger flows would be handled by the same sized UV light.

TAC did not take action on this application and informed Consolidated that more data points were needed with a summary sheet.

Discussion of Alternative Trench Special Device:

With Mark Tumeo on vacation, the alternative trench paper was emailed out to all the members and Dick Bachelder stated that he will be putting together a conference call on this project.

Pending Applications:

Rebecca Fugitt informed the TAC that Aerobitech has submitted a draft application that is under review.

Rebecca Fugitt informed the TAC that Elgin In-Drain has submitted a draft application that is under review.

Rebecca Fugitt informed TAC that the special device document for a sand bioreactor is still being researched and drafted.

Sewage Program Updates:

Rebecca Fugitt informed TAC about the voluntary certification information developed with the cooperation of the Ohio Precast Concrete Association to assist tank manufacturers with the dissemination of voluntary tank tightness and structural soundness testing data. The OPCA voluntary certification will be emailed to the committee.

Rebecca Fugitt informed the TAC about yet another Presby experimental concurrence submitted to the Ohio Department of Health by Putnam County and possibly Clermont County. The TAC would like to know if there is a limit to the amount of systems allowed under this experimental concurrence.

Rebecca Fugitt discussed taking two companies to the Attorney Generals office to issue letters to cease and desist on selling their aeration motor as replacement motors. NSF approval states motors must be replaced with the manufacturer's original equipment.

Rebecca Fugitt discussed that many local health districts wanted some inspection forms for the one year mandatory inspections. Examples of those forms will be posted on the website.

The next TAC meeting is June 10, 2008 and will be held at ODNR, Building E Assembly Center.

The meeting was adjourned.

Approved on 6-10-08 as signified by:



Rebecca Fugitt, TAC Chairperson



Mark Stump, Secretary

Sewage Treatment Systems Technical Advisory Committee
MEETING MINUTES

Date: Tuesday, June 10, 2008

Time: 10:00 AM – 2:10 PM

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance (10 of 11 present):

AOHC Health Commissioner – Raymond Saporito

AOHC Health Commissioner – Charles Patterson

Installer/ Service Provider – Mark Fehring, Fehring Services

Public – Ernest Stickler, Environmental Engineering Service

OEPA DSW Engineer – Mark Stump

ODNR Soil Scientist – Tim Gerber

Manufacturer Representative – Scott Hetrick, Norweco, Inc.

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

Academic - Dr. Mark Tumeo, Cleveland State University

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

Not present:

Manufacturer Representative – Dick Bacheider, PSA, Inc.

Guests:

Jeff Luthman with Consolidated Treatment Systems, Trent Lydic with Jet, Inc., Charles Ray with Bord Na Mona, Zak Sherman with Infiltrator Systems and Dick Noland interested public.

Other ODH participants: Nathan Johnson and Amy Wood

TAC membership changes:

Rebecca Fugitt announced re-appointment of Mark Stump and new appointee, Scot Hetrick with Norweco, Inc. Also introduced was the yet to be official member Charles Patterson.

Agenda Review:

No modifications to the agenda

Meeting Minutes:

Tim Gerber made motion to correct May minutes. The TAC reviewed minutes and suggested corrections. Dr. Mark Tumeo made motion to approve minutes as amended; Ernest Stickler seconded the motion.

Product Presentations:

Presentation by Bob Paulus with NSF International. "Onsite Monitoring Program"

This product was presented as a solution to help local health departments monitor the operation and management of sewage treatment systems. No product approval was requested; the presentation was for informational purposes.

Discussion followed regarding this system competing with other companies having like monitoring systems. Rebecca Fugitt clarified that this presentation was informational and did not require any action for TAC. Scott Hetrick stated that regulators have the same ability to look at their database and check on system status. Discussion of failsafe mechanisms also followed.

Discussion of trash trap issue in regard to pretreatment components :

The TAC was updated as to where this issue currently stands. Rebecca Fugitt informed that the Director of Health issued approval of the Multi-Flo unit without a trash trap based on NSF granting approval without it. ODH legal council said that local health departments do not have jurisdiction to require trash traps. The TAC questioned considering recommending something additional than the manufacturer asked for or tested for. Discussion followed regarding local health departments' viewpoint from the field versus TAC and ODH viewpoint and the legal viewpoint versus technical viewpoints. Dr. Mark Tumeo stated that it is not fair to tie requirement to one applicant. The question of how TAC would require extra layers of protection on systems and the legal boundaries of that was raised. Ralph Benson mentioned what the state of Washington holds a conference of service providers and that there has to be a mechanism for feedback. Charles Ray of Bord Na Mona asked how centralized sewer gained so much power over the public versus de-centralized. Discussion of managing decentralized systems and options available arose. Ray Saporito explained the difficulty on the local level to enforce repairs of failing systems also lack of facilities to accept septage (increased amount of septage from mandatory/increased O&M). Rebecca Fugitt concluded that operations will continue forward the way they are during this interim period.

Discussion of Sand Filter Special Device:

Dr. Mark Tumeo questioned why the special device specified orifice flow rate and sand loading rate. He didn't think that the orifice flow rate is necessary; specify distal area per orifice instead of flow rate. Ernest Stickler asked about the fineness of the sand. Nathan explained that it was due to using more readily accessible sand. Ralph Benson said with proper design, a biomat will not form. He said that loading a specific amount per orifice per dose would be good design. Dr. Tumeo said that it should be one or the other, not both. He also suggested leaving the venting method up to the designer. Ralph Benson stated that leaving that open could cause problems.

