

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

Date: Tuesday, January 10, 2017
Time: 10:00 a.m.
Place: BWC/OSOSH
13430 Yarmouth Drive
Pickerington, Ohio

TAC Members in Attendance:

ODH Director of Health Representative & TAC Secretary Rachel Townsend
AOHC Health Commissioner: Charles Patterson, Clark County Combined Health District
Manufacturer Representative: Zak Sherman
Manufacturer Representative, Chris Mandich
Ohio EPA DSW Engineer: Brian Hall
Professional Engineer: Walt Sandefur
Ohio Townships Association: Perry Brock
Installer: Mark Fehring, Fehring Services
Public Representative: Christopher Schraff

Absent:

OEHA Registered Sanitarian & Chair: Dan Lark, Lake County General Health District
Academic: Karen Mancel
Designer: Dan Michael

Vacant:

AOHC Health Commissioner
ODA Soil Scientist:

Guests:

Cary Feller Jr: Consolidated Treatment Systems
Jeff Luthman: Consolidated Treatment Systems
Yaz Ashrawi: Frost Brown Todd
Garrett Jensen: Norweco Inc.
Aleksandr Yakhnitskiy: Ohio EPA
James Dye: Wastewater Solutions
David Chronister: Wastewater Solutions
Mike Smallwood—Smallwood Septic Solutions

Other ODH participants

Brandon Bernhardt
Kyle Bianco
Dusty Gurney
Andrew Thomas
Mahjabeen Qadir

Welcome and Introduction:

The meeting was called to order at 10:07 a.m. by Rachel Townsend. Meeting attendees were introduced.

TAC Appointments Update

Dusty Gurney stated that Chris Schraff and Karen Mancl have been reappointed by the Governor's office. Charles Patterson indicated he has applied for re-appointment from the Ohio Senate.

Approval/modification to the agenda

Rachel Townsend asked if there were any modifications to the agenda and if it could be approved.

It was noted that since this the first meeting of the year, Chair and Vice Chair elections need to be made.

Chris Schraff made a motion to re-elect Dan Lark as Chair Person. Perry Brock seconded the motion. All were in favor and motion was approved

Zak Sherman made a motion to elect Charles Patterson as Vice-Chair Person. Chris Schraff seconded the motion. All were in favor and motion was approved.

In the absence of Chairman Lark, Charles Patterson took over meeting as Vice-Chair.

Approval of December 13, 2016, meeting minutes

Charles Patterson asked for comments on the draft minutes from the December meeting. Dusty informed the committee that he had a few minor edits that were received and that minutes would be amended with those edits. Chris Schraff made a motion to approve the minutes as amended. Perry Brock seconded the motion. All were in favor and the motion was approved.

Consolidated Treatment System Inc. Modification Request

- ***Manufacturer concurrence to use Flow² Ultra Violet unit as a substitution to approved Salcor Ultra Violet units on all approved Consolidated Treatment Systems Inc. treatment trains that utilize ultraviolet units.***

Jeff Luthman from Consolidated Treatment Systems Inc. was present to answer any questions about the modification request to allow the option to substitute the Flow² Ultra Violet for the previously approved Salcor UV unit in all Consolidated Treatment Systems, Inc. approved treatment trains.

Consolidated Treatment Systems Inc. agreed to provide new drawings to ODH to reflect the optional substitution of the Flow² UV unit for the Salcor UV unit.

Zak Sherman made a motion to approved Consolidated Treatment Systems Inc. modification request to allow the option to substitute the Flow² Ultra Violet units in all Consolidated

Treatment Systems, Inc. approved treatment trains that were previously approved with the Salcor ultra violet units. Perry Brock seconded the motion.

Motion was approved by seven aye votes. Chris Schraff & Chris Mandich abstained from this motion.

Guidelines for Data Submission

Walt Sandefur stated that he had received a response from Dr. Tumeo regarding his revisions to the standards, guidelines and protocols for the Ohio Revised Code Section 3718.04. Dr. Tumeo has suggested a few edits on the statistical terminology. Walt is working incorporating those edits and updating the provided examples to inform the development of a spreadsheet tool to facilitate consistent data collection and analysis. Manufacturers will be able to enter their test data directly into the spreadsheet, which would then perform the calculations required in the TAC standards and guidelines.

Brian Hall stated he had people in his office that could also review this document once Dr. Tumeo's edits are incorporated.

Spray Irrigation Systems-Special Device Approval and winter problems

ODH was contacted in mid-December regarding an issue in spray irrigation systems where the spray heads were reported to be freezing, causing a rotational delay. ODH sent an email to several local health districts that had permitted spray systems for installation requesting information about the type of the spray heads and performance under freezing conditions. Additionally, inquiries were made to the Pennsylvania Department of Environmental Protection about their experiences with spray systems; however, ODH has not yet received a response.

Chris Mandich brought in examples of the spray heads that have been used in spray system designs installed in Ohio. Chris stated that the spray packages sold by Jet have been having problems with the spray heads not oscillating once they popped up, preventing distribution of effluent across the entire soil absorption area. Chris showed the committee that the issues he was having were due to moisture being retained on the gears inside the spray heads, effectively freezing the spray heads in place when temperatures drop below freezing.

Chris has concerns that the spray heads are not oscillating under freezing conditions and may be over applying the dose to a single area. He asked that TAC discussion whether this is acceptable. Chris also shared some of the ways he has tried to prevent spray heads from freezing and the outcomes of those attempts.

James Dye from Wastewater Solutions asked to approach the TAC committee. Mr. Dye has many spray irrigation systems installed and stated that he was not having as many problems with freezing but he has gotten away from using gear driven spray heads and those with check valves due to the fact that moisture remains in the spray head after dosing and may cause the spray head to not oscillate under freezing conditions. He has been utilizing pressure driven spray heads in his designs and has not been having issues with oscillation under freezing conditions.

Discussion followed and a motion was made by Chris Mandich to recommend to the director of health a modification to the Spray Irrigation Special Device Approval which would require a commercial grade heating element for the spray irrigation systems to ensure oscillation of the spray heads under freezing conditions. Chris Schraff seconded the motion. The votes were 8 yes and 1 no. Motion passed.

Update on the Tertiary Treatment guidelines

Comments that were received by ODH were provided to the TAC and will be incorporated by Chris Schraff into the document for the TAC to review.

Next meeting:

The next TAC meeting is scheduled for February 14, 2017, at BWC/OCOSH.


Adjourn:

Motion to adjourn was made by Chris Schraff and seconded by Chris Mandich. Motion carried and the meeting was adjourned at 12:15 p.m.

Approved on March 14, 2017 as signified by:

 3-14-17

Dan Lark, TAC Chairperson
Charles Patterson TAC Vice Chairperson



Rachel Townsend, Secretary

Sewage Treatment Systems Technical Advisory Committee
MEETING NOTES

NOTE: Quorum was not established; no formal action could be set forth by the committee;
informal discussion ensued

Date: Tuesday, February 14, 2017
Time: 10:00 a.m.
Place: BWC/OSOSH
13430 Yarmouth Drive
Pickerington, Ohio

TAC Members in Attendance:

ODH Director of Health Representative & TAC Secretary Rachel Townsend
Manufacturer Representative: Zak Sherman
Manufacturer Representative: Chris Mandich
Ohio EPA DSW Engineer: Brian Hall
Ohio Townships Association: Perry Brock

Absent:

Academic: Karen Mancl
Public Representative: Christopher Schraff

Awaiting Re-appointment

Professional Engineer: Walt Sandefur
OEHA Registered Sanitarian & Chair: Dan Lark, Lake County General Health District

Vacant

AOHC Health Commissioner
AOHC Health Commissioner
ODA Soil Scientist
Installer
Designer

Guests:

Cary Feller Jr: Consolidated Treatment Systems
Matt Deaton: Deaton Soil Services
Thad Boggs: Frost Brown Todd
Matt Lane: Ohio Department of Agriculture
Garrett Jensen: Norweco Inc.
Aleksandr Yakhnitskiy: Ohio EPA

Other ODH participants

Brandon Bernhardt
Kyle Bianco
Dusty Gurney
Andrew Thomas

Welcome and Introduction:

The meeting was called to order at 10:20 AM by Dan Lark. Quorum was not established; no formal action could be set forth by the committee; informal discussion ensued.

