

BIOSOLIDS TECHNICAL ADVISORY COMMITTEE
Amendments to Biosolids Regulations after Transfer from VDH to DEQ

DRAFT MEETING NOTES
TAC MEETING – FRIDAY, MARCH 20, 2009
DEQ PRO TRAINING ROOM

Meeting Attendees

<i>TAC Members</i>	<i>Interested Public</i>	<i>DEQ Staff</i>
Karl Berger	Peter Brechlin – Nelson County	Bryan Cauthorn
Rhonda L. Bowen	Bob Broom - McGill	Ellen Gilinsky
Jim Burns - VDH	Richard Carchman	James Golden
Katie Kyger Frazier	Kathy W. Crockett - Citizen	Seth Mullins
Tim Hayes	Robert Crockett – Virginia Biosolids Council	Angela Neilan
Diane Helentjaris - VDH	George Floyd – Alexandria Sanitation Auth.	Bill Norris
Larry Land	Cindy Kane - USFWS	Charlie Swanson
Darrell Marshall - VDACS	Susan Lingenfelter - USFWS	Anita Tuttle
Chris Nidel	Steve McMahon - Synagro	Christina Wood
Jo Overbey	Harrison Moody – Recyc Systems	Neil Zahradka
Jacob Powell - DCR	Sharon Nicklas – Alternate for Rhonda Bowen	
Ruddy Rose	Lisa Ochsenhirt – AquaLaw /VAMWA	
Henry Staudinger	Mary Powell – Nutri-Blend	
Wilmer Stoneman	Hunter Richardson - Synagro	
Ray York	Wendie Roumillat _ Citizen	
	Alan Rubin - Citizen	
	Susan Trumbo – Recyc Systems	

NOTE: The following Biosolids TAC Members were absent from the meeting: Greg Evanylo; Lloyd Rhodes

1) Procedural Items (Bill Norris):

Bill Norris, Regulation Writer with DEQ's Office of Regulatory Affairs, welcomed all of the meeting participants to the fifth meeting of the Technical Advisory Committee. He asked for a “moment of silence” to remember Dr. Carl Armstrong, who had passed away recently. He reminded all members of the TAC of the TAC Guidelines that had been distributed to all members at the beginning of the TAC process. He noted that the guidelines indicated that the “Role of the Members of the TAC” was to “assist in the development of proposals to address needed amendments of the regulations pertaining to Biosolids after transfer from the Virginia Department of Health to the Virginia Department of Environmental Quality” and that the TAC had “been formed to help the Department balance the concerns of all those interested in Biosolids regulations. He also noted that the “TAC's primary responsibility is to collaboratively contribute to the development of amendments to the biosolids regulations that are in the best interests of the Commonwealth as a whole.”

He noted that there had been some questions raised about the difference between the “Expert Panel” and the “TAC”. He noted that both the “Expert Panel” and the “TAC” are public bodies under FOIA. The rules are the same, including the requirement that the meetings have to be noticed. Minutes/Notes have to be taken. Also, public business of the body is supposed to occur during a publicly noticed meeting. In order to further clarify these requirements and confirm the “information dissemination” process, he distributed an information piece to clarify the TAC Process. This handout included the following:

“As part of the TAC process, DEQ will provide relevant information to TAC members in advance of each TAC meeting. This information will contain, as appropriate, a draft meeting agenda, background information related to the topic(s) to be discussed, statutory references, any relevant draft regulatory language recommendations and any other materials deemed necessary to further the discussions of the TAC. Following completion of each meeting, DEQ will provide a record of the meeting as required by the Freedom of Information Act for posting to Townhall. This meeting summary will also be provided to TAC members. In addition, this information will be provided to non-TAC members who are included on the “Interested Parties” list for the TAC.

During a TAC meeting, each TAC member may provide any additional background or supporting information to the TAC as part of their TAC discussions that they feel should be considered by the TAC during their deliberations. TAC members are encouraged to provide electronic copies of any such materials to DEQ so that they can be included as part of the public record. In addition, TAC members should be prepared to provide copies of these additional materials to TAC members during the course of the meeting.

Following completion of TAC meeting discussions, TAC members may provide additional comments and materials to DEQ staff for consideration during the drafting of any regulatory language.

In addition, TAC members may also provide comments during the final 60-day public comment period following official submission of the proposed regulation text to the Board for consideration.

Non-TAC – Interested Parties are encouraged to work with and through the TAC members that have common interests to ensure that their concerns are heard. Those persons not on the TAC also have a formal opportunity to be heard during the 60-day public comment period on the proposed regulation.”

An informational sheet on the Virginia Regulatory Town Hall (www.townhall.virginia.gov) was also distributed. It was recommended that those that had not signed up for the free special Town Hall e-mail notification service on various regulatory actions should consider doing so to be able to stay informed on the latest regulatory actions and meetings.

He noted that Greg Evanylo would not be attending today's meeting due to the death of friend and colleague, Dr. Lucian Zelazny – Virginia Tech professor in crop and soil environmental sciences.

He also informed the TAC that there had been an informal meeting of the members of the Biosolids TAC Financial Assurance Subcommittee and that a set of draft meeting notes would be provided to the TAC. He noted that a meeting of the Subcommittee was being scheduled for sometime in May, but the date has not been finalized.

ACTION ITEM: Staff will distribute a copy of the draft Meeting Notes from the March 11th meeting of the Biosolids TAC – Financial Assurance Subcommittee as information.

He noted that he had received one request for an edit to the Draft Meeting Notes from the February 13th meeting of the Biosolids TAC. He asked whether there were any additional edits. Karl Berger requested that the notes be revised and clarified to include notations that on Page 24 that the “research related to field olfactometers indicated that the results of such devices though valuable was not sufficiently precise enough to include as reference points in any regulations”. In addition, he requested that on Page 26 that it should be noted that “even though the actions required to control odors, as identified in an odor control plan, cannot be specified, that those that are identified by Waste Water Treatment Plants in their Odor Control Plans should be reviewed and approved, but not specified by DEQ.

ACTION ITEM: Staff will revise the meeting notes from the February 13th Biosolids TAC meeting and submit for posting to Townhall.

2) Welcome/Introductions/Directions for the Day (Angela Neilan/Neil Zahradka):

Angela Neilan, Community Involvement Specialist and Facilitator for the Biosolids TAC, welcomed the TAC members and the members of the Interested Public and asked for introductions. She noted that we have a lot of materials to cover today and want to make sure that everyone is heard. The plan for the day is to try to get recommendations from the TAC members on the topics being discussed.

Neil Zahradka, Manager of DEQ's Office of Land Application Programs, also welcomed all of the TAC members and members of the interested public to the meeting. He noted that we had a lot of material to cover during the course of this regulatory action and TAC process. He noted that we want to be able to get the input from each of the TAC members and will strive to reach a consensus when we can. We plan on taking the input from the TAC that is provided throughout the course of the TAC process and use that to develop draft regulatory language amending the Biosolids Regulations. Our plan is to use the last two meetings of the TAC to go over the actual text of the draft regulatory language so that the TAC can review the language in a complete regulatory context and in a document as a whole. He stressed that we do want to get “consensus” where we can.

3) Background Presentations Regarding Health Issues (Neil Zahradka/Christina Wood/Bryan Cauthorn):

Neil Zahradka noted that we had started to send out excerpts from the Expert Panel Report regarding Health Issues, but that there was so much of the report that dealt with various aspects of “health issues”

that the entire report has to be looked at to see how the Expert Panel dealt with this issue. He noted that the Expert Panel was not able to come up with specific recommendations to deal with the issue of appropriate buffers to address the health concerns. They did however put a lot of emphasis on “communication” and the need for there to be open lines of communication between and among the agencies, the public, the land appliers, and the generators. The Expert Panel Report included the following recommendation related to “health symptoms”:

In the past 18 months, the Panel uncovered no evidence or literature verifying a causal link between biosolids and illness, recognizing current gaps in science and knowledge surrounding this issue. The panel recognizes that persons who report a chronic or acute illness may have more concern about a proposed land application. The Panel therefore recommends that DEQ formalize a process that clearly defines the roles and responsibilities of agencies in addressing concerns to land applications on the basis of individual health. Included in this consideration should be evidence provided by private practice physicians who are treating patients living adjacent to a proposed land application site, including patient medical history, diagnosis and treatment, and other clinical experience and medical literature relevant to the patient's individual situation.

With the expectation of a reasonable outcome for all involved, DEQ should develop and provide the tools for implementing this recommendation, relying on the TAC for detailed regulatory guidance.

The Panel did not reach consensus on specific recommendations, but discussed the following potential tools to address reported health concerns:

- *Buffers*
- *Temporary relocation during applications*
- *Injection or incorporation*
- *Other appropriate measures*

In addition the Panel recommended the following:

- a) *Additional research should be conducted on the potential relationship between human health and exposure to biosolids.*
- b) *An incident response protocol should be used to systematically collect data regarding citizen complaints.*
- c) *A communication plan should be used to improve communication among all parties involved in or potentially affected by biosolids land application, especially those who believe that their health has been or may be affected by biosolids land application.*

It was noted that the Expert Panel spent a lot of time dealing with specific wording to address each of the questions that it was asked to address. The TAC has been asked to take these recommendations and try to develop the appropriate regulatory language to address these concerns and issues that focus on all of the involved parties and also work with statutory language that identifies the need to address the protection of health and the environment.