Rebecca Fugitt brought up the discussion of pressure dosing versus gravity and what credits would be attributed to each method (based on available research).

The proposed sand filter special device presented would be the top of the line. Also mentioned was the challenge of good gravity dosing: tipping buckets, siphons, etc.

Ralph Benson explained the types of sand filters used in Clermont Co. Discussion of design and experience of sand filters in field and existing design manuals in Clermont and Hamilton Co. followed.

Nathan Johnson brought up the question of having different sand specifications for buried versus surface sand filters. Ralph Benson stated that coarser sand would need load adjustments to achieve thin film flow. Discussion of finer sands and coarser sands and safety factors followed. The question of natural versus manufactured sand was proposed with no final decision.

Further discussion of venting buried surface sand filters, and gravity and dosed sand filters followed. Dr. Tumeo suggested a special device approval with more control initially- in regard to not allowing gravity dosing. Scot Hetrick asked why this is a special device approval. Rebecca Fugitt said that it was to provide homeowners with more options. Dr. Tumeo mentioned that a main driver is that there are many in existence in Ohio. Ray Saporito asked what would follow a sand filter and the answer was that a leach field would follow. Nathan Johnson said that it would be considered a pretreatment component.

Discussion of Alternative Trench Special Device Approval:

Dr. Mark Tumeo introduced and explained his paper Draft – Baseline Concepts Paper Adsorption Bed Design for Onsite WWTS

Basis of paper: gravelless companies feel that they should have an adjusted loading rate due to absence of clogging fines from gravel.

The Alternative Trench Design Committee did not meet before today's meeting as proposed. The committee's goal is to agree on some design parameters. Dr. Tumeo discussed newer research on clogging and waste strength.

Sewage Treatment System Study Commission Report 2:

Rebecca Fugitt introduced the report, basis for it and the findings. Discussion of report results followed. The report is posted on the STS website main page and Current Events page. The discharge and surfacing of sewage were the leading manifestations of failure.

Pending TAC Applications:

Eljin
Hydroaction
Aerobotech

Sewage Program Updates:

The Larry Brown OSU Curtain Drain Study Report will be posted on the Current Events page of the Sewage Treatment Systems website.

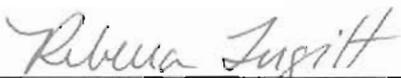
No legal Presby Enviro-Septic systems installed yet under experimental concurrence in Ohio.

The next STS Study Commission Meeting will be July 9, 2008.

The next TAC meeting is July 8, 2008.

The meeting was adjourned at 2:10 PM.

Approved on 7-8-08 as signified by:



Rebecca Fugitt, TAC Chairperson



Mark Stump, Secretary

Sewage Treatment Systems Technical Advisory Committee

MEETING MINUTES

Date: Tuesday – July 8, 2008

Time: 10:00 AM to 1:30PM

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance [07 of 11] were present):

Installer/ Service Provider – Mark Fehring, Fehring Services

Public – Ernest Stickler, Environmental Engineering Service

OEPA DSW Engineer – Mark Stump

ODNR Soil Scientist – Tim Gerber

Manufacturer Representative - Scott Hetrick, Norweco Inc.

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

AOHC Health Commissioner – Charles Patterson, Clark County Combined Health District

AOHC Health Commissioner –Raymond Saporito, Ashtabula County Health Department

Academic - Dr. Mark Tumeo PhD, Cleveland State University

Not Present:

Manufacturer Representative — Dick Bachelder, PSA, Inc. Excused

Guests:

Charles Ray of Bord Na Mona; Trent Lydic of Jet Inc., Brock Wanless, Ross Pattison, Ben Berteau of Ring Industrial Group, Zak Sherman, Mark Hooks, and Earl Thompson with Infiltrator Systems, Brian McQuestin of Hoot Systems

Other ODH participants: Nathan Johnson and Amy Wood

Welcome and Agenda review:

Introductions were made by all in attendance. Amy Wood announced that Dick Bachelder would not be in attendance. The agenda was reviewed and approved as submitted.

TAC membership changes:

Rebecca Fugitt announced that Charles Patterson of the Clark County Combined Health District had been appointed to represent the Ohio Health Commissioner's Association

Meeting Minutes:

The TAC members reviewed and made slight changes to the June 10, 2008 meeting minutes.

A motion was made by Mark Tumeo and seconded by Ralph Benson for approval of the June 10, 2008 meeting minutes as submitted and amended. TAC members present voted in favor of the motion.

Risk Assessment as it Relates to Vertical Separation in Onsite Wastewater Treatment

Dr. Mark Tumeo PhD, Cleveland State University

Dr. Tumeo presented information regarding a risk assessment model he has been preparing to estimate pathogen and/or nutrient concentrations at variable depths below the infiltrative surface of soil absorption units. Dr. Tumeo requested additional, relevant data from all in attendance.

Discussion of the model, including viral vs bacterial indicators and similar previous studies followed.

Timed Dosed Sand Filter Special Device Approval Nathan Johnson, ODH

Nathan Johnson presented a revised version of the special device approval. The committee recommended several changes to the document including specifications for the required effluent filter, specifications for the controls, and a change in the sand specifications.

Rebecca announced that the gravity fed sand filter special device approval will be completed and sent to members for review prior to the August 12 meeting.

Discussion of Alternative Trench Special Device Approval

The committee discussed the results of the June 26 conference call held by the TAC subcommittee on this subject.