Discussion of TAC Appointments Update

Dusty Gurney provided an update on TAC appointments and vacancies. Re-appointments for Brian Hall, Zak Sherman, and Karen Mancl have been confirmed. Dusty has reached out to ODH's governmental affairs liaison for information on the re-appointments for Dan Lark and Walt Sandefur, as well as, the two AOHC nominations. Perry Brock's term will expire by the next TAC meeting; he has re-submitted his application. Matt Lane will follow up on his appointment to fulfill the vacancy left by Matt Deaton's departure from the Ohio Department of Agriculture. Those seeking appointment for the open positions need to follow up with the applicable appointing body. Reaching out to your local representative could help to expedite the appointment process. Bylaws allow for members to continue serving up to 60 days after their term has expired.

Approval/modification to the agenda

Since quorum was not established, formal actions by the committee could not take place.

Approval of January 10, 2017 meeting minutes

Since quorum was not established, formal actions by the committee could not take place. Any editorial notes provided were recorded and will be incorporated in the draft for the March TAC meeting (assuming quorum).

Hydro-Action Manufacturing Modification Request

Since quorum was not present formal actions by the committee could not take place. The modification request was lightly discussed. Clarification on the timeline for TAC recommendation to the Director was deliberated since quorum was not established. The TAC has 90 days after receipt of a complete application to make a recommendation to the Director (April 16, 2017.) Questions arose whether this application was indeed requesting a modification to replace a tank in already approved configurations or if this would be a new listing. Walt Sandefur also pointed out that clarification is needed on the data analyses submission. If they are submitting new data it needs to be the raw data collected, not just the results. Hydro-Action will need to provide clarification.

Spray Irrigation Systems-Special Device Approval and winter problems

Draft language to communicate to the director concerns regarding the current language of the Special Device Approval (SDA) for spray irrigation was discussed. It was brought up that it should clarify that the issue being communicated is that some systems are experiencing the spray heads associated with this technology were "freezing causing damage which prevents oscillation."

Discussion ensued on the existing SDA and what language could be modified, as well as, the SDA referencing a 3rd party document (OSU Bulletin 912,) instead of a stand-alone document. Points of dialog included: When an updated version of Bulletin 912 would be released, if

language on “rotational delay” would be included in the revised bulletin, the SDA needs to specifically note the version and date of publication for the bulletin referenced, or the SDA language needs to be revised to remove the design standard referencing the bulletin and incorporate the baseline requirements for a design in the SDA itself. Zak Sherman expressed concern on the vulnerability of the TAC and ODH not being able to have control of bulletin content if it continues to evolve and be referenced in the SDA.

Questions were also raised on if there is a 5-year review of the SDA. Rachel Townsend stated that the general process is that at the time of the 5-year rule review the technology allowed by the SDA is evaluated, it can then become incorporated into revised rule, be determined to not be suitable for inclusion in the rules, or determined to need additional time as an SDA before evaluation for suitability to incorporate into the rules.

Matt Deaton addressed the committee on input he received from an Ohio Department of Agriculture Engineer who has had experience with spray irrigation systems on local Ohio dairy farms. The engineer had noted that he had never experienced any breakage on the systems he had observed as long as the system was designed for proper drain back and pressure. He also noted that the systems did not utilize heat tape, and that the waste is not pretreated. The committee expressed interest on gathering more information on the dairy farm systems.

TAC Standards and Guidelines for Data Submission

Walt Sandefur has incorporated the edits from Dr. Tumeo and it was sent to Ohio EPA for review by an in-house statistician. A few items were noted to be edited for clarity. Walt Sandefur also noted that the current standards and guidelines do not specify a minimum confidence interval.

Update on the Tertiary Treatment guidelines

Chris Schraff was not present. No update.

Other Items of Discussion

- Brian Hall spoke briefly on updates surrounding Ohio EPA NPDES data collection.
- ODH requested any editorial notes be documented on the TAC Annual Report. The report is required by Statute and must be submitted to the General Assembly not later than ninety days after the end of the calendar year.
- Cursory discussion occurred on proposed Senate Bill 31.

Next meeting:

The next TAC meeting is scheduled for March 14, 2017, at BWC/OCOSH.

Adjourn:

The unofficial meeting ended at 12:15.

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

Date: Tuesday, March 14, 2017
Time: 10:00 a.m.
Place: BWC/OSOSH
13430 Yarmouth Drive
Pickerington, Ohio

TAC Members in Attendance:

ODH Director of Health Representative & TAC Secretary Rachel Townsend
Manufacturer Representative: Zak Sherman
Manufacturer Representative: Chris Mandich
Ohio Townships Association: Perry Brock
Academic: Karen Mancl
Professional Engineer: Walt Sandefur
Installer/Service Provider: Chas Kaiser
Designer: David Chronister

Absent:

Public Representative: Christopher Schraff
Ohio EPA DSW Engineer: Brian Hall
AOHC Health Commissioner: Kim Cupp—Fulton County Health Commissioner

Awaiting Re-appointment

OEHA Registered Sanitarian & Chair: Dan Lark, Lake County General Health District
ODA Soil Scientist: Matt Lane (replacing Matt Deaton)

Vacant

AOHC Health Commissioner

Guests:

Thad Boggs: Frost Brown Todd
Aleksandr Yakhnitskiy: Ohio EPA
James Conley—Hydro-Action Manufacturing
James & Renee Dye—Wastewater Solutions

Other ODH participants

Brandon Bernhardt
Dusty Gurney
Andrew Thomas

Welcome and Introduction:

The meeting was called to order at 10:02 AM by Rachel Townsend. Introductions were made. We had three new members appointed to the committee since the last meeting.

Rachel also stated we needed a new vice chair. Chris Mandich nominated Zak Sherman as Vice Chair and it was seconded by Perry Brock. All members were in favor. Zak Sherman is Vice Chair and the meeting was turned over to Zak.

TAC Appointments Update

Dusty Gurney provided an update on TAC appointments and vacancies. Re-appointments for Perry Brock, Walt Sandefur and Chris Mandich came in over the last month. The appointments of David Chronister as designer, Chas Kaiser as Installer/Service Provider and Kim Cupp as Health Commissioner were all made this past month.

Dusty has reached out to ODH's governmental affairs liaison for information on the re-appointments for Dan Lark, and the appointment of Matt Lane to fulfill the vacancy left by Matt Deaton's departure from the Ohio Department of Agriculture and the appointment of the other AOHC representative.

Approval/modification to the agenda

Added the approval of the 2016 TAC Annual Report to the agenda at the end of the meeting to allow new members to review report prior to voting.