Christina Wood, Biosolids Regulation Guidance Coordinator, provided a summary of the current DEQ Statutes and Regulations that include referenced to the protection of human health. (This information was distributed in the pre-meeting email distribution as well as during the TAC meeting.) She noted the following:

- The statute (§ **62.1-44.19:3.B**) provides that “The Board, with the assistance of the Department of Conservation and Recreation and the Department of Health, shall adopt regulations to ensure that...(ii) land application, marketing, and distribution of sewage sludge is performed in a manner that will protect public health and the environment...”
- **9VAC25-32-320** provides for local enforcement of the regulation (9VAC25-31-475) and the ability to commence appropriate action to abate a violation if “such violation poses an imminent threat to public health...”
- **9VAC25-32-500** provides that “...”Land application and facilities for biosolids use shall not result in flooding or pose a hazard to public health...”
- **9VAC25-32-560** and **9VAC25-31-505** provide both that “...”the Board may impose standards and requirements that are more stringent when required to protect public health...” and “...monitoring and testing may be required ...for any frequent application sites (reach agronomic rates more than once in three years) for which a potential environmental or public health concern is identified by the Board...”
- **9VAC25-32-590** establishes standards for agricultural use that provides “...that the concentrations of sludge contaminants released to the environment will not exceed the human health and environmental quality criterion for the relevant exposure pathways...”
- **9VAC25-32-610** provides that biosolids treatment “should be designed to...reduce the potential for public health, environmental and nuisance problems.”
- **9VAC25-31-100.2.c** provides that “...the Board may require permit applications from any TWTDS at any time if the board determines that a permit is necessary to protect human health...”
- **9VAC25-31-220** provides that”... the permit may include requirements developed on a case-by-case basis to protect public health and the environment from any adverse effects which may occur from toxic pollutions in sewage sludge.”
- **9VAC25-31-510** provides that”...the board may apply any or all of the general requirements of 9VAC25-31-530 and the management practices in 9VAC25-31-550 to the bulk sewage sludge on a case-by-case basis after determining that the ... practices are needed to protect public health and the environment...”
- The statute (§ **62.1-44.19:3.D**) provides that”...Prior to issuance of a permit authorizing the land application, marketing or distribution of sewage sludge, the Department shall consult with, and give full consideration to the written recommendations of the Department of Health and the Department of Conservation and Recreation. Such consultation shall include any public health risks...associated with the permitted activity.”
- **9VAC25-32-160** provides for the board to consider special conditions requested by other governmental agencies”...necessary to avoid substantial impairment of human health...”
- The statute (§ **62.1-44.19:3.E**) provides...”Where, because of site-specific conditions, including soil type, identified during the permit application review process, the Department determines that special requirements are necessary to protect the environment and the health, safety or welfare of persons residing in the vicinity of a proposed land application site, the Department may incorporate in the permit at the time it is issued reasonable special conditions regarding buffering, transportation routes, slope, material source, methods of handling and application,

- and time of day restrictions exceeding those required by the regulations...”
- **9VAC25-32-100** and **9VAC25-31-460** provides that where “...special requirements are necessary to protect the environment or health, safety or welfare of persons residing in the vicinity of a proposed land application site, the department may incorporate in the permit at the time it is issued reasonable special conditions regarding buffering, transportation routes, slope, material source, methods of handling and application, and time of day restrictions exceeding those required by this regulation. The permit applicant shall have at least 14 days in which to review and respond to the proposed conditions.”
 - **9VAC25-32-400** provides that “...the Department may recommend that specified site specific monitoring may be performed...in situations in which groundwater contamination, surface runoff, soil toxicity, health hazards or nuisance conditions are identified...”
 - **9VAC24-32-490** provides that “...the Board may impose standards and requirements that are more stringent than those contained in this regulation when required to protect human health...” This section also provides that “...Applications submitted for facilities must demonstrate that the facility and biosolids use management practices will adequately safeguard public health...”
 - **9VAC25-31-460** provides for additional or more stringent requirements “...when necessary to protect public health and the environment from any adverse effect of a pollutant in the sewage sludge.”
 - The statute (§ **62.1-44.19:3.R**) provides that “Localities, as party of their zoning ordinances, may designate or reasonably restrict the storage of sewage sludge based on criteria directly related to the public health, safety, and welfare of its citizens and the environment.”
 - **9VAC25-32-550** provides that the “...Design and implementation of facilities used for emergency storage shall not result in water quality, public health or nuisance problems.” In addition this section provides that “...Temporary storage shall not result in water quality, public health or nuisance problems.”
 - **9VAC25-32-30** and **9VAC25-31-50** provide that “...Except in compliance with a VPA permit, or another permit issued by the board, it shall be unlawful for any person to...otherwise alter the physical, chemical or biological properties of such state waters and make them detrimental to the public health...”
 - **9VAC25-32-80** and **9VAC25-31-190** provide that “...The permittee shall take all reasonable steps to minimize, correct or prevent any pollutant management activity in violation of the VPA permit which has a reasonable likelihood of adversely affecting human health or the environment.” In addition these sections also provide for reporting requirements such that “...The permittee shall report any noncompliance which may adversely affect state waters or may endanger public health...”
 - **9VAC25-32-210** and **9VAC25-31-410** provide for the termination of a permit in cases where there is “...a hazard to human health...” or “...the permitted activity endangers human health or the environment...” or “...a material change in the basis on which the ...permit was issued that requires either a temporary or a permanent reduction or elimination of any pollutant management activity...to protect human health or the environment.”
 - **9VAC25-32-270** provides for the control of disposal of pollutants into wells in order to “...”protect the public health and welfare...”
 - **9VAC25-32-330** provides for the granting of variances such “...that the granting of such variance does not subject the public to unreasonable health risks or environmental pollution.” This section also requires that the application for a variance shall include “...A statement of the hardship to the owner and the anticipated impacts to the public health and welfare is a variance were granted.” In addition this section requires that the application for variance shall

include...”Suggested conditions that might be imposed on the granting of a variance that would limit its detrimental impact on public health and welfare.” This section also provides that the Board when considering a variance ...”shall consider such actors as...the effect that such a variance would have on the protection of the public health or the environment.”

- **9VAC25-32-580** provides that permits issued for sludge disposal practices ...”will be issued through state and federal regulations to protect public health and the quality of state waters.”
- **9VAC25-31-640** provides for management practices for agricultural operations that provide for the protection of public health and the environment.
- **9VAC25-31-10** includes “public health” in the definition of “Class I sludge management facility.”
- **9VAC25-31-220** provides that ...”When there are no applicable standards for sewage sludge use or disposal, the permit may include requirements developed on a case-by-case basis to protect public health and the environment...”
- **9VAC25-31-770** provides that ...”pollutants shall not be introduced into a POTW...which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.”
- **9VAC25-31-800** provides for the modification or revocation and reissuance of a permit for a POTW if there is a “substantial hazard to...human health...” This section also provides that ...”The POTW shall have authority and procedures...to immediately and effectively halt or prevent discharge of pollutants to the POTW which reasonably appears to present an imminent endangerment to the health or welfare of persons.” This section also includes references to “endangering the health of POTW personnel or the general public” and “imminent endangerment to human health...”

She noted that the current buffer zones set by the regulations were:

- 100 feet from the Property Line
- 200 feet from an Occupied Dwelling
- 400 feet or more from “Odor Sensitive Receptors”

She noted that the setbacks/buffer zones can be more stringent when required to “protect public health” and that additional monitoring and sampling can be required is warranted by public health issues.

The TAC's discussions of these “health issues” related statutes and regulations included the following:

- The use of the term “may” instead of “shall” was questioned in the regulation sections using the “site specific conditions” section of the statute as their basis. It was suggested that since the statute (§ **62.1-44.19:3.E**) gives the Department the authority to impose “reasonable special conditions” because of “site-specific conditions” then the term should be “shall” in 9VAC25-32-100 and 9VAC25-31-460 not “may”.
- Given the wording of the statute the Department can't issue a permit at all if there are health and safety concerns. It was suggested that you can't just tweak the regulations to make them better, you need to start over.
- The original VDH regulations were poorly worded and that a lot of it was put together as the program evolved.
- There was a lot of vagueness built into the regulations so that a permit writer would have lots of discretionary authority to address site specific conditions and concerns. The buffers were not