Dr. Mark Tumeo provided a draft survey for all in attendance. The survey will be distributed to manufacturers of alternative distribution products and will be used to collect information concerning how the manufactures feel soil absorption units utilizing their product should be sized based on soil type and system flow rate.

Dr. Mark Tumeo announced that he will compile a list resources related to this subject. The list will be circulated to subcommittee members to allow for additional contribution. The reference list will be used to promote common comprehension of the available data and its sources, but no attempt will be made to rate individual studies based on validity.

Pending Applications:

Rebecca Fugitt informed the TAC that Jet, Inc. has submitted data concerning a request to modify previous approvals for discharge to the waters of the state and to the waters of Lake Erie. The submittal will be circulated after review for completion.

Future meetings:

Committee members discussed canceling the August 12 meeting.

A motion to approve the Timed Dosed Special Device Approval based on TAC review of the recommended revisions was made by Mark Stump. The motion was seconded by Ernie Stickler. TAC members present voted in favor of the motion.

Upon further discussion, committee members decided to hold the meeting on August 12 anticipating the completion and circulation of Jet Inc.'s submittal.

Tim Gerber noted that the committee had not changed the date for the November meeting. The scheduled date conflicts with a holiday. All committee members in attendance agreed to change the meeting date to Tuesday, November 18, 2008.

Sewage Program Updates:

Rebecca Fugitt informed TAC that the Curtain Drain Study done by Dr. Larry Brown of the Ohio State University is posted on the programs website. Rebecca explained the purpose of the study and the states use of the results.

Rebecca Fugitt announced that the Sewage Study Commission will meet on July 9. Discussion on the agenda and possible legislation language that will be circulated during the meeting followed.

Rebecca Fugitt reminded TAC members that Ben Berteau of Ring Industrial Group is developing a special device approval for low pressure pipe. Ben Berteau stated that he would contact other interested parties and may provide language outlining the concept of the document for review prior to the August 12, 2008 meeting.

The next TAC meeting is August 12, 2008 and will be held at ODNR, Building I Assembly Center.

The meeting was adjourned.

Approved on 8-12-08 as signified by:



Rebecca Fugitt, TAC Chairperson



Mark Stump, Secretary

Sewage Treatment Systems Technical Advisory Committee

MEETING MINUTES

Date: Tuesday – August 12, 2008

Time: 10:00 AM to 1:30PM

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance (10 of 11) were present):

Installer/ Service Provider – Mark Fehring, Fehring Services

OEPA DSW Engineer – Mark Stump

ODNR Soil Scientist – Tim Gerber

Manufacturer Representative - Scott Hetrick, Norweco Inc.

Manufacturer Representative – Dick Bachelder, PSA, Inc.

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

AOHC Health Commissioner – Charles Patterson, Clark County Combined Health District

AOHC Health Commissioner –Raymond Saporito, Ashtabula County Health Department

Academic - Dr. Mark Tumeo PhD, Cleveland State University

Ohio Department of Health (ODH) Director Representative & TAC Chair – Rebecca Fugitt

Not Present:

Public – Ernest Stickler, Environmental Engineering Service Excused

Guests:

Charles Ray of Bord Na Mona; Trent Lydic of Jet Inc., Brock Wanless, Ross Pattison, and Ben Berteau of Ring Industrial Group, Zak Sherman with Infiltrator Systems, and Dick Noland

Other ODH participant: Nathan Johnson

Welcome and Agenda review:

Introductions were made by all in attendance. Rebecca Fugitt announced that Ernie Stickler would not be in attendance. The agenda was reviewed and approved as submitted.

Meeting Minutes:

The TAC members reviewed and made no changes to the July 8, 2008 meeting minutes.

A motion was made by Dick Bachelder and seconded by Tim Gerber for approval of the July 8, 2008 meeting minutes as submitted. TAC members present voted in favor of the motion.

Request for modification of Jet, Inc. NPDES system design Trent Lydic, Jet. Inc.

Trent Lydic presented two proposed changes to the Jet, Inc. treatment train that was previously approved for NPDES discharge to the waters of the state except Lake Erie and to the waters of the state including Lake Erie:

- 1) Mr. Lydic proposed a modification of the re-aeration basin. The current approval is for a twenty four inch plastic basin. The proposed change is to utilize a basin that is constructed of concrete in the lower half and plastic in the upper half. The proposed basin retains an equal volume of effluent for re-aeration and disinfection as the previously approved basin.
- 2) Mr. Lydic proposed to change the existing compressor and air-stone to a more robust design including a larger compressor and Jet air-seal diffuser.

Mr. Lydic presented dissolved oxygen data to support his statements that the proposed changes would not affect the treatment trains ability to meet the dissolved oxygen standards set in the OEPA General Permits OHK000001 and OHL000001.

A short discussion of the changes ensued.

A motion was made by Dr. Mark Tumeo and seconded by Ralph Benson to recommend approval of the proposed changes to the Director of Health. TAC members present voted in favor of the motion except for Mr. Bachelder who abstained.

Mr. Lydic stated that he would submit a PDF of the modified treatment train to ODH staff for posting on the ODH website.

Discussion of Alternative Trench Special Device Approval

Dr. Tumeo suggested the committee discuss the progress of the alternative trench special device approval while the media devices were being prepared for Ben Berteau's presentation.