Approval of January 10, 2017 meeting minutes

Because quorum was not established in February, the January minutes had to be approved at the this meeting. Perry Brock made the motion to approve the January 10, 2017 minutes as submitted and it was seconded by Walt Sandefur. All were in favor.

Due to not having quorum at the February 14, 2017 meeting only editorial notes were documented.

Hydro-Action Manufacturing Modification Request

James Conley from Hydro-Action Manufacturing was present for his modification request. He informed the committee the ODH had contacted him with concerns about the application expressed by TAC members at the February meeting.

Mr. Conley was seeking only the approval of the low profile 500-gallon tank to the AP Series SNG tanks w/UV. There was a little data submitted and committee members wondered why it was submitted since this was a modification request to use a low-profile tank. The TAC also questioned the drawings to see how the low-profile tanks differ from those already approved. Mr. Conley stated after discussion that he will withdraw this application to address the questions raised by TAC and re-submit the application at a later date.

It was requested by TAC that Mr. Conley email ODH with said withdrawal of application submitted on Jan 19, 2017.

Spray Irrigation Systems-Special Device Approval

Rachel summarized the informal discussions that occurred in February due to not having quorum present at the meeting. Some of the things brought forth from that meeting included discussion of the existing SDA and what language could be modified, as well as concern that the SDA

references a 3rd party document (OSU Bulletin 912) that neither TAC nor ODH has any editorial control over. It had been suggested that TAC should consider developing the SDA as a stand-alone document.

Dr. Mancl stated that the spray irrigation OSU Bulletin 912 was due for revisions and that much had been learned since it was first published. An updated bulletin would have more options and flexibility in design than the previous bulletin.

TAC members discussed many options in the re-write of the Special Device Approval for Spray Irrigation. After some discussion, it was determined to form a work group on this SDA for the re-write and include members from TAC and outside members that have had experience with installation and monitoring of these systems. Those from TAC committee were Karen Mancl, Chris Mandich, and David Chronister. Kyle Bianco will be the ODH liaison to facilitate the group.

Chas Kaiser made a motion to approve the formation of a workgroup to revise the Special Device Approval on Spray Irrigation Systems. It was seconded by Chris Mandich. All were in favor.

TAC Standards and Guidelines for Data Submission

Walt Sandefur has incorporated the edits from Dr. Tumeo and the Ohio EPA. He now needs to get subcommittee meeting arranged to discuss the final product before bringing it to TAC for review and comments.

Update on the Tertiary Treatment Guidelines

Chris Schraff was not present for any informal discussion to take place

Other Items of Discussion

Perry Brock made a motion to approve the 2016 TAC Annual Report as submitted and David Chronister seconded the motion. All were in favor.

Next meeting:

The next TAC meeting is scheduled for April 11, 2017, at BWC/OCOSH.

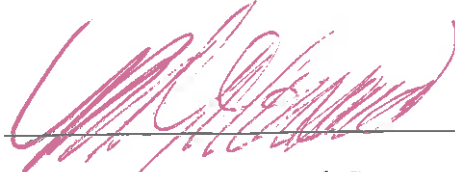
Adjourn:

Perry Brock made a motion to adjourn. Walt Sandefur seconded. All were in favor and the meeting ended at 11:32.

Approved on 4/11/17 as signified by:



Dan Lark, TAC Chairperson
Zak Sherman Vice Chairperson



Rachel Townsend, Secretary

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

Date: Tuesday, April 11, 2017

Time: 10:00 a.m.

Place: BWC/OSOSH

13430 Yarmouth Drive

Pickerington, Ohio

TAC Members in Attendance:

ODH Director of Health Representative & TAC Secretary: Rachel Townsend

OEHA Registered Sanitarian & Chair: Dan Lark, Lake County General Health District

Manufacturer Representative, Chris Mandich

Ohio EPA DSW Engineer: Brian Hall

Designer: David Chronister

ODA Soil Scientist: Matt Lane

Professional Engineer: Walt Sandefur

Ohio Townships Association: Perry Brock

Installer/Service Provider: Chas Kaiser

Public Representative: Christopher Schraff

AOHC Health Commissioner: Kim Cupp Fulton County Health Commissioner

Absent:

Manufacturer Representative: Zak Sherman

Academic: Karen Mancl

Vacant:

AOHC Health Commissioner

Guests:

Garrett Jensen--Norweco

James Conley-Hydro-Action

Thad Boggs—Frost Brown Todd

Mike Smallwood—Designer/Ecological Tanks

James Dye-Wastewater Solutions

Other ODH participants

Brandon Bernhardt

Maggie Delfino

Dusty Gurney

Andrew Thomas

Welcome and Introduction:

The meeting was called to order at 10:05 a.m. by Dan Lark. Meeting attendees were introduced.

TAC Appointments Update

Dusty Gurney reported that since the last meeting only one position remains open and that is the AOHC Health Commissioner. The interested Health Commissioner is waiting to hear if they have been appointed.

Approval/modification to the agenda

Dan Lark asked if there were any modifications to the agenda and if it could be approved. No modifications were requested. David Chronister made a motion to approve the minutes. Christopher Schraff seconded the motion. All were in favor.

Approval of March 14, 2017, meeting minutes

Dan Lark asked for comments on the draft minutes from the March meeting. Chris Mandich made a motion to approve the minutes. Perry Brock seconded the motion. All were in favor.

Hydro-Action Manufacturing Modifications Request

- Manufacturer to add the low-profile tanks (LP 500) to the AP Series SNG W/UV

James Conley addressed all concerns from last month's application and did reapply. In this modification. Tank sizes and volumes have been addressed. Data was supplied but not needed for this modification.

Dan Lark asked for a motion. Christopher Schraff made a motion to approve. Perry Brock seconded the motion. All were in favor.

Ecological Tanks Modification Request

- To add AA500-35C to previously approved AA500-35 units (w/o separate pretreatment tanks with Disinfector UV + Hi Blow HP40 reaeration and pump lockout or telemetry.) that meet the standard for BOD/TSS, one and two-foot soil depth credits, for restrictive spray and NPDES effluent standards.
- To add AA500-35C-NR to previously approved AA500-35NR units (+ Disinfector) that meet the standard for BOD/TSS, one and two-foot soil depth credits, and for restrictive spray.
- To add AA500-35C NR to previously approved AA500-35NR for nutrient reduction.

Walt asked if the purpose of the request was to change the design. The vendor responded, "yes"; that different manufacturers have slightly different molds due to different tanks.

Dan Lark and Rachel Townsend mentioned that the drawings needed some modifications; i.e., clean up some numbers. Also, they need better labelling. Chris Mandich suggested the need for separate drawings for the 35C NR and 35 NR.

Dan Lark asked if there was a motion to approve. Christopher Schraff made a motion to approve on condition the vendor submits corrective numbers and summary charts. Chris Mandich seconded the motion. Everyone was in favor for tabling the request until the next meeting scheduled for May 9, 2017 when the vendor will submit updated information.

Update on the Spray Irrigation Systems Special Device Approval Workgroup

It was identified that Kyle Bianco of ODH will facilitate the workgroup. Chris Mandich will reach out to a few counties who have experience with spray irrigation systems and inquire if they are interested in participating on this workgroup.