- “one size fits all”.
- It was agreed that the biosolids guidance is the appropriate place for the use of the term “should” while the regulation needs to be more definitive and specific, therefore, the term “shall” needs to be used. It was noted that it gives more certainty if you know what the rules are.
 - DEQ is bound by the language of the statute and that regulatory language addressing health concerns/issues has been brought directly over from the statute.
 - Staff noted that DEQ consults with the Health Department to address public health concerns and issues and defers to their recommendations for setbacks and other conditions addressing this area.
 - Staff noted that DEQ is used to working within a regulatory environment where legal activities are conducted according to established rules and specified conditions. DEQ monitors these activities and takes enforcement actions when required if there are violations.
 - Staff noted that DEQ defers to DCR when addressing the Nutrient Management Plan components of the Biosolids regulations and to VDH when addressing public health concerns and issues.
 - The statute use of the term “may” grants authority to DEQ to follow the directions of VDH when developing special site-specific conditions to address public health issues and concerns.
 - Write regulations that include as many general provisions as possible but look at site specific special conditions to address potential public health issues.
 - There have been lots of questions about how DEQ and VDH interact to address the “public health” mandate of the statute. DEQ looks to VDH for medical opinions and expertise. DEQ does not have any medical expertise on staff. All of the medical expertise available to support this program is contained within VDH. There is a draft guidance document that has been developed based on a letter from VDH to DEQ, but that guidance has not been finalized. DEQ is in the process of trying to finalize the recommendations so that the regulation text that is developed is clear. Communication between and among state agencies involved in this process is very important to the success of the program.
 - A question was raised as to why we were wasting our time debating the issue of the size of a buffer zone if the VDH recommendation is that the buffer “may be extended to 400 feet” to address health concerns, especially if DEQ plans to defer to VDH for their recommendations for site specific conditions to address health issues and concerns. What is the 400 feet is not necessary? If DEQ is going to rely on the “opinion” of VDH to set these limits, why do we need a TAC?
 - It was suggested that DEQ needs to be careful in their evaluation of the use of the terms “should” and “shall” and keep in mind that not every instance of the use of the word “should” should automatically be converted to “shall”.
 - Staff noted that the statute says that the regulations shall protect public health and the environment. The state code says that VDH “shall protect public health” and that DEQ “shall protect the environment”. VDH has had years of experience writing regulations that “shall protect public health” and DEQ has had years of experience writing regulations that “shall protect the environment”.
 - Staff noted that we rely upon VDH for medical expertise to address public health concerns/issues.
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4) Health Department Responsibilities (Neil Zahradka/Jim Burns)

Neil Zahradka indicated that the TAC had received as part of their materials for this meeting a copy of a letter from Dr. Burns to James Golden regarding the handling of health concerns and a copy of an outline of the current DEQ and VDH procedures for addressing citizen requests for buffer extensions. Excerpts from these documents are included below:

Letter from Dr. Burns to James Golden:

“You have asked for our guidance in responding to health concerns from citizens who live near biosolids application sites. The following recommendations are designed to provide an abundance of caution in response to citizen's concerns. There are no data indicating this increased caution is necessary, but we determined that providing these additional measures might make administering the program more practical.

We recommend that, in addition to the extending the existing buffer of 100 feet to 200 feet between all property lines at which the public may have access and any part of the application site, no application should be permitted within 400 feet of any occupied dwelling.

The practice of the Department of Health, when the biosolids program was located here, was to extend the buffer to 400 feet in situations where an individual had been identified with medical conditions that could result in increased risk¹. We found that this policy was difficult to implement, and are therefore recommending that these extended buffers be added in all situations. This should minimize the need for individual considerations.

If individuals assert that they need additional protection, we recommend that they contact the local District Health Director to request an individual assessment be performed. We would anticipate that there would be very few situations where extended buffers or other controls would be warranted.

Though biosolids have been applied to land for many years without scientific evidence of harm to humans, it is not possible to make a definitive statement about the safety of biosolids. As the National Research Council's report Biosolids Applied to Land concludes: 'There is no documented scientific evidence that the Part 503 rule has failed to protect public health. However, additional scientific work is needed to reduce persistent uncertainty about the potential for adverse human health effects from exposure to biosolids.'

For many contaminants the level of exposure over time (particularly low-level and chronic exposure to multiple age groups and those with immune vulnerabilities) that can be considered 'safe' or a very low-level risk is not known and difficult to study. Long term health effects are challenging to study and quantify due to a variety of issues. Further difficulty includes not always having knowledge of the actual contents of the sludge and a complete lack of knowledge regarding health effects for some of the contaminants that may be present and the difficult issue of the toxicology of mixtures of compounds. Class B biosolids may contain a wide variety of contaminants in addition to the 9 regulated contaminants. These include enteric bacteria, viruses, endotoxins, and parasites, organic and inorganic materials. The potential interactions

of chemical contaminants with low levels of pathogens in individuals who may have an increased risk of infection due to allergic and irritant reactions that may compromise the normal barriers to infection also need to be considered. However, the physical nature of biosolids and the application process is such that very little of the material leaves the application site.

The best current conclusion is that biosolids applied in compliance with federal and Virginia standards pose very little risk to human health if applied following the applicable laws and regulations. Our recommendation in this letter further decreases that risk.”

¹Respiratory diseases include Asthma (must require bronchodilator therapy); Chronic obstructive pulmonary disease; Emphysema and Cystic fibrosis. Immunodeficiency and immunosuppression conditions; including Chemotherapy, for two weeks before starting a course of chemotherapy and for one month after completing a course of chemotherapy, or with an absolute neutrophil count less than 1,000/mm³; Organ transplant recipient, for 4 months after transplantation; HIV infected with CD4 count below 200; Primary immunodeficiency, exclusion will vary depending upon the diagnosis.

Current DEQ and VDH Procedures for Addressing Citizen Requests for Buffer Extensions Near Biosolids Land Application Sites:

Assignment of Buffers to Land Application Sites

VDH will recommend extended buffers in cases where persons with certain medical conditions are identified in close proximity to application sites. These additional buffers are intended to provide an abundance of caution in response to citizen’s concerns.

VDH will recommend that DEQ extend the buffers to 200 feet from publicly accessible property lines and 400 feet from occupied dwellings in these circumstances. VDH has also developed a new process by which VDH will handle requests for individual consideration above and beyond these extended buffers.

Implementation of Extended Buffer Requirements

- 1. Property owners and residents in the vicinity of land application sites who assert that for health reasons, they need increased buffers must contact the local Health District Director to determine if an extended buffer is warranted. A property line will be considered to be publicly accessible if the parcel it abuts contains an occupied residence, or the property is open to the general public and routinely accommodates pedestrians (e.g. parks, nature trails, businesses, etc). A public road adjacent to a field would not be considered a publicly accessible property line as its primary purpose is to convey vehicular traffic, not pedestrians.*
 - a. The DEQ shall provide the property owner/resident with the name and phone number of the local Health District Director for their county. This can also be found at <http://www.vdh.virginia.gov/lhd/>*

- b. *The local Health District Director will inform DEQ of the outcome of the complaint and any recommendations they have for further changes to the buffer requirements.*
 - c. *Buffers will be incorporated into VPA and VPDES permits as they are issued, reissued or modified. If the concern is identified after a permit is issued, the DEQ will require that the certified land applier in charge of the permitted land application implement the extended buffer immediately.*
 2. *Property owners and residents in the vicinity of land application sites who assert that for health reasons, they need additional protection beyond the increased buffers specified in item 1 above must contact the local Health District Director and note that they feel an individual assessment to determine their buffer distance is warranted.*
 - a. *The DEQ shall provide the property owner/resident with the name and phone number of the local Health District Director for their county. This can be found at <http://www.vdh.virginia.gov/lhd/>*
 - b. *VDH will handle the complaint according to their internal procedures. If the property owner/resident's medical condition is not on the VDH list, the local Health District Director has been asked to request that the Biosolids Medical Review Committee (VDH committee of medical professionals) be convened to make a buffer determination.*
 - c. *The local Health District Director will inform DEQ of the outcome of the complaint and any recommendations they have for further changes to the buffer requirements.*
 - d. *Buffers will be incorporated into VPA and VPDES permits as they are issued, reissued or modified. If the concern is identified after a permit is issued, the DEQ will require that the certified land applier in charge of the permitted land application implement the extended buffer immediately.*
 3. *In the event that a citizen requests an individual assessment from the local Health District Director. The land application of biosolids may continue while the health investigation is conducted, unless the Health Commissioner, pursuant to [§32.1-13](#) of the Code of Virginia, issues an emergency order to cease operation of the biosolids use activity. DEQ will, however, request that the land applier postpone land application in the area in question until the evaluation is complete. If DEQ determines that an activity associated with the land application is not in compliance with regulatory requirements, the activity shall be ceased.*

Neil Zahradka asked if Dr. Burns could provide some background information to the TAC on how the Biosolids regulations were developed and how they deal with the mandate to “protect public health”.