Hearing no objections, Dr. Tumeo stated that he has begun compiling the list resources related to this subject as discussed at previous committee meetings. Dr. Tumeo stated that several companies that had been sent copies of the committee's survey had not yet responded. Mr. Bachelder stated that several companies had begun discussion amongst themselves on the matter in response to the distributed survey. Mr. Bachelder stated that these companies would like to reach a consensus before submitting surveys to the committee. Mr. Bachelder stated that the creation of the special device approval should be industry driven. Dr. Tumeo stated that he was pleased that the survey had initiated industry discussion.

Low Pressure Pipe Systems Special Device Approval Ben Berteau, Ring Industrial

Mr. Berteau presented the concept of low pressure pipe, the benefits of pressure distribution, and reviewed the design and maintenance requirements of the technology.

Mr. Berteau suggested that the technology should be provided a soil absorption sizing reduction using loading rates designated on the Tyler Table for dispersal of effluent with less than 30 mg/L TSS and BOD₅. Mr. Berteau also suggested that the technology should be provided a soil depth credit for a reduction in the required vertical separation distance above a limiting condition. Mr. Berteau suggested that low pressure pipe systems be installed in a fines free environment.

The committee discussed the advantages of the technology including uniform distribution, resting cycles, and shallow placement of the distribution material. The committee also discussed problems with field drilled orifices. TAC members requested literature containing the documented benefits of the technology.

Dr. Tumeo suggested that all future special device approval requests include a glossary of terms to limit confusion of terms between technologies.

Sand Filter Special Device Approval Nathan Johnson, ODH

Nathan Johnson presented a concept for the second sand filter special device approval and requested the committees input on methods of effluent distribution to the top of the sand filter.

Discussion ensued. The committee requested that the future sand filter special device approval be presented with a chart highlighting the design differences between it and the timed dosed sand filter special device. The committee recommended that a subcommittee be created to research possible distribution methods and decide what should be included in the special device approval. It was recommended that Raymond Saporito lead the subcommittee. Mr. Saporito accepted the position.

Pending Applications and Future Meetings

Rebecca Fugitt informed the TAC that there are currently no applications being reviewed for completeness by ODH for the September TAC meeting.

Committee members discussed canceling the September 9, 2008 meeting if no applications are received.

Sewage Program Updates:

Rebecca Fugitt informed TAC that the OEPA has proposed a rule change that would effect the pathogen contact standards and possibly future NPDES General Permits. The suggested change would create E. coli standards in place of the existing fecal coliform standards. Mark Stump stated that it has been known for some time that E. coli is a better indicator of risk associated with disease caused by pathogen contact.

Discussion ensued concerning the approval of systems and components meeting the standards set in the OEPA's general permits. It was agreed that no change should be made to the process of approving systems and components for discharge meeting the standards set in the general permits until the proposed changes are actually made to the permits. The committee discussed the need for informing industry of the possible changes. Dr. Tumeo stated that he did not believe that it was the responsibility of TAC or ODH to inform industry of the changes since the changes have not been made and are not proposed by the committee or the department. Mr. Stump stated that the advantages of E. coli standards are well known and that industry should already be aware of regulatory agencies utilizing E. coli standards.

Rebecca Fugitt announced that comments on the proposed legislation presented at the Study Commission meeting on July 9, 2008 have been received. Mrs. Fugitt stated that she has been informed that the proposed legislation will be revised by the coalition of interested parties. The revised, proposed legislation will be circulated next month and another Study Commission meeting will be scheduled to discuss the revisions.

The next TAC meeting is September 9, 2008 and will be held at ODNR, Building E.

The meeting was adjourned.

Approved on _____ as signified by:

Rebecca Fugitt, TAC Chairperson

Mark Stump, Secretary

Sewage Treatment Systems Technical Advisory Committee

MEETING MINUTES

Date: Tuesday – October 14, 2008

Time: 10:00 AM to 2:00PM

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance (10 of 11) were present):

Installer/ Service Provider – Mark Fehring, Fehring Services

Public – Ernest Stickler, Environmental Engineering Service

OEPA DSW Engineer – Mark Stump

ODNR Soil Scientist – Tim Gerber

Manufacturer Representative - Scott Hetrick, Norweco Inc.

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

AOHC Health Commissioner – Charles Patterson, Clark County Combined Health District

AOHC Health Commissioner –Raymond Saporito, Ashtabula County Health Department

Manufacturer Representative – Dick Bachelder, PSA, Inc

Not Present:

Academic - Dr. Mark Tumeo PhD, Cleveland State University Excused

Guests:

Cary Feller, Bennette Burks (3-Engineering) and Chris Shraft (Porter, Wright) of Consolidated Treatment Systems, Chris Mandich of Jet Inc., Brock Wanless and Ross Pattison of Ring Industrial Group, Zak Sherman with Infiltrator Systems, Richard Petrone and Jim Petrone with Aerobitech, Kelly Haddox with the Attorney Generals Office, Gene Phillips and Lance Himes with the Ohio Department of Health

Other ODH participant: Nathan Johnson

Welcome and Agenda review:

Introductions were made by all in attendance. Rebecca Fugitt announced that Mark Tumeo would not be in attendance. Rebecca Fugitt announced that Norweco, Inc. had withdrawn their request to be included on the agenda.

Meeting Minutes:

The TAC members reviewed the August 12, 2008 meeting minutes.

A motion was made by Raymond Saporito and seconded by Mark Fehring for approval of the August 12, 2008 meeting minutes as submitted. TAC members present voted in favor of the motion.