Update on the TAC Standards and Guidelines for Data Submission

Walt Sandefur reported on the conversation with Ohio EPA, one of their staff with a strong statistical background, and ODH. A discussion among the TAC members then followed. The Ohio EPA statistician had not seen the 'blended approach' of using both the standard deviation and a confidence interval analysis together to determine if a data set demonstrated achievement of a standard. He could not find where anyone else had used this approach in a literature review. With the lack of precedence for the use of both the standard deviation and the confidence interval analysis together the TAC may want to consider using one approach or the other. There are still concerns with using either approach and the existence of normality in the test dataset.

It was restated that TAC cannot change the rule language (OAC 3701-29-14) that requires the use of the standard deviation method.

Update on the Tertiary Treatment guidelines

Christopher Schraff will incorporate comments into a draft. His goal is to have a draft for the committee's review and consideration at the next meeting.

Additional Items

Dan Lark asked if there were any other items to discuss. There were none.

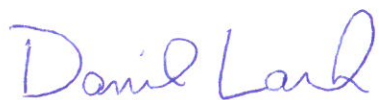
Next meeting:

The next TAC meeting is tentatively scheduled for May 9, 2017, at BWC/OSOSH.

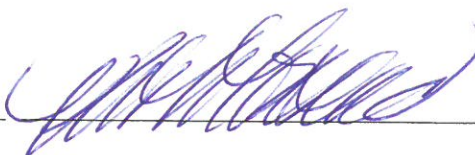
Adjourn:

Motion to adjourn was made by Perry Brock and seconded by David Chronister. Motion carried and the meeting was adjourned at 10:53 a.m.

Approved on May 9 2017 as signified by:



Dan Lark, TAC Chairperson
Zak Sherman—TAC Vice Chairperson



Rachel Townsend, Secretary

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

Date: Tuesday, May 9, 2017
Time: 10:00 a.m.
Place: BWC/OSOSH
13430 Yarmouth Drive
Pickerington, Ohio

TAC Members in Attendance:

ODH Director of Health Representative & TAC Secretary Rachel Townsend
OEHA Registered Sanitarian & Chair: Dan Lark, Lake County General Health District
Manufacturer Representative, Chris Mandich
Ohio EPA DSW Engineer: Brian Hall
Professional Engineer: Walt Sandefur
Academic: Karen Mancl
Public Representative: Christopher Schraff
Designer: David Chronister
ODA Soil Scientist: Matt Lane

Absent:

Manufacturer Representative: Zak Sherman
AOHC Health Commissioner: Kim Cupp Fulton County Health Commissioner
Ohio Townships Association: Perry Brock
Installer/Service Provider: Chas Kaiser

Vacant:

AOHC Health Commissioner

Guests:

Aleksandr Yakhnitskiy: Ohio EPA
Rob Schmidt: Porter Wright
Adam Arnold: Tangent Company
Brendan Matheny: Tangent Company

Other ODH participants

Dusty Gurney
Andrew Thomas
Kyle Bianco
Mahjabeen Qadir

Welcome and Introduction:

The meeting was called to order at 10:09 a.m. by Dan Lark. Meeting attendees were introduced.

TAC Appointments Update

Dusty Gurney stated that there have been no updates on the AOHC vacancy. AOHC had sent forth a nominee (Julie Nesbitt, Clermont County Health Commissioner) but no formal appointment has been made at this time. Dusty will again follow up with ODH government affairs to try to obtain any potential updates on the vacancy.

Approval/modification to the agenda

Dan Lark asked if any modifications to the agenda needed to be made. Rachel Townsend made a motion to add a placeholder position at the end of the meeting for Consolidated Treatment System Inc. and their representative to have time to address the committee. Rob Schmidt of Porter Wright objected to the chairman, noting that Consolidated Treatment System Inc. was not prepared at this time to address the committee. Rachel Townsend therefore withdrew the request to modify the agenda.

Approval of April 11, 2017 Minutes

The minutes from the April 11, 2017 meeting may have not been sent out to TAC members for editorial review prior to the opening of the meeting. Members took time to review the minutes. Walt Sandefur noted that much of what is attributed to him directly under the “Update on the TAC standards and Guidelines for Data Submission” section of the notes would be more accurate to reflect that these were points of discussion by TAC members after he had addressed the committee in his initial comments. Chris Schraff made a motion to add the statement that “a discussion among TAC members then followed” to more concisely reflect the discussion that had taken place on data submission requirements and approve the notes as amended. Walt seconded the motion. All were in favor, motion carried.

Tangent Company Update on Field Data

Adam Arnold addressed the committee on updates regarding Tangent’s 500 GPD HSTS prototype treatment tank installed at two different locations under conditions of a special device approval for purposes of gathering data. After re-familiarizing the committee on the terms and conditions of the Special Device Approval some points of note were made, including: but not limited to: system performance updates, data collection updates, change logs, and overall status updates.

Ecological Tanks Modification Request

- To add AA500-35C to previously approved AA500-35 units (w/o separate pretreatment tanks with Disinfector UV + Hiblow HP40 reaeration and pump lockout or telemetry) that meet the standard for CBOD₅/TSS, one and two-foot soil depth credits, restricted spray and NPDES effluent standards.
- To add AA500-35C-NR to previously approved AA500-35NR units (+Disinfector) that meet the standard for CBOD₅/TSS, one and two-foot soil depth credits, restricted spray.
- To add AA500-35C-NR to previously approved AA-500-35NR for nutrient reduction.

Mike Smallwood joined the meeting via telephone to address the committee. Committee members questioned discrepancies between the submitted charts and drawings for the treatment trains. The committee struggled with trying to decipher exactly what changes have been made, including identifying equipment differences between the two. It was questioned whether the committee was comfortable with the difference in volume not changing system performance.

After brief discussion the manufacturer proposed splitting the application into separate requests. The manufacturer requested that the only part of the application that would be moving forward at this time would be to add AA500-35C to previously approved AA500-35 units (w/o separate pretreatment tanks with Disinfector UV + Hi Blow HP40 reaeration and pump lockout or telemetry) that meet the standard for CBOD₅/TSS, one and two-foot soil depth credits, restricted spray and NPDES effluent standards. The rest of the application was withdrawn; confirmation email will be sent from the manufacturer's representative. Walt Sandefur made a motion to approve the addition of the AA500-35C to the previously approved AA500-35 units. Chris Mandich seconded the motion. Karen Mancl abstained, all others in favor, motion approved.

Update on the Tertiary Treatment guidelines

Chris Schraff updated the committee on the revisions he had been working on and comments that had been incorporated after discussion with other committee members. TAC will still need to identify the strength of the effluent that will be used as influent for tertiary treatment components to be tested with. Since Ohio EPA had previously established guidelines for NPDES enforcement action levels the idea of using action level II influent quality to measure effectiveness of tertiary components was a proposed possibility. This raised questions to a multitude of variables including: 1) whether the numbers from the raw sewage going into the underperforming systems would be required, 2) what if the underperforming unit's effluent strength is significantly higher than the action levels in Ohio EPA action level guidelines, 3) whether an upward bound limit for effluent strength should be required, and more. It was noted that the field test data points currently being received by the Ohio EPA as part of the renewal for the general permit could help guide these decisions. Chris Schraff noted he would begin working on a new draft with these thoughts in mind.

Updates on the TAC Standards and Guidelines for Data Submission

TAC revisited previous conversation in regards to the "blended approach" of using both the standard deviation and a confidence interval analysis together to determine if a data set demonstrated achievement of a standard. Ohio EPA currently uses a different "blended approach" of combining a set confidence interval and percentile to determine achievement of a standard. It was proposed that TAC could analyze previously submitted data from product approval applications to get an idea of how the different methods would compare the products. After analysis the TAC could begin a stepped approach to proposing modification to the TAC standards and guidelines for data submission if applicable, and provide new examples to manufacturers seeking product approval for the different standards.