Dr. Jim Burns, Chief Deputy Commissioner of the Virginia Department of Health, provided a brief summary of how VDH addresses health issues as they relate to the Biosolids program. He noted the

following:

- Looking over the shoulder of the individuals who wrote the regulations, there is not clear definition of what we should do just a directive that the regulation “shall protect public health”.
- Try to interpret as best as possible what the code asks us to do.
- Try to determine what the directive means in the real world.
- Not a clear cut directive.
- Looking for the development of reasonable set of regulations.
- Regulations are always a compromise. An agency sets about developing regulations based on a legislative mandate and/or a demonstrated need. An agency works with the public and the affected community to develop a set of reasonable regulations. Following the lengthy review process, there are always mandated changes made so that the agency doesn't always end of with exactly the regulations that the agency wanted. The regulations usually try to grant the agency enough authority to act in situations that were not anticipated.
- There is enough uncertainty in the science that an agency has to have flexibility in interpreting and assessing the implications of permitted activities. People on both sides of an issue will interpret the available science differently. Wanted to grant the agency enough authority to deal with any issue. An agency needs to err on the side of caution.
- The catch is the difference in the interpretation of the science by the agency and the interpretation of the science by the public.
- When talking about Class B Biosolids it is hard to be absolute about the nature of the pathogens and infectious dose calculation.
- The organisms that might be of concern don't travel far and are in a very low dosage and or concentration.
- Biosolids are a fibrous material that does not lend itself to becoming easily aerosolized and even on dry days with dusty material probably travels 6 to 10 feet.
- The VDH position was that given the state of the science regarding biosolids that a 100 feet buffer was a good buffer that was protective of public health.
- Given the concern over possible health effects it was opted to move from 100 feet to 200 feet.
- In cases where there are cases of “unusual sensitivities” the decision was to recommend that the buffer be extended from 200 feet to 400 feet.
- A listing of 8 medical conditions representing the case history of those that would be defined as those with “unusual sensitivities” was developed by the Health Department and included as part of the May 2, 2008 letter to DEQ. These include: Respiratory diseases include Asthma (must require bronchodilator therapy); Chronic obstructive pulmonary disease; Emphysema and Cystic fibrosis. Immunodeficiency and immunosuppression conditions; including Chemotherapy, for two weeks before starting a course of chemotherapy and for one month after completing a course of chemotherapy, or with an absolute neutrophil count less than $1,000/\text{mm}^3$; Organ transplant recipient, for 4 months after transplantation; HIV infected with CD4 count below 200; Primary immunodeficiency, exclusion will vary depending upon the diagnosis.
- He noted that these buffer distances did not make everyone happy, but that the Health Department felt that they had pushed the existing science as far as the realistically could.

5) Discussion of Health Issues – Facilitated Discussions (Angela Neilan/TAC Members)

Angela Neilan facilitated the TAC discussion of Health Issues. She noted that anyone on the TAC could invite someone from the public to the “Open Chair”, if it was germane to the discussions. The Public Comment period will be at the end of the meeting. She indicated that those wishing to speak should sign up so that they can be recognized during the “Public Comment” period. She also noted that these comments would be limited to 3-minutes each. Comments from the TAC’s discussions included the following:

- The important question shouldn’t be whether the buffers made everyone happy but rather was the buffer protective of public health. This is what we have a mandate for. The notion that a 100 foot buffer is protective of public health is not appropriate, when this material (particulate matter – endotoxins) can travel acres and acres across fields. Endotoxins, even with a low energy impact application process (manure spreader & tractor) can go out for miles at the smallest particulate level and for 100’s and 100’s of feet at the visible particulate level. This is analogist to a 12-step program group that hasn’t admitted that they have a problem. We have not admitted that we have any problem. Is there a risk of infection? The Expert Panel didn’t define a risk and didn’t define an exposure pathway. They didn’t define the types of things that we would want to control if we have sensitive individuals. There are all these great regulations to protect every human being that surrounds this stuff but nobody has agreed that there is a risk. Need to agree or disagree that there is a threat to public health that we want regulations to address, but we have punted on that issue. That is what the Expert Panel did on sending this issue to the TAC. Need to define the problem or threat.
- According to a Google search, the Code of Virginia references “public health” and the “protection of public health” 473 times in 319 documents. There is not an instance in dealing with local governments that public health is not mentioned. Public Health is part of the trinity of Public Health; Safety; and Welfare. Unless someone says absolutely not then this is allowed. Need to try to figure out some mechanisms, like extending buffers. Look at the mechanisms in place in other programs and areas of the code and regulations and see if they are appropriate for use in this program.
- There is not much in the way of hard science that really delineates the health risk. There are individual reports and intuitive idea that it all can’t be good or bad. Should work towards the development of a framework that puts us in a good position to address things as the state of the science develops to take advantage of it. There is a great need for better documentation and increased understanding.
- Public health is a hard concept to get a handle on. There are a lot of abstractions associated with the use of the term “public health”. VACO has really straddled and struggled with this issue and see the need for the agricultural community to have access to cheap fertilizer and for the generator to find a beneficial use for the material and the concern for those living in the vicinity of the application sites. Need to focus on identifying the most credible process that we can create for assessing the risk. Need to look at it not necessarily from the broad “public health” viewpoint but from the perspective of the impact of those living in proximity to land application sites. Need to bring the perspective back to “street level” so that you have a natural operable process that can be utilized to assess the risks. Need to provide a forum for people to bring their concerns forward. Very important to have a credible process that everyone can

understand. The Holy Trinity of Public Health: Safety and Welfare is used to justify a lot of requirements; provisions in ordinances and statutes. Need language to bring the discourse to a point where you have a process that is accessible where the risk can be measured so that reasonable responses can be made. Reasonable responses would not just be made by those applying the materials, not only those persons who are members of the agricultural community but also by those individuals living in an agricultural community. It is important to understand that there may have to be adjustments made by those living in an agricultural area.

- A member of the TAC provided an independent compilation of reported health problems where the conditions are felt to be related to biosolids applications during the period of 2004 – 2008. There were approximately 419 “health incidents” reported by 30 counties in Virginia. (See table included below.) The reported “health conditions” included: respiratory problems; skin rashes; anaphylactic reactions; conjunctive chemical reactions; and obstructive airways disease, etc. For a lot of the population a 400 foot buffer will probably be adequate but there needs to be a way to protect these people who are overly sensitive and have other health concerns.

Albemarle	10+
Appomattox	27+
Buckingham	24+
Charlotte	15+
Dinwiddie	17+
Fauquier	7+
Greene	3+
Greenville	5+
Chesterfield	4+
Campbell	2+
Frederick	29+
Nottoway	2+
Lunenburg	17+
Amelia	24+
Cumberland	18+
Goochland	9+
Rockingham	14+
Shenandoah	2+
Madison	7+
Loudoun	103+
Essex	6+
Surry	6+
Fluvanna	2+
Bedford	9+
Augusta	15+
Rappahannock	5+
Louisa	8+
Prince Edward	21+
Clarke	3+
Lancaster	5+
30	419+

- In listening to the conversation and the information provided by Dr. Burns has re-energized an opinion or a recommendation that the farmers around the table or those that some of us represent that the materials and the concerns associated with the materials don’t travel very far and that a lot of the pathogens die with exposure to the elements. Understand where the 100

foot buffer came from and understanding politics, understand where the 200 came from. But if we keep saying that doubling is twice as good, where will it stop. Based on the notion of what Dr. Burns said that 100 foot is really good and takes care of most of what we need to take care of and 200 feet is twice better than that, then why are we going beyond that? Recommendation that the buffer extension provision be “up-to 400 feet” and in very special cases to talk about going a little beyond that. If 100 feet is good then 400 feet is 4 times as good. It should be “up-to 400 feet” and not go beyond unless it is a really special case. Recommendation is that the language be changed to “up-to 400 feet”.

- We do not need to get into a dispute arguing the facts. Object to some of the statements made at the beginning of this discussion. If we are going to make progress as a TAC, we need to go back to the record of things that have been established by experts that have looked at this, whether it is the Expert Panel report or the NAS report. Facts that are mentioned during the course of the TAC discussions probably should be drawn from sources where experts have looked at them. Our VDH members have given us a clear explanation about what the thinking behind the buffer zone recommendation/policy is and if we are going to go beyond the current understanding of the Health Department then what we need is more evidence to indicate whether there is any further action that would be needed. Need to have a process in place to address changes in the science.
- The NAS report and epidemiology studies of sewage treatment plant workers can help to develop our understanding of the science. To say that these pathogens die with exposure the the elements does not address the situation where these dead pathogens can also cause problems and have an effect on the lungs. The understanding that because these pathogens will die when it travels in the air within 100 feet so therefore you are safe at 150 feet is untrue. There are a number of scientific papers that can be examined to support this assertion. There is hard science that, though it doesn't address the land application of biosolids directly, does look at the health effects of ammonia; the health effects of lime and the health effects of endotoxins. It has been repeatedly been stated that sewage treatment workers don't see health effects, but there have been several studies that show that sewage treatment plant workers have an identical subset of symptoms that were just presented. It is misleading to say that there is no science to support the case for the claims that are made and the need of precautions. Recommendation: Start with the facts from the experts and the facts based on the available literature and the state of the science. Sewage treatment plant and land application of biosolids are “apples and oranges”. Can argue the science until the cows come home. There is science on all sides of this issue. Need to be aware of the science. The Expert Panel intensively reviewed a volume of literature on the subject and was unable to arrive at a full consensus decision/recommendation.
- A question was raised as to “**What is an endotoxin?**” The response was that an endotoxin is usually a bacterial product that once in the body has the capability of stimulating a cascade of physiological responses that can ultimately lead to endotoxic shock. One of those chemicals that if in the wrong place at the wrong time can be dangerous. **Are there endotoxins present in biosolids?** Yes. **How typically do they get off of the field and affect someone?** Normally someone has a bacterial blood stream infection so that bacteria is growing very rapidly and generating a lot of endotoxins inside your body. That is pretty dangerous. But, this is a completely different situation, where the endotoxin has been created somewhere else outside the body and has been diluted multiple times through the sewage treatment process and the speculation is that during the biosolids application process that it becomes aerosolized and is breathed in it is going to have a direct chemical/toxic effect on the lung. At certain