Aerobitech

Richard and Jim Petrone

Richard Petrone presented information about the company's prototype aerobic digester including drawings of the unit and some testing data. Richard Petrone announced that the company is seeking a conditional approval for the installation of 100 units in the state of Ohio meeting the standards set by TAC and ODH for soil absorption unit sizing reduction, one foot soil depth credit,

two foot soil depth credit, NPDES discharge to the waters of the state other than Lake Erie, and NPDES discharge to the waters of the state including Lake Erie.

Scott Hetrick expressed concerns with the approval, citing the lack of third party testing and the lack of testing data in general.

Ray Saporito agreed with Mr. Hetrick's concerns and inquired about high level of technology needed to operate the unit. Mr. Petrone stated that the company intended to require service contracts on the units and would require the service provider to remove the control panel from the system if the homeowner did not continue to secure the service contract. Discussion was had by all concerning the operation and maintenance requirements of the unit.

Rebecca Fugitt pointed out that there was not ammonia data in the company's submittal. Ernie Stickler pointed out that the submitted dissolved oxygen data did not meet the standards set in the Ohio EPA's General NPDES Permit.

Charles Patterson made a motion to deny the application as presented, but recommend that Aerobitech continue to work with the TAC to collect data and further develop the application. Ralph Benson seconded the motion. TAC members present voted unanimously in favor of the motion.

Multiflo NPDES discharge to the waters of the state not including and including Lake Erie Consolidated Treatment Systems
Bennette Burks, 3-Engineering

Bennette Burks presented data collected by Novatec, a NSF testing agency, to compliment their earlier request for approval.

Dick Bacheider made a motion to recommend approval of the Multiflo unit to the Director for meeting the standards set by TAC and ODH for NPDES discharge to the waters of the state other than Lake Erie and for NPDES discharge to the waters of the state including Lake Erie. Scott Hetrick seconded the motion. TAC members present voted unanimously in favor of the motion.

Sand Filter Special Device Approval Subcommittee Update

Nathan Johnson, ODH
Ray Saporito, Ashtabula County Health Department

Nathan Johnson provided an update on the subcommittee's actions. The subcommittee has met five times via conference calls and has had discussions concerning the appropriate way to load the sand filters. The subcommittee plans to submit a sand filter special device approval document outlining a sand filter that would be dosed differently than the previously approved sand filter. The subcommittee hopes the document will be available for review and recommendation at the November 18 meeting. There has also been discussion concerning the group pursuing experimental concurrence for use of a sand filter and a horizontal sand filter in series.

Ray Saporito pointed out that Ohio has the largest Amish population in the nation and that non-electric pretreatment options are needed.

Dick Bacheider reviewed the opportunities for system and component approval in Ohio. Systems and components may be used in Ohio through the processes outlined in the Ohio Revised Code 3701.04, or through a special device approval or through experimental concurrence as outlined in the Ohio Administrative Code 3701-29-20.

Non Gravel Trench Special Device Approval Subcommittee Update

Dick Bachelder, ADS

Rebecca Fugitt announced that Mark Tumeo had planned to join the Committee via telephone for the issue but was unavailable.

Dick Bachelder announced that Ring Industries, ADS, and Infiltrator had worked together to submit a single survey for the subcommittee. Mr. Bachelder stated that he and Dr. Tumeo would put together a conference call to review the survey and define issues for discussion. The subcommittee hopes to have a document with language for the November or December meeting.

Pending Applications:

Rebecca Fugitt informed the TAC that Clearstream Wastewater Systems Inc., Quanics Engineering Water Solutions, and NE Hydroaction have submitted applications or have been in contact with program staff concerning future applications.

Sewage Program Updates:

Web Updates:

Rebecca Fugitt announced that staff is reorganizing the Approved Systems and Components web page. The page is being reorganized to include the OPCA Voluntary Compliance Program for Precast Concrete Septic Tanks submittals and to provide clarity concerning the approvals already included on the page.

Experimental Concurrence Requests:

Rebecca Fugitt informed TAC that the Paulding County Health District has requested experimental concurrence for 50 additional Enviro-Septic systems. Mrs. Fugitt announced that ODH has approved 25 systems for 5 different health districts. ODH is evaluating the request from Paulding County Health District.

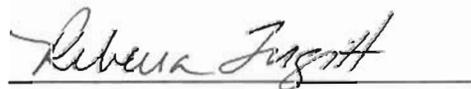
Study Commission Meeting:

Rebecca Fugitt announced that the Sewage Study Commission will meet on October 15. Draft legislative language was circulated via e-mail by the coalition of interested parties on October 13. The Study Commission is continuing to work through items of consensus and non-consensus to develop final recommendations that may be introduced as legislation later this year or early in 2009.

The next TAC meeting is November 18, 2008 and will be held at ODNR, Building E Assembly Center.

The meeting was adjourned

Approved on 11-18-08 as signified by:



Rebecca Fugitt, TAC Chairperson



Mark Stump, Secretary

Sewage Treatment Systems Technical Advisory Committee

MEETING MINUTES

Date: Tuesday – November 18, 2008

Time: 10:00 AM to 2:00PM

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance (10 of 11) were present):

Installer/ Service Provider – Mark Fehring, Fehring Services

Public – Ernest Stickler, Environmental Engineering Service

OEPA DSW Engineer – Mark Stump

ODNR Soil Scientist – Tim Gerber

Manufacturer Representative - Scott Hetrick, Norweco Inc.

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

AOHC Health Commissioner – Charles Patterson, Clark County Combined Health District

AOHC Health Commissioner –Raymond Saporito, Ashtabula County Health Department

Manufacturer Representative – Dick Bachelder, PSA, Inc.