Additional Updates

Dan Lark asked for any additional updates. No updates mentioned at this time.

Next meeting:

The next TAC meeting is scheduled for June 13, 2017 at BWC/OCOSH.

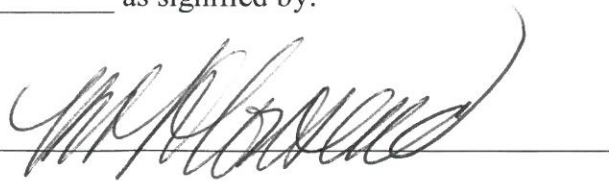
Adjourn:

Motion to adjourn was made by Chris Schraff and seconded by Walt Sandefur. Motion carried and the meeting was adjourned at 12:15 p.m.

Approved on JUNE 13 2017 as signified by:

A handwritten signature in black ink, appearing to read 'Dan Lark', written over a horizontal line.

Dan Lark, TAC Chairperson
Zak Sherman TAC Vice Chairperson

A handwritten signature in black ink, appearing to read 'Rachel Townsend', written over a horizontal line.

Rachel Townsend, Secretary

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

Date: Tuesday, June 13, 2017
Time: 10:00 a.m.
Place: BWC/OSOSH
13430 Yarmouth Drive
Pickerington, Ohio

TAC Members in Attendance:

ODH Director of Health Representative & TAC Secretary Rachel Townsend
Manufacturer Representative & Vice Chair: Zak Sherman
Manufacturer Representative, Chris Mandich
Ohio EPA DSW Engineer: Brian Hall
Professional Engineer: Walt Sandefur
Public Representative: Christopher Schraff
Designer: David Chronister
ODA Soil Scientist: Matt Lane
Installer/Service Provider: Chas Kaiser

Absent:

AOHC Health Commissioner: Kim Cupp Fulton County Health Commissioner
Ohio Townships Association: Perry Brock
OEHA Registered Sanitarian & Chair: Dan Lark, Lake County General Health District
Academic: Karen Mancel

Vacant:

AOHC Health Commissioner

Guests:

Thad Boggs Frost Brown Todd
Glen Graff: Tangent Company
Brendan Matheny: Tangent Company

Other ODH participants

Dusty Gurney
Kyle Bianco

Welcome and Introduction:

The meeting was called to order at 10:15 a.m. by Vice Chairman Zak Sherman. Meeting attendees were introduced.

TAC Appointments Update

Dusty Gurney stated that there have been no updates on the AOHC vacancy. AOHC had sent forth a nominee (Julie Nesbitt, Clermont County Health Commissioner) but no formal

appointment has been made at this time. Dusty will again follow up with ODH government affairs to try to obtain any potential updates on the vacancy.

Approval/modification to the agenda

Zak Sherman asked if any modifications to the agenda needed to be made and if it could be approved. No modifications noted.

Approval of May 9, 2017 Minutes

Zak Sherman asked for any comments regarding the draft minutes from the May meeting. Chris Schraff made a motion to approve the minutes. David Chronister seconded the motion. All were in favor.

Tangent Company Update on Field Data

Brendan Matheny addressed the committee on updates regarding Tangent's HSTS prototype treatment tank installed at two different locations under conditions of a special device approval for purposes of gathering data. After re-familiarizing the committee on the terms and conditions of the Special Device Approval some points of note were made, including: but not limited to: system performance updates, data collection updates, change logs, and overall status updates. Brian Hall expressed concern with the flow data, specifically if the data is scalable to the proposed treatment capacity of 500 GPD for the unit. The flow data presented was significantly lower than 500 GPD at both sites. Brian stated that if they were not able to document flows close to the proposed capacity that maybe alternative methods should be considered; a point of note being that sending more water into the system is not the same as generating additional flows of typical residential sewage strength wastewater. Additional conversation ensued. Brendan stated they (Tangent Company) are looking at different options but hope to stress the system for at least 5 consecutive days at/or near 500 GPD. It was noted that at one of the locations additional family members have moved in temporarily which they hope will add additional wastewater flows to help accurately depict the unit's functionality at the higher capacity. Brendan stated they (Tangent Company) expect to return with an additional update at the August TAC meeting. Tangent Company anticipates submitting a product approval application in September 2017.

Ecological Tanks Modification Request

- To add AA500-35C-NR to previously approved AA500-35NR units (+Disinfector) that meet the standard for CBOD₅/TSS, one and two-foot soil depth credits, restricted spray.
- To add AA500-35C-NR to previously approved AA-500-35NR for nutrient reduction.

Mike Smallwood joined the meeting via telephone to address the committee. The errors/mislabeled on the previous drawings have been addressed. After a question from a committee member Mike spoke in detail about the fine air diffuser for the unit. The diffuser is drilled, not attached to the sidewall, but structurally secured to the top of the tank. Mike noted that testing shows that the diffuser does not move much and that the volume of air from the diffuser is the same as past approvals. Tab (D)(4)(d) of the submitted application was withdrawn at the manufacturer's request, it mistakenly depicted the already approved AA500-35NR model and dimensions. Chris Schraff made a motion to approve the addition of the AA500-35C-NR to

the previously approved AA500-35NR units (+disinfector) for meeting the standard for CBOD₅/TSS, one and two-foot soil depth credits, restricted spray and adding AA500-35C-NR to previously approved AA-500-35NR for Nutrient reduction without tab (D)(4)(d) as part of the approvals. David Chronister seconded the motion. All in favor, motion approved.

Update on the Tertiary Treatment guidelines

Chris Schraff updated the committee on the revisions he had been working on and comments that had been incorporated after discussion with other committee members. Chris distributed his most recent draft to TAC members with the intent that members review it to discuss at the next TAC meeting.

Updates on the TAC Standards and Guidelines for Data Submission

Walt has submitted his latest version to ODH with the incorporated comments from Dr. Tumeo & Dr. White. It had been formerly proposed that TAC could analyze previously submitted data from product approval applications to get an idea of how the data would compare to the current standards. After analysis, the TAC could begin a stepped approach to proposing modification to the TAC standards and guidelines for data submission if applicable, and provide new examples to manufacturers seeking product approval for the different standards. Dusty has been sending data from prior approved products to Walt for compilation at this time. The data could help direct the TAC moving forward.

Updates on Spray Workgroup

Chris will be reaching out to interested stakeholders, experts, and those who have experience with the technology.

Additional Updates

Zak Sherman asked for any additional updates. No updates mentioned at this time.

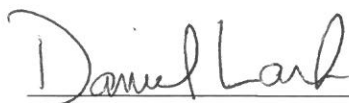
Next meeting:

The next TAC meeting is scheduled for July 11, 2017 at BWC/OCOSH. Zak Sherman noted he would not be able to make the next meeting.

Adjourn:

Motion to adjourn was made by Chris Schraff and seconded by Chris Mandich. Motion carried and the meeting was adjourned at 11:25 a.m.