concentrations this may be true. But, this is an unusual occurrence. This does not happen normally in nature. We are trying to make a correlation that something that is dangerous at a high concentration it therefore also dangerous at a low concentration. Therefore the speculation is that if endotoxins are bad at a high concentration that if it becomes aerosolized and you breath it in at certain low concentrations that it may have an effect. But, not aware of any evidence that this occurs. **Are all of the bacteria present in biosolids endotoxins?** No, endotoxins are manufactured when the bacteria is alive and gives some advantage for the bacteria in overcoming the resistance of the host. It is an accident of nature. Most bacteria doesn't rely on killing humans to survive. **How would endotoxins get off the field and into the blood stream? How would they be ingested?** The two paths would be breathing it or ingesting it. Ingestion would be highly unlikely to cause an effect so the more realistic way would be for it to be breathed in. It would have to be breathed in from a concentrated plume/form. It would need to be relatively concentrated and would have to be just the right particulate size to cause an effect in the lung. Has to be exactly the right particle size, usually around 1 to 2 micro. The particle then would have to carry enough of the chemical (endotoxin) to cause an effect. We are really into a very speculative science here. Not aware of any evidence that the mechanism that we are talking about occurs at the concentrations that would have an effect. Under the right circumstances there a lot of stuff in biosolids could cause trouble but that is orders of magnitude and orders of dilution away from what we are actually dealing with. **Would there be any impact on this scenario if the person already has inflamed lungs and respiratory system?** That complicates this in a couple of ways. There are two problems with inflamed lungs. As the lungs become inflamed they have a natural protection mechanism to protect itself or may backfire and create a situation where lung becomes leaky and there are a lot of extra liquids in the lungs (wet lungs) that would tend to make it more difficult for the small chemicals and particles to get through the lung lining. For there to be an effect the lungs there has to be pre-existing conditions (8 conditions/diseases identified in the VDH letter to DEQ) where there are already severely damaged lungs, then there could be an effect under the right order of magnitude and concentration levels.

- We need to remember that the reason that the we are here discussing these topics is that so many citizens have complained over time that they have become sick and their health issues were not addressed. That was under the VDH system, so we need to have something different in place to addresses those problems. How we get there is a different question. It is not a majority of people but we do need to have a way to identify those that affected by biosolids and determine what we need to do to protect them.
- **Are there other ways that an individual can be exposed to endotoxins?** Endotoxins are also present in animal manure in similar concentrations that we are talking about. We are exposed to endotoxins in any number of ways. It is a question of the order of magnitude and the concentrations as to what impact they have, if any.
- This is a worthy discussion. However, the TAC may be starting to flounder a little. We have a recommendation from VDH as to what to do in order to protect public health. There is a letter from Dr. Burns that outlines a process. And we can debate whether we agree to the science that supports that. So we can look at the process to see if this is the process that we want to have in place to address these issues. We can look at the recommendation for the process from the perspective of what we need the regulation to say. Does it meet the statute. Recommendation is to look at the VDH letter to see whether it in fact identifies a process that the regulation should follow and should be put in place at DEQ to address the health concerns that have been raised.

- **Are the “8” identified conditions that would trigger an extended buffer what was being used at VDH prior to the transfer of the program to DEQ or is that a recommendation since the transfer, based on this guidance letter? What was the process at VDH when the program was there?** Initially the process at VDH was based on flexibility of the regulations and things were looked at on a case-by-case basis. After a number of years of looking at the complaints, they saw the types of health complaints falling into certain patterns. Actually VDH had an ongoing internal expert panel made up of their ophthalmologists and epidemiologists and District Directors and brought in a number of outside experts from universities to try to create more structure to the process that was being used internally. Created a process to validate the case-by-case recommendations to extend the buffer based on those 8 conditions. Having administered the process for a number of years it was felt that it was burdensome to the citizens because of the need for documentation of their medical conditions. Sometimes even with these 8 conditions it was difficult to quantify whether the individual was “sick enough” to be classified as one of these conditions. DEQ has no medical expertise in house so the simplest way to administer the program is to do what the letter recommends. Acknowledge the risk. The system that VDH was using didn't cover the situation where someone comes the visit that has some health concerns or in those cases where someone wasn't as vocal as others in voicing their concerns. Recommendation is for DEQ to follow the VDH Agency recommendations contained in the letter from VDH to DEQ and to use the VDH process (VDH medical review committee) outlined to determine the need for extended buffers. This would enable people to know exactly what they were facing.
- In the spirit of talking about health and safety versus administering the program, that's where there is trouble with the letter. The letter says that “There are no data indicating this increased caution is necessary, but we determined that providing these additional measures might make administering the program more practical.” Not the health and safety issues but administration of the program better. That's where there is a real problem with this letter and its recommendations. We are talking about extending the buffer just to make administration of the program easier. There are no data that says we need a bigger buffer. Recommendation: In order to recognize those odor sensitive receptors (health sensitive individuals) or whoever they may be that the buffers remain what they are, and if we to expand the buffer that it be “no more than 400 feet”.
- The VDH letter does include a statement on the second page that reads: “...it is not possible to make a definitive statement about the safety of biosolids”. The letter also does include a statement that the recommendations do provide an increase of caution. Maybe it is not all about administration but also a need for caution to deal with the unknown. There are more considerations in this letter than just administering the program.
- The General Assembly in the language of the “Bowling Bill” (2006/2007) referred to “continuously reviewing the science and make sure that the regulations are adequate to reflect what's known about human health effects of biosolids.” Not satisfied that we know enough about the science to make any hard decisions. Recommendation: Maybe we need to break this down into more manageable pieces to try to get consensus. Maybe a place to start is the identification of what a “health sensitive individual” is. Not certain what that is.
- We have not identified the problem enough to change it.
- We need to try to identify who it is that we are trying to protect.
- We cannot get to an identification of what a “health sensitive individual” is. We should start with the list of 8 conditions as outlined in the VDH letter. These conditions represent those

individuals who can be expected to be sensitized to particulate matter, whether they are inorganic or organic. Can't diagnose these sensitivities unless the individual has pre-existing conditions. This committee can't get to the point of identifying all "health sensitive individuals". We can start with the 8 conditions identified in the VDH letter and maybe identify a few more that can be recognized by the health community. We will never be able to identify those people who may be predisposed to having adverse health effects. Toxic induced disease is primarily a diagnosis by exclusion. Someone has signs or symptoms and there are no other identifiable causes. Don't have markers for all of these things in people. Hard to identify the trigger that causes a health effect. Can identify a toxin but there is no evidence that it is causing or triggering a disease. There needs to be a marker that the toxin is causing the disease. Nine people may tolerate a level of a toxin but the tenth may get sick. There is no way to predict that. Don't think that this committee can reach the point of identifying ultra sensitive individuals.

- Can't write a regulation on the basis of what you don't know. We need to at least get to a point to look at the conditions identified in the footnote of the VDH letter. We need to assume that these are people that have pre-existing conditions. Is there some way that the regulations can be drawn to provide protection for those individuals who have been identified in the permit process as having one of these 8 conditions? Don't think that we can go beyond that.
- Earlier comments indicated that the 100 foot and 200 foot buffers already represented an "abundance of caution" and going to 400 feet represents an "abundance of an abundance of caution". Existing buffers are a caution for the majority of people and the recommended extension of buffers would provide an abundance of caution for those with health sensitivities.
- Will never be able to identify all those who may have health effects from biosolids that is the reason for a second category of people who have become ill after the application of biosolids. They need to be looked at from the perspective of their response/reaction to an exposure to biosolids and if they have become ill because of their exposure then they become "health sensitive", but these are medical decisions not something that can be made by any one at this table today. They need to be made by the physicians who treat these individuals and medical experts who look at their conditions. The Expert Panel had looked at the longer term epidemiology study with identified protocols as to how you capture and address these individuals who because of their exposure are identified as "health sensitive".
Recommendation: Need to make sure that the list of conditions is comprehensive, not just pathogens, and make sure that any additional individuals identified after exposure as having medical conditions as a result of the biosolids application should be precluded from further exposure.
- Don't want to discourage the group from pursuing anything that they thought was worthwhile, but realistically this is not a medical review panel; we would be challenging the TAC to do something that the members probably aren't prepared to do. This list of "8 conditions" was generated as a health agency and has passed the test of time. There may be another category or two that could be added.
- Quite willing to accept the list of "8" but would be interested in the rationale behind the selection of these "8" and the relationship to exposure to biosolids. The philosophy here is that there are two groups. Those individuals that are sensitive to non-pathogens (dust, allergens, particles, chemicals, endotoxins) whatever may be in biosolids that can be irritating and can reasonably be expected that they could be harmed by exposure to biosolids. The problem with the list is that those are very common symptoms that people have for a variety of reasons. To be able to

say definitively or even reasonably state that this group of people have these symptoms as a result of a biosolids exposure and this group of people have these symptoms from any number of other reasons other than biosolids would require a lot of science to determine. When you are looking at something that is common, you have to do a whole lot more work than for something that is uncommon. Trying to make a determination that the cause of common symptoms such as headaches, runny eyes, itchy nose or a cough, etc. are caused by an exposure to biosolids is very difficult to study on the one hand and on the other hand given the frequency of biosolids applications, we have to think whether it is a serious enough issue that the practice should be eliminated to protect those people. The existing science was ever saying that the practice should be eliminated. The second group is those who are sensitive to pathogens. Pathogens are living organisms that are human pathogens. There is a lot of stuff in biosolids that are not human pathogens. Human pathogens can be in high concentrations coming directly from the individual that is sick but once they are in sewage/biosolids and have gone through the treatment processes they are found only in very low concentrations and are pretty dilute. The list of items in the footnote of the May 2nd letter was briefly reviewed. The position of VDH was that the list of “8” pretty much covers the realm of people who would be most sensitive to most of the stuff that was noninfectious and for those folks who are sensitive to those things that are infectious and would in general provide reasonable protection to those individuals exposed to biosolids.