Academic - Dr. Mark Tumeo PhD, Cleveland State University

Not Present:

AOHC Health Commissioner – Charles Patterson, Clark County Combined Health District
Excused

Guests:

Chris Mandich of Jet Inc., Ross Pattison of Ring Industrial Group, Zak Sherman with Infiltrator Systems, Gary Annick, Stacy Roby, Michael Wall, Dakota Roby, and Anthony Datillo of North East Hydro-Action, Mike Felton of Streamkey

Other ODH participants: Nathan Johnson and Amy Wood

Welcome and Agenda review:

Introductions were made by all in attendance. Rebecca Fugitt reviewed the meeting agenda. There were no requests for modification to the agenda.

Meeting Minutes:

The TAC members reviewed the October 14, 2008 meeting minutes.

A motion was made by Mark Tumeo and seconded by Mark Stump for approval of the October 14, 2008 meeting minutes as submitted. TAC members present voted in favor of the motion.

Northeast Hydro-Action Continuous Flush Drip Dispersal System Variance Request

Mike Wall, NE Hydro-Action

Mr. Wall requested a variance from the BOD₅/TSS requirements in the Continuous Flush Drip Dispersal Special Device Approval. Committee members and guests gathered around a display provided by Northeast Hydro-Action. The demonstration included two zones of drip dispersal tubing connected by rigid piping to a pump and filter. A plastic, fifty-five gallon drum was used to store water for the demonstration. While operating both zones of drip dispersal tubing, Mr. Wall explained how continuous flush drip dispersal systems operated.

Committee members explained to Mr. Wall that a special subcommittee had been created to discuss the all issues while drafting the continuous flush drip distribution special device approval and that the BOD₅/TSS standards were discussed at length. The current BOD₅/TSS standards were created based on numerous subcommittee discussions and review of five significant papers referenced in the special device approval. Committee members pointed out that the Northeast Hydro-Action continuous flush drip distribution system presented did not significantly differ from those considered and represented during the subcommittee meetings. Committee members explained that although they were unable to grant a variance from the BOD₅/TSS requirements for the Northeast Hydro-Action system, they will consider changing the BOD₅/TSS requirements in the special device approval as significant scientific research is completed and published.

Non Gravel Trench Special Device Approval Subcommittee Update

Dick Bachelder, ADS

Mark Tumeo, Cleveland State University

Dick Bachelder stated that the group of manufacturers had submitted a list of references supporting the statements made in their combined survey submittal to the subcommittee.

Dr. Tumeo stated that he had begun adding references to the list and has completed a draft of the special device approval. He will begin a review of the document based on the referenced research.

The draft will be available to subcommittee members, for review, at a future date

Low Pressure Distribution Sand Filter Special Device Approval Subcommittee Update

Ray Saporito, Ashtabula County Health Department

Mark Fehring, Fehring Services

Nathan Johnson, ODH

Nathan Johnson provided an update on the subcommittee's actions. The subcommittee has met via conference call and has created a draft special device approval. The subcommittee plans to create several models of different distribution systems to determine the control that can be obtained on the orifice application rate of siphon dosed low pressure distribution sand filters.

Mark Fehring announced that several distribution networks had been constructed at his place of business. Mark Fehring also stated that the subcommittee has discussed a mechanism to provide a degree of flow equalization throughout the day. Demonstrations will take place sometime during the first two weeks of December.

Rebecca Fugitt requested that all TAC members be invited to observe test the demonstrations.

Discussion on modification to the TAC standards and criteria including consideration of nutrient reduction standards:

The committee discussed whether there is a need to modify the Standards and Guidelines for ORC 3718.04 Review and the Application and Checklist for ORC 3718.04 Review. Dick Bachelder stated that ODH program staff should suggest modifications to the documents based on their experience working with manufacturers who have experienced difficulty with the process. It was also suggested that ODH program staff contact and get input from manufactures who have experience with the process. It was recognized that guidance concerning the amount and types of data that may be considered sufficient for submittal to TAC would be helpful. Mark Tumeo volunteered to draft guidance to be incorporated into the Standards and Guidelines.

The committee discussed whether there is a need to create standards against which data would be judged for submittals requesting approval as a pretreatment unit achieving a nutrient reduction

as defined in the Appendix to the Standards and Guidelines for ORC 3718.04 Review. Discussion ensued concerning the need to identify units that achieved a nutrient reduction. It was stated that certain soil, geologic, or geographic conditions may cause a need to reduce the nutrient load through the use of a pretreatment device before discharge to a soil absorption component. It was noted that there are no statewide applications for systems approved meeting the nutrient reduction and surface application designations. It was suggested that those designations be removed from the Appendix during the review. It was also suggested that, in the absence of a standard in the Appendix, TAC should not act on requests for approval as a system achieving a nutrient reduction. No action was taken.

The committee discussed the need for a defined statewide testing protocol for compliance, field testing in existing NPDES systems. The committee also discussed the need for all NPDES systems to be installed with an inspection port after the complete treatment train in order to capture a sample representative of the effluent quality discharged. No action was taken.

Discussion ensued concerning the need for manufacturers to submit requests to modify or change components of their treatment train. It was suggested that some components may be changed or modified through an administrative review by ODH but other modifications may need TAC review. No action was taken.

Pending Applications:

Rebecca Fugitt informed the TAC that Quanics Engineering Water Solutions, Hydro-Action Industries, and Ecological Tanks have submitted applications for ORC 3718.04 Review and are working with staff to complete the applications for review at the December TAC meeting.