Approved on 7-11-2017 as signified by:



Dan Lark, TAC Chairperson
Zak Sherman TAC Vice Chairperson



Rachel Townsend, Secretary

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

Date: Tuesday, July 11, 2017
Time: 10:00 a.m.
Place: BWC/OSOSH
13430 Yarmouth Drive
Pickerington, Ohio

TAC Members in Attendance:

OEHA Registered Sanitarian & Chair: Dan Lark, Lake County General Health District
ODH Director of Health Representative & TAC Secretary Rachel Townsend
Manufacturer Representative, Chris Mandich
Ohio EPA DSW Engineer: Brian Hall
Professional Engineer: Walt Sandefur
Public Representative: Christopher Schraff
Designer: David Chronister
AOHC Health Commissioner: Kim Cupp Fulton County Health Commissioner
Ohio Townships Association: Perry Brock
Academic: Karen Mancl

Absent:

Manufacturer Representative & Vice Chair: Zak Sherman
ODA Soil Scientist: Matt Lane
Installer/Service Provider: Chas Kaiser

Vacant:

AOHC Health Commissioner

Guests:

Yaz Ashrawi: Frost Brown Todd
Garret Jensen: Norweco Inc.
Aleks Yakhnitskly: Ohio EPA

Other ODH participants

Dusty Gurney
Kyle Bianco
Brandon Bernhardt

Welcome and Introduction:

The meeting was called to order at 10:05 a.m. by Chairman Dan Lark. Meeting attendees were introduced.

TAC Appointments Update

Dusty Gurney stated that there have been no updates on the AOHC vacancy. AOHC had sent forth a nominee but no formal appointment has been made at this time. Dusty will again follow

up with ODH government affairs legislative liaison to try to obtain any potential updates on the vacancy.

Approval/modification to the agenda

Dan Lark asked if any modifications to the agenda needed to be made and if it could be approved. No modifications noted.

Approval of June 13, 2017 Minutes

Dan Lark asked for any comments regarding the draft minutes from the June meeting. Chris Schraff made a motion to approve the minutes. Perry Brock seconded the motion. All were in favor.

Update on the Tertiary Treatment guidelines

Chris Schraff distributed the most recent draft to TAC members at the June meeting to review in preparation for discussion. Dialogue began on what type of test data shall be provided, and at what strength of influent (full strength residential waste vs waste that has been pretreated through an approved treatment train and if pretreated, at what level of pretreatment) the proposed tertiary unit would use to generate the effluent data submitted as part of an application for tertiary treatment device approval. The committee conversed over the NPDES sampling data being compiled at OEPA that is being collected from Local Health Districts as a requirement of the general permit and whether this data could be a good starting point on the evaluation of tertiary treatment devices. Another consideration discussed was whether the tertiary treatment device should be evaluated for meeting a certain percentage reduction for the listed parameters in the general permit versus meeting the required design effluent standards in the general permit. Concerns were raised over: 1) if the tertiary treatment device would meet the proposed percentage reduction and still unable to meet the discharge limits, 2) what performance standards and derivation would be necessary, 3) being able to provide acceptable alternative treatment technologies without effectively restricting the market to specific products or technologies, 4) the numerous variables regarding the NPDES sampling data and more.

Updates on the TAC Standards and Guidelines for Data Submission

It had been formerly proposed that TAC could analyze previously submitted data from product approval applications to get an idea of how the data would compare to the current standards. After analysis, the TAC could begin a stepped approach to proposing modification to the TAC standards and guidelines for data submission if applicable, and provide new examples to manufacturers seeking product approval for the different standards.

Since 2007 products have been approved using standards and guidelines that have been periodically revised. These updates reflected changes in the requirements of the General Permit, advances in science and understanding of STS treatment technologies, and the updates to OAC 3701-29 that became effective January 1, 2015. A subset of the data sets submitted with product approval applications over the history of the product approval process was digitized and analyzed against the current TAC standards and guidelines to start to gain an understanding of how the changes in the standards as well as the statistical methods used to analyze the data would potentially effect prior approved products.

The committee discussed whether submission of new contemporary data for products that had undergone modifications versus re-submitting old data would be required, as well as, supplementary data for products that may not be able to meet current standards that were previously approved under earlier standards.

Members conversed over how the standards and guidelines could be edited to better reflect what type of data the committee is expecting to see from manufacturers for product applications that are not being evaluated at third party testing facilities. Two talking points of note being that members consider a minimum number of samples required in the standards and guidelines, as well as, a minimum number of days over an outlined time of year on which the samples would need to be collected in order to be considered statistically significant. The NPDES general permit dates for summer and winter will be added to the document for reference where ever seasonality of sampling is discussed. Different sources of citation were noted for consideration of an appropriate number of samples. The committee continued to discuss whether a set confidence interval should be adopted in order to determine whether enough data is provided to account for the variation of the data.

Additional Updates

Dan Lark asked for any additional updates. No updates mentioned at this time.

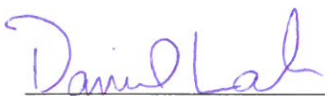
Next meeting:

The next TAC meeting is scheduled for August 8, 2017 at BWC/OCOSH.

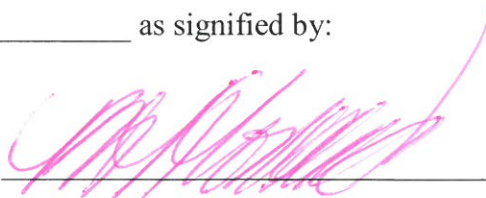
Adjourn:

Motion to adjourn was made by Perry Brock and seconded by Chris Schraff. Motion carried and the meeting was adjourned at 12:45 p.m.

Approved on 8-8-2017 as signified by:



Dan Lark, TAC Chairperson
Zak Sherman TAC Vice Chairperson



Rachel Townsend, Secretary

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

Date: Tuesday, August 8, 2017
Time: 10:00 a.m.
Place: BWC/OSOSH
13430 Yarmouth Drive
Pickerington, Ohio

TAC Members in Attendance:

OEHA Registered Sanitarian & Chair: Dan Lark, Lake County General Health District
ODH Director of Health Representative & TAC Secretary: Rachel Townsend
Manufacturer Representative: Chris Mandich
Professional Engineer: Walt Sandefur
Public Representative: Christopher Schraff
Designer: David Chronister
Academic: Karen Mancl
ODA Soil Scientist: Matt Lane
Installer/Service Provider: Chas Kaiser

Absent:

Manufacturer Representative & Vice Chair: Zak Sherman
Ohio EPA DSW Engineer: Brian Hall
AOHC Health Commissioner: Kim Cupp Fulton County Health Commissioner
Ohio Townships Association: Perry Brock

Vacant:

AOHC Health Commissioner

Guests:

Yaz Ashrawi: Frost Brown Todd
Garrett Jensen: Norweco Inc.
Aleks Yakhnitskly: Ohio EPA
Adam Arnold: Tangent Company

Other ODH participants

Dusty Gurney
Kyle Bianco
Brandon Bernhardt
Heather Coglianese

Welcome and Introduction:

The meeting was called to order at 10:05 a.m. by Chairman Dan Lark. Meeting attendees were introduced.

TAC Appointments Update

Dusty Gurney stated that there have been no updates on the AOHC vacancy. AOHC had sent forth a nominee but no formal appointment has been made at this time. Dusty will again follow up with ODH government affairs legislative liaison to try to obtain any potential updates on the vacancy.

Approval/modification to the agenda

Dan Lark asked if any modifications to the agenda needed to be made and if it could be approved. No modifications noted. David Chronister motioned to approve the agenda, seconded by Chas Kaiser. All were in favor.

Approval of July 11, 2017 Minutes

Dan Lark asked for any comments regarding the draft minutes from the July meeting. Chris Schraff made a motion to approve the minutes. Chris Mandich seconded the motion. All were in favor.