6) Open Chair (Angela Neilan/Interested Parties)

- Richard Carchman – A certified tree farmer. Have never used biosolids. Been involved in risk assessments and toxicology modeling for a number of years. Very interested in the conversations this morning from all parties. The VDH report of 2007 was a very solid report. Clearly there are tactical and strategic issues. What I heard were tactical. We have an eminent, immediate problem in the application of biosolids and people in the area getting sick. It is important to know if there is a problem and to be able to identify the extent of the problem and what kind of problems. There is a strategic question and that has to do with the VDH report that recommended a risk analysis and a risk-benefit analysis. The first thing that needs to be done in the process is a “hazard identification”. Would a group of individuals who are trained in this area looking at this question get beyond the fact that there is a potential hazard? There is a potential hazard. Show me an updated report with a risk analysis and a risk-benefit analysis then you can answer the question as to what size buffer do you need. In the absence of that you don’t know whether 100; 200; 300; 400 feet is adequate or too much.
- Alan Rubin – EnviroStrategies – Member of the Expert Panel – Handed out a copy of written comments to the TAC (this document had also been distributed by a member of the TAC to the TAC members). Wish that this discussion that took place today had taken place in meeting one of the Expert Panel. Do believe that we are getting health impacts. These people who are coming forward have a legitimate issue and impact of living close by these biosolids land application sites. Believe that DEQ has all of the tools available to address this issue and protect the citizens and to offer relief to the individuals that have been impacted. All it takes is having the political will to objectively evaluate these complaints and then to consistently and objectively apply the regulatory remedies that are there. If this

is done successfully then a lot of the contentious issues that we have had and the number of complaints should significantly lessen. Then we will be able to move forward with the land application of biosolids in the Commonwealth in a sustainable manner. We won't have all of these bills introduced in the General Assembly every year to band the application of biosolids or restrict it. Hope that this group can move forward to do that. And if this is done still believe that biosolids application is an excellent practice that can be done correctly and safely and one that provides a benefit for the environment.

7) Continued Facilitated Discussion of Health Issues (Angela Neilan)

Angela Neilan facilitated the further TAC discussion of Health Issues. She reminded the group that prior to breaking for lunch, we were on the verge of coming to some kind of consensus on how we would proceed with the discussion given that we have a recommendation on the table from the Health Department. The TAC's discussions included the following:

- Before lunch there was a recommendation to see if the group could come to some kind of agreement or consensus on moving the ball forward on agreeing on a list of conditions that could be used to identify a "health sensitive individual".
- We have this list of diseases/conditions. Over the lunch break a number of folks discussed the list and tried to see how many of us already have these conditions or some mild level of these conditions or have had experience with these situations. Is there any data on the prevalence of these diseases/conditions in Virginia? Are they so prevalent that they are so wide spread that we would never spread a drop of biosolids? The experience with this is that these conditions are not common enough or widespread enough to eliminate the application of biosolids. It is a relatively rare event that we have to do this process. But you are right if you pushed it, you could come up with a fairly large proportion of people who have these conditions.
- All of these conditions have a continuum or a spectrum of people who are either at a very serious end or at a not so serious end. There are varying levels of sensitivities. Is there anyway to relay the severity of their illness to their sensitivity? You can categorize some of these conditions rather precisely. For some conditions we have a range of limits but not all. There is not enough data available.
- Is there some way to identify "health sensitive individuals"? Need to define the parameters and some types of conditions or disabilities. This would not be a clinical decision. Should leave it to VDH to define the details. You might be able to use the list of "8" identified conditions as a first to identify a "health sensitive individual". The key is to be able to identify those conditions that might be worsened if there is an exposure to biosolids. What condition or disease would start the process?
- A question was raised about the issue of confidentiality and the reporting of medical conditions in order to be considered/evaluated for expansion of the buffer. It was noted that from a legal perspective, DEQ is not covered by HIPAA but as a practical matter, it would probably not be a good idea to have DEQ taking and compiling health information about an individual. The recommended process for dealing with a request for expansion of the buffer due to health conditions is outlined in the May 2nd VDH letter which states: "*If individuals assert that they need additional protection, we recommend that they contact the local District Health Director to request an individual assessment be performed...*" Under this process the individual would

notify DEQ that they had a health concern in relation to a pending biosolids application that was not covered by the policy/process outlined in the May 2nd letter, then DEQ would direct them to contact their local District Health Director, who is a covered entity under HIPAA, regarding their medical condition. Following receipt of information from the individual (patient) and their physician, the local District Health Director would make a determination that this condition was or was not already covered under the proposed policy. If the condition was not anticipated and was not covered by the list of “8” conditions, the local District Health Director would request that the VDH Medical Review Committee be convened so that the request could be reviewed to make a determination as to what recommendation should be made to DEQ to modify the biosolids application permit. This notification process could also be conducted outside of DEQ by the individual going directly to VDH with their concerns. The only problem with this approach would be the timing of the review versus the timing of the permitting process regarding the biosolids application permit. The permit process may be occurring at a pace where the medical review process doesn't catch up with it to make any needed modifications. There would be a very robust notification process in place so that all parties knew that there was a medical review taking place in regard to a specific permit application so that the timing could be coordinated.

- A question was raised regarding the list of conditions not including a reference to pregnancy and lactating mothers. It was noted that anything could be considered but that according to the state of the science the only exposure restriction to infectious disease exposure that is usually noted is a restriction to exposure to cats. There doesn't appear to be any other restrictions for pregnant women from other exposures in normal occupations and in normal life.
- A question was raised whether there are other instances where “health sensitive individuals” are singled out for other protection mechanisms in other programs? It was noted that there may be some cases for certain people would be isolated from certain infectious diseases but it would normally occur in a hospital setting where a patient would be isolated or a hospital worker would be restricted from an area because of a lack of immunization or previous exposure, i.e, measles. There may be instances but it would be in very limited situations. It was noted that there might be a correlation with “Occupational Industrial Exposures” where we restrict a worker from chemical exposures but this isn't environmental and not regulatory. Under these instances there would be a medical evaluation and a note from their doctor. The premise of HIPPA is that the release of information is done without the patients knowledge or consent. There are some instances where the patient may want the information released and will provide a release to that effect, so there would be no HIPPA violation.
- Under the process outlined in the VDH letter, the Health Department would get a letter from a patient's physician that says that his patient has one of these “8” conditions. The problem normally is that some of these local physicians don't really understand the process and there are no enough clinical details included in the letter to confirm that in fact the patient has one of the “8” conditions. There need to be clinical details included in the letter. The time frame could be relatively quick, within a day or two, but in those cases where additional information was required because of a lack of details then it could be longer. The time frame is out of the hands of VDH because in some cases records would need to be created and then transmitted to VDH for review by the Medical Review Committee.
- It was noted that the identified “8” conditions for the automatic expansion of the buffer to 400 feet from any occupied dwelling was the process that VDH thought was a rational way to address the issue of “health sensitive individuals” and provided some certainty that under these

conditions that this would be the buffer. The recommendation is that DEQ follow a similar procedure for addressing the concerns of “health sensitive individuals”.

CONSENSUS: The List of “8” conditions identified in the VDH letter should be used as the umbrella set of conditions as the first cut as those that are “health sensitive individuals” to set the establishment of an extended buffer (400 feet from occupied dwelling). The list of conditions is an appropriate method to trigger the need for additional conditions.

- It was noted that for those individuals that “assert they need additional protection” whether the condition existed prior to the application or occurred after the application there is a recommended process for review by the VDH Medical Review Committee for recommendation for additional permit modification.
- It was noted that there is a need for certainty for the process. The question with the changing buffers is where can the land applier spread biosolids. The buffer on the property lines were based on public access. Recommendation is that the dwelling is a hard target, a point that the individual can't get away from. The property line is a different issue because during an application, an individual doesn't have to be near the property line and can move away from a property line. The buffer should be related to “public access”.
- It was noted that the citizens also need certainty as to what buffers should be. Are the buffers protective? There is a need for a buffer along the property line.
- A question was raised whether there was a mechanism in place so that the property owner could waive the buffer? It was noted that the guidance for these regulations already provide a mechanism to allow a property owner to waive the buffer zone requirements. The problem was noted that there are issues where there are tenants where there may be issues with the waiving of the buffer. It was noted that the condition to waive the buffers were being written into the permits.
- Public access means that the individual has a choice whether to be there or not. If it has to be 100 feet then so be it. There is no reason to double it from 100 feet to 200 feet. The need for the extended buffer from an occupied dwelling is understandable.
- The recommendation from the Health Department that the list of “8” conditions would be covered under the recommended 400 foot buffer without having to go through a process of submittal of information to the Health Department regarding these “8” conditions and would eliminate any concerns regarding the timing of the review and the need for any additional buffers for those that are “health sensitive individuals”. It was noted that there was also the mechanism for the waiving of the buffer.
- The existing 100 foot buffer from property lines originally provided “an abundance of caution” for most individuals so the current 200 foot buffer from occupied dwellings is double that. What additional protection are we affording those that might be identified through this process? For the majority of people the 100 and 200 feet provide an abundance of caution.
- It was noted that in order to create a level of certainty and to accommodate those individuals with the “8” conditions that the Health Department recommended the automatic doubling of the buffer to 200 and 400 feet. But there is still a mechanism for the extension of the buffer because of “other” health conditions. It was noted that throughout the history of the Health Department's management of the biosolids program that there has never been an instance where the Agency has recommended or required a buffer larger than 400 feet. It was noted that there have been instances where there have been informal agreements made between the concerned

citizen and the land applier that have resulted in buffer larger than 400 feet. It would be an extraordinary occurrence for the agency to order a buffer larger than 400 feet. The evidence is that the 400 feet is the maximum required to provide protection for “health sensitive individuals”. Trying to take into considerations all of the factors involved before deciding whether an increased buffer is warranted.