Committee Member Change:

Rebecca Fugitt recognized that Tim Gerber was attending his last TAC meeting as a member of the committee. Tim Gerber is retiring from ODNR and will no longer be a committee member. Tim was thanked for his service on the committee.

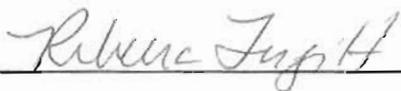
Sewage Program Updates:

Rebecca Fugitt announced that the Sewage Study Commission will meet on December 20, 2008 at the Riffe Center in Columbus. Rebecca Fugitt noted that draft legislation language had been circulated via e-mail to TAC members and reviewed the issues on which interested parties were able to reach consensus during meetings in the preceding months. Rebecca Fugitt also reviewed several outstanding issues on which the interested parties were unable to reach consensus.

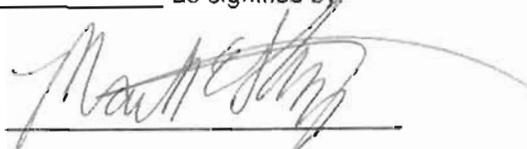
The next TAC meeting is December 9, 2008 and will be held at ODNR, Building I Assembly Center.

The meeting was adjourned.

Approved on 12-9-08 as signified by



Rebecca Fugitt, TAC Chairperson



Mark Stump, Secretary

Sewage Treatment Systems Technical Advisory Committee **MEETING MINUTES**

Date: Tuesday -- December 9, 2008

Time: 10:00 AM to 2:00PM

Location: Ohio Department of Natural Resources, 2045 Morse Road, Columbus

TAC Members in Attendance (9 of 10) were present):

Installer/ Service Provider – Mark Fehring, Fehring Services

Public – Ernest Stickler, Environmental Engineering Service

OEPA DSW Engineer – Mark Stump

Manufacturer Representative - Scott Hetrick, Norweco Inc.

ODH Director of Health Representative & TAC Chair – Rebecca Fugitt

OEHA Registered Sanitarian – Ralph Benson, Clermont County General Health District

AOHC Health Commissioner – Charles Patterson, Clark County Combined Health District

Manufacturer Representative — Dick Bachelder, PSA, Inc.

Academic - Dr. Mark Turneo PhD, Cleveland State University

Not Present:

AOHC Health Commissioner –Raymond Saporito, Ashtabula County Health Department

Excused

Guests:

Chris Mandich of Jet Inc., Ross Pattison of Ring Industrial Group, Zak Sherman with Infiltrator Systems, Rene Dye and James Dye of Wastewater Solutions, Inc., Berry Meadows of Superior Septic, LLC, Bob Fletcher of Norweco, Inc., Charles Ray of Bord NA Mona, Neil Martin of ODNR

Other ODH participants: Nathan Johnson

Welcome and Agenda review:

Introductions were made by all in attendance. Rebecca Fugitt reviewed the meeting agenda. There were no requests for modification to the agenda.

Meeting Minutes:

The TAC members reviewed the November 18, 2008 meeting minutes.

A motion was made by Ernie Stickler and seconded by Dick Bachelder for approval of the November 18, 2008 meeting minutes as submitted. TAC members present voted in favor of the motion.

Discussion of Vacant Committee Seat

Rebecca Fugitt announced that Neil Martin had been selected to fill the vacancy created by the retirement of ODNR Soil Scientist Tim Gerber. Neil Martin was present at the meeting, but was unable to vote because the governor's appointment was not complete at the time of the meeting.

Norweco, Inc. Request to modify their previous approval for NPDES discharge

Bob Fletcher, Norweco, Inc.

Mr. Fletcher provided a short explanation of the request. Norweco, Inc. requests modification of the previous approval for NPDES discharge to include an option to use either a polyethylene or precast concrete re-aeration basin in the approved NPDES treatment train.

Dr. Mark Tumeo moved to recommend approval of Norweco, Inc. request to modify the re-aeration basin's material specifications to include both polyethylene and precast concrete based on the submittal of a revised drawing that is to include a sampling port subsequent to the Salcor UV disinfection component. Charles Patterson seconded the motion. TAC members present voted in favor of the motion with Scott Hetrick abstaining.

Ecological Tanks Request for Approval of the Aqua Safe Aeration Treatment Unit Models: AS-500, AS-600, AS-750, AS1000, and AS-1500 with a pretreatment component and The Disinfectant UV disinfection for fecal coliform standards <1000 and <200 and a Nutrient Reduction

Calvin Locker, Ecological Tanks

Mr. Locker provided the committee with a brief description of the Aqua Safe models, previous Ohio approvals, and the current request for approval.

Discussion ensued concerning the scaling of the models and the pretreatment tank sizing based on the models scaling.

Dick Bachelder moved to recommend approval of Ecological Tanks Aqua-Safe Models: AS-500, AS-600, AS-750, AS1000, and AS-1500 with a pretreatment component and The Disinfectant UV disinfection for fecal coliform standards <1000 and <200 subject to submittal of a NSF cover letter permitting the scaling of the product and defining the pretreatment tank sizing for each model. The motion was seconded by Dr. Mark Tumeo. TAC members present voted in favor of the motion.

Ecological Tanks Request for Approval of the Aqua Aire Aeration Treatment Unit Models: AA-500, AA-600, AA-750, AA1000, and AA-1500 with a pretreatment component and The Disinfectant UV disinfection for fecal coliform standards <1000 and <200, a Nutrient Reduction, and NPDES discharge to the waters of the state not including Lake Erie.