Tangent Update on Field Trial

Adam Arnold from Tangent Company presented a brief status update to the committee regarding Tangent's HSTS prototype treatment tank installed at two different locations under conditions of a special device approval. Updates included: system performance updates, data collection updates, change logs, overall status updates, and projected future timelines including submission of an application for product approval. Supplementary discussion ensued in regards to current system flows and anticipated system flows. The committee also conversed with Adam on how other states are reviewing Tangent's prototype products.

Norweco Inc.

- Singulair Model TNT + AT1500 UV disinfection + re-aeration
- Singulair Model N11
- Singulair Model TNT + ChemCheck chlorination/dechlorination
- Singulair Model TNT + ChemCheck with re-aeration in separate pump basin or within Bio-Kinetic system chamber
 - 1.) To remove specific distance of 3' max between treatment system and disinfection device.
 - 2.) To remove specific distance of 3' max between disinfection device and sampling port.

Garrett Jensen representing Norweco Inc. delivered an overview of the modification request to the committee. The current approval schematics state that 3' is the maximum distance between the treatment system and the disinfection device, as well as between the disinfection device and the sampling port. Garrett stated that there was not a data driven need to have the exact distance of 3' and is requesting the drawings be modified to allow their placement within a reasonable distance to accommodate individual installations site specific challenges. Placement of the sampling port within a reasonable distance would not compromise the effectiveness of the UV and sample quality. The question of what was considered a "reasonable distance" as stated in the product application was questioned and discussed by committee members. Garrett noted that the closer the disinfection unit to the treatment train the more effective it would be and that Norweco

is mindful of the regulations. It was also brought to the attention of the committee that some of the Norweco product names and listings on ODH's website need edited. Walt made a motion to approve the modification while adding that the titles match the website, seconded by Chris Schraff. All were in favor.

Update on the Tertiary Treatment guidelines

The most recent draft for tertiary treatment device guidelines with comments incorporated from Ohio EPA and Ohio Department of Health was distributed to committee members and guests in attendance for review. A brief discussion was held in regards to some of the noted additions including the proposed minimum influent concentrations in which the proposed tertiary treatment components would use to generate the effluent data submitted as part of an application for tertiary treatment device approval. The numbers associated with the proposed minimum influent concentrations are derived from Ohio EPA action level two recommendations for discharging household sewage treatment systems that have received coverage under the general permit. Clarification on the placement of the tertiary treatment device was also lightly discussed; as it cannot be inserted within an approved treatment train as the configuration of the installation would then conflict with the original product's approved treatment train. It was agreed that committee members review the recent draft for follow up discussion at the next TAC meeting.

Updates on the TAC Standards and Guidelines for Data Submission

It had been formerly proposed that TAC could analyze previously submitted data from product approval applications to get an idea of how the data would compare to the current standards. After analysis, the TAC could begin a stepped approach to proposing modification to the TAC standards and guidelines for data submission if applicable, and provide new examples to manufacturers seeking product approval for the different standards.

Since 2007 products have been approved using standards and guidelines that have been periodically revised. These updates reflected changes in the requirements of the General Permit, advances in science and understanding of STS treatment technologies, and the updates to OAC 3701-29 that became effective January 1, 2015. A subset of the data sets submitted with product approval applications over the history of the product approval process was digitized and analyzed against the current TAC standards and guidelines to start to gain an understanding of how the changes in the standards as well as the statistical methods used to analyze the data would potentially effect prior approved products.

Walt has not analyzed any additional subsets of data at this time. Walt has worked with Ohio EPA statisticians to assess some of the previously analyzed subsets using their method of potential effluent quality analyses. As a follow up to previous discussion regarding ammonia sampling in the summer and winter seasons Karen has provided some published research articles to help provide some examples and guidance for TAC members moving forward.

Additional Updates

Dan Lark asked for any additional updates. No updates mentioned at this time.

Next meeting:

The next TAC meeting is scheduled for September 12, 2017 at BWC/OCOSH.

Adjourn:

Motion to adjourn was made by Chris Schraff and seconded by David Chronister. Motion carried and the meeting was adjourned at 10:45 a.m.

Approved on December 15, 2017 as signified by:

Daniel Lark

Dan Lark, TAC Chairperson
Zak Sherman TAC Vice Chairperson

[Signature]

Rachel Townsend, Secretary

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

Date: Friday, December 15, 2017
Time: 10:00 a.m.
Place: BWC/OSOSH
13430 Yarmouth Drive
Pickerington, Ohio

TAC Members in Attendance:

OEHA Registered Sanitarian & Chair: Dan Lark, Lake County General Health District
ODH Director of Health Representative & TAC Secretary: Rachel Townsend
Manufacturer Representative: Chris Mandich
Professional Engineer: Walt Sandefur
Public Representative: Christopher Schraff
Designer: David Chronister
Academic: Karen Mancl
ODA Soil Scientist: Matt Lane
Manufacture Representative & Vice Chair: Zak Sherman
Ohio EPA DSW Engineer: Brian Hall
AOHC Health Commissioner: Kim Cupp, Fulton County Health Commissioner

Absent:

Ohio Townships Association: Perry Brock
Installer/Service Provider: Chas Kaiser
AOHC Health Commissioner: Julianne Nesbit, Clermont County Health Commissioner

Guests:

Aleks Yakhnitskly: Ohio EPA
Brendan Matheney: Tangent Company
Raymond Lillback: Tangent Company
Scott Hetrick: Norweco Inc
Don Carabin: Norweco Inc
David DeChristofaro: Epic Systems Solutions, LLC
JJ Cafaro: Epic Systems Solutions, LLC, JJ Cafaro Investment Trust, LLC
Bob Turner: Keystone Compliance
Mike Broeker: Epiphany Water Solutions
Berry Meadows: Epic Systems Solutions, LLC

Other ODH participants

Kyle Bianco
Heather Coglianese

Welcome and Introduction:

The meeting was called to order at 10:05 a.m. by Chairman Dan Lark. Meeting attendees were introduced.

TAC Appointments Update

Kyle Bianco stated that the AOHC's nominee, Julianne Nesbit, Health Commissioner of Clermont County, had formally been appointed to the TAC by the Speaker, Ohio House of Representatives. Perry Brock's township trustee term is ending December 31, 2017 and the Ohio Township Association will begin to identify and recommend a replacement.

Approval/modification to the agenda

Dan Lark asked if any modifications to the agenda needed to be made and if it could be approved. No modifications noted. Chris Schraff motioned to approve the agenda, seconded by Kim Cupp. All were in favor.

Approval of August 8, 2017 Minutes

Dan Lark asked for any comments regarding the draft minutes from the August meeting. Kim Cupp made a motion to approve the minutes. Chris Schraff seconded the motion. All were in favor.

Tangent Update on Field Trial

Brendan Matheny from Tangent Company presented a brief final status update (after 26 weeks of data collection) to the committee regarding Tangent's HSTS prototype treatment tank installed at two different locations under conditions of a special device approval. Updates included: system performance updates, data collection updates, change logs, overall status updates, and projected future timelines including submission of an application for product approval. Brenden also discussed the methods tangent performed to try and mimic NSF standard 40 protocol for vacation and stress testing of the units. Supplementary discussion ensued with the committee in regards to the membrane replacement within the unit and how the determination of a leak was established. It was also noted that no feedback had yet to be provided by the local health district where the installations and monitoring had occurred.