- There has to be public confidence that this process gives everyone the opportunity to weight into the process with their concerns and provides protection and certainty to the process.
- A question was raised regarding what amount of acreage we are talking about? 2 acres or 400 feet. 400 feet is a little bit longer than the length of a football field. How is the buffer measured? In a circle around a dwelling and would parallel the property line. A 400 foot buffer seems a lot as a routine.
- The purpose of the recommendation to go to the 400 foot as a blanket buffer from dwellings as proposed by the VDH letter is to add reassurance. Making laws and relations is not simply an administrative, bureaucratic or scientific process, it is a public process. In many and most areas there are areas of uncertainty where the public public process helps by the public being able to provide a sense of what they will accept. The process has to take into consideration more than science. The community did not like the use of the 100 and 200 foot buffers and there was an uproar. People did not like the size of the buffer. They wanted more reassurance to the citizens that the buffers were being protective of human health.
- If the buffers width of 400 from occupied dwellings and 100 foot from property lines is used as blanket buffer distances then you really would not need to address the “8” conditions, because these “health conditions” would already be addressed. With the use 400 foot buffer from an occupied dwelling there would be no need to provide medical documentation that you had one of these “8” conditions. Also these buffers could be waived by the landowner/occupant living in the dwelling.
- This conversation assumes that the 400 feet buffer is protective of human health and provides protection to “health sensitive individuals” with these “8” conditions. Not sure whether this is a sufficient distance or not. If documentation shows that the 400 foot distance is in fact protective then could support this assumption and the use of the 400 foot buffer. Not sure that it is sufficient. Would like to see documentation that confirms that the 400 foot is protective of these conditions. Concerned whether the premise is accurate.
- Buffers of 400 feet from an occupied dwelling and 100 feet from property lines would be used unless there was another health condition where the Health Department recommends that an expanded buffer is needed to protect that individual. The concern is that the buffers have already been doubled over what was originally used and with the right conditions that the buffer could be extended further. If you continually are extending and doubling the buffer you are taking more and more land out of production. Can understand providing public health protection but, when is enough enough? Appreciate the certainty and appreciate the need to protect public health.
- The distance needs to be whatever it needs to be to protect public health. VDH recommends that the 400 foot distance provides an abundance of an abundance of caution and reassurance that “health sensitive individuals” are protected. The process outlined in the VDH letter provides a mechanism to provide any needed additional protection should it be demonstrated that under certain conditions that more protection is needed, but the use of the 400 foot as a blanket buffer does provide protection and a level of certainty to a majority of the public.
- If you are doubling the distance in three dimensions so we are increasing the dilution by a factor

of 8. We are providing an increase in the level of protection by a 4 to 8 fold increase.

- Reminder that there is also a 100 foot minimum buffer from a well. The question was raised whether a minimum distance should be considered? If the buffers are waived the idea would be that “common sense” would be used as to how close to the dwelling or outbuildings that biosolids would actually be applied.
- Can understand the 100 foot buffer from property lines because that is what is being used now and doesn't represent a whole lot of change. Concern is if we give the resident 400 feet and maintain 100 on the property line, if we are talking about evaluation mechanisms to expand the buffer, we should also consider evaluation mechanisms for decreasing the buffer or determining that the buffer is not needed. So, within reason and if there are no human health effects then the application could be made as close to the line as possible. Would like to see a situation where there was no buffer from the property line. If it is not needed, then it is not needed. The 100 foot buffer would be used in cases where there was imminent or frequent access to the property by the public; roads, whatever. Suggestion: The 100 foot buffer would not be mandatory and only applied in certain cases. There are situations where public access is so infrequent or at such a minimum that an applicator/land owner should be able to apply biosolids up to the property line, within reason.
- It was noted that the suggestion for the elimination/decrease of the 100 foot buffer was probably not a good idea. This would irritate a large number of people and would cause more issues than the benefit gained by the applicator or land owner. If you propose regulations that allow you go to zero offset from an adjacent property line you will never get that passed. Going backwards in the current environment is impossible.

GENERAL AGREEMENT/NOT CONSENSUS: The buffer should as a normal practice, in order to provide a level of certainty to the process, be: 400 feet blanket buffer from any occupied dwelling/residence (would eliminate the need to provide medical documentation related to the “8” conditions)

- It was noted that even though there might not be evidence that this is protection, but that it is an improvement.
- The considerations of the “8” conditions are included expanding the buffer to 400 from an occupied dwelling. There could be instances where there are diseases or conditions that have not been anticipated, i.e., a heart transplant where the heart is outside the body, where a recommendation would be made to expand the buffer beyond that based on a review by the VDH Medical Review Committee.

GENERAL AGREEMENT/NOT CONSENSUS: The buffer should as a normal practice, in order to provide a level of certainty to the process, be: 100 feet from the property line. These buffers could be waived with agreement. These agreements would need to be documented in the file.

- Can a parent waive the buffer even if they have children that might have severe health conditions. The assumption has always been that a parent can always speak on behalf of his children. The only avenue available would be to take them to Social Services.

GENERAL AGREEMENT/NOT CONSENSUS: There would be an evaluation mechanism to

expand the buffer in special cases that are outside of the list of “8”.

- These are special cases outside of the list of “8”.

GENERAL AGREEMENT/NOT CONSENSUS: There also could be a mechanism for voluntary agreements to supplement or decrease the buffer. These voluntary agreements would need to be documented in the file.

- Rare, if ever, that the Health Department has recommended a buffer greater than 400 feet. But there have been instances where there have been voluntary agreements for modification of the buffer to a greater distance. Need to look at a way to deal with in the regulatory process.
- Would there also be any consideration given to a mechanism for the voluntary reduction of the buffer? Especially if there was an agreement for the “immediate incorporation” of “injection” of the biosolids. Could a voluntary agreement with the resident of an occupied residence be considered in place of the 400 foot buffer? The idea of a voluntary agreement is that the citizen can ask for any conditions that they want, including a trip to Disney.
- Staff noted that the problem with these voluntary agreements is that they have not been in writing and that there have been disagreements over what was agreed to and maps have been wrong. The voluntary agreement needs to be in writing, signed by all parties and has to be submitted to DEQ to be included as part of the permit application so that they can be documented in the file.
- A question was raised as to whether DEQ would consider a reduction of the buffer distance so from the 400 foot back to 200 if the biosolids were incorporated immediately. As a matter of experience, the immediate incorporation of the biosolids moderates the effects long term but not on the date of application. It was noted that incorporation was originally considered as a way to meet “odor control/reduction” requirements. The TAC has not discussed incorporation. Topic put in the Parking Lot for discussion at a future meeting. The (regulation and statute) concept was that where you have forested lands or pasture or hay site where you cannot do immediate incorporation, then you extend the buffer to deal with “odor sensitive receptors”.
- In terms of support for these ideas it is in response to concerns from the public that have been expressed and is not from a medical science perspective and we are not signifying that at 200 feet there was a problem and at 400 feet there isn't but we are doing this from the idea of providing an abundance of caution.

8) Open Chair/Public Comment (Interested Public)

- A question was raised over the procedural rules governing the use of the “Open Chair” and the “Public Comment” period. A concern was noted that it appears that we are blending the two concepts. In previous TACs, the “Open Chair” was used to get additional information/comments related directly to the topic being discussed at the time and not for an overall presentation on the overall concept/subject matter of the regulatory action. The “Public Comment” period should be at the end of the TAC meeting so that it doesn't interrupt the ongoing work of the TAC and the “Open Chair” discussions should occur where it is appropriate to supplement the discussions going on at the time, to add to the benefit of the TAC.
- Kathy Crockett – Goochland County – Concerned Citizen: She referenced several

things/conditions that are not on the list of “8” that should be considered as part of those conditions that would result in the extended buffer of 400 feet. Suggested that ammonia might be a problem from the perspective of a pregnant or lactating mother as well as from an “odor sensitive receptor” perspective. Some of the things that the TAC has discussed today leads her to believe that you are having the public protect themselves. Looks like you are requiring the citizens to protect themselves from biosolids applications, not the law protecting the citizen by having to seek additional protection/expanded buffers based on specific health concerns. Don't want to be the one that is not protected. Need to protect all citizens. Questioned the reduction of the property line buffer back from the VDH recommended 200 feet back to 100 feet.