Calvin Locker, Ecological Tanks

Mr. Locker provided the committee with a brief description of the Aqua Aire models, previous Ohio approvals, and the current request for approval.

Discussion ensued concerning the scaling of the models and the pretreatment tank sizing based on the models scaling.

Mark Tumeo moved to recommend approval of Ecological Tanks Aqua-Aire Models: AA-500, AA-600, AA-750, AA-1000, and AA-1500 with a pretreatment component and The Disinfectant UV disinfection for fecal coliform standards <1000 and <200 subject to submittal of a NSF cover letter permitting the scaling of the product and defining the pretreatment tank sizing for each model. The motion was seconded by Charles Patterson. TAC members present voted in favor of the motion.

Discussion continued concerning the variety of treatment trains used to compile the data needed for approval for NPDES discharge. The submittal included data from the testing of three different treatment trains. Further discussion concerning the possible effects of a pretreatment chamber on the nitrogen content and dissolved oxygen levels of the effluent. Committee members also discussed the submitted ammonia data. When considering the average and standard deviation of the ammonia data, it did not appear to meet standards outlined in the OEPA NPDES Permit.

Calvin Locker withdrew his request for approval for NPDES discharge to the waters of the state not including Lake Erie.

Quanics Request for approval of the Aerocell Self Contained Advanced Treatment System Models: ATS-SCAT-3-AC-200, ATS-SCAT-4-AC-400, ATS-SCAT-6-AC-650, ATS-SCAT-8-AC-1000, ATS-SCAT-16-AC-5000, ATS-SCAT-8-AC-C500, ATS-SCAT-386-AC-C750, ATS-SCAT-88-AC-C1000, ATS-SCAT-886-AC-C1250, and ATS-SCAT-888-AC-C1500, with a septic tank for fecal coliform standards <1000 and <200, and a Nutrient Reduction, approval of all models with Salcor 3G UV disinfection for fecal coliform standard <20, and additionally BOD/ TSS sizing reduction, nutrient reduction, and fecal coliform standard < 10,000 for model ATS-SCAT-16-AC-5000

Kevin Sherman, Quanics, Inc.

Kevin Sherman provided a short explanation of the treatment components. Discussion ensued concerning the loading rate of the units. The loading rate of the units for the NSF certified models is 5.88 gal/ft³/day. The other five units utilize a loading rate of 12.5 gal/ft³/day to achieve the desired effluent quality. Committee members discussed the data supporting the 12.5 gal/ft³/day loading rate.

Ralph Benson moved to recommend approval of the NSF Certified models (ATS, ATS-SCAT-8-AC-C500, ATS-SCAT-386-AC-C750, ATS-SCAT-88-AC-C1000, ATS-SCAT-886-AC-C1250, ATS-SCAT-888-AC-C1500) for fecal coliform standards <1000, <200, and the NSF Certified models with Salcor 3G UV disinfection for the fecal coliform standard <20. The motion was seconded by Scott Hetrick. TAC members present voted in favor of the motion

Consolidated Treatment Systems

Rebecca Fugitt noted that ODH had been contacted by Consolidated Treatment Systems concerning previous approvals of their pretreatment components. Data in a previous submission supported approval of the Enviro-Guard aeration treatment unit for meeting the fecal coliform standard of 10,000 colonies/ 100mL. Unfortunately the submittal and subsequent approval did not include the designation. Committee members recommended that Consolidated Treatment Systems submit a request to modify the previous approval to be reviewed at a future TAC meeting.

Non Gravel Trench Special Device Approval Subcommittee Update

Dick Bachelder, ADS

Mark Tumeo, Cleveland State University

Dick Bachelder stated that the subcommittee had met via conference call to discuss a draft special device approval modeled after the alternative leaching trench special device approval. Unresolved issues will be discussed during a conference call on December 17.

Dr. Tumeo stated that the website linking the references and resources may be up by next week.

Low Pressure Distribution Sand Filter Special Device Approval Subcommittee Update

Mark Fehring, Fehring Services

Nathan Johnson, ODH

Mark Fehring announced that subcommittee members will meet on December 12 to siphon dose several distribution networks that have been constructed at his place of business.

Sampling Protocol

Rebecca Fugitt announced that program staff is developing a sampling protocol for sampling required by the NPDES permit. The protocol will be reviewed by TAC and interested parties. Discussion ensued concerning sampling and sampling ports. Chris Mandich of Jet offered to provide a sampling protocol developed by the company. Bob Fletcher of Norweco, Inc. stated

that Norweco utilizes a T as a sampling port in some applications. Bob Fletcher agreed to provide a protocol for sampling for those applications.

Pending Applications:

Rebecca Fugitt informed the TAC that Hydro-Action Industries, and Enviro-Flo, Inc. have submitted applications for ORC 3718.04 Review and are working with staff to complete the applications for review at the January TAC meeting.

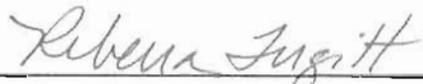
Sewage Program Updates:

Rebecca Fugitt discussed the final Sewage Study Commission meeting held on December 11, 2008 at the Riffe Center in Columbus. The Study Commission voted on recommendations to legislature concerning future laws governing household sewage treatment systems and small flow on-site sewage treatment systems in Ohio.

The next TAC meeting is January 13, 2009 and will be held at ODNR, Building I Assembly Center.

The meeting was adjourned.

Approved on 1-13-2009 as signified by:



Rebecca Fugitt, TAC Chairperson



Mark Stump, Secretary