Norweco Inc.

- Singulair Model 960 Tank (500/600 GPD, 750/800 GPD, 1000 GPD, 1250 GPD, 1500 GPD) + AT 1500 UV disinfection + post-aeration
- Singulair Green Model 960 (500/600 GPD) + AT 1500 UV disinfection + post aeration

- 1.) Seeking approval for < 20 Fecal Coliform Standard to allow unrestricted surface spray application.
- 2.) Seeking approval for NPDES Discharging System.

Scott Hetrick representing Norweco Inc. delivered an overview of the modification request to the committee and a brief history of the products. Scott indicated that the testing took place on the 500 GPD system but the testing and data are scalable, the same as it would be at a NSF facility and third party testing. Scott also noted that the disinfection unit (AT 1500 UV) is an approved component to be used on all models up to and including the 1500 GPD unit. Chris Schraff made a motion to approve the modification request, David Chronister seconded the motion. Karen abstained from the vote, all others were in favor.

EPIC Systems Solutions, LLC (EPIC)

- Seeking approval of EPIC Evaporator (EEM-050-S, EEM-100-S, EEM-150-S) for use as an add-on component post-treatment to TAC approved treatment trains that meet the Ohio Department of Health guidelines for unrestricted surface spray applications.

David DeChristofaro first addressed the committee by delivering a high level overview of the evaporator and a brief biography of himself and affiliates. Berry Meadows then spoke to the committee by providing a summary of the product configurations, noting that the evaporator pump can be kept in the dosing tank in the base of the evaporator, or in a housing unit outside of the base, and that the units were tested at 12' above ground level. Bob Turner then addressed the committee in regards to the "fallout" testing that was conducted (by Keystone Compliance) on the evaporator. Points of emphasis included, but were not limited to: 1.) the testing occurred outside in an uncontrolled environment for a period of three (3) days, 2.) Forty-eight (48) dielectric wetness sensors were spaced out over three hundred and sixty degrees (360°) at a one hundred foot (100') diameter in order to measure the fallout, and 3.) A total of 27,500 data measurements were analyzed with mini tab software. In summary the data displayed that the fallout was "very minor," and at a distance of fifty feet (50') the fallout was "essentially zero". Mike Broeker next spoke on behalf of EPIC System Solutions, LLC and Epiphany Water Solutions. Mike lightly discussed how the product is used in the Oil & Gas Industry on well pads, in addition to, how EPIC believes they have displayed the capability of meeting NSF 40 requirements (Noise, maintenance, electrical, etc.). JJ Cafaro then ended the presentation by speaking of the practicality of the device; that they (EPIC) see this evaporator as a potential device that could help to open tracts of land that could not previously be developed because of geological restrictions (rough terrain, dimensions, slope, etc.) and without needing a NPDES permit.

After the presentation, the floor was opened up to questions from committee members and those in attendance. The first topic of discussion brought forth by the committee was that this device is not a treatment device and expressed concerns with jurisdictional boundaries. It was noted that current regulations for household sewage treatment systems (Ohio Revised Code 3718 and Ohio Administrative Code 3701-29) do not directly address, nor provide a means to permit, propelling aerosols from treated sewage into the ambient air, that this may be something that needs to be addressed with Ohio EPA Air quality control. The comparison was made to surface spray irrigation. It was noted that the effluent from spray irrigation is applied to the ground surface directly, where the soil can still act as a buffer to help remove any remaining pollutants or contaminants in the effluent. (Even though the approved treatment trains for surface spray application treat the effluent to such a high standard prior to dispersal, there are still possible residuals of pollutants in the effluent that can be absorbed into the soil.) An expressed concern with the evaporator was that the water may aerosolize, or evaporate, but there was no information about the fate of the other components (such as microbial /other infectious organisms, and other contaminants) of the waste water. The committee compounded upon these concerns with a discussion regarding the differences in routes of transmission pathways, affirming that the evaporator would pose a greater risk of transmission via inhalation (explicitly noting legionella bacteria in addition to other microbial and viral exposures) versus skin contact with surface spray irrigation.

Members representing EPIC noted that they are not sure what happens with the mist aerosol; that they did not test for that, but are looking for feedback on what guidelines they should be looking at. Committee members also questioned and conversed with the EPIC associates on what type of failsafe mechanisms are in place for the evaporator, maintenance requirements, potential disinfection additions, and the challenges associated with homeowner use and in residential settings. After clarification regarding statutory deadlines, and a motion to disapprove the product application initiated by Chris Schraff, JJ Cafaro of EPIC Systems Solutions LLC elected to formally withdraw the current application.

Update on the Tertiary Treatment guidelines

The most recent draft for tertiary treatment device guidelines with comments incorporated from Ohio EPA and Ohio Department of Health was distributed to committee members and guests in attendance for review at the August meeting. Clarification on the placement of the tertiary treatment device was lightly discussed; as it cannot be inserted within an approved treatment train as the configuration of the installation would then conflict with the original products' approved treatment train. In this scenario, (placing a tertiary treatment device within an approved treatment train) a product application request would need to come from the manufacturer of the tertiary treatment device, along with, a concurring request from the manufacturer of the already approved treatment train(s) to allow the reconfiguration. This thought brought up additional concerns with panel members, such as liability and culpability of the differing parties and/or manufactures who may have components involved in the approved "re-configured" treatment train. The idea of adding a different disinfection unit after the already approved treatment train (I.e. adding chlorine disinfection after a treatment train that utilizes ultraviolet disinfection) was also briefly discussed. It was agreed that editorial points would be added to a new draft and then redistributed to committee members for continued discussion at the next TAC meeting.

Updates on the TAC Standards and Guidelines for Data Submission

It had been formerly proposed that TAC could analyze previously submitted data from product approval applications to get an idea of how the data would compare to the current standards. After analysis, the TAC could begin a stepped approach to proposing modification to the TAC standards and guidelines for data submission if applicable, and provide new examples to manufacturers seeking product approval for the different standards.

Since 2007 products have been approved using standards and guidelines that have been periodically revised. These updates reflected changes in the requirements of the General Permit, advances in science and understanding of STS treatment technologies, and the updates to OAC 3701-29 that became effective January 1, 2015. A subset of the data sets submitted with product approval applications over the history of the product approval process was digitized and analyzed against the current TAC standards and guidelines to start to gain an understanding of how the changes in the standards as well as the statistical methods used to analyze the data would potentially effect prior approved products.

Members continued to discuss potential revisions to the standards and guidelines such as, but not limited to: 1.) A minimum number of samples (over a minimum number of days) required for data point submission if not wanting to use the confidence interval, seasonal issues associated

with ammonia sampling and data gathering, and alternative approaches of data analysis used by Ohio EPA.

Additional Updates

Dan Lark asked for any additional updates. No updates mentioned at this time.

Next meeting:

The next TAC meeting is scheduled for January 9, 2017 at BWC/OCOSH.

Adjourn:

Motion to adjourn was made by Walt Sandefur and seconded by Chris Schraff. Motion carried and the meeting was adjourned at 12:45p.m.

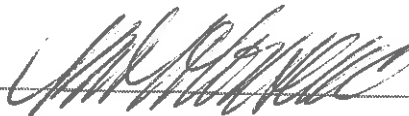
Approved on March 13, 2018 as signified by:



Dan Lark, TAC Chairperson

Zak Sherman TAC Vice Chairperson

3-14-18



Rachel Townsend, Secretary