- Wendie Roumillat – Goochland County – Concerned Citizen: There should be no application to any sites until the “proper tests and regulations” are done so that we know whether there will be an impact on an individuals health. Until then, we have no way of knowing what the effect will be. This is an “experiment on humans” that is being done without knowing what the effects of the exposure to biosolids really are. She referenced a number of instances of family experiences and health impacts from exposure to biosolids, even with increased buffers.
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9) Registry of Complaints (Neil Zahradka)

TAC discussions included the following:

- A question was raised as to whether a “registry of complaints/cases alleging to be related to exposure to biosolids” exists that can be looked at clinically, where there is proper history taken and proper exposure assessments made? The Expert Panel looked at this. A chart was distributed that outlined the complaint flow process currently being done by DEQ. It was noted that DEQ does collect the data and loges it into this system. This provides an opportunity to gather information but there is not a complete registry of information that physicians has used.
 - Definitely something that DEQ will consider as a recommendation.
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10) Other TAC Discussions (Neil Zahradka/Angela Neilan)

Following the break, the TAC discussions included the following:

- It was suggested that a topic that might be good for the TAC to discuss today is the mechanism for looking at the evaluation/expansion of the buffer in special cases.
- The VDH has a practice in place now. A person that thinks that they have a special health conditions that should be considered, would take that concern to their local District Health Director and asked that based on their conditions that an individual assessment be performed. The local District Health Director would gather medical information regarding the individuals condition and make a determination whether their condition was already included under the “8” conditions and therefor no further modification to the permit would be recommended or if the condition fell outside of the “8” that the case should be referred to the VDH Medical Review Panel (3 Physicians) for evaluation and consideration of additional permit modifications that

then would be forward to DEQ as recommended conditions/modifications for the biosolids application permit. The panel is made up of 3 physicians including two Deputy Commissioners and the head of epidemiology department. Has not happened frequently. The process has usually been done within a week, but two weeks would probably be a more reasonable time frame. The longest delay in the time-frame process is the receipt of required medical information from the private physician. Once the materials have been received and considered complete and is made available to the panel members to review then the decision could take maybe an hour or two, depending on the case. The options for the process could be that the receipt of the request for an individual assessment would put the permit application on hold or the two processed could run in parallel with the thought the evaluation process would be completed prior to issuance of the permit. A concern was raised that even with the list of "8" that there would still be a number of people who would come in and request "individual assessments" even if their condition is identified as one of the "8". The local District Health Director can evaluate the requests for individual assessments to determine whether they are already included on the list.

- Gave away a whole lot by agreeing to the 400 feet. The trigger that someone comes in and causes a delay in the process has to be rather high.
- Since the "8" conditions are included in the "automatically expanded buffer that they are not valid reasons for consideration of further expansion buffer. Conditions that are outside of those "8" might cause a stoppage or a delay in the permitting process until the individual assessment has been completed by the VDH Medical Review Panel and a recommendation has been forwarded to DEQ. The VDH letter outlines the policy that VDH follows to deal with "individual assessments". VDH noted that they have never requested that an application be stopped or stopped an application. There have been some cases where VDH has not ordered the application to be stopped but have agreed to stop the process. There have been voluntary agreements to take certain fields out of the application until the process is finished.
- It was noted that the VDH Commissioner has the ultimate emergency power to order DEQ to do something. Would assume that DEQ have a clearly spelled out process. That is the ultimate emergency stick. If a "risky" situation was identified than an order effective against DEQ would be issued. The recommendation would be for the order to be drawn as narrow as possible. Normally it would address a specific field. This is not likely that this would ever occur.
- It was noted that the problem with Voluntary agreements has been that they were not properly documented by VDH in the past. They need to be documented and made part of the permitting process to be effectively managed.
- A concern was noted that the major concern was the potential for the delay in the evaluation process that might ultimately delay the permit application. Even if we are only talking about only several days, but it still may delay the permitting process or the application schedule planned for the site. It was noted that this has not been a problem.
- It was noted that if you operate under the idea that the 400 foot buffer is protective of 99.9% of the people and you go about your operations and you don't stop anything. Let the complaint goes its course and maybe delay the application in the field or area adjacent to the dwelling until the complaint or individual assessment has been completed and a ruling has been made by the Health Department. At some point you just have to move on.
- It was noted that one of the major problems has been that the public didn't know what the procedure was. If we can communicate the process that has been discussed in this open forum,

once it is finalized, to the public, then it should make the process run in such a way as to satisfy but the citizen and the applier.

- A suggestion was made that maybe we need to consider an expansion of the notice period to 40 days with any complaints in within 10 days. It was noted that there is a real need for education to the public as to what the process is. VDH noted that they would work with their “sister” agency to help make the process as clear and transparent as possible.
- A question was raised regarding the immediate incorporation would trigger the ability to reduce the buffer. If you believe that biosolids is a risk and that the issue is acute exposure it is hard to see where immediate incorporation (during the day of operation) would result in a decreased buffer. Immediate incorporation decreases the long-term risk but does not decrease the short-term risk because of the incorporation process itself. Helps public relation because it helps control the odor. It was noted that incorporation seems to provide a benefit that should be considered when looking at possible reduction of buffers.

OPEN CHAIR: Alan Rubin – EnviroStrategies – Member of Expert Panel: Have always looked at this from a perspective of performance standards. Doesn't make a lot of difference if you use buffers, expansion of buffers, incorporation, sending families to Disney Land, etc. Wanted to give to the land appliers and their clients as much flexibility as possible so they can run their operations while keeping their eye on the prize which is to reduce whatever is fluxing off of the fields. You are dealing with health and quality of life issues. Immediate incorporation and injection has been demonstrated to significantly reduce odors. Need to look at a mix-and-match combination of tools. DEQ needs to keep as many tools in their tool-box as possible. Need to reduce the flux off of the fields in any way possible.

- No one has identified what the real risk is. Incorporation may reduce the odor problems but may lead to increased dust and air emissions. We can only look at an abundance of caution based on what we know. If odors were the only issue then biosolids should be incorporated.
- Disking and incorporation are going to increase the aerosols and the dust associated with the application of biosolids on the day of application but they won't go very far.
- Incorporation and injection should be included as a part of the tool kit.

11) Communication Plan/Complaint Flow Chart (Bryan Cauthorn)

Staff distributed a copy of a “complaint flow chart”:

- The complaint flow chart outlined the following process:
 - Complaint Call Received by DEQ
 - Complaint Call Logged into the Database
 - The Generator is Notified.
 - The Permittee is Notified.
 - The Local District Health Director is notified of any health complaints. A buffer of 400 feet from the complainant's residence is applied. Complainant is informed to contact their Health Director if the 400 foot buffer is not adequate.

- County is Notified and the County Monitor is Invited to Inspection.
- Site Visit with Inspection of the Site & Follow-Up with Complainant
- Complaint Inspection Logged in Database
- The complaint is investigated within 24 hours.
- Need to make people aware of what is done when a complaint comes in.
- DEQ takes enough information to recognize that there is a health issue involved and then the individual is referred to the Health Department.
- Currently because of the shift of the program to DEQ, VDH doesn't have a legal or statutory requirement or mandate to track the complaints. VDH does keep record of complaints that come directly to them.
- The Poison Center does collect some health related data that might be useful to evaluation of the extent of the issues.
- It was noted that “express legislative authority” is required to create a registry.
- Staff referenced the “Wing Protocol” from North Carolina that was reviewed by the Expert Panel and considered as part of their recommendation as a way to address and create a protocol for biosolids health complaints. It was noted that this type of study was a very expensive process. Suggestion was made to try to get funds to get the Wing Protocol Study expanded into Virginia.
- Would be helpful to have a body of knowledge on what the biosolids complaints are.
- Don't have a handle on the extent of the problem.
- There have been no identified linkages between “health effects” and “biosolids applications”.
- It was noted that if this is an experiment – it has been going on place for 25 to 30 years.

12) Next Meeting (Angela Neilan/Neil Zahradka)

The next meeting of the TAC is scheduled for April 24, 2009. The topics for the meeting will be Nutrient Management Plans/landowner agreements and avoiding “improper concurrent use”/Access Control. TAC members are requested to read over the Expert Panel Report Sections on Bioaccumulation, Wildlife and Water Quality.

In addition a May 22 meeting to discuss Sampling Requirements/Animal Health Issues/ and Permitting Issues/Fees.

The TAC will have two meetings after that to go over the draft regulation text.

The plan is to present the Regulation Language to the SWCB in December.

13) Public Comment (Interested Public)

- Alan Rubin – EnviroStrategies – Member of Expert Panel: Today's meeting has been fantastic. This issue should have been addressed during the first or second meeting of the Expert Panel. Do believe that this is an issue and that the complaints are valid. Enthusiastic to see these things written down on the board. There has got to be certainty to the process. Can't keep changing the target. Need to get the procedure in place. Need to be aware that there may be an opportunity to people to “game the system” against biosolids. Don't think that this is an experiment. It has been going on for 40 to 50 years. These materials have been applied in every state in the country. There are 5 states that are hot beds of issues including: Virginia; Pennsylvania; Florida; California; Texas. In the vast majority of states there is not a peep, at least hasn't made the press. This is not an experiment, it works with very little controversy.

14) Meeting Adjourned: Approximately 4:00 P.M.